



FITCH

& ASSOCIATES

January 2024
DRAFT DATA ANALYSIS REPORT
CITY of FORT WORTH - MedStar



📍 PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎️ (816) 431-2600

📄 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

METHODOLOGY	1
2022-23 SNAPSHOT	3
COMMUNITY DEMAND	3
Table 1: Number of Calls by Call Type and Response Protocol – MAEMSA Jurisdiction	3
RESPONSE VOLUME AND BUSY TIME	4
Table 2: Number of Calls, Total Busy Time, and Number of Responses by Call Type – MAEMSA Jurisdiction	4
SYSTEM PERFORMANCE	4
Table 3: 90 th Percentile Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction	4
COMMUNITY DEMAND	5
Figure 1: Percentage of Total Calls by Call Type – All Jurisdictions	5
Figure 2: Percentage of Total Calls by Call Type – MAEMSA Jurisdiction	6
Figure 3: Percentage of Total Calls by Call Type – Other Jurisdictions	6
Table 4: Number of Calls by Jurisdiction, Call Type, Response Protocol, and Priority	7
Table 5: Number of Calls by Jurisdiction, Response Standard, and Priority Definition	9
Table 6: Number of Calls by Jurisdiction and Service Level	10
Table 7: Number of Calls by Jurisdiction and Severity	10
Table 8: Number of Calls by Jurisdiction and Area – Sorted Alphabetically Within Jurisdiction	11
Table 9: Number of Calls by Jurisdiction and Area – Sorted in Descending Order by Call Volume Within Jurisdiction	12
Table 10: Call Volume Metrics by Call Type and Area – Number of Calls, Average Calls per Day, and Call Percentages (Within Call Type and Within Area)	13
Table 11: Overall: Total Calls and Average Calls per Day by Month	14
Figure 4: Overall: Average Calls per Day by Month	15
Table 12: Overall: Total Calls and Average Calls per Day by Day of Week	16
Figure 5: Overall: Average Calls per Day by Day of Week	16
Table 13: Overall: Total Calls and Average Calls per Day by Hour of Day	17
Figure 6: Overall: Average Calls per Day by Hour of Day	18
Figure 7: Overall: Average Calls per Day by Hour of Day – Blue Mound (n=189)	19
Figure 8: Overall: Average Calls per Day by Hour of Day – Edgecliff Village (n=337)	19
Figure 9: Overall: Average Calls per Day by Hour of Day – Forest Hill (n=2,358)	20
Figure 10: Overall: Average Calls per Day by Hour of Day – Fort Worth (n=174,158; n=174,156 with Hour of Day)	20
Figure 11: Overall: Average Calls per Day by Hour of Day – Haltom City (n=5,143)	21
Figure 12: Overall: Average Calls per Day by Hour of Day – Haslet (n=494)	21
Figure 13: Overall: Average Calls per Day by Hour of Day – Lake Worth (n=1,685)	22
Figure 14: Overall: Average Calls per Day by Hour of Day – Lakeside (n=196)	22
Figure 15: Overall: Average Calls per Day by Hour of Day – Naval Air Station (n=106)	23
Figure 16: Overall: Average Calls per Day by Hour of Day – River Oaks (n=770)	23
Figure 17: Overall: Average Calls per Day by Hour of Day – Saginaw (n=3,044)	24
Figure 18: Overall: Average Calls per Day by Hour of Day – Sansom Park (n=1,124)	24
Figure 19: Overall: Average Calls per Day by Hour of Day – Westover Hills (n=28)	25
Figure 20: Overall: Average Calls per Day by Hour of Day – Westworth Village (n=550)	25
Figure 21: Overall: Average Calls per Day by Hour of Day – White Settlement (n=3,234)	26
Figure 22: Overall: Average Calls per Day by Hour of Day – Other, Not MAEMSA (n=2,090)	26
COMMUNITY DEMAND RELATED TO 911 CALLS	27
Table 14: Total 911 Calls and Average Calls per Day by Month	27

Figure 23: Average 911 Calls per Day by Month _____	28
Table 15: Total 911 Calls and Average Calls per Day by Day of Week _____	29
Figure 24: Average 911 Calls per Day by Day of Week _____	29
Table 16: Total 911 Calls and Average Calls per Day by Hour of Day _____	30
Figure 25: Average 911 Calls per Day by Hour of Day _____	31
Table 17: Number of 911 Calls by Area – Sorted Alphabetically _____	32
Table 18: Number of 911 Calls by Area – Sorted in Descending Order by Call Volume _____	33
COMMUNITY DEMAND RELATED TO MIH CALLS _____	34
Table 19: Total MIH Calls and Average Calls per Day by Month _____	34
Figure 26: Average MIH Calls per Day by Month _____	35
Table 20: Total MIH Calls and Average Calls per Day by Day of Week _____	36
Figure 27: Average MIH Calls per Day by Day of Week _____	36
Table 21: Total MIH Calls and Average Calls per Day by Hour of Day _____	37
Figure 28: Average MIH Calls per Day by Hour of Day _____	38
Table 22: Number of MIH Calls by Area – Sorted Alphabetically _____	39
Table 23: Number of MIH Calls by Area – Sorted in Descending Order by Call Volume _____	40
COMMUNITY DEMAND RELATED TO TRANSFER CALLS _____	41
Table 24: Total Transfer Calls and Average Calls per Day by Month _____	41
Figure 29: Average Transfer Calls per Day by Month _____	42
Table 25: Total Transfer Calls and Average Calls per Day by Day of Week _____	43
Figure 30: Average Transfer Calls per Day by Day of Week _____	43
Table 26: Total Transfer Calls and Average Calls per Day by Hour of Day _____	44
Figure 31: Average Transfer Calls per Day by Hour of Day _____	45
Table 27: Number of Transfer Calls by Area – Sorted Alphabetically _____	46
Table 28: Number of Transfer Calls by Area – Sorted in Descending Order by Call Volume _____	47
COMMUNITY DEMAND RELATED TO SPECIAL EVENT CALLS _____	48
Table 29: Total Special Event Calls and Average Calls per Day by Month _____	48
Figure 32: Average Special Event Calls per Day by Month _____	49
Table 30: Total Special Event Calls and Average Calls per Day by Day of Week _____	50
Figure 33: Average Special Event Calls per Day by Day of Week _____	50
Table 31: Total Special Event Calls and Average Calls per Day by Hour of Day _____	51
Figure 34: Average Special Event Calls per Day by Hour of Day _____	52
Table 32: Number of Special Event Calls by Area – Sorted Alphabetically _____	53
Table 33: Number of Special Event Calls by Area – Sorted in Descending Order by Call Volume _____	54
RESPONSE VOLUME AND BUSY TIME _____	55
Table 34: Number of Calls, Total Busy Time, and Number of Responses by Jurisdiction and Call Type _____	55
Table 35: Number of Calls, Total Busy Time, and Number of Responses by Jurisdiction and Area _____	56
Figure 35: Number of Responses and Response Percentage by Area – With Fort Worth _____	57
Figure 36: Number of Responses and Response Percentage by Area – Without Fort Worth _____	58
UNIT HOUR UTILIZATION _____	59
Table 36: UHU by Jurisdiction – 911 and Transfer Calls _____	59
TRANSPORT _____	60
CALL VOLUME, CALL DURATION, AND TRANSPORT RATE _____	60
Table 37: Non-Transport and Transport Calls by Call Type and Response Protocol _____	60
Table 38: Non-Transport and Transport Calls by Severity _____	61
<i>Calls by Hour of Day _____</i>	<i>61</i>
Table 39: Total Calls and Calls with Transports and Average Calls per Day by Hour of Day _____	61
Figure 37: Average Calls and Calls with Transports per Day by Hour of Day _____	62

RESPONSE VOLUME AND TRANSPORT DESTINATION	63
Table 40: Transport Responses by Destination – Sorted in Descending Order by Number of Responses	63
WALL TIME	64
Table 41: Average and 90 th Percentile Wall Times by Call Type and Response Protocol	64
Table 42: Average and 90 th Percentile Wall Times by Severity	65
Table 43: Average and 90 th Percentile Wall Times by Hour of Day	65
Table 44: Average and 90 th Percentile Wall Times by Destination – Sorted in Descending Order by Number of Responses	66
SYSTEM PERFORMANCE	67
PERFORMANCE FOR CALLS WITH ARRIVALS	67
Table 45: Average Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction	68
Table 46: 90 th Percentile Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction	68
Figure 38: Average Performance Times by Program – Calls with Arrivals in MAEMSA’s Jurisdiction	69
Table 47: Average Performance Times by Priority Level and Priority – Calls with Arrivals in MAEMSA’s Jurisdiction	70
Table 48: 90 th Percentile Performance Times by Priority Level and Priority – Calls with Arrivals in MAEMSA’s Jurisdiction	71
Table 49: Average Performance Times by Severity – Calls with Arrivals in MAEMSA’s Jurisdiction	72
Table 50: 90 th Percentile Performance Times by Severity – Calls with Arrivals in MAEMSA’s Jurisdiction	72
<i>Performance for Calls with Arrivals by Jurisdiction and Area</i>	73
Table 51: Average Performance Times by Jurisdiction and Area – Calls with Arrivals	73
Table 52: 90 th Percentile Performance Times by Jurisdiction and Area – Calls with Arrivals	74
Figure 39: Average Performance Times by Area – Calls with Arrivals	75
Figure 40: 90 th Percentile Performance Times by Area – Calls with Arrivals	76
Table 53: Average Performance Times by Jurisdiction, Area, Response Protocol, and Call Type – Calls with Arrivals	77
Table 54: 90 th Percentile Performance Times by Jurisdiction, Area, Response Protocol, and Call Type – Calls with Arrivals	83
Table 55: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Blue Mound	89
Table 56: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Edgecliff Village	90
Table 57: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Forest Hill	91
Table 58: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Fort Worth	92
Table 59: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Haltom City	93
Table 60: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Haslet	94
Table 61: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Lake Worth	95
Table 62: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Lakeside	96
Table 63: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Naval Air Station	97
Table 64: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in River Oaks	98
Table 65: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Saginaw	99
Table 66: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Sansom Park	100
Table 67: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Westover Hills	101
Table 68: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in Westworth Village	102
Table 69: Average and 90 th Percentile Performance Times by Priority – Calls with Arrivals in White Settlement	103
MEDSTAR RESPONSE TIME COMPLIANCE	104
Table 70: MedStar Percent Compliance by Response Standard, Priority Definition, and Priority – MAEMSA Jurisdiction	104
OVERLAPPED CALLS ANALYSIS	105

Table 71: Overlapped Calls by Area – Sorted in Descending Order by Percentage of Overlapped Calls Within Jurisdiction	105
Figure 41: Percentage of Overlapped Calls by Area	106
BASELINE DATA	107
ALL CALLS RECEIVED BY THE MEDSTAR COMMUNICATIONS CENTER	107
<i>Community Demand</i>	107
Table 72: Number of Calls by Reporting Period, Jurisdiction, and Area	107
Table 73: Number of Calls by Reporting Period, Jurisdiction, Call Type, Response Protocol, and Priority	108
CALLS TO WHICH MEDSTAR WAS EXPECTED TO RESPOND	110
<i>Community Demand</i>	110
Table 74: Number of Calls by Reporting Period, Jurisdiction, and Area	110
Table 75: Number of Calls by Reporting Period, Jurisdiction, Call Type, Response Protocol, and Priority	111
Table 76: Number of Calls by Reporting Period, Jurisdiction, Response Standard, and Priority Definition	113
Table 77: Number of Calls by Reporting Period, Jurisdiction, and Service Level	114
Table 78: Number of Calls by Reporting Period, Jurisdiction, and Severity	114
<i>Response Volume and Busy Time</i>	115
Table 79: Number of Calls, Total Busy Time, and Number of Responses by Reporting Period, Jurisdiction, and Call Type	115
<i>System Performance</i>	117
Table 80: Average Performance Times by Reporting Period, Response Protocol, and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction	117
Table 81: 90 th Percentile Performance Times by Reporting Period, Response Protocol, and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction	118
APPENDIX	119
AUDITS, EXCLUSIONS, AND CLASSIFICATIONS	119
<i>Creation of New Unique Incident Numbers</i>	120
<i>Identification of Date and Time Stamps for Temporal Analyses</i>	121
<i>Classification of Determinants for Call Severity, Priority, and Response Protocol</i>	122
Table 82: MedStar Priority Levels and Corresponding Definitions	122
Table 83: Classification of MedStar Priority Levels Reported in Data Files for Records Missing Determinants	123
<i>Classification of Response Dispositions</i>	125
Table 84: Classification of Response Dispositions	125
<i>Classification of Locations for Jurisdiction and Area</i>	128
Figure 42: GIS Shape File Boundaries Map – MAEMSA Member Areas and Naval Air Station	130
Figure 43: GIS Shape File Boundaries Map – MAEMSA Member Areas, Naval Air Station, and Burseson	131
<i>Classification of Call Types</i>	132
<i>Exclusion of Records – 1</i>	135
Table 85: Exclusions from Data Files Prior to Call Volume and Temporal Analyses	135
<i>Approximation of October 15-22, 2022 Data</i>	136
Figure 44: Percentage of Call Types – Comparison of Data Source Scenarios	136
Table 86: Number and Percentage of Call Types – Comparison of Data Source Scenarios	137
<i>Re-Classification of Select 911 Records</i>	138
Table 87: Number of Calls by Reporting Period, Jurisdiction, Call Type, and Response Protocol	138
Figure 45: Auditing Average Number of Calls per Day by Month – Calls Classified as Transfers 2022-23	139
Figure 46: Auditing Average Number of Calls per Day by Month – Calls from Logis “Non-Emergent” File 2022-23	140
Figure 47: Auditing Average Number of Calls per Day by Month – Calls from Logis “Non-Emergent” File 2021-22	140
<i>Classification of Unit IDs for Agency of Operation, Unit Type, and Front-Line Designation</i>	142

<i>Exclusion of Calculated Times – Busy Time Analyses</i>	143
Table 88: Exclusions from Data File Prior to Busy Time Analyses	143
<i>Exclusion of Records – 2</i>	144
<i>Exclusion of Calculated Times – Performance Time Analyses</i>	144
Table 89: Exclusions from Data File Prior to Performance Time Analyses – Call Level	144
TRANSPORT RESPONSES BY DESTINATION – FULL TABLES	146
Table 90: Transport Responses by Destination – Sorted Alphabetically	146
Table 91: Transport Responses by Destination – Sorted in Descending Order by Number of Responses	157
CALCULATION OF 90TH PERCENTILE VALUES	168
Table 92: Example Scenarios for Weighted Average Formula Components When N = 13 to N = 2, p = 0.9	169

METHODOLOGY

We obtained data files from MedStar spanning October 1, 2021 through September 30, 2023. Based on the date range of data provided, two full fiscal years (FYs) of data were available for baseline analysis, as presented in the last section of this report. The comprehensive data report (i.e., all sections prior to the baseline section) reflects data from 2022-23 spanning October 1, 2022 through September 30, 2023.

Audits of the data files were first conducted to identify any anomalies for attention and reconciliation prior to data analysis, and classifications of data into additional variables that were not otherwise included in MedStar's data files were also required to facilitate data analysis. This process was extensive and is outlined sequentially in the Appendix section.

Approaches to data file management, and audit, exclusion, and classification activities described in detail in the Appendix section for referencing throughout review of this report include: (1) merging of data files and discovery of re-use of incident numbers; (2) creation of new unique incident numbers; (3) identification of date and time stamps for temporal analyses; (4) approximation of data to reflect records lost during a cyber-attack event; (5) exclusion of records; (6) exclusion of calculated times; and classification of (7) determinants for call severity, priority, and response protocol; (8) response dispositions; (9) locations for jurisdiction and area; (10) call types and re-classification of select 911 records; and (11) unit IDs for agency of operation, type, and as "front-line" units for performance time analyses.

Records were excluded in two waves. The first wave was to establish a baseline set of records appropriate for analyses related to calls received by the MedStar Communications Center, regardless of MedStar's response(s) to the calls. This data set is also intended to be used in conjunction with separate data sources, such as ECaTS 911 Primary Safety Answering Point (PSAP) data and Fort Worth Fire Department CAD data, for additional companion analyses and reporting to be completed at a later time. The majority of the activities described in the Appendix section relate to this first-wave data set, but only two tables in the baseline section of this report utilize data from this data set. The second wave was to establish a baseline set of records (i.e., a sub-set of the above data set) appropriate for analyses related to calls to which MedStar was expected to respond. All of the material in this report, except for the two tables noted to appear in the baseline section, utilize this second-wave data set.

Various time intervals were calculated using date and time stamps appearing in MedStar's data files, including total call duration, busy time or time on task, wall time (i.e., time from unit arrival at the healthcare facility for a transport until unit clear time), and performance-related times (e.g., call processing or dispatch, turnout, travel, and total response times). In general, entries with negative times or with times of zero minutes, and entries with extremely high values (i.e., outliers; assignment as an outlier varied depending upon the calculated time of interest; see the Appendix for specific exclusion criteria) were excluded. Additionally, performance time summary statistics are often

reported as 90th percentile values in this report. Refer to the Appendix section for information related to the calculation of these metrics, and the restriction to calculation for only sample sizes containing at least ten observations.

Data in this report are presented at times by jurisdiction and/or area. The “MAEMSA” jurisdiction in this report refers to the Metropolitan Area Emergency Medical Services Authority, and includes the Naval Air Station along with the 14 member areas of MAEMSA, as follows: Blue Mound, Edgecliff Village, Forest Hill, Fort Worth, Haltom City, Haslet, Lake Worth, Lakeside, River Oaks, Saginaw, Sansom Park, Westover Hills, Westworth Village, and White Settlement. While recognizing that the City of Fort Worth is the source of inquiry, the MAEMSA areas may be reported alphabetically in certain circumstances to facilitate quick reference to a specific area. The “Other” jurisdiction in this report is composed of records associated with calls known to be located outside of the MAEMSA jurisdiction, and a very small number of records for which the jurisdiction could not be identified.

The terms “call” and “incident” are used interchangeably in this report. Each unique incident number in the data file, as appropriate, was considered to represent a call or incident, and is reflective of a request from the community or community demand. Each unique unit record in the data file (i.e., unique unit dispatch), as appropriate, was considered to represent a “response,” regardless of arrival status or response disposition, such that there may be more than one unit response for any given call. A unit response was considered representative of an “arrival” as long as its record reported a unit arrival date and time stamp.

2022-23 SNAPSHOT

Community Demand

Table 1: Number of Calls by Call Type and Response Protocol – MAEMSA Jurisdiction

Call Type and Response Protocol	Number of Calls	Average Calls per Day	Call Percentage
911	151,433	414.9	78.3
Emergency, Lights and Sirens	58,788	161.1	30.4
Non-Emergency, No Lights and Sirens	92,620	253.8	47.9
Unknown	25	0.1	< 0.1
MIH	9,468	25.9	4.9
Non-Emergency, No Lights and Sirens	9,468	25.9	4.9
Transfer	29,827	81.7	15.4
Emergency, Lights and Sirens	6,872	18.8	3.6
Non-Emergency, No Lights and Sirens	22,955	62.9	11.9
Special Event	2,688	7.4	1.4
Non-Emergency, No Lights and Sirens	2,688	7.4	1.4
Total	193,416	529.9	100.0

Response Volume and Busy Time

Table 2: Number of Calls, Total Busy Time, and Number of Responses by Call Type – MAEMSA Jurisdiction

Call Type	Number of Calls	Average Calls per Day	Calls with Time Data ¹	Total Busy Hours	Average Busy Minutes per Call	Number of Responses ²	Average Responses per Day	Average Responses per Call
911	151,433	414.9	149,958	141,746.3	56.7	218,641	599.0	1.4
MIH	9,468	25.9	9,417	13,130.4	83.7	10,130	27.8	1.1
Transfer	29,827	81.7	29,808	44,845.6	90.3	39,270	107.6	1.3
Special Event	2,688	7.4	2,601	9,424.5	217.4	2,679	7.3	1.0
Total	193,416	529.9	191,784	209,146.8	65.4	270,720	741.7	1.4

¹“Calls with Time Data” reflects the number of unique calls in the data file with calculated busy time not otherwise missing or excluded.

²“Number of Responses” reflects the total number of unique MedStar unit dispatches.

System Performance

Table 3: 90th Percentile Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction

Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Emergency	2.3	0.4	13.5	15.1	58,997
911	1.8	0.4	13.5	14.9	52,306
Transfer	3.6	0.5	13.3	16.3	6,691
Non-Emergency	4.6	0.6	18.5	23.0	102,068
911	3.0	0.4	17.3	20.5	79,791
Transfer	15.5	1.0	22.8	34.8	22,277
Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

COMMUNITY DEMAND

During the 2022-23 reporting period (i.e., October 1, 2022 to September 30, 2023; hereinafter referred to as 2022-23), community demand from all jurisdictions for MedStar services included requests related to 911 calls (n=152,820; 78.2%), Mobile Integrated Healthcare (MIH) calls (n=9,771; 5.0%), transfer calls (n=30,149; 15.4%), and special event calls (n=2,766; 1.4%; Figure 1; Table 4). Requests for service from the community across all call types during 2022-23 totaled 195,506, averaging 535.6 calls per day.

Requests for service from the community within the MAEMSA jurisdiction totaled 193,416 calls, averaging 529.9 calls per day (Figure 2; Table 4). Calls originating from an area outside of the MAEMSA jurisdiction or from an unknown area (“Other”) totaled 2,090, averaging 5.7 calls per day (Figure 3; Table 4).

Figure 1: Percentage of Total Calls by Call Type – All Jurisdictions

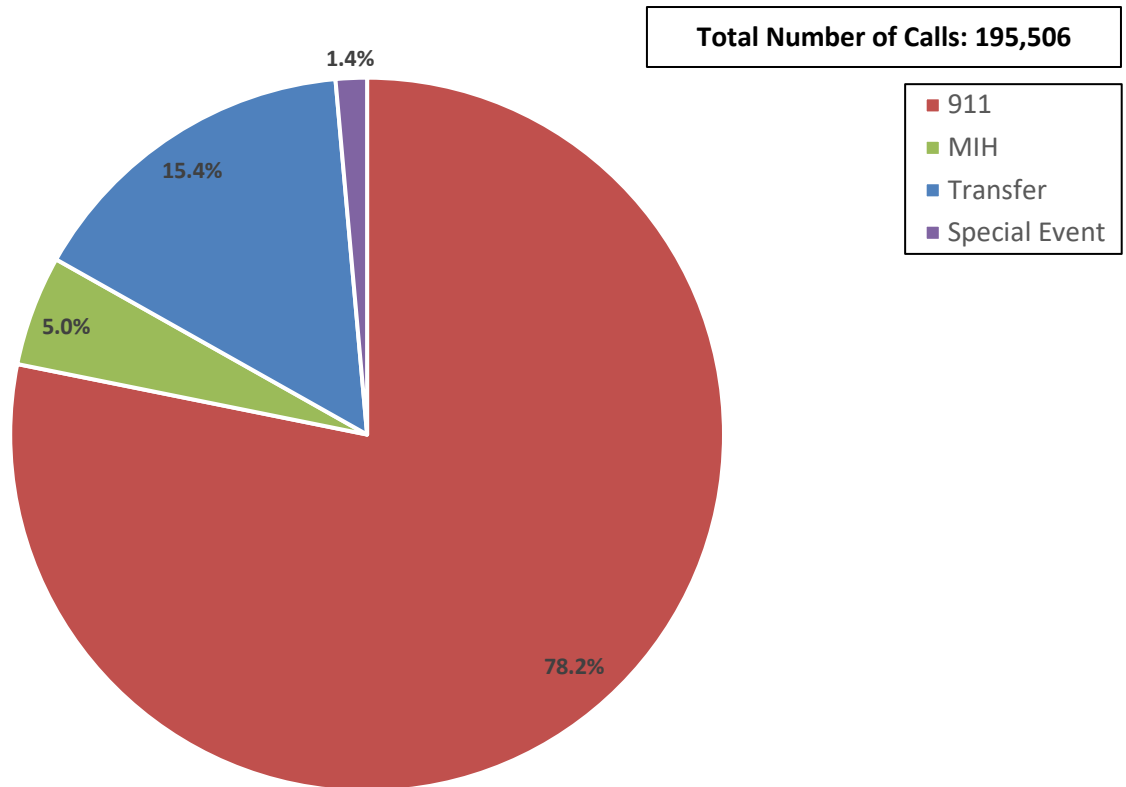


Figure 2: Percentage of Total Calls by Call Type – MAEMSA Jurisdiction

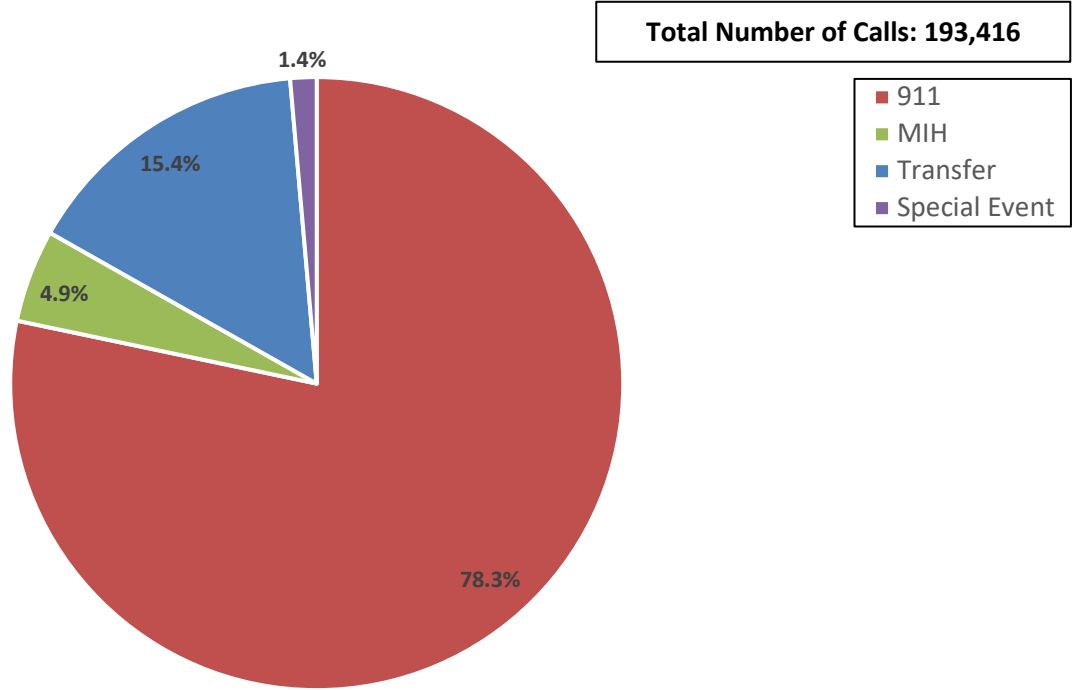


Figure 3: Percentage of Total Calls by Call Type – Other Jurisdictions

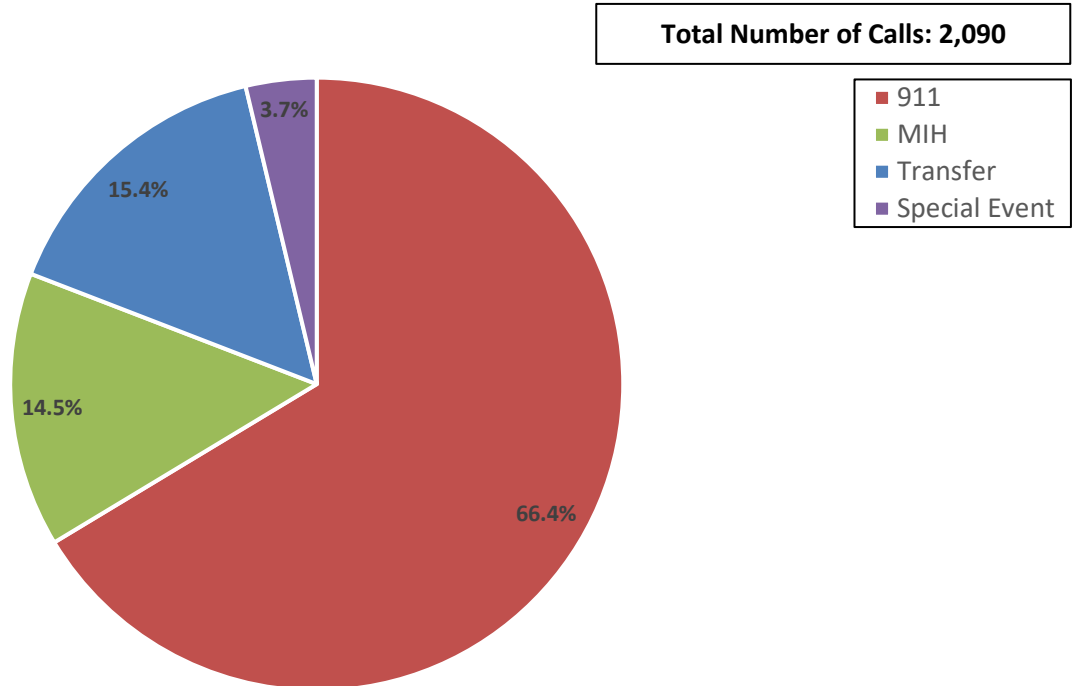


Table 4: Number of Calls by Jurisdiction, Call Type, Response Protocol, and Priority

Call Type, Response Protocol, and Priority	Number of Calls	MAEMSA		Jurisdiction			All		
		Average Calls per Day	Call Percentage	Number of Calls	Average Calls per Day	Call Percentage	Number of Calls	Average Calls per Day	Call Percentage
911	151,433	414.9	78.3	1,387	3.8	66.4	152,820	418.7	78.2
Emergency, Lights and Sirens	58,788	161.1	30.4	473	1.3	22.6	59,261	162.4	30.3
1A	3,007	8.2	1.6	21	0.1	1.0	3,028	8.3	1.5
1A/2A	188	0.5	0.1	0	0.0	0.0	188	0.5	0.1
2A	34,569	94.7	17.9	249	0.7	11.9	34,818	95.4	17.8
3A	11,439	31.3	5.9	90	0.2	4.3	11,529	31.6	5.9
3A/3A+C	174	0.5	0.1	4	< 0.1	0.2	178	0.5	0.1
3A/3A+C/4B	535	1.5	0.3	2	< 0.1	0.1	537	1.5	0.3
4B	8,876	24.3	4.6	107	0.3	5.1	8,983	24.6	4.6
Non-Emergency, No Lights and Sirens	92,620	253.8	47.9	914	2.5	43.7	93,534	256.3	47.8
5A	58,405	160.0	30.2	620	1.7	29.7	59,025	161.7	30.2
5A/7A/8B	1,809	5.0	0.9	102	0.3	4.9	1,911	5.2	1.0
7A	16,468	45.1	8.5	108	0.3	5.2	16,576	45.4	8.5
8B	15,938	43.7	8.2	84	0.2	4.0	16,022	43.9	8.2
Unknown	25	0.1	< 0.1	0	0.0	0.0	25	0.1	< 0.1
Unknown	25	0.1	< 0.1	0	0.0	0.0	25	0.1	< 0.1
MIH	9,468	25.9	4.9	303	0.8	14.5	9,771	26.8	5.0
Non-Emergency, No Lights and Sirens	9,468	25.9	4.9	303	0.8	14.5	9,771	26.8	5.0
MIH	9,468	25.9	4.9	303	0.8	14.5	9,771	26.8	5.0
Transfer	29,827	81.7	15.4	322	0.9	15.4	30,149	82.6	15.4
Emergency, Lights and Sirens	6,872	18.8	3.6	71	0.2	3.4	6,943	19.0	3.6
1A	279	0.8	0.1	2	< 0.1	0.1	281	0.8	0.1
2A	3,343	9.2	1.7	31	0.1	1.5	3,374	9.2	1.7
3A	3,224	8.8	1.7	38	0.1	1.8	3,262	8.9	1.7

Call Type, Response Protocol, and Priority	Number of Calls	Jurisdiction							
		MAEMSA			Other			All	
		Average Calls per Day	Call Percentage	Number of Calls	Average Calls per Day	Call Percentage	Number of Calls	Average Calls per Day	Call Percentage
3A/3A+C	4	< 0.1	< 0.1	0	0.0	0.0	4	< 0.1	0.0
3A/3A+C/4B	2	< 0.1	< 0.1	0	0.0	0.0	2	< 0.1	0.0
3A+C	20	0.1	< 0.1	0	0.0	0.0	20	0.1	< 0.1
Non-Emergency, No Lights and Sirens	22,955	62.9	11.9	251	0.7	12.0	23,206	63.6	11.9
5A	5,786	15.9	3.0	75	0.2	3.6	5,861	16.1	3.0
5A/7A/8B	4	< 0.1	< 0.1	0	0.0	0.0	4	< 0.1	< 0.1
6A	556	1.5	0.3	3	< 0.1	0.1	559	1.5	0.3
6A/9A/9B/9S	6,151	16.9	3.2	90	0.2	4.3	6,241	17.1	3.2
8B	149	0.4	0.1	0	0.0	0.0	149	0.4	0.1
9A	2,414	6.6	1.2	23	0.1	1.1	2,437	6.7	1.2
9A/9B/9S	838	2.3	0.4	30	0.1	1.4	868	2.4	0.4
9B	6,595	18.1	3.4	30	0.1	1.4	6,625	18.2	3.4
9S	462	1.3	0.2	0	0.0	0.0	462	1.3	0.2
Special Event	2,688	7.4	1.4	78	0.2	3.7	2,766	7.6	1.4
Non-Emergency, No Lights and Sirens	2,688	7.4	1.4	78	0.2	3.7	2,766	7.6	1.4
Event	2,688	7.4	1.4	78	0.2	3.7	2,766	7.6	1.4
Total	193,416	529.9	100.0	2,090	5.7	100.0	195,506	535.6	100.0

Metrics related to call volume are also presented by response standard and priority definition (Table 5), service level (Table 6), severity (Table 7), and specific area within the jurisdiction (Table 8, sorted alphabetically; Table 9, sorted in descending order by call volume). Table 10 presents call volume metrics by call type and area.

Table 5: Number of Calls by Jurisdiction, Response Standard, and Priority Definition

Response Standard and Priority Definition	Number of Calls	MAEMSA		Jurisdiction			All		
		Average Calls per Day	Call Percentage	Number of Calls	Average Calls per Day	Call Percentage	Number of Calls	Average Calls per Day	Call Percentage
11 Minutes	41,386	113.4	21.4	303	0.8	14.5	41,689	114.2	21.3
ALS Hot 11	41,386	113.4	21.4	303	0.8	14.5	41,689	114.2	21.3
13 Minutes	24,274	66.5	12.6	241	0.7	11.5	24,515	67.2	12.5
ALS Hot 13	14,861	40.7	7.7	132	0.4	6.3	14,993	41.1	7.7
ALS/BLS Hot 13	537	1.5	0.3	2	< 0.1	0.1	539	1.5	0.3
BLS Hot 13	8,876	24.3	4.6	107	0.3	5.1	8,983	24.6	4.6
17 Minutes	98,559	270.0	51.0	989	2.7	47.3	99,548	272.7	50.9
ALS Cold 17	80,659	221.0	41.7	803	2.2	38.4	81,462	223.2	41.7
ALS/BLS Cold 17	1,813	5.0	0.9	102	0.3	4.9	1,915	5.2	1.0
BLS Cold 17	16,087	44.1	8.3	84	0.2	4.0	16,171	44.3	8.3
Not Applicable	29,172	79.9	15.1	557	1.5	26.7	29,729	81.4	15.2
Event	2,688	7.4	1.4	78	0.2	3.7	2,766	7.6	1.4
MIH	9,468	25.9	4.9	303	0.8	14.5	9,771	26.8	5.0
Transfer - ALS Cold	2,970	8.1	1.5	26	0.1	1.2	2,996	8.2	1.5
Transfer - ALS/BLS/CCP Cold	6,989	19.1	3.6	120	0.3	5.7	7,109	19.5	3.6
Transfer - BLS Cold	6,595	18.1	3.4	30	0.1	1.4	6,625	18.2	3.4
Transfer - Specialty Care CCP Required	462	1.3	0.2	0	0.0	0.0	462	1.3	0.2
Unknown	25	0.1	< 0.1	0	0.0	0.0	25	0.1	< 0.1
Unknown	25	0.1	< 0.1	0	0.0	0.0	25	0.1	< 0.1
Total	193,416	529.9	100.0	2,090	5.7	100.0	195,506	535.6	100.0

Table 6: Number of Calls by Jurisdiction and Service Level

Service Level	Jurisdiction								
	Number of Calls	MAEMSA Average Calls per Day	Call Percentage	Number of Calls	Other Average Calls per Day	Call Percentage	Number of Calls	All Average Calls per Day	Call Percentage
ALS	139,876	383.2	72.3	1,264	3.5	60.5	141,140	386.7	72.2
ALS/BLS	2,350	6.4	1.2	104	0.3	5.0	2,454	6.7	1.3
ALS/BLS/CCP	6,989	19.1	3.6	120	0.3	5.7	7,109	19.5	3.6
BLS	31,558	86.5	16.3	221	0.6	10.6	31,779	87.1	16.3
CCP	462	1.3	0.2	0	0.0	0.0	462	1.3	0.2
Event	2,688	7.4	1.4	78	0.2	3.7	2,766	7.6	1.4
MIH	9,468	25.9	4.9	303	0.8	14.5	9,771	26.8	5.0
Unknown	25	0.1	< 0.1	0	0.0	0.0	25	0.1	< 0.1
Total	193,416	529.9	100.0	2,090	5.7	100.0	195,506	535.6	100.0

Table 7: Number of Calls by Jurisdiction and Severity

Severity	Jurisdiction								
	Number of Calls	MAEMSA Average Calls per Day	Call Percentage	Number of Calls	Other Average Calls per Day	Call Percentage	Number of Calls	All Average Calls per Day	Call Percentage
Alpha	42,408	116.2	21.9	325	0.9	15.6	42,733	117.1	21.9
Bravo	33,166	90.9	17.1	395	1.1	18.9	33,561	91.9	17.2
Charlie	41,698	114.2	21.6	323	0.9	15.5	42,021	115.1	21.5
Delta	44,001	120.6	22.7	303	0.8	14.5	44,304	121.4	22.7
Echo	2,334	6.4	1.2	15	< 0.1	0.7	2,349	6.4	1.2
Omega	5,794	15.9	3.0	12	< 0.1	0.6	5,806	15.9	3.0
Not Reported	24,015	65.8	12.4	717	2.0	34.3	24,732	67.8	12.7
Total	193,416	529.9	100.0	2,090	5.7	100.0	195,506	535.6	100.0

Table 8: Number of Calls by Jurisdiction and Area – Sorted Alphabetically Within Jurisdiction

Jurisdiction and Area	Number of Calls	Average Calls per Day	Call Percentage
MAEMSA	193,416	529.9	98.9
Blue Mound	189	0.5	0.1
Edgecliff Village	337	0.9	0.2
Forest Hill	2,358	6.5	1.2
Fort Worth	174,158	477.1	89.1
Haltom City	5,143	14.1	2.6
Haslet	494	1.4	0.3
Lake Worth	1,685	4.6	0.9
Lakeside	196	0.5	0.1
Naval Air Station	106	0.3	0.1
River Oaks	770	2.1	0.4
Saginaw	3,044	8.3	1.6
Sansom Park	1,124	3.1	0.6
Westover Hills	28	0.1	< 0.1
Westworth Village	550	1.5	0.3
White Settlement	3,234	8.9	1.7
Other	2,090	5.7	1.1
Outside of MAEMSA	2,063	5.7	1.1
Unknown	27	0.1	< 0.1
Total	195,506	535.6	100.0

Table 9: Number of Calls by Jurisdiction and Area – Sorted in Descending Order by Call Volume Within Jurisdiction

Jurisdiction and Area	Number of Calls	Average Calls per Day	Call Percentage
MAEMSA	193,416	529.9	98.9
Fort Worth	174,158	477.1	89.1
Haltom City	5,143	14.1	2.6
White Settlement	3,234	8.9	1.7
Saginaw	3,044	8.3	1.6
Forest Hill	2,358	6.5	1.2
Lake Worth	1,685	4.6	0.9
Sansom Park	1,124	3.1	0.6
River Oaks	770	2.1	0.4
Westworth Village	550	1.5	0.3
Haslet	494	1.4	0.3
Edgecliff Village	337	0.9	0.2
Lakeside	196	0.5	0.1
Blue Mound	189	0.5	0.1
Naval Air Station	106	0.3	0.1
Westover Hills	28	0.1	< 0.1
Other	2,090	5.7	1.1
Outside of MAEMSA	2,063	5.7	1.1
Unknown	27	0.1	< 0.1
Total	195,506	535.6	100.0

Table 10: Call Volume Metrics by Call Type and Area – Number of Calls, Average Calls per Day, and Call Percentages (Within Call Type and Within Area)

Area	Number of Calls					Average Calls per Day				
	911	MIH	Transfer	Special Event	Total	911	MIH	Transfer	Special Event	Total
Blue Mound	160	27	2	0	189	0.4	0.1	< 0.1	0.0	0.5
Edgecliff Village	300	25	12	0	337	0.8	0.1	< 0.1	0.0	0.9
Forest Hill	2,240	106	10	2	2,358	6.1	0.3	< 0.1	< 0.1	6.5
Fort Worth	136,107	8,455	27,556	2,040	174,158	372.9	23.2	75.5	5.6	477.1
Haltom City	4,107	204	233	599	5,143	11.3	0.6	0.6	1.6	14.1
Haslet	441	35	17	1	494	1.2	0.1	< 0.1	< 0.1	1.4
Lake Worth	1,342	147	172	24	1,685	3.7	0.4	0.5	0.1	4.6
Lakeside	181	13	0	2	196	0.5	< 0.1	0.0	< 0.1	0.5
Naval Air Station	18	0	88	0	106	< 0.1	0.0	0.2	0.0	0.3
River Oaks	704	57	9	0	770	1.9	0.2	< 0.1	0.0	2.1
Saginaw	2,027	85	925	7	3,044	5.6	0.2	2.5	< 0.1	8.3
Sansom Park	862	105	157	0	1,124	2.4	0.3	0.4	0.0	3.1
Westover Hills	27	0	1	0	28	0.1	0.0	< 0.1	0.0	0.1
Westworth Village	432	6	110	2	550	1.2	< 0.1	0.3	< 0.1	1.5
White Settlement	2,485	203	535	11	3,234	6.8	0.6	1.5	< 0.1	8.9
Total	151,433	9,468	29,827	2,688	193,416	414.9	25.9	81.7	7.4	529.9
Area	Call Percentage (of MAEMSA's Total Calls in Corresponding Call Type)					Call Percentage (of Specific Area's Total Calls)				
	911	MIH	Transfer	Special Event	Total	911	MIH	Transfer	Special Event	Total
Blue Mound	0.1	0.3	< 0.1	0.0	0.1	84.7	14.3	1.1	0.0	100.0
Edgecliff Village	0.2	0.3	< 0.1	0.0	0.2	89.0	7.4	3.6	0.0	100.0
Forest Hill	1.5	1.1	< 0.1	0.1	1.2	95.0	4.5	0.4	0.1	100.0
Fort Worth	89.9	89.3	92.4	75.9	90.0	78.2	4.9	15.8	1.2	100.0
Haltom City	2.7	2.2	0.8	22.3	2.7	79.9	4.0	4.5	11.6	100.0
Haslet	0.3	0.4	0.1	< 0.1	0.3	89.3	7.1	3.4	0.2	100.0
Lake Worth	0.9	1.6	0.6	0.9	0.9	79.6	8.7	10.2	1.4	100.0
Lakeside	0.1	0.1	0.0	0.1	0.1	92.3	6.6	0.0	1.0	100.0
Naval Air Station	< 0.1	0.0	0.3	0.0	0.1	17.0	0.0	83.0	0.0	100.0
River Oaks	0.5	0.6	< 0.1	0.0	0.4	91.4	7.4	1.2	0.0	100.0
Saginaw	1.3	0.9	3.1	0.3	1.6	66.6	2.8	30.4	0.2	100.0
Sansom Park	0.6	1.1	0.5	0.0	0.6	76.7	9.3	14.0	0.0	100.0
Westover Hills	< 0.1	0.0	< 0.1	0.0	< 0.1	96.4	0.0	3.6	0.0	100.0
Westworth Village	0.3	0.1	0.4	0.1	0.3	78.5	1.1	20.0	0.4	100.0
White Settlement	1.6	2.1	1.8	0.4	1.7	76.8	6.3	16.5	0.3	100.0
Total	100.0	100.0	100.0	100.0	100.0	78.3	4.9	15.4	1.4	100.0

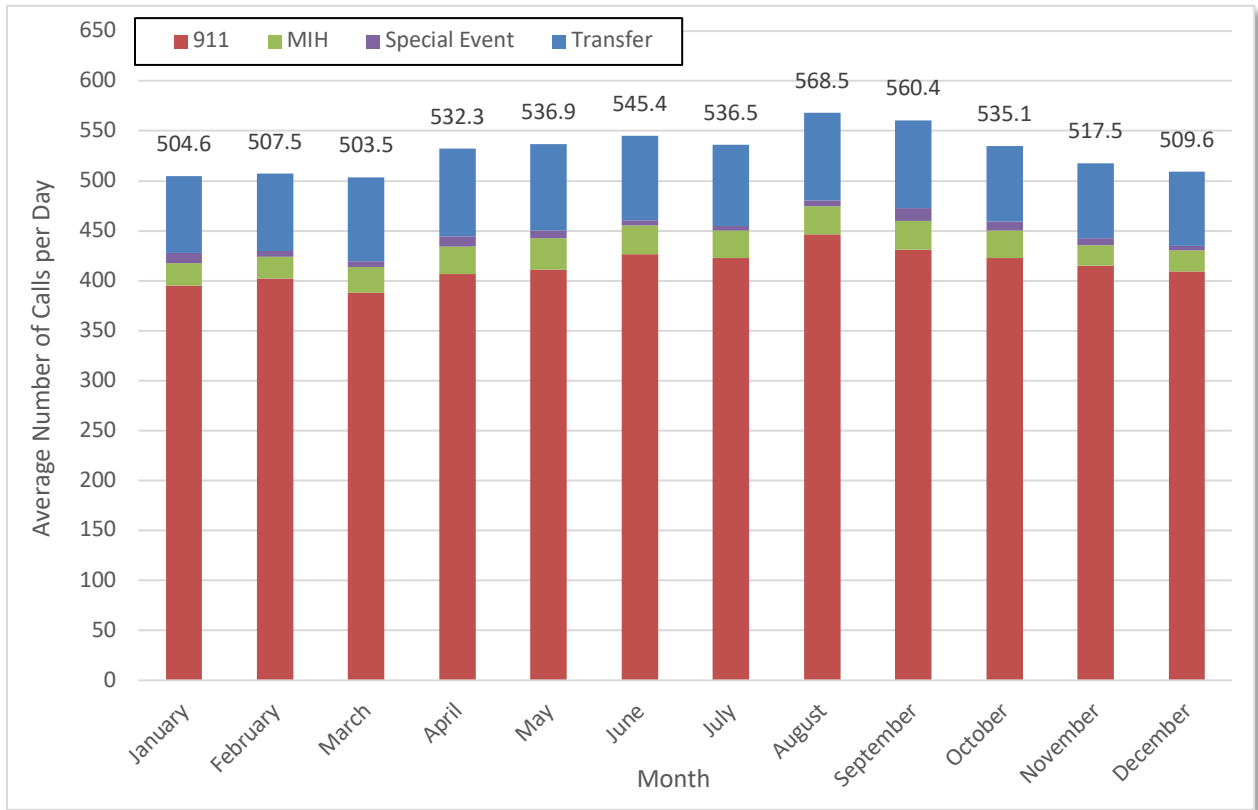
Temporal analyses were conducted to evaluate patterns in community demands. These analyses are based on the 193,416 requests for service received from the community within the MAEMSA jurisdiction during 2022-23, and examine the frequency of incidents by month, day of week, and hour of day. Note that hour of day could not be identified for two MIH calls (see Appendix for more details), such that metrics related to hour of day were based on 193,414 calls.

Overall, average requests per month ranged from a low of 503.5 calls per day in March to a high of 568.5 calls per day in August (Table 11; Figure 4). The three months with the most requests for service in descending order were: August (568.5 per day), September (560.4 per day), and June (545.4 per day). The three months with the fewest requests for service in ascending order were: March (503.5 per day), January (504.6 per day), and February (507.5 per day).

Table 11: Overall: Total Calls and Average Calls per Day by Month

Month	Number of Calls	Average Calls per Day	Call Percentage
January	15,642	504.6	8.1
February	14,211	507.5	7.3
March	15,609	503.5	8.1
April	15,968	532.3	8.3
May	16,644	536.9	8.6
June	16,362	545.4	8.5
July	16,632	536.5	8.6
August	17,625	568.5	9.1
September	16,813	560.4	8.7
October	16,587	535.1	8.6
November	15,526	517.5	8.0
December	15,797	509.6	8.2
Total	193,416	529.9	100.0

Figure 4: Overall: Average Calls per Day by Month



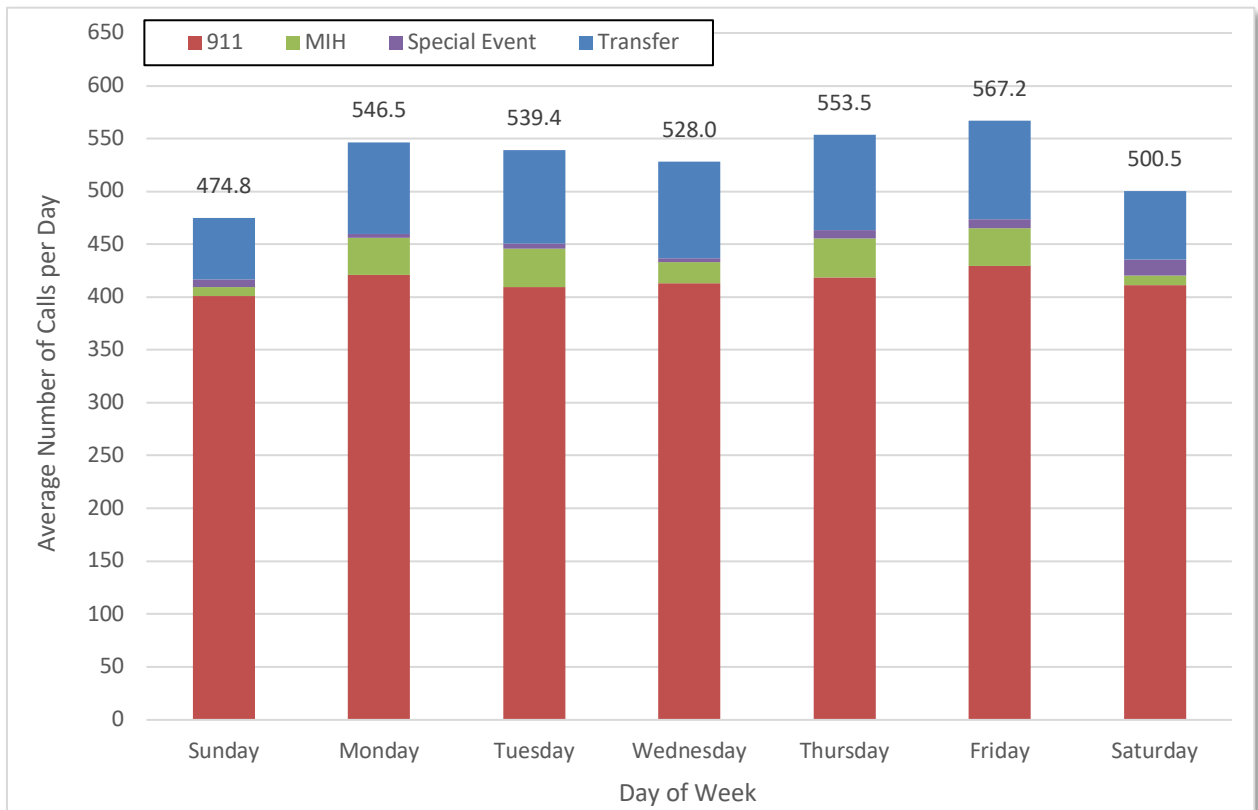
Similar analyses were conducted for requests by day of week (Table 12; Figure 5). The lowest average number of calls per day occurred on Sunday (474.8 per day), and the highest average number of calls per day occurred on Friday (567.2 per day).

Table 12: Overall: Total Calls and Average Calls per Day by Day of Week

Day of Week ¹	Number of Calls	Average Calls per Day	Call Percentage
Sunday	24,687	474.8	12.8
Monday	28,418	546.5	14.7
Tuesday	28,049	539.4	14.5
Wednesday	27,455	528.0	14.2
Thursday	28,784	553.5	14.9
Friday	29,494	567.2	15.2
Saturday	26,529	500.5	13.7
Total	193,416	529.9	100.0

¹There were 53 Saturdays and 52 of all other days of the week during 2022-23.

Figure 5: Overall: Average Calls per Day by Day of Week



Overall demands were also evaluated by hour of the day (Table 13; Figure 6). Variability exists in the time of day that requests for services were received. Peak demand occurred at 1500 (31.5 average calls per day during that hour in 2022-23). The hours of the day with the lowest average number of calls per day (range 10.8 to 14.8) were between 0100 and 0600.

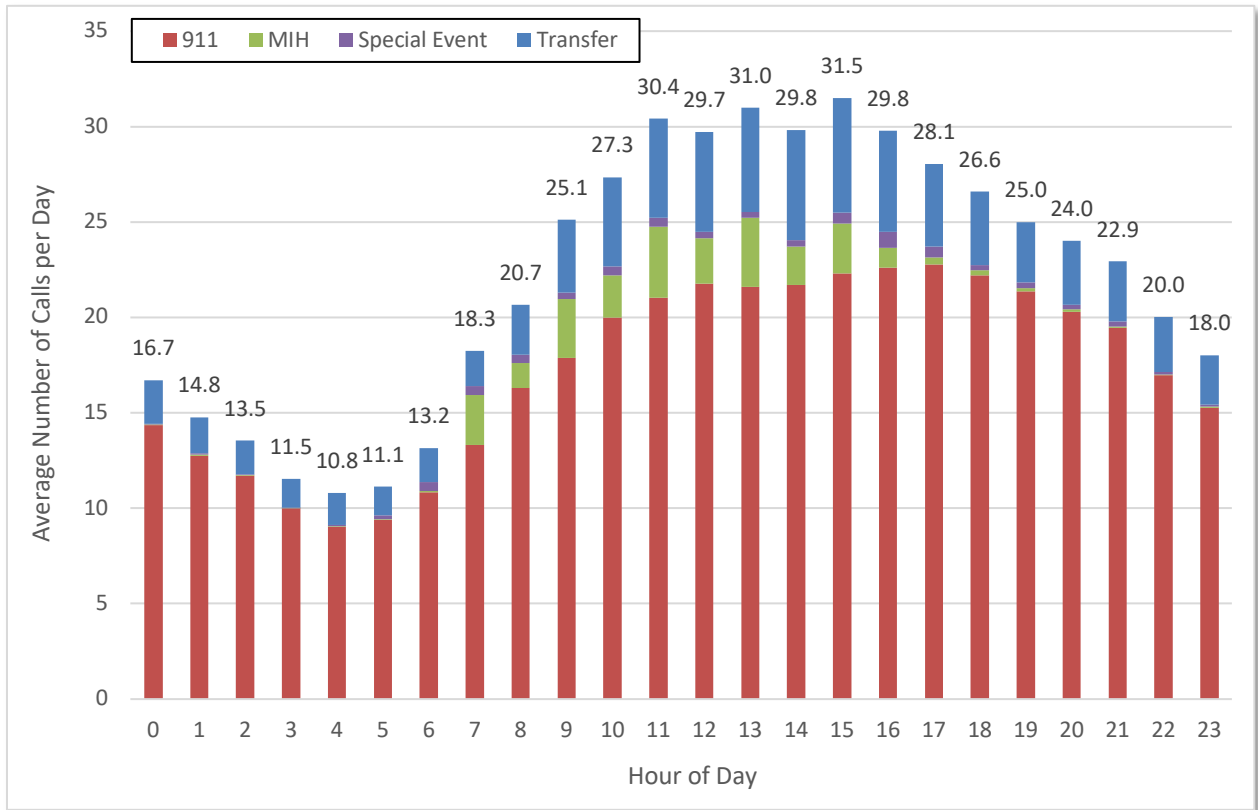
Table 13: Overall: Total Calls and Average Calls per Day by Hour of Day

Hour of Day	Number of Calls ¹	Average Calls per Day	Call Percentage
0	6,103	16.7	3.2
1	5,391	14.8	2.8
2	4,944	13.5	2.6
3	4,215	11.5	2.2
4	3,938	10.8	2.0
5	4,069	11.1	2.1
6	4,803	13.2	2.5
7	6,665	18.3	3.4
8	7,546	20.7	3.9
9	9,168	25.1	4.7
10	9,978	27.3	5.2
11	11,102	30.4	5.7
12	10,842	29.7	5.6
13	11,314	31.0	5.8
14	10,882	29.8	5.6
15	11,495	31.5	5.9
16	10,866	29.8	5.6
17	10,240	28.1	5.3
18	9,707	26.6	5.0
19	9,125	25.0	4.7
20	8,762	24.0	4.5
21	8,368	22.9	4.3
22	7,312	20.0	3.8
23	6,579	18.0	3.4
Total	193,414	529.9	100.0

¹Hour of day could not be identified for two MIH calls (see Appendix for more details).

To provide a more granular understanding of the community’s demand for services, this temporal analysis included the average number of calls per day by hour of day. In other words, when referring to Figure 6 below, the busiest hour was at 1500 with 11,495 calls occurring during that hour in 2022-23. The average number of calls per day for that hour is a daily average for the 11,495 calls if they were distributed equally across the year (i.e., $11,495/365 = 31.5$).

Figure 6: Overall: Average Calls per Day by Hour of Day



Figures 7 through 21 depict hourly demand by specific area (i.e., as defined by municipal boundaries; see Appendix for more details) within the MAEMSA jurisdiction, and Figure 22 depicts hourly demand for the “Other” (i.e., not MAEMSA) jurisdiction.

Due to significant variation in call volume across areas within the MAEMSA jurisdiction, ranging from a high of 174,158 calls occurring in Fort Worth to a low of 28 calls occurring in Westover Hills, the y-axis range on the figures varies to correspond to the area being depicted, rather than remaining fixed across the figures to allow for easy visual comparison of general call volume across areas. This also depicts the pattern of hourly call volume in a clearer way for each area, but in an exaggerated (i.e., “zoomed in”) way for the areas wherein call volume is extremely small, such that interpretation of patterns for these areas as necessarily stable is not advised. For quick comparison of call volume across areas, refer to Table 9, as presented earlier.

Figure 7: Overall: Average Calls per Day by Hour of Day – Blue Mound (n=189)

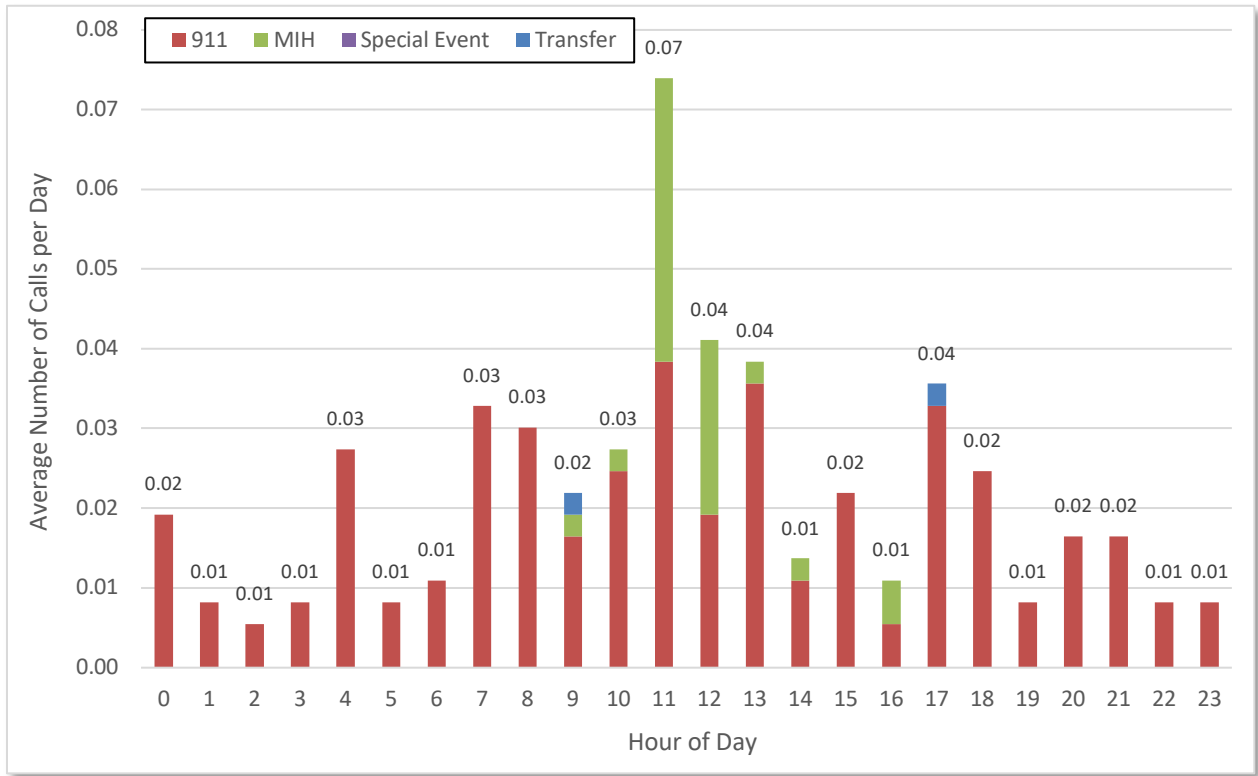


Figure 8: Overall: Average Calls per Day by Hour of Day – Edgecliff Village (n=337)

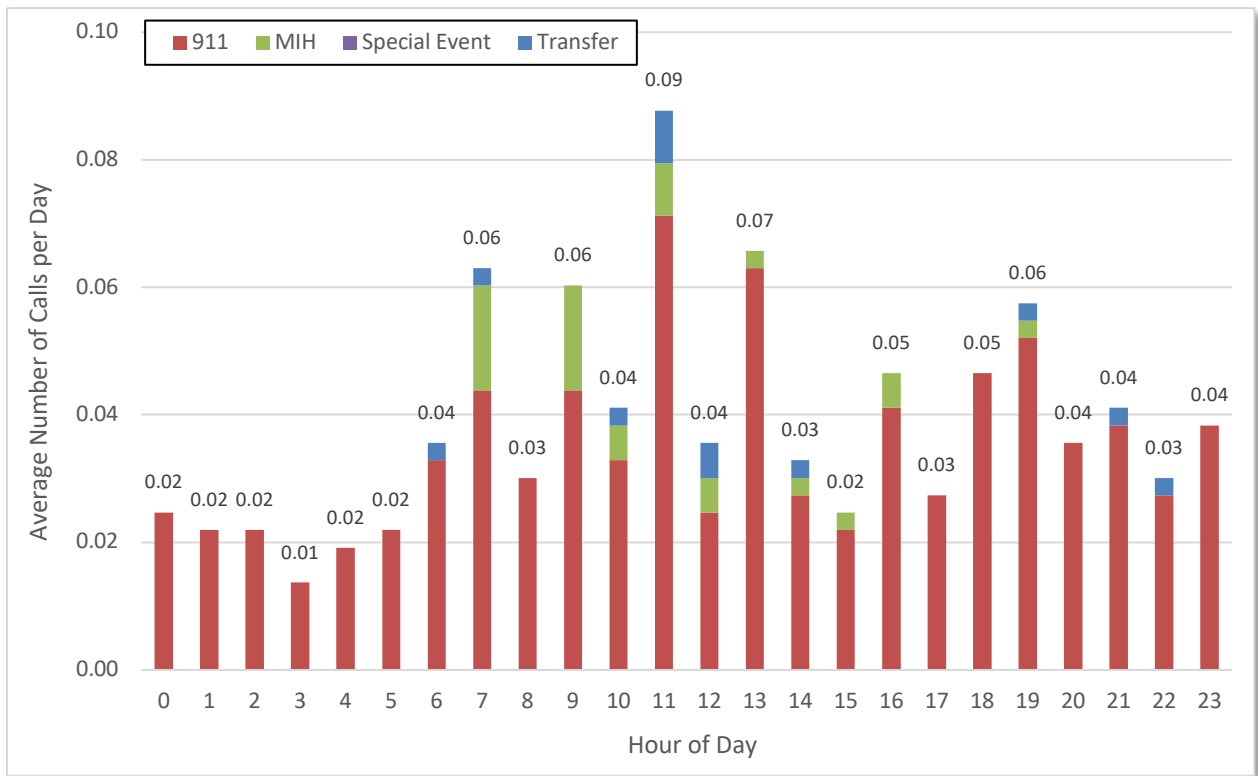


Figure 9: Overall: Average Calls per Day by Hour of Day – Forest Hill (n=2,358)

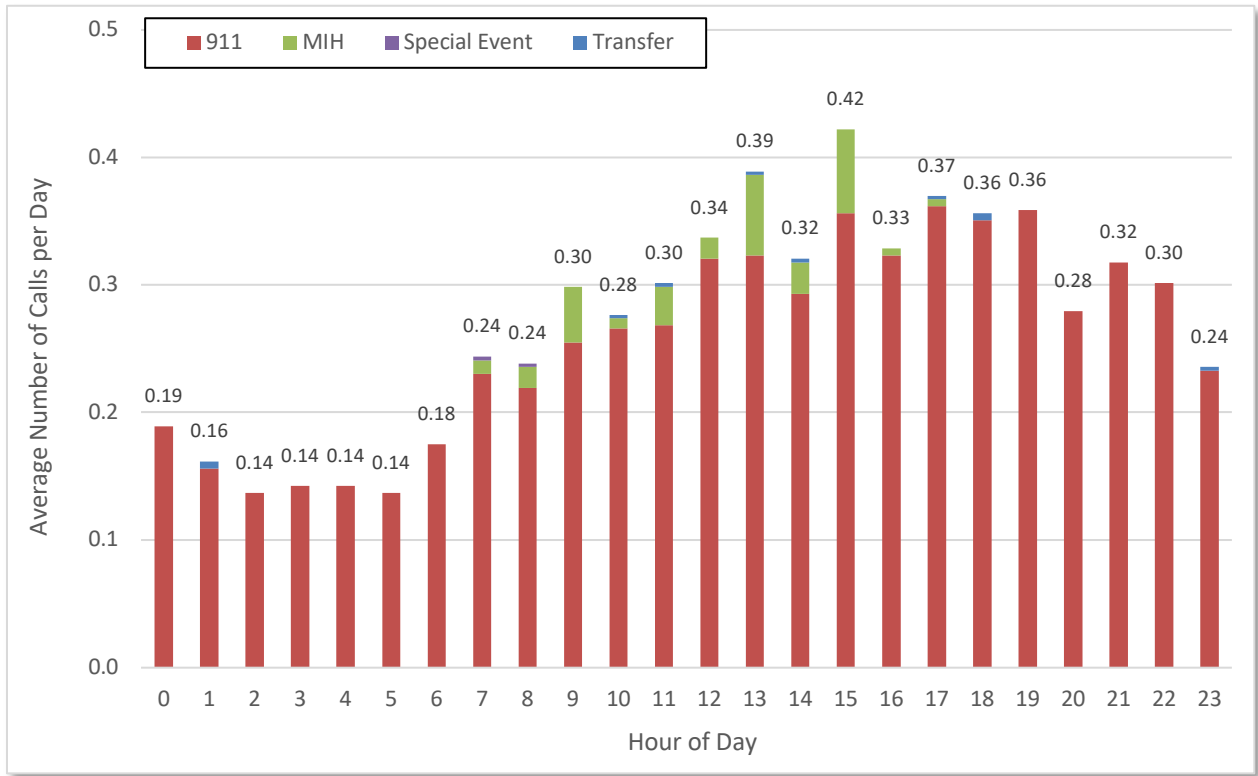


Figure 10: Overall: Average Calls per Day by Hour of Day – Fort Worth (n=174,158; n=174,156 with Hour of Day)

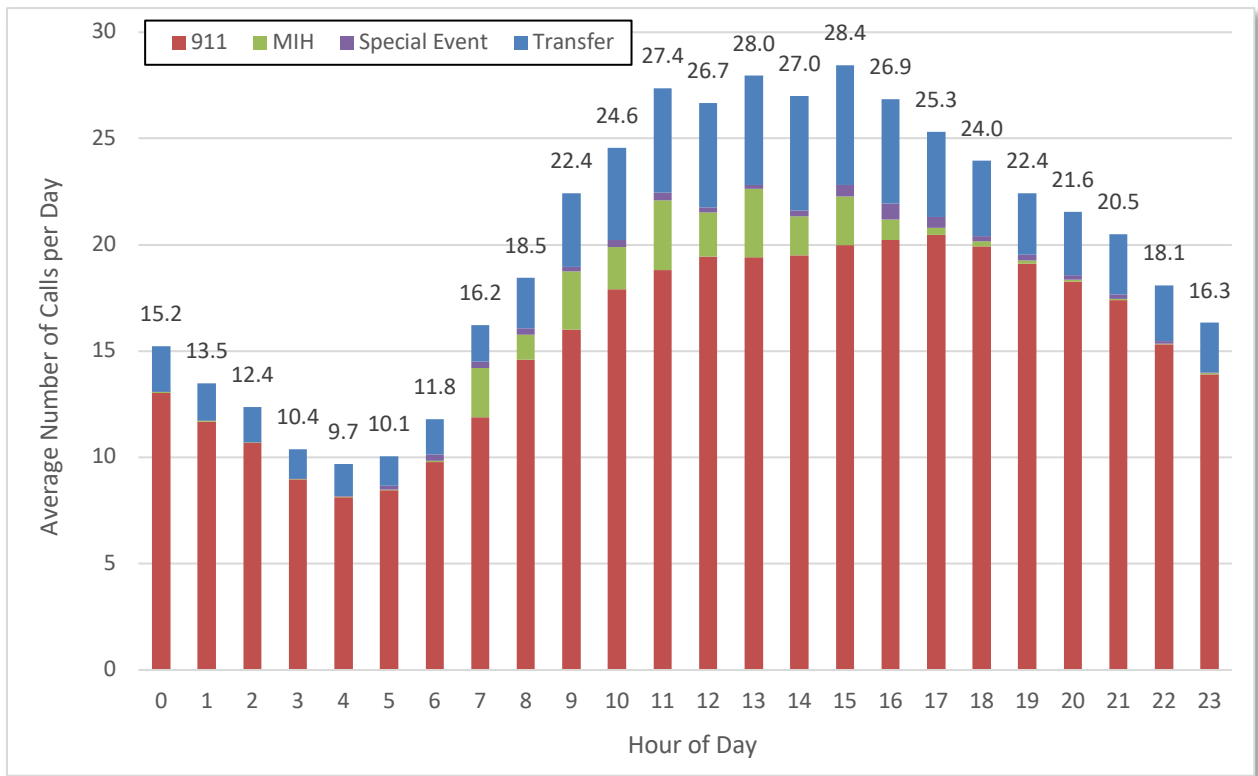


Figure 11: Overall: Average Calls per Day by Hour of Day – Haltom City (n=5,143)

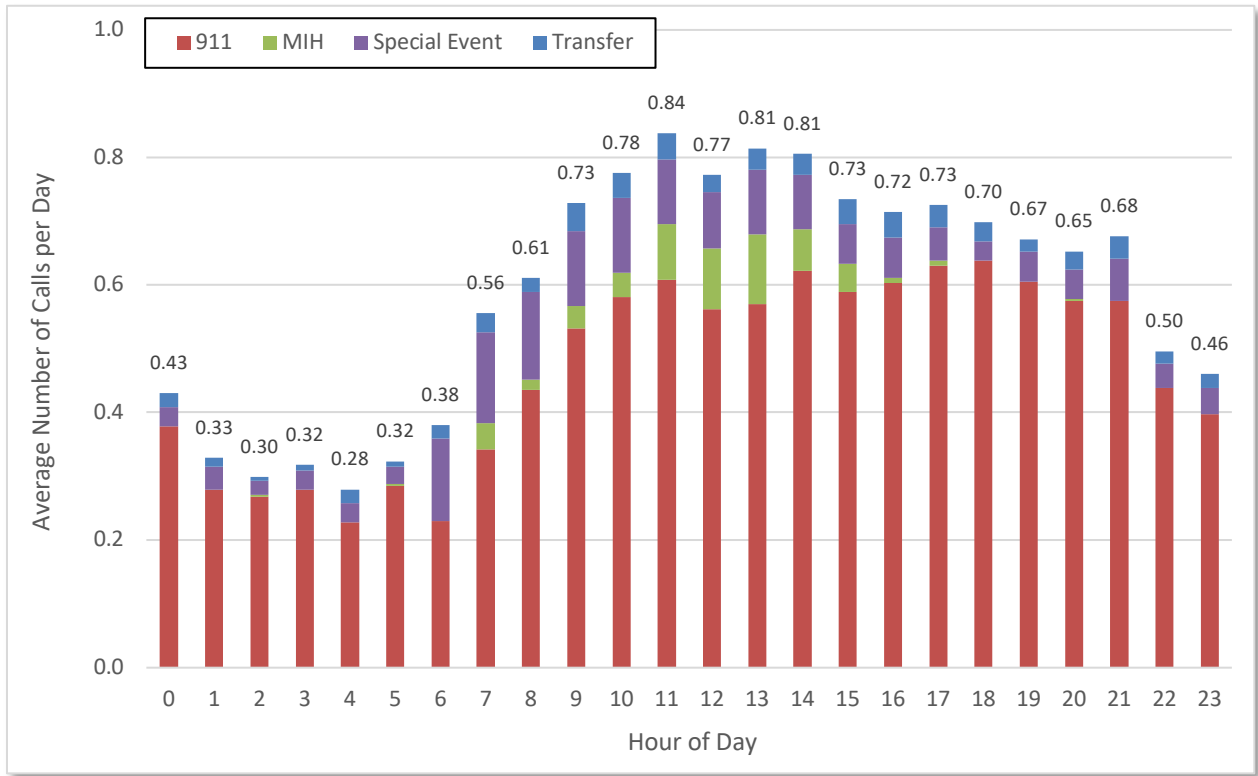


Figure 12: Overall: Average Calls per Day by Hour of Day – Haslet (n=494)

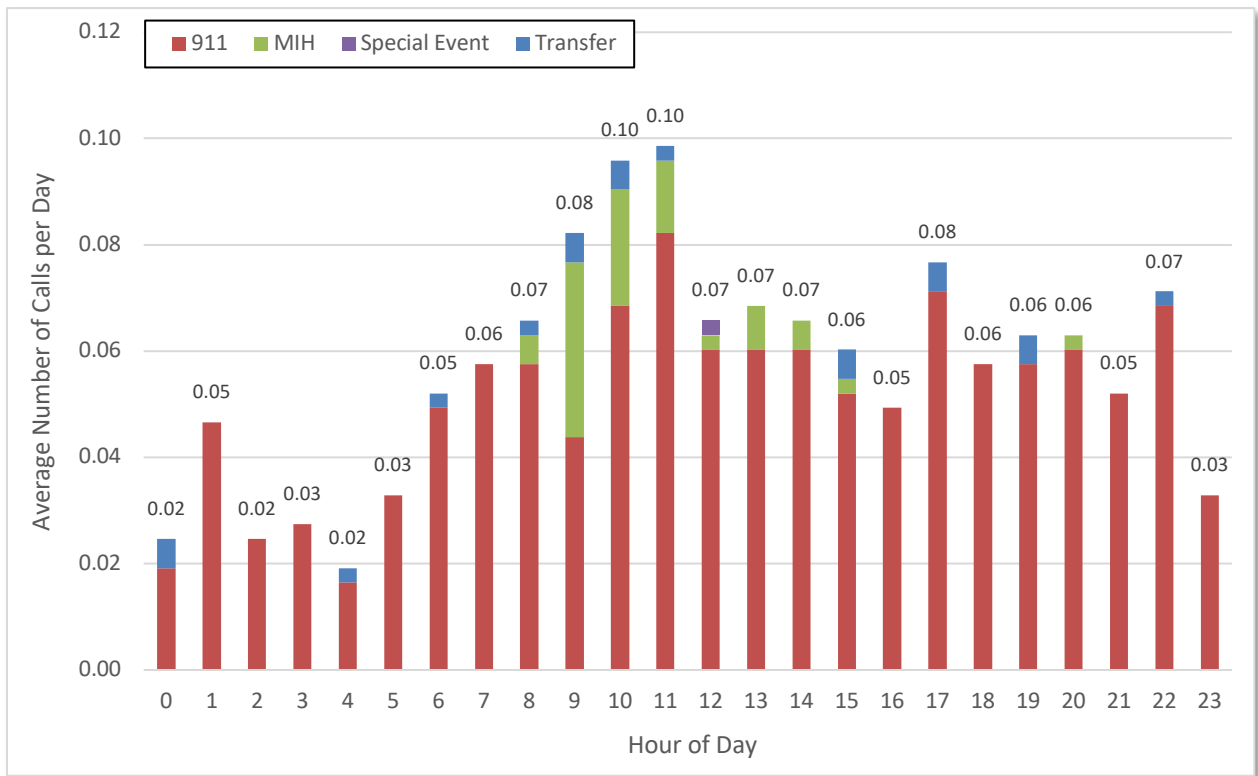


Figure 13: Overall: Average Calls per Day by Hour of Day – Lake Worth (n=1,685)

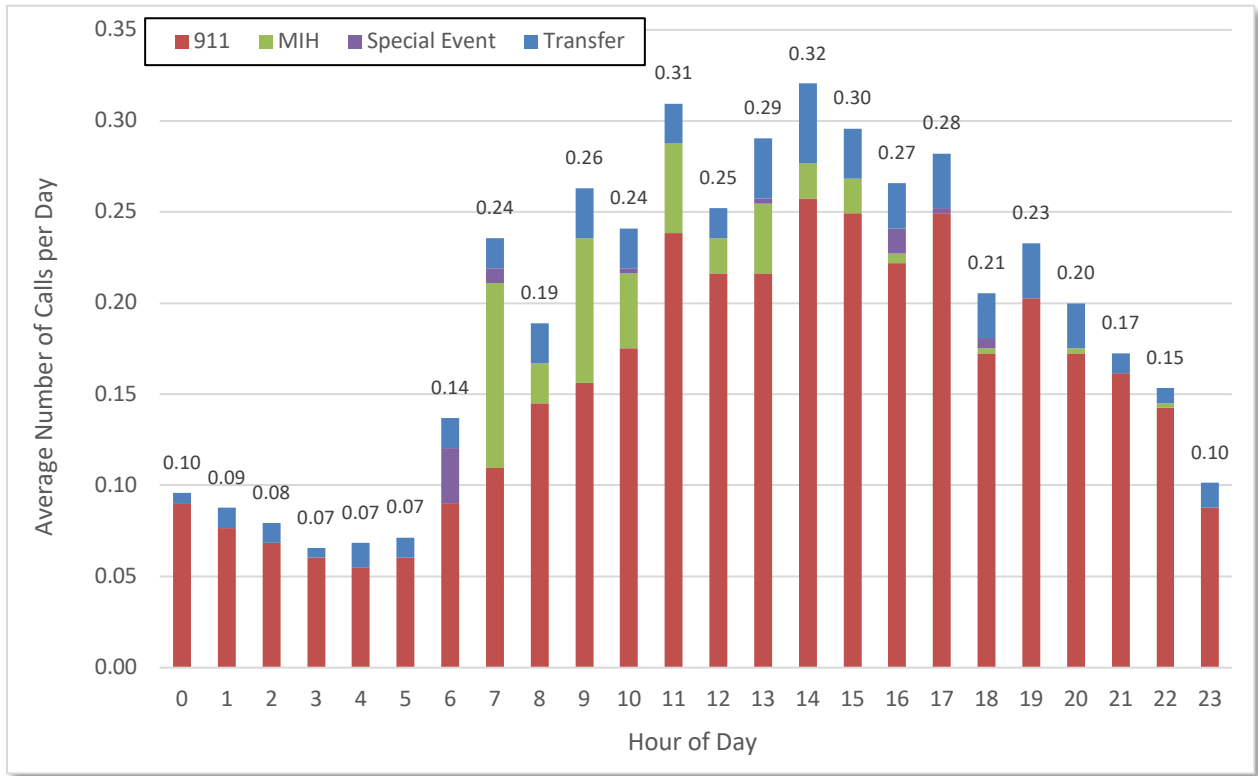


Figure 14: Overall: Average Calls per Day by Hour of Day – Lakeside (n=196)

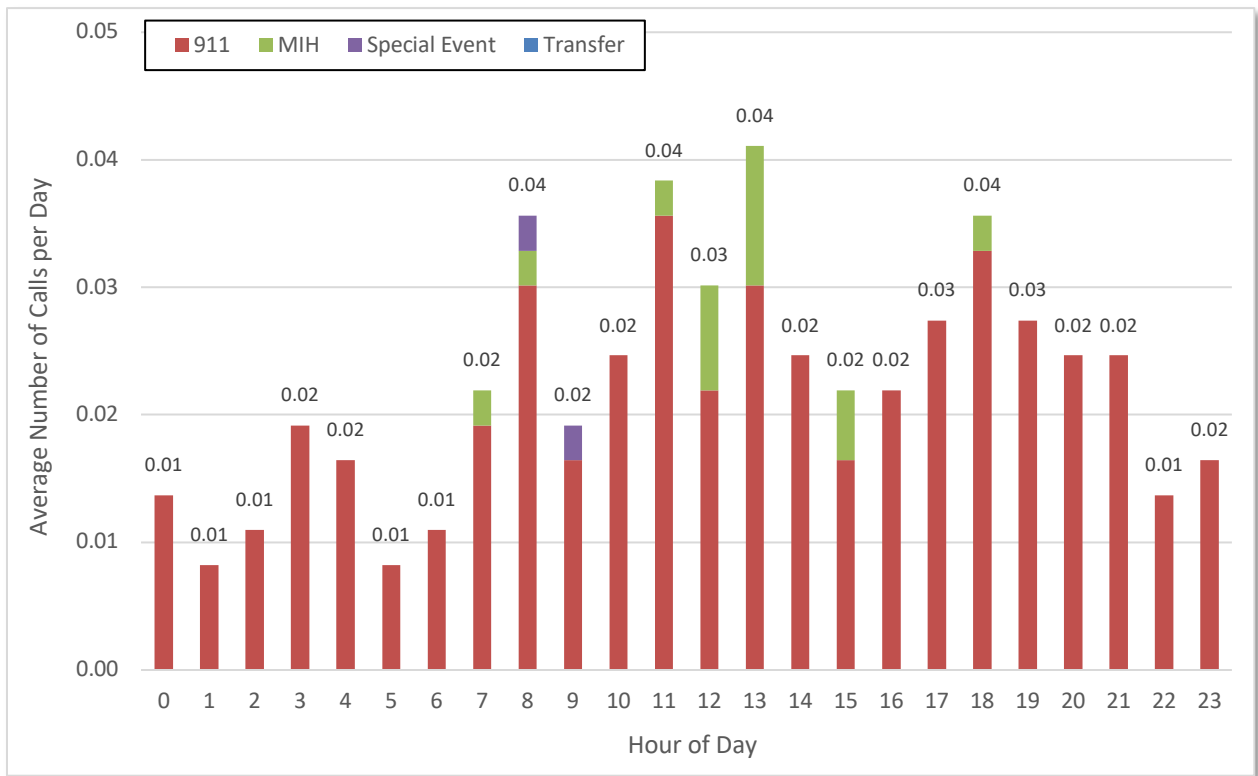


Figure 15: Overall: Average Calls per Day by Hour of Day – Naval Air Station (n=106)

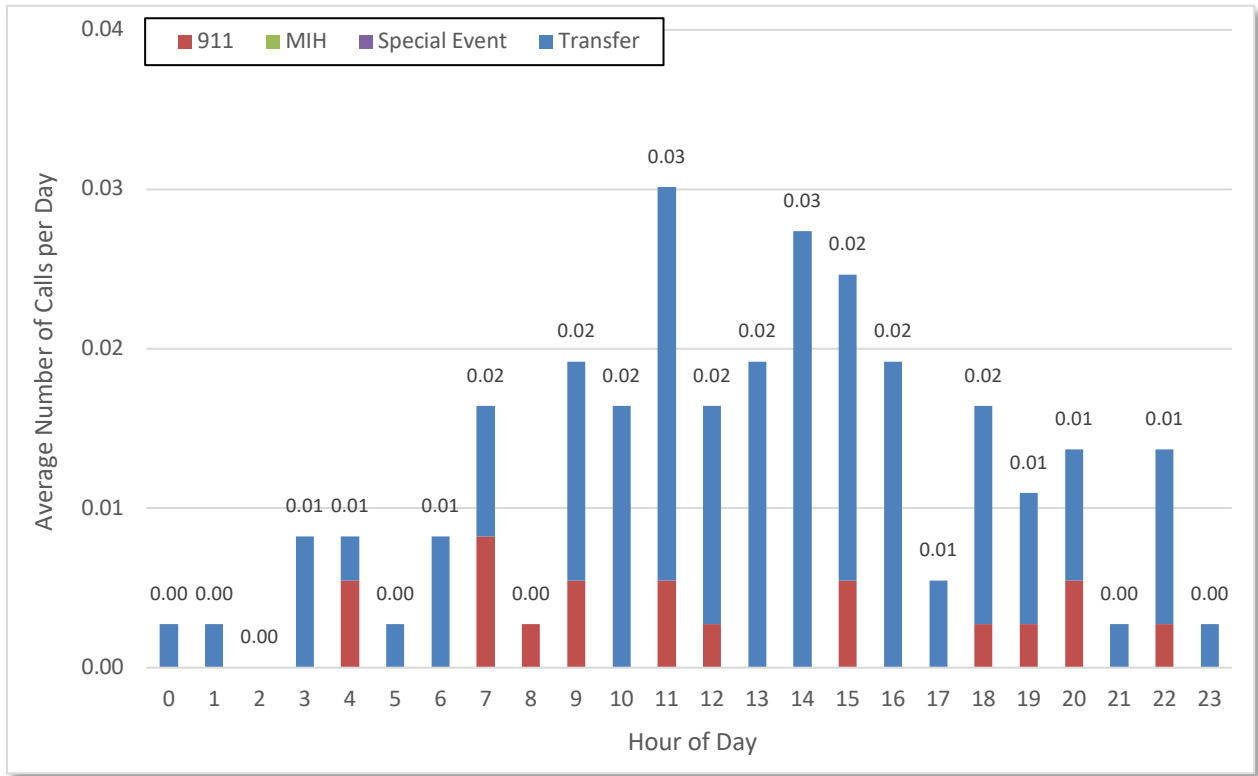


Figure 16: Overall: Average Calls per Day by Hour of Day – River Oaks (n=770)

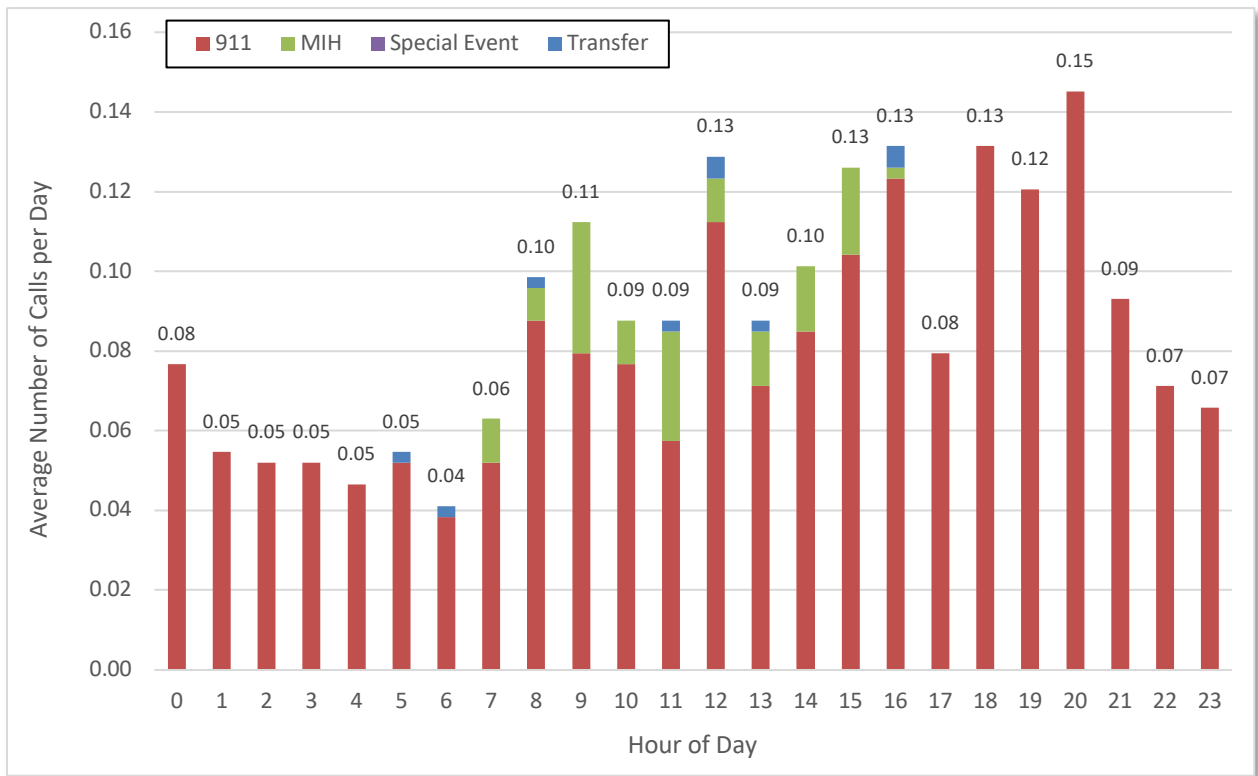


Figure 17: Overall: Average Calls per Day by Hour of Day – Saginaw (n=3,044)

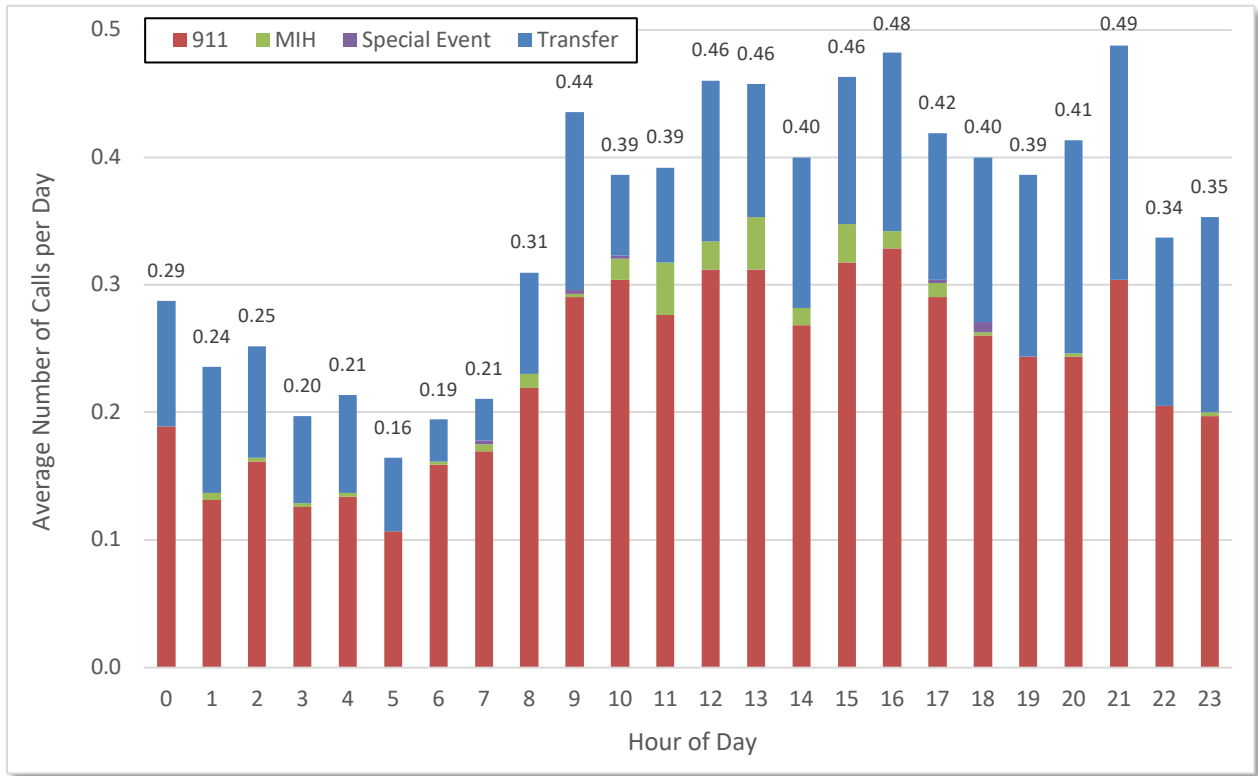


Figure 18: Overall: Average Calls per Day by Hour of Day – Sansom Park (n=1,124)

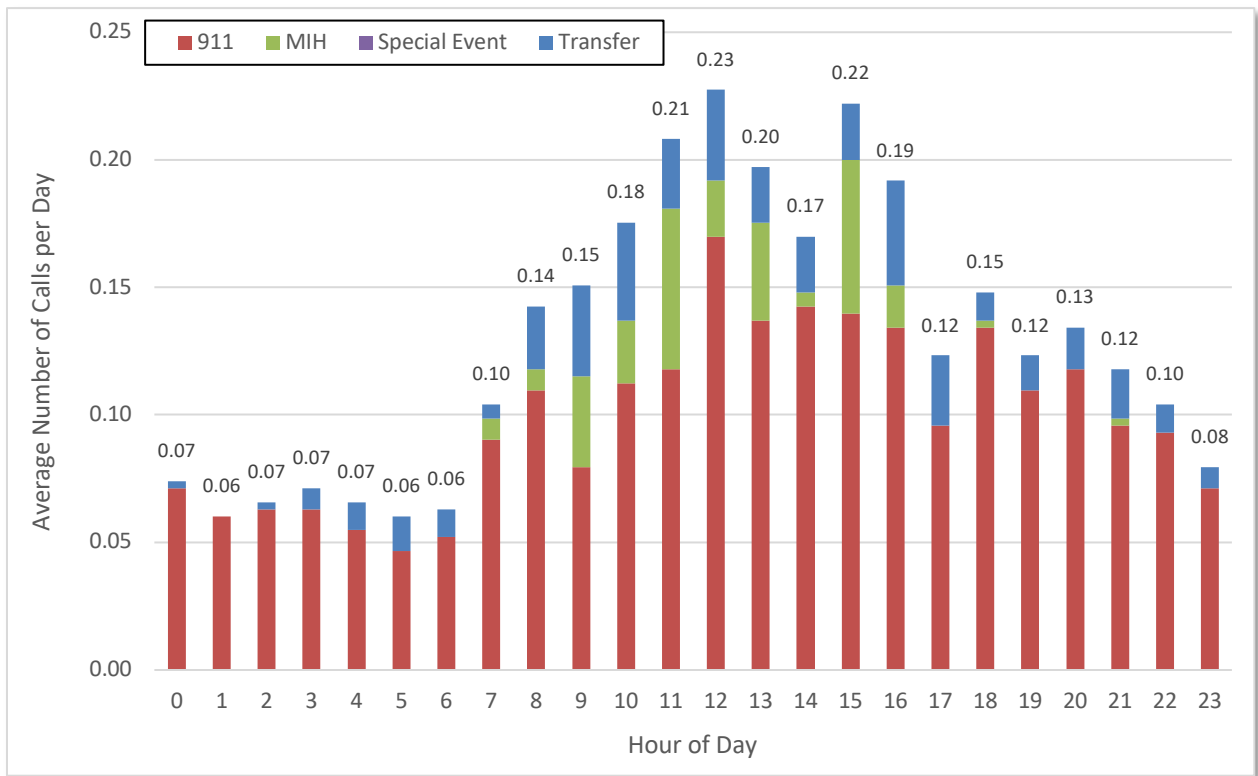


Figure 19: Overall: Average Calls per Day by Hour of Day – Westover Hills (n=28)

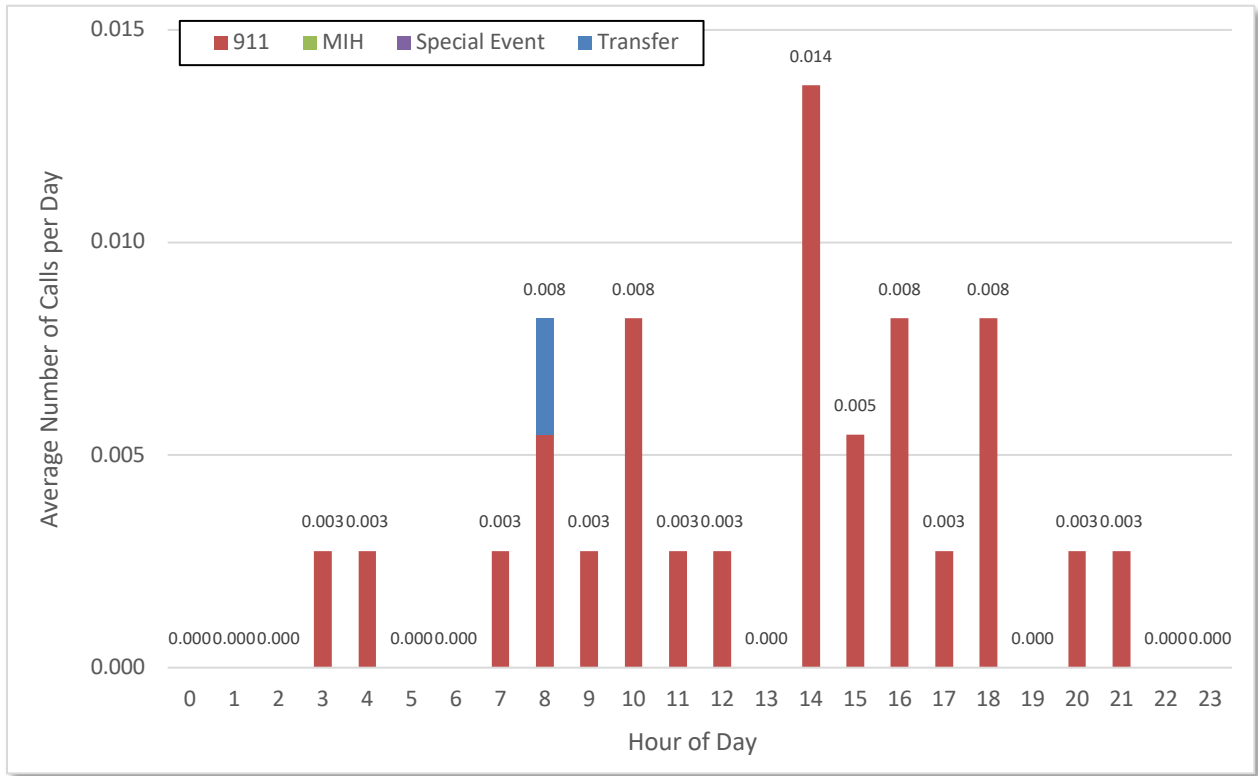


Figure 20: Overall: Average Calls per Day by Hour of Day – Westworth Village (n=550)

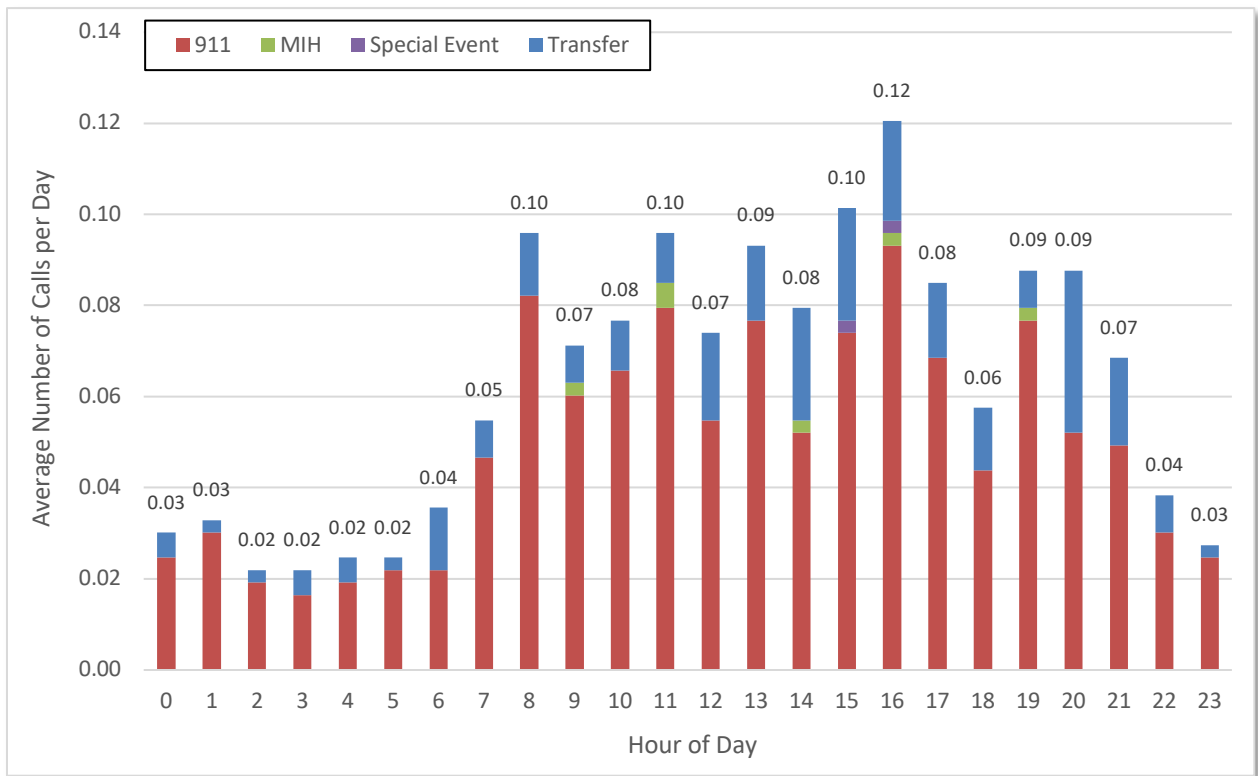


Figure 21: Overall: Average Calls per Day by Hour of Day – White Settlement (n=3,234)

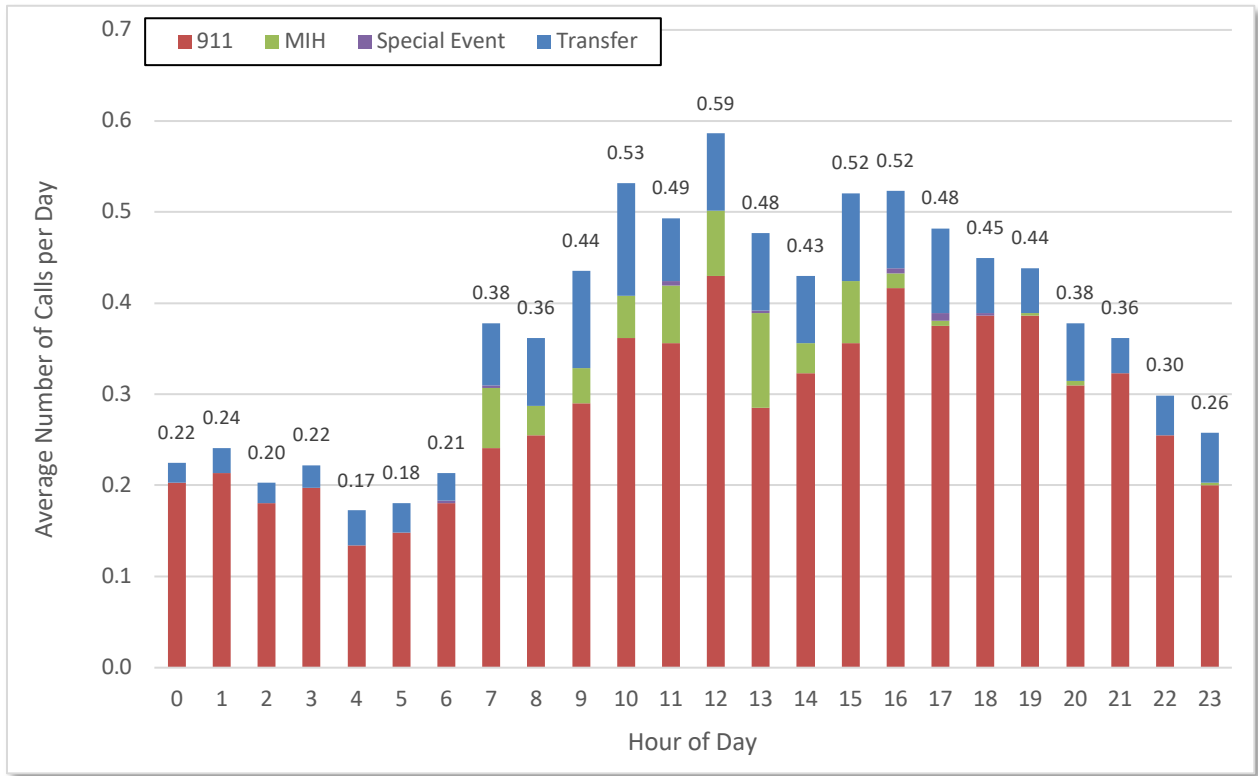
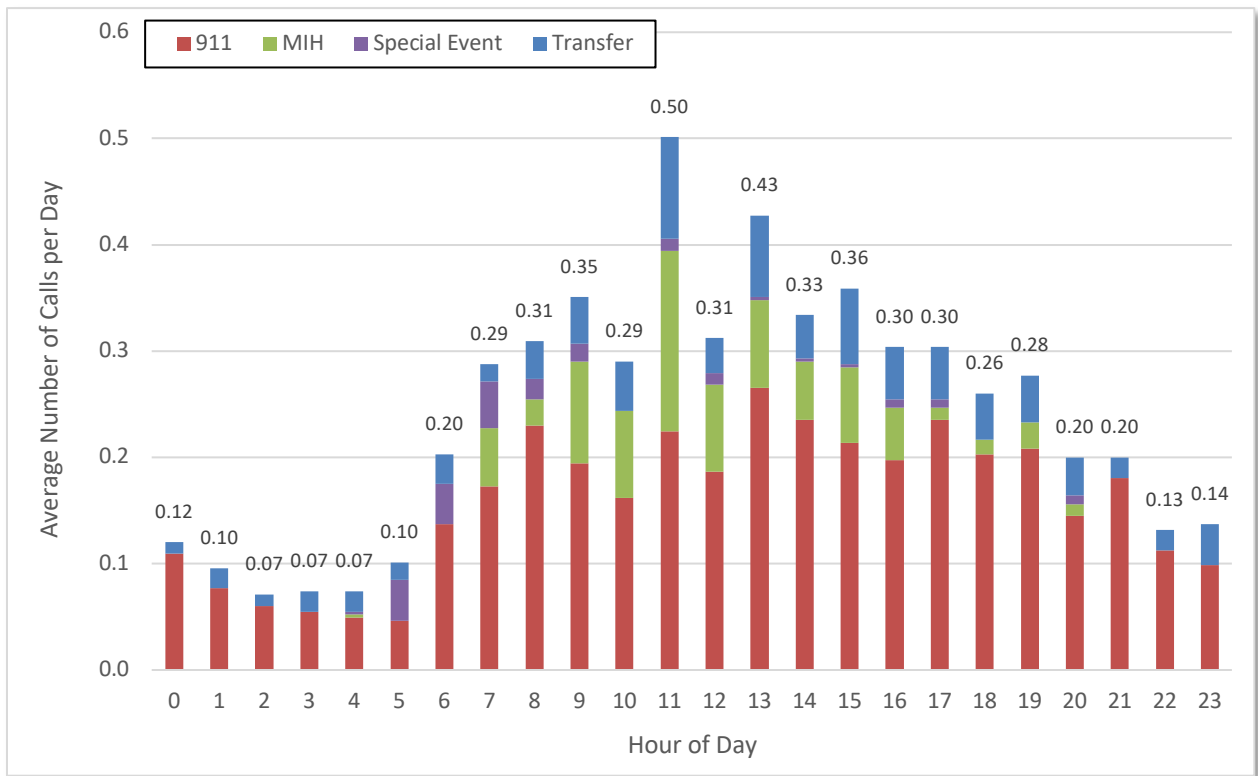


Figure 22: Overall: Average Calls per Day by Hour of Day – Other, Not MAEMSA (n=2,090)



Community Demand Related to 911 Calls

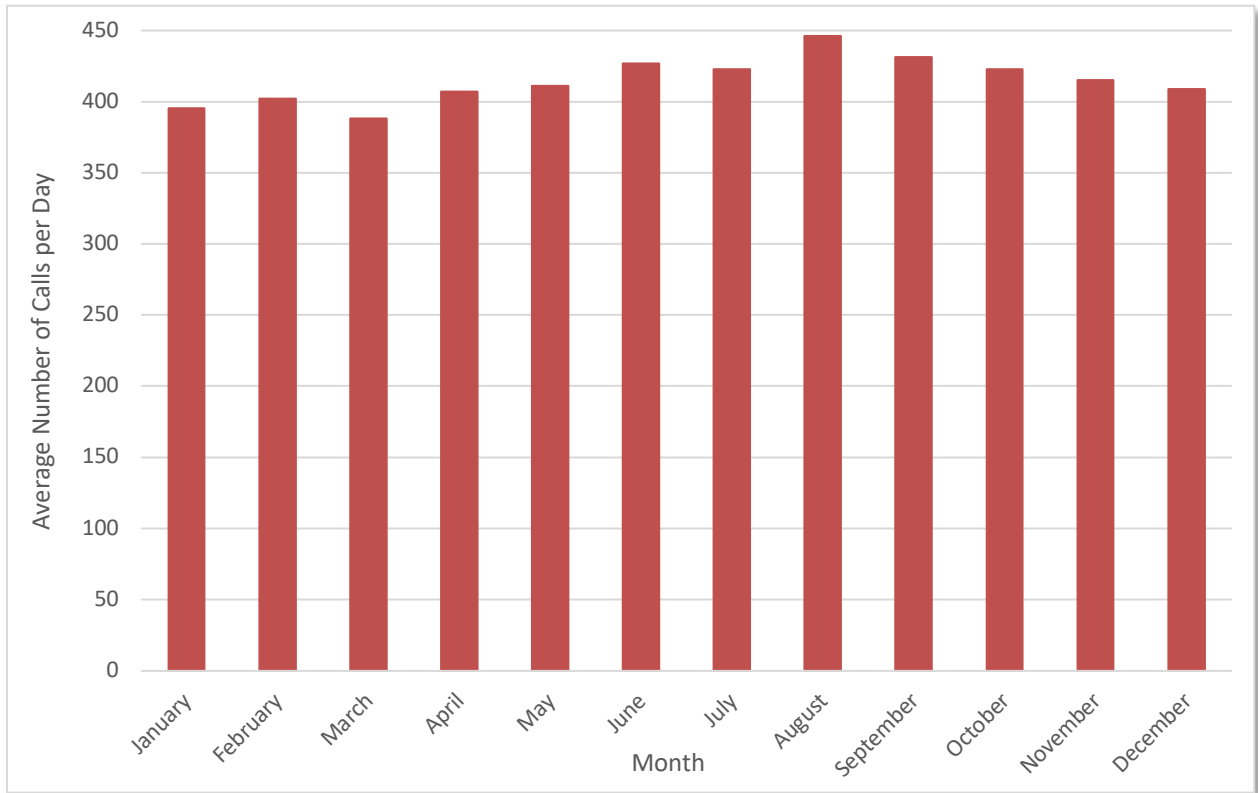
Temporal analyses were conducted to evaluate patterns in community demand for 911 calls. These analyses are based on the 151,433 requests for service related to 911 calls received from the community within the MAEMSA jurisdiction during 2022-23, and examine the frequency of requests for service by month, day of week, and hour of day.

Results found that there was variability by month (Table 14; Figure 23). The three months with the most 911 calls in descending order were: August (446.2 per day), September (431.1 per day), and June (426.9 per day). The three months with the fewest 911 calls in ascending order were: March (388.0 per day), January (395.5 per day), and February (402.3 per day).

Table 14: Total 911 Calls and Average Calls per Day by Month

Month	Number of Calls	Average Calls per Day	Call Percentage
January	12,262	395.5	8.1
February	11,263	402.3	7.4
March	12,027	388.0	7.9
April	12,207	406.9	8.1
May	12,748	411.2	8.4
June	12,807	426.9	8.5
July	13,102	422.6	8.7
August	13,833	446.2	9.1
September	12,934	431.1	8.5
October	13,109	422.9	8.7
November	12,460	415.3	8.2
December	12,681	409.1	8.4
Total	151,433	414.9	100.0

Figure 23: Average 911 Calls per Day by Month



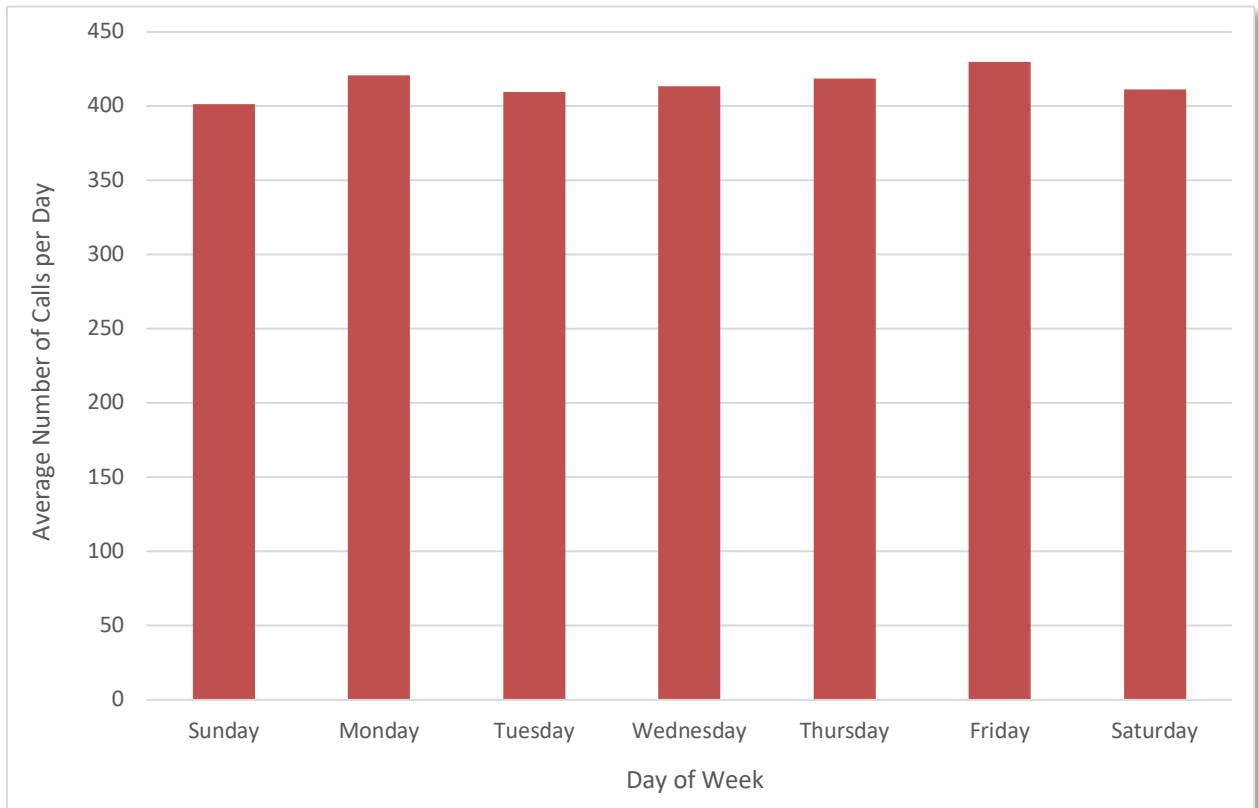
Similar analyses were conducted for 911 calls by day of week (Table 15; Figure 24). The data revealed that there is some variability in the demand for services by day of week. The three days with the most 911 calls in descending order were: Friday (429.7 per day), Monday (420.8 per day), and Thursday (418.5 per day). The three days with the fewest 911 calls in ascending order were: Sunday (401.2 per day), Tuesday (409.5 per day), and Saturday (411.2 per day).

Table 15: Total 911 Calls and Average Calls per Day by Day of Week

Day of Week ¹	Number of Calls	Average Calls per Day	Call Percentage
Sunday	20,862	401.2	13.8
Monday	21,882	420.8	14.4
Tuesday	21,295	409.5	14.1
Wednesday	21,495	413.4	14.2
Thursday	21,760	418.5	14.4
Friday	22,345	429.7	14.8
Saturday	21,794	411.2	14.4
Total	151,433	414.9	100.0

¹There were 53 Saturdays and 52 of all other days of the week during 2022-23.

Figure 24: Average 911 Calls per Day by Day of Week

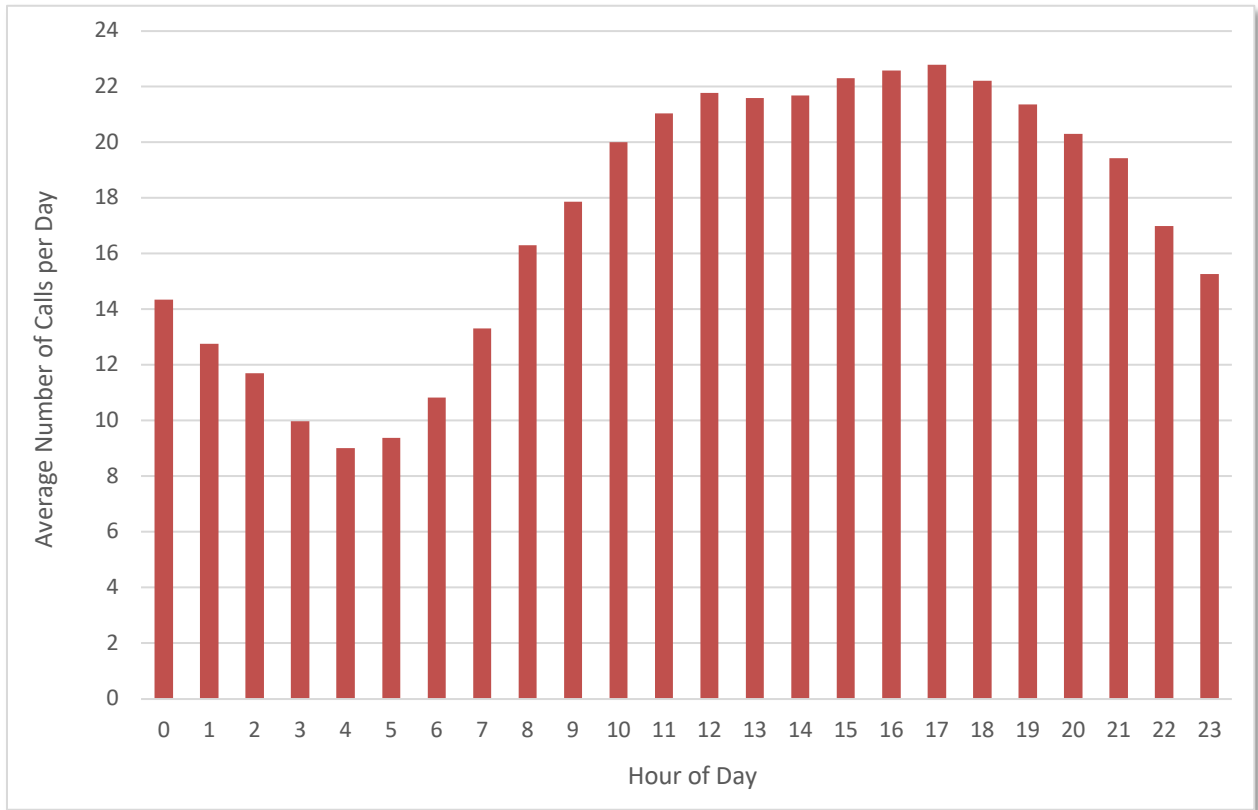


Total 911 calls in MAEMSA’s jurisdiction were also evaluated by hour of the day (Table 16; Figure 25). Variability exists in the time of day that requests for 911 related services were received. The hours from 0100 to 0600 had the lowest demands, when average number of calls per day for those hours ranged from 9.0 to 12.8. The highest demand for 911 related services occurred at 1700 (8,317 total 911 calls in 2022-23), when average number of calls per day during that hour was 22.8.

Table 16: Total 911 Calls and Average Calls per Day by Hour of Day

Hour of Day	Number of Calls	Average Calls per Day	Call Percentage
0	5,235	14.3	3.5
1	4,656	12.8	3.1
2	4,271	11.7	2.8
3	3,645	10.0	2.4
4	3,293	9.0	2.2
5	3,427	9.4	2.3
6	3,957	10.8	2.6
7	4,862	13.3	3.2
8	5,950	16.3	3.9
9	6,524	17.9	4.3
10	7,300	20.0	4.8
11	7,681	21.0	5.1
12	7,945	21.8	5.2
13	7,882	21.6	5.2
14	7,915	21.7	5.2
15	8,142	22.3	5.4
16	8,246	22.6	5.4
17	8,317	22.8	5.5
18	8,109	22.2	5.4
19	7,796	21.4	5.1
20	7,409	20.3	4.9
21	7,096	19.4	4.7
22	6,200	17.0	4.1
23	5,575	15.3	3.7
Total	151,433	414.9	100.0

Figure 25: Average 911 Calls per Day by Hour of Day



Within the MAEMSA jurisdiction, 911 calls accounted for 78.3% of total call volume in the jurisdiction during 2022-23 (i.e., 151,433/193,416; Figure 2; Table 4). Table 17 (sorted alphabetically) and Table 18 (sorted in descending order by call volume) present call volume metrics for 911 calls by specific area within the MAEMSA jurisdiction. The tables also report call percentage values, both as a percentage of MAEMSA’s total 911 calls, and as a percentage of the specific area’s total call volume.

For example, Fort Worth’s 911 call volume of 136,107 calls accounted for 89.9% of all 911 calls occurring within the MAEMSA jurisdiction during 2022-23. This same call volume of 136,107 911 calls accounted for 78.2% of Fort Worth’s total call volume (i.e., the remaining call volume is composed of MIH, transfer, and special event calls).

Table 17: Number of 911 Calls by Area – Sorted Alphabetically

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA’s Total 911 Calls)	Call Percentage (of Specific Area’s Total Calls)
Blue Mound	160	0.4	0.1	84.7
Edgecliff Village	300	0.8	0.2	89.0
Forest Hill	2,240	6.1	1.5	95.0
Fort Worth	136,107	372.9	89.9	78.2
Haltom City	4,107	11.3	2.7	79.9
Haslet	441	1.2	0.3	89.3
Lake Worth	1,342	3.7	0.9	79.6
Lakeside	181	0.5	0.1	92.3
Naval Air Station	18	< 0.1	< 0.1	17.0
River Oaks	704	1.9	0.5	91.4
Saginaw	2,027	5.6	1.3	66.6
Sansom Park	862	2.4	0.6	76.7
Westover Hills	27	0.1	< 0.1	96.4
Westworth Village	432	1.2	0.3	78.5
White Settlement	2,485	6.8	1.6	76.8
Total	151,433	414.9	100.0	78.3

Table 18: Number of 911 Calls by Area – Sorted in Descending Order by Call Volume

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA's Total 911 Calls)	Call Percentage (of Specific Area's Total Calls)
Fort Worth	136,107	372.9	89.9	78.2
Haltom City	4,107	11.3	2.7	79.9
White Settlement	2,485	6.8	1.6	76.8
Forest Hill	2,240	6.1	1.5	95.0
Saginaw	2,027	5.6	1.3	66.6
Lake Worth	1,342	3.7	0.9	79.6
Sansom Park	862	2.4	0.6	76.7
River Oaks	704	1.9	0.5	91.4
Haslet	441	1.2	0.3	89.3
Westworth Village	432	1.2	0.3	78.5
Edgecliff Village	300	0.8	0.2	89.0
Lakeside	181	0.5	0.1	92.3
Blue Mound	160	0.4	0.1	84.7
Westover Hills	27	0.1	< 0.1	96.4
Naval Air Station	18	< 0.1	< 0.1	17.0
Total	151,433	414.9	100.0	78.3

Community Demand Related to MIH Calls

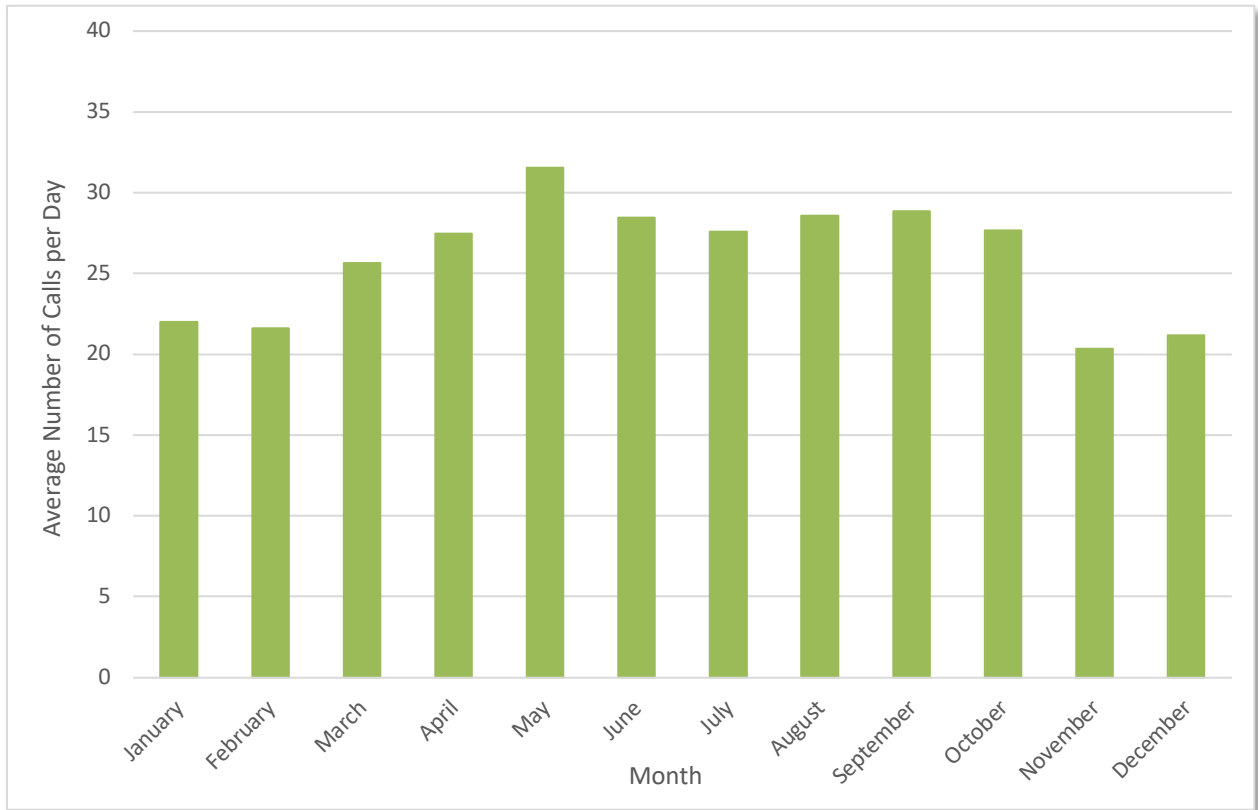
Temporal analyses were conducted to evaluate patterns in community demand for MIH calls. These analyses are based on the 9,468 requests for service related to MIH calls received from the community within the MAEMSA jurisdiction during 2022-23, and examine the frequency of requests for service by month, day of week, and hour of day. Note that hour of day could not be identified for two MIH calls (see Appendix for more details), such that metrics related to hour of day were based on 9,466 calls.

Results found that there was variability by month (Table 19; Figure 26). The three months with the most MIH calls in descending order were: May (31.5 per day), September (28.8 per day), and August (28.6 per day). The three months with the fewest MIH calls in ascending order were: November (20.3 per day), December (21.2 per day), and February (21.6 per day).

Table 19: Total MIH Calls and Average Calls per Day by Month

Month	Number of Calls	Average Calls per Day	Call Percentage
January	682	22.0	7.2
February	605	21.6	6.4
March	795	25.6	8.4
April	824	27.5	8.7
May	978	31.5	10.3
June	854	28.5	9.0
July	855	27.6	9.0
August	886	28.6	9.4
September	865	28.8	9.1
October	858	27.7	9.1
November	610	20.3	6.4
December	656	21.2	6.9
Total	9,468	25.9	100.0

Figure 26: Average MIH Calls per Day by Month



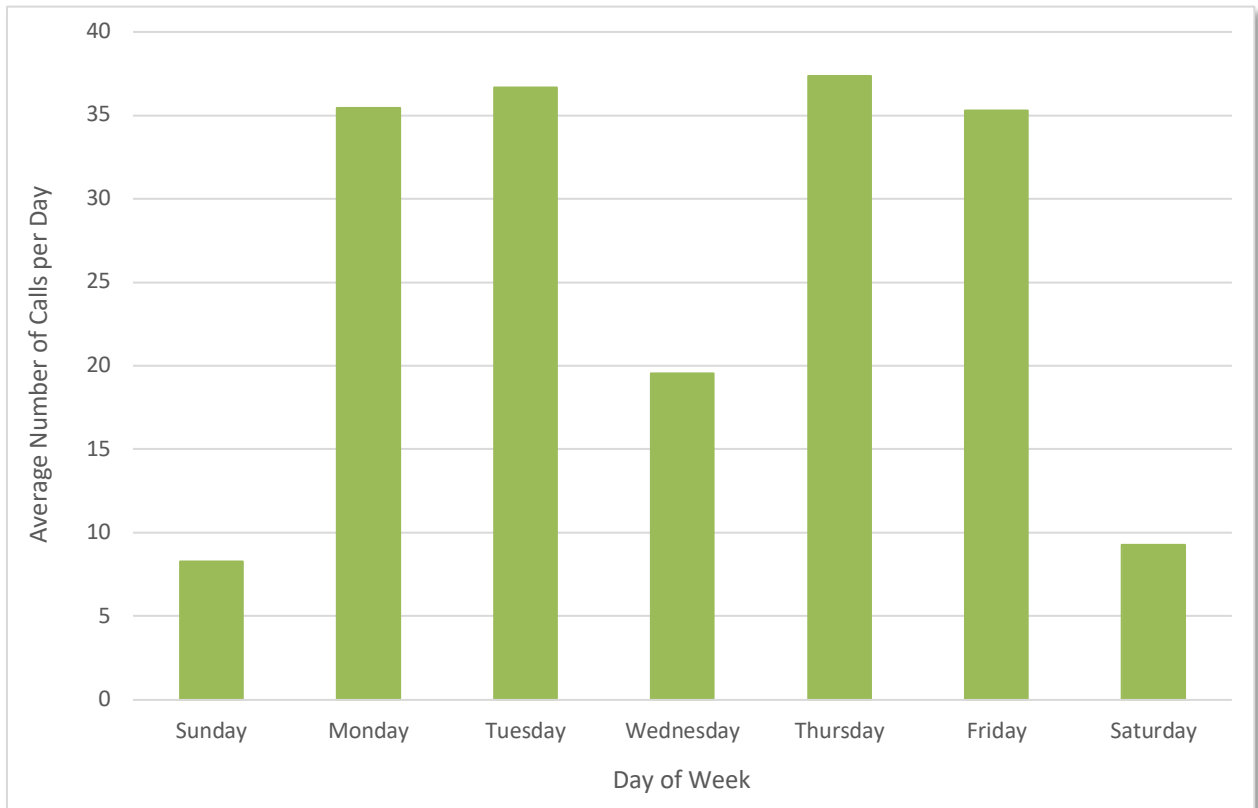
Similar analyses were conducted for MIH calls by day of week (Table 20; Figure 27). The data revealed that there is marked variability in the demand for services by day of week. The three days with the most MIH calls in descending order were: Thursday (37.3 per day), Tuesday (36.7 per day), and Monday (35.5 per day). The three days with the fewest MIH calls in ascending order were: Sunday (8.3 per day), Saturday (9.3 per day), and Wednesday (19.6 per day).

Table 20: Total MIH Calls and Average Calls per Day by Day of Week

Day of Week ¹	Number of Calls	Average Calls per Day	Call Percentage
Sunday	430	8.3	4.5
Monday	1,844	35.5	19.5
Tuesday	1,907	36.7	20.1
Wednesday	1,017	19.6	10.7
Thursday	1,942	37.3	20.5
Friday	1,836	35.3	19.4
Saturday	492	9.3	5.2
Total	9,468	25.9	100.0

¹There were 53 Saturdays and 52 of all other days of the week during 2022-23.

Figure 27: Average MIH Calls per Day by Day of Week



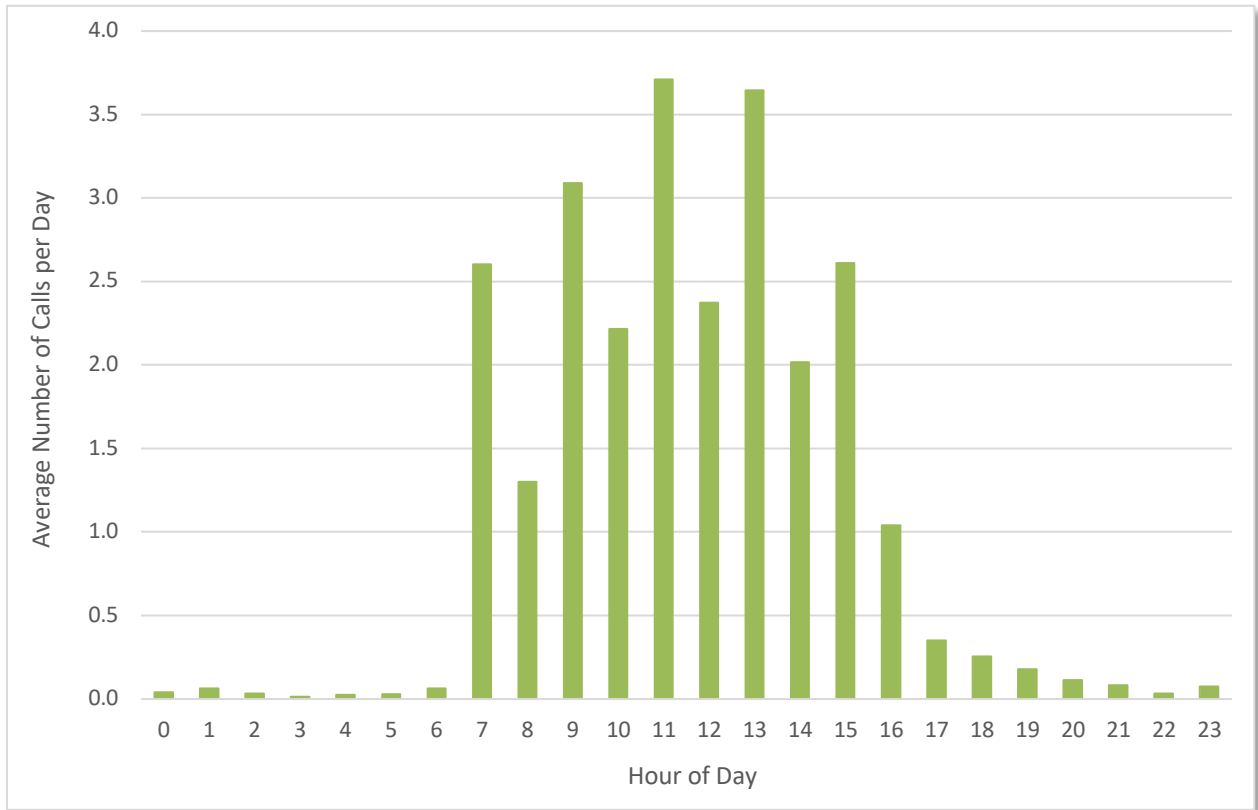
Total MIH calls in MAEMSA’s jurisdiction were also evaluated by hour of the day (Table 21; Figure 28). Variability exists in the time of day that requests for MIH related services were received. The hours from 0300 to 0500 had the lowest demands, when average number of calls per day for those hours ranged from 0.01 to 0.03. The highest demand for MIH related services occurred at 1100 (1,354 total MIH calls in 2022-23), when average number of calls per day during that hour was 3.7.

Table 21: Total MIH Calls and Average Calls per Day by Hour of Day

Hour of Day	Number of Calls ¹	Average Calls per Day	Call Percentage
0	14	0.0	0.1
1	22	0.1	0.2
2	11	0.0	0.1
3	5	0.0	0.1
4	9	0.0	0.1
5	10	0.0	0.1
6	23	0.1	0.2
7	950	2.6	10.0
8	475	1.3	5.0
9	1,127	3.1	11.9
10	809	2.2	8.5
11	1,354	3.7	14.3
12	866	2.4	9.1
13	1,330	3.6	14.1
14	736	2.0	7.8
15	953	2.6	10.1
16	379	1.0	4.0
17	127	0.3	1.3
18	93	0.3	1.0
19	65	0.2	0.7
20	41	0.1	0.4
21	30	0.1	0.3
22	11	0.0	0.1
23	26	0.1	0.3
Total	9,466	25.9	100.0

¹Hour of day could not be identified for two MIH calls (see Appendix for more details).

Figure 28: Average MIH Calls per Day by Hour of Day



Within the MAEMSA jurisdiction, MIH calls accounted for 4.9% of total call volume in the jurisdiction during 2022-23 (i.e., 9,468/193,416; Figure 2; Table 4). Table 22 (sorted alphabetically) and Table 23 (sorted in descending order by call volume) present call volume metrics for MIH calls by specific area within the MAEMSA jurisdiction. The tables also report call percentage values, both as a percentage of MAEMSA’s total MIH calls, and as a percentage of the specific area’s total call volume.

For example, Fort Worth’s MIH call volume of 8,455 calls accounted for 89.3% of all MIH calls occurring within the MAEMSA jurisdiction during 2022-23. This same call volume of 8,455 MIH calls accounted for 4.9% of Fort Worth’s total call volume (i.e., the remaining call volume is composed of 911, transfer, and special event calls).

Table 22: Number of MIH Calls by Area – Sorted Alphabetically

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA’s Total MIH Calls)	Call Percentage (of Specific Area’s Total Calls)
Blue Mound	27	0.1	0.3	14.3
Edgecliff Village	25	0.1	0.3	7.4
Forest Hill	106	0.3	1.1	4.5
Fort Worth	8,455	23.2	89.3	4.9
Haltom City	204	0.6	2.2	4.0
Haslet	35	0.1	0.4	7.1
Lake Worth	147	0.4	1.6	8.7
Lakeside	13	< 0.1	0.1	6.6
Naval Air Station	0	0.0	0.0	0.0
River Oaks	57	0.2	0.6	7.4
Saginaw	85	0.2	0.9	2.8
Sansom Park	105	0.3	1.1	9.3
Westover Hills	0	0.0	0.0	0.0
Westworth Village	6	< 0.1	0.1	1.1
White Settlement	203	0.6	2.1	6.3
Total	9,468	25.9	100.0	4.9

Table 23: Number of MIH Calls by Area – Sorted in Descending Order by Call Volume

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA's Total MIH Calls)	Call Percentage (of Specific Area's Total Calls)
Fort Worth	8,455	23.2	89.3	4.9
Haltom City	204	0.6	2.2	4.0
White Settlement	203	0.6	2.1	6.3
Lake Worth	147	0.4	1.6	8.7
Forest Hill	106	0.3	1.1	4.5
Sansom Park	105	0.3	1.1	9.3
Saginaw	85	0.2	0.9	2.8
River Oaks	57	0.2	0.6	7.4
Haslet	35	0.1	0.4	7.1
Blue Mound	27	0.1	0.3	14.3
Edgecliff Village	25	0.1	0.3	7.4
Lakeside	13	< 0.1	0.1	6.6
Westworth Village	6	< 0.1	0.1	1.1
Naval Air Station	0	0.0	0.0	0.0
Westover Hills	0	0.0	0.0	0.0
Total	9,468	25.9	100.0	4.9

Community Demand Related to Transfer Calls

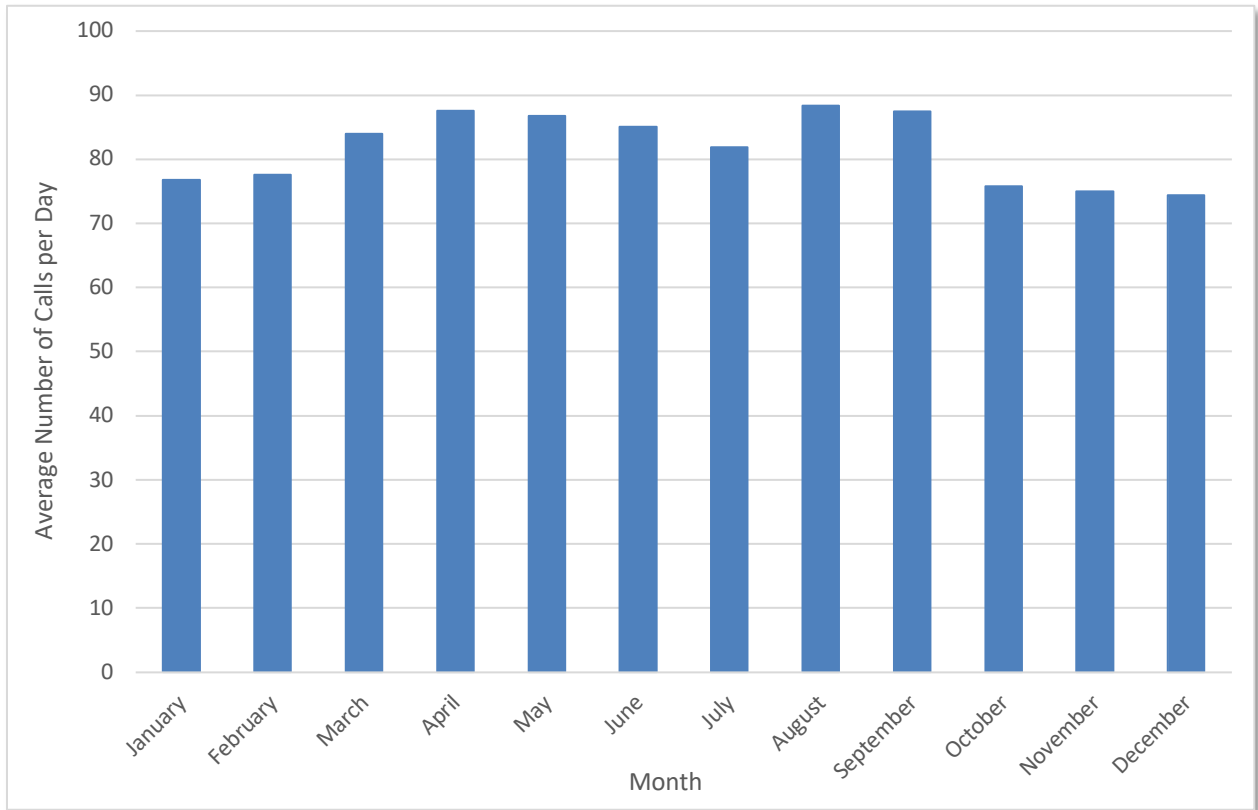
Temporal analyses were conducted to evaluate patterns in community demand for transfer calls. These analyses are based on the 29,827 requests for service related to transfer calls received from the community within the MAEMSA jurisdiction during 2022-23, and examine the frequency of requests for service by month, day of week, and hour of day.

Results found that there was variability by month (Table 24; Figure 29). The three months with the most transfer calls in descending order were: August (88.4 per day), April (87.6 per day), and September (87.4 per day). The three months with the fewest transfer calls in ascending order were: December (74.4 per day), November (75.0 per day), and October (75.7 per day).

Table 24: Total Transfer Calls and Average Calls per Day by Month

Month	Number of Calls	Average Calls per Day	Call Percentage
January	2,380	76.8	8.0
February	2,171	77.5	7.3
March	2,603	84.0	8.7
April	2,628	87.6	8.8
May	2,690	86.8	9.0
June	2,552	85.1	8.6
July	2,538	81.9	8.5
August	2,739	88.4	9.2
September	2,623	87.4	8.8
October	2,348	75.7	7.9
November	2,250	75.0	7.5
December	2,305	74.4	7.7
Total	29,827	81.7	100.0

Figure 29: Average Transfer Calls per Day by Month



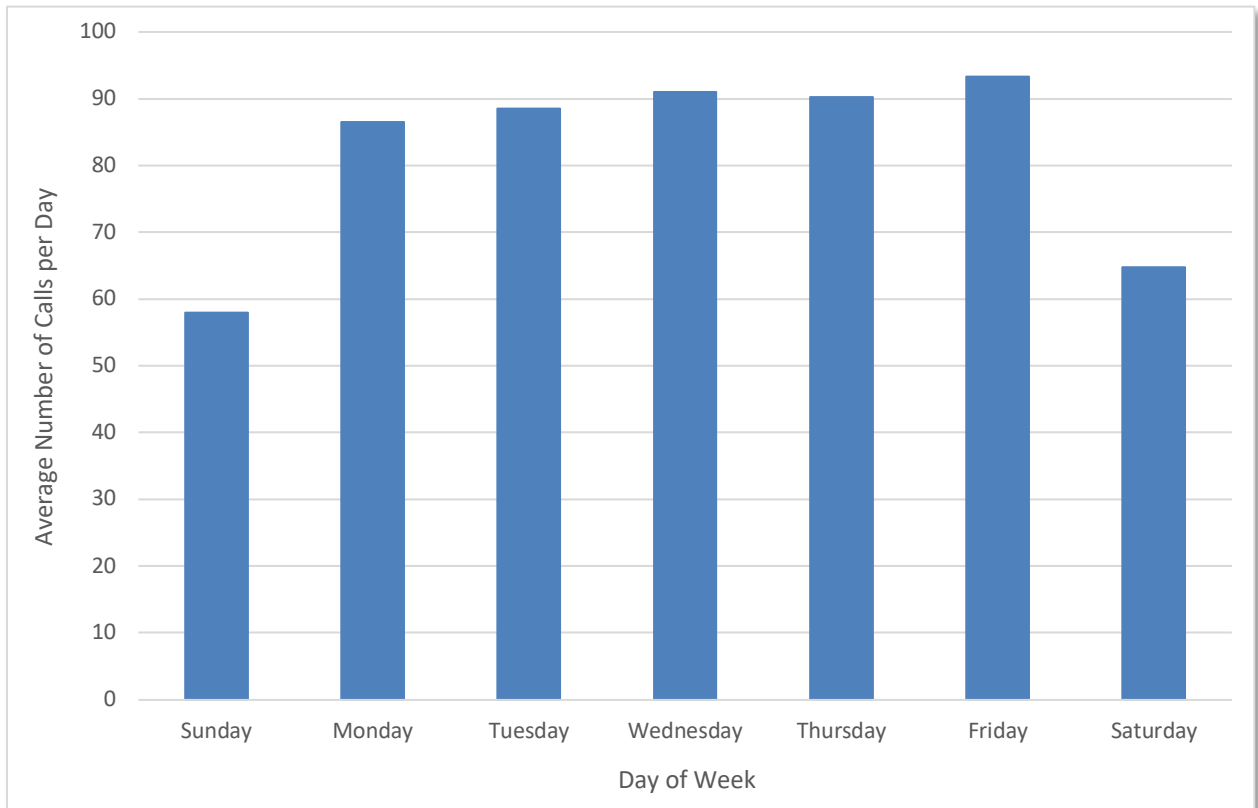
Similar analyses were conducted for transfer calls by day of week (Table 25; Figure 30). The data revealed that there is significant variability in the demand for services by day of week. The three days with the most transfer calls in descending order were: Friday (93.3 per day), Wednesday (91.1 per day), and Thursday (90.3 per day). The three days with the fewest transfer calls in ascending order were: Sunday (58.0 per day), Saturday (64.7 per day), and Monday (86.5 per day).

Table 25: Total Transfer Calls and Average Calls per Day by Day of Week

Day of Week ¹	Number of Calls	Average Calls per Day	Call Percentage
Sunday	3,014	58.0	10.1
Monday	4,500	86.5	15.1
Tuesday	4,605	88.6	15.4
Wednesday	4,735	91.1	15.9
Thursday	4,693	90.3	15.7
Friday	4,850	93.3	16.3
Saturday	3,430	64.7	11.5
Total	29,827	81.7	100.0

¹There were 53 Saturdays and 52 of all other days of the week during 2022-23.

Figure 30: Average Transfer Calls per Day by Day of Week

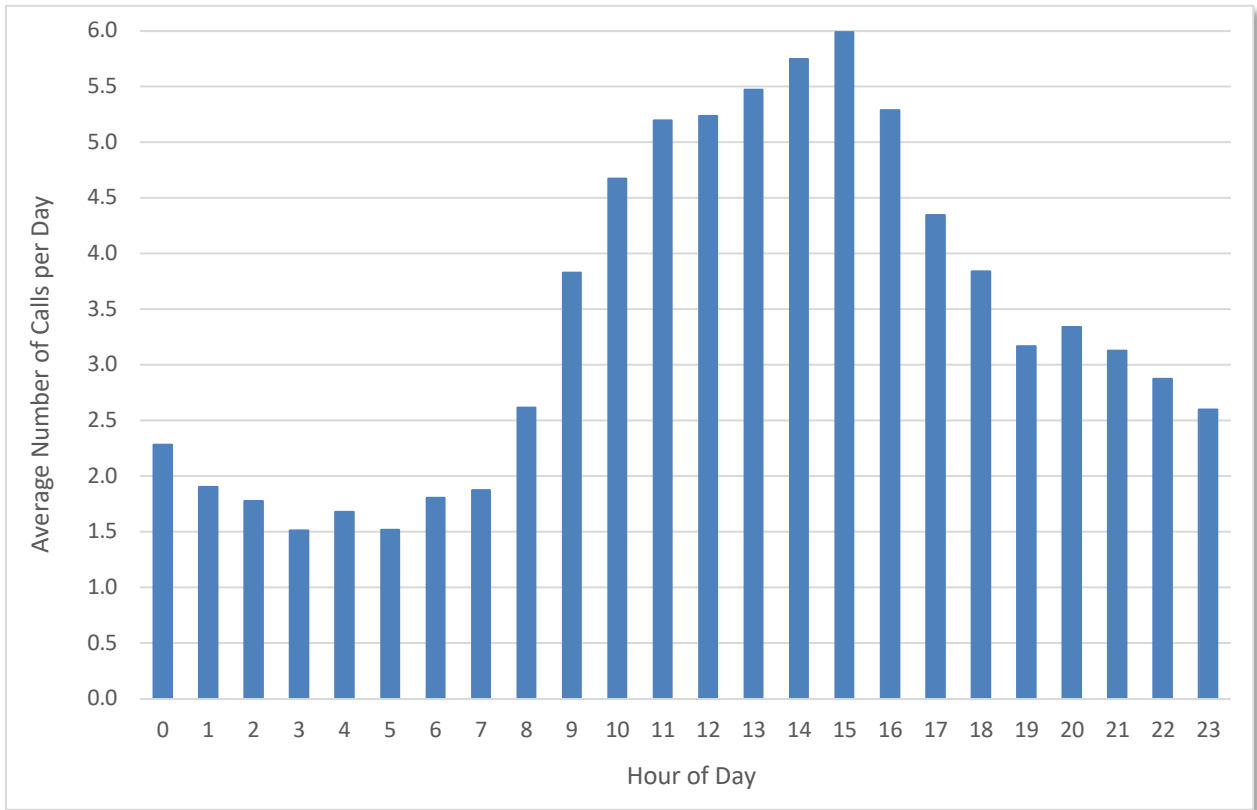


Total transfer calls in MAEMSA’s jurisdiction were also evaluated by hour of the day (Table 26; Figure 31). Variability exists in the time of day that requests for transfer related services were received. The hours from 0100 to 0700 had the lowest demands, when average number of calls per day for those hours ranged from 1.5 to 1.9. The highest demand for transfer related services occurred at 1500 (2,186 total transfer calls in 2022-23), when average number of calls per day during that hour was 6.0.

Table 26: Total Transfer Calls and Average Calls per Day by Hour of Day

Hour of Day	Number of Calls	Average Calls per Day	Call Percentage
0	834	2.3	2.8
1	695	1.9	2.3
2	649	1.8	2.2
3	553	1.5	1.9
4	612	1.7	2.1
5	555	1.5	1.9
6	658	1.8	2.2
7	684	1.9	2.3
8	955	2.6	3.2
9	1,398	3.8	4.7
10	1,706	4.7	5.7
11	1,898	5.2	6.4
12	1,911	5.2	6.4
13	1,997	5.5	6.7
14	2,099	5.8	7.0
15	2,186	6.0	7.3
16	1,931	5.3	6.5
17	1,587	4.3	5.3
18	1,402	3.8	4.7
19	1,157	3.2	3.9
20	1,220	3.3	4.1
21	1,141	3.1	3.8
22	1,050	2.9	3.5
23	949	2.6	3.2
Total	29,827	81.7	100.0

Figure 31: Average Transfer Calls per Day by Hour of Day



Within the MAEMSA jurisdiction, transfer calls accounted for 15.4% of total call volume in the jurisdiction during 2022-23 (i.e., 29,827/193,416; Figure 2; Table 4). Table 27 (sorted alphabetically) and Table 28 (sorted in descending order by call volume) present call volume metrics for transfer calls by specific area within the MAEMSA jurisdiction. The tables also report call percentage values, both as a percentage of MAEMSA’s total transfer calls, and as a percentage of the specific area’s total call volume.

For example, Fort Worth’s transfer call volume of 27,556 calls accounted for 92.4% of all transfer calls occurring within the MAEMSA jurisdiction during 2022-23. This same call volume of 27,556 transfer calls accounted for 15.8% of Fort Worth’s total call volume (i.e., the remaining call volume is composed of 911, MIH, and special event calls).

Table 27: Number of Transfer Calls by Area – Sorted Alphabetically

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA’s Total Transfer Calls)	Call Percentage (of Specific Area’s Total Calls)
Blue Mound	2	< 0.1	< 0.1	1.1
Edgecliff Village	12	< 0.1	< 0.1	3.6
Forest Hill	10	< 0.1	< 0.1	0.4
Fort Worth	27,556	75.5	92.4	15.8
Haltom City	233	0.6	0.8	4.5
Haslet	17	< 0.1	0.1	3.4
Lake Worth	172	0.5	0.6	10.2
Lakeside	0	0.0	0.0	0.0
Naval Air Station	88	0.2	0.3	83.0
River Oaks	9	< 0.1	< 0.1	1.2
Saginaw	925	2.5	3.1	30.4
Sansom Park	157	0.4	0.5	14.0
Westover Hills	1	< 0.1	< 0.1	3.6
Westworth Village	110	0.3	0.4	20.0
White Settlement	535	1.5	1.8	16.5
Total	29,827	81.7	100.0	15.4

Table 28: Number of Transfer Calls by Area – Sorted in Descending Order by Call Volume

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA's Total Transfer Calls)	Call Percentage (of Specific Area's Total Calls)
Fort Worth	27,556	75.5	92.4	15.8
Saginaw	925	2.5	3.1	30.4
White Settlement	535	1.5	1.8	16.5
Haltom City	233	0.6	0.8	4.5
Lake Worth	172	0.5	0.6	10.2
Sansom Park	157	0.4	0.5	14.0
Westworth Village	110	0.3	0.4	20.0
Naval Air Station	88	0.2	0.3	83.0
Haslet	17	< 0.1	0.1	3.4
Edgecliff Village	12	< 0.1	< 0.1	3.6
Forest Hill	10	< 0.1	< 0.1	0.4
River Oaks	9	< 0.1	< 0.1	1.2
Blue Mound	2	< 0.1	< 0.1	1.1
Westover Hills	1	< 0.1	< 0.1	3.6
Lakeside	0	0.0	0.0	0.0
Total	29,827	81.7	100.0	15.4

Community Demand Related to Special Event Calls

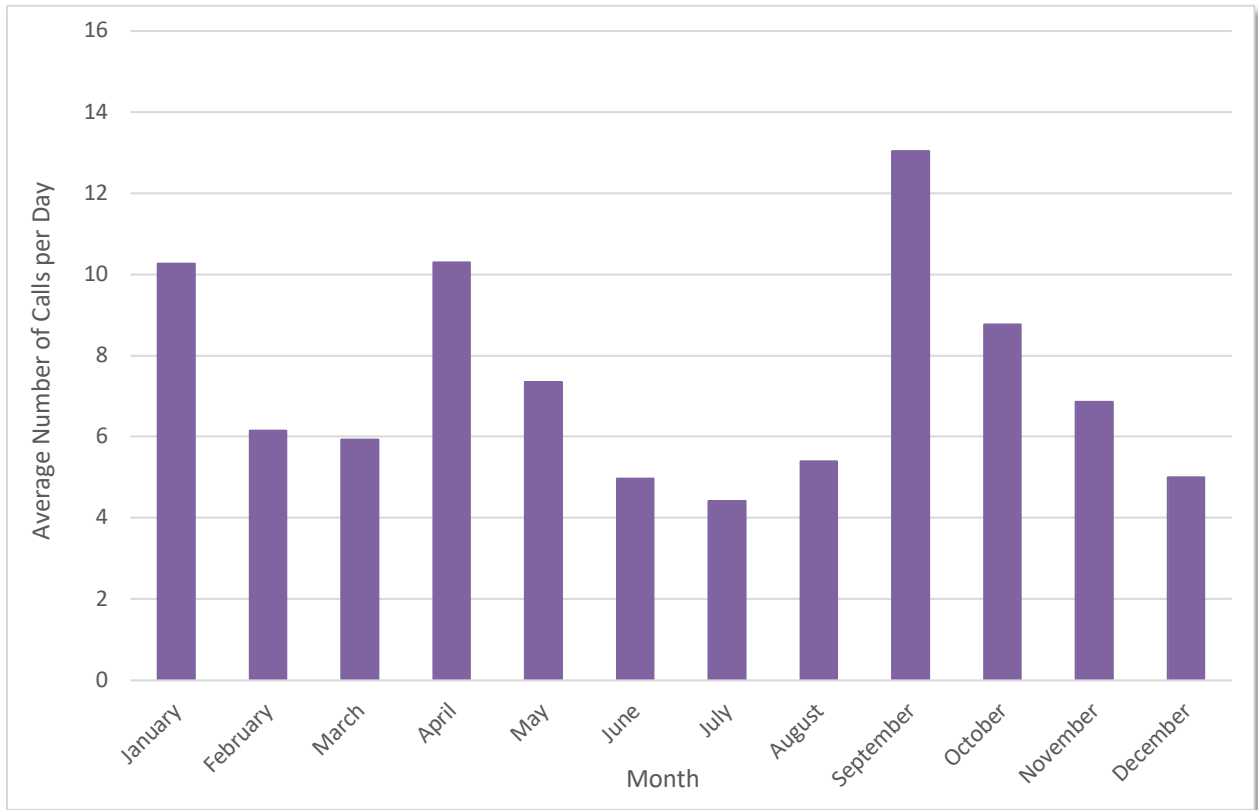
Temporal analyses were conducted to evaluate patterns in community demand for special event calls. These analyses are based on the 2,688 requests for service related to special event calls received from the community within the MAEMSA jurisdiction during 2022-23, and examine the frequency of requests for service by month, day of week, and hour of day.

Results found that there was variability by month (Table 29; Figure 32). The three months with the most special event calls in descending order were: September (13.0 per day), April (10.3 per day), and January (10.3 per day). The three months with the fewest special event calls in ascending order were: July (4.4 per day), June (5.0 per day), and December (5.0 per day).

Table 29: Total Special Event Calls and Average Calls per Day by Month

Month	Number of Calls	Average Calls per Day	Call Percentage
January	318	10.3	11.8
February	172	6.1	6.4
March	184	5.9	6.8
April	309	10.3	11.5
May	228	7.4	8.5
June	149	5.0	5.5
July	137	4.4	5.1
August	167	5.4	6.2
September	391	13.0	14.5
October	272	8.8	10.1
November	206	6.9	7.7
December	155	5.0	5.8
Total	2,688	7.4	100.0

Figure 32: Average Special Event Calls per Day by Month



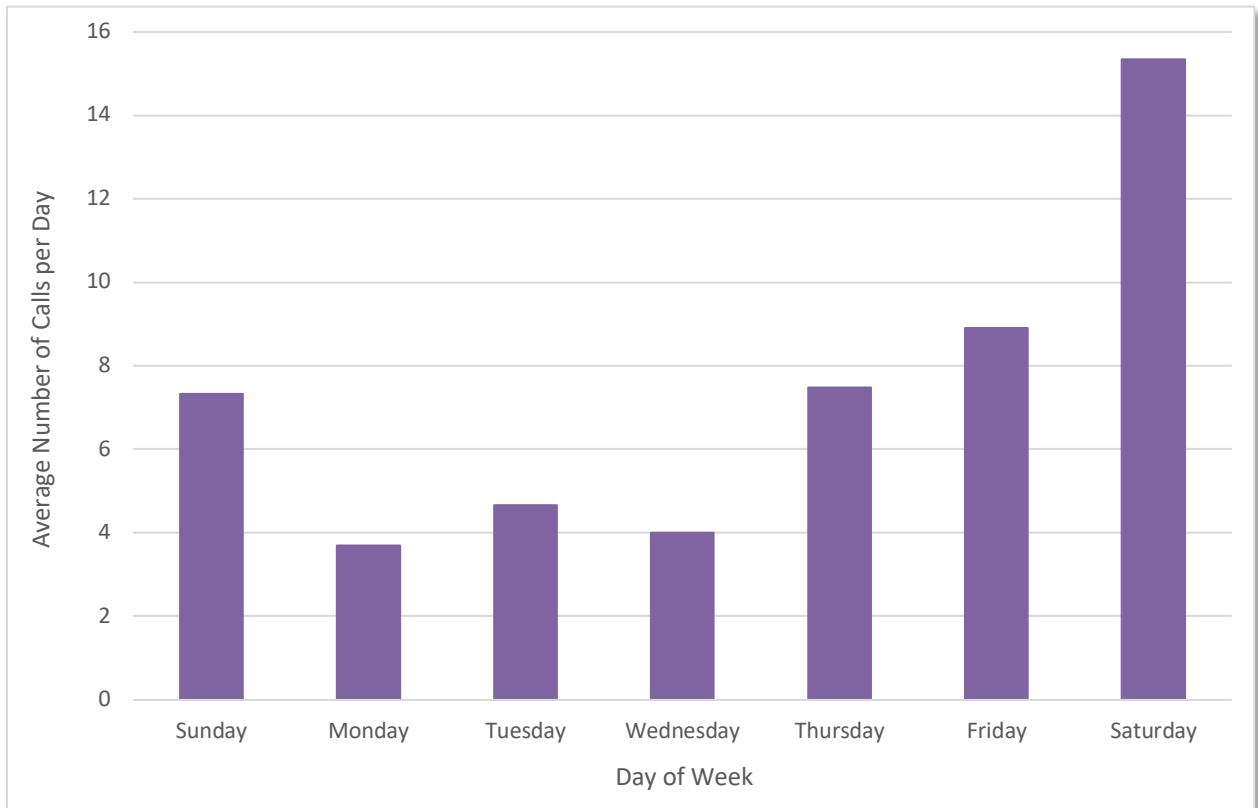
Similar analyses were conducted for special event calls by day of week (Table 30; Figure 33). The data revealed that there is variability in the demand for services by day of week. The three days with the most special event calls in descending order were: Saturday (15.3 per day), Friday (8.9 per day), and Thursday (7.5 per day). The three days with the fewest special event calls in ascending order were: Monday (3.7 per day), Wednesday (4.0 per day), and Tuesday (4.7 per day).

Table 30: Total Special Event Calls and Average Calls per Day by Day of Week

Day of Week ¹	Number of Calls	Average Calls per Day	Call Percentage
Sunday	381	7.3	14.2
Monday	192	3.7	7.1
Tuesday	242	4.7	9.0
Wednesday	208	4.0	7.7
Thursday	389	7.5	14.5
Friday	463	8.9	17.2
Saturday	813	15.3	30.2
Total	2,688	7.4	100.0

¹There were 53 Saturdays and 52 of all other days of the week during 2022-23.

Figure 33: Average Special Event Calls per Day by Day of Week

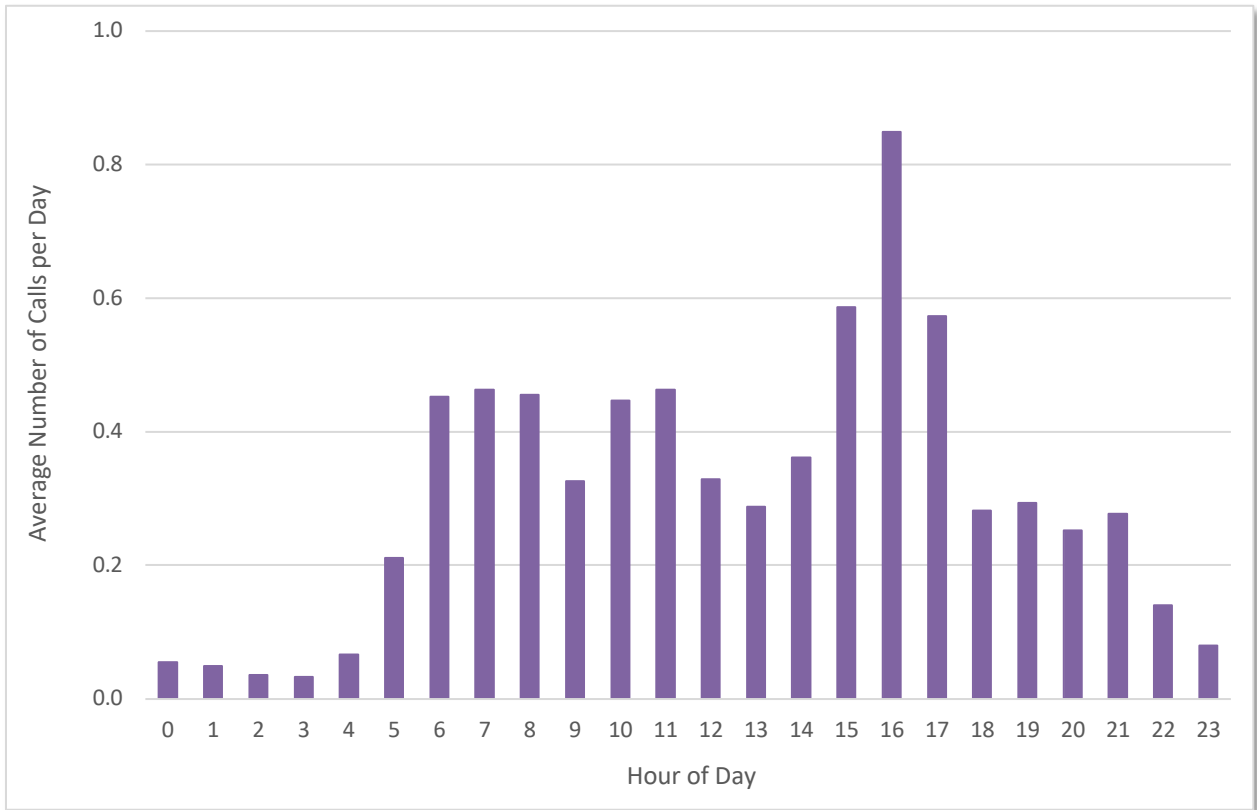


Total special event calls in MAEMSA’s jurisdiction were also evaluated by hour of the day (Table 31; Figure 34). Variability exists in the time of day that requests for special event related services were received. The hours from 0000 to 0400 had the lowest demands, when average number of calls per day for those hours ranged from 0.03 to 0.07. The highest demand for special event related services occurred at 1600 (310 total special event calls in 2022-23), when average number of calls per day during that hour was 0.85.

Table 31: Total Special Event Calls and Average Calls per Day by Hour of Day

Hour of Day	Number of Calls	Average Calls per Day	Call Percentage
0	20	0.05	0.7
1	18	0.05	0.7
2	13	0.04	0.5
3	12	0.03	0.4
4	24	0.07	0.9
5	77	0.21	2.9
6	165	0.45	6.1
7	169	0.46	6.3
8	166	0.45	6.2
9	119	0.33	4.4
10	163	0.45	6.1
11	169	0.46	6.3
12	120	0.33	4.5
13	105	0.29	3.9
14	132	0.36	4.9
15	214	0.59	8.0
16	310	0.85	11.5
17	209	0.57	7.8
18	103	0.28	3.8
19	107	0.29	4.0
20	92	0.25	3.4
21	101	0.28	3.8
22	51	0.14	1.9
23	29	0.08	1.1
Total	2,688	7.4	100.0

Figure 34: Average Special Event Calls per Day by Hour of Day



Within the MAEMSA jurisdiction, special event calls accounted for 1.4% of total call volume in the jurisdiction during 2022-23 (i.e., 2,688/193,416; Figure 2; Table 4). Table 32 (sorted alphabetically) and Table 33 (sorted in descending order by call volume) present call volume metrics for special event calls by specific area within the MAEMSA jurisdiction. The tables also report call percentage values, both as a percentage of MAEMSA’s total special event calls, and as a percentage of the specific area’s total call volume.

For example, Fort Worth’s special event call volume of 2,040 calls accounted for 75.9% of all special event calls occurring within the MAEMSA jurisdiction during 2022-23. This same call volume of 2,040 special event calls accounted for 1.2% of Fort Worth’s total call volume (i.e., the remaining call volume is composed of 911, MIH, and transfer calls).

Table 32: Number of Special Event Calls by Area – Sorted Alphabetically

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA’s Total Special Event Calls)	Call Percentage (of Specific Area’s Total Calls)
Blue Mound	0	0.0	0.0	0.0
Edgecliff Village	0	0.0	0.0	0.0
Forest Hill	2	< 0.1	0.1	0.1
Fort Worth	2,040	5.6	75.9	1.2
Haltom City	599	1.6	22.3	11.6
Haslet	1	< 0.1	< 0.1	0.2
Lake Worth	24	0.1	0.9	1.4
Lakeside	2	< 0.1	0.1	1.0
Naval Air Station	0	0.0	0.0	0.0
River Oaks	0	0.0	0.0	0.0
Saginaw	7	< 0.1	0.3	0.2
Sansom Park	0	0.0	0.0	0.0
Westover Hills	0	0.0	0.0	0.0
Westworth Village	2	< 0.1	0.1	0.4
White Settlement	11	< 0.1	0.4	0.3
Total	2,688	7.4	100.0	1.4

Table 33: Number of Special Event Calls by Area – Sorted in Descending Order by Call Volume

Area	Number of Calls	Average Calls per Day	Call Percentage (of MAEMSA's Total Special Event Calls)	Call Percentage (of Specific Area's Total Calls)
Fort Worth	2,040	5.6	75.9	1.2
Haltom City	599	1.6	22.3	11.6
Lake Worth	24	0.1	0.9	1.4
White Settlement	11	< 0.1	0.4	0.3
Saginaw	7	< 0.1	0.3	0.2
Forest Hill	2	< 0.1	0.1	0.1
Lakeside	2	< 0.1	0.1	1.0
Westworth Village	2	< 0.1	0.1	0.4
Haslet	1	< 0.1	< 0.1	0.2
Blue Mound	0	0.0	0.0	0.0
Edgecliff Village	0	0.0	0.0	0.0
Naval Air Station	0	0.0	0.0	0.0
River Oaks	0	0.0	0.0	0.0
Sansom Park	0	0.0	0.0	0.0
Westover Hills	0	0.0	0.0	0.0
Total	2,688	7.4	100.0	1.4

RESPONSE VOLUME AND BUSY TIME

Busy time, or time on task, was measured for each unique call using the earliest unit dispatch date and time (used earliest staging dispatch time when applicable) and latest unit clear date and time (used latest staging clear time if no scene-related clear time was available, and as applicable). Calls during 2022-23 resulted in 209,146.8 busy hours within the MAEMSA jurisdiction, and 2,544.2 busy hours in areas other than the MAEMSA jurisdiction, for a total of 211,691.0 busy hours across all jurisdictions (Table 34). Average busy minutes per call within the MAEMSA jurisdiction was 65.4 minutes. Within MAEMSA’s jurisdiction, there were 270,720 unique MedStar unit dispatches (i.e., “responses,” regardless of response disposition, such as re-assignment or cancellation), averaging 741.7 responses per day, and 1.4 responses per call.

Table 34: Number of Calls, Total Busy Time, and Number of Responses by Jurisdiction and Call Type

Jurisdiction	Call Type	Number of Calls	Average Calls per Day	Calls with Time Data ¹	Total Busy Hours	Average Busy Minutes per Call	Number of Responses ²	Average Responses per Day	Average Responses per Call
All	911	152,820	418.7	151,331	142,842.1	56.6	220,449	604.0	1.4
	MIH	9,771	26.8	9,720	13,604.2	84.0	10,448	28.6	1.1
	Transfer	30,149	82.6	30,129	45,360.3	90.3	39,762	108.9	1.3
	Special Event	2,766	7.6	2,677	9,884.5	221.5	2,757	7.6	1.0
	Total	195,506	535.6	193,857	211,691.0	65.5	273,416	749.1	1.4
MAEMSA	911	151,433	414.9	149,958	141,746.3	56.7	218,641	599.0	1.4
	MIH	9,468	25.9	9,417	13,130.4	83.7	10,130	27.8	1.1
	Transfer	29,827	81.7	29,808	44,845.6	90.3	39,270	107.6	1.3
	Special Event	2,688	7.4	2,601	9,424.5	217.4	2,679	7.3	1.0
	Total	193,416	529.9	191,784	209,146.8	65.4	270,720	741.7	1.4
Other	911	1,387	3.8	1,373	1,095.7	47.9	1,808	5.0	1.3
	MIH	303	0.8	303	473.8	93.8	318	0.9	1.0
	Transfer	322	0.9	321	514.7	96.2	492	1.3	1.5
	Special Event	78	0.2	76	460.0	363.2	78	0.2	1.0
	Total	2,090	5.7	2,073	2,544.2	73.6	2,696	7.4	1.3

¹“Calls with Time Data” reflects the number of unique calls in the data file with calculated busy time not otherwise missing or excluded.

²“Number of Responses” reflects the total number of unique MedStar unit dispatches.

Fort Worth was overwhelmingly the busiest area within MAEMSA’s jurisdiction, with 89.3% of all responses occurring in that area during 2022-23, for a total of 244,285 responses and 188,238.9 busy hours (Table 35; Figure 35; Figure 36 presents the metrics without Fort Worth for adjustment of the y-axis range tailored to the remaining areas).

Table 35: Number of Calls, Total Busy Time, and Number of Responses by Jurisdiction and Area

Jurisdiction and Area	Number of Calls	Average Calls per Day	Calls with Time Data ¹	Total Busy Hours	Average Busy Minutes per Call	Number of Responses ²	Average Responses per Day	Average Responses per Call	Response Percentage
MAEMSA	193,416	529.9	191,784	209,146.8	65.4	270,720	741.7	1.4	99.0
Blue Mound	189	0.5	189	207.0	65.7	241	0.7	1.3	0.1
Edgecliff Village	337	0.9	335	357.5	64.0	461	1.3	1.4	0.2
Forest Hill	2,358	6.5	2,356	2,341.1	59.6	3,313	9.1	1.4	1.2
Fort Worth	174,158	477.1	172,572	188,238.9	65.4	244,285	669.3	1.4	89.3
Haltom City	5,143	14.1	5,126	4,974.3	58.2	6,900	18.9	1.3	2.5
Haslet	494	1.4	493	507.6	61.8	632	1.7	1.3	0.2
Lake Worth	1,685	4.6	1,678	2,001.2	71.6	2,299	6.3	1.4	0.8
Lakeside	196	0.5	193	233.5	72.6	263	0.7	1.3	0.1
Naval Air Station	106	0.3	106	169.9	96.2	142	0.4	1.3	0.1
River Oaks	770	2.1	767	817.4	63.9	1,079	3.0	1.4	0.4
Saginaw	3,044	8.3	3,039	3,576.5	70.6	3,972	10.9	1.3	1.5
Sansom Park	1,124	3.1	1,123	1,321.9	70.6	1,561	4.3	1.4	0.6
Westover Hills	28	0.1	28	30.0	64.4	40	0.1	1.4	< 0.1
Westworth Village	550	1.5	550	685.0	74.7	831	2.3	1.5	0.3
White Settlement	3,234	8.9	3,229	3,685.0	68.5	4,701	12.9	1.5	1.7
Other	2,090	5.7	2,073	2,544.2	73.6	2,696	7.4	1.3	1.0
Outside of MAEMSA	2,063	5.7	2,047	2,535.3	74.3	2,667	7.3	1.3	1.0
Unknown	27	0.1	26	9.0	20.7	29	0.1	1.1	< 0.1
Total	195,506	535.6	193,857	211,691.0	65.5	273,416	749.1	1.4	100.0

¹“Calls with Time Data” reflects the number of unique calls in the data file with calculated busy time not otherwise missing or excluded.

²“Number of Responses” reflects the total number of unique MedStar unit dispatches.

Figure 35: Number of Responses and Response Percentage by Area – With Fort Worth

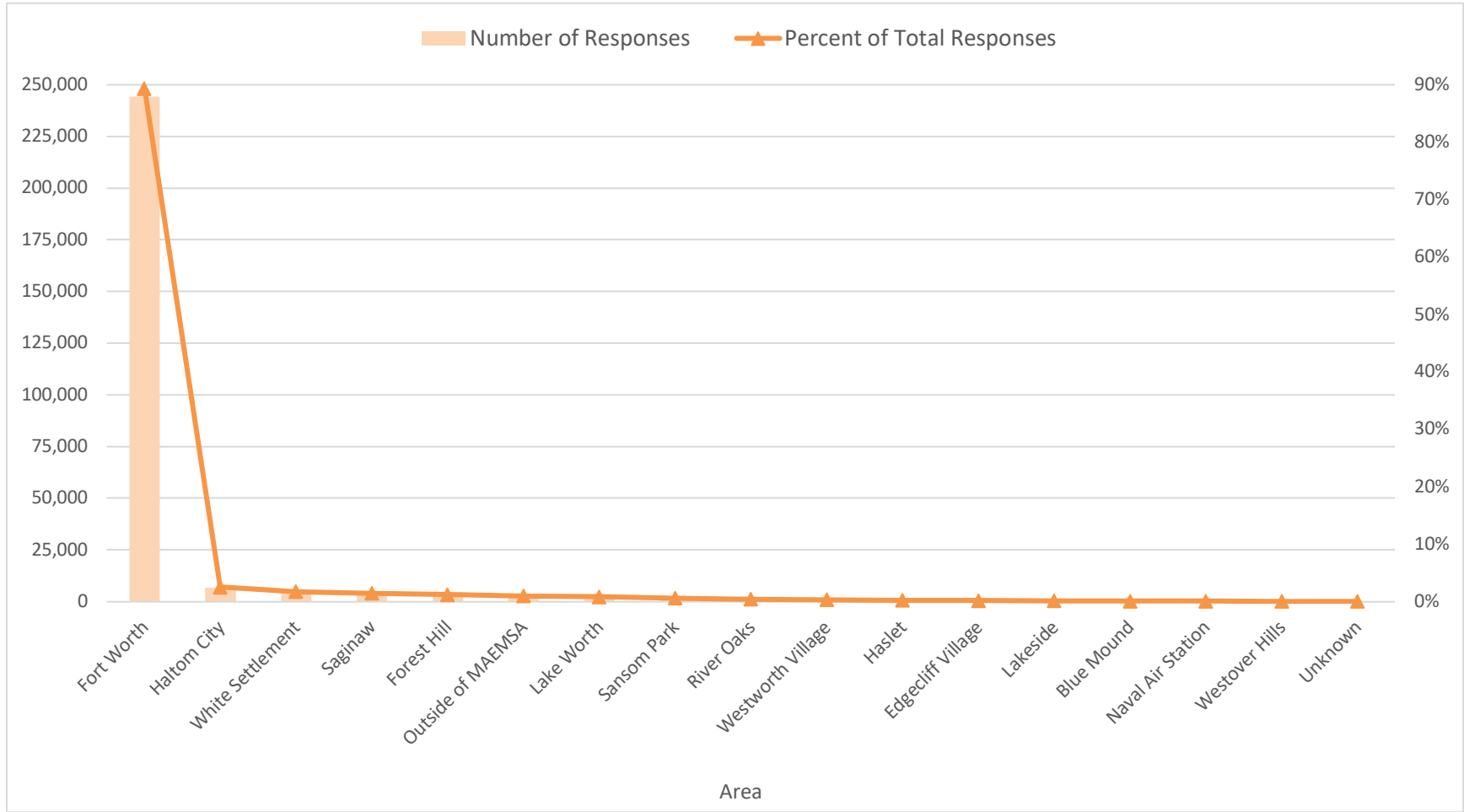
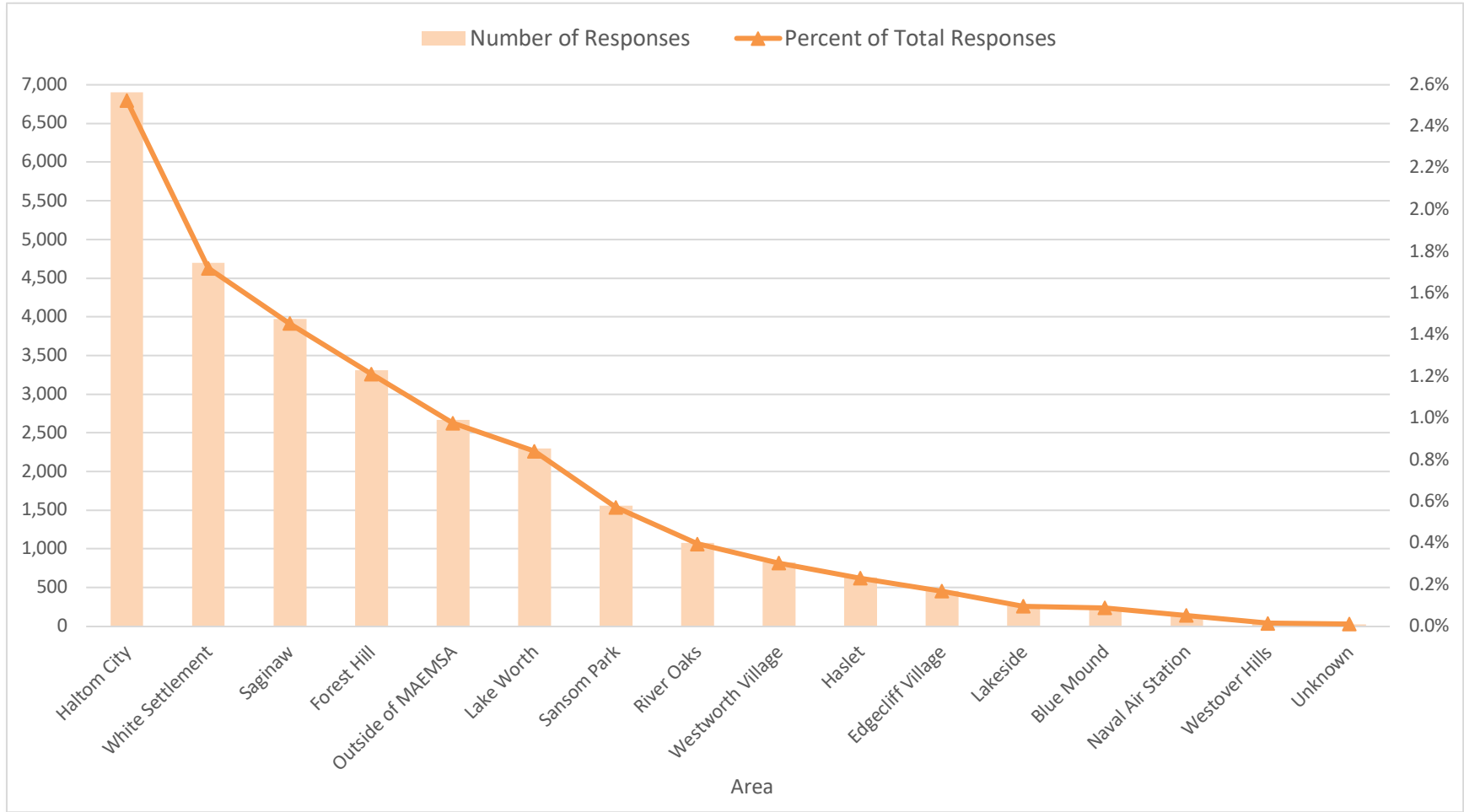


Figure 36: Number of Responses and Response Percentage by Area – Without Fort Worth



Unit Hour Utilization

Another measure, time on task, is necessary to evaluate best practices in efficient system delivery and consider the impact workload has on personnel. Unit Hour Utilization (UHU) values represent the proportion of the work period (e.g., 24 hours) that is utilized responding to requests for service.

Historically, the International Association of Fire Fighters (IAFF) has recommended that 24-hour units utilize 0.30, or 30% workload as an upper threshold.¹ In other words, this recommendation would have personnel spend no more than 7.2 hours per day on emergency incidents. These thresholds take into consideration the necessity to accomplish non-emergency activities such as training, health and wellness, public education, and fire inspections. The 4th edition of the IAFF EMS Guidebook no longer specifically identifies an upper threshold. However, FITCH recommends that an upper unit utilization threshold of approximately 0.30, or 30%, would be considered best practice. In other words, units and personnel should not exceed 30%, or 7.2 hours, of their work day responding to calls. These recommendations are also validated in the literature. For example, in their review of the City of Rolling Meadows, the Illinois Fire Chiefs Association utilized a UHU threshold of 0.30 as an indication to add additional resources.² Similarly, in a standards of cover study facilitated by the Center for Public Safety Excellence, the Castle Rock Fire and Rescue Department utilizes a UHU of 0.30 as the upper limit in their standards of cover due to the necessity to accomplish other non-emergency activities.³

UHU analyses for MedStar were conducted at the system level, using the busy time for 911 and transfer calls calculated at the call level, and considering an average of 880.45 deployed hours per day during 2022-23 (i.e., including only unit types of ALS, BLS, and CCP). The maximum number of busy hours available across the system during 2022-23 was 321,364.25 (i.e., 880.45 hours x 365 days). UHU values were obtained by dividing total busy hours by maximum available busy hours. Within MAEMSA's jurisdiction, UHU was 0.58 for 2022-23 (Table 36).

Table 36: UHU by Jurisdiction – 911 and Transfer Calls

Jurisdiction	Total Busy Hours	Maximum Available Busy Hours	UHU
MAEMSA	186,591.9	321,364.25	0.58
All	188,202.4	321,364.25	0.59

¹ International Association of Firefighters. (1995). *Emergency Medical Services: A Guidebook for Fire-Based Systems*. Washington, DC: Author. (p. 11)

² Illinois Fire Chiefs Association. (2012). *An Assessment of Deployment and Station Location: Rolling Meadows Fire Department*. Rolling Meadows, Illinois: Author. (pp. 54-55)

³ Castle Rock Fire and Rescue Department. (2011). *Community Risk Analysis and Standards of Cover*. Castle Rock, Colorado: Author. (p. 58)

TRANSPORT

We analyzed outcomes of calls in the MAEMSA jurisdiction through an examination of the “Response Disposition” and “To Hospital Date and Time” variables available in the data file. Calls were considered to be transport calls if at least one unit response for the call reported a transport-related response disposition (i.e., “Call complete/ Pt transported,” “Call complete/pt transported,” or “Transported”), or if at least one unit response for the call reported a date and time stamp for the “To Hospital Date and Time” variable, regardless of the value reported for response disposition.

For the purposes of transport-related analyses, calls were considered to be non-transport calls if they were classified as 911 or transfer calls (i.e., no MIH or special event calls were included), had at least one arriving unit, and did not meet the criteria for classification as a transport call, as described above. Together, these transport and non-transport calls constituted the total number of calls included in these analyses.

Call Volume, Call Duration, and Transport Rate

The number of calls with at least one response indicating a patient transport during 2022-23 totaled 122,731, for an overall transport rate of 74.6% (i.e., 122,731 of 164,417 total calls; Table 37; Table 38 by severity). Transport rates for 911 and transfer calls were 69.9% and 96.3%, respectively.

Duration of a call is defined as the difference between the earliest “Clock Start” date and time and the latest unit clear date and time for each unique call. Call duration values that were negative, zero, or over 24 hours were excluded. The average duration of a non-transport call was 34.9 minutes, and the average duration of a transport call was 82.6 minutes.

Table 37: Non-Transport and Transport Calls by Call Type and Response Protocol

Call Type and Response Protocol	Non-Transport		Transport		Total Number of Calls	Transport Rate (%)
	Average Call Duration (Minutes)	Number of Calls	Average Call Duration (Minutes)	Number of Calls		
911	34.1	40,581	74.8	94,306	134,887	69.9
Emergency, Lights and Sirens	30.8	19,003	75.9	34,453	53,456	64.5
Non-Emergency, No Lights and Sirens	37.1	21,566	74.3	59,850	81,416	73.5
Unknown	65.8	12	96.8	3	15	20.0
Transfer	62.8	1,105	108.5	28,425	29,530	96.3
Emergency, Lights and Sirens	50.1	446	82.1	6,367	6,813	93.5
Non-Emergency, No Lights and Sirens	71.6	659	116.2	22,058	22,717	97.1
Total	34.9	41,686	82.6	122,731	164,417	74.6

Table 38: Non-Transport and Transport Calls by Severity

Severity	Non-Transport		Transport		Total Number of Calls	Transport Rate (%)
	Average Call Duration (Minutes)	Number of Calls	Average Call Duration (Minutes)	Number of Calls		
	Alpha	37.2	8,600	85.3		
Bravo	30.5	11,468	86.1	14,631	26,099	56.1
Charlie	39.4	7,163	78.8	33,379	40,542	82.3
Delta	32.7	10,817	78.3	29,622	40,439	73.3
Echo	46.2	797	80.4	1,447	2,244	64.5
Omega	36.7	1,720	69.8	3,749	5,469	68.6
Not Reported	42.9	1,121	104.4	8,003	9,124	87.7
Total	34.9	41,686	82.6	122,731	164,417	74.6

Calls by Hour of Day

We also analyzed variation of total requests and transport requests by hour of day (Table 39; Figure 37). The variation of total requests and transport requests followed a similar pattern.

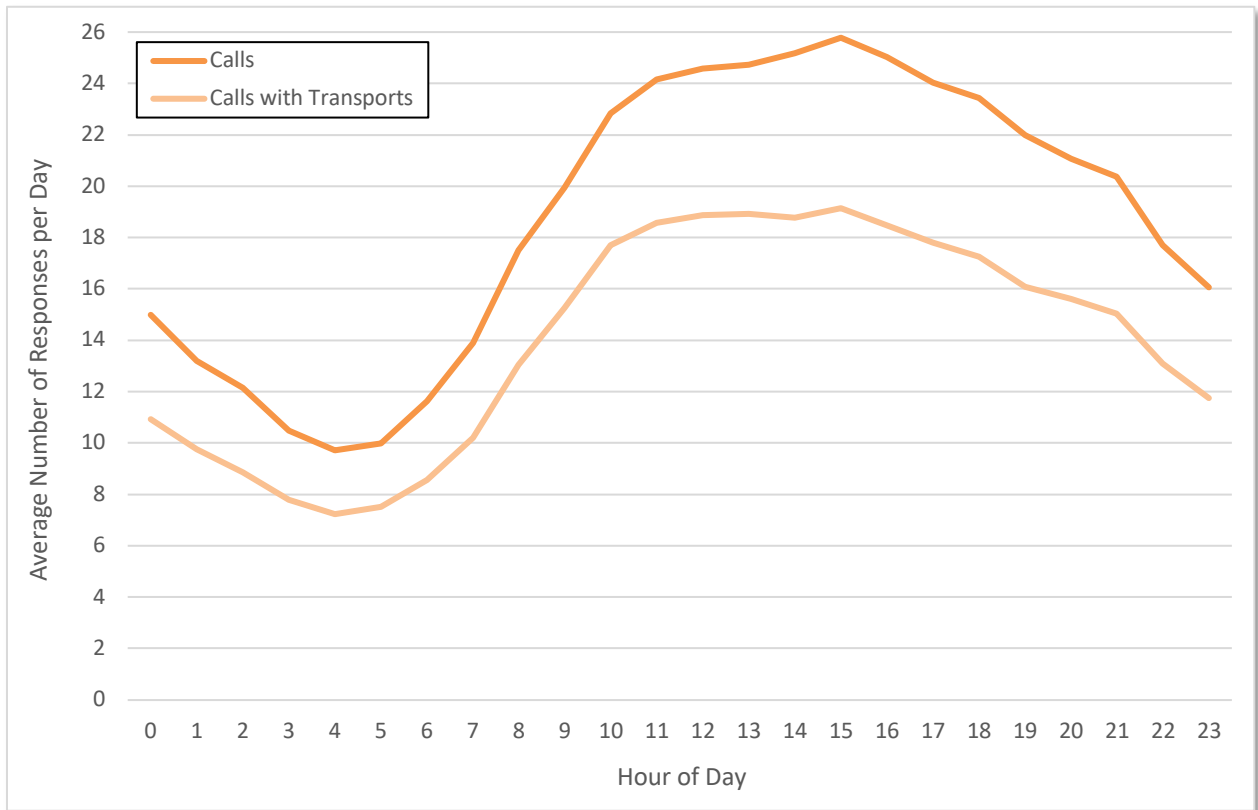
The busiest period for transport requests occurred at 1500, with 6,988 transport calls occurring in 2022-23 during that hour of the day. The peak transport rate occurred at 1000, when 6,464 of 8,339 calls (77.5%) resulted in one or more patients being transported. The average number of calls with transports per day was 336.2.

Table 39: Total Calls and Calls with Transports and Average Calls per Day by Hour of Day

Hour of Day	Number of Calls	Number of Calls with Transports	Average Calls per Day	Average Calls with Transports per Day	Transport Rate (%)
0	5,471	3,990	15.0	10.9	72.9
1	4,818	3,563	13.2	9.8	74.0
2	4,434	3,236	12.1	8.9	73.0
3	3,826	2,843	10.5	7.8	74.3
4	3,545	2,639	9.7	7.2	74.4
5	3,644	2,744	10.0	7.5	75.3
6	4,245	3,129	11.6	8.6	73.7
7	5,074	3,727	13.9	10.2	73.5
8	6,387	4,758	17.5	13.0	74.5
9	7,281	5,568	19.9	15.3	76.5
10	8,339	6,464	22.8	17.7	77.5
11	8,814	6,784	24.1	18.6	77.0

Hour of Day	Number of Calls	Number of Calls with Transports	Average Calls per Day	Average Calls with Transports per Day	Transport Rate (%)
12	8,974	6,885	24.6	18.9	76.7
13	9,025	6,905	24.7	18.9	76.5
14	9,189	6,849	25.2	18.8	74.5
15	9,410	6,988	25.8	19.1	74.3
16	9,134	6,746	25.0	18.5	73.9
17	8,767	6,496	24.0	17.8	74.1
18	8,557	6,294	23.4	17.2	73.6
19	8,028	5,870	22.0	16.1	73.1
20	7,690	5,697	21.1	15.6	74.1
21	7,437	5,489	20.4	15.0	73.8
22	6,462	4,777	17.7	13.1	73.9
23	5,866	4,290	16.1	11.8	73.1
Total	164,417	122,731	450.5	336.2	74.6

Figure 37: Average Calls and Calls with Transports per Day by Hour of Day



Response Volume and Transport Destination

Similar to the classification of transport calls, unit responses were considered to be transport responses if the record reported a transport-related response disposition (i.e., “Call complete/ Pt transported,” “Call complete/pt transported,” or “Transported”), or if the record reported a date and time stamp for the “To Hospital Date and Time” variable, regardless of the value reported for response disposition.

During 2022-23, there were 126,592 transport responses associated with the 122,731 transport calls occurring within the MAEMSA jurisdiction (Table 40; only destinations with over 100 transport responses are displayed, such that individual values for number of responses will not sum to the overall total of 126,592 transport responses, and the individual values for percent responses will not sum to 100.0%; see the Appendix for the full list of transport destinations). The two most frequently visited transport destinations were John Peter Smith Hospital and THR Fort Worth.

Table 40: Transport Responses by Destination – Sorted in Descending Order by Number of Responses

Destination ¹	Number of Responses	Percent Responses
John Peter Smith Hospital	35,114	27.7
THR Fort Worth	33,233	26.3
Baylor Scott and White All Saints Medical Center - Fort Worth	8,602	6.8
THR Southwest Fort Worth	7,246	5.7
Medical City Fort Worth	6,017	4.8
Cook Children's Medical Center	5,221	4.1
THR Alliance	4,977	3.9
Medical City Alliance	4,870	3.8
Not Reported	3,401	2.7
THR Huguley	2,830	2.2
Medical City North Hills	1,788	1.4
THR HEB	1,427	1.1
Arlington Memorial Hospital (Texas Health)	1,331	1.1
Baylor Scott and White Medical Center - Grapevine	990	0.8
Perimeter Behavioral Hospital of Arlington	642	0.5
Millwood Hospital	577	0.5
Medical City Arlington	516	0.4
Mesa Springs	408	0.3
Texas Health Springwood Hospital - HEB	376	0.3
Well Bridge Healthcare	370	0.3
Heart to Heart Hospice	329	0.3
Kindred Hospital Tarrant County - Southwest Fort Worth	273	0.2
Behavioral Health, Arlington Memorial Hospital (Texas Health)	263	0.2

Destination ¹	Number of Responses	Percent Responses
UTSW Clements	261	0.2
Texas Jet	256	0.2
Methodist Mansfield Medical Center	192	0.2
Medical City Denton	183	0.1
Community Healthcare of Texas Hospice House at Huguley	175	0.1
Medical City Green Oaks Hospital	137	0.1
Lifecare Hospitals of Fort Worth	129	0.1
Parkland Memorial Hospital	126	0.1
Texas Oncology - Henderson	122	0.1
John Peter Smith - Center for Cancer Care	117	0.1
Texas Health Presbyterian Hospital - Dallas	114	0.1
US Renal Care Tarrant Dialysis Center - Fort Worth	106	0.1
Marine Creek Nursing and Rehabilitation	103	0.1
Texas Health Presbyterian Hospital - Denton	103	0.1
Total²	126,592	100.0

¹Entries are presented verbatim from the data file.

²Only destinations with over 100 transport responses are displayed in the table, such that individual values for number of responses will not sum to the overall total of 126,592 transport responses, and the individual values for percent responses will not sum to 100.0%. See the Appendix for the full list of transport destinations.

Wall Time

Wall time, calculated as unit clear date and time minus unit arrival at healthcare facility date and time, was also examined by call type and response protocol (Table 41), severity, (Table 42), hour of day (Table 43), and destination (Table 44). Wall time values that were negative or zero were excluded; there were no values over 24 hours.

Table 41: Average and 90th Percentile Wall Times by Call Type and Response Protocol

Call Type and Response Protocol	Average (Minutes)	90 th Percentile (Minutes)	Number of Responses
911	26.7	38.1	97,413
Emergency, Lights and Sirens	27.9	40.0	36,971
Non-Emergency, No Lights and Sirens	26.0	36.8	60,439
Unknown	--	--	3
Transfer	26.1	39.3	29,179
Emergency, Lights and Sirens	29.1	41.5	6,396
Non-Emergency, No Lights and Sirens	25.3	38.5	22,783
Total	26.6	38.3	126,592

Table 42: Average and 90th Percentile Wall Times by Severity

Severity	Average (Minutes)	90 th Percentile (Minutes)	Number of Responses
Alpha	25.4	36.6	32,346
Bravo	26.4	38.2	16,310
Charlie	27.2	38.4	33,636
Delta	27.7	39.6	30,417
Echo	31.3	47.8	1,453
Omega	24.8	35.3	3,798
Not Reported	25.3	39.5	8,632
Total	26.6	38.3	126,592

Table 43: Average and 90th Percentile Wall Times by Hour of Day

Hour of Day	Average (Minutes)	90 th Percentile (Minutes)	Number of Responses
0	25.6	36.8	4,082
1	25.5	36.5	3,628
2	25.2	36.2	3,337
3	24.5	35.6	2,908
4	22.6	33.6	2,694
5	23.1	33.6	2,807
6	27.0	38.2	3,304
7	26.9	38.0	3,875
8	27.2	39.0	4,933
9	27.6	39.2	5,722
10	28.1	39.4	6,639
11	28.8	40.5	6,996
12	28.6	40.3	7,102
13	28.7	40.8	7,114
14	28.2	40.3	7,108
15	27.0	39.4	7,214
16	26.4	38.8	6,990
17	25.2	36.9	6,725
18	25.7	37.0	6,530
19	25.6	36.6	6,045
20	25.9	37.3	5,868
21	25.9	37.3	5,637
22	25.8	37.1	4,954
23	25.6	37.0	4,380
Total	26.6	38.3	126,592

Table 44: Average and 90th Percentile Wall Times by Destination – Sorted in Descending Order by Number of Responses

Destination ¹	Average (Minutes)	90 th Percentile (Minutes)	Number of Responses
John Peter Smith Hospital	26.3	36.8	35,114
THR Fort Worth	27.8	39.3	33,233
Baylor Scott and White All Saints Medical Center - Fort Worth	28.6	40.4	8,602
THR Southwest Fort Worth	25.8	36.5	7,246
Medical City Fort Worth	28.9	41.1	6,017
Cook Children's Medical Center	25.3	37.9	5,221
THR Alliance	26.8	38.2	4,977
Medical City Alliance	25.1	36.5	4,870
Not Reported	23.3	38.2	3,401
THR Huguley	27.4	40.1	2,830
Medical City North Hills	26.2	36.7	1,788
THR HEB	25.0	35.9	1,427
Arlington Memorial Hospital (Texas Health)	26.3	37.0	1,331
Baylor Scott and White Medical Center - Grapevine	28.7	40.0	990
Perimeter Behavioral Hospital of Arlington	15.7	27.7	642
Millwood Hospital	20.5	33.6	577
Medical City Arlington	29.6	43.7	516
Mesa Springs	15.4	27.2	408
Texas Health Springwood Hospital - HEB	19.1	30.0	376
Well Bridge Healthcare	16.2	28.8	370
Heart to Heart Hospice	19.6	32.0	329
Kindred Hospital Tarrant County - Southwest Fort Worth	26.8	38.7	273
Behavioral Health, Arlington Memorial Hospital (Texas Health)	18.7	29.3	263
UTSW Clements	34.3	49.8	261
Texas Jet	13.0	26.0	256
Methodist Mansfield Medical Center	28.0	40.2	192
Medical City Denton	25.5	41.2	183
Community Healthcare of Texas Hospice House at Huguley	20.7	32.2	175
Medical City Green Oaks Hospital	35.3	55.1	137
Lifecare Hospitals of Fort Worth	27.0	38.1	129
Parkland Memorial Hospital	26.8	42.2	126
Texas Oncology - Henderson	46.1	119.4	122
John Peter Smith - Center for Cancer Care	24.6	53.0	117
Texas Health Presbyterian Hospital - Dallas	33.5	52.1	114
US Renal Care Tarrant Dialysis Center - Fort Worth	19.1	30.4	106
Marine Creek Nursing and Rehabilitation	22.7	34.3	103
Texas Health Presbyterian Hospital - Denton	30.4	43.9	103
Total²	26.6	38.3	126,592

¹Entries are presented verbatim from the data file.

²Only destinations with over 100 transport responses are displayed in the table, such that individual values for number of responses will not sum to the overall total of 126,592 transport responses.

SYSTEM PERFORMANCE

Performance for Calls with Arrivals

The analyses in this section focus on performance times related to dispatch (or alarm processing), turnout, travel, and response times at the call level to reflect the entire system of MedStar's front-line units (i.e., unit IDs classified as ALS, BLS, and CCP), as follows:

1. "Dispatch Time" was calculated as earliest unit dispatch date and time minus earliest "Clock Start" date and time for every unique call (see the Appendix section for more details regarding the derivation of "Clock Start" date and time stamps);
2. "Turnout Time" was calculated as earliest unit en route date and time minus earliest unit dispatch date and time for every unique call;
3. "Travel Time" was calculated as earliest unit arrival date and time minus earliest unit en route date and time for every unique call; and
4. "Response Time" was calculated as earliest unit arrival date and time minus earliest "Clock Start" date and time for every unique call.

"Response Time" may also be calculated by summing relevant dispatch, turnout, and travel times, and "Average Response Time" may be derived by summing relevant average dispatch, turnout, and travel times, but only when the sample data used during calculation of the outcomes are identical for all three outcomes.

Average performance times and performance times at the 90th percentile are reported in this section. The 90th percentile is presented as a more conservative and reliable measure of performance, as this measure is often more robust, or less influenced by outliers, than measures of central tendency such as the average. Best practice is to measure at the 90th percentile. In other words, 90% of all performance is captured, expecting that 10% of the time the department may experience abnormal conditions that would typically be considered outliers. For example, if the department were to report an *average* response time of six minutes, then in a normally distributed set of data, half of the responses would be longer than six minutes and half of the responses would be shorter than six minutes. Utilizing six minutes as an example again, a 90th *percentile value* of six minutes communicates that 9 out of 10 times, the department performance is six minutes or less (faster), and is therefore more predictable and more clearly articulated to policy makers and the community. Note, however, that the sum of the 90th percentile values for dispatch, turnout, and travel times is not equivalent to the 90th percentile response time. Refer to the Appendix section for additional information related to the calculation of these metrics, and the restriction to calculation for only sample sizes containing at least ten observations.

Analyses of performance times focused on unique calls with arrivals, and were restricted to 911 and transfer calls only (i.e., no MIH or Special Event calls were included). During the audit and exclusion process, calculated times with negative or zero values were excluded from all related analyses, and calculated times considered to be outliers were also excluded from all related analyses (see Appendix for more details). Average and 90th percentile dispatch, turnout, travel, and response times by response protocol and call type are presented in Tables 45 and 46, respectively. Average dispatch, turnout, travel, and response times by response protocol and call type are additionally depicted in Figure 38 (“Unknown” not presented). These same metrics are presented by priority level and priority in Tables 47 and 48, and by severity in Tables 49 and 50.

Table 45: Average Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction

Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Emergency	1.1	0.3	8.3	9.6	58,997
911	1.0	0.3	8.3	9.5	52,306
Transfer	2.1	0.3	8.0	10.4	6,691
Non-Emergency	2.2	0.4	10.5	13.3	102,068
911	1.7	0.3	10.2	12.4	79,791
Transfer	5.5	0.6	11.8	17.1	22,277
Unknown	4.4	0.4	21.0	23.2	12
911	4.4	0.4	21.0	23.2	12
Total	1.8	0.3	9.7	11.9	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 46: 90th Percentile Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction

Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Emergency	2.3	0.4	13.5	15.1	58,997
911	1.8	0.4	13.5	14.9	52,306
Transfer	3.6	0.5	13.3	16.3	6,691
Non-Emergency	4.6	0.6	18.5	23.0	102,068
911	3.0	0.4	17.3	20.5	79,791
Transfer	15.5	1.0	22.8	34.8	22,277
Unknown	--	1.7	39.9	48.7	12
911	--	1.7	39.9	48.7	12
Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Figure 38: Average Performance Times by Program – Calls with Arrivals in MAEMSA's Jurisdiction

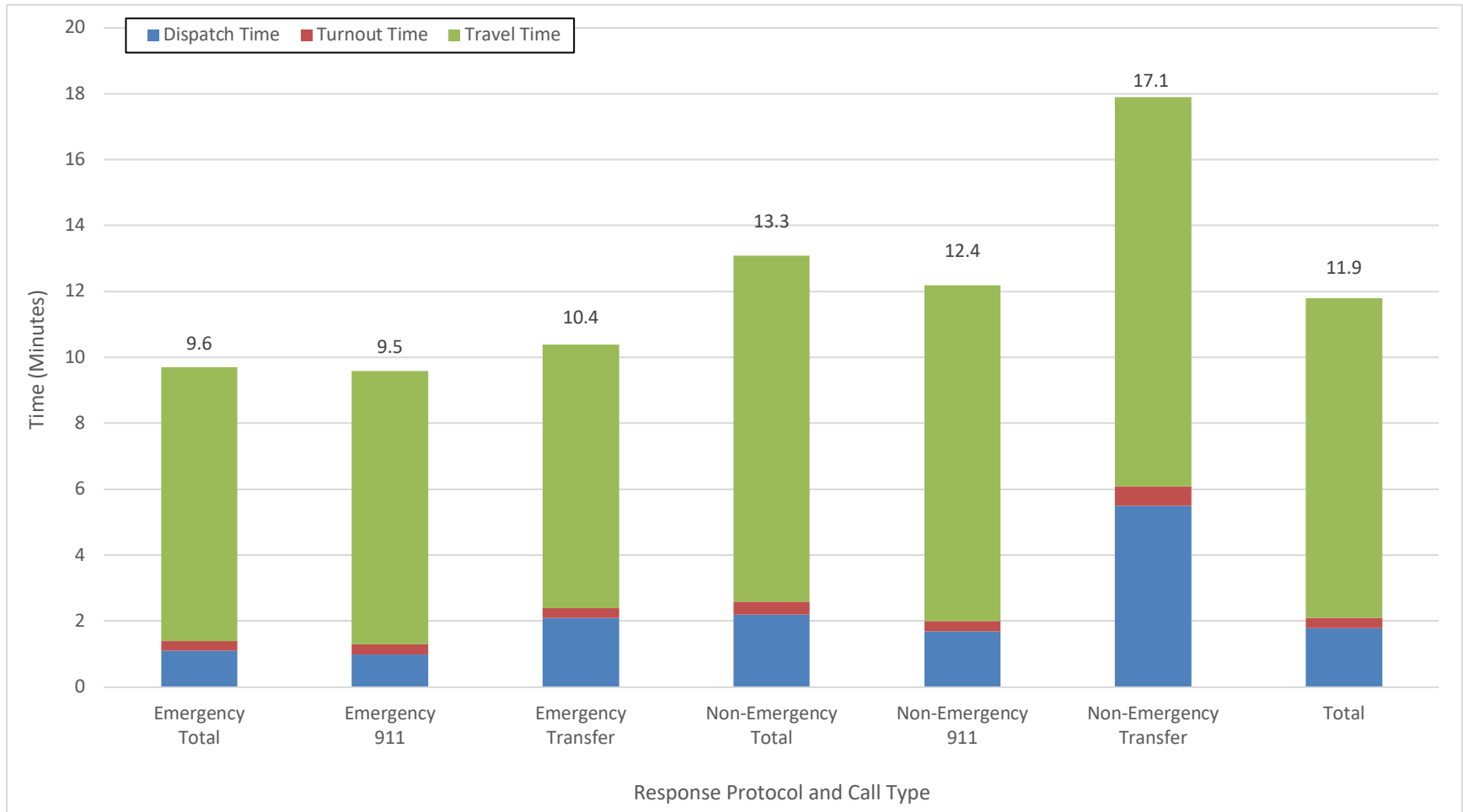


Table 47: Average Performance Times by Priority Level and Priority – Calls with Arrivals in MAEMSA’s Jurisdiction

Priority Level and Priority	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
1	1.1	0.2	7.3	8.5	2,955
1A	1.1	0.2	7.3	8.5	2,955
1/2	1.9	1.0	8.8	11.8	133
1A/2A	1.9	1.0	8.8	11.8	133
2	1.1	0.2	8.2	9.6	34,590
2A	1.1	0.2	8.2	9.6	34,590
3	1.1	0.3	8.7	10.1	13,842
3A	1.1	0.3	8.7	10.1	13,786
3A/3A+C	1.6	0.2	10.6	12.1	36
3A+C	2.4	0.5	8.4	11.4	20
3/4	1.9	0.6	9.6	12.1	447
3A/3A+C/4B	1.9	0.6	9.6	12.1	447
4	0.8	0.3	7.8	8.7	7,030
4B	0.8	0.3	7.8	8.7	7,030
5	1.3	0.3	10.1	11.7	59,085
5A	1.3	0.3	10.1	11.7	59,085
5/7/8	0.9	0.5	10.5	11.9	806
5A/7A/8B	0.9	0.5	10.5	11.9	806
6	2.8	0.4	10.1	13.3	548
6A	2.8	0.4	10.1	13.3	548
6/9	8.1	0.9	13.2	13.7	5,773
6A/9A/9B/9S	8.1	0.9	13.2	13.7	5,773
7	2.0	0.3	10.8	13.3	14,092
7A	2.0	0.3	10.8	13.3	14,092
8	4.0	0.4	9.4	14.6	11,622
8B	4.0	0.4	9.4	14.6	11,622
9	9.0	0.7	12.1	23.5	10,142
9A	7.7	0.7	13.2	23.5	2,351
9A/9B/9S	6.6	0.9	11.6	12.2	820
9B	9.6	0.7	11.7	25.3	6,516
9S	10.6	1.0	12.3	27.2	455
Unknown	4.4	0.4	21.0	23.2	12
Unknown	4.4	0.4	21.0	23.2	12
Total	1.8	0.3	9.7	11.9	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 48: 90th Percentile Performance Times by Priority Level and Priority – Calls with Arrivals in MAEMSA's Jurisdiction

Priority Level and Priority	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
1	1.9	0.4	11.4	13.0	2,955
1A	1.9	0.4	11.4	13.0	2,955
1/2	6.0	2.8	14.3	19.0	133
1A/2A	6.0	2.8	14.3	19.0	133
2	2.3	0.4	13.3	15.0	34,590
2A	2.3	0.4	13.3	15.0	34,590
3	2.5	0.4	14.0	15.9	13,842
3A	2.5	0.4	14.0	15.8	13,786
3A/3A+C	5.4	0.5	21.3	22.6	36
3A+C	5.4	1.9	14.5	17.0	20
3/4	6.9	1.4	16.0	20.0	447
3A/3A+C/4B	6.9	1.4	16.0	20.0	447
4	1.9	0.3	13.5	14.6	7,030
4B	1.9	0.3	13.5	14.6	7,030
5	2.4	0.4	16.7	18.8	59,085
5A	2.4	0.4	16.7	18.8	59,085
5/7/8	2.0	1.0	18.1	21.5	806
5A/7A/8B	2.0	1.0	18.1	21.5	806
6	4.7	0.7	17.5	21.4	548
6A	4.7	0.7	17.5	21.4	548
6/9	--	1.4	26.6	27.0	5,773
6A/9A/9B/9S	--	1.4	26.6	27.0	5,773
7	3.4	0.4	18.9	22.6	14,092
7A	3.4	0.4	18.9	22.6	14,092
8	13.8	0.5	18.0	26.2	11,622
8B	13.8	0.5	18.0	26.2	11,622
9	21.7	1.2	24.3	45.1	10,142
9A	18.5	1.2	25.1	43.6	2,351
9A/9B/9S	13.9	1.6	22.6	24.2	820
9B	22.7	1.2	24.3	47.5	6,516
9S	23.9	2.1	22.2	48.6	455
Unknown	--	1.7	39.9	48.7	12
Unknown	--	1.7	39.9	48.7	12
Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 49: Average Performance Times by Severity – Calls with Arrivals in MAEMSA’s Jurisdiction

Severity	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Alpha	2.1	0.3	10.8	13.7	39,858
Bravo	2.6	0.3	9.1	12.3	25,452
Charlie	1.4	0.3	9.6	11.4	39,799
Delta	1.4	0.3	8.5	10.3	39,707
Echo	0.8	0.2	7.7	8.7	2,190
Omega	1.7	0.3	10.6	12.6	5,370
Not Reported	1.0	0.8	12.2	12.9	8,701
Total	1.8	0.3	9.7	11.9	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 50: 90th Percentile Performance Times by Severity – Calls with Arrivals in MAEMSA’s Jurisdiction

Severity	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Alpha	4.3	0.5	18.9	24.0	39,858
Bravo	7.6	0.5	16.3	22.1	25,452
Charlie	2.8	0.5	15.9	18.2	39,799
Delta	2.4	0.4	13.9	16.3	39,707
Echo	1.6	0.4	11.7	13.0	2,190
Omega	3.4	0.5	18.2	20.8	5,370
Not Reported	2.3	1.3	24.1	24.9	8,701
Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Performance for Calls with Arrivals by Jurisdiction and Area

Further analyses were conducted by jurisdiction and area to measure the performance for 911 and transfer calls with arrivals in each individual area. Overall performance times are reported at the average (Table 51; Figure 39) and 90th percentile (Table 52; Figure 40) values.

Performance times for jurisdictions and areas are also presented by response protocol and call type (Tables 53 and 54; note that 12 calls did not have response protocol identified—11 calls in the Fort Worth area and one call in the Saginaw area; as such, the “Unknown” category for response protocol appears in the tables only for Fort Worth, Saginaw, MAEMSA, and the overall total section that reflects all jurisdictions and areas), and by priority for areas in the MAEMSA jurisdiction (Tables 55 through 69).

Table 51: Average Performance Times by Jurisdiction and Area – Calls with Arrivals

Jurisdiction and Area	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
MAEMSA	1.8	0.3	9.7	11.9	161,077
Blue Mound	1.4	0.3	10.0	11.6	152
Edgecliff Village	1.2	0.2	9.2	10.4	288
Forest Hill	1.2	0.3	10.2	11.6	1,989
Fort Worth	1.8	0.3	9.6	11.9	145,035
Haltom City	1.3	0.3	10.3	11.9	3,947
Haslet	1.3	0.4	9.9	11.6	410
Lake Worth	1.4	0.3	10.7	12.3	1,350
Lakeside	0.9	0.3	15.1	16.2	154
Naval Air Station	2.5	0.3	15.3	17.7	95
River Oaks	1.3	0.3	10.0	11.5	656
Saginaw	2.2	0.3	10.5	12.8	2,696
Sansom Park	1.6	0.3	10.5	12.4	945
Westover Hills	0.9	0.2	9.3	10.3	26
Westworth Village	1.5	0.3	10.4	12.1	521
White Settlement	1.5	0.3	9.2	10.9	2,813
Other	1.4	0.4	11.9	13.1	1,240
Outside of MAEMSA	1.4	0.4	11.9	13.1	1,237
Unknown	< 0.1	0.2	8.9	6.4	3
Total	1.8	0.3	9.7	11.9	162,317

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 52: 90th Percentile Performance Times by Jurisdiction and Area – Calls with Arrivals

Jurisdiction and Area	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
MAEMSA	3.3	0.5	16.7	20.2	161,077
Blue Mound	2.4	0.5	15.6	18.7	152
Edgecliff Village	1.7	0.3	14.8	16.8	288
Forest Hill	2.0	0.4	15.7	17.8	1,989
Fort Worth	3.4	0.5	16.6	20.2	145,035
Haltom City	2.2	0.3	16.7	18.8	3,947
Haslet	2.3	0.7	17.5	19.6	410
Lake Worth	2.6	0.4	18.4	20.6	1,350
Lakeside	1.7	0.4	23.9	24.6	154
Naval Air Station	4.3	0.4	27.0	28.7	95
River Oaks	2.0	0.4	17.3	19.4	656
Saginaw	5.0	0.6	20.3	24.3	2,696
Sansom Park	2.8	0.4	17.9	20.6	945
Westover Hills	1.8	0.4	14.8	16.3	26
Westworth Village	3.1	0.4	16.3	18.9	521
White Settlement	2.8	0.5	15.9	18.0	2,813
Other	2.5	0.6	20.7	22.4	1,240
Outside of MAEMSA	2.5	0.6	20.7	22.4	1,237
Unknown	--	--	--	--	3
Total	3.3	0.5	16.7	20.2	162,317

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Figure 39: Average Performance Times by Area – Calls with Arrivals

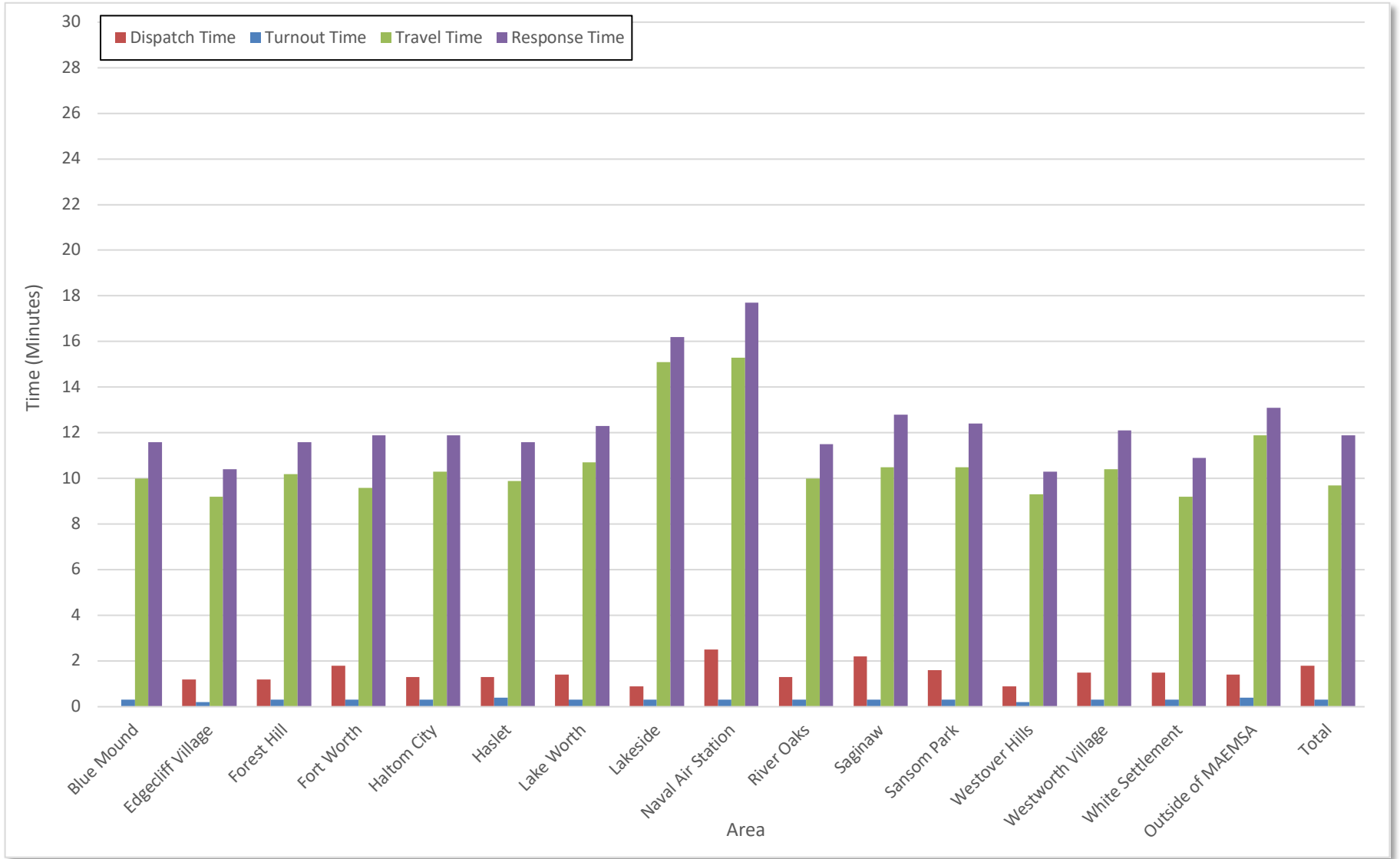


Figure 40: 90th Percentile Performance Times by Area – Calls with Arrivals

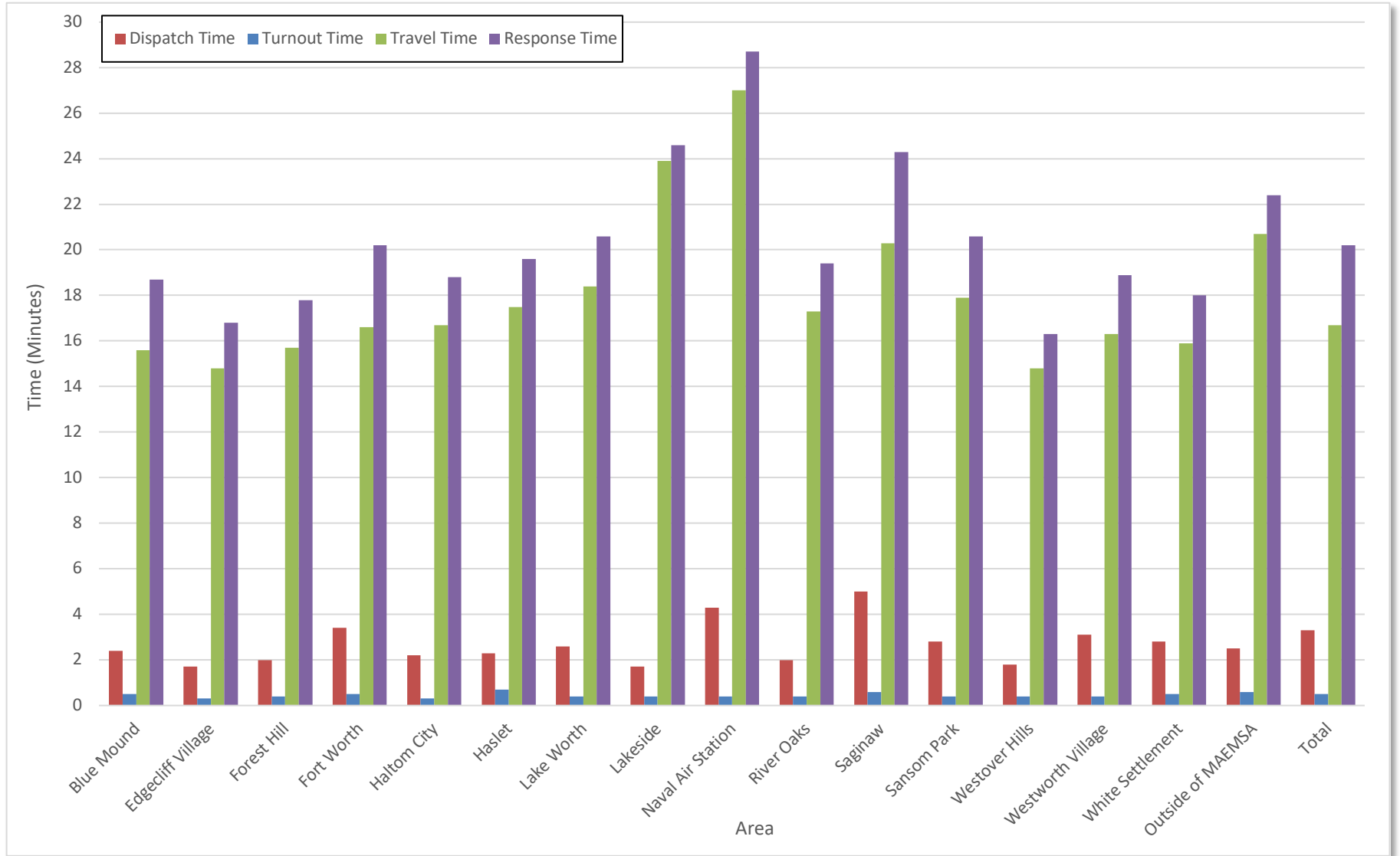


Table 53: Average Performance Times by Jurisdiction, Area, Response Protocol, and Call Type – Calls with Arrivals

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
MAEMSA	Emergency	1.1	0.3	8.3	9.6	58,997
	911	1.0	0.3	8.3	9.5	52,306
	Transfer	2.1	0.3	8.0	10.4	6,691
	Non-Emergency	2.2	0.4	10.5	13.3	102,068
	911	1.7	0.3	10.2	12.4	79,791
	Transfer	5.5	0.6	11.8	17.1	22,277
	Unknown	4.4	0.4	21.0	23.2	12
	911	4.4	0.4	21.0	23.2	12
	Total	1.8	0.3	9.7	11.9	161,077
Blue Mound	Emergency	1.1	0.3	9.5	10.9	52
	911	1.1	0.3	9.5	10.9	52
	Transfer	--	--	--	--	0
	Non-Emergency	1.5	0.3	10.2	12.0	100
	911	1.5	0.3	10.1	11.9	98
	Transfer	--	0.2	22.2	22.3	2
		Total	1.4	0.3	10.0	11.6
Edgecliff Village	Emergency	0.8	0.2	7.5	8.6	102
	911	0.8	0.2	7.5	8.6	102
	Transfer	--	--	--	--	0
	Non-Emergency	1.4	0.2	10.1	11.4	186
	911	1.3	0.2	9.6	11.1	175
	Transfer	27.7	0.2	19.0	16.4	11
		Total	1.2	0.2	9.2	10.4

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Forest Hill	Emergency	1.0	0.2	8.8	10.0	836
	911	1.0	0.2	8.9	10.0	834
	Transfer	2.2	0.1	7.9	10.2	2
	Non-Emergency	1.4	0.3	11.1	12.8	1,153
	911	1.4	0.3	11.1	12.8	1,145
	Transfer	2.5	0.4	15.5	17.2	8
	Total	1.2	0.3	10.2	11.6	1,989
Fort Worth	Emergency	1.1	0.3	8.2	9.5	52,899
	911	1.0	0.3	8.3	9.4	46,862
	Transfer	2.1	0.3	7.9	10.3	6,037
	Non-Emergency	2.3	0.4	10.4	13.3	92,125
	911	1.8	0.3	10.1	12.4	71,404
	Transfer	5.6	0.7	11.6	17.1	20,721
	Unknown	4.3	0.4	20.4	22.3	11
	911	4.3	0.4	20.4	22.3	11
Total	1.8	0.3	9.6	11.9	145,035	
Haltom City	Emergency	1.0	0.2	8.9	10.1	1,593
	911	0.9	0.2	9.0	10.1	1,498
	Transfer	2.2	0.2	8.4	10.8	95
	Non-Emergency	1.5	0.3	11.3	13.2	2,354
	911	1.4	0.2	11.2	12.9	2,223
	Transfer	3.7	0.7	12.8	17.6	131
	Total	1.3	0.3	10.3	11.9	3,947

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Haslet	Emergency	1.1	0.3	9.4	10.8	173
	911	1.1	0.3	9.5	10.8	165
	Transfer	1.6	0.8	7.7	10.1	8
	Non-Emergency	1.4	0.4	10.4	12.2	237
	911	1.4	0.3	10.0	11.8	229
	Transfer	5.5	0.8	20.8	23.7	8
	Total	1.3	0.4	9.9	11.6	410
Lake Worth	Emergency	1.1	0.3	8.9	10.2	605
	911	0.9	0.3	8.6	9.8	536
	Transfer	2.0	0.3	10.8	13.0	69
	Non-Emergency	1.7	0.3	12.1	14.0	745
	911	1.6	0.3	11.6	13.4	648
	Transfer	2.1	0.4	16.1	18.4	97
	Total	1.4	0.3	10.7	12.3	1,350
Lakeside	Emergency	0.7	0.2	12.9	13.7	77
	911	0.7	0.2	12.9	13.7	77
	Transfer	--	--	--	--	0
	Non-Emergency	1.0	0.4	17.3	18.7	77
	911	1.0	0.4	17.3	18.7	77
	Transfer	--	--	--	--	0
	Total	0.9	0.3	15.1	16.2	154
Naval Air Station	Emergency	2.5	0.4	13.3	16.2	46
	911	2.2	0.2	9.8	12.2	3
	Transfer	2.5	0.4	13.6	16.5	43
	Non-Emergency	2.5	0.2	17.2	19.2	49
	911	0.6	0.2	11.3	20.0	4
	Transfer	2.7	0.2	17.8	19.1	45
	Total	2.5	0.3	15.3	17.7	95

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
River Oaks	Emergency	1.0	0.3	8.2	9.4	237
	911	0.9	0.3	8.2	9.4	232
	Transfer	2.5	1.0	7.5	11.1	5
	Non-Emergency	1.4	0.3	11.1	12.7	419
	911	1.4	0.3	11.0	12.6	415
	Transfer	10.9	0.8	16.2	29.9	4
	Total	1.3	0.3	10.0	11.5	656
Saginaw	Emergency	1.1	0.3	8.2	9.4	862
	911	0.9	0.2	8.2	9.2	734
	Transfer	2.1	0.4	8.1	10.6	128
	Non-Emergency	2.8	0.4	11.6	14.3	1,833
	911	1.4	0.2	10.0	11.7	1,051
	Transfer	5.9	0.6	13.8	18.1	782
	Unknown	--	--	--	--	1
	911	--	--	--	--	1
Total	2.2	0.3	10.5	12.8	2,696	
Sansom Park	Emergency	1.2	0.3	9.0	10.3	332
	911	0.9	0.3	9.1	10.3	275
	Transfer	2.5	0.3	8.4	10.1	57
	Non-Emergency	1.8	0.3	11.3	13.5	613
	911	1.5	0.3	10.8	12.7	523
	Transfer	3.9	0.3	14.5	18.1	90
	Total	1.6	0.3	10.5	12.4	945

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Westover Hills	Emergency	0.7	0.2	7.3	8.2	11
	911	0.7	0.2	7.3	8.2	11
	Transfer	--	--	--	--	0
	Non-Emergency	1.0	0.2	10.8	11.9	15
	911	1.0	0.2	10.7	11.9	14
	Transfer	--	--	--	--	1
	Total	0.9	0.2	9.3	10.3	26
Westworth Village	Emergency	1.3	0.3	8.6	10.2	189
	911	1.0	0.3	8.0	9.2	149
	Transfer	2.7	0.5	10.9	14.0	40
	Non-Emergency	1.5	0.3	11.4	13.1	332
	911	1.1	0.2	10.9	12.3	266
	Transfer	3.3	0.3	13.4	16.8	66
	Total	1.5	0.3	10.4	12.1	521
White Settlement	Emergency	1.1	0.3	7.5	8.9	983
	911	0.9	0.3	7.7	8.8	776
	Transfer	2.0	0.3	6.9	9.2	207
	Non-Emergency	1.7	0.3	10.1	12.0	1,830
	911	1.4	0.3	10.0	11.7	1,519
	Transfer	3.2	0.4	10.6	13.8	311
	Total	1.5	0.3	9.2	10.9	2,813
Other	Emergency	0.9	0.3	9.2	10.1	415
	911	0.8	0.3	9.5	10.2	347
	Transfer	1.3	0.3	8.1	9.7	68
	Non-Emergency	1.7	0.5	13.2	14.7	825
	911	1.3	0.3	12.0	13.5	590
	Transfer	4.1	0.9	16.5	18.2	235
	Total	1.4	0.4	11.9	13.1	1,240

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Outside of MAEMSA	Emergency	0.9	0.3	9.2	10.1	415
	911	0.8	0.3	9.5	10.2	347
	Transfer	1.3	0.3	8.1	9.7	68
	Non-Emergency	1.7	0.5	13.2	14.7	822
	911	1.3	0.3	12.0	13.5	588
	Transfer	4.1	0.9	16.5	18.2	234
	Total	1.4	0.4	11.9	13.1	1,237
Unknown	Emergency	--	--	--	--	0
	911	--	--	--	--	0
	Transfer	--	--	--	--	0
	Non-Emergency	< 0.1	0.2	8.9	6.4	3
	911	< 0.1	0.1	6.2	6.4	2
	Transfer	--	--	--	--	1
	Total	< 0.1	0.2	8.9	6.4	3
Total	Emergency	1.1	0.3	8.3	9.6	59,412
	911	1.0	0.3	8.3	9.5	52,653
	Transfer	2.1	0.3	8.0	10.4	6,759
	Non-Emergency	2.2	0.4	10.5	13.3	102,893
	911	1.7	0.3	10.2	12.4	80,381
	Transfer	5.5	0.7	11.8	17.1	22,512
	Unknown	4.4	0.4	21.0	23.2	12
	911	4.4	0.4	21.0	23.2	12
Total	1.8	0.3	9.7	11.9	162,317	

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 54: 90th Percentile Performance Times by Jurisdiction, Area, Response Protocol, and Call Type – Calls with Arrivals

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
MAEMSA	Emergency	2.3	0.4	13.5	15.1	58,997
	911	1.8	0.4	13.5	14.9	52,306
	Transfer	3.6	0.5	13.3	16.3	6,691
	Non-Emergency	4.6	0.6	18.5	23.0	102,068
	911	3.0	0.4	17.3	20.5	79,791
	Transfer	15.5	1.0	22.8	34.8	22,277
	Unknown	--	1.7	39.9	48.7	12
	911	--	1.7	39.9	48.7	12
	Total	3.3	0.5	16.7	20.2	161,077
Blue Mound	Emergency	2.6	0.5	16.2	16.5	52
	911	2.6	0.5	16.2	16.5	52
	Transfer	--	--	--	--	0
	Non-Emergency	2.3	0.4	15.6	18.9	100
	911	2.3	0.5	15.3	18.8	98
	Transfer	--	--	--	--	2
	Total	2.4	0.5	15.6	18.7	152
Edgecliff Village	Emergency	1.6	0.3	10.7	12.3	102
	911	1.6	0.3	10.7	12.3	102
	Transfer	--	--	--	--	0
	Non-Emergency	1.8	0.4	16.2	19.2	186
	911	1.8	0.4	14.9	17.1	175
	Transfer	--	0.8	42.4	24.0	11
	Total	1.7	0.3	14.8	16.8	288

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Forest Hill	Emergency	1.6	0.3	13.0	14.1	836
	911	1.6	0.3	13.0	14.1	834
	Transfer	--	--	--	--	2
	Non-Emergency	2.2	0.5	17.4	19.9	1,153
	911	2.2	0.5	17.2	19.8	1,145
	Transfer	--	--	--	--	8
	Total	2.0	0.4	15.7	17.8	1,989
Fort Worth	Emergency	2.3	0.4	13.4	15.1	52,899
	911	1.8	0.4	13.4	14.9	46,862
	Transfer	3.6	0.5	13.1	16.2	6,037
	Non-Emergency	4.8	0.6	18.4	23.1	92,125
	911	3.1	0.4	17.1	20.5	71,404
	Transfer	15.9	1.1	22.6	35.0	20,721
	Unknown	--	--	--	50.0	11
	911	--	--	--	50.0	11
Total	3.4	0.5	16.6	20.2	145,035	
Haltom City	Emergency	1.7	0.3	14.0	15.5	1,593
	911	1.6	0.3	14.0	15.5	1,498
	Transfer	4.1	0.3	13.0	16.6	95
	Non-Emergency	2.6	0.4	18.4	20.6	2,354
	911	2.2	0.4	18.2	20.4	2,223
	Transfer	10.3	0.5	20.4	34.9	131
	Total	2.2	0.3	16.7	18.8	3,947

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Haslet	Emergency	2.0	0.6	15.5	17.6	173
	911	2.0	0.6	15.8	17.8	165
	Transfer	--	--	--	--	8
	Non-Emergency	2.7	0.7	19.1	21.3	237
	911	2.5	0.7	18.6	20.5	229
	Transfer	--	--	--	--	8
	Total	2.3	0.7	17.5	19.6	410
Lake Worth	Emergency	2.2	0.4	14.8	16.8	605
	911	1.7	0.4	14.6	16.1	536
	Transfer	3.3	0.6	17.7	18.8	69
	Non-Emergency	3.2	0.4	20.4	22.7	745
	911	3.1	0.4	19.4	21.4	648
	Transfer	3.6	0.6	24.6	28.1	97
	Total	2.6	0.4	18.4	20.6	1,350
Lakeside	Emergency	1.7	0.3	18.8	20.7	77
	911	1.7	0.3	18.8	20.7	77
	Transfer	--	--	--	--	0
	Non-Emergency	1.8	0.7	25.6	27.5	77
	911	1.8	0.7	25.6	27.5	77
	Transfer	--	--	--	--	0
	Total	1.7	0.4	23.9	24.6	154
Naval Air Station	Emergency	3.7	1.2	24.9	25.9	46
	911	--	--	--	--	3
	Transfer	3.8	1.3	25.2	26.9	43
	Non-Emergency	5.2	0.4	31.6	32.7	49
	911	--	--	--	--	4
	Transfer	5.3	0.4	32.3	31.4	45
	Total	4.3	0.4	27.0	28.7	95

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
River Oaks	Emergency	1.8	0.4	13.2	14.4	237
	911	1.5	0.4	13.1	14.3	232
	Transfer	--	--	--	--	5
	Non-Emergency	2.3	0.4	19.1	21.0	419
	911	2.3	0.4	19.0	20.8	415
	Transfer	--	--	--	--	4
	Total	2.0	0.4	17.3	19.4	656
Saginaw	Emergency	2.3	0.4	14.5	16.0	862
	911	1.7	0.4	14.4	15.6	734
	Transfer	3.5	0.9	17.1	20.7	128
	Non-Emergency	7.8	0.6	22.5	27.5	1,833
	911	2.2	0.4	18.0	20.3	1,051
	Transfer	15.7	0.9	25.8	35.2	782
	Unknown	--	--	--	--	1
	911	--	--	--	--	1
Total	5.0	0.6	20.3	24.3	2,696	
Sansom Park	Emergency	2.5	0.4	14.5	15.6	332
	911	1.6	0.4	14.6	15.7	275
	Transfer	3.2	0.3	13.9	14.9	57
	Non-Emergency	3.0	0.5	20.1	23.5	613
	911	2.4	0.4	18.2	21.0	523
	Transfer	11.3	0.6	27.4	32.8	90
	Total	2.8	0.4	17.9	20.6	945

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Westover Hills	Emergency	1.6	0.5	9.8	10.8	11
	911	1.6	0.5	9.8	10.8	11
	Transfer	--	--	--	--	0
	Non-Emergency	2.1	0.6	21.0	23.0	15
	911	2.1	0.7	21.2	23.4	14
	Transfer	--	--	--	--	1
	Total	1.8	0.4	14.8	16.3	26
Westworth Village	Emergency	3.1	0.5	13.9	16.3	189
	911	1.9	0.6	11.8	13.8	149
	Transfer	4.5	0.4	17.0	20.5	40
	Non-Emergency	3.1	0.4	17.5	20.2	332
	911	2.0	0.3	17.1	19.0	266
	Transfer	5.5	0.8	20.8	29.3	66
	Total	3.1	0.4	16.3	18.9	521
White Settlement	Emergency	2.4	0.5	12.4	14.2	983
	911	1.8	0.4	12.5	13.9	776
	Transfer	3.1	0.5	12.4	15.2	207
	Non-Emergency	3.0	0.5	17.4	19.9	1,830
	911	2.4	0.5	17.1	18.8	1,519
	Transfer	8.0	0.6	20.4	25.0	311
	Total	2.8	0.5	15.9	18.0	2,813
Other	Emergency	2.2	0.4	14.7	15.9	415
	911	1.7	0.3	14.8	15.9	347
	Transfer	2.9	0.8	13.9	16.0	68
	Non-Emergency	2.7	0.7	24.0	25.7	825
	911	2.1	0.5	20.2	21.8	590
	Transfer	11.7	1.5	32.7	36.5	235
	Total	2.5	0.6	20.7	22.4	1,240

Jurisdiction and Area	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
Outside of MAEMSA	Emergency	2.2	0.4	14.7	15.9	415
	911	1.7	0.3	14.8	15.9	347
	Transfer	2.9	0.8	13.9	16.0	68
	Non-Emergency	2.7	0.7	24.1	25.7	822
	911	2.1	0.5	20.2	21.8	588
	Transfer	11.7	1.5	32.7	36.5	234
	Total	2.5	0.6	20.7	22.4	1,237
Unknown	Emergency	--	--	--	--	0
	911	--	--	--	--	0
	Transfer	--	--	--	--	0
	Non-Emergency	--	--	--	--	3
	911	--	--	--	--	2
	Transfer	--	--	--	--	1
	Total	--	--	--	--	3
Total	Emergency	2.3	0.4	13.5	15.1	59,412
	911	1.8	0.4	13.5	14.9	52,653
	Transfer	3.6	0.5	13.3	16.3	6,759
	Non-Emergency	4.6	0.6	18.5	23.0	102,893
	911	3.0	0.4	17.3	20.5	80,381
	Transfer	15.5	1.0	22.9	34.8	22,512
	Unknown	--	1.7	39.9	48.7	12
	911	--	1.7	39.9	48.7	12
	Total	3.3	0.5	16.7	20.2	162,317

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 55: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Blue Mound

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	3.7	0.1	6.8	10.6	--	--	--	--	3
1A/2A	--	--	--	--	--	--	--	--	0
2A	0.7	0.3	9.4	10.4	1.9	0.7	16.9	17.2	36
3A	1.2	0.3	11.0	12.5	3.3	1.7	35.5	37.4	11
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	1
4B	--	--	--	--	--	--	--	--	1
5A	0.9	0.3	10.3	11.4	1.8	0.6	15.6	18.3	79
5A/7A/8B	--	--	--	--	--	--	--	--	0
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	0.2	22.2	22.3	--	--	--	--	2
7A	2.2	0.2	10.3	12.6	8.5	0.3	17.8	22.0	16
8B	15.2	--	3.4	18.7	--	--	--	--	3
9A	--	--	--	--	--	--	--	--	0
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	--	--	--	--	--	--	--	--	0
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.4	0.3	10.0	11.6	2.4	0.5	15.6	18.7	152

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 56: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Edgecliff Village

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	1.1	0.2	7.0	8.3	--	--	--	--	6
1A/2A	--	--	--	--	--	--	--	--	0
2A	0.8	0.3	7.7	8.7	1.6	0.5	10.5	12.2	70
3A	0.8	0.2	8.5	9.5	1.5	0.3	16.8	18.0	13
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	0
4B	0.7	0.1	6.0	6.8	1.9	0.2	13.0	14.2	13
5A	1.0	0.2	9.6	10.9	1.6	0.4	14.8	16.8	127
5A/7A/8B	< 0.1	0.2	6.9	7.1	--	--	--	--	2
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	0.2	16.2	16.4	--	0.8	23.9	24.0	10
7A	1.6	0.2	9.5	11.3	2.5	0.3	15.8	17.2	32
8B	3.0	0.2	9.2	12.3	13.8	--	16.9	19.8	14
9A	--	--	--	--	--	--	--	--	1
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	--	--	--	--	--	--	--	--	0
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.2	0.2	9.2	10.4	1.7	0.3	14.8	16.8	288

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 57: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Forest Hill

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.8	0.2	7.3	8.3	1.3	0.4	10.3	11.3	53
1A/2A	--	--	--	--	--	--	--	--	1
2A	0.9	0.2	9.1	10.2	1.6	0.3	13.2	14.3	474
3A	1.1	0.2	9.1	10.3	1.7	0.3	12.0	13.7	133
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	0.4	0.7	12.0	13.0	--	--	--	--	5
4B	1.0	0.2	8.4	9.5	2.0	0.3	13.1	14.5	170
5A	1.0	0.3	11.2	12.5	1.8	0.5	17.1	19.0	827
5A/7A/8B	--	--	--	--	--	--	--	--	1
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	0.3	19.8	20.1	--	--	--	--	6
7A	1.7	0.3	11.2	13.2	3.1	0.4	19.5	21.2	216
8B	3.5	0.6	9.7	13.7	11.5	1.2	16.0	21.8	101
9A	--	--	--	--	--	--	--	--	0
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	2.5	0.6	4.7	2.7	--	--	--	--	2
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.2	0.3	10.2	11.6	2.0	0.4	15.7	17.8	1,989

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 58: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Fort Worth

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	1.1	0.3	7.3	8.5	2.0	0.4	11.3	13.0	2,583
1A/2A	1.9	1.1	8.9	12.1	6.2	3.1	14.5	19.7	122
2A	1.1	0.3	8.2	9.6	2.3	0.4	13.2	14.9	31,002
3A	1.1	0.3	8.6	10.0	2.5	0.4	13.9	15.7	12,459
3A/3A+C	1.5	0.2	10.9	12.2	4.7	0.5	21.4	22.7	34
3A+C	2.5	0.5	8.0	11.0	5.7	2.2	13.3	16.3	18
3A/3A+C/4B	1.9	0.6	9.5	12.1	7.2	1.4	16.0	20.0	404
4B	0.8	0.3	7.8	8.7	1.9	0.3	13.4	14.5	6,277
5A	1.3	0.3	10.1	11.7	2.4	0.4	16.6	18.7	52,440
5A/7A/8B	0.8	0.5	10.3	11.6	1.9	1.0	17.5	20.7	719
6A	2.8	0.4	9.9	13.1	4.7	0.7	16.4	20.1	498
6A/9A/9B/9S	8.1	0.9	13.2	13.7	--	1.5	26.6	26.9	5,460
7A	2.0	0.3	10.8	13.3	3.4	0.4	18.8	22.7	12,573
8B	4.1	0.4	9.4	14.6	14.0	0.5	17.9	26.4	10,846
9A	7.8	0.7	12.9	23.6	18.6	1.2	24.5	43.8	2,026
9A/9B/9S	6.8	0.9	11.6	12.2	14.2	1.6	22.6	24.1	806
9B	9.6	0.7	11.6	25.4	22.7	1.2	24.0	47.7	6,338
9S	10.6	1.0	11.9	26.9	25.2	2.1	21.4	49.0	419
Unknown	4.3	0.4	20.4	22.3	--	--	--	50.0	11
Total	1.8	0.3	9.6	11.9	3.4	0.5	16.6	20.2	145,035

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 59: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Haltom City

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.9	0.3	7.7	8.9	1.7	0.4	11.6	13.0	108
1A/2A	--	--	--	--	--	--	--	--	1
2A	1.0	0.2	8.7	9.9	1.7	0.3	13.4	14.9	937
3A	1.0	0.2	9.8	11.0	1.9	0.4	15.3	16.9	337
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	5.3	0.6	12.2	18.0	--	--	--	--	7
4B	0.9	0.3	9.0	10.0	1.7	0.3	14.6	16.3	203
5A	1.1	0.2	11.1	12.5	2.1	0.4	17.7	19.3	1,684
5A/7A/8B	1.7	0.2	11.2	13.1	3.9	0.3	25.1	26.3	33
6A	3.3	0.2	10.6	14.0	--	--	--	--	2
6A/9A/9B/9S	--	1.5	15.1	16.2	--	--	--	--	8
7A	1.6	0.3	12.0	13.8	2.2	0.4	19.8	21.7	368
8B	4.0	0.3	10.4	14.7	13.7	0.5	18.4	26.1	222
9A	7.6	1.2	17.6	29.5	15.4	7.0	36.7	52.2	16
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	7.3	1.5	16.8	27.7	16.8	1.3	34.7	45.2	21
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.3	0.3	10.3	11.9	2.2	0.3	16.7	18.8	3,947

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 60: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Haslet

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.5	0.2	12.4	13.1	--	--	--	--	7
1A/2A	--	--	--	--	--	--	--	--	1
2A	1.1	0.3	9.3	10.7	2.1	0.8	15.6	18.0	100
3A	1.4	0.3	10.3	11.9	3.3	0.4	18.3	20.6	38
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	0
4B	1.0	0.5	7.6	9.0	1.5	1.4	13.8	14.5	27
5A	1.1	0.3	10.1	11.7	1.9	0.5	18.1	19.5	169
5A/7A/8B	--	--	--	--	--	--	--	--	1
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	1.4	27.8	29.3	--	--	--	--	4
7A	1.4	0.5	9.3	11.2	3.0	1.6	18.9	20.2	51
8B	5.2	1.3	10.8	16.7	18.3	--	27.2	30.8	10
9A	--	--	--	--	--	--	--	--	0
9A/9B/9S	--	--	--	--	--	--	--	--	1
9B	--	--	--	--	--	--	--	--	1
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.3	0.4	9.9	11.6	2.3	0.7	17.5	19.6	410

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 61: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Lake Worth

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.9	0.2	7.2	8.3	1.5	0.4	13.5	14.4	25
1A/2A	3.3	0.2	5.0	8.4	--	--	--	--	2
2A	1.2	0.3	9.1	10.5	2.6	0.3	15.4	17.1	281
3A	1.3	0.3	10.4	11.9	2.3	0.5	17.3	18.5	118
3A/3A+C	--	--	--	--	--	--	--	--	1
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	0
4B	0.7	0.3	7.8	8.8	1.6	0.4	13.4	14.2	178
5A	1.3	0.3	12.1	13.6	2.6	0.4	19.9	21.4	507
5A/7A/8B	0.9	1.0	9.6	11.5	--	--	--	--	6
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	0.5	25.7	26.1	--	1.6	53.0	53.1	10
7A	1.9	0.3	11.8	14.0	4.3	0.6	20.5	23.6	127
8B	3.1	0.3	11.0	14.2	8.2	0.5	19.8	24.5	80
9A	2.8	0.7	18.5	22.7	--	--	--	--	8
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	5.8	0.3	13.5	18.7	--	--	--	--	7
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.4	0.3	10.7	12.3	2.6	0.4	18.4	20.6	1,350

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 62: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Lakeside

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.6	0.1	9.3	10.0	--	--	--	--	3
1A/2A	--	--	--	--	--	--	--	--	0
2A	0.6	0.1	12.6	13.3	1.5	0.2	18.2	20.0	42
3A	0.7	0.2	13.6	14.6	2.0	0.5	20.5	21.5	24
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	1
4B	0.9	0.1	13.6	14.7	--	--	--	--	7
5A	1.0	0.3	17.3	18.6	1.8	0.7	25.6	27.1	66
5A/7A/8B	--	--	--	--	--	--	--	--	1
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	--	--	--	--	--	--	--	0
7A	0.8	0.1	18.0	18.9	--	--	--	--	8
8B	1.0	0.1	11.8	12.4	--	--	--	--	2
9A	--	--	--	--	--	--	--	--	0
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	--	--	--	--	--	--	--	--	0
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	0.9	0.3	15.1	16.2	1.7	0.4	23.9	24.6	154

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 63: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Naval Air Station

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	--	--	--	--	--	--	--	--	0
1A/2A	--	--	--	--	--	--	--	--	0
2A	2.7	0.1	11.0	13.8	5.2	0.2	20.4	25.2	14
3A	2.4	0.5	14.5	17.4	3.8	2.1	27.3	28.1	31
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	1
4B	--	--	--	--	--	--	--	--	0
5A	2.5	0.2	16.3	18.9	4.9	0.3	26.8	28.8	41
5A/7A/8B	--	--	--	--	--	--	--	--	0
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	0.6	9.5	9.7	--	--	--	--	2
7A	--	--	--	--	--	--	--	--	1
8B	--	--	--	--	--	--	--	--	0
9A	3.7	0.3	30.8	26.6	--	--	--	--	3
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	--	0.4	32.4	--	--	--	--	--	2
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	2.5	0.3	15.3	17.7	4.3	0.4	27.0	28.7	95

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 64: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in River Oaks

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.5	0.2	7.5	8.2	1.3	0.5	15.2	15.6	14
1A/2A	--	--	--	--	--	--	--	--	1
2A	1.0	0.2	8.3	9.5	1.8	0.4	13.3	14.4	167
3A	1.2	0.6	8.2	9.9	2.3	0.6	13.1	16.5	47
3A/3A+C	--	--	--	--	--	--	--	--	1
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	0
4B	0.4	0.1	7.3	7.8	--	--	--	--	7
5A	0.8	0.3	10.7	11.8	1.5	0.4	18.4	19.7	288
5A/7A/8B	--	--	--	--	--	--	--	--	1
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	--	--	--	--	--	--	--	1
7A	1.8	0.2	12.3	14.0	3.2	0.5	21.3	22.5	87
8B	4.6	0.2	11.0	15.8	14.4	0.5	22.8	27.2	39
9A	--	--	--	--	--	--	--	--	0
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	10.9	1.4	24.3	53.9	--	--	--	--	2
9S	--	--	--	--	--	--	--	--	1
Unknown	--	--	--	--	--	--	--	--	0
Total	1.3	0.3	10.0	11.5	2.0	0.4	17.3	19.4	656

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 65: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Saginaw

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	1.5	0.2	5.9	7.6	2.8	0.4	11.2	12.9	41
1A/2A	--	--	--	--	--	--	--	--	1
2A	1.1	0.3	8.0	9.2	2.4	0.5	14.0	15.5	519
3A	1.3	0.3	8.9	10.4	2.5	0.3	17.3	19.3	194
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	1
3A/3A+C/4B	0.2	0.5	10.4	10.6	0.3	1.3	18.4	19.0	25
4B	0.9	0.2	8.1	8.8	1.7	0.3	13.3	14.6	81
5A	1.1	0.3	10.0	11.5	2.2	0.4	18.0	19.7	850
5A/7A/8B	0.5	0.3	13.3	14.1	2.3	0.6	28.4	28.8	40
6A	3.0	0.4	12.4	15.7	4.9	0.9	23.4	27.0	47
6A/9A/9B/9S	--	0.6	13.6	14.1	--	0.9	25.8	26.2	247
7A	1.8	0.3	10.5	12.5	3.2	0.5	20.4	22.8	180
8B	4.4	0.2	8.2	13.1	17.4	0.5	16.8	23.9	90
9A	7.2	0.6	14.7	22.4	18.3	0.9	29.9	43.2	244
9A/9B/9S	8.5	0.6	12.3	10.8	--	--	--	--	10
9B	7.7	0.9	15.1	24.1	18.5	1.4	27.6	42.5	98
9S	10.9	0.5	17.7	30.4	23.4	1.5	30.4	46.0	27
Unknown	--	--	--	--	--	--	--	--	1
Total	2.2	0.3	10.5	12.8	5.0	0.6	20.3	24.3	2,696

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 66: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Sansom Park

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	2.0	0.2	10.6	10.2	2.3	0.3	20.3	17.9	23
1A/2A	--	--	--	--	--	--	--	--	1
2A	1.1	0.2	8.9	10.2	2.6	0.4	14.1	15.6	203
3A	1.2	0.4	8.9	10.5	2.8	0.3	14.5	15.2	80
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	1
4B	0.5	0.2	8.3	9.0	1.0	0.5	15.1	16.0	24
5A	1.2	0.3	10.8	12.4	2.5	0.5	18.9	20.9	438
5A/7A/8B	1.6	0.4	14.1	16.1	--	--	--	--	2
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	0.3	19.3	19.6	--	--	--	--	8
7A	2.3	0.3	11.2	14.2	7.0	0.3	18.2	21.8	98
8B	2.9	0.4	10.8	14.7	9.2	0.4	22.7	29.3	46
9A	12.3	0.2	23.9	36.1	--	--	--	--	7
9A/9B/9S	--	--	--	--	--	--	--	--	1
9B	9.6	0.2	19.7	30.1	--	0.4	53.4	57.5	12
9S	--	--	--	--	--	--	--	--	1
Unknown	--	--	--	--	--	--	--	--	0
Total	1.6	0.3	10.5	12.4	2.8	0.4	17.9	20.6	945

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 67: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Westover Hills

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	--	--	--	--	--	--	--	--	0
1A/2A	--	--	--	--	--	--	--	--	0
2A	0.6	0.2	7.3	8.1	--	--	--	--	7
3A	0.9	0.1	7.3	8.3	--	--	--	--	4
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	0
4B	--	--	--	--	--	--	--	--	0
5A	0.8	0.1	10.5	11.5	1.6	0.2	19.2	20.5	10
5A/7A/8B	--	--	--	--	--	--	--	--	0
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	--	--	--	--	--	--	--	1
7A	1.1	0.6	15.4	17.0	--	--	--	--	2
8B	1.7	0.1	7.0	8.7	--	--	--	--	2
9A	--	--	--	--	--	--	--	--	0
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	--	--	--	--	--	--	--	--	0
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	0.9	0.2	9.3	10.3	1.8	0.4	14.8	16.3	26

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 68: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in Westworth Village

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	0.8	0.2	6.6	7.2	1.8	--	10.4	--	10
1A/2A	--	--	--	--	--	--	--	--	0
2A	1.4	0.2	8.4	9.9	3.2	0.5	13.9	17.3	111
3A	1.4	0.5	9.3	11.2	3.1	1.1	14.1	16.3	60
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	0
3A/3A+C/4B	--	--	--	--	--	--	--	--	0
4B	0.9	0.2	9.7	10.8	--	--	--	--	8
5A	1.4	0.3	11.4	13.0	3.1	0.4	17.6	19.6	274
5A/7A/8B	--	--	--	--	--	--	--	--	0
6A	--	--	--	--	--	--	--	--	0
6A/9A/9B/9S	--	--	--	--	--	--	--	--	0
7A	1.0	0.1	10.5	11.7	1.7	0.3	17.1	18.3	38
8B	1.8	0.2	11.4	13.4	4.4	0.9	24.4	27.1	13
9A	12.6	0.6	15.5	27.7	--	--	--	--	5
9A/9B/9S	--	--	--	--	--	--	--	--	0
9B	< 0.1	0.4	26.0	35.8	--	--	--	--	2
9S	--	--	--	--	--	--	--	--	0
Unknown	--	--	--	--	--	--	--	--	0
Total	1.5	0.3	10.4	12.1	3.1	0.4	16.3	18.9	521

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 69: Average and 90th Percentile Performance Times by Priority – Calls with Arrivals in White Settlement

Priority	Average				90 th Percentile				Sample Size ¹
	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	
1A	1.0	0.2	7.1	8.3	2.1	0.5	11.6	13.3	79
1A/2A	1.9	0.5	7.6	10.0	--	--	--	--	3
2A	1.1	0.3	7.5	8.8	2.3	0.5	12.0	14.0	627
3A	1.4	0.3	7.9	9.6	2.7	0.4	13.5	15.2	237
3A/3A+C	--	--	--	--	--	--	--	--	0
3A+C	--	--	--	--	--	--	--	--	1
3A/3A+C/4B	3.9	1.6	7.4	12.9	--	--	--	--	2
4B	1.0	0.2	6.9	8.0	2.4	0.3	12.0	13.3	34
5A	1.2	0.3	9.6	11.1	2.5	0.5	16.2	18.0	1,285
5A/7A/8B	--	--	--	--	--	--	--	--	0
6A	--	--	--	--	--	--	--	--	1
6A/9A/9B/9S	8.5	0.5	17.2	18.3	--	2.1	30.9	36.9	14
7A	1.6	0.3	11.2	13.5	3.0	0.5	19.9	22.7	295
8B	2.9	0.3	9.2	12.3	8.9	0.5	20.1	22.5	154
9A	6.1	0.4	14.9	20.0	14.5	0.5	24.7	34.3	41
9A/9B/9S	0.0	0.2	10.3	10.5	--	--	--	--	2
9B	8.4	0.6	13.7	23.4	15.6	1.6	28.7	47.3	31
9S	1.8	2.4	14.4	11.7	--	--	--	--	7
Unknown	--	--	--	--	--	--	--	--	0
Total	1.5	0.3	9.2	10.9	2.8	0.5	15.9	18.0	2,813

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

MedStar Response Time Compliance

Response times, in particular, were further examined as they relate to performance standards set by MedStar (Table 70). Calls for which performance standards were relevant (i.e., based on priority), and that had calculated response times not otherwise missing or excluded, were included in this analysis (n=144,419).

Table 70: MedStar Percent Compliance by Response Standard, Priority Definition, and Priority – MAEMSA Jurisdiction

Response Standard, Priority Definition, and Priority	90 th Percentile Response Time	Number of Calls with Response Times	Number of Calls with Response Times Meeting or Exceeding Standard	Percent Compliance
11 Minutes	14.8	37,649	27,140	72.1
ALS Hot 11	14.8	37,649	27,140	72.1
1A	13.0	2,950	2,365	80.2
1A/2A	19.0	133	73	54.9
2A	15.0	34,566	24,702	71.5
13 Minutes	15.6	21,298	17,396	81.7
ALS Hot 13	15.9	13,830	11,123	80.4
3A	15.8	13,775	11,086	80.5
3A/3A+C	22.6	35	25	71.4
3A+C	17.0	20	12	60.0
ALS/BLS Hot 13	20.0	444	284	64.0
3A/3A+C/4B	20.0	444	284	64.0
BLS Hot 13	14.6	7,024	5,989	85.3
4B	14.6	7,024	5,989	85.3
17 Minutes	20.4	85,472	70,778	82.8
ALS Cold 17	19.5	73,083	61,705	84.4
5A	18.8	59,022	50,668	85.8
7A	22.6	14,061	11,037	78.5
ALS/BLS Cold 17	21.5	803	665	82.8
5A/7A/8B	21.5	803	665	82.8
BLS Cold 17	26.2	11,586	8,408	72.6
8B	26.2	11,586	8,408	72.6

OVERLAPPED CALLS ANALYSIS

Overlapped calls are defined as another call being received in an area while one or more calls are already ongoing for the same area. For example, if there is an ongoing call in Fort Worth’s area wherein all units have not yet been cleared, and one or more requests for service subsequently occur in Fort Worth’s area, the subsequent call or calls would be captured as overlapping. In general, the larger the call volume for an area, the greater the likelihood of overlapped calls occurring. The distribution of the demand throughout the day will impact the chance of having overlapped calls. Additionally, the duration of a call plays a significant role; the longer it takes to clear a request, the greater the likelihood of having an overlapping request.

The Fort Worth area experienced the highest percentage of overlapped calls during 2022-23 at nearly 100.0%, followed by the Haltom City area at 46.7% (Table 71; Figure 41).

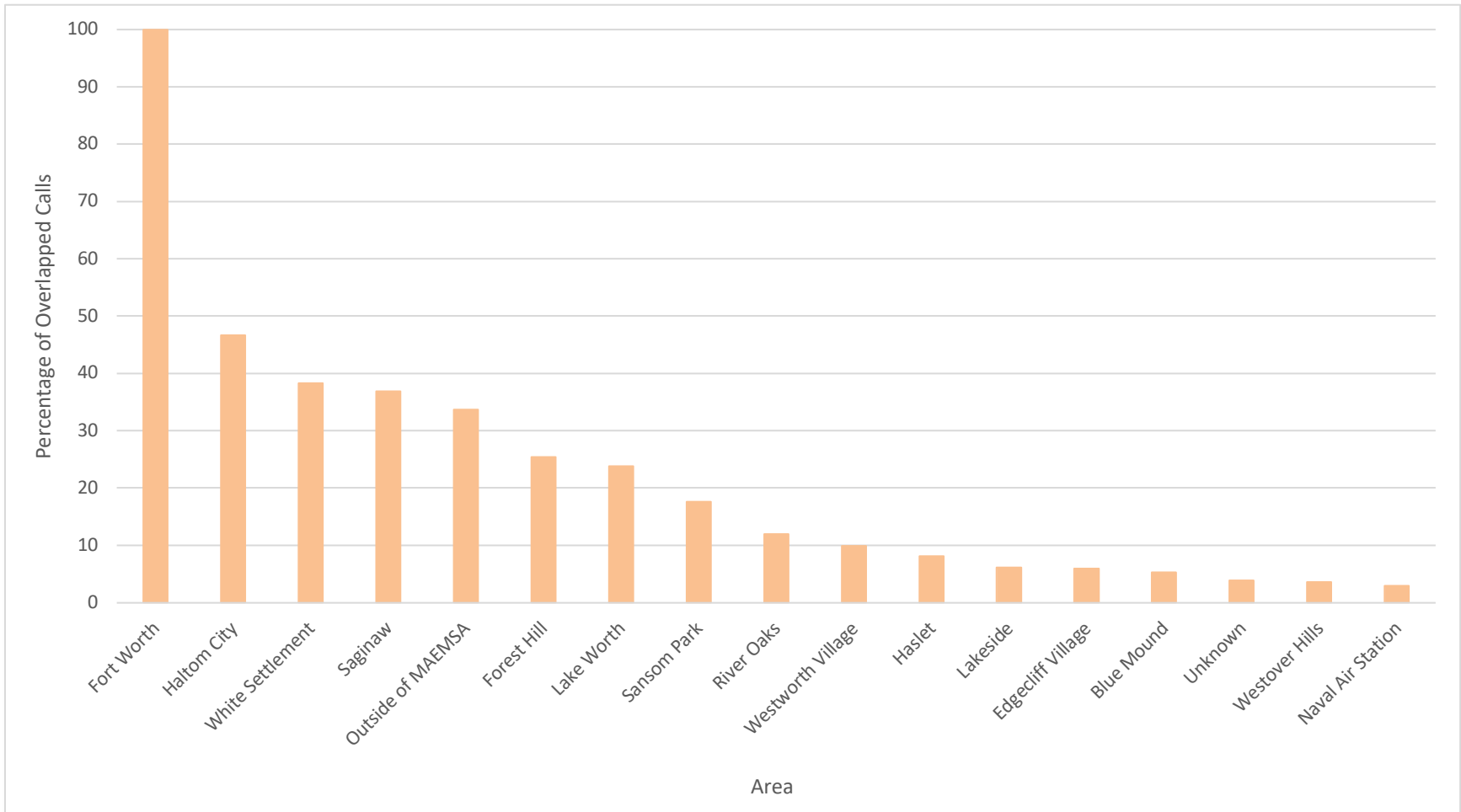
Table 71: Overlapped Calls by Area – Sorted in Descending Order by Percentage of Overlapped Calls Within Jurisdiction

Jurisdiction and Area	Total Calls	Calls Available for Analysis ¹	Overlapped Calls ²	Percentage of Overlapped Calls
MAEMSA	193,416	193,006	193,004	> 99.9
Fort Worth	174,158	173,772	173,770	> 99.9
Haltom City	5,143	5,140	2,400	46.7
White Settlement	3,234	3,226	1,236	38.3
Saginaw	3,044	3,044	1,121	36.8
Forest Hill	2,358	2,357	598	25.4
Lake Worth	1,685	1,679	400	23.8
Sansom Park	1,124	1,124	198	17.6
River Oaks	770	769	92	12.0
Westworth Village	550	549	54	9.8
Haslet	494	493	40	8.1
Lakeside	196	195	12	6.2
Edgecliff Village	337	337	20	5.9
Blue Mound	189	189	10	5.3
Westover Hills	28	28	1	3.6
Naval Air Station	106	104	3	2.9
Other	2,090	2,069	700	33.8
Outside of MAEMSA	2,063	2,043	687	33.6
Unknown	27	26	1	3.8
Total	195,506	195,075	195,073	> 99.9

¹Calls that were excluded from these analyses included calls without both a “Clock Start” date and time stamp and a maximum unit clear date and time stamp, calls with duration values over 24 hours, and calls with “Clock Start” date and time stamps past September 30, 2023.

²Individual “Overlapped Calls” values will not sum to the jurisdiction sub-totals or to the overall total due to the differing number of records in each source data set.

Figure 41: Percentage of Overlapped Calls by Area



BASELINE DATA

All Calls Received by the MedStar Communications Center

Community Demand

This section reflects records associated with all valid calls appearing in MedStar’s data files, regardless of MedStar’s response(s) to the call. All analyses and reporting related to these metrics, the communication-related activities occurring prior to the appearance of records in MedStar’s data files, and associated activities by other agencies are pending, as they are dependent upon matching records from separate systems (e.g., ECaTS 911 PSAP, Fort Worth Fire Department CAD) to MedStar records.

Table 72: Number of Calls by Reporting Period, Jurisdiction, and Area

Jurisdiction and Area	Reporting Period ¹	
	2021-22	2022-23
MAEMSA	182,586	194,743
Blue Mound	279	200
Edgecliff Village	373	349
Forest Hill	2,237	2,390
Fort Worth	164,713	175,203
Haltom City	4,485	5,226
Haslet	453	500
Lake Worth	1,479	1,692
Lakeside	188	199
Naval Air Station	66	106
River Oaks	896	774
Saginaw	2,578	3,079
Sansom Park	1,230	1,172
Westover Hills	31	28
Westworth Village	642	557
White Settlement	2,936	3,268
Other	1,547	2,099
Outside of MAEMSA	1,545	2,072
Unknown	2	27
Total	184,133	196,842
Average Calls per Day	504.5	539.3
Year-Over-Year Growth	N/A	6.9%

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

Table 73: Number of Calls by Reporting Period, Jurisdiction, Call Type, Response Protocol, and Priority

Call Type, Response Protocol, and Priority	Reporting Period ¹ and Jurisdiction					
	2021-22			2022-23		
	MAEMSA	Other	All	MAEMSA	Other	All
911	147,267	939	148,206	152,760	1,396	154,156
Emergency, Lights and Sirens	55,647	345	55,992	58,788	473	59,261
1A	2,932	13	2,945	3,007	21	3,028
1A/2A	652	3	655	188	0	188
2A	32,723	165	32,888	34,569	249	34,818
3A	9,213	46	9,259	11,439	90	11,529
3A/3A+C	0	0	0	174	4	178
3A/3A+C/4B	523	16	539	535	2	537
4B	9,604	102	9,706	8,876	107	8,983
Non-Emergency, No Lights and Sirens	90,772	582	91,354	92,620	914	93,534
5A	53,269	349	53,618	58,405	620	59,025
5A/7A/8B	5,025	150	5,175	1,809	102	1,911
7A	17,832	49	17,881	16,468	108	16,576
8B	14,646	34	14,680	15,938	84	16,022
Not Applicable	807	6	813	1,327	9	1,336
5A/FDO	594	4	598	672	3	675
8B/FDO	177	2	179	619	5	624
FD	28	0	28	20	0	20
PDO	0	0	0	15	1	16
Determinant Not Used in System	8	0	8	1	0	1
Unknown	41	6	47	25	0	25
Unknown	41	6	47	25	0	25
MIH	8,203	219	8,422	9,468	303	9,771
Non-Emergency, No Lights and Sirens	8,203	219	8,422	9,468	303	9,771
MIH	8,203	219	8,422	9,468	303	9,771
Transfer	25,124	307	25,431	29,827	322	30,149
Emergency, Lights and Sirens	5,739	62	5,801	6,872	71	6,943
1A	260	1	261	279	2	281
2A	4,479	51	4,530	3,343	31	3,374
3A	1,000	10	1,010	3,224	38	3,262
3A/3A+C	0	0	0	4	0	4
3A/3A+C/4B	0	0	0	2	0	2
3A+C	0	0	0	20	0	20
Non-Emergency, No Lights and Sirens	19,385	245	19,630	22,955	251	23,206
5A	3,723	47	3,770	5,786	75	5,861
5A/7A/8B	0	0	0	4	0	4
6A	0	0	0	556	3	559

Call Type, Response Protocol, and Priority	Reporting Period ¹ and Jurisdiction					
	2021-22			2022-23		
	MAEMSA	Other	All	MAEMSA	Other	All
6A/9A/9B/9S	13,767	167	13,934	6,151	90	6,241
8B	0	0	0	149	0	149
9A	1,895	31	1,926	2,414	23	2,437
9A/9B/9S	0	0	0	838	30	868
9B	0	0	0	6,595	30	6,625
9S	0	0	0	462	0	462
Special Event	1,992	82	2,074	2,688	78	2,766
Non-Emergency, No Lights and Sirens Event	1,992	82	2,074	2,688	78	2,766
Total	182,586	1,547	184,133	194,743	2,099	196,842
Average Calls per Day	500.2	4.2	504.5	533.5	5.8	539.3
Year-Over-Year Growth	N/A	N/A	N/A	6.7%	35.7%	6.9%

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

Calls to Which MedStar Was Expected to Respond

Community Demand

This section reflects all valid calls appearing in MedStar’s data files to which MedStar would be expected to respond (see Appendix for more details related to exclusion of records).

Table 74: Number of Calls by Reporting Period, Jurisdiction, and Area

Jurisdiction and Area	Reporting Period ¹	
	2021-22	2022-23
MAEMSA	181,779	193,416
Blue Mound	277	189
Edgecliff Village	366	337
Forest Hill	2,208	2,358
Fort Worth	164,103	174,158
Haltom City	4,432	5,143
Haslet	450	494
Lake Worth	1,473	1,685
Lakeside	184	196
Naval Air Station	66	106
River Oaks	884	770
Saginaw	2,547	3,044
Sansom Park	1,217	1,124
Westover Hills	31	28
Westworth Village	637	550
White Settlement	2,904	3,234
Other	1,541	2,090
Outside of MAEMSA	1,539	2,063
Unknown	2	27
Total	183,320	195,506
Average Calls per Day	502.2	535.6
Year-Over-Year Growth	N/A	6.6%

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

Table 75: Number of Calls by Reporting Period, Jurisdiction, Call Type, Response Protocol, and Priority

Call Type, Response Protocol, and Priority	Reporting Period ¹ and Jurisdiction					
	2021-22			2022-23		
	MAEMSA	Other	All	MAEMSA	Other	All
911	146,460	933	147,393	151,433	1,387	152,820
Emergency, Lights and Sirens	55,647	345	55,992	58,788	473	59,261
1A	2,932	13	2,945	3,007	21	3,028
1A/2A	652	3	655	188	0	188
2A	32,723	165	32,888	34,569	249	34,818
3A	9,213	46	9,259	11,439	90	11,529
3A/3A+C	0	0	0	174	4	178
3A/3A+C/4B	523	16	539	535	2	537
4B	9,604	102	9,706	8,876	107	8,983
Non-Emergency, No Lights and Sirens	90,772	582	91,354	92,620	914	93,534
5A	53,269	349	53,618	58,405	620	59,025
5A/7A/8B	5,025	150	5,175	1,809	102	1,911
7A	17,832	49	17,881	16,468	108	16,576
8B	14,646	34	14,680	15,938	84	16,022
Unknown	41	6	47	25	0	25
Unknown	41	6	47	25	0	25
MIH	8,203	219	8,422	9,468	303	9,771
Non-Emergency, No Lights and Sirens	8,203	219	8,422	9,468	303	9,771
MIH	8,203	219	8,422	9,468	303	9,771
Transfer	25,124	307	25,431	29,827	322	30,149
Emergency, Lights and Sirens	5,739	62	5,801	6,872	71	6,943
1A	260	1	261	279	2	281
2A	4,479	51	4,530	3,343	31	3,374
3A	1,000	10	1,010	3,224	38	3,262
3A/3A+C	0	0	0	4	0	4
3A/3A+C/4B	0	0	0	2	0	2
3A+C	0	0	0	20	0	20
Non-Emergency, No Lights and Sirens	19,385	245	19,630	22,955	251	23,206
5A	3,723	47	3,770	5,786	75	5,861
5A/7A/8B	0	0	0	4	0	4
6A	0	0	0	556	3	559
6A/9A/9B/9S	13,767	167	13,934	6,151	90	6,241
8B	0	0	0	149	0	149
9A	1,895	31	1,926	2,414	23	2,437
9A/9B/9S	0	0	0	838	30	868
9B	0	0	0	6,595	30	6,625
9S	0	0	0	462	0	462

Call Type, Response Protocol, and Priority	Reporting Period ¹ and Jurisdiction					
	2021-22			2022-23		
	MAEMSA	Other	All	MAEMSA	Other	All
Special Event	1,992	82	2,074	2,688	78	2,766
Non-Emergency, No Lights and Sirens Event	1,992	82	2,074	2,688	78	2,766
Total	181,779	1,541	183,320	193,416	2,090	195,506
Average Calls per Day	498.0	4.2	502.2	529.9	5.7	535.6
Year-Over-Year Growth	N/A	N/A	N/A	6.4%	35.6%	6.6%

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

Table 76: Number of Calls by Reporting Period, Jurisdiction, Response Standard, and Priority Definition

Response Standard and Priority Definition	Reporting Period ¹ and Jurisdiction					
	2021-22			2022-23		
	MAEMSA	Other	All	MAEMSA	Other	All
11 Minutes	41,046	233	41,279	41,386	303	41,689
ALS Hot 11	41,046	233	41,279	41,386	303	41,689
13 Minutes	20,340	174	20,514	24,274	241	24,515
ALS Hot 13	10,213	56	10,269	14,861	132	14,993
ALS/BLS Hot 13	523	16	539	537	2	539
BLS Hot 13	9,604	102	9,706	8,876	107	8,983
17 Minutes	94,495	629	95,124	98,559	989	99,548
ALS Cold 17	74,824	445	75,269	80,659	803	81,462
ALS/BLS Cold 17	5,025	150	5,175	1,813	102	1,915
BLS Cold 17	14,646	34	14,680	16,087	84	16,171
Not Applicable	25,857	499	26,356	29,172	557	29,729
Event	1,992	82	2,074	2,688	78	2,766
MIH	8,203	219	8,422	9,468	303	9,771
Transfer - ALS Cold	1,895	31	1,926	2,970	26	2,996
Transfer - ALS/BLS/CCP Cold	13,767	167	13,934	6,989	120	7,109
Transfer - BLS Cold	0	0	0	6,595	30	6,625
Transfer - Specialty Care CCP Required	0	0	0	462	0	462
Unknown	41	6	47	25	0	25
Unknown	41	6	47	25	0	25
Total	181,779	1,541	183,320	193,416	2,090	195,506
Average Calls per Day	498.0	4.2	502.2	529.9	5.7	535.6
Year-Over-Year Growth	N/A	N/A	N/A	6.4%	35.6%	6.6%

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

Table 77: Number of Calls by Reporting Period, Jurisdiction, and Service Level

Service Level	Reporting Period ¹ and Jurisdiction						Growth ²
	2021-22			2022-23			
	MAEMSA	Other	All	MAEMSA	Other	All	
ALS	127,978	765	128,743	139,876	1,264	141,140	9.6%
ALS/BLS	5,548	166	5,714	2,350	104	2,454	-57.1%
ALS/BLS/CCP	13,767	167	13,934	6,989	120	7,109	-49.0%
BLS	24,250	136	24,386	31,558	221	31,779	30.3%
CCP	0	0	0	462	0	462	N/A
Event	1,992	82	2,074	2,688	78	2,766	33.4%
MIH	8,203	219	8,422	9,468	303	9,771	16.0%
Unknown	41	6	47	25	0	25	-46.8%
Total	181,779	1,541	183,320	193,416	2,090	195,506	N/A
Average Calls per Day	498.0	4.2	502.2	529.9	5.7	535.6	N/A
Year-Over-Year Growth	N/A	N/A	N/A	6.4%	35.6%	6.6%	N/A

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

²“Growth” represents year-over-year percent change between 2021-22 and 2022-23 “All” jurisdiction values.

Table 78: Number of Calls by Reporting Period, Jurisdiction, and Severity

Severity	Reporting Period ¹ and Jurisdiction						Growth ²
	2021-22			2022-23			
	MAEMSA	Other	All	MAEMSA	Other	All	
Alpha	31,768	178	31,946	42,408	325	42,733	33.8%
Bravo	35,017	298	35,315	33,166	395	33,561	-5.0%
Charlie	38,155	230	38,385	41,698	323	42,021	9.5%
Delta	39,273	172	39,445	44,001	303	44,304	12.3%
Echo	2,404	11	2,415	2,334	15	2,349	-2.7%
Omega	4,959	9	4,968	5,794	12	5,806	16.9%
Not Reported	30,203	643	30,846	24,015	717	24,732	-19.8%
Total	181,779	1,541	183,320	193,416	2,090	195,506	N/A
Average Calls per Day	498.0	4.2	502.2	529.9	5.7	535.6	N/A
Year-Over-Year Growth	N/A	N/A	N/A	6.4%	35.6%	6.6%	N/A

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

²“Growth” represents year-over-year change between 2021-22 and 2022-23 “All” jurisdiction values.

Response Volume and Busy Time

From the reporting periods of 2021-22 to 2022-23, the number of responses to calls made by MedStar units within the MAEMSA jurisdiction increased from 254,652 (average 697.7 responses per day) to 270,720 (average 741.7 responses per day; Table 79). Total busy hours increased from 190,790.3 hours in 2021-22 to 209,146.8 hours in 2022-23. Average number of responses per call has remained consistent between the two reporting periods at 1.4. Across all call types, average busy minutes per call increased from 63.6 minutes during 2021-22 to 65.4 minutes during 2022-23.

Table 79: Number of Calls, Total Busy Time, and Number of Responses by Reporting Period, Jurisdiction, and Call Type

Reporting Period ¹	Jurisdiction	Call Type	Number of Calls	Average Calls per Day	Calls with Time Data ²	Total Busy Hours	Average Busy Minutes per Call	Number of Responses ³	Average Responses per Day	Average Responses per Call
2021-22	All	911	147,393	403.8	145,727	133,885.8	55.1	211,904	580.6	1.4
		MIH	8,422	23.1	8,419	12,701.5	90.5	9,535	26.1	1.1
		Transfer	25,431	69.7	25,426	38,467.1	90.8	33,190	90.9	1.3
		Special Event	2,074	5.7	1,980	7,794.5	236.2	2,074	5.7	1.0
		Total	183,320	502.2	181,552	192,848.9	63.7	256,703	703.3	1.4
	MAEMSA	911	146,460	401.3	144,802	133,208.4	55.2	210,693	577.2	1.4
		MIH	8,203	22.5	8,200	12,311.2	90.1	9,291	25.5	1.1
		Transfer	25,124	68.8	25,119	37,973.6	90.7	32,676	89.5	1.3
		Special Event	1,992	5.5	1,903	7,297.2	230.1	1,992	5.5	1.0
		Total	181,779	498.0	180,024	190,790.3	63.6	254,652	697.7	1.4
	Other	911	933	2.6	925	677.4	43.9	1,211	3.3	1.3
		MIH	219	0.6	219	390.3	106.9	244	0.7	1.1
		Transfer	307	0.8	307	493.5	96.4	514	1.4	1.7
		Special Event	82	0.2	77	497.4	387.6	82	0.2	1.0
		Total	1,541	4.2	1,528	2,058.5	80.8	2,051	5.6	1.3

Reporting Period ¹	Jurisdiction	Call Type	Number of Calls	Average Calls per Day	Calls with Time Data ²	Total Busy Hours	Average Busy Minutes per Call	Number of Responses ³	Average Responses per Day	Average Responses per Call
2022-23	All	911	152,820	418.7	151,331	142,842.1	56.6	220,449	604.0	1.4
		MIH	9,771	26.8	9,720	13,604.2	84.0	10,448	28.6	1.1
		Transfer	30,149	82.6	30,129	45,360.3	90.3	39,762	108.9	1.3
		Special Event	2,766	7.6	2,677	9,884.5	221.5	2,757	7.6	1.0
		Total	195,506	535.6	193,857	211,691.0	65.5	273,416	749.1	1.4
	MAEMSA	911	151,433	414.9	149,958	141,746.3	56.7	218,641	599.0	1.4
		MIH	9,468	25.9	9,417	13,130.4	83.7	10,130	27.8	1.1
		Transfer	29,827	81.7	29,808	44,845.6	90.3	39,270	107.6	1.3
		Special Event	2,688	7.4	2,601	9,424.5	217.4	2,679	7.3	1.0
		Total	193,416	529.9	191,784	209,146.8	65.4	270,720	741.7	1.4
	Other	911	1,387	3.8	1,373	1,095.7	47.9	1,808	5.0	1.3
		MIH	303	0.8	303	473.8	93.8	318	0.9	1.0
		Transfer	322	0.9	321	514.7	96.2	492	1.3	1.5
		Special Event	78	0.2	76	460.0	363.2	78	0.2	1.0
		Total	2,090	5.7	2,073	2,544.2	73.6	2,696	7.4	1.3

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

²“Calls with Time Data” reflects the number of unique calls in the data file with calculated busy time not otherwise missing or excluded.

³“Number of Responses” reflects the total number of unique MedStar unit dispatches.

System Performance

Table 80: Average Performance Times by Reporting Period, Response Protocol, and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction

Reporting Period	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
2021-22	Emergency	0.9	0.3	8.2	9.4	56,213
	911	0.8	0.2	8.3	9.3	50,515
	Transfer	2.2	0.3	7.8	10.2	5,698
	Non-Emergency	1.8	0.4	9.8	11.9	98,689
	911	1.7	0.3	9.2	11.4	79,506
	Transfer	3.1	0.8	12.7	14.2	19,183
	Total	1.4	0.3	9.3	11.0	154,925
2022-23	Emergency	1.1	0.3	8.3	9.6	58,997
	911	1.0	0.3	8.3	9.5	52,306
	Transfer	2.1	0.3	8.0	10.4	6,691
	Non-Emergency	2.2	0.4	10.5	13.3	102,068
	911	1.7	0.3	10.2	12.4	79,791
	Transfer	5.5	0.6	11.8	17.1	22,277
	Total	1.8	0.3	9.7	11.9	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Table 81: 90th Percentile Performance Times by Reporting Period, Response Protocol, and Call Type – Calls with Arrivals in MAEMSA’s Jurisdiction

Reporting Period	Response Protocol and Call Type	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
2021-22	Emergency	2.1	0.4	13.4	14.7	56,213
	911	1.5	0.4	13.4	14.5	50,515
	Transfer	3.4	0.5	13.0	15.8	5,698
	Non-Emergency	3.2	0.6	17.2	20.2	98,689
	911	2.9	0.4	15.5	18.6	79,506
	Transfer	5.7	1.2	24.6	26.8	19,183
	Total	2.6	0.5	15.8	18.2	154,925
2022-23	Emergency	2.3	0.4	13.5	15.1	58,997
	911	1.8	0.4	13.5	14.9	52,306
	Transfer	3.6	0.5	13.3	16.3	6,691
	Non-Emergency	4.6	0.6	18.5	23.0	102,068
	911	3.0	0.4	17.3	20.5	79,791
	Transfer	15.5	1.0	22.8	34.8	22,277
	Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls reporting at least one unit arrival (i.e., unit arrival date and time stamp was reported); due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

APPENDIX

Audits, Exclusions, and Classifications

This section reflects the audit, exclusion, and classification activities performed on the data files provided by MedStar spanning October 1, 2021 through September 30, 2023. Based on the date range of data provided, two full FYs of data were available for baseline analysis. The comprehensive data report (i.e., all sections prior to the baseline section) reflects data from 2022-23 spanning October 1, 2022 through September 30, 2023.

MedStar originally provided ten separate data files for use in analyses and reporting, one of which reflected records stored in MedStar's CAD system, Logis. However, during various routine audits of this specific data file, such as checking to ensure that select call-level details matched across all records relating to the same incident number, it appeared that incident numbers were being re-used within Logis across different periods of time (i.e., multiple records reported the same incident number, but other data values indicated that the records represented distinct calls). MedStar was contacted on December 21, 2023 to confirm that incident numbers were being re-used in Logis and to gain clarification on the matter. MedStar responded, as follows:

It's unfortunately related to a change in the data structure that Logis made on January 6, 2023 when they upgraded everyone to the v8 version of their data warehouse. At that time, they changed the definition of what a "workset ID" and an "incident ID" were. Previously, we utilized workset IDs for calls, whether it be 911, non-emergent transfers, or events. With their data re-structure, though, Logis made it so incident IDs were meant for 911/emergent transfer calls. Workset IDs are linked to events and non-emergent transfers. These types of calls don't have incident IDs associated with them.

Based on this response, we requested that Logis data be provided as four separate data files instead of one data file to ensure the identification of all unique calls. Consequently, 13 data files were ultimately provided to reflect all records across three different data warehousing scenarios that were required during 2021-22 and 2022-23, as follows:

1. Four data files reflecting records stored in Logis, as is typical of most MedStar records ("Incidents," $n=513,553$; "Staged," $n=59,294$; "Non-Emergent," $n=50,536$; and "Events," $n=4,798$; total combined, $n=628,181$);
2. One data file reflecting records that MedStar received from First Watch via a database back-up following a cyber-attack event in 2022 that impacted records in Logis spanning October 15 at approximately 12:00 am to October 20 at approximately 9:30 am ($n=16,477$); and

3. Eight data files reflecting records input and stored in Excel for periods during 2023 when Logis was down—periods included brief time intervals on February 15 (n=40), March 16 (n=22), April 27 (n=10), July 12 (n=2), July 25 (n=20), July 26 (n=86), and September 26 (n=8), and an outage spanning October 20 at approximately 9:30 am to October 22 at approximately 3:00 am (non-MIH, n=1,056 and MIH, n=52; records from all eight files merged and referred to as “CAD Down” records, n=1,296).

Files were first examined for record duplication; no fully duplicated records were identified in any of the data files (i.e., records would be considered fully duplicated if they matched on values for all variables).

Creation of New Unique Incident Numbers

Due to the aforementioned issue of re-use of incident numbers in Logis, and because records in the CAD Down data files did not include any incident numbers, new incident numbers had to be created to facilitate the identification of unique calls.

Creation of new incident numbers for records in the “Incidents,” “Non-Emergent,” and “Events,” data files was accomplished through the addition of a simple suffix identifier (i.e., “_I,” “_NON,” and “_EV,” respectively) to the original incident number from Logis in order to address any re-use of incident numbers across these three data files, not within each one of these data files.

Because records in the “Staged” data file may be related to records in the “Incidents” data file, the approach was slightly different for this data file. All records appearing in the “Staged” data file (n=59,294) were first examined to determine if the associated incident numbers also appeared in the “Incidents” data file. There were 16,536 records that reported incident numbers in the “Staged” data file that did not appear in the “Incidents” data file. New incident numbers for these records were created through the addition of a simple suffix identifier (i.e., “_S”) to the original incident number from Logis for alignment in naming convention and because some of those same incident numbers also appeared in the “Non-Emergent” or “Events” data files (i.e., as re-use of incident numbers, not due to these staging records being related to the records in either of these data files).

The remaining 42,758 records in the “Staged” data file reported incident numbers that did appear in the “Incidents” data file, such that the new incident numbers for these records included the “_I” suffix with the original incident numbers from Logis so that they aligned with the companion records in the “Incidents” data file and were not counted as additional unique calls.

For CAD Down data files, wherein incident numbers were not included, unique calls were first identified by joining values from the “Date,” “Call rcvd” time, and “Address” variables in a combined data file containing records from all eight CAD Down data files. Records were audited to account for variation in completion of the “Call rcvd” time and/or “Address” variables. Once records were

appropriately identified as unique calls or not, new incident numbers were created using a “CD####” nomenclature across all CAD Down records. Records in the merged CAD Down data file for which there were no values reported beyond those for the “Date” and “Resp #” variable were excluded ($n=25$). Following these exclusions, records from all three primary data sources (i.e., Logis, First Watch, and CAD Down) were combined into one comprehensive data set containing 645,929 records.

Identification of Date and Time Stamps for Temporal Analyses

Date and time stamps for all 645,929 records were then examined to identify an appropriate variable for use in determining reporting period, month, weekday, and hour of day for temporal analyses related to call volume, transport patterns, and other time-related examinations.

In the CAD Down data files, dates did not appear with each individual time stamp variable such that the value from the “Date” variable was joined with each individual time stamp variable, and times that indicated a rollover to the next day had their corresponding dates adjusted accordingly. Additionally, any date or time stamps that originally contained formatting errors were edited to reflect the correct date or time stamp, provided the information could be determined from a review of other record elements (e.g., 16:25;21 was edited to reflect a time stamp of 16:25:21; “Date” entries of 15:00, 1/16/1900, and 1/17/1900 were edited to reflect proper dates by reviewing the records adjacent to them in the relevant data files based on “Resp #” values).

In general, reporting period, month, day of week, and hour of day were based on the date and time stamp values for the “Clock Start – Incident – RAW” variable values, where available; however, these date and time stamps were missing for 14,076 records. As such, values from the earliest date and time stamp variable available for these records were used in their absence, as follows: “Call Created Date and Time” values for 13,613 records; “Clock Start – Incident – RAW” or “Call Created Date and Time” values, as available, from other records sharing the same incident number for 434 records (all First Watch); unit dispatch date and time stamps for 19 records (all CAD Down); unit en route date and time stamps for three records (all CAD Down); and unit arrival date and time stamp for one record (CAD Down). Four records were reconciled for date and time stamps to the hour (i.e., minutes and seconds values not identifiable) by reviewing the date and time stamps for records and response numbers adjacent to them in the original data files (all CAD Down). The remaining two records (both CAD Down, MIH) could be reconciled by this approach for the date stamp only.

Values for this combined date and time stamp field (i.e., referred to as “Clock Start” for the purposes of this report) for all records were then examined to see if they matched across records sharing the same incident numbers. Values did not match across all records for 8,739 unique incident numbers (i.e., from the Logis “Non-Emergent” data set, $n=7,026$; First Watch data set, $n=1,713$). Because of this, the earliest date and time stamp corresponding to each unique incident number was used to determine reporting period, month, weekday, and hour of day.

Classification of Determinants for Call Severity, Priority, and Response Protocol

MedStar’s priority assignments and response plans are mapped to ProQA Paramount Medical Response Codes. This mapping has evolved several times over the years, as ProQA codes continue to change, and as MedStar deems ongoing reviews appropriate. ProQA codes and select companion data are available in Logis, but are specific to the relevant historic version of mapping.

For strategic planning purposes, all data related to ProQA codes were based on MedStar’s most recent mapping revisions that were completed on December 1, 2023, including use of their extraction of call severity (i.e., Alpha, Bravo, Charlie, Delta, Echo, and Omega) from each ProQA code, with two exceptions. Due to local policy decisions, the 33-Transfer / Interfacility / Palliative Care) and 37-Interfacility Evaluation / Transfer series of codes are no longer being used—that is, the 45-Specialized Unscheduled Up-Care Transport, 46-Scheduled Interfacility Transfer (Routine), and 47-Mental Health Transfer series of codes are being used exclusively to represent transfer activities. As such, a prior version of MedStar’s mapping (i.e., September 7, 2023 version that still included mapping of these codes, even though not in use) was used to appropriately map all instances of 33* and 37* codes in the data file.

Table 82 presents the priority assignment codes specified by MedStar in the most recent mapping version, and their associated definitions that further facilitated the classification of ProQA codes in the data file to service level (i.e., ALS, BLS, or CCP), response protocol (i.e., “Hot” = emergency, lights and sirens), response time performance standard (i.e., 11, 13, or 17 minutes), and whether or not the priority assignment relates to a transfer.

There were 93,646 records reporting what appeared to be valid determinant values (n=319 unique values), but either the values did not align with the exact naming convention appearing in MedStar’s mapping documents (e.g., 9E01 rather than 09E01; 25A1V rather than 25A01V), the values that required a suffix did not have one, or the values were only included in mapping documents prior to the December 1, 2023 version. Determinant values were re-coded, as necessary and where interpretable, and previous versions of mapping documents were consulted to obtain details for determinant values that did not appear in the most recent version.

Table 82: MedStar Priority Levels and Corresponding Definitions

Priority Level	Definition ¹
1A	ALS Hot 11
2A	ALS Hot 11
3A	ALS Hot 13
3A+C	ALS Hot 13
4B	BLS Hot 13
5A	ALS Cold 17

Priority Level	Definition ¹
6A	Transfer - ALS Cold
7A	ALS Cold 17
8B	BLS Cold 17
9A	Transfer - ALS Cold
9B	Transfer - BLS Cold
9S	Transfer - Specialty Care CCP Required
5A/FDO	FD Only No MedStar Response
8B/FDO	FD Only No MedStar Response
FD	FD Only No MedStar Response
PDO	PD Only No MedStar Response
NA	Determinant Not Used in System

¹ALS=Advanced Life Support; BLS=Basic Life Support; CCP=Critical Care Paramedic; FD=Fire Department; PD=Police Department

For records that did not report a determinant value, which precluded mapping of related details through the processes described above, the original priority levels reported by MedStar in the data file were used to map select details, as presented in Table 83.

Table 83: Classification of MedStar Priority Levels Reported in Data Files for Records Missing Determinants

Time Period	Original Priority Level ¹	Current Priority Level	Definition ¹
Prior to March 1, 2023 at 4:00 am	1	1A/2A	ALS Hot 11
	2	3A/3A+C/4B	ALS/BLS Hot 13
	3	5A/7A/8B	ALS/BLS Cold 17
	4	6A/9A/9B/9S	Transfer - ALS/BLS/CCP Cold
	4 ²	MIH	MIH Requested on 911 Call
	a	1A/2A	ALS Hot 11
	D	1A/2A	ALS Hot 11
	e	1A/2A	ALS Hot 11
	i	FD	FD Only No MedStar Response
	m	5A/7A/8B	ALS/BLS Cold 17
	MIH	MIH	MIH Requested on 911 Call
	U	Unknown	Unknown
	V	Unknown	Unknown

Time Period	Original Priority Level ¹	Current Priority Level	Definition ¹
On or After March 1, 2023 at 4:00 am	1	1A	ALS Hot 11
	2	2A	ALS Hot 11
	3	3A/3A+C	ALS Hot 13
	4	4B	BLS Hot 13
	5	5A	ALS Cold 17
	6	6A	Transfer - ALS Cold
	7	7A	ALS Cold 17
	8	8B	BLS Cold 17
	9	9A/9B/9S	Transfer – ALS/BLS/CCP Cold
	E	1A	ALS Hot 11
	F	FD	FD Only No MedStar Response
	M	5A/7A/8B	ALS/BLS Cold 17
	MIH	MIH	MIH Requested on 911 Call
	O	1A	ALS Hot 11
	P	PDO	PD Only No MedStar Response
	U	Unknown	Unknown

¹Entries are presented verbatim from the data file. Prior to March 1, 2023 at 4:00 am, the values that are not 1-3 are due to the following: “4” = A4, ASAP60 or B4, ASAP60; “a” = Cardiac Arrest; “D” = Code Blue; “e” = Code Blue; “i” = Fire Only; “m” = Emergency Transfer; “U” = Out of Area (and, hence, not available); and “V” = Events (and, hence, not available). On or after March 1, 2023 at 4:00 am, the values that are not 1-9 are due to the following: “E” = Code Blue; “F” = FD Only; “M” = Emergency Transfer; “O” = Code Blue; “P” = PD Only; and “U” = Out of Area (and, hence, not available).

²If original priority level = 4, and “Exemption Reason” = MIH for any record related to the same incident number, the new priority level was set as “MIH.”

Records that were missing both a determinant value and the original priority value, but that had another related record in the data file with the same incident number, had these values mapped from the other related record(s).

Records that reported an “Exemption Reason” of “MIH,” as well as other records associated with the same incident number (i.e., to reflect both the call type and associated priority level as “MIH;” see later section entitled, “Classification of Call Types” for additional details), were classified as “MIH” for the priority level, regardless of values reported for any other variable. The majority of these records had no determinant and no priority level otherwise reported.

For records in the CAD Down data file that could not be mapped based on the any of the above approaches, mapping was based on the “Response Plan” variable appearing exclusively in those data files, when available for a record.

Following a review of response protocol for records appearing in the Logis “Non-Emergent” data file, 14 records reported priority mapping that coincided with a “Hot” (i.e., emergency, lights and sirens) designation. While the original priority values from MedStar indicated “4,” and the call received date

and time stamps were after March 1, 2023, based on the records being included in the Logis “Non-Emergent” data file, and following a review of incident descriptions, where available, these records were assumed to represent priority levels and response plans based on mapping versions prior to March 1, 2023. As such, these records were edited to reflect priority levels and response plans in line with non-emergent transfers, otherwise unspecified (i.e., 6A/9A/9B/9S, Transfer – ALS/BLS/CCP Cold, non-emergency, no lights and sirens).

Classification of Response Dispositions

There were 106 unique values appearing in the data file for the “Response Disposition” variable. To facilitate examination of common dispositions related to outcomes such as cancellations, re-assignments, staging, and transports, the original values appearing in the data file were classified into broader categories, as presented in Table 84 (note that values are presented verbatim from the data file; values that appear to be duplicated are unique in that one of the values has one or more trailing spaces after the text). Records reporting a “Response Disposition” of “COVID-Cab” (n=3; appeared in Logis “Incidents” data file only) were excluded from the data file, per MedStar’s direction.

Table 84: Classification of Response Dispositions

General Response Disposition	Specific Response Disposition ¹
EXCLUDE	COVID Cab
AMA	AMA
AMA	AMA
AMA	AMA - Assessed and/or Treated & Released
AMA	AMA - From Standby Event
AMA	AMA - Transported by Law Enforcement
AMA	AMA - Transported by Private Vehicle
AMA	AMA, RAS
AMA	AMA/REFUSAL
Cancelled	BLS Appropriate (Canceled by Unit on Scene)
Cancelled	Calling Party Canceled
Cancelled	Calling Party Cancelled
Cancelled	Cancel Web Booking
Cancelled	CANCELED BY CALLING PARTY
Cancelled	CANCELED BY FD
Cancelled	CANCELED BY PD
Cancelled	Cancelled
Cancelled	CANCELLED BY CALLING PARTY
Cancelled	Cancelled by FD
Cancelled	CANCELLED BY FD/PD
Cancelled	CANCELLED CALLING PARTY

General Response Disposition	Specific Response Disposition ¹
Cancelled	Cancelled duplicate call (M30)
Cancelled	Cancelled per calling party
Cancelled	Cancelled per FD
Cancelled	Cancelled per FD OS
Cancelled	Cancelled per PD
Cancelled	Cancelled per TCFA
Cancelled	cancelled per UOS
Cancelled	FD Canceled per Protocol
Cancelled	FD/PD Canceled
Cancelled	FD/PD Canceled MedStar
Cancelled	FD/PD Cancelled MedStar
Cancelled	MIH-CANCELLED BY UNIT
Cancelled	MIH-Client Canceled Appointment
Cancelled	PD canceled
Cancelled	PD Canceled, Not Needed
Cancelled	Unit on Scene Canceled
Cancelled	UNIT ON SCENE CANCELLED
Cancelled	UNIT ON SCENE CANCELLED
Completed	CALL COMPLETE
Completed	CALL COMPLETE
Completed	COMPLETE
Event	Event
False Call	FALSE CALL
No Patient Found	No Pt Found/Pt Left Scene
No Patient Found	Pt left scene / walked away
No Patient Found	PT LEFT SCENE/NO PT FOUND
Reassigned	REASSIGN
Reassigned	Reassign - Closer Unit
Reassigned	Reassign - Higher Priority
Reassigned	Reassign - Other
Reassigned	REASSIGNED
Reassigned	REASSIGNED
Reassigned	reassigned to mutual aid
Refusal	Refusal
Refusal	Refusal - Refusal Without Demonstration of Capacity
Refusal	Refusal - Refused all Evaluation/Care
Released at Scene	RAS
Released at Scene	RAS - Release At Scene
Released at Scene	RELEASE AT SCENE

General Response Disposition	Specific Response Disposition ¹
Staged	Stage for PD
Staged	Staged
Transported	Call complete/ Pt transported
Transported	Call complete/pt transported
Transported	Transported
Other	Auto closed
Other	CODE 90/MISSION FAILURE
Other	COVID-19 Non-Transport and Referral
Other	Deleted split leg
Other	Did not voice how clearing the call
Other	Dispatcher Error
Other	DOS
Other	DUPLICATE CALL
Other	EPAB Protocol
Other	EXTENDED STAGING PROTOCOL
Other	FD ONLY
Other	FD Only (FD RESPONSE REQUIRED)
Other	FLY ETA
Other	FLY Not Available
Other	FLY Not Needed
Other	Helicopter Transported
Other	Home Visit Complete
Other	M52 drove up on another call
Other	Mech. Failure/Code100/Code200
Other	Med Control Refusal
Other	Medical Alarm (FD RESPONSE REQUIRED)
Other	MIH-No Show Appointment
Other	MIH-Transferred Care to Transport Unit
Other	Mutual Aid Ambulance Requested by MedStar
Other	Mutual Aid Transported
Other	MUTUAL AID TXP
Other	No CCP Available
Other	NOT VOICED
Other	Out Of Service Area
Other	per FWFD os
Other	Remove from Resource
Other	Replaced by Rendezvous
Other	Signal 12
Other	SIGNAL 12/DOS

General Response Disposition	Specific Response Disposition ¹
Other	Telemedicine Consult - Treated in Place
Other	Transfer Care MHP @ 20:55
Other	TRANSFERRED CARE
Other	Unit OS
Other	Unit OS
Other	Update Repeat Transfer
Not Reported	(blank)
Not Reported	NULL

¹Entries are presented verbatim from the data file.

Classification of Locations for Jurisdiction and Area

Jurisdiction and area were determined using location information, as available, from the records in the merged data files, in combination with GIS shape files provided by MedStar, and GIS shape files provided by Burleson Fire Department (i.e., to identify Burleson records for subsequent exclusion from all analyses). Shape files for MAEMSA member areas and the Naval Air Station were based on municipal boundaries (Figure 42; Figure 43 identifies Burleson, as well).

Location information was either missing or insufficient for 3,730 records such that geolocation could not be performed as previously described for these records. Values from the “Demand Zone” variable appearing in MedStar’s data files were used for 16 of these records, and values from the “City” variable appearing in MedStar’s data files were used for 1,274 of these records, re-classifying any values that did not appear as MAEMSA member jurisdictions by reviewing the address information (i.e., two Benbrook records and one Crowley record mapped to Fort Worth, and one record each for City of Arlington, Dallas, Euless, and Richland Hills mapped as areas outside of MAEMSA member areas, Burleson, or Naval Air Station, in general). Misspellings and spelling variations (e.g., Fort Worth vs FTW) were also corrected or aligned.

For the remaining 2,440 records that were missing values for the “City” variable, entries for the “Street Address” variable were reviewed to determine jurisdiction and area, as identifiable (n=75); jurisdiction and area were reported as “Unknown” for records that lacked any definitive guiding information for the “Street Address” variable (n=2,365).

Values for this new location field for all 645,926 records were then examined to see if they matched across records sharing the same incident numbers. Values did not match for all records across nine unique incident numbers. For eight of the nine unique calls, one record had a value of “Unknown” from the processes described previously, but the other records were mapped to the same known areas, such that those values were transferred to the “Unknown” records. One of the unique calls was from the CAD Down data file—the two records associated with this call both reported “Shiver Rd / Ray

White” for the “Street Address” variable, but one reported “FTW” as the city, and the other reported Haltom City as the city. The Haltom City record was edited to report Fort Worth as the area.

During these review processes, it was discovered that records related to two specific Benbrook addresses (i.e., 4242 Bryant Irvin Rd, Benbrook, TX 76109, Mirabella Assisted Living & Memory Care; and 4252 Bryant Irvin Rd, Benbrook, TX 76109, Renaissance Park Multi Care Center; $n=1,038$, included one instance of 4252 Bryant Irving Rd, as well) often reported slightly different X-Y coordinates and, as such, were mapped to two different areas by geolocation approaches utilizing the X-Y coordinates alone, both by the process described above and as appearing for the “Demand Zone” variable in MedStar’s original data files. These addresses were confirmed to be located outside of any of the municipal boundaries for MAEMSA member areas, the Naval Air Station, and Burleson, such that all relevant area values were re-mapped accordingly ($n=79$).

Following alignment of both Benbrook addresses to an area of “Outside,” another audit was conducted to ensure that all area values matched across records with the same incident numbers. Records did not match for only one unique incident number (#4779139 in the Logis “Non-Emergent” data file). One of four records associated with this incident number reported an address of 4252 Bryant Irvin Rd that was re-mapped to an area of “Outside” in the previous step; the other three records associated with this same incident number, reporting addresses of “Chisholm Trail Pkwy,” “Fort Worth,” and “Southwest Blvd SR,” had their areas re-mapped to an “Outside” area, as well.

Figure 42: GIS Shape File Boundaries Map – MAEMSA Member Areas and Naval Air Station

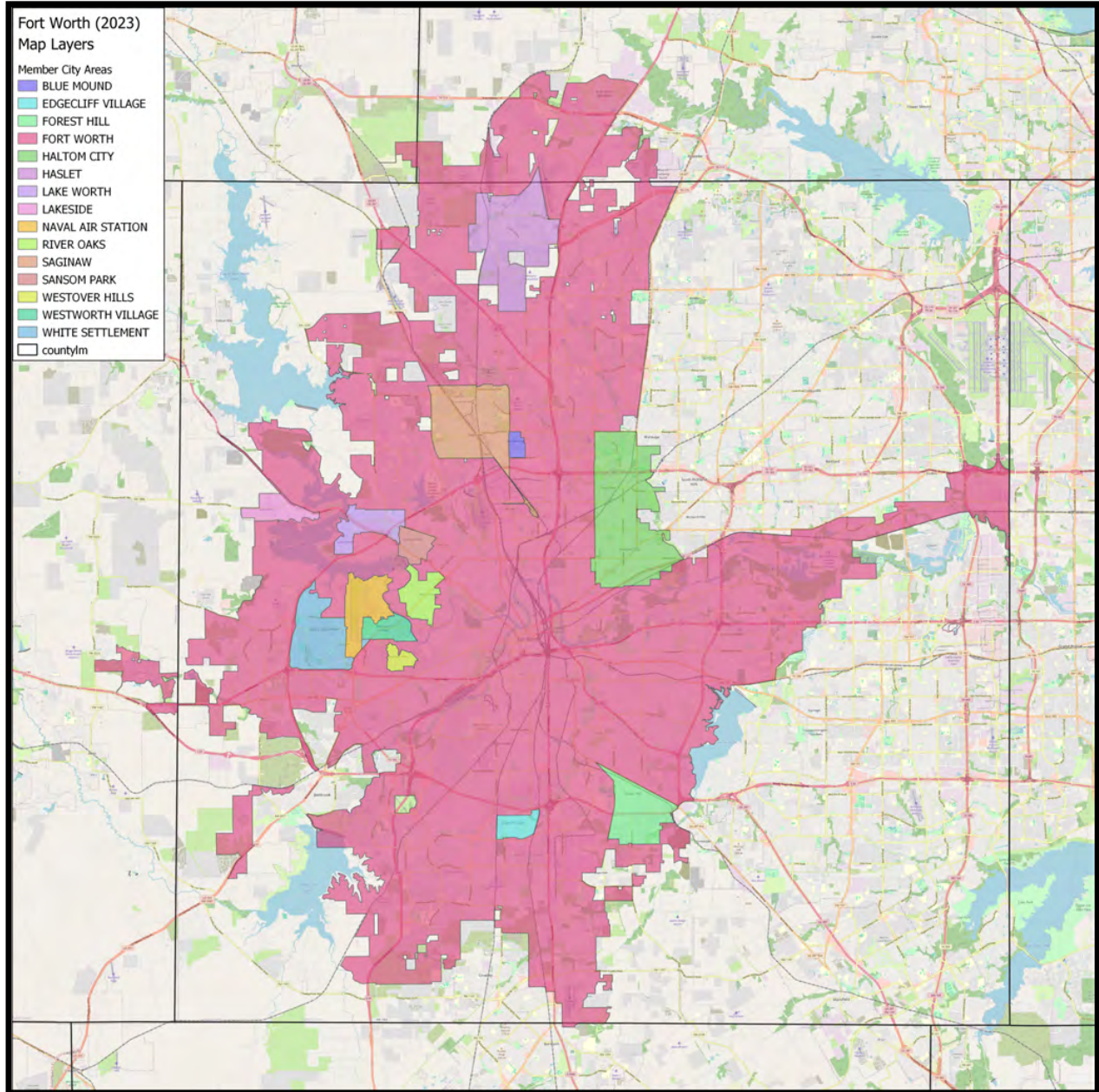
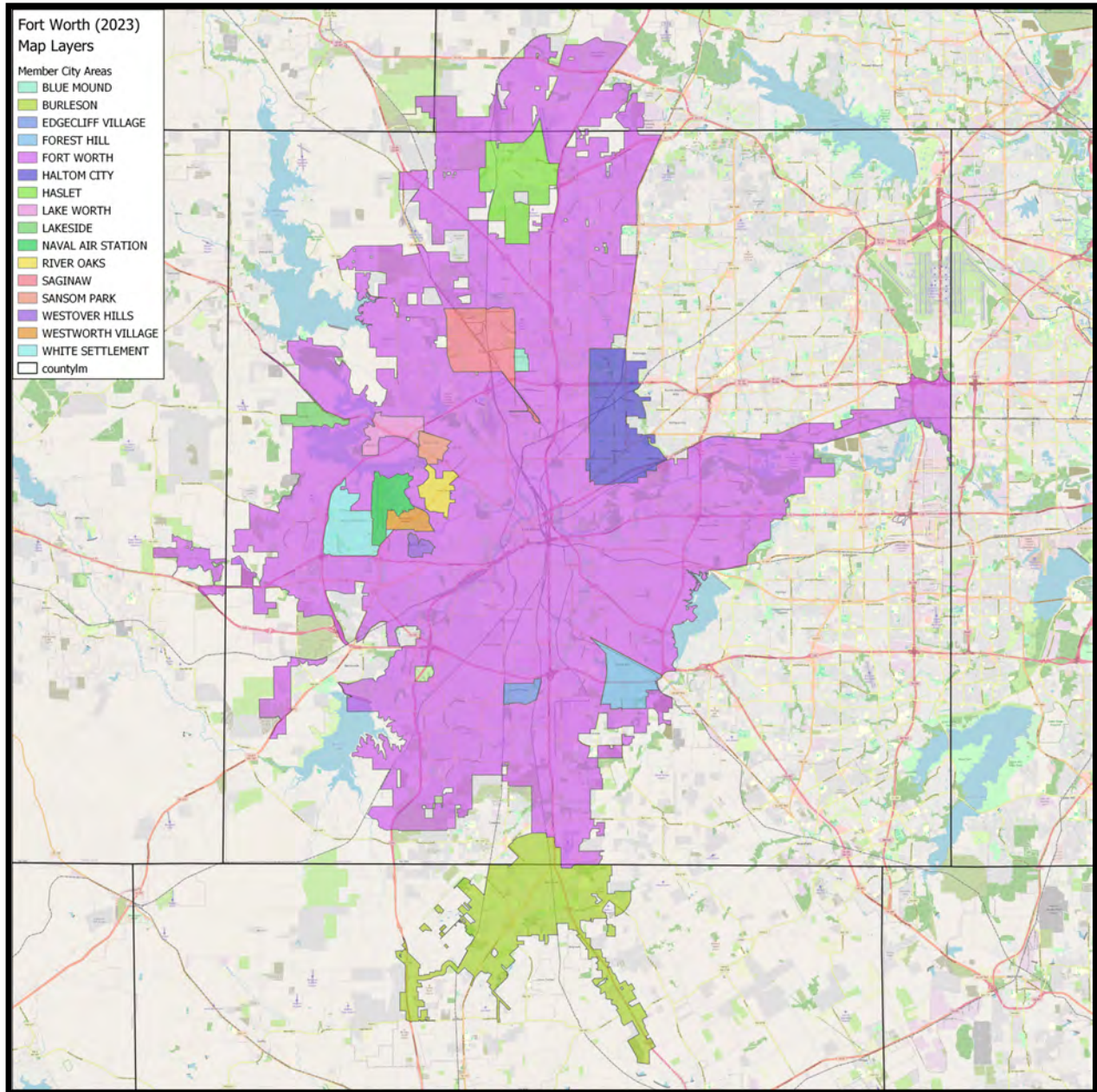


Figure 43: GIS Shape File Boundaries Map – MAEMSA Member Areas, Naval Air Station, and Burleson



Classification of Call Types

Records were classified into call type categories of Special Event, MIH, Transfer, and 911, as follows (some adjustments of these original classifications occurred in subsequent steps, as described later):

Special Event Calls

1. Logis: All records appearing in the “Events” Logis data file ($n=4,798$) were considered to represent Special Event calls, regardless of any other variable values for these records
2. First Watch: Records appearing in the First Watch data file that reported “Event” for the “Exemption Reason” variable ($n=7,573$) were considered to represent Special Event calls, regardless of any other variable values for these records
3. CAD Down: Records in the CAD Down data files did not appear to contain any variables related to the identification of special events, such as an “Exemption Reason” variable, such that no records in the CAD Down data files were considered to represent Special Event calls

MIH Calls

1. Logis: Records appearing in the “Non-Emergent” Logis data file that reported “MIH” for the “Exemption Reason” variable ($n=19,679$) were considered to represent MIH calls, regardless of any other variable values for these records; 17 additional records that did not report “MIH” for the “Exemption Reason” variable, but that did report “MIH” for the original priority variable from MedStar were also considered to represent MIH calls

Note: Following a later audit to ensure alignment of all call-level details across records sharing the same incident number, select records appearing in the Logis “Non-Emergent” data file were re-classified from transfer calls to instead reflect MIH calls. The underlying logic was that if at least one record for an incident number reported “MIH” for the “Exemption Reason” or original priority variable, then the incident number was classified as an MIH call, and all related records were re-classified to report MIH as the call type (see audit process presented later in this “Classification of Call Types” section for additional details).

2. First Watch: None of the records in the First Watch data file reported “MIH” for the “Exemption Reason” variable or any form of “MIH” for the “Response Disposition” variable, such that no records in the First Watch data file were considered to represent MIH calls

3. CAD Down: One of the eight CAD Down data files included a worksheet entitled, “MIH Response List,” such that these records (n=52) were given the “MIH” designation for the “Exemption Reason” in the final combined data file, and subsequently considered to represent MIH calls, regardless of any other variable values for these records; the other seven CAD Down data files did not appear to identify MIH records

Transfer Calls

1. Logis: Records appearing in the “Non-Emergent” Logis data file that did not otherwise report “MIH” for the “Exemption Reason” or original priority variable (n=30,840) were first considered to represent Transfer calls, regardless of any other variable values for these records

Note: Following a later audit to ensure alignment of all call-level details across records sharing the same incident number, select records appearing in the Logis “Non-Emergent” data file were re-classified from transfer calls to instead reflect MIH calls. The underlying logic was that if at least one record for an incident number reported “MIH” for the “Exemption Reason” or original priority variable, then the incident number was classified as an MIH call, and all related records were re-classified to report MIH as the call type (see audit process presented later in this “Classification of Call Types” section for additional details).

Additionally, following preliminary analyses at later stages, it was deemed necessary to re-classify select records appearing in the Logis “Incidents” data file that were originally classified as 911 calls to reflect transfer calls instead (see section later in Appendix entitled, “Re-Classification of Select 911 Records”).

2. First Watch: Records in the First Watch data file that had a determinant code from the 33* or 37* series (n=221), and records without a determinant code, but that reported “4” for the original Logis priority value (n=7) were considered to represent Transfer calls, regardless of any other variable values for these records
3. CAD Down: Records in the CAD Down data files that had a determinant code from the 33* or 37* series (n=86), and records that reported “9A-IFT” (n=1), “9B-IFT” (n=1), “A4” (n=16), “B4” (n=73), “S-4” (n=9), “EMERG SCT” (n=2), or “EMER TXF” (n=14) were considered to represent Transfer calls, regardless of any other variable values for these records

911 Calls

1. Logis: All records appearing in the “Incidents” ($n=513,550$) and “Staged” ($n=59,294$) Logis data files were first considered to represent 911 calls, regardless of any other variable values for these records

Note: Following preliminary analyses at later stages, it was deemed necessary to re-classify select records appearing in the Logis “Incidents” data file that were originally classified as 911 calls to reflect transfer calls instead (see section later in Appendix entitled, “Re-Classification of Select 911 Records”).

2. First Watch: Records in the First Watch data file that were not otherwise identified as one of the previous three call types ($n=8,676$) were considered to represent 911 calls, regardless of any other variable values for these records
3. CAD Down: Records in the CAD Down data files that were not otherwise identified as one of the previous three call types ($n=1,017$) were considered to represent 911 calls, regardless of any other variable values for these records

A final audit to ensure that all relevant call-level details matched across records with the same incident number yielded records that did not match for 3,469 unique incident numbers. Four unique incident numbers from the CAD Down data files did not match solely due to determinant values. These values were aligned by choosing the more severe priority level and/or through a review of other variable values.

Records from the Logis data file represented 1,253 unique incident numbers, all due to different values for the “Exemption Reason” variable, which was related to differences in all but six of the incident numbers (i.e., all 911 calls) due to call types being based on “Exemption Reason” values under certain circumstances, as described in the prior section. Original “Exemption Reason” values were retained to reflect MedStar’s reporting of these values at the unit response level, but a new variable was created to align the “Exemption Reason” values for all records related to the same incident number in order to ensure alignment at the call type level. Values of “MIH” ($n=168$) were given priority over “Non Contract.” This action also necessitated editing the corresponding call type classifications—that is, this process results in the logic that if at least one record for an incident number reported “MIH” as an “Exemption Reason,” then the incident number was classified as an MIH call.

Records from the First Watch data file that did not match across all records for the same incident number ($n=2,212$ unique incident numbers) were not addressed at this point, due to the variety and volume of discrepancies identified. The steps taken to address First Watch records, and the rationale for this approach, are outlined in a later section (i.e., see “Approximation of October 15-22, 2022 Data”).

Exclusion of Records – 1

Prior to all audit and exclusion activities, the combined data file contained 645,954 records. Note that two exclusion activities were documented previously, as follows: (1) records in the merged CAD Down data file for which there were no values reported beyond those for the “Date” and “Resp #” variable were excluded (n=25), and (2) records reporting a “Response Disposition” value of “COVID Cab” were also excluded (n=3, appearing in Logis file only; Table 85).

In preparation to first conduct call volume and temporal analyses as they relate only to current contracted jurisdictional arrangements, records that were identified as having occurred in the Burleson area were excluded from the data file, such that 626,439 records were remaining.

Table 85: Exclusions from Data Files Prior to Call Volume and Temporal Analyses

Data Source	Exclusion Activity ¹	Frequency (n)	Percent of Total (%)
Number of Records Included in One Combined Data File		645,954	--
Logis CAD	Number of Records from Data Source	628,181	--
	Duplicate Record ²	0	0.0
	Response Disposition = “COVID Cab”	3	< 0.1
	Area = Burleson	18,924	3.0
	Number of Records Excluded	18,927	3.0
	Number of Records Remaining from Data Source	609,254	97.0
First Watch	Number of Records from Data Source	16,477	--
	Duplicate Record ²	0	0.0
	Area = Burleson	527	3.2
	Number of Records Excluded	527	3.2
	Number of Records Remaining from Data Source	15,950	96.8
CAD Down	Number of Records from Data Source	1,296	--
	Duplicate Record ²	0	0.0
	No Data Other Than “Date” and “Resp #”	25	1.9
	Area = Burleson	36	2.8
	Number of Records Excluded	61	4.7
	Number of Records Remaining from Data Source	1,235	95.3
Number of Records Remaining in One Combined Data File		626,439	97.0

¹Exclusion activities were sequential, such that frequency data are additive.

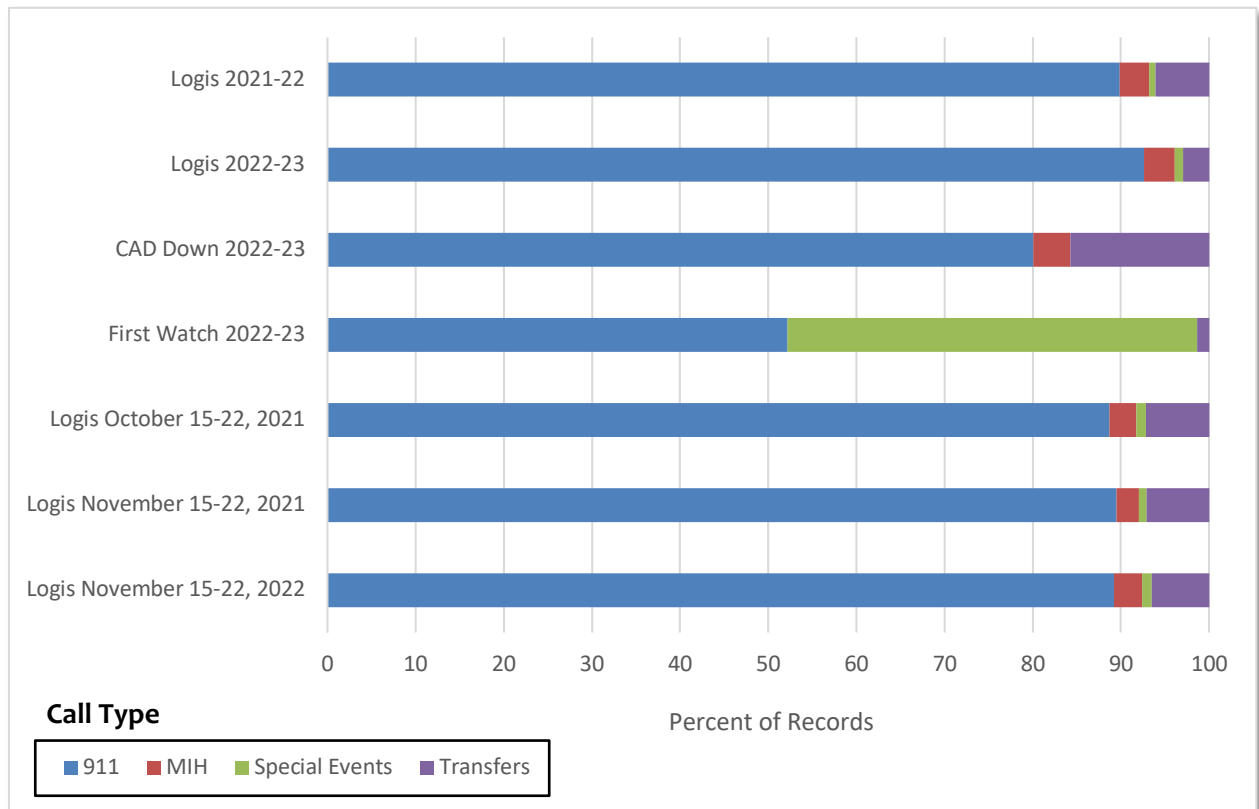
²Records would be considered duplicate records if they matched on values for all variables.

Approximation of October 15-22, 2022 Data

As previously noted, following an audit of select call-level details, it was observed that records from the First Watch data file did not match across all records for the same incident number for 2,212 unique incident numbers. This observation prompted further examination of variables in the First Watch data file, especially variables that contributed to call type classifications. The number of “Event” instances for the “Exemption Reason” variable also appeared remarkably high during the classification of call types, so a comparison of various data source scenarios was completed to review the differences (Figure 44; Table 86).

While the First Watch data set spans the time period from approximately 12:00 am on October 15, 2022 to approximately 9:30 am on October 20, 2022, the gap in the Logis data set spans the time period from approximately 12:00 am on October 15, 2022 to approximately 2:30 am on October 22, 2022. As such, records from this same gap period were examined from Logis for October of 2021 and for November of 2021 and 2022, in relationship to the other full data sets, regarding only the number and percentage of records by call type category.

Figure 44: Percentage of Call Types – Comparison of Data Source Scenarios



As evident in Figure 44, the pattern of percentage values by call type category is very similar for all of the Logis data scenarios, and while the percent composition values are slightly different for the CAD Down data file, the number of total records represented by this data source ($n=1,235$) in relation to the overall total number of records ($n=626,439$) is less than 0.2%. Due to this slight pattern variation, and the extremely small number of records, CAD Down records were retained in the data file and considered appropriate to represent the time periods during which Logis was down in 2022-23.

The pattern of percentage values by call type for the First Watch data set, however, is significantly different from the patterns for the other data sources. Moreover, although the First Watch data set covers approximately 43 hours fewer than the gap in the Logis data set, the data set contains nearly triple the number of records than what would be expected for this time period (Table 86).

Table 86: Number and Percentage of Call Types – Comparison of Data Source Scenarios

Metric	Data Source	Reporting Period	Call Type				Total
			911	MIH	Special Event	Transfer	
Number	Logis	2021-22	269,071	10,000	2,074	18,342	299,487
	Logis	2022-23	286,854	10,836	2,712	9,365	309,767
	CAD Down	2022-23	988	52	0	195	1,235
	First Watch	2022-23	8,319	0	7,407	224	15,950
	Logis	October 15-22, 2021 ¹	4,552	156	54	370	5,132
	Logis	November 15-22, 2021 ²	4,638	132	46	368	5,184
	Logis	November 15-22, 2022 ³	5,150	183	63	378	5,774
Percent	Logis	2021-22	89.8	3.3	0.7	6.1	100.0
	Logis	2022-23	92.6	3.5	0.9	3.0	100.0
	CAD Down	2022-23	80.0	4.2	0.0	15.8	100.0
	First Watch	2022-23	52.2	0.0	46.4	1.4	100.0
	Logis	October 15-22, 2021 ¹	88.7	3.0	1.1	7.2	100.0
	Logis	November 15-22, 2021 ²	89.5	2.5	0.9	7.1	100.0
	Logis	November 15-22, 2022 ³	89.2	3.2	1.1	6.5	100.0

¹Time period spans from approximately 12:00 am on October 15, 2021 to approximately 2:30 am on October 22, 2021.

²Time period spans from approximately 12:00 am on November 15, 2021 to approximately 2:30 am on November 22, 2021.

³Time period spans from approximately 12:00 am on November 15, 2022 to approximately 2:30 am on November 22, 2022.

Based on these observations, the First Watch data set was deemed to be a mis-representation of activity that likely occurred during the time period in question. The First Watch records ($n=15,950$) were, therefore, excluded from the data file and replaced with a duplicate set of the 5,132 records from Logis that represented approximately 12:00 am on October 15, 2021 to approximately 2:30 am on October 22, 2021. This set of records is considered to be a reasonable approximation of activity occurring during the cyber-attack event of 2022 in regards to elements such as call type distribution and the distribution of other call-level details (e.g., calls by month, weekday, hour of day, jurisdiction, area, determinant, and priority; transport rates), call volume, response volume, busy time, UHU analyses, and other similar analyses. These records were not included in any analyses related to

performance time so that all metrics reflected only observed performance. Lastly, while the comparison in number of records between November 15-22, 2021 and November 15-22, 2022 indicates a slightly higher value, this increase is negligible in relationship to the size of the full data set.

Incident numbers for the 5,132 duplicated records from 2021-22 were given an additional “_2” suffix to distinguish them from the original records, and the corresponding reporting periods were changed from 2021-22 to 2022-23. For overlapped calls analyses, the years for these records were edited to 2022 to allow for proper estimation of overlapped calls. This exchange of records resulted in an updated data file with 615,621 records. These records served to reflect calls received by the MedStar Communications Center; additional records were excluded in a subsequent step to reflect calls received by the MedStar Communications Center to which MedStar was expected to respond (see “Exclusion of Records – 2” later in the Appendix section).

Re-Classification of Select 911 Records

Using the updated data file containing 615,621 records, preliminary analyses were conducted to review call volume patterns by call type and response protocol categories between the two reporting periods (i.e., 615,621 total records reflecting 380,975 unique calls). There was a noticeable increase in call volume for the 911 call category, with a concomitant decrease in call volume for the transfer call category from 2021-22 to 2022-23 (Table 87; 2021-22, 911=86.7%, MIH=4.6%, Transfer=7.6%, and Special Events=1.1%; 2022-23, 911=90.0%, MIH=5.0%, Transfer=3.7%, and Special Events=1.4%).

Table 87: Number of Calls by Reporting Period, Jurisdiction, Call Type, and Response Protocol

Call Type and Response Protocol	Jurisdiction by Reporting Period ¹					
	2021-22			2022-23		
	MAEMSA	Other	Total	MAEMSA	Other	Total
911	158,639	1,079	159,718	175,514	1,598	177,112
Emergency, Lights and Sirens	61,386	407	61,793	65,570	544	66,114
Non-Emergency, No Lights and Sirens	97,212	666	97,878	109,769	1,051	110,820
Unknown	41	6	47	175	3	178
MIH	8,203	219	8,422	9,468	303	9,771
Non-Emergency, No Lights and Sirens	8,203	219	8,422	9,468	303	9,771
Transfer	13,752	167	13,919	7,073	120	7,193
Non-Emergency, No Lights and Sirens	13,752	167	13,919	7,073	120	7,193
Special Event	1,992	82	2,074	2,688	78	2,766
Non-Emergency, No Lights and Sirens	1,992	82	2,074	2,688	78	2,766
Total	182,586	1,547	184,133	194,743	2,099	196,842
Average Calls per Day	500.2	4.2	504.5	533.5	5.8	539.3
Year-Over-Year Growth	N/A	N/A	N/A	6.7%	35.7%	6.9%

¹Reporting periods reflect fiscal years spanning October 1 to September 30 of the following year.

The observations in Table 87 prompted further examination of average number of calls per day by month for transfer calls during 2022-23 (i.e., October of 2022 to September of 2023; Figure 45). This pattern persisted for 2022-23 when examining calls based on records appearing in the original Logis data source file of “Non-Emergent,” regardless of how these records were ultimately classified as call types by FITCH (Figure 46), but the pattern was not present for 2021-22 (Figure 47).

Figure 45: Auditing Average Number of Calls per Day by Month – Calls Classified as Transfers 2022-23

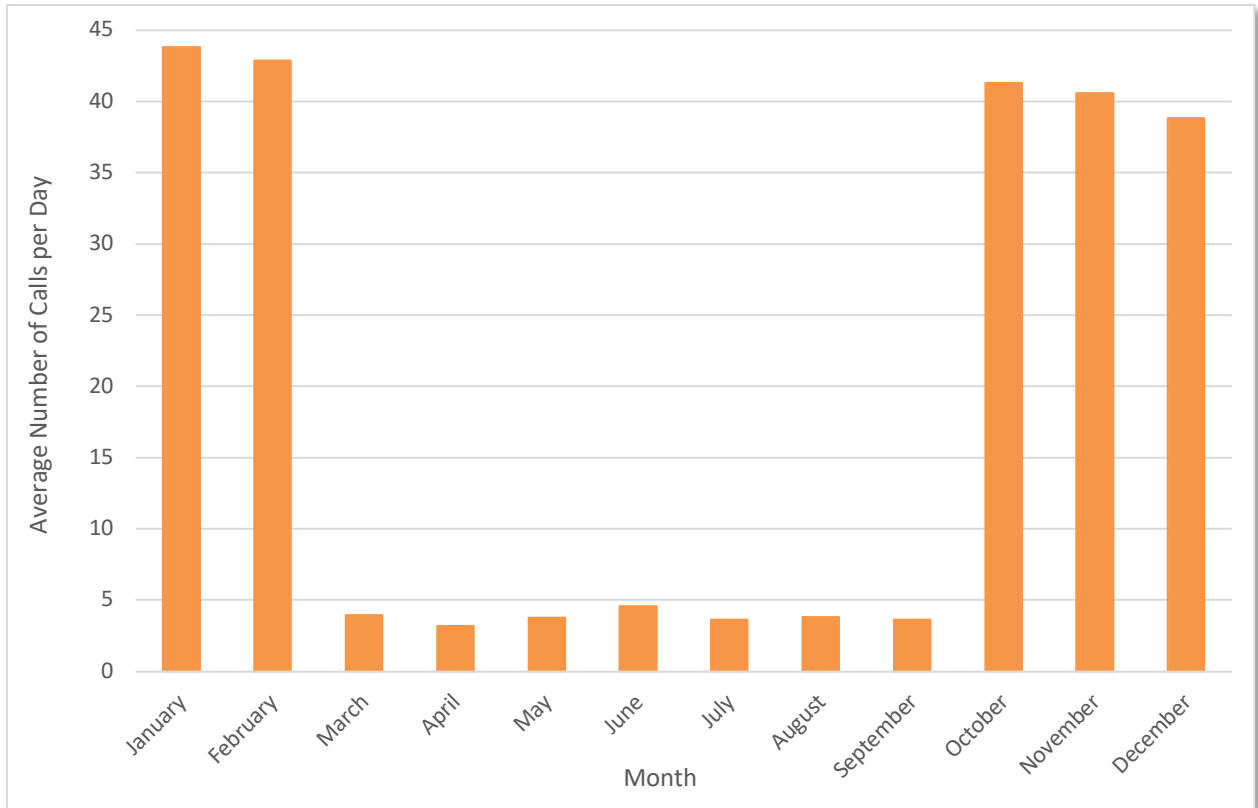


Figure 46: Auditing Average Number of Calls per Day by Month – Calls from Logis “Non-Emergent” File 2022-23

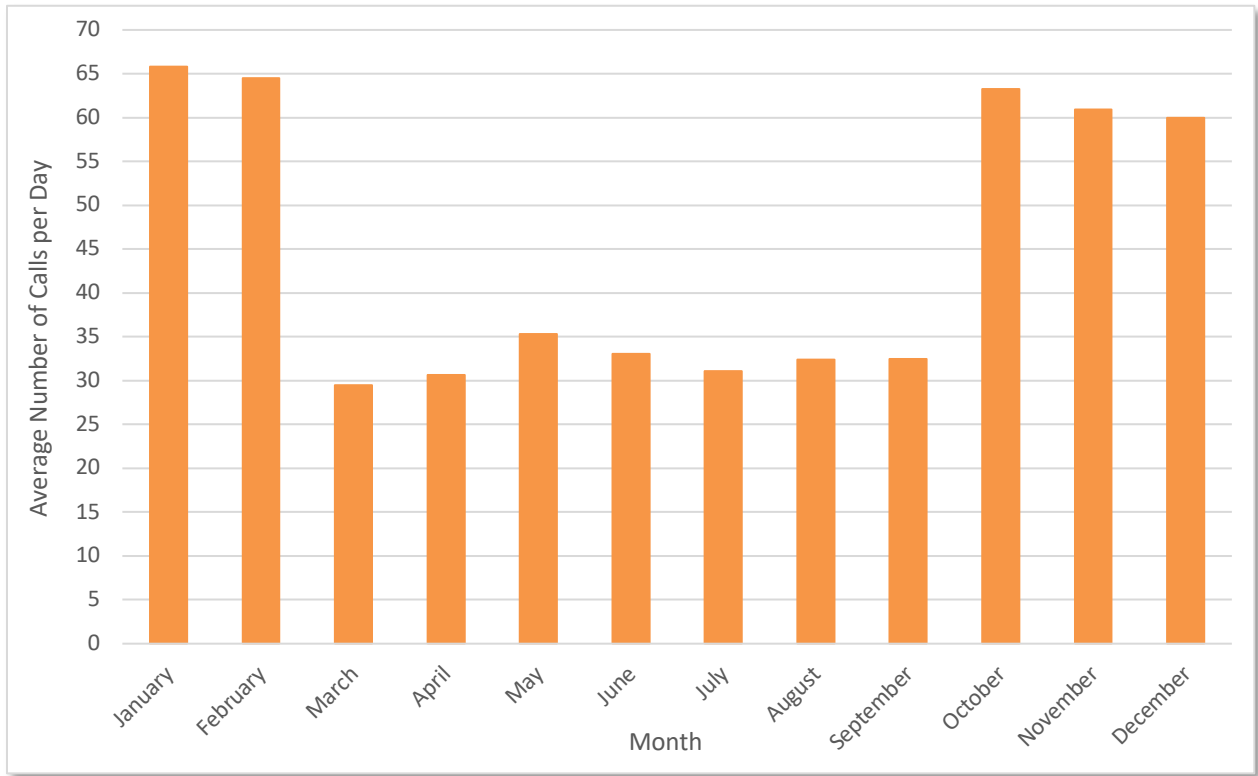
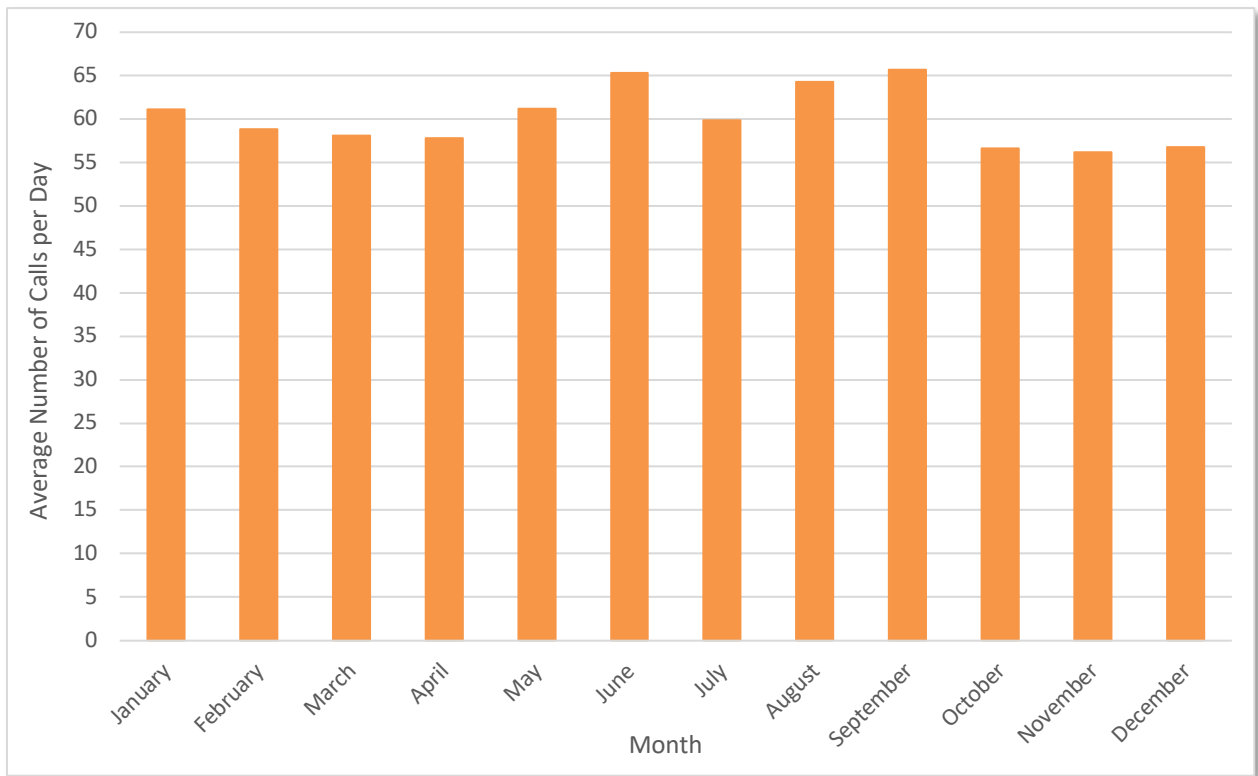


Figure 47: Auditing Average Number of Calls per Day by Month – Calls from Logis “Non-Emergent” File 2021-22



While it is possible that patterns of community demand changed beginning in March of 2023, it was hypothesized that there may have been a shift in how MedStar collected and/or stored data in Logis at some point during 2022-23 (or in how the data files were delivered to FITCH as separate “Incidents” and “Non-Emergent” data files without any obvious differences in records or their variables from 2021-22 to 2022-23, other than the knowledge of changing priority mapping on March 1, 2023 at 4:00 am, as referenced previously during related classification activities).

Along with the request for MedStar to send separate data files for Logis due to the aforementioned discovery of incident numbers being re-used in the Logis system, MedStar was also asked to describe what types of records would be included in each of the files (i.e., “Incidents,” “Staged,” “Non-Emergent,” and “Events”). The description provided for the Logis “Incidents” file that drove the original classification of call types was as follows:

These are 911-based requested responses, but they can encompass not only a 911 traditional response (such as you’re sick and you call the ambulance). A 911 response may also include MIH in our system (we have people enrolled in MIH services who are flagged once they call 911 and are sent an MIH resource alongside the ambulance) or an emergent-based interfacility transfer. Examples of these transfers would be a nursing home calling 911 and requesting a resident be transported to the hospital or a clinic calling to do the same.

An examination of the records from the Logis source data files (n=614,386) indicated that prior to March 1, 2023 (n=423,570), there were 23,697 records (5.6%) that reported a determinant value that indicated a transfer (i.e., 23,655 in the “Incidents” file and 42 in the “Staged” file). Note that only determinant values in the 33* and 37* series (these codes appeared prior to March 1, 2023 4:00 am only) and the 45*, 46*, and 47* series (these codes appeared on or after March 1, 2023 4:00 am only) were considered to represent transfers. For records that did not report a determinant value that indicated a transfer (n=399,873), 40,812 records (10.2%) appeared in the Logis “Non-Emergent” data file (which should primarily contain transfers and some MIH records).

After March 1, 2023 (n=190,816), there were 24,789 records (13.0%) that reported a determinant value that indicated a transfer (i.e., 24,727 in the “Incidents” file and 62 in the “Staged” file). For records that did not report a determinant value that indicated a transfer (n=166,027), 8,257 records (5.0%) appeared in the Logis “Non-Emergent” data file (which should primarily contain transfers and some MIH records).

It appeared that beginning in March of 2023, records related to transfers occurred, or were being logged and stored, as Logis “Incidents” at a much higher rate than during the time period prior to March of 2023 (13.0% vs 5.6%). Moreover, 75.7% of the transfer records appearing in the Logis data files after March 1, 2023 (18,767/24,789) had a corresponding response protocol of non-emergency based on mapping of determinant codes, as discussed previously.

Based on these observations, it was decided to separate 911 and transfer records appearing in the Logis “Incidents” and “Staged” data files through use of the determinant codes, when available, and then the original priority values from MedStar when determinant was not available. First, any record that was previously classified as a 911 call, as documented in earlier steps, but that reported a determinant value indicating a transfer (i.e., 33*, 37*, 45*, 46*, and 47* series; n=48,538) was re-classified as a transfer call. Second, any record that was previously classified as a 911 call that did not have a determinant reported, but that did report an original priority value from MedStar of “4” prior to March 1, 2023 at 4:00 am (n=53), or “6” (n=1) and “9” (n=39) on or following March 1, 2023 at 4:00 am was re-classified as a transfer call (total n=93). Response protocols corresponding to these records were maintained according to the approaches previously described, and allowed for the distinction between “Hot” (i.e., emergency, lights and sirens) and “Cold” (i.e., non-emergency, no lights and sirens) transfer calls.

Note that all records appearing in the Logis “Non-Emergent” data file had “NULL” reported for the determinant variable, regardless of date and time stamp. Based on this and the description from MedStar that the Logis “Non-Emergent” data file contained only transfer- and MIH-related records, the classification of these records as either MIH or not MIH (and, therefore, assumed to be transfer-related by default), and any related priority and response protocol classifications remained as previously described.

Classification of Unit IDs for Agency of Operation, Unit Type, and Front-Line Designation

There were over 400 unique unit IDs appearing in the data file, many of which could not have their agency of operation or unit type readily identified by FITCH (e.g., unit IDs that were simple numeric IDs such as 90, 128, and 141, and unit IDs that were numeric and text combinations such as 95-N, 130-N, and 351-N). As such, a list of unique unit IDs was sent to MedStar for assistance in classifying units to agency of operation and unit type.

A data file was sent by MedStar in response to the request for assistance that contained incident numbers, “Additional Key” variable values, and updated unit IDs and types for 524 records to allow for mapping back to the original data set. This list reconciled unit IDs and types for 526 records; 11 records from Logis remained with error unit IDs, and nine records from CAD Down had no value reported for unit ID.

There were multiple records in the data file that would be considered duplicate unit responses—that is, the same unit ID had more than one record associated with the same incident number, but not due to staging activities and not due to responding more than once to the incident. Moreover, multiple records were considered to be duplicate unit arrivals, wherein records matched on incident number, unit ID, and arrival date and time stamp.

To ensure that any unit-level metrics could be estimated more accurately (e.g., response volume), a new ID was created to identify each unique unit response by joining the incident number and unit ID. This approach may under-estimate response volume only very slightly by not accounting for the occasional instance when a unit truly responds to a call more than once (i.e., to address the incident, not as a series of re-assignments, cancellations, or other non-response dispositions).

Lastly, for select analyses (e.g., those related to performance times), only records associated with MedStar units considered to be front-line units are included. Units considered to be front-line units included any ALS, BLS, and CCP unit type (i.e., units not classified as front-line units were types such as bicycle, multi-purpose vehicle, and on foot).

Exclusion of Calculated Times – Busy Time Analyses

Busy time (i.e., time on task) analyses were conducted at the call level to reflect the time-on-task requirements of the entire system. Busy time was calculated using the earliest dispatch date and time stamp and latest unit clear date and time stamp for each unique incident. If a unique incident had staging activities associated with it, then the earliest dispatch date and time stamp was extracted from the staging date and time variable series. If a unique incident had no records associated with it beyond the staging records, then the latest unit clear date and time stamp was extracted from the staging date and time variable series.

While busy time metrics were reported at the call level for a systems perspective, audit and exclusion activities were still conducted for the full data set of 615,621 records (Table 88). There were 252 records missing earliest dispatch date and time, and 44 records missing latest unit clear date and time, such that busy time could not be calculated for 270 records (i.e., because 26 records were missing both date and time stamps). Records with negative busy times, busy times of zero minutes, and busy times > 24 hours (i.e., considered to be extreme outliers), as applicable, were excluded from analyses.

Table 88: Exclusions from Data File Prior to Busy Time Analyses

Exclusion Activity	Frequency (n)	Percent of Total (%)
Total Records in Data Set	615,621	--
Busy Time Could Not Be Calculated Due to Missing Date and Time Stamps	270	< 0.1
Unit Dispatch Date and Time to Unit Clear Date and Time (Unit Busy Time) < 0 Minutes ¹	269	< 0.1
Unit Clear Date and Time = Unit Dispatch Date and Time (Unit Busy Time = 0 Minutes) ¹	7,881	1.3
Unit Dispatch Date and Time to Unit Clear Date and Time (Unit Busy Time) > 24 Hours ¹	49	< 0.1
Individual Time Values Missing or Excluded	8,469	1.4

¹Retained records to reflect response workload, but excluded busy times from all related analyses.

Exclusion of Records – 2

As noted previously, the data file with 615,621 records served to reflect calls received by the MedStar Communications Center. Additional records were identified for exclusion in order to reflect only calls received by the MedStar Communications Center to which MedStar was expected to respond.

Records that reported any version of FD or PD only (i.e., no MedStar response expected) through various means of classifying determinants and priorities were excluded (n=3,160). Records that reported a determinant value that was indicated in MedStar’s mapping documents as not being used in the system (i.e., 09B01f, 09B01g, and 09D02f) were also excluded (n=18).

This total of 3,178 excluded records yielded 612,443 remaining records for inclusion in analyses related to calls to which MedStar was expected to respond.

Exclusion of Calculated Times – Performance Time Analyses

Performance time analyses were also conducted at the call level to reflect a systems perspective. This process began with a data set containing 508,910 records (i.e., no staging records, no records borrowed from Logis to represent October 2022 cyber-attack event time period, and only records related to MedStar’s front-line units). Then, the earliest “Clock Start,” unit dispatch, unit en route, and unit arrival date and time stamps were obtained for each unique incident number, and mapped back to the full data set.

One record per unique incident number wherein an arrival occurred (i.e., a date and time stamp for arrival was available) was then selected to represent the performance at the call level (n=323,877). Calculated times with negative or zero values were excluded from all related analyses, and calculated times considered to be outliers were also excluded from all related analyses (Table 89; note that all date and time stamps refer to the earliest, as noted above).

Table 89: Exclusions from Data File Prior to Performance Time Analyses – Call Level

Exclusion Activity	Frequency (n)	Percent of Total (%)
Total Records in Data Set	323,877	--
Clock Start Date and Time to Unit Dispatch Date and Time (Unit Dispatch Time) < 0 Minutes ¹	1,852	0.6
Unit Dispatch Date and Time = Clock Start Date and Time (Unit Dispatch Time = 0 Minutes) ¹	28,527	8.8
Clock Start Date and Time to Unit Dispatch Date and Time (Unit Dispatch Time) > 30 Minutes ¹	4,788	1.5
Total Dispatch Times Excluded	35,167	10.9
Unit Dispatch Date and Time to Unit Enroute Date and Time (Unit Turnout Time) < 0 Minutes ²	881	0.3
Unit Enroute Date and Time = Unit Dispatch Date and Time (Unit Turnout Time = 0 Minutes) ²	15,581	4.8
Unit Dispatch Date and Time to Unit Enroute Date and Time (Unit Turnout Time) > 30 Minutes ²	545	0.2

Exclusion Activity	Frequency (n)	Percent of Total (%)
Total Turnout Times Excluded	17,007	5.3
Unit Enroute Date and Time to Unit Arrival Date and Time (Unit Travel Time) < 0 Minutes ³	293	0.1
Unit Arrival Date and Time = Unit Enroute Date and Time (Unit Travel Time = 0 Minutes) ³	35	< 0.1
Unit Enroute Date and Time to Unit Arrival Date and Time (Unit Travel Time) > 60 Minutes ³	1,259	0.4
Total Travel Times Excluded	1,587	0.5
Clock Start Date and Time to Unit Arrival Date and Time (Unit Response Time) < 0 Minutes ⁴	107	< 0.1
Unit Arrival Date and Time = Clock Start Date and Time (Unit Response Time = 0 Minutes) ⁴	7	< 0.1
Clock Start Date and Time to Unit Arrival Date and Time (Unit Response Time) > 60 Minutes ⁴	4,113	1.3
Total Response Times Excluded	4,227	1.3
Total Time Values Excluded	57,988	--

¹Retained records to reflect response workload, but excluded dispatch times from all related analyses.

²Retained records to reflect response workload, but excluded turnout times from all related analyses.

³Retained records to reflect response workload, but excluded travel times from all related analyses.

⁴Retained records to reflect response workload, but excluded response times from all related analyses.

Transport Responses by Destination – Full Tables

Table 90: Transport Responses by Destination – Sorted Alphabetically

Destination ¹	Number of Responses	Percent Responses
10217 Long Rifle Dr	1	< 0.1
135 NW Wanda	1	< 0.1
1609 Carolina Ridge Way	1	< 0.1
1650 College St, Grapevine	1	< 0.1
1920 Morrison Dr FTW	1	< 0.1
2220 Stanley Ave	1	< 0.1
240 N Miller Rd, Mansfield	1	< 0.1
2516 Pollard	1	< 0.1
2645 W Randol Mill RM 110	1	< 0.1
3005 Clover Meadow	1	< 0.1
301 Medpark Cir	1	< 0.1
4119 Waxwing Dr, Arlington	1	< 0.1
4732 Veronica Cir	1	< 0.1
5605 Creekside Circle # 3802	1	< 0.1
5612 Canyon Dr	1	< 0.1
5651 Bridge St	1	< 0.1
5729 Bryant Irvin	2	< 0.1
6201 Overton Ridge Lifecare # 114	1	< 0.1
6649 N Riverside Dr	1	< 0.1
6842 Southcreek Dr	1	< 0.1
713 E Anderson MC Weatherford	1	< 0.1
800 W Randol Mill Arlington	1	< 0.1
820 WALTER DR, RIVER OAKS, TX MAPSCO 61N	1	< 0.1
8533 Brewer Blvd # 111	1	< 0.1
Abilene Behavioral Health	4	< 0.1
Accel at Willow Bend	1	< 0.1
Advanced Rehabilitation & Healthcare Burleson	15	< 0.1
Allegiant Wellness and Rehab (Skilled Nursing)	11	< 0.1
Alvarado Nursing Home	3	< 0.1
Arbor Lake Nursing and Rehab	4	< 0.1
Arlington Heights Health and Rehabilitation Center	8	< 0.1
Arlington Memorial Hospital (Texas Health)	1,331	1.1
Arlington Residence and Rehabilitation Center	2	< 0.1
Autumn Leaves of Cityview	5	< 0.1
Avalon Memory Care - Arlington	1	< 0.1
Avalon Memory Care - Fort Worth	7	< 0.1

Destination ¹	Number of Responses	Percent Responses
Avalon Memory Care - Keller	9	< 0.1
Azle Manor Health Care and Rehabilitation	7	< 0.1
BAS	1	< 0.1
Baylor Emergency Medical Center - Aubrey	2	< 0.1
Baylor Emergency Medical Center - Burleson	6	< 0.1
Baylor Emergency Medical Center - Grand Prairie	2	< 0.1
Baylor Emergency Medical Center - Keller	1	< 0.1
Baylor Emergency Medical Center - Mansfield	7	< 0.1
Baylor Heart and Vascular Center	5	< 0.1
Baylor Heart And Vascular Hospital of Fort Worth	2	< 0.1
Baylor Institute For Rehabilitation	6	< 0.1
Baylor Institute For Rehabilitation at Fort Worth	19	< 0.1
Baylor Institute For Rehabilitation at Frisco	1	< 0.1
Baylor Medical Center - Irving	84	0.1
Baylor Medical Center - Trophy Club	16	< 0.1
Baylor Scott and White All Saints Medical Center - Fort Worth	8,602	6.8
Baylor Scott and White Mclane Childrens Medical Center	3	< 0.1
Baylor Scott and White Medical Center - Centennial	1	< 0.1
Baylor Scott and White Medical Center - Frisco	2	< 0.1
Baylor Scott and White Medical Center - Grapevine	990	0.8
Baylor Scott and White Medical Center - Hillcrest	2	< 0.1
Baylor Scott and White Medical Center - Mckinney	2	< 0.1
Baylor Scott and White Medical Center - Plano	8	< 0.1
Baylor Scott and White Medical Center - Sunnyvale	1	< 0.1
Baylor Scott and White Medical Center - Waxahachie	2	< 0.1
Baylor Scott and White Medical Center - White Rock	1	< 0.1
Baylor Surgical Hospital - Fort Worth	12	< 0.1
Baylor University Medical Center	78	0.1
Behavioral Health, Arlington Memorial Hospital (Texas Health)	263	0.2
Behavioral Health, THR Huguley	57	< 0.1
Benbrook Nursing and Rehabilitation Center	30	< 0.1
Bethesda Gardens Assisted Living - Arlington	1	< 0.1
Bethesda Gardens Assisted Living - Fort Worth	7	< 0.1
Bethesda Gardens Memory Care Community	2	< 0.1
Bishop Davies Nursing Center	3	< 0.1
Brentwood Place Nursing Home	4	< 0.1
Bristol Park at Eagle Mountain	25	< 0.1
Brookdale Richland Hills	1	< 0.1
Brookdale Tanglewood Oaks	4	< 0.1

Destination ¹	Number of Responses	Percent Responses
Brookdale Watauga	4	< 0.1
Brookdale Westover Hills	1	< 0.1
Burleson Nursing and Rehabilitation	7	< 0.1
Carrollton Health and Rehabilitation Center	1	< 0.1
Carrollton Regional Medical Center	8	< 0.1
Carrollton Springs	55	< 0.1
Carrus Health Behavioral Hospital	4	< 0.1
Carrus Rehabilitation Hospital	8	< 0.1
Cedar Crest Hospital and RTC	1	< 0.1
Cherokee Rose Nursing and Rehabilitation	1	< 0.1
Chi St Lukes Health Baylor College of Medicine Medical Center	1	< 0.1
Children's Medical Center - Plano	5	< 0.1
Children's Medical Center of Dallas	50	< 0.1
Christian Care Communities	8	< 0.1
Christus Mother Frances Hospital - Tyler	1	< 0.1
Christus Spohn Hospital - Corpus Christi Shoreline	2	< 0.1
Christus St. Michael Health System	1	< 0.1
City Hospital at White Rock	1	< 0.1
Cityview Care Center	22	< 0.1
ClearSky Rehabilitation Hospital	1	< 0.1
College Park Rehabilitation and Care Center	1	< 0.1
Colonial Gardens of Fort Worth Assisted Living	4	< 0.1
Colonial Manor Nursing Center	3	< 0.1
Comanche County Medical Center	1	< 0.1
Community Healthcare of Texas Hospice House at Huguley	175	0.1
Community Healthcare of Texas Hospice House Downtown (4th Floor)	38	< 0.1
Complete Care - Camp Bowie	3	< 0.1
Concentra - Fort Worth Forest Park	1	< 0.1
Continuicare Hospital at Hendrick Medical Center	2	< 0.1
Cook Children's Medical Center	5,221	4.1
Cook Children's Neighborhood Clinic - Renaissance	1	< 0.1
Cook Children's Urgent Care - Fort Worth (Downtown)	29	< 0.1
Correctional Facility - FCI Horton	3	< 0.1
Correctional Facility - FMC Carswell	2	< 0.1
Covenant Medical Center	1	< 0.1
Cross Timbers Rehabilitation and Healthcare Center	2	< 0.1
Dallas Behavioral Healthcare Hospital	38	< 0.1
Dallas VA Medical Center - VA North Texas	55	< 0.1
Dell Childrens Medical Center	3	< 0.1

Destination ¹	Number of Responses	Percent Responses
Denton Rehabilitation and Nursing Center	2	< 0.1
Denton State Supported Living Center	2	< 0.1
Desoto Nursing and Rehabilitation Center	1	< 0.1
DFW Nursing and Rehab	28	< 0.1
Discovery Village Assisted Living & Memory Care	11	< 0.1
Discovery Village Independent Living	6	< 0.1
Diversicare of Lake Highlands	2	< 0.1
Dodson Surgery Center	12	< 0.1
Downtown Health and Rehabilitation Center	10	< 0.1
Duncanville Healthcare and Rehabilitation Center	2	< 0.1
Elk Creek Senior Living Community	7	< 0.1
Emerald Hills Rehabilitation and Healthcare Center	5	< 0.1
Encompass Health Arlington Rehabilitation Hospital	5	< 0.1
Encompass Health City View Rehabilitation Hospital	39	< 0.1
Encompass Health Mid-Cities Rehabilitation Hospital	5	< 0.1
Encompass Health Rehabilitation Hospital of Abilene	1	< 0.1
Encompass Health Rehabilitation Hospital of Wichita Falls	6	< 0.1
Estates Healthcare and Rehabilitation Center	18	< 0.1
First Baptist Medical Center	1	< 0.1
Fort Behavioral Health	14	< 0.1
Fort Worth Heart - Downtown Fort Worth/Medical District Office	1	< 0.1
Fort Worth Manor	1	< 0.1
Fort Worth Meacham International Airport	1	< 0.1
Fort Worth Saginaw Dialysis	46	< 0.1
Fort Worth Transitional Care Center	43	< 0.1
Fort Worth Wellness and Rehab	21	< 0.1
Forum Parkway Heath & Rehab	4	< 0.1
Fresenius Dialysis Fort Worth Dialysis	1	< 0.1
Garden Terrace Healthcare Center	22	< 0.1
Glen Rose Medical Center	4	< 0.1
Glen Rose Nursing and Rehab Center	2	< 0.1
Graham Oaks Care Center	1	< 0.1
Graham Regional Medical Center	1	< 0.1
Granbury Care Center	1	< 0.1
Grandview Nursing and Rehabilitation Center	1	< 0.1
Green Valley Healthcare and Rehabilitation Center	18	< 0.1
Greenbriar Healthcare	2	< 0.1
Hamilton Hospital	1	< 0.1
Harmon Senior Village Apartments	2	< 0.1

Destination ¹	Number of Responses	Percent Responses
Haven Behavioral Hospital of Frisco	60	< 0.1
Healthbridge Childrens Hospital - Houston	2	< 0.1
Heart Hospital Baylor Denton	3	< 0.1
Heart Hospital Baylor Plano	15	< 0.1
Heart to Heart Hospice	329	0.3
Heartland Health Care Center	1	< 0.1
Hendrick Medical Center	3	< 0.1
Heritage House at Keller Rehab and Nursing	17	< 0.1
Heritage Oaks	3	< 0.1
Heritage Place Assisted Living	10	< 0.1
Heritage Square	1	< 0.1
Heritage Trails Nursing and Rehabilitation Center	3	< 0.1
Hickory Trail Hospital	27	< 0.1
Hollymead	2	< 0.1
Horizon Medical Center	3	< 0.1
Hurst Plaza Nursing and Rehab	1	< 0.1
Ignite Medical Resort	19	< 0.1
Immanuel's Healthcare	7	< 0.1
Interlochen Health and Rehabilitation Center	1	< 0.1
James L West Presbyterian Special Care Center	22	< 0.1
John Peter Smith - Arlington	1	< 0.1
John Peter Smith - Center for Cancer Care	117	0.1
John Peter Smith - Center for Pain Management	4	< 0.1
John Peter Smith - Family Health Center	2	< 0.1
John Peter Smith - Gastroenterology (GI) Clinic	1	< 0.1
John Peter Smith - Healing Wings Clinic	1	< 0.1
John Peter Smith - Stop Six Health Center	1	< 0.1
John Peter Smith - Urgent Care Center	42	< 0.1
John Peter Smith Hospital	35,114	27.7
Keeneland Nursing and Rehabilitation	1	< 0.1
Keller Oaks Healthcare Center	20	< 0.1
Kemp Care Center	1	< 0.1
Kindred Hospital	1	< 0.1
Kindred Hospital - Central Dallas	9	< 0.1
Kindred Hospital Tarrant County - Arlington	28	< 0.1
Kindred Hospital Tarrant County - Southwest Fort Worth	273	0.2
Lake Forest Good Samaritan Village	1	< 0.1
Lake Granbury Medical Center	4	< 0.1
Lake Lodge Nursing and Rehabilitation	17	< 0.1

Destination ¹	Number of Responses	Percent Responses
Legend Healthcare and Rehabilitation - Euless	1	< 0.1
Legend Oaks Healthcare and Rehabilitation - Fort Worth	24	< 0.1
Legends at Fort Worth	8	< 0.1
Lexington Place Nursing and Rehabilitation	4	< 0.1
Life Care Center of Haltom	21	< 0.1
Lifecare Hospitals of Dallas	3	< 0.1
Lifecare Hospitals of Fort Worth	129	0.1
Lifecare Hospitals of Plano	1	< 0.1
Longmeadow Healthcare Center	3	< 0.1
Longview Regional Medical Center	1	< 0.1
Manorcare Health Services - North Richland Hills	5	< 0.1
Mansfield Medical Lodge	1	< 0.1
Mansfield Nursing and Rehabilitation	1	< 0.1
Marine Creek Nursing and Rehabilitation	103	0.1
Matlock Place Health and Rehabilitation Center	2	< 0.1
Mayhill Hospital	64	0.1
Mcallen Medical Center	1	< 0.1
Meadowbrook Memory Care Community	1	< 0.1
Medical Center Hospital	2	< 0.1
Medical Center of Mckinney - Wysong Campus	1	< 0.1
Medical City Alliance	4,870	3.8
Medical City Arlington	516	0.4
Medical City Dallas	69	0.1
Medical City Denton	183	0.1
Medical City ER Haslet	2	< 0.1
Medical City ER Saginaw	21	< 0.1
Medical City ER White Settlement	28	< 0.1
Medical City Fort Worth	6,017	4.8
Medical City Frisco	28	< 0.1
Medical City Green Oaks Hospital	137	0.1
Medical City Heart and Spine	9	< 0.1
Medical City Las Colinas	19	< 0.1
Medical City Lewisville	10	< 0.1
Medical City McKinney	57	< 0.1
Medical City North Hills	1,788	1.4
Medical City Plano	92	0.1
Medical City Weatherford	26	< 0.1
Medical Village Surgery Center	2	< 0.1
Mesa Springs	408	0.3

Destination ¹	Number of Responses	Percent Responses
Methodist Charlton Medical Center	3	< 0.1
Methodist Dallas Medical Center	51	< 0.1
Methodist Mansfield Medical Center	192	0.2
Methodist Richardson Medical Center	22	< 0.1
Methodist Southlake Hospital	10	< 0.1
Methodist Specialty and Transplant Hospital	1	< 0.1
MHMR of Tarrant County	2	< 0.1
Midland Memorial Hospital	4	< 0.1
Millwood Hospital	577	0.5
Mira Vista Court	15	< 0.1
Mirabella Senior Living - Benbrook	16	< 0.1
Muenster Memorial Hospital	1	< 0.1
Mulberry Manor	1	< 0.1
Mustang Creek Estates	9	< 0.1
North Austin Medical Center	1	< 0.1
North Pointe Nursing and Rehabilitation	17	< 0.1
Northgate Plaza Nursing and Rehabilitation Center	2	< 0.1
Northwest Texas Hospital	1	< 0.1
NRH	1	< 0.1
Oak Ridge Alzheimer's Special Care Center	5	< 0.1
Oceans Behavioral Hospital of Plano	8	< 0.1
Odessa Regional Medical Center	2	< 0.1
Palo Pinto General Hospital	3	< 0.1
Pam Rehabilitation Hospital of Allen	1	< 0.1
Park Bend Rehab & Healthcare Center	17	< 0.1
Park View Care Center	25	< 0.1
Parkland Memorial Hospital	126	0.1
Peach Tree Place	1	< 0.1
Perimeter Behavioral Hospital of Arlington	642	0.5
Perimeter Behavioral Hospital of Dallas	53	< 0.1
Pilot Point Care Center	1	< 0.1
Plaza Day Surgery	1	< 0.1
Presbyterian Village North Special Care Ctr	1	< 0.1
Promise Hospital of Dallas Inc	1	< 0.1
Providence Health Center	1	< 0.1
Quebec Street Dialysis	26	< 0.1
Recovery & Wellness of Mansfield	50	< 0.1
Red Oak Health and Rehabilitation Center	1	< 0.1
Red River Hospital	5	< 0.1

Destination ¹	Number of Responses	Percent Responses
Rehab & Skilled Nursing Facility (4 digit RM #), The Watermark at Broadway Cityview	1	< 0.1
Remarkable Healthcare of Fort Worth	75	0.1
Remarkable Healthcare of Prestonwood	1	< 0.1
Renaissance Park Multi Care Center	13	< 0.1
Renfro Healthcare Center	1	< 0.1
Richland Hills Rehabilitation and Healthcare Cente	6	< 0.1
Ridgeview Rehabilitation and Skilled Nursing	1	< 0.1
Ridglea Assisted Living & Memory Care	8	< 0.1
Ridgmar Medical Lodge	35	< 0.1
Ridgmar Place Independent Living	3	< 0.1
River Oaks Health and Rehabilitation Center	6	< 0.1
Riverside Inn at Fossil Creek Memory Care	20	< 0.1
San Antonio VA Medical Center - VA South Texas	1	< 0.1
Sandy Lake Rehabilitation and Care Center	2	< 0.1
Santa Fe Health and Rehabilitation Center	3	< 0.1
Santa Fe Trails Assisted Living	1	< 0.1
Scott and White Medical Center - Temple	1	< 0.1
Seasons Assisted Living	1	< 0.1
Select Rehabilitation Hospital of Denton	3	< 0.1
Select Specialty Hospital - Dallas	1	< 0.1
Select Specialty Hospital - Dallas (Downtown)	1	< 0.1
Senior Care at Holland Lake	1	< 0.1
Senior Care Health and Rehabilitation - Bridgeport	4	< 0.1
Senior Care Health and Rehabilitation Center - Dallas	1	< 0.1
Senior Care Health and Rehabilitation Center - Decatur	2	< 0.1
Senior Care of Crowley	4	< 0.1
Senior Care of Green Oaks	2	< 0.1
Senior Care of Harbor Lakes	2	< 0.1
Senior Care of Stonegate	89	0.1
Seton Medical Center - Austin	1	< 0.1
Seymour Rehab & Healthcare	1	< 0.1
Simmons Ambulatory Surgery Center	1	< 0.1
Skyline Nursing Center - Dallas	1	< 0.1
Southwest Nursing and Rehabilitation Center	52	< 0.1
Springtown Park Rehab & Care Center	6	< 0.1
St Davids Georgetown Hospital, A St Davids Medical Center Facility	1	< 0.1
Sunrise of Fort Worth	2	< 0.1
Tandy Village	2	< 0.1
Texas Center for Infectious Disease	1	< 0.1

Destination ¹	Number of Responses	Percent Responses
Texas Children's Hospital	3	< 0.1
Texas Health - Mansfield	16	< 0.1
Texas Health Heart and Vascular Hospital - Arlington	12	< 0.1
Texas Health Outpatient Surgery Center Fort Worth	1	< 0.1
Texas Health Presbyterian Hospital - Allen	1	< 0.1
Texas Health Presbyterian Hospital - Dallas	114	0.1
Texas Health Presbyterian Hospital - Denton	103	0.1
Texas Health Presbyterian Hospital - Flower Mound	8	< 0.1
Texas Health Presbyterian Hospital - Plano	24	< 0.1
Texas Health Presbyterian Hospital - Rockwall	1	< 0.1
Texas Health Specialty Hospital - Fort Worth	6	< 0.1
Texas Health Springwood Hospital - HEB	376	0.3
Texas Health Seay Behavioral Health - Plano	5	< 0.1
Texas Jet	256	0.2
Texas Neuro Rehab Center	2	< 0.1
Texas Oncology - Henderson	122	0.1
Texas Rehabilitation Hospital of Arlington	8	< 0.1
Texas Rehabilitation Hospital of Fort Worth	26	< 0.1
The Auberge at Benbrook Lake	3	< 0.1
The Caraday of Fort Worth	33	< 0.1
The Carlyle at Stonebridge Park	4	< 0.1
The Grandview of Chisholm Trail	13	< 0.1
The Guardian Assisted Living	1	< 0.1
The Harrison at Heritage	36	< 0.1
The Hills Nursing and Rehabilitation	1	< 0.1
The Isle at Watermere	1	< 0.1
The Landing at Watermere	1	< 0.1
The Lodge	34	< 0.1
The Lodge at Bear Creek	3	< 0.1
The Park In Plano	2	< 0.1
The Plaza at Richardson	1	< 0.1
The Renaissance at Kessler Park	2	< 0.1
The Stayton at Museum Way	8	< 0.1
The Vantage at City View	12	< 0.1
The Villages On Macarthur	1	< 0.1
The Watermark at Broadway Cityview	7	< 0.1
The Westmore	12	< 0.1
THR Alliance	4,977	3.9
THR Burleson	14	< 0.1

Destination ¹	Number of Responses	Percent Responses
THR Clearfork	61	< 0.1
THR Cleburne	17	< 0.1
THR Fort Worth	33,233	26.3
THR Frisco	6	< 0.1
THR HEB	1,427	1.1
THR Huguley	2,830	2.2
THR Northwest	87	0.1
THR Southlake	2	< 0.1
THR Southwest Fort Worth	7,246	5.7
THR Willow Park	8	< 0.1
Tirr Memorial Hermann	5	< 0.1
TMC Behavioral Health Center	3	< 0.1
Town Hall Estates Keene	6	< 0.1
Trail Lake Nursing and Rehabilitation	32	< 0.1
Trinity Nursing and Rehabilitation of Granbury	1	< 0.1
Trinity Terrace	9	< 0.1
Truewood by Merrill - River Park	9	< 0.1
Truman W Smith Children Care Center	8	< 0.1
United Regional Health Care System	7	< 0.1
Universal Hospice	10	< 0.1
University Behavioral Health of Denton	72	0.1
University Hospital	1	< 0.1
US Renal Care Tarrant Dialysis Center - Bryant Irvin	58	< 0.1
US Renal Care Tarrant Dialysis Center - East Fort Worth	4	< 0.1
US Renal Care Tarrant Dialysis Center - Fort Worth	106	0.1
US Renal Care Tarrant Dialysis Center - Keller	7	< 0.1
US Renal Care Tarrant Dialysis Center - North Richland Hills	4	< 0.1
USMD Hospital at Arlington	2	< 0.1
UT Health Tyler	2	< 0.1
UT Southwestern Zale Lipshy University Hospital	23	< 0.1
UTSW Clements	261	0.2
Valley Baptist Medical Center	1	< 0.1
Vibra Hospital of Richardson	1	< 0.1
Vibra Specialty Hospital	3	< 0.1
Village Creek Nursing Home	8	< 0.1
Villages of Lake Highlands	1	< 0.1
Vincent Victoria Village	4	< 0.1
Vista Ridge Nursing and Rehabilitation Center	1	< 0.1
Vitas Hospice of Texas Unit at Baylor All Saints	19	< 0.1

Destination ¹	Number of Responses	Percent Responses
Weatherford Health Care Center	1	< 0.1
Weatherford Rehabilitation Hospital	3	< 0.1
Wedgewood Nursing Home	19	< 0.1
Well Bridge Healthcare	370	0.3
West Side Campus of Care	39	< 0.1
White Settlement Nursing Center	16	< 0.1
Whitley Place	6	< 0.1
Willow Park Rehabilitation and Care Center	3	< 0.1
Wise Health Surgical Hospital at Parkway	3	< 0.1
Wise Regional Health System (Main Campus)	13	< 0.1
Wise Regional Health System (West Campus)	3	< 0.1
Woodridge Nursing and Rehabilitation	1	< 0.1
Not Reported	3,401	2.7
Total	126,592	100.0

¹Entries are presented verbatim from the data file.

Table 91: Transport Responses by Destination – Sorted in Descending Order by Number of Responses

Destination ¹	Number of Responses	Percent Responses
John Peter Smith Hospital	35,114	27.7
THR Fort Worth	33,233	26.3
Baylor Scott and White All Saints Medical Center - Fort Worth	8,602	6.8
THR Southwest Fort Worth	7,246	5.7
Medical City Fort Worth	6,017	4.8
Cook Children's Medical Center	5,221	4.1
THR Alliance	4,977	3.9
Medical City Alliance	4,870	3.8
Not Reported	3,401	2.7
THR Huguley	2,830	2.2
Medical City North Hills	1,788	1.4
THR HEB	1,427	1.1
Arlington Memorial Hospital (Texas Health)	1,331	1.1
Baylor Scott and White Medical Center - Grapevine	990	0.8
Perimeter Behavioral Hospital of Arlington	642	0.5
Millwood Hospital	577	0.5
Medical City Arlington	516	0.4
Mesa Springs	408	0.3
Texas Health Springwood Hospital - HEB	376	0.3
Well Bridge Heathcare	370	0.3
Heart to Heart Hospice	329	0.3
Kindred Hospital Tarrant County - Southwest Fort Worth	273	0.2
Behavioral Health, Arlington Memorial Hospital (Texas Health)	263	0.2
UTSW Clements	261	0.2
Texas Jet	256	0.2
Methodist Mansfield Medical Center	192	0.2
Medical City Denton	183	0.1
Community Healthcare of Texas Hospice House at Huguley	175	0.1
Medical City Green Oaks Hospital	137	0.1
Lifecare Hospitals of Fort Worth	129	0.1
Parkland Memorial Hospital	126	0.1
Texas Oncology - Henderson	122	0.1
John Peter Smith - Center for Cancer Care	117	0.1
Texas Health Presbyterian Hospital - Dallas	114	0.1
US Renal Care Tarrant Dialysis Center - Fort Worth	106	0.1
Marine Creek Nursing and Rehabilitation	103	0.1
Texas Health Presbyterian Hospital - Denton	103	0.1
Medical City Plano	92	0.1

Destination ¹	Number of Responses	Percent Responses
Senior Care of Stonegate	89	0.1
THR Northwest	87	0.1
Baylor Medical Center - Irving	84	0.1
Baylor University Medical Center	78	0.1
Remarkable Healthcare of Fort Worth	75	0.1
University Behavioral Health of Denton	72	0.1
Medical City Dallas	69	0.1
Mayhill Hospital	64	0.1
THR Clearfork	61	< 0.1
Haven Behavioral Hospital of Frisco	60	< 0.1
US Renal Care Tarrant Dialysis Center - Bryant Irvin	58	< 0.1
Behavioral Health, THR Huguley	57	< 0.1
Medical City McKinney	57	< 0.1
Carrollton Springs	55	< 0.1
Dallas VA Medical Center - VA North Texas	55	< 0.1
Perimeter Behavioral Hospital of Dallas	53	< 0.1
Southwest Nursing and Rehabilitation Center	52	< 0.1
Methodist Dallas Medical Center	51	< 0.1
Children's Medical Center of Dallas	50	< 0.1
Recovery & Wellness of Mansfield	50	< 0.1
Fort Worth Saginaw Dialysis	46	< 0.1
Fort Worth Transitional Care Center	43	< 0.1
John Peter Smith - Urgent Care Center	42	< 0.1
Encompass Health City View Rehabilitation Hospital	39	< 0.1
West Side Campus of Care	39	< 0.1
Community Healthcare of Texas Hospice House Downtown (4th Floor)	38	< 0.1
Dallas Behavioral Healthcare Hospital	38	< 0.1
The Harrison at Heritage	36	< 0.1
Ridgmar Medical Lodge	35	< 0.1
The Lodge	34	< 0.1
The Caraday of Fort Worth	33	< 0.1
Trail Lake Nursing and Rehabilitation	32	< 0.1
Benbrook Nursing and Rehabilitation Center	30	< 0.1
Cook Children's Urgent Care - Fort Worth (Downtown)	29	< 0.1
DFW Nursing and Rehab	28	< 0.1
Kindred Hospital Tarrant County - Arlington	28	< 0.1
Medical City ER White Settlement	28	< 0.1
Medical City Frisco	28	< 0.1
Hickory Trail Hospital	27	< 0.1

Destination ¹	Number of Responses	Percent Responses
Medical City Weatherford	26	< 0.1
Quebec Street Dialysis	26	< 0.1
Texas Rehabilitation Hospital of Fort Worth	26	< 0.1
Bristol Park at Eagle Mountain	25	< 0.1
Park View Care Center	25	< 0.1
Legend Oaks Healthcare and Rehabilitation - Fort Worth	24	< 0.1
Texas Health Presbyterian Hospital - Plano	24	< 0.1
UT Southwestern Zale Lipshy University Hospital	23	< 0.1
Cityview Care Center	22	< 0.1
Garden Terrace Healthcare Center	22	< 0.1
James L West Presbyterian Special Care Center	22	< 0.1
Methodist Richardson Medical Center	22	< 0.1
Fort Worth Wellness and Rehab	21	< 0.1
Life Care Center of Haltom	21	< 0.1
Medical City ER Saginaw	21	< 0.1
Keller Oaks Healthcare Center	20	< 0.1
Riverside Inn at Fossil Creek Memory Care	20	< 0.1
Baylor Institute For Rehabilitation at Fort Worth	19	< 0.1
Ignite Medical Resort	19	< 0.1
Medical City Las Colinas	19	< 0.1
Vitas Hospice of Texas Unit at Baylor All Saints	19	< 0.1
Wedgewood Nursing Home	19	< 0.1
Estates Healthcare and Rehabilitation Center	18	< 0.1
Green Valley Healthcare and Rehabilitation Center	18	< 0.1
Heritage House at Keller Rehab and Nursing	17	< 0.1
Lake Lodge Nursing and Rehabilitation	17	< 0.1
North Pointe Nursing and Rehabilitation	17	< 0.1
Park Bend Rehab & Healthcare Center	17	< 0.1
THR Cleburne	17	< 0.1
Baylor Medical Center - Trophy Club	16	< 0.1
Mirabella Senior Living - Benbrook	16	< 0.1
Texas Health - Mansfield	16	< 0.1
White Settlement Nursing Center	16	< 0.1
Advanced Rehabilitation & Healthcare Burleson	15	< 0.1
Heart Hospital Baylor Plano	15	< 0.1
Mira Vista Court	15	< 0.1
Fort Behavioral Health	14	< 0.1
THR Burleson	14	< 0.1
Renaissance Park Multi Care Center	13	< 0.1

Destination ¹	Number of Responses	Percent Responses
The Grandview of Chisholm Trail	13	< 0.1
Wise Regional Health System (Main Campus)	13	< 0.1
Baylor Surgical Hospital - Fort Worth	12	< 0.1
Dodson Surgery Center	12	< 0.1
Texas Health Heart and Vascular Hospital - Arlington	12	< 0.1
The Vantage at City View	12	< 0.1
The Westmore	12	< 0.1
Allegiant Wellness and Rehab (Skilled Nursing)	11	< 0.1
Discovery Village Assisted Living & Memory Care	11	< 0.1
Downtown Health and Rehabilitation Center	10	< 0.1
Heritage Place Assisted Living	10	< 0.1
Medical City Lewisville	10	< 0.1
Methodist Southlake Hospital	10	< 0.1
Universal Hospice	10	< 0.1
Avalon Memory Care - Keller	9	< 0.1
Kindred Hospital - Central Dallas	9	< 0.1
Medical City Heart and Spine	9	< 0.1
Mustang Creek Estates	9	< 0.1
Trinity Terrace	9	< 0.1
Truewood by Merrill - River Park	9	< 0.1
Arlington Heights Health and Rehabilitation Center	8	< 0.1
Baylor Scott and White Medical Center - Plano	8	< 0.1
Carrollton Regional Medical Center	8	< 0.1
Carrus Rehabilitation Hospital	8	< 0.1
Christian Care Communities	8	< 0.1
Legends at Fort Worth	8	< 0.1
Oceans Behavioral Hospital of Plano	8	< 0.1
Ridglea Assisted Living & Memory Care	8	< 0.1
Texas Health Presbyterian Hospital - Flower Mound	8	< 0.1
Texas Rehabilitation Hospital of Arlington	8	< 0.1
The Stayton at Museum Way	8	< 0.1
THR Willow Park	8	< 0.1
Truman W Smith Children Care Center	8	< 0.1
Village Creek Nursing Home	8	< 0.1
Avalon Memory Care - Fort Worth	7	< 0.1
Azle Manor Health Care and Rehabilitation	7	< 0.1
Baylor Emergency Medical Center - Mansfield	7	< 0.1
Bethesda Gardens Assisted Living - Fort Worth	7	< 0.1
Burleson Nursing and Rehabilitation	7	< 0.1

Destination ¹	Number of Responses	Percent Responses
Elk Creek Senior Living Community	7	< 0.1
Immanuel's Healthcare	7	< 0.1
The Watermark at Broadway Cityview	7	< 0.1
United Regional Health Care System	7	< 0.1
US Renal Care Tarrant Dialysis Center - Keller	7	< 0.1
Baylor Emergency Medical Center - Burleson	6	< 0.1
Baylor Institute For Rehabilitation	6	< 0.1
Discovery Village Independent Living	6	< 0.1
Encompass Health Rehabilitation Hospital of Wichita Falls	6	< 0.1
Richland Hills Rehabilitation and Healthcare Cente	6	< 0.1
River Oaks Health and Rehabilitation Center	6	< 0.1
Springtown Park Rehab & Care Center	6	< 0.1
Texas Health Specialty Hospital - Fort Worth	6	< 0.1
THR Frisco	6	< 0.1
Town Hall Estates Keene	6	< 0.1
Whitley Place	6	< 0.1
Autumn Leaves of Cityview	5	< 0.1
Baylor Heart and Vascular Center	5	< 0.1
Children's Medical Center - Plano	5	< 0.1
Emerald Hills Rehabilitation and Healthcare Center	5	< 0.1
Encompass Health Arlington Rehabilitation Hospital	5	< 0.1
Encompass Health Mid-Cities Rehabilitation Hospital	5	< 0.1
Manorcare Health Services - North Richland Hills	5	< 0.1
Oak Ridge Alzheimer's Special Care Center	5	< 0.1
Red River Hospital	5	< 0.1
Texas Heath Seay Behavioral Health - Plano	5	< 0.1
Tirr Memorial Hermann	5	< 0.1
Abilene Behavioral Health	4	< 0.1
Arbor Lake Nursing and Rehab	4	< 0.1
Brentwood Place Nursing Home	4	< 0.1
Brookdale Tanglewood Oaks	4	< 0.1
Brookdale Watauga	4	< 0.1
Carrus Health Behavioral Hospital	4	< 0.1
Colonial Gardens of Fort Worth Assisted Living	4	< 0.1
Forum Parkway Heath & Rehab	4	< 0.1
Glen Rose Medical Center	4	< 0.1
John Peter Smith - Center for Pain Management	4	< 0.1
Lake Granbury Medical Center	4	< 0.1
Lexington Place Nursing and Rehabilitation	4	< 0.1

Destination ¹	Number of Responses	Percent Responses
Midland Memorial Hospital	4	< 0.1
Senior Care Health and Rehabilitation - Bridgeport	4	< 0.1
Senior Care of Crowley	4	< 0.1
The Carlyle at Stonebridge Park	4	< 0.1
US Renal Care Tarrant Dialysis Center - East Fort Worth	4	< 0.1
US Renal Care Tarrant Dialysis Center - North Richland Hills	4	< 0.1
Vincent Victoria Village	4	< 0.1
Alvarado Nursing Home	3	< 0.1
Baylor Scott and White Mclane Childrens Medical Center	3	< 0.1
Bishop Davies Nursing Center	3	< 0.1
Colonial Manor Nursing Center	3	< 0.1
Complete Care - Camp Bowie	3	< 0.1
Correctional Facility - FCI Horton	3	< 0.1
Dell Childrens Medical Center	3	< 0.1
Heart Hospital Baylor Denton	3	< 0.1
Hendrick Medical Center	3	< 0.1
Heritage Oaks	3	< 0.1
Heritage Trails Nursing and Rehabilitation Center	3	< 0.1
Horizon Medical Center	3	< 0.1
Lifecare Hospitals of Dallas	3	< 0.1
Longmeadow Healthcare Center	3	< 0.1
Methodist Charlton Medical Center	3	< 0.1
Palo Pinto General Hospital	3	< 0.1
Ridgmar Place Independent Living	3	< 0.1
Santa Fe Health and Rehabilitation Center	3	< 0.1
Select Rehabilitation Hospital of Denton	3	< 0.1
Texas Children's Hospital	3	< 0.1
The Auberge at Benbrook Lake	3	< 0.1
The Lodge at Bear Creek	3	< 0.1
TMC Behavioral Health Center	3	< 0.1
Vibra Specialty Hospital	3	< 0.1
Weatherford Rehabilitation Hospital	3	< 0.1
Willow Park Rehabilitation and Care Center	3	< 0.1
Wise Health Surgical Hospital at Parkway	3	< 0.1
Wise Regional Health System (West Campus)	3	< 0.1
5729 Bryant Irvin	2	< 0.1
Arlington Residence and Rehabilitation Center	2	< 0.1
Baylor Emergency Medical Center - Aubrey	2	< 0.1
Baylor Emergency Medical Center - Grand Prairie	2	< 0.1

Destination ¹	Number of Responses	Percent Responses
Baylor Heart And Vascular Hospital of Fort Worth	2	< 0.1
Baylor Scott and White Medical Center - Frisco	2	< 0.1
Baylor Scott and White Medical Center - Hillcrest	2	< 0.1
Baylor Scott and White Medical Center - Mckinney	2	< 0.1
Baylor Scott and White Medical Center - Waxahachie	2	< 0.1
Bethesda Gardens Memory Care Community	2	< 0.1
Christus Spohn Hospital - Corpus Christi Shoreline	2	< 0.1
Continuecare Hospital at Hendrick Medical Center	2	< 0.1
Correctional Facility - FMC Carswell	2	< 0.1
Cross Timbers Rehabilitation and Healthcare Center	2	< 0.1
Denton Rehabilitation and Nursing Center	2	< 0.1
Denton State Supported Living Center	2	< 0.1
Diversicare of Lake Highlands	2	< 0.1
Duncanville Healthcare and Rehabilitation Center	2	< 0.1
Glen Rose Nursing and Rehab Center	2	< 0.1
Greenbriar Healthcare	2	< 0.1
Harmon Senior Village Apartments	2	< 0.1
Healthbridge Childrens Hospital - Houston	2	< 0.1
Hollymead	2	< 0.1
John Peter Smith - Family Health Center	2	< 0.1
Matlock Place Health and Rehabilitation Center	2	< 0.1
Medical Center Hospital	2	< 0.1
Medical City ER Haslet	2	< 0.1
Medical Village Surgery Center	2	< 0.1
MHMR of Tarrant County	2	< 0.1
Northgate Plaza Nursing and Rehabilitation Center	2	< 0.1
Odessa Regional Medical Center	2	< 0.1
Sandy Lake Rehabilitation and Care Center	2	< 0.1
Senior Care Health and Rehabilitation Center - Decatur	2	< 0.1
Senior Care of Green Oaks	2	< 0.1
Senior Care of Harbor Lakes	2	< 0.1
Sunrise of Fort Worth	2	< 0.1
Tandy Village	2	< 0.1
Texas Neuro Rehab Center	2	< 0.1
The Park In Plano	2	< 0.1
The Renaissance at Kessler Park	2	< 0.1
THR Southlake	2	< 0.1
USMD Hospital at Arlington	2	< 0.1
UT Health Tyler	2	< 0.1

Destination ¹	Number of Responses	Percent Responses
10217 Long Rifle Dr	1	< 0.1
135 NW Wanda	1	< 0.1
1609 Carolina Ridge Way	1	< 0.1
1650 College St, Grapevine	1	< 0.1
1920 Morrison Dr FTW	1	< 0.1
2220 Stanley Ave	1	< 0.1
240 N Miller Rd, Mansfield	1	< 0.1
2516 Pollard	1	< 0.1
2645 W Randol Mill RM 110	1	< 0.1
3005 Clover Meadow	1	< 0.1
301 Medpark Cir	1	< 0.1
4119 Waxwing Dr, Arlington	1	< 0.1
4732 Veronica Cir	1	< 0.1
5605 Creekside Circle # 3802	1	< 0.1
5612 Canyon Dr	1	< 0.1
5651 Bridge St	1	< 0.1
6201 Overton Ridge Lifecare # 114	1	< 0.1
6649 N Riverside Dr	1	< 0.1
6842 Southcreek Dr	1	< 0.1
713 E Anderson MC Weatherford	1	< 0.1
800 W Randol Mill Arlington	1	< 0.1
820 WALTER DR, RIVER OAKS, TX MAPSCO 61N	1	< 0.1
8533 Brewer Blvd # 111	1	< 0.1
Accel at Willow Bend	1	< 0.1
Avalon Memory Care - Arlington	1	< 0.1
BAS	1	< 0.1
Baylor Emergency Medical Center - Keller	1	< 0.1
Baylor Institute For Rehabilitation at Frisco	1	< 0.1
Baylor Scott and White Medical Center - Centennial	1	< 0.1
Baylor Scott and White Medical Center - Sunnyvale	1	< 0.1
Baylor Scott and White Medical Center - White Rock	1	< 0.1
Bethesda Gardens Assisted Living - Arlington	1	< 0.1
Brookdale Richland Hills	1	< 0.1
Brookdale Westover Hills	1	< 0.1
Carrollton Health and Rehabilitation Center	1	< 0.1
Cedar Crest Hospital and RTC	1	< 0.1
Cherokee Rose Nursing and Rehabilitation	1	< 0.1
Chi St Lukes Health Baylor College of Medicine Medical Center	1	< 0.1
Christus Mother Frances Hospital - Tyler	1	< 0.1

Destination ¹	Number of Responses	Percent Responses
Christus St. Michael Health System	1	< 0.1
City Hospital at White Rock	1	< 0.1
ClearSky Rehabilitation Hospital	1	< 0.1
College Park Rehabilitation and Care Center	1	< 0.1
Comanche County Medical Center	1	< 0.1
Concentra - Fort Worth Forest Park	1	< 0.1
Cook Children's Neighborhood Clinic - Renaissance	1	< 0.1
Covenant Medical Center	1	< 0.1
Desoto Nursing and Rehabilitation Center	1	< 0.1
Encompass Health Rehabilitation Hospital of Abilene	1	< 0.1
First Baptist Medical Center	1	< 0.1
Fort Worth Heart - Downtown Fort Worth/Medical District Office	1	< 0.1
Fort Worth Manor	1	< 0.1
Fort Worth Meacham International Airport	1	< 0.1
Fresenius Dialysis Fort Worth Dialysis	1	< 0.1
Graham Oaks Care Center	1	< 0.1
Graham Regional Medical Center	1	< 0.1
Granbury Care Center	1	< 0.1
Grandview Nursing and Rehabilitation Center	1	< 0.1
Hamilton Hospital	1	< 0.1
Heartland Health Care Center	1	< 0.1
Heritage Square	1	< 0.1
Hurst Plaza Nursing and Rehab	1	< 0.1
Interlochen Health and Rehabilitation Center	1	< 0.1
John Peter Smith - Arlington	1	< 0.1
John Peter Smith - Gastroenterology (GI) Clinic	1	< 0.1
John Peter Smith - Healing Wings Clinic	1	< 0.1
John Peter Smith - Stop Six Health Center	1	< 0.1
Keeneland Nursing and Rehabilitation	1	< 0.1
Kemp Care Center	1	< 0.1
Kindred Hospital	1	< 0.1
Lake Forest Good Samaritan Village	1	< 0.1
Legend Healthcare and Rehabilitation - Euless	1	< 0.1
Lifecare Hospitals of Plano	1	< 0.1
Longview Regional Medical Center	1	< 0.1
Mansfield Medical Lodge	1	< 0.1
Mansfield Nursing and Rehabilitation	1	< 0.1
Mcallen Medical Center	1	< 0.1
Meadowbrook Memory Care Community	1	< 0.1

Destination ¹	Number of Responses	Percent Responses
Medical Center of McKinney - Wysong Campus	1	< 0.1
Methodist Specialty and Transplant Hospital	1	< 0.1
Muenster Memorial Hospital	1	< 0.1
Mulberry Manor	1	< 0.1
North Austin Medical Center	1	< 0.1
Northwest Texas Hospital	1	< 0.1
NRH	1	< 0.1
Pam Rehabilitation Hospital of Allen	1	< 0.1
Peach Tree Place	1	< 0.1
Pilot Point Care Center	1	< 0.1
Plaza Day Surgery	1	< 0.1
Presbyterian Village North Special Care Ctr	1	< 0.1
Promise Hospital of Dallas Inc	1	< 0.1
Providence Health Center	1	< 0.1
Red Oak Health and Rehabilitation Center	1	< 0.1
Rehab & Skilled Nursing Facility (4 digit RM #), The Watermark at Broadway Cityview	1	< 0.1
Remarkable Healthcare of Prestonwood	1	< 0.1
Renfro Healthcare Center	1	< 0.1
Ridgeview Rehabilitation and Skilled Nursing	1	< 0.1
San Antonio VA Medical Center - VA South Texas	1	< 0.1
Santa Fe Trails Assisted Living	1	< 0.1
Scott and White Medical Center - Temple	1	< 0.1
Seasons Assisted Living	1	< 0.1
Select Specialty Hospital - Dallas	1	< 0.1
Select Specialty Hospital - Dallas (Downtown)	1	< 0.1
Senior Care at Holland Lake	1	< 0.1
Senior Care Health and Rehabilitation Center - Dallas	1	< 0.1
Seton Medical Center - Austin	1	< 0.1
Seymour Rehab & Healthcare	1	< 0.1
Simmons Ambulatory Surgery Center	1	< 0.1
Skyline Nursing Center - Dallas	1	< 0.1
St Davids Georgetown Hospital, A St Davids Medical Center Facility	1	< 0.1
Texas Center for Infectious Disease	1	< 0.1
Texas Health Outpatient Surgery Center Fort Worth	1	< 0.1
Texas Health Presbyterian Hospital - Allen	1	< 0.1
Texas Health Presbyterian Hospital - Rockwall	1	< 0.1
The Guardian Assisted Living	1	< 0.1
The Hills Nursing and Rehabilitation	1	< 0.1
The Isle at Watermere	1	< 0.1

Destination ¹	Number of Responses	Percent Responses
The Landing at Watermere	1	< 0.1
The Plaza at Richardson	1	< 0.1
The Villages On Macarthur	1	< 0.1
Trinity Nursing and Rehabilitation of Granbury	1	< 0.1
University Hospital	1	< 0.1
Valley Baptist Medical Center	1	< 0.1
Vibra Hospital of Richardson	1	< 0.1
Villages of Lake Highlands	1	< 0.1
Vista Ridge Nursing and Rehabilitation Center	1	< 0.1
Weatherford Health Care Center	1	< 0.1
Woodridge Nursing and Rehabilitation	1	< 0.1
Total	126,592	100.0

¹Entries are presented verbatim from the data file.

Calculation of 90th Percentile Values

FITCH applies the weighted average method in the calculation of 90th percentile values, also aligning with statistical computing software programs such as SPSS (IBM; Chicago, IL) and Microsoft Excel (e.g., through use of the PERCENTILE.EXC formula), as follows:

$$(n + 1) * p = i + f$$

Where:

Values in the sample data set must be sorted in ascending order from lowest value to highest value, and

p = desired percentile expressed as a proportion (e.g., 90th percentile = 90/100 = 0.9)

i = integer portion of $(n + 1) * p$

f = fractional portion of $(n + 1) * p$

n = sample size or number of observations in the data set

Then:

$$\text{Percentile Value} = [(1 - f) * x_i] + [f * x_{i+1}]$$

Where:

x_i = observed value at the i^{th} position in the sorted data set

x_{i+1} = observed value at the $i^{\text{th}} + 1$ position in the sorted data set

When the sample size is < 10, the value for $i + 1$ exceeds the number of observations available in the sample, as exemplified in the table on the next page, such that 90th percentile values, specifically, cannot be calculated via this method.

Note that Excel will still return a 90th percentile value when $n = 9$, even though there is no 10th observation in the sample, because the weight apportioned to that non-existent observation would be 0.0. Based on the formula, one can see that Excel simply returns 100% of the 9th observation in the data set as the result—i.e., the maximum value in the data set. SPSS, however, will not return a 90th percentile value when $n = 9$ due to technical adherence to the weighted average method that there is no 10th observation in the sample when $n = 9$.

Table 92: Example Scenarios for Weighted Average Formula Components When $N = 13$ to $N = 2$, $p = 0.9$

n	$(n+1)*p$	i	f	1-f	i+1	Note
13	12.6	12	0.6	0.4	13	
12	11.7	11	0.7	0.3	12	
11	10.8	10	0.8	0.2	11	
10	9.9	9	0.9	0.1	10	
9	9.0	9	0.0	1.0	10	i+1 value exceeds sample size; there is no 10 th observation
8	8.1	8	0.1	0.9	9	i+1 value exceeds sample size; there is no 9 th observation
7	7.2	7	0.2	0.8	8	i+1 value exceeds sample size; there is no 8 th observation
6	6.3	6	0.3	0.7	7	i+1 value exceeds sample size; there is no 7 th observation
5	5.4	5	0.4	0.6	6	i+1 value exceeds sample size; there is no 6 th observation
4	4.5	4	0.5	0.5	5	i+1 value exceeds sample size; there is no 5 th observation
3	3.6	3	0.6	0.4	4	i+1 value exceeds sample size; there is no 4 th observation
2	2.7	2	0.7	0.3	3	i+1 value exceeds sample size; there is no 3 rd observation

Accordingly, FITCH is unable to report 90th percentile values when any sample size is < 10, as they cannot be calculated.

Sufficient sample sizes are critical for producing meaningful metrics, such as measures of central tendency (e.g., means) and measures of position (e.g., percentiles), that may be considered to be reasonable estimates of “typical” performance and, thereby, considered as useful metrics in data-driven decision making and action planning.

FITCH

& ASSOCIATES



FITCH

& ASSOCIATES

January 2024

MedStar System GIS Report



FORT WORTH


✉ PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎ (816) 431-2600

🖨 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

VISUALIZING THE MEDSTAR SYSTEM SERVICE AREA	1
Figure 1: MedStar Service Area - 2024	1
ESTABLISHING BASELINE PERFORMANCE	2
COMPARISON TO NATIONAL REFERENCES	3
Table 2: Marginal Post Contribution for 8-Minute Travel Time – All 911 Calls – MedStar Posting Plan	3
Figure 2: Current MedStar Posts Bleed Map for 8-Minute Travel Time – All 911 Calls	4
EVALUATION OF VARIOUS DISTRIBUTION MODELS	5
MEDSTAR POSTING LOCATIONS – 911 CALLS (EXCLUDE. TRANSFERS, MIH, AND EVENTS)	6
<i>9-Minute Travel Time – 911 Calls</i>	6
Table 3: MedStar Post Contribution for 9-Minute Travel Time – 911 Calls	6
Figure 3: Current MedStar Posts Bleed Map for 9-Minute Travel Time – 911 Calls	6
<i>10-Minute Travel Time – 911 Calls</i>	7
Table 4: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls	7
Figure 4: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls	7
<i>11-Minute Travel Time – 911 Calls</i>	8
Table 5: MedStar Post Contribution for 11-Minute Travel Time – 911 Calls	8
Figure 5: Current MedStar Posts Bleed Map for 11-Minute Travel Time – 911 Calls	8
<i>12-Minute Travel Time – 911 Calls</i>	9
Table 6: MedStar Post Contribution for 12-Minute Travel Time – 911 Calls	9
Figure 6: Current MedStar Posts Bleed Map for 12-Minute Travel Time – 911 Calls	9
<i>13-Minute Travel Time – 911 Calls</i>	10
Table 7: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls	10
Figure 7: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls	10
<i>15-Minute Travel Time – 911 Calls</i>	11
Table 8: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls	11
Figure 8: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls	11
<i>20-Minute Travel Time – 911 Calls</i>	12
Table 9: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls	12
Figure 9: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls	12
MEDSTAR POSTING LOCATIONS – 911 CALLS + TRANSFERS (EXCLUDE MIH AND EVENTS)	13
<i>8-Minute Travel Time – 911 Calls + Transfers</i>	13
Table 10: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers	13
Figure 10: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers	13
<i>9-Minute Travel Time – 911 Calls + Transfers</i>	14
Table 11: MedStar Post Contribution for 9-Minute Travel Time – 911 Calls + Transfers	14
Figure 11: Current MedStar Posts Bleed Map for 9-Minute Travel Time – 911 Calls + Transfers	14
<i>10-Minute Travel Time – 911 Calls + Transfers</i>	15
Table 12: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers	15
Figure 12: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers	15
<i>11-Minute Travel Time – 911 Calls + Transfers</i>	16
Table 13: MedStar Post Contribution for 11-Minute Travel Time – 911 Calls + Transfers	16
Figure 13: Current MedStar Posts Bleed Map for 11-Minute Travel Time – 911 Calls + Transfers	16
<i>12-Minute Travel Time – 911 Calls + Transfers</i>	17

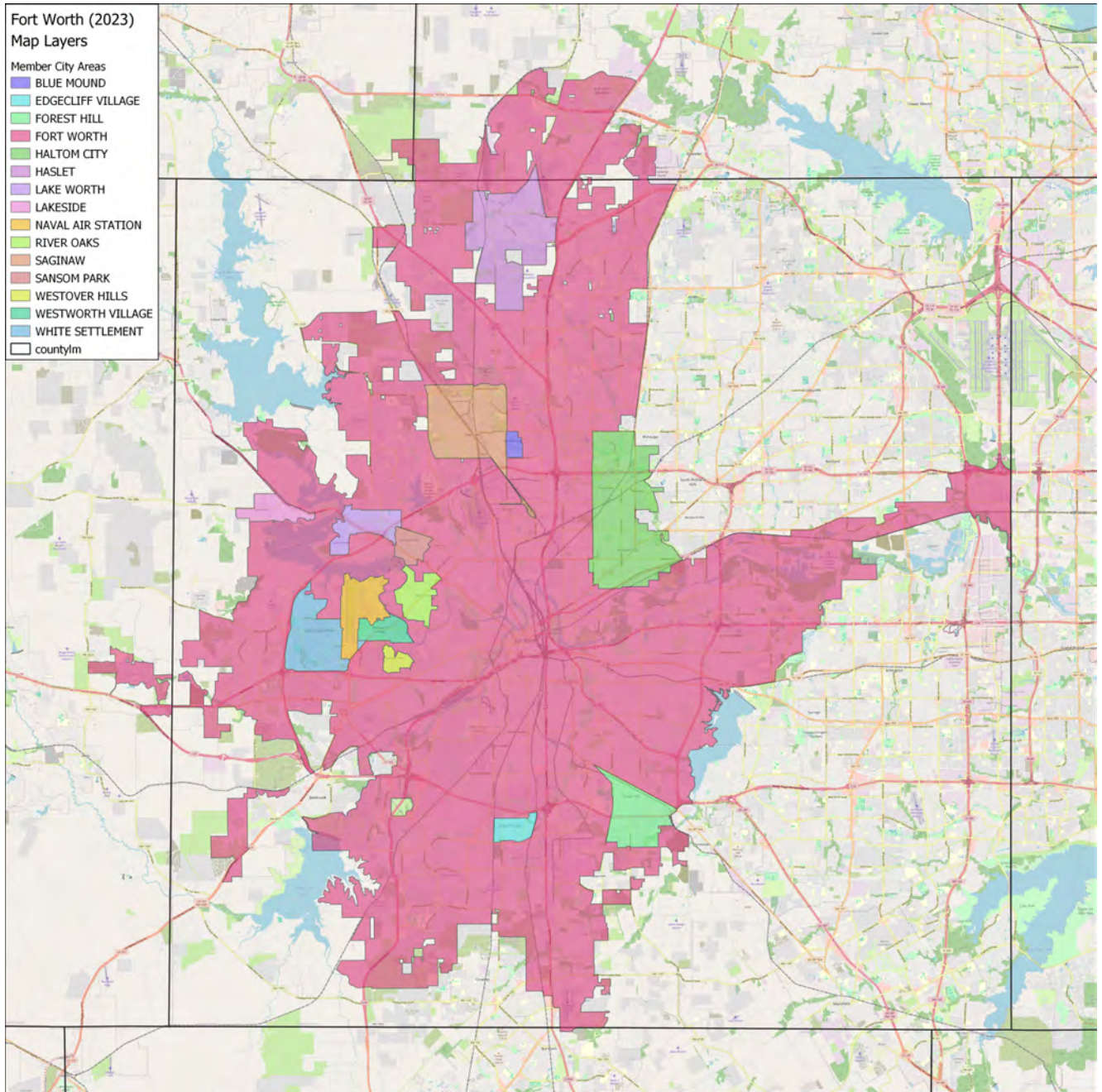
Table 14: MedStar Post Contribution for 12-Minute Travel Time – 911 Calls + Transfers	17
Figure 14: Current MedStar Posts Bleed Map for 12-Minute Travel Time – 911 Calls + Transfers	17
13-Minute Travel Time – 911 Calls + Transfers	18
Table 15: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers	18
Figure 15: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers	18
15-Minute Travel Time – 911 Calls + Transfers	19
Table 16: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers	19
Figure 16: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers	19
20-Minute Travel Time – 911 Calls + Transfers	20
Table 17: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers	20
Figure 17: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers	20
OPTIMIZED POSTING LOCATIONS – 911 CALLS (EXCLUDE TRANSFERS, MIH, AND EVENTS)	21
8-Minute Travel Time – 911 Calls	21
Table 18: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls	21
Figure 18: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls	21
9-Minute Travel Time – 911 Calls	22
Table 19: Optimized Post Contribution for 9-Minute Travel Time – 911 Calls	22
Figure 19: Optimized Posts Bleed Map for 9-Minute Travel Time – 911 Calls	22
10-Minute Travel Time – 911 Calls	23
Table 20: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls	23
Figure 20: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls	23
11-Minute Travel Time – 911 Calls	24
Table 21: Optimized Post Contribution for 11-Minute Travel Time – 911 Calls	24
Figure 21: Optimized Posts Bleed Map for 11-Minute Travel Time – 911 Calls	24
12-Minute Travel Time – 911 Calls	25
Table 22: Optimized Post Contribution for 12-Minute Travel Time – 911 Calls	25
Figure 22: Optimized Posts Bleed Map for 12-Minute Travel Time – 911 Calls	25
13-Minute Travel Time – 911 Calls	26
Table 23: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls	26
Figure 23: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls	26
15-Minute Travel Time – 911 Calls	27
Table 24: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls	27
Figure 24: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls	27
20-Minute Travel Time – 911 Calls	28
Table 25: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls	28
Figure 25: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls	28
OPTIMIZED POSTING LOCATIONS – 911 CALLS + TRANSFERS (EXCLUDE MIH & EVENTS)	29
8-Minute Travel Time – 911 Calls + Transfers	29
Table 26: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers	29
Figure 26: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers	29
9-Minute Travel Time – 911 Calls + Transfers	30
Table 27: Optimized Post Contribution for 9-Minute Travel Time – 911 Calls + Transfers	30
Figure 27: Optimized Posts Bleed Map for 9-Minute Travel Time – 911 Calls + Transfers	30
10-Minute Travel Time – 911 Calls + Transfers	31
Table 28: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers	31
Figure 28: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers	31
11-Minute Travel Time – 911 Calls + Transfers	32
Table 29: Optimized Post Contribution for 11-Minute Travel Time – 911 Calls + Transfers	32
Figure 29: Optimized Posts Bleed Map for 11-Minute Travel Time – 911 Calls + Transfers	32

<i>12-Minute Travel Time – 911 Calls + Transfers</i>	33
Table 30: Optimized Post Contribution for 12-Minute Travel Time – 911 Calls + Transfers	33
Figure 30: Optimized Posts Bleed Map for 12-Minute Travel Time – 911 Calls + Transfers	33
<i>13-Minute Travel Time – 911 Calls + Transfers</i>	34
Table 31: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers	34
Figure 31: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers	34
<i>15-Minute Travel Time – 911 Calls + Transfers</i>	35
Table 32: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers	35
Figure 32: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers	35
<i>20-Minute Travel Time – 911 Calls + Transfers</i>	36
Table 33: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers	36
Figure 33: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers	36
DISTRIBUTION OF RISK ACROSS THE JURISDICTION	37
DISTRIBUTION OF DEMAND BY PROGRAM AREAS	37
Figure 34: Heat Map for All Calls	37
Figure 35: Heat Map for EMS 911 Calls	38
Figure 36: Heat Map for 911 + Transfer Calls	39
Figure 37: Heat Map for Transfer Calls	40
Figure 38: Heat Map for MIH Calls	41
Figure 39: Heat Map for Special Events	42
Figure 40: Urban and Rural Call Density Map	43
LONG-TERM SUSTAINABILITY OF THE MODELS PRESENTED	44
PROJECTED GROWTH	45
Figure 41: Observed and Projected Growth in Call Volume	45

VISUALIZING THE MEDSTAR SYSTEM SERVICE AREA

The MedStar System includes the following member cities and jurisdictions reflected on the figure below. All analyses will include all calls and the geographic limitations associated with the entirety of the MedStar service area. Since Burleson is no longer part of the system after October 1, 2023, the assessment eliminated their calls and geographic requirements.

Figure 1: MedStar Service Area - 2024



ESTABLISHING BASELINE PERFORMANCE

The first step in completing GIS planning analyses is to establish the desired performance parameters. Measures of total response time can be significantly influenced by both internal and external influences. For example, the dispatch time, defined as the time from call creation at the 911-center to the dispatching of units, contributes to the customer’s overall response time experience. Another element in the total response time continuum is the turnout time, defined as the time from when the units are notified of the incident until they are actually responding. Turnout time can have a significant impact on the overall response time for the customer and is generally considered under management’s control. However, the travel time, defined as the period from when the units are actually responding until arrival at the incident is the efficacy of the posting plan, the ability to travel unimpeded on the road network, the existing road network’s ability to navigate the community, and the availability of the units. Largely, travel time is the most stable variable to utilize in system design regarding response time performance.

Therefore, these GIS planning analyses will focus on travel time capability as the unit of measure. Performance for travel time of first arriving MedStar units to emergency calls during the 2022/2023 reporting period (i.e., October 1, 2022, September 30, 2023) is provided below. Overall, travel time was 13.5 or less for 90% of the incidents with an emergency response. At this stage in the process, this value includes all emergency responses and emergency transfers, and was not restricted to Priority 1 and 2 incidents. More detailed analyses will be provided in subsequent updates.

Table 1: 90th Percentile Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA+NAS Jurisdiction

Reporting Period	Call Type by Response Protocol	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
2021-22	Emergency	2.1	0.4	13.4	14.7	56,213
	911	1.5	0.4	13.4	14.5	50,515
	Transfer	3.4	0.5	13.0	15.8	5,698
	Non-Emergency	3.2	0.6	17.2	20.2	98,689
	911	2.9	0.4	15.5	18.6	79,506
	Transfer	5.7	1.2	24.6	26.8	19,183
	Total	2.6	0.5	15.8	18.2	154,925
2022-23	Emergency	2.3	0.4	13.5	15.1	58,997
	911	1.8	0.4	13.5	14.9	52,306
	Transfer	3.6	0.5	13.3	16.3	6,691
	Non-Emergency	4.6	0.6	18.5	23.0	102,068
	911	3.0	0.4	17.3	20.5	79,791
	Transfer	15.5	1.0	22.8	34.8	22,277
	Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls; due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Comparison to National References

There are two notable references for travel time available to the fire service in National Fire Protection Association (NFPA) 1710¹ and the Commission on Fire Accreditation International (CFAI)². NFPA 1710 suggests a 4-minute travel time at the 90th percentile for first due arrival of Basic Life Support (BLS) and fire incidents, and the CFAI recommends a 5 minute and 12 seconds travel time for first due arrival in an urban/suburban population density. The arrival of an Advanced Life Support (ALS) unit is recommended at 8 minutes travel time by NFPA 1710. It is important to note that the latest editions of the CFAI guidelines have de-emphasized response time and only reference the legacy standards with a separately provided companion document³.

The peer reviewed evidenced-based research suggests that the response time of 5 minutes or less has the greatest impact of the risk of mortality in a subgroup of calls with a high-risk of mortality. In these studies, it was commonly found that the risk of mortality did not materially change between 6-minutes and 12-minutes. In other words, establishing desired performance is largely a local policy choice because the relative return on investment is non-linear across all performance windows.

When referring to the marginal utility analyses provided in the tables on the following pages, ascending rank order is the station’s capability to cover risk (incidents) for all calls in relation to the total historical call volume of the sample period (2022/2023). Post is the identifier for the current MedStar post location; post capture is the number of calls the post would capture within the specified travel time parameter; total capture is the cumulative number of calls captured with the addition of each post; and percent capture is the cumulative percentage of risk covered with the addition of each post location.

The goal would be to achieve at least 90% capture. Figures depict drive time mapping. Results suggest that with six priority posts 91.62% of all 911 calls could be responded to within 8 minutes or less travel time. In this analysis transfers, MIH, and special events were excluded.

Table 2: Marginal Post Contribution for 8-Minute Travel Time – All 911 Calls – MedStar Posting Plan

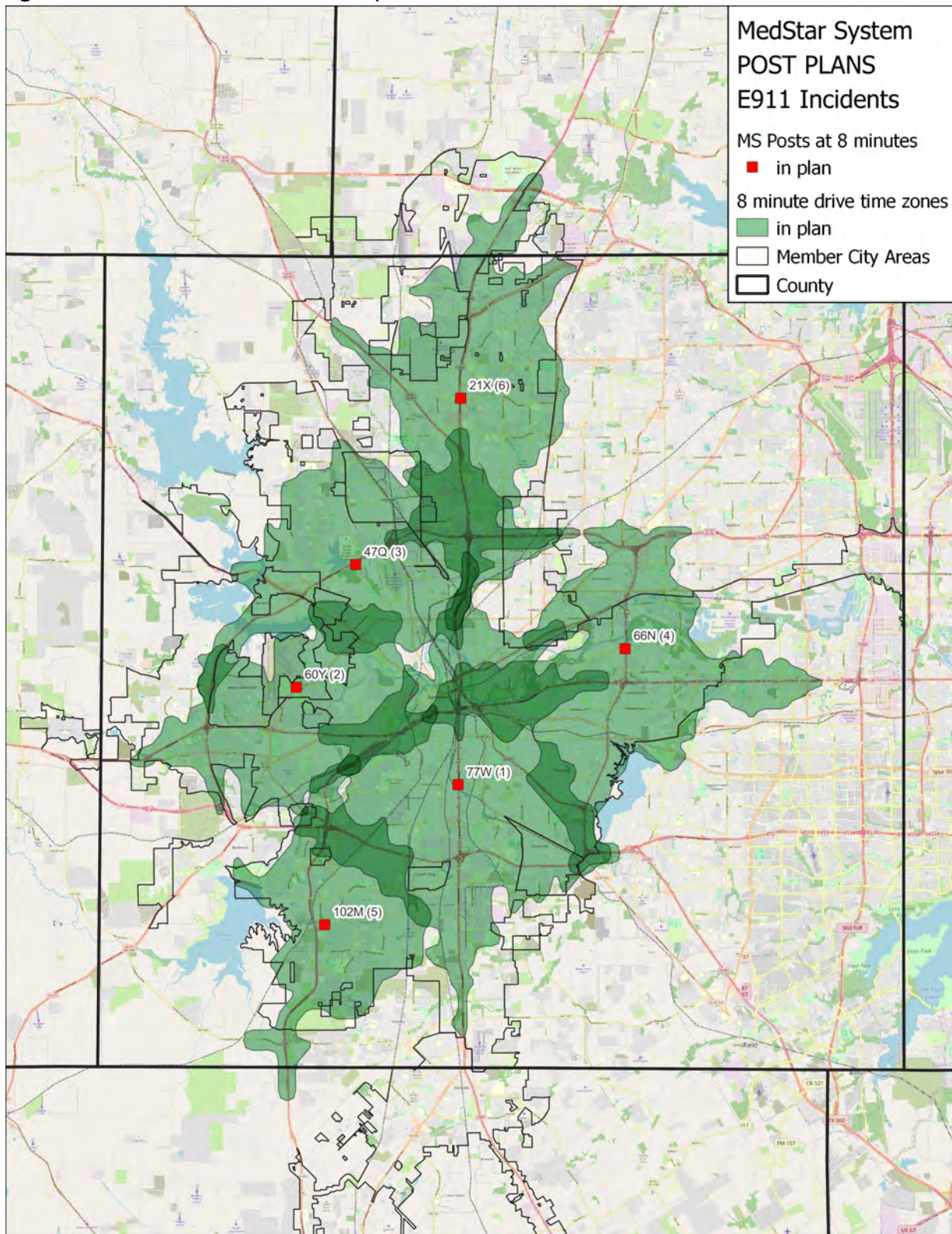
Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77W	8	64,703	64,703	43.04%
2	60Y	8	21,279	85,982	57.19%
3	47Q	8	16,174	102,156	67.95%
4	66N	8	15,130	117,286	78.02%
5	102M	8	11,725	129,011	85.81%
6	21X	8	8,728	137,739	91.62%

¹ National Fire Protection Association. (2010). 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*. Boston, MA: National Fire Protection Association.

² CFAI. (2009). *Fire & emergency service self-assessment manual*, (8th ed.). Chantilly, Virginia: Author. (page 71)

³ CFAI. (2016). *Fire & emergency service self-assessment manual*, (9th ed.). Chantilly, Virginia: Author.

Figure 2: Current MedStar Posts Bleed Map for 8-Minute Travel Time – All 911 Calls



EVALUATION OF VARIOUS DISTRIBUTION MODELS

As previously discussed, these analyses utilized 2022/2023 historical performance as the desired performance for system design. Various configurations of 8- to 20-minute travel times were completed to consider alternatives compared to the current performance of 13.5 minutes travel time at the 90th percentile.

Analyses are presented as follows:

1. MedStar posts for 911 incidents at 8-minutes through 13-minutes and 15 and 20 minutes.
2. MedStar posts for 911 incidents and transfers at 8-minutes through 13-minutes and 15 and 20 minutes.
3. Optimized posts for 911 incidents at 8-minutes through 13-minutes and 15 and 20 minutes.
4. Optimized posts for 911 incidents and transfers at 8-minutes through 13-minutes and 15 and 20 minutes.

Analyses are offered to compare the various potential distribution models.

MedStar Posting Locations – 911 Calls (exclude. transfers, MIH, and Events)

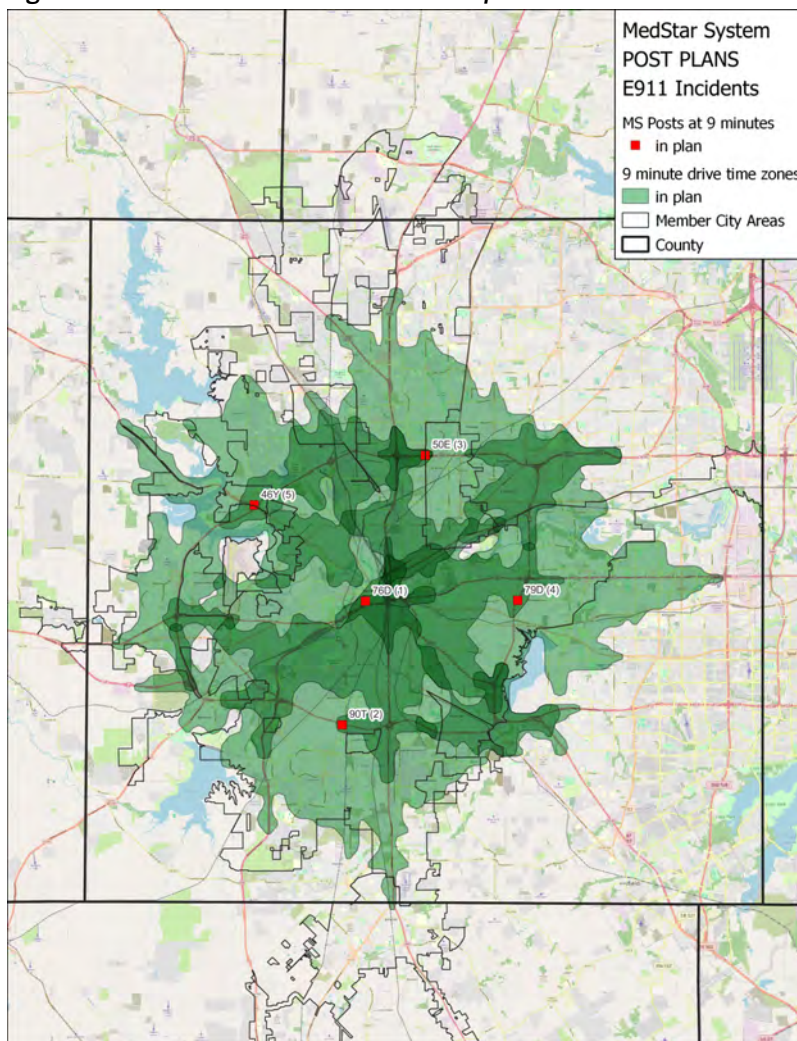
9-Minute Travel Time – 911 Calls

Results suggest that five priority posts can respond to 91.64% of the 911 calls within 9 minutes or less travel time. This configuration may likely be the most reflective of the 11-minute goal that includes approximately 2 minutes for dispatch time and turnout time.

Table 3: MedStar Post Contribution for 9-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	9	79,755	79,755	53.05%
2	90T	9	23,475	103,230	68.67%
3	50E	9	16,264	119,494	79.48%
4	79D	9	9,729	129,223	85.96%
5	46Y	9	8,547	137,770	91.64%

Figure 3: Current MedStar Posts Bleed Map for 9-Minute Travel Time – 911 Calls



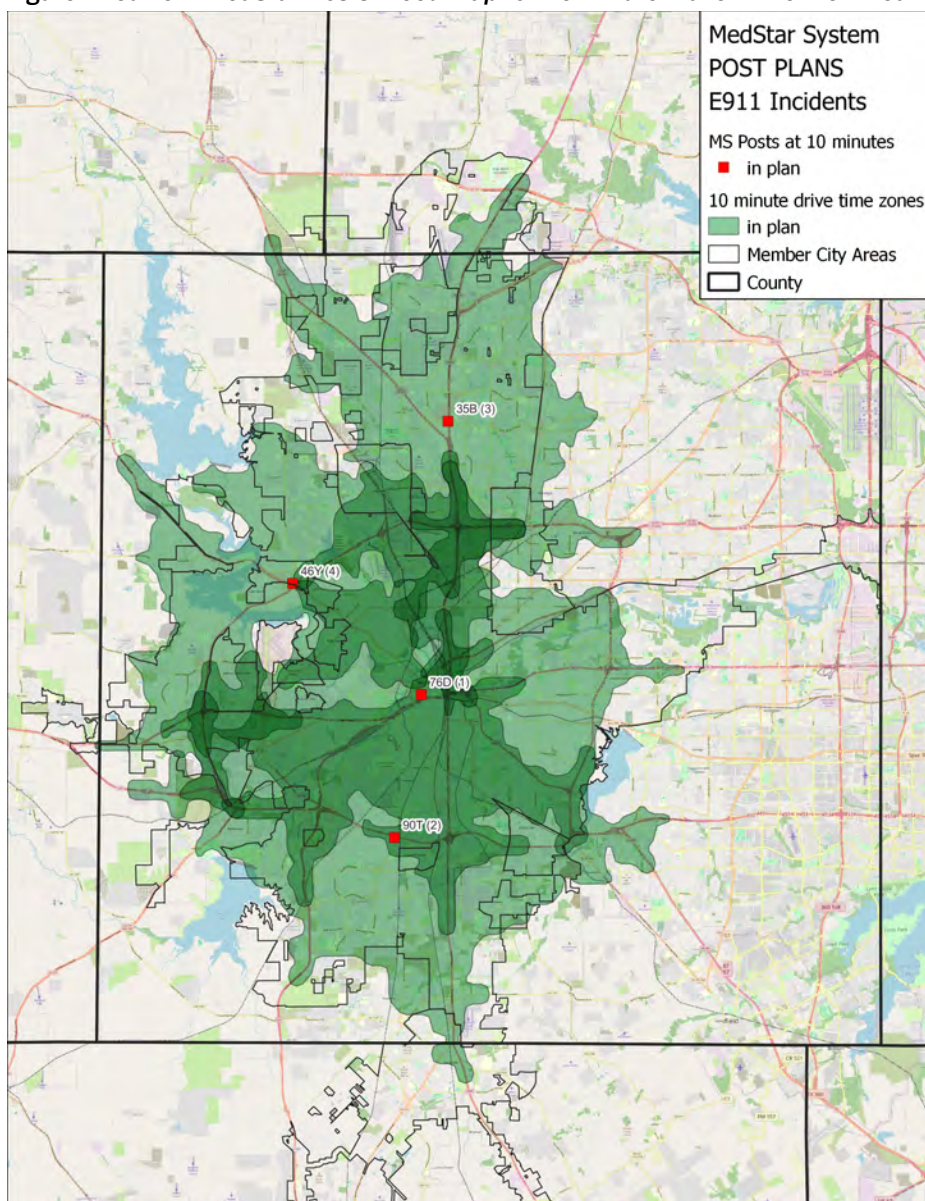
10-Minute Travel Time – 911 Calls

Results suggest that four prioritized posts can respond to 93.67% of the 911 calls within 10 minutes or less travel time.

Table 4: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	10	98,469	98,469	65.50%
2	90T	10	18,024	116,493	77.49%
3	35B	10	16,366	132,859	88.37%
4	46Y	10	7,969	140,828	93.67%

Figure 4: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls



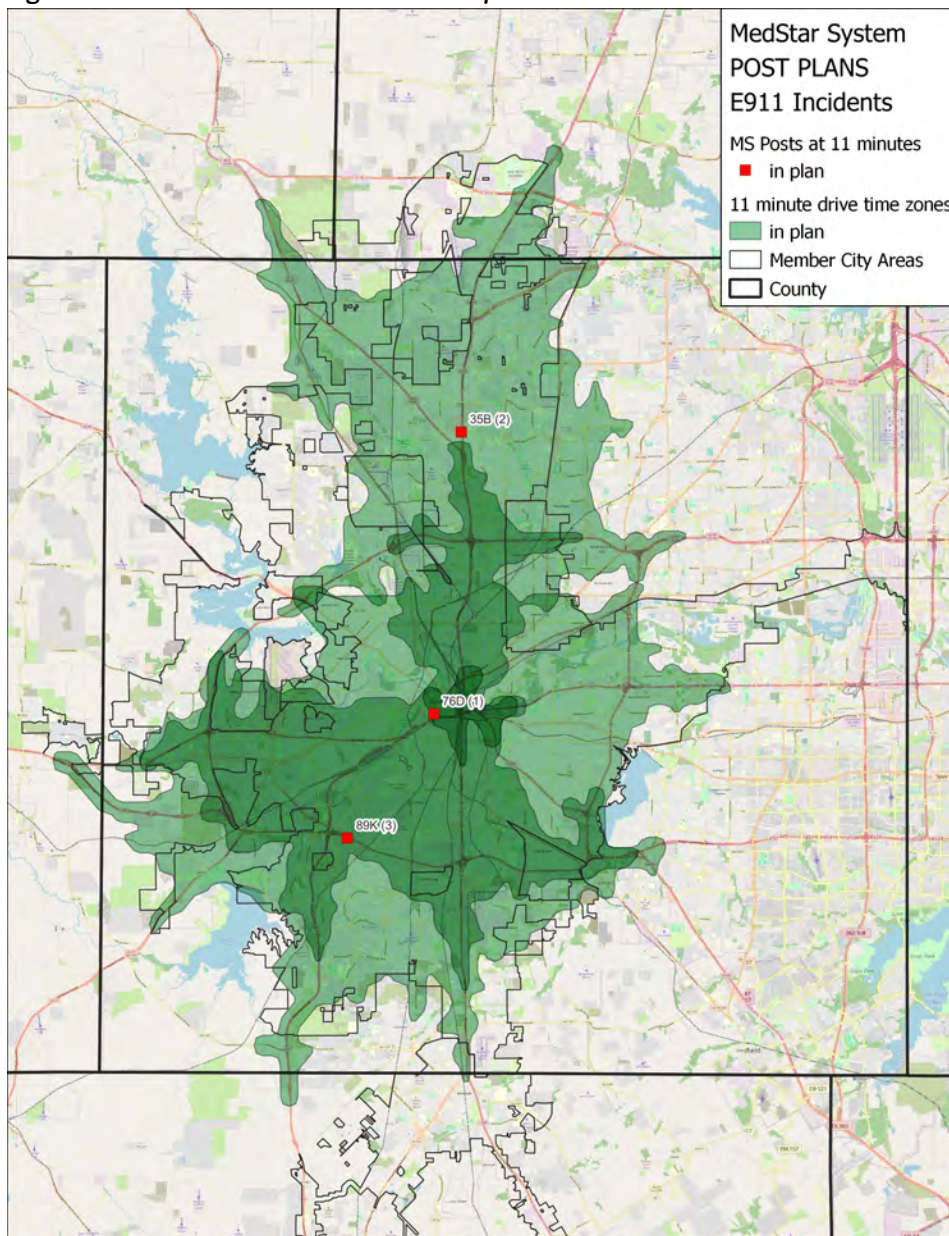
11-Minute Travel Time – 911 Calls

Results suggest that three prioritized posts can respond to 92.51% of the 911 calls within 11 minutes or less travel time.

Table 5: MedStar Post Contribution for 11-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	11	110,974	110,974	73.82%
2	35B	11	15,766	126,740	84.30%
3	89K	11	12,332	139,072	92.51%

Figure 5: Current MedStar Posts Bleed Map for 11-Minute Travel Time – 911 Calls



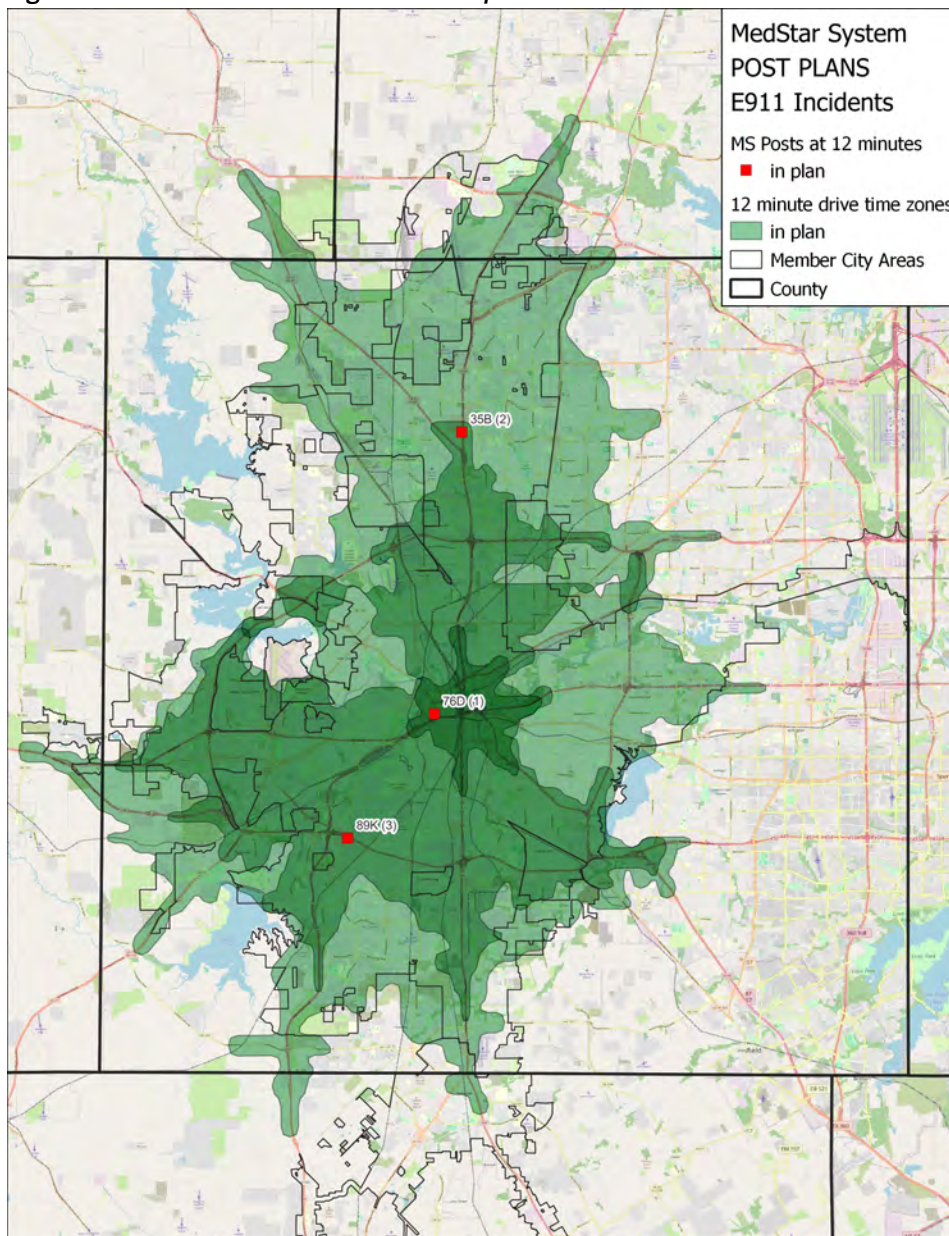
12-Minute Travel Time – 911 Calls

Results suggest that three prioritized posts can respond to 95.08% of the 911 calls within 12 minutes or less travel time.

Table 6: MedStar Post Contribution for 12-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	12	119,494	119,494	79.48%
2	35B	12	14,388	133,882	89.05%
3	89K	12	9,061	142,943	95.08%

Figure 6: Current MedStar Posts Bleed Map for 12-Minute Travel Time – 911 Calls



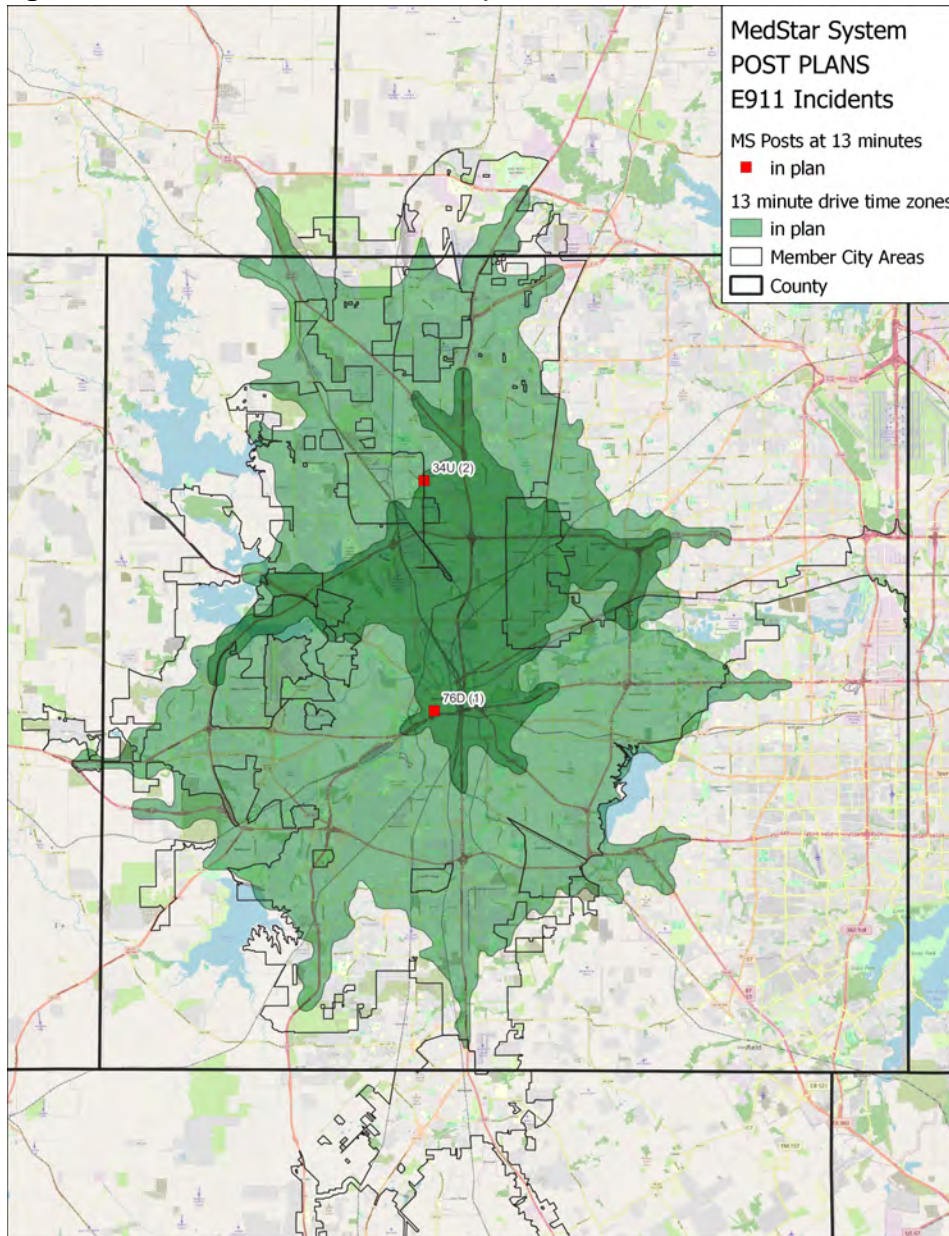
13-Minute Travel Time – 911 Calls

Results suggest that two prioritized posts can respond to 92.47% of the 911 calls within 13 minutes or less travel time.

Table 7: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	13	126,549	126,549	84.18%
2	34U	13	12,469	139,018	92.47%

Figure 7: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls



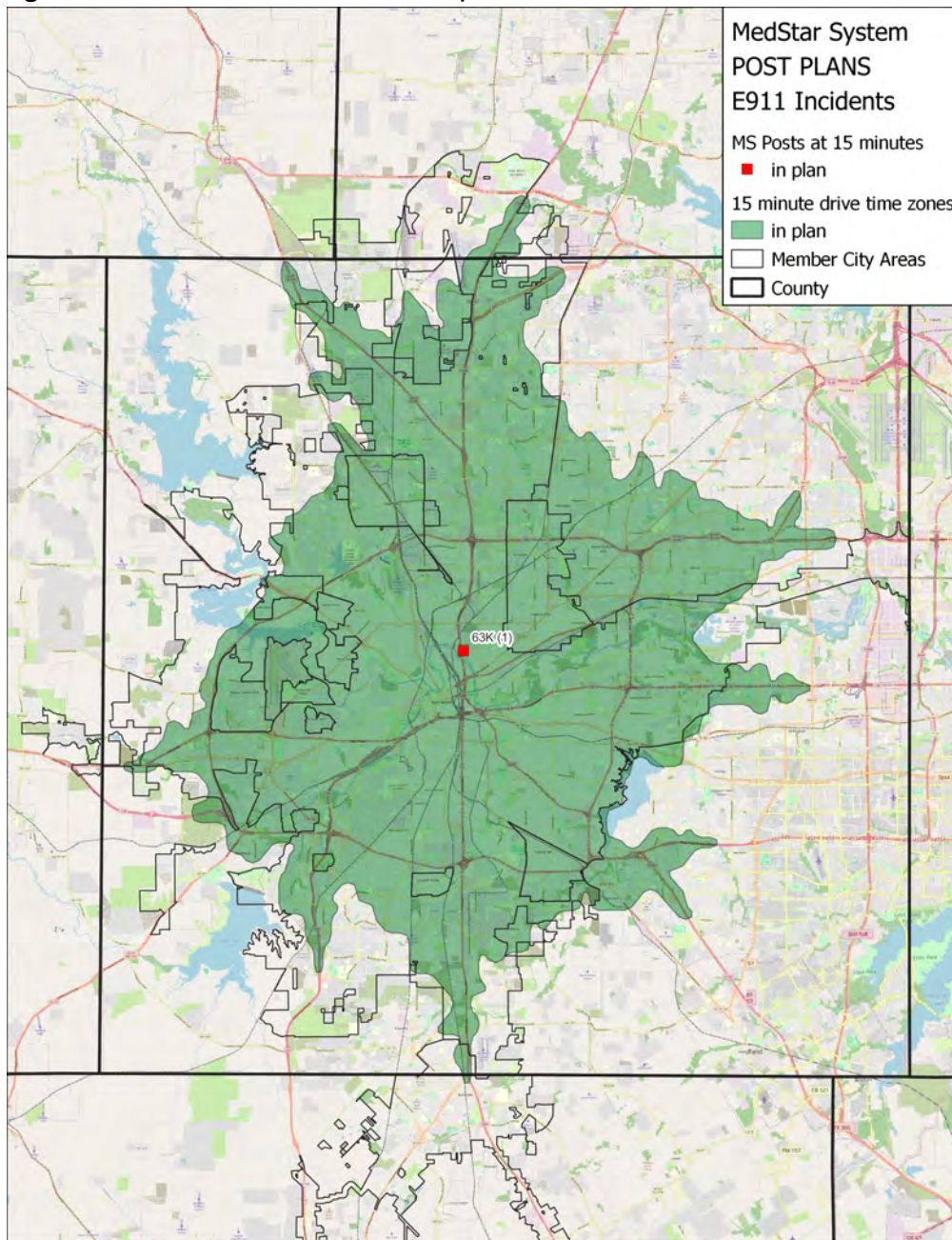
15-Minute Travel Time – 911 Calls

Results suggest that a single prioritized posts can respond to 91.75% of the 911 calls within 15 minutes or less travel time.

Table 8: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	63K	15	137,938	137,938	91.75%

Figure 8: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls



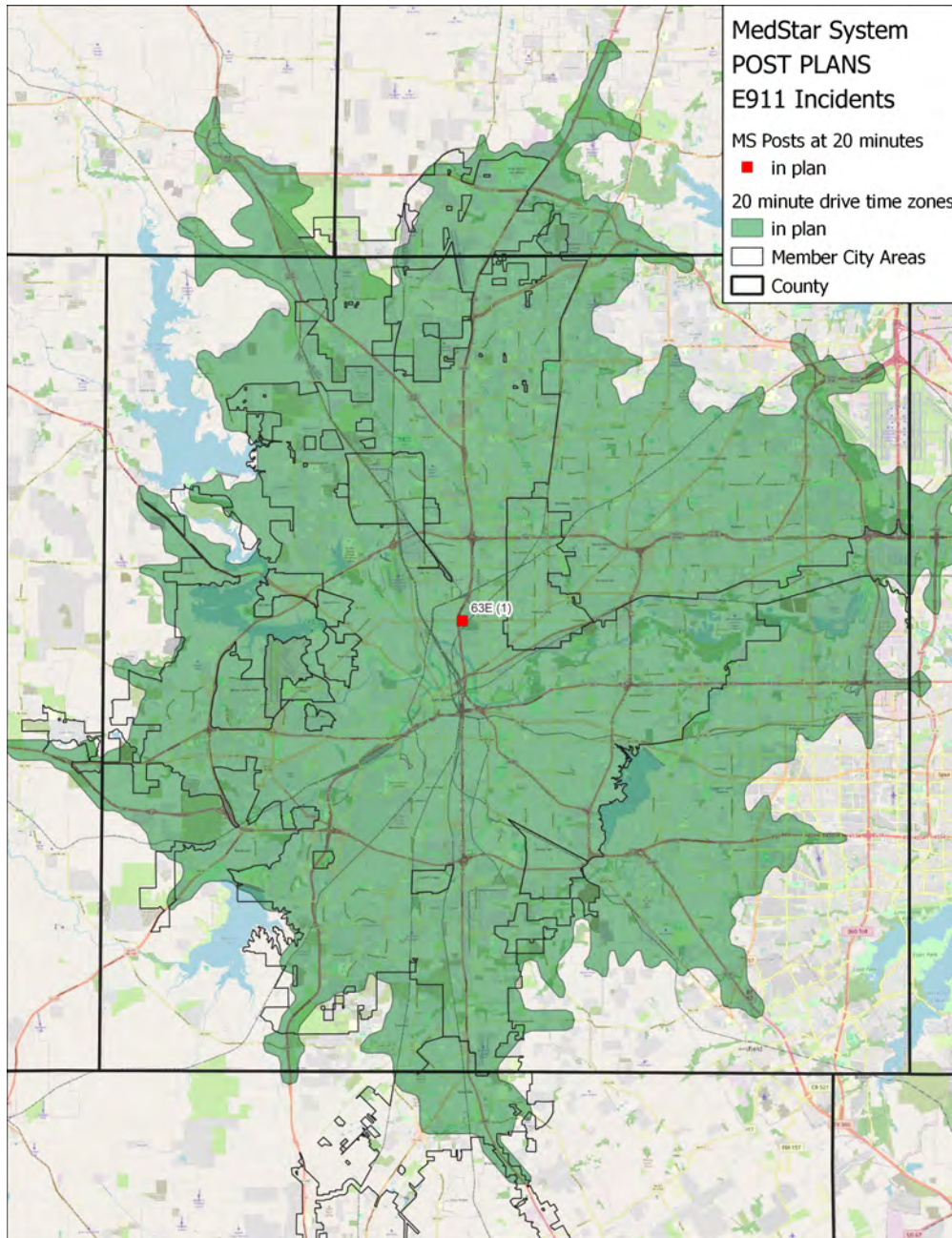
20-Minute Travel Time – 911 Calls

Results suggest that a single prioritized posts can respond to 99.55% of the 911 calls within 20 minutes or less travel time.

Table 9: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	63E	20	149,658	149,658	99.55%

Figure 9: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls



MedStar Posting Locations – 911 Calls + Transfers (exclude MIH and Events)

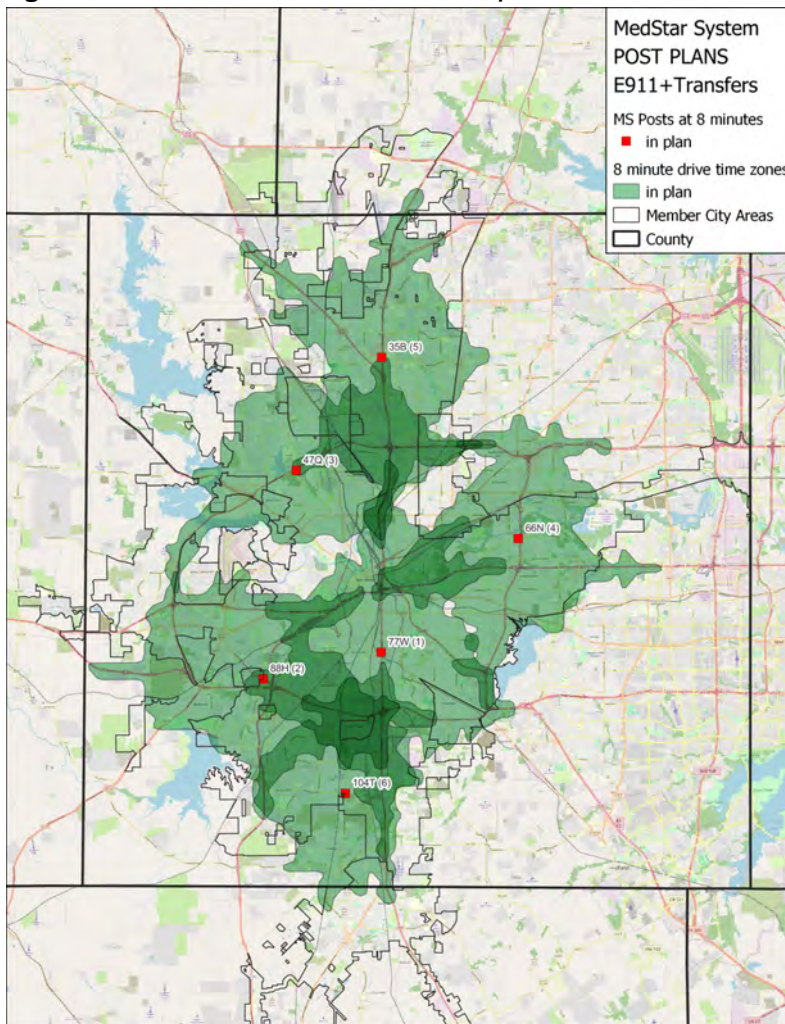
8-Minute Travel Time – 911 Calls + Transfers

Results suggest that six priority posts can respond to 90.7% of the 911/transfer calls within 8 minutes or less travel time.

Table 10: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77W	8	80,283	80,283	44.64%
2	88H	8	26,320	106,603	59.27%
3	47Q	8	23,057	129,660	72.09%
4	66N	8	15,441	145,101	80.67%
5	35B	8	12,320	157,421	87.52%
6	104T	8	5,718	163,139	90.70%

Figure 10: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers



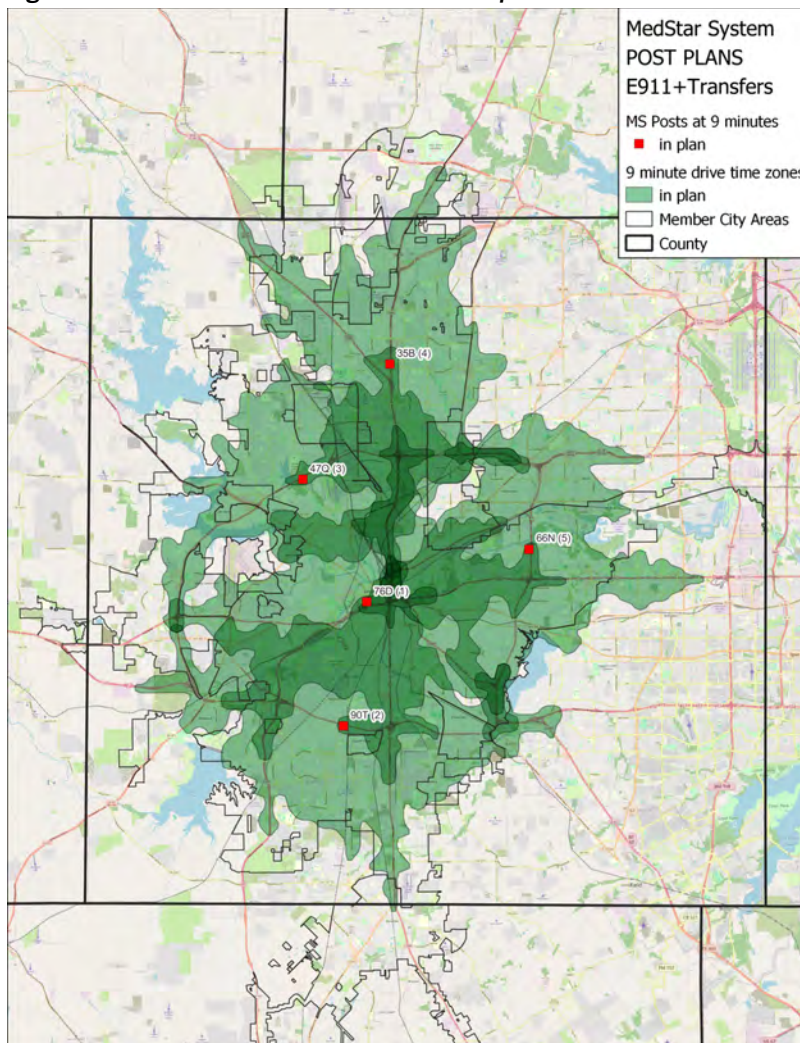
9-Minute Travel Time – 911 Calls + Transfers

Results suggest that five priority posts can respond to 93.13% of the 911/transfer calls within 9 minutes or less travel time. This configuration may likely be the most reflective of the 11-minute goal that includes approximately 2 minutes for dispatch time and turnout time.

Table 11: MedStar Post Contribution for 9-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	9	98,114	98,114	54.55%
2	90T	9	27,596	125,710	69.89%
3	47Q	9	20,012	145,722	81.02%
4	35B	9	11,054	156,776	87.16%
5	66N	9	10,725	167,501	93.13%

Figure 11: Current MedStar Posts Bleed Map for 9-Minute Travel Time – 911 Calls + Transfers



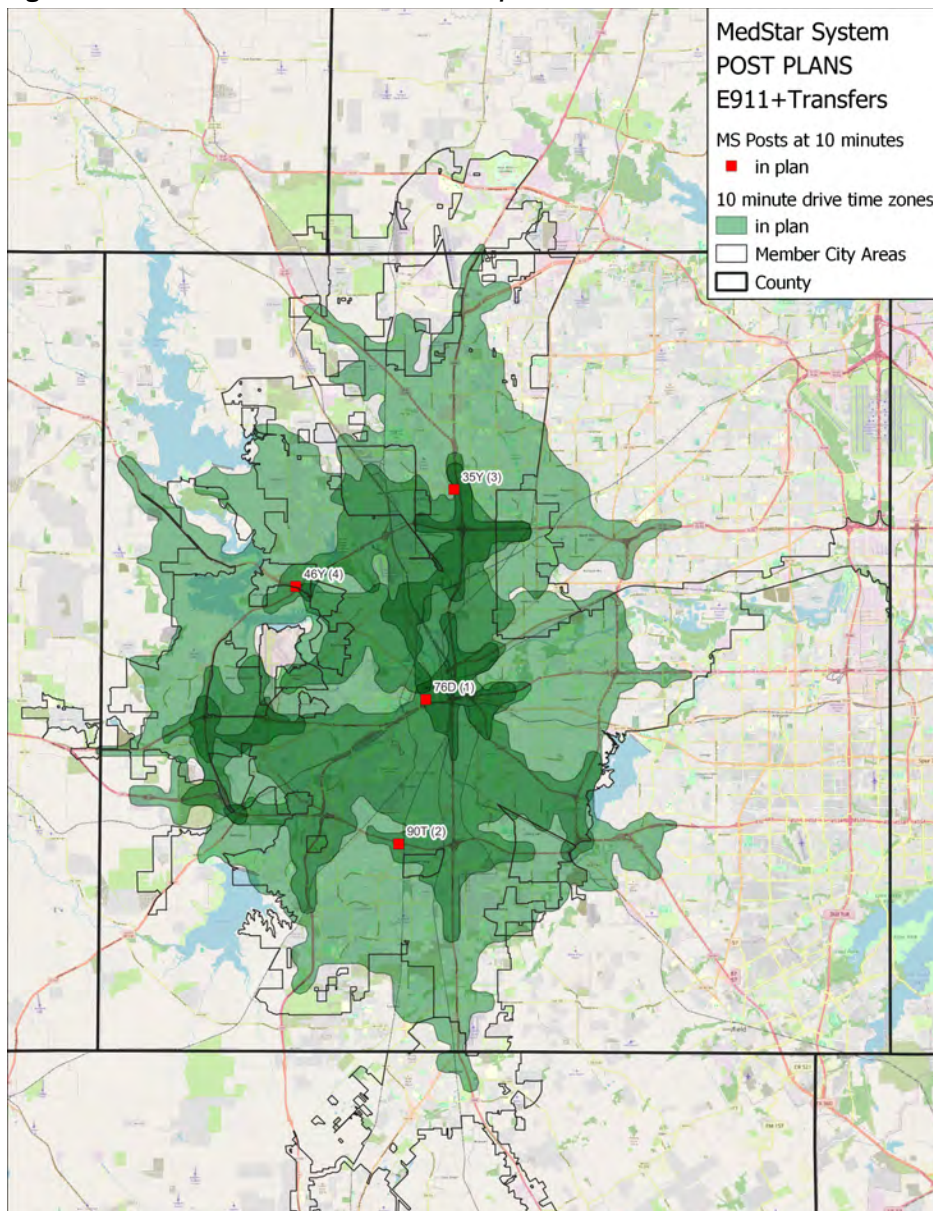
10-Minute Travel Time – 911 Calls + Transfers

Results suggest that four prioritized posts can respond to 93.37% of the 911/transfer calls within 10 minutes or less travel time.

Table 12: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	10	118,700	118,700	65.99%
2	90T	10	21,158	139,858	77.76%
3	35Y	10	20,749	160,607	89.29%
4	46Y	10	7,327	167,934	93.37%

Figure 12: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers



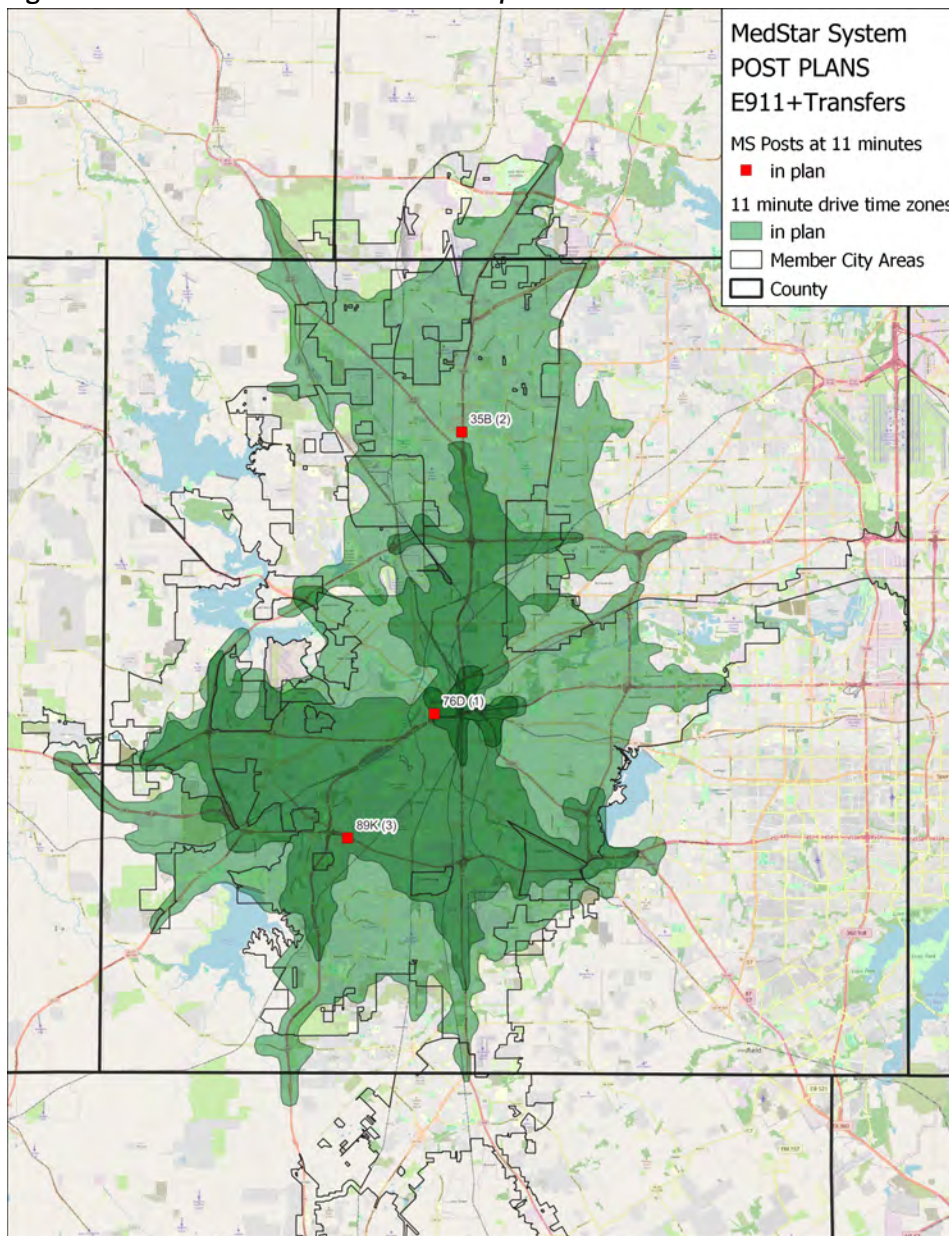
11-Minute Travel Time – 911 Calls + Transfers

Results suggest that three prioritized posts can respond to 93.38% of the 911 calls within 11 minutes or less travel time.

Table 13: MedStar Post Contribution for 11-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	11	132,553	132,553	73.70%
2	35B	11	20,646	153,199	85.17%
3	89K	11	14,764	167,963	93.38%

Figure 13: Current MedStar Posts Bleed Map for 11-Minute Travel Time – 911 Calls + Transfers



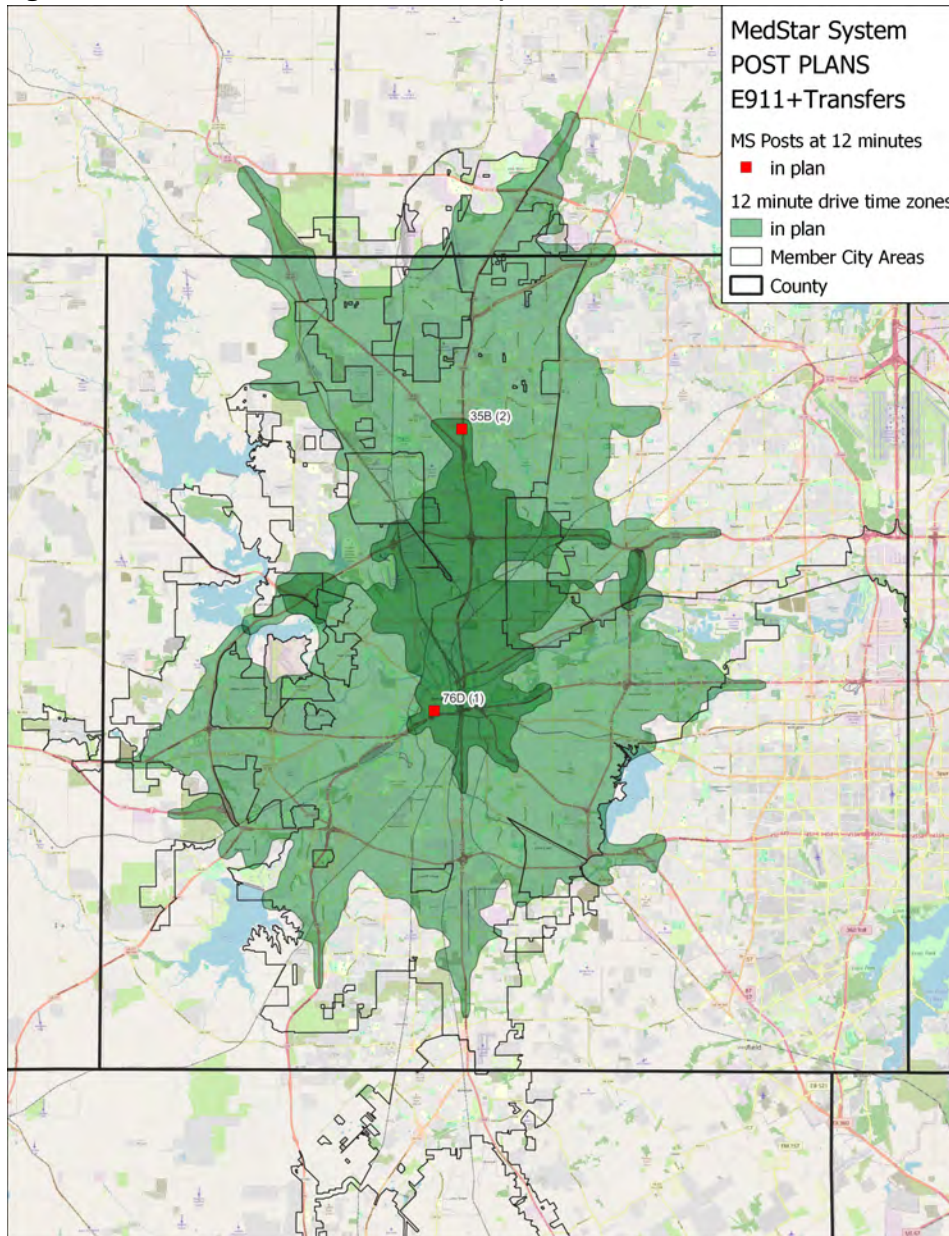
12-Minute Travel Time – 911 Calls + Transfers

Results suggest that two prioritized posts can respond to 90.13% of the 911/transfer calls within 12 minutes or less travel time.

Table 14: MedStar Post Contribution for 12-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	12	144,317	144,317	80.24%
2	35B	12	17,798	162,115	90.13%

Figure 14: Current MedStar Posts Bleed Map for 12-Minute Travel Time – 911 Calls + Transfers



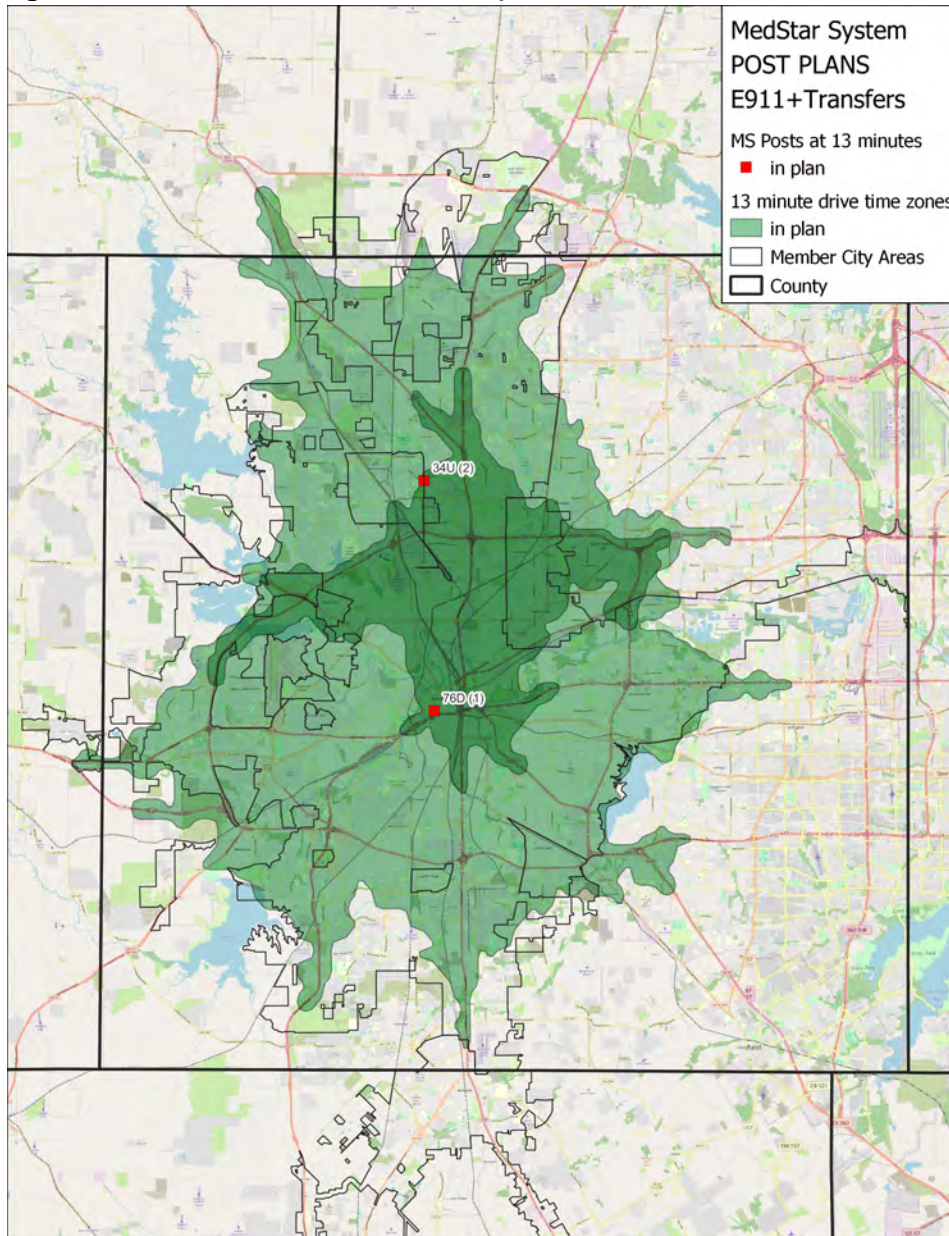
13-Minute Travel Time – 911 Calls + Transfers

Results suggest that two prioritized posts can respond to 93.37% of the 911/transfer calls within 13 minutes or less travel time.

Table 15: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	13	152,078	152,078	84.55%
2	34U	13	15,862	167,940	93.37%

Figure 15: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers



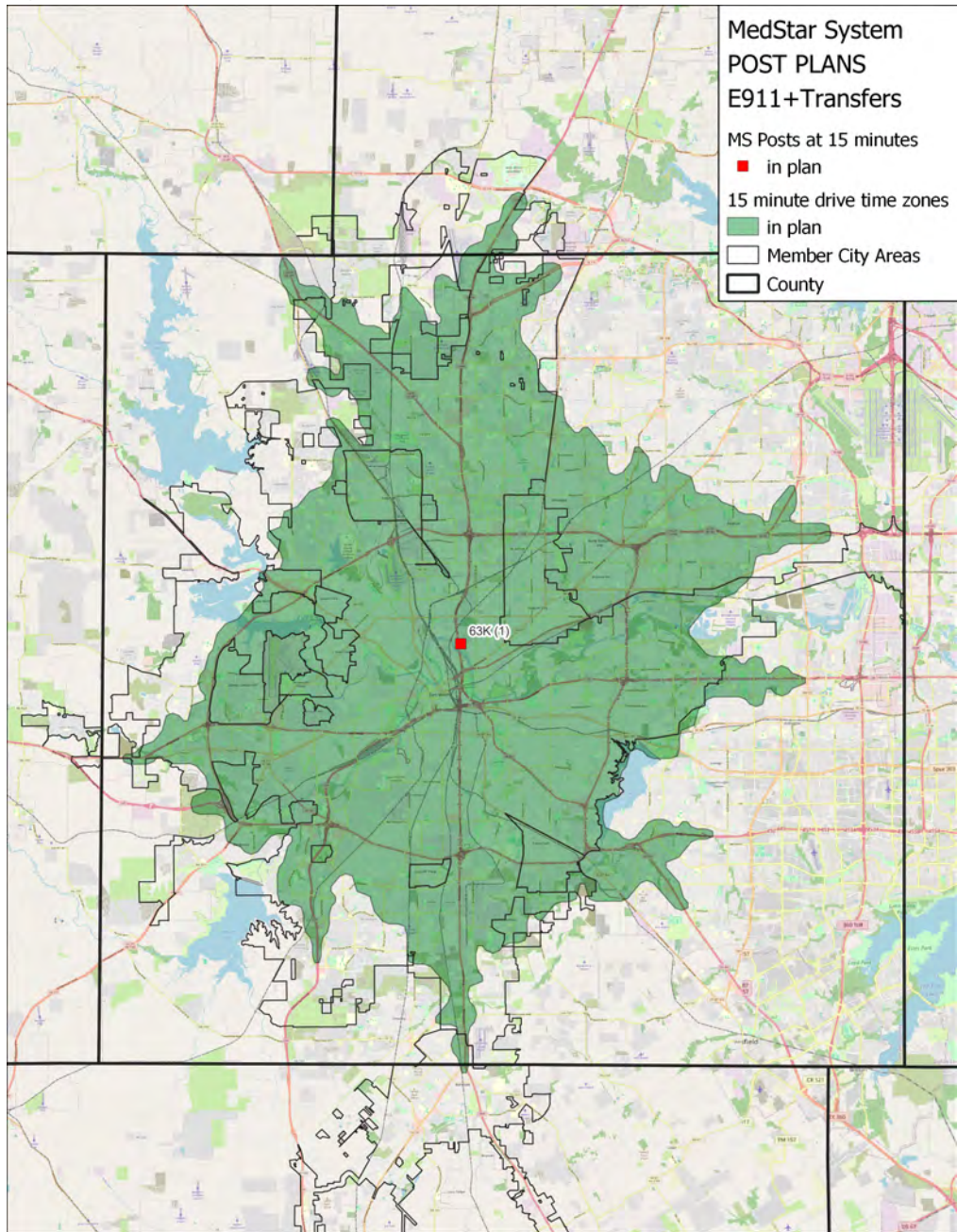
15-Minute Travel Time – 911 Calls + Transfers

Results suggest that a single prioritized posts can respond to 92.39% of the 911/transfer calls within 15 minutes or less travel time.

Table 16: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	63K	15	167,153	167,153	92.93%

Figure 16: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers



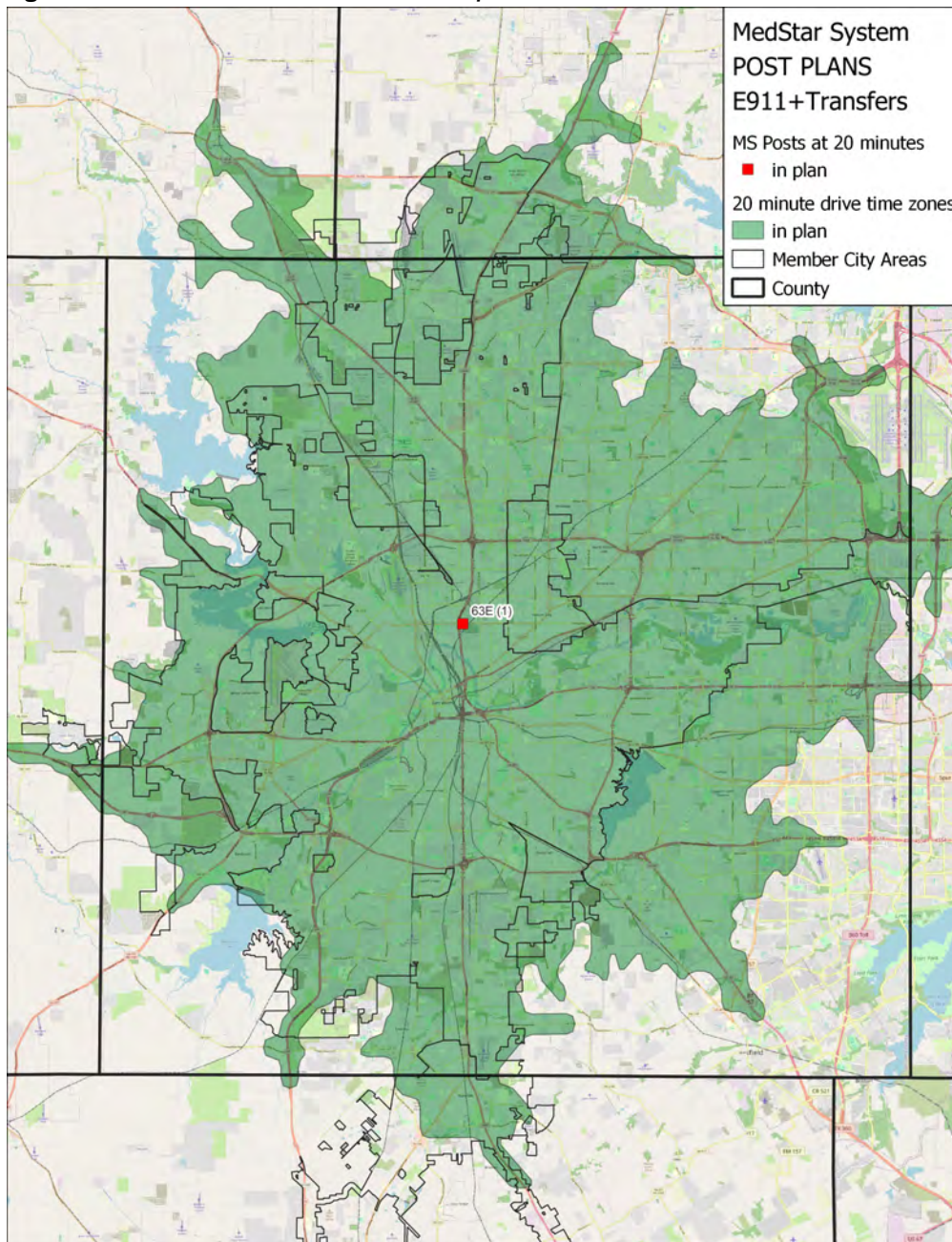
20-Minute Travel Time – 911 Calls + Transfers

Results suggest that a single prioritized posts can respond to 99.6% of the 911/transfer calls within 20 minutes or less travel time.

Table 17: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	63E	20	179,145	179,145	99.60%

Figure 17: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers



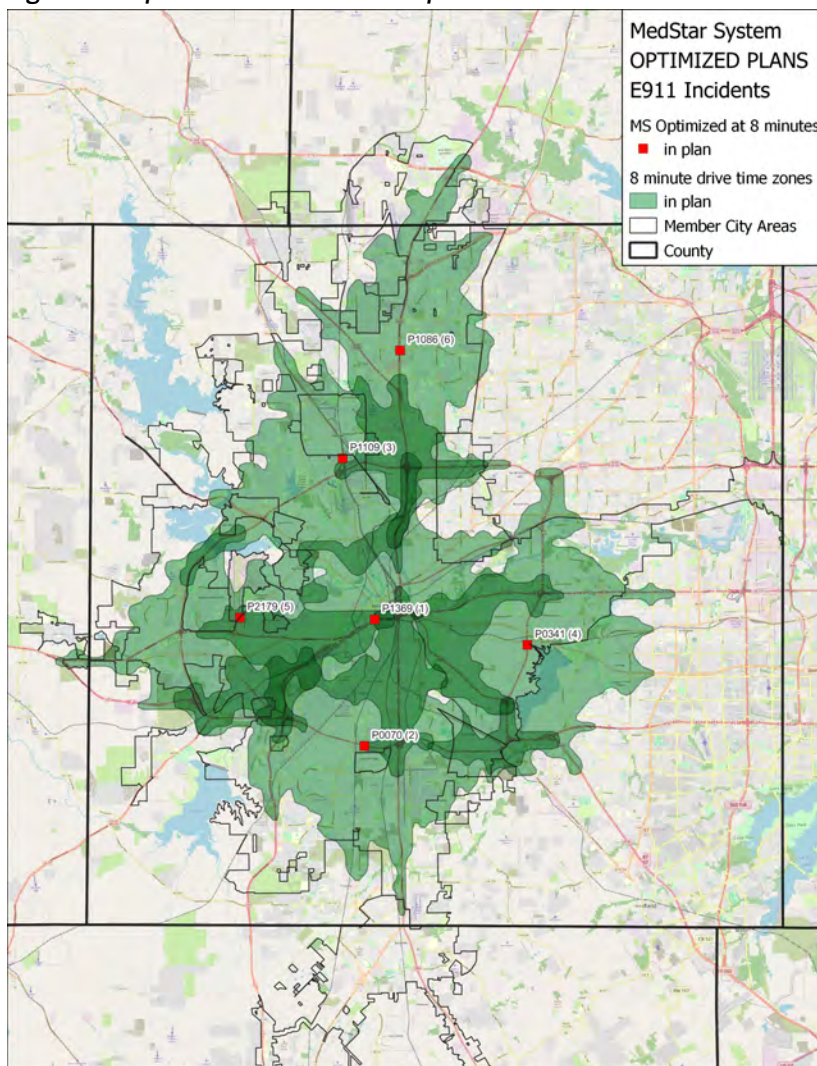
Optimized Posting Locations – 911 Calls (exclude transfers, MIH, and Events) 8-Minute Travel Time – 911 Calls

Results suggest that six priority posts can respond to 91.58% of the 911 calls within 8 minutes or less travel time.

Table 18: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	8	64,879	64,879	43.16%
2	P0070	8	25,416	90,295	60.06%
3	P1109	8	16,182	106,477	70.83%
4	P0341	8	13,237	119,714	79.63%
5	P2179	8	9,803	129,517	86.15%
6	P1086	8	8,166	137,683	91.58%

Figure 18: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls



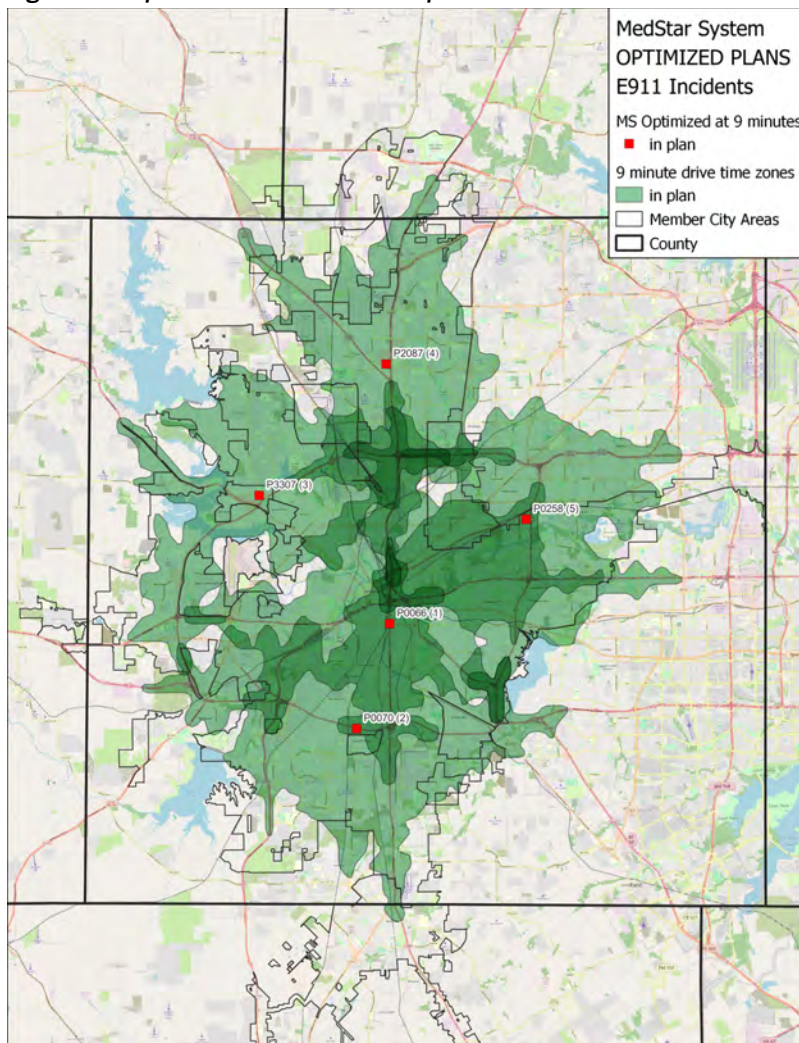
9-Minute Travel Time – 911 Calls

Results suggest that five priority posts can respond to 93.05% of the 911 calls within 9 minutes or less travel time. This configuration may likely be the most reflective of the 11-minute goal that includes approximately 2 minutes for dispatch time and turnout time.

Table 19: Optimized Post Contribution for 9-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P0066	9	81,398	81,398	54.14%
2	P0070	9	24,780	106,178	70.63%
3	P3307	9	17,015	123,193	81.94%
4	P2087	9	10,757	133,950	89.10%
5	P0258	9	5,942	139,892	93.05%

Figure 19: Optimized Posts Bleed Map for 9-Minute Travel Time – 911 Calls



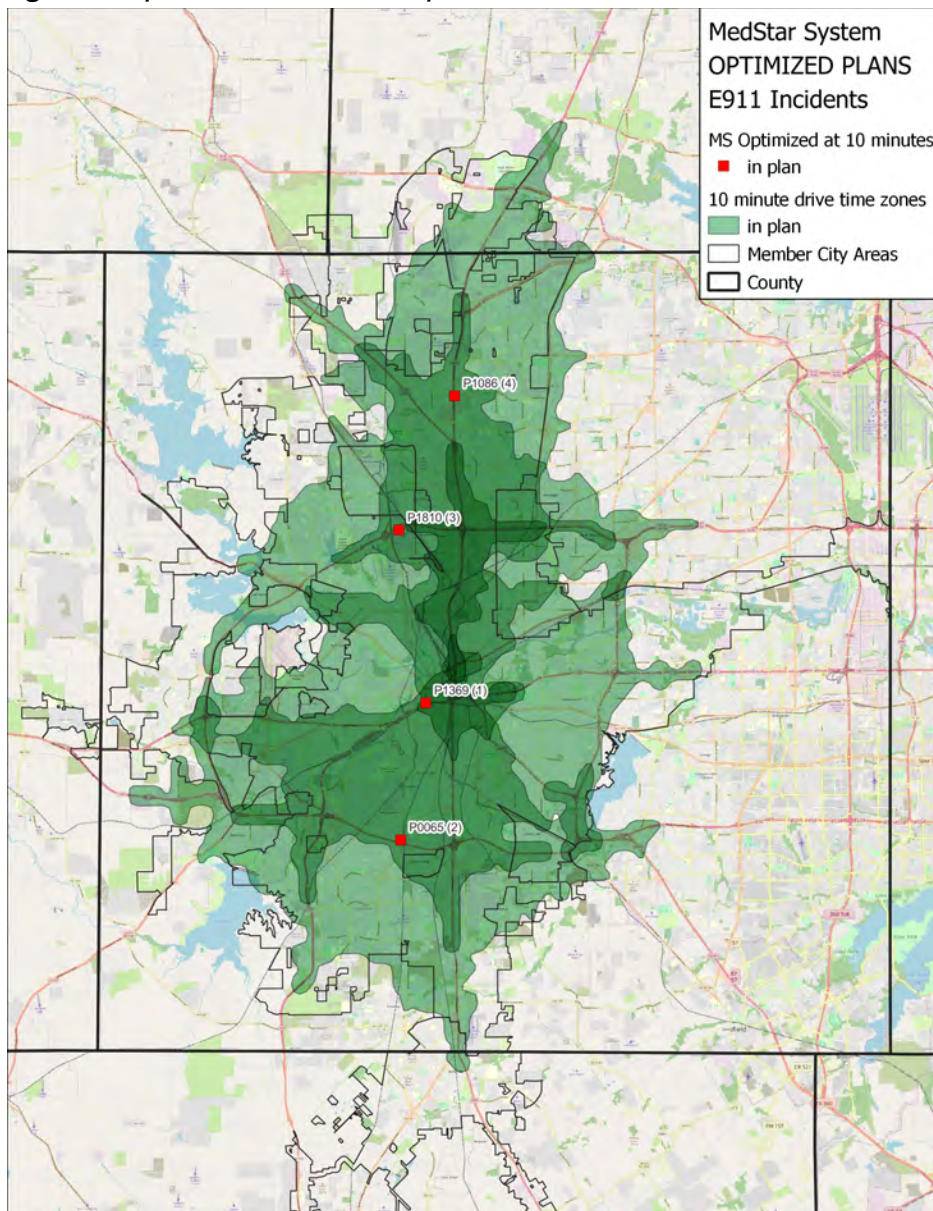
10-Minute Travel Time – 911 Calls

Results suggest that four prioritized posts can respond to 92.07% of the 911 calls within 10 minutes or less travel time.

Table 20: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	10	99,302	99,302	66.05%
2	P0065	10	17,437	116,739	77.65%
3	P1810	10	16,738	133,477	88.79%
4	P1086	10	4,942	138,419	92.07%

Figure 20: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls



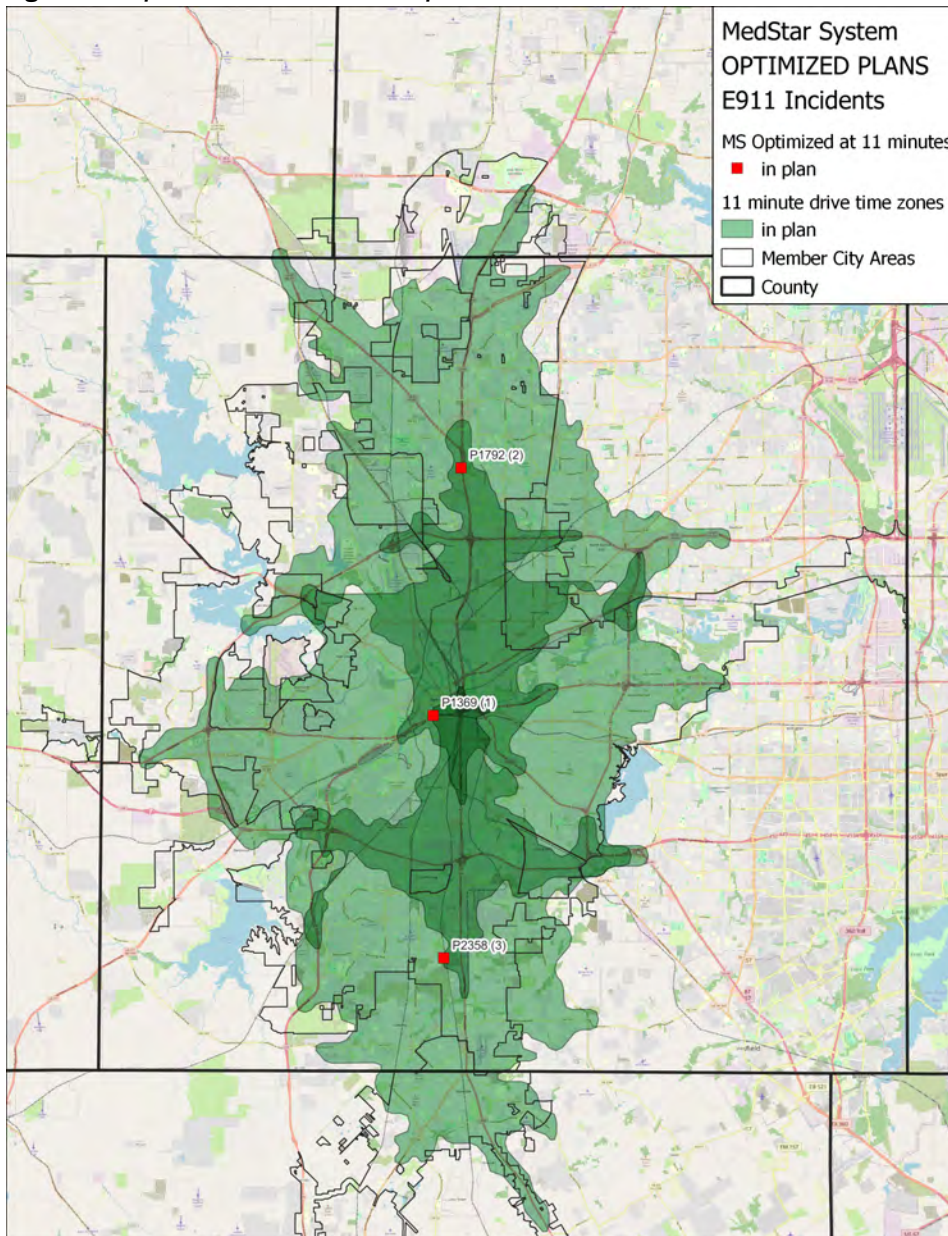
11-Minute Travel Time – 911 Calls

Results suggest that three prioritized posts can respond to 93.17% of the 911 calls within 11 minutes or less travel time.

Table 21: Optimized Post Contribution for 11-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	11	111,023	111,023	73.85%
2	P1792	11	16,300	127,323	84.69%
3	P2358	11	12,742	140,065	93.17%

Figure 21: Optimized Posts Bleed Map for 11-Minute Travel Time – 911 Calls



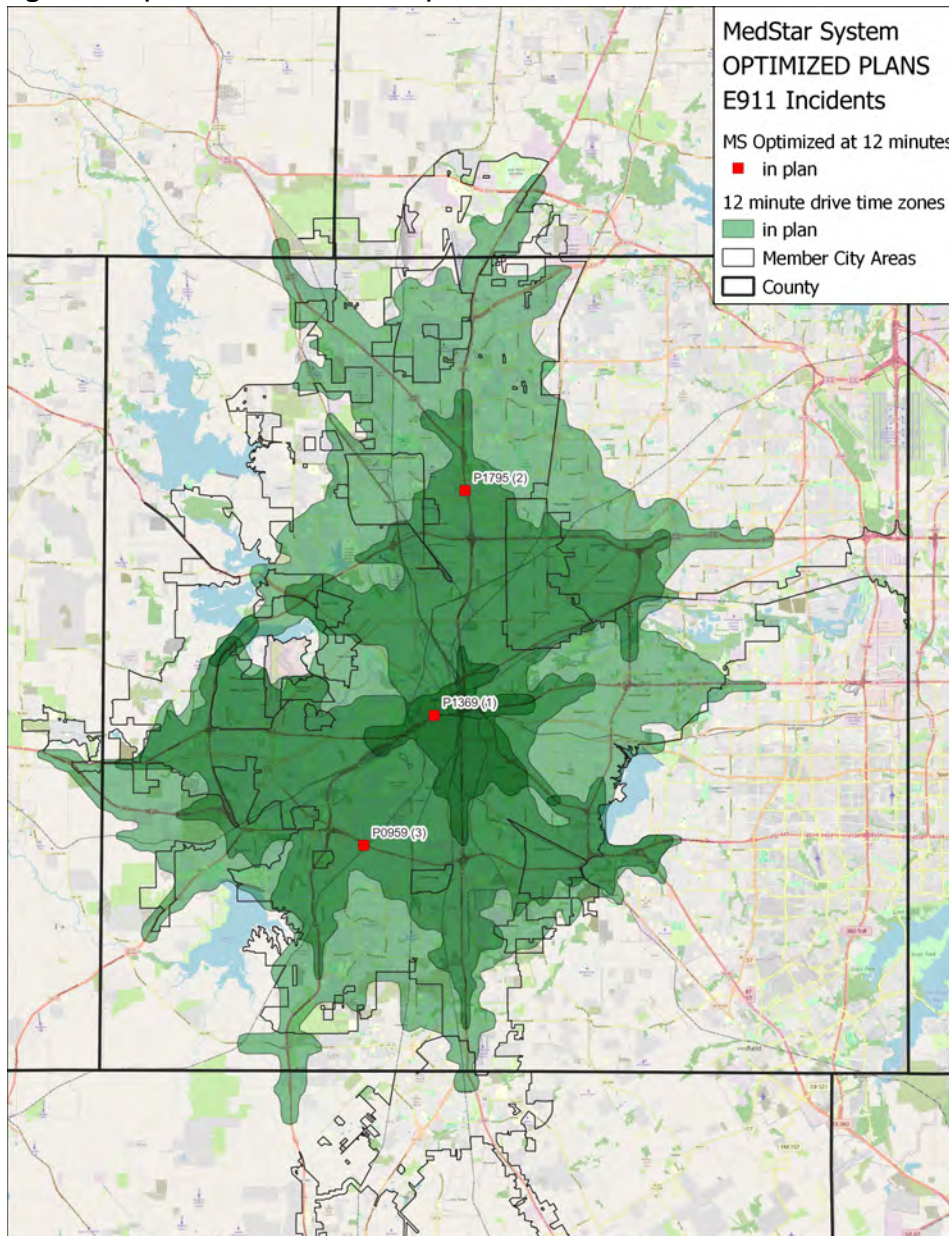
12-Minute Travel Time – 911 Calls

Results suggest that three prioritized posts can respond to 95.36% of the 911 calls within 12 minutes or less travel time.

Table 22: Optimized Post Contribution for 12-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	12	120,299	120,299	80.02%
2	P1795	12	14,160	134,459	89.44%
3	P0959	12	8,900	143,359	95.36%

Figure 22: Optimized Posts Bleed Map for 12-Minute Travel Time – 911 Calls



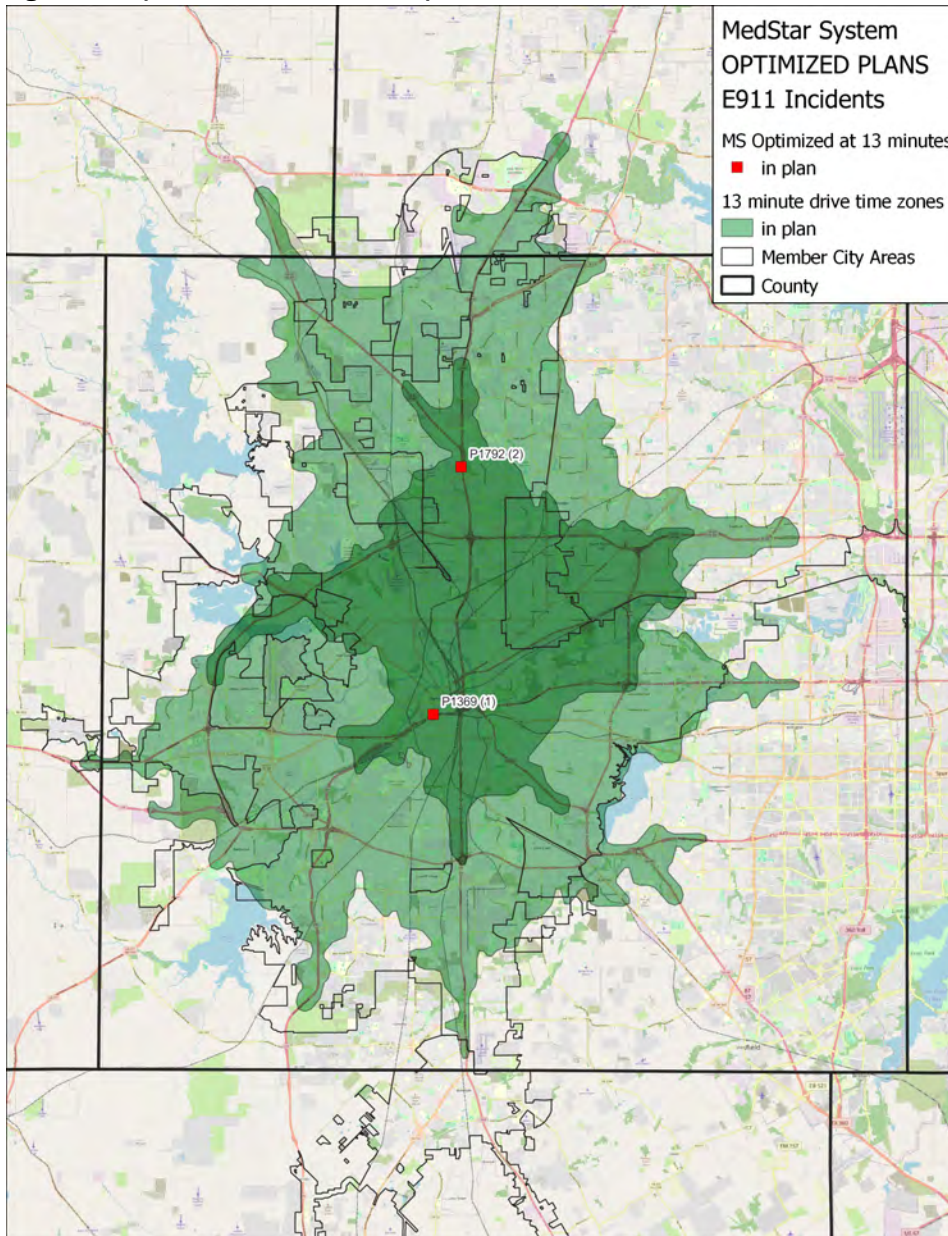
13-Minute Travel Time – 911 Calls

Results suggest that two prioritized posts can respond to 92.72% of the 911 calls within 13 minutes or less travel time.

Table 23: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	13	127,603	127,603	84.88%
2	P1792	13	11,784	139,387	92.72%

Figure 23: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls



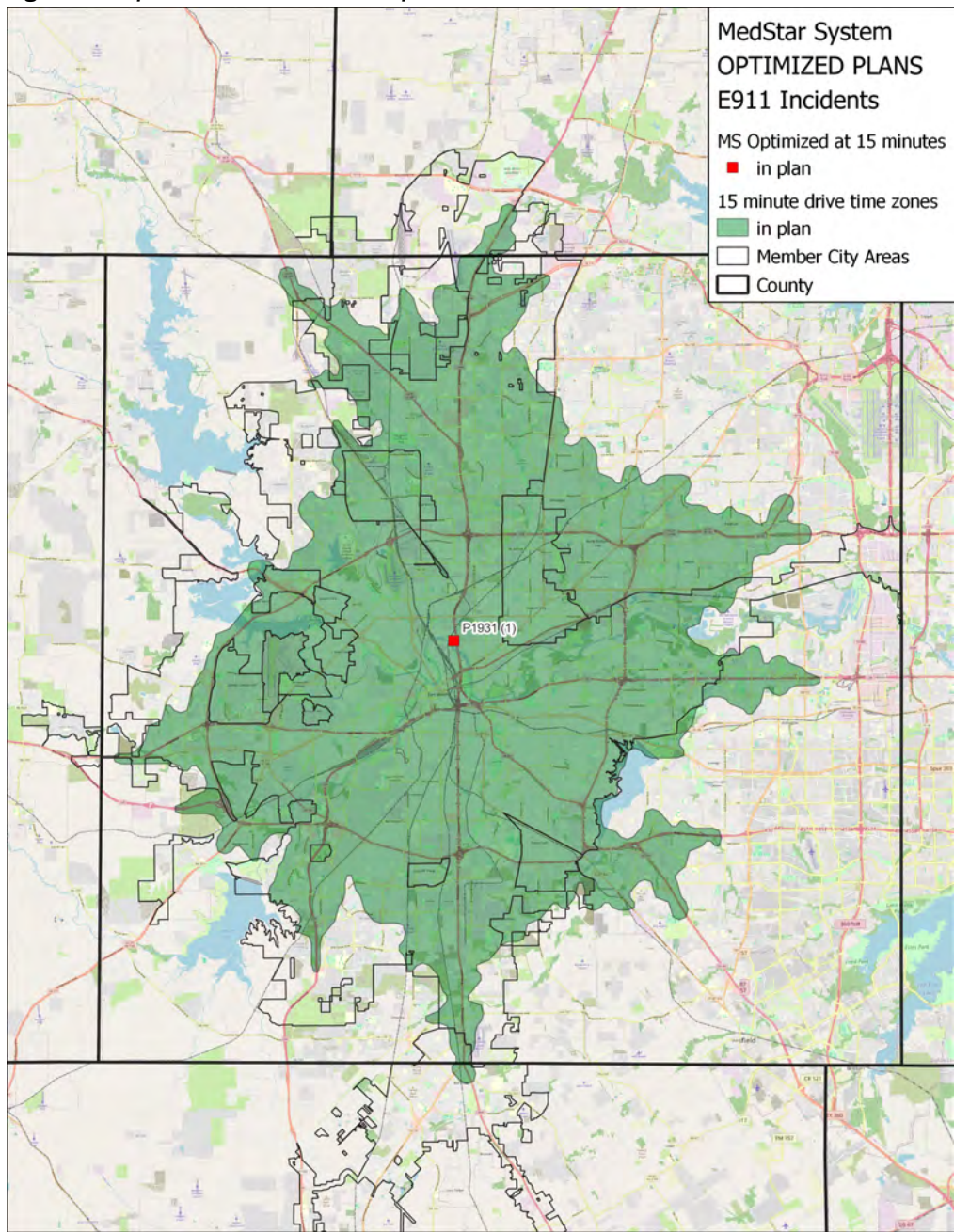
15-Minute Travel Time – 911 Calls

Results suggest that a single prioritized posts can respond to 92.3% of the 911 calls within 15 minutes or less travel time.

Table 24: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1931	15	138,759	138,759	92.30%

Figure 24: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls



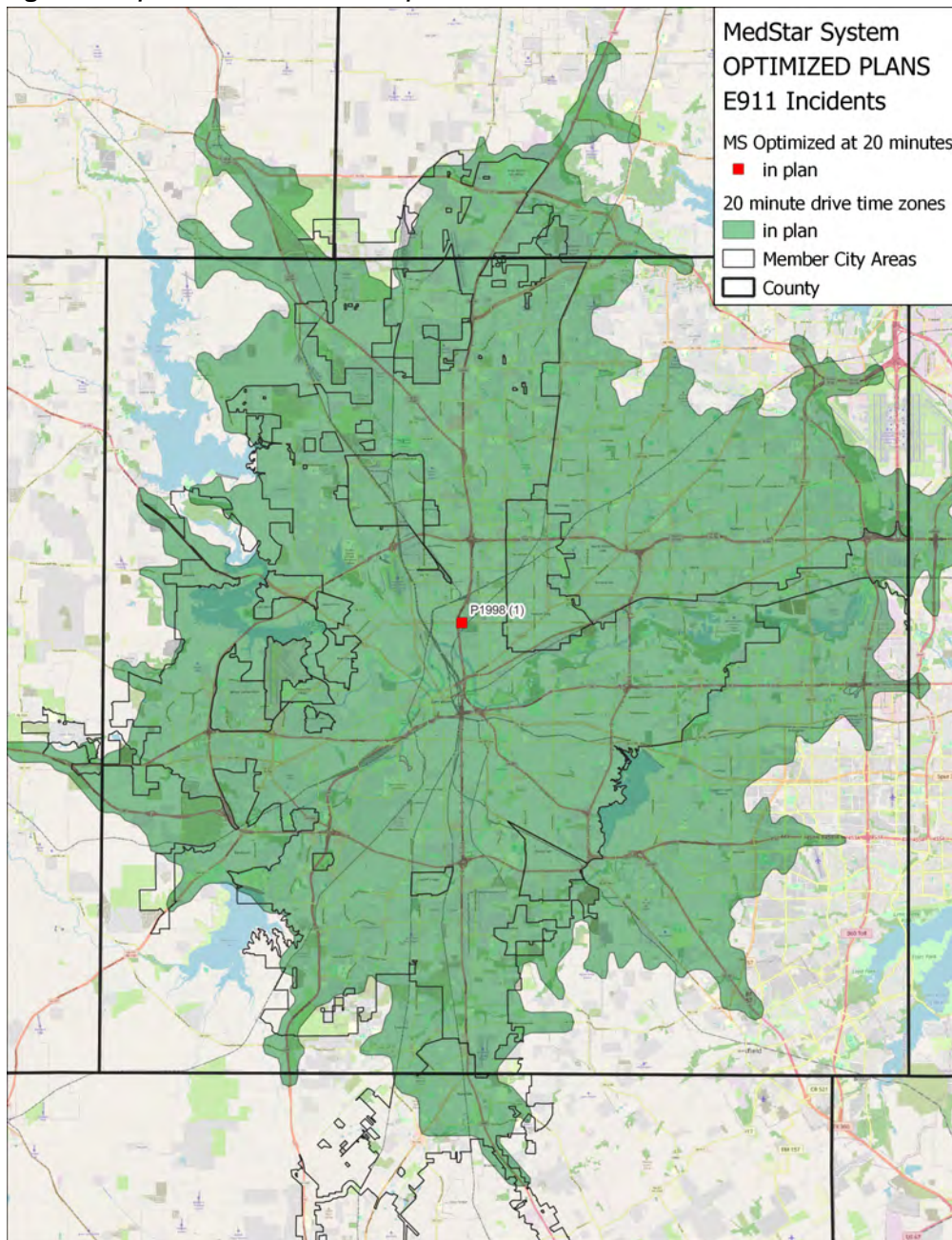
20-Minute Travel Time – 911 Calls

Results suggest that a single prioritized posts can respond to 99.55% of the 911 calls within 20 minutes or less travel time.

Table 25: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1998	20	149,658	149,658	99.55%

Figure 25: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls



Optimized Posting Locations – 911 Calls + Transfers (exclude MIH & Events)

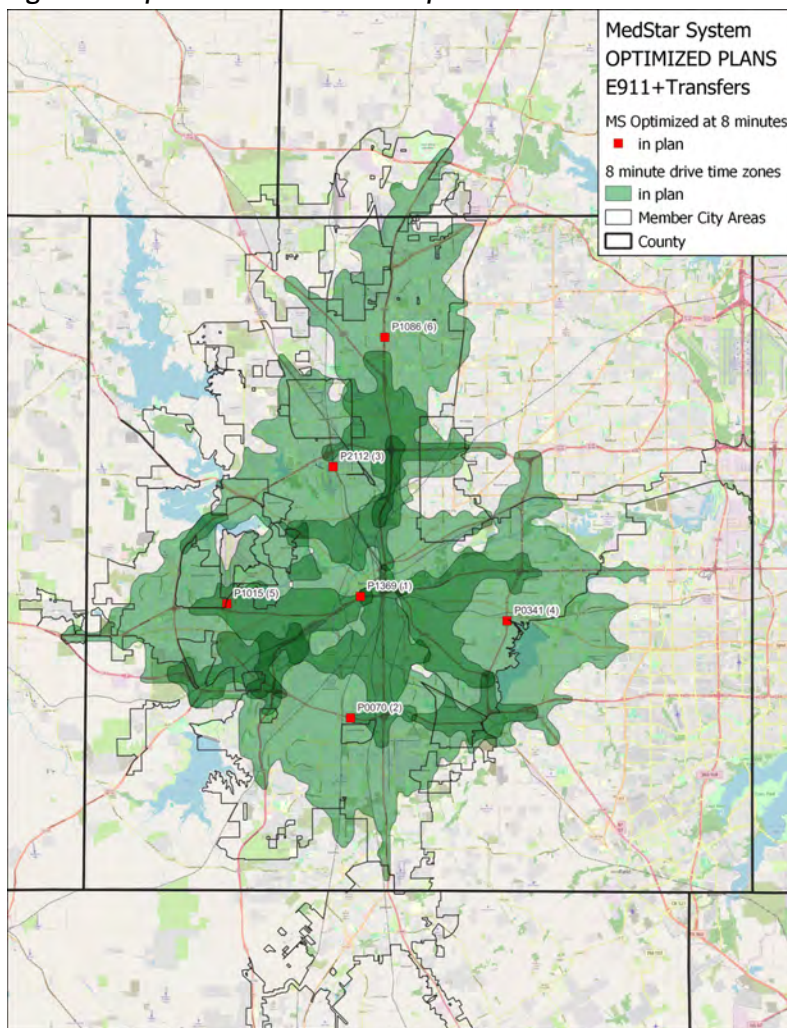
8-Minute Travel Time – 911 Calls + Transfers

Results suggest that six priority posts can respond to 91.98% of the 911/transfer calls within 8 minutes or less travel time.

Table 26: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	8	79,710	79,710	44.32%
2	P0070	8	31,959	111,669	62.09%
3	P2112	8	19,597	131,266	72.98%
4	P0341	8	13,522	144,788	80.50%
5	P1015	8	10,975	155,763	86.60%
6	P1086	8	9,684	165,447	91.98%

Figure 26: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers



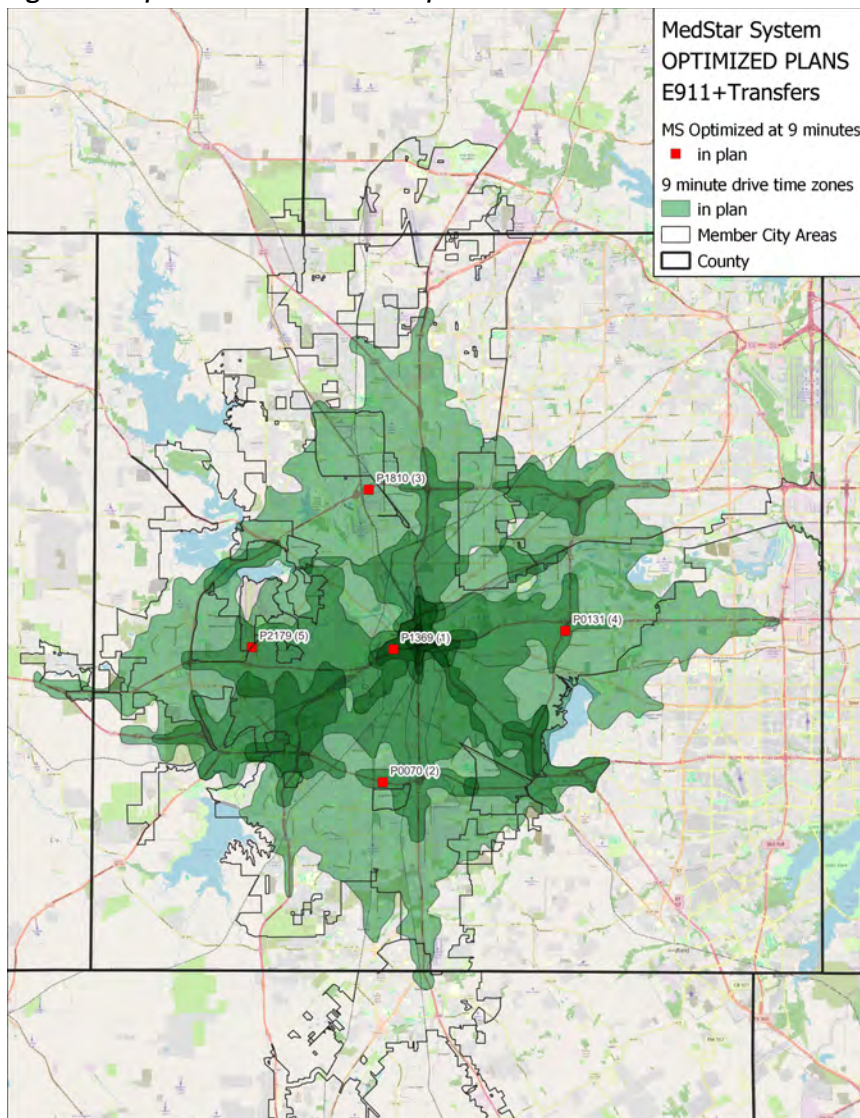
9-Minute Travel Time – 911 Calls + Transfers

Results suggest that five priority posts can respond to 91.13% of the 911/transfer calls within 9 minutes or less travel time. This configuration may likely be the most reflective of the 11-minute goal that includes approximately 2 minutes for dispatch time and turnout time.

Table 27: Optimized Post Contribution for 9-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	9	98,785	98,785	54.92%
2	P0070	9	27,137	125,922	70.01%
3	P1810	9	20,928	146,850	81.65%
4	P0131	9	9,162	156,012	86.74%
5	P2179	9	7,893	163,905	91.13%

Figure 27: Optimized Posts Bleed Map for 9-Minute Travel Time – 911 Calls + Transfers



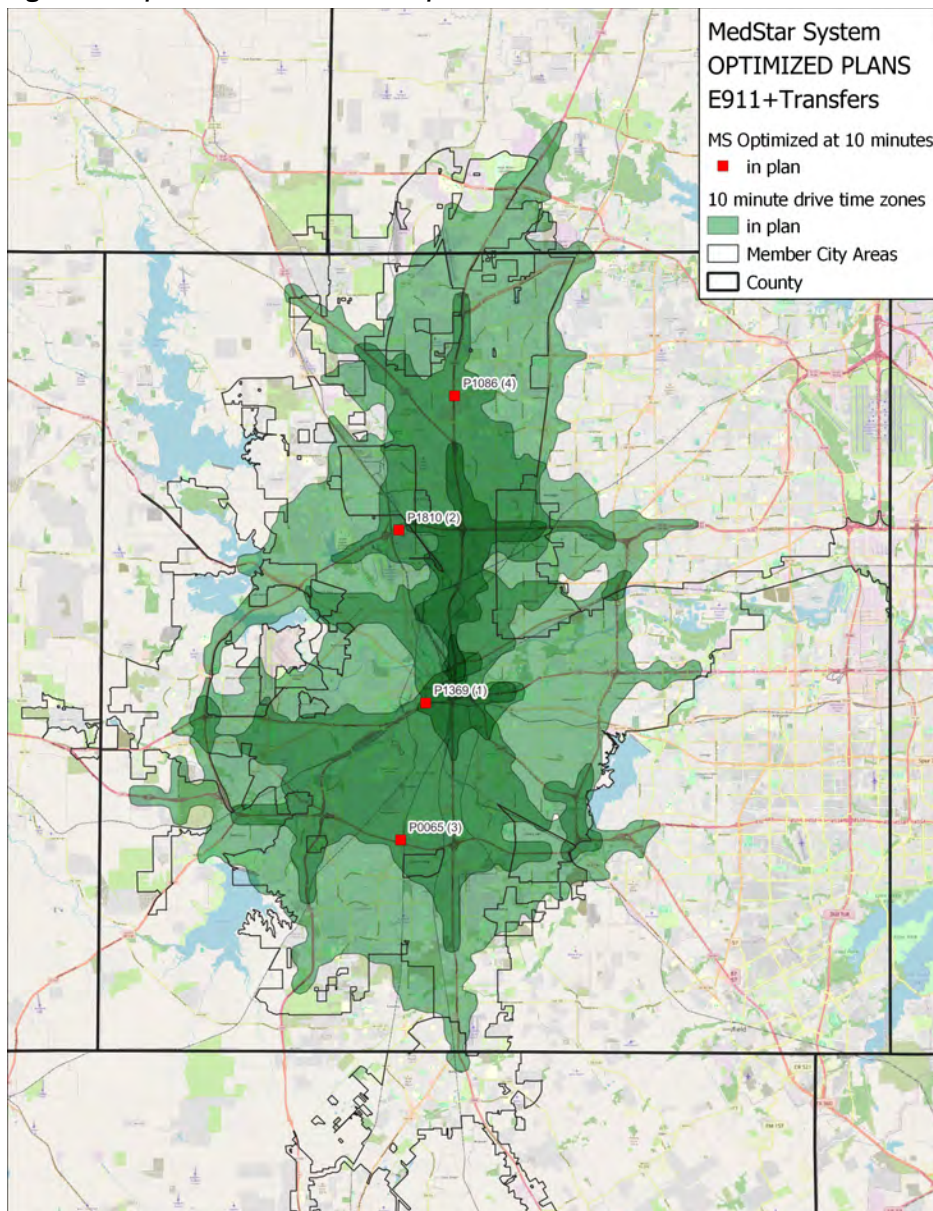
10-Minute Travel Time – 911 Calls + Transfers

Results suggest that four prioritized posts can respond to 92.93% of the 911/transfer calls within 10 minutes or less travel time.

Table 28: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	10	119,305	119,305	66.33%
2	P1810	10	21,724	141,029	78.41%
3	P0065	10	20,399	161,428	89.75%
4	P1086	10	5,723	167,151	92.93%

Figure 28: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers



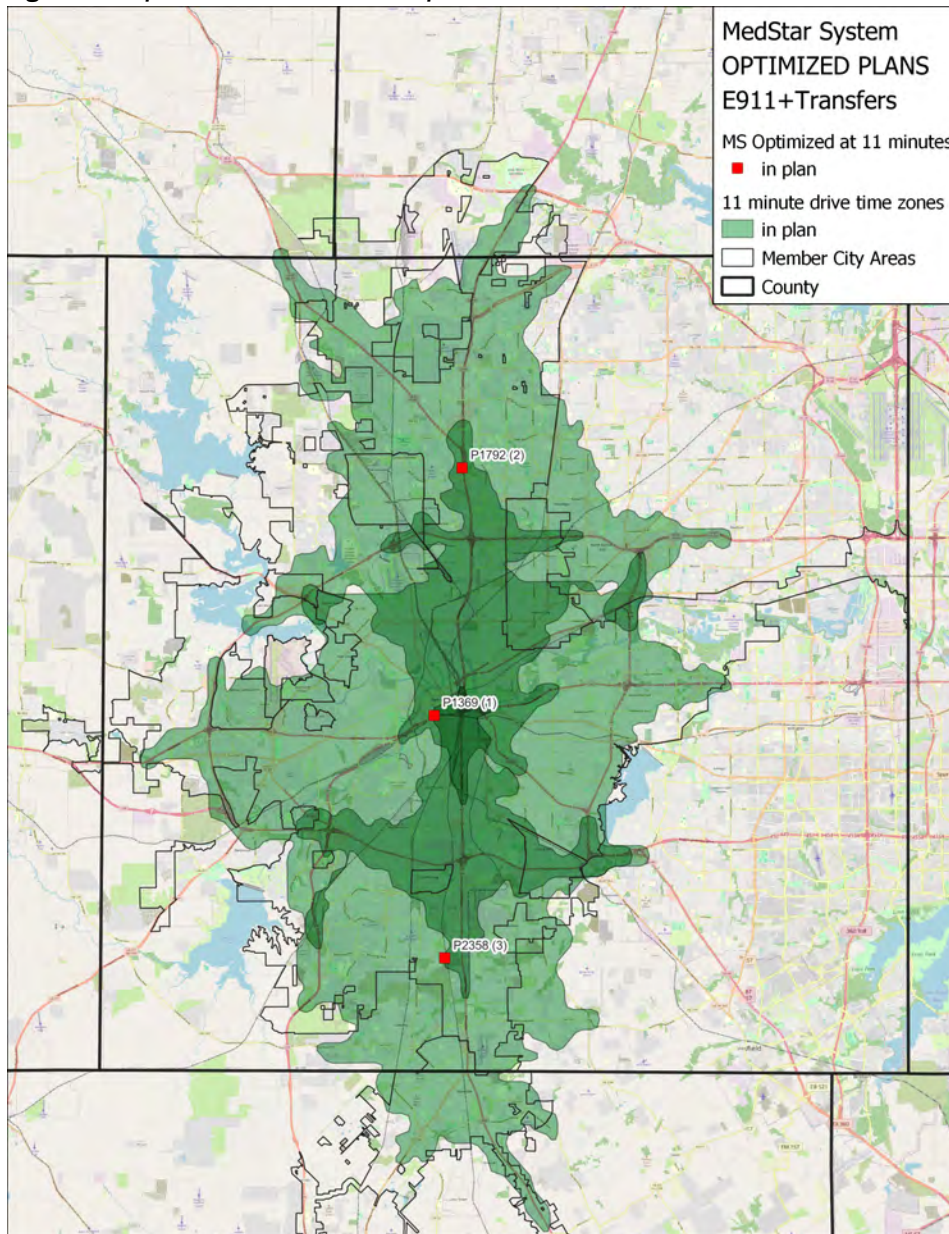
11-Minute Travel Time – 911 Calls + Transfers

Results suggest that three prioritized posts can respond to 93.85% of the 911/transfer calls within 11 minutes or less travel time.

Table 29: Optimized Post Contribution for 11-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	11	133,412	133,412	74.17%
2	P1792	11	20,134	153,546	85.37%
3	P2358	11	15,258	168,804	93.85%

Figure 29: Optimized Posts Bleed Map for 11-Minute Travel Time – 911 Calls + Transfers



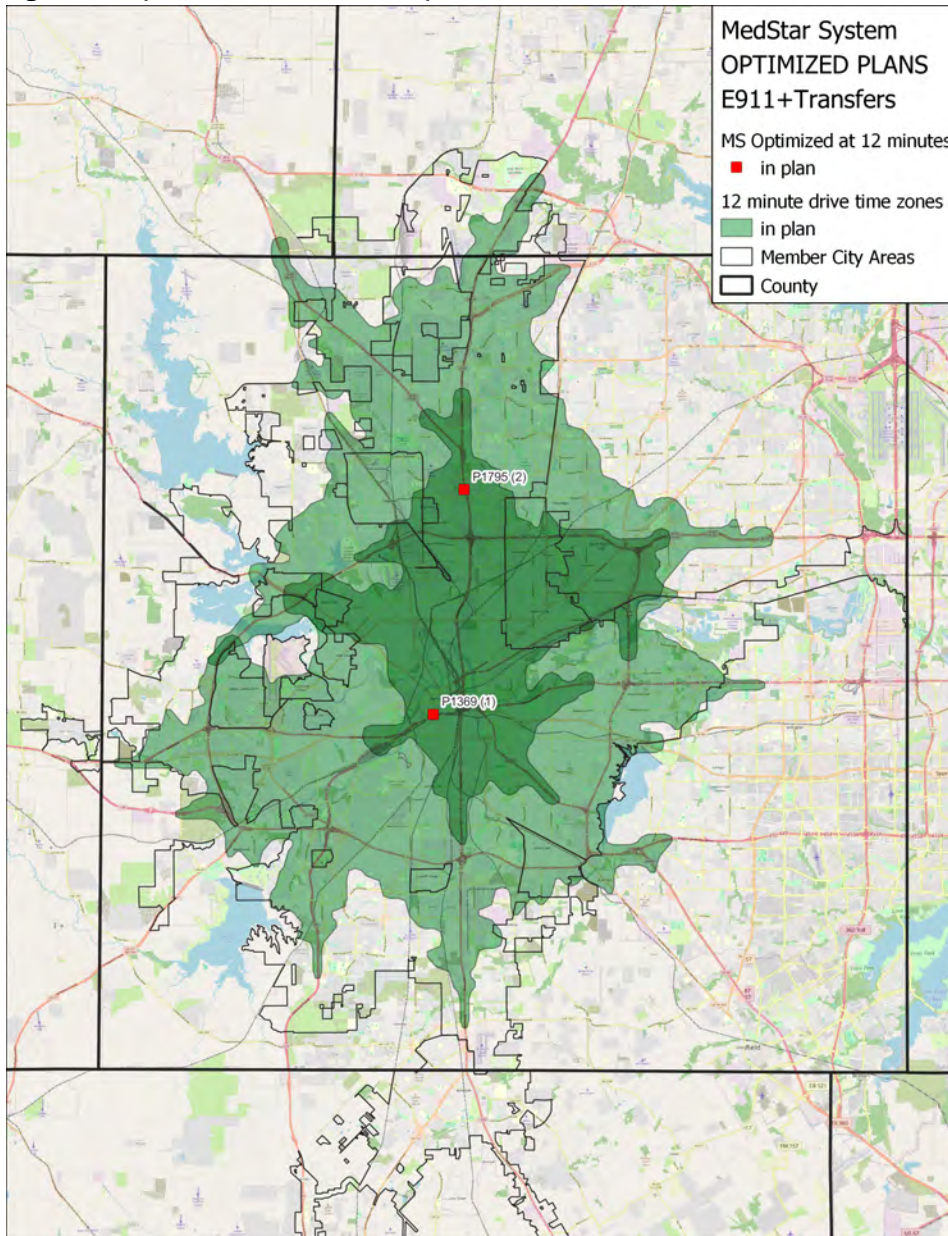
12-Minute Travel Time – 911 Calls + Transfers

Results suggest that two prioritized posts can respond to 90.45% of the 911/transfer calls within 12 minutes or less travel time.

Table 30: Optimized Post Contribution for 12-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	12	145,110	145,110	80.68%
2	P1795	12	17,579	162,689	90.45%

Figure 30: Optimized Posts Bleed Map for 12-Minute Travel Time – 911 Calls + Transfers



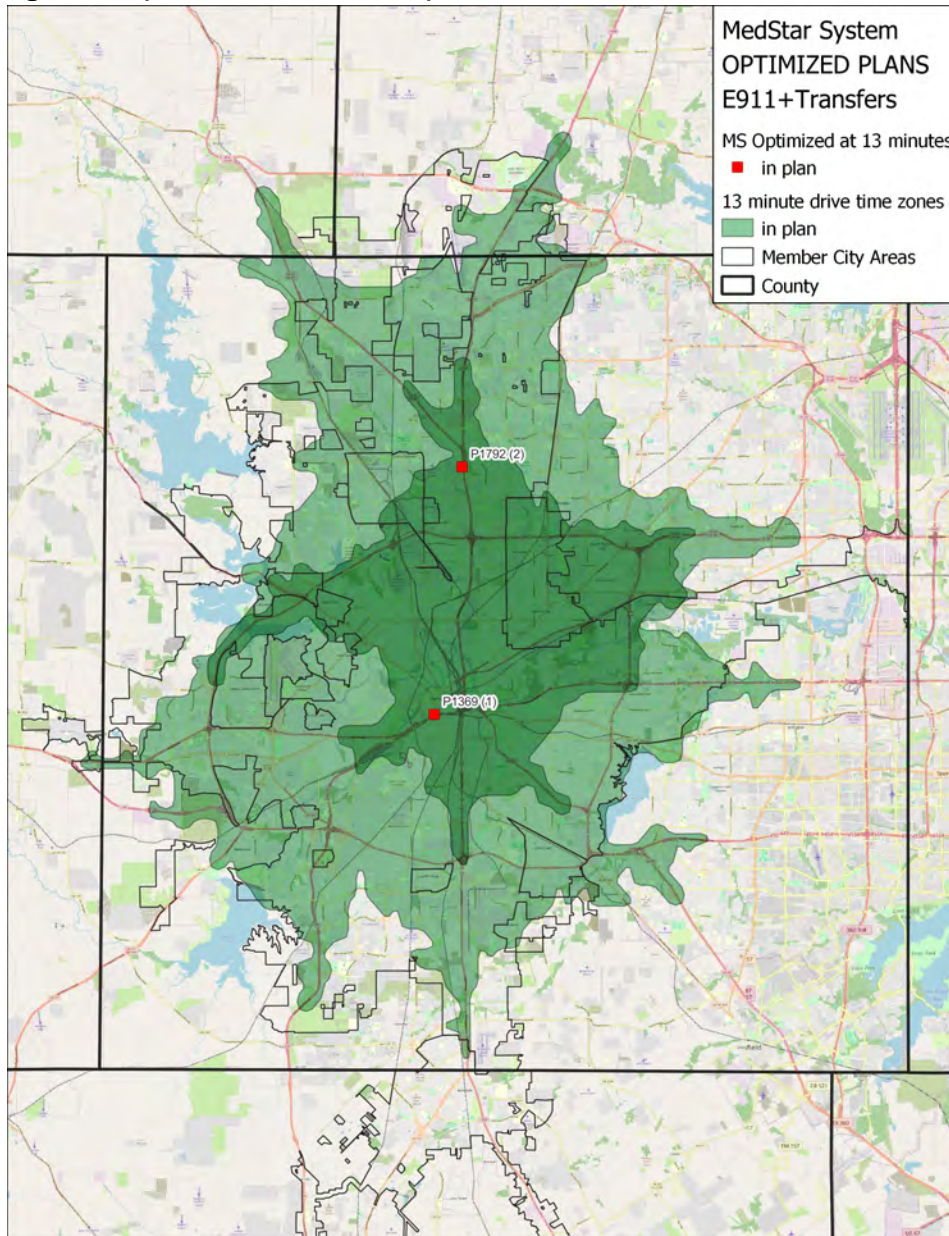
13-Minute Travel Time – 911 Calls + Transfers

Results suggest that two prioritized posts can respond to 93.6% of the 911/transfer calls within 13 minutes or less travel time.

Table 31: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	13	153,260	153,260	85.21%
2	P1792	13	15,100	168,360	93.60%

Figure 31: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers



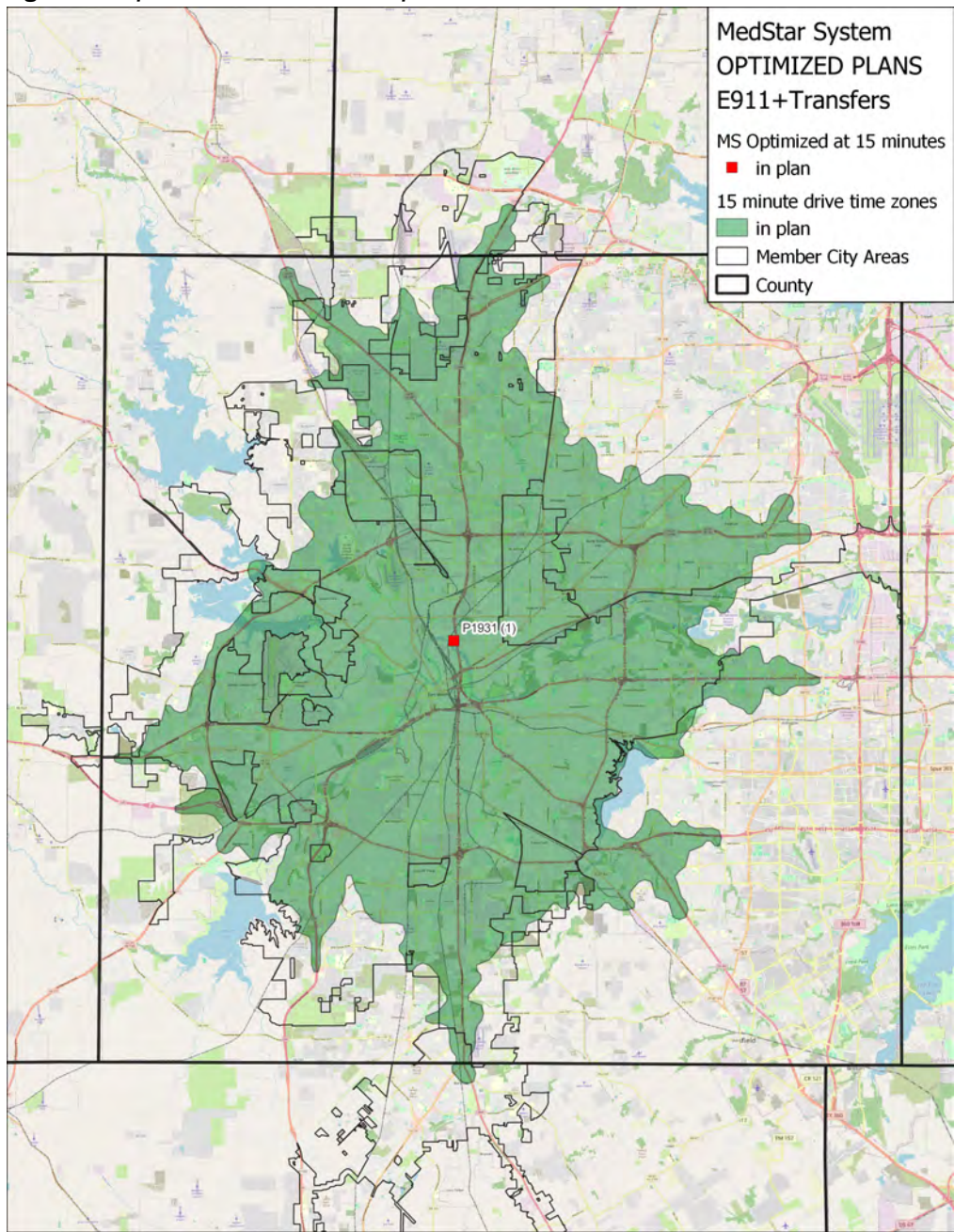
15-Minute Travel Time – 911 Calls + Transfers

Results suggest that a single prioritized posts can respond to 93.4% of the 911/transfer calls within 15 minutes or less travel time.

Table 32: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1931	15	167,991	167,991	93.40%

Figure 32: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers



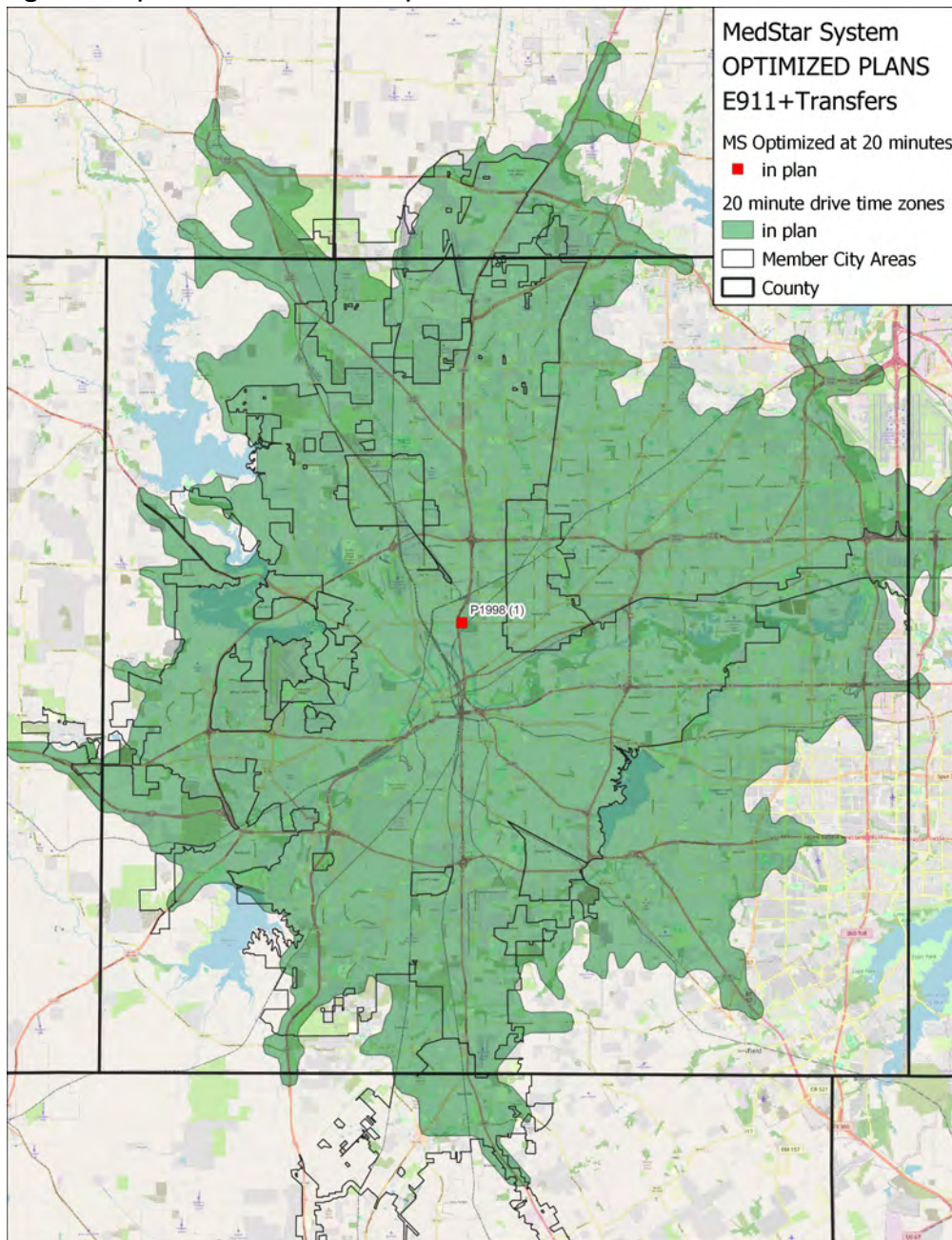
20-Minute Travel Time – 911 Calls + Transfers

Results suggest that a single prioritized posts can respond to 99.6% of the 911/transfer calls within 20 minutes or less travel time.

Table 33: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1998	20	179,145	179,145	99.60%

Figure 33: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers



DISTRIBUTION OF RISK ACROSS THE JURISDICTION

Distribution of Demand by Program Areas

Heat maps were created to identify the concentration of the historic demand for services overall and by program area (i.e., 911, transfer, MIH, and Events). The blue areas have the lowest concentration of demand, and the dark red areas have the highest concentration of demand.

Figure 34: Heat Map for All Calls

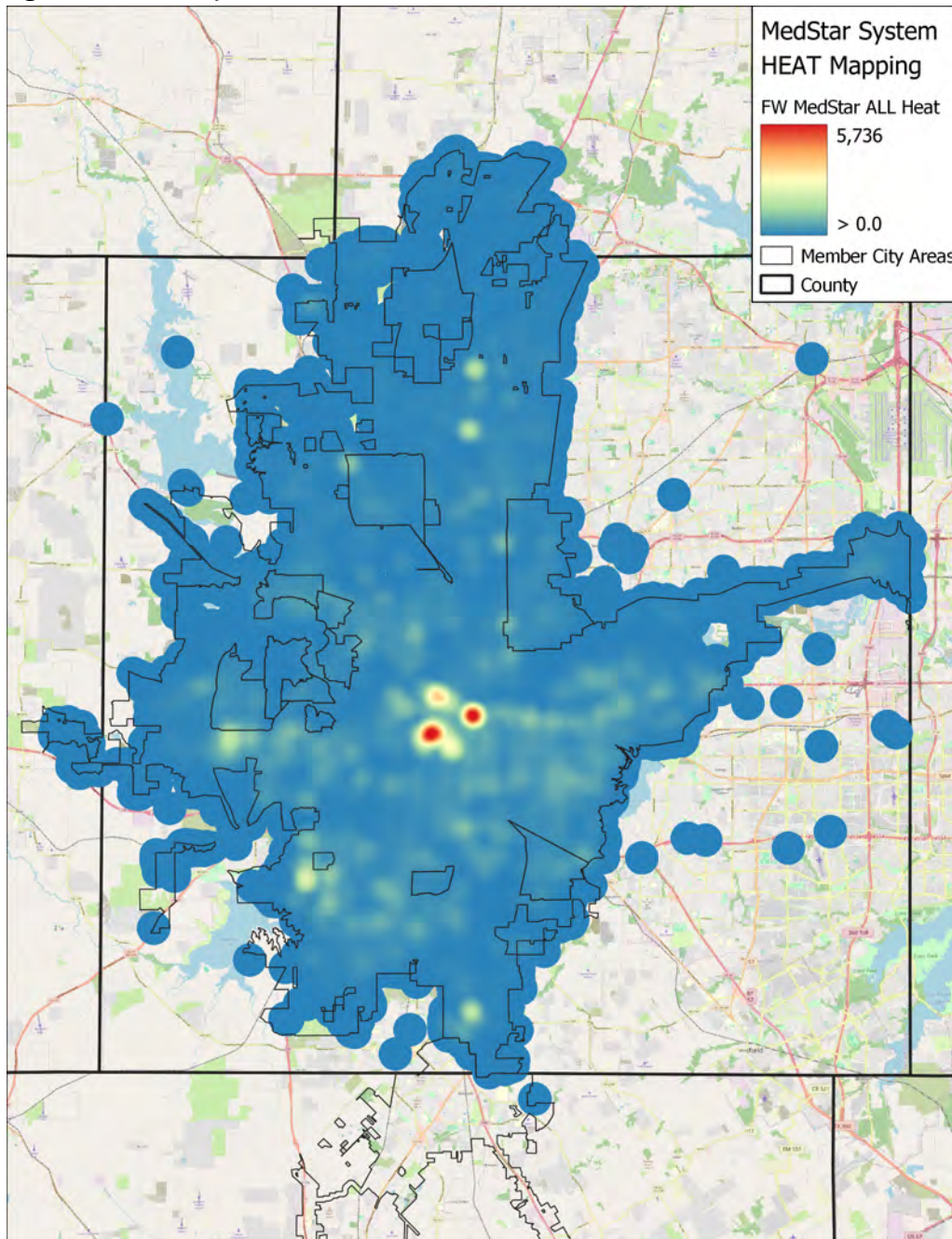


Figure 35: Heat Map for EMS 911 Calls

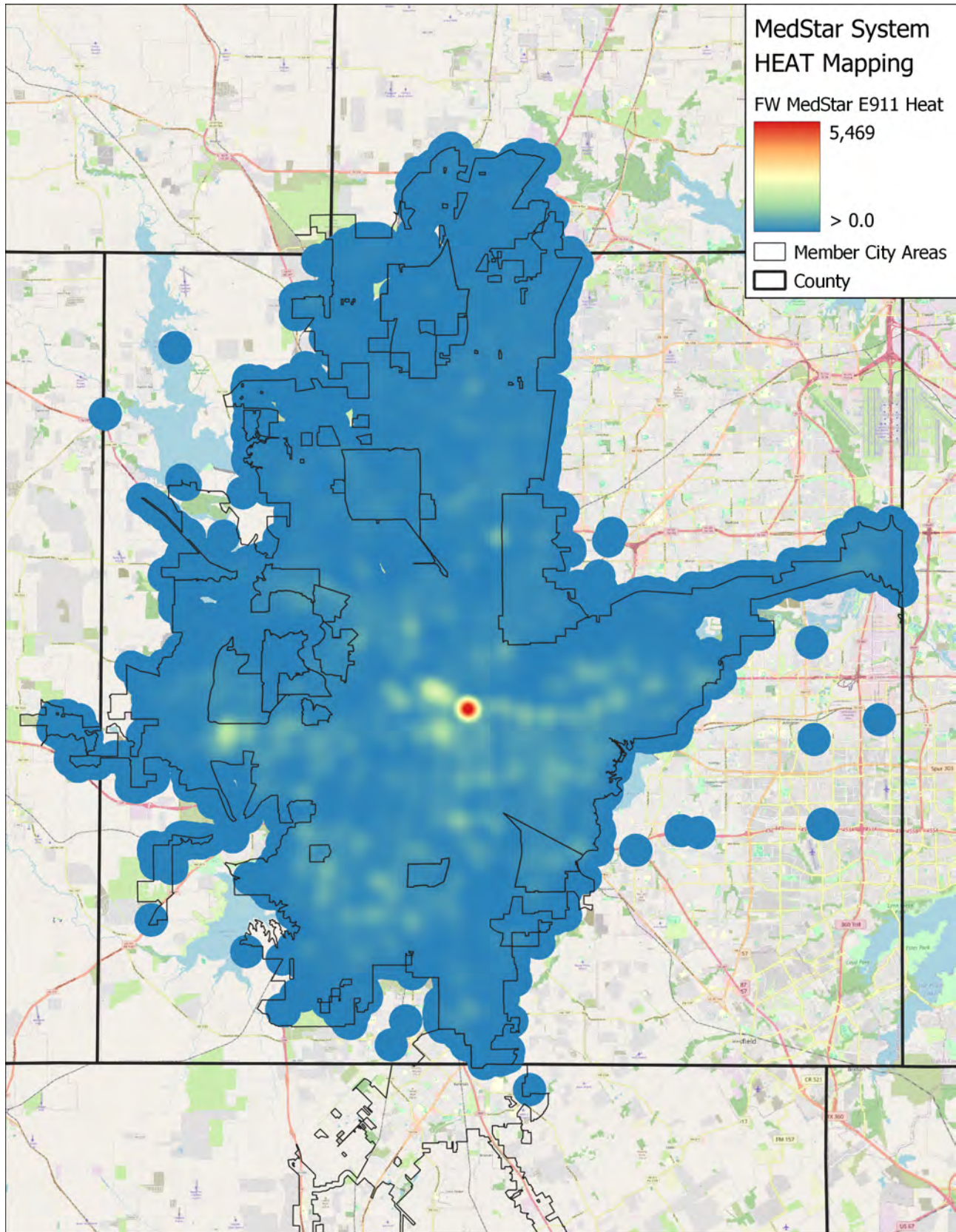


Figure 36: Heat Map for 911 + Transfer Calls

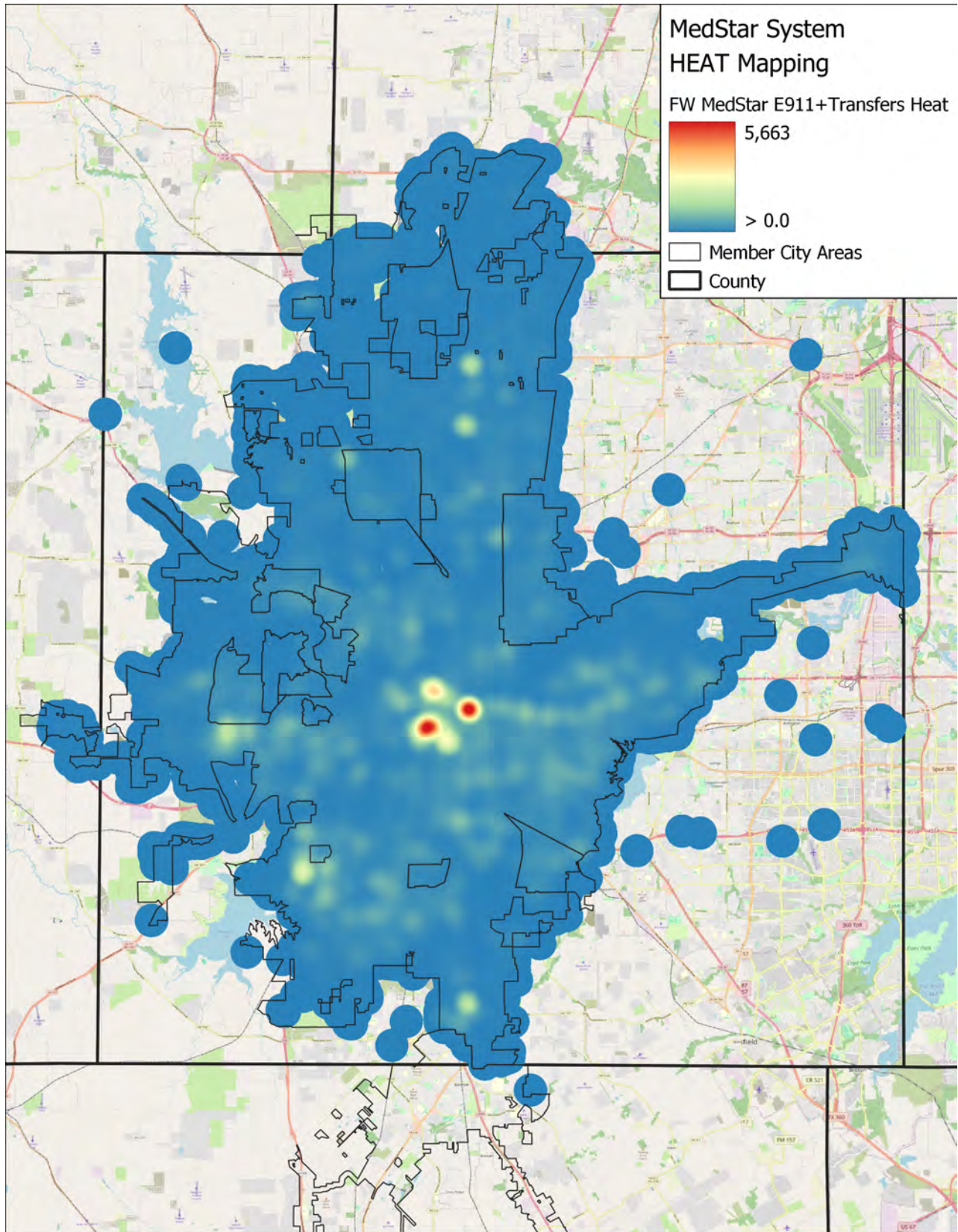


Figure 37: Heat Map for Transfer Calls

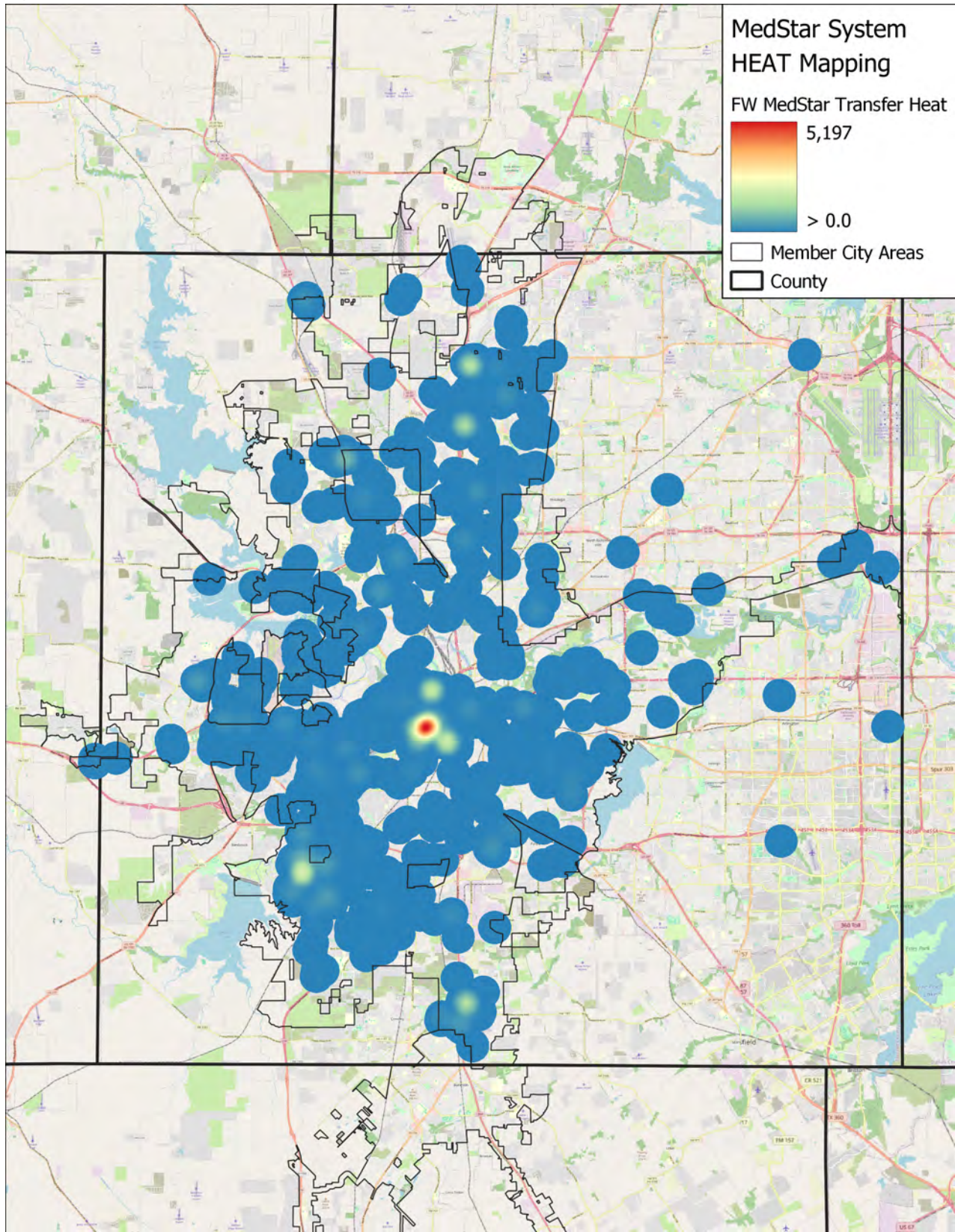


Figure 38: Heat Map for MIH Calls

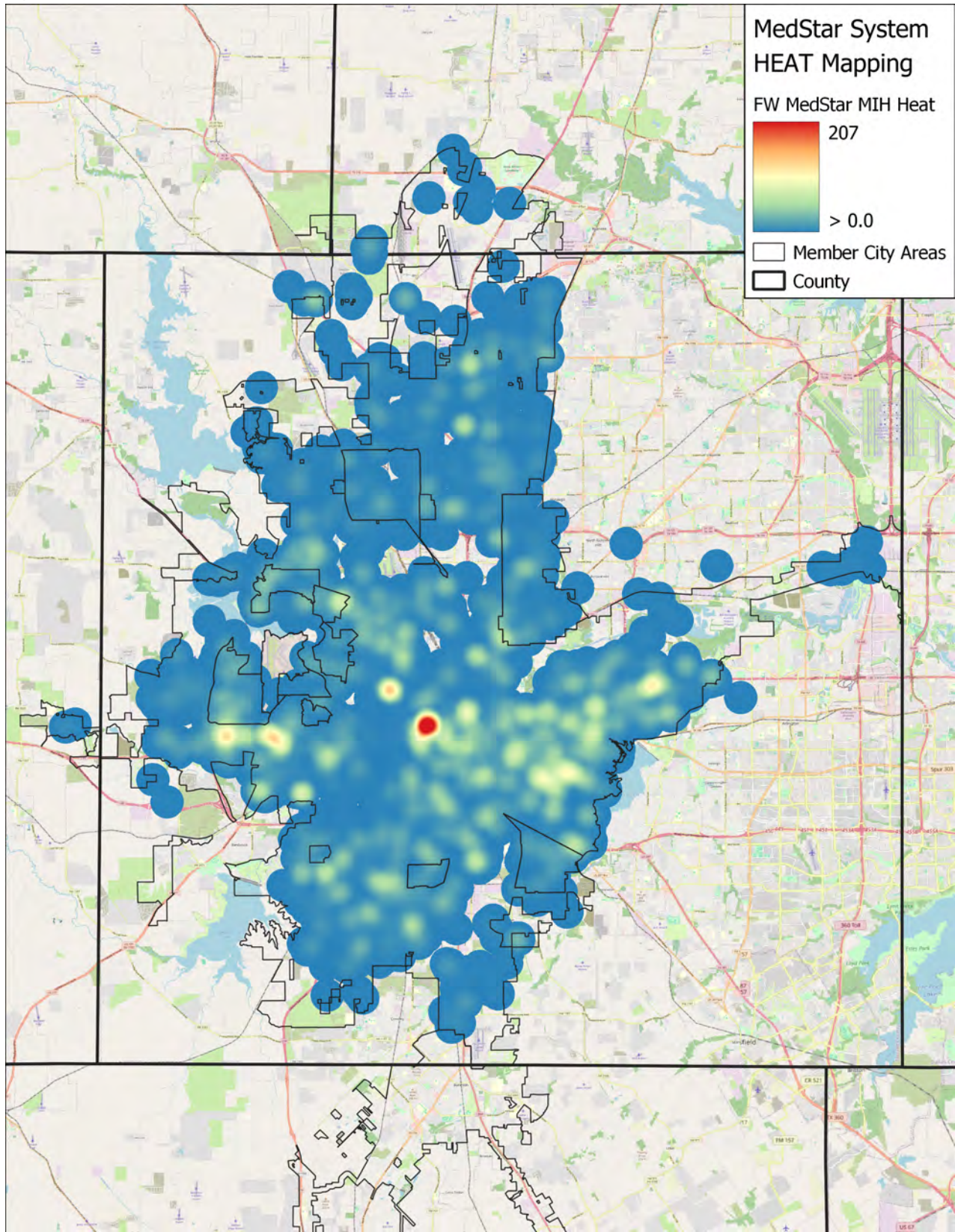
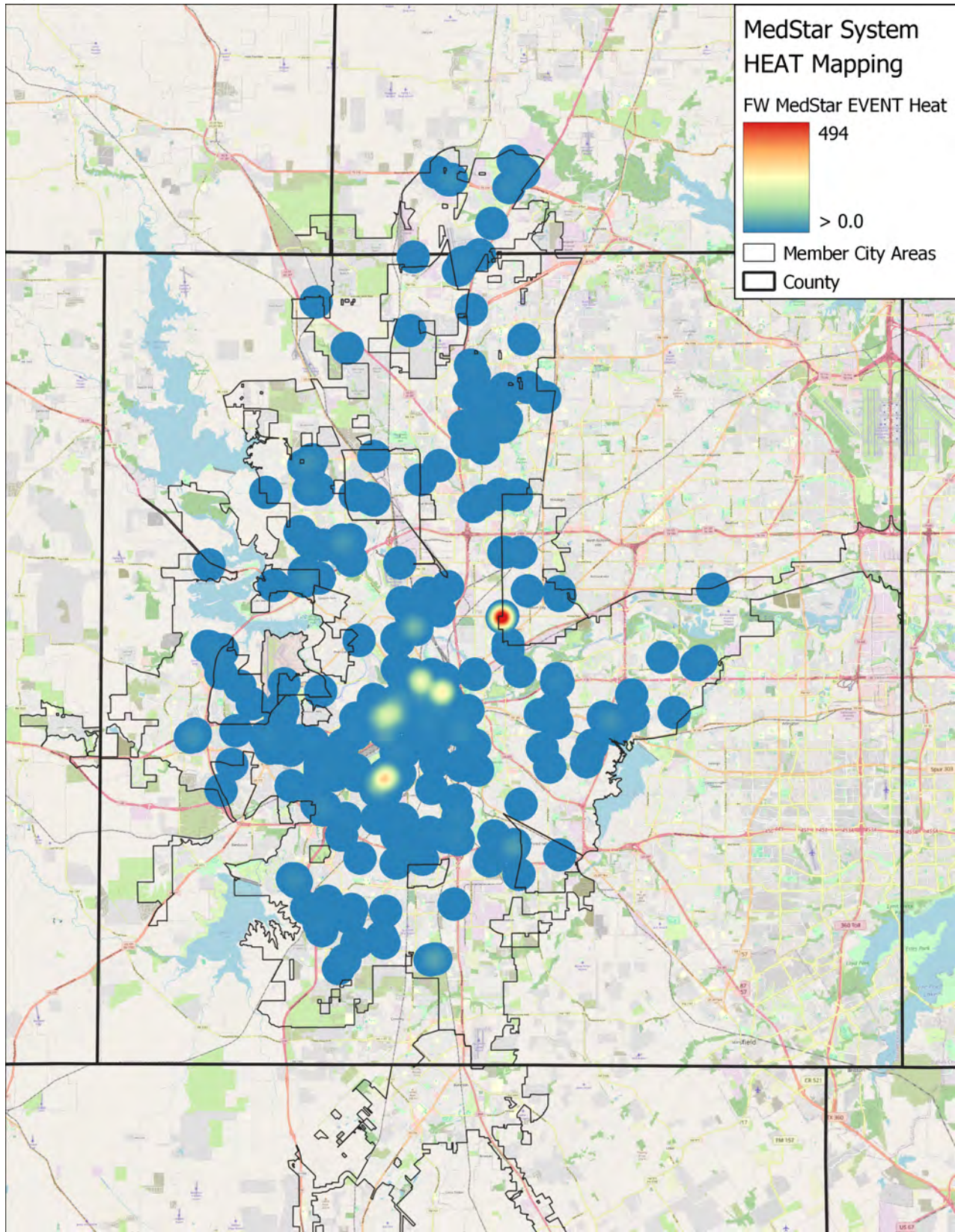
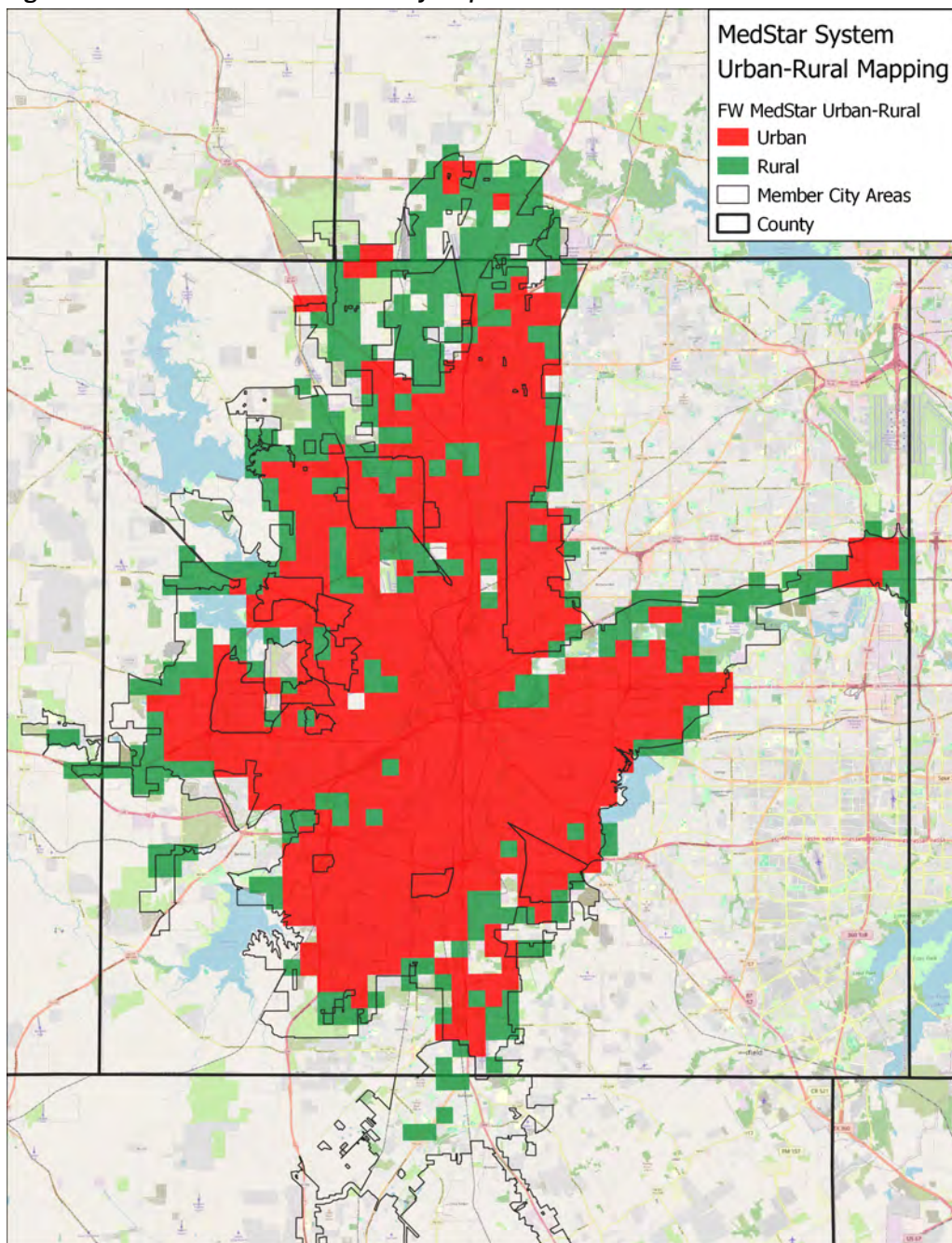


Figure 39: Heat Map for Special Events



Finally, we calculated call density based on the relative concentration of incidents based on approximately 0.5-mile geographic areas as well as the adjacent 0.5-mile areas. The results demonstrate an urban and rural designation based on call density for services and not based on population. The red areas are designated as urban service areas, and the green areas are designated as rural service areas. Any area that is not colored has less than one call every six months in the 0.5-mile area and the adjacent areas.

Figure 40: Urban and Rural Call Density Map



Long-Term Sustainability of the Models Presented

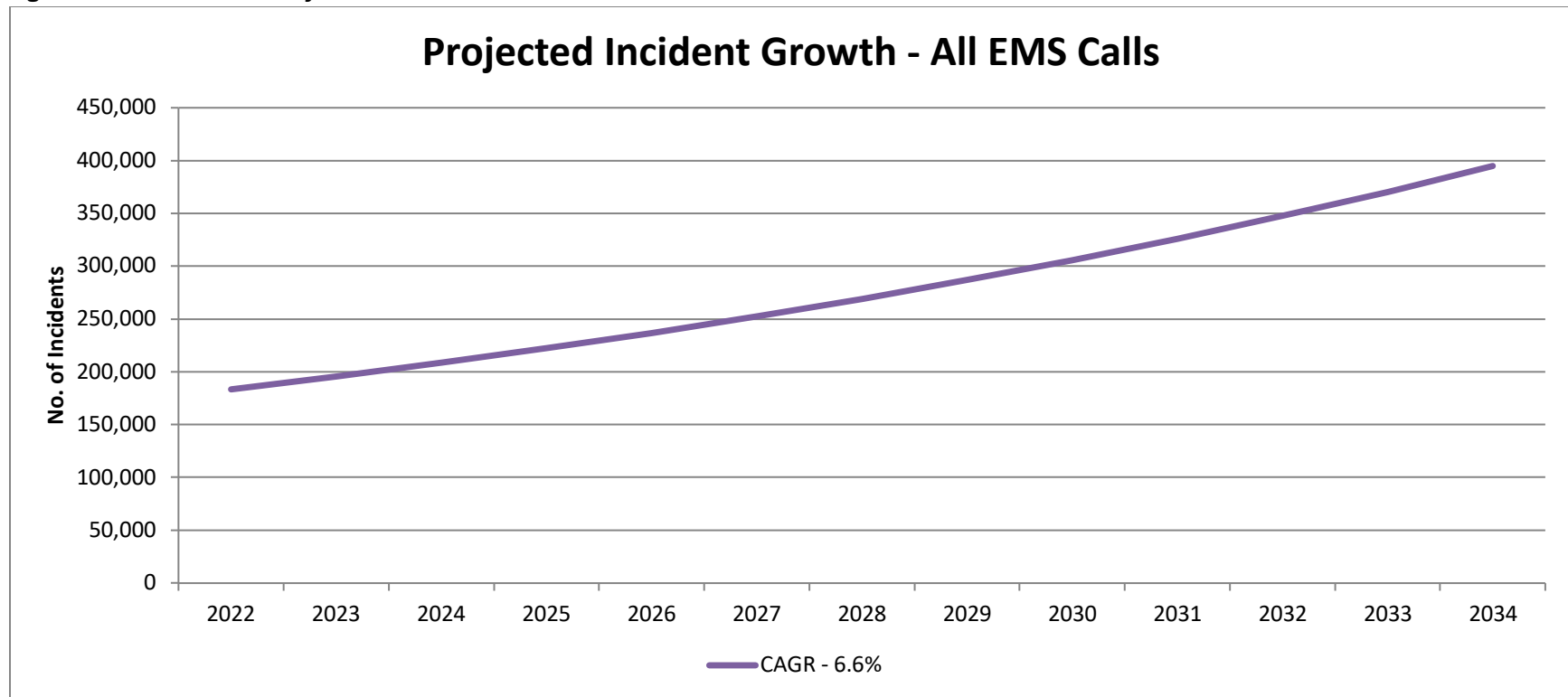
It is important to understand that the distribution models are restricted to the geographic limitations of the jurisdiction and the historical demand for services. Therefore, the number of stations/posts is descriptive of the number of fixed facilities and posting locations required from which to deploy resources. These analyses do not specifically describe the concentration of resources required at each fire station facility or post location to adequately handle the demand for services. For example, some stations/posts may require two or more units in order to handle the demand for services.

With respect to the long-term sustainability of the deployment models presented here, the models will remain accurate for as long as the jurisdiction's overall coverage area has not expanded. In other words, if the city's square mileage remains, then the deployment strategy will be sustainable indefinitely with respect to the coverage area. As other variables such as population density or socioeconomic status change over time, there may be a need for a higher concentration of resources necessary to meet the growing demand for services, but not additional stations. The most prominent reason that the geographic distribution model would need to be updated is for changes in traffic impedance that significantly limit the historical average travel speed. Monitoring travel time performance, system reliability, and call concurrency will provide timely feedback for changes in the environment that could impact the distribution model.

Projected Growth

The available data set included a two-year reporting period of data, representing FY 2021/22 to FY 2022/23. From FY 2021/21 to FY 2022/23, calls for EMS services increased from 183,320 to 195,506, with a compound annual growth rate (CAGR) of 6.6% per year. These projections should be used with caution due to the limited sample size. In all cases, data should be reviewed annually to ensure timely updates to projections and utilize a five-year rolling average.

Figure 41: Observed and Projected Growth in Call Volume



FITCH

& ASSOCIATES

January 2024

City of Fort Worth GIS Report



✉ PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎ (816) 431-2600

🖨 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

VISUALIZING THE MEDSTAR SYSTEM SERVICE AREA	1
Figure 1: MedStar Service Area - 2024	1
ESTABLISHING BASELINE PERFORMANCE	2
COMPARISON TO NATIONAL REFERENCES	3
EVALUATION OF VARIOUS DISTRIBUTION MODELS	4
FWFD STATION LOCATIONS – FORT WORTH 911 CALLS (NO IFT, MIH, AND EVENTS)	5
6-Minute Travel Time – 911 Calls	5
Table 2: FWFD Station Contribution for 6-Minute Travel Time – 911 Calls	5
Figure 2: FWFD Station Bleed Map for 6-Minute Travel Time – 911 Calls	6
8-Minute Travel Time – 911 Calls	7
Table 3: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls	7
Figure 3: Current FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls	7
10-Minute Travel Time – 911 Calls	8
Table 4: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls	8
Figure 4: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls	8
MEDSTAR POSTING LOCATIONS – FORT WORTH 911 CALLS (NO IFT, MIH, AND EVENTS)	9
6-Minute Travel Time – 911 Calls	9
Table 5: MedStar Post Contribution for 6-Minute Travel Time – 911 Calls	9
Figure 5: Current MedStar Posts Bleed Map for 6-Minute Travel Time – 911 Calls	10
8-Minute Travel Time – 911 Calls	11
Table 6: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls	11
Figure 6: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls	11
10-Minute Travel Time – 911 Calls	12
Table 7: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls	12
Figure 7: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls	12
OPTIMIZED POSTING LOCATIONS – FORT WORTH 911 CALLS (NO IFT, MIH, AND EVENTS)	13
6-Minute Travel Time – 911 Calls	13
Table 8: Optimized Post Contribution for 6-Minute Travel Time – 911 Calls	13
Figure 8: Optimized Posts Bleed Map for 6-Minute Travel Time – 911 Calls	14
8-Minute Travel Time – 911 Calls	15
Table 9: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls	15
Figure 9: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls	15
10-Minute Travel Time – 911 Calls	16
Table 10: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls	16
Figure 10: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls	16
FWFD STATION LOCATIONS – FORT WORTH 911 CALLS + IFT (NO MIH AND EVENTS)	17
6-Minute Travel Time – 911 Calls + IFT	17
Table 11: FWFD Station Contribution for 6-Minute Travel Time – 911 Calls + IFT	17
Figure 11: FWFD Station Bleed Map for 6-Minute Travel Time – 911 Calls + IFT	18
8-Minute Travel Time – 911 Calls + IFT	19
Table 12: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls + IFT	19
Figure 12: Current FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls + IFT	19
10-Minute Travel Time – 911 Calls	20

Table 13: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls + IFT	20
Figure 13: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls + IFT	20
MEDSTAR POSTING LOCATIONS – 911 CALLS + TRANSFERS (EXCLUDE MIH AND EVENTS)	21
<i>6-Minute Travel Time – 911 Calls + Transfers</i>	21
Table 14: MedStar Post Contribution for 6-Minute Travel Time – 911 Calls + Transfers	21
Figure 14: Current MedStar Posts Bleed Map for 6-Minute Travel Time – 911 Calls + Transfers	22
<i>8-Minute Travel Time – 911 Calls + Transfers</i>	23
Table 15: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers	23
Figure 15: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers	23
<i>10-Minute Travel Time – 911 Calls + Transfers</i>	24
Table 16: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers	24
Figure 16: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers	24
OPTIMIZED POSTING LOCATIONS – FORT WORTH 911 CALLS + TRANSFERS (NO MIH & EVENTS)	25
<i>6-Minute Travel Time – 911 Calls + Transfers</i>	25
Table 17: Optimized Post Contribution for 6-Minute Travel Time – 911 Calls + Transfers	25
Figure 17: Optimized Posts Bleed Map for 6-Minute Travel Time – 911 Calls + Transfers	26
<i>8-Minute Travel Time – 911 Calls + Transfers</i>	27
Table 18: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers	27
Figure 18: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers	27
<i>10-Minute Travel Time – 911 Calls + Transfers</i>	28
Table 19: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers	28
Figure 19: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers	28
FWFD STATION LOCATIONS – SYSTEM 911 CALLS (NO IFT, MIH, AND EVENTS)	29
<i>8-Minute Travel Time – 911 Calls</i>	29
Table 20: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls	29
Figure 20: FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls	29
<i>10-Minute Travel Time – System 911 Calls</i>	30
Table 21: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls	30
Figure 21: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls	30
<i>13-Minute Travel Time – System 911 Calls</i>	31
Table 22: FWFD Station Contribution for 13-Minute Travel Time – 911 Calls	31
Figure 22: Current FWFD Station Bleed Map for 13-Minute Travel Time – 911 Calls	31
<i>15-Minute Travel Time – System 911 Calls</i>	32
Table 23: FWFD Station Contribution for 15-Minute Travel Time – 911 Calls	32
Figure 23: Current FWFD Station Bleed Map for 15-Minute Travel Time – 911 Calls	32
MEDSTAR POSTING LOCATIONS – SYSTEM 911 CALLS (NO IFT, MIH, AND EVENTS)	33
<i>8-Minute Travel Time – 911 Calls</i>	33
Table 24: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls	33
Figure 24: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls	33
<i>10-Minute Travel Time – System 911 Calls</i>	34
Table 25: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls	34
Figure 25: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls	34
<i>13-Minute Travel Time – System 911 Calls</i>	35
Table 26: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls	35
Figure 26: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls	35
<i>15-Minute Travel Time – System 911 Calls</i>	36
Table 27: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls	36
Figure 27: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls	36
OPTIMIZED POSTING LOCATIONS – SYSTEM 911 CALLS (NO IFT, MIH, AND EVENTS)	37

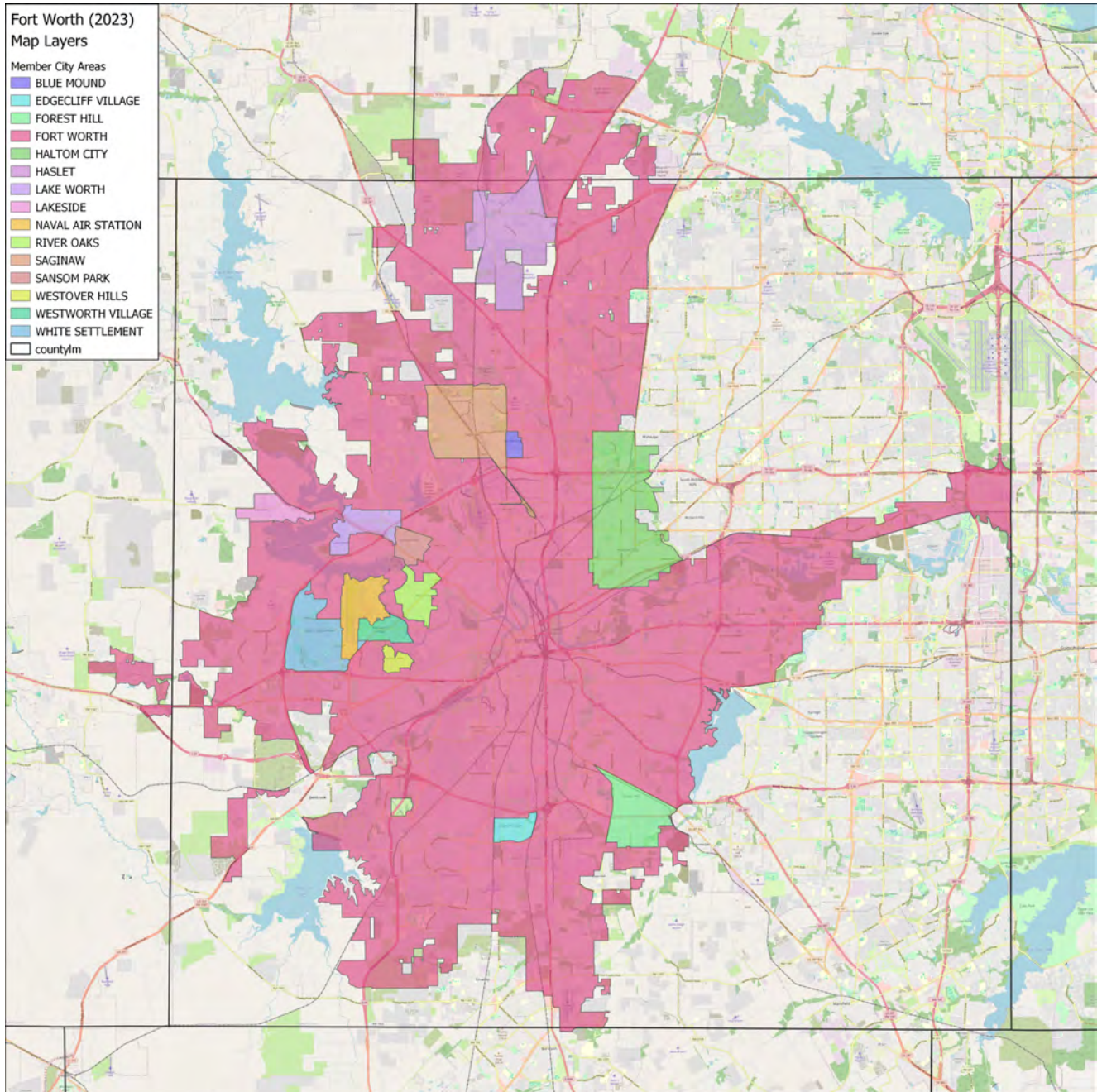
<i>8-Minute Travel Time – System 911 Calls</i>	37
Table 28: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls	37
Figure 28: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls	37
<i>10-Minute Travel Time – System 911 Calls</i>	38
Table 29: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls	38
Figure 29: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls	38
<i>13-Minute Travel Time – System 911 Calls</i>	39
Table 30: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls	39
Figure 30: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls	39
<i>15-Minute Travel Time – System 911 Calls</i>	40
Table 31: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls	40
Figure 31: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls	40
FWFD STATION LOCATIONS – SYSTEM 911 CALLS + IFT (NO MIH AND EVENTS)	41
<i>8-Minute Travel Time – System 911 Calls + IFT</i>	41
Table 32: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls + IFT	41
Figure 32: Current FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls + IFT	41
<i>10-Minute Travel Time – System 911 Calls + IFT</i>	42
Table 33: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls + IFT	42
Figure 33: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls + IFT	42
<i>13-Minute Travel Time – System 911 Calls + IFT</i>	43
Table 34: FWFD Station Contribution for 13-Minute Travel Time – 911 Calls + IFT	43
Figure 34: Current FWFD Station Bleed Map for 13-Minute Travel Time – 911 Calls + IFT	43
<i>15-Minute Travel Time – System 911 Calls + IFT</i>	44
Table 35: FWFD Station Contribution for 15-Minute Travel Time – 911 Calls + IFT	44
Figure 35: Current FWFD Station Bleed Map for 15-Minute Travel Time – 911 Calls + IFT	44
MEDSTAR POSTING LOCATIONS – SYSTEM 911 CALLS + TRANSFERS (NO MIH AND EVENTS)	45
<i>8-Minute Travel Time – System 911 Calls + Transfers</i>	45
Table 36: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers	45
Figure 36: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers	45
<i>10-Minute Travel Time – System 911 Calls + Transfers</i>	46
Table 37: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers	46
Figure 37: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers	46
<i>13-Minute Travel Time – System 911 Calls + Transfers</i>	47
Table 38: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers	47
Figure 38: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers	47
<i>15-Minute Travel Time – System 911 Calls + Transfers</i>	48
Table 39: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers	48
Figure 39: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers	48
OPTIMIZED POSTING LOCATIONS – SYSTEM 911 CALLS + TRANSFERS (NO MIH & EVENTS)	49
<i>8-Minute Travel Time – System 911 Calls + Transfers</i>	49
Table 40: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers	49
Figure 40: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers	49
<i>10-Minute Travel Time – System 911 Calls + Transfers</i>	50
Table 41: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers	50
Figure 41: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers	50
<i>13-Minute Travel Time – System 911 Calls + Transfers</i>	51
Table 42: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers	51
Figure 42: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers	51
<i>15-Minute Travel Time – System 911 Calls + Transfers</i>	52

Table 43: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers	52
Figure 43: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers	52
DISTRIBUTION OF RISK ACROSS THE JURISDICTION	53
DISTRIBUTION OF DEMAND BY PROGRAM AREAS	53
Figure 44: Heat Map for All Calls	53
Figure 45: Heat Map for EMS 911 Calls	54
Figure 46: Heat Map for 911 + Transfer Calls	55
Figure 47: Heat Map for Transfer Calls	56
Figure 48: Heat Map for MIH Calls	57
Figure 49: Heat Map for Special Events	58
Figure 50: Urban and Rural Call Density Map	59
LONG-TERM SUSTAINABILITY OF THE MODELS PRESENTED	60
PROJECTED GROWTH	61
Figure 51: Observed and Projected Growth in Call Volume	61

VISUALIZING THE MEDSTAR SYSTEM SERVICE AREA

The MedStar System includes the following member cities and jurisdictions reflected on the figure below. All analyses will include all calls and the geographic limitations associated with the entirety of the MedStar service area. Since Burleson is no longer part of the system after October 1, 2023, the assessment eliminated their calls and geographic requirements.

Figure 1: MedStar Service Area - 2024



ESTABLISHING BASELINE PERFORMANCE

The first step in completing GIS planning analyses is to establish the desired performance parameters. Measures of total response time can be significantly influenced by both internal and external influences. For example, the dispatch time, defined as the time from call creation at the 911-center to the dispatching of units, contributes to the customer’s overall response time experience. Another element in the total response time continuum is the turnout time, defined as the time from when the units are notified of the incident until they are actually responding. Turnout time can have a significant impact on the overall response time for the customer and is generally considered under management’s control. However, the travel time, defined as the period from when the units are actually responding until arrival at the incident is the efficacy of the posting plan, the ability to travel unimpeded on the road network, the existing road network’s ability to navigate the community, and the availability of the units. Largely, travel time is the most stable variable to utilize in system design regarding response time performance.

Therefore, these GIS planning analyses will focus on travel time capability as the unit of measure. Performance for travel time of first arriving MedStar units to emergency calls during the 2022/2023 reporting period (i.e., October 1, 2022, September 30, 2023) is provided below. Overall, travel time was **13.5** or less for 90% of the incidents with an emergency response within the City of Fort Worth only. At this stage in the process, this value includes all emergency responses and emergency transfers, and was not restricted to Priority 1 and 2 incidents. More detailed analyses will be provided in subsequent updates.

Table 1: 90th Percentile Performance Times by Response Protocol and Call Type – Calls with Arrivals in MAEMSA+NAS Jurisdiction

Reporting Period	Call Type by Response Protocol	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size ¹
2021-22	Emergency	2.1	0.4	13.4	14.7	56,213
	911	1.5	0.4	13.4	14.5	50,515
	Transfer	3.4	0.5	13.0	15.8	5,698
	Non-Emergency	3.2	0.6	17.2	20.2	98,689
	911	2.9	0.4	15.5	18.6	79,506
	Transfer	5.7	1.2	24.6	26.8	19,183
	Total	2.6	0.5	15.8	18.2	154,925
2022-23	Emergency	2.3	0.4	13.5	15.1	58,997
	911	1.8	0.4	13.5	14.9	52,306
	Transfer	3.6	0.5	13.3	16.3	6,691
	Non-Emergency	4.6	0.6	18.5	23.0	102,068
	911	3.0	0.4	17.3	20.5	79,791
	Transfer	15.5	1.0	22.8	34.8	22,277
	Total	3.3	0.5	16.7	20.2	161,077

¹Sample sizes reflect the number of calls; due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Comparison to National References

There are two notable references for travel time available to the fire service in National Fire Protection Association (NFPA) 1710¹ and the Commission on Fire Accreditation International (CFAI)². NFPA 1710 suggests a 4-minute travel time at the 90th percentile for first due arrival of Basic Life Support (BLS) and fire incidents, and the CFAI recommends a 5 minute and 12 seconds travel time for first due arrival in an urban/suburban population density. The arrival of an Advanced Life Support (ALS) unit is recommended at 8 minutes travel time by NFPA 1710. It is important to note that the latest editions of the CFAI guidelines have de-emphasized response time and only reference the legacy standards with a separately provided companion document³.

The peer reviewed evidenced-based research suggests that the response time of 5 minutes or less has the greatest impact of the risk of mortality in a subgroup of calls with a high-risk of mortality. In these studies, it was commonly found that the risk of mortality did not materially change between 6-minutes and 12-minutes. In other words, establishing desired performance is largely a local policy choice because the relative return on investment is non-linear across all performance windows.

When referring to the marginal utility analyses provided in the tables on the following pages, ascending rank order is the station's capability to cover risk (incidents) for all calls in relation to the total historical call volume of the sample period (2022/2023). Station or Post is the identifier for the current FWFD station or MedStar post; station/post capture is the number of calls the station would capture within the specified travel time parameter; total capture is the cumulative number of calls captured with the addition of each station/post; and percent capture is the cumulative percentage of risk covered with the addition of each station or post location.

The goal would be to achieve at least 90% capture. Figures depict drive time mapping.

¹ National Fire Protection Association. (2010). 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*. Boston, MA: National Fire Protection Association.

² CFAI. (2009). *Fire & emergency service self-assessment manual*, (8th ed.). Chantilly, Virginia: Author. (page 71)

³ CFAI. (2016). *Fire & emergency service self-assessment manual*, (9th ed.). Chantilly, Virginia: Author.

EVALUATION OF VARIOUS DISTRIBUTION MODELS

As previously discussed, these analyses utilized 2022/2023 historical performance as the desired performance for system design. Various configurations of 8- to 20-minute travel times were completed to consider alternatives compared to the current performance of 13.5 minutes travel time at the 90th percentile.

Analyses are presented as follows:

1. City of Fort Worth 911 Incidents at 6, 8, and 10 minutes from City fire stations.
2. City of Fort Worth 911 Incidents at 6, 8, and 10 minutes from MedStar city posts.
3. City of Fort Worth 911 Incidents optimized posts at 6, 8, and 10 minutes.
4. City of Fort Worth 911 Incidents + Transfers at 6, 8, and 10 minutes from City fire stations.
5. City of Fort Worth 911 Incidents + Transfers at 6, 8, and 10 minutes from MedStar city posts.
6. City of Fort Worth 911 Incidents + Transfers optimized posts at 6, 8, and 10 minutes.
7. Fort Worth fire stations for 911 incidents at 8-, 10-, 13-, and 15 minutes in MAEMSA jurisdiction.
8. Fort Worth MedStar posts for 911 incidents at 8-, 10-, 13-, and 15 minutes in MAEMSA jurisdiction.
9. Fort Worth Optimized posts for 911 incidents at 8-, 10-, 13-, and 15 minutes in MAEMSA jurisdiction.
10. Fort Worth fire stations for 911 incidents + Transfers at 8-, 10-, 13-, and 15 minutes in MAEMSA jurisdiction.
11. Fort Worth MedStar posts for 911 incidents + Transfers at 8-, 10-, 13-, and 15 minutes in MAEMSA jurisdiction.
12. Fort Worth Optimized posts for 911 incidents + Transfers at 8-, 10-, 13-, and 15 minutes in MAEMSA jurisdiction.

Analyses are offered to compare the various potential distribution models.

FWFD Station Locations – Fort Worth 911 Calls (No IFT, MIH, and Events)

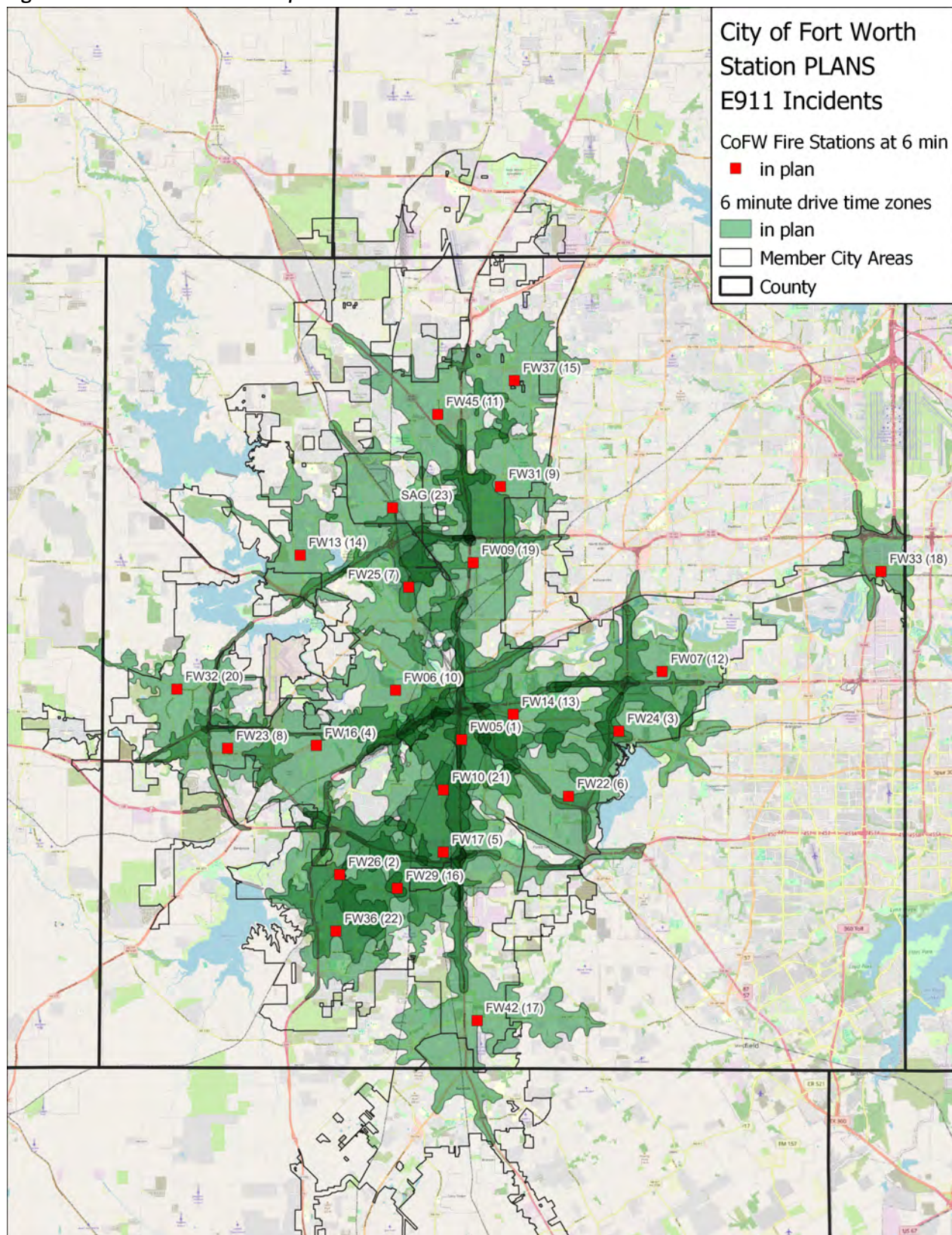
6-Minute Travel Time – 911 Calls

Results suggest that 22 prioritized stations can respond to approximately 90% of the 911 calls within 6 minutes or less travel time.

Table 2: FWFD Station Contribution for 6-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	6	30,643	30,643	22.70%
2	FW26	6	13,001	43,644	32.34%
3	FW24	6	12,647	56,291	41.71%
4	FW16	6	9,173	65,464	48.50%
5	FW17	6	8,030	73,494	54.45%
6	FW22	6	6,424	79,918	59.21%
7	FW25	6	5,900	85,818	63.58%
8	FW23	6	4,912	90,730	67.22%
9	FW31	6	4,549	95,279	70.59%
10	FW06	6	3,691	98,970	73.33%
11	FW45	6	2,968	101,938	75.53%
12	FW07	6	2,951	104,889	77.71%
13	FW14	6	2,154	107,043	79.31%
14	FW13	6	2,086	109,129	80.85%
15	FW37	6	1,908	111,037	82.27%
16	FW29	6	1,663	112,700	83.50%
17	FW42	6	1,611	114,311	84.69%
18	FW33	6	1,597	115,908	85.88%
19	FW09	6	1,456	117,364	86.96%
20	FW32	6	1,368	118,732	87.97%
21	FW10	6	1,348	120,080	88.97%
22	FW36	6	1,055	121,135	89.75%
23	SAG	6	901	122,036	90.42%

Figure 2: FWFD Station Bleed Map for 6-Minute Travel Time - 911 Calls



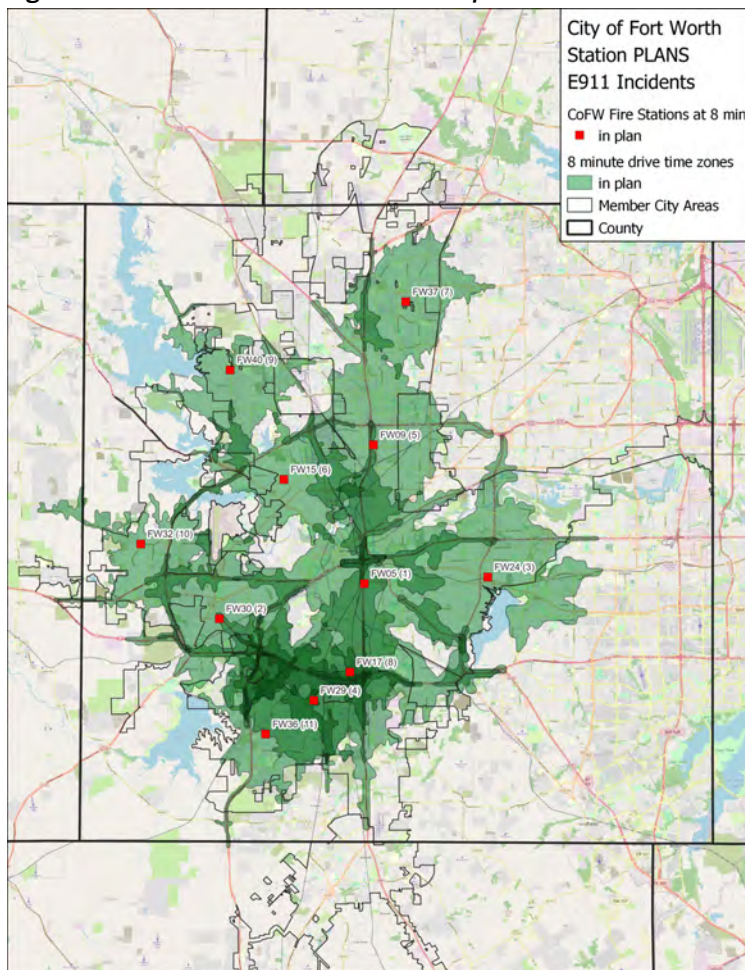
8-Minute Travel Time – 911 Calls

Results suggest that 11 priority stations can respond to 90.26% of the 911 calls within 8 minutes or less travel time.

Table 3: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	8	47,100	47,100	34.90%
2	FW30	8	19,477	66,577	49.33%
3	FW24	8	16,626	83,203	61.65%
4	FW29	8	10,697	93,900	69.57%
5	FW09	8	9,508	103,408	76.62%
6	FW15	8	5,940	109,348	81.02%
7	FW37	8	4,189	113,537	84.12%
8	FW17	8	2,588	116,125	86.04%
9	FW40	8	2,052	118,177	87.56%
10	FW32	8	1,881	120,058	88.95%
11	FW36	8	1,768	121,826	90.26%

Figure 3: Current FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls



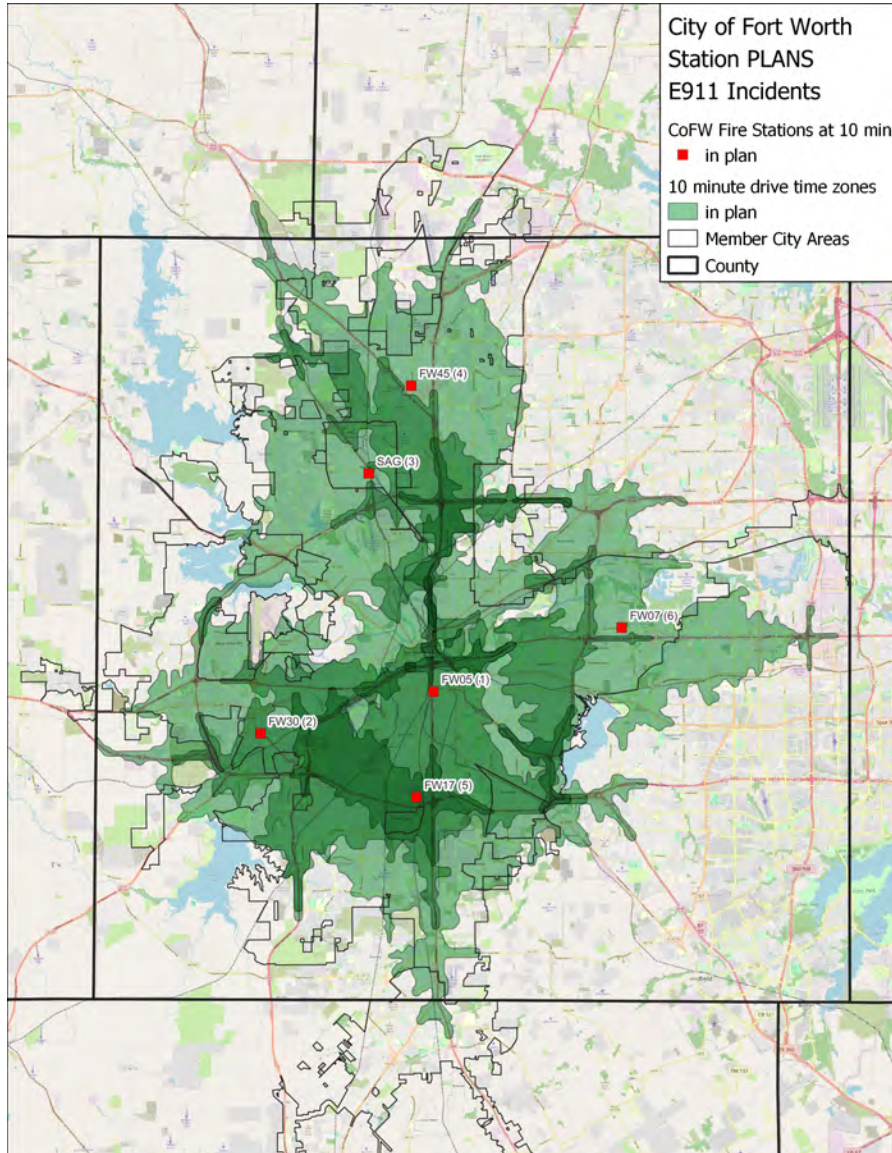
10-Minute Travel Time – 911 Calls

Results suggest that six prioritized fire stations can respond to 92.3% of the 911 calls within 10 minutes or less travel time.

Table 4: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	10	76,397	76,397	56.60%
2	FW30	10	18,039	94,436	69.97%
3	SAG	10	10,872	105,308	78.02%
4	FW45	10	7,008	112,316	83.22%
5	FW17	10	6,300	118,616	87.88%
6	FW07	10	5,958	124,574	92.30%

Figure 4: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls



MedStar Posting Locations – Fort Worth 911 Calls (No IFT, MIH, and Events)

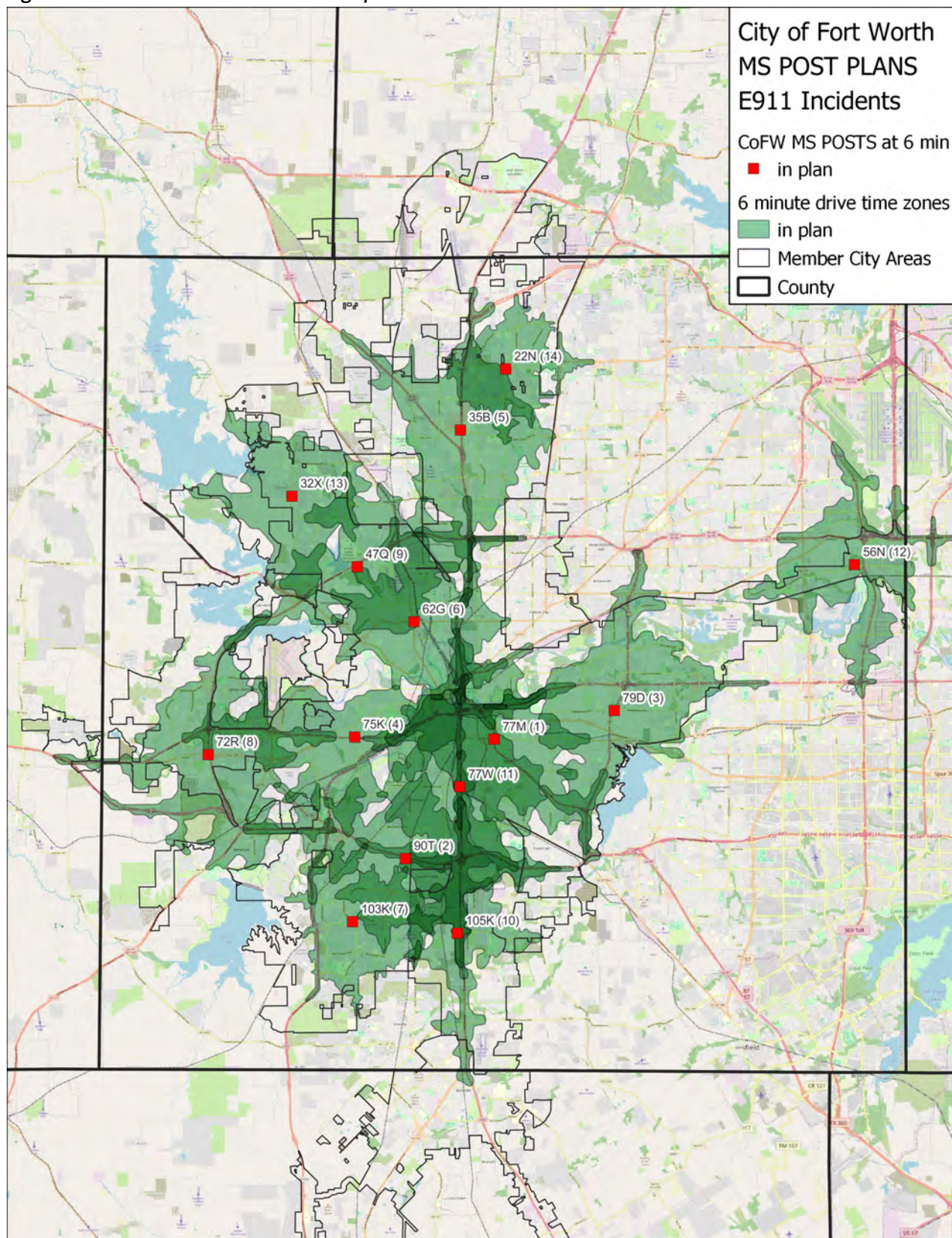
6-Minute Travel Time – 911 Calls

Results suggest that 14 priority posts can respond to 90.89% of the 911 calls within 6 minutes or less travel time.

Table 5: MedStar Post Contribution for 6-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77M	6	37,714	37,714	27.94%
2	90T	6	19,369	57,083	42.29%
3	79D	6	14,301	71,384	52.89%
4	75K	6	12,388	83,772	62.07%
5	35B	6	8,616	92,388	68.45%
6	62G	6	8,306	100,694	74.60%
7	103K	6	5,335	106,029	78.56%
8	72R	6	4,692	110,721	82.03%
9	47Q	6	2,751	113,472	84.07%
10	105K	6	2,171	115,643	85.68%
11	77W	6	1,947	117,590	87.12%
12	56N	6	1,830	119,420	88.48%
13	32X	6	1,778	121,198	89.80%
14	22N	6	1,482	122,680	90.89%

Figure 5: Current MedStar Posts Bleed Map for 6-Minute Travel Time – 911 Calls



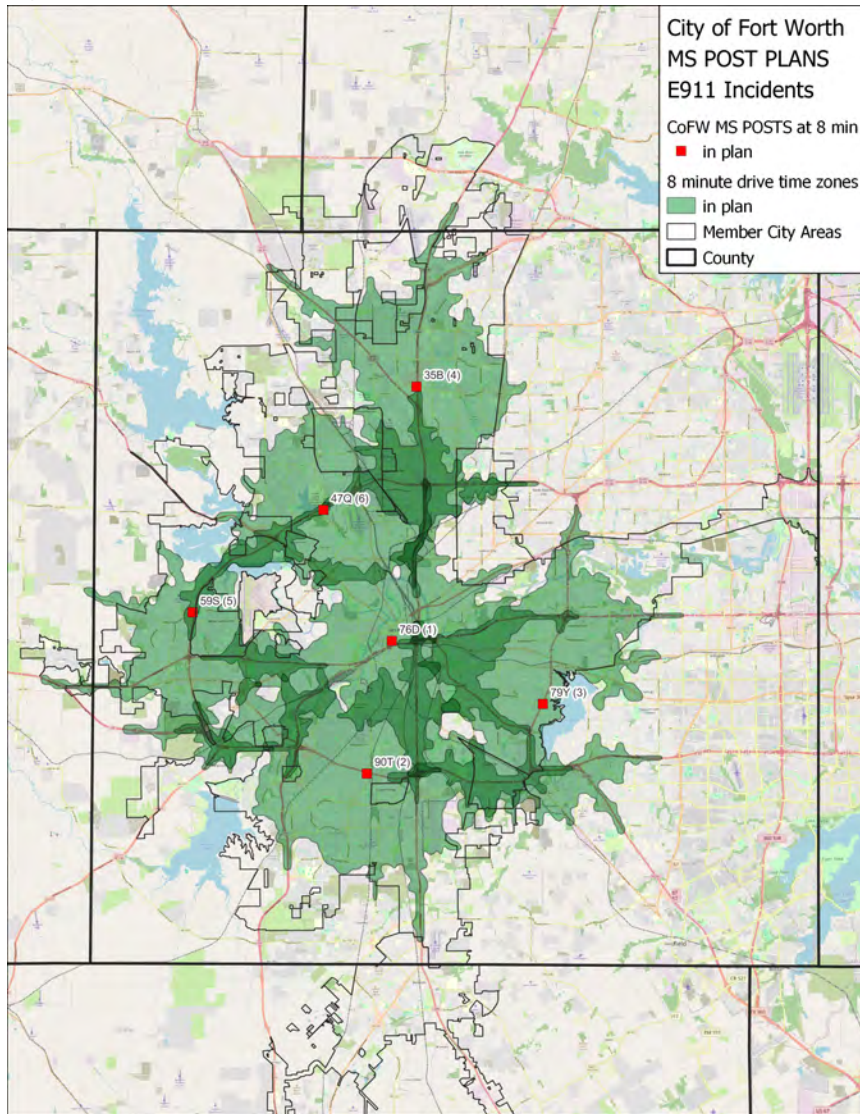
8-Minute Travel Time – 911 Calls

Results suggest that six priority posts can respond to 90.54% of the 911 calls within 8 minutes or less travel time.

Table 6: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	8	54,156	54,156	40.12%
2	90T	8	24,997	79,153	58.64%
3	79Y	8	17,534	96,687	71.64%
4	35B	8	11,184	107,871	79.92%
5	59S	8	7,991	115,862	85.84%
6	47Q	8	6,345	122,207	90.54%

Figure 6: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls



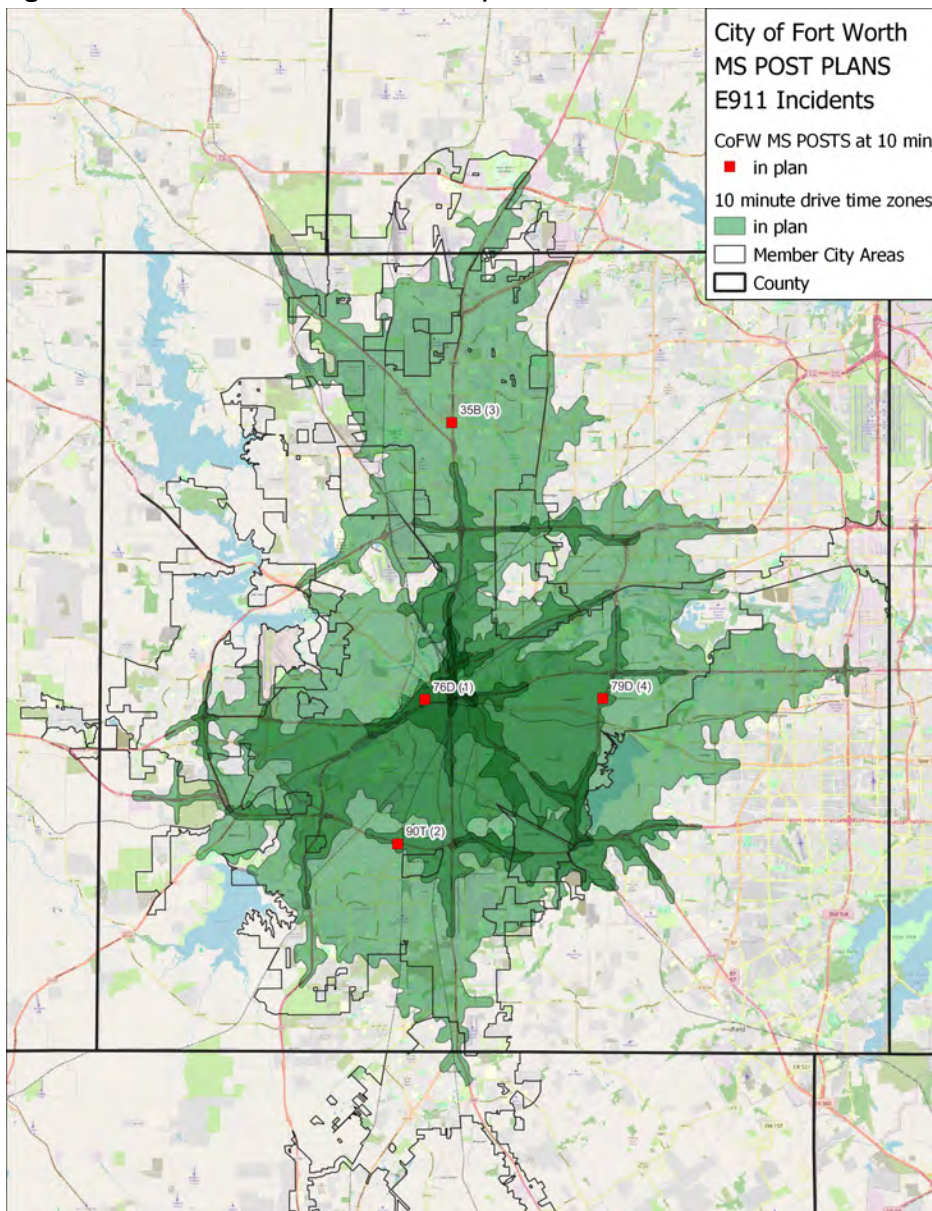
10-Minute Travel Time – 911 Calls

Results suggest that four prioritized posts can respond to 90.51% of the 911 calls within 10 minutes or less travel time.

Table 7: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	10	84,885	84,885	62.89%
2	90T	10	19,212	104,097	77.13%
3	35B	10	12,333	116,430	86.26%
4	79D	10	5,730	122,160	90.51%

Figure 7: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls



Optimized Posting Locations – Fort Worth 911 Calls (No IFT, MIH, and Events)

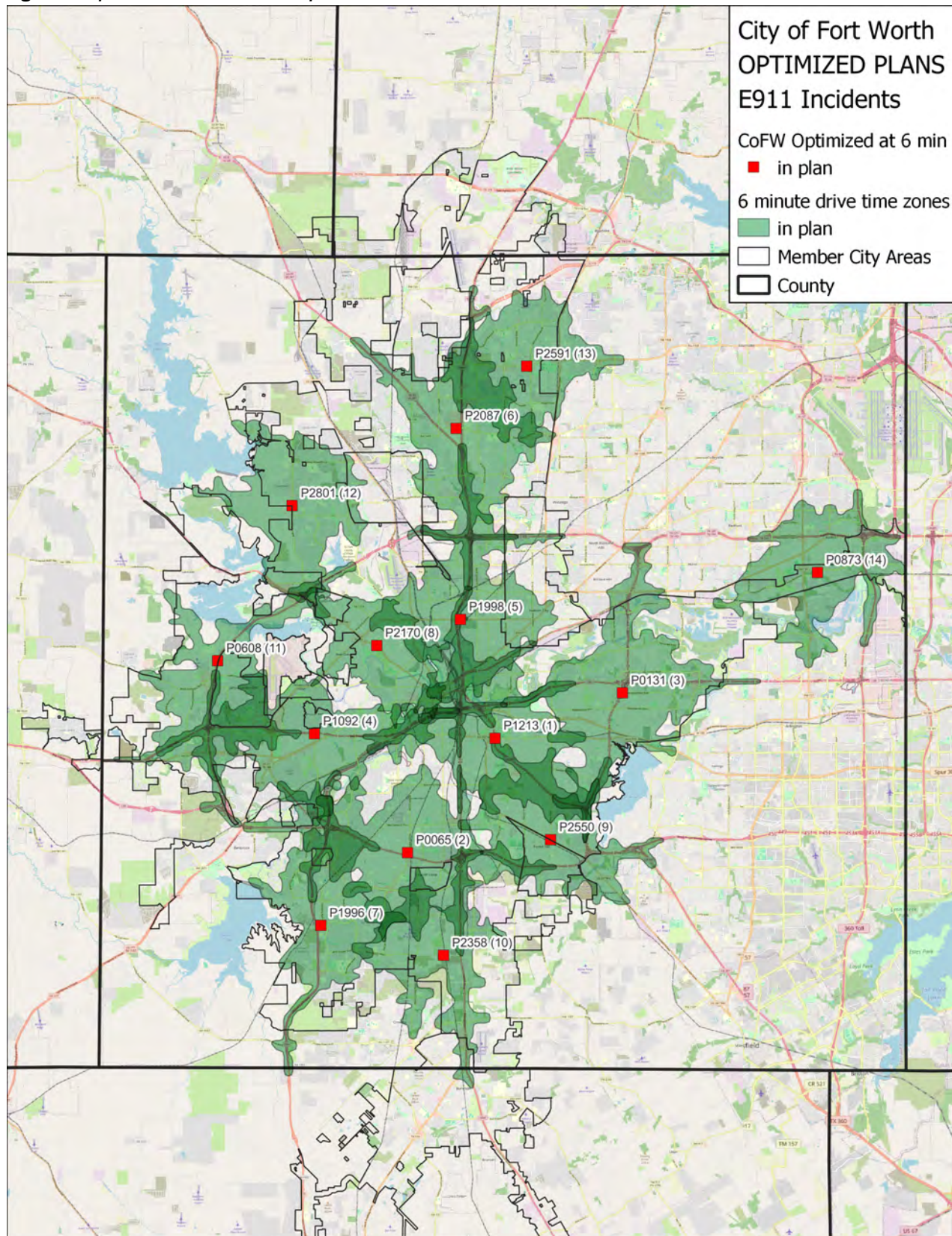
6-Minute Travel Time – 911 Calls

Results suggest that 14 priority posts can respond to 90.81% of the 911 calls within 6 minutes or less travel time.

Table 8: Optimized Post Contribution for 6-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1213	6	35,433	35,433	26.25%
2	P0065	6	18,363	53,796	39.86%
3	P0131	6	13,974	67,770	50.21%
4	P1092	6	12,627	80,397	59.57%
5	P1998	6	8,416	88,813	65.80%
6	P2087	6	6,292	95,105	70.46%
7	P1996	6	5,894	100,999	74.83%
8	P2170	6	4,638	105,637	78.27%
9	P2550	6	4,013	109,650	81.24%
10	P2358	6	3,265	112,915	83.66%
11	P0608	6	3,225	116,140	86.05%
12	P2801	6	2,668	118,808	88.03%
13	P2591	6	1,914	120,722	89.44%
14	P0873	6	1,844	122,566	90.81%

Figure 8: Optimized Posts Bleed Map for 6-Minute Travel Time - 911 Calls



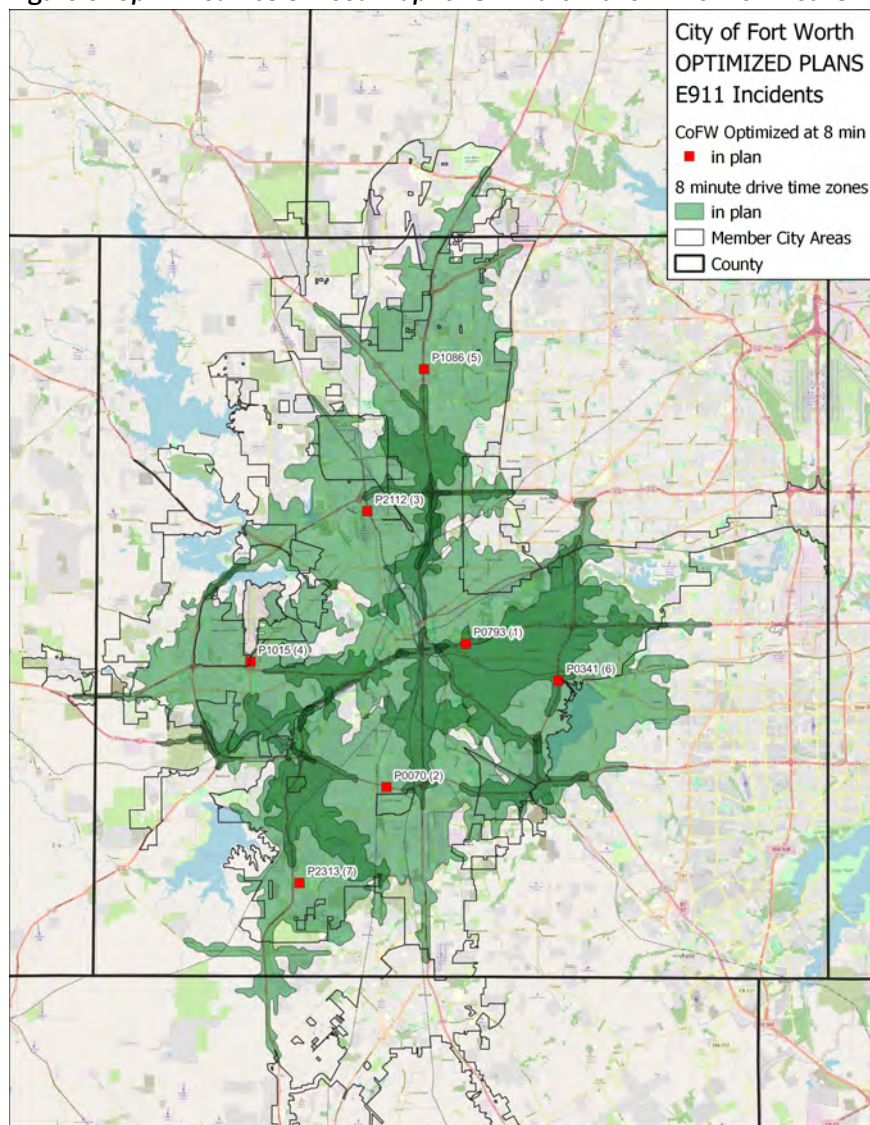
8-Minute Travel Time – 911 Calls

Results suggest that seven priority posts can respond to 90.81% of the 911 calls within 8 minutes or less travel time.

Table 9: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P0793	8	56,369	56,369	41.76%
2	P0070	8	26,177	82,546	61.16%
3	P2112	8	11,996	94,542	70.05%
4	P1015	8	11,562	106,104	78.61%
5	P1086	8	7,137	113,241	83.90%
6	P0341	8	6,791	120,032	88.93%
7	P2313	8	2,541	122,573	90.81%

Figure 9: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls



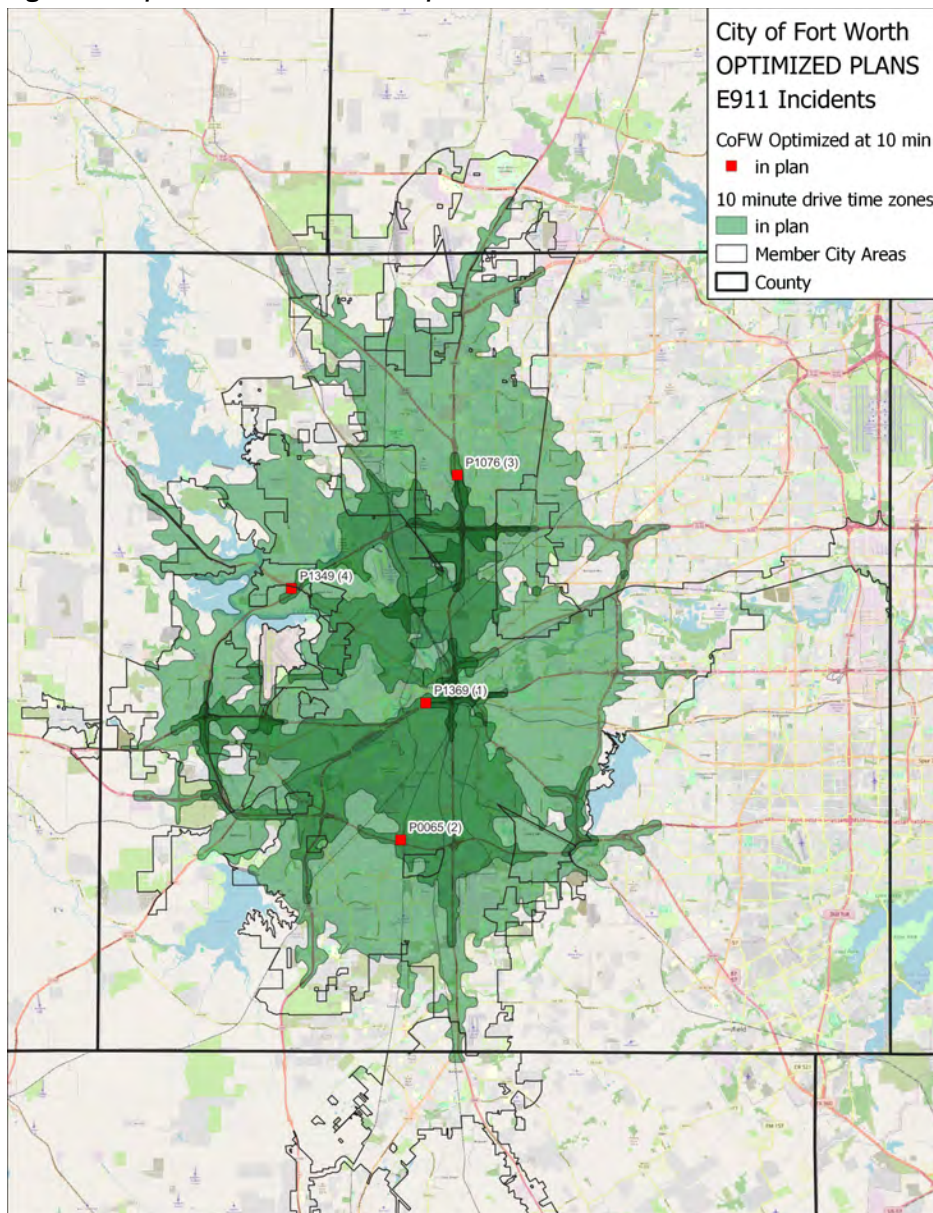
10-Minute Travel Time – 911 Calls

Results suggest that four prioritized posts can respond to 90.74% of the 911 calls within 10 minutes or less travel time.

Table 10: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	10	85,644	85,644	63.45%
2	P0065	10	18,334	103,978	77.04%
3	P1076	10	11,477	115,455	85.54%
4	P1349	10	7,018	122,473	90.74%

Figure 10: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls



FWFD Station Locations – Fort Worth 911 Calls + IFT (No MIH and Events)

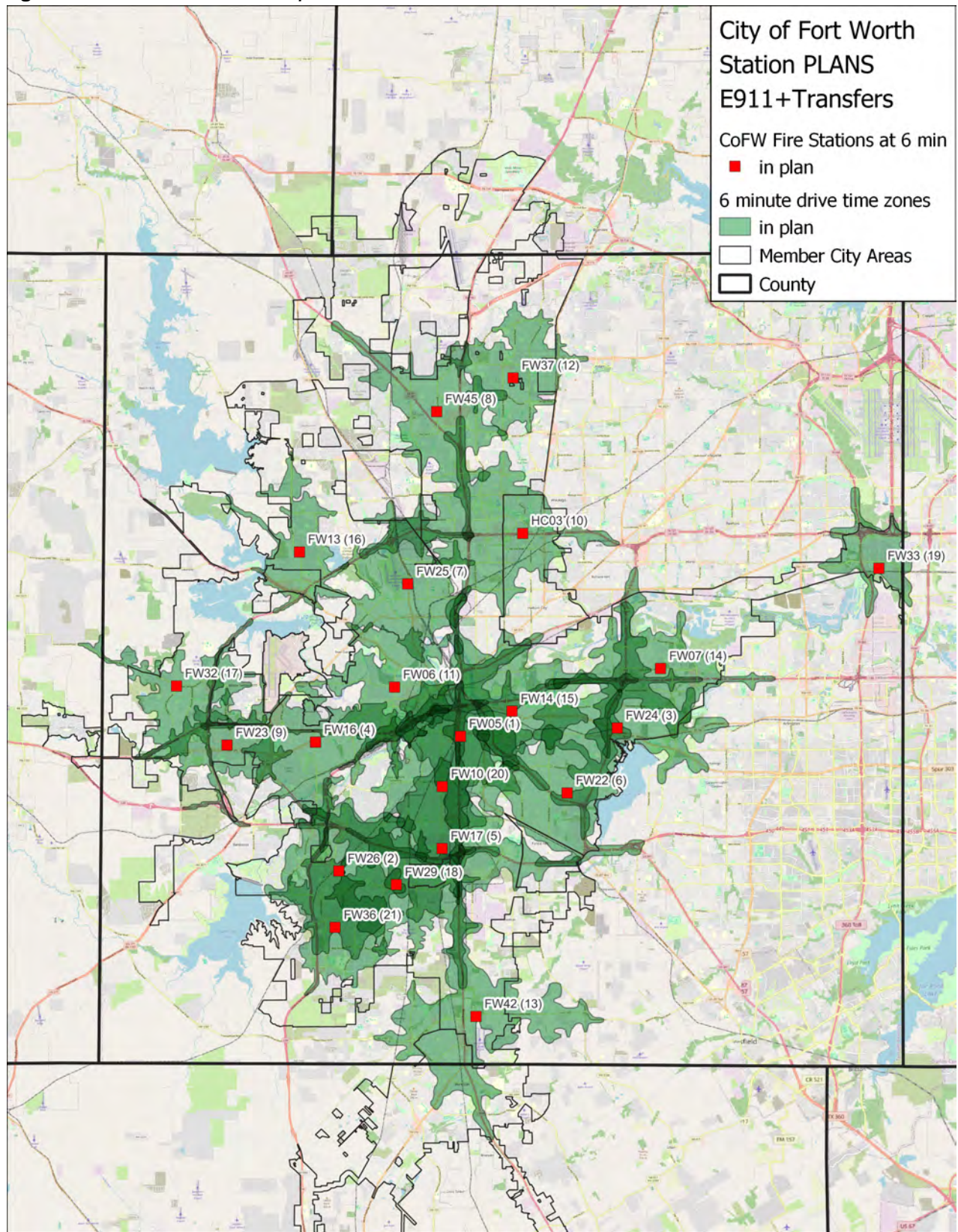
6-Minute Travel Time – 911 Calls + IFT

Results suggest that 21 prioritized stations can respond to approximately 90% of the 911 + IFT calls within 6 minutes or less travel time.

Table 11: FWFD Station Contribution for 6-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	6	42,602	42,602	26.27%
2	FW26	6	17,789	60,391	37.24%
3	FW24	6	12,975	73,366	45.24%
4	FW16	6	10,173	83,539	51.51%
5	FW17	6	8,579	92,118	56.80%
6	FW22	6	6,635	98,753	60.89%
7	FW25	6	6,499	105,252	64.90%
8	FW45	6	5,334	110,586	68.19%
9	FW23	6	4,925	115,511	71.22%
10	HC03	6	4,048	119,559	73.72%
11	FW06	6	3,889	123,448	76.12%
12	FW37	6	3,817	127,265	78.47%
13	FW42	6	3,553	130,818	80.66%
14	FW07	6	2,995	133,813	82.51%
15	FW14	6	2,413	136,226	84.00%
16	FW13	6	2,182	138,408	85.34%
17	FW32	6	1,730	140,138	86.41%
18	FW29	6	1,666	141,804	87.44%
19	FW33	6	1,612	143,416	88.43%
20	FW10	6	1,471	144,887	89.34%
21	FW36	6	1,079	145,966	90.00%

Figure 11: FWFD Station Bleed Map for 6-Minute Travel Time - 911 Calls + IFT



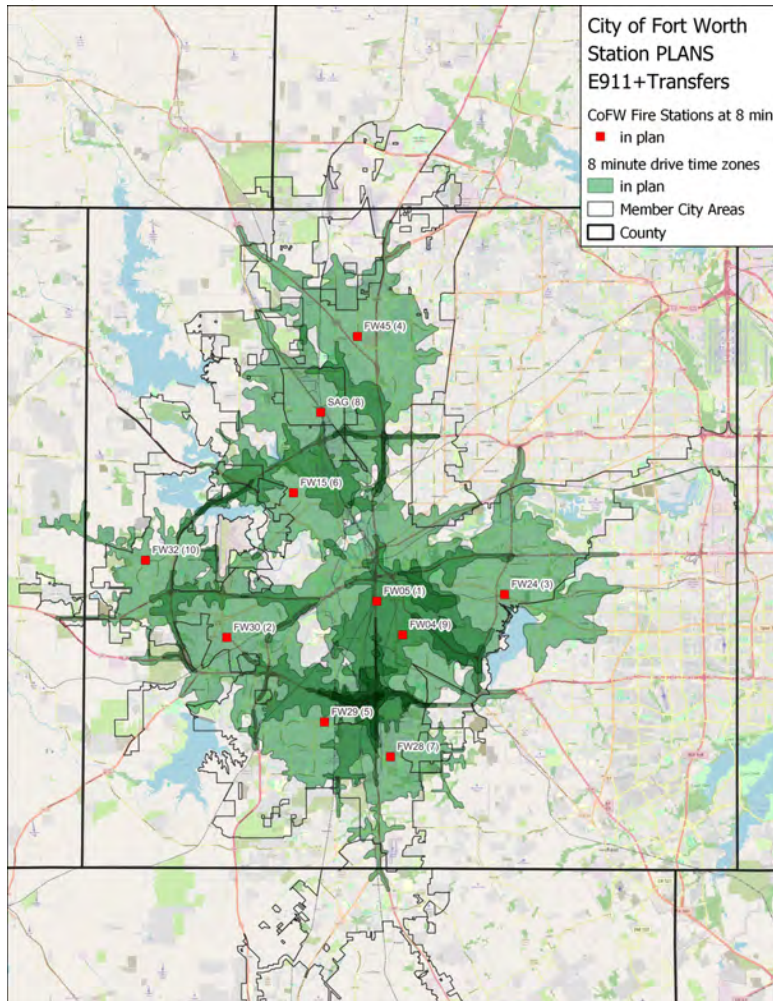
8-Minute Travel Time – 911 Calls + IFT

Results suggest that 10 priority stations can respond to 90.26% of the 911 + IFT calls within 8 minutes or less travel time.

Table 12: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	8	59,797	59,797	36.87%
2	FW30	8	24,378	84,175	51.90%
3	FW24	8	17,296	101,471	62.57%
4	FW45	8	12,332	113,803	70.17%
5	FW29	8	11,458	125,261	77.24%
6	FW15	8	9,498	134,759	83.09%
7	FW28	8	4,358	139,117	85.78%
8	SAG	8	2,744	141,861	87.47%
9	FW04	8	2,268	144,129	88.87%
10	FW32	8	2,247	146,376	90.26%

Figure 12: Current FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls + IFT



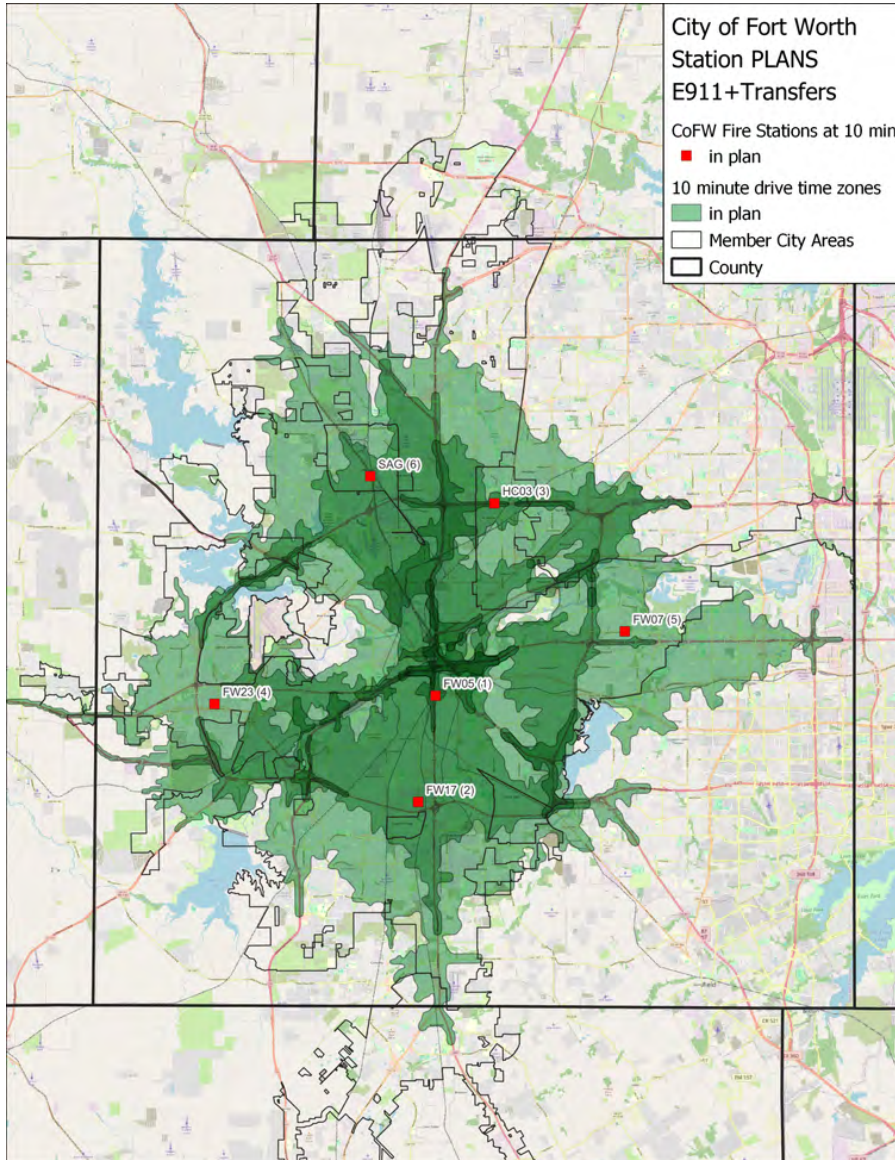
10-Minute Travel Time – 911 Calls

Results suggest that six prioritized fire stations can respond to 92.17% of the 911 + IFT calls within 10 minutes or less travel time.

Table 13: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	10	91,229	91,229	56.25%
2	FW17	10	24,032	115,261	71.07%
3	HC03	10	15,008	130,269	80.32%
4	FW23	10	8,170	138,439	85.36%
5	FW07	10	5,980	144,419	89.05%
6	SAG	10	5,059	149,478	92.17%

Figure 13: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls + IFT



MedStar Posting Locations – 911 Calls + Transfers (exclude MIH and Events)

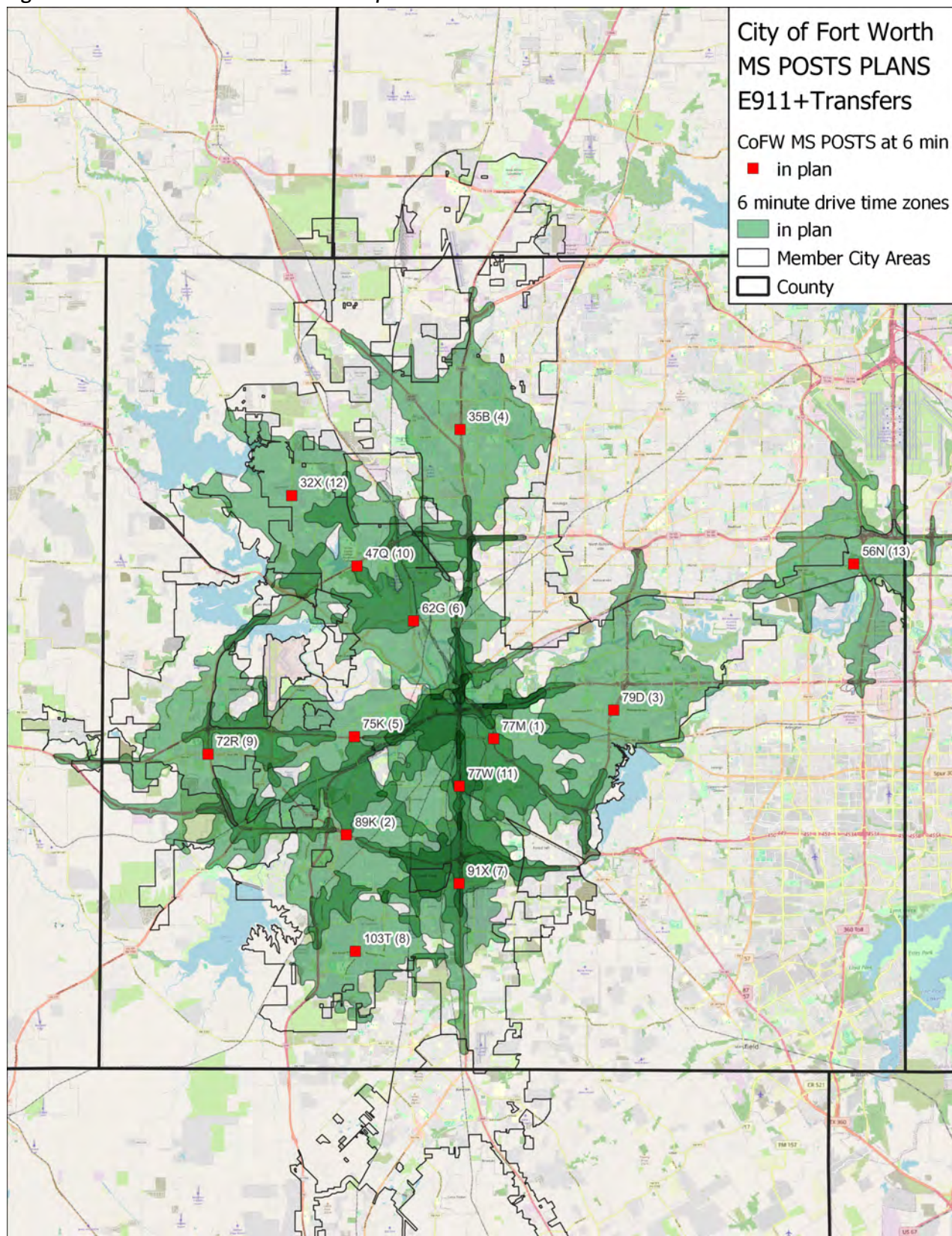
6-Minute Travel Time – 911 Calls + Transfers

Results suggest that 13 priority posts can respond to 90.91% of the 911/transfer calls within 6 minutes or less travel time.

Table 14: MedStar Post Contribution for 6-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77M	6	50,072	50,072	30.87%
2	89K	6	22,936	73,008	45.02%
3	79D	6	14,634	87,642	54.04%
4	35B	6	12,415	100,057	61.70%
5	75K	6	11,345	111,402	68.69%
6	62G	6	9,087	120,489	74.29%
7	91X	6	7,798	128,287	79.10%
8	103T	6	5,020	133,307	82.20%
9	72R	6	4,957	138,264	85.25%
10	47Q	6	2,890	141,154	87.04%
11	77W	6	2,562	143,716	88.62%
12	32X	6	1,875	145,591	89.77%
13	56N	6	1,845	147,436	90.91%

Figure 14: Current MedStar Posts Bleed Map for 6-Minute Travel Time – 911 Calls + Transfers



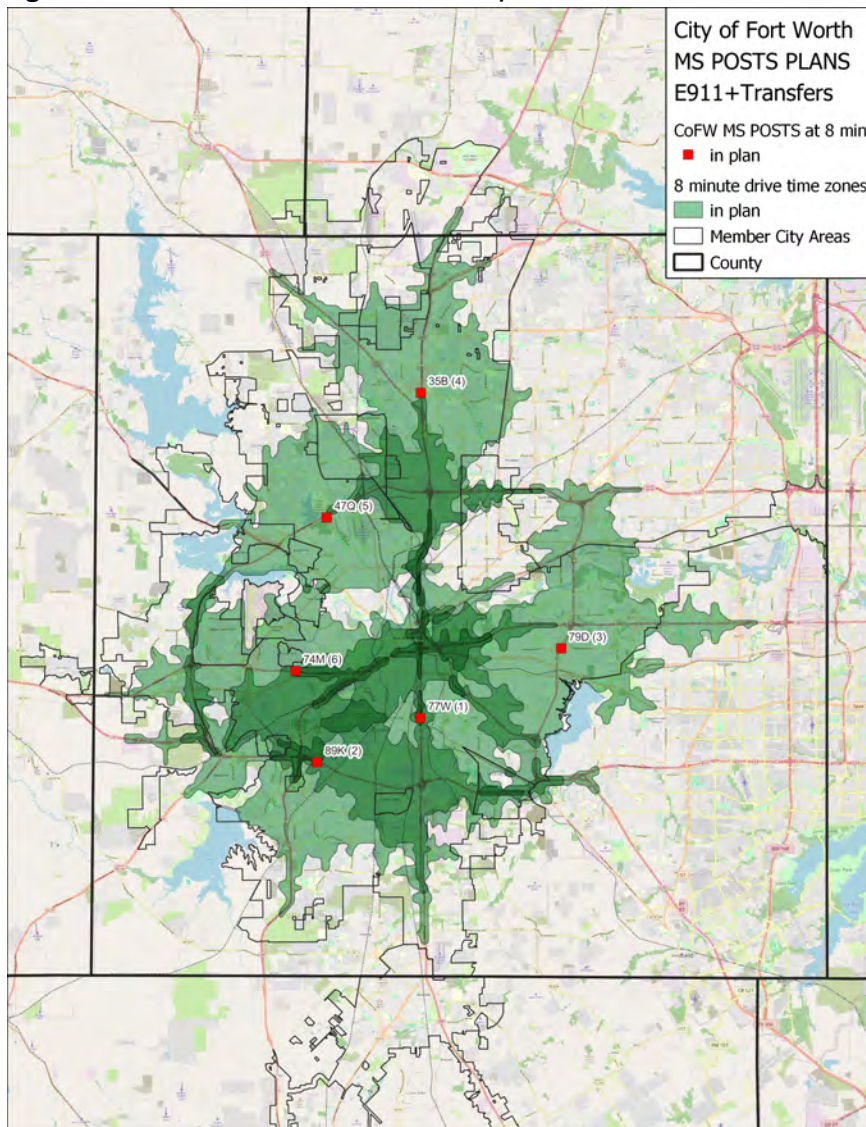
8-Minute Travel Time – 911 Calls + Transfers

Results suggest that six priority posts can respond to 90.32% of the 911/transfer calls within 8 minutes or less travel time.

Table 15: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77W	8	68,611	68,611	42.31%
2	89K	8	23,171	91,782	56.59%
3	79D	8	19,016	110,798	68.32%
4	35B	8	15,494	126,292	77.87%
5	47Q	8	10,999	137,291	84.65%
6	74M	8	9,187	146,478	90.32%

Figure 15: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers



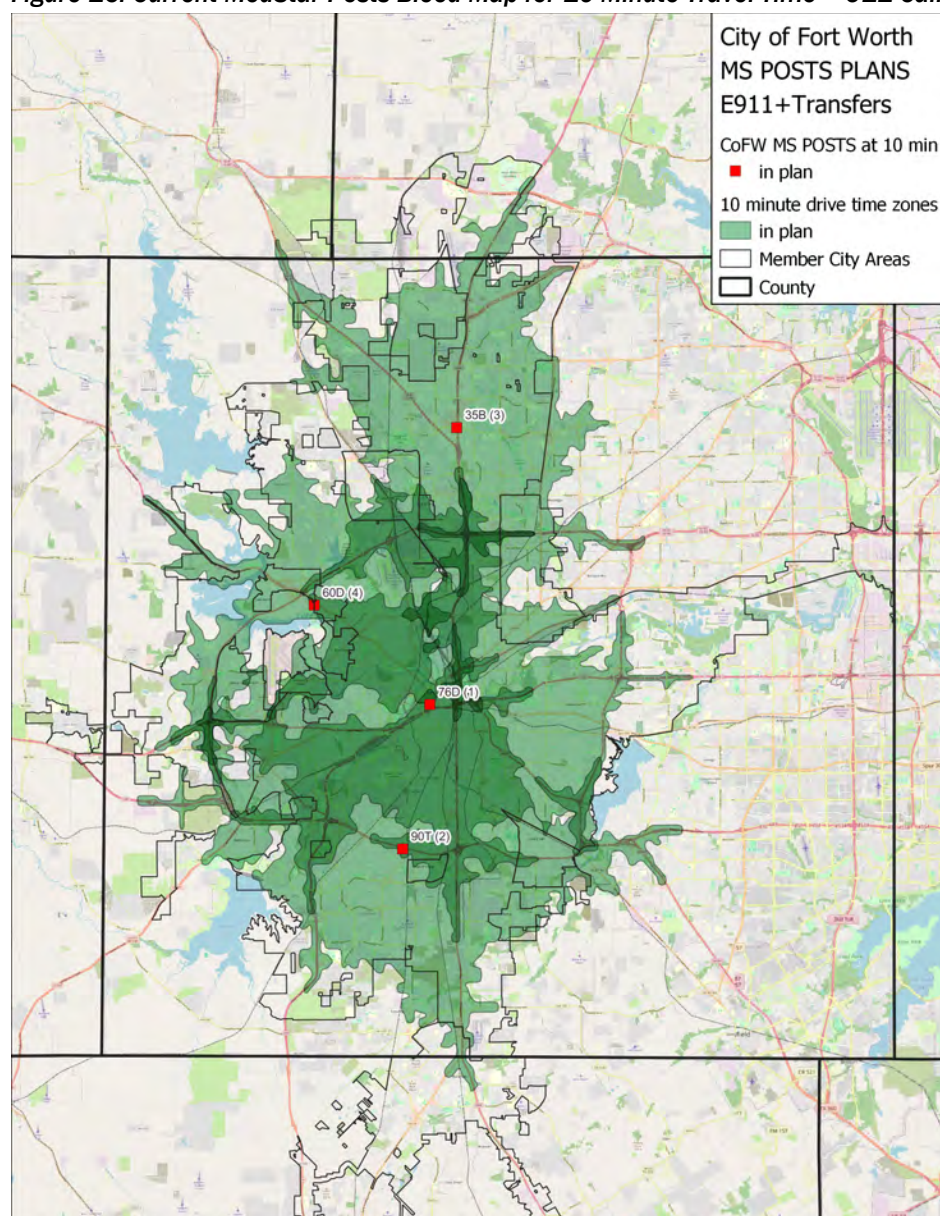
10-Minute Travel Time – 911 Calls + Transfers

Results suggest that four prioritized posts can respond to 91.78% of the 911/transfer calls within 10 minutes or less travel time.

Table 16: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	10	103,264	103,264	63.67%
2	90T	10	22,622	125,886	77.62%
3	35B	10	16,650	142,536	87.89%
4	60D	10	6,320	148,856	91.78%

Figure 16: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers



Optimized Posting Locations – Fort Worth 911 Calls + Transfers (No MIH & Events)

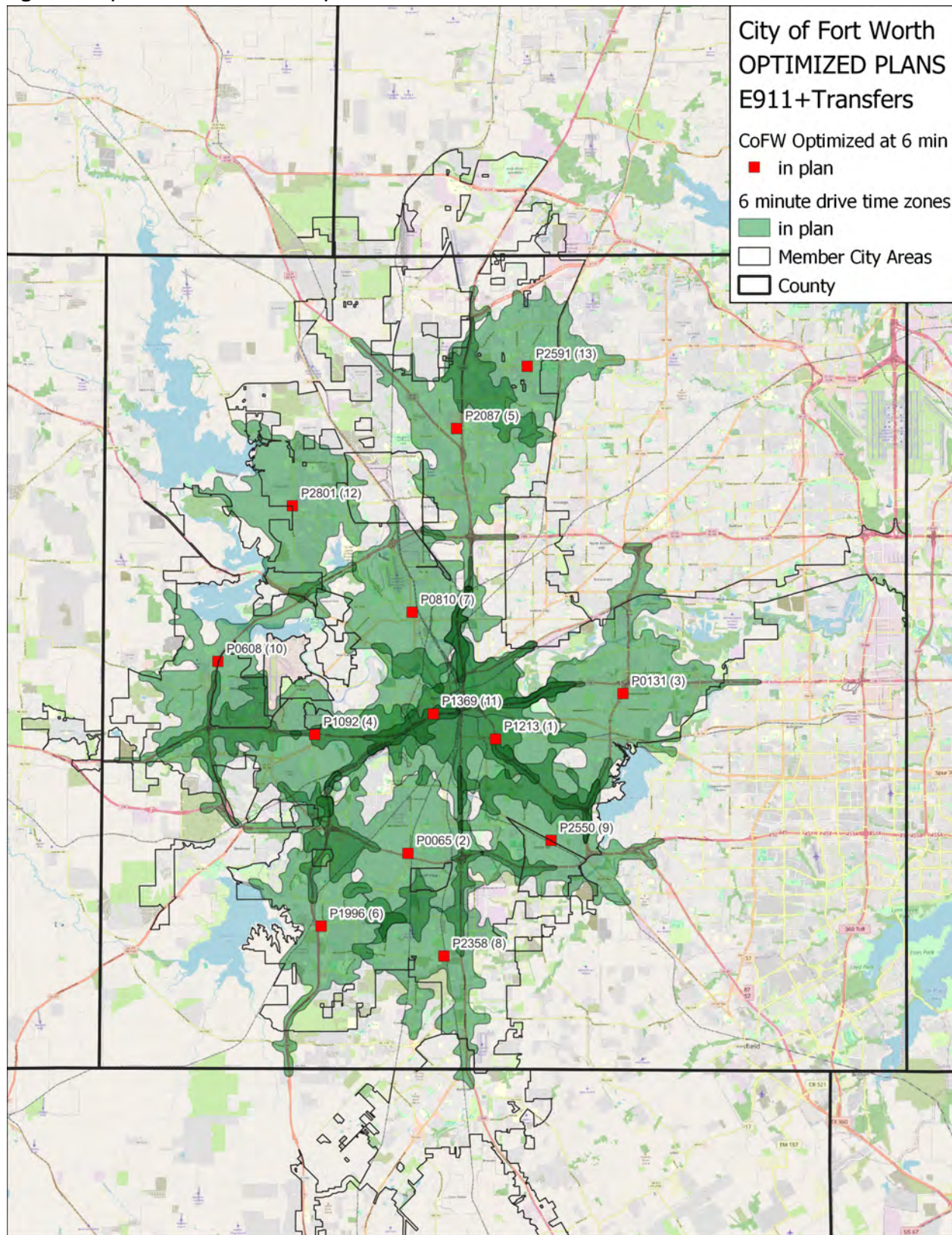
6-Minute Travel Time – 911 Calls + Transfers

Results suggest that 13 priority posts can respond to 90.48% of the 911/transfer calls within 6 minutes or less travel time.

Table 17: Optimized Post Contribution for 6-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1213	6	47,746	47,746	29.44%
2	P0065	6	20,114	67,860	41.84%
3	P0131	6	14,183	82,043	50.59%
4	P1092	6	13,678	95,721	59.02%
5	P2087	6	11,628	107,349	66.19%
6	P1996	6	9,441	116,790	72.01%
7	P0810	6	8,673	125,463	77.36%
8	P2358	6	5,234	130,697	80.59%
9	P2550	6	4,383	135,080	83.29%
10	P0608	6	3,802	138,882	85.63%
11	P1369	6	2,956	141,838	87.46%
12	P2801	6	2,819	144,657	89.20%
13	P2591	6	2,083	146,740	90.48%

Figure 17: Optimized Posts Bleed Map for 6-Minute Travel Time - 911 Calls + Transfers



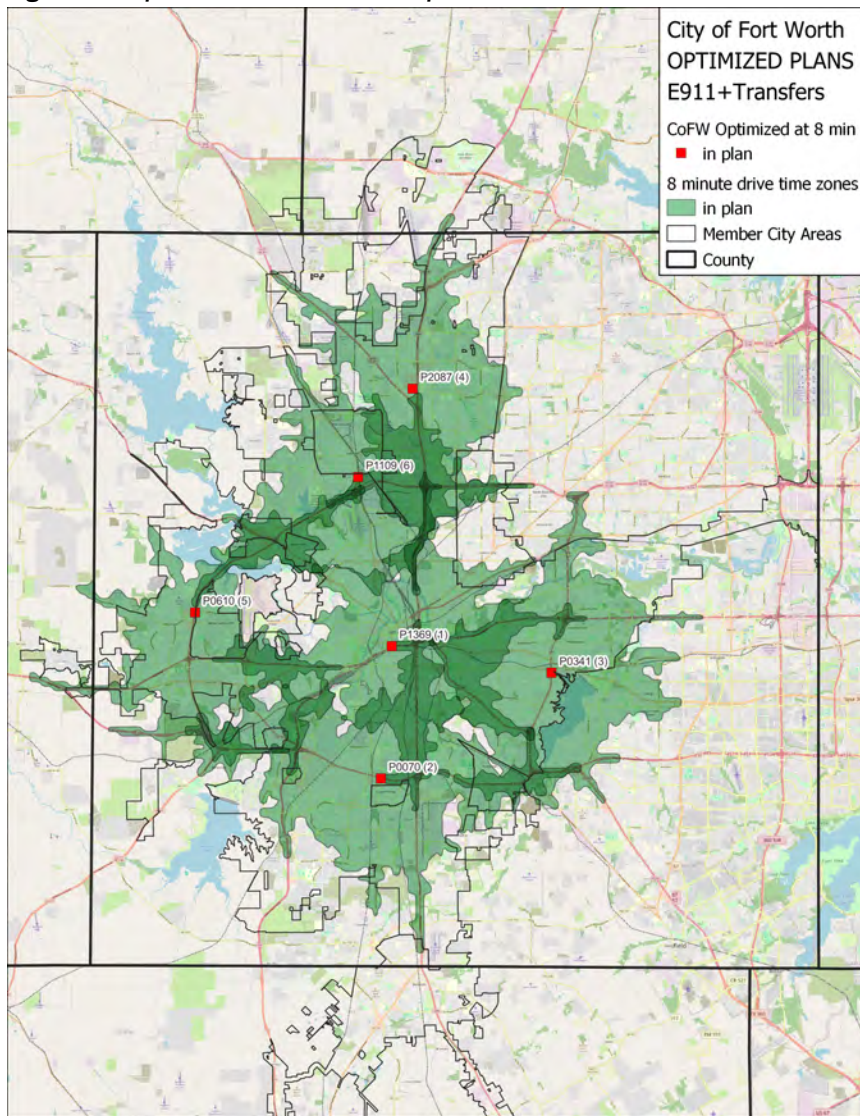
8-Minute Travel Time – 911 Calls + Transfers

Results suggest that six priority posts can respond to 90.99% of the 911/transfer calls within 8 minutes or less travel time.

Table 18: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	8	69,362	69,362	42.77%
2	P0070	8	29,908	99,270	61.21%
3	P0341	8	16,763	116,033	71.55%
4	P2087	8	14,552	130,585	80.52%
5	P0610	8	10,422	141,007	86.94%
6	P1109	8	6,562	147,569	90.99%

Figure 18: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers



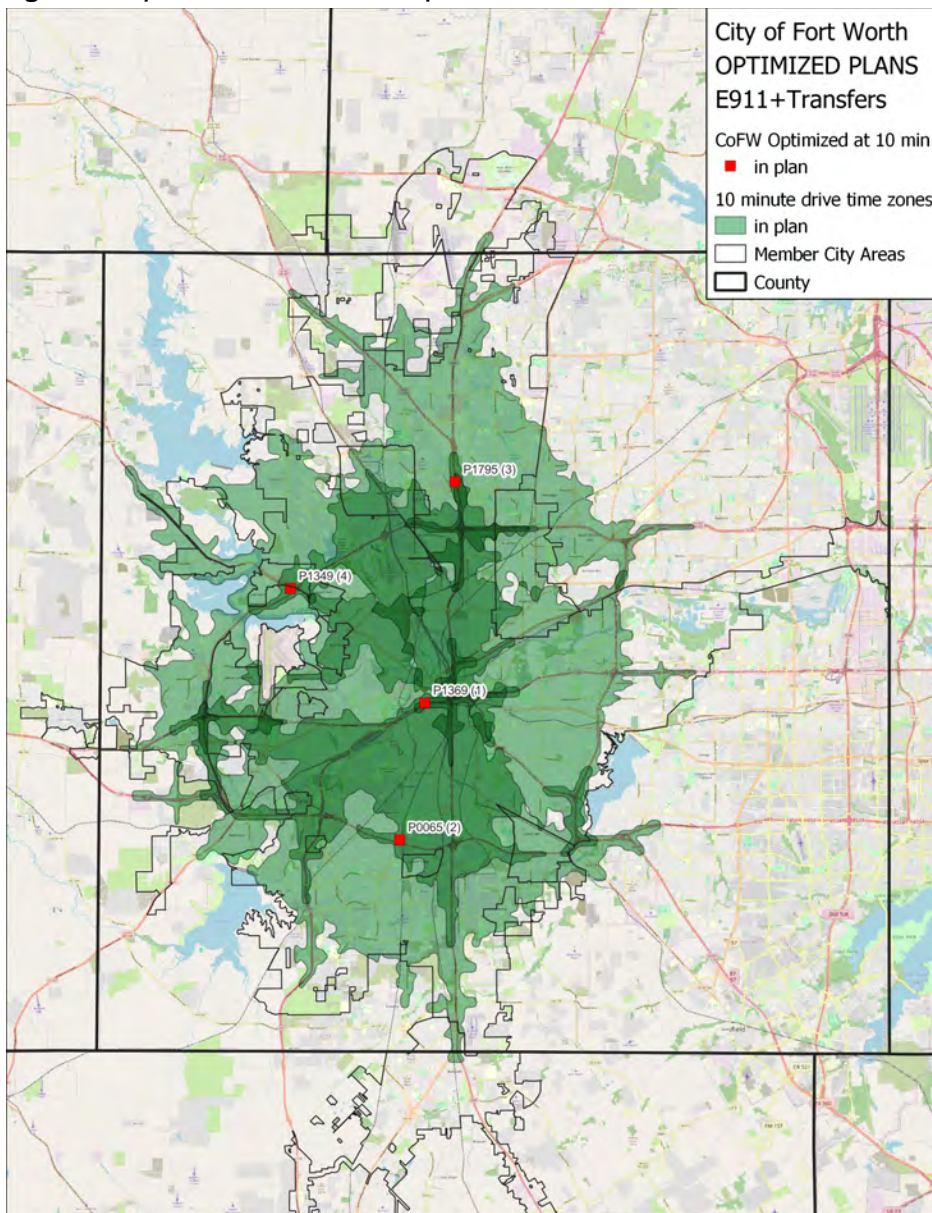
10-Minute Travel Time – 911 Calls + Transfers

Results suggest that four prioritized posts can respond to 91.47% of the 911/transfer calls within 10 minutes or less travel time.

Table 19: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	10	102,114	102,114	62.96%
2	P0065	10	23,664	125,778	77.55%
3	P1795	10	16,133	141,911	87.50%
4	P1349	10	6,427	148,338	91.47%

Figure 19: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers



FWFD Station Locations – System 911 Calls (No IFT, MIH, and Events)

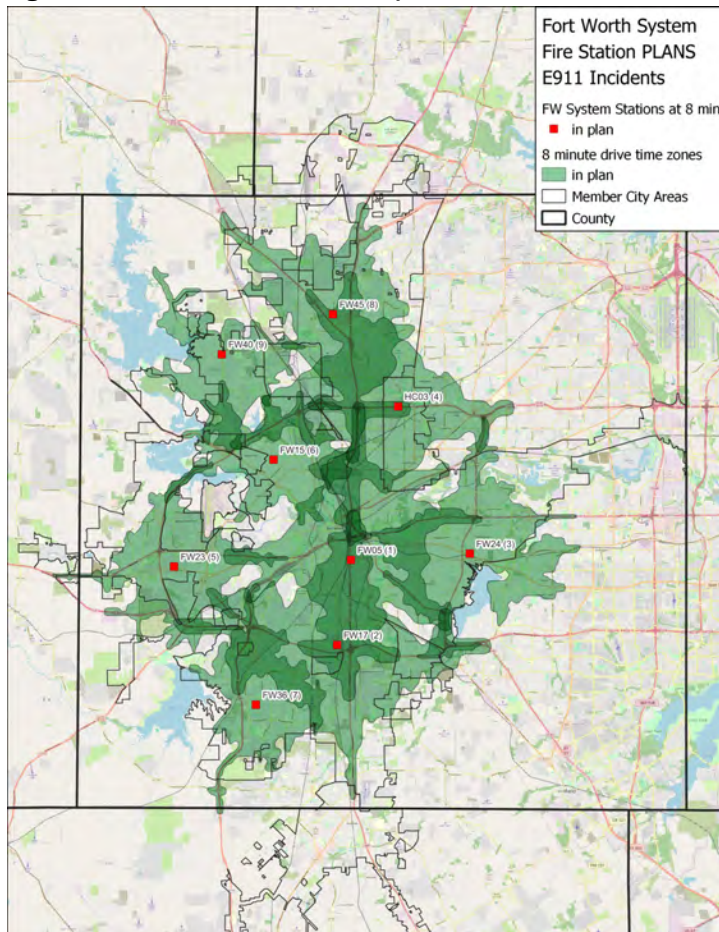
8-Minute Travel Time – 911 Calls

Results suggest that nine prioritized stations can respond to approximately 90.39% of the 911 calls within 8 minutes or less travel time.

Table 20: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	8	55,143	55,143	36.68%
2	FW17	8	20,643	75,786	50.41%
3	FW24	8	13,365	89,151	59.30%
4	HC03	8	13,231	102,382	68.10%
5	FW23	8	12,647	115,029	76.51%
6	FW15	8	9,372	124,401	82.75%
7	FW36	8	4,914	129,315	86.02%
8	FW45	8	3,880	133,195	88.60%
9	FW40	8	2,692	135,887	90.39%

Figure 20: FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls



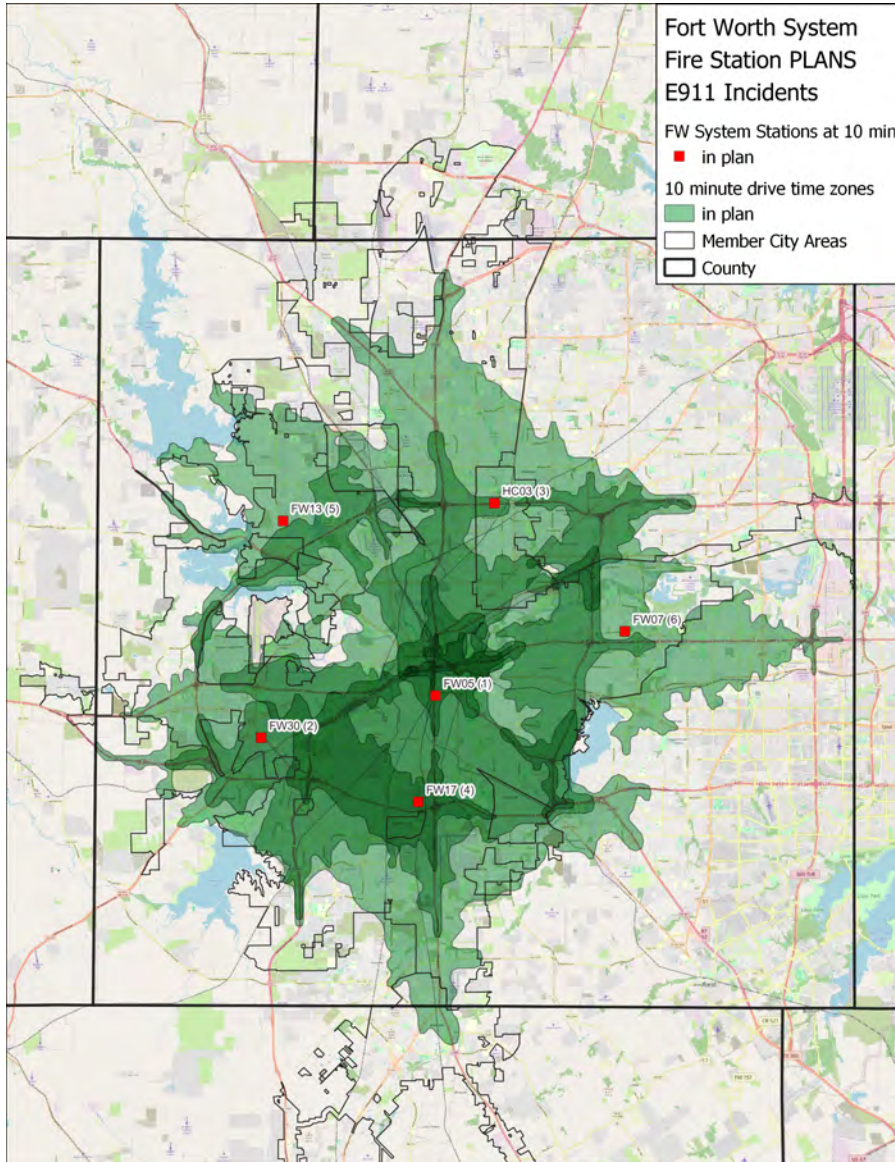
10-Minute Travel Time – System 911 Calls

Results suggest that six prioritized fire stations can respond to 91.92% of the 911 calls within 10 minutes or less travel time.

Table 21: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	10	86,710	86,710	57.68%
2	FW30	10	18,654	105,364	70.09%
3	HC03	10	15,825	121,189	80.61%
4	FW17	10	6,892	128,081	85.20%
5	FW13	10	6,076	134,157	89.24%
6	FW07	10	4,030	138,187	91.92%

Figure 21: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls



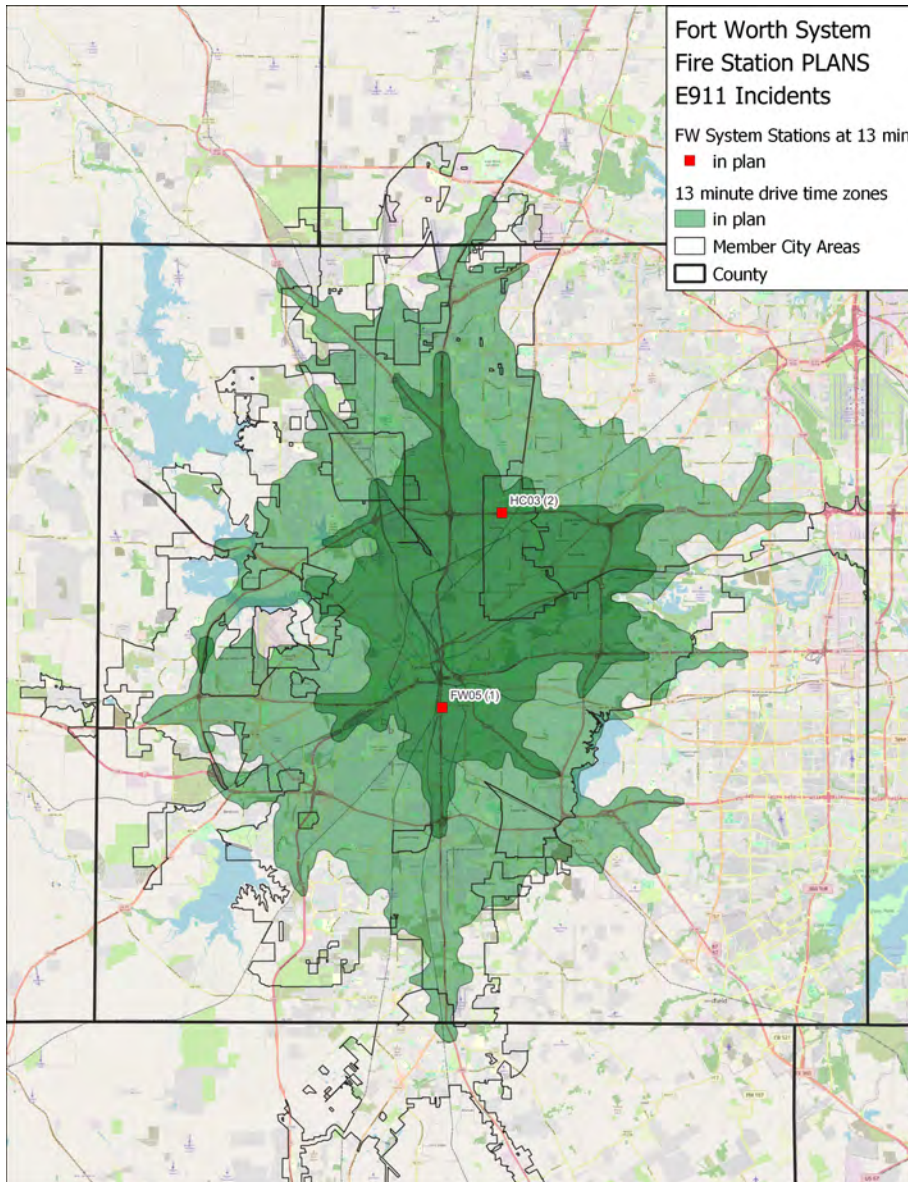
13-Minute Travel Time – System 911 Calls

Results suggest that two priority stations can respond to 91.22% of the 911 calls within 13 minutes or less travel time.

Table 22: FWFD Station Contribution for 13-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	13	122,053	122,053	81.19%
2	HC03	13	15,083	137,136	91.22%

Figure 22: Current FWFD Station Bleed Map for 13-Minute Travel Time – 911 Calls



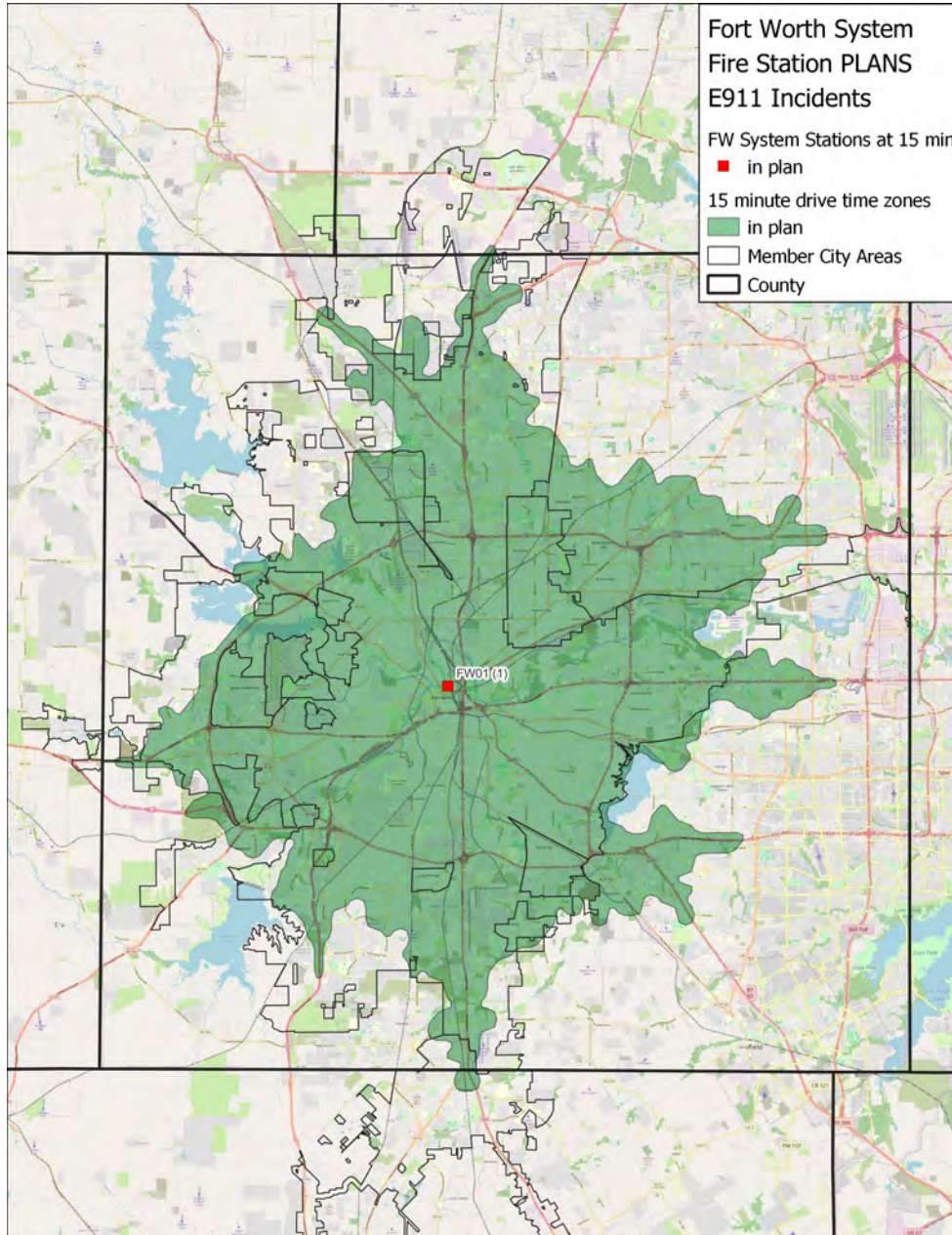
15-Minute Travel Time – System 911 Calls

Results suggest that one priority stations can respond to 91.03% of the 911 calls within 15 minutes or less travel time.

Table 23: FWFD Station Contribution for 15-Minute Travel Time – 911 Calls

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW01	15	136,854	136,854	91.03%

Figure 23: Current FWFD Station Bleed Map for 15-Minute Travel Time – 911 Calls



MedStar Posting Locations – System 911 Calls (No IFT, MIH, and Events)

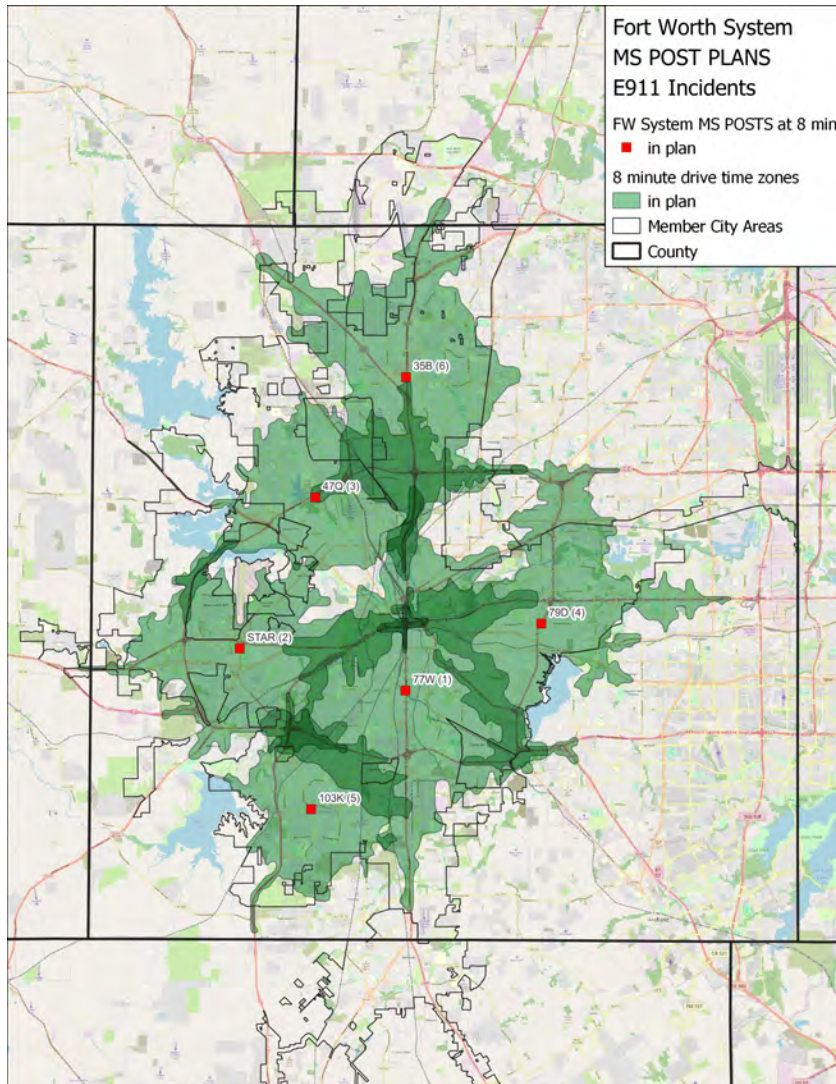
8-Minute Travel Time – 911 Calls

Results suggest that six priority posts can respond to 90.29% of the 911 calls within 8 minutes or less travel time.

Table 24: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77W	8	64,969	64,969	43.22%
2	STAR	8	18,327	83,296	55.41%
3	47Q	8	17,435	100,731	67.00%
4	79D	8	14,735	115,466	76.80%
5	103K	8	10,941	126,407	84.08%
6	35B	8	9,327	135,734	90.29%

Figure 24: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls



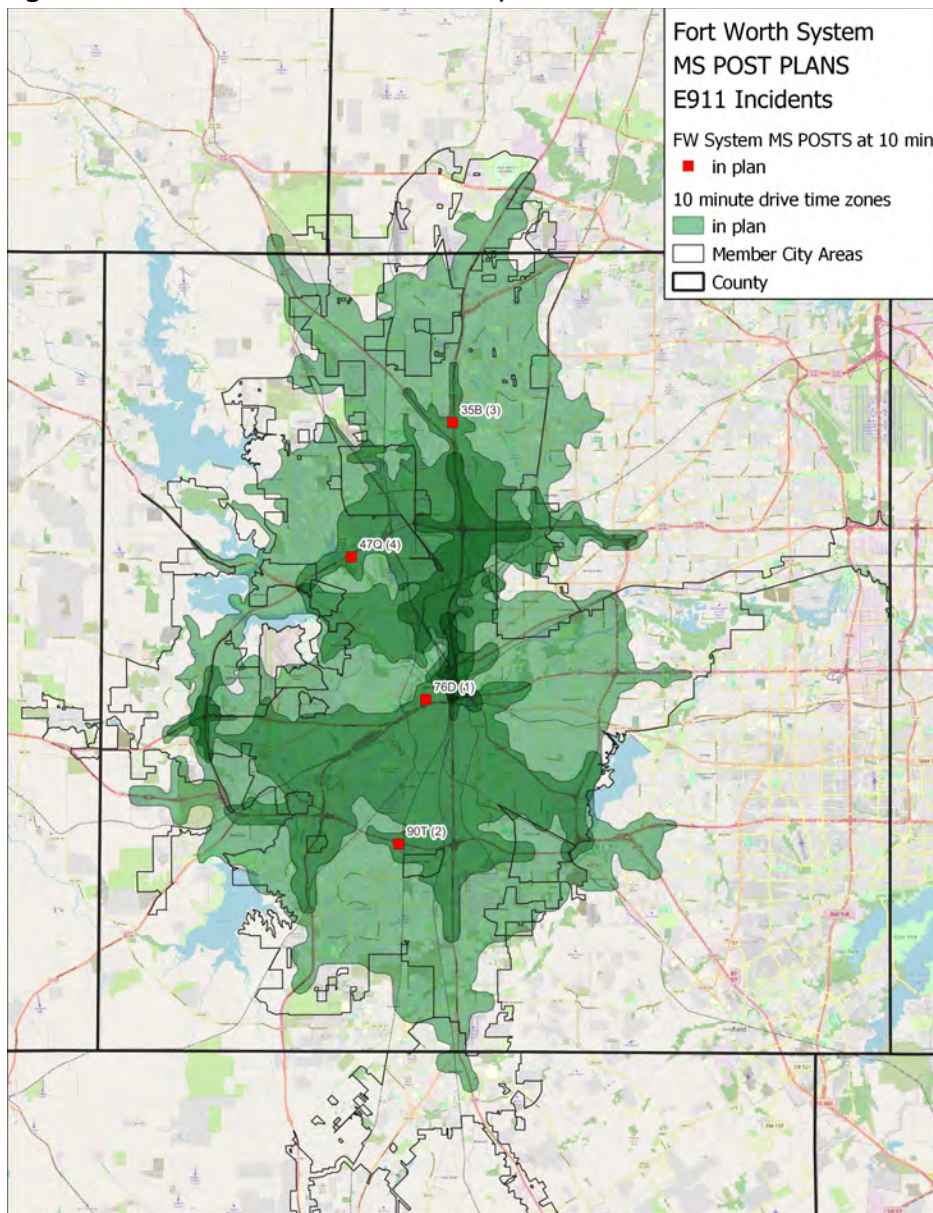
10-Minute Travel Time – System 911 Calls

Results suggest that four prioritized posts can respond to 93.01% of the 911 calls within 10 minutes or less travel time.

Table 25: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	10	98,469	98,469	65.50%
2	90T	10	18,024	116,493	77.49%
3	35B	10	16,366	132,859	88.37%
4	47Q	10	6,964	139,823	93.01%

Figure 25: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls



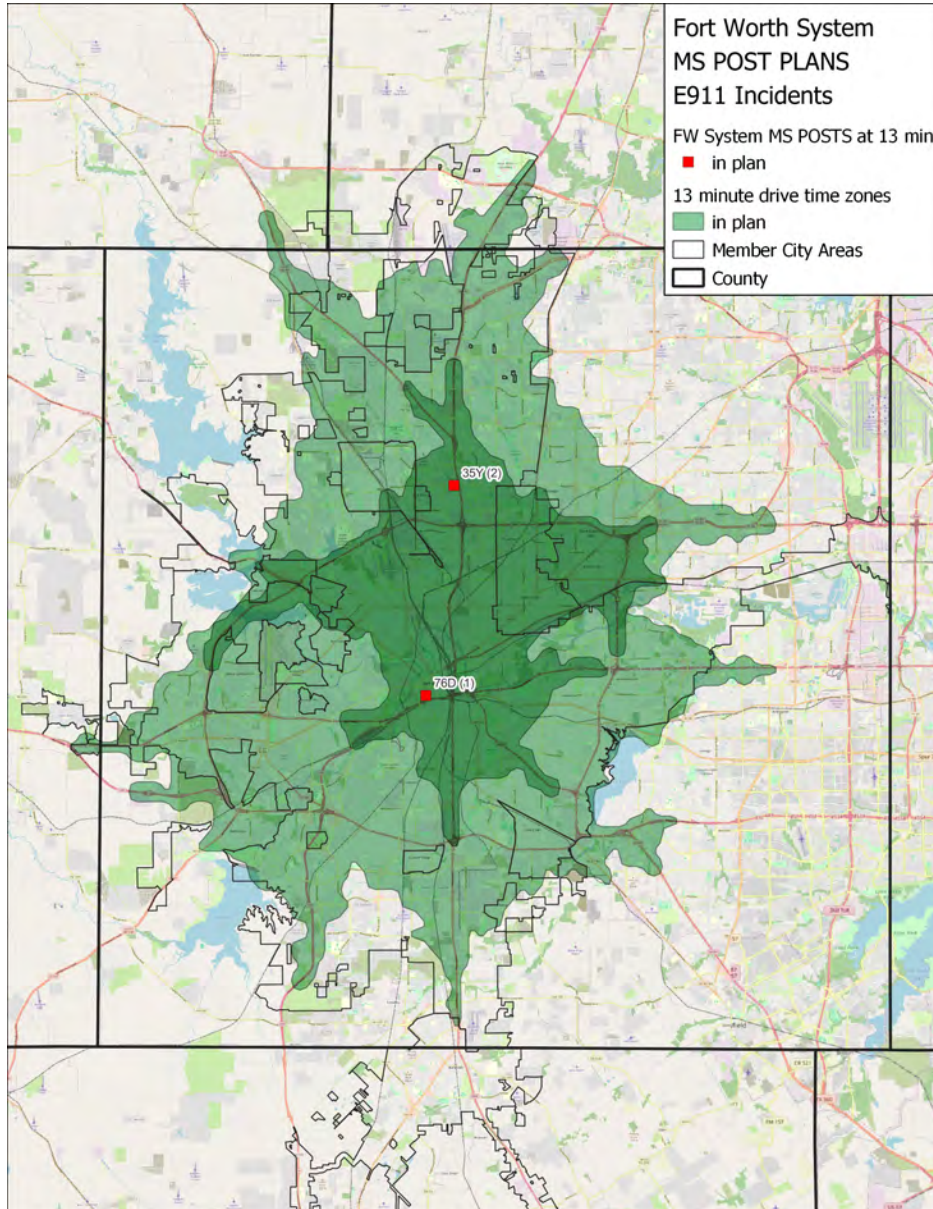
13-Minute Travel Time – System 911 Calls

Results suggest that four prioritized posts can respond to 92.38% of the 911 calls within 13 minutes or less travel time.

Table 26: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	13	126,549	126,549	84.18%
2	35Y	13	12,325	138,874	92.38%

Figure 26: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls



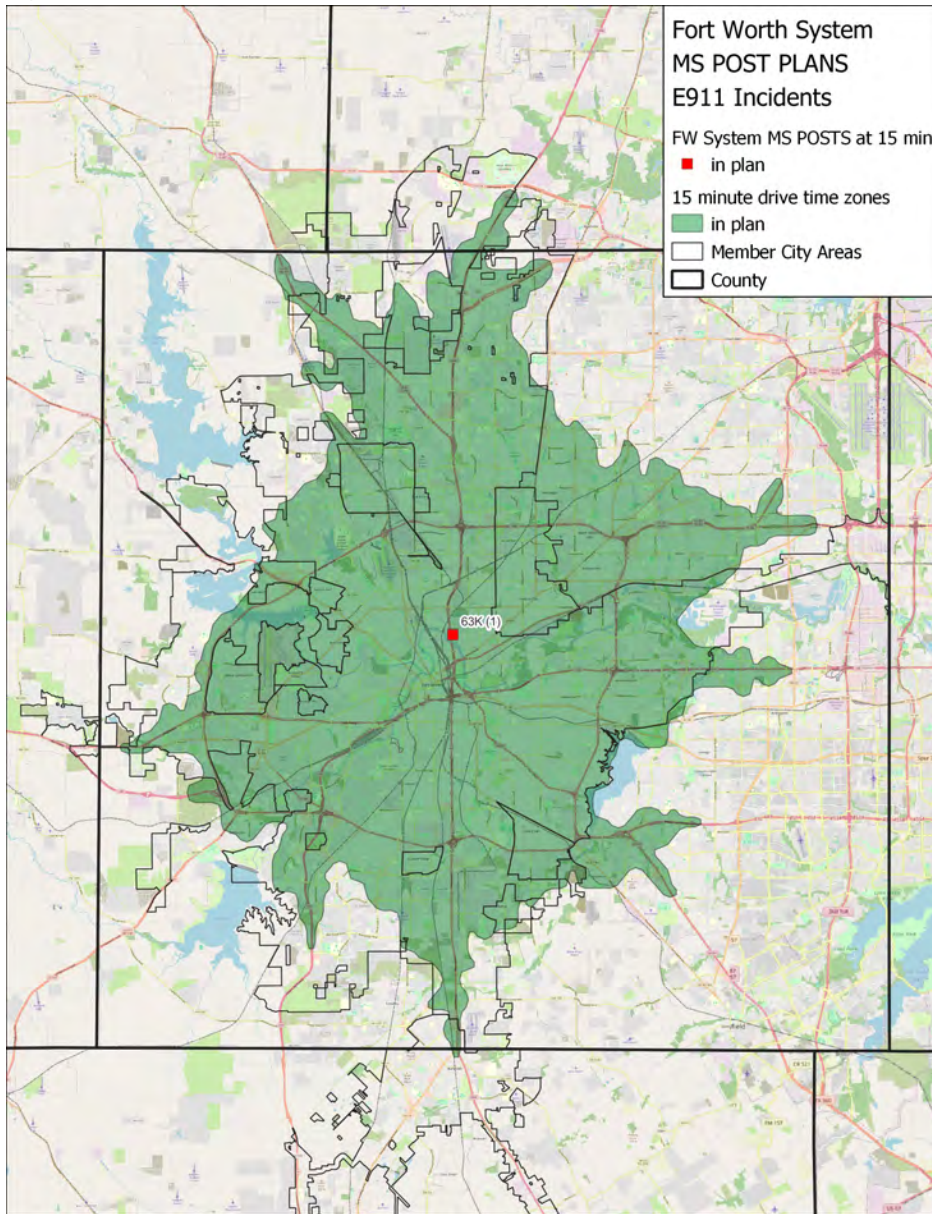
15-Minute Travel Time – System 911 Calls

Results suggest that one prioritized post can respond to 91.75% of the 911 calls within 15 minutes or less travel time.

Table 27: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	63K	15	137,940	137,940	91.75%

Figure 27: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls



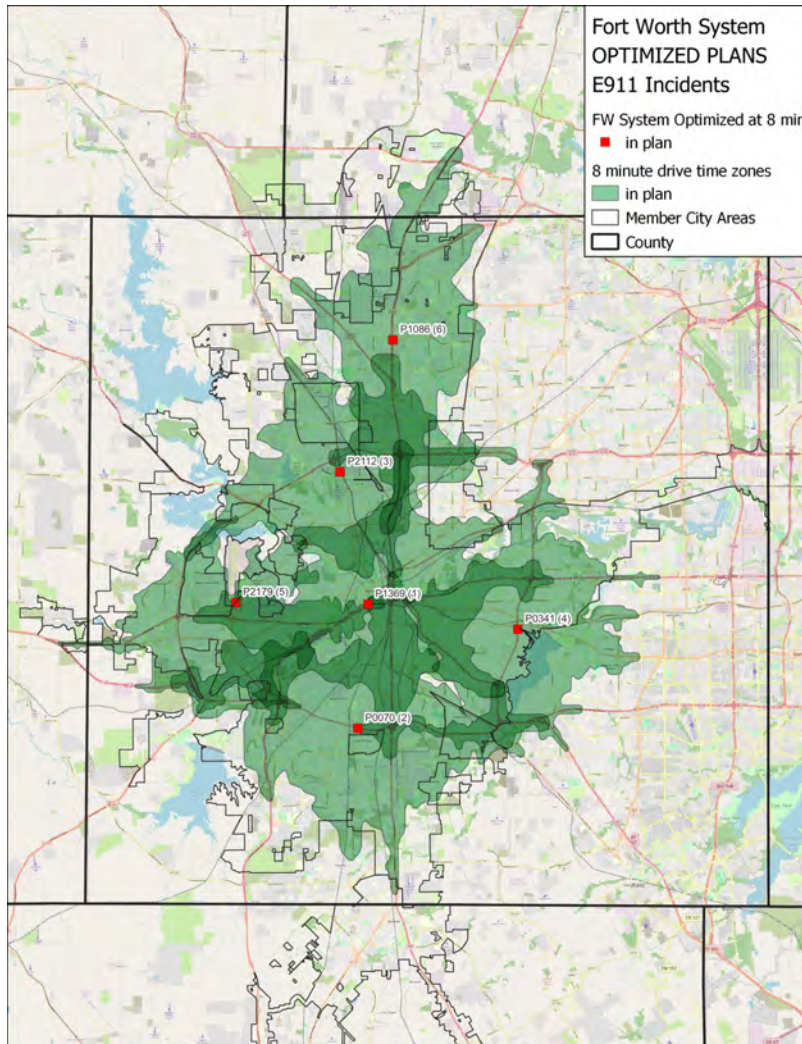
Optimized Posting Locations – System 911 Calls (No IFT, MIH, and Events) 8-Minute Travel Time – System 911 Calls

Results suggest that six priority posts can respond to 90.8% of the 911 calls within 8 minutes or less travel time.

Table 28: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	8	64,879	64,879	43.16%
2	P0070	8	25,416	90,295	60.06%
3	P2112	8	16,029	106,324	70.72%
4	P0341	8	12,965	119,289	79.35%
5	P2179	8	9,539	128,828	85.69%
6	P1086	8	7,680	136,508	90.80%

Figure 28: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls



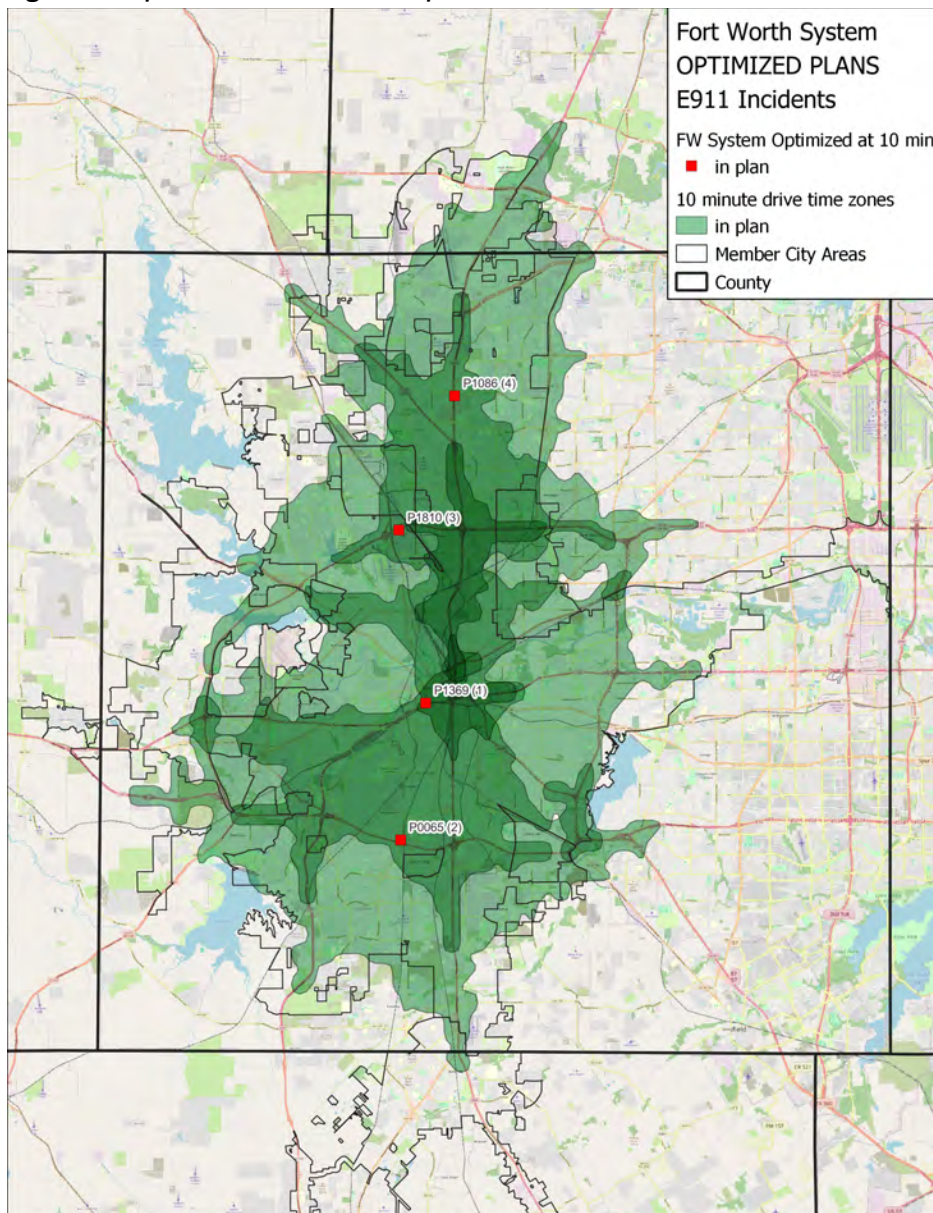
10-Minute Travel Time – System 911 Calls

Results suggest that four prioritized posts can respond to 92.07% of the 911 calls within 10 minutes or less travel time.

Table 29: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	10	99,302	99,302	66.05%
2	P0065	10	17,437	116,739	77.65%
3	P1810	10	16,733	133,472	88.78%
4	P1086	10	4,948	138,420	92.07%

Figure 29: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls



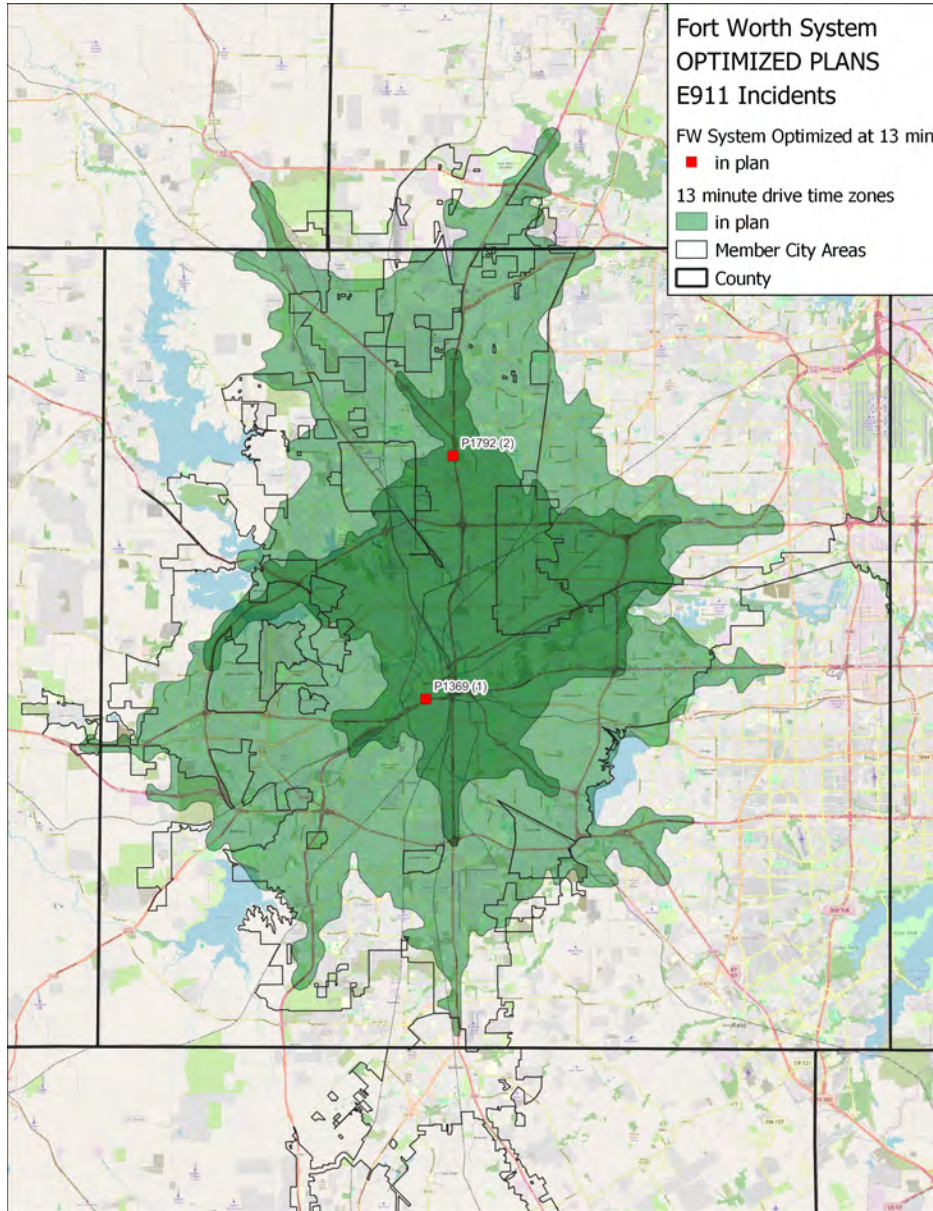
13-Minute Travel Time – System 911 Calls

Results suggest that two prioritized posts can respond to 92.72% of the 911 calls within 13 minutes or less travel time.

Table 30: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	13	127,603	127,603	84.88%
2	P1792	13	11,784	139,387	92.72%

Figure 30: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls



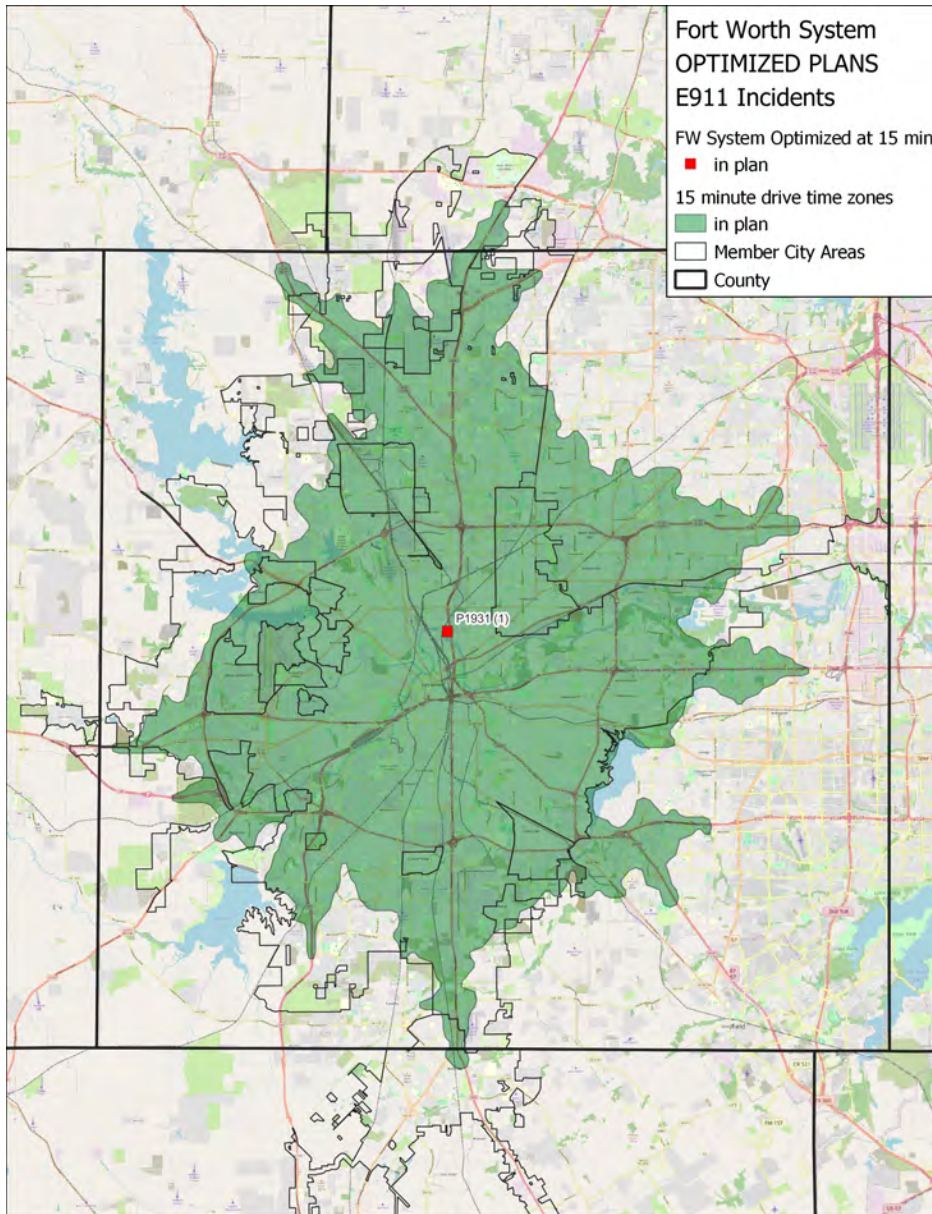
15-Minute Travel Time – System 911 Calls

Results suggest that one prioritized post can respond to 92.31% of the 911 calls within 15 minutes or less travel time.

Table 31: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1931	15	138,779	138,779	92.31%

Figure 31: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls



FWFD Station Locations – System 911 Calls + IFT (No MIH and Events)

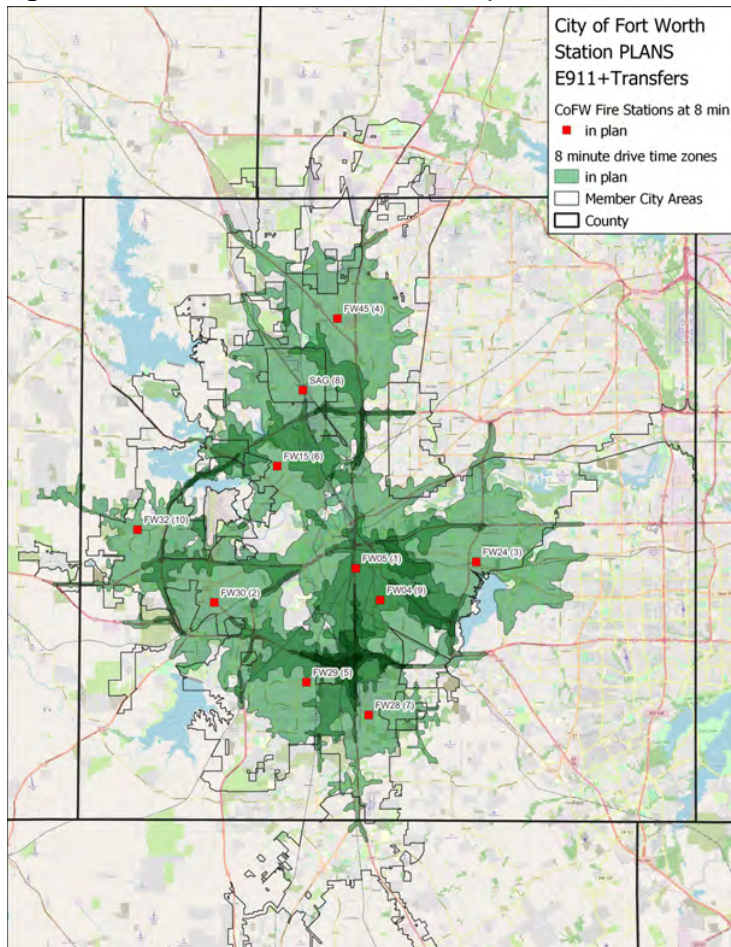
8-Minute Travel Time – System 911 Calls + IFT

Results suggest that 9 priority stations can respond to 91.32% of the 911 + IFT calls within 8 minutes or less travel time.

Table 32: FWFD Station Contribution for 8-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	8	69,014	69,014	38.37%
2	FW17	8	26,831	95,845	53.29%
3	HC03	8	15,531	111,376	61.92%
4	FW23	8	13,761	125,137	69.57%
5	FW24	8	13,633	138,770	77.15%
6	FW15	8	10,204	148,974	82.83%
7	FW45	8	5,968	154,942	86.14%
8	FW36	8	5,615	160,557	89.27%
9	FW40	8	3,700	164,257	91.32%

Figure 32: Current FWFD Station Bleed Map for 8-Minute Travel Time – 911 Calls + IFT



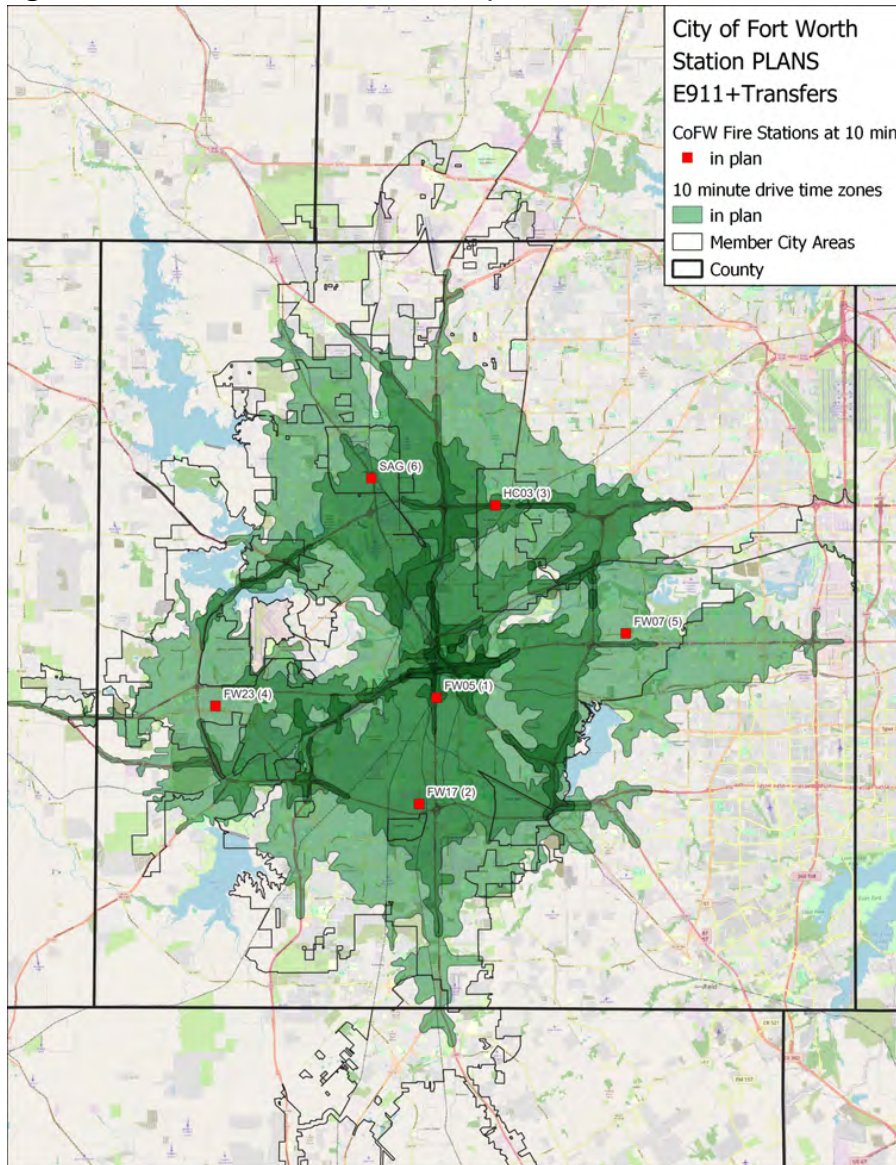
10-Minute Travel Time – System 911 Calls

Results suggest that five prioritized fire stations can respond to 91.13% of the 911 + IFT calls within 10 minutes or less travel time.

Table 33: FWFD Station Contribution for 10-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	10	102,234	102,234	56.84%
2	FW17	10	23,964	126,198	70.16%
3	HC03	10	20,211	146,409	81.40%
4	FW16	10	10,683	157,092	87.34%
5	FW13	10	6,826	163,918	91.13%

Figure 33: Current FWFD Station Bleed Map for 10-Minute Travel Time – 911 Calls + IFT



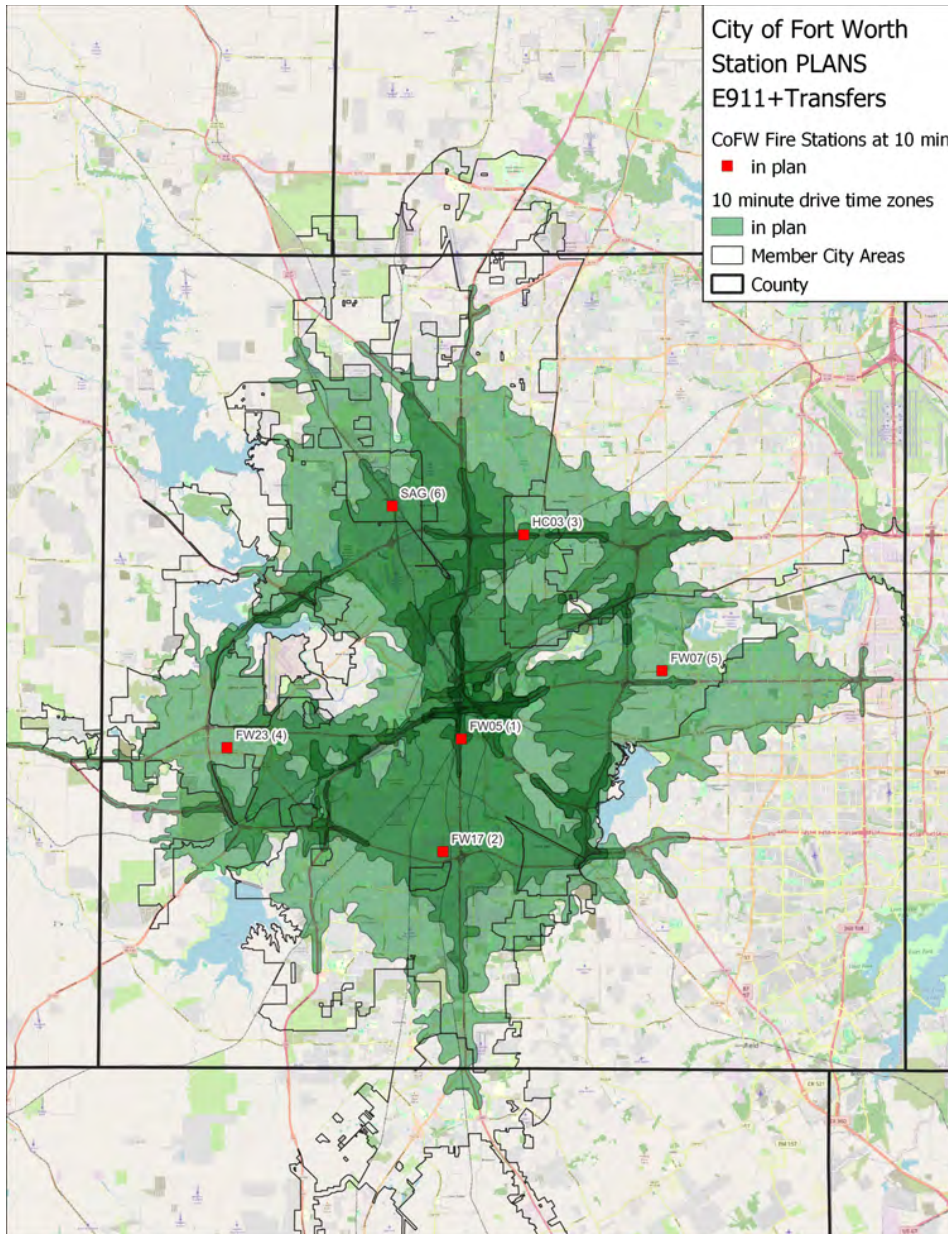
13-Minute Travel Time – System 911 Calls

Results suggest that two prioritized fire stations can respond to 92.1% of the 911 + IFT calls within 13 minutes or less travel time.

Table 34: FWFD Station Contribution for 13-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW05	13	147,017	147,017	81.74%
2	HC03	13	18,632	165,649	92.10%

Figure 34: Current FWFD Station Bleed Map for 13-Minute Travel Time – 911 Calls + IFT



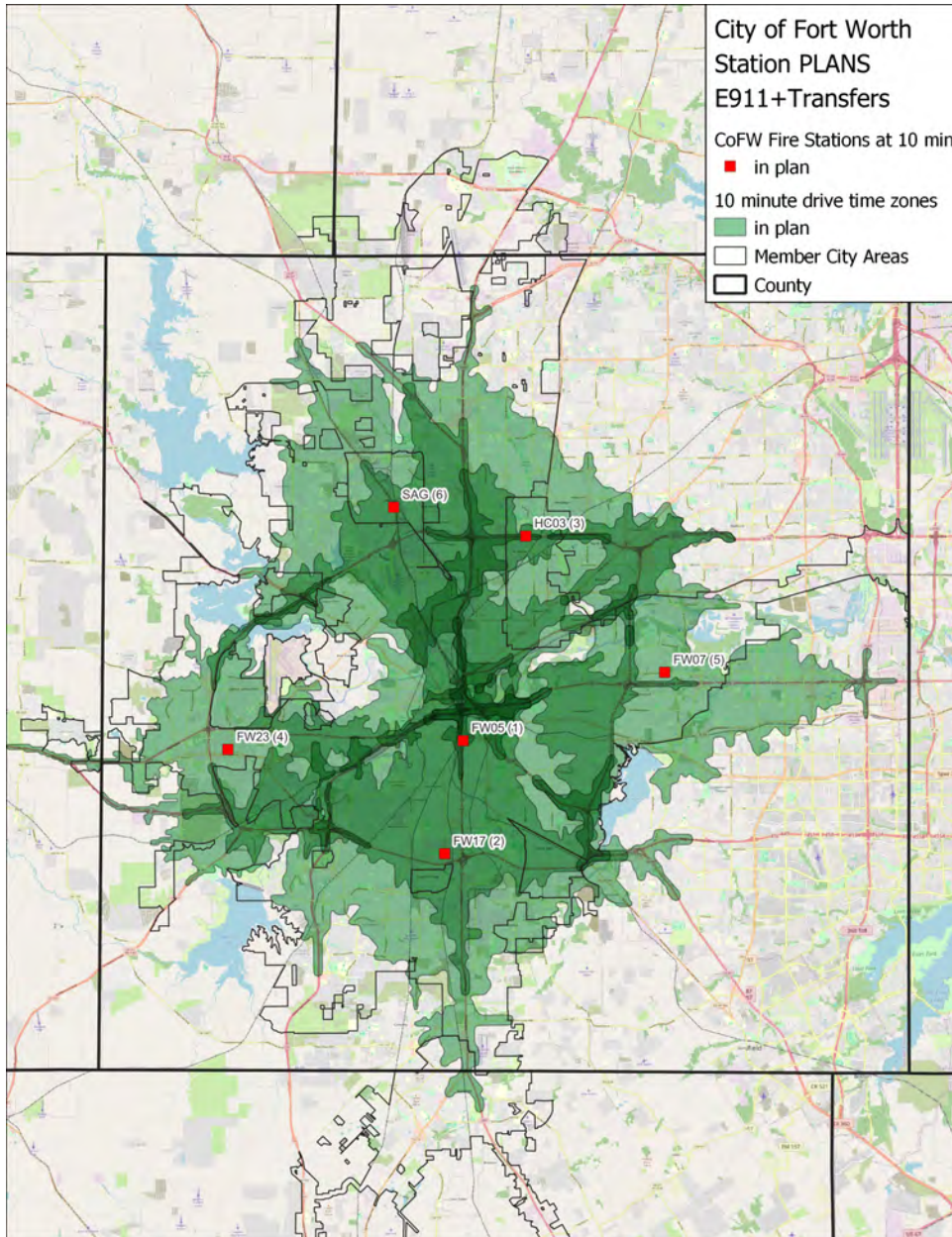
15-Minute Travel Time – System 911 Calls

Results suggest that one prioritized fire stations can respond to 91.81% of the 911 + IFT calls within 15 minutes or less travel time.

Table 35: FWFD Station Contribution for 15-Minute Travel Time – 911 Calls + IFT

Rank	Station	Drive Time (Min)	Station Capture	Total Capture	Percent Capture
1	FW01	15	165,134	165,134	91.81%

Figure 35: Current FWFD Station Bleed Map for 15-Minute Travel Time – 911 Calls + IFT



MedStar Posting Locations – System 911 Calls + Transfers (No MIH and Events)

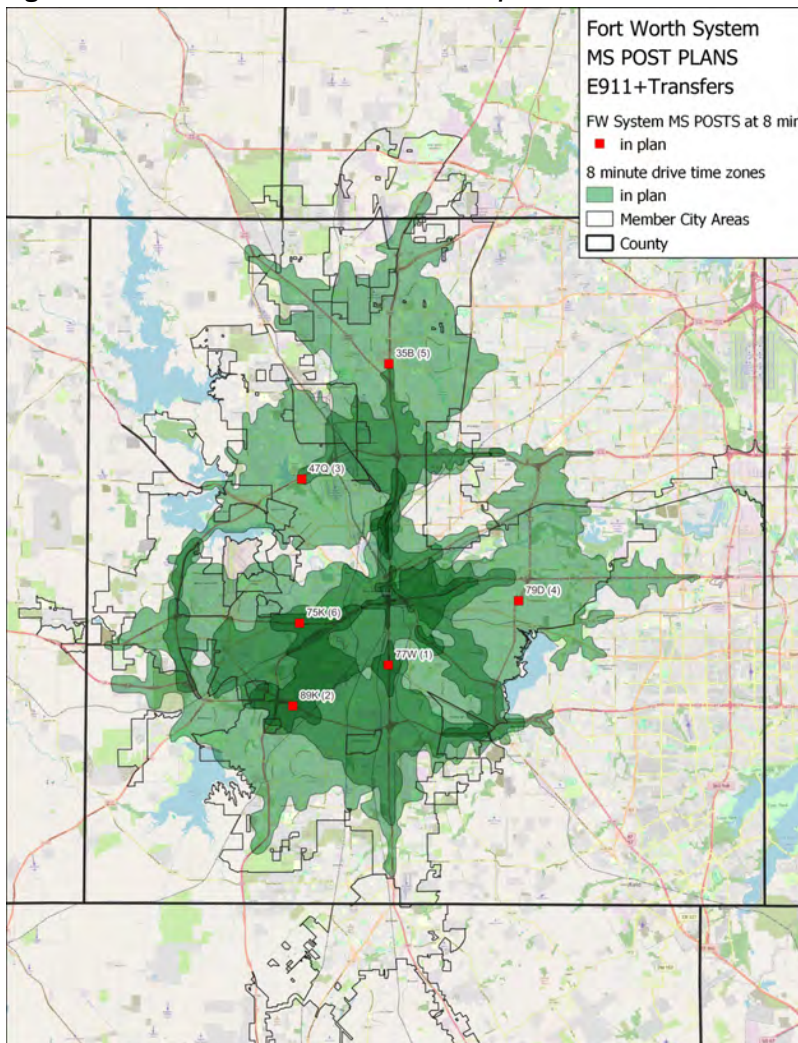
8-Minute Travel Time – System 911 Calls + Transfers

Results suggest that six priority posts can respond to 90.43% of the 911/transfer calls within 8 minutes or less travel time.

Table 36: MedStar Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	77W	8	80,549	80,549	44.78%
2	89K	8	22,014	102,563	57.02%
3	47Q	8	20,779	123,342	68.58%
4	79D	8	14,977	138,319	76.90%
5	35B	8	12,951	151,270	84.10%
6	75K	8	11,375	162,645	90.43%

Figure 36: Current MedStar Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers



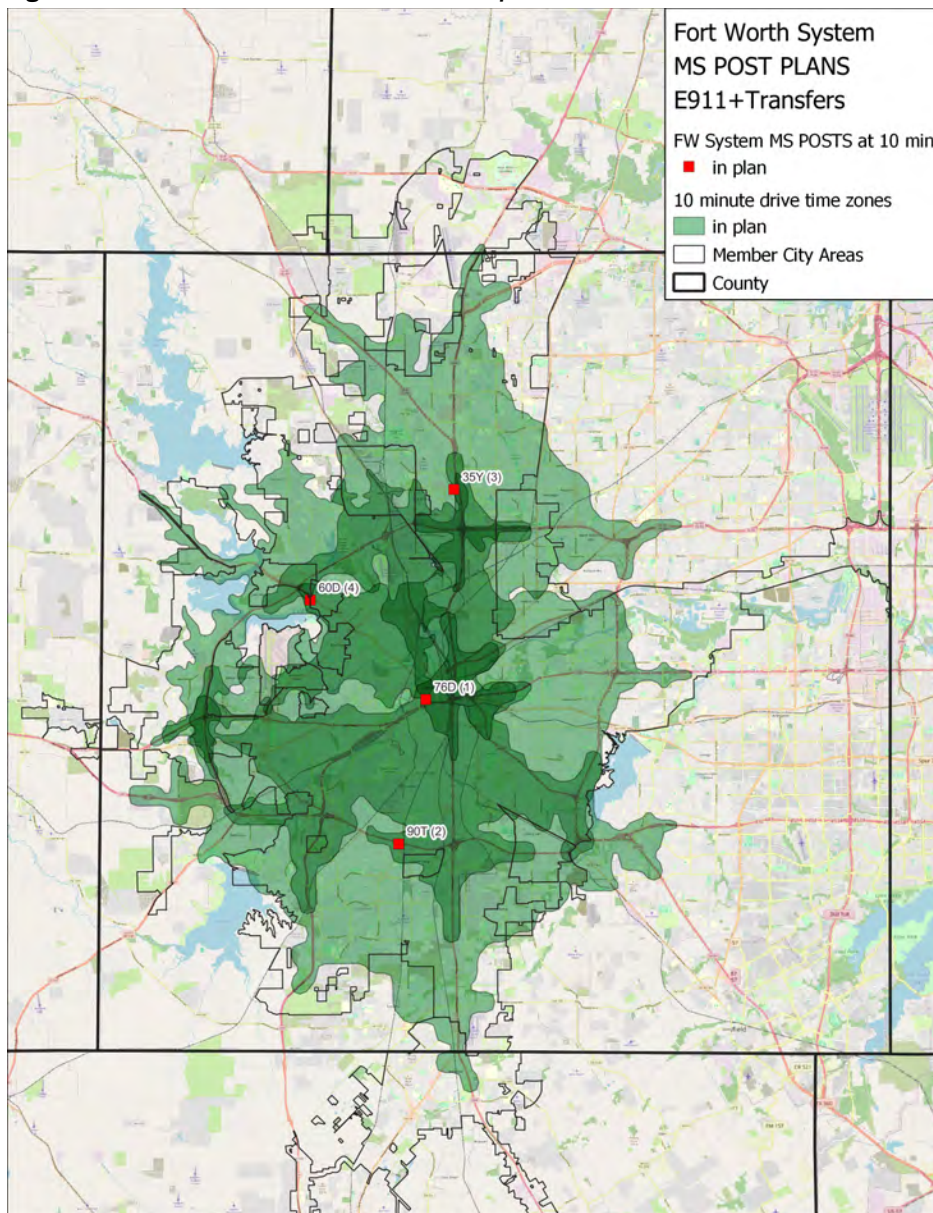
10-Minute Travel Time – System 911 Calls + Transfers

Results suggest that four prioritized posts can respond to 92.61% of the 911/transfer calls within 10 minutes or less travel time.

Table 37: MedStar Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	10	118,700	118,700	65.99%
2	90T	10	21,158	139,858	77.76%
3	35Y	10	20,749	160,607	89.29%
4	60D	10	5,970	166,577	92.61%

Figure 37: Current MedStar Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers



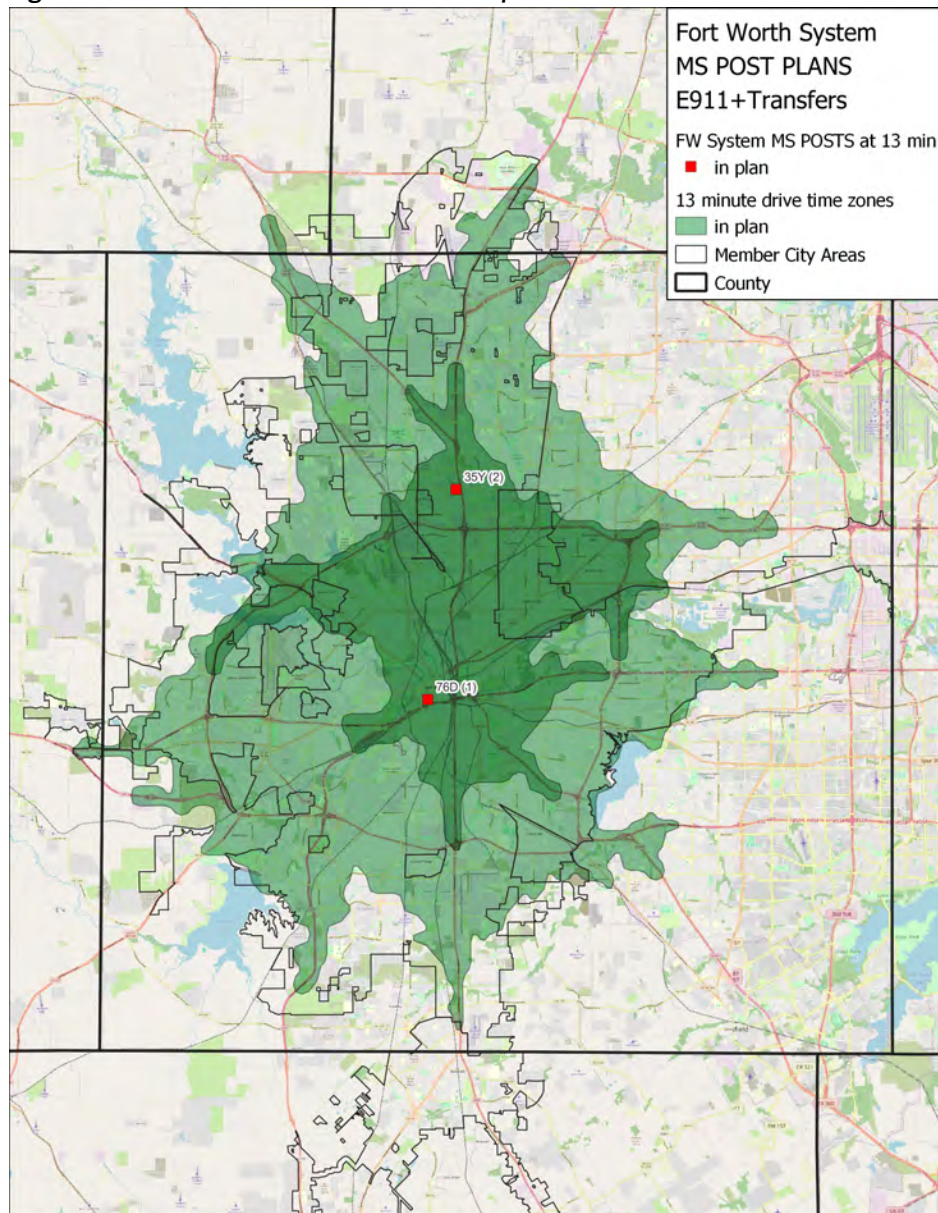
13-Minute Travel Time – System 911 Calls + Transfers

Results suggest that two prioritized posts can respond to 93.29% of the 911/transfer calls within 13 minutes or less travel time.

Table 38: MedStar Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	76D	13	152,078	152,078	84.55%
2	35Y	13	15,712	167,790	93.29%

Figure 38: Current MedStar Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers



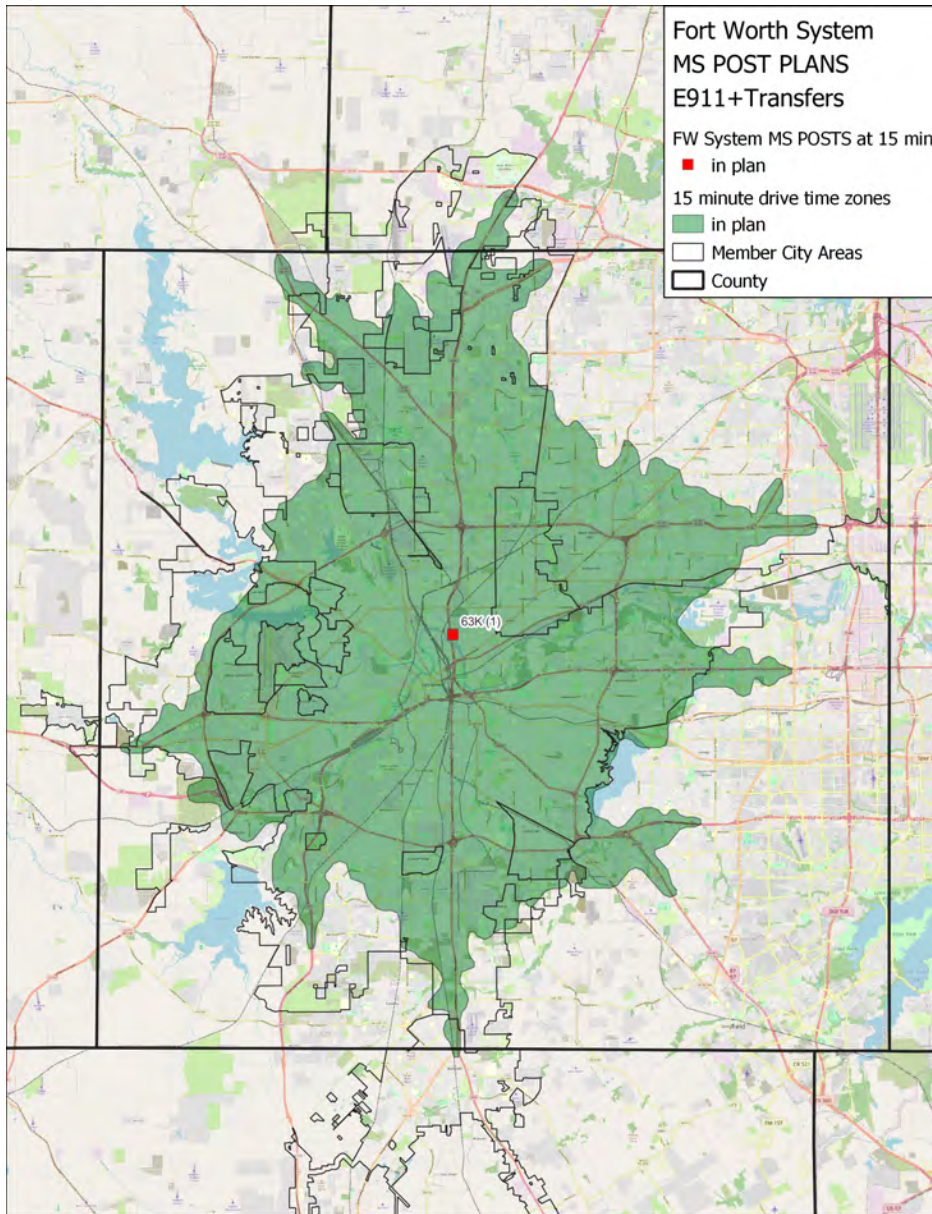
15-Minute Travel Time – System 911 Calls + Transfers

Results suggest that one prioritized post can respond to 92.93% of the 911/transfer calls within 15 minutes or less travel time.

Table 39: MedStar Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	63K	15	167,155	167,155	92.93%

Figure 39: Current MedStar Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers



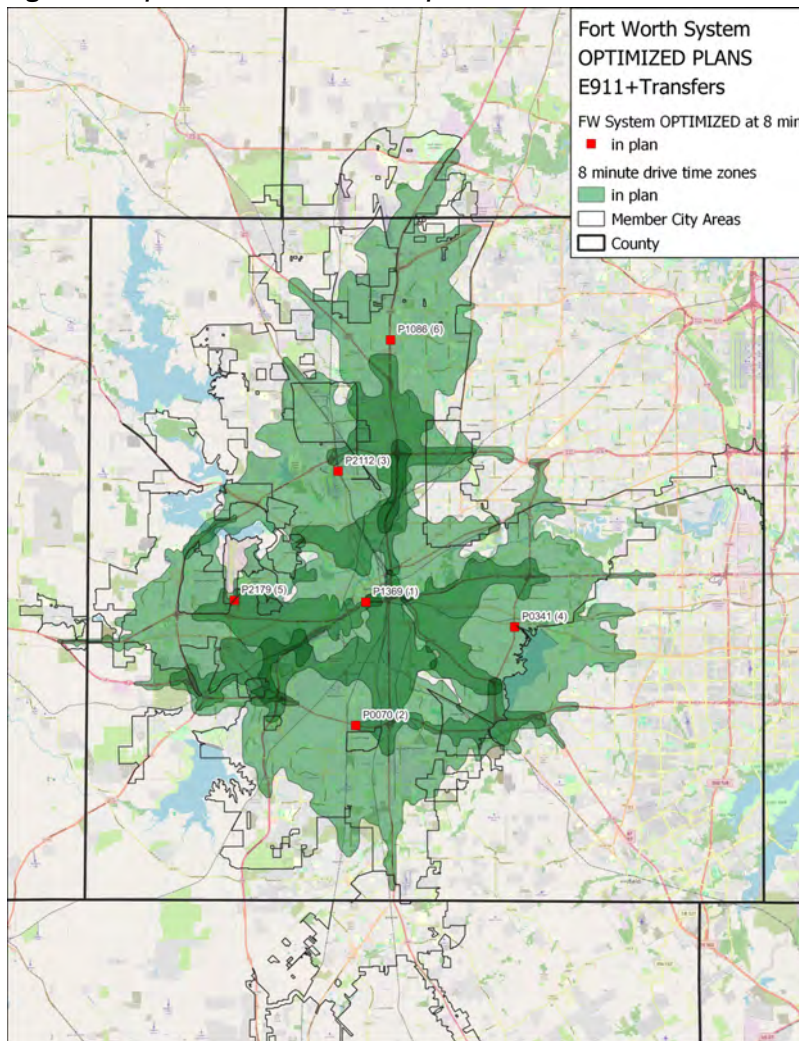
Optimized Posting Locations – System 911 Calls + Transfers (No MIH & Events) 8-Minute Travel Time – System 911 Calls + Transfers

Results suggest that six priority posts can respond to 91.58% of the 911/transfer calls within 8 minutes or less travel time.

Table 40: Optimized Post Contribution for 8-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	8	79,710	79,710	44.32%
2	P0070	8	31,959	111,669	62.09%
3	P2112	8	19,597	131,266	72.98%
4	P0341	8	13,247	144,513	80.35%
5	P2179	8	10,521	155,034	86.20%
6	P1086	8	9,684	164,718	91.58%

Figure 40: Optimized Posts Bleed Map for 8-Minute Travel Time – 911 Calls + Transfers



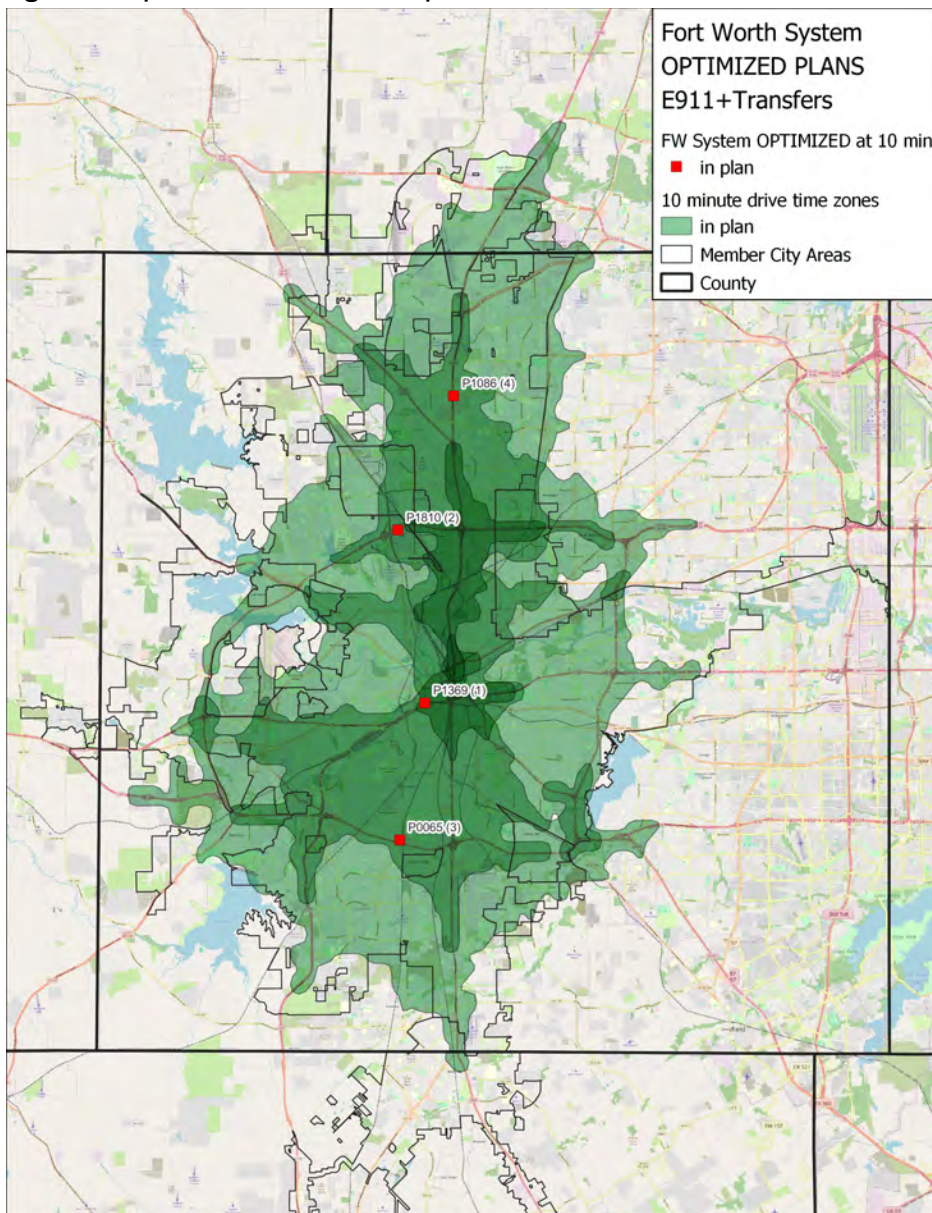
10-Minute Travel Time – System 911 Calls + Transfers

Results suggest that four prioritized posts can respond to 92.93% of the 911/transfer calls within 10 minutes or less travel time.

Table 41: Optimized Post Contribution for 10-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	10	119,305	119,305	66.33%
2	P1810	10	21,719	141,024	78.41%
3	P0065	10	20,399	161,423	89.75%
4	P1086	10	5,729	167,152	92.93%

Figure 41: Optimized Posts Bleed Map for 10-Minute Travel Time – 911 Calls + Transfers



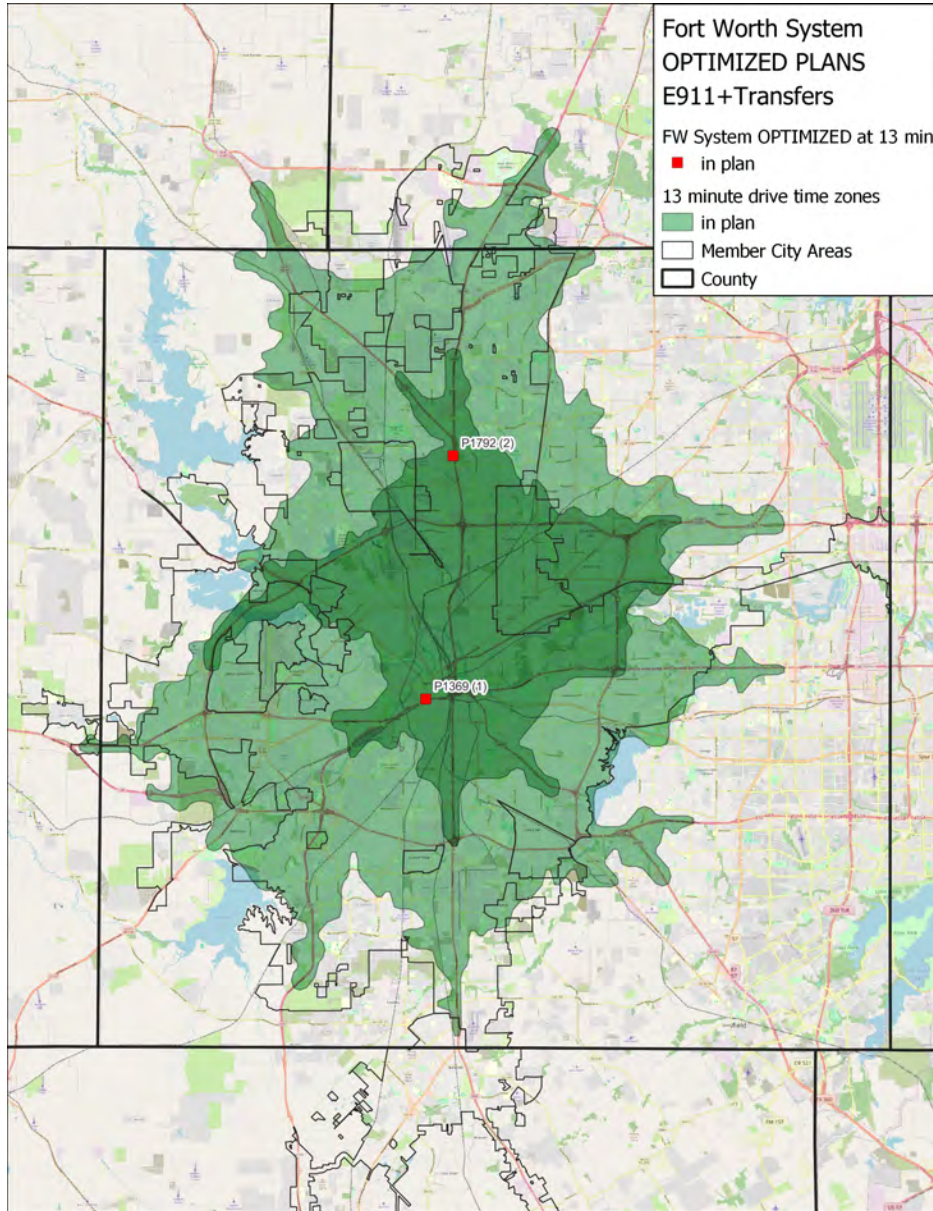
13-Minute Travel Time – System 911 Calls + Transfers

Results suggest that two prioritized posts can respond to 93.6% of the 911/transfer calls within 13 minutes or less travel time.

Table 42: Optimized Post Contribution for 13-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1369	13	153,260	153,260	85.21%
2	P1792	13	15,100	168,360	93.60%

Figure 42: Optimized Posts Bleed Map for 13-Minute Travel Time – 911 Calls + Transfers



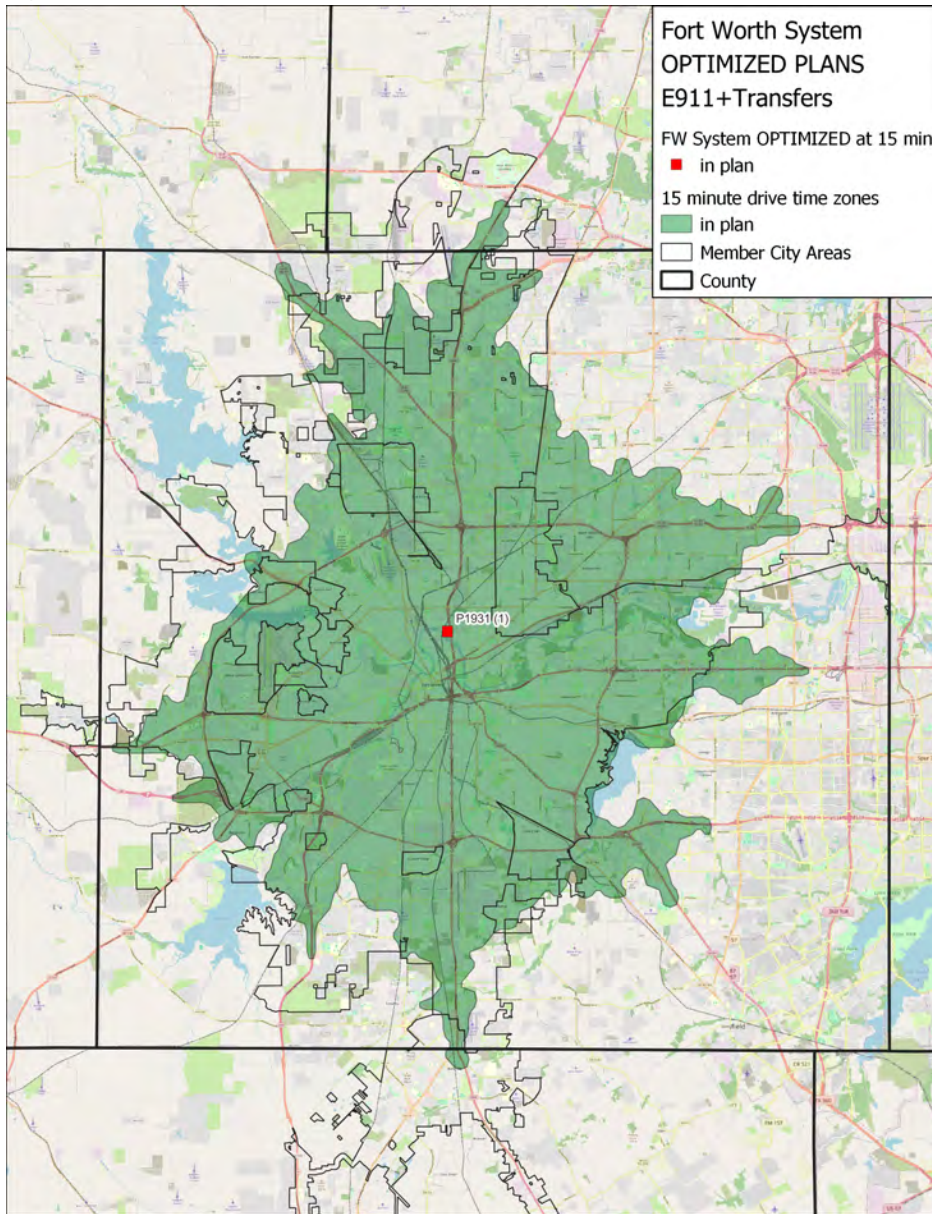
15-Minute Travel Time – System 911 Calls + Transfers

Results suggest that one prioritized post can respond to 93.41% of the 911/transfer calls within 15 minutes or less travel time.

Table 43: Optimized Post Contribution for 15-Minute Travel Time – 911 Calls + Transfers

Rank	Post	Drive Time (Min)	Post Capture	Total Capture	Percent Capture
1	P1931	15	168,011	168,011	93.41%

Figure 43: Optimized Posts Bleed Map for 15-Minute Travel Time – 911 Calls + Transfers



DISTRIBUTION OF RISK ACROSS THE JURISDICTION

Distribution of Demand by Program Areas

Heat maps were created to identify the concentration of the historic demand for services overall and by program area (i.e., 911, transfer, MIH, and Events). The blue areas have the lowest concentration of demand, and the dark red areas have the highest concentration of demand.

Figure 44: Heat Map for All Calls

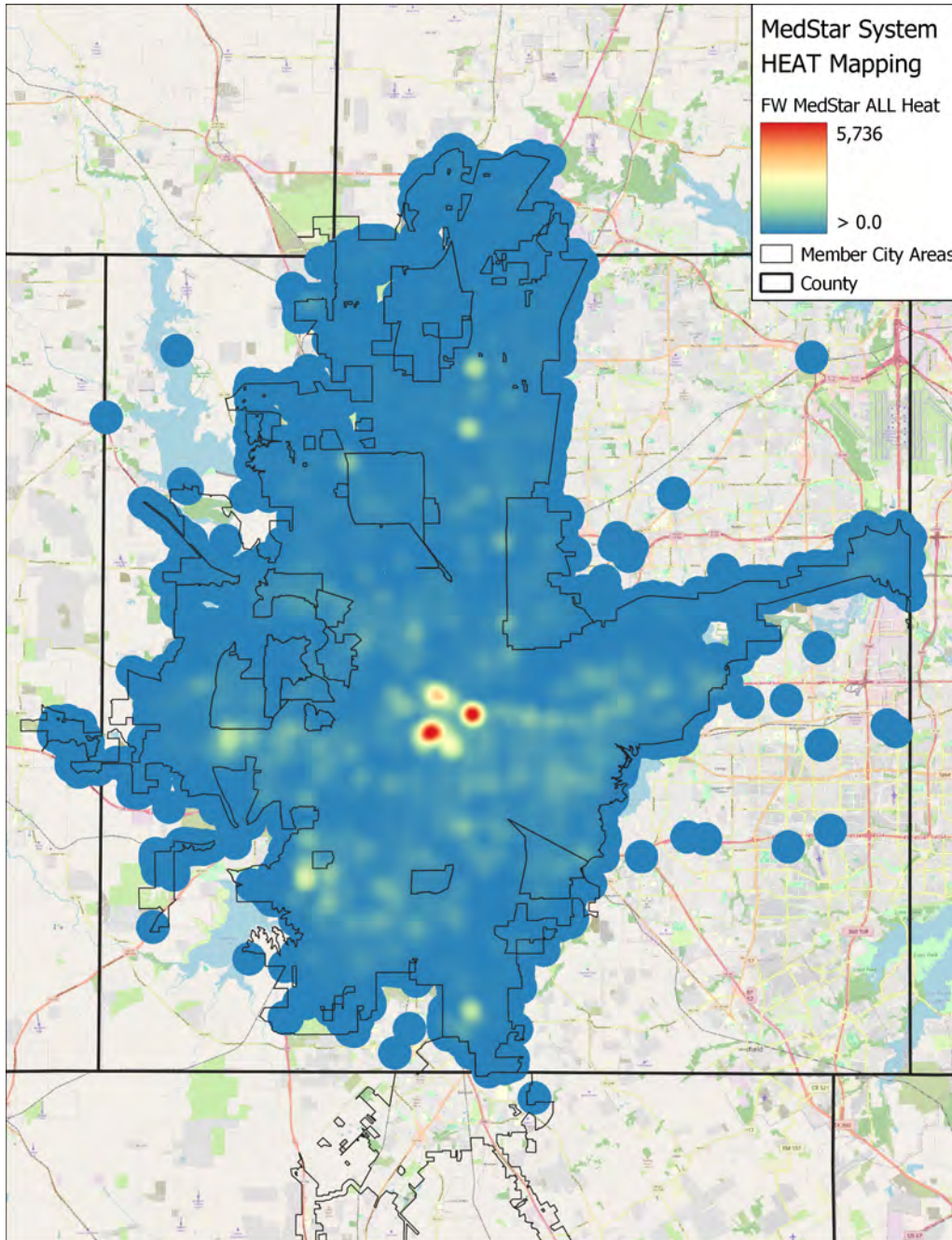


Figure 45: Heat Map for EMS 911 Calls

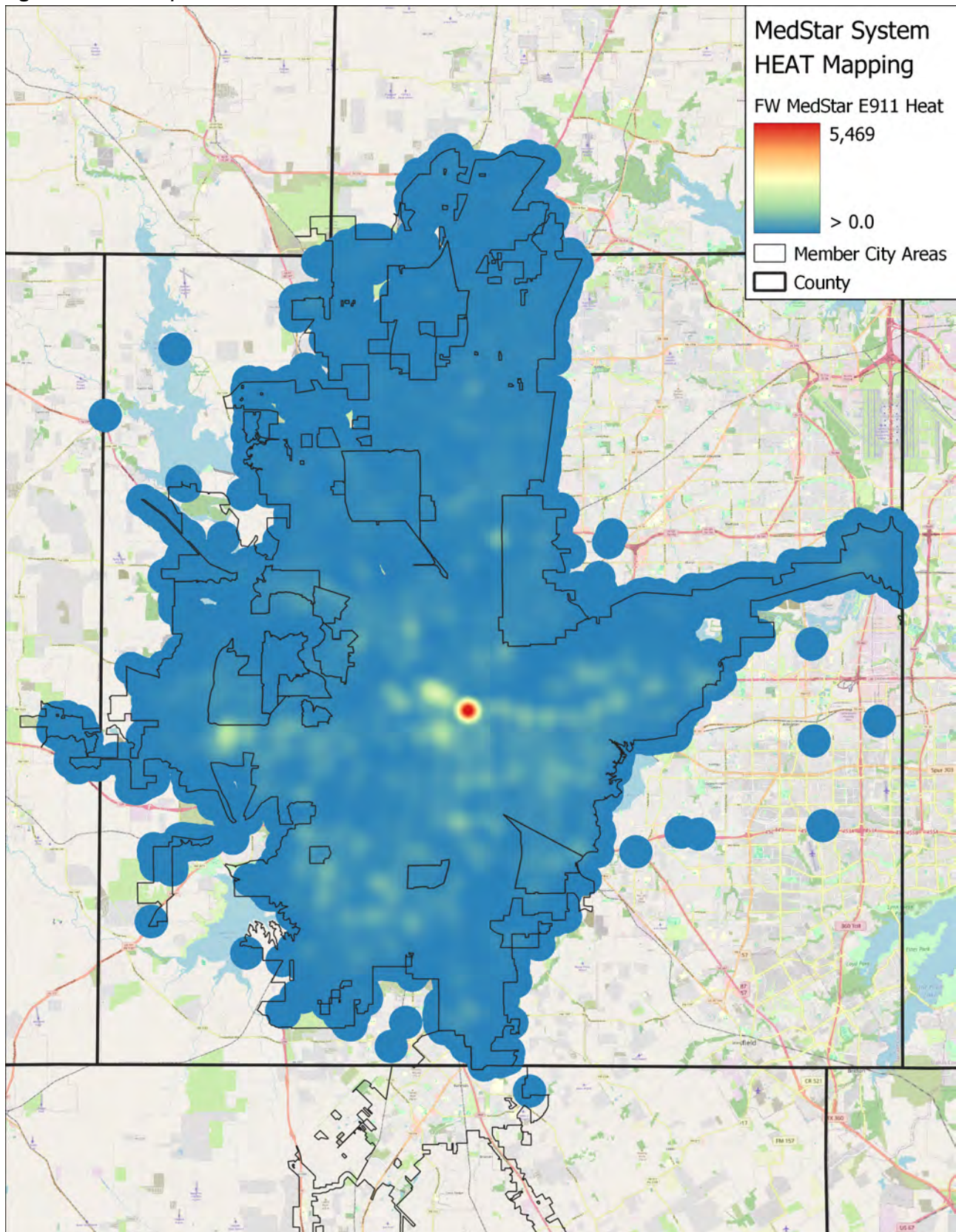


Figure 46: Heat Map for 911 + Transfer Calls

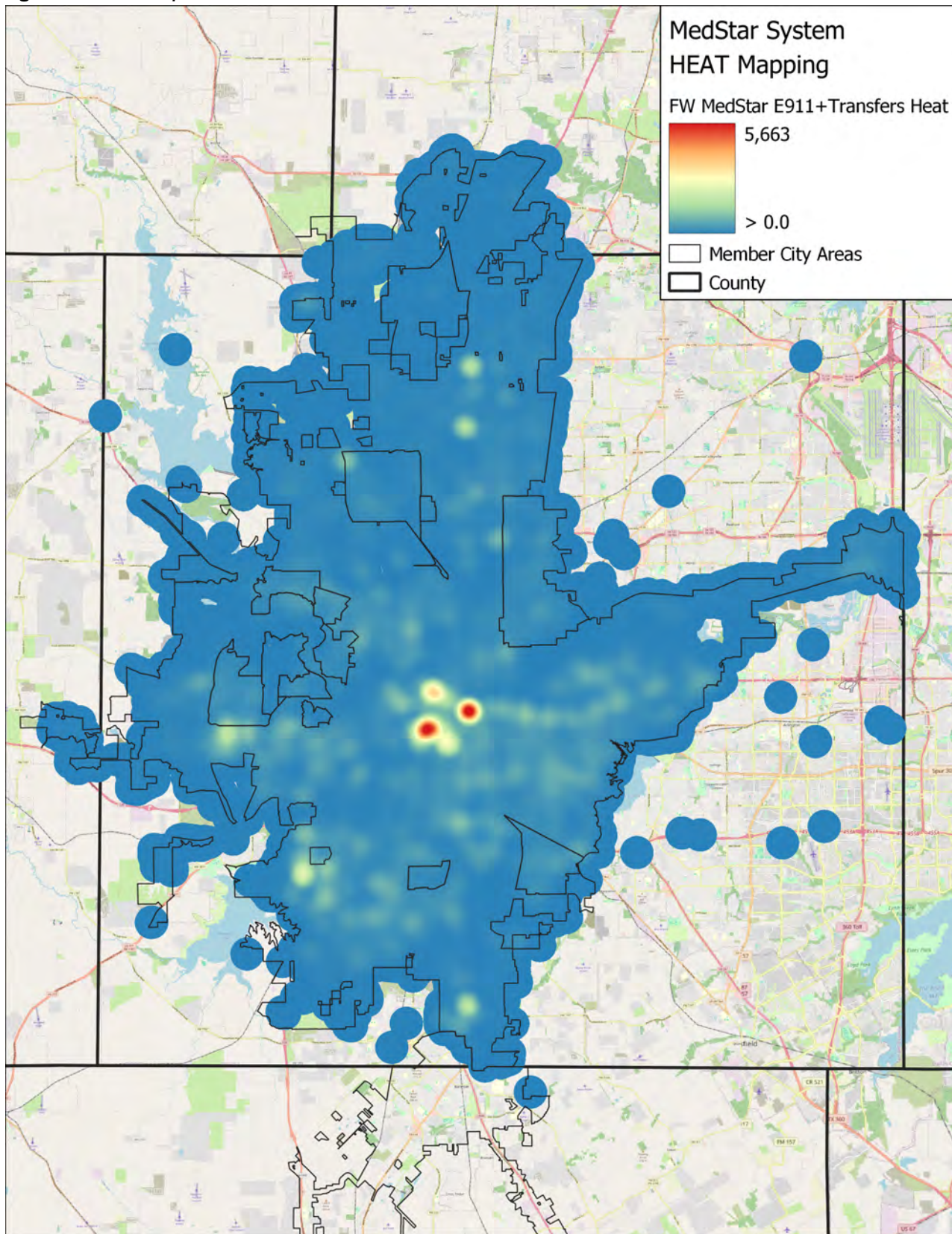


Figure 47: Heat Map for Transfer Calls

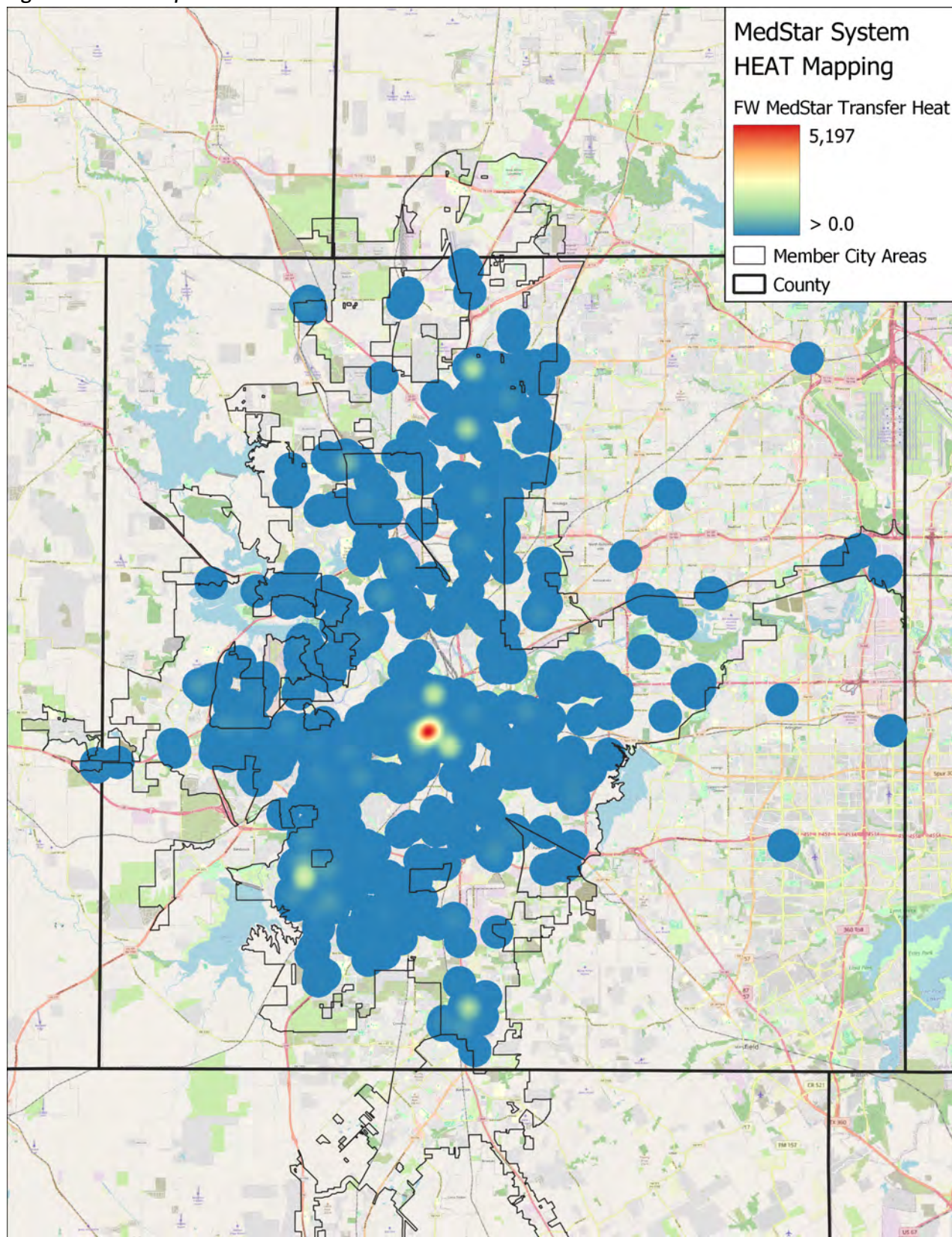


Figure 48: Heat Map for MIH Calls

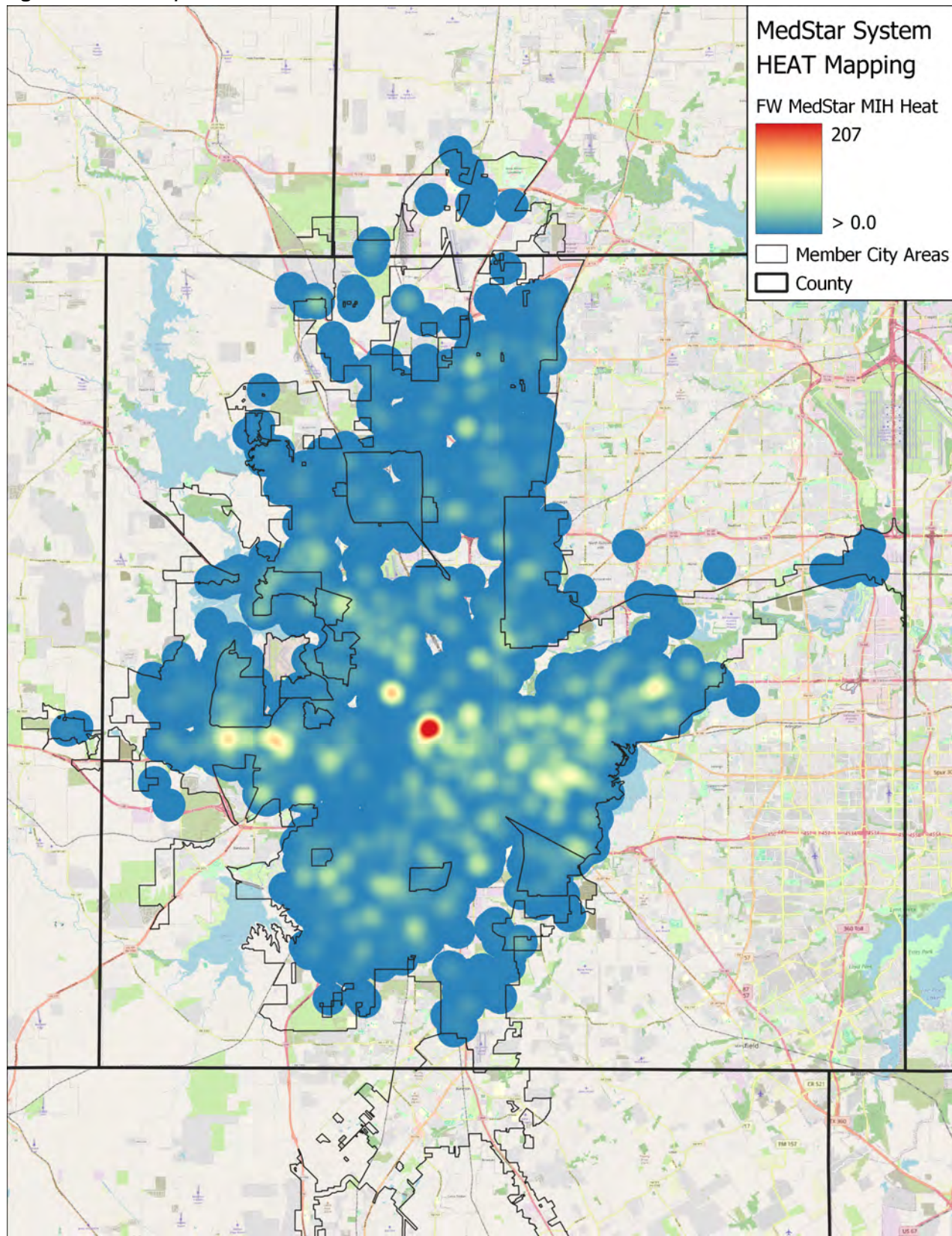
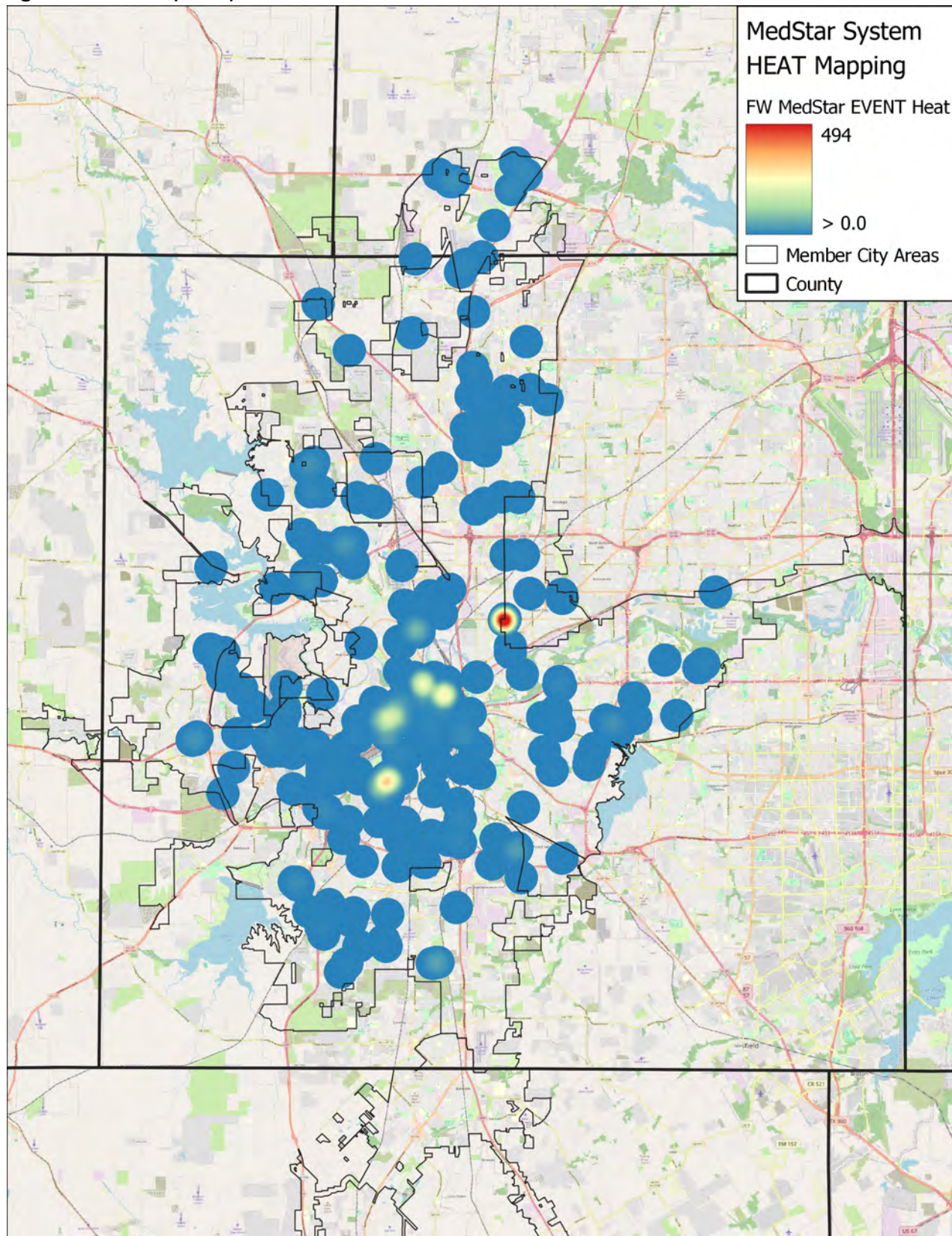
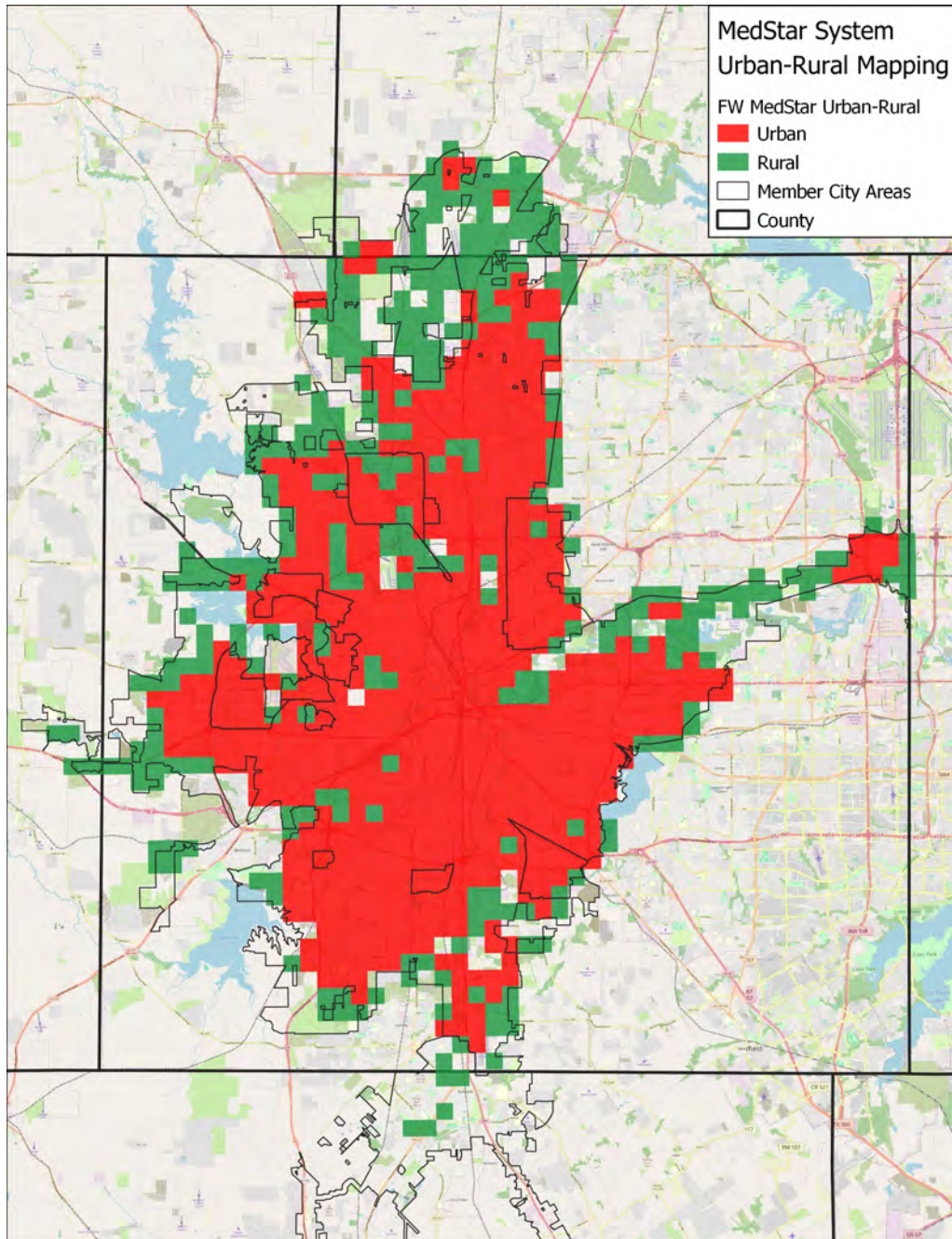


Figure 49: Heat Map for Special Events



Finally, we calculated call density based on the relative concentration of incidents based on approximately 0.5-mile geographic areas as well as the adjacent 0.5-mile areas. The results demonstrate an urban and rural designation based on call density for services and not based on population. The red areas are designated as urban service areas, and the green areas are designated as rural service areas. Any area that is not colored has less than one call every six months in the 0.5-mile area and the adjacent areas.

Figure 50: Urban and Rural Call Density Map



Long-Term Sustainability of the Models Presented

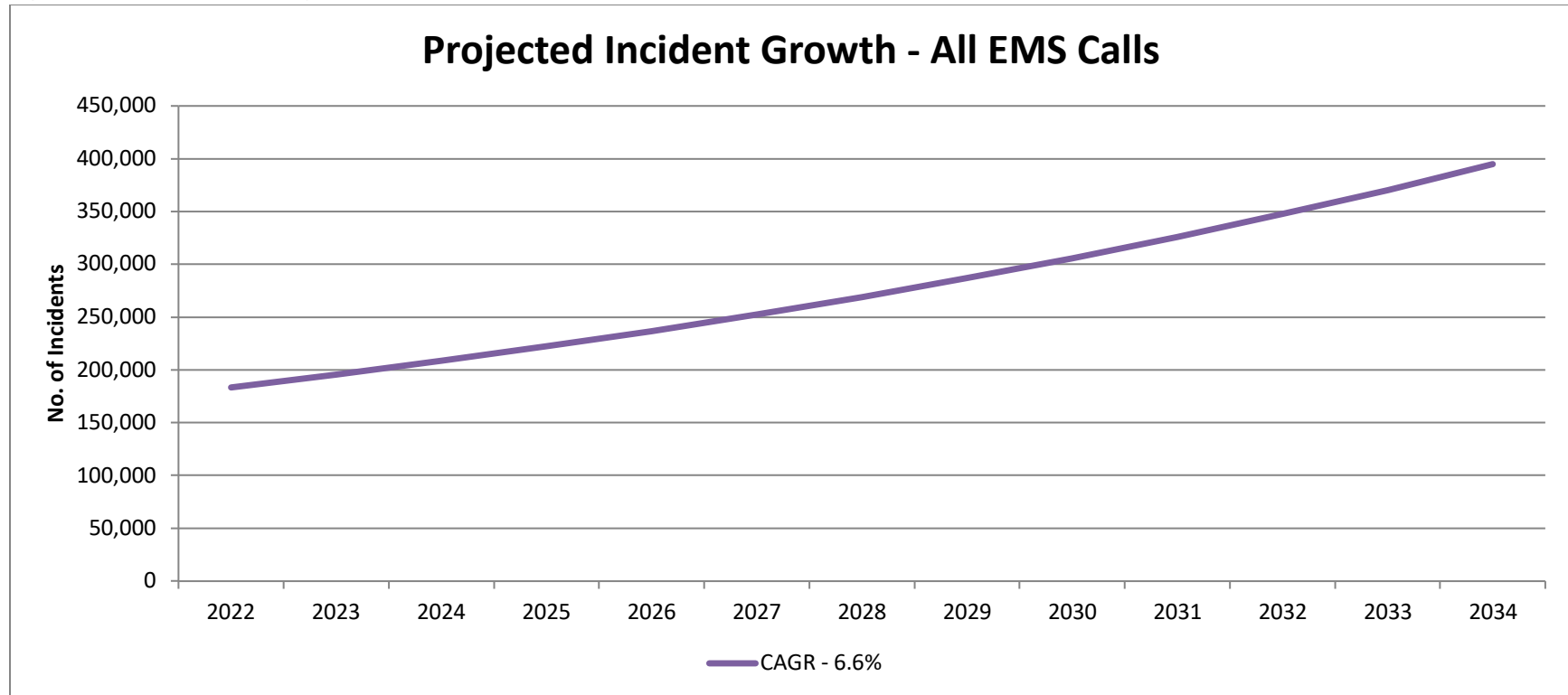
It is important to understand that the distribution models are restricted to the geographic limitations of the jurisdiction and the historical demand for services. Therefore, the number of stations/posts is descriptive of the number of fixed facilities and posting locations required from which to deploy resources. These analyses do not specifically describe the concentration of resources required at each fire station facility or post location to adequately handle the demand for services. For example, some stations/posts may require two or more units in order to handle the demand for services.

With respect to the long-term sustainability of the deployment models presented here, the models will remain accurate for as long as the jurisdiction's overall coverage area has not expanded. In other words, if the city's square mileage remains, then the deployment strategy will be sustainable indefinitely with respect to the coverage area. As other variables such as population density or socioeconomic status change over time, there may be a need for a higher concentration of resources necessary to meet the growing demand for services, but not additional stations. The most prominent reason that the geographic distribution model would need to be updated is for changes in traffic impedance that significantly limit the historical average travel speed. Monitoring travel time performance, system reliability, and call concurrency will provide timely feedback for changes in the environment that could impact the distribution model.

Projected Growth

The available data set included a two-year reporting period of data, representing FY 2021/22 to FY 2022/23. From FY 2021/21 to FY 2022/23, calls for EMS services increased from 183,320 to 195,506, with a compound annual growth rate (CAGR) of 6.6% per year. These projections should be used with caution due to the limited sample size. In all cases, data should be reviewed annually to ensure timely updates to projections and utilize a five-year rolling average.

Figure 51: Observed and Projected Growth in Call Volume



FITCH

& ASSOCIATES



FITCH

& ASSOCIATES

December 2023

COMPARABLE AGENCY AND COMMUNITY SURVEY CITY of FORT WORTH



FORT WORTH®

📍 PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎ (816) 431-2600

📄 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

METHODOLOGY	1
COMPARABLE AGENCIES AND JURISDICTIONS	2
Figure 1: Map of Comparable Agencies/Jurisdictions	2
AGENCY DEMOGRAPHICS	3
Table 1: Agency Demographics – Service Area, Mission, and Volume	3
Table 2: Agency Demographics – System Design, Service Level, Deployment Strategy	4
AGENCY GOVERNANCE	5
Table 3: Agency Governance and Ownership	5
AGENCY FUNDING	6
Table 4: Agency Funding Mechanisms	6
Table 5: Other Sources of Funding (not included in public funding)	7
AGENCY COSTS	8
Table 6: Unit Hours Deployed and Cost	8
Table 7: Positions/Certification Levels Used and Cost	9
AGENCY OPERATIONS	10
Table 8: 90 th Percentile Travel Times for Emergency Responses	10
Table 9: Additional Response Time Info	11
Table 10: Vehicles and Special Event Coordination	12
MEDICAL DIRECTION	13
Table 7: Positions/Certification Levels Used and Cost	13
MOBILE INTEGRATED HEALTH	14
Table 12: Mobile Integrated Health Information	14
COMMUNICATIONS CENTER AND RADIO COMMUNICATIONS	15
Table 13: Mobile Integrated Health Information	15
Table 14: Interoperability Capabilities	16
AGENCY REIMBURSEMENT	17
Table 15: Non-Reimbursing Sites/Recipients	17
Table 16: Contracts for Receiving Facilities and Billing Process Ownership and Cost	18
Table 17: Chargemaster (Current Service Rates)	19
Table 18: Payor Mix as a Percent of EMS Volume	20
Table 19: Payor Mix as a Percent of Net EMS Collections	21

METHODOLOGY

This report represents data gathered from multiple agencies across the country. These agencies were selected by FITCH and the City of Fort Worth based on comparable size, volume, or other characteristics. The data was captured through interviews and the completion of an online questionnaire. The results provided here are directly from the data input.

COMPARABLE AGENCIES AND JURISDICTIONS

Figure 1: Map of Comparable Agencies/Jurisdictions



AGENCY DEMOGRAPHICS

Table 1: Agency Demographics – Service Area, Mission, and Volume

Agency Number ¹	Agency Name	Service Area Size (Square Miles)	Service Area Population	Primary Agency Mission	Primary EMS Mission	Annual EMS Call Volume – 9-1-1	Annual EMS Call Volume - IFT
1	Indianapolis EMS (IN)	275	950,000	EMS Only	Transport	130,000	0
2	San Diego Fire and Rescue (CA)	372	1,400,000	Fire and EMS	First Response and Transport	150,000	0
3	Austin-Travis County EMS (TX)	1,100	1,400,000	EMS Only	Transport	152,200	0
4	Arlington Fire Department (TX)	100	386,000	Fire and EMS	First Response	36,000	0
5	San Jose Fire Department (CA)	210	983,000	Fire and EMS	First Response	63,132	0
6	Harris County Emergency Services District 11 (TX)	177	700,000	EMS Only	Transport	57,000	0
7	REMSA Health (NV)	6,542	506,016	EMS Only	Transport	86,064	12,120
8	Richmond Ambulance Authority (VA)	62	226,604	EMS Only	Transport	48,736	8,074
9	Mecklenburg EMS Agency – MEDIC (NC)	546	1,100,000	EMS Only	Transport	156,480	0
10	City of Houston Fire Department (TX)	665	2,288,000	Fire and EMS	First Response and Transport	331,995	0
11	Columbus Division of Fire (OH)	225	920,000	Fire and EMS	First Response and Transport	135,000	0
12	Seattle Fire (WA)	84	700,000	Fire and EMS	First Response and Transport	78,842	0
13	Pinellas County Emergency Medical Services Authority (FL)	273	959,103	Fire and EMS	First Response and Transport	185,735	54,099
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	960	1,100,000	EMS Only	First Response and Transport	250,000	30,000
15	Dallas Fire Rescue (TX)	385	1,300,000	Fire and EMS	First Response and Transport	256,000	0
16	MedStar (TX)	433	1,139,326	EMS Only	Transport	151,433	29,827

¹ This will be the number used throughout the survey to identify agency information. It has no bearing on rank, size, or anything else.

Table 2: Agency Demographics – System Design, Service Level, Deployment Strategy

Agency Number	Agency Name	System Design	Level of First Response	Level of Transport	Deployment Strategy
1	Indianapolis EMS (IN)	Hospital Based	ALS and BLS Tiered	ALS and BLS Tiered	Station Based
2	San Diego Fire and Rescue (CA)	Alliance Model/Purchased Hours	ALS	ALS and BLS Tiered	Dynamic/System Status
3	Austin-Travis County EMS (TX)	3 rd Service	BLS	ALS	Station Based
4	Arlington Fire Department (TX)	Private	ALS	N/A	Station Based
5	San Jose Fire Department (CA)	Fire Based	ALS	ALS	Station Based
6	Harris County Emergency Services District 11 (TX)	3 rd Service	ALS and BLS Tiered	ALS and BLS Tiered	Hybrid ²
7	REMSA Health (NV)	Private Non-Profit	ALS and BLS Tiered	ALS and BLS Tiered	Dynamic/System Status
8	Richmond Ambulance Authority (VA)	Public Utility Model	ALS and BLS Tiered	ALS and BLS Tiered	Dynamic/System Status
9	Mecklenburg EMS Agency – MEDIC (NC)	Public Utility Model	ALS and BLS Tiered	ALS and BLS Tiered	Dynamic System Status
10	City of Houston Fire Department (TX)	Fire Based	ALS and BLS Tiered	ALS and BLS Tiered	Station Based
11	Columbus Division of Fire (OH)	Fire Based	ALS and BLS Tiered	ALS and BLS Tiered	Station Based
12	Seattle Fire (WA)	Fire Based	ALS	ALS and BLS Tiered	Other ³
13	Pinellas County Emergency Medical Services Authority (FL)	Public Utility Model	ALS	ALS and BLS Tiered	Dynamic/System Status
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	Public Utility Model	ALS and BLS Tiered	ALS and BLS Tiered	Dynamic System Status
15	Dallas Fire Rescue (TX)	Fire Based	ALS	ALS	Station Based
16	MedStar (TX)	Public Utility Model	ALS and BLS	ALS and BLS Tiered	Dynamic/System Status

² Hybrid strategy indicates the use of both fixed station locations as well as dynamically deployed (or System Status) units.

³ Seattle Fire does 1st response for all calls and ALS transport. AMR does BLS transport.

AGENCY GOVERNANCE

Table 3: Agency Governance and Ownership

Agency Number	Agency Name	Primary Administration or Governance	Owned by Governance or Contractor	Who Sets Response Time Standards
1	Indianapolis	County Government	Contractor ⁴	Internally Adopted
2	San Diego	City Government	Owned/Contractor ⁵	Internally Adopted
3	Austin-Travis County	City Government	Owned	Internally Adopted
4	Arlington FD	City Government	Owned	Contract Language
5	San Jose FD	City Government	Owned	Contract Language
6	Harris County ESD11	Emergency Response District	Owned	Internally Adopted
7	REMSA	Not For Profit	Contractor	Contract Language
8	RAA (Richmond)	Non Profit	Contractor ⁶	Internally Adopted
9	MEDIC Charlotte	Other ⁷	Contractor ⁸	Contract Language
10	Houston FD	City Government	Owned	Internally Adopted
11	Columbus Fire	City Government	Owned	Ordinance
12	Seattle Fire	City Government	Owned	Internally Adopted
13	Pinellas County	County Government	Contractor	Contract Language
14	EMSA (Tulsa and OKC)	Other ⁹	Owned	Ordinance
15	Dallas FR	City Government	Owned	Internally Adopted
16	MedStar	Joint Governmental Agency	Owned	Internally Adopted

⁴ Operates under an interlocal agreement between the Marion County Health & Hospital Corporation and The City of Indianapolis

⁵ Department of the City

⁶ Quasi Government

⁷ Agency Board of Commissioners appointed by the Board of County Commissioners

⁸ Joint Government Agency

⁹ Public Trust/Quasi-Governmental Agency

AGENCY FUNDING

Table 4: Agency Funding Mechanisms

Agency Number	Agency Name	Primary Source of Funding	Fire Service Models: Percent Allocated to EMS Mission	Fire Service Models: Amount Allocated to EMS Mission	If non-governmental agency, public funding's percentage of annual operating costs?
1	Indianapolis	Fees for Service	--		--
2	San Diego	General Fund	30%	\$76,000,000	--
3	Austin-Travis County	General Fund	--		--
4	Arlington FD	General Fund	--		--
5	San Jose FD	General Fund	--		--
6	Harris County ESD11	Other: 50/50 restricted tax & fee for service.	--		--
7	REMSA	Fees for Service	--		--
8	RAA (Richmond)	Fees for Service	--		22.9%
9	MEDIC Charlotte	Fees for Service	--		25%
10	Houston FD	General Fund	26%	\$156,000,000	--
11	Columbus Fire	General Fund	27%	\$83,430,000	--
12	Seattle Fire	General Fund	--		--
13	Pinellas County	Fees for Service	--		--
14	EMSA (Tulsa and OKC)	Fees for Service	--		14%
15	Dallas FR	General Fund			
16	MedStar	Fees for Service	-	-	0%

Table 5: Other Sources of Funding (not included in public funding)

Agency Number	Agency Name	Grants	Donations	Service Contracts	Stand-By	PEMT/GEMT	ASPP ¹⁰	Other
1	Indianapolis EMS (IN)	X			X			
2	San Diego Fire and Rescue (CA)					X		
3	Austin-Travis County EMS (TX)					X		
4	Arlington Fire Department (TX)	X			X			
5	San Jose Fire Department (CA)	X		X				
6	Harris County Emergency Services District 11 (TX)						X	
7	REMSA Health (NV)		X	X	X			X ¹¹
8	Richmond Ambulance Authority (VA)	X			X			
9	Mecklenburg EMS Agency – MEDIC (NC)	X	X	X	X			
10	City of Houston Fire Department (TX)	X	X	X			X	
11	Columbus Division of Fire (OH)	X			X			
12	Seattle Fire (WA)							
13	Pinellas County Emergency Medical Services Authority (FL)	X			X	X		
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)			X	X	X		
15	Dallas Fire Rescue (TX)	X					X	
16	MedStar (TX)	X		X	X		X	X

¹⁰ ASPP is the Texas Ambulance Supplemental Payment Program which is part of the Federal Government Ambulance Services Supplemental Payment Program

¹¹ Education Services (REMSA)

AGENCY COSTS

Table 6: Unit Hours Deployed and Cost

Agency Number	Agency Name	Total Deployed ALS Unit Hours (Annual)	ALS Unit Hour Cost	Total Deployed BLS Unit Hours (Annual)	BLS Unit Hour Cost
1	Indianapolis EMS (IN)	214,620	\$100.00	70,080	\$75.00
2	San Diego Fire and Rescue (CA)	319,740	\$218.00	48,180	\$185.00
3	Austin-Travis County EMS (TX)	402,960	Not Provided	Not Provided	Not Provided
4	Arlington Fire Department (TX)	262,800	Not Provided	Not Provided	Not Provided
5	San Jose Fire Department (CA)	26,208	Not Provided	Not Provided	Not Provided
6	Harris County Emergency Services District 11 (TX)	184,554	\$198.00	15,776	\$174.00
7	REMSA Health (NV)	141,440	\$187.00	27,040	\$187.00
8	Richmond Ambulance Authority (VA)	43,637	\$195.12	38,739	\$195.12
9	Mecklenburg EMS Agency – MEDIC (NC)	245,095	\$231.76	15,716	\$231.76
10	City of Houston Fire Department (TX)	402,960	\$197.86	477,420	\$155.08
11	Columbus Division of Fire (OH)	367,920	\$226.76	Not Provided	Not Provided
12	Seattle Fire (WA)	70,080	\$215.00	43,800	\$195.00
13	Pinellas County Emergency Medical Services Authority (FL)	296,000	\$150.00	198,000	\$150.00
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	341,071	\$234.00	62,485	\$198.00
15	Dallas Fire Rescue (TX)	429,240	\$137.00	Not Provided	Not Provided
16	MedStar (TX)	Forthcoming in study	Forthcoming in study	Forthcoming in study	Forthcoming in study

COMPARABLE AGENCY AND COMMUNITY REPORT
CITY OF FORT WORTH

Table 7: Positions/Certification Levels Used and Cost

Agency Number	Agency Name	EMT ¹²	\$	AEMT ¹³	\$	PM ¹⁴	\$	FF ¹⁵ EMT	\$	FF PM	\$	Other
1	Indianapolis	X	\$25.89			X	\$33.88					MD
2	San Diego	X				X		X		X		
3	Austin-Travis County	X	\$39.59			X	\$49.04					¹⁶
4	Arlington FD	X		X		X		X	\$32.96	X	\$33.40	
5	San Jose FD							X	\$49.14	X	\$56.03	
6	Harris County ESD11	X	\$20.45	X	\$23.89	X	\$30.84					
7	REMSA	X	\$18.06	X	\$19.86	X	\$29.21					
8	RAA (Richmond)	X	\$19.82	X	\$22.00	X	\$31.27					
9	MEDIC Charlotte	X	\$22.09			X	\$33.06	X				
10	Houston FD							X	\$36.17	X	\$42.71	
11	Columbus Fire							X	\$59.14	X	\$65.34	
12	Seattle Fire	X						X	\$45.00	X	\$54.00	¹⁷
13	Pinellas County	X	\$20.71			X	\$27.43					
14	EMSA (Tulsa and OKC)	X	\$16.82			X	\$25.62					
15	Dallas FR					X	\$46.04	X	\$46.04	X	\$46.04	
16	MedStar (TX)	X	\$17.69	X	\$17.69	X	\$27.05	N/A	N/A	N/A	N/A	N/A

¹² Emergency Medical Technician

¹³ Advanced Emergency Medical Technician

¹⁴ Paramedic

¹⁵ Firefighter

¹⁶ Advanced Paramedics and Physician Assistants

¹⁷ AMR uses EMTs only

AGENCY OPERATIONS

Table 8: 90th Percentile Travel Times for Emergency Responses¹⁸

Agency Number	Agency Name	Overall	Urban	Suburban	Rural	Wilderness
1	Indianapolis	0:13:16	0:12:30	0:14:34	N/A	N/A
2	San Diego	0:12:00 Target	N/A	N/A	N/A	N/A
3	Austin-Travis County	0:11:57	N/A	N/A	N/A	N/A
4	Arlington FD	0:04:36	N/A	N/A	N/A	N/A
5	San Jose FD	N/A	N/A	N/A	N/A	N/A
6	Harris County ESD11	0:11:10	N/A	0:11:10	N/A	N/A
7	REMSA	N/A	0:09:02	0:15:42	0:18:36	0:31:54
8	RAA (Richmond)	0:10:30	0:10:30	N/A	N/A	N/A
9	MEDIC Charlotte	0:8:48	N/A	N/A	N/A	N/A
10	Houston FD	0:10:39	N/A	N/A	N/A	N/A
11	Columbus Fire	0:06:33	N/A	N/A	N/A	N/A
12	Seattle Fire	N/A	N/A	N/A	N/A	N/A
13	Pinellas County	0:06:05	N/A	N/A	N/A	N/A
14	EMSA (Tulsa and OKC)	0:14:21	N/A	N/A	N/A	N/A
15	Dallas FR	0:08:08	0:08:08	N/A	N/A	N/A
16	MedStar (TX)	13:30	N/A	N/A	N/A	N/A

¹⁸ H:MM:SS (Hours Minutes and Seconds) at the 90th percentile

Table 9: Additional Response Time Info

Agency Number	Agency Name	Does First Response Stop the Clock?	Who is Responsible for Response Time Oversight?	Average Wall/Wait Time at Hospitals? ¹⁹
1	Indianapolis EMS (IN)	No	Internal Accountability	0:08:27
2	San Diego Fire and Rescue (CA)	No	Internal Accountability	
3	Austin-Travis County EMS (TX)	No	State/Local Government	
4	Arlington Fire Department (TX)	No	State/Local Government	
5	San Jose Fire Department (CA)	Yes	State/Local Government	
6	Harris County Emergency Services District 11 (TX)	No	Internal Accountability	0:39:56
7	REMSA Health (NV)	No	Contract Performance Oversight	0:20:41
8	Richmond Ambulance Authority (VA)	No	Internal Accountability	0:36:00
9	Mecklenburg EMS Agency – MEDIC (NC)	Yes	State/Local Government	0:31:33
10	City of Houston Fire Department (TX)	No	Internal Accountability	0:24:32
11	Columbus Division of Fire (OH)	No	Internal Accountability	0:20:00
12	Seattle Fire (WA)	No	Internal Accountability	
13	Pinellas County Emergency Medical Services Authority (FL)	No	Contract Performance Oversight	
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	No	State/Local Government	0:30:00
15	Dallas Fire Rescue (TX)	No	Internal Accountability	
16	MedStar (TX)	No	Internal Accountability	0:26:36

¹⁹ H:MM:SS (Hours, Minutes and Seconds)

Table 10: Vehicles and Special Event Coordination

Agency Number	Agency Name	Requirements for Type and Nature of Vehicles Purchased?	Are Special Events Coordinated Between Agencies that Serve the Same Jurisdiction
1	Indianapolis EMS (IN)	No	Yes
2	San Diego Fire and Rescue (CA)	Yes	Yes
3	Austin-Travis County EMS (TX)	No	Yes
4	Arlington Fire Department (TX)	No	Yes
5	San Jose Fire Department (CA)	No	No
6	Harris County Emergency Services District 11 (TX)	No	Yes
7	REMSA Health (NV)	No	Yes
8	Richmond Ambulance Authority (VA)	No	Yes
9	Mecklenburg EMS Agency – MEDIC (NC)	No	Yes
10	City of Houston Fire Department (TX)	No	Yes
11	Columbus Division of Fire (OH)	No	Yes
12	Seattle Fire (WA)	No	Yes
13	Pinellas County Emergency Medical Services Authority (FL)	Yes	Yes
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	No	Yes
15	Dallas Fire Rescue (TX)	No	Yes
16	MedStar (TX)	No	Yes

MEDICAL DIRECTION

Table 11: Positions/Certification Levels Used and Cost

Agency Number	Agency Name	Internal (Employed) or External	Annual Cost	What Services Are Included in the Cost of Medical Direction						
				Protocol Devel.	Protocol Admin.	Credentialing	QA	CQI	Training	Research
1	Indianapolis	External		X	X	X	X	X	X	X
2	San Diego	External	\$480,000	X	X	X	X	X	X	X
3	Austin-Travis County	Internal	\$3,000,000	X	X	X	X	X	X	X
4	Arlington FD	External	\$110,000	X	X	X	X	X		
5	San Jose FD	External	\$165,000				X	X	X	X
6	Harris County ESD11	Internal	\$315,000	X	X	X	X	X	X	X
7	REMSA	External	\$250,000	X	X	X	X	X	X	
8	RAA (Richmond)	External	\$42,500	X	X	X	X			X
9	MEDIC Charlotte	External	\$273,000	X	X	X	X	X		X
10	Houston FD	Internal	\$4,361,946	X	X	X	X	X	X	X
11	Columbus Fire	Internal	\$300,000	X	X	X	X	X	X	X
12	Seattle Fire	External		X	X	X	X	X	X	X
13	Pinellas County	External	\$1,537,085	X	X	X	X	X	X	X
14	EMSA (Tulsa and OKC)	External	\$1,300,000	X	X	X	X	X		X
15	Dallas FR	External	\$3,100,000	X	X	X	X	X	X	X
16	MedStar (TX)	Internal	\$2,244,974	X	X	X	X	X	X	X

MOBILE INTEGRATED HEALTH

Table 12: Mobile Integrated Health Information

Agency Number	Agency Name	How Many FTE associated with MIH?	Does MIH Program Pay for Itself?	Has MIH Program Reduced 9-1-1 Calls
1	Indianapolis EMS (IN)	2	No	Yes
2	San Diego Fire and Rescue (CA)	7	No	Yes
3	Austin-Travis County EMS (TX)	58	No	Yes
4	Arlington Fire Department (TX)	0	No	No
5	San Jose Fire Department (CA)	0	No	No
6	Harris County Emergency Services District 11 (TX)	0	No	No
7	REMSA Health (NV)	0	No	No
8	Richmond Ambulance Authority (VA)	0	No	No
9	Mecklenburg EMS Agency – MEDIC (NC)	0	No	No
10	City of Houston Fire Department (TX)	0	No	No
11	Columbus Division of Fire (OH)	20	No	Yes
12	Seattle Fire (WA)	15	No	Yes
13	Pinellas County Emergency Medical Services Authority (FL)	0	No	No
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	0	No	No
15	Dallas Fire Rescue (TX)	38	No	Yes
16	MedStar	10	Yes	Yes

COMMUNICATIONS CENTER AND RADIO COMMUNICATIONS

Table 13: Mobile Integrated Health Information

Agency Number	Agency Name	Describe Your Systems 9-1-1 Comms. Center	How Many Times Would an EMS Caller be Transferred prior to the call being dispatched	Which Agency Completes Medical Call Prioritization and Triage
1	Indianapolis EMS (IN)	Consolidated/Unified	0	Primary PSAP
2	San Diego Fire and Rescue (CA)	Phone Transfer Only	1	Secondary PSAP
3	Austin-Travis County EMS (TX)	Other ²⁰	1	Secondary PSAP
4	Arlington Fire Department (TX)	Consolidated/Unified	0	Primary PSAP
5	San Jose Fire Department (CA)	Phone Transfer Only	2	Primary PSAP
6	Harris County Emergency Services District 11 (TX)	Separate but CAD2CAD	1	Secondary PSAP
7	REMSA Health (NV)	Separate but CAD2CAD	1	Secondary PSAP
8	Richmond Ambulance Authority (VA)	Separate but CAD2CAD	1	Secondary PSAP
9	Mecklenburg EMS Agency – MEDIC (NC)	Separate but CAD2CAD	1	Secondary PSAP
10	City of Houston Fire Department (TX)	Co-located	1	Secondary PSAP
11	Columbus Division of Fire (OH)	Co-located	1	Secondary PSAP
12	Seattle Fire (WA)	Phone Transfer Only	1	Secondary PSAP
13	Pinellas County Emergency Medical Services Authority (FL)	Consolidated/Unified	0	Primary PSAP
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	Co-located	1	Secondary PSAP
15	Dallas Fire Rescue (TX)	Consolidated/Unified	1	Secondary PSAP
16	MedStar (TX)	Separate but CAD2CAD	1 for Ambulance 2 for FD	Secondary PSAP

²⁰ EMS Is Treated as a Secondary PSAP

Table 14: Interoperability Capabilities

Agency Number	Agency Name	Can all providers in the same service area communicate on the radio system (unit to unit)?	Can first responders and patient transport units know where units are while co-responding? (i.e. MDC/GIS)
1	Indianapolis EMS (IN)	Yes	Yes
2	San Diego Fire and Rescue (CA)	Yes	Yes
3	Austin-Travis County EMS (TX)	Yes	Yes
4	Arlington Fire Department (TX)	Yes	Yes
5	San Jose Fire Department (CA)	No	No
6	Harris County Emergency Services District 11 (TX)	Yes	Yes
7	REMSA Health (NV)	Yes	Yes
8	Richmond Ambulance Authority (VA)	Yes	No
9	Mecklenburg EMS Agency – MEDIC (NC)	Yes	No
10	City of Houston Fire Department (TX)	Yes	No
11	Columbus Division of Fire (OH)	Yes	Yes
12	Seattle Fire (WA)	Yes	Yes
13	Pinellas County Emergency Medical Services Authority (FL)	Yes	Yes
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	Yes	No
15	Dallas Fire Rescue (TX)	Yes	Yes
16	MedStar (TX)	No	No

AGENCY REIMBURSEMENT

Table 15: Non-Reimbursing Sites/Recipients

Agency Number	Agency Name	Which of the Following are Non-Reimbursed Service Recipients						
		Prisons	Juvenile Detention Centers	Public Health Centers	Federal Facilities	Military Installations	Non-Profit Services	Other
1	Indianapolis							None
2	San Diego							None
3	Austin-Travis County							Local Jail but State Prison Pays
4	Arlington FD	X	X	X	X	X	X	
5	San Jose FD	X	X	X	X			
6	Harris County ESD11							None
7	REMSA							None
8	RAA (Richmond)	X	X	X				
9	MEDIC Charlotte							None
10	Houston FD	X	X	X	X	X	X	
11	Columbus Fire							None
12	Seattle Fire							None
13	Pinellas County							None
14	EMSA (Tulsa and OKC)							None
15	Dallas FR							None
16	MedStar (TX)	X						

Table 16: Contracts for Receiving Facilities and Billing Process Ownership and Cost

Agency Number	Agency Name	Contractual Relationships with Receiving Facilities?	Are your EMS Billing Services Internal or External?	Annual Cost - % of Net Revenue	Annual Cost – Total \$ Cost
1	Indianapolis EMS (IN)	No	External	4%	\$1,300,000
2	San Diego Fire and Rescue (CA)	No	External	3.25%	\$3,542,500
3	Austin-Travis County EMS (TX)	No	Internal		\$3,400,000
4	Arlington Fire Department (TX)	No	External		
5	San Jose Fire Department (CA)	No	External		
6	Harris County Emergency Services District 11 (TX)	No	Internal	5%	\$1,100,000
7	REMSA Health (NV)	Yes	Internal	5.1%	\$2,739,868
8	Richmond Ambulance Authority (VA)	No	Internal		
9	Mecklenburg EMS Agency – MEDIC (NC)	No	Internal	3.3%	\$2,679,233
10	City of Houston Fire Department (TX)	No	External	4.7%	\$2,600,000
11	Columbus Division of Fire (OH)	No	External	13%	\$1,500,000
12	Seattle Fire (WA)	No	External		
13	Pinellas County Emergency Medical Services Authority (FL)	Yes	External		
14	Emergency Medical Services Authority – EMSA (Tulsa and Oklahoma City, OK)	Yes	Internal	5.1	\$4,332,732
15	Dallas Fire Rescue (TX)	Not Answered	Not Answered	Not Answered	Not Answered
16	MedStar (TX)	Yes	External	4.4%	\$2,755,211

COMPARABLE AGENCY AND COMMUNITY REPORT
CITY OF FORT WORTH

Table 17: Chargemaster (Current Service Rates)

Agency Number	Separate Rate for IFT?	Mileage A0425	ALE ²¹ E ²² A0427	ALS NE ²³ A0426	BLS ²⁴ E A0429	BLS NE A0428	ALS 2 ²⁵ A0433	SCT ²⁶ A0434	Treat No Trans. A0998	Unlisted A0999
1	No	\$43.05	\$2,502.82	\$1,708.00	\$2,080.04	\$1,403.60	\$2,993.22			
2	No	\$42.91	\$2,820.00		\$2,397.00		\$2,945.00			
3	No	\$1350	\$1,082.00		\$1,013.00		\$1,139.00			
4	No	\$19.16	\$1,596.42	\$1,317.49			\$1,596.42	\$1,821.27	\$100.00	\$16,500.00
5	No	\$69.79	\$2,055.53		\$1,644.43		\$2,055.53			
6	No	\$29.10	\$2,549.46		\$2,363.43		\$2,957.90	\$3,375.03	\$516.81	
7	Yes	\$22.00	\$1,960.00	\$1,615.00	\$1,900.00	\$1,565.00	\$1,960.00	\$5,250.00	\$1,055.00	
8	No	\$31.00	\$1,789.00	\$942.00	\$1,507.00	\$942.00	\$2,589.00	\$3,060.00	\$200.00	
9	Yes	\$29.00	\$1,194.00	\$892.00	\$1,194.00	\$892.00	\$1,194.00	\$1,440.00		
10	No	\$15.41	\$2,014.19		\$2,014.19				\$187.85	
11	No	\$15.96	\$966.19		\$737.07		\$1,255.44			
12	No									
13	Yes	\$17.79	\$853.86	\$853.86	\$824.00	\$800.50	\$953.31	\$1,344.80		\$181.44
14	Yes	\$19.00	\$1,300.00	\$1,300.00	\$900.00		\$1,300.00	\$1,300.00		
15	No	\$15.00	\$1,868.00	\$1,868.00	\$1,868.00	\$1,868.00	\$1,868.00	\$1,868.00	\$125.00	
16	Yes	\$27.00	\$1,785.00	\$1,011.00	\$1,685.00	\$1,011.00	\$1,785.00	\$2,640.00	\$500.00	

²¹ ALS stands for Advanced Life Support

²² E stands for emergency

²³ NE stands for non-emergency

²⁴ BLS Stands for Basic Life Support

²⁵ ALS 2 is a higher level of ALS transport indicating more ALS procedures were used (equipment, procedures, or drugs)

²⁶ SCT stands for Specialty Care Transport this indicates a higher level of care was provided, often including highly trained Paramedics, Nurses or other ancillary medical personnel

Table 18: Payor Mix as a Percent of EMS Volume

Agency Number	Agency Name	Medicare	Medicare HMO	Medicaid	Medicaid HMO	Commercial Insurance	Private Pay	Facility Contracts	Other
1	Indianapolis	33.18%		45.61%		9.03%	12.18%		
2	San Diego	44%		39%		16%			1%
3	Austin-Travis County								
4	Arlington FD	43%		11%		13%	30%	3%	
5	San Jose FD								
6	Harris County ESD11	15.2%	25.3%	6.9%	7.3%	16.8%	28.5%		
7	REMSA	24%	19%	30%		17%	5%	2%	3%
8	RAA (Richmond)	14%	27%	2%	33%	8%	10%		6%
9	MEDIC Charlotte	15.84%	23.42%	10.85%	8.03%	18.96%	17.39%	3.26%	2.25%
10	Houston FD	10.7%	24.22%	.96%	17.44%	11.93%	32.06%	.37%	2.32%
11	Columbus Fire	8.8%	24.2%	9.1%	31.6%	12.9%	12%		1.4%
12	Seattle Fire								
13	Pinellas County	28%		12%		47%	11%	2%	
14	EMSA (Tulsa and OKC)	23.5%	22.4%	31.1%		13.1%	7.5%	1.7%	.7
15	Dallas FR	21.06%		13.49%		29.14%	.72%	0	34.21%
16	MedStar (TX)	16.4%	24.6%	0.6%	15.0%	17.2%	22.8%	3.4%	

Table 19: Payor Mix as a Percent of Net EMS Collections

Agency Number	Agency Name	Medicare	Medicare HMO	Medicaid	Medicaid HMO	Commercial Insurance	Private Pay	Facility Contracts	Other
1	Indianapolis	33.18%		45.61%		9.03%	12.18%		
2	San Diego								
3	Austin-Travis County								
4	Arlington FD	12.5%		12.5%		61%	14%		
5	San Jose FD								
6	Harris County ESD11	19.3%	26.6%	5%	5.2%	41.4%	2.5%		
7	REMSA	19%	13%	11%		50%	4%	3%	
8	RAA (Richmond)	18%	30%	1%	21%	12%	2%		16%
9	MEDIC Charlotte	12.85%	16.56%	1.87%	10.98%	43.01%	12.28%	2.45%	
10	Houston FD	11.84%	28.5%	2.03%	14.3%	28.79%	6.62%	.35%	7.57%
11	Columbus Fire	15.3%	32.5%	4.6%	18.5%	22.3%	4%		2.8%
12	Seattle Fire								
13	Pinellas County	28%		12%		47%	11%	2%	
14	EMSA (Tulsa and OKC)	20%	17%	29%		23%	4%	3%	4%
15	Dallas FR	43.9%		17.7%		28.7%	4.5%		5.2%
16	MedStar (TX)	16.73%	22.52%	.84%	9.74%	31.76%	2.28%	9.17%	6.7%

FITCH

& ASSOCIATES



FITCH

& ASSOCIATES

December 2023

DRAFT COMMUNITY DATA REPORT

CITY of FORT WORTH and MAEMSA MEMBER JURISDICTIONS



📍 PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎️ (816) 431-2600

📄 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

METHODOLOGY	1
MAEMSA MEMBER JURISDICTIONS	3
Figure 1: Map of MAEMSA Member Jurisdictions ¹	3
COMMUNITY RISK ASSESSMENT	4
PEOPLE	4
Figure 2: Total Population – 2017-2021	4
Table 1: Total Population – 2017-2021	4
Figure 3: Population Density	5
Table 2: Population Density	5
Figure 4: Population Growth Projections – City of Fort Worth ¹	6
Figure 5: Average Annual Population Change 2017-2021 to 2031	7
Table 3: Average Annual Population Change 2017-2021 to 2031	7
Figure 6: Total Population – Projected 2023	8
Table 4: Total Population – Projected 2023	8
Figure 7: Total Population – Projected 2025	9
Table 5: Total Population – Projected 2025	9
Figure 8: Total Population – Projected 2027	10
Table 6: Total Population – Projected 2027	10
Figure 9: Total Population – Projected 2029	11
Table 7: Total Population – Projected 2029	11
Figure 10: Total Population – Projected 2031	12
Table 8: Total Population – Projected 2031	12
Figure 11: Median Age (Years)	13
Table 9: Median Age (Years)	13
Figure 12: Percent of Population by Age Group (Years) – City of Fort Worth	14
Figure 13: Percent of Population Age 65 to 74 Years	15
Table 10: Percent of Population Age 65 to 74 Years	15
Figure 14: Percent of Population Age 75 to 84 Years	16
Table 11: Percent of Population Age 75 to 84 Years	16
Figure 15: Percent of Population Age 85 Years and Older	17
Table 12: Percent of Population Age 85 Years and Older	17
Figure 16: Percent of Population Living with a Disability	18
Table 13: Percent of Population Living with a Disability	18
LOCATION	19
Figure 17: Census Tract Map and Location Metrics – City of Fort Worth	19
Figure 18: Area (Square Miles)	20
Table 14: Area (Square Miles)	20
Figure 19: Environmental Hazard National Risk Index Score	21
Table 15: Environmental Hazard National Risk Index Score	21
Figure 20: Environmental Hazard Community Resilience Score	22
Table 16: Environmental Hazard Community Resilience Score	22
SOCIAL DETERMINANTS OF HEALTH	23
HEALTHCARE ACCESS	23
Figure 21: Percent of Population without Health Insurance Coverage	23

Table 17: Percent of Population without Health Insurance Coverage	23
Figure 22: Percent of Population Age 65 Years and Over without Medicare	24
Table 18: Percent of Population Age 65 Years and Over without Medicare	24
Figure 23: Percent of Population with Medicaid or Means-Tested Public Coverage	25
Table 19: Percent of Population with Medicaid or Means-Tested Public Coverage	25
Figure 24: Healthcare Provider Ratio – Primary Care Physicians	26
Table 20: Healthcare Provider Ratio – Primary Care Physicians	26
Figure 25: Healthcare Provider Ratio – Mental Health Providers	27
Table 21: Healthcare Provider Ratio – Mental Health Providers	27
Figure 26: Health Professional Shortage Area – Primary Care	28
Table 22: Health Professional Shortage Area – Primary Care	28
Figure 27: Health Professional Shortage Area – Mental Health	29
Table 23: Health Professional Shortage Area – Mental Health	29
Figure 28: Percent of Population Reporting Annual Check-Up	30
Table 24: Percent of Population Reporting Annual Check-Up	30
ECONOMIC STABILITY	31
Figure 29: Median Household Income	31
Table 25: Median Household Income	31
Figure 30: Per Capita Income	32
Table 26: Per Capita Income	32
Figure 31: Income Inequality (Gini Index)	33
Table 27: Income Inequality (Gini Index)	33
Figure 32: Percent of Population Below Poverty Level	34
Table 28: Percent of Population Below Poverty Level	34
Figure 33: Unemployment Rate	35
Table 29: Unemployment Rate	35
SOCIAL AND COMMUNITY CONTEXT	36
Figure 34: Isolation – Limited English-Speaking Households	36
Table 30: Isolation – Limited English-Speaking Households	36
Figure 35: Isolation – Seniors Living Alone	37
Table 31: Isolation – Seniors Living Alone	37
Figure 36: Commuting – Percent of Population Who Commute	38
Table 32: Commuting – Percent of Population Who Commute	38
Figure 37: Commuting – Mean Travel Time	39
Table 33: Commuting – Mean Travel Time	39
Figure 38: Commuting – Percent of Commuters with Long Commute (≥ 30 Minutes)	40
Table 34: Commuting – Percent of Commuters with Long Commute	40
COMMUNITY HEALTH ASSESSMENT	41
HEALTH OUTCOMES	41
Figure 39: Health Among Adults – Asthma	41
Table 35: Health Among Adults – Asthma	41
Figure 40: Health Among Adults – Chronic Kidney Disease	42
Table 36: Health Among Adults – Chronic Kidney Disease	42
Figure 41: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis	43
Table 37: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis	43
Figure 42: Health Among Adults – Coronary Heart Disease or Angina	44
Table 38: Health Among Adults – Coronary Heart Disease or Angina	44
Figure 43: Health Among Adults – Diabetes	45
Table 39: Health Among Adults – Diabetes	45
Figure 44: Health Among Adults – High Blood Pressure	46

Table 40: Health Among Adults – High Blood Pressure	46
Figure 45: Health Among Adults – Poor Mental Health	47
Table 41: Health Among Adults – Poor Mental Health	47
Figure 46: Health Among Adults – Poor Physical Health	48
Table 42: Health Among Adults – Poor Physical Health	48
Figure 47: Health Among Adults – Stroke	49
Table 43: Health Among Adults – Stroke	49
MOTOR VEHICLE CRASH FATALITIES	50
Figure 48: Motor Vehicle Crash Fatalities - Number	50
Table 44: Motor Vehicle Crash Fatalities - Number	50
Figure 49: Motor Vehicle Crash Fatalities - Number per Square Mile	51
Table 45: Motor Vehicle Crash Fatalities – Number per Square Mile	51

METHODOLOGY

This report presents select community data for Fort Worth, TX and the other member jurisdictions of the Metropolitan Area EMS Authority (MAEMSA), with the exception of MedStar, as it is not a fixed city or town with defined census tracts or boundaries. MAEMSA member jurisdictions presented with Fort Worth include Blue Mound, Edgecliff Village, Forest Hill, Haltom City, Haslet, Lake Worth, Lakeside, River Oaks, Saginaw, Sansom Park, Westover Hills, Westworth Village, and White Settlement. For additional comparison purposes, community data are also presented for Tarrant County, the State of Texas, and the United States of America.

Data were exported from mySidewalk (<https://www.mysidewalk.com>), a web-based system that extracts community data from multiple primary sources to allow for a comprehensive searchable library of information in one location. Data sources accessed by mySidewalk that are relevant to the community data presented in this report, and the most recent time period available for data export corresponding to each source include the following:

1. American Association of State Highway and Transportation Officials, Census Transportation Planning Products (CTPP) Program, 2012-2016

(e.g., <https://ctpp.transportation.org/>)

2. Centers for Disease Control and Prevention (CDC), PLACES Data, Behavioral Risk Factor Surveillance System (BRFSS) Questionnaire, 2021

(e.g., <https://www.cdc.gov/brfss/about/index.htm>)

3. Centers for Medicare & Medicaid Services (CMS), National Plan and Provider Enumeration System (NPPES), 2022

(e.g., <https://www.cms.gov/medicare/regulations-guidance/administrative-simplification/enumeration-reports>)

4. Federal Emergency Management Agency (FEMA), National Risk Index and Community Resilience Scores, 2021

(e.g., <https://hazards.fema.gov/nri/>)

5. Health Resources & Services Administration, Bureau of Health Workforce (BHW), Health Professional Shortage Areas, 2020

(e.g., <https://bhw.hrsa.gov/workforce-shortage-areas/shortage-designation>)

6. US Census Bureau, American Community Survey (ACS), 5-Year Estimates 2017-2021

(e.g., <https://www.census.gov/programs-surveys/acs>)
7. US Census Bureau, Decennial Census 1990, 2000, 2010, and 2020, and ACS 2017-2021 for making population projections
8. US Department of Transportation, National Highway Traffic Safety Administration (NHTSA), Fatality Analysis Reporting System (FARS), 2021

(e.g., <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>)

Data presented in figures and tables have been sorted from the perspective of the risk relationship between each parameter of interest and community health and, ultimately, an expected increased need for EMS or general healthcare services. As such, values may be sorted from high to low, or they may be sorted from low to high, as appropriate.

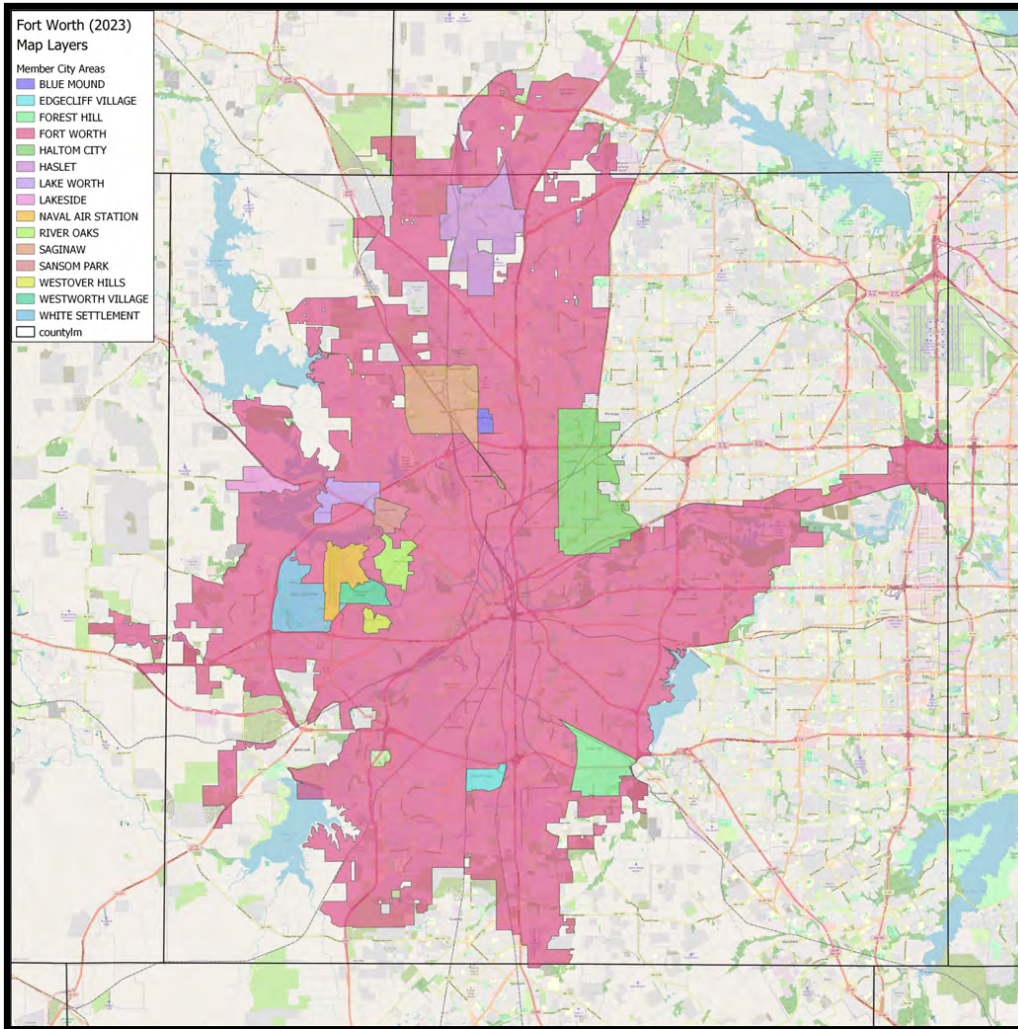
For example, higher prevalence of coronary heart disease observed in an area would tend to relate to an expected increased need for EMS, such that values related to this parameter are sorted from high to low in the relevant figure and table. In contrast, lower values on income parameters would tend to relate to an expected increased need for EMS due to factors such as reduced access to appropriate healthcare facilities and professionals, transportation for healthcare appointments, healthy food, and safe housing, such that values related to these parameters are sorted from low to high in relevant figures and tables.

Numeric ranks from 1 (most risk) to 14 (least risk) also appear in the tables for quick reference and to facilitate comparison across tables based on this approach of ordering by risk. Ties in rank are noted in the tables with a “(T)” designation. Some values in the tables may appear to be identical for more than one MAEMSA member jurisdiction, but if the “(T)” designation does not appear in the table, they are not actually tied. This is due to rounding of values for presentation only.

Many values presented in this report are expressed as a percentage of the “population.” Note that the “population” in each of these calculations refers to the relevant population, which is often a subset of total population in an area. For example, the percentage of commuters with a long commute is derived by dividing the number of workers aged 16 years and older with commute time ≥ 30 minutes by the number of commuters aged 16 years and older (i.e., the “population” here), and multiplying by 100 to express the value as a percentage.

MAEMSA MEMBER JURISDICTIONS

Figure 1: Map of MAEMSA Member Jurisdictions



- Blue Mound
- Edgecliff Village
- Forest Hill
- Fort Worth
- Haltom City
- Haslet
- Lake Worth
- Lakeside
- River Oaks
- Saginaw
- Sansom Park
- Westover Hill
- Westworth Village
- White Settlement

COMMUNITY RISK ASSESSMENT

People

Figure 2: Total Population – 2017-2021

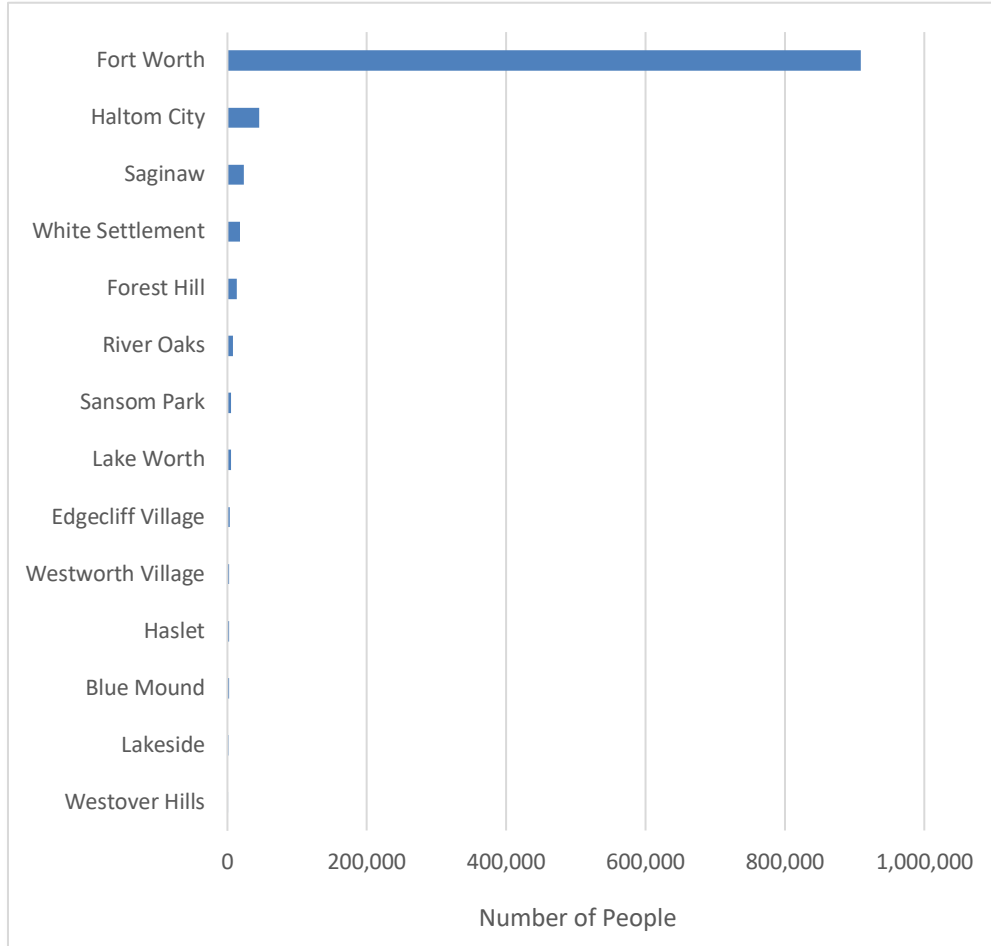


Table 1: Total Population – 2017-2021

Rank	Location	Number of People ¹
1	Fort Worth	908,469
2	Haltom City	45,777
3	Saginaw	23,676
4	White Settlement	18,040
5	Forest Hill	13,797
6	River Oaks	7,623
7	Sansom Park	5,363
8	Lake Worth	4,710
9	Edgecliff Village	3,672
10	Westworth Village	2,590
11	Haslet	2,296
12	Blue Mound	2,274
13	Lakeside	1,676
14	Westover Hills	804
Tarrant County, TX		2,091,953
State of Texas		28,862,581
United States of America		329,725,481

¹US Census Bureau ACS 2017-2021

Figure 3: Population Density

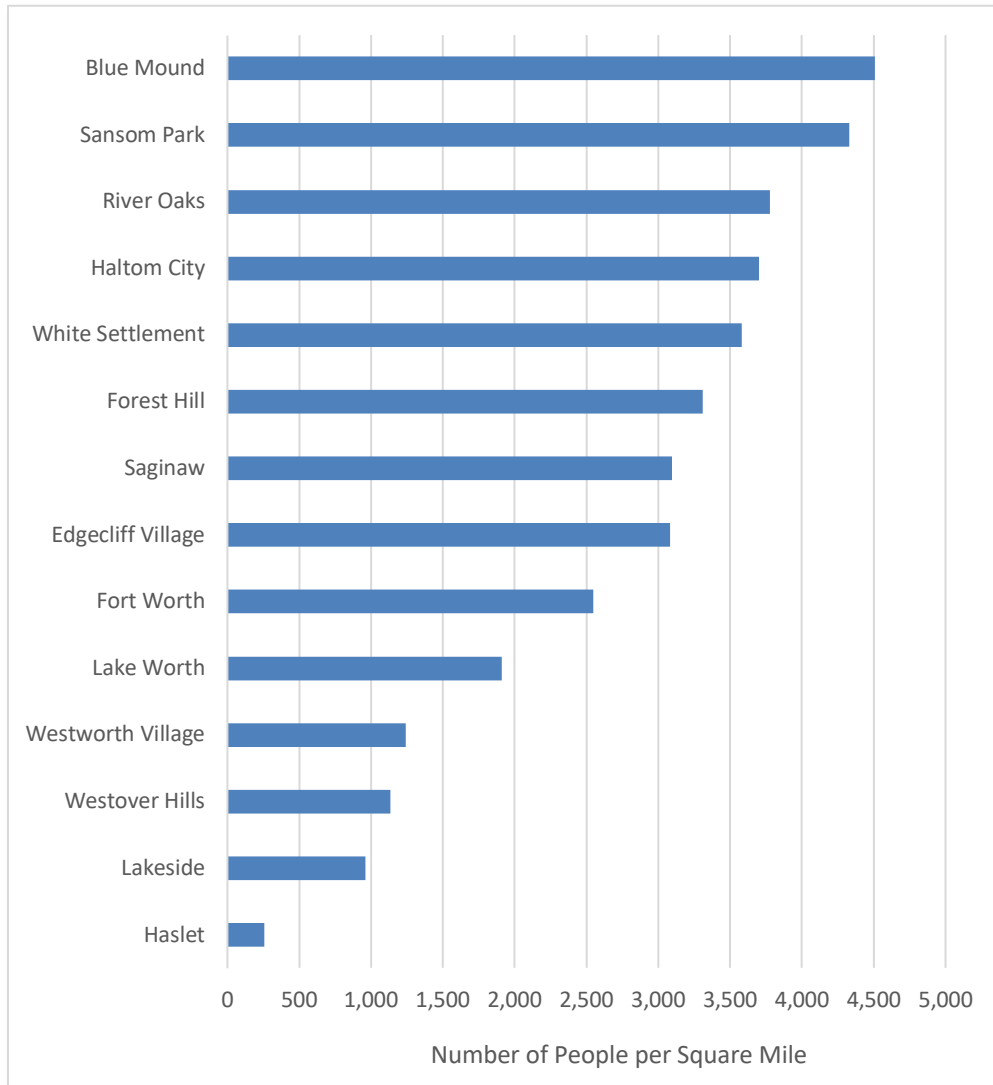
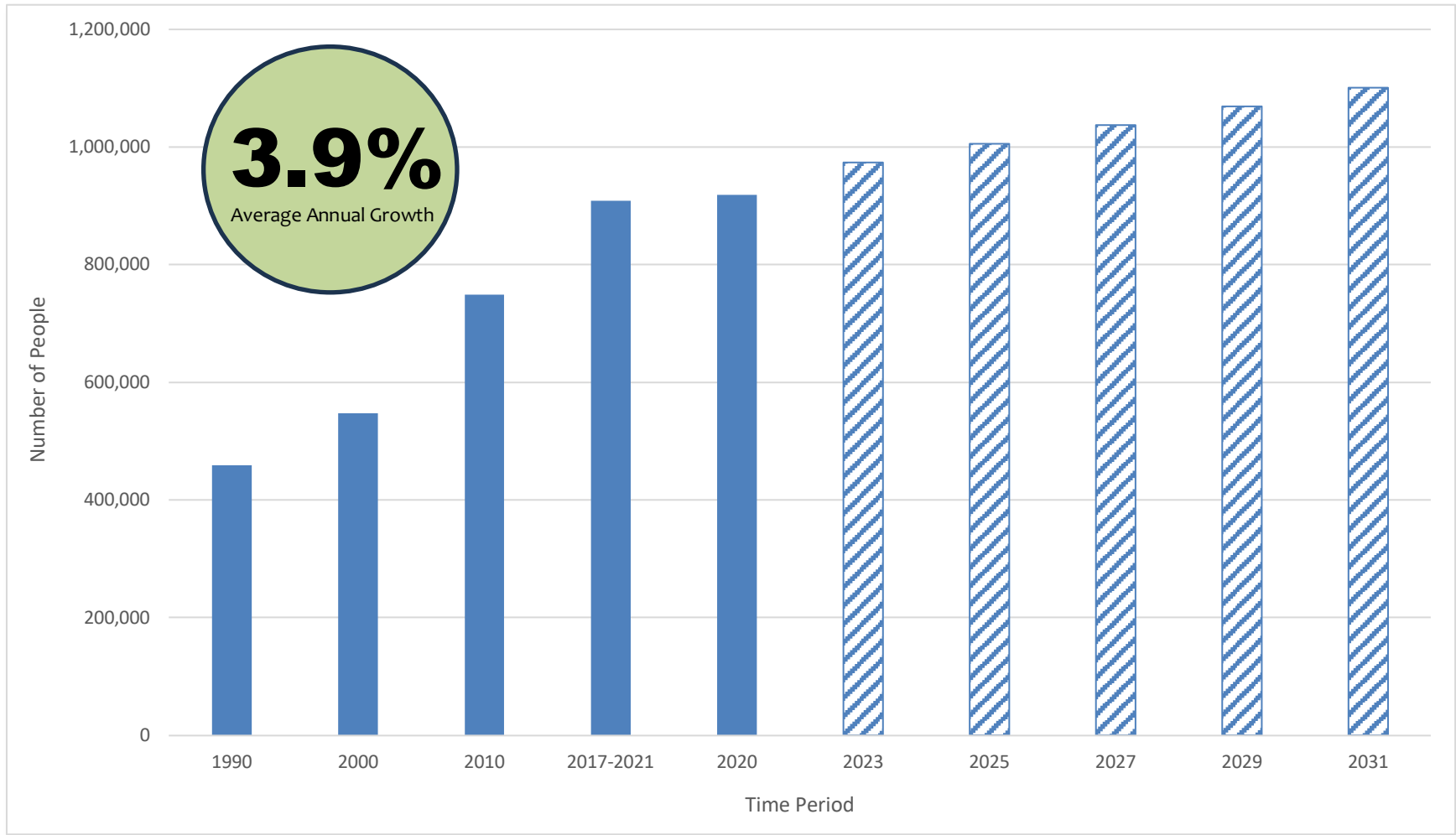


Table 2: Population Density

Rank	Location	Population Density ¹
1	Blue Mound	4,505.4
2	Sansom Park	4,326.6
3	River Oaks	3,776.8
4	Haltom City	3,698.5
5	White Settlement	3,580.0
6	Forest Hill	3,307.5
7	Saginaw	3,093.2
8	Edgecliff Village	3,082.0
9	Fort Worth	2,545.8
10	Lake Worth	1,911.2
11	Westworth Village	1,242.8
12	Westover Hills	1,134.3
13	Lakeside	959.8
14	Haslet	254.9
Tarrant County, TX		2,314.6
State of Texas		107.5
United States of America		89.0

¹Calculated using US Census Bureau data; total population ACS 2017-2021, and area in square miles 2021

Figure 4: Population Growth Projections – City of Fort Worth¹



¹US Census Bureau data; solid bars represent observed data, whereas patterned bars represent estimated data; average annual growth represents average annual rate of population change (%) from 2017-2021 to 2031, excluding the interim stand-alone value for 2020

Figure 5: Average Annual Population Change 2017-2021 to 2031

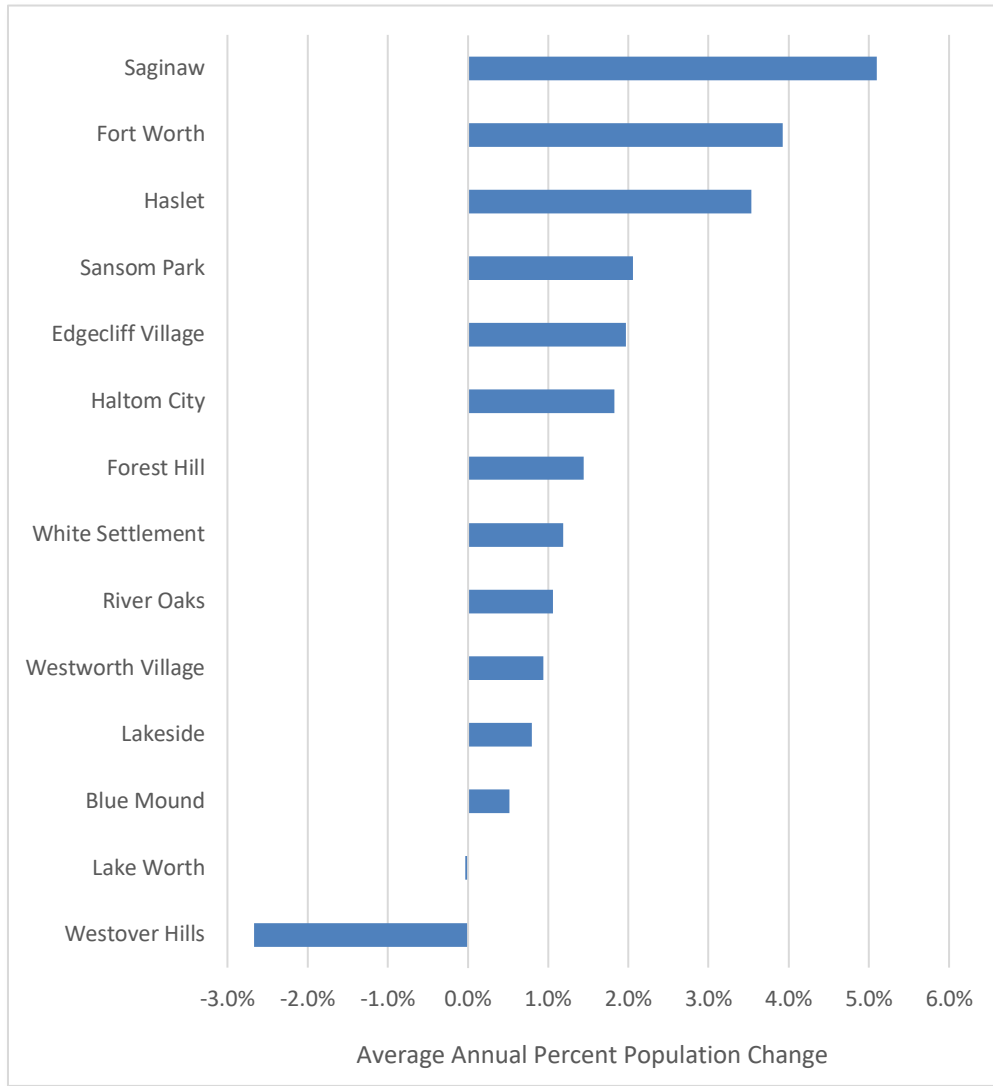


Table 3: Average Annual Population Change 2017-2021 to 2031

Rank	Location	Percent Change ¹
1	Saginaw	5.10
2	Fort Worth	3.92
3	Haslet	3.53
4	Sansom Park	2.06
5	Edgecliff Village	1.97
6	Haltom City	1.82
7	Forest Hill	1.44
8	White Settlement	1.19
9	River Oaks	1.06
10	Westworth Village	0.94
11	Lakeside	0.79
12	Blue Mound	0.51
13	Lake Worth	-0.04
14	Westover Hills	-2.67
Tarrant County, TX		3.44
State of Texas		3.20
United States of America		1.96

¹Calculated using US Census Bureau data; represents average annual rate of population change (%) from 2017-2021 to 2031

Figure 6: Total Population – Projected 2023

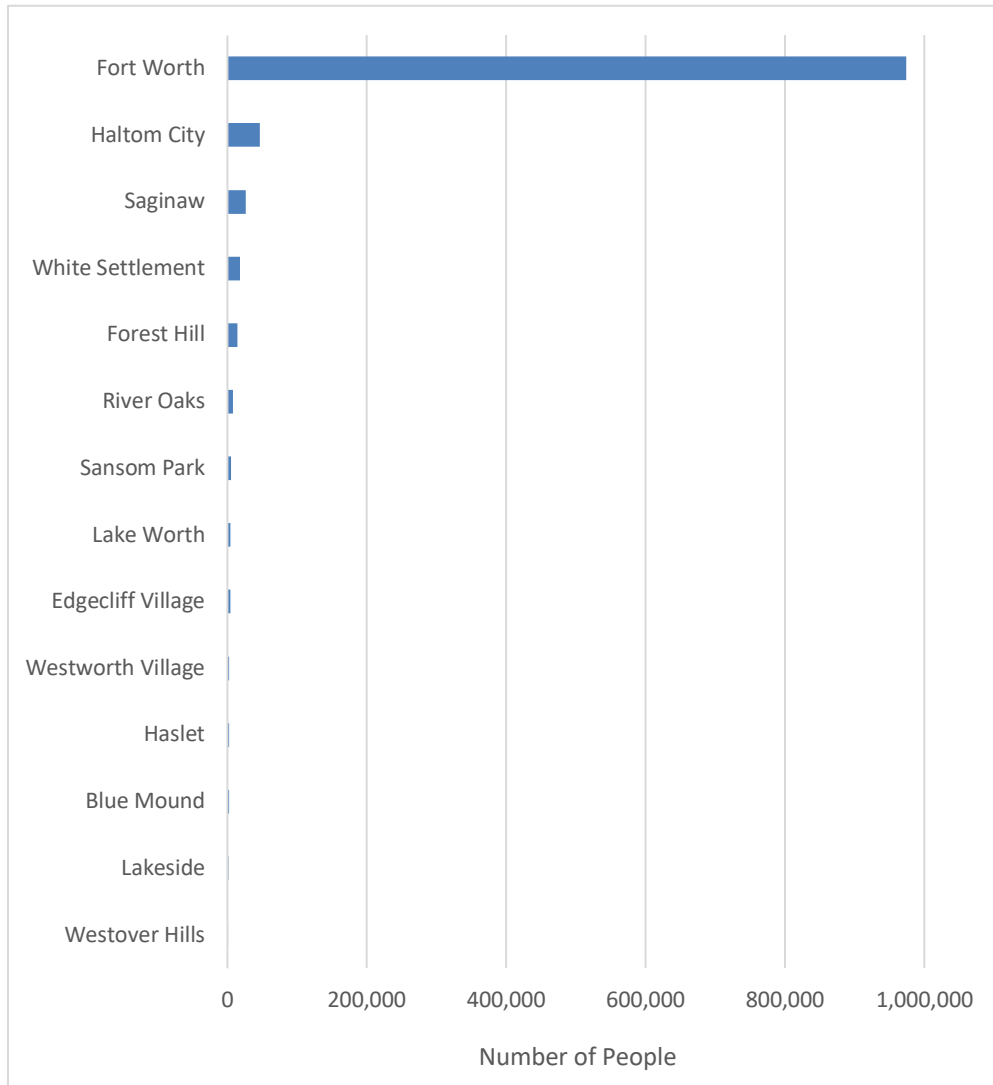


Table 4: Total Population – Projected 2023

Rank	Location	Number of People ¹
1	Fort Worth	973,896
2	Haltom City	46,702
3	Saginaw	25,953
4	White Settlement	18,403
5	Forest Hill	14,184
6	River Oaks	7,760
7	Sansom Park	5,545
8	Lake Worth	4,659
9	Edgecliff Village	3,797
10	Westworth Village	2,631
11	Haslet	2,354
12	Blue Mound	2,291
13	Lakeside	1,626
14	Westover Hills	662
Tarrant County, TX		2,220,407
State of Texas		30,502,401
United States of America		340,856,604

¹US Census Bureau

Figure 7: Total Population – Projected 2025

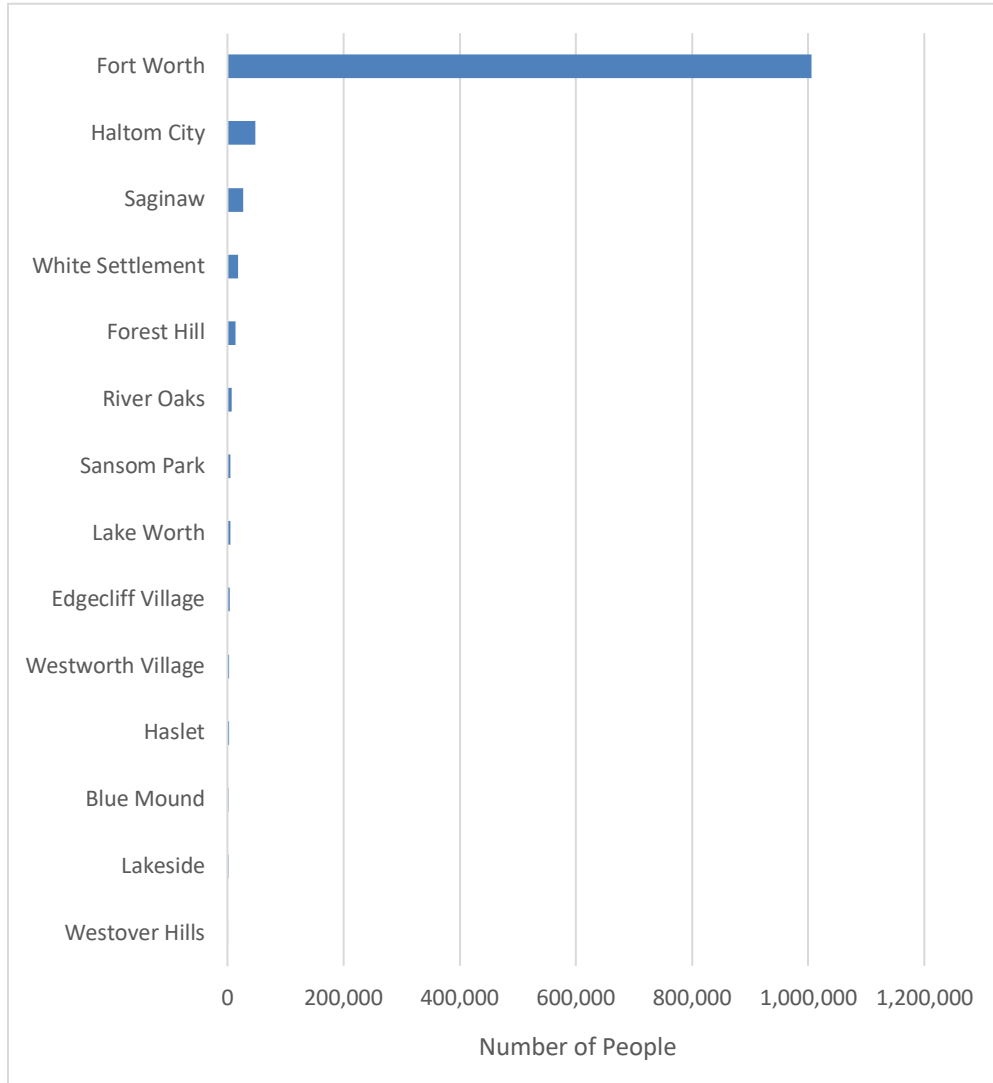


Table 5: Total Population – Projected 2025

Rank	Location	Number of People ¹
1	Fort Worth	1,005,663
2	Haltom City	47,551
3	Saginaw	27,054
4	White Settlement	18,586
5	Forest Hill	14,343
6	River Oaks	7,829
7	Sansom Park	5,643
8	Lake Worth	4,669
9	Edgecliff Village	3,860
10	Westworth Village	2,652
11	Haslet	2,448
12	Blue Mound	2,301
13	Lakeside	1,655
14	Westover Hills	672
Tarrant County, TX		2,284,634
State of Texas		31,322,719
United States of America		346,432,392

¹US Census Bureau

Figure 8: Total Population – Projected 2027

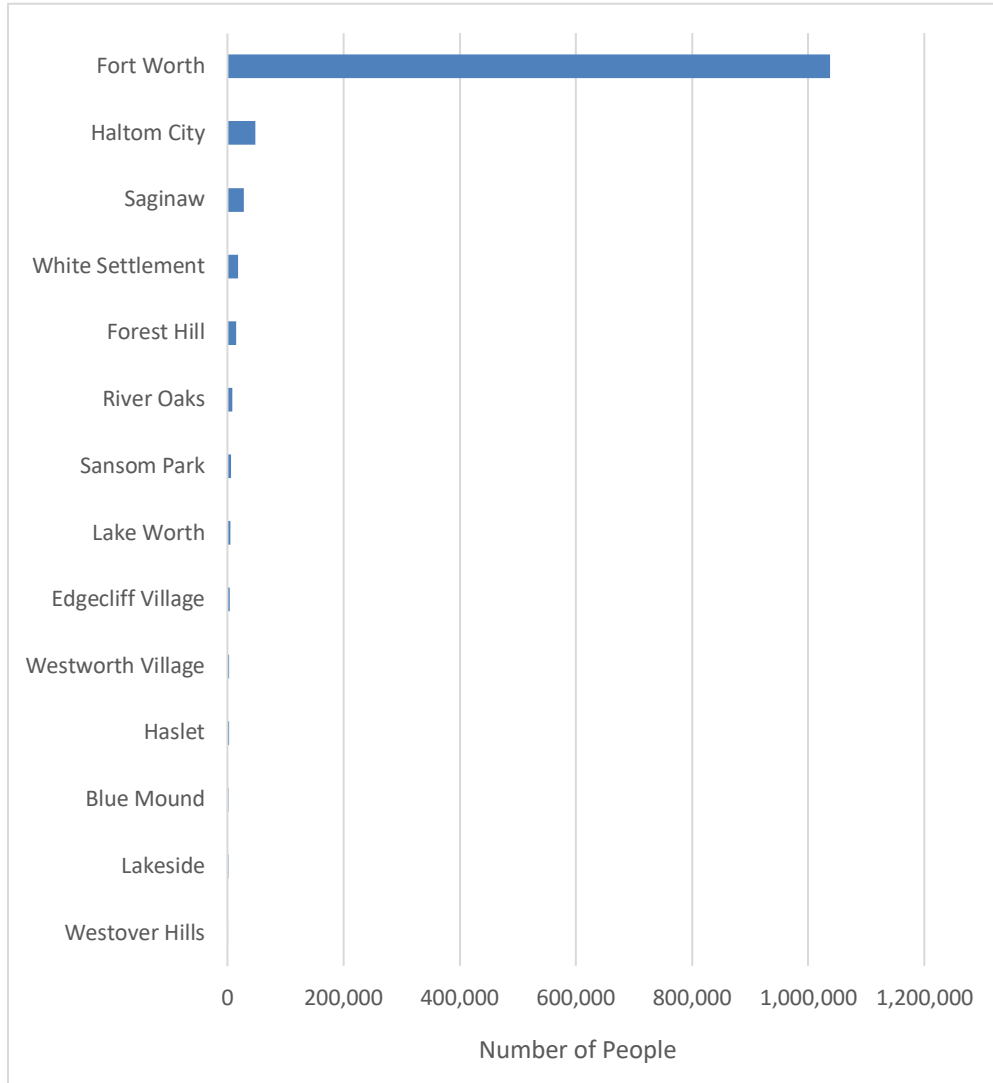


Table 6: Total Population – Projected 2027

Rank	Location	Number of People ¹
1	Fort Worth	1,037,430
2	Haltom City	48,400
3	Saginaw	28,156
4	White Settlement	18,769
5	Forest Hill	14,502
6	River Oaks	7,897
7	Sansom Park	5,741
8	Lake Worth	4,680
9	Edgecliff Village	3,923
10	Westworth Village	2,672
11	Haslet	2,542
12	Blue Mound	2,312
13	Lakeside	1,685
14	Westover Hills	682
Tarrant County, TX		2,348,860
State of Texas		32,143,304
United States of America		352,022,512

¹US Census Bureau

Figure 9: Total Population – Projected 2029

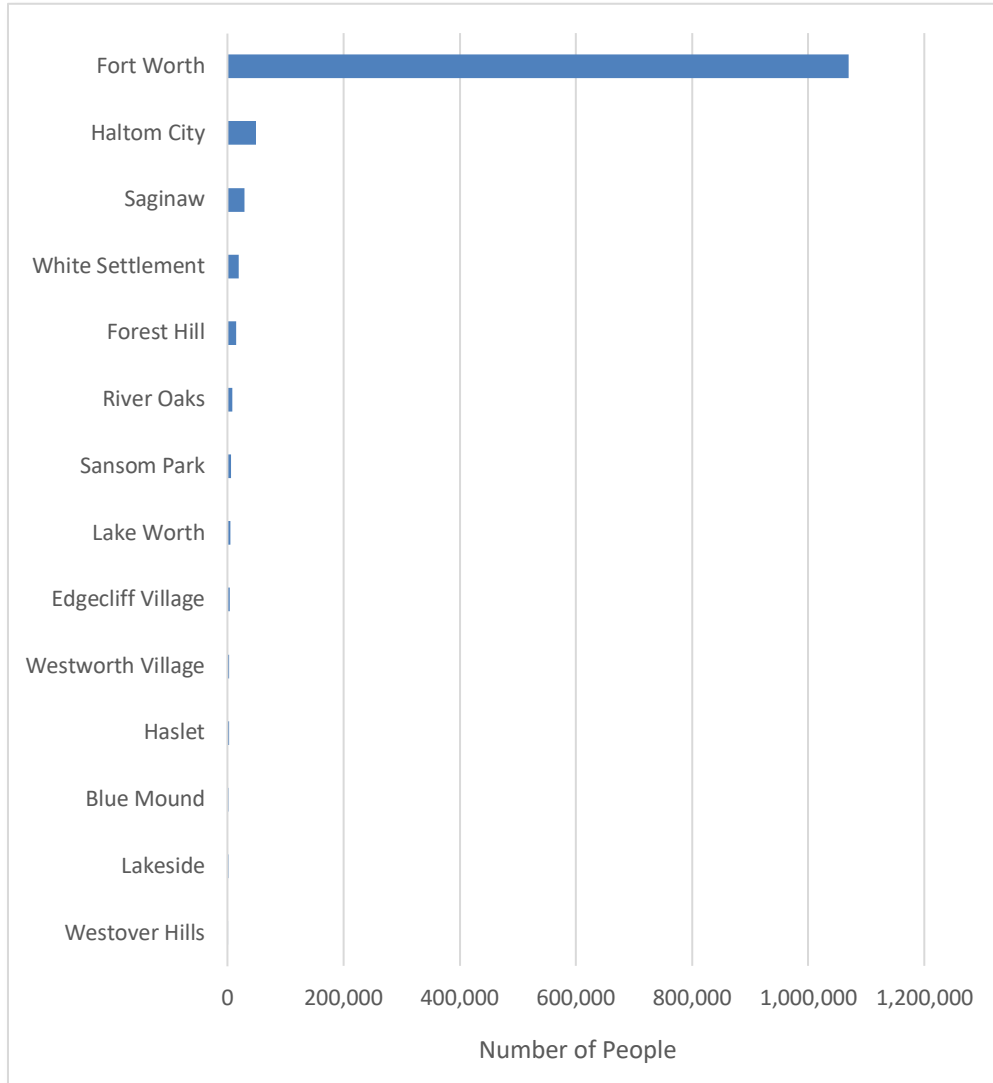


Table 7: Total Population – Projected 2029

Rank	Location	Number of People ¹
1	Fort Worth	1,069,197
2	Haltom City	49,249
3	Saginaw	29,257
4	White Settlement	18,952
5	Forest Hill	14,660
6	River Oaks	7,966
7	Sansom Park	5,840
8	Lake Worth	4,691
9	Edgecliff Village	3,985
10	Westworth Village	2,693
11	Haslet	2,636
12	Blue Mound	2,322
13	Lakeside	1,714
14	Westover Hills	692
Tarrant County, TX		2,413,087
State of Texas		32,964,439
United States of America		357,630,520

¹US Census Bureau

Figure 10: Total Population – Projected 2031

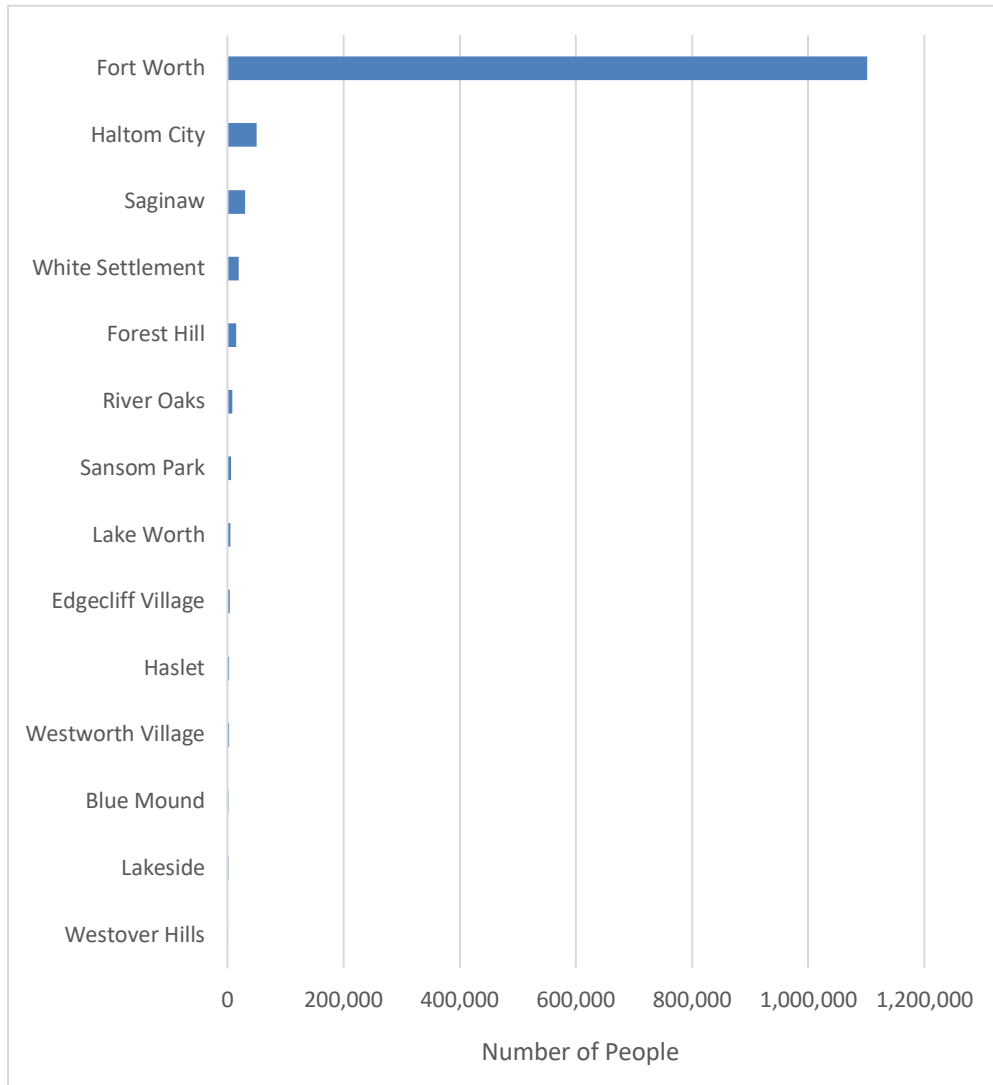


Table 8: Total Population – Projected 2031

Rank	Location	Number of People ¹
1	Fort Worth	1,100,965
2	Haltom City	50,098
3	Saginaw	30,359
4	White Settlement	19,135
5	Forest Hill	14,819
6	River Oaks	8,034
7	Sansom Park	5,938
8	Lake Worth	4,701
9	Edgecliff Village	4,048
10	Haslet	2,731
11	Westworth Village	2,714
12	Blue Mound	2,333
13	Lakeside	1,744
14	Westover Hills	702
Tarrant County, TX		2,477,319
State of Texas		33,786,330
United States of America		363,255,837

¹US Census Bureau

Figure 11: Median Age (Years)

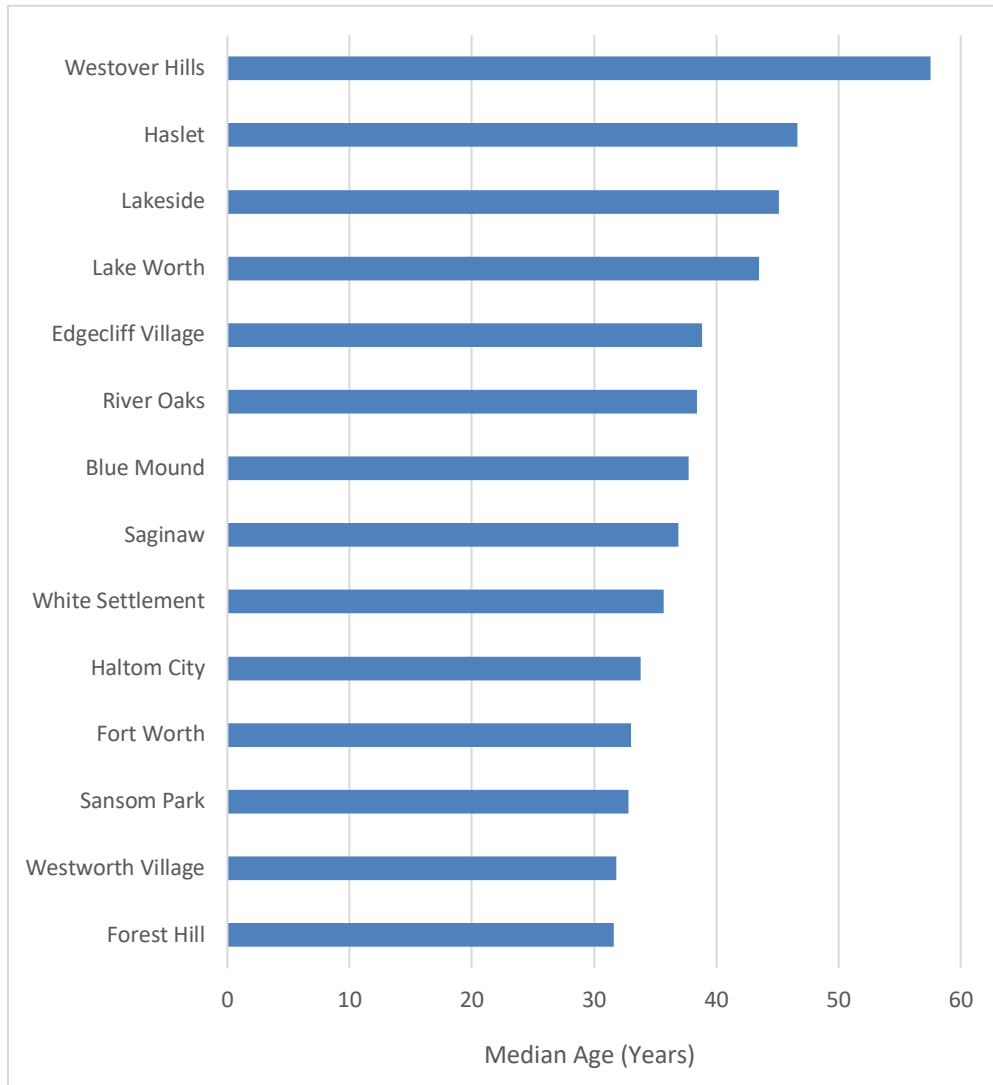


Table 9: Median Age (Years)

Rank	Location	Median Age (Years) ¹
1	Westover Hills	57.5
2	Haslet	46.6
3	Lakeside	45.1
4	Lake Worth	43.5
5	Edgecliff Village	38.8
6	River Oaks	38.4
7	Blue Mound	37.7
8	Saginaw	36.9
9	White Settlement	35.7
10	Haltom City	33.8
11	Fort Worth	33.0
12	Sansom Park	32.8
13	Westworth Village	31.8
14	Forest Hill	31.6
Tarrant County, TX		34.8
State of Texas		35.0
United States of America		38.4

¹US Census Bureau ACS 2017-2021

Figure 12: Percent of Population by Age Group (Years) – City of Fort Worth

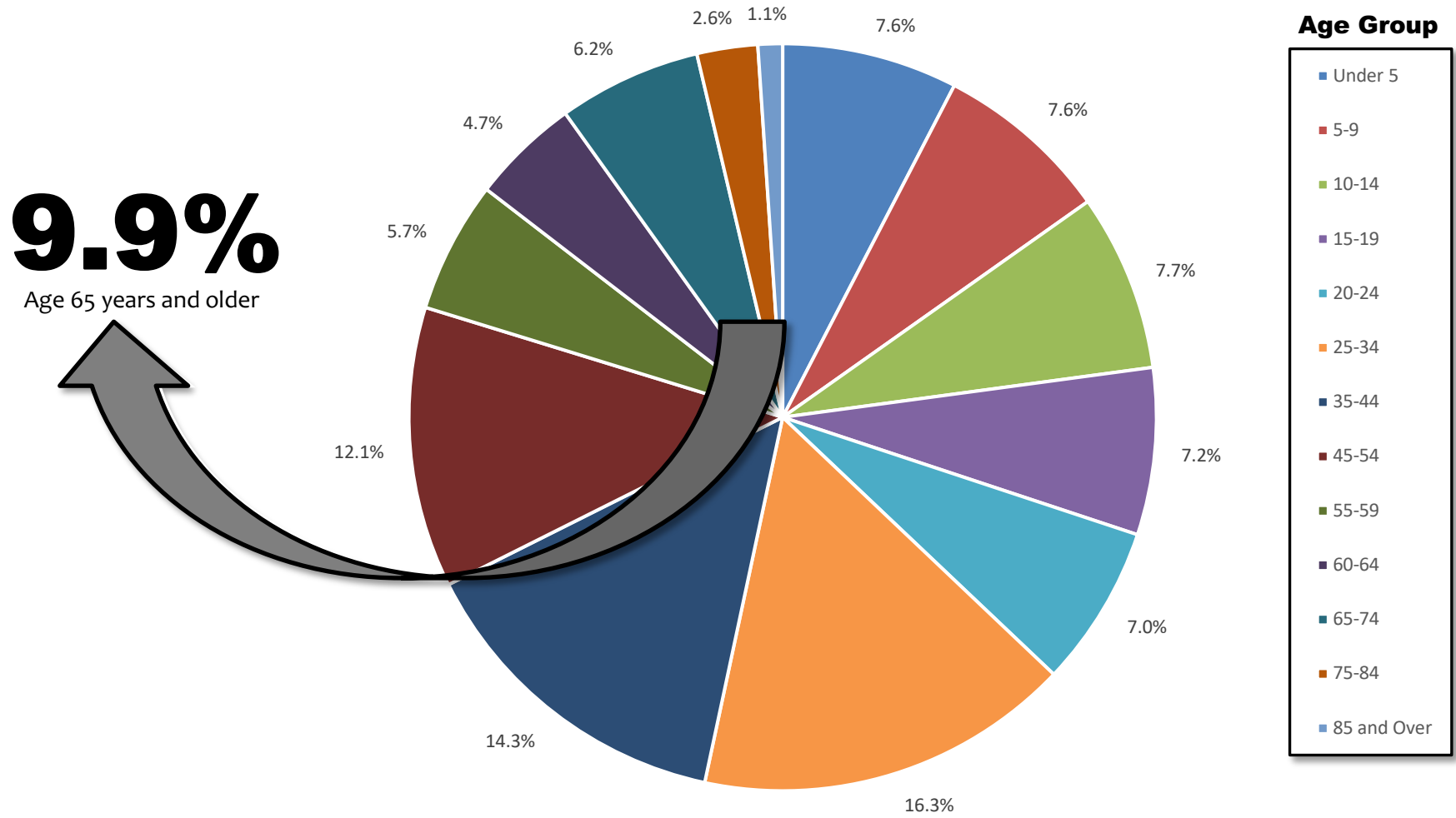


Figure 13: Percent of Population Age 65 to 74 Years

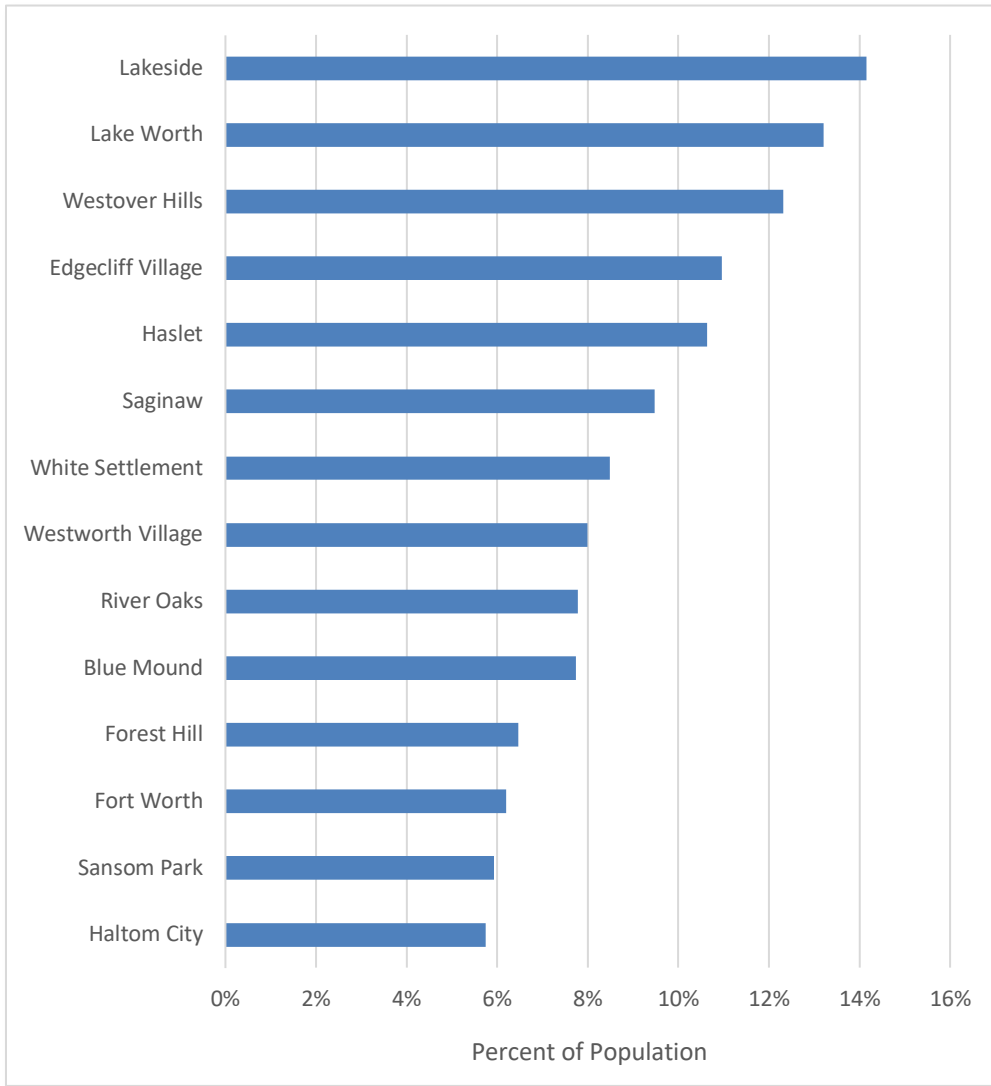


Table 10: Percent of Population Age 65 to 74 Years

Rank	Location	Percent of Population ¹
1	Lakeside	14.1
2	Lake Worth	13.2
3	Westover Hills	12.3
4	Edgecliff Village	10.9
5	Haslet	10.6
6	Saginaw	9.5
7	White Settlement	8.5
8	Westworth Village	8.0
9	River Oaks	7.8
10	Blue Mound	7.7
11	Forest Hill	6.5
12	Fort Worth	6.2
13	Sansom Park	5.9
14	Haltom City	5.7
Tarrant County, TX		7.1
State of Texas		7.7
United States of America		9.6

¹US Census Bureau ACS 2017-2021

Figure 14: Percent of Population Age 75 to 84 Years

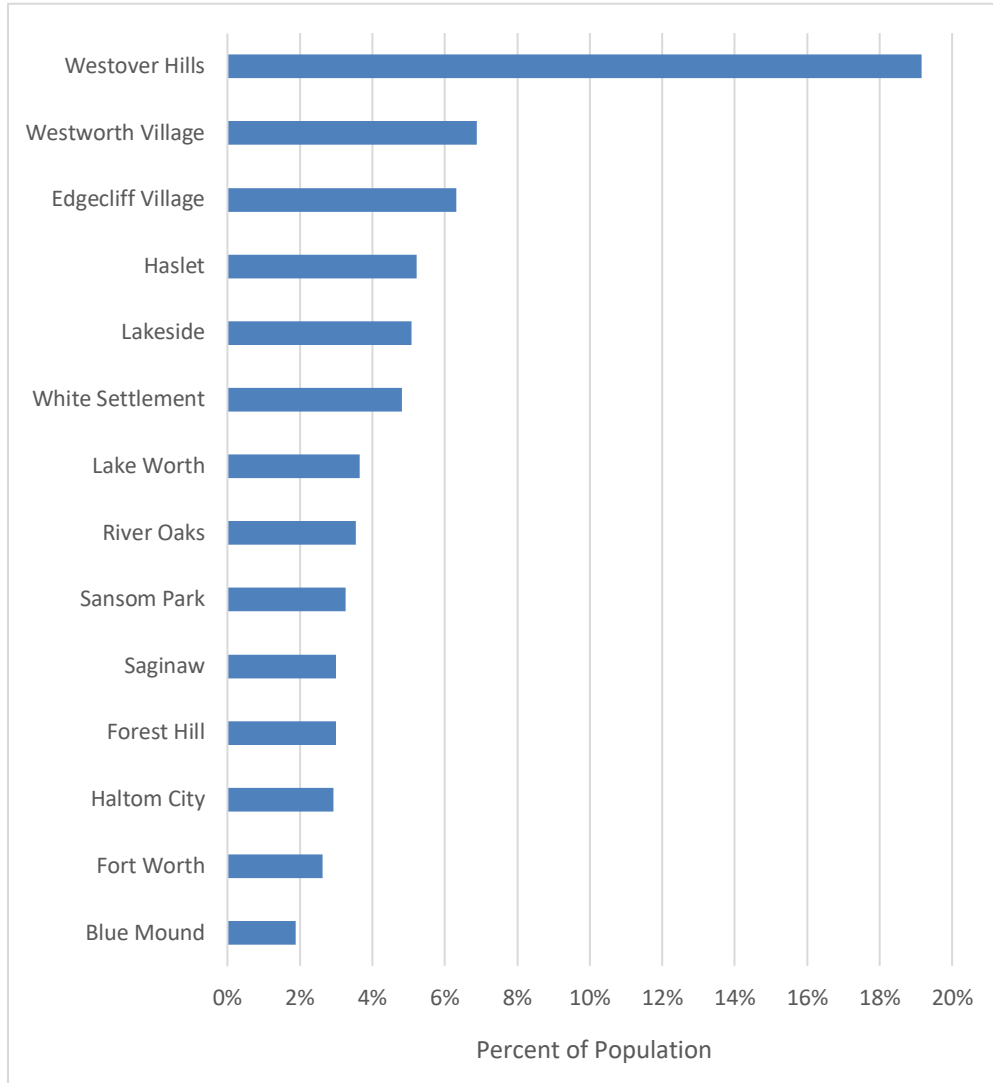


Table 11: Percent of Population Age 75 to 84 Years

Rank	Location	Percent of Population ¹
1	Westover Hills	19.2
2	Westworth Village	6.9
3	Edgecliff Village	6.3
4	Haslet	5.2
5	Lakeside	5.1
6	White Settlement	4.8
7	Lake Worth	3.7
8	River Oaks	3.5
9	Sansom Park	3.3
10	Saginaw	3.0
11	Forest Hill	3.0
12	Haltom City	2.9
13	Fort Worth	2.6
14	Blue Mound	1.9
Tarrant County, TX		3.0
State of Texas		3.5
United States of America		4.5

¹US Census Bureau ACS 2017-2021

Figure 15: Percent of Population Age 85 Years and Older

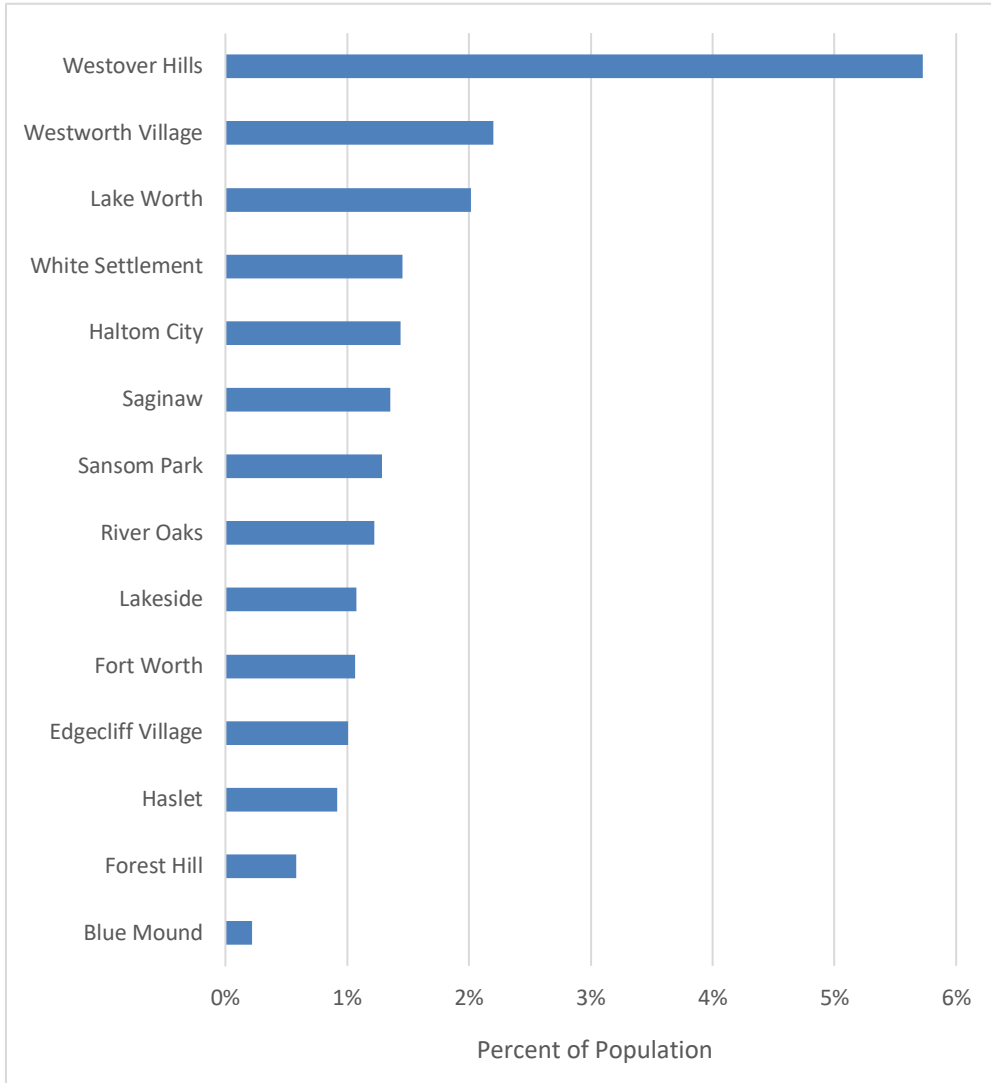


Table 12: Percent of Population Age 85 Years and Older

Rank	Location	Percent of Population ¹
1	Westover Hills	5.7
2	Westworth Village	2.2
3	Lake Worth	2.0
4	White Settlement	1.5
5	Haltom City	1.4
6	Saginaw	1.4
7	Sansom Park	1.3
8	River Oaks	1.2
9	Lakeside	1.1
10	Fort Worth	1.1
11	Edgecliff Village	1.0
12	Haslet	0.9
13	Forest Hill	0.6
14	Blue Mound	0.2
Tarrant County, TX		1.2
State of Texas		1.3
United States of America		1.9

¹US Census Bureau ACS 2017-2021

Figure 16: Percent of Population Living with a Disability

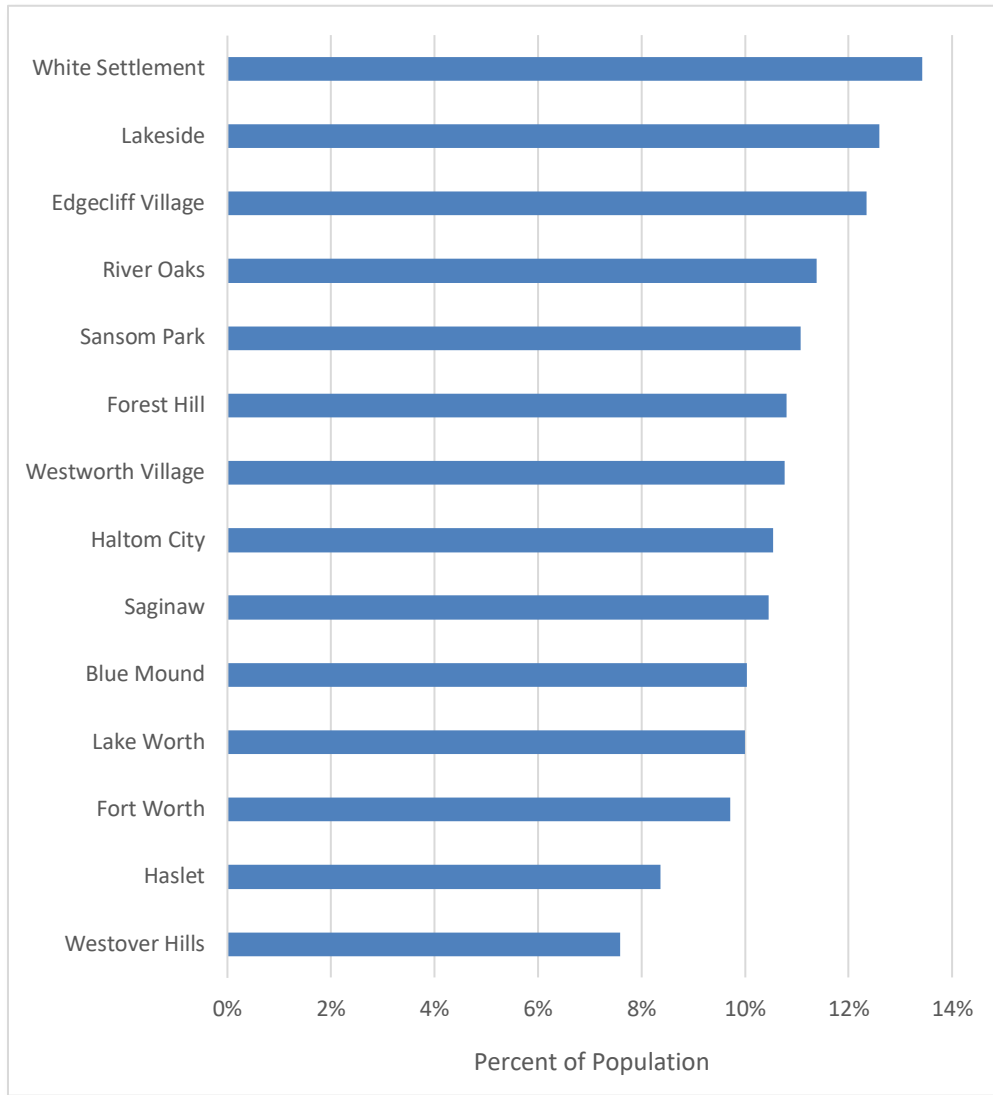


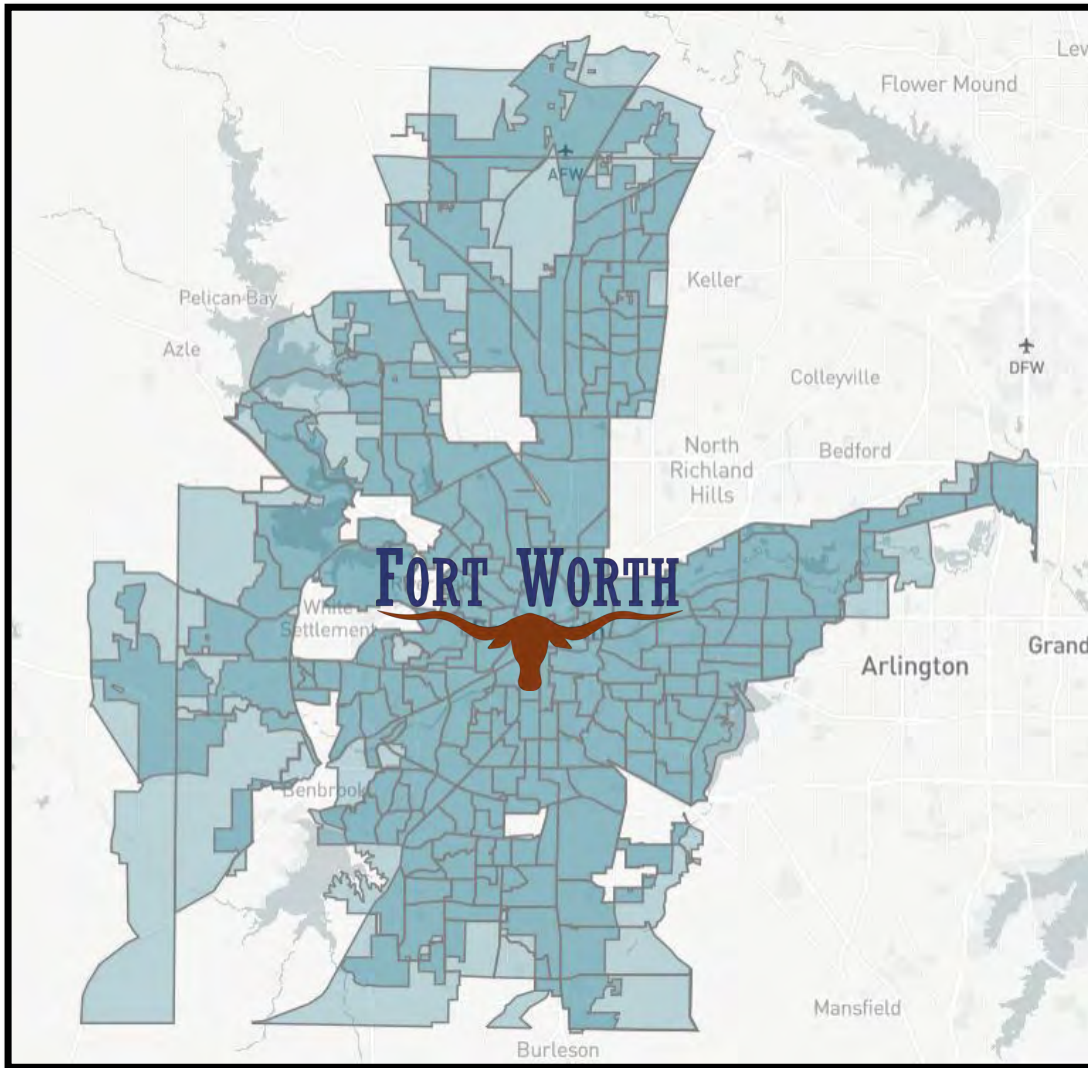
Table 13: Percent of Population Living with a Disability

Rank	Location	Percent of Population ¹
1	White Settlement	13.4
2	Lakeside	12.6
3	Edgecliff Village	12.3
4	River Oaks	11.4
5	Sansom Park	11.1
6	Forest Hill	10.8
7	Westworth Village	10.8
8	Haltom City	10.5
9	Saginaw	10.5
10	Blue Mound	10.0
11	Lake Worth	10.0
12	Fort Worth	9.7
13	Haslet	8.4
14	Westover Hills	7.6
Tarrant County, TX		9.8
State of Texas		11.4
United States of America		12.6

¹US Census Bureau ACS 2017-2021

Location

Figure 17: Census Tract Map and Location Metrics – City of Fort Worth



356.9

Area in square miles
(US Census Bureau 2021)

18.76

Environmental Hazard
National Risk Index Score
0=Least Risk to 100=Most Risk
(FEMA 2021)

53.45

Environmental Hazard
Community Resilience Score
0=Least Resilient to 100=Most Resilient
(FEMA 2021)

Figure 18: Area (Square Miles)

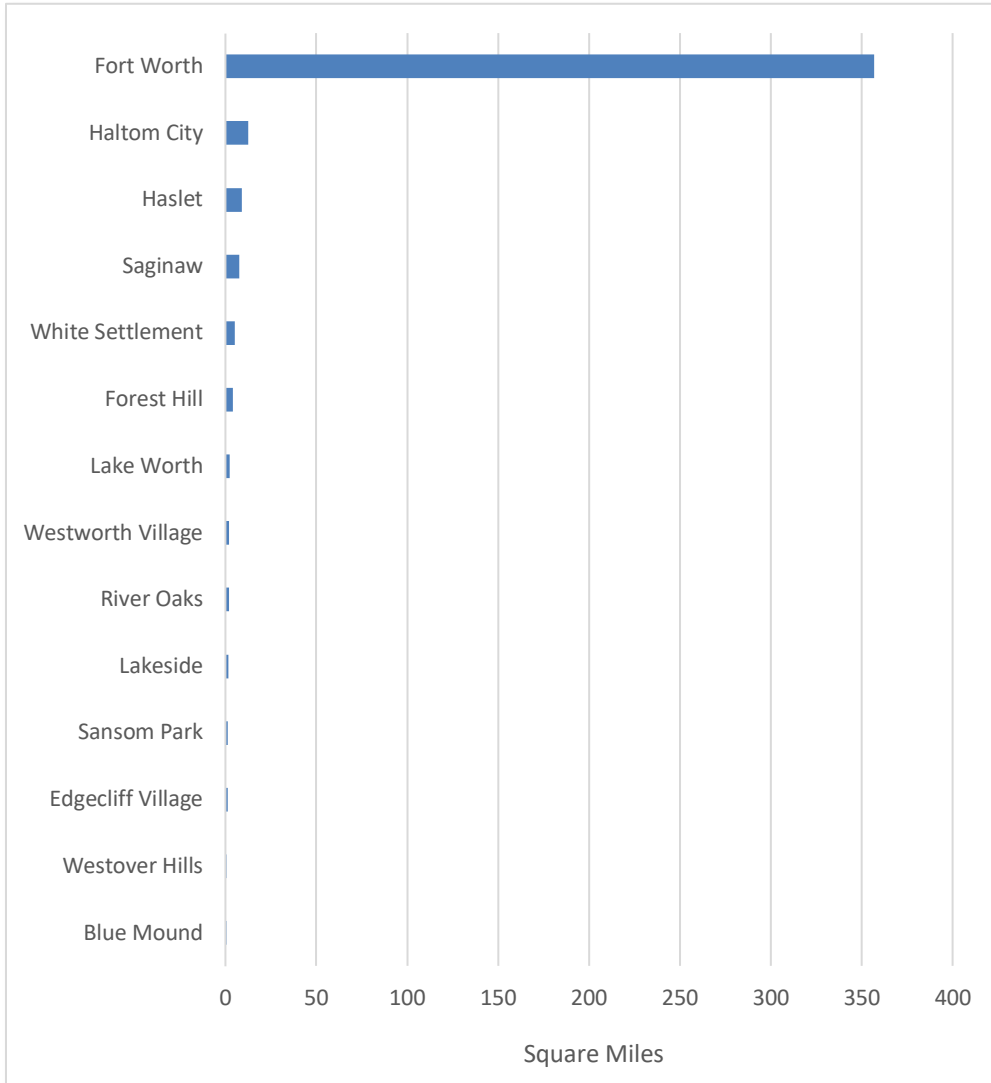


Table 14: Area (Square Miles)

Rank	Location	Square Miles ¹
1	Fort Worth	356.9
2	Haltom City	12.4
3	Haslet	9.0
4	Saginaw	7.7
5	White Settlement	5.0
6	Forest Hill	4.2
7	Lake Worth	2.5
8	Westworth Village	2.1
9	River Oaks	2.0
10	Lakeside	1.7
11	Sansom Park	1.2
12	Edgecliff Village	1.2
13	Westover Hills	0.7
14	Blue Mound	0.5
Tarrant County, TX		903.8
State of Texas		268,595.7
United States of America		3,705,244.5

¹US Census Bureau 2021

Figure 19: Environmental Hazard National Risk Index Score

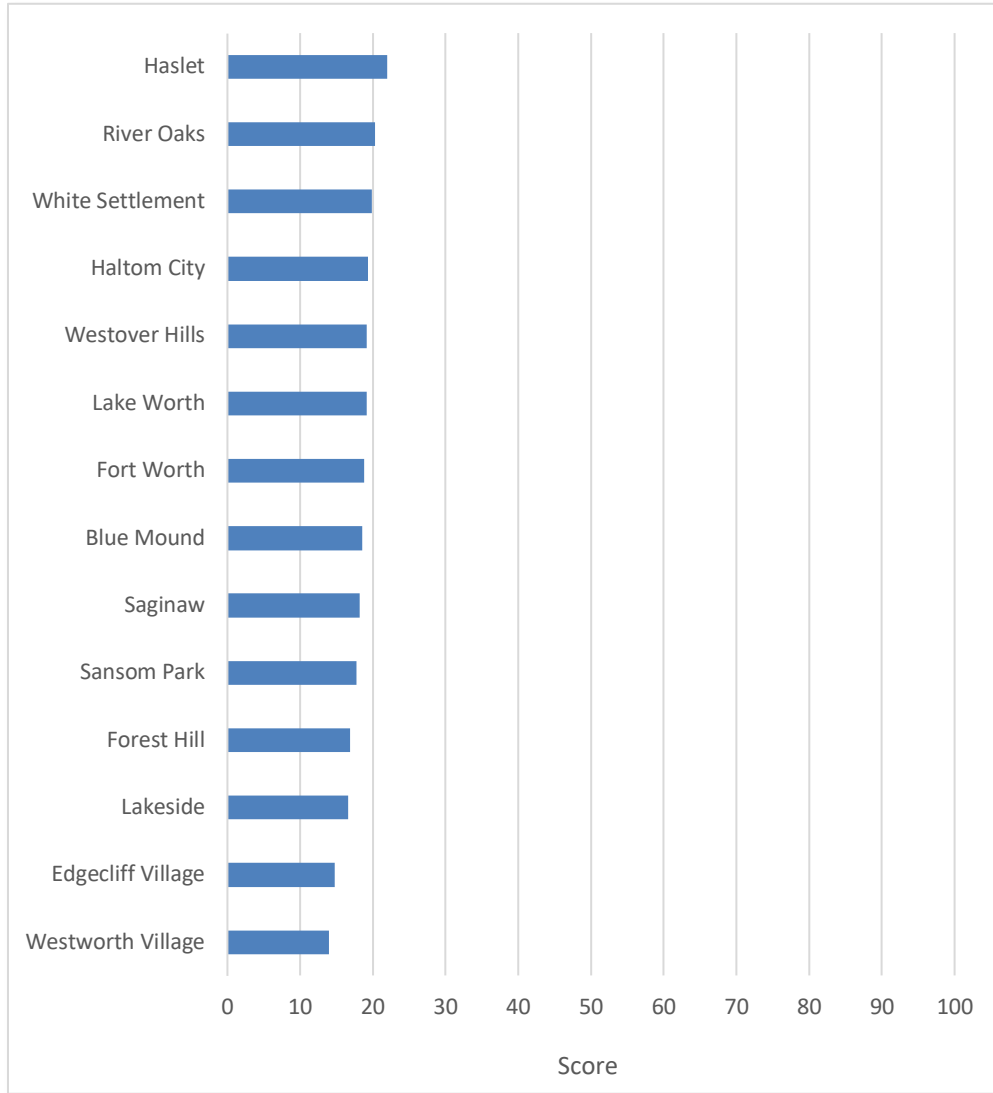


Table 15: Environmental Hazard National Risk Index Score

Rank	Location	Score ¹
1	Haslet	21.92
2	River Oaks	20.31
3	White Settlement	19.83
4	Haltom City	19.30
5	Westover Hills	19.18
6	Lake Worth	19.13
7	Fort Worth	18.76
8	Blue Mound	18.50
9	Saginaw	18.19
10	Sansom Park	17.72
11	Forest Hill	16.88
12	Lakeside	16.61
13	Edgecliff Village	14.76
14	Westworth Village	13.98
Tarrant County, TX		31.55
State of Texas		12.97
United States of America		10.70

¹FEMA 2021; ranges from 0 (least risk) to 100 (most risk)

Figure 20: Environmental Hazard Community Resilience Score

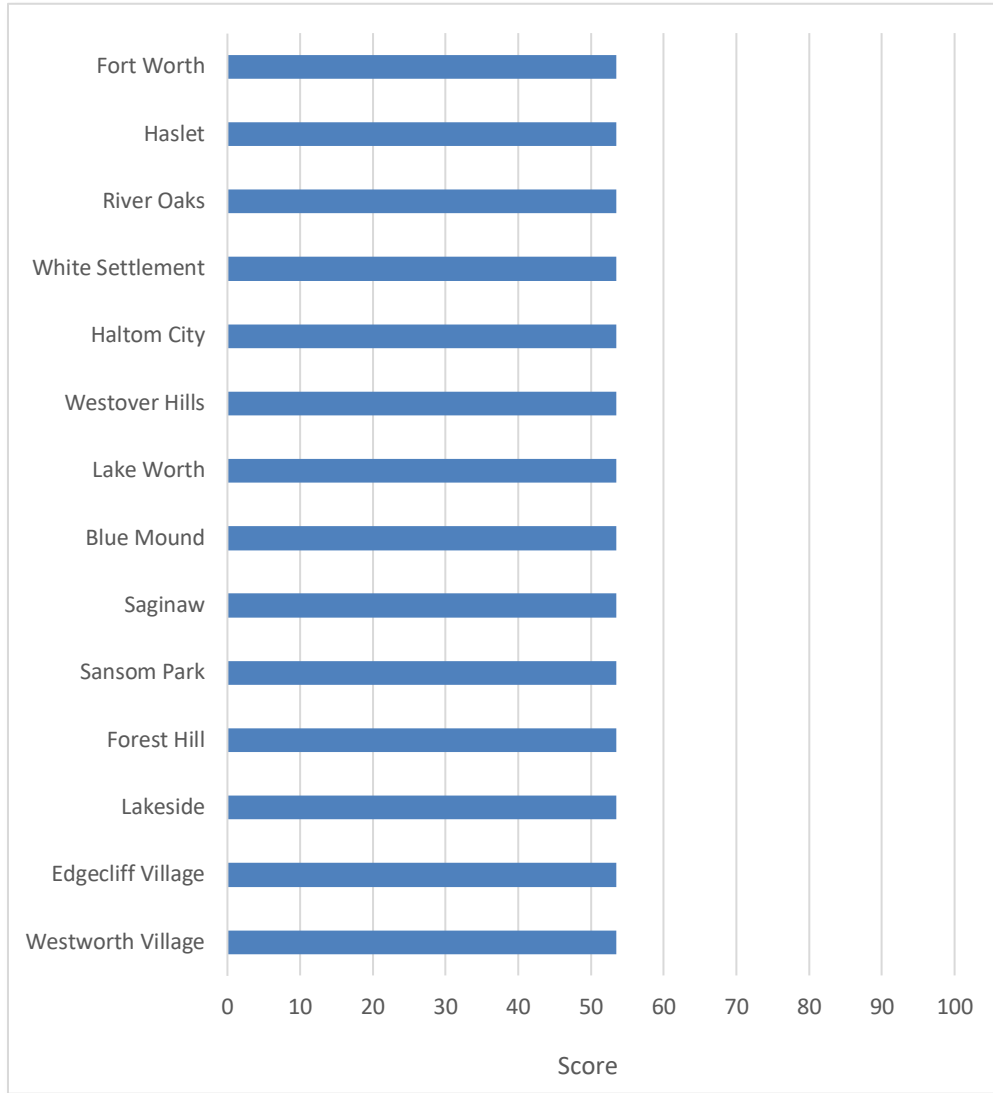


Table 16: Environmental Hazard Community Resilience Score

Rank	Location	Score ¹
1	Fort Worth	53.45
2	Haslet	53.46
3 (T)	Westworth Village	53.46
3 (T)	Edgecliff Village	53.46
3 (T)	Lakeside	53.46
3 (T)	Forest Hill	53.46
3 (T)	Sansom Park	53.46
3 (T)	Saginaw	53.46
3 (T)	Blue Mound	53.46
3 (T)	Lake Worth	53.46
3 (T)	Westover Hills	53.46
3 (T)	Haltom City	53.46
3 (T)	White Settlement	53.46
3 (T)	River Oaks	53.46
Tarrant County, TX		53.46
State of Texas		52.30
United States of America		54.59

¹FEMA 2021; ranges from 0 (least resilient) to 100 (most resilient)

SOCIAL DETERMINANTS OF HEALTH

Healthcare Access

Figure 21: Percent of Population without Health Insurance Coverage

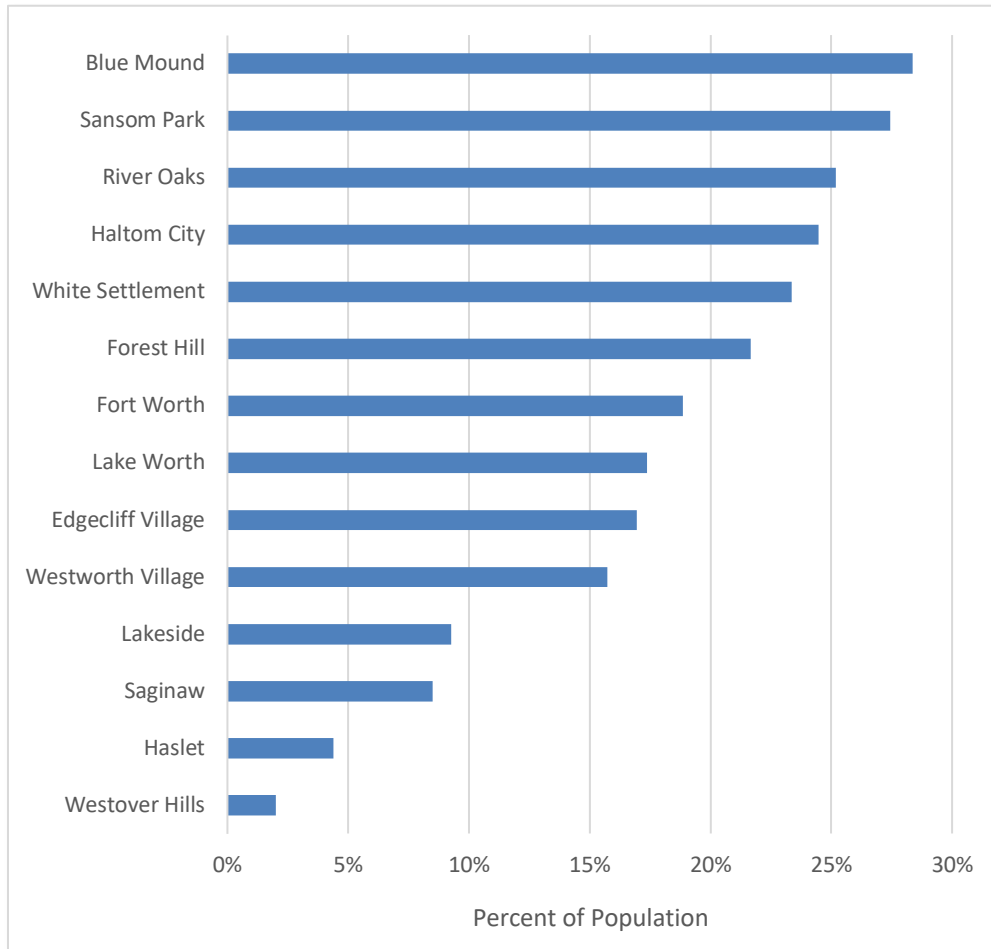


Table 17: Percent of Population without Health Insurance Coverage

Rank	Location	Percent of Population ¹
1	Blue Mound	28.4
2	Sansom Park	27.4
3	River Oaks	25.2
4	Haltom City	24.5
5	White Settlement	23.3
6	Forest Hill	21.6
7	Fort Worth	18.8
8	Lake Worth	17.4
9	Edgecliff Village	16.9
10	Westworth Village	15.7
11	Lakeside	9.2
12	Saginaw	8.5
13	Haslet	4.4
14	Westover Hills	2.0
Tarrant County, TX		16.8
State of Texas		17.6
United States of America		8.8

¹US Census Bureau ACS 2017-2021

Figure 22: Percent of Population Age 65 Years and Over without Medicare

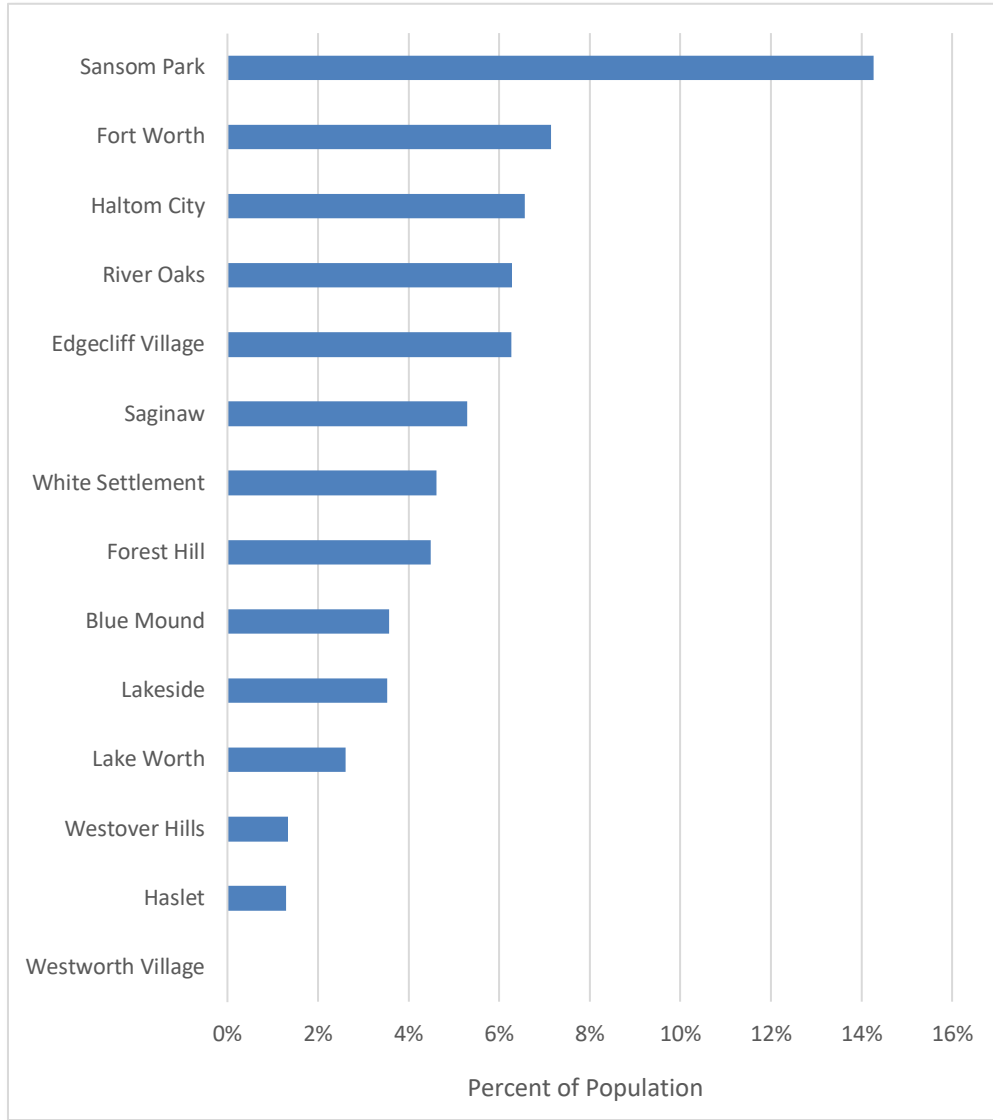


Table 18: Percent of Population Age 65 Years and Over without Medicare

Rank	Location	Percent of Population ¹
1	Sansom Park	14.3
2	Fort Worth	7.1
3	Haltom City	6.6
4	River Oaks	6.3
5	Edgecliff Village	6.3
6	Saginaw	5.3
7	White Settlement	4.6
8	Forest Hill	4.5
9	Blue Mound	3.6
10	Lakeside	3.5
11	Lake Worth	2.6
12	Westover Hills	1.3
13	Haslet	1.3
14	Westworth Village	0.0
Tarrant County, TX		6.7
State of Texas		5.9
United States of America		4.4

¹US Census Bureau ACS 2017-2021

Figure 23: Percent of Population with Medicaid or Means-Tested Public Coverage

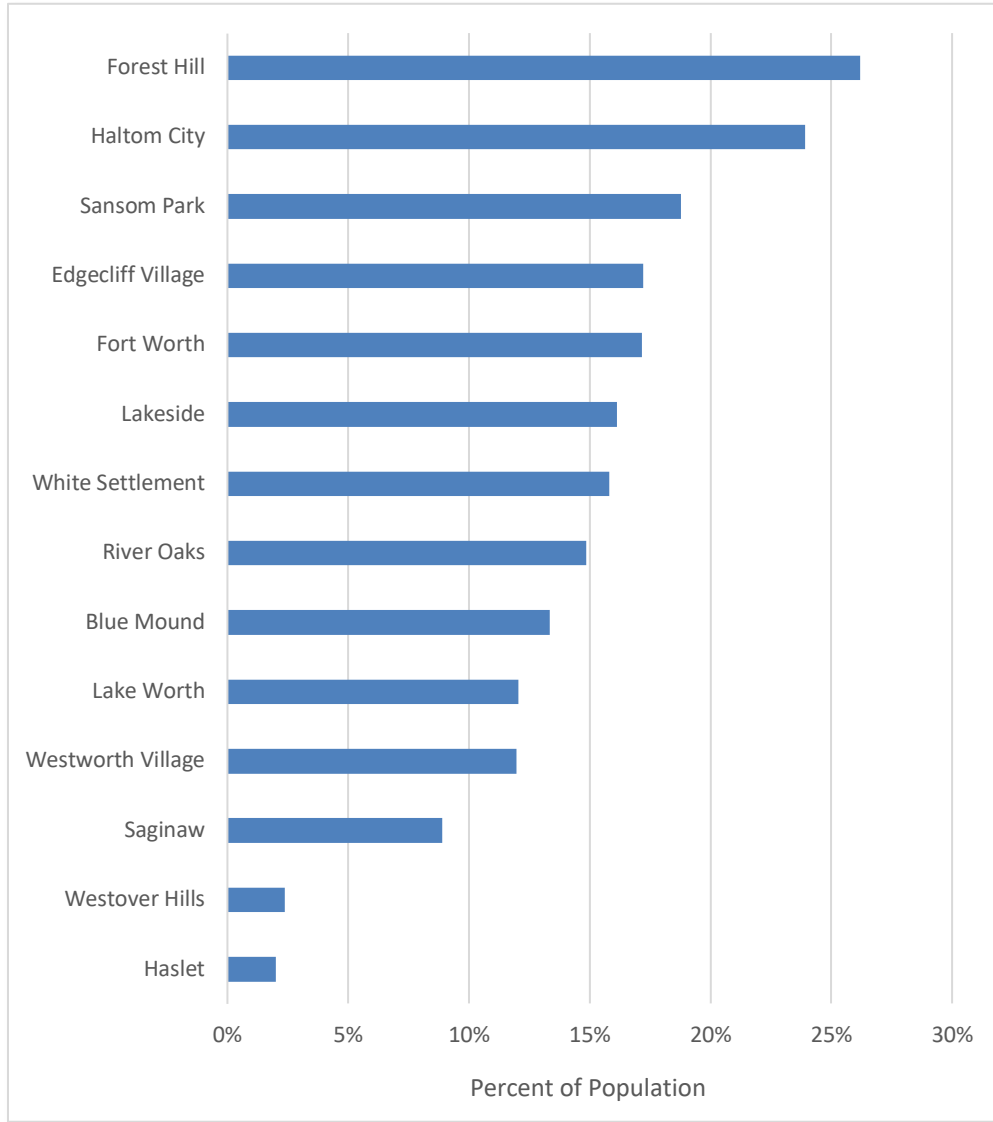


Table 19: Percent of Population with Medicaid or Means-Tested Public Coverage

Rank	Location	Percent of Population ¹
1	Forest Hill	26.2
2	Haltom City	23.9
3	Sansom Park	18.8
4	Edgecliff Village	17.2
5	Fort Worth	17.1
6	Lakeside	16.1
7	White Settlement	15.8
8	River Oaks	14.8
9	Blue Mound	13.3
10	Lake Worth	12.0
11	Westworth Village	11.9
12	Saginaw	8.9
13	Westover Hills	2.4
14	Haslet	2.0
Tarrant County, TX		14.8
State of Texas		16.4
United States of America		20.2

¹US Census Bureau ACS 2017-2021

Figure 24: Healthcare Provider Ratio – Primary Care Physicians

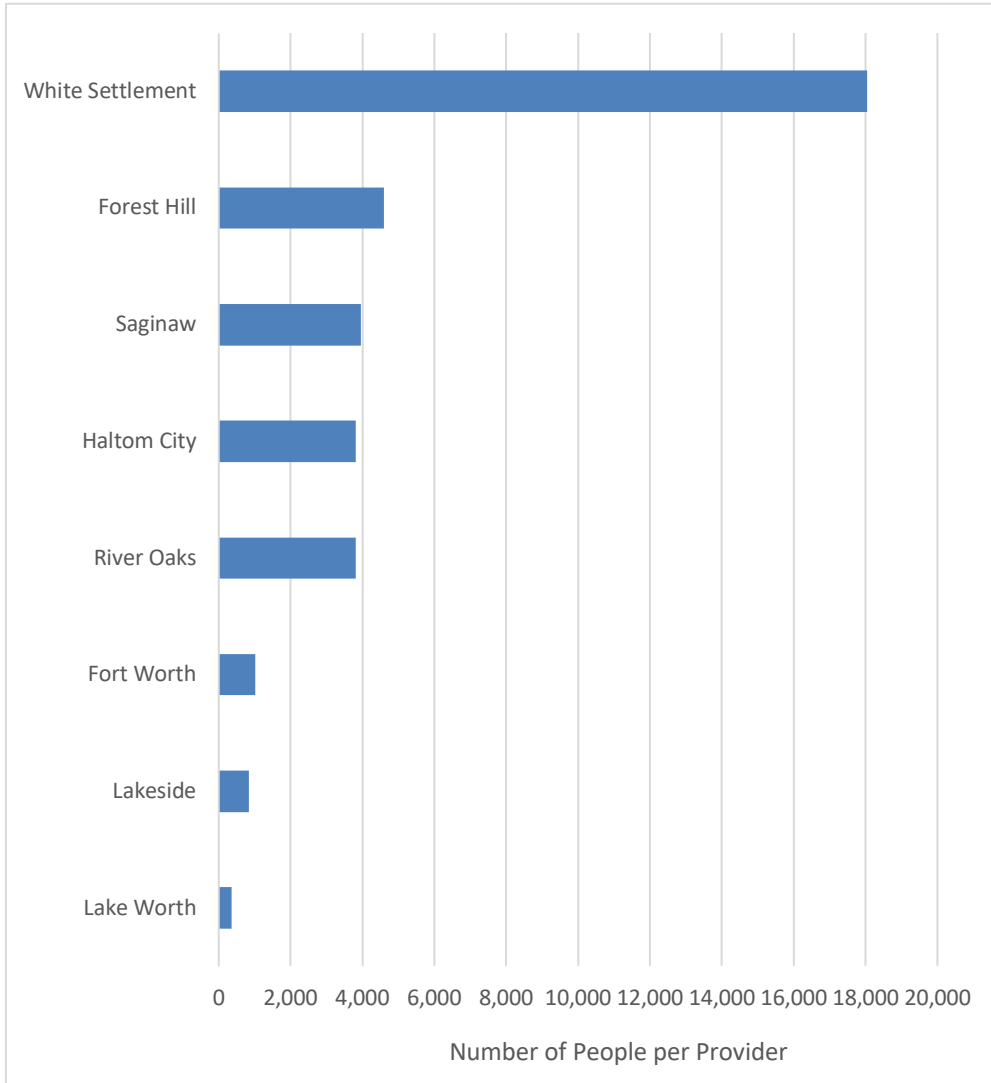


Table 20: Healthcare Provider Ratio – Primary Care Physicians

Rank	Location	Number of People/ ¹
1	White Settlement	18,040.0
2	Forest Hill	4,599.0
3	Saginaw	3,946.0
4	Haltom City	3,814.8
5	River Oaks	3,811.5
6	Fort Worth	1,010.5
N/A	Lakeside	N/A
N/A	Lake Worth	N/A
N/A	Blue Mound	N/A
N/A	Edgecliff Village	N/A
N/A	Haslet	N/A
N/A	Sansom Park	N/A
N/A	Westover Hills	N/A
N/A	Westworth Village	N/A
Tarrant County, TX		1,261.0
State of Texas		1,235.3
United States of America		959.1

¹US Census Bureau ACS 2017-2021 and CMS NPPES 2022; ratio value represents number of people per one primary care physician (i.e., family medicine, general practice, or internal medicine)

Figure 25: Healthcare Provider Ratio – Mental Health Providers

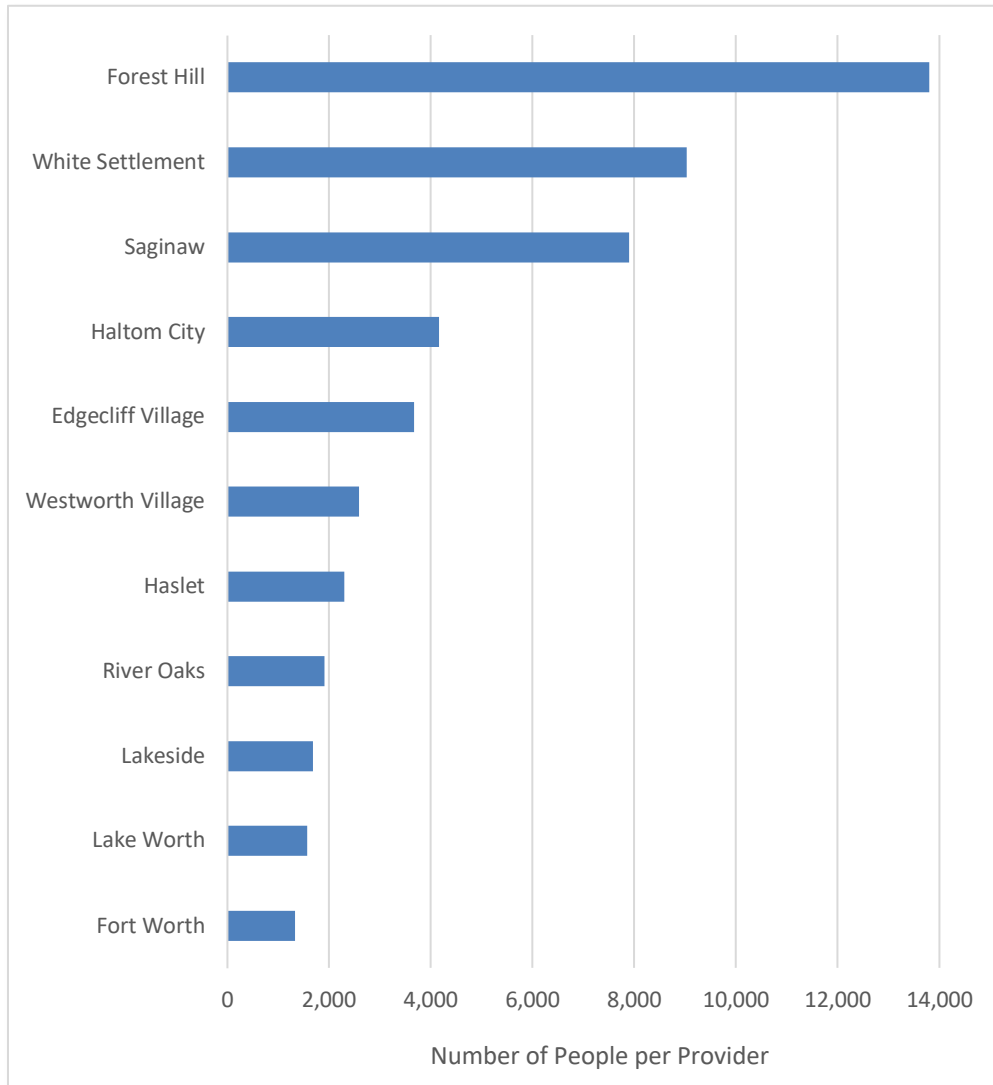


Table 21: Healthcare Provider Ratio – Mental Health Providers

Rank	Location	Number of People/ ¹
1	Forest Hill	13,797.0
2	White Settlement	9,020.0
3	Saginaw	7,892.0
4	Haltom City	4,161.6
5	Edgecliff Village	3,672.0
6	Westworth Village	2,590.0
7	Haslet	2,296.0
8	River Oaks	1,905.8
9	Lakeside	1,676.0
10	Lake Worth	1,570.0
11	Fort Worth	1,326.2
N/A	Blue Mound	N/A
N/A	Sansom Park	N/A
N/A	Westover Hills	N/A
Tarrant County, TX		1,518.1
State of Texas		1,678.5
United States of America		633.5

¹US Census Bureau ACS 2017-2021 and CMS NPPES 2022; ratio value represents number of people per one mental health provider

Figure 26: Health Professional Shortage Area – Primary Care

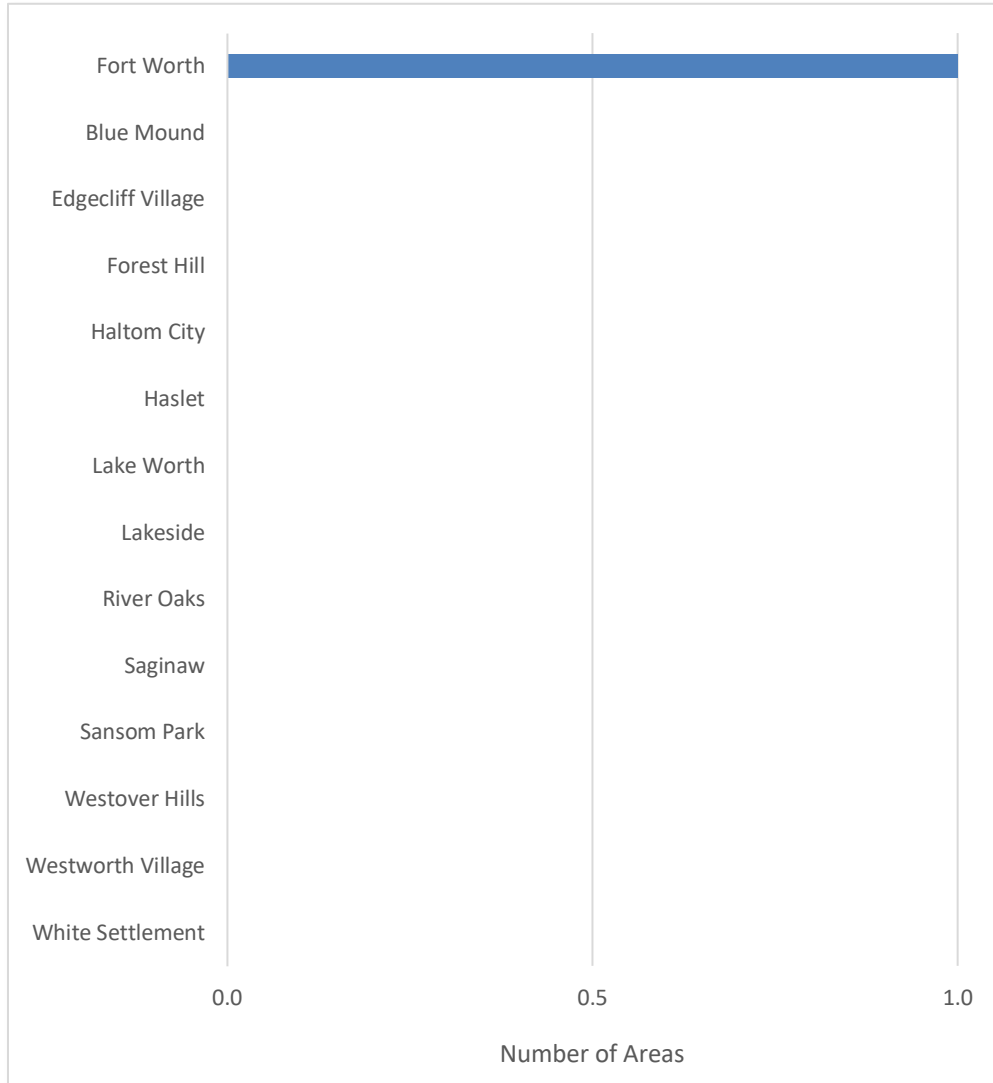


Table 22: Health Professional Shortage Area – Primary Care

Rank	Location	Number of Areas ¹
1	Fort Worth	1
2 (T)	Blue Mound	0
2 (T)	Edgecliff Village	0
2 (T)	Forest Hill	0
2 (T)	Haltom City	0
2 (T)	Haslet	0
2 (T)	Lake Worth	0
2 (T)	Lakeside	0
2 (T)	River Oaks	0
2 (T)	Saginaw	0
2 (T)	Sansom Park	0
2 (T)	Westover Hills	0
2 (T)	Westworth Village	0
2 (T)	White Settlement	0
Tarrant County, TX		0
State of Texas		2,080
United States of America		32,918

¹BHW HRSA 2020; area value represents the number of shortage areas, as designated by State Primary Care Offices, and as approved by BHW HRSA

Figure 27: Health Professional Shortage Area – Mental Health

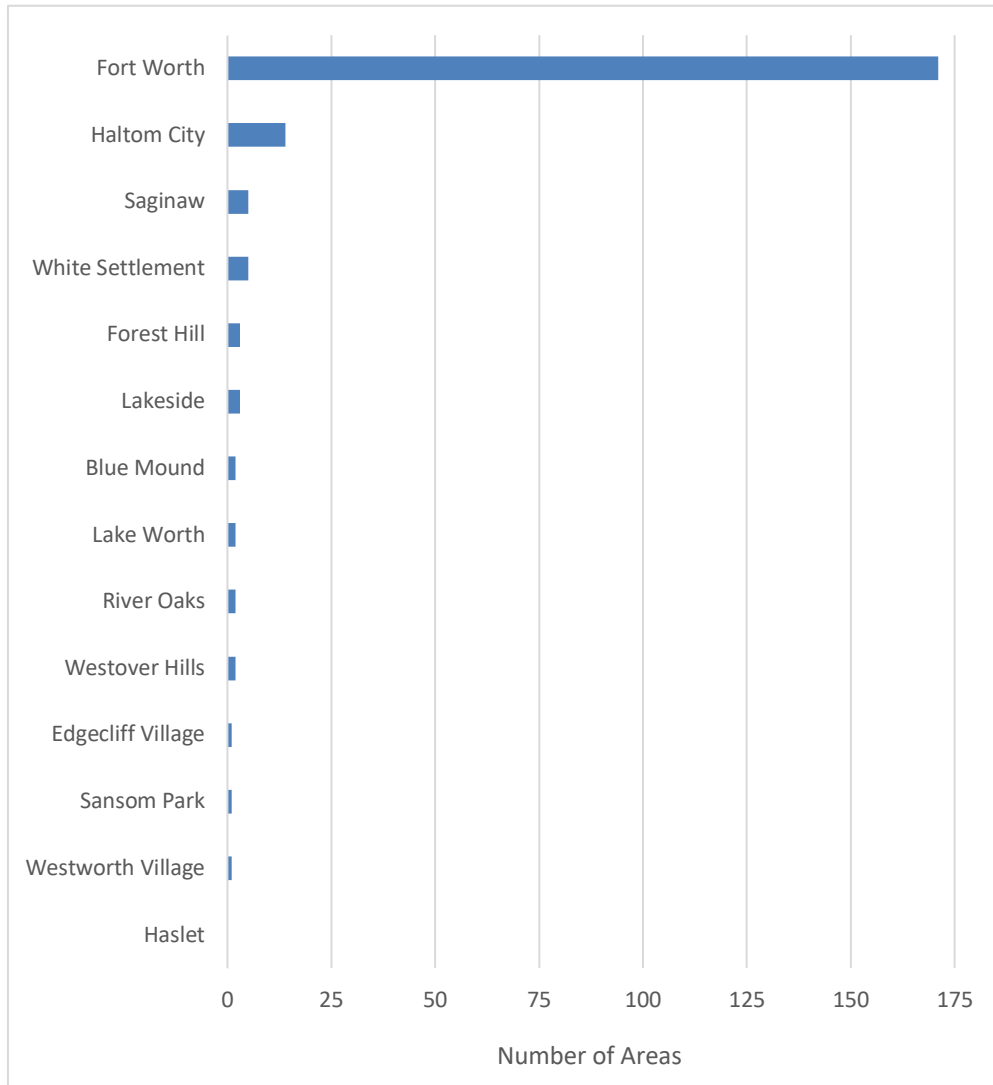


Table 23: Health Professional Shortage Area – Mental Health

Rank	Location	Number of Areas ¹
1	Fort Worth	171
2	Haltom City	14
3 (T)	Saginaw	5
3 (T)	White Settlement	5
5 (T)	Forest Hill	3
5 (T)	Lakeside	3
7 (T)	Blue Mound	2
7 (T)	Lake Worth	2
7 (T)	River Oaks	2
7 (T)	Westover Hills	2
11 (T)	Edgecliff Village	1
11 (T)	Sansom Park	1
11 (T)	Westworth Village	1
14	Haslet	0
Tarrant County, TX		348
State of Texas		3,872
United States of America		38,915

¹BHW HRSA 2020; area value represents the number of shortage areas, as designated by State Primary Care Offices, and as approved by BHW HRSA

Figure 28: Percent of Population Reporting Annual Check-Up

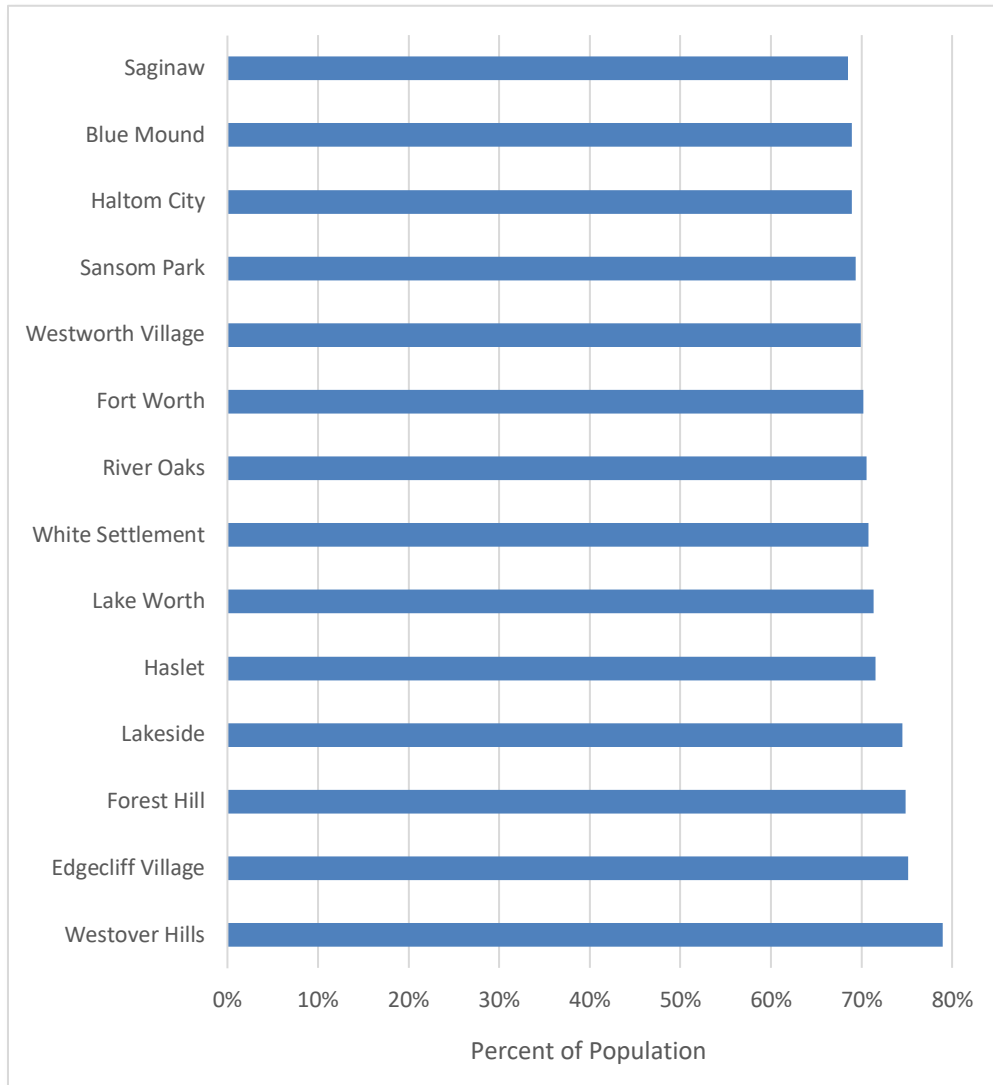


Table 24: Percent of Population Reporting Annual Check-Up

Rank	Location	Percent of Population ¹
1	Saginaw	68.5
2 (T)	Blue Mound	68.9
2 (T)	Haltom City	68.9
4	Sansom Park	69.3
5	Westworth Village	69.9
6	Fort Worth	70.2
7	River Oaks	70.5
8	White Settlement	70.7
9	Lake Worth	71.3
10	Haslet	71.5
11	Lakeside	74.5
12	Forest Hill	74.8
13	Edgecliff Village	75.1
14	Westover Hills	78.9
Tarrant County, TX		71.8
State of Texas		70.0
United States of America		74.7

¹CDC BRFSS 2021; values represent percent of population of adults aged 18 years and older who reported visiting a doctor for a routine check-up (i.e., general physical exam) in the previous year

Economic Stability

Figure 29: Median Household Income

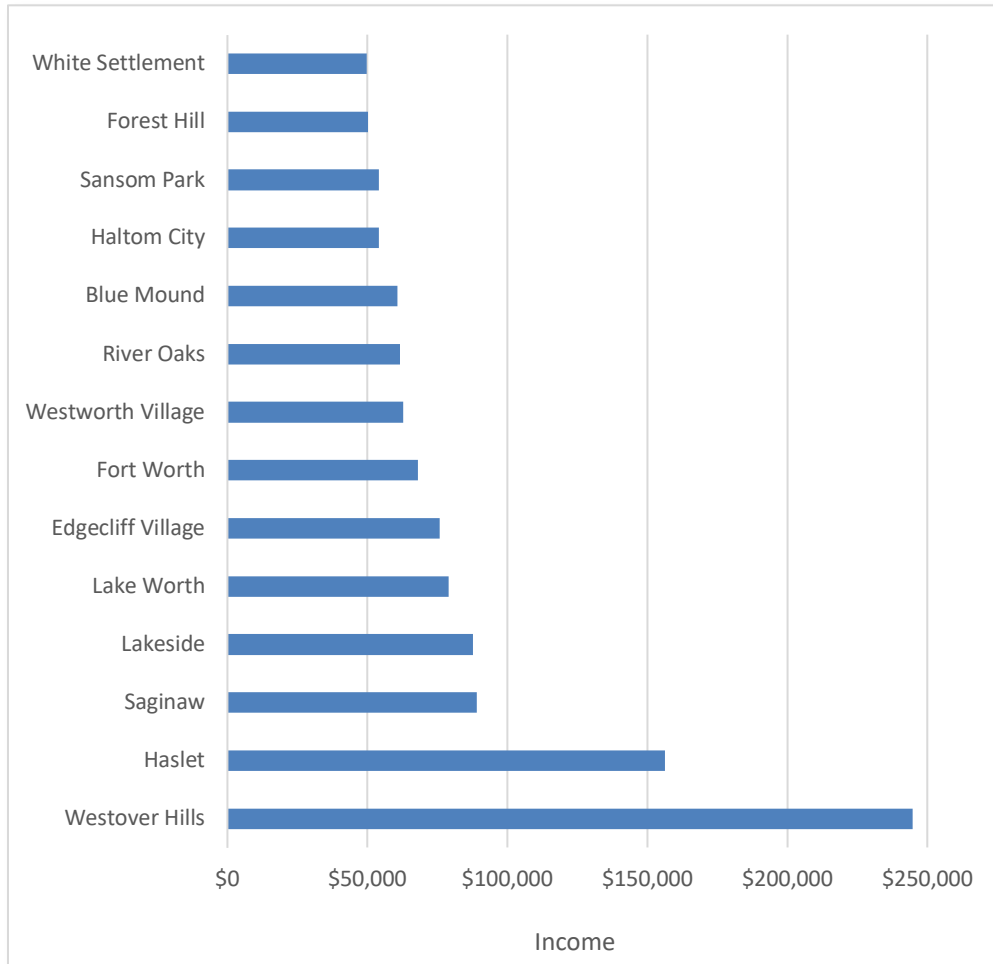


Table 25: Median Household Income

Rank	Location	Income ¹
1	White Settlement	\$49,627
2	Forest Hill	\$50,100
3	Sansom Park	\$54,007
4	Haltom City	\$54,099
5	Blue Mound	\$60,625
6	River Oaks	\$61,566
7	Westworth Village	\$62,697
8	Fort Worth	\$67,927
9	Edgecliff Village	\$75,719
10	Lake Worth	\$78,958
11	Lakeside	\$87,692
12	Saginaw	\$89,071
13	Haslet	\$156,250
14	Westover Hills	\$244,583
Tarrant County, TX		\$73,545
State of Texas		\$67,321
United States of America		\$69,021

¹US Census Bureau ACS 2017-2021

Figure 30: Per Capita Income

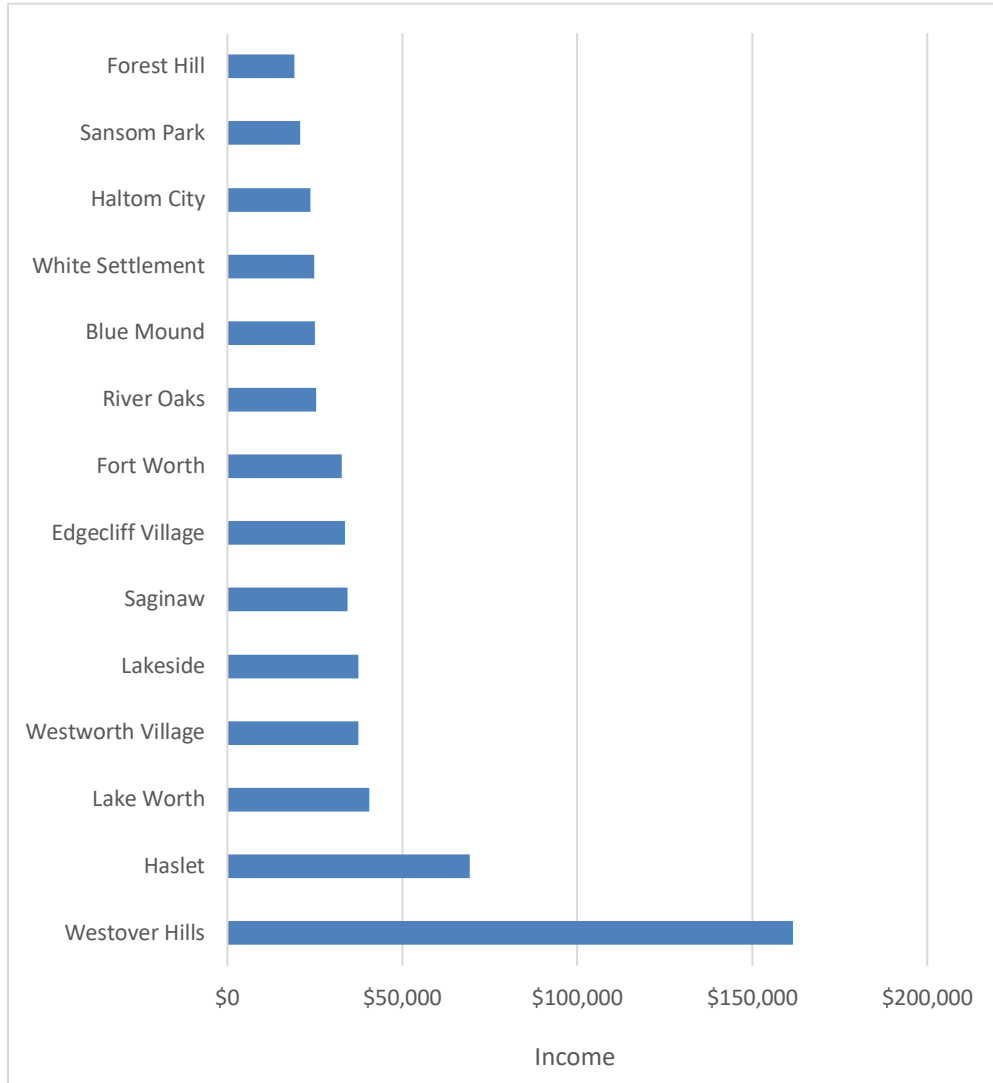


Table 26: Per Capita Income

Rank	Location	Income ¹
1	Forest Hill	\$19,136
2	Sansom Park	\$20,834
3	Haltom City	\$23,734
4	White Settlement	\$24,737
5	Blue Mound	\$24,911
6	River Oaks	\$25,332
7	Fort Worth	\$32,569
8	Edgecliff Village	\$33,529
9	Saginaw	\$34,310
10	Lakeside	\$37,414
11	Westworth Village	\$37,423
12	Lake Worth	\$40,562
13	Haslet	\$69,294
14	Westover Hills	\$161,567
Tarrant County, TX		\$36,170
State of Texas		\$34,255
United States of America		\$37,638

¹US Census Bureau ACS 2017-2021

Figure 31: Income Inequality (Gini Index)

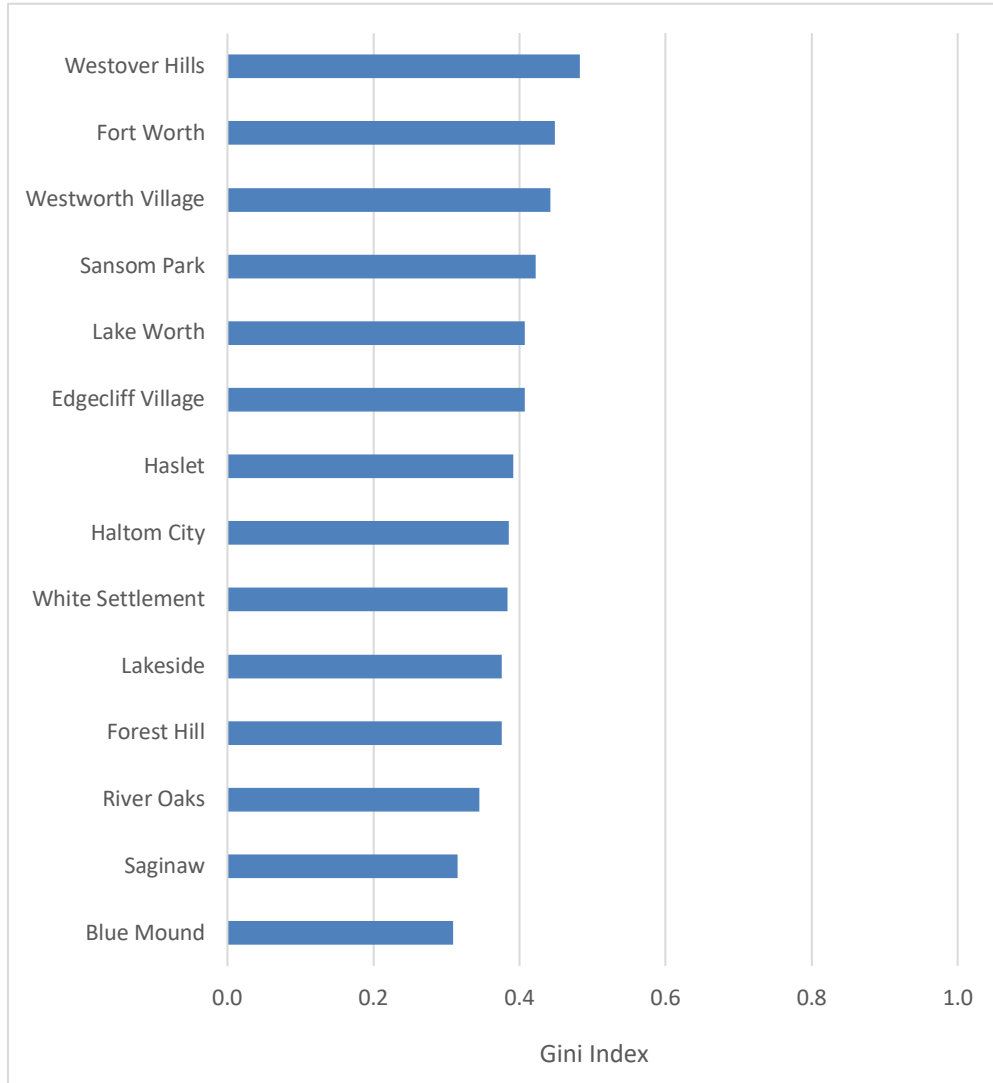


Table 27: Income Inequality (Gini Index)

Rank	Location	Gini Index ¹
1	Westover Hills	0.482
2	Fort Worth	0.448
3	Westworth Village	0.442
4	Sansom Park	0.422
5	Lake Worth	0.407
6	Edgecliff Village	0.407
7	Haslet	0.391
8	Haltom City	0.386
9	White Settlement	0.384
10	Lakeside	0.376
11	Forest Hill	0.375
12	River Oaks	0.345
13	Saginaw	0.315
14	Blue Mound	0.309
Tarrant County, TX		0.454
State of Texas		0.475
United States of America		0.482

¹US Census Bureau ACS 2017-2021; ranges from 0 (perfect equality; all households have equal share of income) to 1 (perfect inequality; one household has all income and all other households have none)

Figure 32: Percent of Population Below Poverty Level

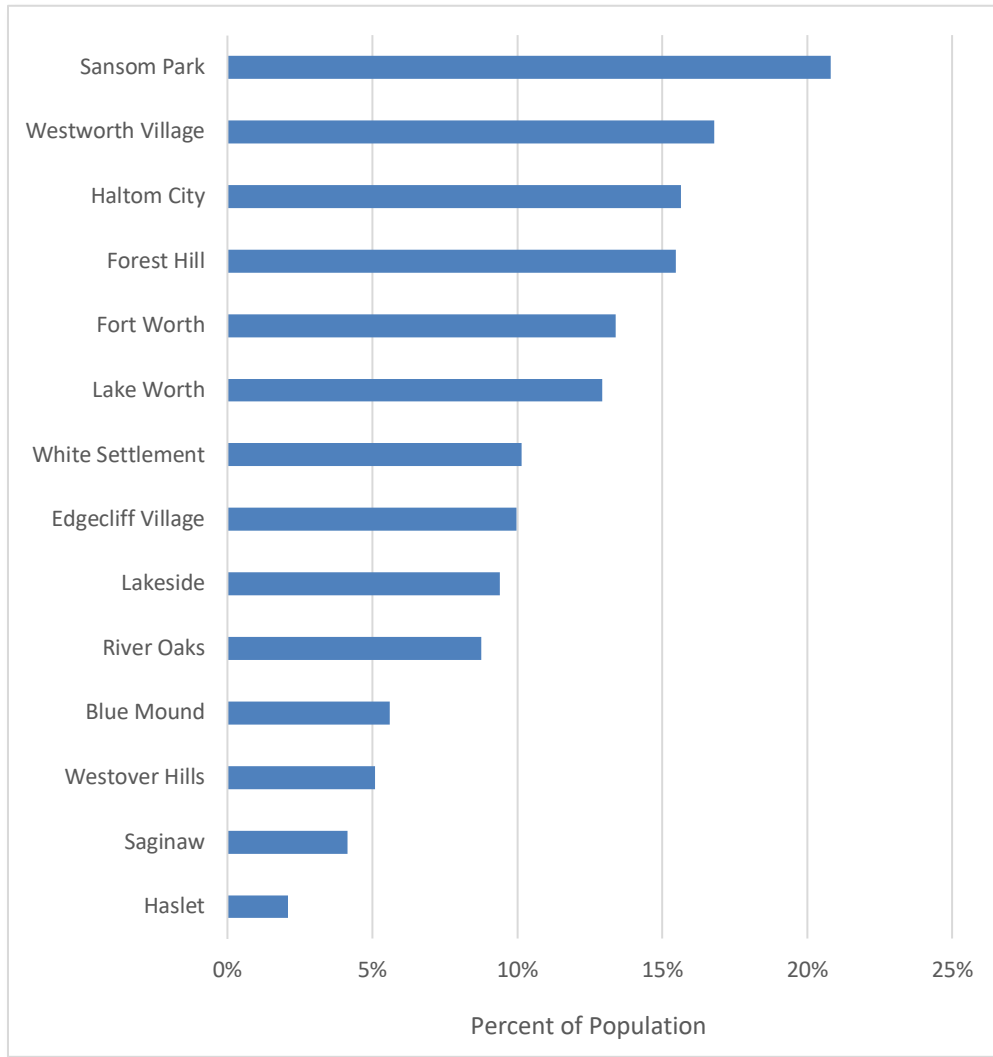


Table 28: Percent of Population Below Poverty Level

Rank	Location	Percent of Population ¹
1	Sansom Park	20.8
2	Westworth Village	16.8
3	Haltom City	15.6
4	Forest Hill	15.5
5	Fort Worth	13.4
6	Lake Worth	12.9
7	White Settlement	10.1
8	Edgecliff Village	10.0
9	Lakeside	9.4
10	River Oaks	8.7
11	Blue Mound	5.6
12	Westover Hills	5.1
13	Saginaw	4.1
14	Haslet	2.1
Tarrant County, TX		11.3
State of Texas		14.0
United States of America		12.6

¹US Census Bureau ACS 2017-2021; values represent number of people with income in the past 12 months below poverty level divided by number of people with poverty status determined, expressed as percentages

Figure 33: Unemployment Rate

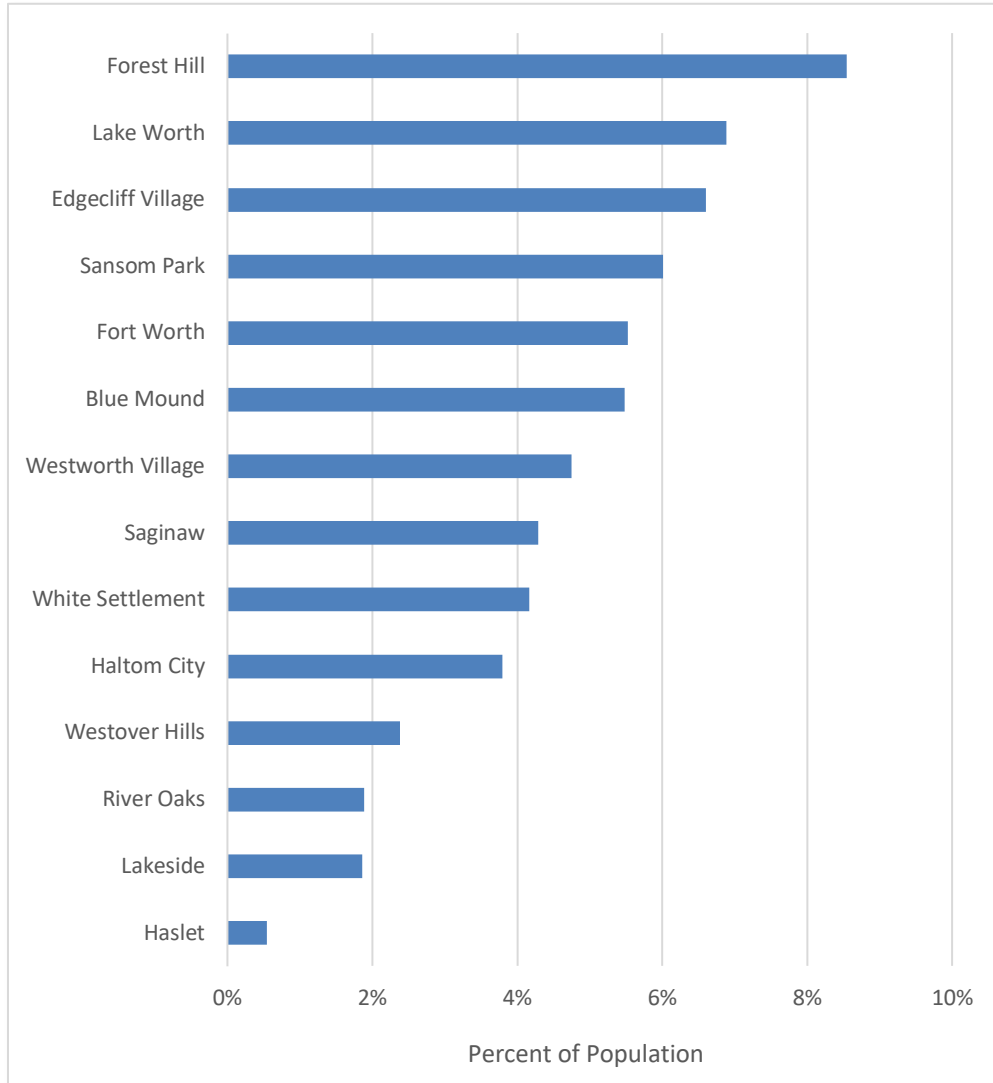


Table 29: Unemployment Rate

Rank	Location	Percent of Population ¹
1	Forest Hill	8.5
2	Lake Worth	6.9
3	Edgecliff Village	6.6
4	Sansom Park	6.0
5	Fort Worth	5.5
6	Blue Mound	5.5
7	Westworth Village	4.7
8	Saginaw	4.3
9	White Settlement	4.2
10	Haltom City	3.8
11	Westover Hills	2.4
12	River Oaks	1.9
13	Lakeside	1.9
14	Haslet	0.5
Tarrant County, TX		5.1
State of Texas		5.4
United States of America		5.5

¹US Census Bureau ACS 2017-2021; values represent number of civilian unemployed population aged 16 years and older divided by the total civilian labor force aged 16 years and older, expressed as percentages

Social and Community Context

Figure 34: Isolation – Limited English-Speaking Households

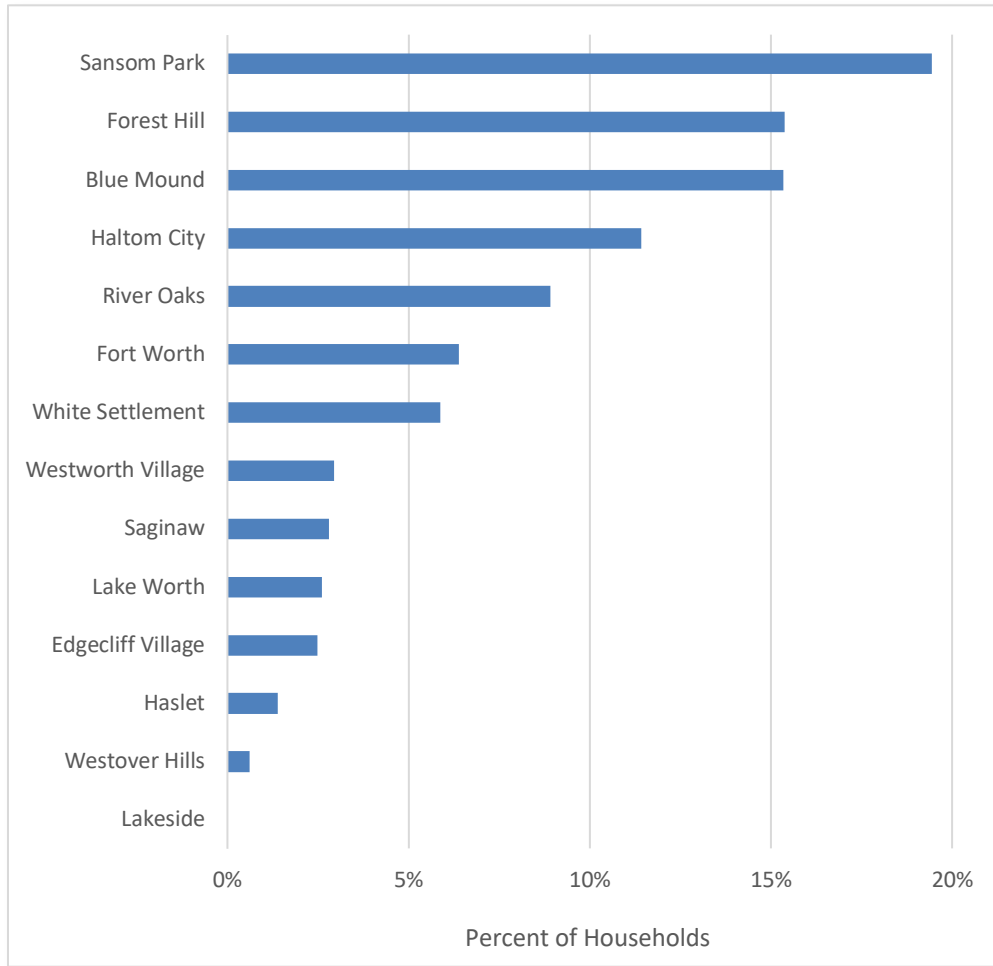


Table 30: Isolation – Limited English-Speaking Households

Rank	Location	Percent of Households ¹
1	Sansom Park	19.4
2	Forest Hill	15.4
3	Blue Mound	15.3
4	Haltom City	11.4
5	River Oaks	8.9
6	Fort Worth	6.4
7	White Settlement	5.9
8	Westworth Village	2.9
9	Saginaw	2.8
10	Lake Worth	2.6
11	Edgecliff Village	2.5
12	Haslet	1.4
13	Westover Hills	0.6
14	Lakeside	0.0
Tarrant County, TX		5.7
State of Texas		7.1
United States of America		4.2

¹US Census Bureau ACS 2017-2021; values represent number of limited English-speaking households divided by total number of households, expressed as percentages

Figure 35: Isolation – Seniors Living Alone

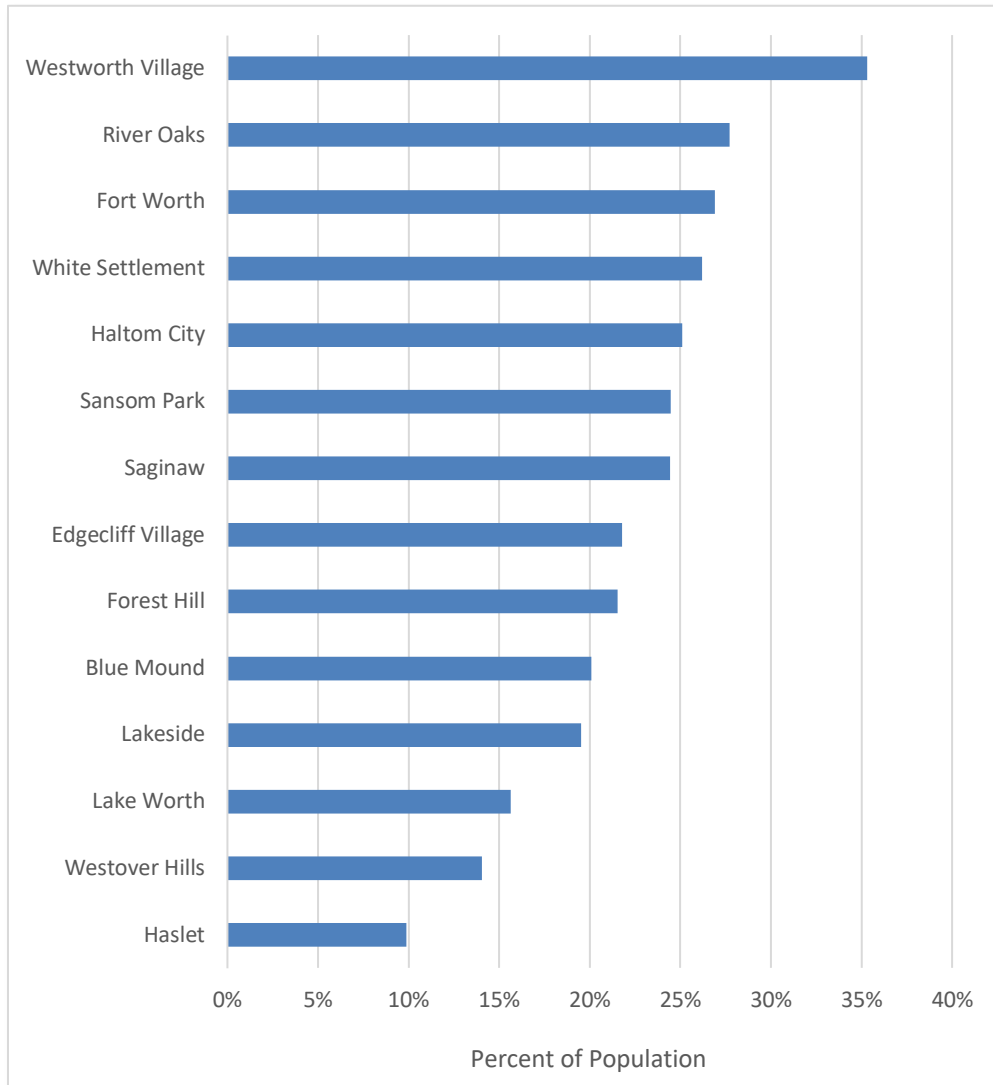


Table 31: Isolation – Seniors Living Alone

Rank	Location	Percent of Population ¹
1	Westworth Village	35.3
2	River Oaks	27.7
3	Fort Worth	26.9
4	White Settlement	26.2
5	Haltom City	25.1
6	Sansom Park	24.4
7	Saginaw	24.4
8	Edgecliff Village	21.8
9	Forest Hill	21.5
10	Blue Mound	20.1
11	Lakeside	19.5
12	Lake Worth	15.6
13	Westover Hills	14.0
14	Haslet	9.9
Tarrant County, TX		23.9
State of Texas		24.1
United States of America		27.0

¹US Census Bureau ACS 2017-2021; values represent number of people aged 65 years and older in a household alone divided by number of people aged 65 years and older in a household, expressed as percentages

Figure 36: Commuting – Percent of Population Who Commute

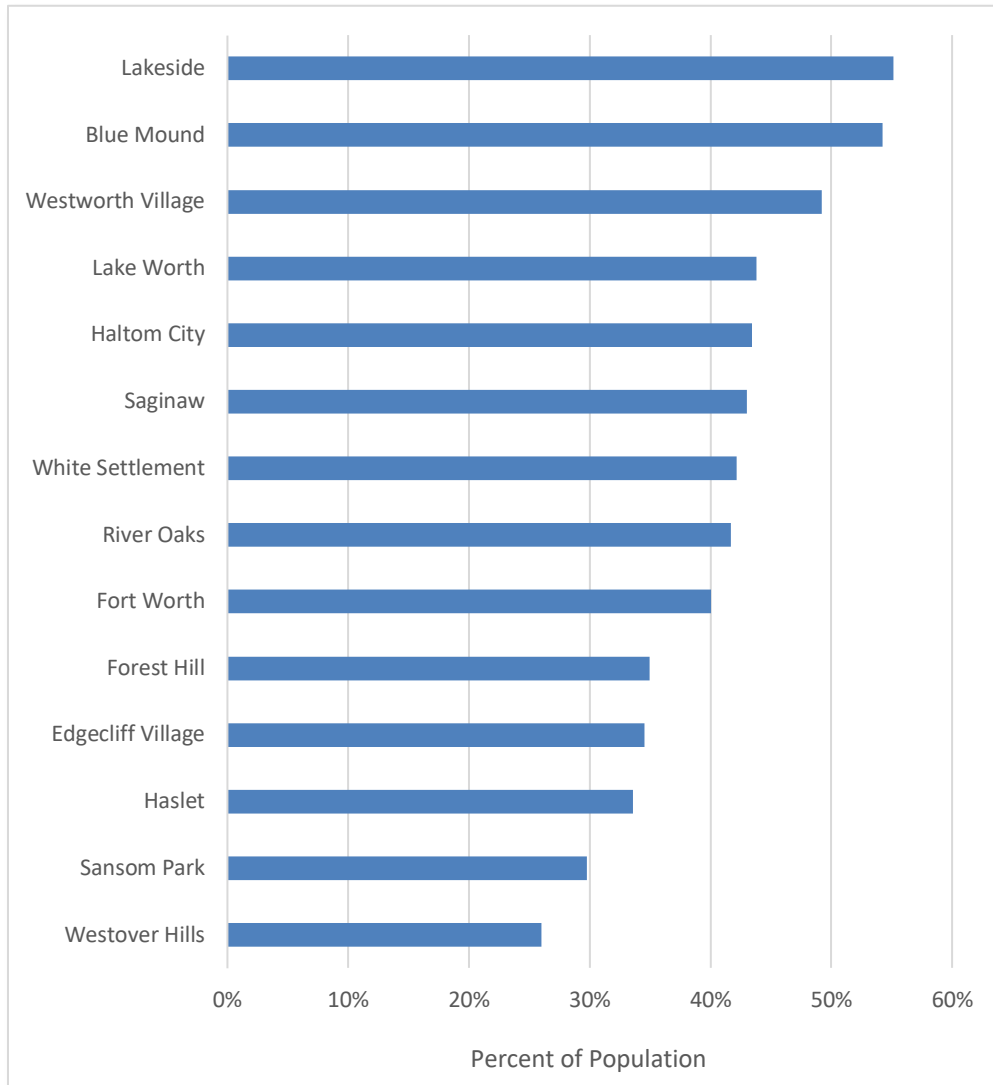


Table 32: Commuting – Percent of Population Who Commute

Rank	Location	Percent of Population ¹
1	Lakeside	55.1
2	Blue Mound	54.2
3	Westworth Village	49.2
4	Lake Worth	43.8
5	Haltom City	43.4
6	Saginaw	43.0
7	White Settlement	42.1
8	River Oaks	41.7
9	Fort Worth	40.0
10	Forest Hill	35.0
11	Edgecliff Village	34.5
12	Haslet	33.5
13	Sansom Park	29.8
14	Westover Hills	26.0
Tarrant County, TX		44.6
State of Texas		42.3
United States of America		N/A

¹CTPP 2012-2016; values represent number of workers aged 16 years and older residing in specified location who commute to work divided by total population in specified location, expressed as percentages

Figure 37: Commuting – Mean Travel Time

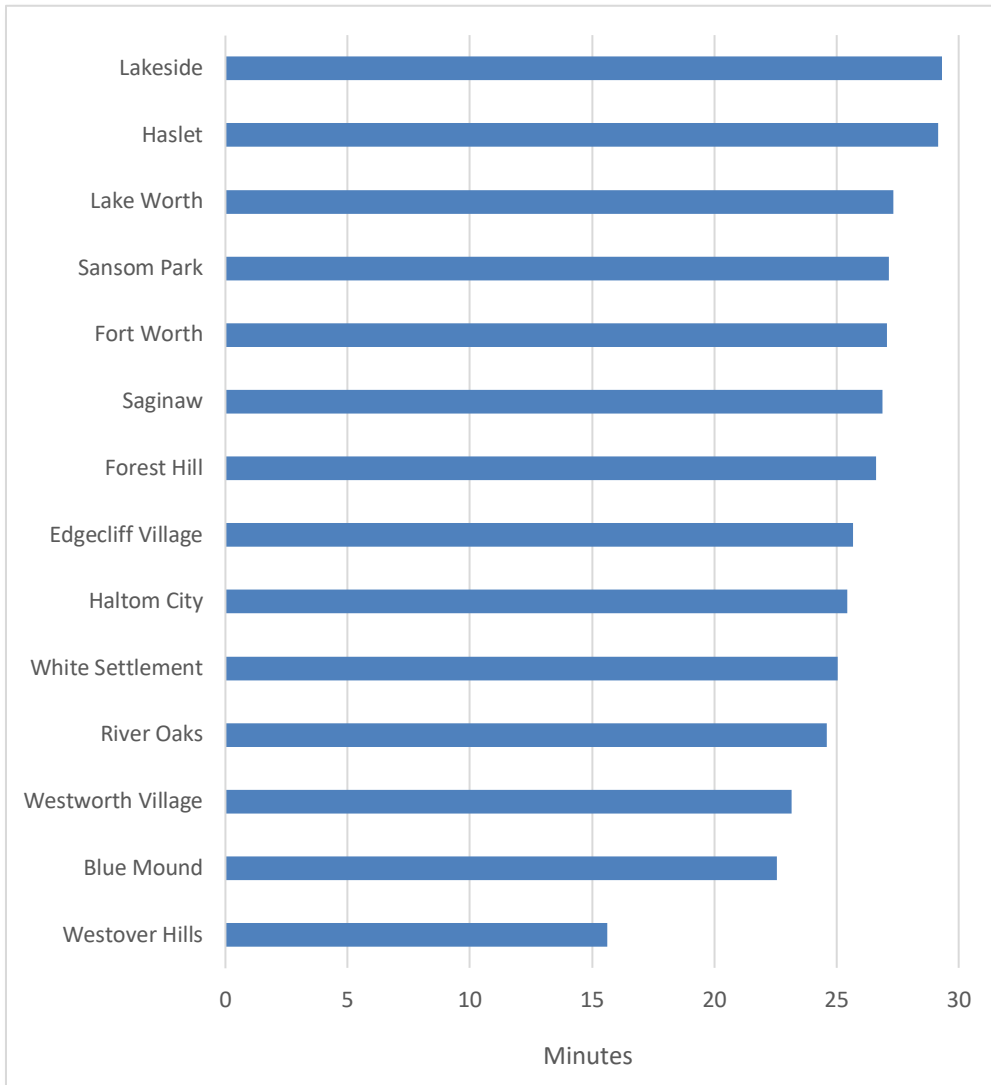


Table 33: Commuting – Mean Travel Time

Rank	Location	Minutes ¹
1	Lakeside	29.3
2	Haslet	29.2
3	Lake Worth	27.3
4	Sansom Park	27.1
5	Fort Worth	27.1
6	Saginaw	26.9
7	Forest Hill	26.6
8	Edgecliff Village	25.7
9	Haltom City	25.4
10	White Settlement	25.0
11	River Oaks	24.6
12	Westworth Village	23.2
13	Blue Mound	22.6
14	Westover Hills	15.6
Tarrant County, TX		26.9
State of Texas		26.6
United States of America		26.8

¹US Census Bureau ACS 2017-2021

Figure 38: Commuting – Percent of Commuters with Long Commute (≥ 30 Minutes)

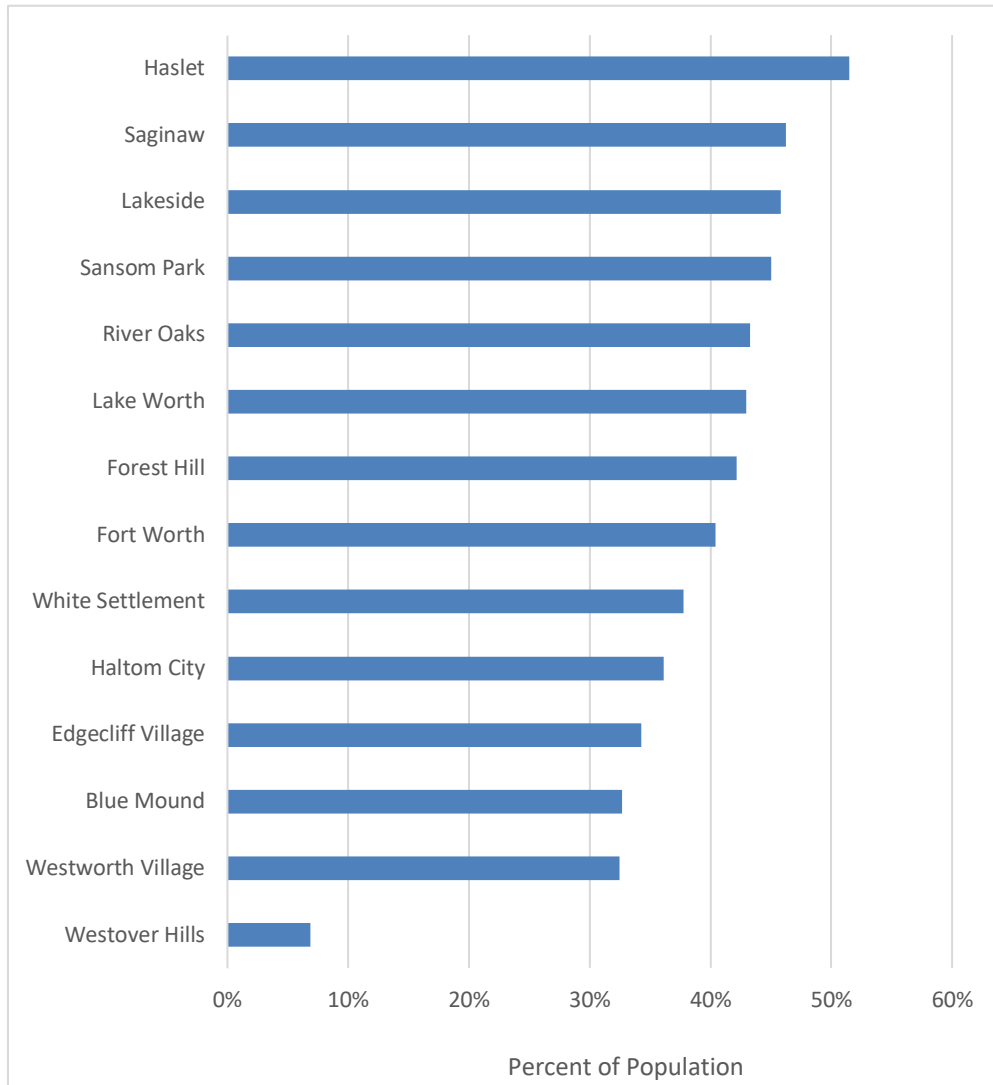


Table 34: Commuting – Percent of Commuters with Long Commute

Rank	Location	Percent of Population ¹
1	Haslet	51.5
2	Saginaw	46.2
3	Lakeside	45.8
4	Sansom Park	45.0
5	River Oaks	43.2
6	Lake Worth	42.9
7	Forest Hill	42.1
8	Fort Worth	40.4
9	White Settlement	37.7
10	Haltom City	36.1
11	Edgecliff Village	34.3
12	Blue Mound	32.7
13	Westworth Village	32.4
14	Westover Hills	6.8
Tarrant County, TX		41.3
State of Texas		39.0
United States of America		38.1

¹US Census Bureau ACS 2017-2021; values represent number of workers aged 16 years and older with commute time ≥ 30 minutes divided by number of commuters aged 16 years and older, expressed as percentages

COMMUNITY HEALTH ASSESSMENT

Health Outcomes

Figure 39: Health Among Adults – Asthma

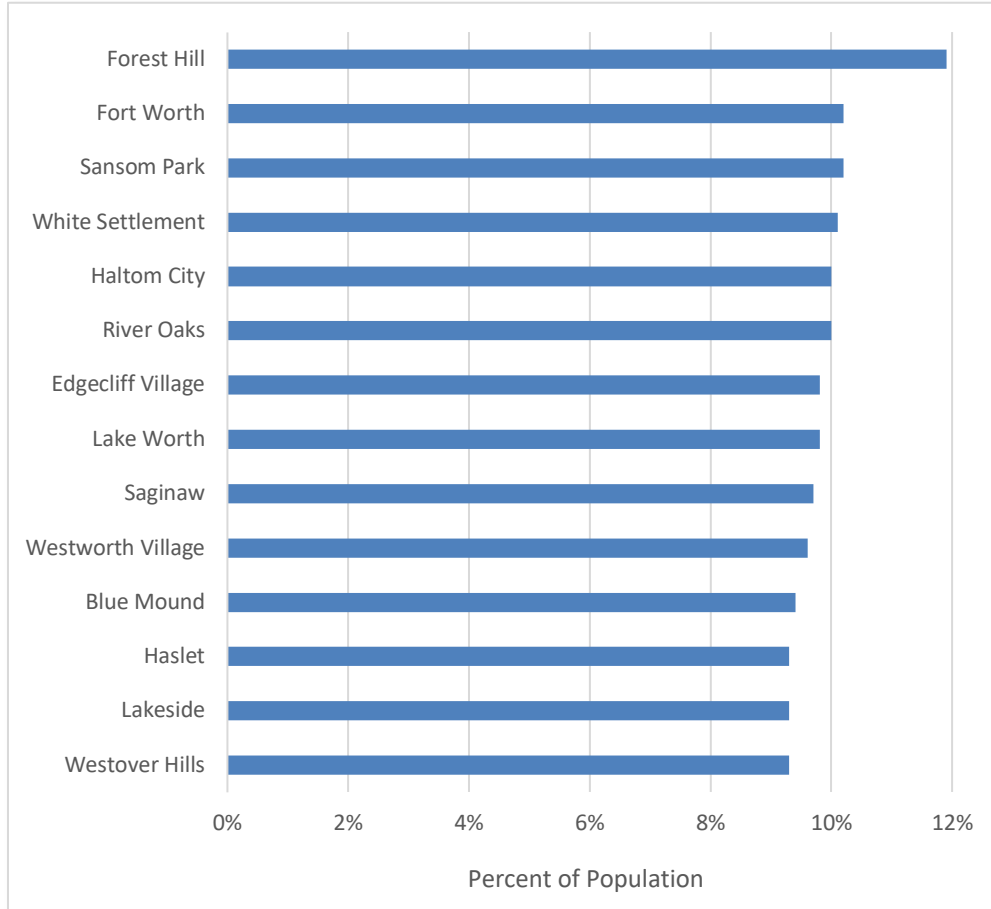


Table 35: Health Among Adults – Asthma

Rank	Location	Percent of Population ¹
1	Forest Hill	11.9
2 (T)	Fort Worth	10.2
2 (T)	Sansom Park	10.2
4	White Settlement	10.1
5 (T)	Haltom City	10.0
5 (T)	River Oaks	10.0
7 (T)	Edgecliff Village	9.8
7 (T)	Lake Worth	9.8
9	Saginaw	9.7
10	Westworth Village	9.6
11	Blue Mound	9.4
12 (T)	Haslet	9.3
12 (T)	Lakeside	9.3
12 (T)	Westover Hills	9.3
Tarrant County, TX		9.7
State of Texas		9.7
United States of America		9.7

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have asthma and still currently have asthma

Figure 40: Health Among Adults – Chronic Kidney Disease

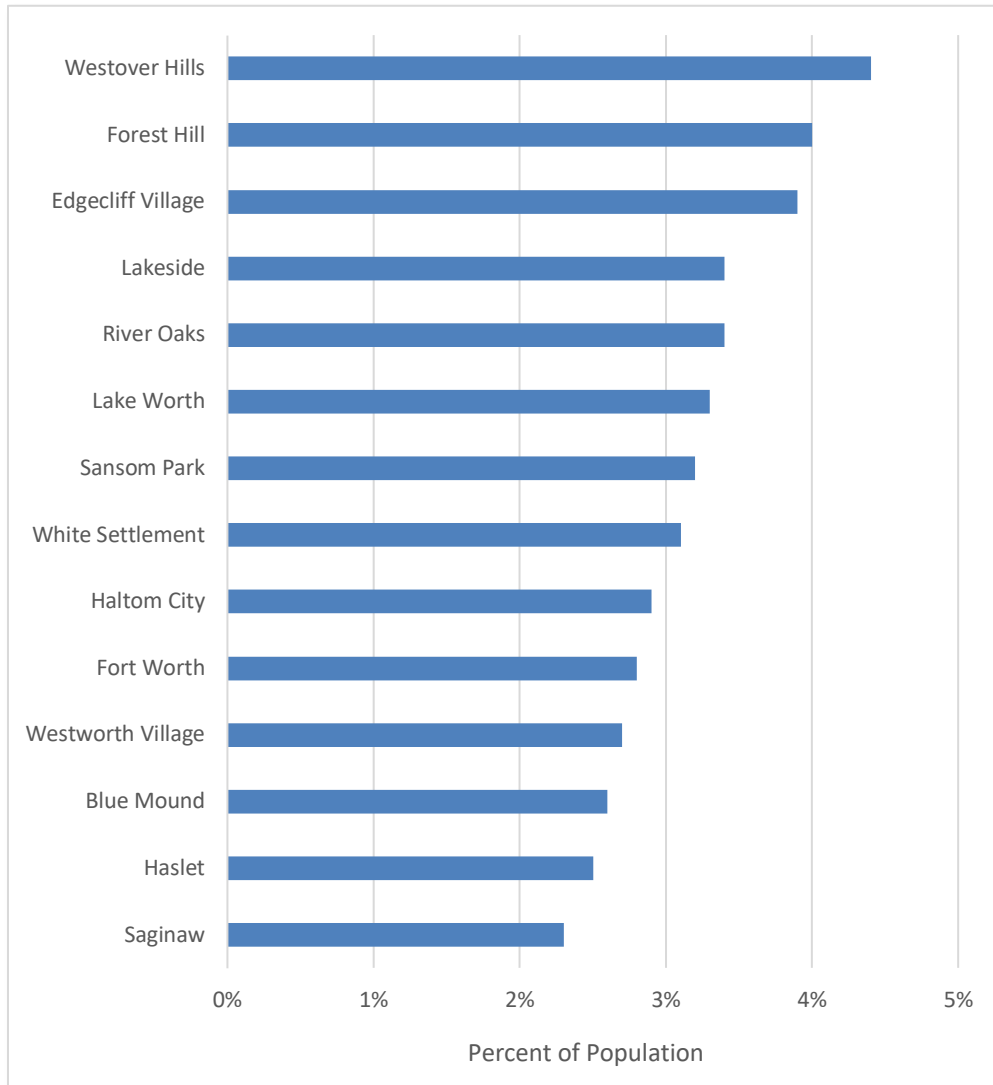


Table 36: Health Among Adults – Chronic Kidney Disease

Rank	Location	Percent of Population ¹
1	Westover Hills	4.4
2	Forest Hill	4.0
3	Edgecliff Village	3.9
4 (T)	Lakeside	3.4
4 (T)	River Oaks	3.4
6	Lake Worth	3.3
7	Sansom Park	3.2
8	White Settlement	3.1
9	Haltom City	2.9
10	Fort Worth	2.8
11	Westworth Village	2.7
12	Blue Mound	2.6
13	Haslet	2.5
14	Saginaw	2.3
Tarrant County, TX		2.9
State of Texas		2.9
United States of America		3.1

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have the condition noted

Figure 41: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis

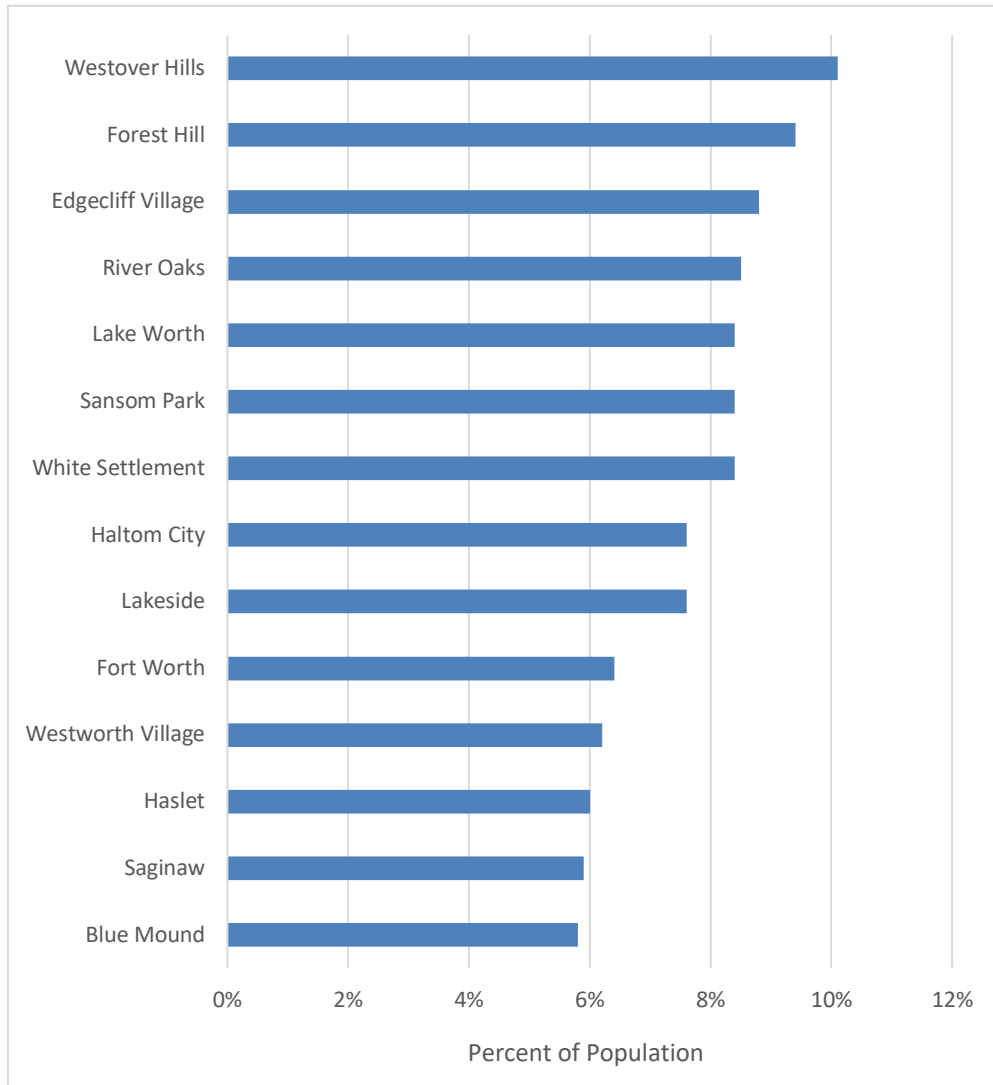


Table 37: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis

Rank	Location	Percent of Population ¹
1	Westover Hills	10.1
2	Forest Hill	9.4
3	Edgecliff Village	8.8
4	River Oaks	8.5
5 (T)	Lake Worth	8.4
5 (T)	Sansom Park	8.4
5 (T)	White Settlement	8.4
8 (T)	Haltom City	7.6
8 (T)	Lakeside	7.6
10	Fort Worth	6.4
11	Westworth Village	6.2
12	Haslet	6.0
13	Saginaw	5.9
14	Blue Mound	5.8
Tarrant County, TX		6.2
State of Texas		6.3
United States of America		6.4

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have any of the conditions noted

Figure 42: Health Among Adults – Coronary Heart Disease or Angina

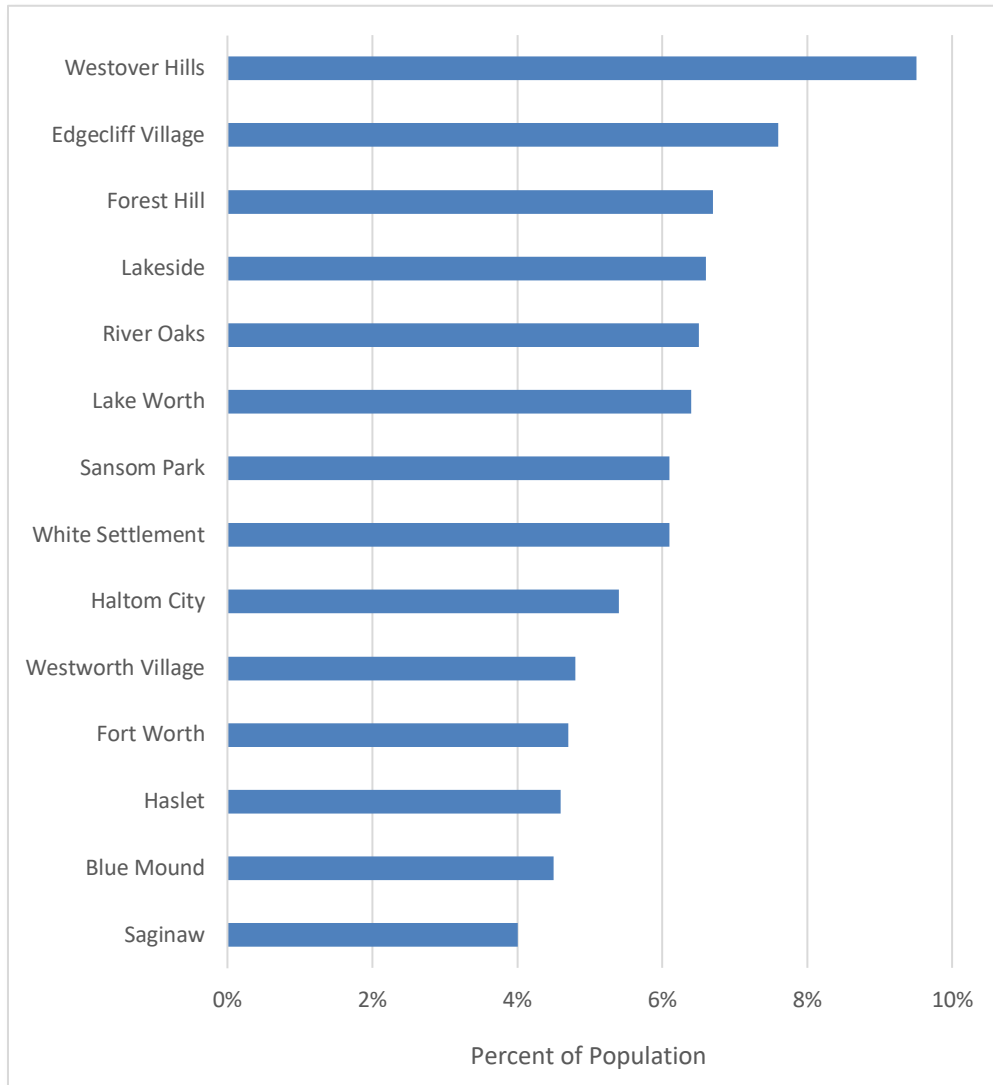


Table 38: Health Among Adults – Coronary Heart Disease or Angina

Rank	Location	Percent of Population ¹
1	Westover Hills	9.5
2	Edgecliff Village	7.6
3	Forest Hill	6.7
4	Lakeside	6.6
5	River Oaks	6.5
6	Lake Worth	6.4
7 (T)	Sansom Park	6.1
7 (T)	White Settlement	6.1
9	Haltom City	5.4
10	Westworth Village	4.8
11	Fort Worth	4.7
12	Haslet	4.6
13	Blue Mound	4.5
14	Saginaw	4.0
Tarrant County, TX		5.1
State of Texas		5.1
United States of America		6.1

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have either of the conditions noted

Figure 43: Health Among Adults – Diabetes

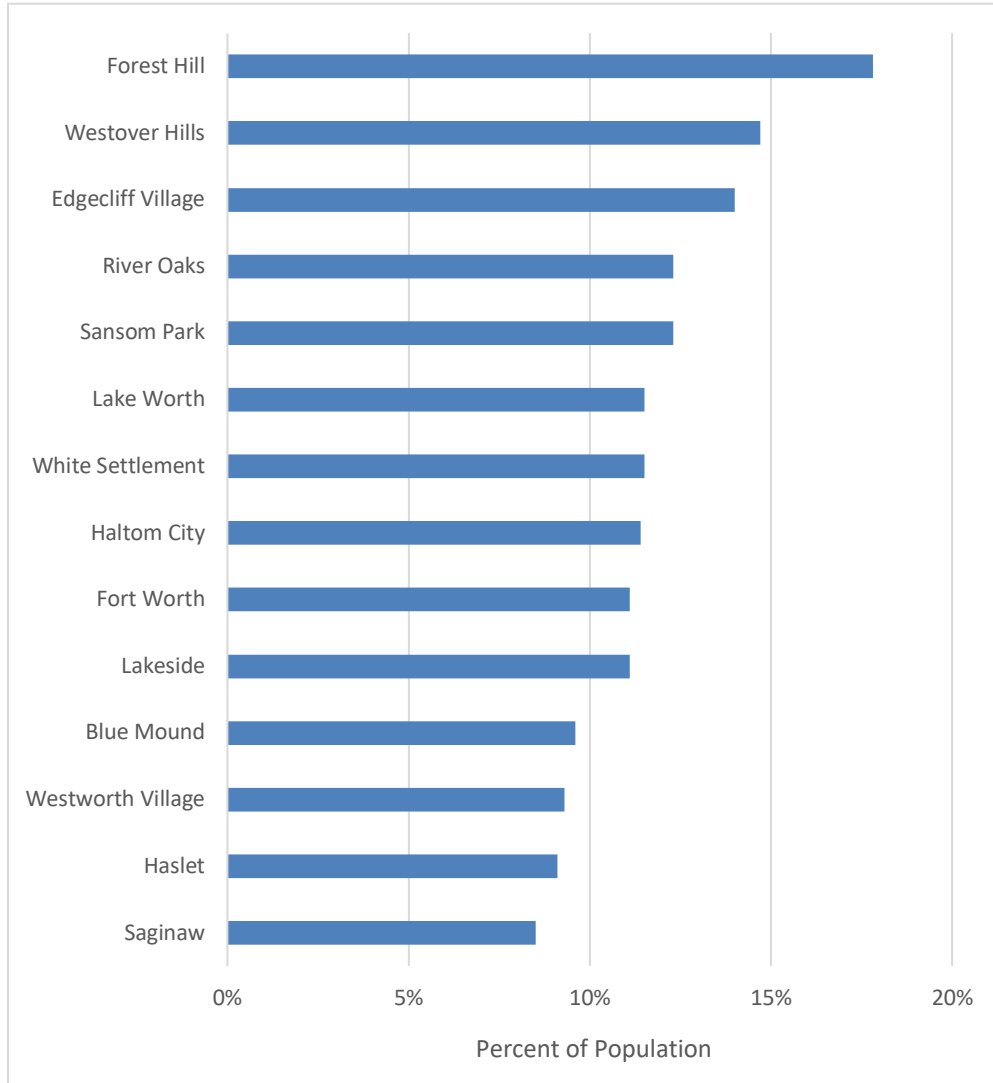


Table 39: Health Among Adults – Diabetes

Rank	Location	Percent of Population ¹
1	Forest Hill	17.8
2	Westover Hills	14.7
3	Edgecliff Village	14.0
4 (T)	River Oaks	12.3
4 (T)	Sansom Park	12.3
6 (T)	Lake Worth	11.5
6 (T)	White Settlement	11.5
8	Haltom City	11.4
9 (T)	Fort Worth	11.1
9 (T)	Lakeside	11.1
11	Blue Mound	9.6
12	Westworth Village	9.3
13	Haslet	9.1
14	Saginaw	8.5
Tarrant County, TX		11.3
State of Texas		11.1
United States of America		11.3

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have the condition noted (not to include during pregnancy)

Figure 44: Health Among Adults – High Blood Pressure

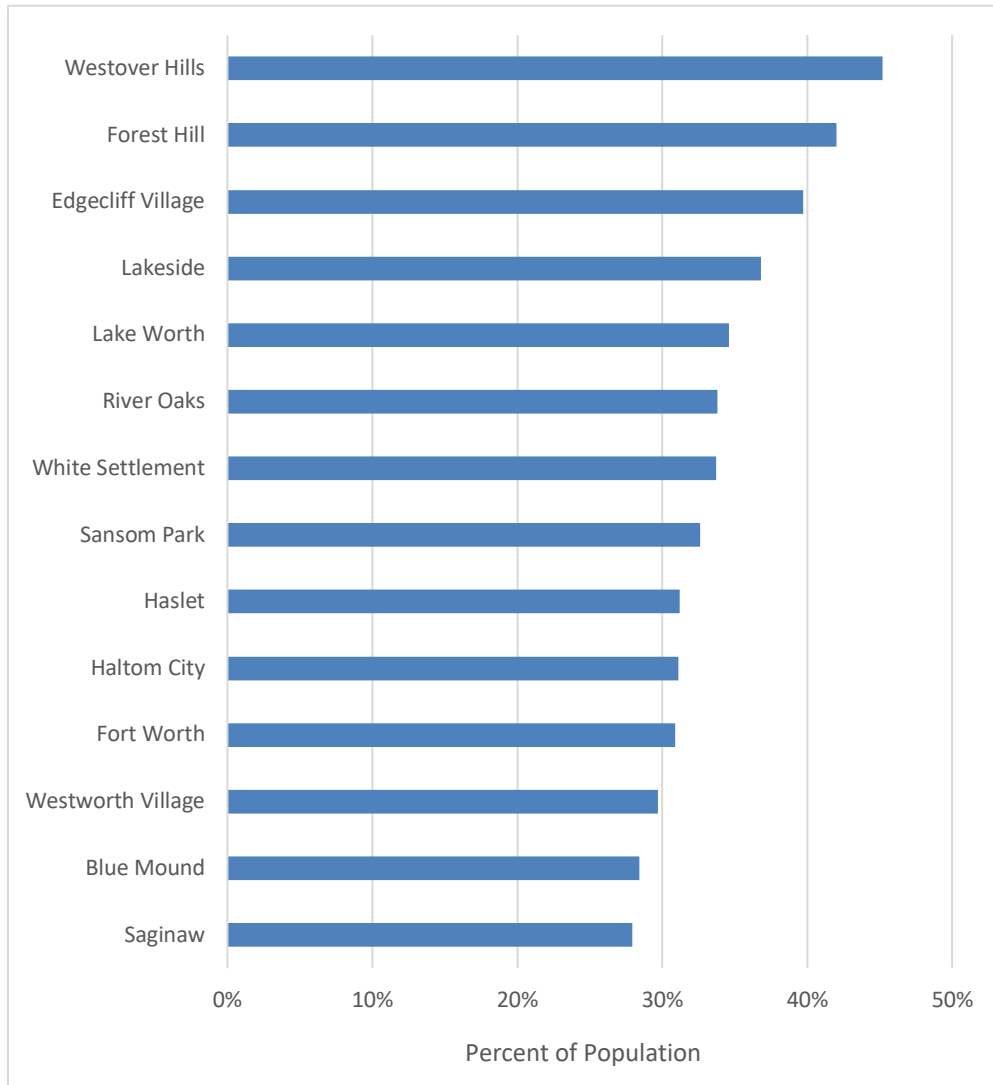


Table 40: Health Among Adults – High Blood Pressure

Rank	Location	Percent of Population ¹
1	Westover Hills	45.2
2	Forest Hill	42.0
3	Edgecliff Village	39.7
4	Lakeside	36.8
5	Lake Worth	34.6
6	River Oaks	33.8
7	White Settlement	33.7
8	Sansom Park	32.6
9	Haslet	31.2
10	Haltom City	31.1
11	Fort Worth	30.9
12	Westworth Village	29.7
13	Blue Mound	28.4
14	Saginaw	27.9
Tarrant County, TX		32.5
State of Texas		31.0
United States of America		32.7

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have the condition noted

Figure 45: Health Among Adults – Poor Mental Health

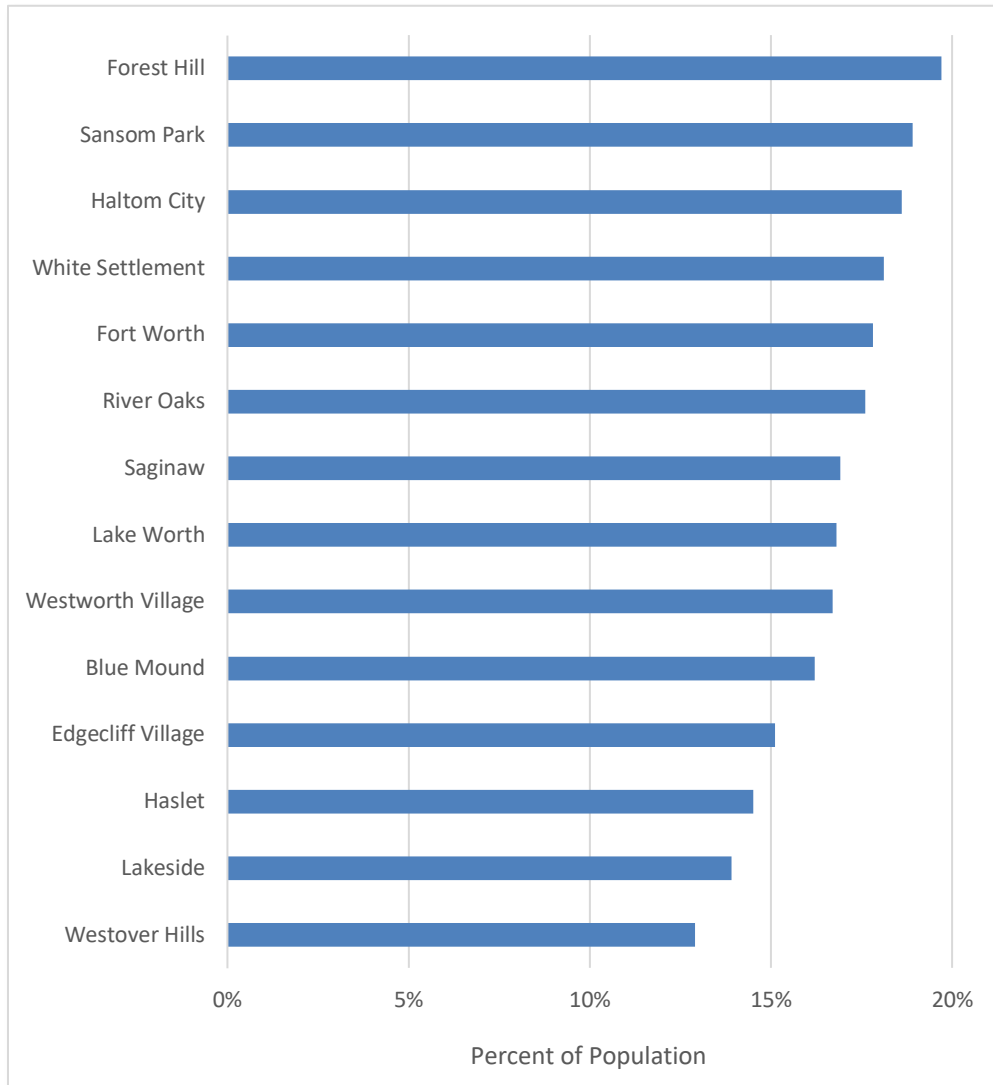


Table 41: Health Among Adults – Poor Mental Health

Rank	Location	Percent of Population ¹
1	Forest Hill	19.7
2	Sansom Park	18.9
3	Haltom City	18.6
4	White Settlement	18.1
5	Fort Worth	17.8
6	River Oaks	17.6
7	Saginaw	16.9
8	Lake Worth	16.8
9	Westworth Village	16.7
10	Blue Mound	16.2
11	Edgecliff Village	15.1
12	Haslet	14.5
13	Lakeside	13.9
14	Westover Hills	12.9
Tarrant County, TX		16.0
State of Texas		17.1
United States of America		14.7

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report 14 or more days out of the past 30 days during which their mental health was not good

Figure 46: Health Among Adults – Poor Physical Health

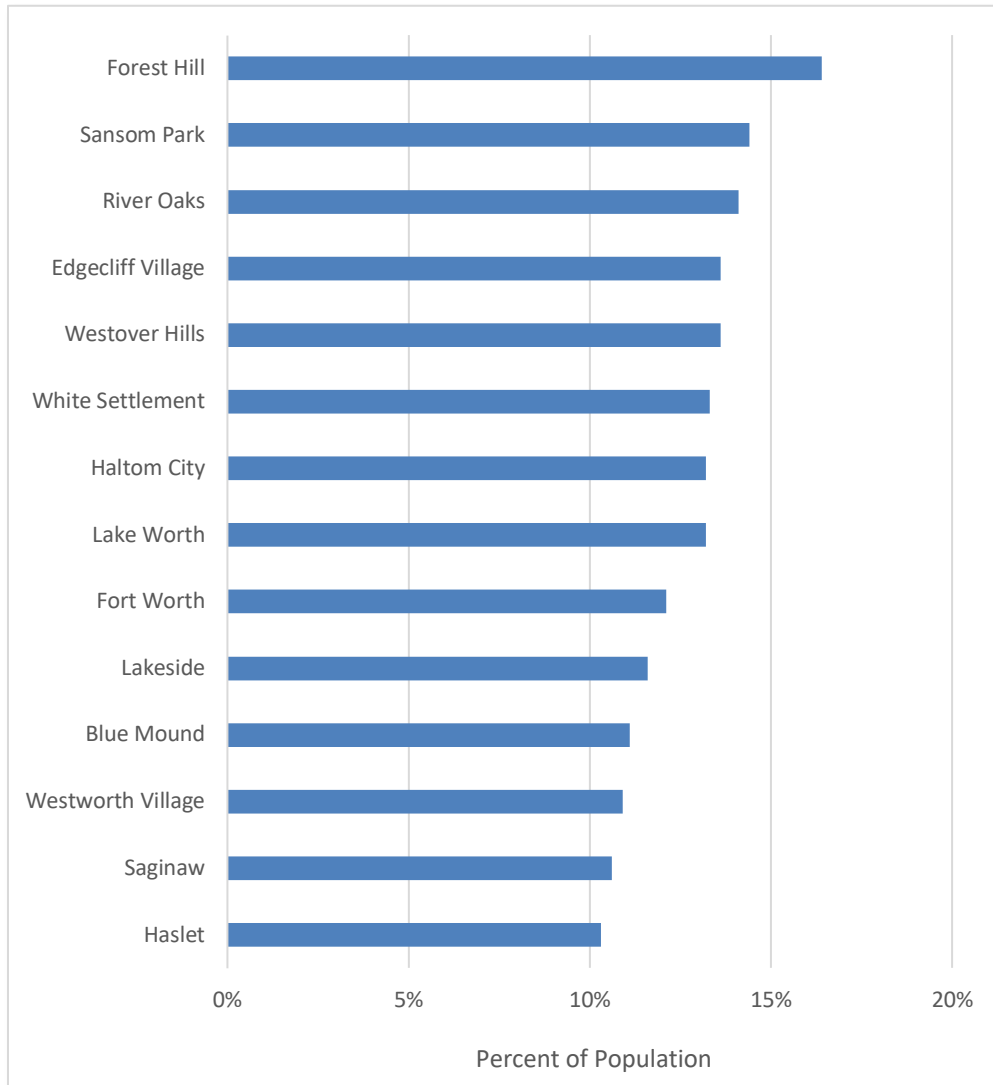


Table 42: Health Among Adults – Poor Physical Health

Rank	Location	Percent of Population ¹
1	Forest Hill	16.4
2	Sansom Park	14.4
3	River Oaks	14.1
4 (T)	Edgecliff Village	13.6
4 (T)	Westover Hills	13.6
6	White Settlement	13.3
7 (T)	Haltom City	13.2
7 (T)	Lake Worth	13.2
9	Fort Worth	12.1
10	Lakeside	11.6
11	Blue Mound	11.1
12	Westworth Village	10.9
13	Saginaw	10.6
14	Haslet	10.3
Tarrant County, TX		11.3
State of Texas		11.7
United States of America		10.9

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report 14 or more days out of the past 30 days during which their physical health was not good

Figure 47: Health Among Adults – Stroke

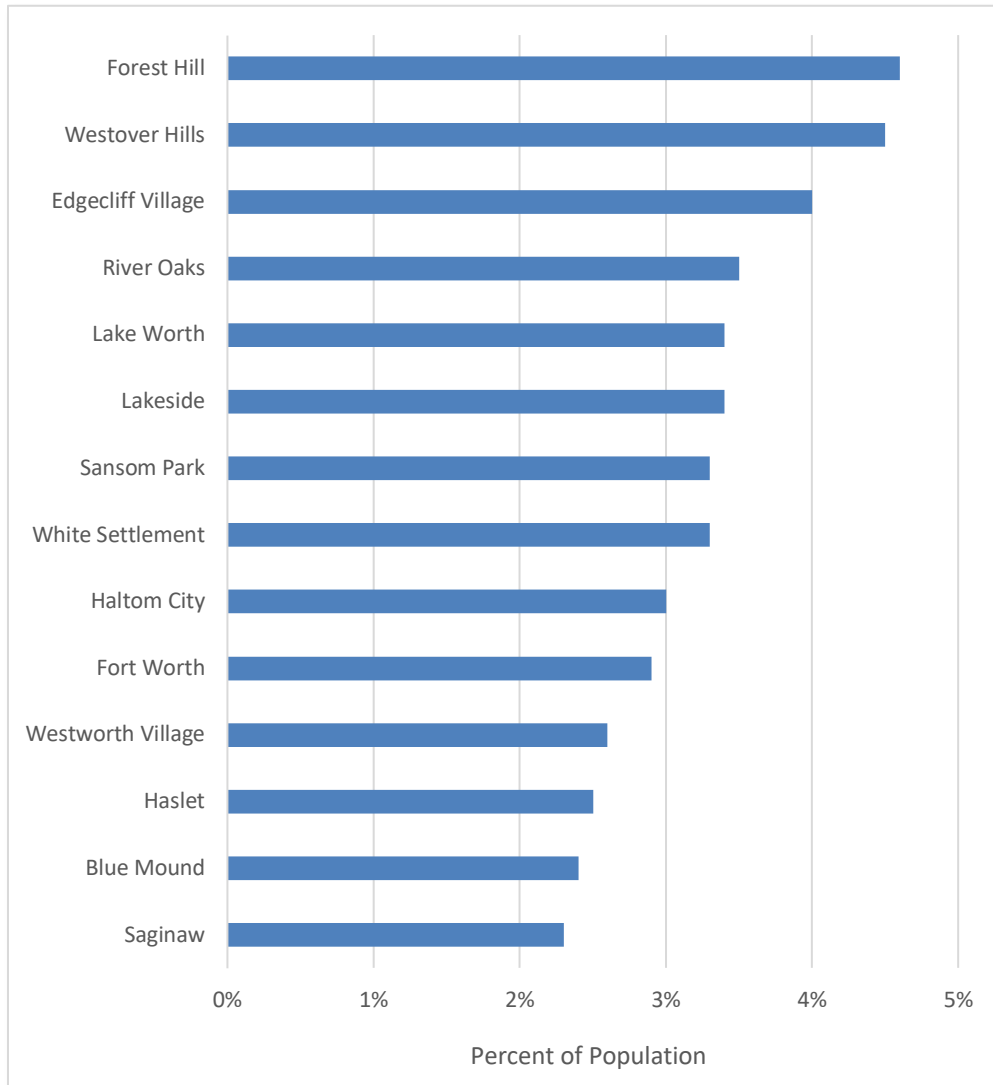


Table 43: Health Among Adults – Stroke

Rank	Location	Percent of Population ¹
1	Forest Hill	4.6
2	Westover Hills	4.5
3	Edgecliff Village	4.0
4	River Oaks	3.5
5 (T)	Lake Worth	3.4
5 (T)	Lakeside	3.4
7 (T)	Sansom Park	3.3
7 (T)	White Settlement	3.3
9	Haltom City	3.0
10	Fort Worth	2.9
11	Westworth Village	2.6
12	Haslet	2.5
13	Blue Mound	2.4
14	Saginaw	2.3
Tarrant County, TX		2.9
State of Texas		2.8
United States of America		3.3

¹CDC BRFSS 2021; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have had a stroke

Motor Vehicle Crash Fatalities

Figure 48: Motor Vehicle Crash Fatalities - Number

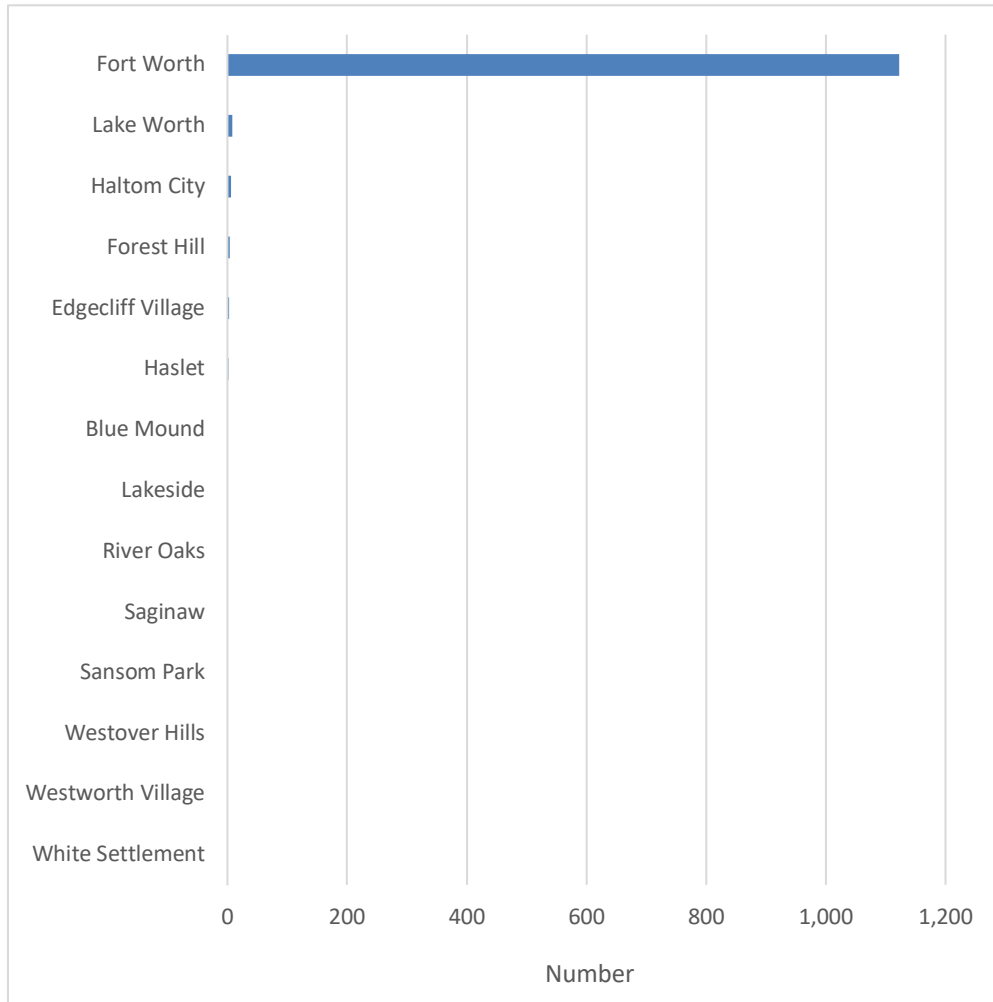


Table 44: Motor Vehicle Crash Fatalities - Number

Rank	Location	Number ¹
1	Fort Worth	1,122
2	Lake Worth	8
3	Haltom City	6
4	Forest Hill	4
5	Edgecliff Village	3
6	Haslet	2
7 (T)	Blue Mound	0
7 (T)	Lakeside	0
7 (T)	River Oaks	0
7 (T)	Saginaw	0
7 (T)	Sansom Park	0
7 (T)	Westover Hills	0
7 (T)	Westworth Village	0
7 (T)	White Settlement	0
Tarrant County, TX		1,379
State of Texas		13,570
United States of America		112,676

¹NHTSA FARS 2021

Figure 49: Motor Vehicle Crash Fatalities - Number per Square Mile

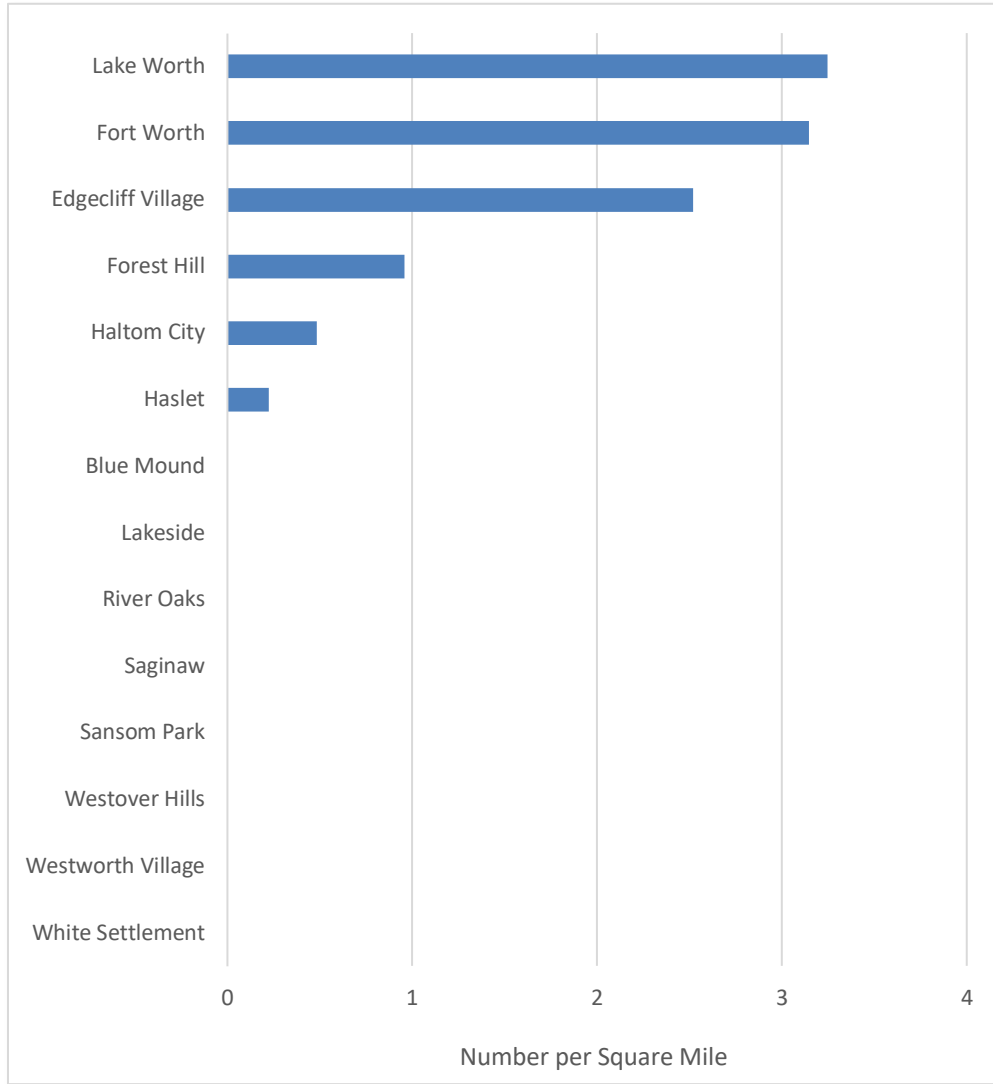


Table 45: Motor Vehicle Crash Fatalities – Number per Square Mile

Rank	Location	Number/Square Mile ¹
1	Lake Worth	3.2
2	Fort Worth	3.1
3	Edgecliff Village	2.5
4	Forest Hill	1.0
5	Haltom City	0.5
6	Haslet	0.2
7 (T)	Blue Mound	0.0
7 (T)	Lakeside	0.0
7 (T)	River Oaks	0.0
7 (T)	Saginaw	0.0
7 (T)	Sansom Park	0.0
7 (T)	Westover Hills	0.0
7 (T)	Westworth Village	0.0
7 (T)	White Settlement	0.0
Tarrant County, TX		1.5
State of Texas		0.1
United States of America		0.0

¹NHTSA FARS 2021

FITCH

& ASSOCIATES



FITCH

& ASSOCIATES

December 2023

DRAFT COMMUNITY DATA REPORT CITY of FORT WORTH and PEER LOCATIONS



📍 PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎ (816) 431-2600

📄 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

METHODOLOGY	1
PEER LOCATIONS	3
Figure 1: Map of Peer Locations ¹	3
COMMUNITY RISK ASSESSMENT	4
PEOPLE	4
Figure 2: Total Population – 2017-2021	4
Table 1: Total Population – 2017-2021	4
Figure 3: Population Density	5
Table 2: Population Density	5
Figure 4: Population Growth Projections – City of Fort Worth ¹	6
Figure 5: Average Annual Population Change 2017-2021 to 2031	7
Table 3: Average Annual Population Change 2017-2021 to 2031	7
Figure 6: Total Population – Projected 2023	8
Table 4: Total Population – Projected 2023	8
Figure 7: Total Population – Projected 2025	9
Table 5: Total Population – Projected 2025	9
Figure 8: Total Population – Projected 2027	10
Table 6: Total Population – Projected 2027	10
Figure 9: Total Population – Projected 2029	11
Table 7: Total Population – Projected 2029	11
Figure 10: Total Population – Projected 2031	12
Table 8: Total Population – Projected 2031	12
Figure 11: Median Age (Years)	13
Table 9: Median Age (Years)	13
Figure 12: Percent of Population by Age Group (Years) – City of Fort Worth	14
Figure 13: Percent of Population Age 65 to 74 Years	15
Table 10: Percent of Population Age 65 to 74 Years	15
Figure 14: Percent of Population Age 75 to 84 Years	16
Table 11: Percent of Population Age 75 to 84 Years	16
Figure 15: Percent of Population Age 85 Years and Older	17
Table 12: Percent of Population Age 85 Years and Older	17
Figure 16: Percent of Population Living with a Disability	18
Table 13: Percent of Population Living with a Disability	18
LOCATION	19
Figure 17: Census Tract Map and Location Metrics – City of Fort Worth	19
Figure 18: Area (Square Miles)	20
Table 14: Area (Square Miles)	20
Figure 19: Environmental Hazard National Risk Index Score	21
Table 15: Environmental Hazard National Risk Index Score	21
Figure 20: Environmental Hazard Community Resilience Score	22
Table 16: Environmental Hazard Community Resilience Score	22
SOCIAL DETERMINANTS OF HEALTH	23
HEALTHCARE ACCESS	23
Figure 21: Percent of Population without Health Insurance Coverage	23

Table 17: Percent of Population without Health Insurance Coverage	23
Figure 22: Percent of Population Age 65 Years and Over without Medicare	24
Table 18: Percent of Population Age 65 Years and Over without Medicare	24
Figure 23: Percent of Population with Medicaid or Means-Tested Public Coverage	25
Table 19: Percent of Population with Medicaid or Means-Tested Public Coverage	25
Figure 24: Healthcare Provider Ratio – Primary Care Physicians	26
Table 20: Healthcare Provider Ratio – Primary Care Physicians	26
Figure 25: Healthcare Provider Ratio – Mental Health Providers	27
Table 21: Healthcare Provider Ratio – Mental Health Providers	27
Figure 26: Health Professional Shortage Area – Primary Care	28
Table 22: Health Professional Shortage Area – Primary Care	28
Figure 27: Health Professional Shortage Area – Mental Health	29
Table 23: Health Professional Shortage Area – Mental Health	29
Figure 28: Percent of Population Reporting Annual Check-Up	30
Table 24: Percent of Population Reporting Annual Check-Up	30
ECONOMIC STABILITY	31
Figure 29: Median Household Income	31
Table 25: Median Household Income	31
Figure 30: Per Capita Income	32
Table 26: Per Capita Income	32
Figure 31: Income Inequality (Gini Index)	33
Table 27: Income Inequality (Gini Index)	33
Figure 32: Percent of Population Below Poverty Level	34
Table 28: Percent of Population Below Poverty Level	34
Figure 33: Unemployment Rate	35
Table 29: Unemployment Rate	35
SOCIAL AND COMMUNITY CONTEXT	36
Figure 34: Isolation – Limited English-Speaking Households	36
Table 30: Isolation – Limited English-Speaking Households	36
Figure 35: Isolation – Seniors Living Alone	37
Table 31: Isolation – Seniors Living Alone	37
Figure 36: Commuting – Percent of Population Who Commute	38
Table 32: Commuting – Percent of Population Who Commute	38
Figure 37: Commuting – Mean Travel Time	39
Table 33: Commuting – Mean Travel Time	39
Figure 38: Commuting – Percent of Commuters with Long Commute (≥ 30 Minutes)	40
Table 34: Commuting – Percent of Commuters with Long Commute	40
COMMUNITY HEALTH ASSESSMENT	41
HEALTH OUTCOMES	41
Figure 39: Health Among Adults – Asthma	41
Table 35: Health Among Adults – Asthma	41
Figure 40: Health Among Adults – Chronic Kidney Disease	42
Table 36: Health Among Adults – Chronic Kidney Disease	42
Figure 41: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis	43
Table 37: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis	43
Figure 42: Health Among Adults – Coronary Heart Disease or Angina	44
Table 38: Health Among Adults – Coronary Heart Disease or Angina	44
Figure 43: Health Among Adults – Diabetes	45
Table 39: Health Among Adults – Diabetes	45
Figure 44: Health Among Adults – High Blood Pressure	46

Table 40: Health Among Adults – High Blood Pressure	46
Figure 45: Health Among Adults – Poor Mental Health	47
Table 41: Health Among Adults – Poor Mental Health	47
Figure 46: Health Among Adults – Poor Physical Health	48
Table 42: Health Among Adults – Poor Physical Health	48
Figure 47: Health Among Adults – Stroke	49
Table 43: Health Among Adults – Stroke	49
MOTOR VEHICLE CRASH FATALITIES	50
Figure 48: Motor Vehicle Crash Fatalities - Number	50
Table 44: Motor Vehicle Crash Fatalities - Number	50
Figure 49: Motor Vehicle Crash Fatalities - Number per Square Mile	51
Table 45: Motor Vehicle Crash Fatalities – Number per Square Mile	51

METHODOLOGY

This report presents select community data for Fort Worth, TX and 19 areas across the country considered to be “peer locations” based on similarities in population and EMS delivery models. Peer locations presented with Fort Worth include Arlington, TX, Austin, TX, Columbus, OH, Dallas, TX, Houston, TX, Indianapolis, IN, Jacksonville, FL, Mecklenburg County, NC, Oklahoma City, OK, Pinellas County, FL, Reno, NV, Richmond, VA, San Antonio, TX, San Diego, CA, San Jose, CA, Seattle, WA, Travis County, TX, Tulsa, OK, and Wake County, NC. For additional comparison purposes, community data are also presented for Tarrant County, TX, the State of Texas, and the United States of America.

Data were exported from mySidewalk (<https://www.mysidewalk.com>), a web-based system that extracts community data from multiple primary sources to allow for a comprehensive searchable library of information in one location. Data sources accessed by mySidewalk that are relevant to the community data presented in this report, and the most recent time period available for data export corresponding to each source include the following:

1. American Association of State Highway and Transportation Officials, Census Transportation Planning Products (CTPP) Program, 2012-2016

(e.g., <https://ctpp.transportation.org/>)

2. Centers for Disease Control and Prevention (CDC), PLACES Data, Behavioral Risk Factor Surveillance System (BRFSS) Questionnaire, 2020 (2021 data not used due to missing values for Jacksonville, FL and Pinellas County, FL; used 2019 for high blood pressure, as 2020 data not available)

(e.g., <https://www.cdc.gov/brfss/about/index.htm>)

3. Centers for Medicare & Medicaid Services (CMS), National Plan and Provider Enumeration System (NPPES), 2022

(e.g., <https://www.cms.gov/medicare/regulations-guidance/administrative-simplification/enumeration-reports>)

4. Federal Emergency Management Agency (FEMA), National Risk Index and Community Resilience Scores, 2021

(e.g., <https://hazards.fema.gov/nri/>)

5. Health Resources & Services Administration, Bureau of Health Workforce (BHW), Health Professional Shortage Areas, 2020

(e.g., <https://bhw.hrsa.gov/workforce-shortage-areas/shortage-designation>)

6. US Census Bureau, American Community Survey (ACS), 5-Year Estimates 2017-2021

(e.g., <https://www.census.gov/programs-surveys/acs>)

7. US Census Bureau, Decennial Census 1990, 2000, 2010, and 2020, and ACS 2017-2021 for making population projections

8. US Department of Transportation, National Highway Traffic Safety Administration (NHTSA), Fatality Analysis Reporting System (FARS), 2021

(e.g., <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>)

Data presented in figures and tables have been sorted from the perspective of the risk relationship between each parameter of interest and community health and, ultimately, an expected increased need for EMS or general healthcare services. As such, values may be sorted from high to low, or they may be sorted from low to high, as appropriate.

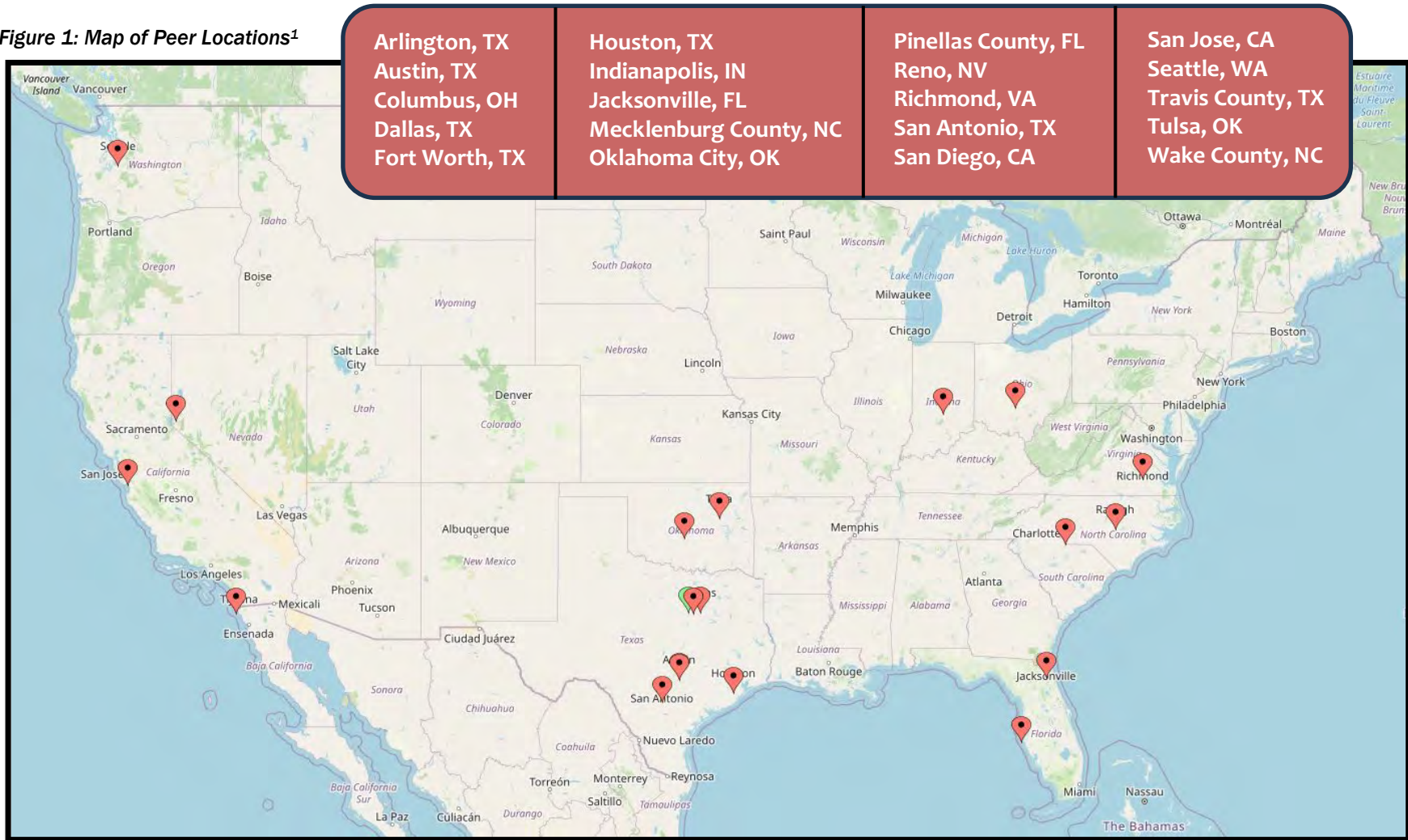
For example, higher prevalence of coronary heart disease observed in an area would tend to relate to an expected increased need for EMS, such that values related to this parameter are sorted from high to low in the relevant figure and table. In contrast, lower values on income parameters would tend to relate to an expected increased need for EMS due to factors such as reduced access to appropriate healthcare facilities and professionals, transportation for healthcare appointments, healthy food, and safe housing, such that values related to these parameters are sorted from low to high in relevant figures and tables.

Numeric ranks from 1 (most risk) to 20 (least risk) also appear in the tables for quick reference and to facilitate comparison across tables based on this approach of ordering by risk. Ties in rank are noted in the tables with a “(T)” designation. Some values in the tables may appear to be identical for more than one peer location, but if the “(T)” designation does not appear in the table, they are not actually tied. This is due to rounding of values for presentation only.

Many values presented in this report are expressed as a percentage of the “population.” Note that the “population” in each of these calculations refers to the relevant population, which is often a subset of total population in an area. For example, the percentage of commuters with a long commute is derived by dividing the number of workers aged 16 years and older with commute time ≥ 30 minutes by the number of commuters aged 16 years and older (i.e., the “population” here), and multiplying by 100 to express the value as a percentage.

PEER LOCATIONS

Figure 1: Map of Peer Locations¹



¹Fort Worth, TX is identified by the green pin; all other locations are identified by the red pins

COMMUNITY RISK ASSESSMENT

People

Figure 2: Total Population – 2017-2021

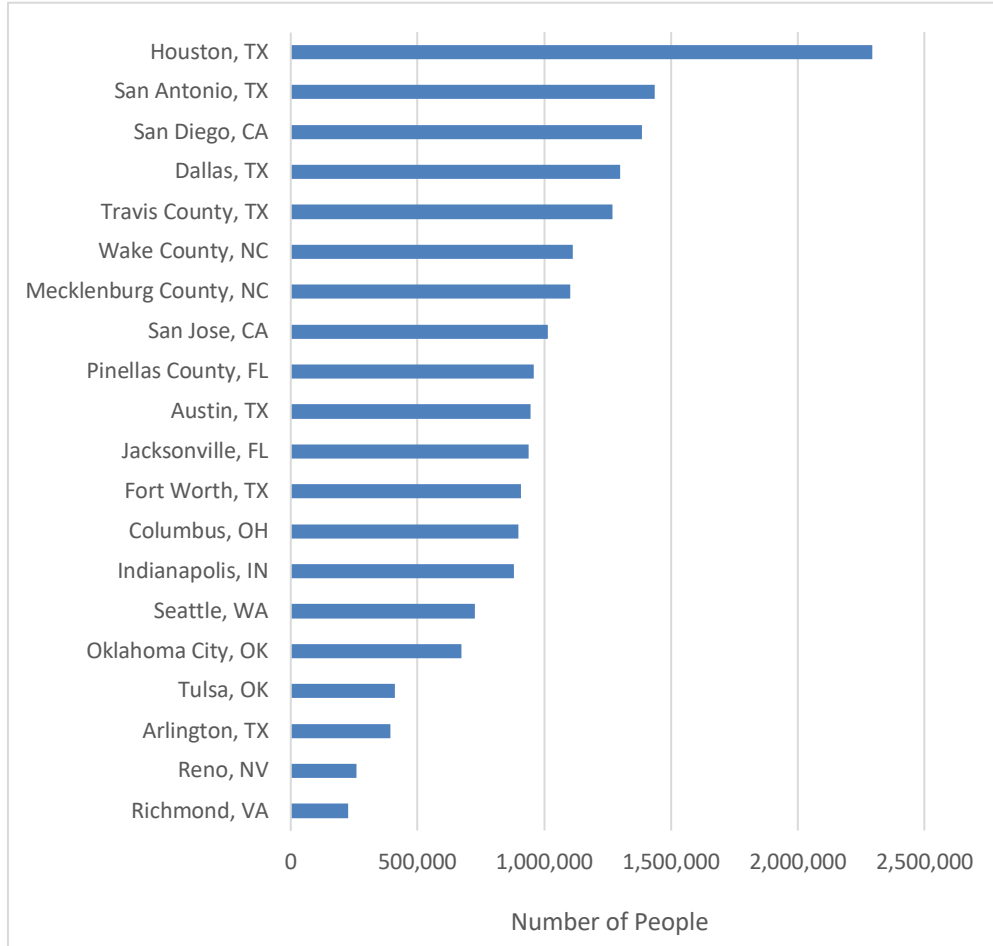


Table 1: Total Population – 2017-2021

Rank	Location	Number of People ¹
1	Houston, TX	2,293,288
2	San Antonio, TX	1,434,540
3	San Diego, CA	1,385,398
4	Dallas, TX	1,300,239
5	Travis County, TX	1,267,795
6	Wake County, NC	1,112,883
7	Mecklenburg County, NC	1,100,984
8	San Jose, CA	1,013,337
9	Pinellas County, FL	957,989
10	Austin, TX	944,658
11	Jacksonville, FL	937,690
12	Fort Worth, TX	908,469
13	Columbus, OH	898,143
14	Indianapolis, IN	880,104
15	Seattle, WA	726,054
16	Oklahoma City, OK	673,183
17	Tulsa, OK	410,652
18	Arlington, TX	392,304
19	Reno, NV	259,913
20	Richmond, VA	225,676
Tarrant County, TX		2,091,953
State of Texas		28,862,581
United States of America		329,725,481

¹US Census Bureau ACS 2017-2021

Figure 3: Population Density

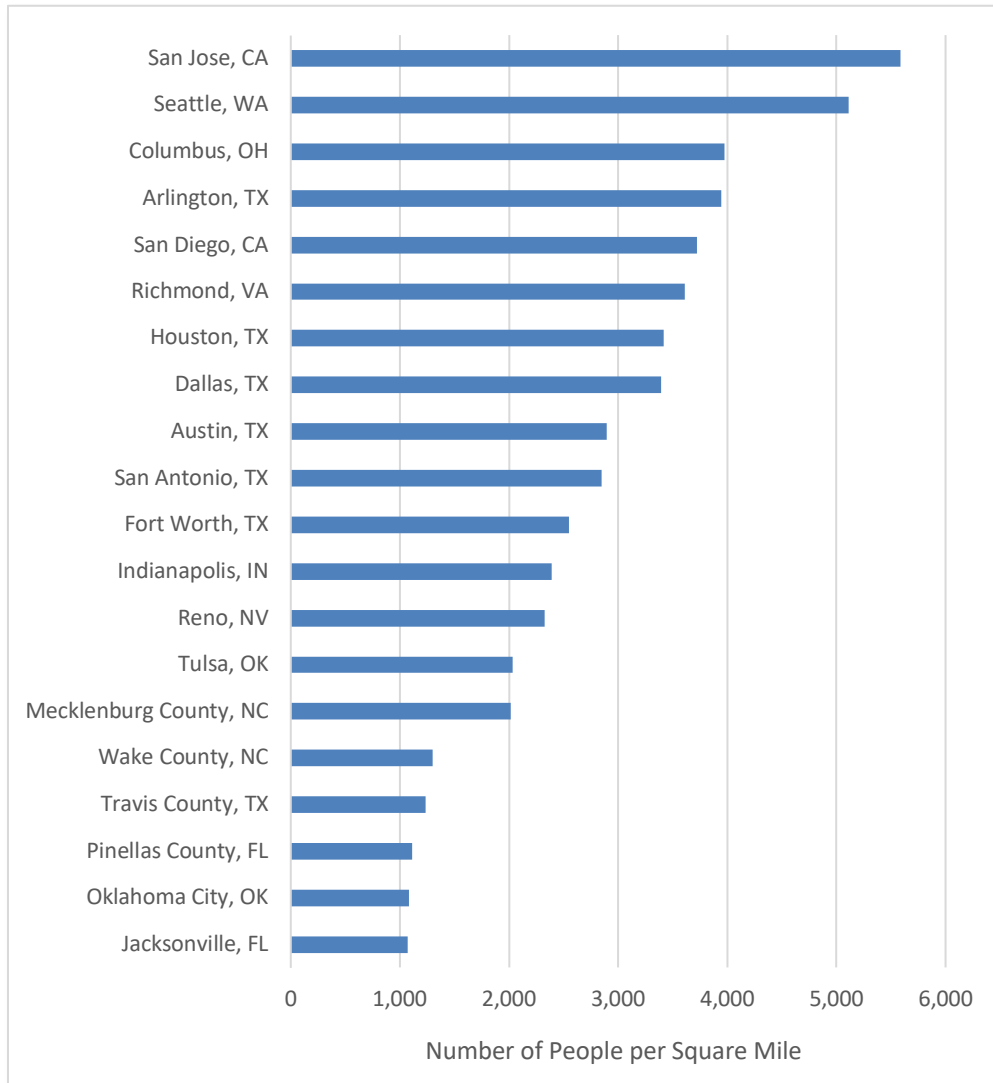
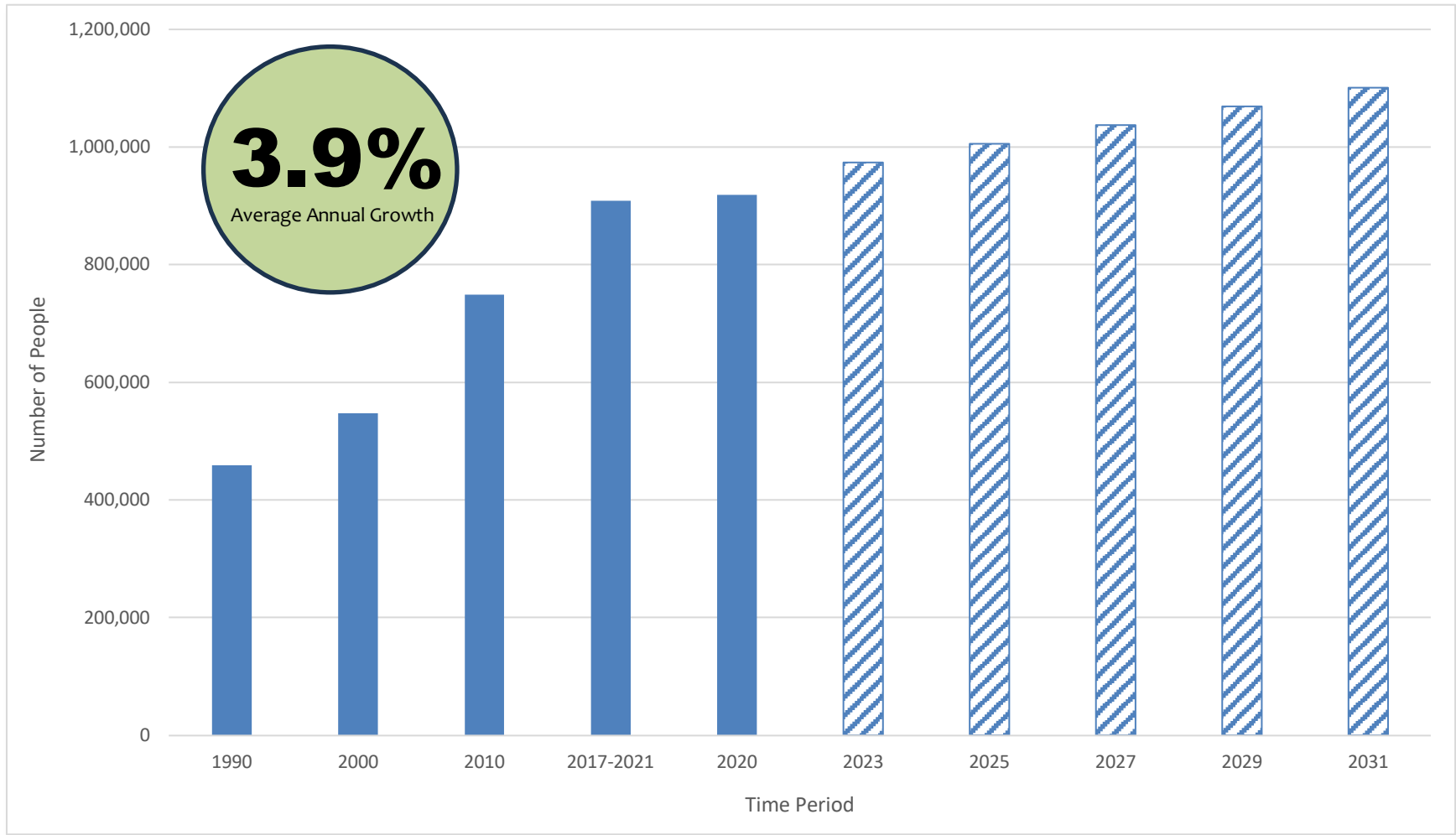


Table 2: Population Density

Rank	Location	Population Density ¹
1	San Jose, CA	5,585.2
2	Seattle, WA	5,110.5
3	Columbus, OH	3,974.5
4	Arlington, TX	3,945.0
5	San Diego, CA	3,720.0
6	Richmond, VA	3,606.8
7	Houston, TX	3,414.3
8	Dallas, TX	3,390.8
9	Austin, TX	2,893.2
10	San Antonio, TX	2,845.0
11	Fort Worth, TX	2,545.8
12	Indianapolis, IN	2,392.0
13	Reno, NV	2,326.9
14	Tulsa, OK	2,034.5
15	Mecklenburg County, NC	2,016.2
16	Wake County, NC	1,298.6
17	Travis County, TX	1,236.8
18	Pinellas County, FL	1,110.7
19	Oklahoma City, OK	1,084.4
20	Jacksonville, FL	1,072.3
Tarrant County, TX		2,314.6
State of Texas		107.5
United States of America		89.0

¹Calculated using US Census Bureau data; total population ACS 2017-2021, and area in square miles 2021

Figure 4: Population Growth Projections – City of Fort Worth¹



¹US Census Bureau data; solid bars represent observed data, whereas patterned bars represent estimated data; average annual growth represents average annual rate of population change (%) from 2017-2021 to 2031, excluding the interim stand-alone value for 2020

Figure 5: Average Annual Population Change 2017-2021 to 2031

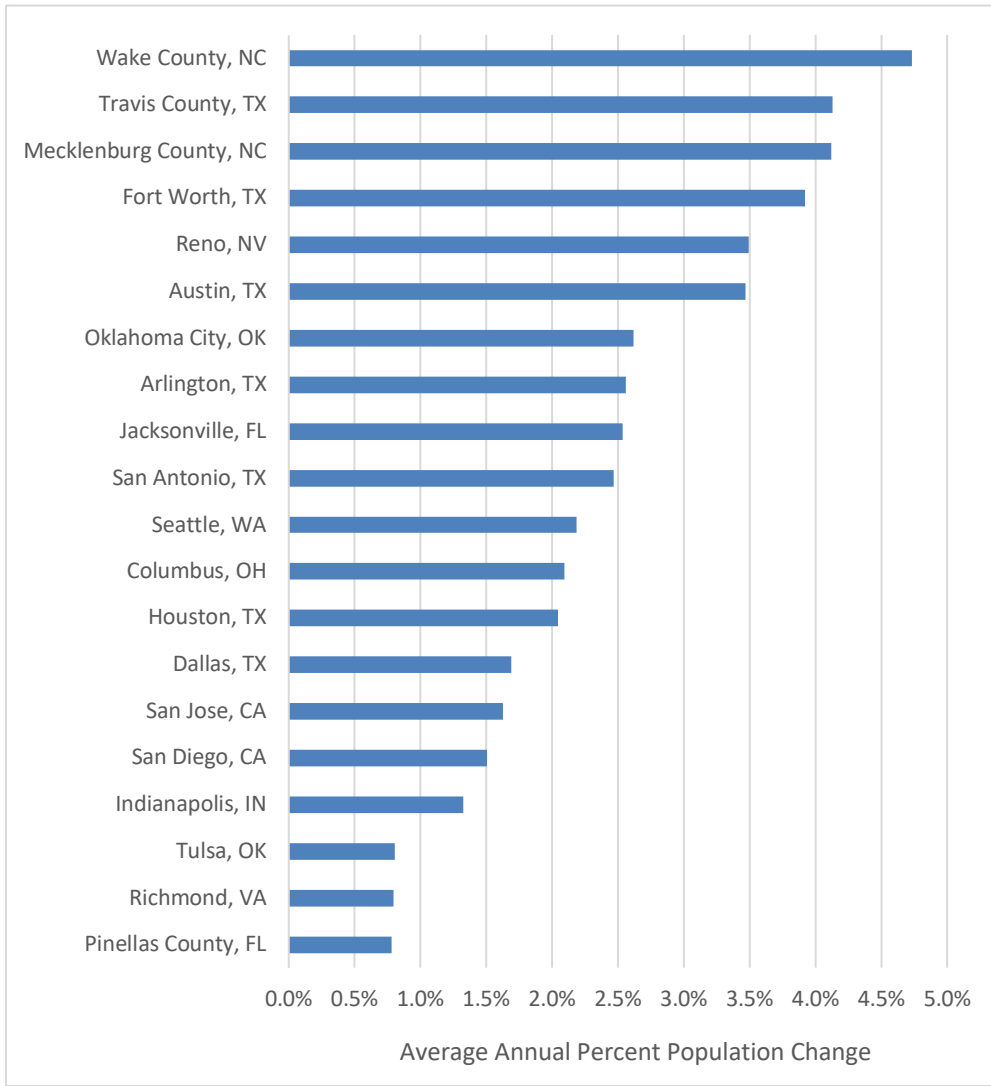


Table 3: Average Annual Population Change 2017-2021 to 2031

Rank	Location	Percent Change ¹
1	Wake County, NC	4.73
2	Travis County, TX	4.13
3	Mecklenburg County, NC	4.12
4	Fort Worth, TX	3.92
5	Reno, NV	3.49
6	Austin, TX	3.47
7	Oklahoma City, OK	2.62
8	Arlington, TX	2.56
9	Jacksonville, FL	2.53
10	San Antonio, TX	2.46
11	Seattle, WA	2.19
12	Columbus, OH	2.09
13	Houston, TX	2.04
14	Dallas, TX	1.69
15	San Jose, CA	1.62
16	San Diego, CA	1.51
17	Indianapolis, IN	1.32
18	Tulsa, OK	0.80
19	Richmond, VA	0.79
20	Pinellas County, FL	0.78
Tarrant County, TX		3.44
State of Texas		3.20
United States of America		1.96

¹Calculated using US Census Bureau data; represents average annual rate of population change (%) from 2017-2021 to 2031

Figure 6: Total Population – Projected 2023

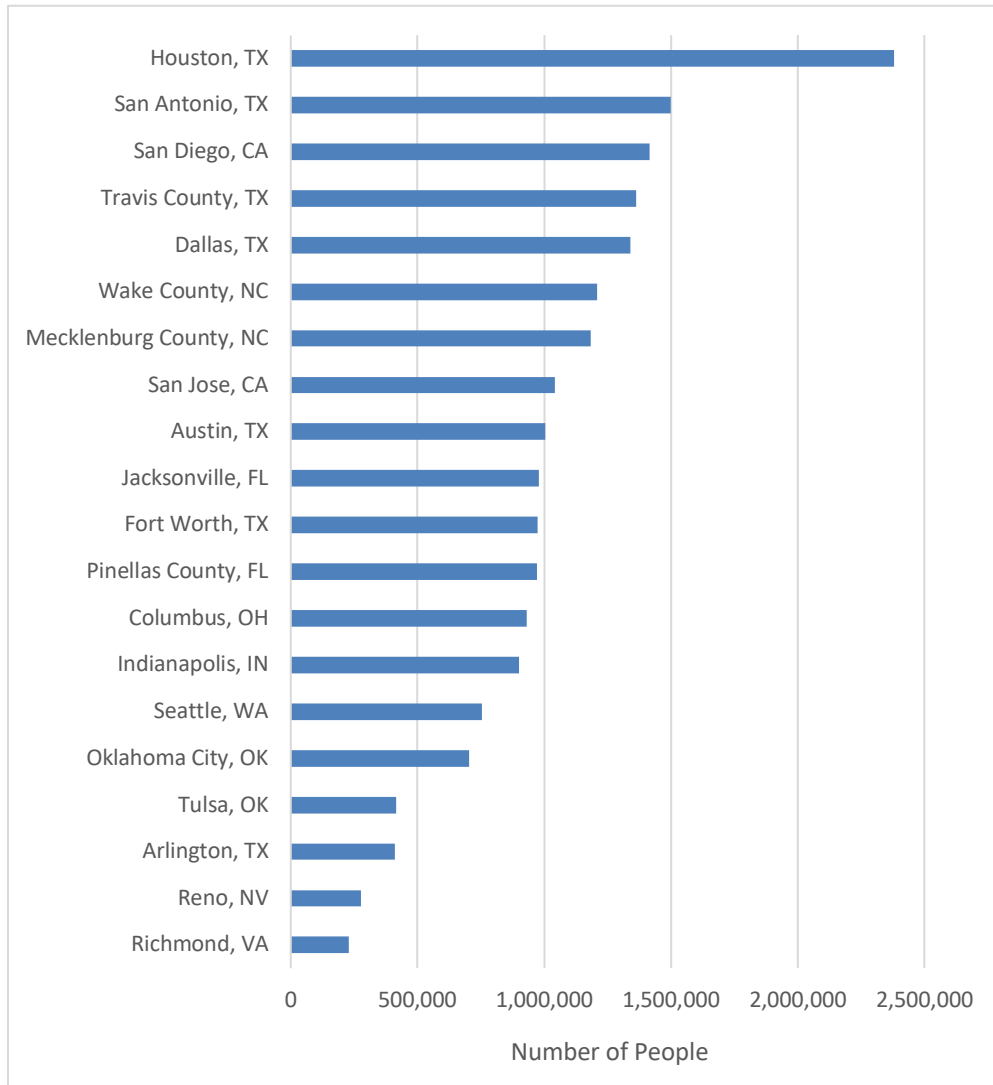


Table 4: Total Population – Projected 2023

Rank	Location	Number of People ¹
1	Houston, TX	2,380,154
2	San Antonio, TX	1,498,150
3	San Diego, CA	1,416,130
4	Travis County, TX	1,362,461
5	Dallas, TX	1,340,153
6	Wake County, NC	1,209,360
7	Mecklenburg County, NC	1,183,018
8	San Jose, CA	1,042,138
9	Austin, TX	1,004,572
10	Jacksonville, FL	979,517
11	Fort Worth, TX	973,896
12	Pinellas County, FL	970,619
13	Columbus, OH	929,575
14	Indianapolis, IN	899,916
15	Seattle, WA	753,547
16	Oklahoma City, OK	703,651
17	Tulsa, OK	416,466
18	Arlington, TX	410,313
19	Reno, NV	276,529
20	Richmond, VA	228,666
Tarrant County, TX		2,220,407
State of Texas		30,502,401
United States of America		340,856,604

¹US Census Bureau

Figure 7: Total Population – Projected 2025

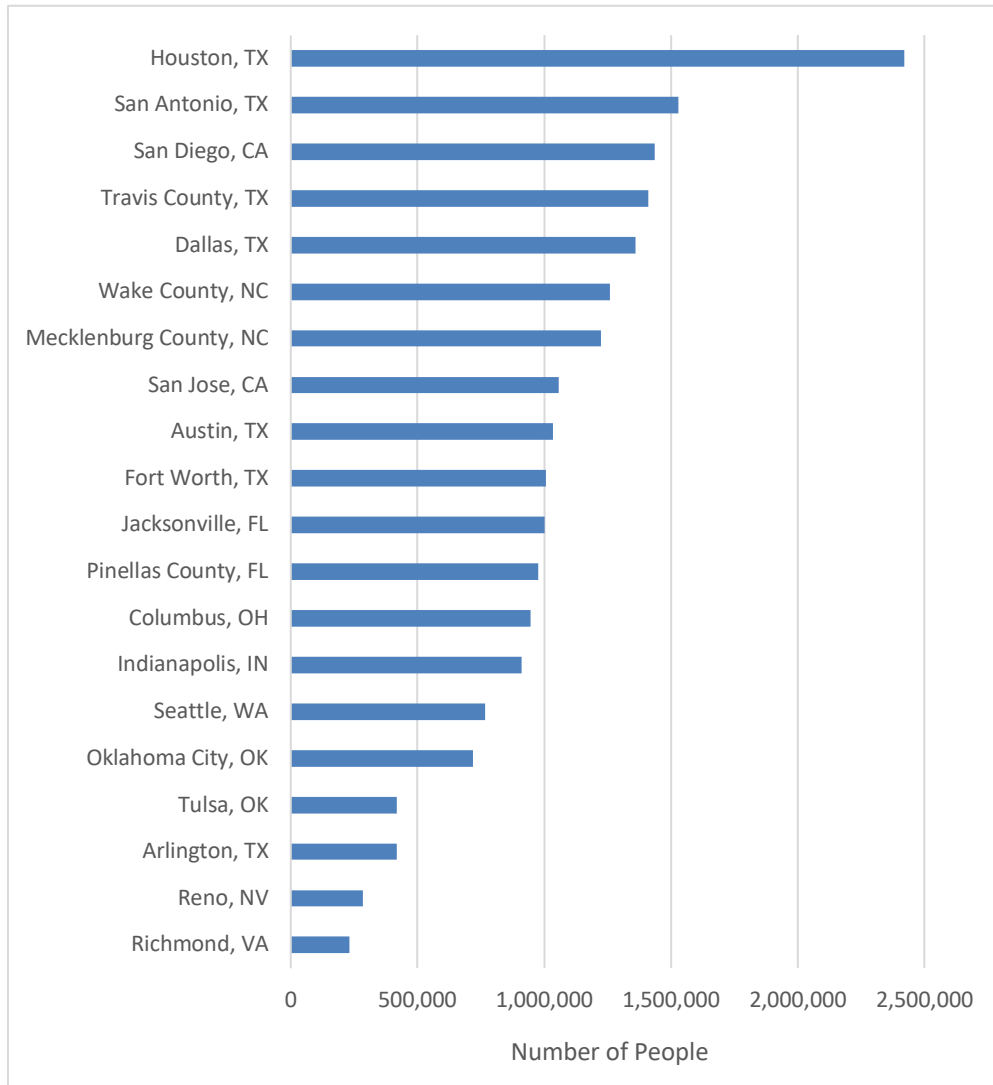


Table 5: Total Population – Projected 2025

Rank	Location	Number of People ¹
1	Houston, TX	2,419,329
2	San Antonio, TX	1,528,650
3	San Diego, CA	1,435,289
4	Travis County, TX	1,409,815
5	Dallas, TX	1,358,585
6	Wake County, NC	1,257,599
7	Mecklenburg County, NC	1,224,035
8	San Jose, CA	1,056,196
9	Austin, TX	1,033,451
10	Fort Worth, TX	1,005,663
11	Jacksonville, FL	1,000,253
12	Pinellas County, FL	976,934
13	Columbus, OH	945,995
14	Indianapolis, IN	909,840
15	Seattle, WA	767,403
16	Oklahoma City, OK	719,192
17	Tulsa, OK	419,198
18	Arlington, TX	419,005
19	Reno, NV	284,547
20	Richmond, VA	230,169
Tarrant County, TX		2,284,634
State of Texas		31,322,719
United States of America		346,432,392

¹US Census Bureau

Figure 8: Total Population – Projected 2027

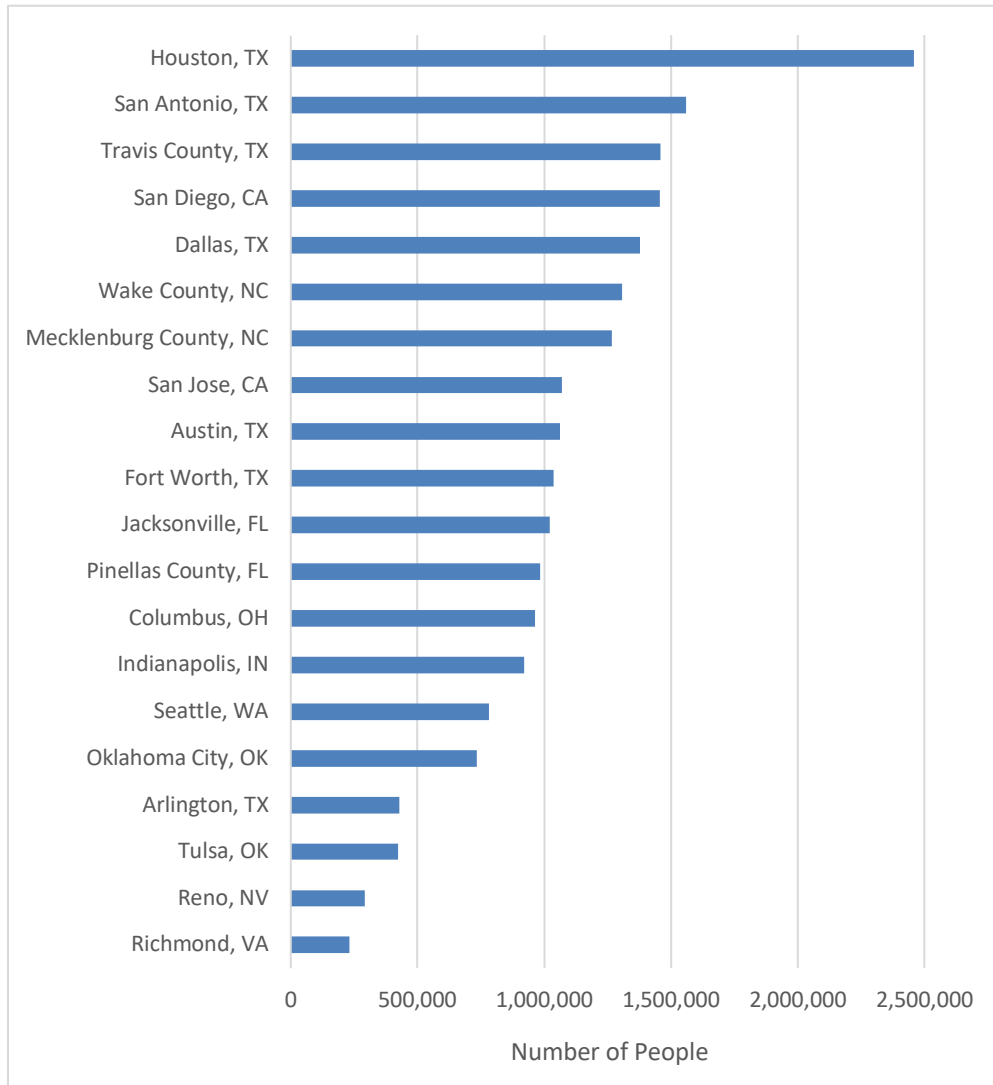


Table 6: Total Population – Projected 2027

Rank	Location	Number of People ¹
1	Houston, TX	2,458,511
2	San Antonio, TX	1,559,149
3	Travis County, TX	1,457,194
4	San Diego, CA	1,454,459
5	Dallas, TX	1,377,017
6	Wake County, NC	1,305,838
7	Mecklenburg County, NC	1,265,053
8	San Jose, CA	1,070,255
9	Austin, TX	1,062,355
10	Fort Worth, TX	1,037,430
11	Jacksonville, FL	1,020,988
12	Pinellas County, FL	983,249
13	Columbus, OH	962,510
14	Indianapolis, IN	919,829
15	Seattle, WA	781,259
16	Oklahoma City, OK	734,734
17	Arlington, TX	427,698
18	Tulsa, OK	421,931
19	Reno, NV	292,565
20	Richmond, VA	231,683
Tarrant County, TX		2,348,860
State of Texas		32,143,304
United States of America		352,022,512

¹US Census Bureau

Figure 9: Total Population – Projected 2029

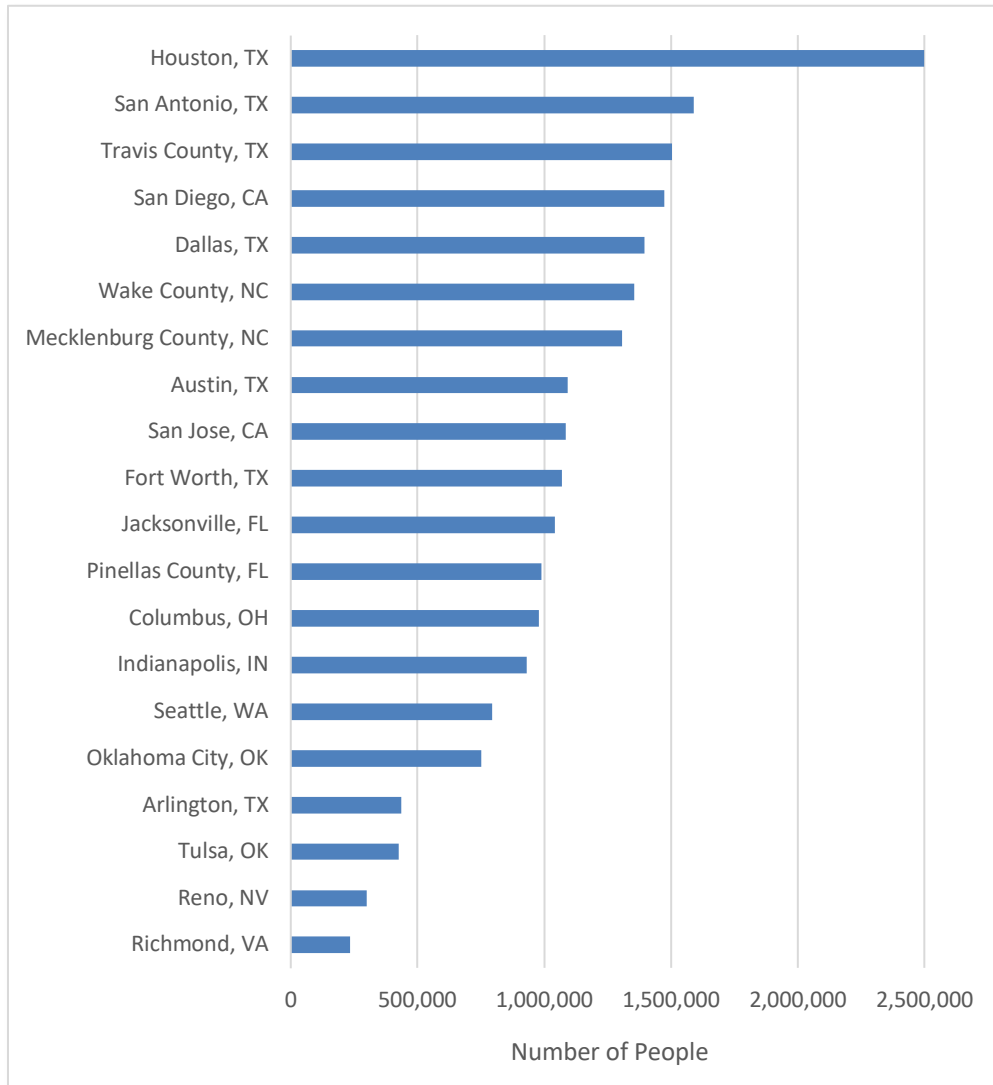


Table 7: Total Population – Projected 2029

Rank	Location	Number of People ¹
1	Houston, TX	2,497,822
2	San Antonio, TX	1,589,648
3	Travis County, TX	1,504,581
4	San Diego, CA	1,473,644
5	Dallas, TX	1,395,460
6	Wake County, NC	1,354,076
7	Mecklenburg County, NC	1,306,070
8	Austin, TX	1,091,265
9	San Jose, CA	1,084,313
10	Fort Worth, TX	1,069,197
11	Jacksonville, FL	1,041,745
12	Pinellas County, FL	989,573
13	Columbus, OH	979,136
14	Indianapolis, IN	929,825
15	Seattle, WA	795,115
16	Oklahoma City, OK	750,275
17	Arlington, TX	436,390
18	Tulsa, OK	424,663
19	Reno, NV	300,583
20	Richmond, VA	233,232
Tarrant County, TX		2,413,087
State of Texas		32,964,439
United States of America		357,630,520

¹US Census Bureau

Figure 10: Total Population – Projected 2031

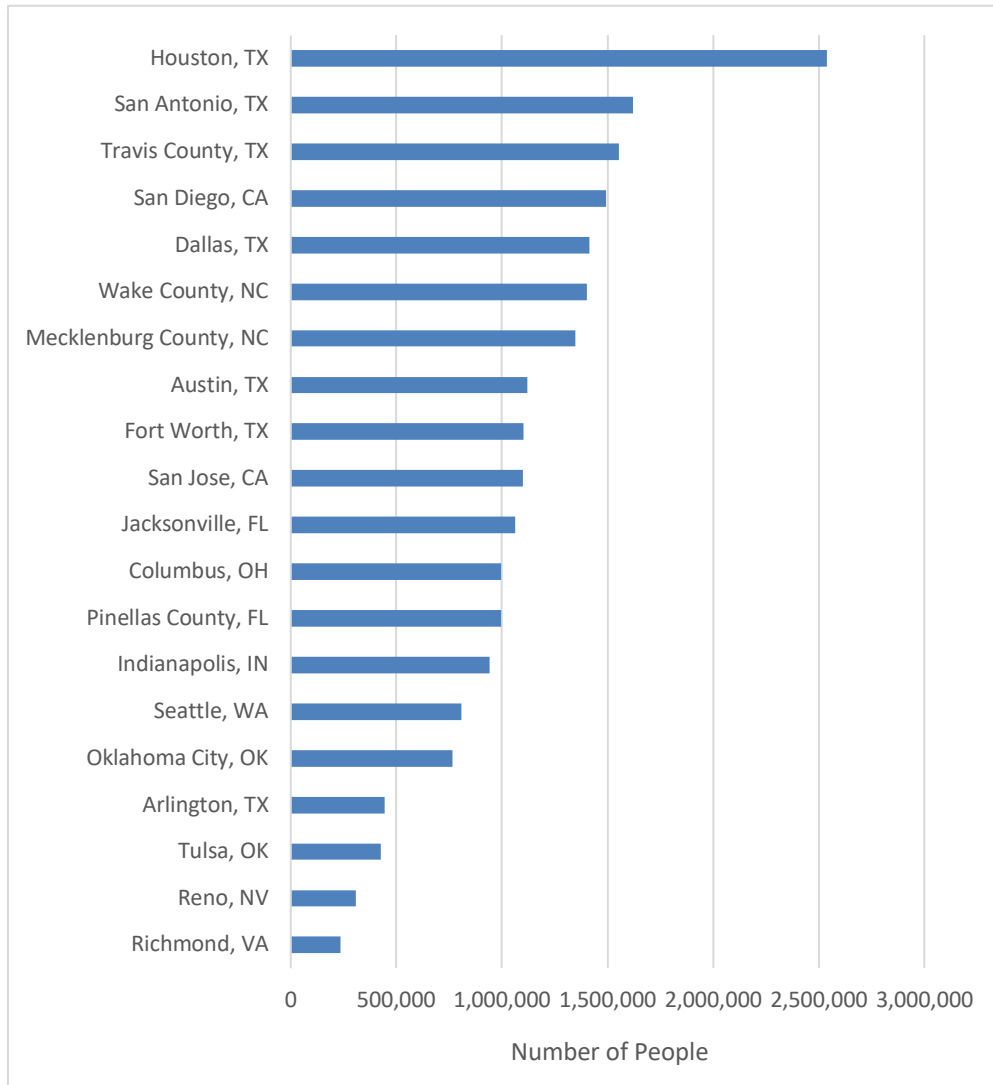


Table 8: Total Population – Projected 2031

Rank	Location	Number of People ¹
1	Houston, TX	2,537,213
2	San Antonio, TX	1,620,233
3	Travis County, TX	1,551,967
4	San Diego, CA	1,492,921
5	Dallas, TX	1,413,976
6	Wake County, NC	1,402,315
7	Mecklenburg County, NC	1,347,087
8	Austin, TX	1,120,176
9	Fort Worth, TX	1,100,965
10	San Jose, CA	1,098,372
11	Jacksonville, FL	1,062,605
12	Columbus, OH	996,085
13	Pinellas County, FL	995,988
14	Indianapolis, IN	939,862
15	Seattle, WA	808,972
16	Oklahoma City, OK	765,933
17	Arlington, TX	445,088
18	Tulsa, OK	427,396
19	Reno, NV	308,601
20	Richmond, VA	234,780
Tarrant County, TX		2,477,319
State of Texas		33,786,330
United States of America		363,255,837

¹US Census Bureau

Figure 11: Median Age (Years)

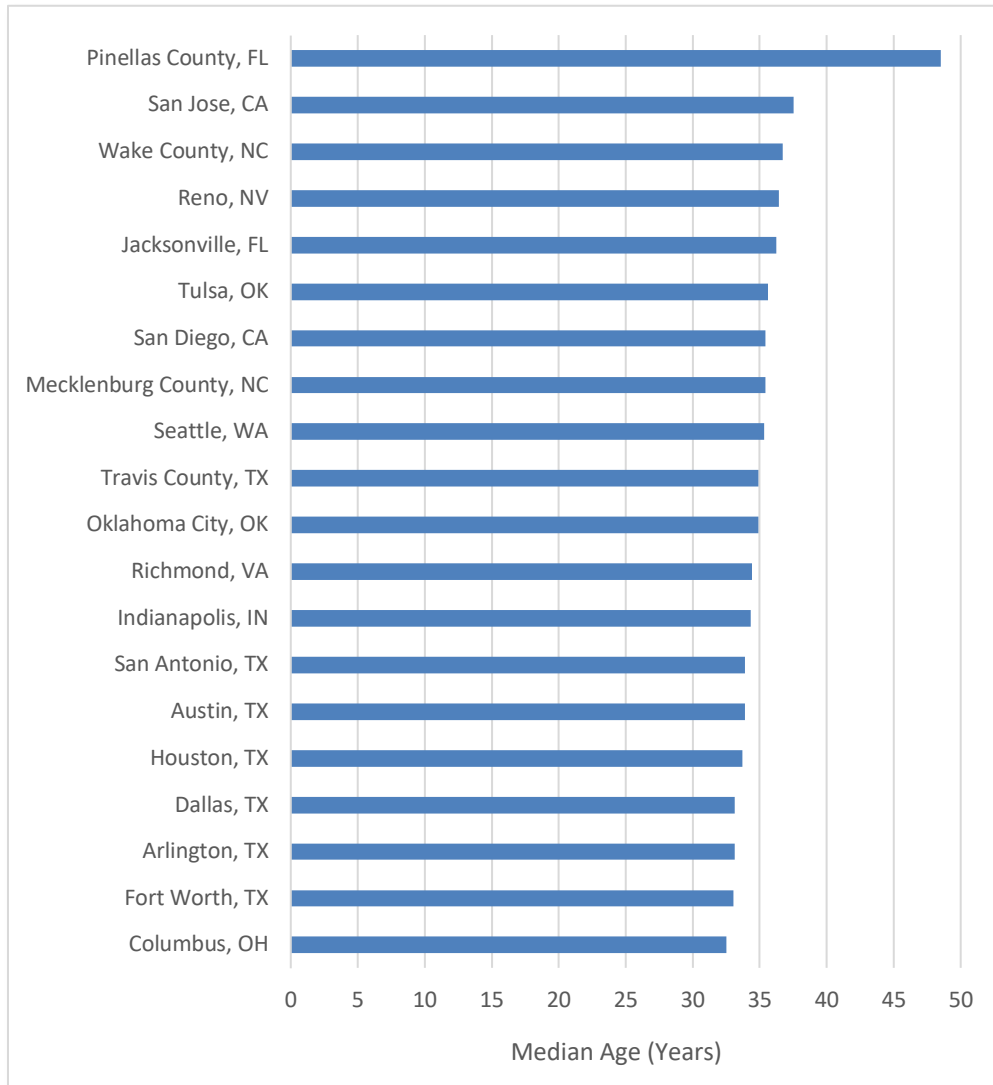


Table 9: Median Age (Years)

Rank	Location	Median Age (Years) ¹
1	Pinellas County, FL	48.5
2	San Jose, CA	37.5
3	Wake County, NC	36.7
4	Reno, NV	36.4
5	Jacksonville, FL	36.2
6	Tulsa, OK	35.6
7 (T)	Mecklenburg County, NC	35.4
7 (T)	San Diego, CA	35.4
9	Seattle, WA	35.3
10 (T)	Oklahoma City, OK	34.9
10 (T)	Travis County, TX	34.9
12	Richmond, VA	34.4
13	Indianapolis, IN	34.3
14 (T)	Austin, TX	33.9
14 (T)	San Antonio, TX	33.9
16	Houston, TX	33.7
17 (T)	Arlington, TX	33.1
17 (T)	Dallas, TX	33.1
19	Fort Worth, TX	33.0
20	Columbus, OH	32.5
Tarrant County, TX		34.8
State of Texas		35.0
United States of America		38.4

¹US Census Bureau ACS 2017-2021

Figure 12: Percent of Population by Age Group (Years) – City of Fort Worth

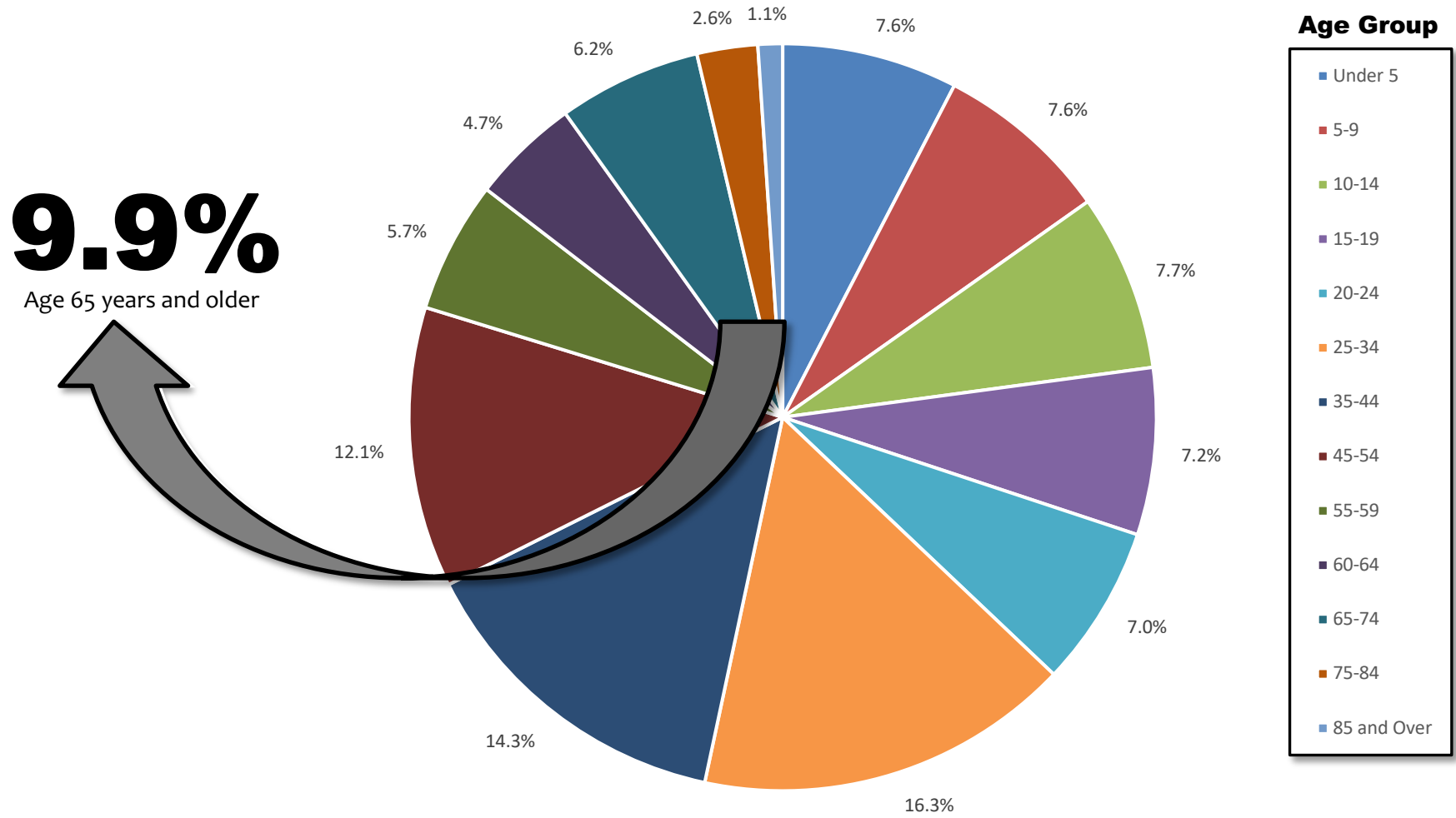


Figure 13: Percent of Population Age 65 to 74 Years

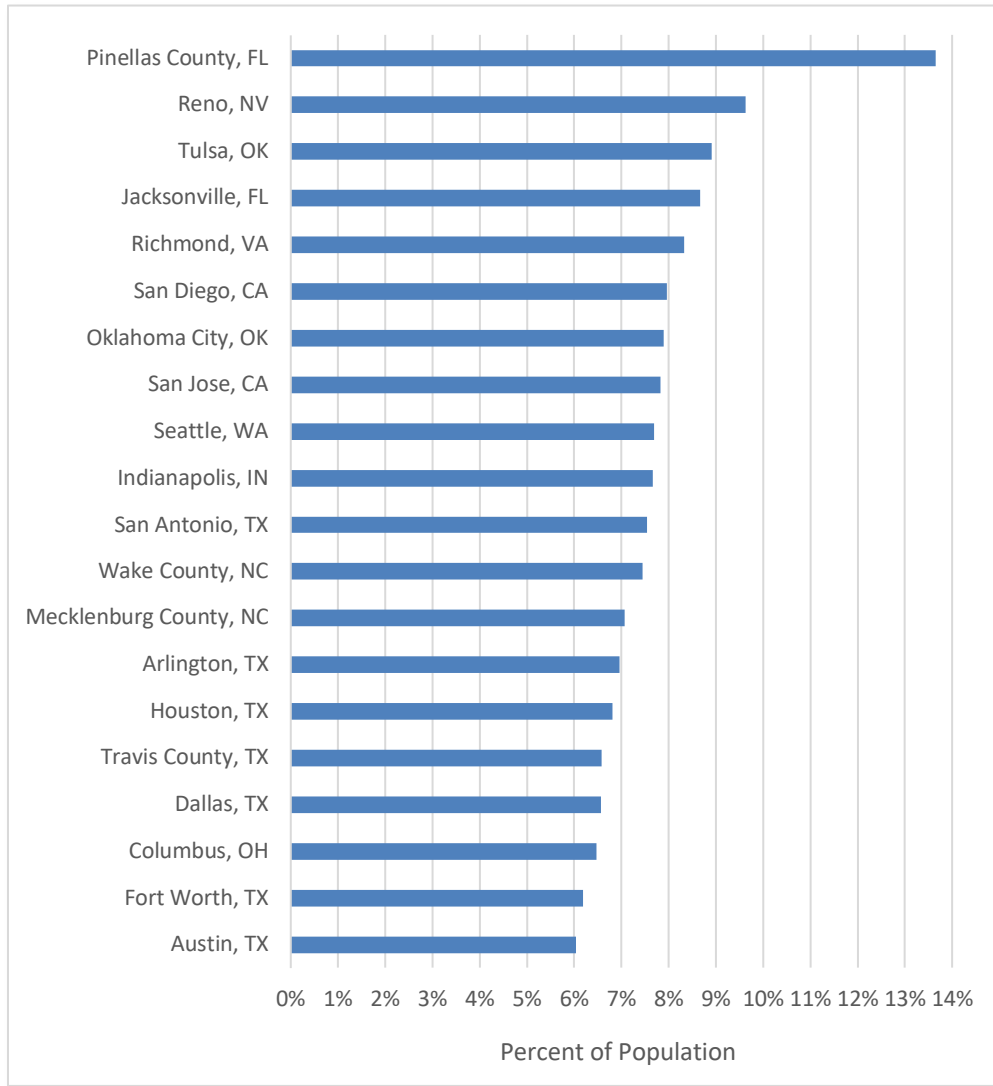


Table 10: Percent of Population Age 65 to 74 Years

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	13.6
2	Reno, NV	9.6
3	Tulsa, OK	8.9
4	Jacksonville, FL	8.7
5	Richmond, VA	8.3
6	San Diego, CA	8.0
7	Oklahoma City, OK	7.9
8	San Jose, CA	7.8
9	Seattle, WA	7.7
10	Indianapolis, IN	7.7
11	San Antonio, TX	7.5
12	Wake County, NC	7.4
13	Mecklenburg County, NC	7.1
14	Arlington, TX	7.0
15	Houston, TX	6.8
16	Travis County, TX	6.6
17	Dallas, TX	6.6
18	Columbus, OH	6.5
19	Fort Worth, TX	6.2
20	Austin, TX	6.0
Tarrant County, TX		7.1
State of Texas		7.7
United States of America		9.6

¹US Census Bureau ACS 2017-2021

Figure 14: Percent of Population Age 75 to 84 Years

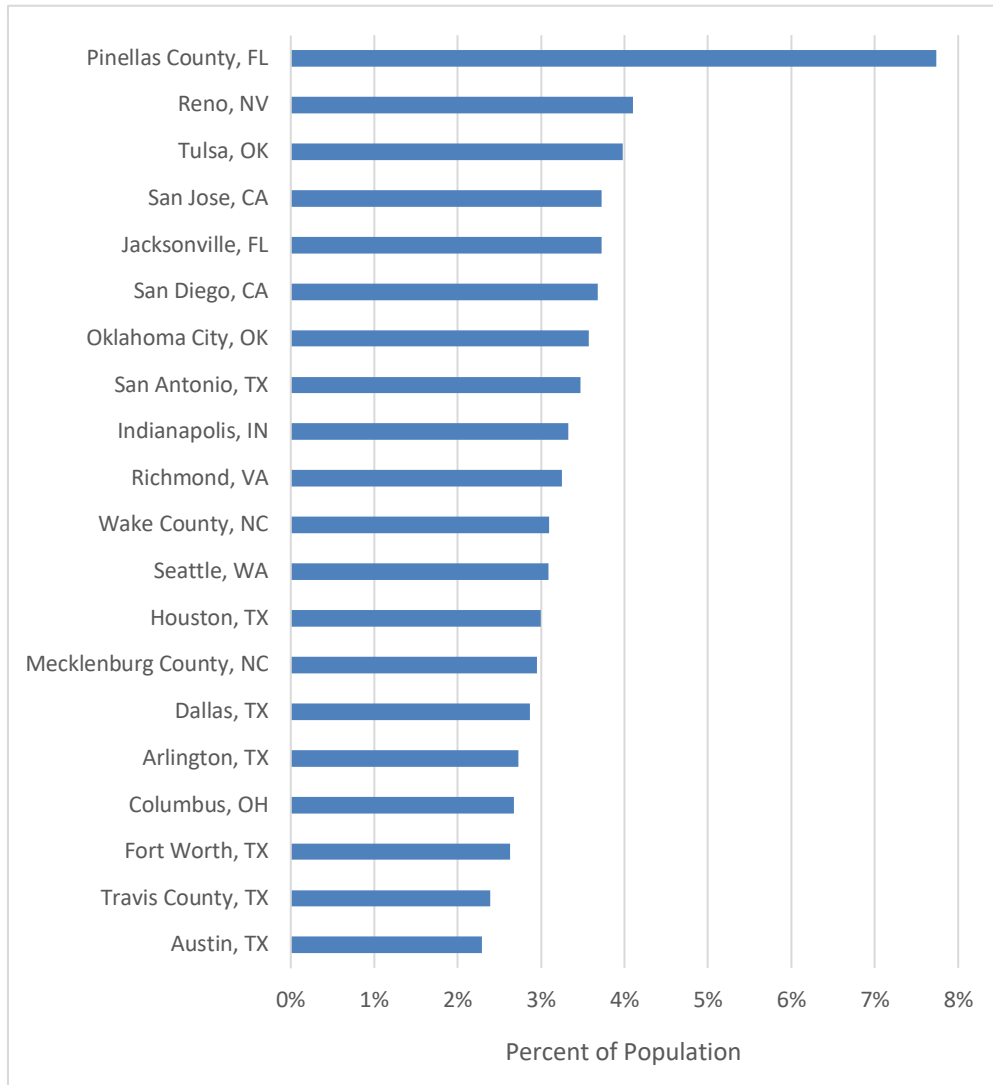


Table 11: Percent of Population Age 75 to 84 Years

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	7.7
2	Reno, NV	4.1
3	Tulsa, OK	4.0
4	San Jose, CA	3.7
5	Jacksonville, FL	3.7
6	San Diego, CA	3.7
7	Oklahoma City, OK	3.6
8	San Antonio, TX	3.5
9	Indianapolis, IN	3.3
10	Richmond, VA	3.2
11	Wake County, NC	3.1
12	Seattle, WA	3.1
13	Houston, TX	3.0
14	Mecklenburg County, NC	3.0
15	Dallas, TX	2.9
16	Arlington, TX	2.7
17	Columbus, OH	2.7
18	Fort Worth, TX	2.6
19	Travis County, TX	2.4
20	Austin, TX	2.3
Tarrant County, TX		3.0
State of Texas		3.5
United States of America		4.5

¹US Census Bureau ACS 2017-2021

Figure 15: Percent of Population Age 85 Years and Older

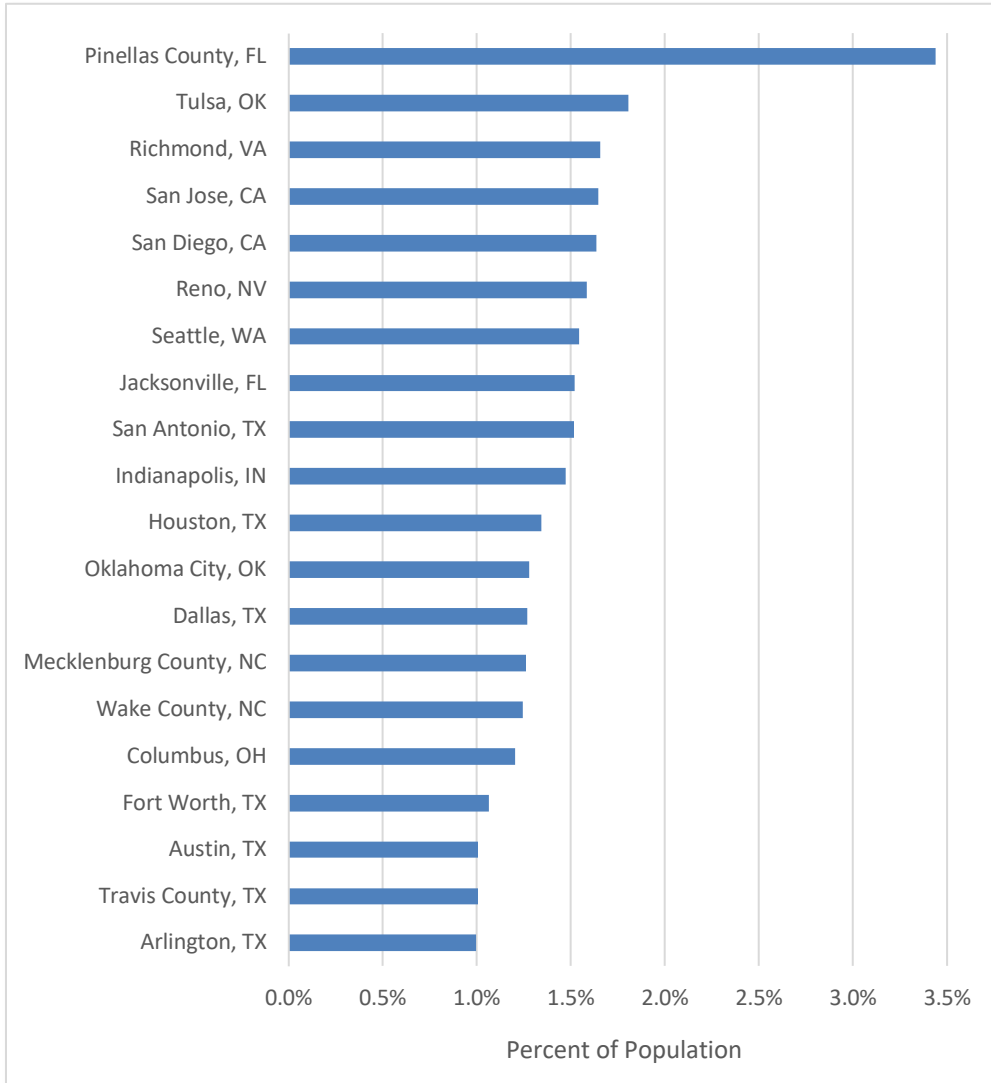


Table 12: Percent of Population Age 85 Years and Older

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	3.4
2	Tulsa, OK	1.8
3	Richmond, VA	1.7
4	San Jose, CA	1.6
5	San Diego, CA	1.6
6	Reno, NV	1.6
7	Seattle, WA	1.5
8	Jacksonville, FL	1.5
9	San Antonio, TX	1.5
10	Indianapolis, IN	1.5
11	Houston, TX	1.3
12	Oklahoma City, OK	1.3
13	Dallas, TX	1.3
14	Mecklenburg County, NC	1.3
15	Wake County, NC	1.2
16	Columbus, OH	1.2
17	Fort Worth, TX	1.1
18	Austin, TX	1.0
19	Travis County, TX	1.0
20	Arlington, TX	1.0
Tarrant County, TX		1.2
State of Texas		1.3
United States of America		1.9

¹US Census Bureau ACS 2017-2021

Figure 16: Percent of Population Living with a Disability

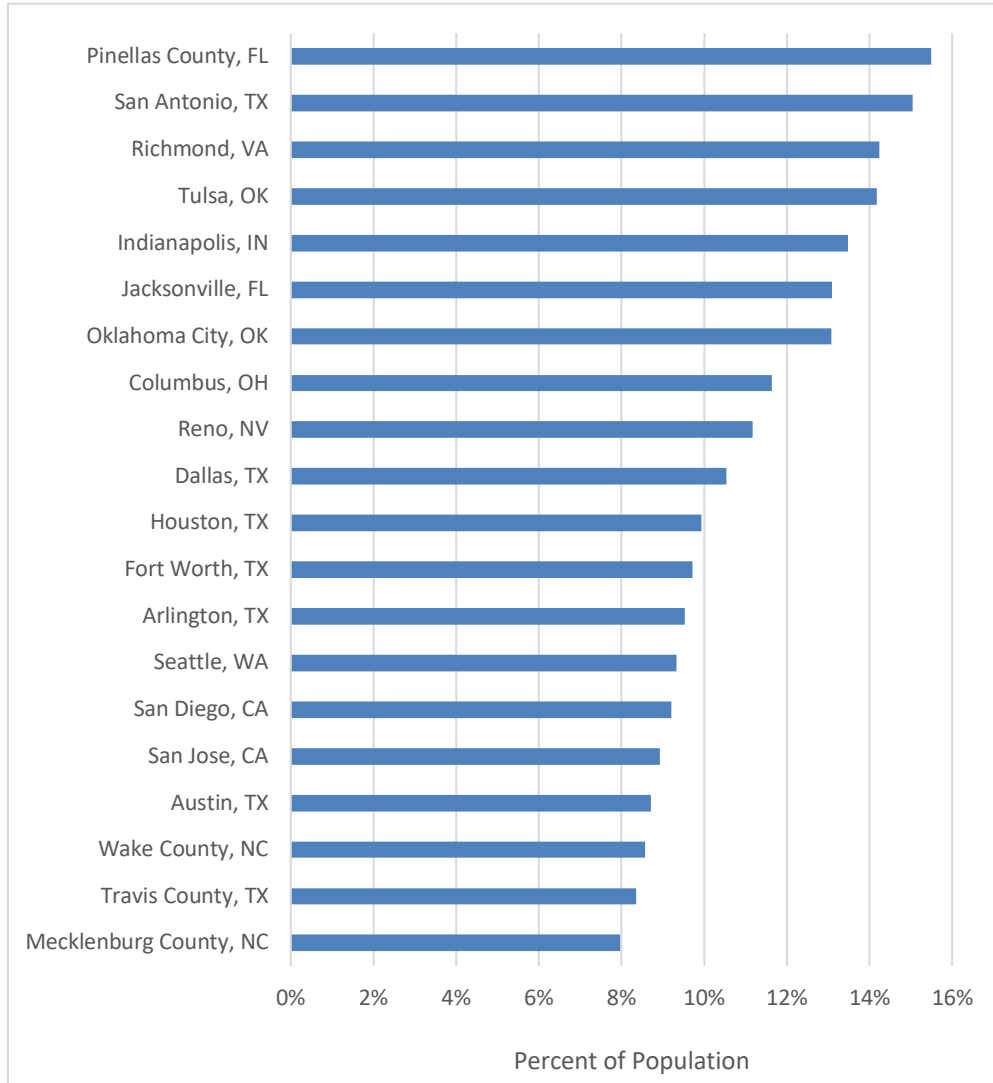


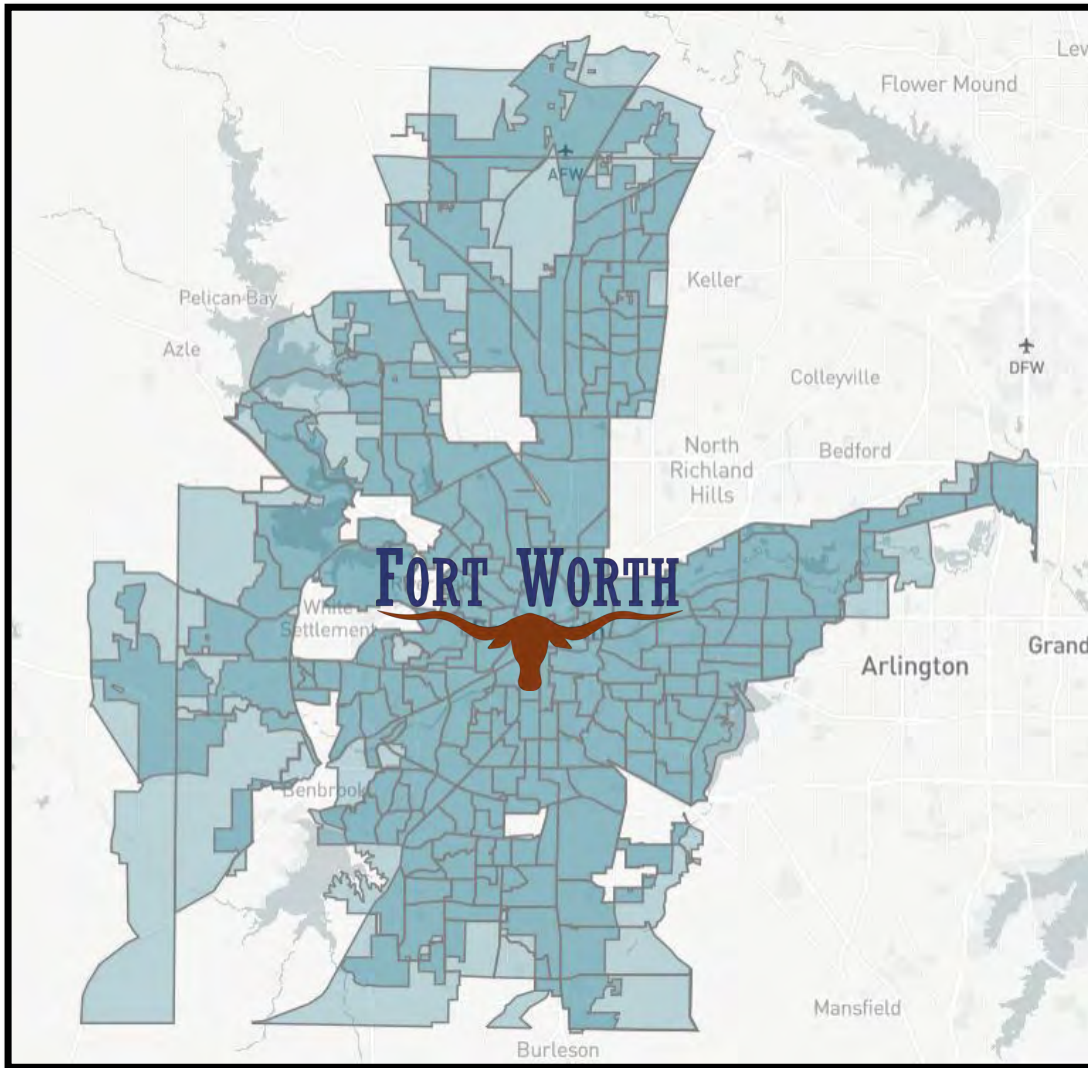
Table 13: Percent of Population Living with a Disability

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	15.5
2	San Antonio, TX	15.0
3	Richmond, VA	14.2
4	Tulsa, OK	14.2
5	Indianapolis, IN	13.5
6	Jacksonville, FL	13.1
7	Oklahoma City, OK	13.1
8	Columbus, OH	11.6
9	Reno, NV	11.2
10	Dallas, TX	10.5
11	Houston, TX	9.9
12	Fort Worth, TX	9.7
13	Arlington, TX	9.5
14	Seattle, WA	9.3
15	San Diego, CA	9.2
16	San Jose, CA	8.9
17	Austin, TX	8.7
18	Wake County, NC	8.6
19	Travis County, TX	8.4
20	Mecklenburg County, NC	8.0
Tarrant County, TX		9.8
State of Texas		11.4
United States of America		12.6

¹US Census Bureau ACS 2017-2021

Location

Figure 17: Census Tract Map and Location Metrics – City of Fort Worth



356.9

Area in square miles
(US Census Bureau 2021)

18.76

Environmental Hazard
National Risk Index Score
0=Least Risk to 100=Most Risk
(FEMA 2021)

53.45

Environmental Hazard
Community Resilience Score
0=Least Resilient to 100=Most Resilient
(FEMA 2021)

Figure 18: Area (Square Miles)

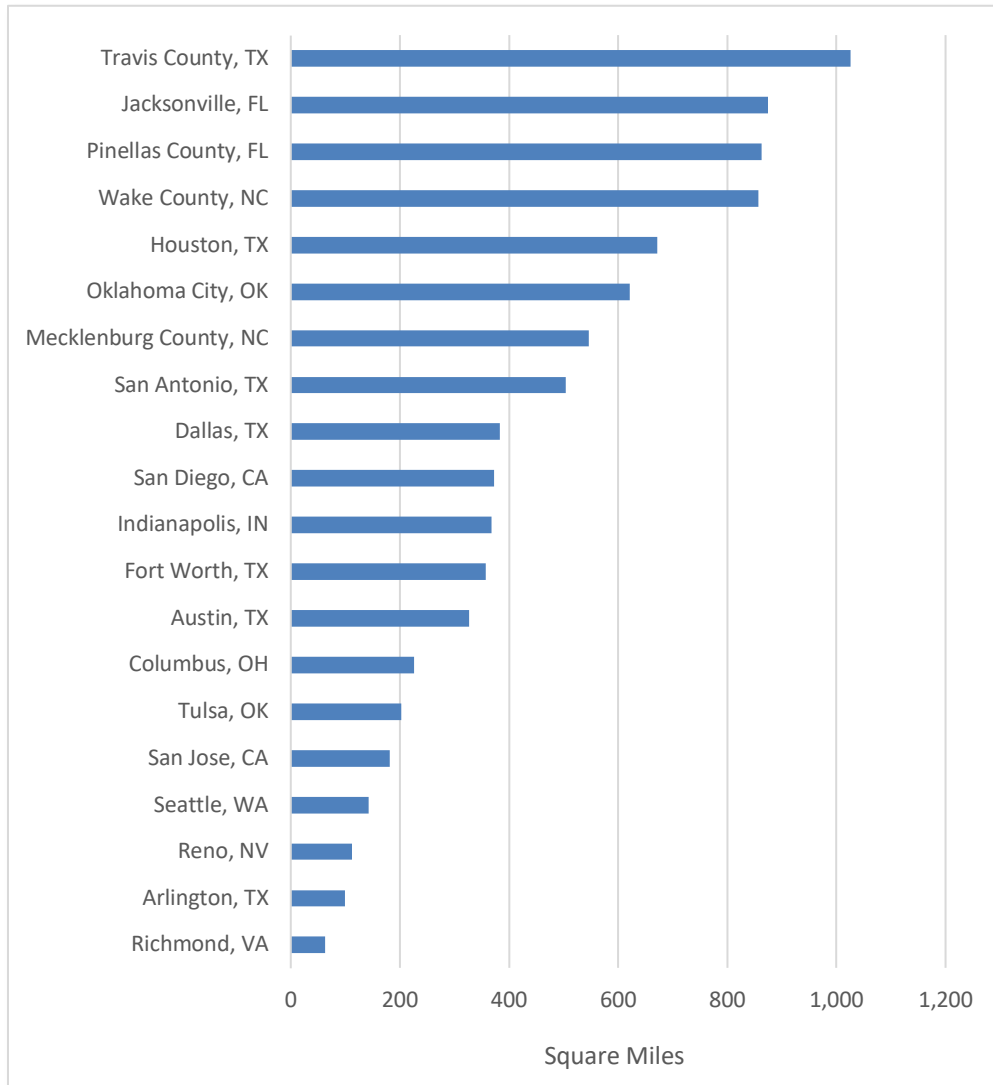


Table 14: Area (Square Miles)

Rank	Location	Square Miles ¹
1	Travis County, TX	1,025.0
2	Jacksonville, FL	874.5
3	Pinellas County, FL	862.5
4	Wake County, NC	857.0
5	Houston, TX	671.7
6	Oklahoma City, OK	620.8
7	Mecklenburg County, NC	546.1
8	San Antonio, TX	504.2
9	Dallas, TX	383.5
10	San Diego, CA	372.4
11	Indianapolis, IN	367.9
12	Fort Worth, TX	356.9
13	Austin, TX	326.5
14	Columbus, OH	226.0
15	Tulsa, OK	201.8
16	San Jose, CA	181.4
17	Seattle, WA	142.1
18	Reno, NV	111.7
19	Arlington, TX	99.4
20	Richmond, VA	62.6
Tarrant County, TX		903.8
State of Texas		268,595.7
United States of America		3,705,244.5

¹US Census Bureau 2021

Figure 19: Environmental Hazard National Risk Index Score

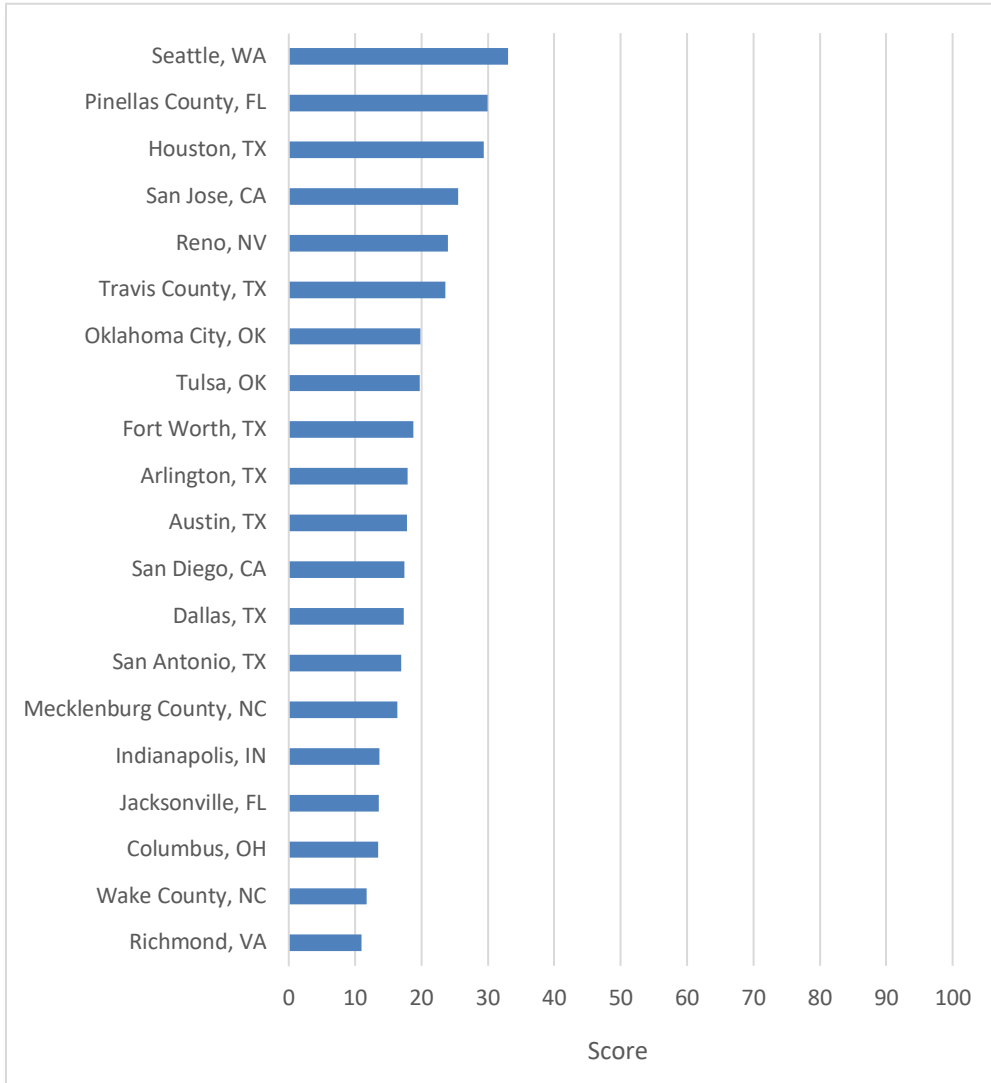


Table 15: Environmental Hazard National Risk Index Score

Rank	Location	Score ¹
1	Seattle, WA	33.01
2	Pinellas County, FL	29.90
3	Houston, TX	29.36
4	San Jose, CA	25.51
5	Reno, NV	23.96
6	Travis County, TX	23.54
7	Oklahoma City, OK	19.78
8	Tulsa, OK	19.76
9	Fort Worth, TX	18.76
10	Arlington, TX	17.91
11	Austin, TX	17.81
12	San Diego, CA	17.39
13	Dallas, TX	17.29
14	San Antonio, TX	16.95
15	Mecklenburg County, NC	16.35
16	Indianapolis, IN	13.63
17	Jacksonville, FL	13.57
18	Columbus, OH	13.41
19	Wake County, NC	11.74
20	Richmond, VA	10.91
Tarrant County, TX		31.55
State of Texas		12.97
United States of America		10.70

¹FEMA 2021; ranges from 0 (least risk) to 100 (most risk)

Figure 20: Environmental Hazard Community Resilience Score

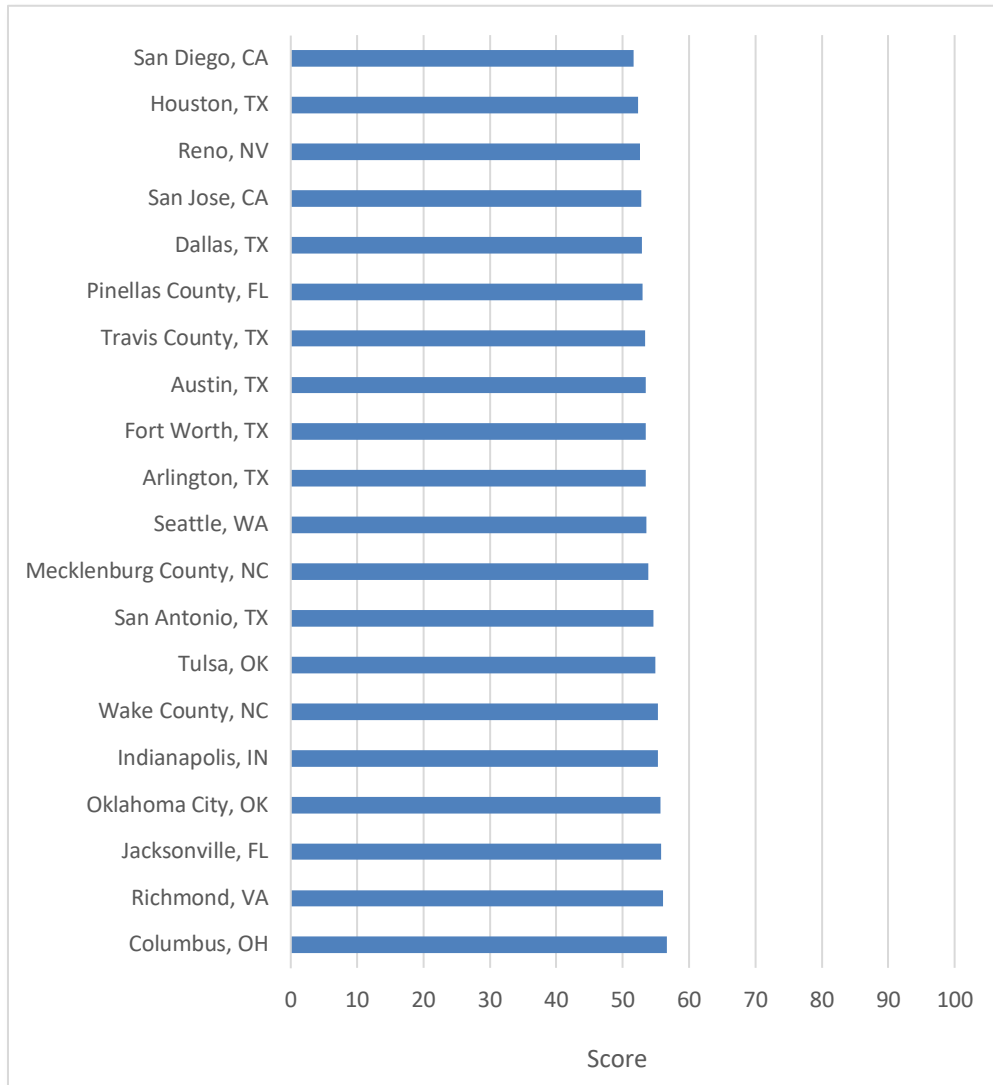


Table 16: Environmental Hazard Community Resilience Score

Rank	Location	Score ¹
1	San Diego, CA	51.60
2	Houston, TX	52.28
3	Reno, NV	52.60
4	San Jose, CA	52.77
5	Dallas, TX	52.90
6	Pinellas County, FL	53.00
7	Travis County, TX	53.34
8	Austin, TX	53.44
9	Fort Worth, TX	53.45
10	Arlington, TX	53.46
11	Seattle, WA	53.56
12	Mecklenburg County, NC	53.82
13	San Antonio, TX	54.56
14	Tulsa, OK	54.87
15	Wake County, NC	55.24
16	Indianapolis, IN	55.25
17	Oklahoma City, OK	55.64
18	Jacksonville, FL	55.80
19	Richmond, VA	56.02
20	Columbus, OH	56.67
Tarrant County, TX		53.46
State of Texas		52.30
United States of America		54.59

¹FEMA 2021; ranges from 0 (least resilient) to 100 (most resilient)

SOCIAL DETERMINANTS OF HEALTH

Healthcare Access

Figure 21: Percent of Population without Health Insurance Coverage

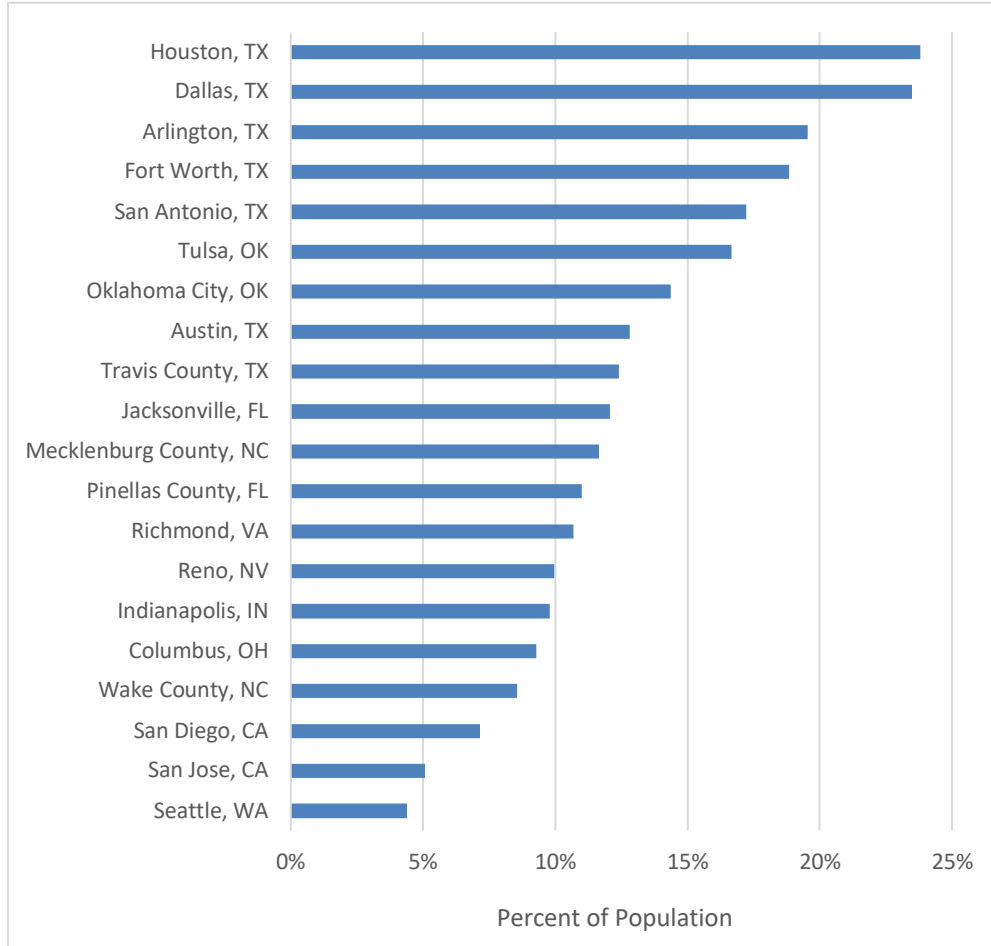


Table 17: Percent of Population without Health Insurance Coverage

Rank	Location	Percent of Population ¹
1	Houston, TX	23.8
2	Dallas, TX	23.5
3	Arlington, TX	19.5
4	Fort Worth, TX	18.8
5	San Antonio, TX	17.2
6	Tulsa, OK	16.7
7	Oklahoma City, OK	14.4
8	Austin, TX	12.8
9	Travis County, TX	12.4
10	Jacksonville, FL	12.1
11	Mecklenburg County, NC	11.6
12	Pinellas County, FL	11.0
13	Richmond, VA	10.7
14	Reno, NV	10.0
15	Indianapolis, IN	9.8
16	Columbus, OH	9.3
17	Wake County, NC	8.6
18	San Diego, CA	7.2
19	San Jose, CA	5.1
20	Seattle, WA	4.4
Tarrant County, TX		16.8
State of Texas		17.6
United States of America		8.8

¹US Census Bureau ACS 2017-2021

Figure 22: Percent of Population Age 65 Years and Over without Medicare

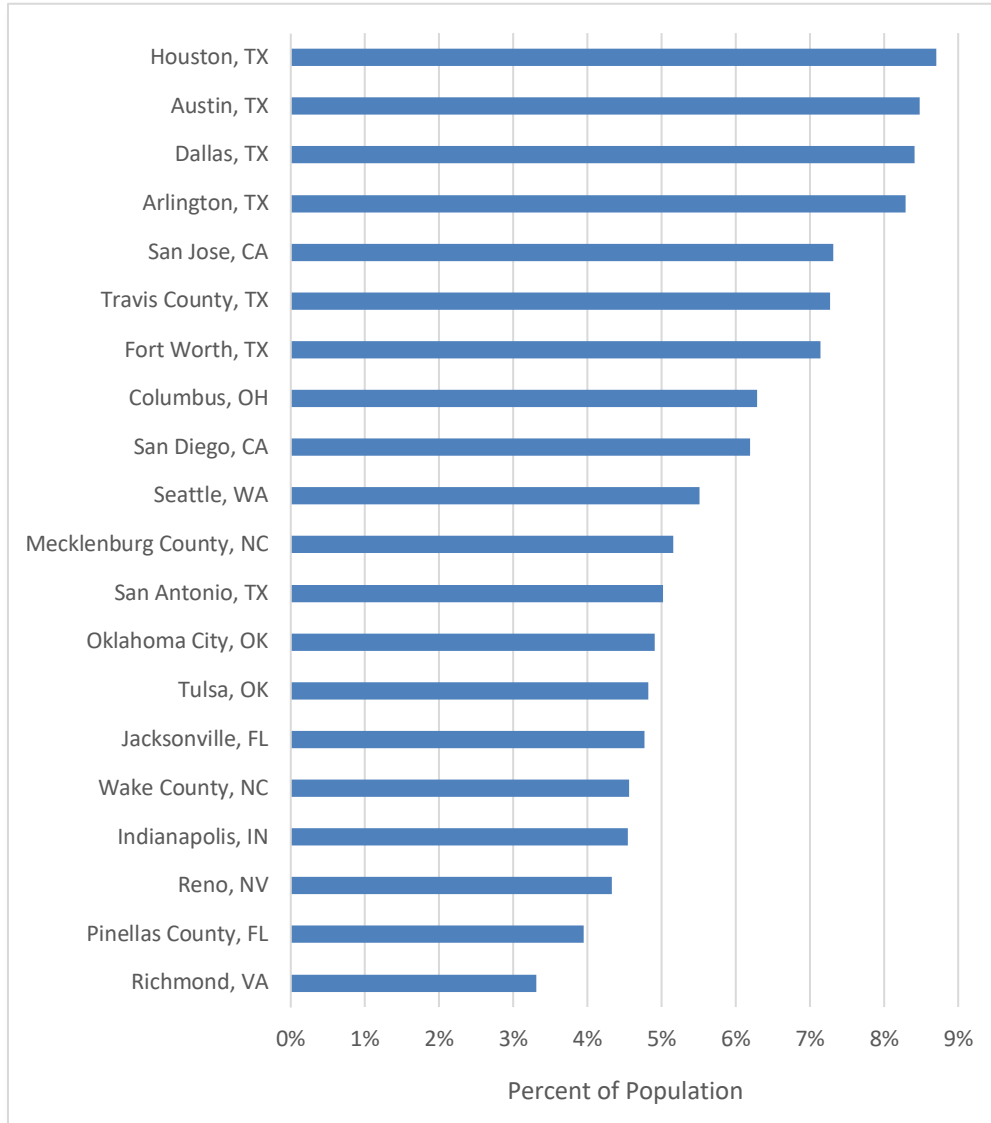


Table 18: Percent of Population Age 65 Years and Over without Medicare

Rank	Location	Percent of Population ¹
1	Houston, TX	8.7
2	Austin, TX	8.5
3	Dallas, TX	8.4
4	Arlington, TX	8.3
5	San Jose, CA	7.3
6	Travis County, TX	7.3
7	Fort Worth, TX	7.1
8	Columbus, OH	6.3
9	San Diego, CA	6.2
10	Seattle, WA	5.5
11	Mecklenburg County, NC	5.2
12	San Antonio, TX	5.0
13	Oklahoma City, OK	4.9
14	Tulsa, OK	4.8
15	Jacksonville, FL	4.8
16	Wake County, NC	4.6
17	Indianapolis, IN	4.5
18	Reno, NV	4.3
19	Pinellas County, FL	4.0
20	Richmond, VA	3.3
Tarrant County, TX		6.7
State of Texas		5.9
United States of America		4.4

¹US Census Bureau ACS 2017-2021

Figure 23: Percent of Population with Medicaid or Means-Tested Public Coverage

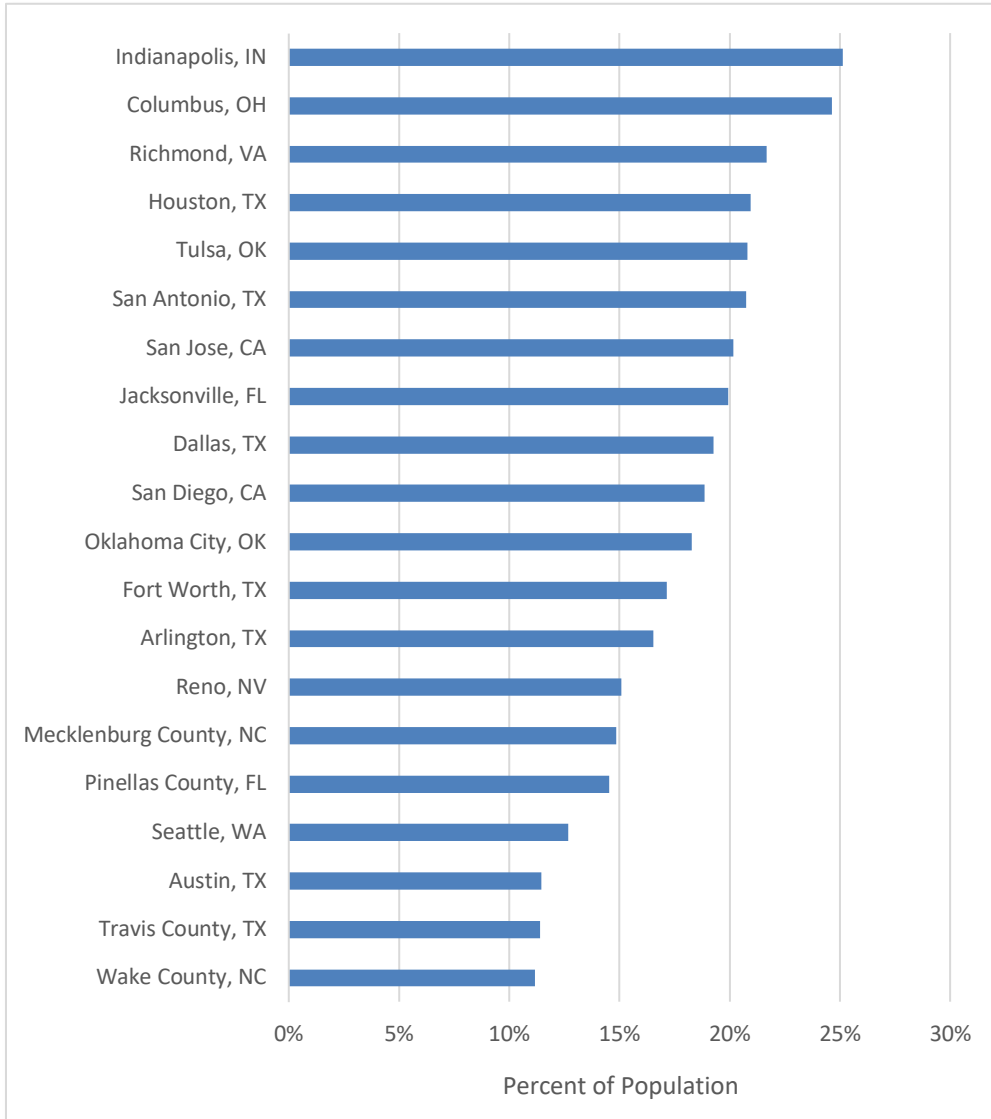


Table 19: Percent of Population with Medicaid or Means-Tested Public Coverage

Rank	Location	Percent of Population ¹
1	Indianapolis, IN	25.1
2	Columbus, OH	24.6
3	Richmond, VA	21.7
4	Houston, TX	20.9
5	Tulsa, OK	20.8
6	San Antonio, TX	20.7
7	San Jose, CA	20.1
8	Jacksonville, FL	19.9
9	Dallas, TX	19.2
10	San Diego, CA	18.9
11	Oklahoma City, OK	18.3
12	Fort Worth, TX	17.1
13	Arlington, TX	16.5
14	Reno, NV	15.1
15	Mecklenburg County, NC	14.9
16	Pinellas County, FL	14.5
17	Seattle, WA	12.7
18	Austin, TX	11.4
19	Travis County, TX	11.4
20	Wake County, NC	11.2
Tarrant County, TX		14.8
State of Texas		16.4
United States of America		20.2

¹US Census Bureau ACS 2017-2021

Figure 24: Healthcare Provider Ratio – Primary Care Physicians

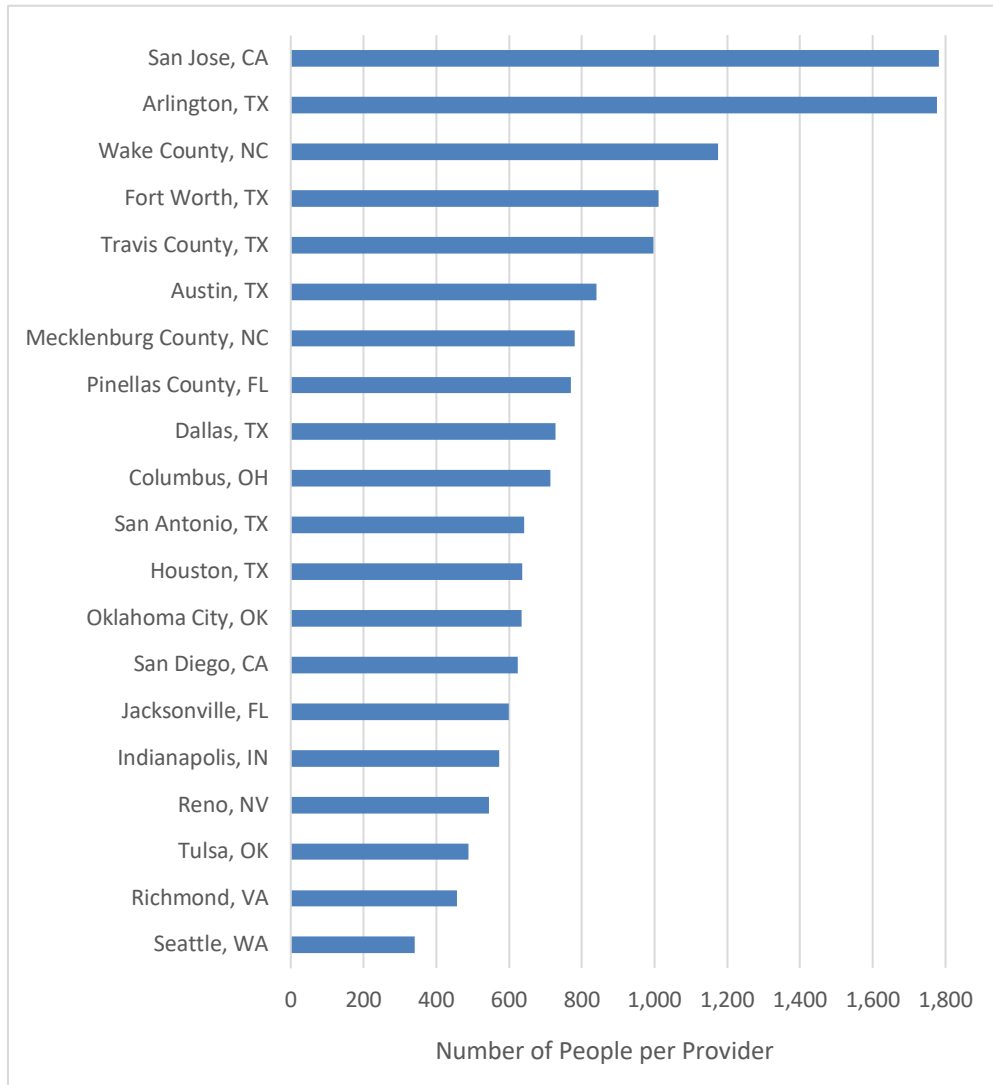


Table 20: Healthcare Provider Ratio – Primary Care Physicians

Rank	Location	Number of People/1 ¹
1	San Jose, CA	1,780.9
2	Arlington, TX	1,775.1
3	Wake County, NC	1,173.9
4	Fort Worth, TX	1,010.5
5	Travis County, TX	995.9
6	Austin, TX	840.4
7	Mecklenburg County, NC	780.8
8	Pinellas County, FL	768.9
9	Dallas, TX	727.2
10	Columbus, OH	713.4
11	San Antonio, TX	641.0
12	Houston, TX	635.1
13	Oklahoma City, OK	634.5
14	San Diego, CA	624.1
15	Jacksonville, FL	599.6
16	Indianapolis, IN	572.2
17	Reno, NV	544.9
18	Tulsa, OK	488.9
19	Richmond, VA	455.9
20	Seattle, WA	340.2
Tarrant County, TX		1,261.0
State of Texas		1,235.3
United States of America		959.1

¹US Census Bureau ACS 2017-2021 and CMS NPPES 2022; ratio value represents number of people per one primary care physician (i.e., family medicine, general practice, or internal medicine)

Figure 25: Healthcare Provider Ratio – Mental Health Providers

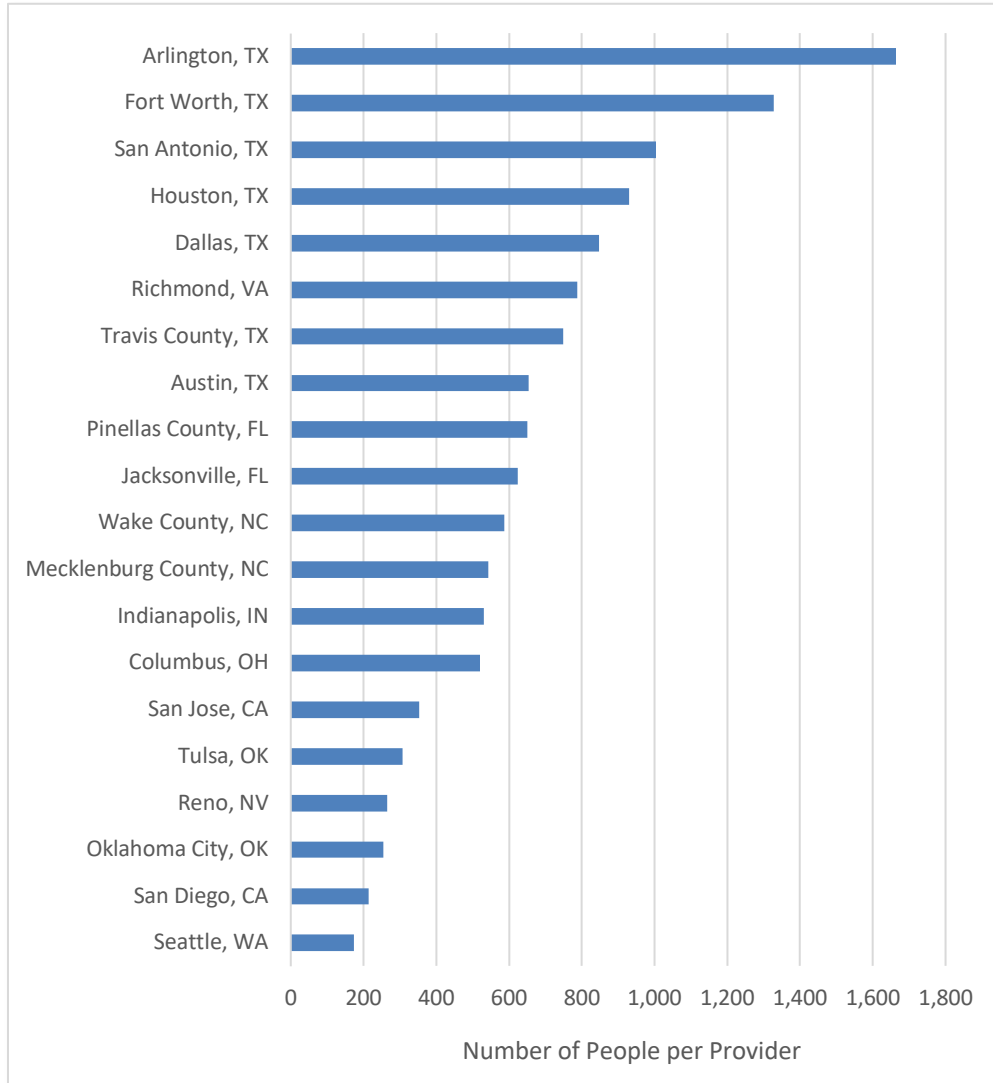


Table 21: Healthcare Provider Ratio – Mental Health Providers

Rank	Location	Number of People/1 ¹
1	Arlington, TX	1,662.3
2	Fort Worth, TX	1,326.2
3	San Antonio, TX	1,003.2
4	Houston, TX	929.6
5	Dallas, TX	847.6
6	Richmond, VA	786.3
7	Travis County, TX	748.0
8	Austin, TX	652.8
9	Pinellas County, FL	650.8
10	Jacksonville, FL	624.3
11	Wake County, NC	587.6
12	Mecklenburg County, NC	542.4
13	Indianapolis, IN	530.5
14	Columbus, OH	520.4
15	San Jose, CA	352.0
16	Tulsa, OK	307.4
17	Reno, NV	264.4
18	Oklahoma City, OK	254.9
19	San Diego, CA	214.8
20	Seattle, WA	173.6
Tarrant County, TX		1,518.1
State of Texas		1,678.5
United States of America		633.5

¹US Census Bureau ACS 2017-2021 and CMS NPPES 2022; ratio value represents number of people per one mental health provider

Figure 26: Health Professional Shortage Area – Primary Care

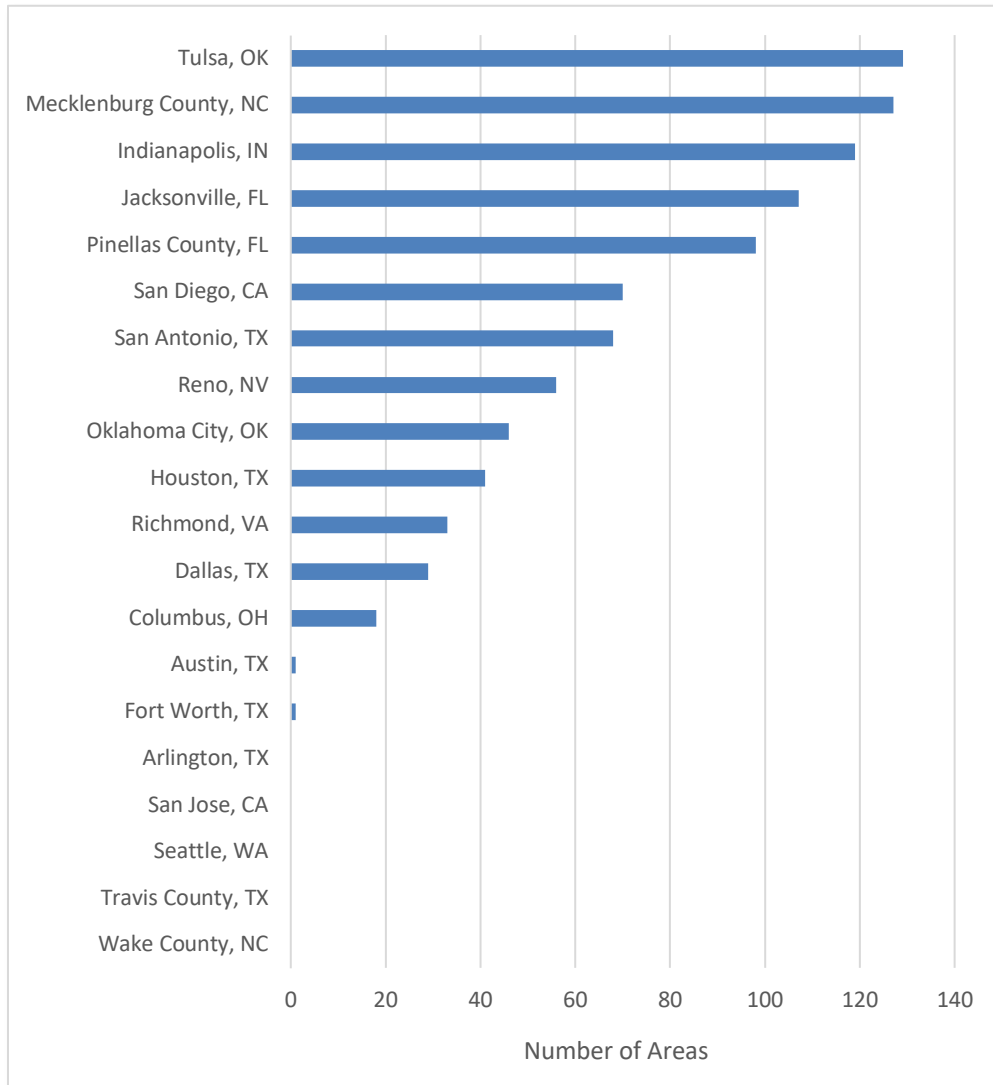


Table 22: Health Professional Shortage Area – Primary Care

Rank	Location	Number of Areas ¹
1	Tulsa, OK	129
2	Mecklenburg County, NC	127
3	Indianapolis, IN	119
4	Jacksonville, FL	107
5	Pinellas County, FL	98
6	San Diego, CA	70
7	San Antonio, TX	68
8	Reno, NV	56
9	Oklahoma City, OK	46
10	Houston, TX	41
11	Richmond, VA	33
12	Dallas, TX	29
13	Columbus, OH	18
14 (T)	Austin, TX	1
14 (T)	Fort Worth, TX	1
16 (T)	Arlington, TX	0
16 (T)	San Jose, CA	0
16 (T)	Seattle, WA	0
16 (T)	Travis County, TX	0
16 (T)	Wake County, NC	0
Tarrant County, TX		0
State of Texas		2,080
United States of America		32,918

¹BHW HRSA 2020; area value represents the number of shortage areas, as designated by State Primary Care Offices, and as approved by BHW HRSA

Figure 27: Health Professional Shortage Area – Mental Health

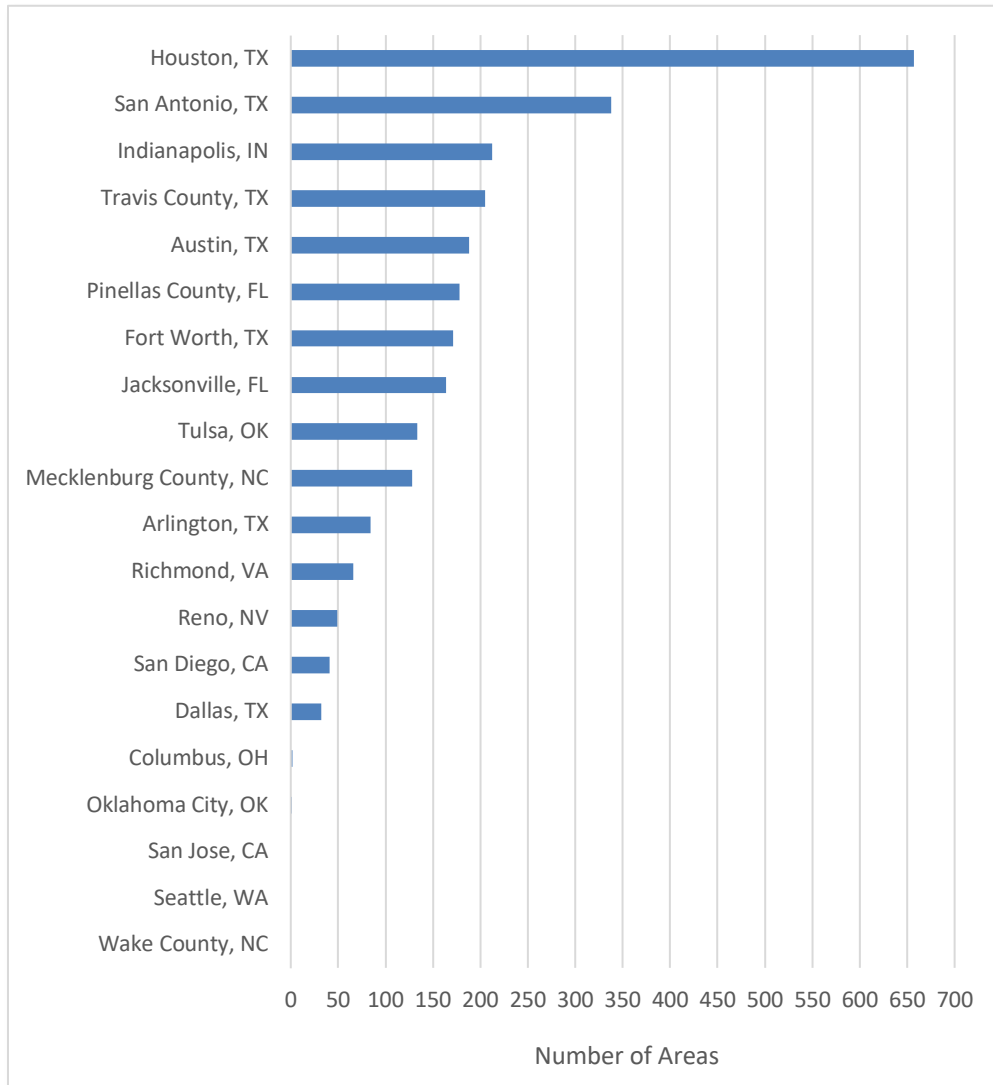


Table 23: Health Professional Shortage Area – Mental Health

Rank	Location	Number of Areas ¹
1	Houston, TX	657
2	San Antonio, TX	338
3	Indianapolis, IN	212
4	Travis County, TX	205
5	Austin, TX	188
6	Pinellas County, FL	178
7	Fort Worth, TX	171
8	Jacksonville, FL	164
9	Tulsa, OK	133
10	Mecklenburg County, NC	128
11	Arlington, TX	84
12	Richmond, VA	66
13	Reno, NV	49
14	San Diego, CA	41
15	Dallas, TX	32
16	Columbus, OH	2
17	Oklahoma City, OK	1
18 (T)	San Jose, CA	0
18 (T)	Seattle, WA	0
18 (T)	Wake County, NC	0
Tarrant County, TX		348
State of Texas		3,872
United States of America		38,915

¹BHW HRSA 2020; area value represents the number of shortage areas, as designated by State Primary Care Offices, and as approved by BHW HRSA

Figure 28: Percent of Population Reporting Annual Check-Up

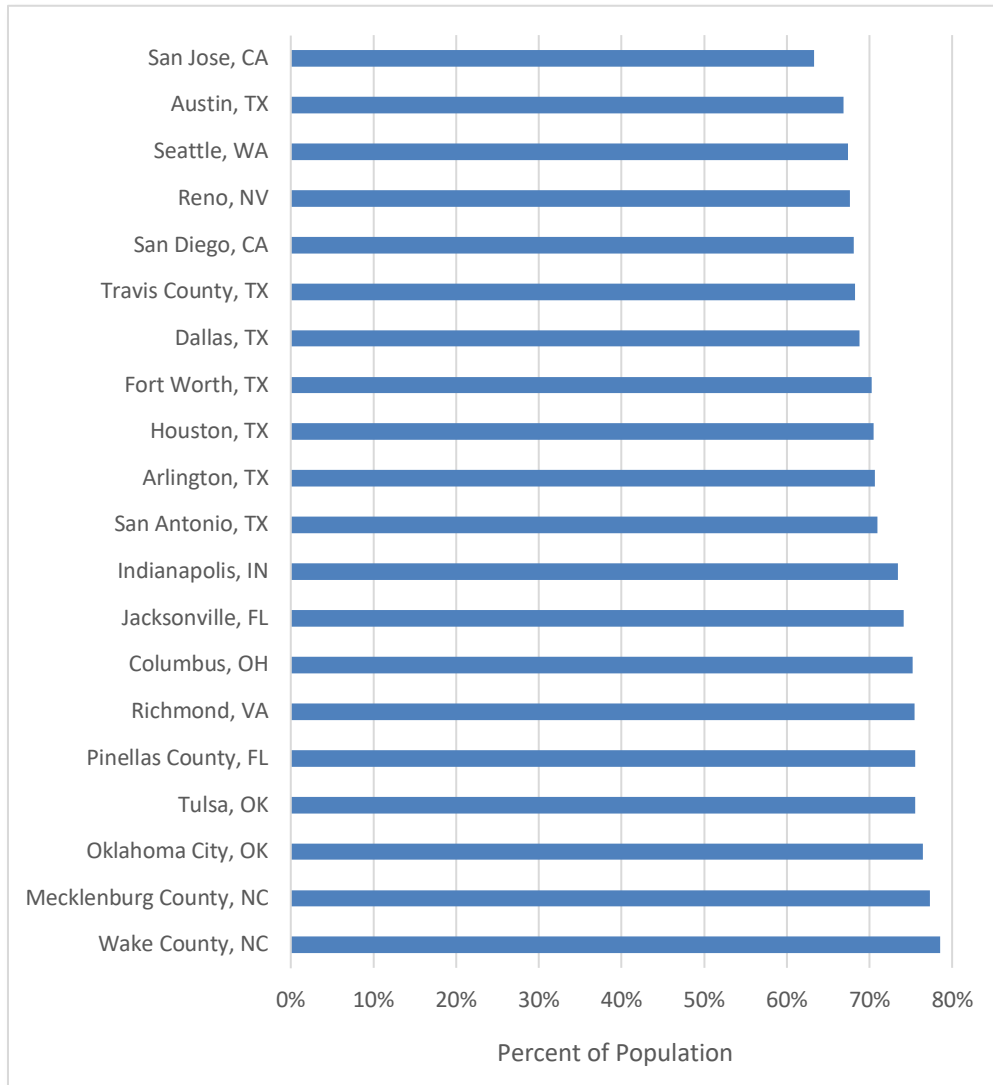


Table 24: Percent of Population Reporting Annual Check-Up

Rank	Location	Percent of Population ¹
1	San Jose, CA	63.3
2	Austin, TX	66.8
3	Seattle, WA	67.4
4	Reno, NV	67.6
5	San Diego, CA	68.1
6	Travis County, TX	68.2
7	Dallas, TX	68.8
8	Fort Worth, TX	70.2
9	Houston, TX	70.5
10	Arlington, TX	70.6
11	San Antonio, TX	70.9
12	Indianapolis, IN	73.4
13	Jacksonville, FL	74.1
14	Columbus, OH	75.2
15	Richmond, VA	75.4
16 (T)	Pinellas County, FL	75.5
16 (T)	Tulsa, OK	75.5
18	Oklahoma City, OK	76.4
19	Mecklenburg County, NC	77.3
20	Wake County, NC	78.5
Tarrant County, TX		71.8
State of Texas		70.0
United States of America		74.7

¹CDC BRFSS 2021; values represent percent of population of adults aged 18 years and older who reported visiting a doctor for a routine check-up (i.e., general physical exam) in the previous year

Economic Stability

Figure 29: Median Household Income

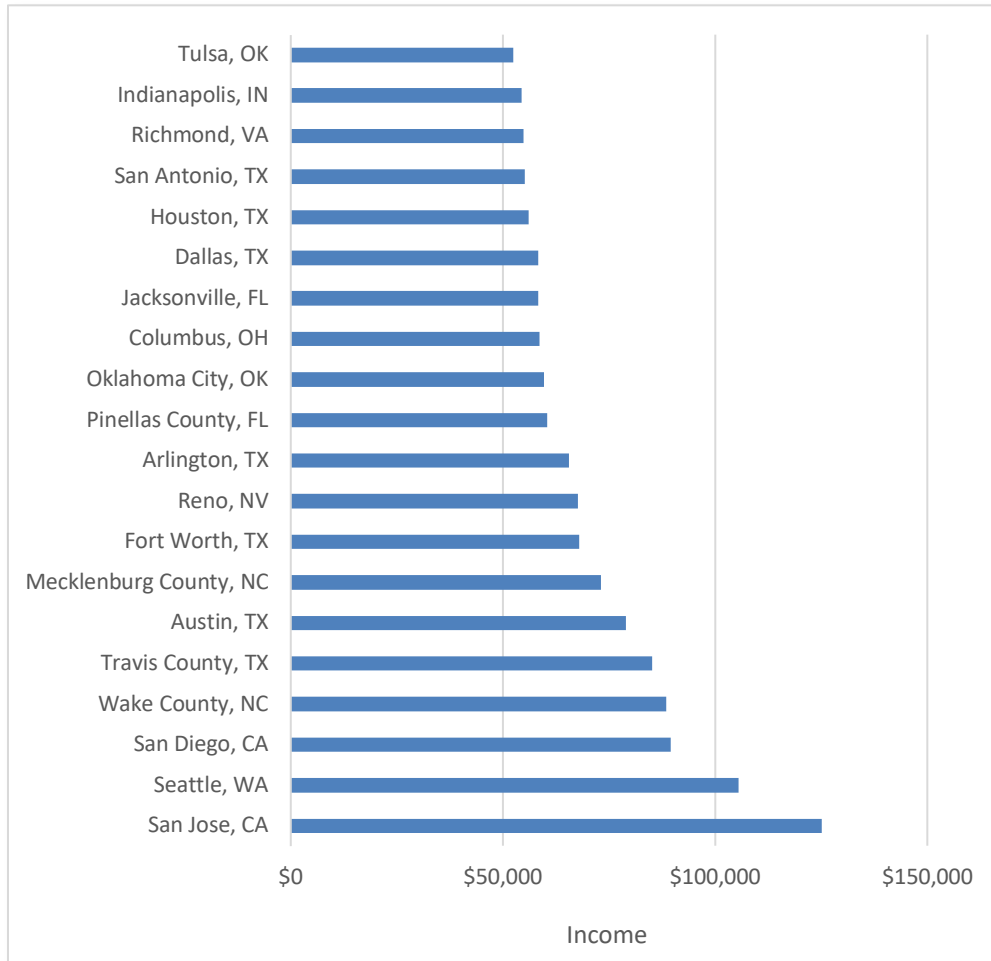


Table 25: Median Household Income

Rank	Location	Income ¹
1	Tulsa, OK	\$52,438
2	Indianapolis, IN	\$54,321
3	Richmond, VA	\$54,795
4	San Antonio, TX	\$55,084
5	Houston, TX	\$56,019
6	Dallas, TX	\$58,231
7	Jacksonville, FL	\$58,263
8	Columbus, OH	\$58,575
9	Oklahoma City, OK	\$59,679
10	Pinellas County, FL	\$60,451
11	Arlington, TX	\$65,481
12	Reno, NV	\$67,557
13	Fort Worth, TX	\$67,927
14	Mecklenburg County, NC	\$73,124
15	Austin, TX	\$78,965
16	Travis County, TX	\$85,043
17	Wake County, NC	\$88,471
18	San Diego, CA	\$89,457
19	Seattle, WA	\$105,391
20	San Jose, CA	\$125,075
Tarrant County, TX		\$73,545
State of Texas		\$67,321
United States of America		\$69,021

¹US Census Bureau ACS 2017-2021

Figure 30: Per Capita Income

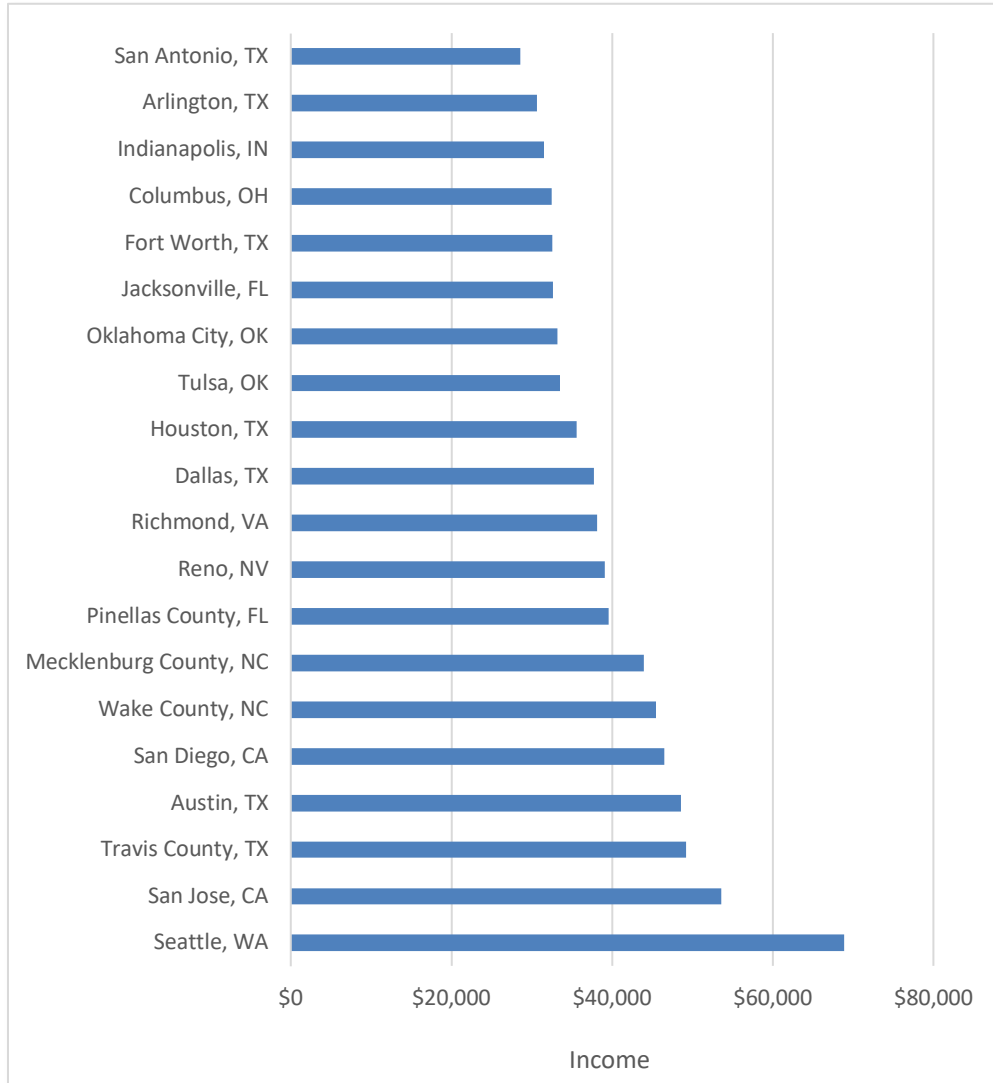


Table 26: Per Capita Income

Rank	Location	Income ¹
1	San Antonio, TX	\$28,579
2	Arlington, TX	\$30,659
3	Indianapolis, IN	\$31,538
4	Columbus, OH	\$32,481
5	Fort Worth, TX	\$32,569
6	Jacksonville, FL	\$32,654
7	Oklahoma City, OK	\$33,162
8	Tulsa, OK	\$33,492
9	Houston, TX	\$35,578
10	Dallas, TX	\$37,719
11	Richmond, VA	\$38,132
12	Reno, NV	\$39,104
13	Pinellas County, FL	\$39,539
14	Mecklenburg County, NC	\$43,919
15	Wake County, NC	\$45,425
16	San Diego, CA	\$46,460
17	Austin, TX	\$48,550
18	Travis County, TX	\$49,191
19	San Jose, CA	\$53,574
20	Seattle, WA	\$68,836
Tarrant County, TX		\$36,170
State of Texas		\$34,255
United States of America		\$37,638

¹US Census Bureau ACS 2017-2021

Figure 31: Income Inequality (Gini Index)

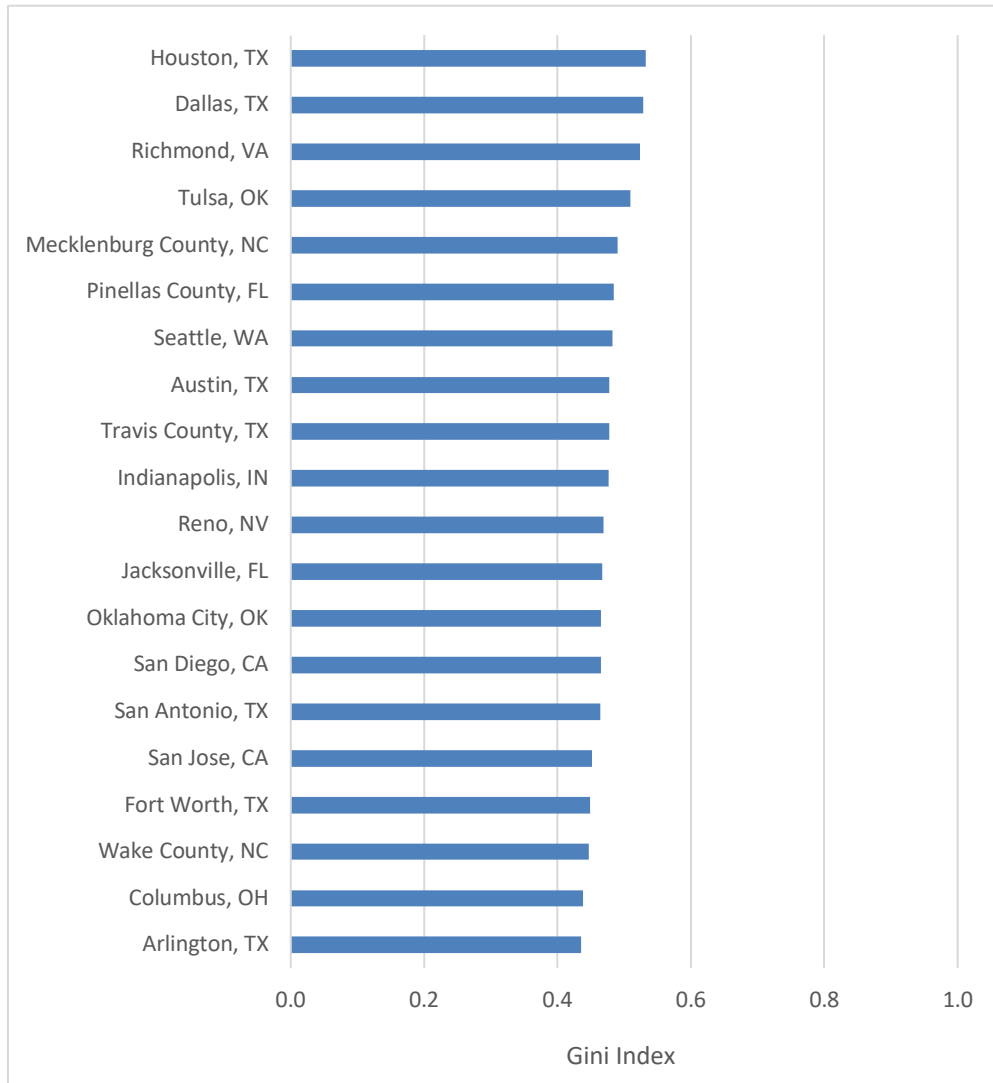


Table 27: Income Inequality (Gini Index)

Rank	Location	Gini Index ¹
1	Houston, TX	0.532
2	Dallas, TX	0.528
3	Richmond, VA	0.524
4	Tulsa, OK	0.509
5	Mecklenburg County, NC	0.490
6	Pinellas County, FL	0.485
7	Seattle, WA	0.482
8	Austin, TX	0.478
9	Travis County, TX	0.477
10	Indianapolis, IN	0.477
11	Reno, NV	0.468
12	Jacksonville, FL	0.467
13	Oklahoma City, OK	0.465
14	San Diego, CA	0.465
15	San Antonio, TX	0.464
16	San Jose, CA	0.452
17	Fort Worth, TX	0.448
18	Wake County, NC	0.447
19	Columbus, OH	0.438
20	Arlington, TX	0.435
Tarrant County, TX		0.454
State of Texas		0.475
United States of America		0.482

¹US Census Bureau ACS 2017-2021; ranges from 0 (perfect equality; all households have equal share of income) to 1 (perfect inequality; one household has all income and all other households have none)

Figure 32: Percent of Population Below Poverty Level

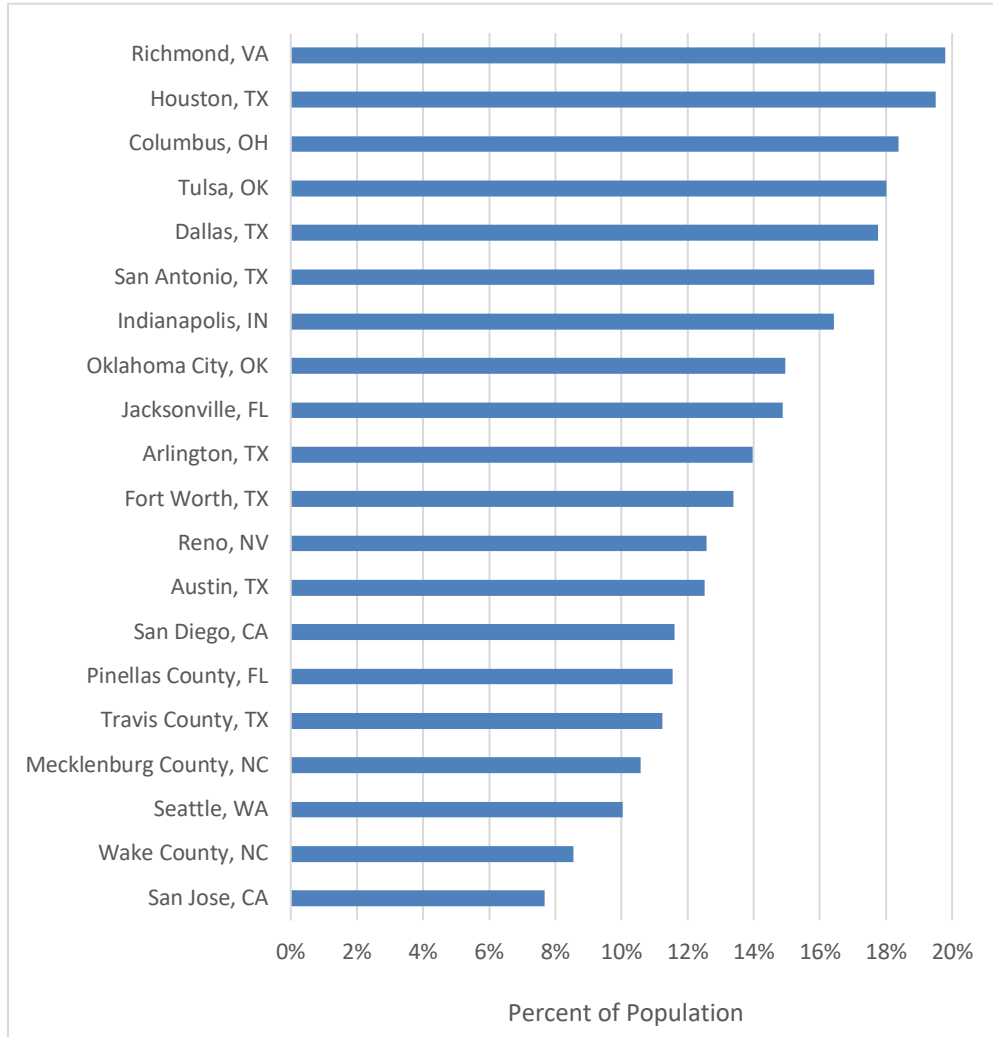


Table 28: Percent of Population Below Poverty Level

Rank	Location	Percent of Population ¹
1	Richmond, VA	19.8
2	Houston, TX	19.5
3	Columbus, OH	18.4
4	Tulsa, OK	18.0
5	Dallas, TX	17.7
6	San Antonio, TX	17.6
7	Indianapolis, IN	16.4
8	Oklahoma City, OK	14.9
9	Jacksonville, FL	14.9
10	Arlington, TX	14.0
11	Fort Worth, TX	13.4
12	Reno, NV	12.6
13	Austin, TX	12.5
14	San Diego, CA	11.6
15	Pinellas County, FL	11.5
16	Travis County, TX	11.2
17	Mecklenburg County, NC	10.6
18	Seattle, WA	10.0
19	Wake County, NC	8.5
20	San Jose, CA	7.7
Tarrant County, TX		11.3
State of Texas		14.0
United States of America		12.6

¹US Census Bureau ACS 2017-2021; values represent number of people with income in the past 12 months below poverty level divided by number of people with poverty status determined, expressed as percentages

Figure 33: Unemployment Rate

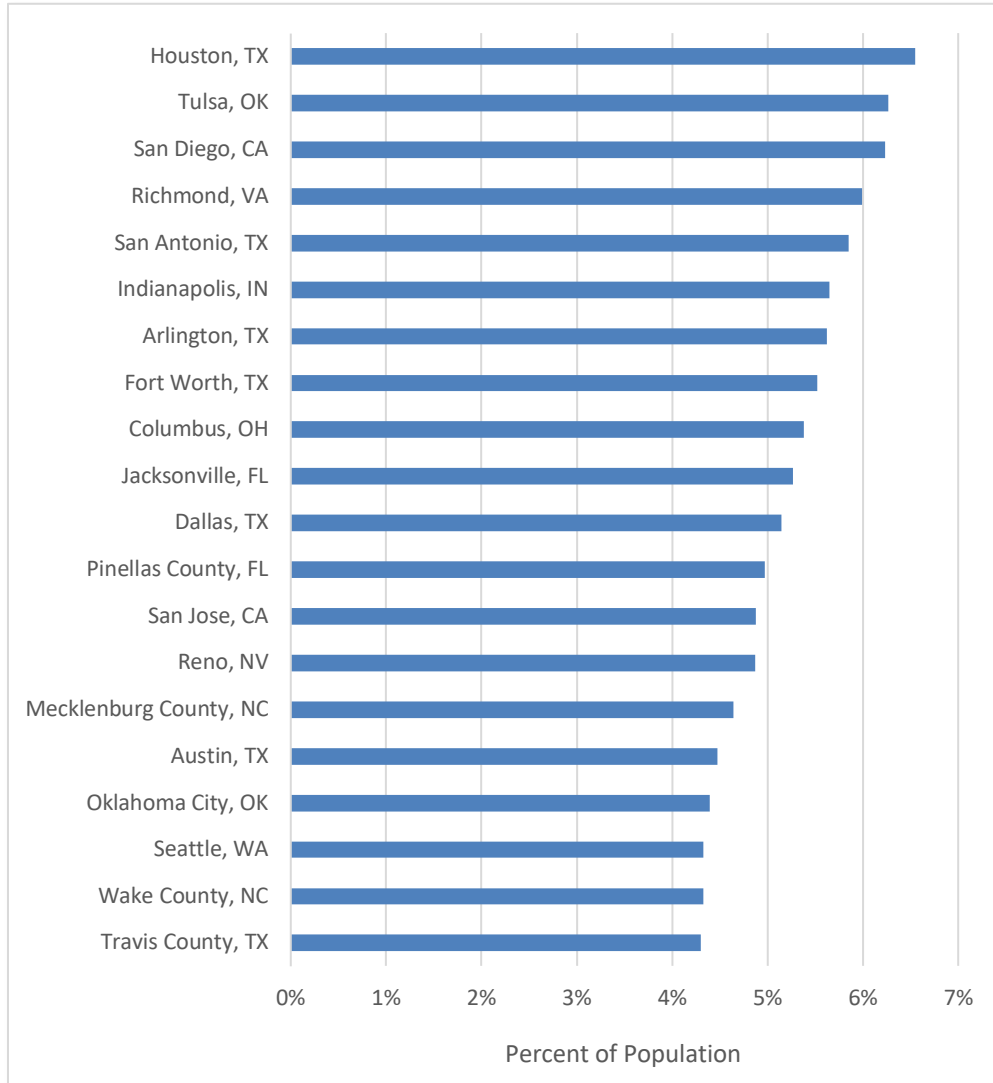


Table 29: Unemployment Rate

Rank	Location	Percent of Population ¹
1	Houston, TX	6.5
2	Tulsa, OK	6.3
3	San Diego, CA	6.2
4	Richmond, VA	6.0
5	San Antonio, TX	5.9
6	Indianapolis, IN	5.6
7	Arlington, TX	5.6
8	Fort Worth, TX	5.5
9	Columbus, OH	5.4
10	Jacksonville, FL	5.3
11	Dallas, TX	5.1
12	Pinellas County, FL	5.0
13	San Jose, CA	4.9
14	Reno, NV	4.9
15	Mecklenburg County, NC	4.6
16	Austin, TX	4.5
17	Oklahoma City, OK	4.4
18	Seattle, WA	4.3
19	Wake County, NC	4.3
20	Travis County, TX	4.3
Tarrant County, TX		5.1
State of Texas		5.4
United States of America		5.5

¹US Census Bureau ACS 2017-2021; values represent number of civilian unemployed population aged 16 years and older divided by the total civilian labor force aged 16 years and older, expressed as percentages

Social and Community Context

Figure 34: Isolation – Limited English-Speaking Households

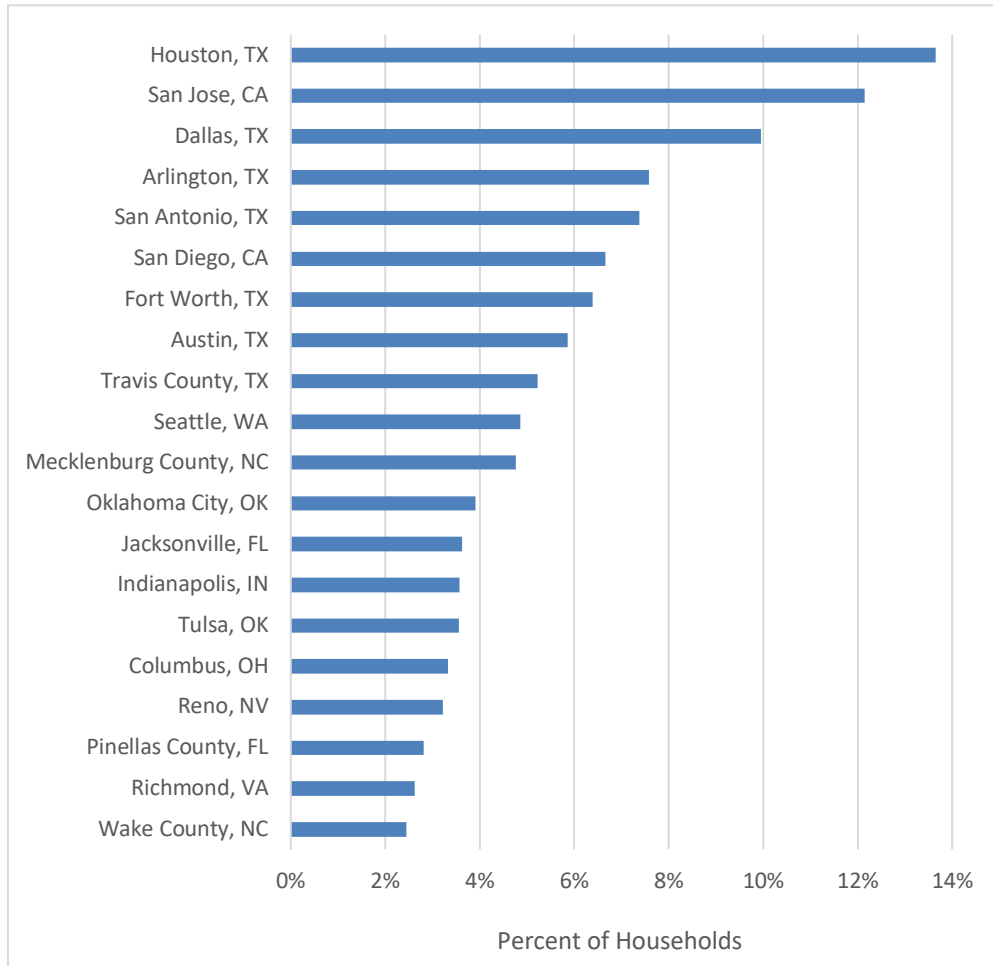


Table 30: Isolation – Limited English-Speaking Households

Rank	Location	Percent of Households ¹
1	Houston, TX	13.6
2	San Jose, CA	12.1
3	Dallas, TX	10.0
4	Arlington, TX	7.6
5	San Antonio, TX	7.4
6	San Diego, CA	6.7
7	Fort Worth, TX	6.4
8	Austin, TX	5.9
9	Travis County, TX	5.2
10	Seattle, WA	4.9
11	Mecklenburg County, NC	4.8
12	Oklahoma City, OK	3.9
13	Jacksonville, FL	3.6
14	Indianapolis, IN	3.6
15	Tulsa, OK	3.6
16	Columbus, OH	3.3
17	Reno, NV	3.2
18	Pinellas County, FL	2.8
19	Richmond, VA	2.6
20	Wake County, NC	2.4
Tarrant County, TX		5.7
State of Texas		7.1
United States of America		4.2

¹US Census Bureau ACS 2017-2021; values represent number of limited English-speaking households divided by total number of households, expressed as percentages

Figure 35: Isolation – Seniors Living Alone

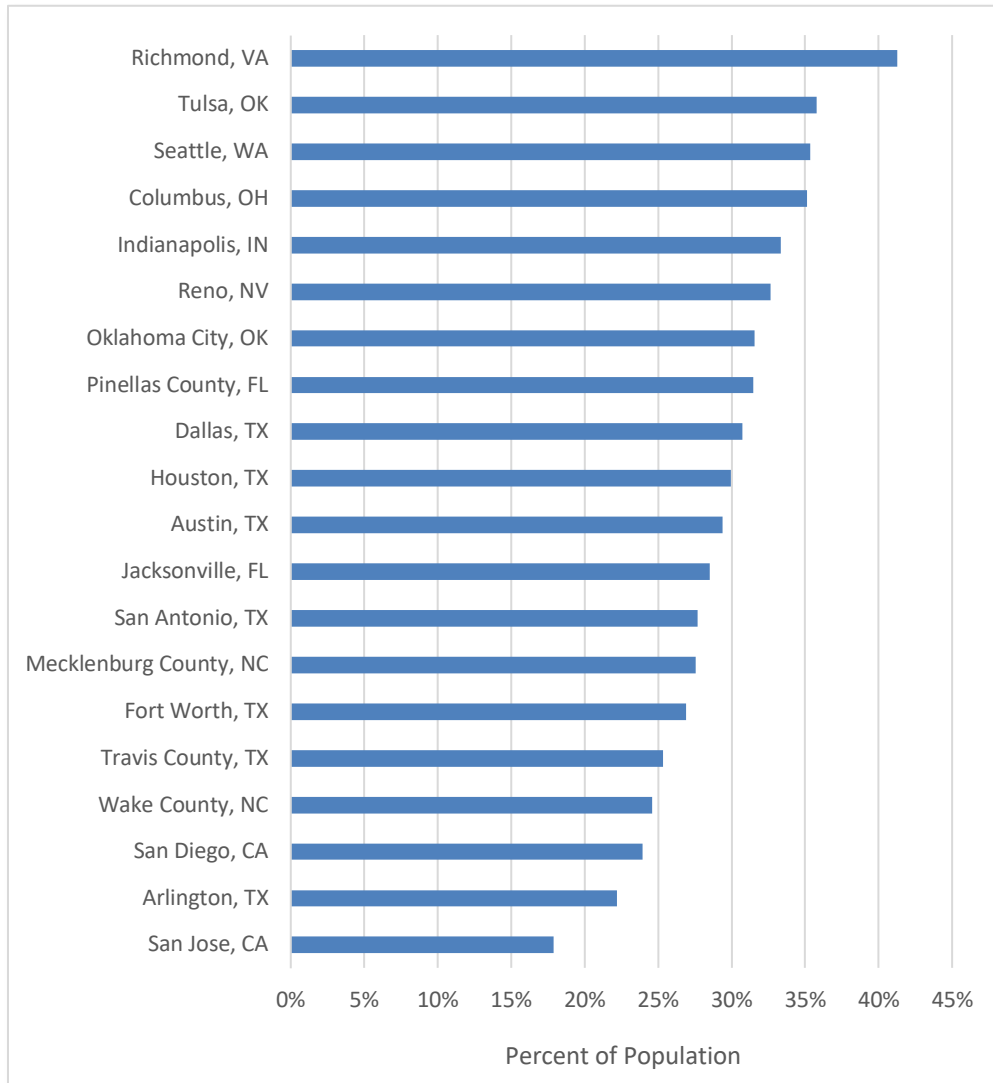


Table 31: Isolation – Seniors Living Alone

Rank	Location	Percent of Population ¹
1	Richmond, VA	41.2
2	Tulsa, OK	35.8
3	Seattle, WA	35.3
4	Columbus, OH	35.1
5	Indianapolis, IN	33.3
6	Reno, NV	32.6
7	Oklahoma City, OK	31.5
8	Pinellas County, FL	31.4
9	Dallas, TX	30.7
10	Houston, TX	29.9
11	Austin, TX	29.4
12	Jacksonville, FL	28.5
13	San Antonio, TX	27.7
14	Mecklenburg County, NC	27.6
15	Fort Worth, TX	26.9
16	Travis County, TX	25.3
17	Wake County, NC	24.6
18	San Diego, CA	23.9
19	Arlington, TX	22.2
20	San Jose, CA	17.9
Tarrant County, TX		23.9
State of Texas		24.1
United States of America		27.0

¹US Census Bureau ACS 2017-2021; values represent number of people aged 65 years and older in a household alone divided by number of people aged 65 years and older in a household, expressed as percentages

Figure 36: Commuting – Percent of Population Who Commute

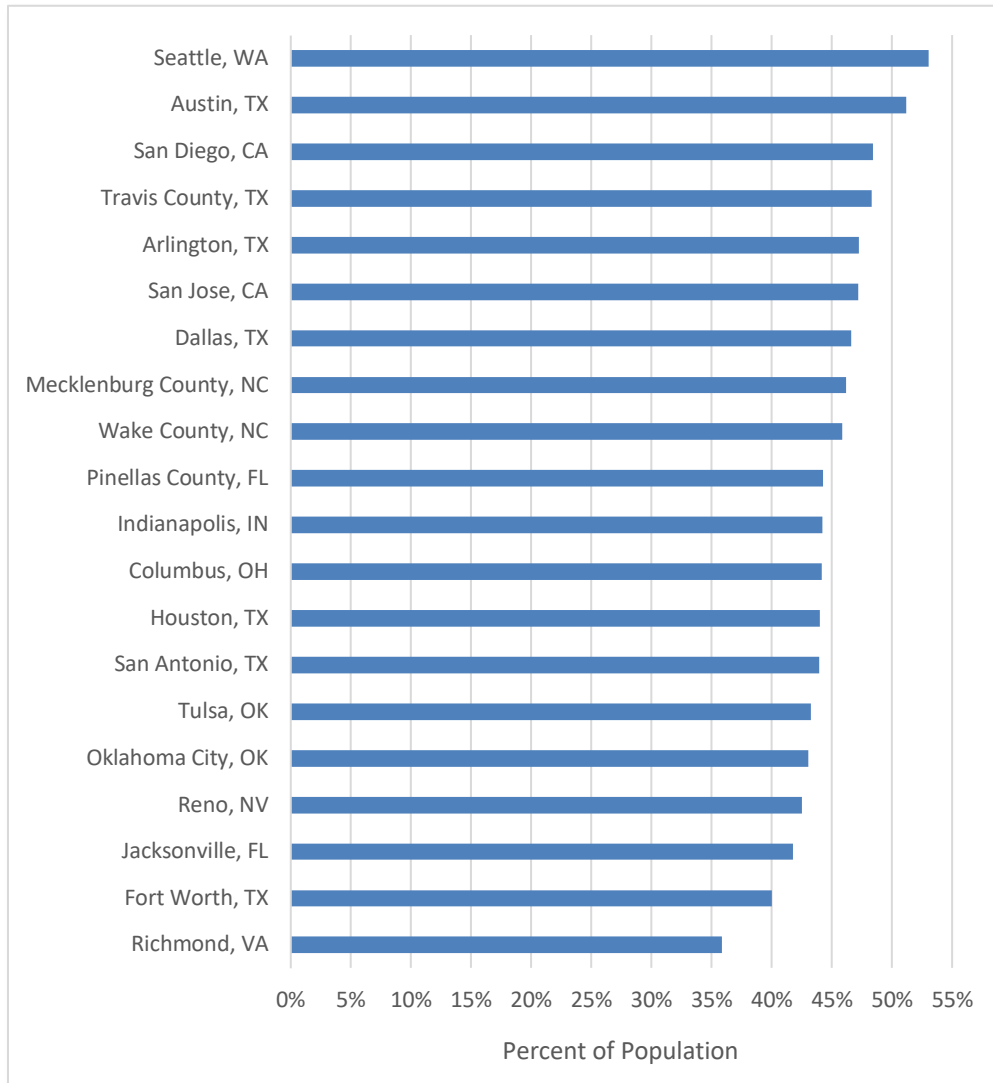


Table 32: Commuting – Percent of Population Who Commute

Rank	Location	Percent of Population ¹
1	Seattle, WA	53.0
2	Austin, TX	51.2
3	San Diego, CA	48.4
4	Travis County, TX	48.3
5	Arlington, TX	47.2
6	San Jose, CA	47.1
7	Dallas, TX	46.6
8	Mecklenburg County, NC	46.2
9	Wake County, NC	45.8
10	Pinellas County, FL	44.2
11	Indianapolis, IN	44.2
12	Columbus, OH	44.1
13	Houston, TX	44.0
14	San Antonio, TX	43.9
15	Tulsa, OK	43.2
16	Oklahoma City, OK	43.0
17	Reno, NV	42.5
18	Jacksonville, FL	41.7
19	Fort Worth, TX	40.0
20	Richmond, VA	35.9
Tarrant County, TX		44.6
State of Texas		42.3
United States of America		N/A

¹CTPP 2012-2016; values represent number of workers aged 16 years and older residing in specified location who commute to work divided by total population in specified location, expressed as percentages

Figure 37: Commuting – Mean Travel Time

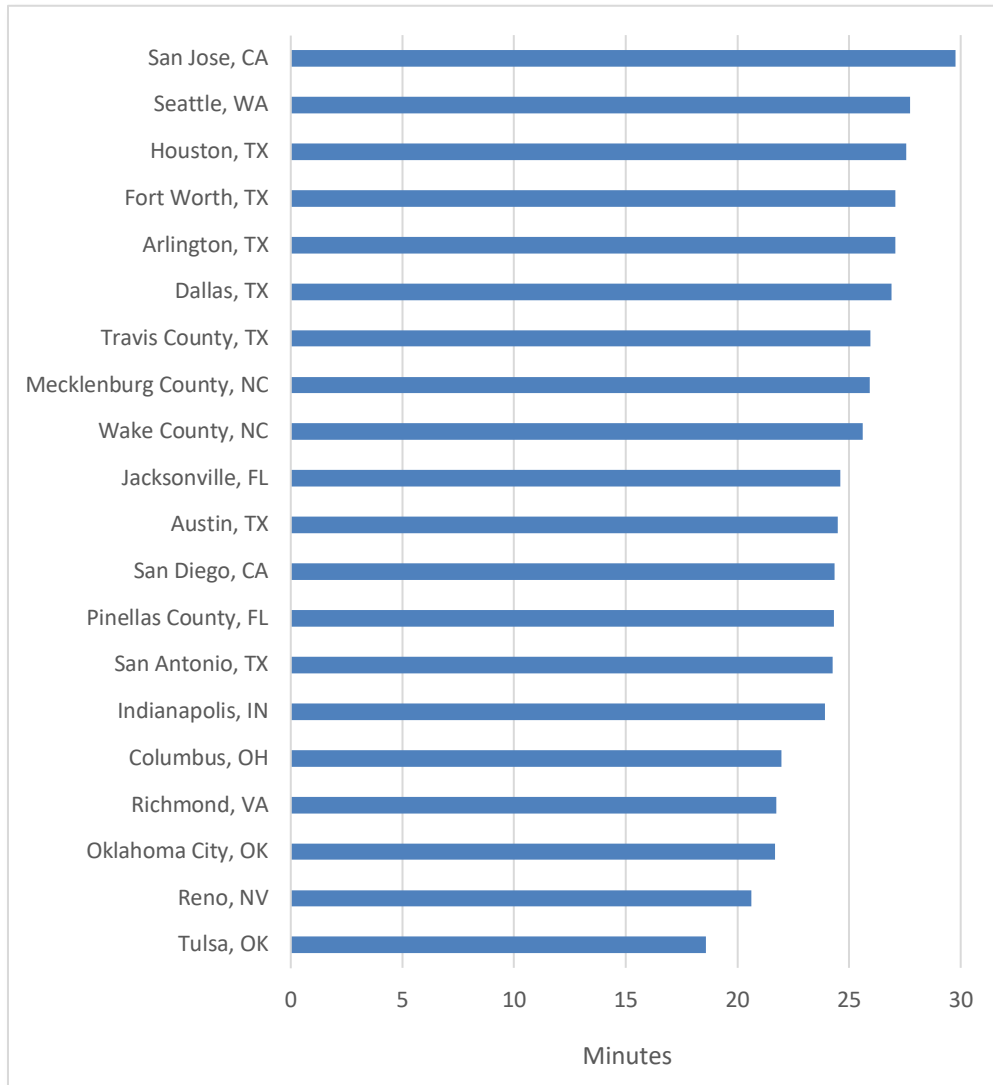


Table 33: Commuting – Mean Travel Time

Rank	Location	Minutes ¹
1	San Jose, CA	29.8
2	Seattle, WA	27.7
3	Houston, TX	27.5
4	Fort Worth, TX	27.1
5	Arlington, TX	27.0
6	Dallas, TX	26.9
7	Travis County, TX	25.9
8	Mecklenburg County, NC	25.9
9	Wake County, NC	25.6
10	Jacksonville, FL	24.6
11	Austin, TX	24.5
12	San Diego, CA	24.3
13	Pinellas County, FL	24.3
14	San Antonio, TX	24.3
15	Indianapolis, IN	23.9
16	Columbus, OH	22.0
17	Richmond, VA	21.7
18	Oklahoma City, OK	21.7
19	Reno, NV	20.6
20	Tulsa, OK	18.6
Tarrant County, TX		26.9
State of Texas		26.6
United States of America		26.8

¹US Census Bureau ACS 2017-2021

Figure 38: Commuting – Percent of Commuters with Long Commute (≥ 30 Minutes)

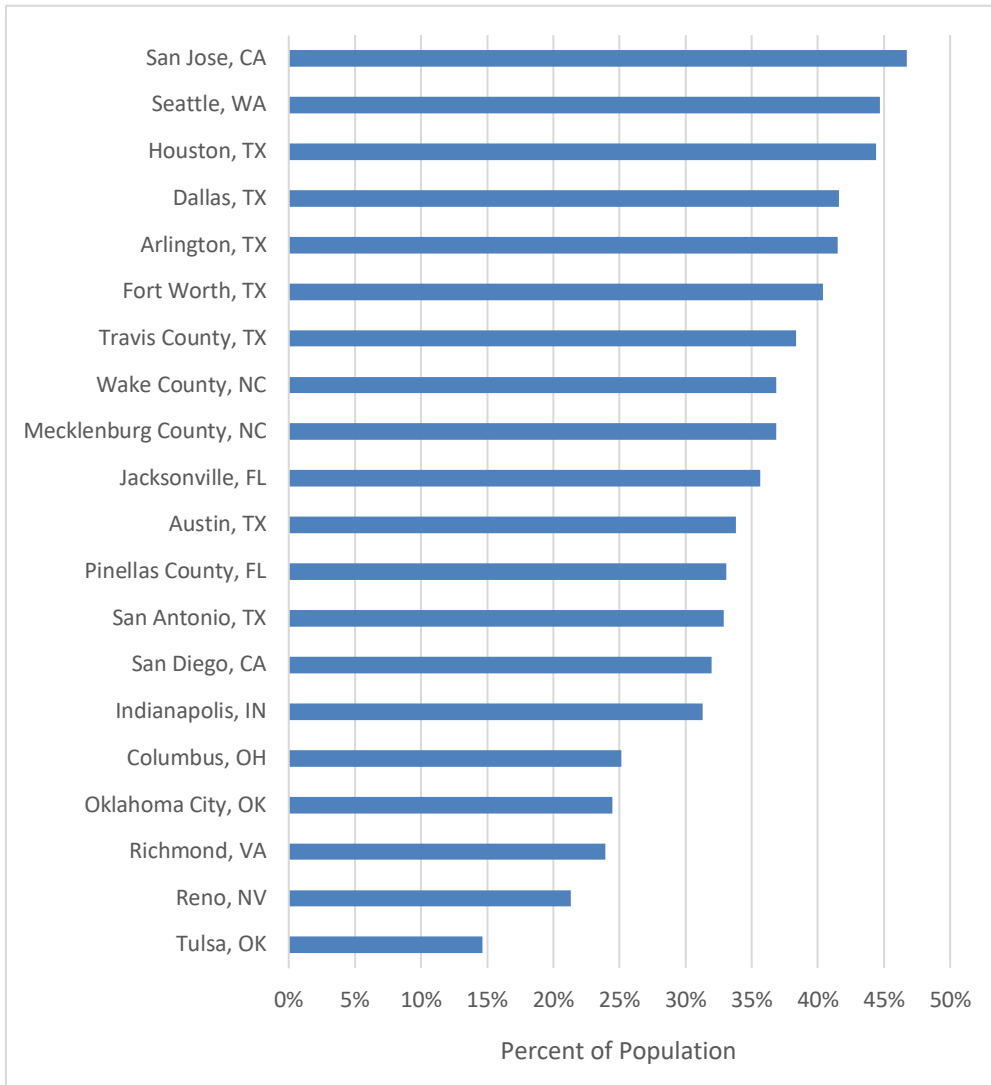


Table 34: Commuting – Percent of Commuters with Long Commute

Rank	Location	Percent of Population ¹
1	San Jose, CA	46.7
2	Seattle, WA	44.7
3	Houston, TX	44.4
4	Dallas, TX	41.6
5	Arlington, TX	41.5
6	Fort Worth, TX	40.4
7	Travis County, TX	38.3
8	Wake County, NC	36.8
9	Mecklenburg County, NC	36.8
10	Jacksonville, FL	35.6
11	Austin, TX	33.8
12	Pinellas County, FL	33.1
13	San Antonio, TX	32.9
14	San Diego, CA	32.0
15	Indianapolis, IN	31.3
16	Columbus, OH	25.1
17	Oklahoma City, OK	24.4
18	Richmond, VA	23.9
19	Reno, NV	21.3
20	Tulsa, OK	14.6
Tarrant County, TX		41.3
State of Texas		39.0
United States of America		38.1

¹US Census Bureau ACS 2017-2021; values represent number of workers aged 16 years and older with commute time ≥ 30 minutes divided by number of commuters aged 16 years and older, expressed as percentages

COMMUNITY HEALTH ASSESSMENT

Health Outcomes

Figure 39: Health Among Adults – Asthma

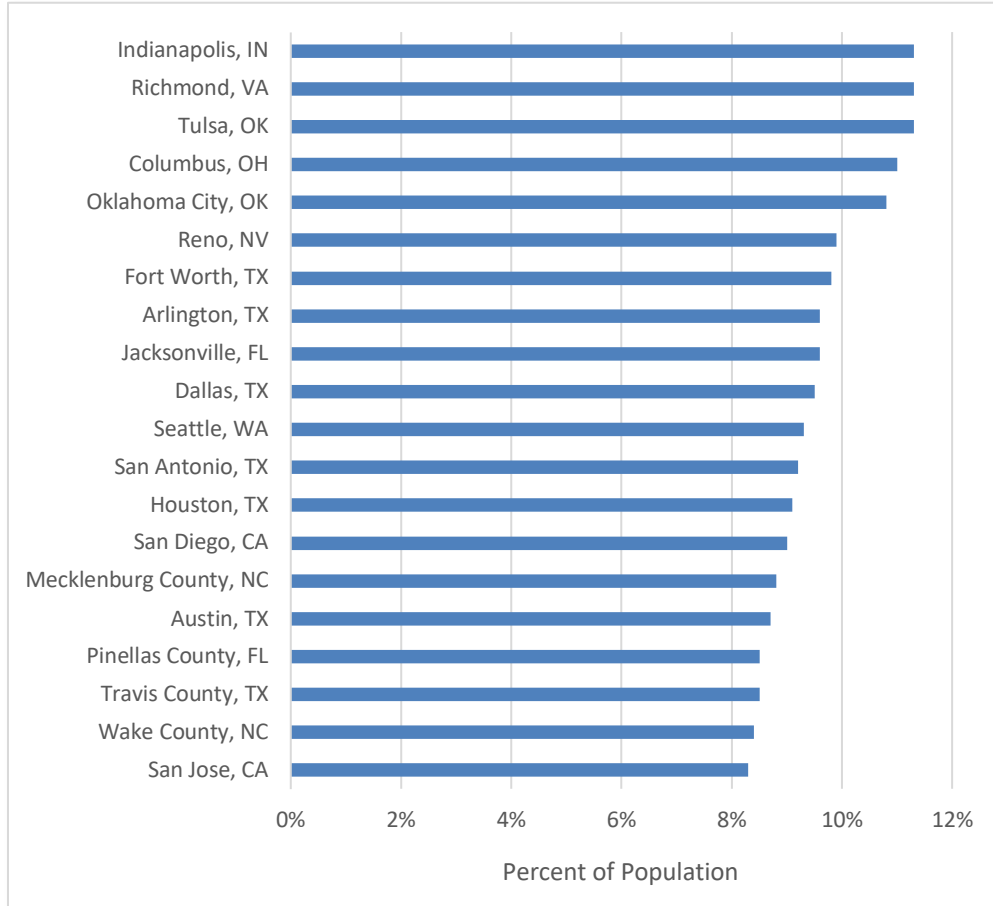


Table 35: Health Among Adults – Asthma

Rank	Location	Percent of Population ¹
1 (T)	Indianapolis, IN	11.3
1 (T)	Richmond, VA	11.3
1 (T)	Tulsa, OK	11.3
4	Columbus, OH	11.0
5	Oklahoma City, OK	10.8
6	Reno, NV	9.9
7	Fort Worth, TX	9.8
8 (T)	Arlington, TX	9.6
8 (T)	Jacksonville, FL	9.6
10	Dallas, TX	9.5
11	Seattle, WA	9.3
12	San Antonio, TX	9.2
13	Houston, TX	9.1
14	San Diego, CA	9.0
15	Mecklenburg County, NC	8.8
16	Austin, TX	8.7
17 (T)	Pinellas County, FL	8.5
17 (T)	Travis County, TX	8.5
19	Wake County, NC	8.4
20	San Jose, CA	8.3
Tarrant County, TX		9.6
State of Texas		9.1
United States of America		9.2

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have asthma and still currently have asthma

Figure 40: Health Among Adults – Chronic Kidney Disease

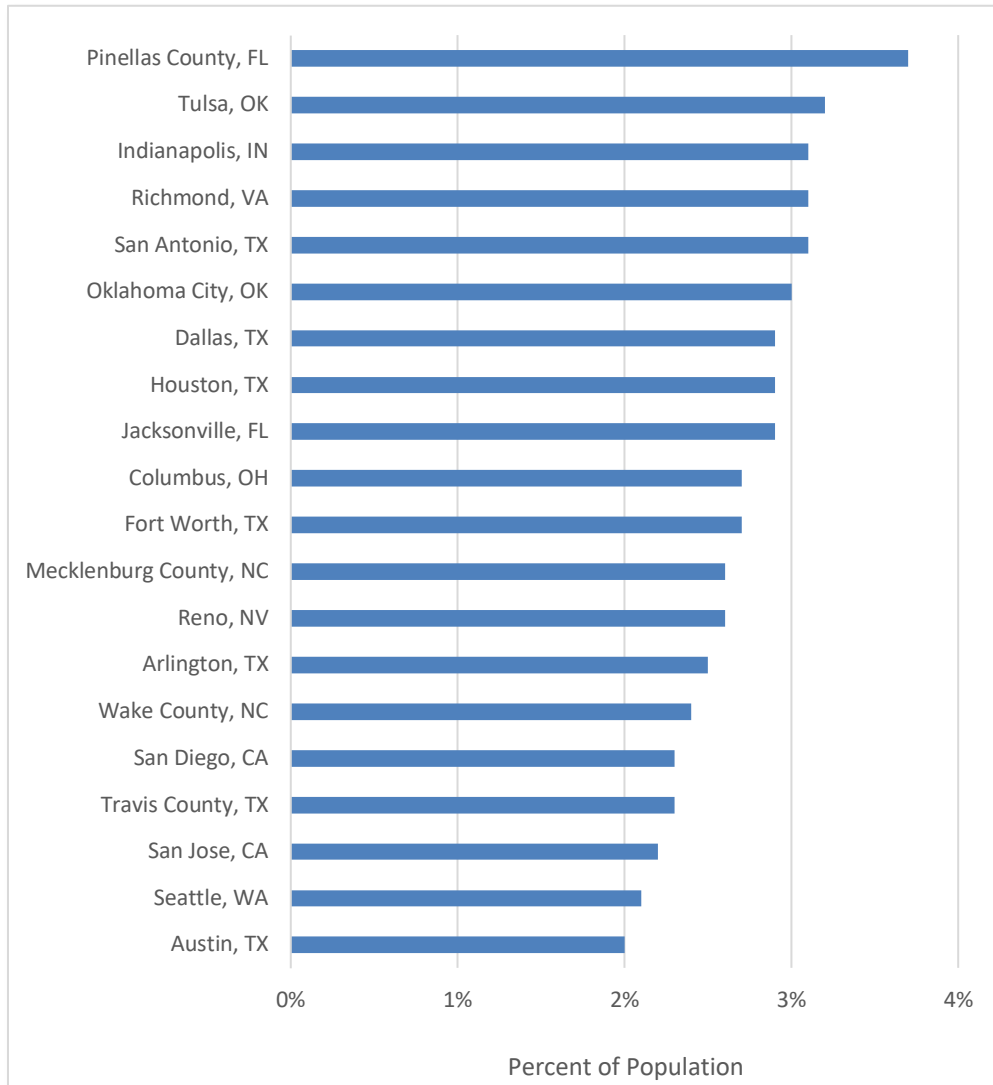


Table 36: Health Among Adults – Chronic Kidney Disease

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	3.7
2	Tulsa, OK	3.2
3 (T)	Indianapolis, IN	3.1
3 (T)	Richmond, VA	3.1
3 (T)	San Antonio, TX	3.1
6	Oklahoma City, OK	3.0
7 (T)	Dallas, TX	2.9
7 (T)	Houston, TX	2.9
7 (T)	Jacksonville, FL	2.9
10 (T)	Columbus, OH	2.7
10 (T)	Fort Worth, TX	2.7
12 (T)	Mecklenburg County, NC	2.6
12 (T)	Reno, NV	2.6
14	Arlington, TX	2.5
15	Wake County, NC	2.4
16 (T)	San Diego, CA	2.3
16 (T)	Travis County, TX	2.3
18	San Jose, CA	2.2
19	Seattle, WA	2.1
20	Austin, TX	2.0
Tarrant County, TX		2.8
State of Texas		2.8
United States of America		3.0

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have the condition noted

Figure 41: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis

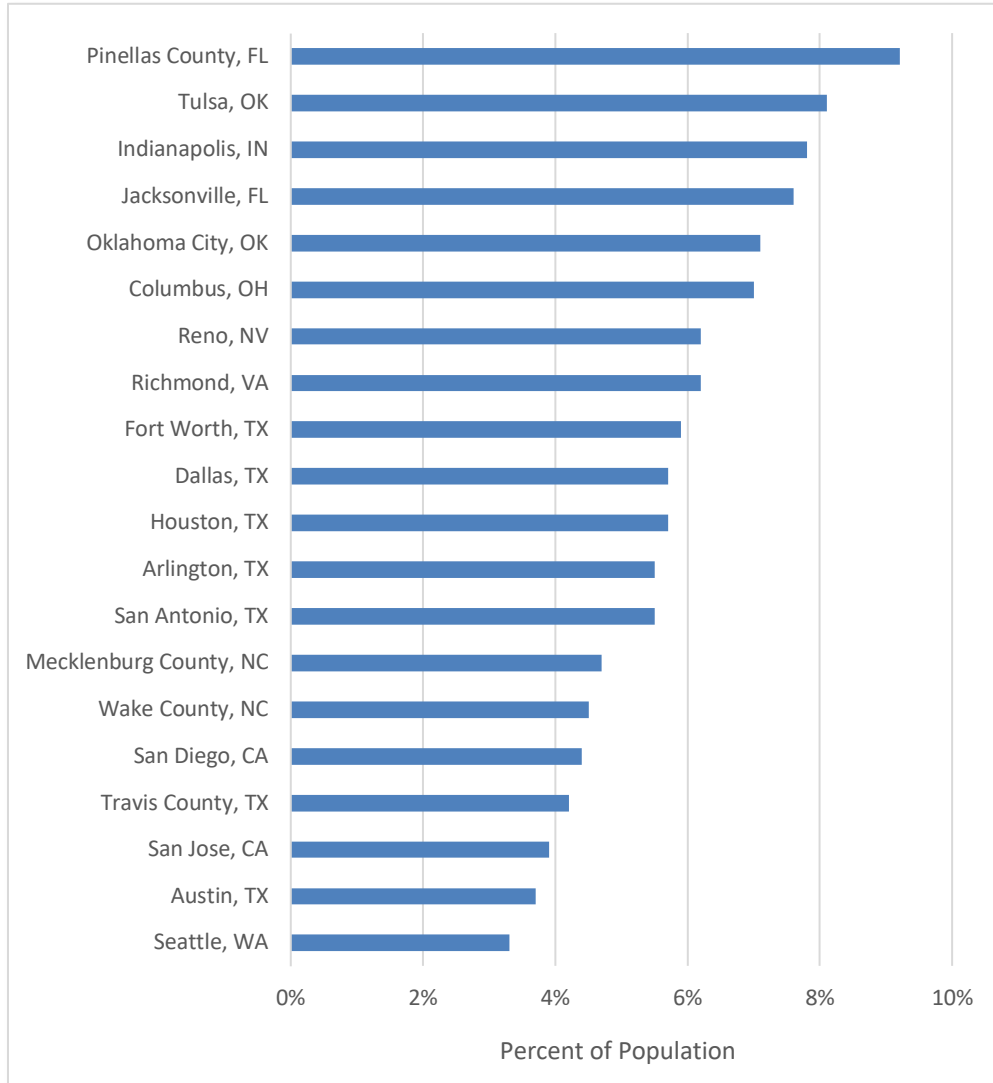


Table 37: Health Among Adults – COPD, Emphysema, or Chronic Bronchitis

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	9.2
2	Tulsa, OK	8.1
3	Indianapolis, IN	7.8
4	Jacksonville, FL	7.6
5	Oklahoma City, OK	7.1
6	Columbus, OH	7.0
7 (T)	Reno, NV	6.2
7 (T)	Richmond, VA	6.2
9	Fort Worth, TX	5.9
10 (T)	Dallas, TX	5.7
10 (T)	Houston, TX	5.7
12 (T)	Arlington, TX	5.5
12 (T)	San Antonio, TX	5.5
14	Mecklenburg County, NC	4.7
15	Wake County, NC	4.5
16	San Diego, CA	4.4
17	Travis County, TX	4.2
18	San Jose, CA	3.9
19	Austin, TX	3.7
20	Seattle, WA	3.3
Tarrant County, TX		5.8
State of Texas		5.8
United States of America		6.4

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have any of the conditions noted

Figure 42: Health Among Adults – Coronary Heart Disease or Angina

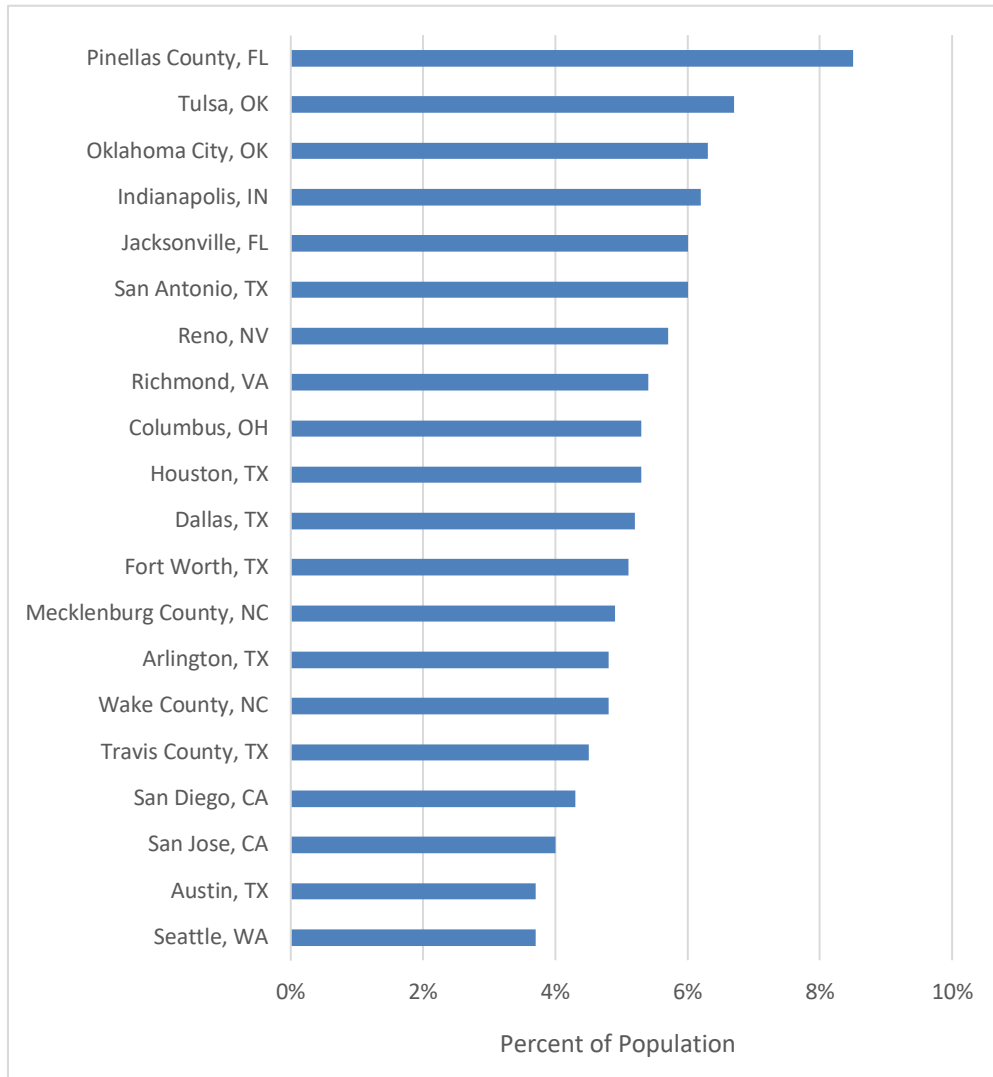


Table 38: Health Among Adults – Coronary Heart Disease or Angina

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	8.5
2	Tulsa, OK	6.7
3	Oklahoma City, OK	6.3
4	Indianapolis, IN	6.2
5 (T)	Jacksonville, FL	6.0
5 (T)	San Antonio, TX	6.0
7	Reno, NV	5.7
8	Richmond, VA	5.4
9 (T)	Columbus, OH	5.3
9 (T)	Houston, TX	5.3
11	Dallas, TX	5.2
12	Fort Worth, TX	5.1
13	Mecklenburg County, NC	4.9
14 (T)	Arlington, TX	4.8
14 (T)	Wake County, NC	4.8
16	Travis County, TX	4.5
17	San Diego, CA	4.3
18	San Jose, CA	4.0
19 (T)	Austin, TX	3.7
19 (T)	Seattle, WA	3.7
Tarrant County, TX		5.6
State of Texas		5.5
United States of America		6.4

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have either of the conditions noted

Figure 43: Health Among Adults – Diabetes

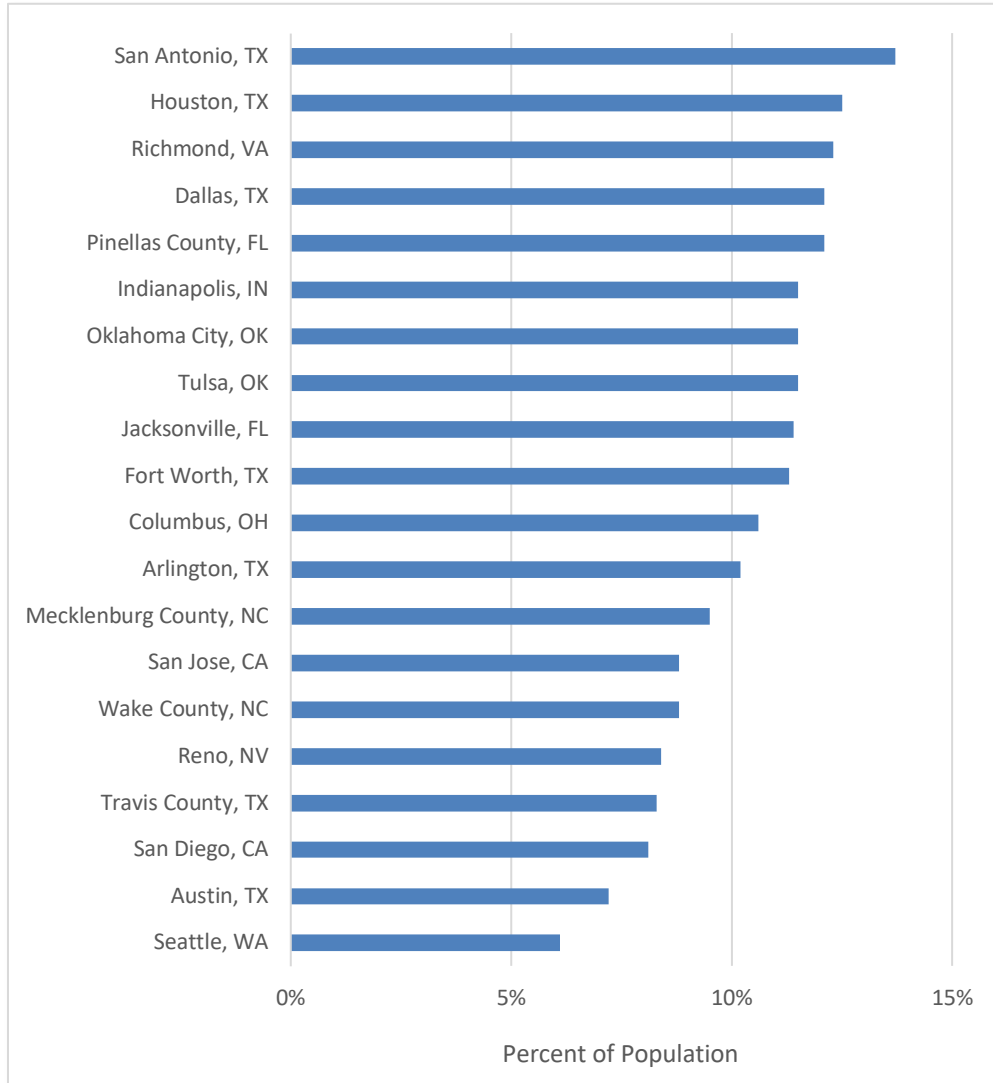


Table 39: Health Among Adults – Diabetes

Rank	Location	Percent of Population ¹
1	San Antonio, TX	13.7
2	Houston, TX	12.5
3	Richmond, VA	12.3
4 (T)	Dallas, TX	12.1
4 (T)	Pinellas County, FL	12.1
6 (T)	Indianapolis, IN	11.5
6 (T)	Oklahoma City, OK	11.5
6 (T)	Tulsa, OK	11.5
9	Jacksonville, FL	11.4
10	Fort Worth, TX	11.3
11	Columbus, OH	10.6
12	Arlington, TX	10.2
13	Mecklenburg County, NC	9.5
14 (T)	San Jose, CA	8.8
14 (T)	Wake County, NC	8.8
16	Reno, NV	8.4
17	Travis County, TX	8.3
18	San Diego, CA	8.1
19	Austin, TX	7.2
20	Seattle, WA	6.1
Tarrant County, TX		11.4
State of Texas		11.5
United States of America		11.1

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have the condition noted (not to include during pregnancy)

Figure 44: Health Among Adults – High Blood Pressure

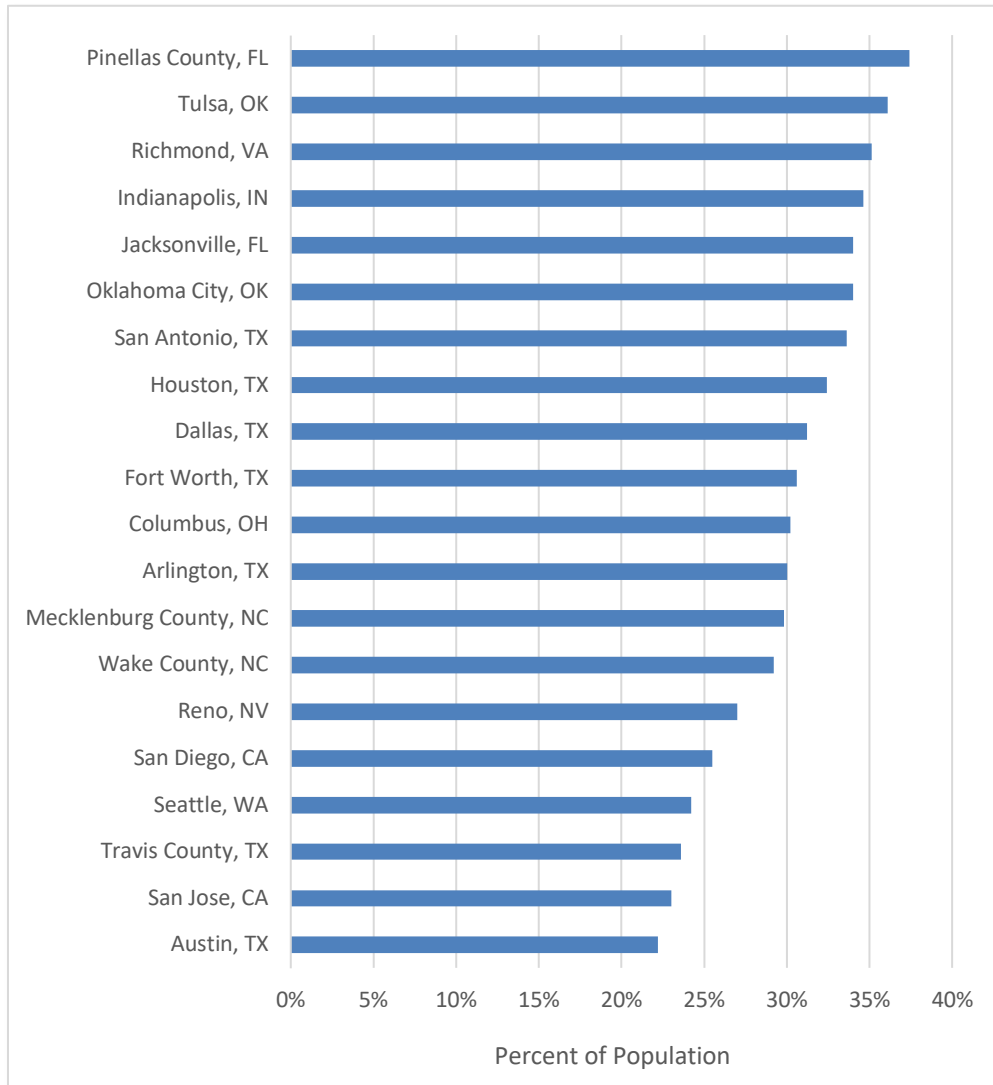


Table 40: Health Among Adults – High Blood Pressure

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	37.4
2	Tulsa, OK	36.1
3	Richmond, VA	35.1
4	Indianapolis, IN	34.6
5 (T)	Jacksonville, FL	34.0
5 (T)	Oklahoma City, OK	34.0
7	San Antonio, TX	33.6
8	Houston, TX	32.4
9	Dallas, TX	31.2
10	Fort Worth, TX	30.6
11	Columbus, OH	30.2
12	Arlington, TX	30.0
13	Mecklenburg County, NC	29.8
14	Wake County, NC	29.2
15	Reno, NV	27.0
16	San Diego, CA	25.5
17	Seattle, WA	24.2
18	Travis County, TX	23.6
19	San Jose, CA	23.0
20	Austin, TX	22.2
Tarrant County, TX		30.3
State of Texas		32.2
United States of America		32.6

¹CDC BRFSS 2019; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have the condition noted

Figure 45: Health Among Adults – Poor Mental Health

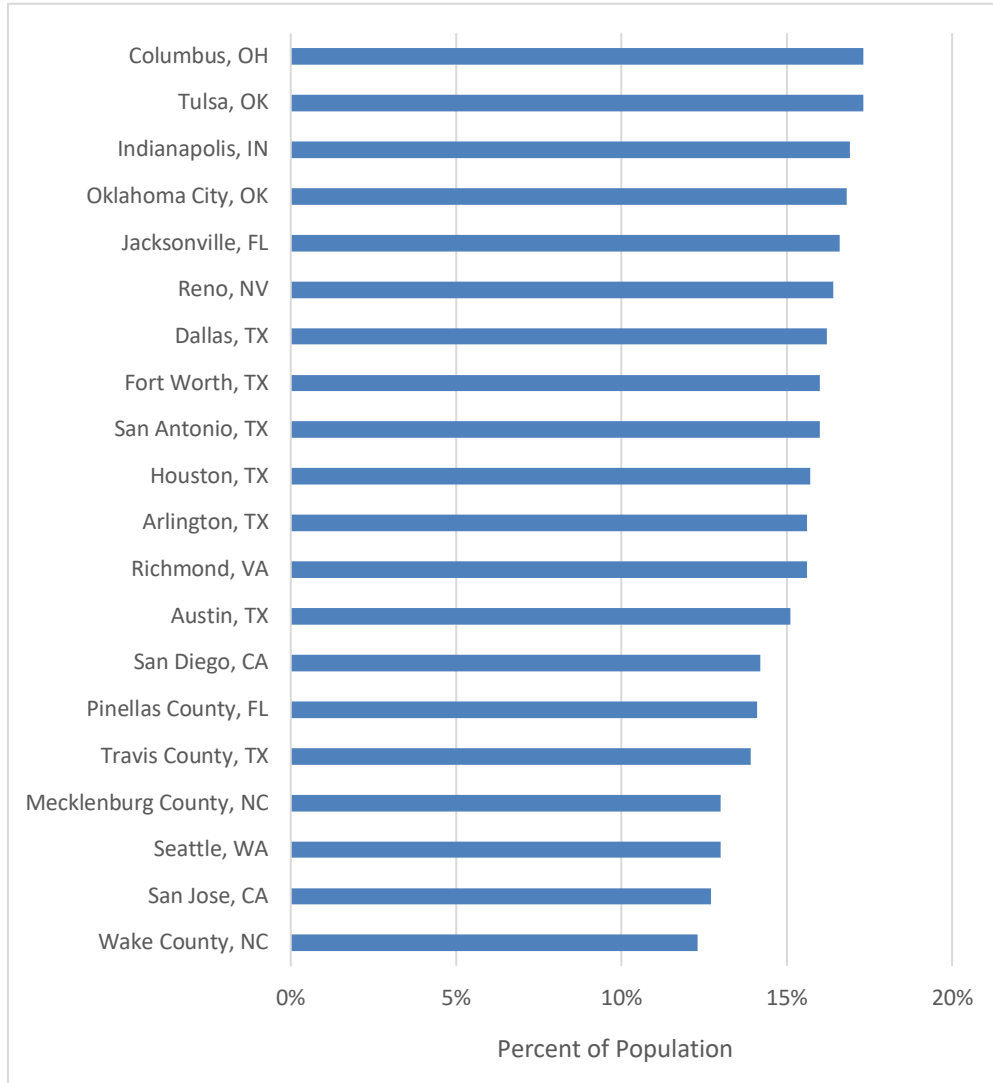


Table 41: Health Among Adults – Poor Mental Health

Rank	Location	Percent of Population ¹
1 (T)	Columbus, OH	17.3
1 (T)	Tulsa, OK	17.3
3	Indianapolis, IN	16.9
4	Oklahoma City, OK	16.8
5	Jacksonville, FL	16.6
6	Reno, NV	16.4
7	Dallas, TX	16.2
8 (T)	Fort Worth, TX	16.0
8 (T)	San Antonio, TX	16.0
10	Houston, TX	15.7
11 (T)	Arlington, TX	15.6
11 (T)	Richmond, VA	15.6
13	Austin, TX	15.1
14	San Diego, CA	14.2
15	Pinellas County, FL	14.1
16	Travis County, TX	13.9
17 (T)	Mecklenburg County, NC	13.0
17 (T)	Seattle, WA	13.0
19	San Jose, CA	12.7
20	Wake County, NC	12.3
Tarrant County, TX		14.6
State of Texas		15.6
United States of America		13.5

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report 14 or more days out of the past 30 days during which their mental health was not good

Figure 46: Health Among Adults – Poor Physical Health

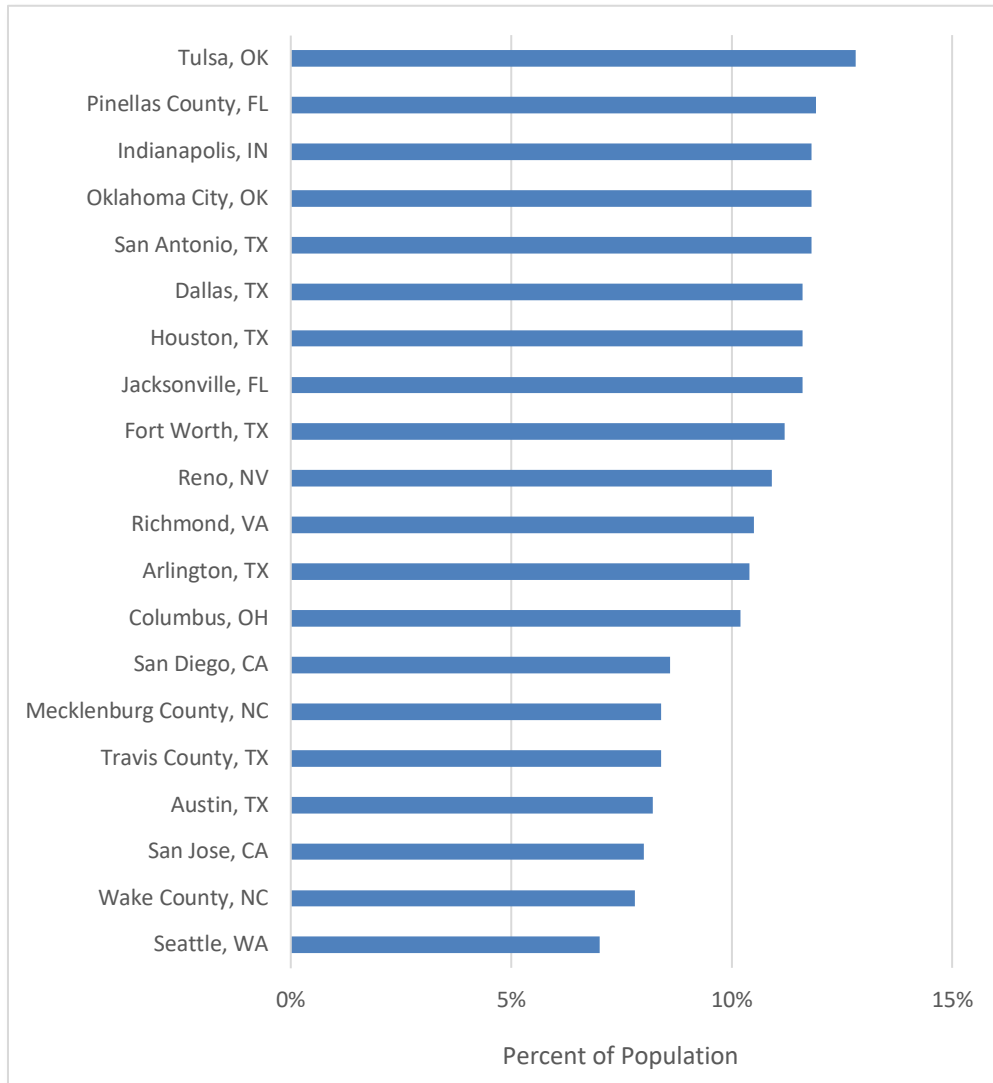


Table 42: Health Among Adults – Poor Physical Health

Rank	Location	Percent of Population ¹
1	Tulsa, OK	12.8
2	Pinellas County, FL	11.9
3 (T)	Indianapolis, IN	11.8
3 (T)	Oklahoma City, OK	11.8
3 (T)	San Antonio, TX	11.8
6 (T)	Dallas, TX	11.6
6 (T)	Houston, TX	11.6
6 (T)	Jacksonville, FL	11.6
9	Fort Worth, TX	11.2
10	Reno, NV	10.9
11	Richmond, VA	10.5
12	Arlington, TX	10.4
13	Columbus, OH	10.2
14	San Diego, CA	8.6
15 (T)	Mecklenburg County, NC	8.4
15 (T)	Travis County, TX	8.4
17	Austin, TX	8.2
18	San Jose, CA	8.0
19	Wake County, NC	7.8
20	Seattle, WA	7.0
Tarrant County, TX		10.4
State of Texas		11.0
United States of America		10.0

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report 14 or more days out of the past 30 days during which their physical health was not good

Figure 47: Health Among Adults – Stroke

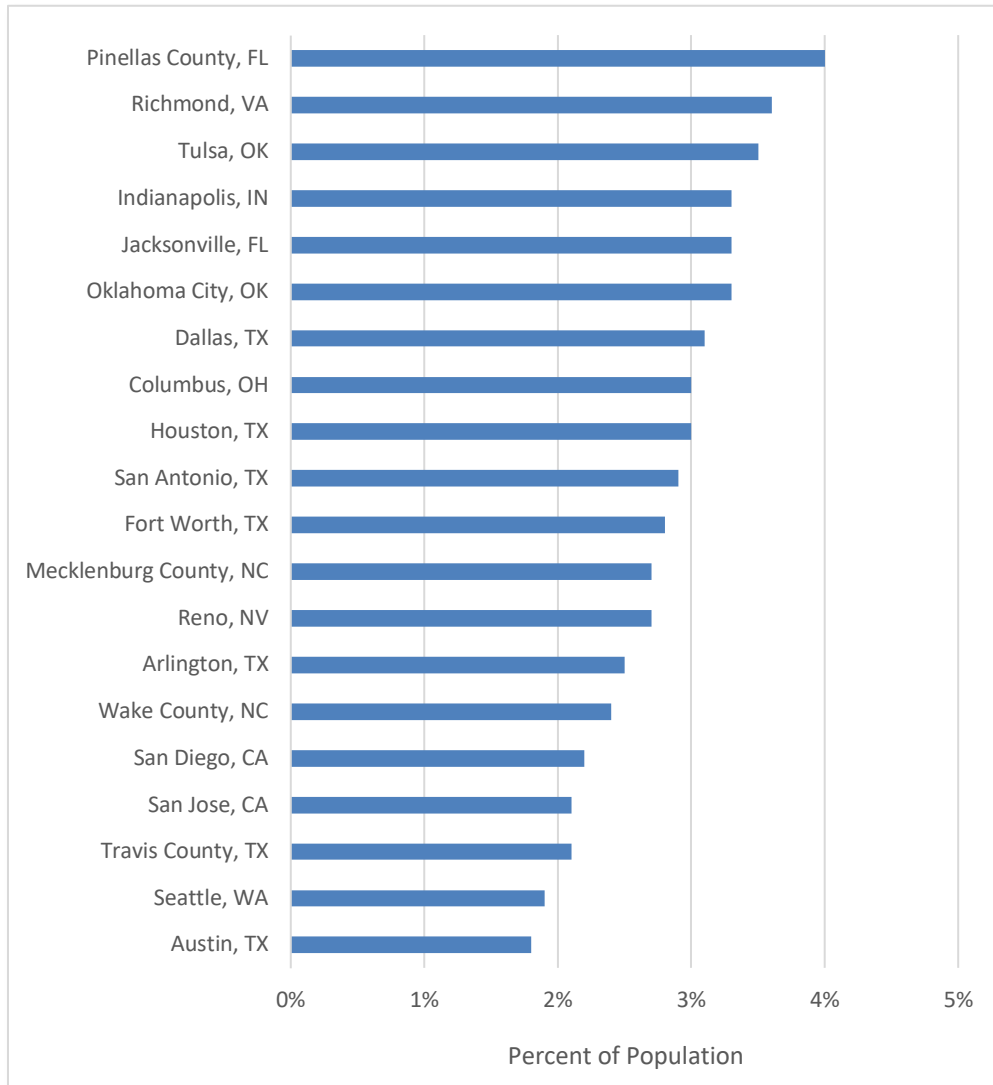


Table 43: Health Among Adults – Stroke

Rank	Location	Percent of Population ¹
1	Pinellas County, FL	4.0
2	Richmond, VA	3.6
3	Tulsa, OK	3.5
4 (T)	Indianapolis, IN	3.3
4 (T)	Jacksonville, FL	3.3
4 (T)	Oklahoma City, OK	3.3
7	Dallas, TX	3.1
8 (T)	Columbus, OH	3.0
8 (T)	Houston, TX	3.0
10	San Antonio, TX	2.9
11	Fort Worth, TX	2.8
12 (T)	Mecklenburg County, NC	2.7
12 (T)	Reno, NV	2.7
14	Arlington, TX	2.5
15	Wake County, NC	2.4
16	San Diego, CA	2.2
17 (T)	San Jose, CA	2.1
17 (T)	Travis County, TX	2.1
19	Seattle, WA	1.9
20	Austin, TX	1.8
Tarrant County, TX		5.8
State of Texas		5.8
United States of America		6.4

¹CDC BRFSS 2020; values represent percentage of adults aged 18 years and older who report ever having been told by a health professional that they have had a stroke

Motor Vehicle Crash Fatalities

Figure 48: Motor Vehicle Crash Fatalities - Number

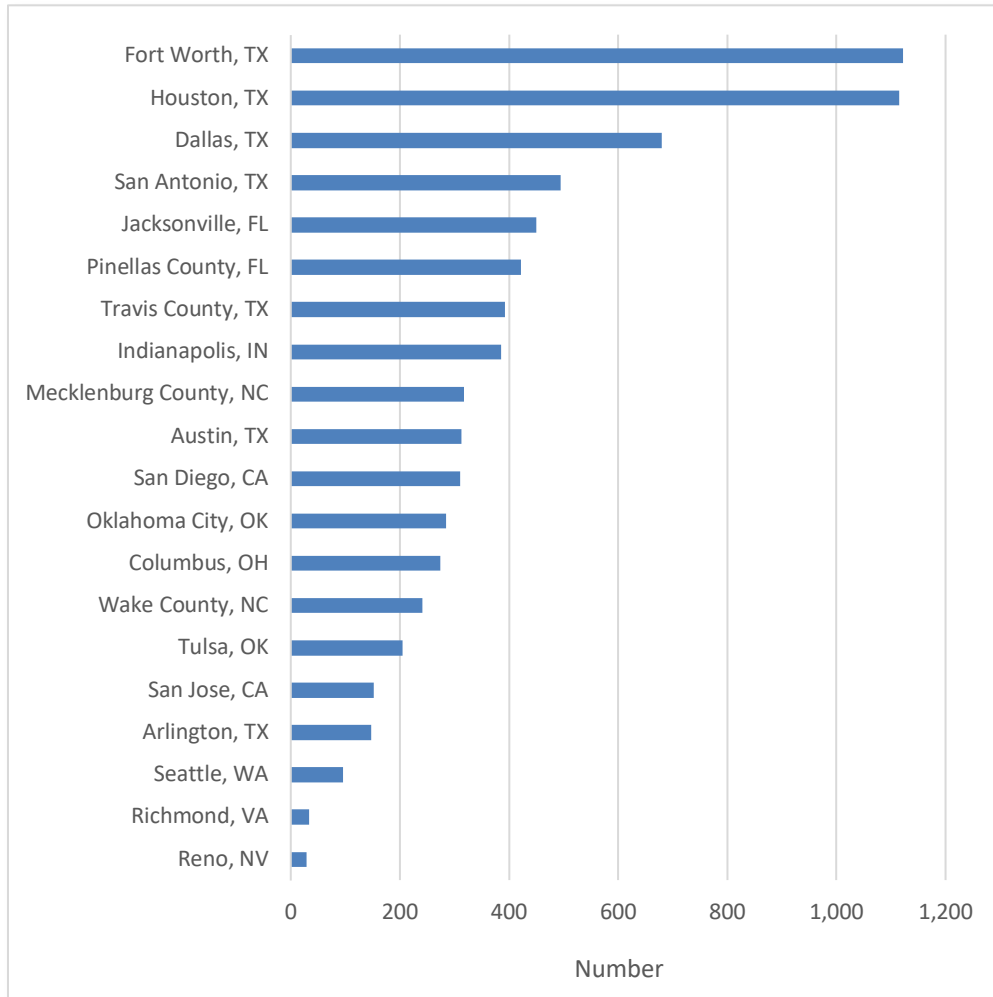


Table 44: Motor Vehicle Crash Fatalities - Number

Rank	Location	Number ¹
1	Fort Worth, TX	1,122
2	Houston, TX	1,114
3	Dallas, TX	680
4	San Antonio, TX	494
5	Jacksonville, FL	450
6	Pinellas County, FL	422
7	Travis County, TX	392
8	Indianapolis, IN	385
9	Mecklenburg County, NC	317
10	Austin, TX	313
11	San Diego, CA	310
12	Oklahoma City, OK	284
13	Columbus, OH	274
14	Wake County, NC	241
15	Tulsa, OK	205
16	San Jose, CA	152
17	Arlington, TX	147
18	Seattle, WA	96
19	Richmond, VA	34
20	Reno, NV	29
Tarrant County, TX		1,379
State of Texas		13,570
United States of America		112,676

¹NHTSA FARS 2021

Figure 49: Motor Vehicle Crash Fatalities - Number per Square Mile

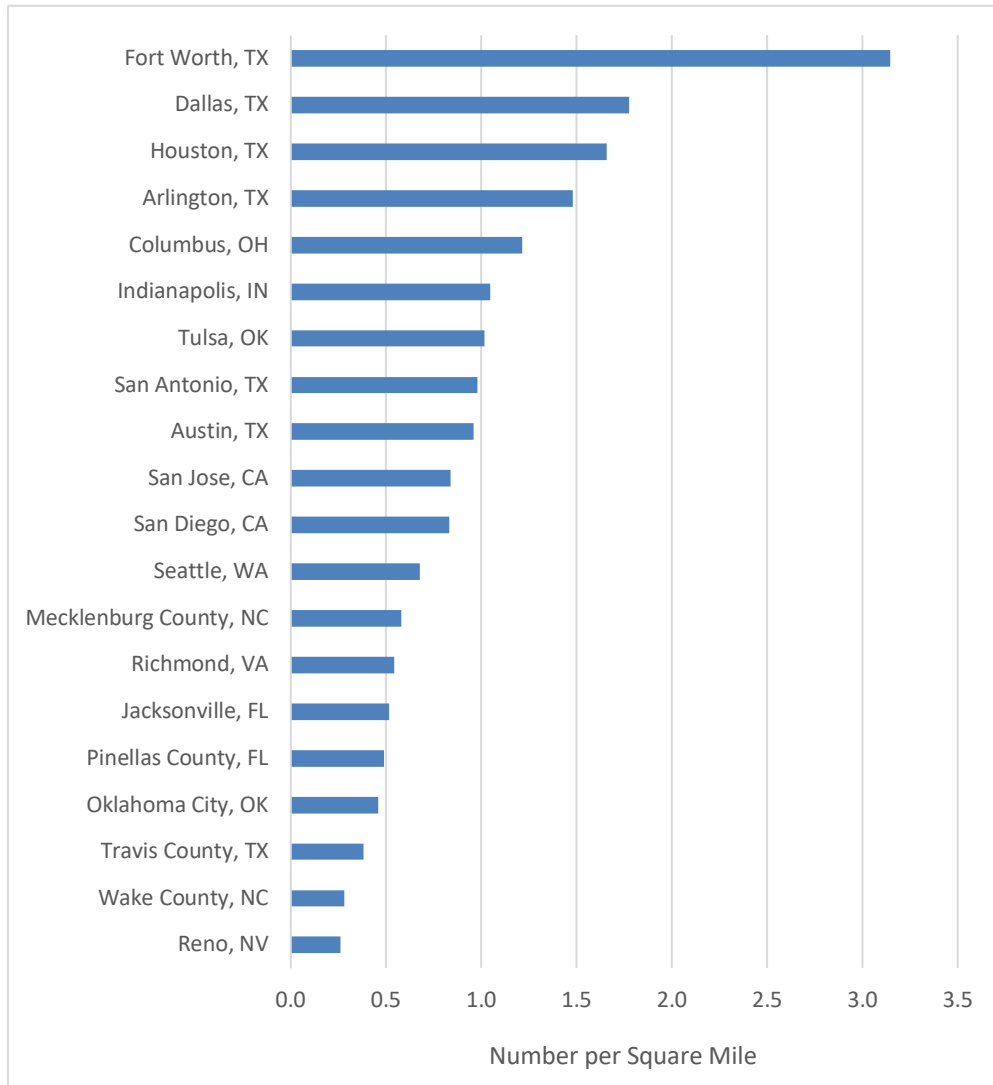


Table 45: Motor Vehicle Crash Fatalities – Number per Square Mile

Rank	Location	Number/Square Mile ¹
1	Fort Worth, TX	3.14
2	Dallas, TX	1.77
3	Houston, TX	1.66
4	Arlington, TX	1.48
5	Columbus, OH	1.21
6	Indianapolis, IN	1.05
7	Tulsa, OK	1.02
8	San Antonio, TX	0.98
9	Austin, TX	0.96
10	San Jose, CA	0.84
11	San Diego, CA	0.83
12	Seattle, WA	0.68
13	Mecklenburg County, NC	0.58
14	Richmond, VA	0.54
15	Jacksonville, FL	0.51
16	Pinellas County, FL	0.49
17	Oklahoma City, OK	0.46
18	Travis County, TX	0.38
19	Wake County, NC	0.28
20	Reno, NV	0.26
Tarrant County, TX		1.53
State of Texas		0.05
United States of America		0.03

¹NHTSA FARS 2021

FITCH

& ASSOCIATES



FITCH

& ASSOCIATES

December 2023

DRAFT AIMHI COMPARISON DATA REPORT CITY of FORT WORTH and AIMHI JURISDICTIONS



📍 PO Box 170, 2901 Williamsburg Terrace, Suite G, Platte City, Missouri 64079

☎️ (816) 431-2600

📄 (816) 431-2653

🌐 www.fitchassoc.com

TABLE of CONTENTS

METHODOLOGY	2
SELECT AIMHI MEMBER JURISDICTIONS	3
Figure 1: Map of MAEMSA Member Jurisdictions	3
SYSTEM DESIGN	4
Table 1: AimHi – System Design – Self-Reported 2022	4
HIGH ACUITY RESPONSE TIMES	5
Table 2: AimHi – High Acuity/Priority Response Times for Compliance – Self-Reported 2022	5
POPULATION BY SERVICE AREA	6
Table 3: AimHi – Population by Service Area – Self-Reported 2022	6
SYSTEM VOLUME	7
Table 4: AimHi – System Volume (sorted by transports)– Self-Reported 2022	7
PUBLIC FUNDING	8
Table 5: AimHi – Public Funding – Self-Reported 2022	8
PATIENT SERVICE REVENUE	9
Table 6: AimHi – Patient Service Revenue – Self-Reported 2022	9
PATIENT SERVICE REVENUE	10
Table 7: AimHi – Patient Service Revenue (sorted on Transport) – Self-Reported 2022	10
SERVICE COSTS	11
Table 8: AimHi – Service Costs (sorted on Transport) – Self-Reported 2022	11
SERVICE COSTS	12
Table 9: AimHi – Service Costs (sorted on Loss per Transport) – Self-Reported 2022	12
FIRST RESPONDER UTILIZATION RATE	13
Table 10: AimHi – First Responder Utilization Rate – Self-Reported 2022	13
EMPLOYEE TURNOVER RATE	14
Table 11: AimHi – Employee Turnover Rate (sorted on 2022) – Self-Reported 2019-2022	14
COST OF MEDICAL DIRECTION	15
Table 12: AimHi – System Design – Self-Reported 2022	15

METHODOLOGY

The Academy of International Mobile Healthcare Integration (AIMHI) represents high-performance emergency medical and mobile healthcare providers in the U.S. and abroad. AIMHI, formerly known as the Coalition of Advanced Emergency Medical Services (CAEMS), changed its name in March 2015 to better reflect its members' dedication to promoting high-performance ambulance and mobile integrated healthcare systems working diligently to performance and technological advancements.

Learn more about membership at www.aimhi.mobi!

Member Name	Location
Alberta Health	Edmonton, AB
Mecklenburg EMS Agency	Charlotte, NC
Metropolitan EMS	Little Rock, AR
Pro EMS	Cambridge, MA
Emergency Health Service	Halifax, NS
Medic Ambulance	Vallejo, CA
Niagara EMS	Niagara-On-The-Lake, ON
REMSA Health	Reno, NV
Emergency Medical Services Authority	Tulsa & OKC, OK
MEDIC Emergency Medical Services	Davenport, IA
Northwell Health CEMS	Syosset, NY
Richmond Ambulance Authority	Richmond, VA
Harris County ESD-11	Spring, TX
MedStar Mobile Healthcare	Fort Worth, TX
Novant Healthcare New Hanover EMS	Wilmington, NC
Three Rivers Ambulance Authority	Fort Wayne, IN
Pinellas Co. EMS Authority	Largo, FL

The member surveys began in 1998 and have been ongoing. However, not all agencies participate in every survey. This report only includes a summary of the quarterly surveys from 2022. The data is self-reported from each agency and therefore has the same limitations and burdens that all self-reported survey data possess.

MedStar provided the underlying data from of the four quarterly reports for this analysis. While summarized, all data exists as reported within the quarterly reports without any further analysis or data manipulation except for the reported averages. The reported averages are a function of the agencies included and not the average of all AimHi participants.

SELECT AIMHI MEMBER JURISDICTIONS

Figure 1: Map of MAEMSA Member Jurisdictions



SYSTEM DESIGN

Table 1: AimHi – System Design – Self-Reported 2022

Comparison Agency	Agency Type/Model
MedStar, TX	PUM – Self Operated
REMSA, NV	PUM – Self Operated
Charlotte-Mecklenburg, NC	PUM – Self Operated
Richmond Ambulance Authority, VA	PUM – Self Operated
Pinellas County, FL	PUM – Contractor
EMSA OKC/Tulsa, OK	PUM – Self Operated
ESD 11 – Harris County, TX	3 rd Service

HIGH ACUITY RESPONSE TIMES

Table 2: AimHi – High Acuity/Priority Response Times for Compliance – Self-Reported 2022

Comparison Agency	System Type	High Acuity Response Time Standard	
		Response Time	Percentage
REMSA, NV	Tiered ALS/BLS	8:59	90%
Richmond Ambulance Authority, VA	Tiered ALS/BLS	8:59	90%
Pinellas County, FL	Tiered ALS/BLS	9:59	91%
ESD 11 – Harris County, TX	Tiered ALS/BLS ¹	10:00	85%
MedStar, TX	Tiered ALS/BLS ²	10:59	85% ³
Charlotte-Mecklenburg, NC	Tiered ALS/BLS	10:59	90%
EMSA OKC/Tulsa, OK	Tiered ALS/BLS	10:59	90%

¹ EDS 11 Started the BLS program in August of 2023

² MedStar has limited utilization of the BLS component

³ MedStar will utilize the 90th percentile in 2024 and all future reporting

POPULATION BY SERVICE AREA

Table 3: AimHi – Population by Service Area – Self-Reported 2022

Comparison Agency	Population	Service Area (Sq Mi)	Population Density
ESD 11 – Harris County, TX	700,000	177	3,955
Richmond Ambulance Authority, VA	226,610	63	3,597
Pinellas County, FL	980,810	280	3,503
MedStar, TX	1,139,326	433	2,631
Charlotte-Mecklenburg, NC	1,120,000	546	2,051
EMSA OKC/Tulsa, OK	1,789,000	975	1,835
REMSA, NV	496,745	6,302	79
AimHi Average	921,772	1,254	735

SYSTEM VOLUME

Table 4: AimHi – System Volume (sorted by transports)– Self-Reported 2022

Comparison Agency	Responses CY 2022	Transports CY 2022
Pinellas County, FL	222,069	190,000
EMSA OKC/Tulsa, OK	252,390	183,749
MedStar, TX	162,994	128,946
Charlotte-Mecklenburg, NC	154,959	91,015
REMSA, NV	88,769	50,334
ESD 11 – Harris County, TX	46,590	40,970
Richmond Ambulance Authority, VA	56,397	39,781
AimHi Average	140,595	103,542

PUBLIC FUNDING

Table 5: AimHi – Public Funding – Self-Reported 2022

Comparison Agency	Public Funding	Per Capita Public Funding ⁴
Pinellas County, FL	Not Reported	Not Reported
MedStar, TX	\$0	\$0
REMSA, NV	\$0	\$0
EMSA OKC/Tulsa, OK	\$11,095,397	\$6.20
Charlotte-Mecklenburg, NC	\$16,984,381	\$15.16
Richmond Ambulance Authority, VA	\$4,593,979	\$20.27
ESD 11 – Harris County, TX	\$18,544,086	\$26.49
AimHI Average	\$8,536,307⁵	\$11.36
AimHi Average	\$12,804,461⁶	\$17.03

⁴ Calculated by Self-Report Funding and Self-Reported Total Population

⁵ Calculated by all agencies except Pinellas County, FL

⁶ Calculated by utilizing only agencies with >\$0 reporting

PATIENT SERVICE REVENUE

Table 6: AimHI – Patient Service Revenue – Self-Reported 2022

Comparison Agency	Gross Patient Service Revenue (Charges)	Net Patient Service Revenue (Collected)	Realization Rate
Richmond Ambulance Authority, VA	\$21,174,500	\$11,837,439	56%
Charlotte-Mecklenburg, NC	\$134,246,016	\$43,651,717	33%
EMSA OKC/Tulsa, OK	\$228,842,800	\$76,018,526	33%
REMSA, NV	\$83,651,054	\$24,493,705	29%
MedStar, TX	\$233,744,879	\$52,616,964	23%
ESD 11 – Harris County, TX	\$98,867,213	\$18,328,459	19%
Pinellas County, FL	Not Reported	Not Reported	Not Reported
AimHI Average	\$133,421,077	\$37,824,468	28%

PATIENT SERVICE REVENUE

Table 7: AimHI – Patient Service Revenue (sorted on Transport) – Self-Reported 2022

Comparison Agency	Revenue per Capita	Revenue per Unit Hour	Revenue per Response	Revenue per Transport
REMSA, NV	\$ 49.31	\$ 244.12	\$ 275.93	\$ 486.62
Charlotte-Mecklenburg, NC	\$ 38.97	\$ 166.34	\$ 281.70	\$ 479.61
Harris County, TX ESD 11	\$ 26.18	\$ 105.28	\$ 393.40	\$ 447.36
EMSA OKC / Tulsa, OK (Combined)	\$ 42.49	\$ 203.82	\$ 301.19	\$ 413.71
MedStar	\$ 47.83	\$ 180.03	\$ 322.82	\$ 408.05
Richmond Ambulance Authority, VA	\$ 52.24	\$ 125.45	\$ 209.89	\$ 297.57
AimHI Average	\$42.84	\$170.84	\$297.49	\$422.15

SERVICE COSTS

Table 8: AimHI – Service Costs (sorted on Transport) – Self-Reported 2022

Comparison Agency	Cost per Capita	Cost per Unit Hour	Cost per Response	Cost per Transport
MedStar	\$ 49.73	\$ 187.18	\$ 335.64	\$ 424.27
EMSA OKC / Tulsa, OK (Combined)	\$ 52.78	\$ 216.89	\$ 374.15	\$ 513.92
Richmond Ambulance Authority, VA	\$ 90.83	\$ 149.66	\$ 212.04	\$ 517.41
REMSA, NV	\$ 62.29	\$ 258.84	\$ 348.58	\$ 614.76
Charlotte-Mecklenburg, NC	\$ 61.00	\$ 221.77	\$ 440.91	\$ 750.69
Harris County, TX ESD 11	\$ 55.57	\$ 219.32	\$ 834.97	\$ 949.51
AimHI Average	\$62.04	\$208.94	\$424.38	\$628.42

SERVICE COSTS

Table 9: AimHI – Service Costs (sorted on Loss per Transport) – Self-Reported 2022

Comparison Agency	Patient Service Revenue per Transport	Cost per Transport	Earnings/(Loss) per Transport
MedStar	\$ 408.05	\$ 424.27	\$ (16.21)
EMSA OKC / Tulsa, OK (Combined)	\$ 413.71	\$ 513.92	\$ (100.21)
REMSA, NV	\$ 486.62	\$ 614.76	\$ (128.13)
Richmond Ambulance Authority, VA	\$ 297.57	\$ 517.41	\$ (219.85)
Charlotte-Mecklenburg, NC	\$ 479.61	\$ 750.69	\$ (271.08)
Harris County, TX ESD 11	\$ 447.36	\$ 949.51	\$ (502.14)
AimHI Average	\$422.15	\$628.42	\$(206.27)

FIRST RESPONDER UTILIZATION RATE

Table 10: AimHi – First Responder Utilization Rate – Self-Reported 2022

Comparison Agency	What percentage of calls are first responders sent?
Charlotte-Mecklenburg, NC	77%
MedStar	70%
EMSA OKC / Tulsa, OK (Combined)	50%
REMSA, NV	40%
Richmond Ambulance Authority, VA	40%
AIMHI Members Average	55%

EMPLOYEE TURNOVER RATE

Table 11: AimHI – Employee Turnover Rate (sorted on 2022) – Self-Reported 2019-2022

Comparison Agency	2019 Turnover Rate	2020 Turnover Rate	2021 Turnover Rate	2022 Turnover Rate
Charlotte-Mecklenburg, NC	19%	23%	34%	20%
MedStar	25%	20%	19%	25%
Richmond Ambulance Authority, VA	37%	39%	54%	33%
REMSA, NV	27%	35%	36%	36%
AimHI Average	27%	29%	36%	28%

COST OF MEDICAL DIRECTION

Table 12: AimHi – System Design – Self-Reported 2022

Comparison Agency	Cost of Medical Direction
Richmond Ambulance Authority, VA	\$ 42,500.00
REMSA, NV	\$ 250,000.00
Charlotte-Mecklenburg, NC	\$ 273,051.00
MedStar	\$ 700,000.00
AimHi Average	\$316,387.75

FITCH

& ASSOCIATES