MANHATTAN FIRE PROTECTION DISTRICT

COMMUNITY RISK ASSESSMENT

STANDARDS OF COVER

2021

FLASHPOINT strategies, llc

MANHATTAN FIRE PROTECTION DISTRICT

BOARD OF TRUSTEES

President – William Moncrief
Treasurer – Lawrence Goodwin
Secretary – William Weber
Trustee – Robert Davis
Trustee – Nick Kotchou

BOARD OF FIRE COMMISSIONERS

Robert Herrick
Jerry Kinsella
James Swyndro

FIRE CHIEF

Steve Malone

DEPUTY FIRE CHIEF

David Piper

BATTALION FIRE CHIEF

Bruce Boyle

DATA ANALYST/CONSULTANT

Randy Reeder
FLASHPOINT STRATEGIES LLC

MISSION STATEMENT

"The primary mission of the Manhattan Fire Protection District is to respond to our customer needs providing Fire Suppression, Emergency Medical Services, Fire Prevention & Education and other specialized services in a safe, effective manner."

AT A GLANCE

MANHATTAN FIRE PROTECTION DISTRICT

Formed 1899 (Fire Department /**1950** (Fire District)

Protecting

15,721 Residents

3,383 RESIDENTIAL HOMES

FEMALE: ***49 %*** *MEDIAN AGE:* ***46.1*** *HOMEOWNERS:* ***89 %*** *POVERTY RATE:* ***3.8 %***

72.85 Square Miles

$ 397.2 million

in Equalized Assessed Valuation

from

2 Fire Stations

with

15 Full-Time Firefighter/Paramedics ***18*** Part-Time Firefighter/Paramedics & EMT's

8 Per Shift, **6** MINIMUM per 24-hour shift day

+5 *Admin/Support:* ***1*** *Fire Chief,* ***1*** *Deputy Chief,* ***1*** *Fire & Life Safety Educator,* ***1*** *Administrative Assistant,* ***1*** *Battalion Chief (part-time Fire Prevention/Maintenance)*

38 *(Total Combined) Staffing shifts 24/7:* **2** ENGINES, **2** AMBULANCES All ALS – Advanced Life Support Equipped

delivering

CLASS **1** ISO Rating

1,291 calls for service (2020) *3.2 per day*

5,877 (2016-20) **EMS 47.7** *%* **FIRE 2.21** *%* **OTHER 50.1** *%*

oversight

5 person appointed Board of Trustees (+ 3-person Board of Commissioners)

Funding *$6.46 mil* Budget *(83 % from Property Taxes- 79 % residential)* *Tax rate:* ***.9421***

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EXECUTIVE SUMMARY

STEVE MALONE
FIRE CHIEF

I am humbled and extremely honored to serve the Manhattan Fire Protection District citizens as Fire Chief, serving this community since 2002 when I started as a candidate. Since then, I have seen and been a part of this organization's drastic changes. I worked my way through the ranks as a volunteer firefighter, part-time FF/EMT, full-time FF/Medic, Lieutenant, Deputy Chief, and Fire Chief. In 2007, the District went full-time, and I was one of the first three hired. Currently serving as the 7th Fire Chief, I am fortunate to be a part of the District's deep-rooted history, to which I always remain loyal and committed to excellence.

The Manhattan FPD is an all-hazards Fire District that protects the 72 square miles of the Village of Manhattan, the Townships of Manhattan, Jackson, and Wilton. The MFPD provides fire suppression, emergency medical services, technical rescue services, water rescue services, hazardous materials services and is nationally recognized for our training program and at the State level for our EMS program. We earned a Class 1 rating from the Insurance Services Organization (ISO) in 2020, ranking us in the top 1% of the country's fire departments.

Fiscal responsibility is a cornerstone in the management of the Manhattan FPD. Many in the modern fire service live day by day, year by year, without ever genuinely evaluating their departments and District as a whole. While staying current with national standards and best practices, we work to share the vision for the Fire District and the community we serve, which has always been at the forefront of progression. By setting high standards and expectations, this District is by far at the top of our game. The Board of Trustees has always exhibited strong leadership and has always made financial stability a top priority while minimizing taxpayer burden. The Board has identified the importance of being proactive and is aware of the District's constantly changing needs.

Throughout this process, we have identified additional efficiencies gained by entering into an Intergovernmental Agreement with the Peotone Fire Protection District and have implemented standardized programs, operational procedures, administrative policies, and workflows that have reduced the District's financial impact. Evaluation and developing long-term plans based upon measures and impacts to the District and taxpayers is our benchmark.

Our Community Risk Assessment and Standards of Cover (CRA/SOC) aims to evaluate our District as a whole, make improvements where needed, and begin to make plans for the future of the Fire District by providing the tools and ability to make informed decisions based on current data and trends. We continue to build on the District's strengths and develop our areas of weakness. This CRA/SOC is a living document that aids in developing a strategic plan and provides fact-driven recommendations that the District shall evaluate to continue to provide the best service possible, all while making your tax dollars work for you.

I am proud to present our Community Risk Assessment & Standards of Cover. This document is just one part of our goal of continuous quality improvement in specific areas and maintaining the best possible service to you. We always continue to evaluate ourselves to ensure we remain at the top.

Thank you!
Fire Chief Steve Malone

INTRODUCTION

The District has conducted this Community Risk Assessment / Standards of Coverage (CRA-SOC) for the area it serves. The primary purpose of this document is two-fold:

- First, identify and assess risks specific to our citizens, visitors, and businesses that it protects.
- Second, allocate an efficient, effective deployment distribution and concentration of resources to respond appropriately to our mission.

The basis of a Community Risk Assessment/Standards of Cover document is a tool to provide:

- assessment of community all-hazard risks: fire and non-fire emergencies
- definitions of baseline (actual) and benchmark (goal) – emergency response performance
- determination of apparatus and staffing patterns
- planning for potential future station locations/relocation
- evaluation of workload and ideal unit utilization
- measurement of service delivery
- support of strategic planning and policy development relative to resources and allocation of funds

This analysis is part of the District's continuous improvement process plan and divides into sections:

- Overview of Area
- Programs and Services
- All Hazard Risk Assessment
- Risk and Response
- Service Deployment and Performance
- Plan for Maintaining and Improving Performance
- Key Findings and Recommendations

Note: Content added by the author sourced to other original work products by the author or others. ***RR***
Data provided by the District is analyzed through several programs and sources to the best of our ability. Validity and volatility may be challenged potentially by multiple Records Management Systems (RMS) and data entry/mining interoperability.

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DISTRICT
OVERVIEW
PMFD

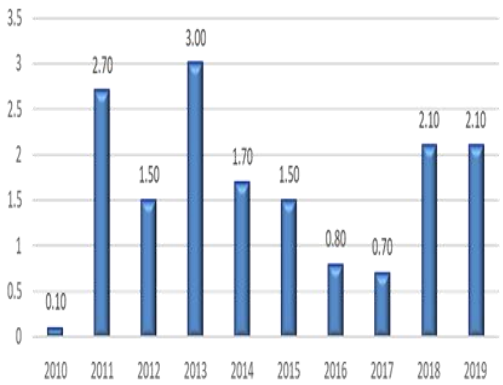
SECTION 1 - Area Characteristics

Legal Basis and Governance

The District started as a Fire Department in 1899, then incorporated in the State of Illinois in 1950 as a Special District under Illinois Compiled Statutes (ILCS) Special Districts – Fire Protection District Act (70 ILCS 705/). The District is an independent governing body and is not directly associated with other government entities such as towns or cities. As a Special District, the District has no direct affiliation with the incorporated Village within the coverage area.

The Fire Protection District (the District) Board of Trustees (BOT) consists of five (5) appointed officials that direct the business activities of the taxing body and oversight of the Fire District's Administration. BOT appointments are three (3) year terms and are staggered to provide overlap and continuity. The BOT is supported by an appointed Board of Fire Commissioners (BOFC), whose responsibilities include the hiring and promotional activities that are then confirmed by the BOT. The BOT meets every month, and the BOFC meets quarterly. Both are compliant with the Illinois Open Meetings Act legislative mandates.

Funding Sources



The Board levies property taxes to meet budget demands as the primary source of funding revenue. Surcharges are applied based upon property valuation and Equalized Assessed Valuation (EAV) amounts. The District is limited by a state-mandated Property Tax Extension Law Limit (PTELL), thus restricting tax levy increases. Both the District's and Pension Fund's property tax revenues fall under the tax cap limit of 5% or CPI (whichever is less). Approximately **83% of funding is obtained through property taxes** levied on District residents. Other revenue sources include EMS fees, incident cost recovery, investment income, and fire prevention fees. The District is limited to revenue sources as a Special District and cannot impose additional taxes. The District does not directly receive revenue through any municipal entity.

The Fire Protection District is a special taxing district. The primary funding source is from property taxes collected for properties located within the District, and the District does not receive sales tax funds of any type.

Additional funds are collected for services provided. These include EMS service, grants, false alarm fines, and cost recovery responding to non-residents.

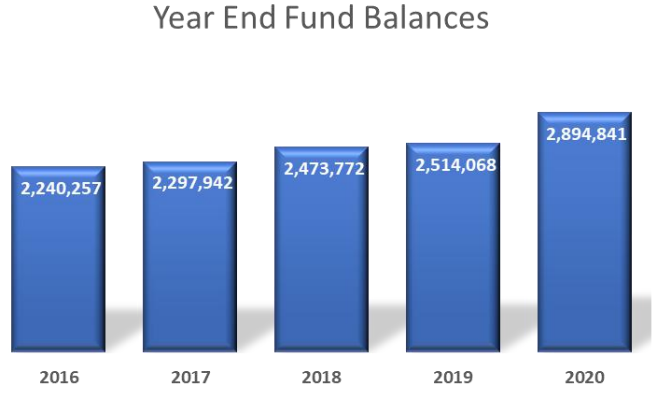
Budget

In 2021, the working budget is **$5.18** million, minus internal transfers. **60%** of expenditures are allocated to personnel (**$2.45 mil**) from the Operating budget (**$4.18 mil**).

Levy Year	2016 Extension	2017 Extension	2018 Extension	2019 Extension	2020 Extension
Collection Year	2017	2018	2019	2020	2021
TOTAL ASSESSED VALUATION	**305,742,621**	**324,368,714**	**343,854,857**	**373,987,688**	**397,200,734**
Change over previous		18,626,093	19,486,143	30,132,831	23,213,046
Tax Rate	0.9867	0.9758	0.9688	0.9356	0.9421
Change over previous		(0.0109)	(0.0070)	(0.0332)	0.0065
TOTAL LEVY	3,016,762	3,165,190	3,331,267	3,499,029	3,742,028
Change over previous		148,428	166,077	167,762	242,999

Appropriations	2016	2017	2018	2019	2020
Corporate	2,418,484	1,744,877	1,800,983	2,030,263	1,622,323
Ambulance	2,415,261	2,371,312	2,438,375	2,593,872	2,178,573
Pension	209,364	225,161	275,495	368,018	239,610
Tort Liability	496,843	509,201	535,294	561,677	713,725
Audit	11,718	12,001	12,474	13,235	17,535
Social Security and Medicare	105,752	109,042	113,002	113,003	90,300
Capital/Debt Service	3,295,483	1,609,600	1,757,056	1,481,154	315,632
TOTAL	**8,952,905**	**6,581,194**	**6,932,679**	**7,161,222**	**5,177,698**
Change over previous		(2,371,711)	351,485	228,543	(1,983,524)

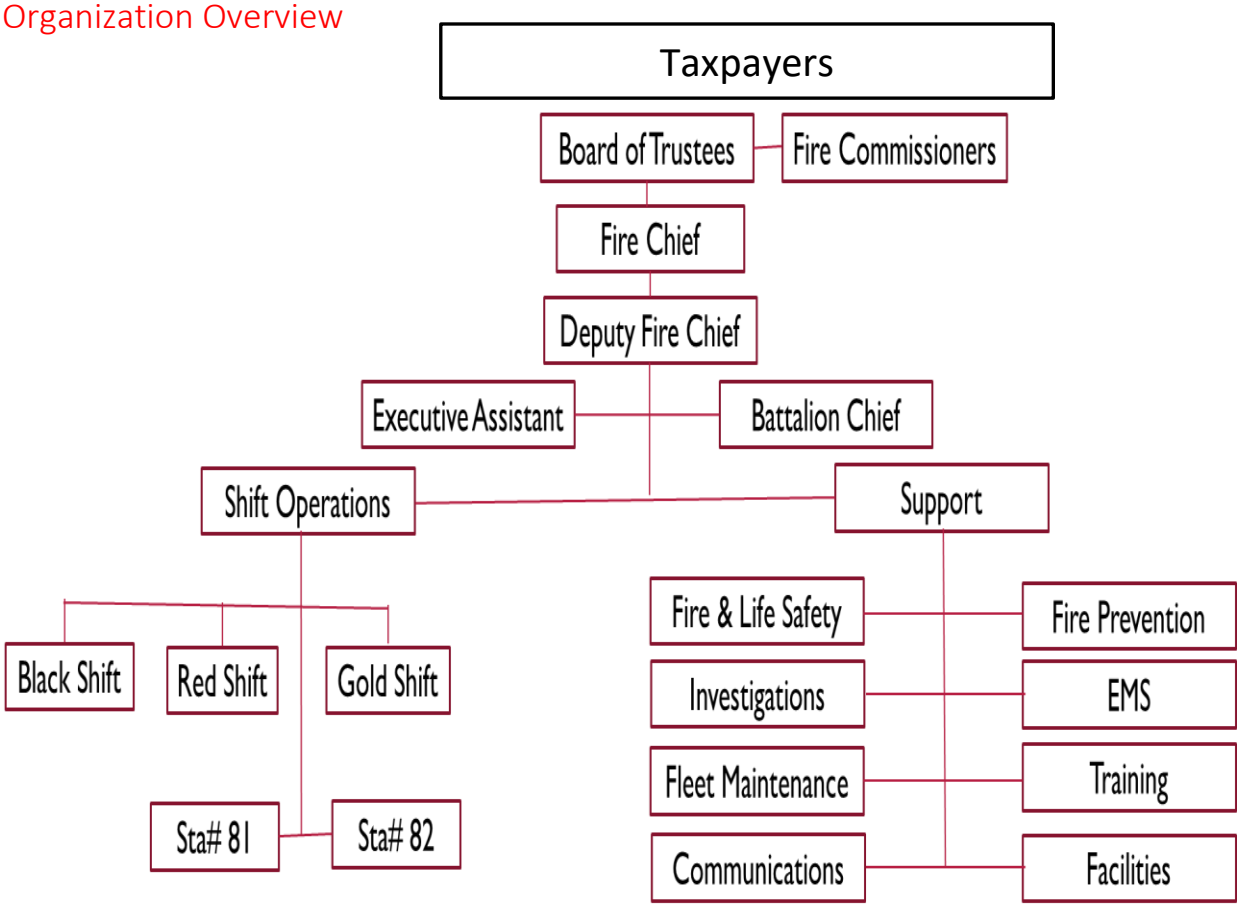
Audited	2016	2017	2018	2019	2020
Corporate	1,466,352	1,449,261	1,340,049	1,675,538	1,021,977
Ambulance	1,312,950	1,289,363	1,100,718	1,061,566	1,339,275
Pension	161,497	168,807	210,601	214,670	246,716
Tort Liability	-	-	322,717	340,219	689,814
Audit	-	-	4,900	11,111	18,669
Social Security and Medicare	-	-	74,617	78,190	69,792
FFIB	-	-	2,001	6,805	10,102
Capital/Debt Service	2,129,932	364,006	155,333	129,379	329,349
TOTAL	**5,070,731**	**3,271,437**	**3,210,936**	**3,517,478**	**3,725,694**
Change over previous		(1,799,294)	(60,501)	306,542	208,216



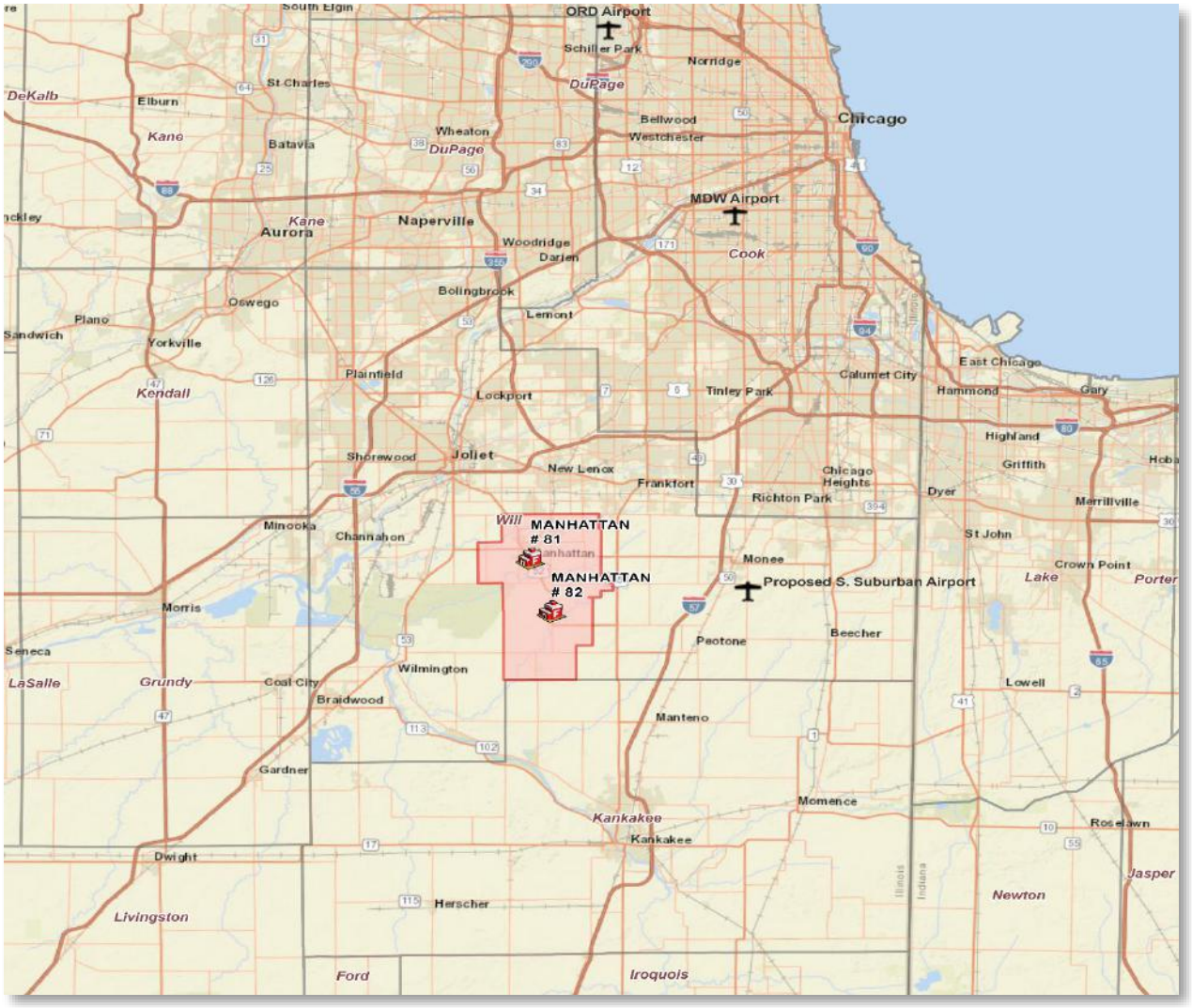
Revenue	2020	%
Taxes	3,125,526	83%
User Fees	422,771	11%
Donations/Grants	94,372	3%
Interest	38,292	1%
Other	82,844	2%
TOTAL	**3,763,805**	100%

Year End Fund Balances		Change over Previous	
2016	2,240,257		
2017	2,297,942	57,685	*3%*
2018	2,473,772	175,830	*8%*
2019	2,514,068	40,296	*2%*
2020	2,894,841	380,773	*15%*

Organization Overview



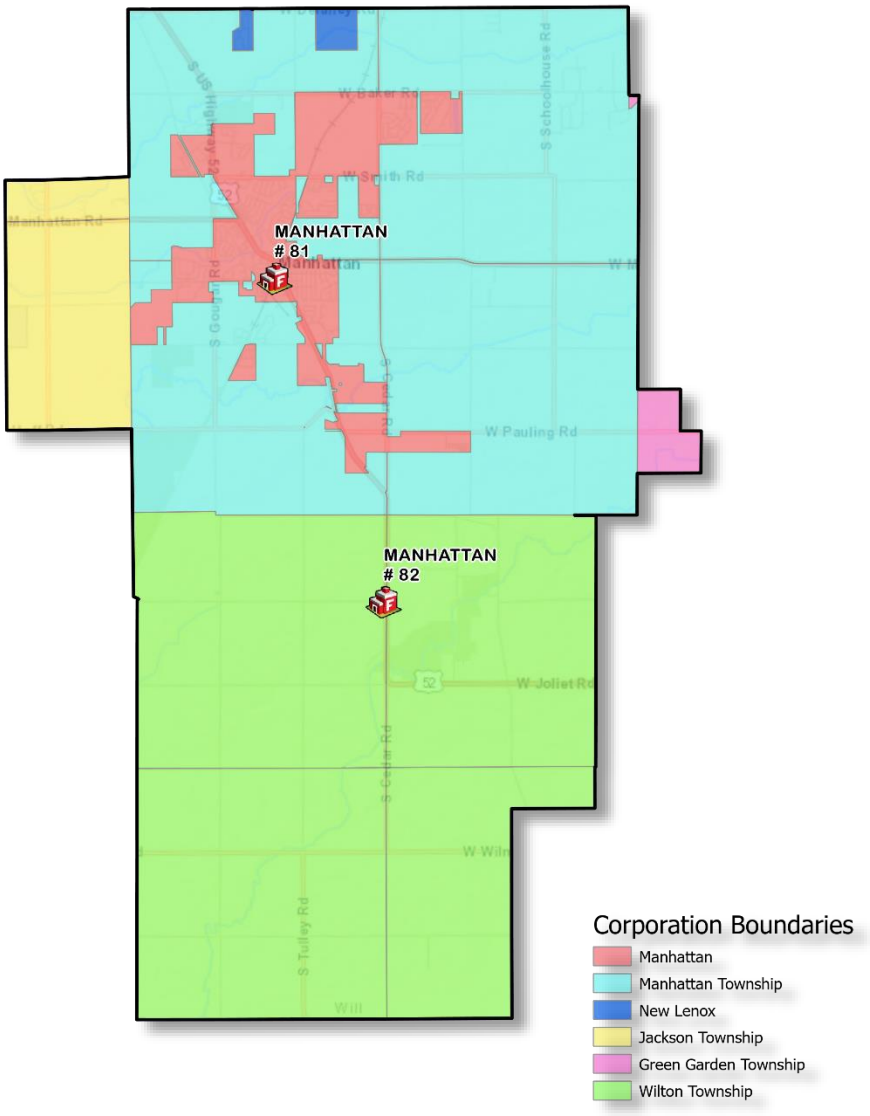
Service Area



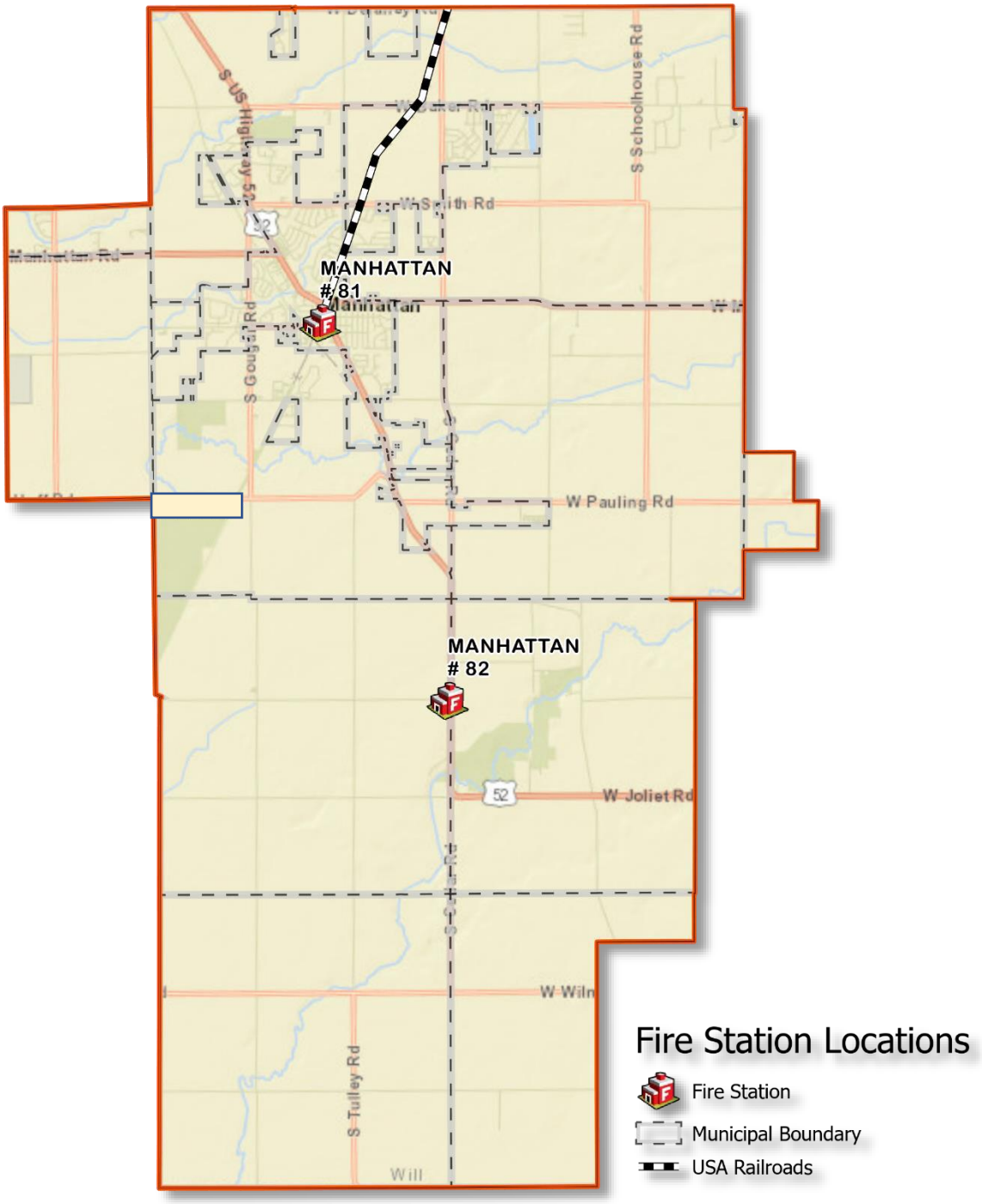
Municipalities

Located in Will County, Illinois, the service area covers the Village of Manhattan, and the Townships of Manhattan, Jackson, and Wilton.

Will County is in the northern part of Illinois and is one of the fastest-growing counties in the United States. The county seat of Will County is Joliet. Founded in 1836, Will County is a major hub for roads, rail, and natural gas pipelines. According to the Will County CED, in the last fifteen (15) years, Will County has become the **Largest Inland Port** in North America, with the development of two large modern intermodal centers and the addition of over 100M square feet of new industrial space plan for development just to the west of the District, in nearby Joliet. Over 3 million international and domestic containers flow through the port annually, carrying over $65 billion worth of products, including 70 million+ bushels of grain.



Fire Stations



Station 81

100 S. Park Rd
Manhattan, IL 60442

Constructed: 1974
Remodeled: 2014-15
Apparatus Housed: Engine 81, Ambulance 81, Squad 81, Tender 81, Utility 81,
Staffing: Line - Three **(3)** minimum / Five **(5)** maximum *(*jump company if at 3-person minimum)*
Staff – one ***(1)*** *Fire Chief,* one ***(1)*** *Deputy Chief,* one ***(1)*** *Battalion Chief (part time)*
one ***(1)*** *Fire & Life Safety Educator,* one ***(1)*** *Administrative Assistant*

Station 81 is the Headquarters location with Command, Support, and Administration based here.

Station 82

28710 S. Cedar Rd
Manhattan, IL 60442

Constructed: 1985
Apparatus Housed: Engine 82, Ambulance 82, Foam Tender 82, Brush Truck 81
Staffing: Three **(3)** minimum/maximum *(*jump company)*

Apparatus

The various types of apparatus that the District deploys on emergencies, listed by their dispatch designator type, are described below.

Major classifications:

Ambulance – Provide medical treatment and patient transport.

Brush Truck – Specialty unit, usually 4x4 pickup truck type w/ 100-300 gallon tank/pump, designed to go off-road for vegetation fires.

Engine – Primary response unit from each station for most types of service requests. Each engine is equipped with a minimum 1500 GPM pump, 750-gallon water tank (tender – 3,000-gallon tank), and complement sets of equipment following NFPA 1901, Standards for Automotive Fire Apparatus.

Foam Tender – Specialized unit carrying large quantities of foam

Incident Command/Chief – Capable of being an incident command post with associated communication equipment and workspace

Squad – In addition to complete engine suppression capabilities, a squad carries heavy extrication tools or special rescue functions (Dive, Technical Rescue, HazMat, Rehab, Command)

Tender/Tanker – specialized apparatus designed to transport higher quantities of water (2,600+ gallons)

Utility – SUV, pickup, or flatbed type unit that may, or may not, have firefighting capabilities.

Year	Make	Model	Type	Vehicle ID	Station	Tank Size	Pump GPM	Mileage	Hours
2015	Ford AEV	F550	Ambulance	**AM81**	81	--	--	77,948	4,811
2010	International	Horton	Ambulance	**AM82**	82	--	--	100,098	6,539
2006	Ford	Horton	Ambulance	**AM83**	81	--	--	111,063	6,063
2020	Ford	Explorer	Chief	**BC81**	81	--	--	1,200	--
2009	Ford	F350	Brush	**BT81**	82	250		7,074	582
2020	Chevy	Tahoe	Chief	**CH81**	81	--	--	16,400	--
2020	Chevy	Tahoe	Chief	**CH82**	81	--	--	21,123	--
2006	Pierce	Enforcer	Engine	**EN81**	81	750	1250	96,406	7,064
2010	Alexis	Gladiator	Engine	**EN82**	82	750	1250	86,089	4,987
1986	Chevy	Kodiak	Foam Tender	**FM82**	82	1600	--	19,573	83
2009	Spartan	Gladiator	Squad	**SQ81**	81	--	--	25,412	2,250
2001	Pierce	International	Tender	**TN81**	81	3000	1250	36,620	2,168
2012	Ford	F250	Utility	**UT81**	81	--	--	58,979	2,928
2015	Chevy	Tahoe	Utility	**UT82**	82	--	--	75,312	--

Staffing

MANHATTAN FPD -
Staffing Plan (current)

STATION	Staffing (Min)	Staffing (Max)	ENG		AMB
81	3	5	3		2
82	3	3	3*	OR	3*
	6	**8**	**2 - Engines**		**2 - Ambulances**

** = jump companies*

If Station 81 drops to minimum manning, then the three (3) "jump" from Engine to Ambulance is call dependent. Station 82 is always a "jump" company.

15 Full-Time Firefighter/Paramedics (**IAFF LOCAL 4991**)

18 Part-Time Firefighter/Paramedics & EMT's

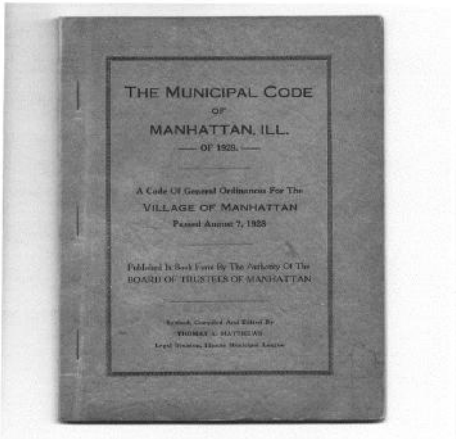
8 Per Shift, **6** MINIMUM per day

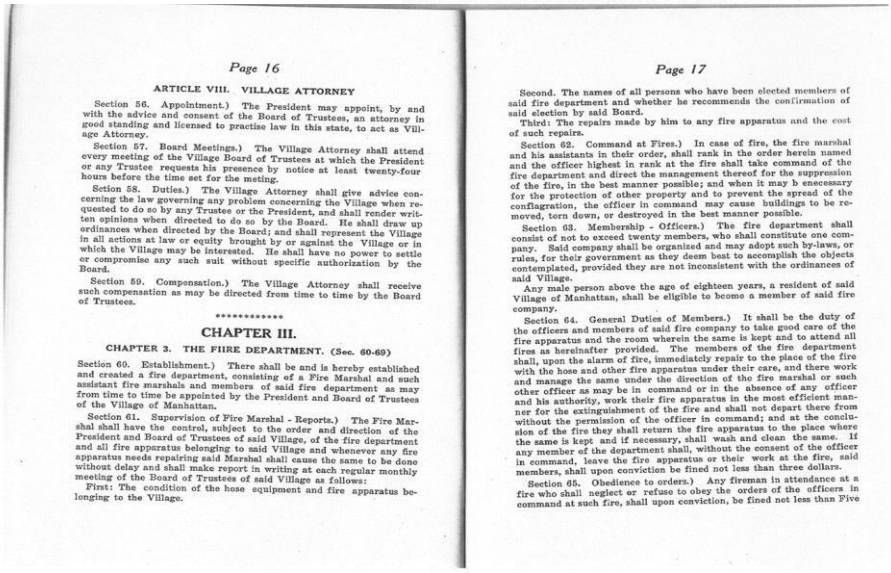
*+5 Admin/Support: **1** Fire Chief, **1** Deputy Chief, **1** Fire & Life Safety Educator, **1** Administrative Assistant, **1** Battalion Chief (part-time Fire Prevention/Maintenance)*

38 (*Total Combined*) *Staffing shifts 24/7:* **2** ENGINES, **2** AMBULANCES All ALS – Advanced Life Support Equipped

LOCAL 4991

District History





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ARTICLE VIII. VILLAGE ATTORNEY

Section 56. Appointment.) The President may appoint, by and with the advice and consent of the Board of Trustees, an attorney in good standing and licensed to practise law in this state, to act as Village Attorney.

Section 57. Board Meetings.) The Village Attorney shall attend every meeting of the Village Board of Trustees at which the President or any Trustee requests his presence by notice at least twenty-four hours before the time set for the meting.

Section 58. Duties.) The Village Attorney shall give advice concerning the law governing any problem concerning the Village when requested to do so by any Trustee or the President, and shall render written opinions when directed to do so by the Board. He shall draw up ordinances when directed by the Board; and shall represent the Village in all actions at law or equity brought by or against the Village or in which the Village may be interested. He shall have no power to settle or compromise any such suit without specific authorization by the Board.

Section 59. Compensation.) The Village Attorney shall receive such compensation as may be directed from time to time by the Board of Trustees.

****

CHAPTER III.

CHAPTER 3. THE FIIRE DEPARTMENT. (Sec. 60-69)

Section 60. Establishment.) There shall be and is hereby established and created a fire department, consisting of a Fire Marshal and such assistant fire marshals and members of said fire department as may from time to time be appointed by the President and Board of Trustees of the Village of Manhattan.

Section 61. Supervision of Fire Marshal - Reports.) The Fire Marshal shall have the control, subject to the order and direction of the President and Board of Trustees of said Village, of the fire department and all fire apparatus belonging to said Village and whenever any fire apparatus needs repairing said Marshal shall cause the same to be done without delay and shall make report in writing at each regular monthly meeting of the Board of Trustees of said Village as follows:

First: The condition of the hose equipment and fire apparatus belonging to the Village.

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Second. The names of all persons who have been elected members of said fire department and whether he recommends the confirmation of said election by said Board.

Third: The repairs made by him to any fire apparatus and the cost of such repairs.

Section 62. Command at Fires.) In case of fire, the fire marshal and his assistants in their order, shall rank in the order herein named and the officer highest in rank at the fire shall take command of the fire department and direct the management thereof for the suppression of the fire, in the best manner possible; and when it may b enecessary for the protection of other property and to prevent the spread of the conflagration, the officer in command may cause buildings to be removed, torn down, or destroyed in the best manner possible.

Section 63. Membership - Officers.) The fire department shall consist of not to exceed twenty members, who shall constitute one company. Said company shall be organized and may adopt such by-laws, or rules, for their government as they deem best to accomplish the objects contemplated, provided they are not inconsistent with the ordinances of said Village.

Any male person above the age of eighteen years, a resident of said Village of Manhattan, shall be eligible to become a member of said fire company.

Section 64. General Duties of Members.) It shall be the duty of the officers and members of said fire company to take good care of the fire apparatus and the room wherein the same is kept and to attend all fires as hereinafter provided. The members of the fire department shall, upon the alarm of fire, immediatcly repair to the place of the fire with the hose and other fire apparatus under their care, and there work and manage the same under the direction of the fire marshal or such other officer as may be in command or in the absence of any officer and his authority, work their fire apparatus in the most efficient manner for the extinguishment of the fire and shall not depart there from without the permission of the officer in command; and at the conclusion of the fire they shall return the fire apparatus to the place where the same is kept and if necessary, shall wash and clean the same. If any member of the department shall, without the consent of the officer in command, leave the fire apparatus or their work at the fire, said members, shall upon conviction be fined not less than three dollars.

Section 65. Obedience to orders.) Any fireman in attendance at a fire who shall neglect or refuse to obey the orders of the officers in command at such fire, shall upon conviction, be fined not less than Five

IET, ILLINOIS, OCTOBER 11, 1944.

Manhattan Farmers Get Fire Protection

A picture of the Manhattan Rural Fire Truck taken at Homecoming. Left to right Arbie Seltzer, George Bovee, Wilbur Francis, Garrett White, Homer White and Harvey Weibel.

A bright, new, swanky red fire truck! As functioning now...

Wilton Center station to improve protection

By Patricia Lieb
Journal correspondent

WILTON CENTER — Residents of Wilton Township and other southern parts of the Manhattan Fire Protection District will have better fire protection soon — when the district's second fire station opens near Wilton Center.

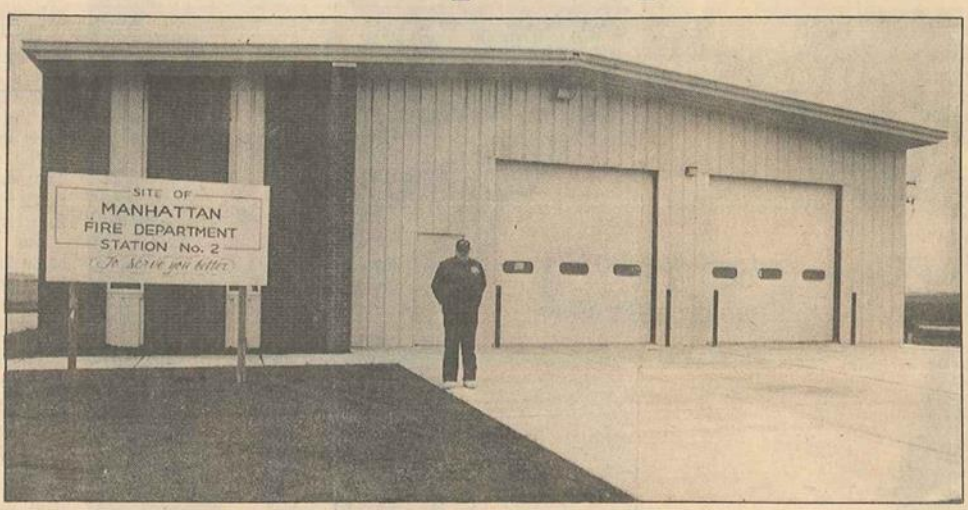
"When they need help, they won't have to wait for someone to come the five miles from Manhattan," said Fire Chief Dale L. Vanderboegh.

The district, which covers 75 square miles, extends from three miles north of Manhattan to the Kankakee County line on the south.

The $150,000 fire house is being built on a 1½ acre site about a mile north of Wilton Center, at U.S. 52 and Doyle Road. The land was donated by Mrs. Leo Nugent of Manteno and her children, who own the surrounding farm land, Vanderboegh said.

"She found out we were looking for property to build a fire station, so she gave the land in memory of her husband," he said.

The station, Manhattan #2, will serve all of Wilton Township, where seven of the district 43 firemen live, as do six paramedics.



Chief Dale Vanderboegh at Wilton Center fire station.

The fire house, which was started last spring, is being built totally by contractors from the area. "When we got the building permit last January, we decided that all the construction would be done by local people, no outsiders. They're paying for it, so they get to spend the money in the area," Vanderbeogh said.

The project will be paid for with money accumlated from taxes for the past ten years. Also, Vanderploegh said, "We passed a tax referendum two years ago which helps. We also, acquired a 15-year mortgage from the bank."

The Wilton Center fire house will be quite independent, with its own water supply. "We have a 30,000 gallon tank underneath that floor over there for water supply for this area. Instead of running all the way back to Manhattan, we can take water from that tank," Vanderboegh said. The tank will be filled by a well that pumps 2,000 gallons of water per hour.

The 75-by-100 foot pole building, with steel exterior, will have two bays and could hold four firetrucks. Two trucks will be moved to it from the Manhattan station. The station also will have the district's first hose tower, which allows hoses to be hanged up to dry.

Milestones

1899: Village President Eberhart appoints Henry Wenzel as Chief Fire Marshal

1900: First 15 civilians were sworn in as members of the Manhattan Fire Department

1916: A fire in Salow Hardware Store destroyed three buildings in the downtown area of Manhattan

1925: Lighting struck crude oil tank, causing fire and heavy black smoke that could be seen over fifty miles away

1928: A village code book formally outlined the general rules and regulations of the fire department, Fire Marshal, and its members

1929: A fire destroys St. Patrick's Catholic Church in Wilton Center

1933: J.W. Hertle was appointed Chief; hose cart was stored in Herman's Evans garage on the North side; 19 members listed on the department

1934: Fireman's Ball at Grange Hall

1937: Flashlights and tool chest was added to the hose carts; firemen/ "dispatchers" were paid $1.00 per call; a hose cart was added on each end of town

1939-1942: First fire truck was bought for $2,000 (W.S. Darley); the fire station was completed

1942-1944: Manhattan Rural Fire Protection Association formed; purchased a fire truck for $4,835 from Central Fire Truck Corporation

1947: Non-members of the rural association would pay a "rental" fee of $100 per run and a labor charge of $2.50 per hour for each fireman responding, $500,000 Oil Blaze in Manhattan

1949: Manhattan Township and Jackson Township voted to create a fire protection district

1950: Wilton Township voted to be in the district starting the Manhattan Fire Protection District, approx. 72 sq. miles

1953: Rural Association dissolved after selling the fire truck and equipment to MFPD for $7,500, a total of seven subdivisions at this time

1951: Voters approved a $24,000 bond for addition to the fire station and new equipment

1953: First three trustees of MFPD; the first numbering system

1956: Firefighters protect second building after a $25,000 blaze at Manhattan Store (Goodwin's)

1960: One of the first members of the Des Plaines Valley Mutual Aid Association

1961: First radio system installed; potential arson fire killing 6 calves costing about $75,000

1962: Numbering System was updated

1969: Fatal Fire at 265 S. State St.; train derailment containing isobutane near Aeropress

1970: Members participate in Fire School hosted by Joliet

1972: Lightning strikes at Aeropress, causing a fire with a possible propane explosion; new uniforms were received

1973: $13,000 multi-purpose fire truck added to the fleet; elevator knocked down for the new station 1; heavy extrication after 3 are trapped in the caboose of an overturned of 6 freight cars; Wilton Center fully involved causing damage to machines, truck and 20 sheep destroyed

1974: Station 1 built, 8 rigs

1974: Station 1 cost $75,000, built by Professional Sales of Pontiac and finished by the firemen; the first ambulance purchased; member of the Will- Grundy EMS system

1975: Ambulance purchased for approximately $18,000 from donations; car wash raises money for a new siren to be mounted on the station

1976: Apartment fire at 150 S. State St. causing 14 to be displaced after Ammo exploded; 1217 and 1212 Darley's arrive $70,000 for both 1,650-gallon tanker and 1,000-gallon pumper

1977: ALS equipment came in; new 1221 with 750 gallons (E1); attic fire on Elevator Rd.; pond in the front yard used for water supply

1978: Department has 4 paramedics; receive Lifepak 5 defibrillator/ monitor

1982: The second ambulance purchased; new ambulance arrives 1215 with ALS equipment

1981: Cadet program began for 15-18-year-olds

1984: The first female joined; fire prevention held at St Paul's; November 4, 1984, ambulance district was voted on and passed

1985: Station 2 built with 2 bays: Mrs. Leo Nugent, donated Wilton Center property in memory of Leo Nugent; 30,000-gallon cistern; 1 pumper; 1 grass truck; 42 active members; training tower at station 2; new apparatus; full time; SCBA advancements; technical rescue training; delivery of Pierce pumper (1000 gallons of water, 2900 ft various hose, 6-man cab all inside)

1987: Jack Fitzgerald receives "Paramedic of the Year" by the Will County EMS System

1988: New squad; 6 men wrecking crew; new patch

1989: May 21, 1989, honors John E. "Jack" Fitzgerald as "Jack's Day" for his many accomplishments

1991: Firefighters kept busy after a power outage caused three fires throughout the town

1992: Assistant Chief Bob Borden retires after 38 years; new 1214 replaced 1974 ambulance, E9-1-1 On-Line

1993: 1221 retires; ambulance refurbished

1994: New 1221 arrives

1995: "Technical Rescue" Trailer; an addition to station 1

1996: Fire station expands 6 times its original size; April 7: squad collides into Kurtz Ambulance while both were responding to emergencies with lights on

1998: Chief Dale VanderBoegh “Chubb” retires after 31 years as Chief

2000: Referendum; new ambulance; a ball of fire rises from Long’s Auto services on Manhattan Rd. destroying the building

2001: Firefighter Todd Burke dies in a car accident; Retired Chief VanderBoegh dies at home; new tender

2002: TIC Camera; new ambulance; N.Y heroes welcomed to Manhattan; grain elevator fire

2006: 1212 arrives; full-time deputy chief hired; 1214 arrives

2004: Couple rescued from a burning house on Nov. 14, 2004

2005: Good Time Charlie’s restraint caught fire February 21, 2005, causing damage to businesses in the strip mall

2007: Commissioners appointed; MFPD goes full time

2008: Chief Jack Fitzgerald retires after 52 years (10 as Chief); Forsythe sworn in as Chief; sprinklers, alarms required for new commercial buildings; station 2 remodeled

2009: Burton Bar retires from the Board of Trustees; auto pulses; squad arrives; 1218 arrives

2010: Full-time Lieutenants; new 1221; new ambulance

2011: Captain Toepper retires; firefighters host summer bash

2012: Firefighter Matt Zack killed in a crash; plane crashes into a Wilton Township farm; house explosion

2013: MFPD was recognized as Fire-Safe Community at the Illinois Residential Fire Sprinkler Symposium in Addison; tornado struck the area

2015: Firefighters escaped cornfield blaze when the winds picked up to cause the fire to become out of control in Wilton Township; $2.4 million addition to fire station 1 approved for Admin rebuild

2016: MFPD ambulance transporting a patient to Silver Cross Hospital flipped after being struck by a pickup truck in New Lenox; run cards begin to tie in with the CAD

2017: Laraway Communications Center was created to consolidate 4 dispatch centers

2018: Receives 2017 Safer Grant; full contributions requirements for pension approved

2019: Chief Dan Forsythe retires; Chief Steve Malone promoted

2020: **MFPD achieves ISO Class 1 rating;** BC Boyle starts part-time admin; approval to purchase Horton ambulance; signed MFPD/PFPD “Admin Sharing Agreement;” Deputy Chief Dave Piper starts; approval to purchase Rescue pumper and pumper tanker for $1,450,000; ’94 Eng 83 MV06 sold to Garrison Volunteer Fire Department, Texas for $40,000

2021: Amended MFPD/PFPD IGA is approved and signed

Board of Trustees

- 1949 – 1933 **Herman Evans**
- 1949 – 1959 **Harry White**
- 1949 – 1960 **Herman Christansen**
- 1959 – 1969 **Wesly Jones**
- 1959 – 1971 **Ivan Goodwin**
- 1963 – 1975 **Earl Keniston**
- 1966 – 1977 **J.R. (Bob) Lee**
- 1971 – 1976 **Ralph Goodwin**
- 1785 – 1983 **Bob Quigley**
- 1976 – 1989 **Gene Carlos**
- 1977 – 2009 **Donald Borchardt**
- 1983 – 2009 **Burton Barr**
- 1989 – 2000 **Elza Blackman**
- 2001 – 2005 **Craig Patterson**
- 2005 – Present **William Moncrief**
- 2005 – Present **Larry Goodwin**
- 2005 – Present **William Weber**
- 2009 – Present **Robert Davis**
- 2009 – Present **Nickolas Kotchou**

Fire Chiefs

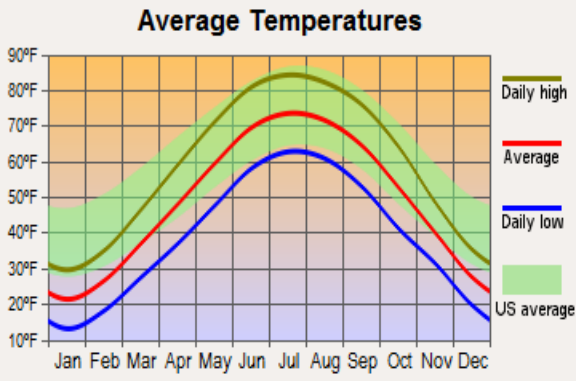
- 1901 – 1933 **Henry O. Wenzel**
- 1933 – 1946 **John W. Hertel**
- 1946 – 1967 **Ivan Goodwin**
- 1967 – 1998 **Dale VanderBoegh**
- 1998 – 2008 **Jack Fitzgerald**
- 2008 – 2019 **Daniel Forsythe**
- 2019 – present **Steve Malone**

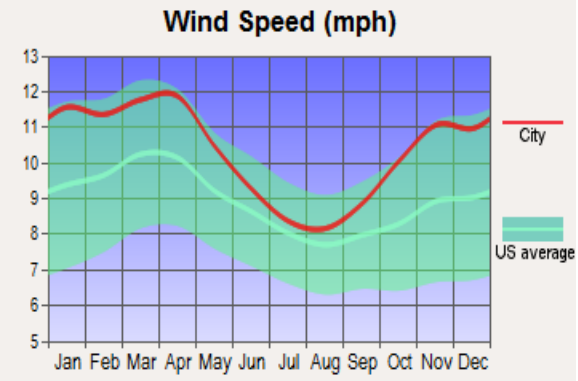
Climate

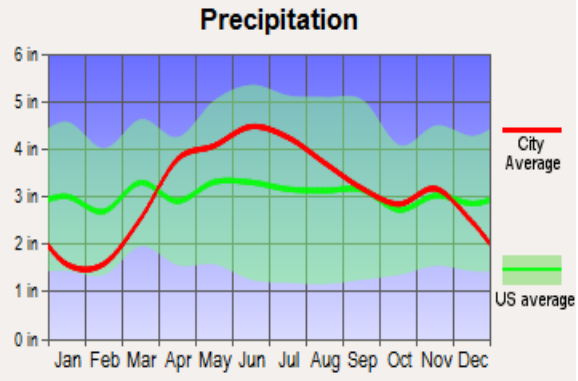
Many people confuse weather and climate, but they are different. Weather is the atmosphere's conditions over a brief time, and climate is how the atmosphere is measured over a prolonged period.

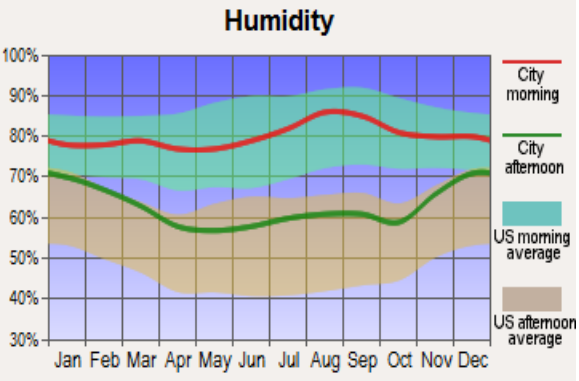
Weather is how the atmosphere is behaving and its effects upon life and human activities. Weather can change from minute to minute. Most people think of temperature, humidity, precipitation, cloudiness, brightness, visibility, wind, and atmospheric pressure.

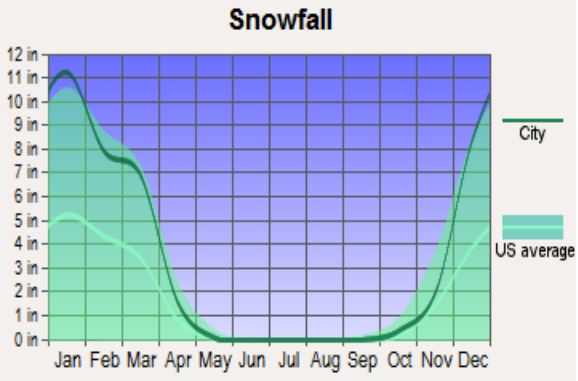
Climate is the long-term weather pattern description and can mean the average weather for a particular region and period over 30 years. Climate is the average of weather over time.

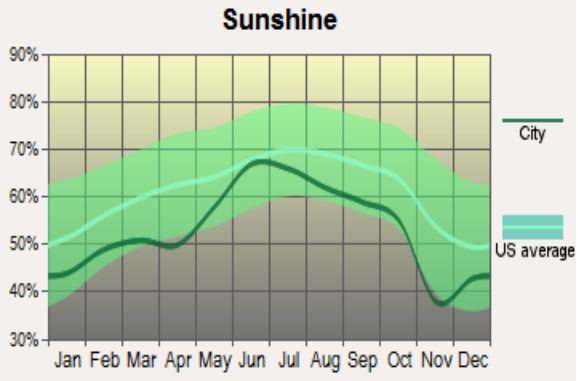


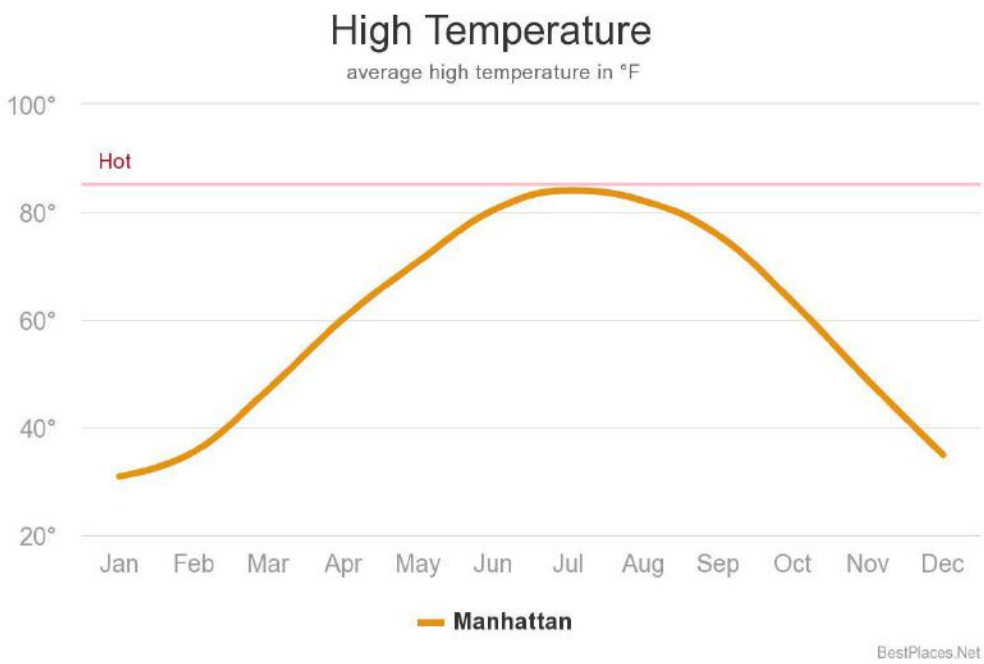




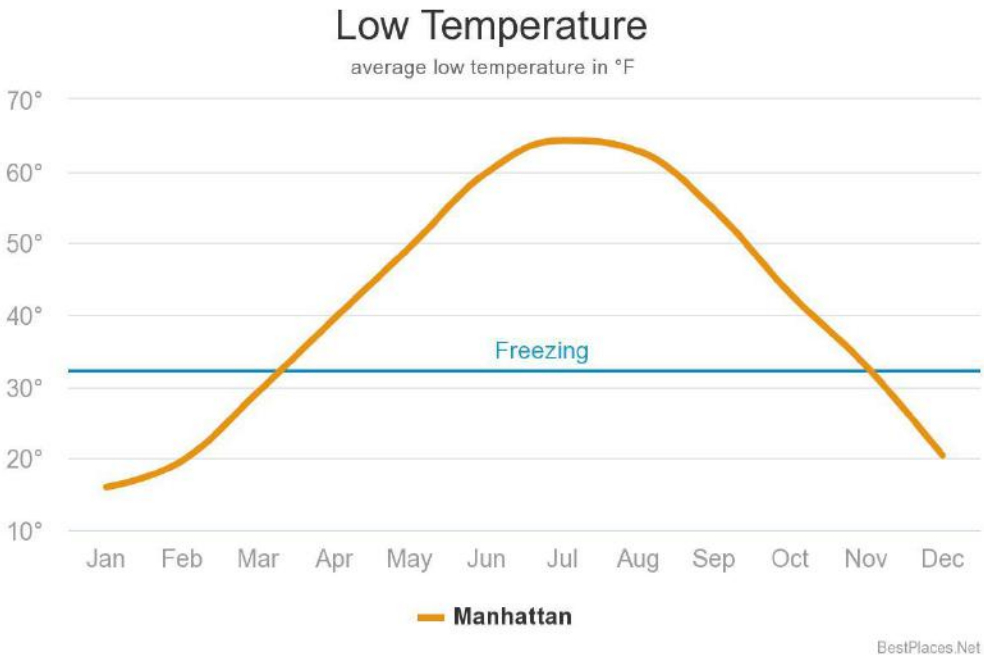




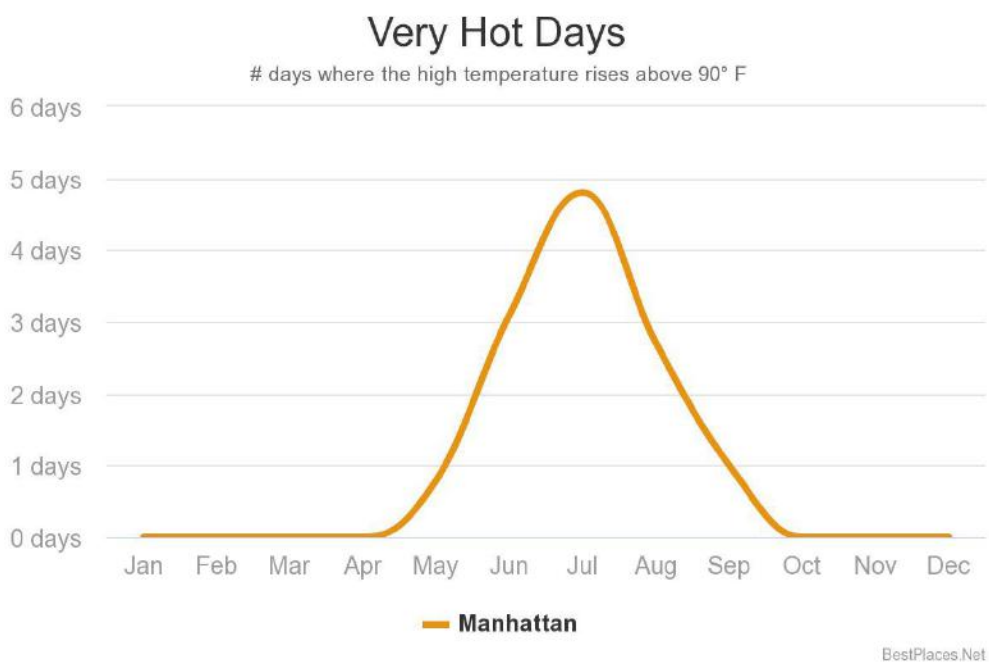




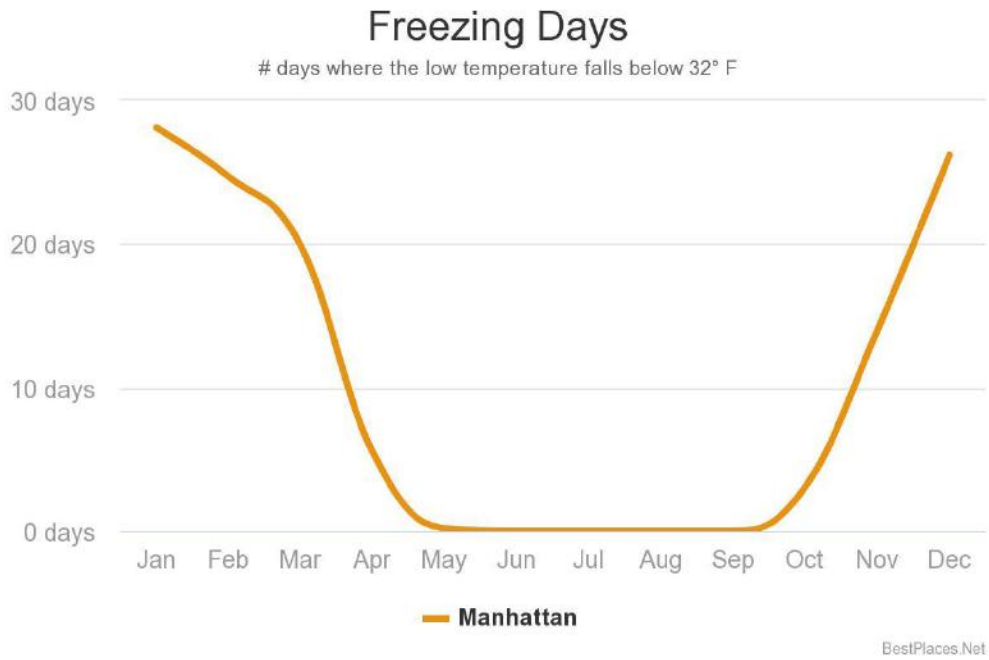
July is the hottest month for Manhattan, with an average high temperature of 84.0°, which ranks it cooler than most places in Illinois. In Manhattan, there are 5 comfortable months with high temperatures in the range of 70-85°. The most pleasant months of the year for Manhattan are September, June, and August.



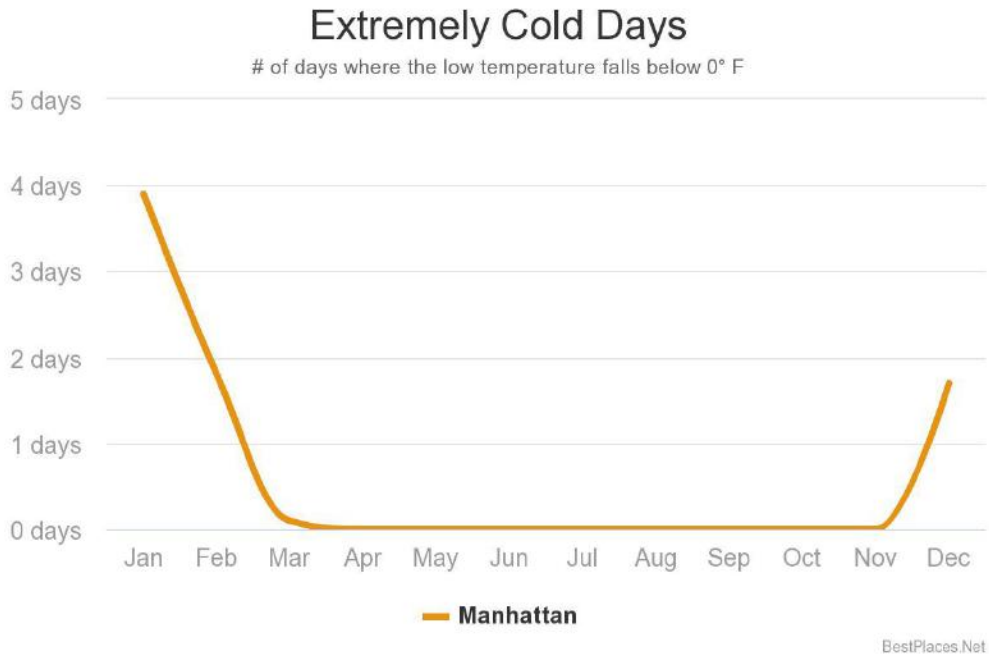
January has the coldest nighttime temperatures for Manhattan, with an average of 16.0°, which is about average compared to other places in Illinois.



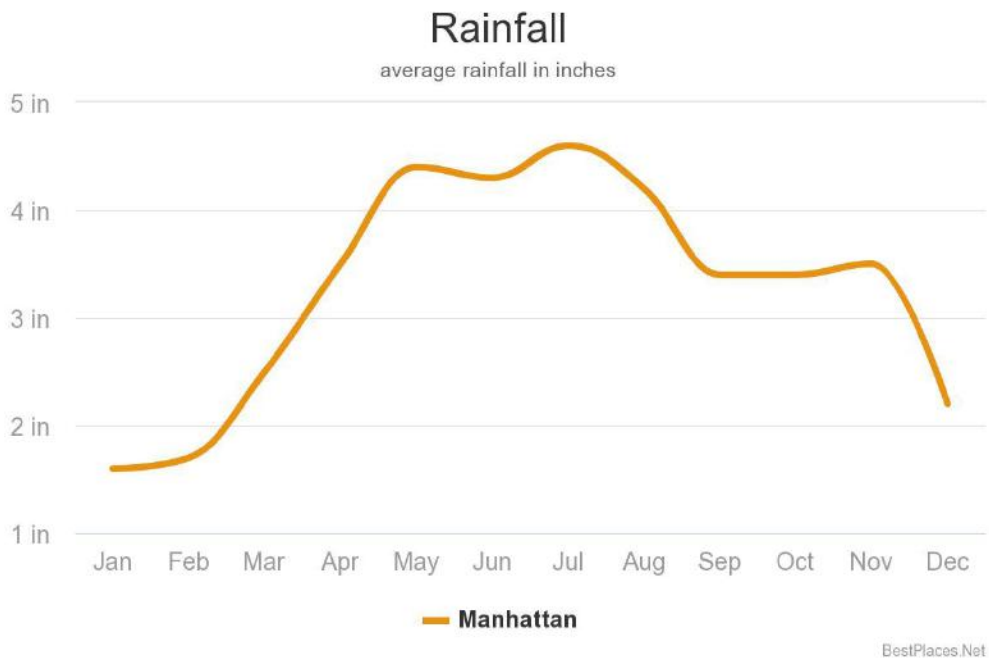
There are 12.4 days annually in Manhattan when the high temperature is over 90°, cooler than most places in Illinois.



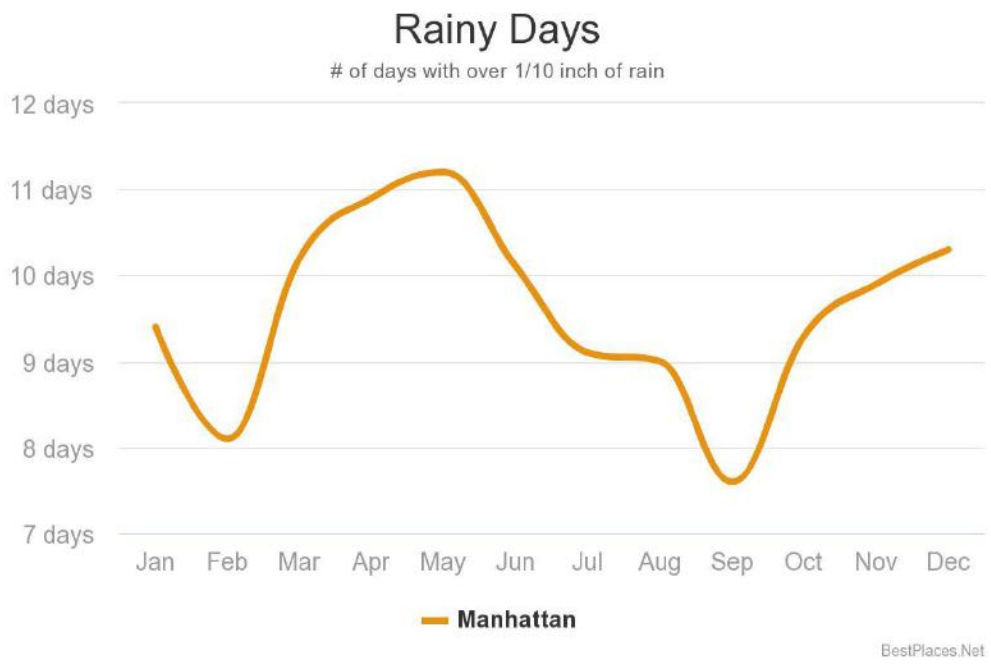
In Manhattan, there are 121.7 days annually when the nighttime low temperature falls below freezing, which is about average compared to other places in Illinois



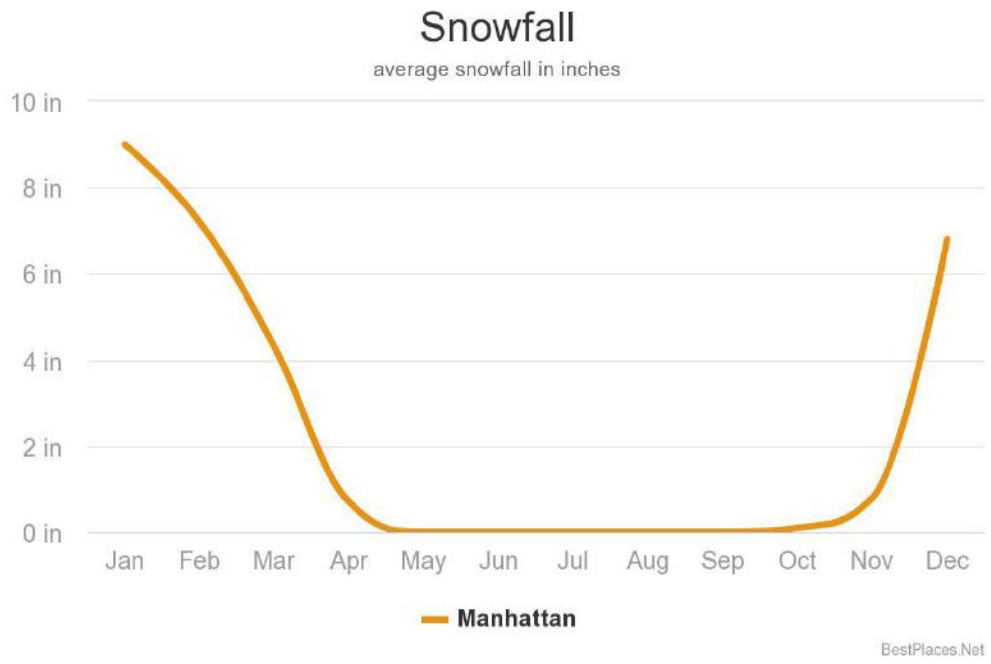
In Manhattan, there are 7.5 days annually when the nighttime low temperature falls below zero°, which is colder than most places in Illinois.



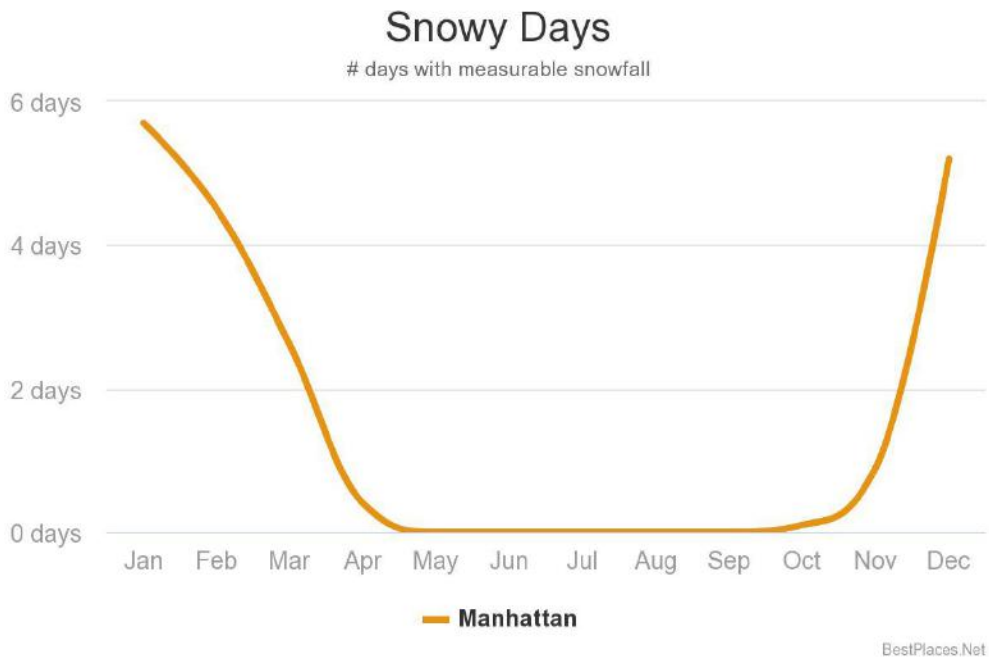
July is the wettest month in Manhattan with 4.6 inches of rain, and the driest month is January with 1.6 inches. The wettest season is Autumn, with 33% of yearly precipitation and 14% occurs in Spring, which is the driest season. The annual rainfall of 39.2 inches in Manhattan means that it is about average compared to other places in Illinois.

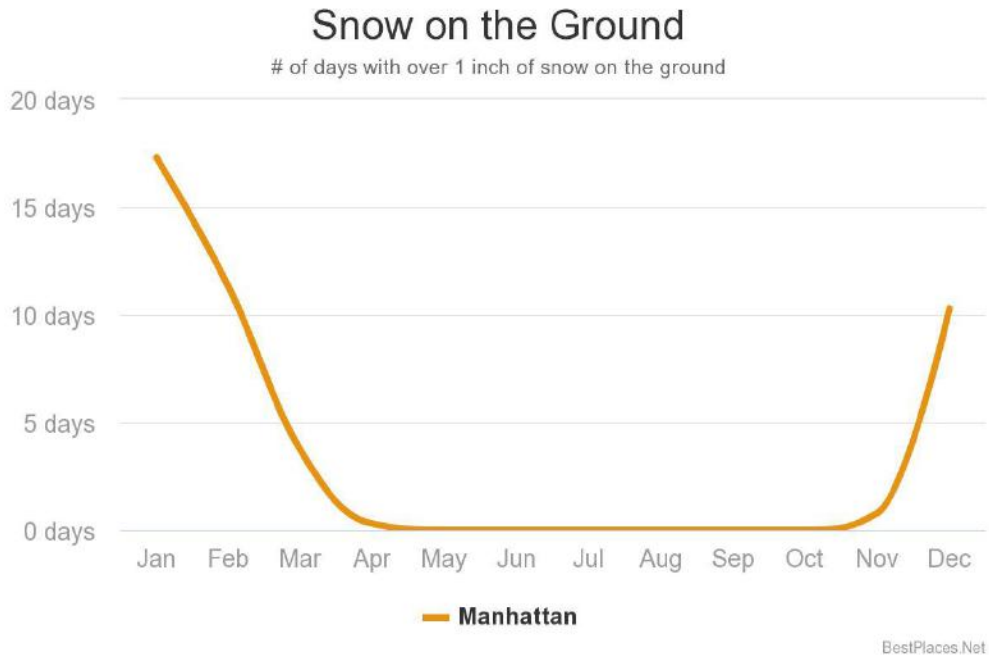


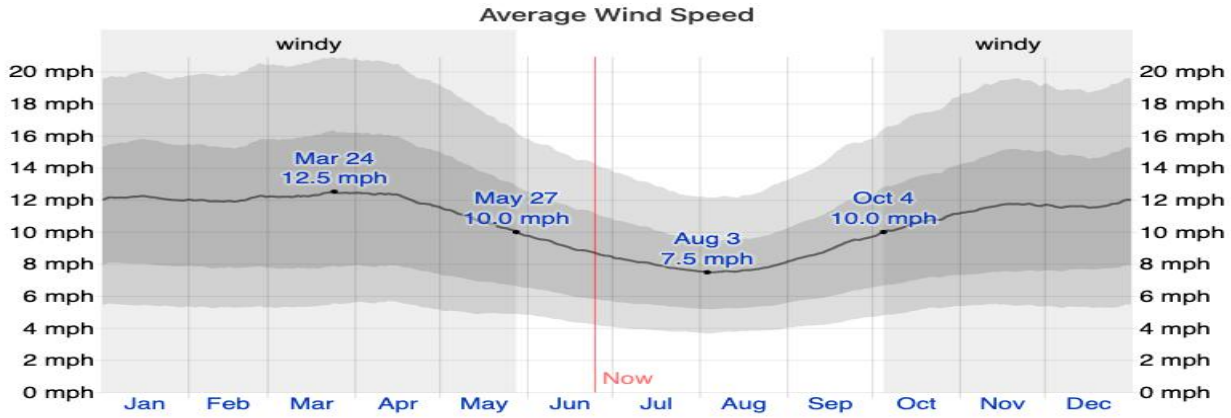
There are 115.2 rainy days annually in Manhattan, which is rainier than most places in Illinois. May is the rainiest month in Manhattan with 11.2 days of rain, and September is the driest month with only 7.6 rainy days. The rainiest season is Summer when it rains 28% of the time, and the driest is Winter, with only a 23% chance of a rainy day.



An annual snowfall of 29.0 inches in Manhattan means that it is snowier than most places in Illinois. January is the snowiest month in Manhattan, with 9.0 inches of snow, and 6 months of the year have significant snowfall.

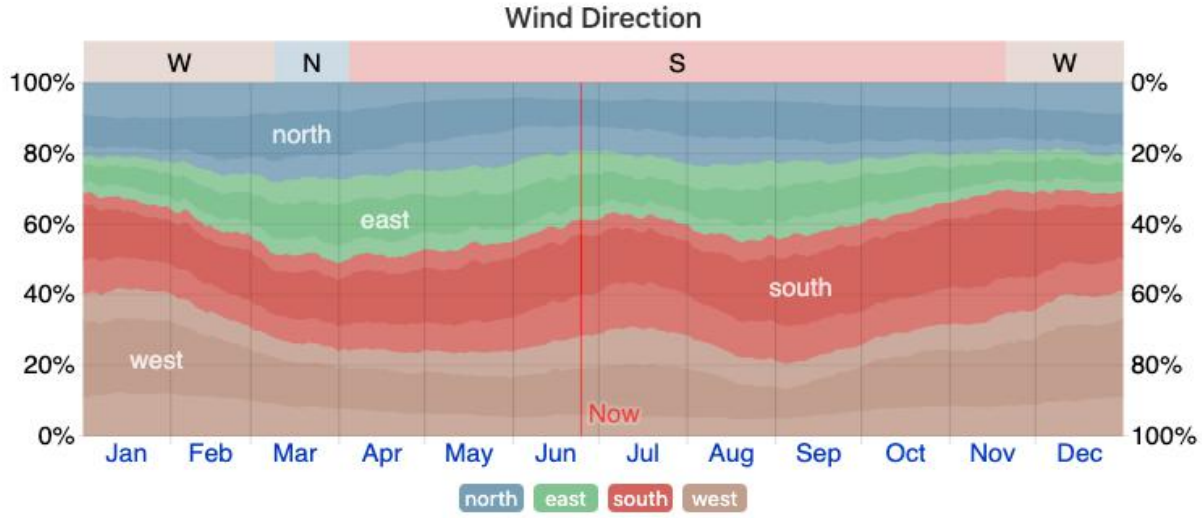

Snowy Days
days with measurable snowfall
6 days
4 days
2 days
0 days
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Manhattan
BestPlaces.Net


Snow on the Ground
# of days with over 1 inch of snow on the ground
20 days
15 days
10 days
5 days
0 days
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Manhattan
BestPlaces.Net



The average of mean hourly wind speeds (dark gray line), with 25th to 75th and 10th to 90th percentile bands.

The average hourly wind speed in Manhattan experiences significant seasonal variation over the course of the year. The windier part of the year lasts for 7.7 months, from October 4 to May 27, with average wind speeds of more than 10.0 miles per hour. The windiest day of the year is March 24, with an average hourly wind speed of 12.5 miles per hour. The calmer time of year lasts for 4.3 months, from May 27 to October 4. The calmest day of the year is August 3, with an average hourly wind speed of 7.5 miles per hour.



*The percentage of hours in which the mean wind direction is from each of the four cardinal wind directions, excluding hours in which the mean wind speed is less than **1.0 mph**. The lightly tinted areas at the boundaries are the percentage of hours spent in the implied intermediate directions (northeast, southeast, southwest, and northwest).*

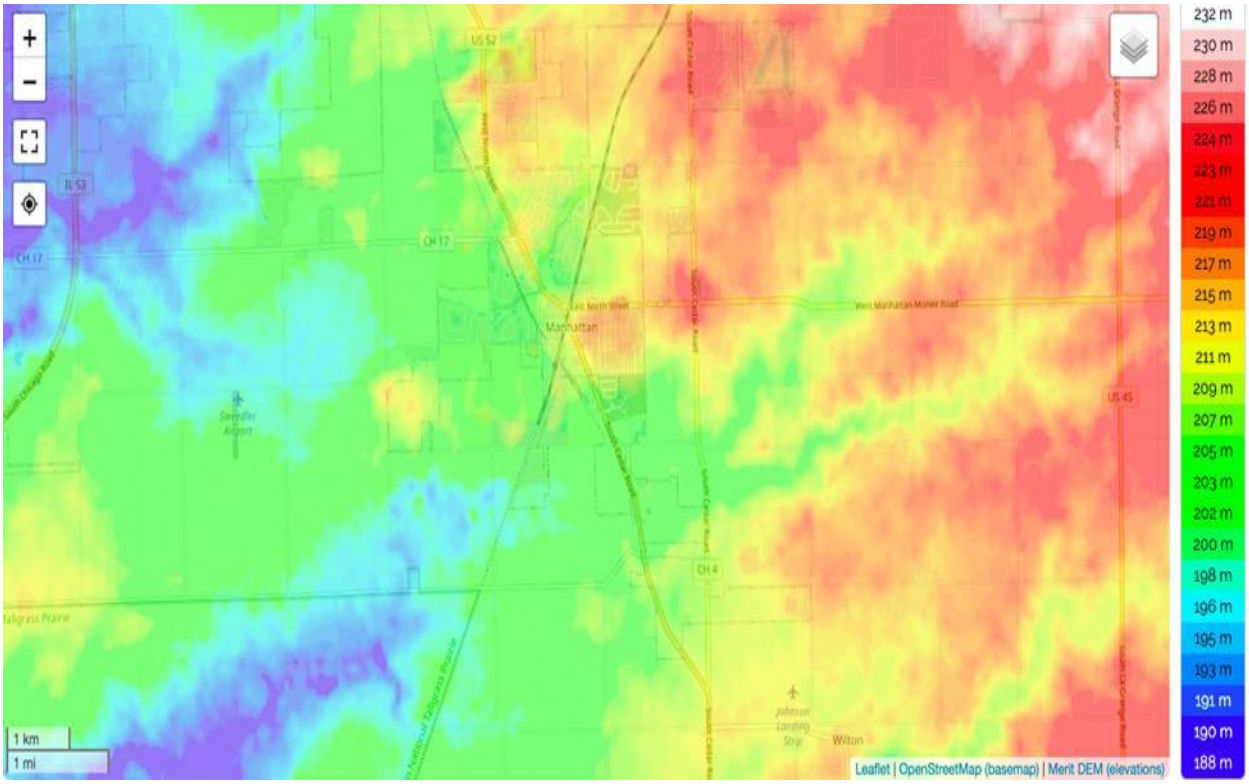
The predominant average hourly wind direction in Manhattan varies throughout the year.
The wind is most often from the north for 3.7 weeks, from March 9 to April 4, with a peak percentage of 28% on March 10. The wind is most often from the south for 7.5 months, from April 4 to November 20, with a peak percentage of 37% on September 7. The wind is most often from the west for 3.6 months, from November 20 to March 9, with a peak percentage of 41% on January 1.

Topography and Geography

According to weatherspark.com, "for this report, the geographical coordinates of Manhattan are 41.423 deg latitude, -87.986 deg longitude, and 679 ft elevation.

The topography within *2 miles* of Manhattan is essentially *flat*, with a maximum elevation change of *85 feet* and an average elevation above sea level of *675 feet*. Within *10 miles* is *essentially flat* (*400 feet*). Within *50 miles* contains only *modest* variations in elevation (*692 feet*).

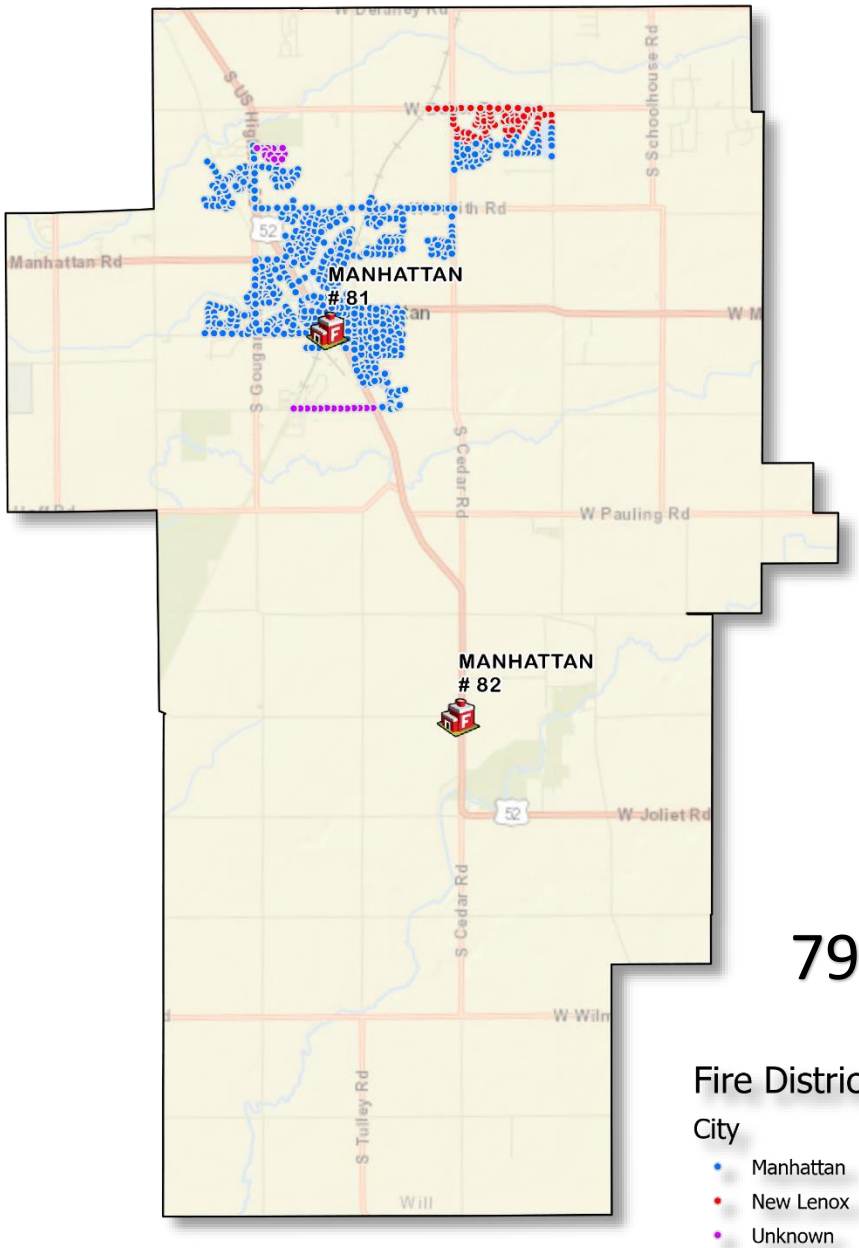
The area within *2 miles* of Manhattan is covered by *cropland* (*92%*), within *10 miles* by *cropland* (*76%*) and *artificial surfaces* (*20%*), and within *50 miles* by *cropland* (*62%*) and *artificial surfaces* (*25%*)."



Waterways


Jackson Creek
W Baker Rd
S Schoolhouse Rd
S US Highway 52
W Smith Rd
52
Jackson Creek
MANHATTAN
81
Manhattan
S Gougar Rd
Prairie Creek
W Pauling Rd
Jordan Creek
MANHATTAN
82
W Joliet Rd
52
S Cedar Rd
Forked Creek
S Tulley Rd
Will
Fire District
Waterways
Creeks and Rivers

Water Supply



795 Hydrants

Fire District Hydrants

City

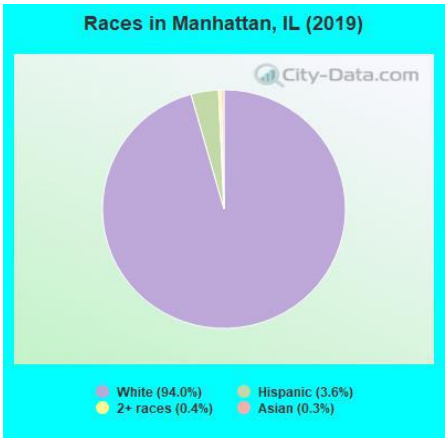
- Manhattan
- New Lenox
- Unknown

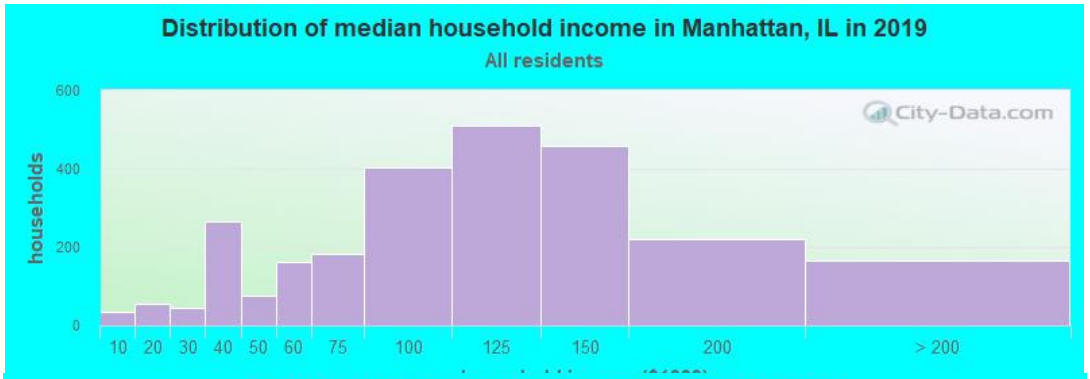
WATER SUPPLY		
616 Supply System	30	26.58
		88.60%
621 Hydrants	3	3
		100.00%
630 Inspection and Flow Testing	7	2.4
Previously: Inspection & Condition		34.29%
590 CREDIT for WATER SUPPLY	**40**	**31.98**
	Possible Pts	79.95%

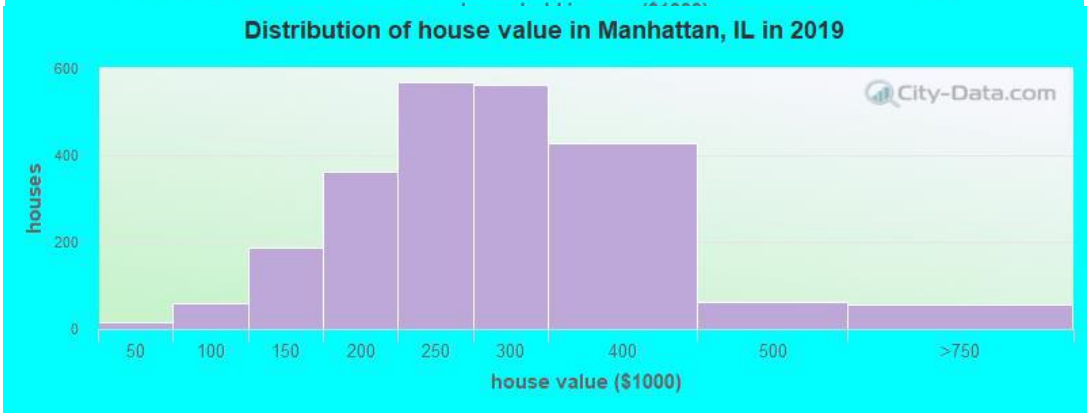
Demographics & Population

Demographics

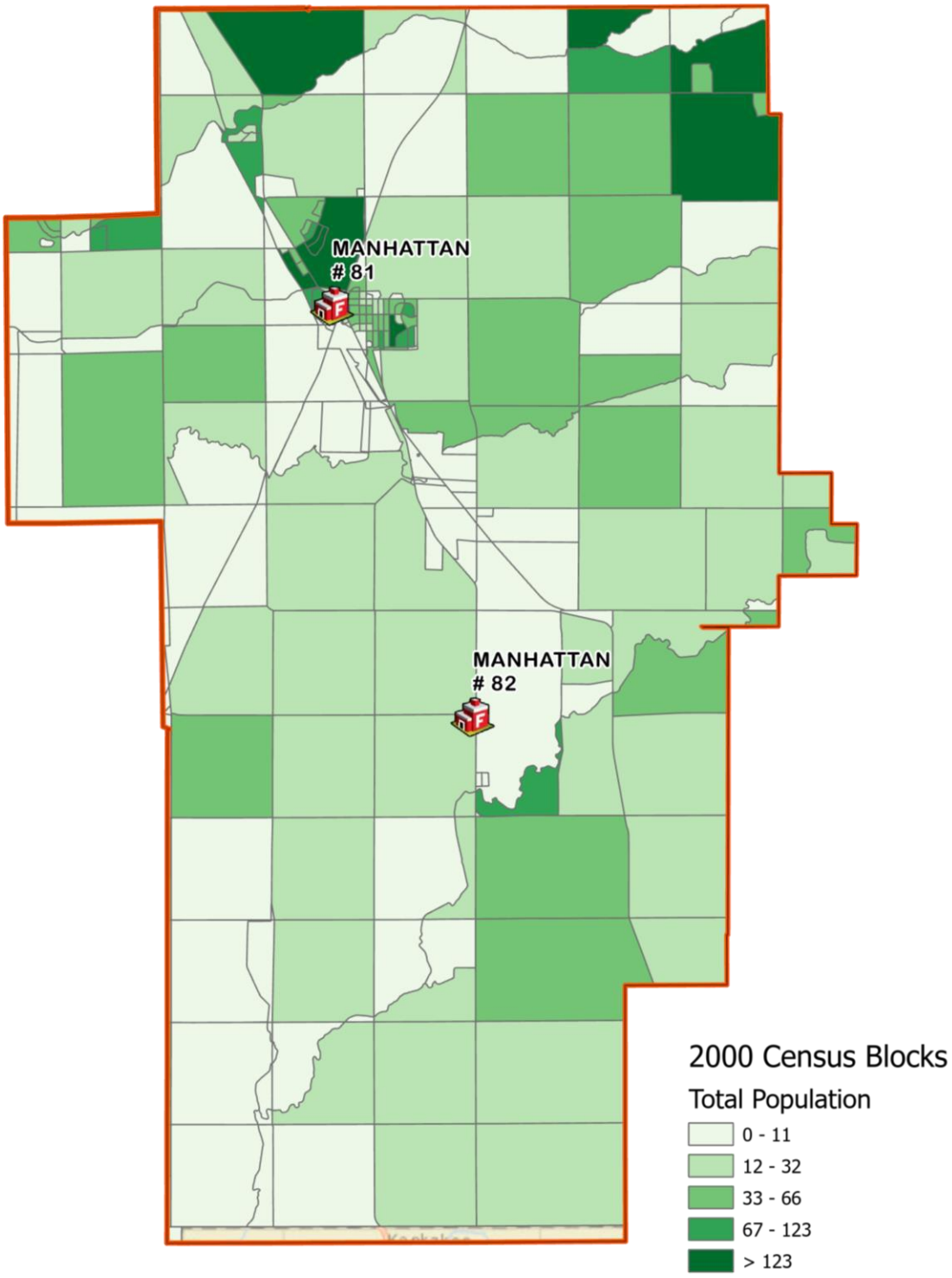
- Population – **15,721**
- Median Age – **46.1**
- Median Household Income - **$109,984**
- Population in 2019 - **23,965**
- Percentage of residents living in poverty in 2019 - **3.4%**
- Estimated median house or condo value in 2019 - **$261,794**
- Males - **51%** v Females - **49%**
- Race - White ***95%***, African American **1.5%**, Other **3.5%**
- For population 25 years and over in Manhattan -
    - High school or higher - **94.4%**
    - Bachelor's degree or higher - **32.5%**
    - Graduate or professional degree - **6.7%**
- Unemployed - **4.7%**
- Average household size – **3.97**



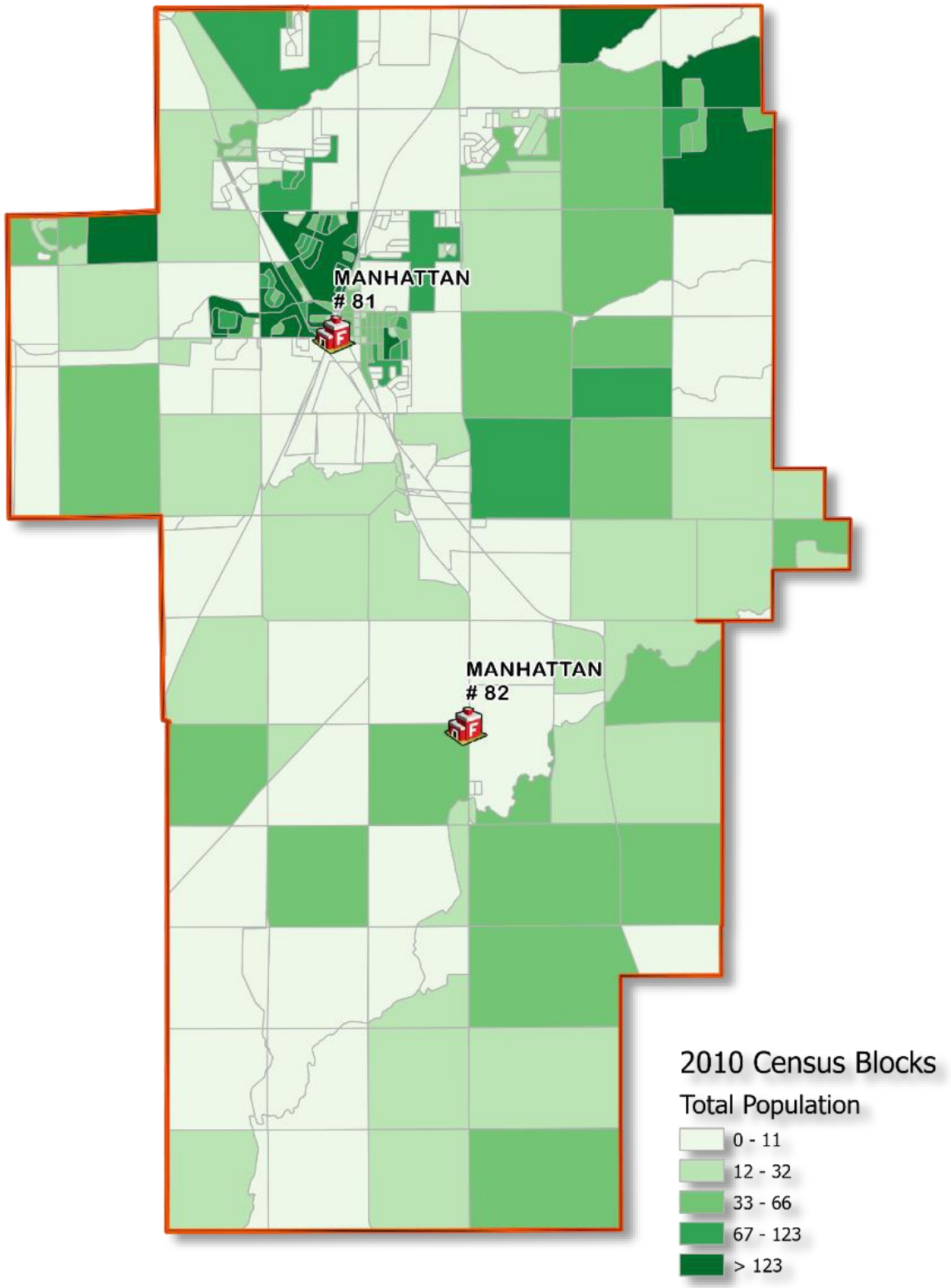




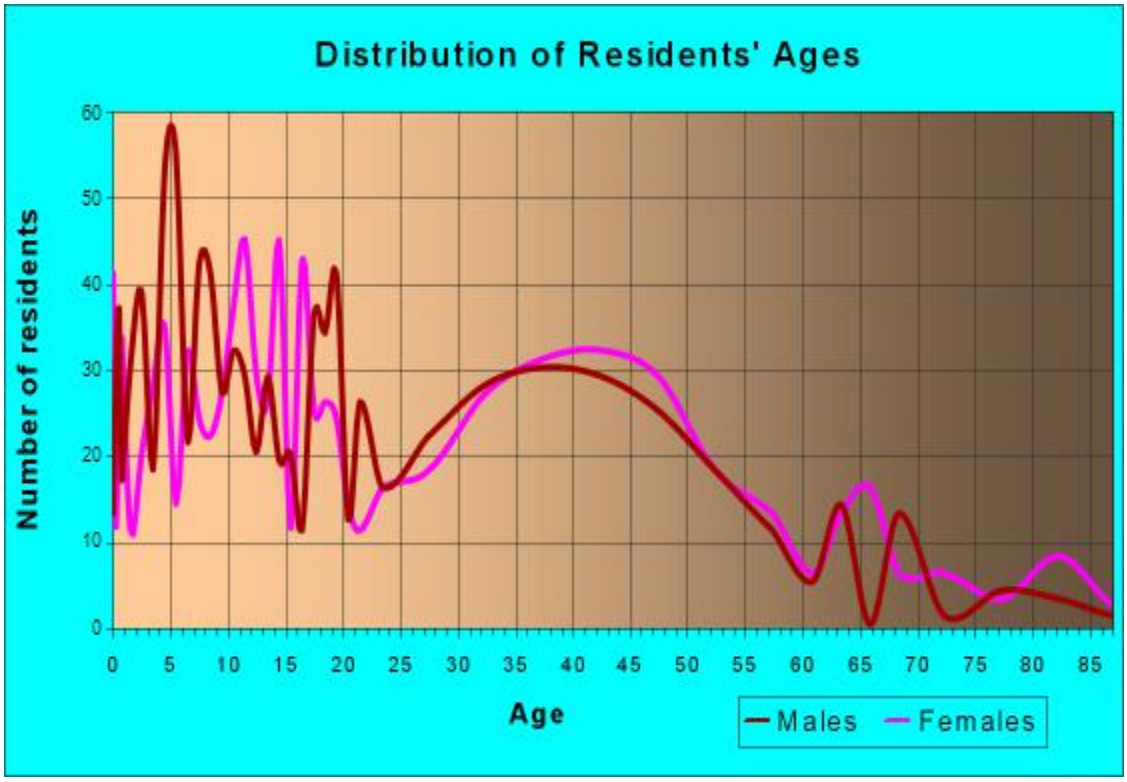
Population


MANHATTAN
81
MANHATTAN
82
2000 Census Blocks
Total Population
0 - 11
12 - 32
33 - 66
67 - 123
> 123

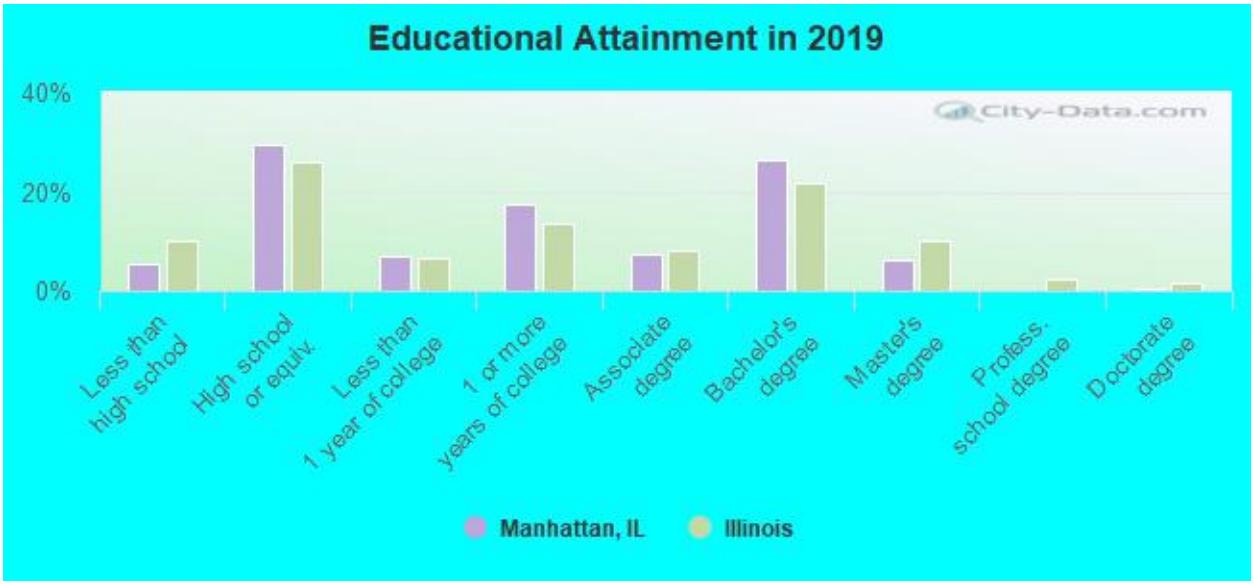
Shift (2000-2010)

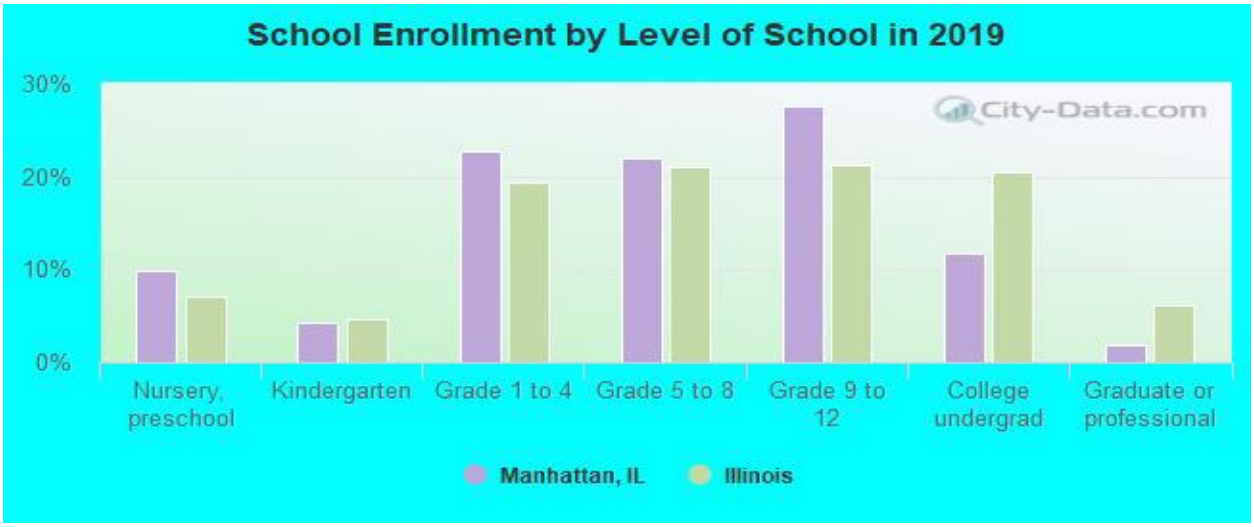


Age


Distribution of Residents' Ages
Number of residents
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Age
Males
Females

Education





School Name	Type	Grades	Students
Anna McDonald	Elementary	3-5	**485**
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St. Joseph	Private	PK-8	**160**
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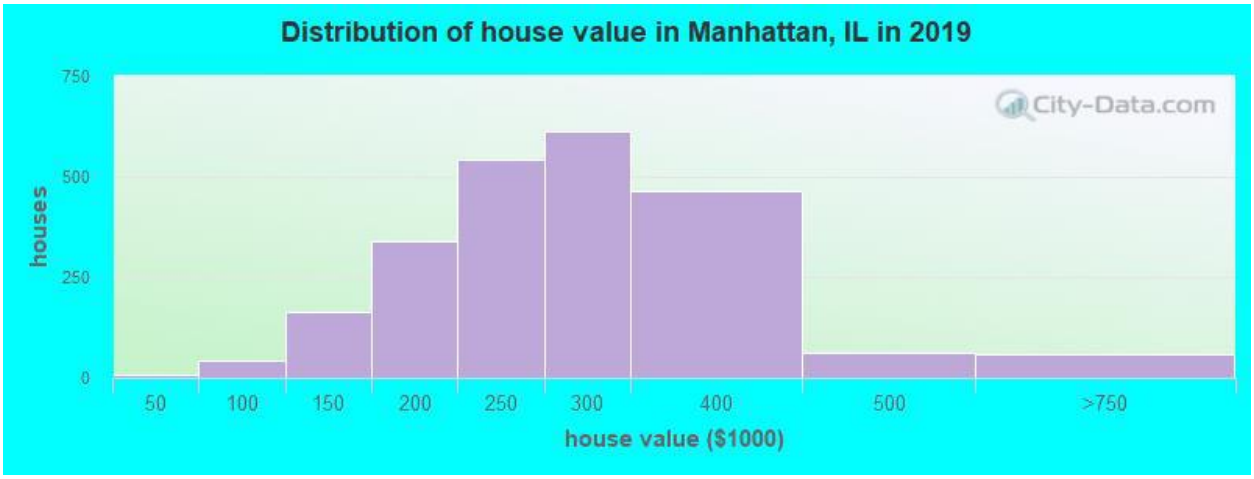
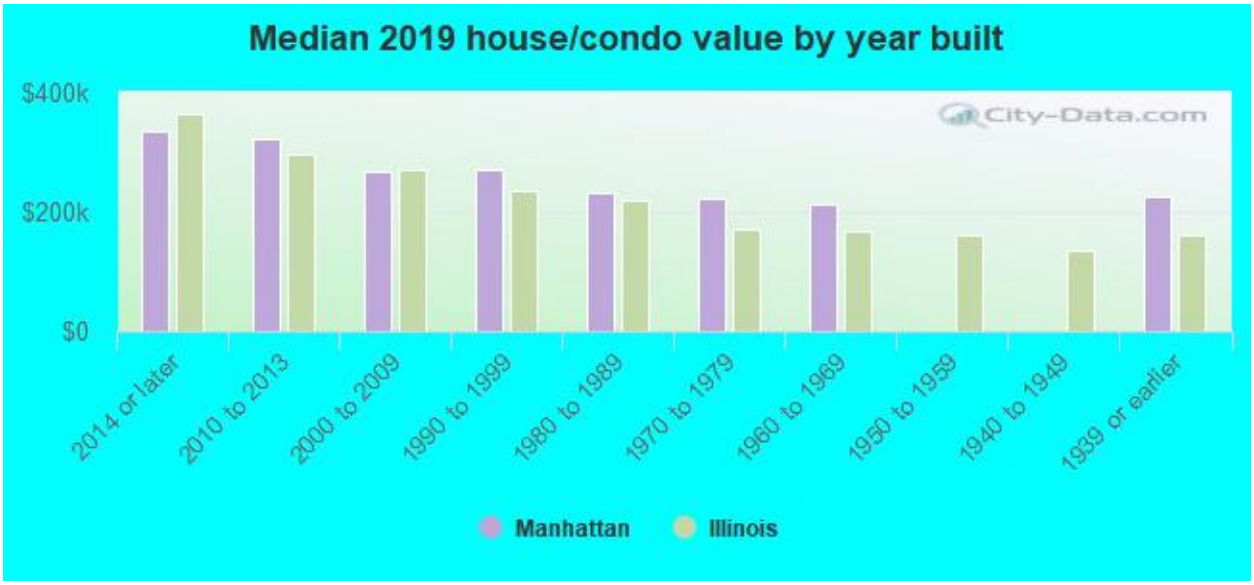
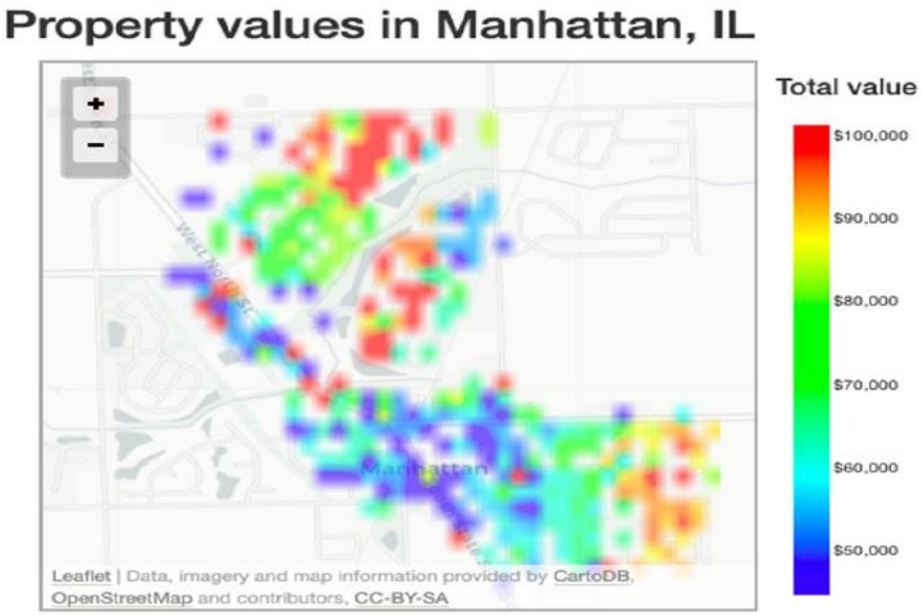
Kid Country	Child Care	PK	**79**
		K-13	**30**
First School	Child Care		
		Total	**1,846**

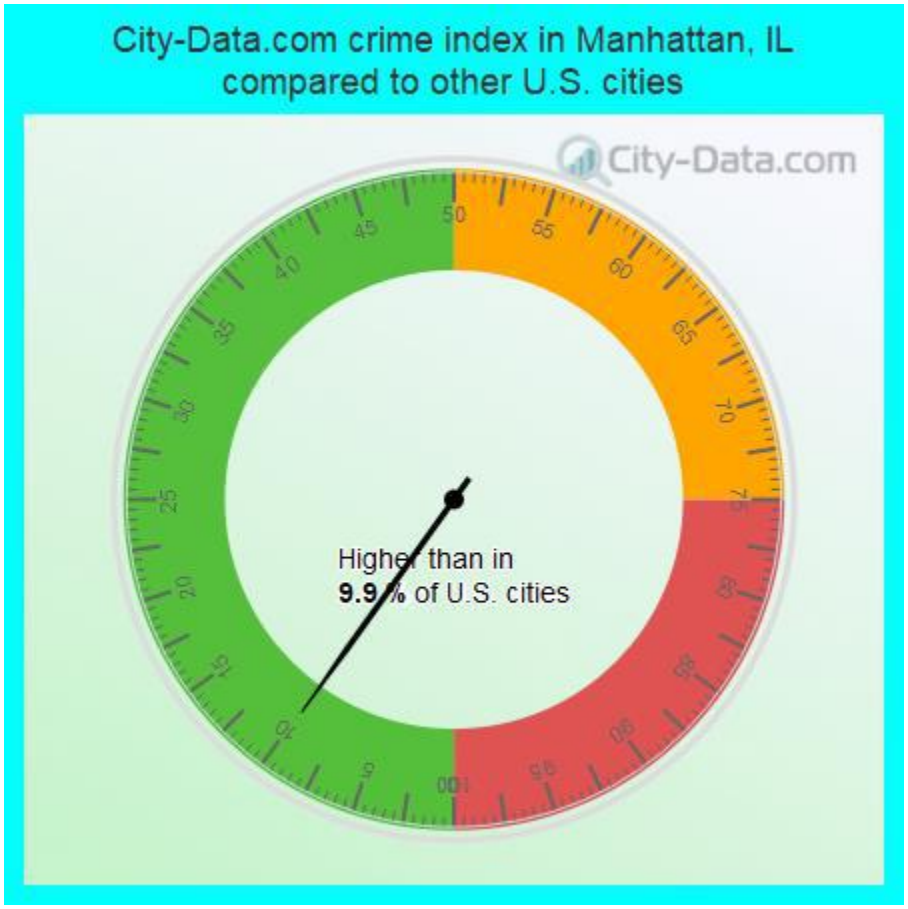
Housing

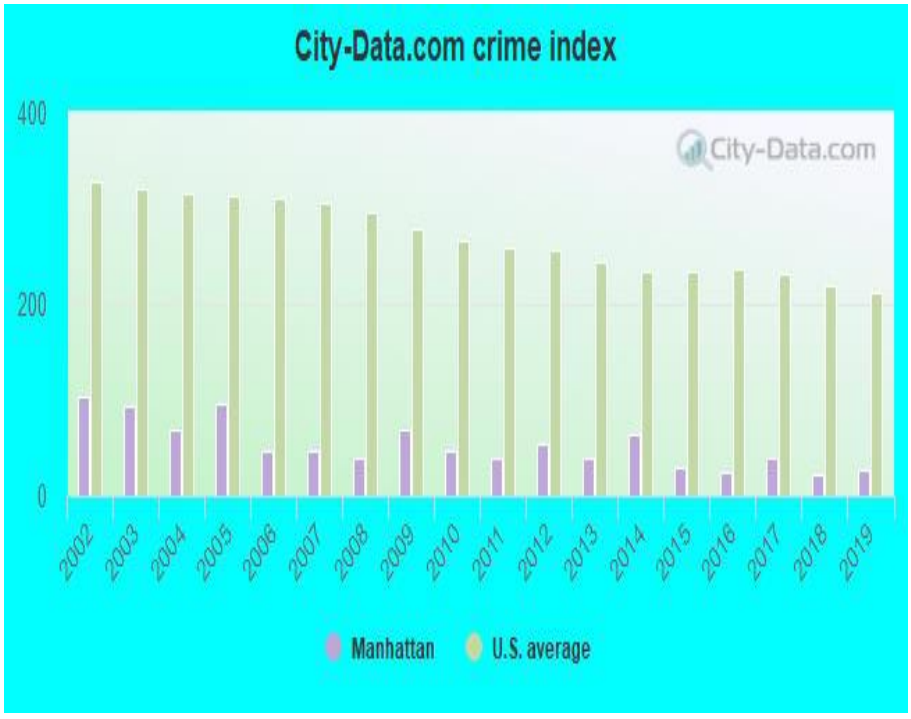

Distribution of house value in Manhattan, IL in 2019
City-Data.com
houses
750
500
250
0
50
100
150
200
250
300
400
500
>750
house value ($1000)


Median 2019 house/condo value by year built
City-Data.com
$400k
$200k
$0
2014 or later
2010 to 2013
2000 to 2009
1990 to 1999
1980 to 1989
1970 to 1979
1960 to 1969
1950 to 1959
1940 to 1949
1939 or earlier
Manhattan
Illinois


Property values in Manhattan, IL
Total value
$100,000
$90,000
$80,000
$70,000
$60,000
$50,000
Leaflet | Data, imagery and map information provided by CartoDB, OpenStreetMap and contributors, CC-BY-SA

Crime

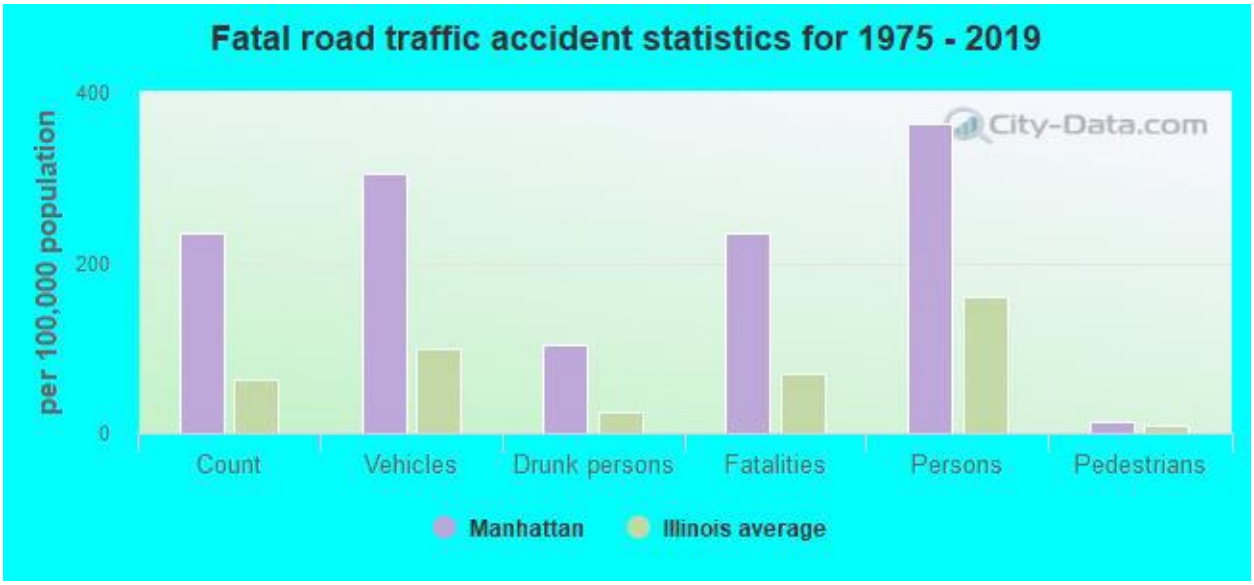

City-Data.com crime index in Manhattan, IL
compared to other U.S. cities
City-Data.com
Higher than in
9.9% of U.S. cities

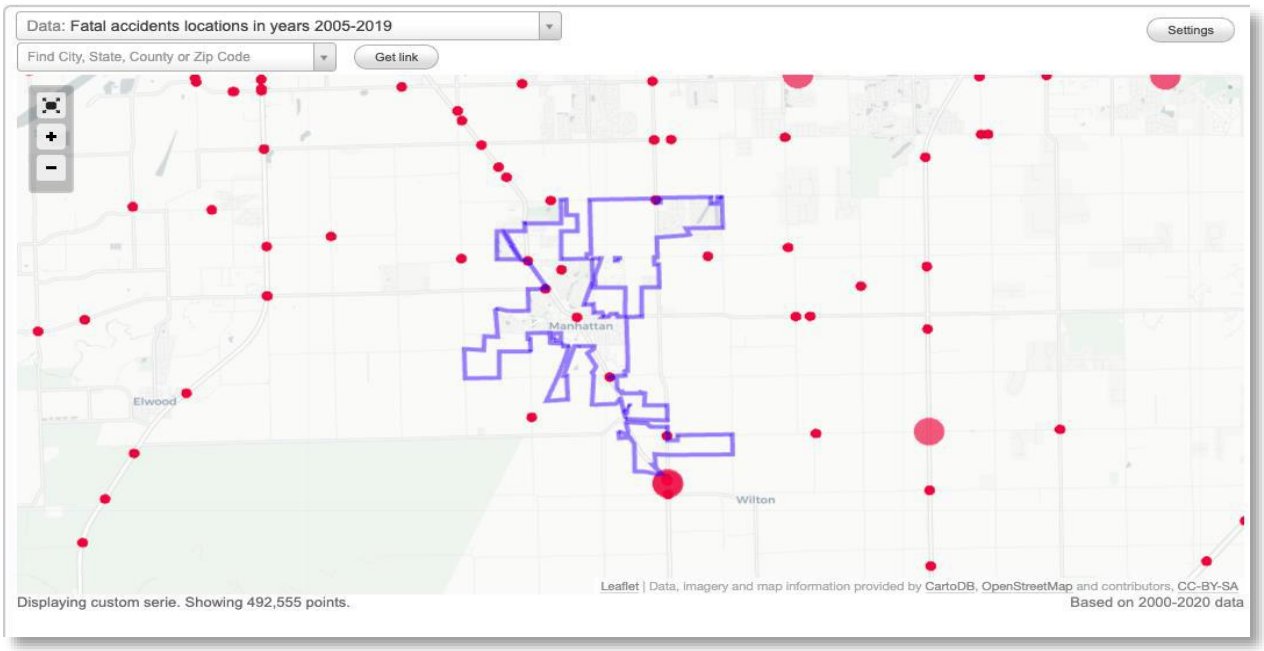

City-Data.com crime index
City-Data.com
400
200
0
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Manhattan
U.S. average

Crime rates in Manhattan by year														
Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Murders (per 100,000)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Rapes (per 100,000)	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (14.0)	1 (13.9)	0 (0.0)	0 (0.0)	1 (13.1)	0 (0.0)	0 (0.0)
Robberies (per 100,000)	1 (19.3)	0 (0.0)	0 (0.0)	2 (27.9)	6 (83.7)	6 (85.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Assaults (per 100,000)	3 (58.0)	6 (98.1)	2 (29.8)	6 (83.7)	0 (0.0)	0 (0.0)	5 (70.5)	2 (28.0)	8 (111.0)	6 (81.6)	2 (26.8)	4 (52.5)	2 (25.4)	1 (12.3)
Burglaries (per 100,000)	4 (77.4)	2 (32.7)	5 (74.6)	4 (55.8)	3 (41.9)	3 (42.5)	18 (253.7)	3 (41.9)	11 (152.7)	3 (40.8)	3 (40.2)	2 (26.2)	4 (50.8)	5 (61.6)
Thefts (per 100,000)	27 (522.3)	35 (572.1)	42 (626.3)	45 (628.0)	33 (460.5)	20 (283.6)	37 (521.4)	34 (475.4)	29 (402.5)	18 (244.7)	29 (388.5)	33 (432.8)	20 (253.8)	35 (431.0)
Auto thefts (per 100,000)	3 (58.0)	1 (16.3)	2 (29.8)	3 (41.9)	0 (0.0)	0 (0.0)	2 (28.2)	0 (0.0)	3 (41.6)	1 (13.6)	0 (0.0)	0 (0.0)	2 (25.4)	2 (24.6)
Arson (per 100,000)	1 (19.3)	0 (0.0)	1 (14.9)	0 (0.0)	0 (0.0)	1 (14.2)	1 (14.1)	0 (0.0)	0 (0.0)	1 (13.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
City-Data.com crime index	48.4	46.1	38.6	68.7	46.5	39.9	55.0	38.7	63.4	30.0	23.7	40.1	20.8	26.0

The City-Data.com crime index weighs serious crimes and violent crimes more heavily. Higher means more crime, U.S. average is 270.6. It adjusts for the number of visitors and daily workers commuting into cities.

Fatal Accidents





Manhattan, Illinois	
Fatal accident count	9
Vehicles involved in fatal accidents	12
Fatal accidents involving drunk persons:	4
Fatalities	9
Persons involved in fatal accidents	14
Pedestrians involved in fatal accidents	1

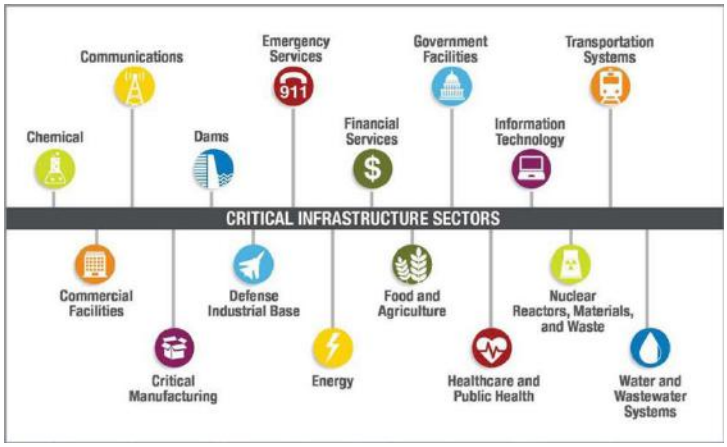
	Fatalities
1983	1
1989	2
1999	1
2012	1
2014	1
2015	1
2019	2
2021	2
	11

Critical Infrastructure

This section is verbatim from the DHS website to provide a general overview of Presidential Directive 21.

Critical infrastructure is assets considered essential to the functioning of society, economies, and communities. Presidential Policy Directive 21 (PPD-21) "Critical Infrastructure Security and Resilience" recognizes 16 Critical Infrastructure categories. When conducting a complete Community Risk Assessment, these facilities must be identified and built into the emergency response planning process. There are 16 critical infrastructure sectors whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health, or safety, or any combination thereof. Presidential Policy Directive 21 (PPD-21) defines Critical Infrastructure Security, and Resilience advances a national policy to strengthen and maintain secure, functioning, and resilient critical infrastructure in these sectors:

- Chemical
- Commercial Facilities
- Communications
- Critical Manufacturing
- Dams
- Defense Industrial Base
- Emergency Services
- Energy
- Financial Services
- Food and Agriculture
- Government Facilities
- Healthcare and Public Health
- Information Technology
- Nuclear Reactors, Materials, and Waste
- Transportation Systems
- Water and Wastewater Systems



Commercial Facilities

The Commercial Facilities Sector includes a diverse range of sites that draw large crowds for shopping, business, entertainment, or lodging. Facilities within the sector operate on the principle of open public access, meaning that the public can move freely without the deterrent of highly visible security barriers. Most of these facilities are privately owned and operated, with minimal interaction with the federal government and other regulatory entities.

The Commercial Facilities Sector consists of eight subsectors:

- Entertainment and Media (e.g., motion picture studios, broadcast media)
- Gaming (e.g., casinos)
- Lodging (e.g., hotels, motels, conference centers)
- Outdoor Events (e.g., theme and amusement parks, fairs, campgrounds, parades)
- Public Assembly (e.g., arenas, stadiums, aquariums, zoos, museums, convention centers)

- Real Estate (e.g., office and apartment buildings, condominiums, mixed-use facilities, self-storage)
- Retail (e.g., retail centers and districts, shopping malls)
- Sports Leagues (e.g., professional sports leagues and federations)

Communications Sector

The Communications Sector is an integral component of the U.S. economy, underlying the operations of all businesses, public safety organizations, and government. Presidential Policy Directive 21 identifies the Communications Sector as critical because it provides an "enabling function" across all critical infrastructure sectors. Over the last 25 years, the industry has evolved from predominantly a provider of voice services into a diverse, competitive, and interconnected industry using terrestrial, satellite, and wireless transmission systems. The transmission of these services has become interconnected; satellite, wireless, and wireline providers depend on each other to carry and terminate their traffic. Companies routinely share facilities and technology to ensure interoperability.

Emergency Services Sector

The Emergency Services Sector (ESS) is a community of millions of highly skilled, trained personnel and physical and cyber resources that provide a wide range of prevention, preparedness, response, and recovery services during day-to-day operations and incident response. The ESS includes geographically distributed facilities and equipment in both paid and volunteer capacities organized primarily at the federal, state, local, tribal, and territorial levels of government, such as city police departments and fire stations, county sheriff's offices, Department of Defense police and fire departments, and town public works departments. The ESS also includes private sector resources, such as industrial fire departments, private security organizations, and private emergency medical services providers.

Energy Sector

The U.S. energy infrastructure fuels the economy of the 21st century. Without a stable energy supply, health and welfare are threatened, and the U.S. economy cannot function. Presidential Policy Directive 21 identifies the Energy Sector as uniquely critical because it provides an "enabling function" across all critical infrastructure sectors. More than 80 percent of the country's energy infrastructure is owned by the private sector, supplying fuels to the transportation industry, electricity to households and businesses, and other energy sources integral to growth and production.

The energy infrastructure is divided into three interrelated segments: electricity, oil, and natural gas. The reliance on virtually all industries on electric power and fuels means that all sectors have some dependence on the Energy Sector. The Energy Sector is aware of its vulnerabilities and is leading a significant voluntary effort to increase its planning and preparedness. Cooperation through industry groups has resulted in substantial information sharing of best practices across the sector. Many sector owners and operators have extensive experience abroad with infrastructure protection and have recently focused on cybersecurity.

Financial Services Sector

The Financial Services Sector represents a vital component of the District's nation's critical infrastructure. Large-scale power outages, recent natural disasters, and the increased number and sophistication of cyberattacks demonstrate the wide range of potential risks facing the sector.

The Financial Services Sector includes thousands of depository institutions, providers of investment products, insurance companies, other credit and financing organizations, and the providers of the critical financial utilities and services that support these functions. Financial institutions vary widely in size and presence, ranging from some of the world's largest global companies with thousands of employees and many billions of dollars in assets to community banks and credit unions. In addition, a small number of employees serve individual communities. Whether an individual savings account, financial derivatives, credit extended to a large organization, or investments made to a foreign country, these products allow customers to:

- Deposit funds and make payments to other parties
- Provide credit and liquidity to customers
- Invest funds for both long and short periods
- Transfer financial risks between customers

Government Facilities Sector

The Government Facilities Sector includes many buildings, located in the United States and overseas, owned or leased by federal, state, local, and tribal governments. Many government facilities are open to the public for business activities, commercial transactions, or recreational activities. In contrast, others that are not open to the public contain highly sensitive information, materials, processes, and equipment. These facilities include general-use office buildings and special-use military installations, embassies, courthouses, national laboratories, and structures that may house critical equipment, systems, networks, and functions. In addition to physical facilities, the sector includes cyber elements that protect sector assets (e.g., access control systems and closed-circuit television systems) and individuals who perform essential functions or possess tactical, operational, or strategic knowledge.

Education Facilities Subsector

The Education Facilities Subsector covers pre-kindergarten through 12th-grade schools, higher education institutions, and business and trade schools. The subsector includes facilities that are owned

by both government and private sector entities. The National Monuments and Icons Subsector encompasses various assets, networks, systems, and functions located throughout the United States. Many National Monuments and Icons assets are listed in either the National Register of Historic Places or the List of National Historic Landmarks.

Election Infrastructure Subsector

The Election Infrastructure Subsector covers a wide range of physical and electronic assets such as storage facilities, polling places, and centralized vote tabulations locations used to support the election process and information and communications technology to include voter registration databases, voting machines, and other systems to manage the election process and report and display results on behalf of state and local governments.

Healthcare and Public Health Sector

The Healthcare and Public Health sectors protect all economic sectors from terrorism, infectious disease outbreaks, and natural disasters. Because many of the sector's assets are privately owned and operated, collaboration and information sharing between the public and private sectors is essential to increasing the resilience of the nation's Healthcare and Public Health critical infrastructure. Working in all U.S. states, territories, and tribal areas, the sector plays a significant role in response and recovery across all other sectors in the event of a natural or manmade disaster. While healthcare tends to be delivered and managed locally, the sector's public health component, focused primarily on population health, is worked across all government levels: national, state, regional, local, tribal, and territorial.

The Healthcare and Public Health sectors are highly dependent on fellow sectors for continuity of operations and service delivery, including Communications, Emergency Services, Energy, Food and Agriculture, Information Technology, Transportation Systems, and Water and Wastewater Systems.

Information Technology Sector

The Information Technology Sector is central to the nation's security, economy, and public health and safety as businesses, governments, academia, and private citizens are increasingly dependent upon Information Technology Sector functions. These virtual and distributed functions produce and provide hardware, software, information technology systems, and services and collaborate with the Communications Sector—the Internet. The complex and dynamic environment identifies threats, assesses vulnerabilities difficult, and requires these tasks to be addressed collaboratively and creatively.

A combination of entities operates Information Technology Sector functions—often owners and operators and their respective associations—that maintain and reconstitute the network, including the Internet. Although information technology infrastructure has a certain level of inherent resilience, its interdependent and interconnected structure presents challenges and opportunities for coordinating public and private sector preparedness and protection activities.

Transportation Systems Sector

The Department of Homeland Security and the Department of Transportation are designated as the Co-Sector-Specific Agencies for the Transportation Systems Sector. The nation's transportation system quickly, safely, and securely moves people and goods through the country and overseas.

The Transportation Systems Sector consists of seven key subsectors or modes:

- **Aviation** includes aircraft, air traffic control systems, and about 19,700 airports, heliports, and landing strips. Approximately 500 provide commercial aviation services at civil and joint-use military airports, heliports, and seaplane bases. The aviation model includes commercial and recreational aircraft (manned and unmanned) and various support services (aircraft repair stations, fueling facilities, navigation aids, and flight schools).
- **Highway and Motor Carrier** encompasses more than 4 million miles of roadway, more than 600,000 bridges, and more than 350 tunnels. Vehicles include trucks (including those carrying hazardous materials), other commercial vehicles (including commercial motor coaches and school buses), vehicle and driver licensing systems, traffic management systems, and cyber systems used for operational management.
- **Maritime Transportation System** consists of about 95,000 miles of coastline, 361 ports, more than 25,000 miles of waterways, and intermodal landside connections that allow the various modes of transportation to move people and goods and water.
- **Mass Transit and Passenger Rail** includes terminals, operational systems, and supporting infrastructure for passenger services by transit buses, trolleybuses, monorail, heavy rail (subways or metros), light rail, passenger rail, and vanpool/rideshare. Public transportation and passenger rail operations provided an estimated 10.8 billion passenger trips in 2014.
- **Pipeline Systems** consist of more than 2.5 million miles of pipelines spanning the country and carrying nearly all the nation's natural gas and about 65 percent of hazardous liquids, as well as various chemicals. Above-ground assets, such as compressor stations and pumping stations, are also included.
- **Freight Rail** consists of seven major carriers, hundreds of smaller railroads, over 138,000 miles of active railroad, over 1.33 million freight cars, and approximately 20,000 locomotives. An estimated 12,000 trains operate daily. The Department of Defense has designated 30,000 miles of track and structure critical to the mobilization and resupply of U.S. forces.
- **Postal and Shipping** moves about 720 million letters and packages each day and includes large integrated carriers, regional and local courier services, mail services, mail management firms, and chartered and delivery services.

Water and Wastewater Systems Sector

Safe drinking water is a prerequisite for protecting public health and all human activity. Adequately treated wastewater is vital for preventing disease and protecting the environment. Thus, ensuring the supply of drinking water and wastewater treatment and service is essential to modern life and the nation’s economy.

The Water and Wastewater Systems Sector is vulnerable to various attacks, including contamination with deadly agents and physical attacks (such as releasing toxic gaseous chemicals) and cyberattacks.

The result of various attacks could be large numbers of illnesses or casualties or a denial of service that would impact public health and economic vitality. The sector is also vulnerable to natural disasters. Critical services, such as firefighting and healthcare (hospitals), and other dependent and interdependent sectors, such as Energy, Food and Agriculture, and Transportation Systems, would suffer negative impacts from a denial of service in the Water and Wastewater Systems Sector.

Target Hazards/Critical Facilities

FEMA defines these as: "facilities in either the public or private sector that provide essential products and services to the public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and/or disaster recovery functions."

To conduct a practical target hazard assessment, some key definitions must be understood:

Hazards: Known physical features that can ignite and sustain combustion or existing features (natural or manmade) that can negatively impact life, property, and/or natural resources

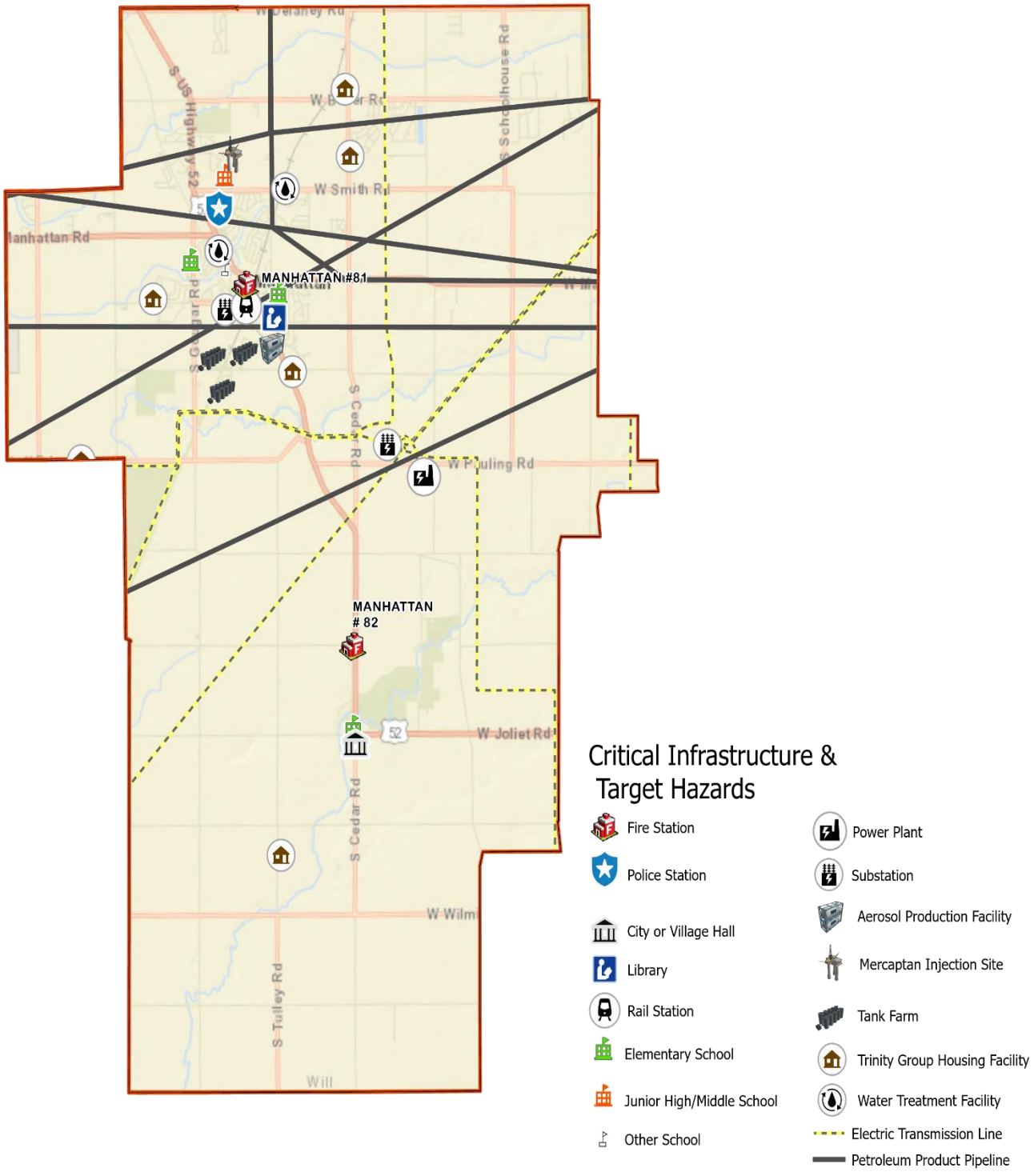
Values: Community assets, including life, property, and natural resources

Other significant target hazards have been identified. These include nursing homes, mid-rise, and other buildings (consisting of three floors or greater), all public schools, and locations of hazardous materials sites. This information helped determine where best to locate fire suppression and other specialty resources for each planning zone.

A comprehensive review of the service area was completed. Data was gathered from ISO, fire prevention inspection records, GIS list of high-rise occupancies, target hazards in CAD, economic revenues from the Census, and interviews with the Village and District stakeholders. Data was collected on the type of risk found: Need Fire Flow (NFF), Hazardous Material occupancy, Life Safety risk, High Rise, economic risk, and others (historical/cultural). The information was then reviewed with the Fire Prevention Division.

After a detailed analysis, the District has identified the following as "target hazards/critical facilities": Schools, Nursing/Assisted Living, Hotels, and non-sprinklered structures four stories or more are considered high or target hazards. Police and Fire Stations, Communication Systems, Water Treatment facilities are considered "critical" facilities. Fortunately, some of these facilities are fully sprinklered and alarmed within the District.

Target Hazard Map



High-Risk Facilities

A. Aeropress Corporation

B. BP Pipeline

C. Enbridge Pipeline

D. Lincoln Generating facility

E. Com Ed “Wilton Center” substation

F. Metra Train Maintenance

G. Metra Train Station

H. Manhattan Public Works Sewer Plant

   i. Marion and Eberhart

I. Manhattan Water Treatment

   i. W North St at the water tower

   ii. Smith Rd & Eastern at the water tower

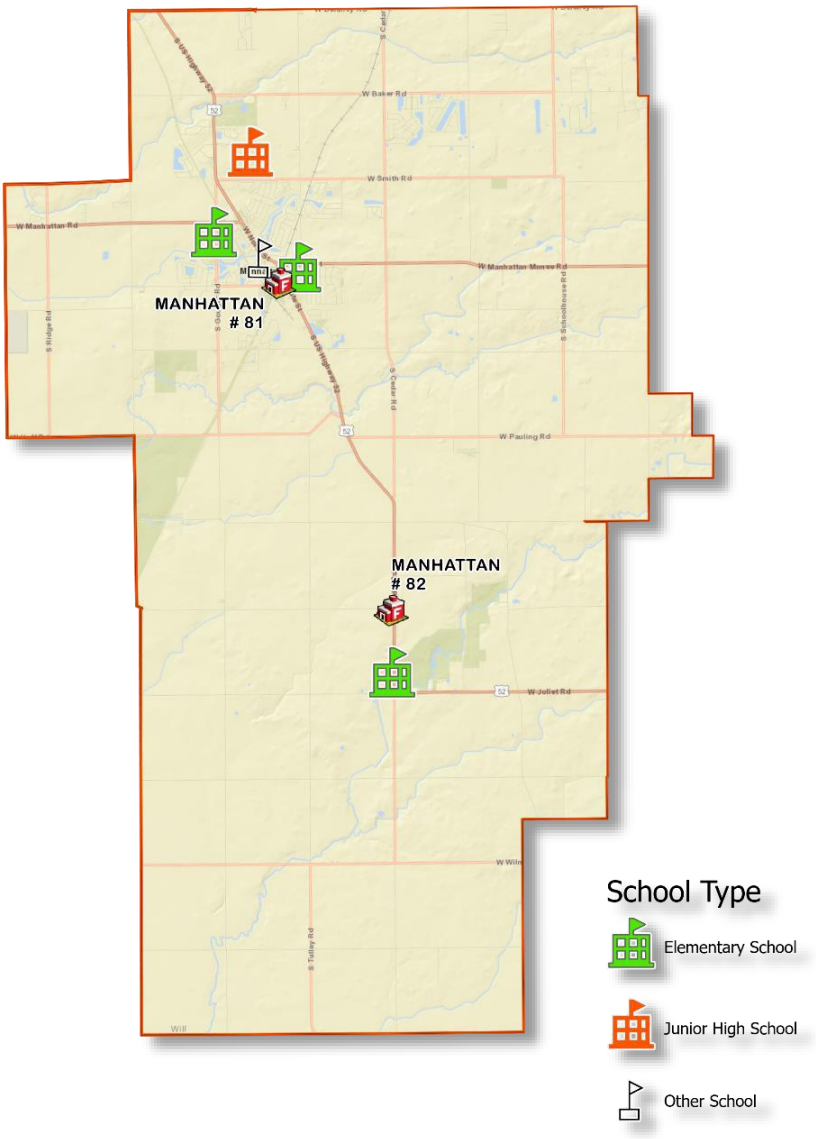
J. Mercaptan Injection sites

   i. Bruns and Gougar

   ii. White Feather Lane and Arrowhead (access gate east of Jr High on Smith)

- **Trinity Group Housing Facilities**
  - 30545 S. Walsh Rd.
  - 27655 S. Walsh Rd. (with Strides riding stables)
  - 14949 W. Bruns Rd.
  - 23816 S. Cedar Rd.
  - 24409 S. Cedar Rd.
  - 16404 W. Sweedler Rd.
  - 17454 W. Hoff Rd. (day facility)
  - 17150 W. Hoff Rd.
  - 17128 W. Hoff Rd.
  - 505 W. North St. (cornerstone multi-family)

Schools



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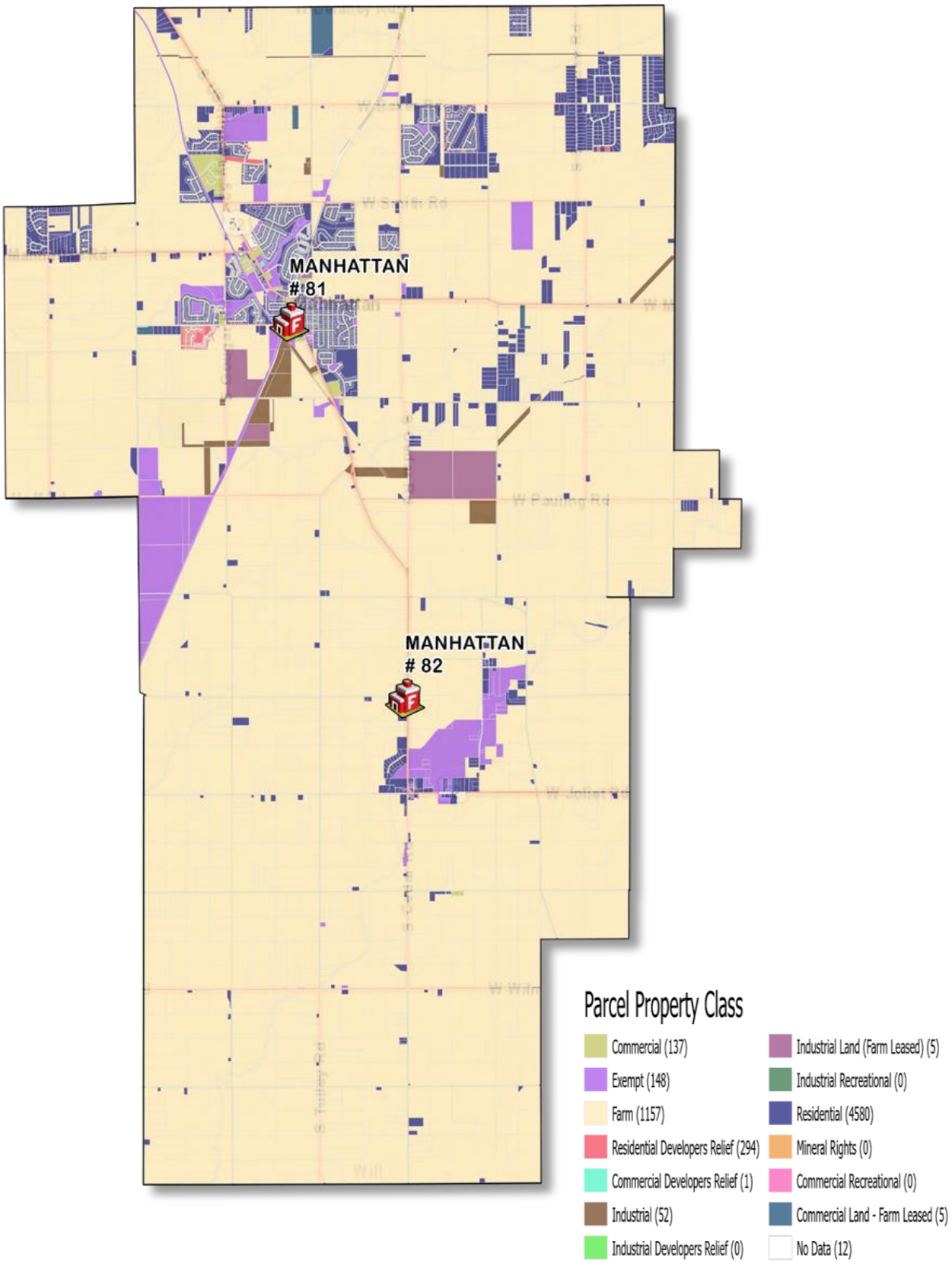
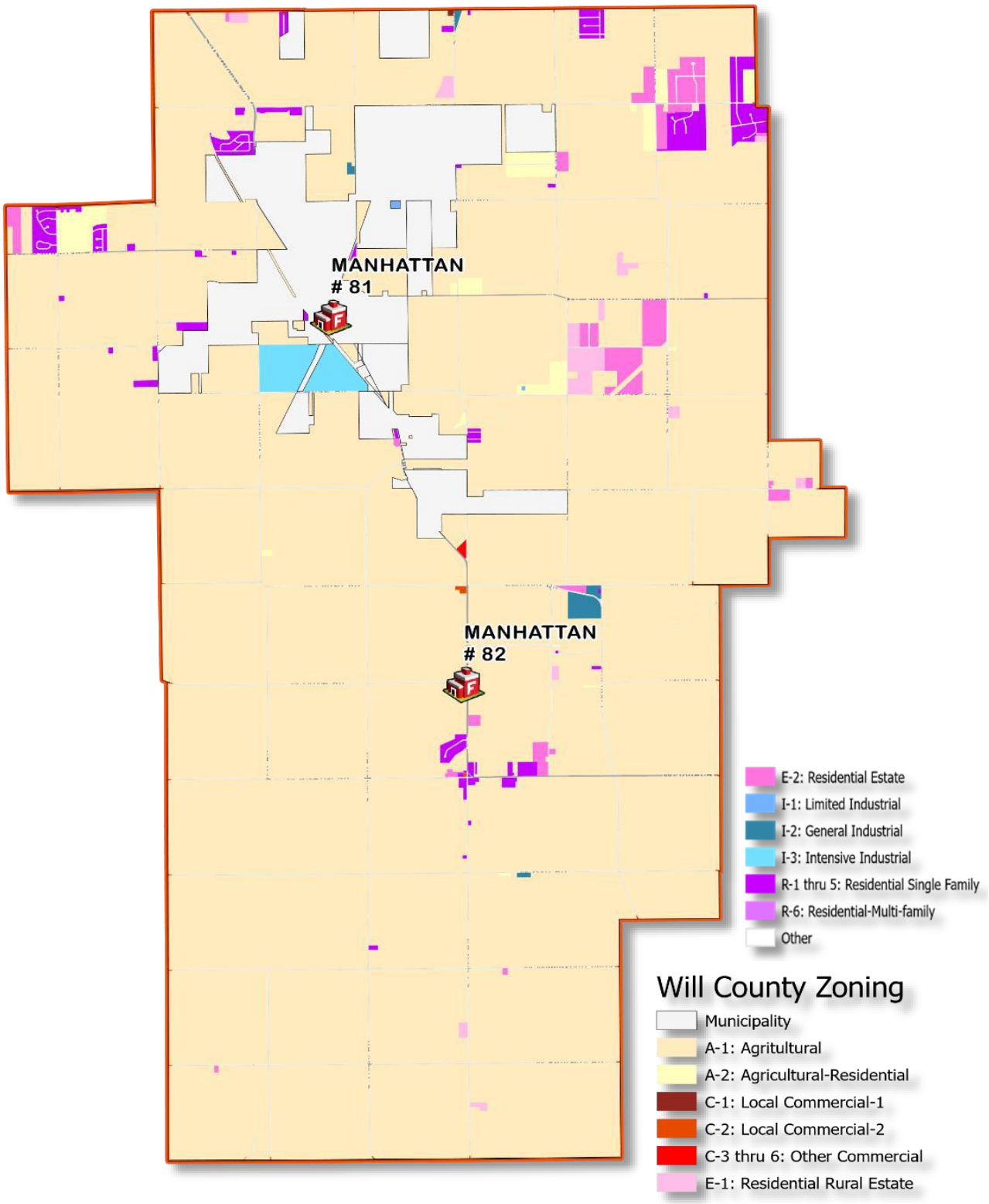
Kid Country	Child Care	PK	**79**
		K-13	**30**
First School	Child Care		
		Total	**1,846**

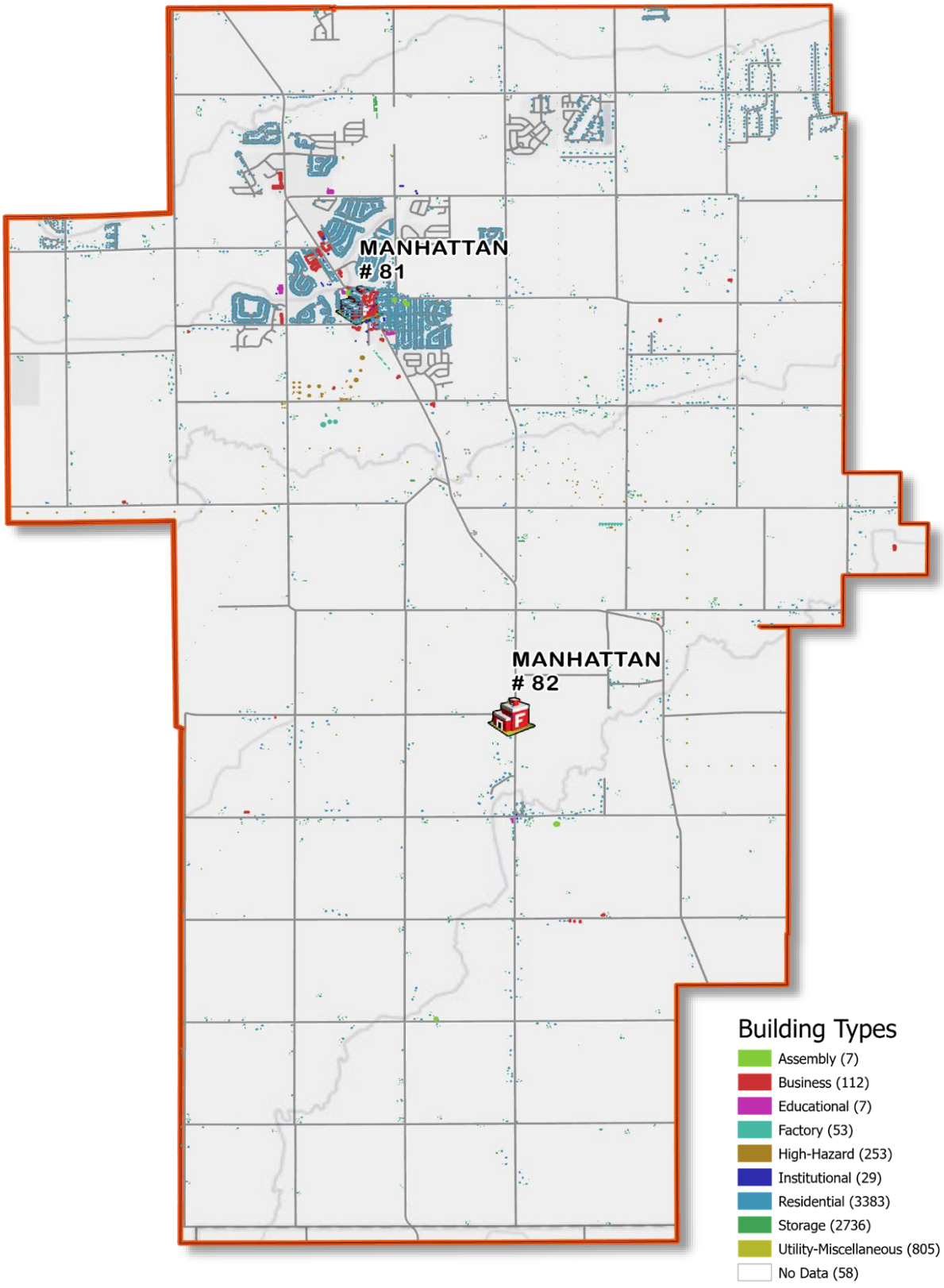
Parcel Property Classes



Zoning

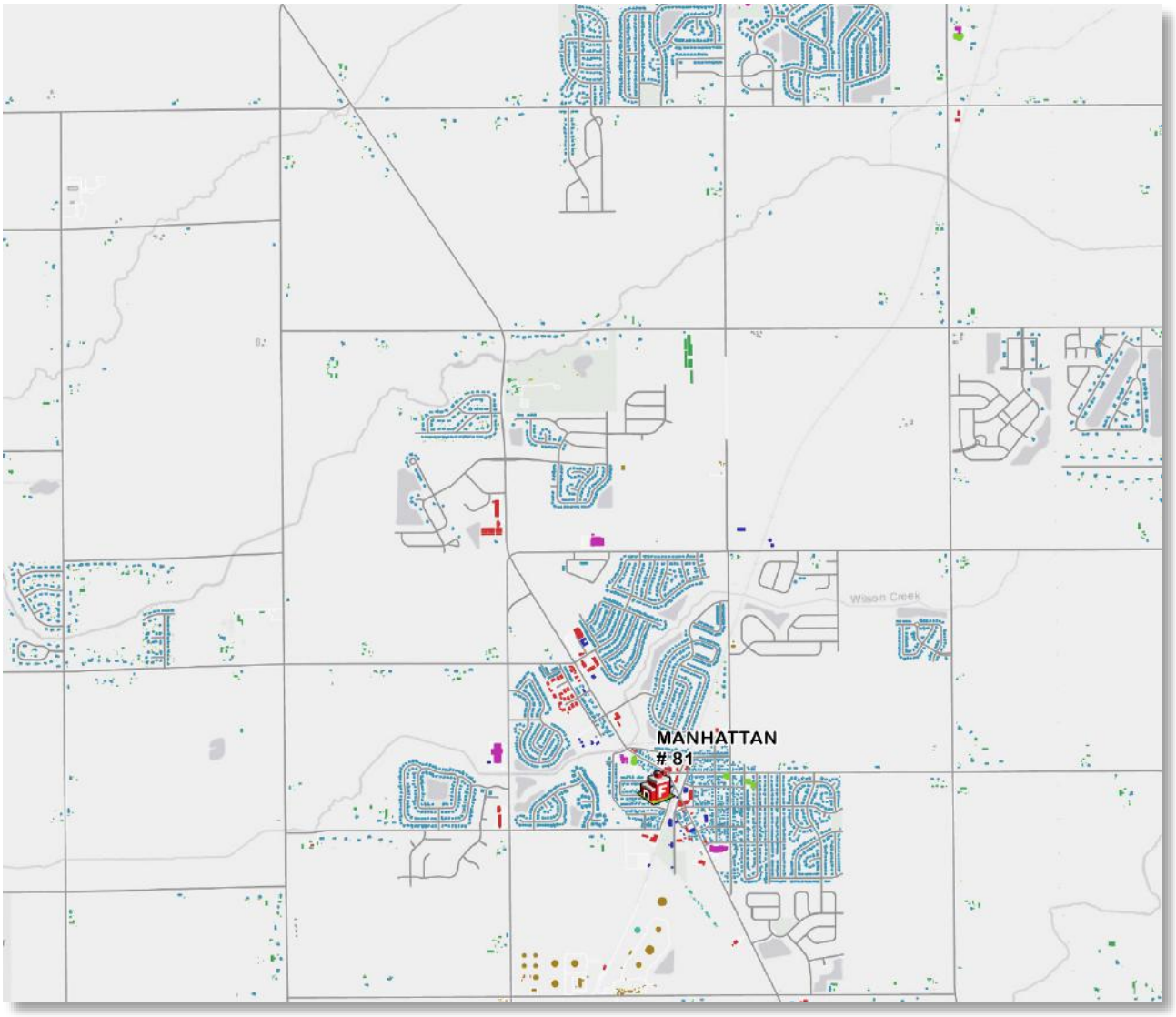

MANHATTAN
81
MANHATTAN
82
E-2: Residential Estate
I-1: Limited Industrial
I-2: General Industrial
I-3: Intensive Industrial
R-1 thru 5: Residential Single Family
R-6: Residential-Multi-family
Other
Will County Zoning
Municipality
A-1: Agritultural
A-2: Agricultural-Residential
C-1: Local Commercial-1
C-2: Local Commercial-2
C-3 thru 6: Other Commercial
E-1: Residential Rural Estate

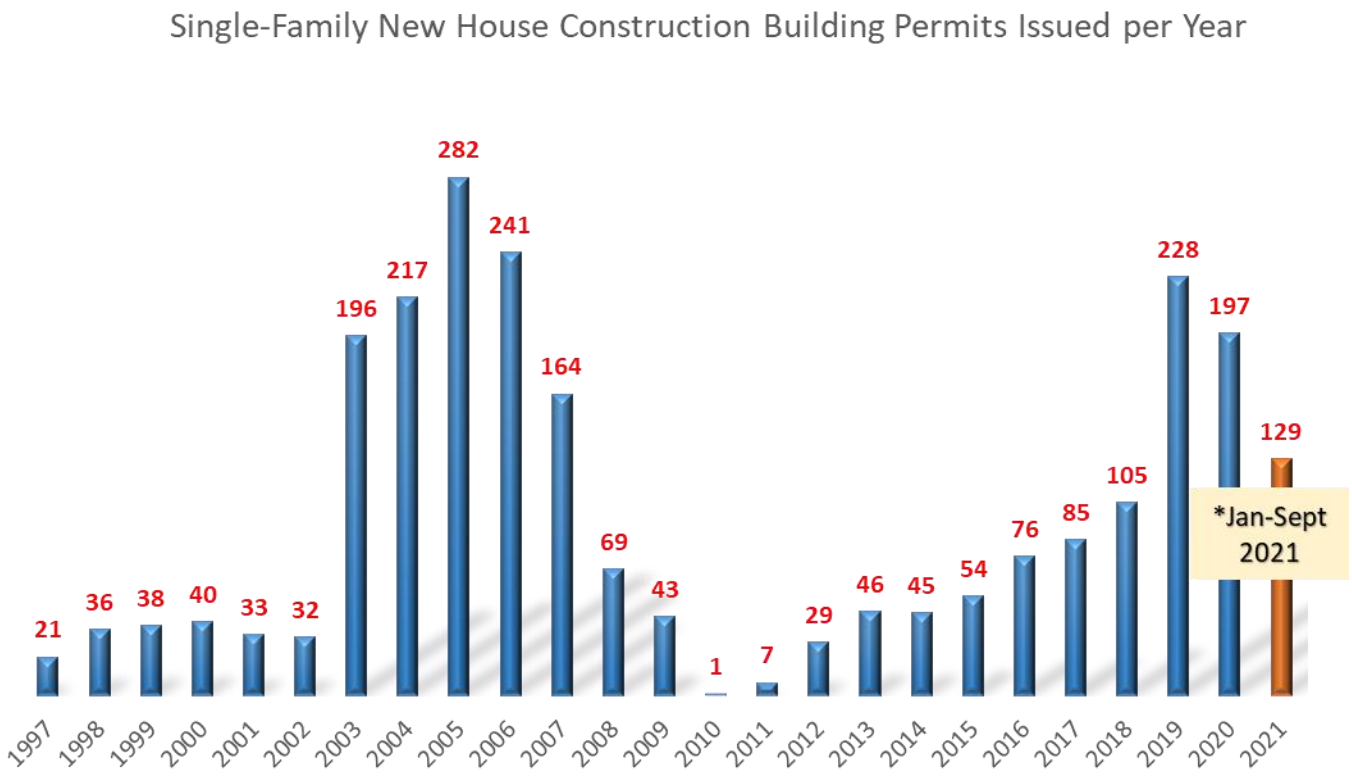
Building Types



Structure Inventory

Building Type	TOTAL	Risk Level	% of Total
Assembly	**7**	**H**	0.1%
Educational	**7**	**H**	0.1%
Institutional/ Health Care	**29**	**M**	0.4%
Residential	**3,383**	**M-H**	50.3%
Merchantile	**112**	**M**	1.7%
Utility-Misc	**85**	**M**	1.3%
Manufacturing	**53**	**M-H**	0.8%
Storage	**2,736**	**M**	40.7%
High-Hazard	**253**	**H**	3.8%
No Data	**58**	**-**	0.9%
TOTAL COUNT	**6,723**		




Single-Family New House Construction Building Permits Issued per Year
21
36
38
40
33
32
196
217
282
241
164
69
43
1
7
29
46
45
54
76
85
105
228
197
129
*Jan-Sept 2021
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

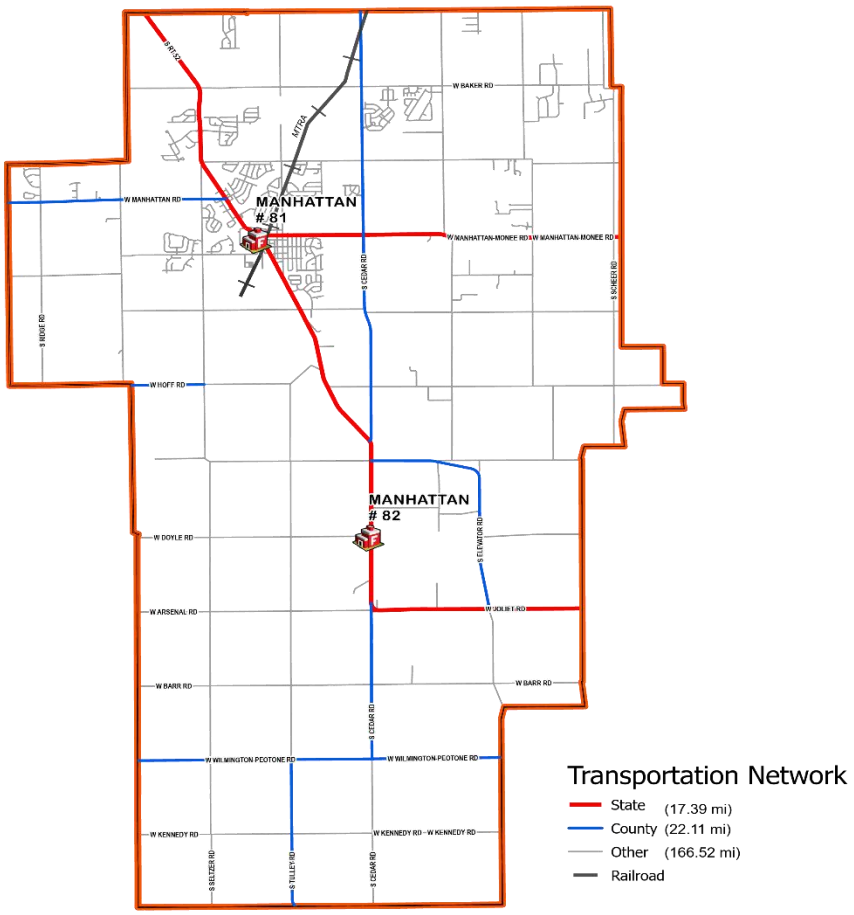
Transportation Network

Trains

The **Norfolk Southern** line crosses into the District and terminates at the Aeropress Corporation. Primarily Freight trains utilize this line extensively as well as a few passenger trains. Data from Metra show that ridership at the Laraway Road station in New Lenox has more than doubled since the station opened in 2006 but remains very low.

	TRAINS				CARS	PASSENGERS		Different types	Grade	
	Daily	Weekly	Monthly	Yearly	Cars Yearly	Day	Year	# Chemicals	Crossing	Overpass
Norfolk Southern*	20-30 cars parked	6	27	**324**	**915**	--	--	6+		
Metra	5	35	140	**1,680**	2190	19	6935			
	5	41	167	2004	3105	19	6935	6+	7	0

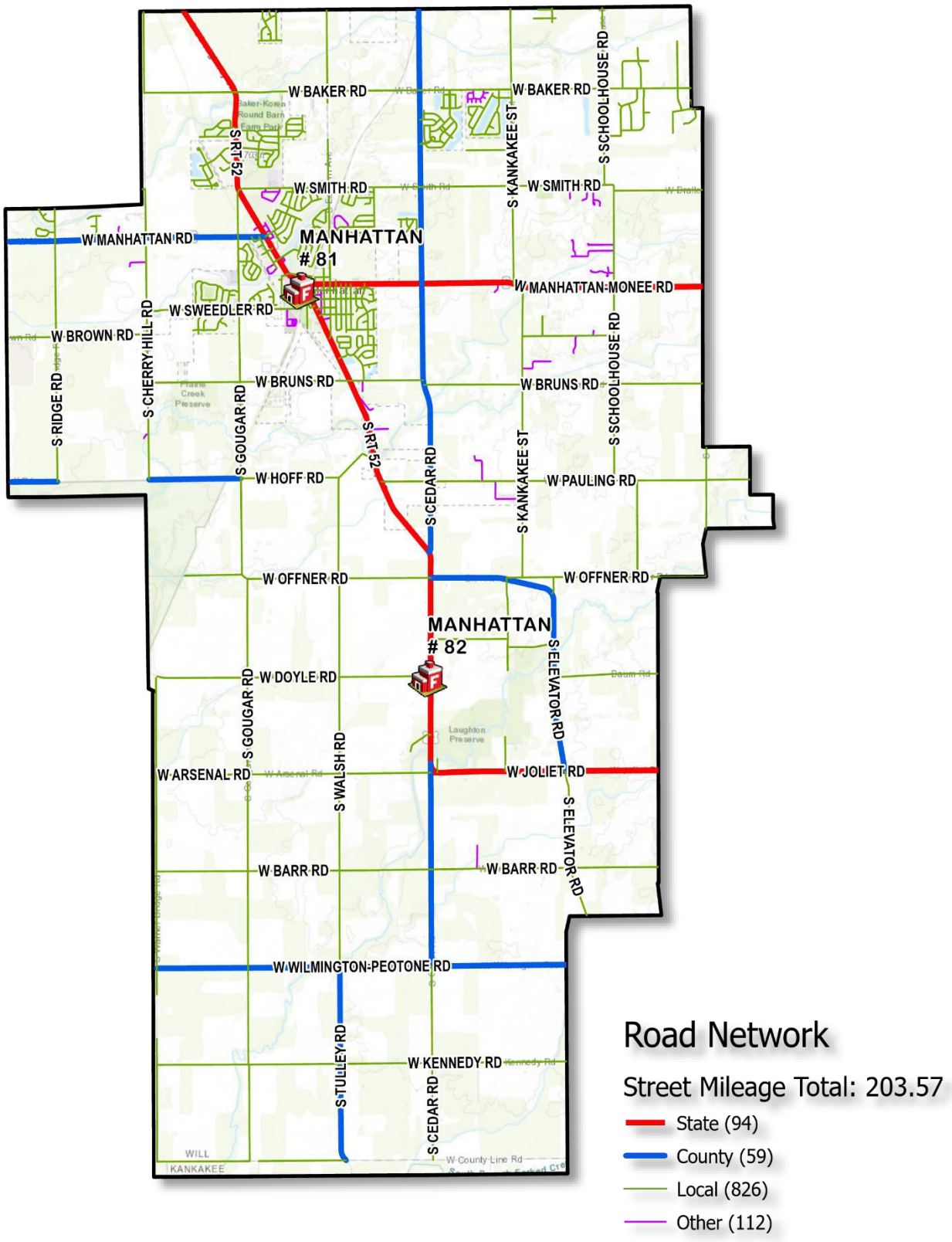
** Note NS trains count Inbound Rail Cars only and they operate after the Metra Hours*



	Storage - Tier II report		Inbound Rail cars				Emergency Response Guide		
DAILY:	**Maximum**	**Average**	**Count**	**Avg/Year**	**Avg/Month**	**Avg/Week**	**ERG Guide #**	**ID#**	**Evacuation Area**
Acetone	106,000	2,080	--	--	--	--	**120**	1090	**1/2 mile evac**
Butane - Normal	1,000,000	231,500	263	87.67	7.31	1.74	115	1011/1075	
Difluroethane	3,500,000	252,800	267	89.00	7.42	1.77	115	1030	
Isobutane	1,000,000	292,400	43	14.33	1.19	0.28	115	1075/1969	
Isopentane	210,000	135,400	49	35.00	2.92	0.69	**128**	1265	**1/2 mile evac**
Propane	2,000,000	361,100	293	97.67	8.14	1.94	115	1075/1978	
gallons	**7,816,000**	**1,275,280**	**915**	**323.67**	**26.98**	**6.42**			

**Stored in Above Ground tanks, tank wagons, Rail cars, Sieves & Piping*

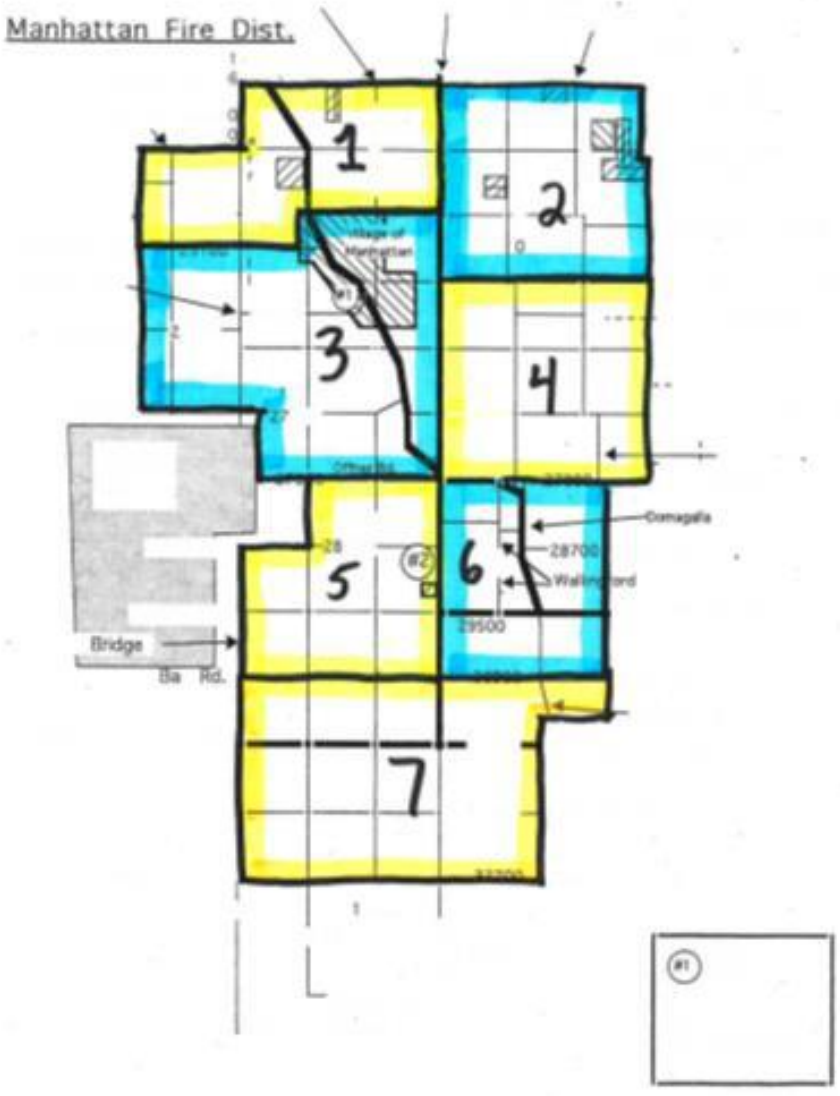
Streets


W BAKER RD
W BAKER RD
S SCHOOLHOUSE RD
S RT 52
W SMITH RD
S KANKAKEE ST
W SMITH RD
W MANHATTAN RD
MANHATTAN
81
W MANHATTAN-MONEE RD
W SWEEDLER RD
S CHERRY HILL RD
W BROWN RD
S RIDGE RD
W BRUNS RD
W BRUNS RD
S SCHOOLHOUSE RD
S GOUGAR RD
S RT 52
S CEDAR RD
S KANKAKEE ST
W HOFF RD
W PAULING RD
W OFFNER RD
W OFFNER RD
MANHATTAN
82
S ELEVATOR RD
W DOYLE RD
S GOUGAR RD
S WALSH RD
W ARSENAL RD
W JOLIET RD
S ELEVATOR RD
W BARR RD
W BARR RD
W WILMINGTON-PEOTONE RD
S TULLEY RD
W KENNEDY RD
S CEDAR RD
WILL
KANKAKEE
W County Line Rd
Road Network
Street Mileage Total: 203.57
State (94)
County (59)
Local (826)
Other (112)

Planning Zones/Beats

The District is split into 7 districts "beats."

- District 1 - North of Manhattan Rd. / North of Smith Rd. / South of Delaney Rd. / West of Cedar Rd. / East of Rowell Ave.
- District 2 - North of Manhattan Monee Rd. / South of Delaney Rd. / East of Cedar Rd. / West of Scheer Rd.
- District 3 – Entire Village of Manhattan - South of Manhattan Rd. / South of Smith Rd. / North of Offner Rd. / West of Cedar Rd. / East of Rowell Ave.
- District 4 - South of Manhattan Monee Rd. / North of Offner Rd. / East of Cedar Rd. / West of Scheer Rd.
- District 5 - South of Offner Rd. / North of Barr Rd. / West of Cedar Rd. / East of Warner Bridge Rd.
- District 6 - South of Offner Rd. / North of Barr Rd. / East of Cedar Rd. / West of 128th Ave.
- District 7 - South of Barr Rd / North of County Line Rd.



Planned Development

Compass Business Park

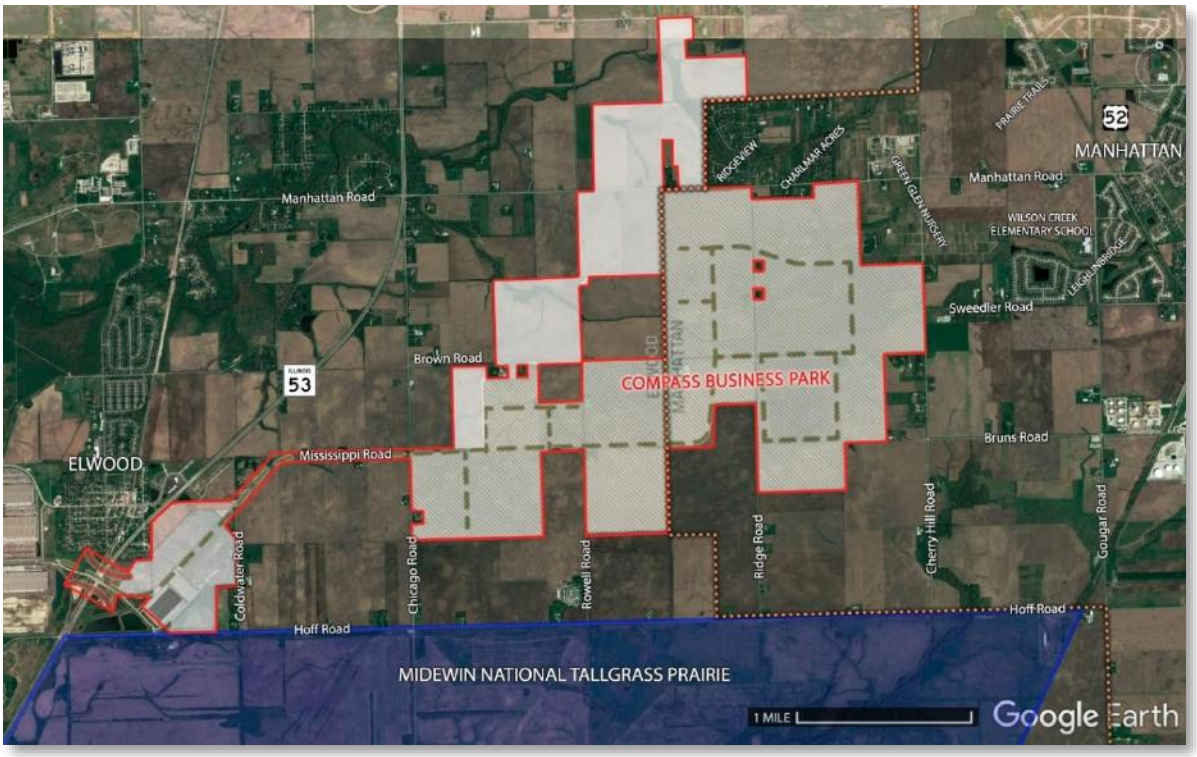
2,500 Total Acre footprint

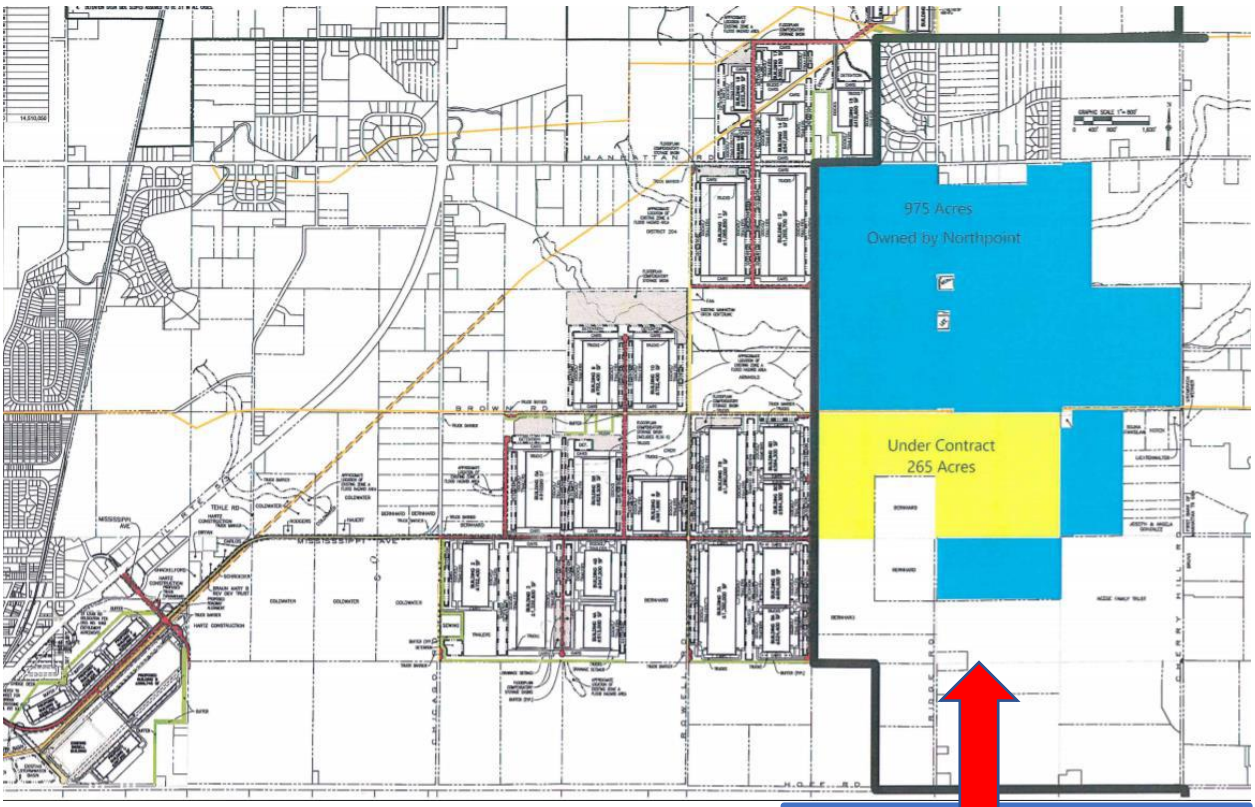
1,260 acres – phase one in Joliet, 1,250 acres – located within the Village of Manhattan's planning area/Fire District boundaries

Located in the Northwest corner of the District, Compass Business Park is a $1.5 billion private stimulus investment in Joliet and Will County, poised to generate up to 1,600 annual construction jobs and 2,300 indirect construction-related jobs and 10,000 full-time permanent positions, and 17,000 indirect jobs.

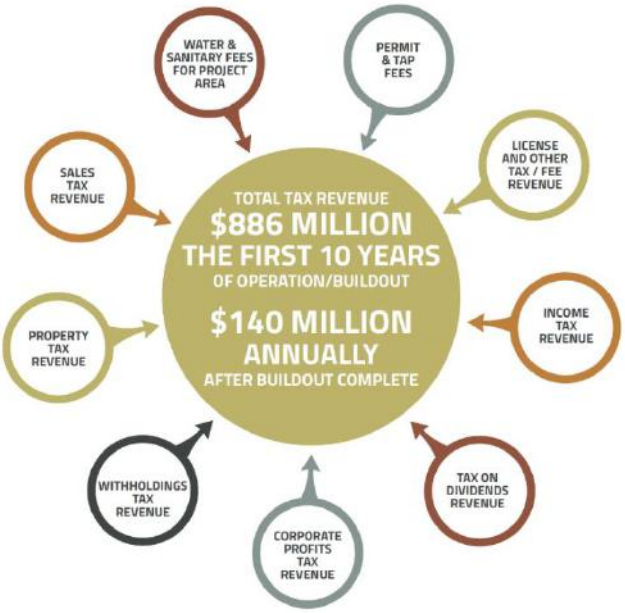
Half of this proposed mega-development is within the District, and the other is in the area recently annexed into the City of Joliet. Part of this development includes a "closed-loop" network to contain trucks off local roads. However, once the goods are processed and shipped out of the warehouses, there is a strong probability that other truck traffic will increase on the roadways within the District.

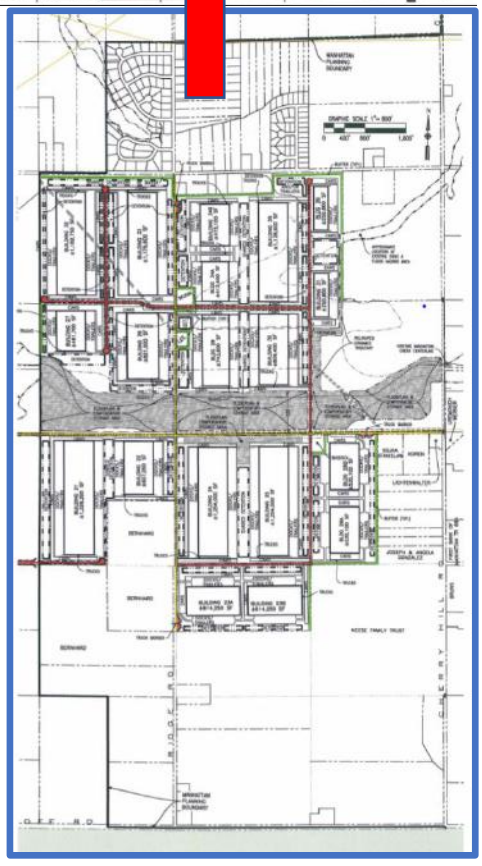
The $1.5 billion investment in Compass Business Park strengthens local tax bases and provides new revenue for schools and local government agencies, reducing the burden on taxpayers while resulting in more money for essential services and programs**. On the Joliet side - NorthPoint, the developer, would contribute 15 acres of land on the site for a future police and firefighter training facility**. Considering that nearly 50% of this development is within the District, the District should expect a like-kind donation.





Compass Business Park





According to the Will County Center for Economic Development (CED), in the last fifteen (15) years, **Will County** has become the **Largest Inland Port in North America**, with the development of two large modern intermodal centers and the addition of over 100M square feet of new industrial space plan for development just to the west of the District, in nearby Joliet. Over 3 million international and domestic containers flow through the port annually, carrying over $65 billion worth of products, including 70 million+ bushels of grain.

Due to its strategic location at the confluence of six Class I railways, five interstate highways, three navigable waterways, and proximity to major airports, Will County has emerged as the largest inland port in North America volumes.

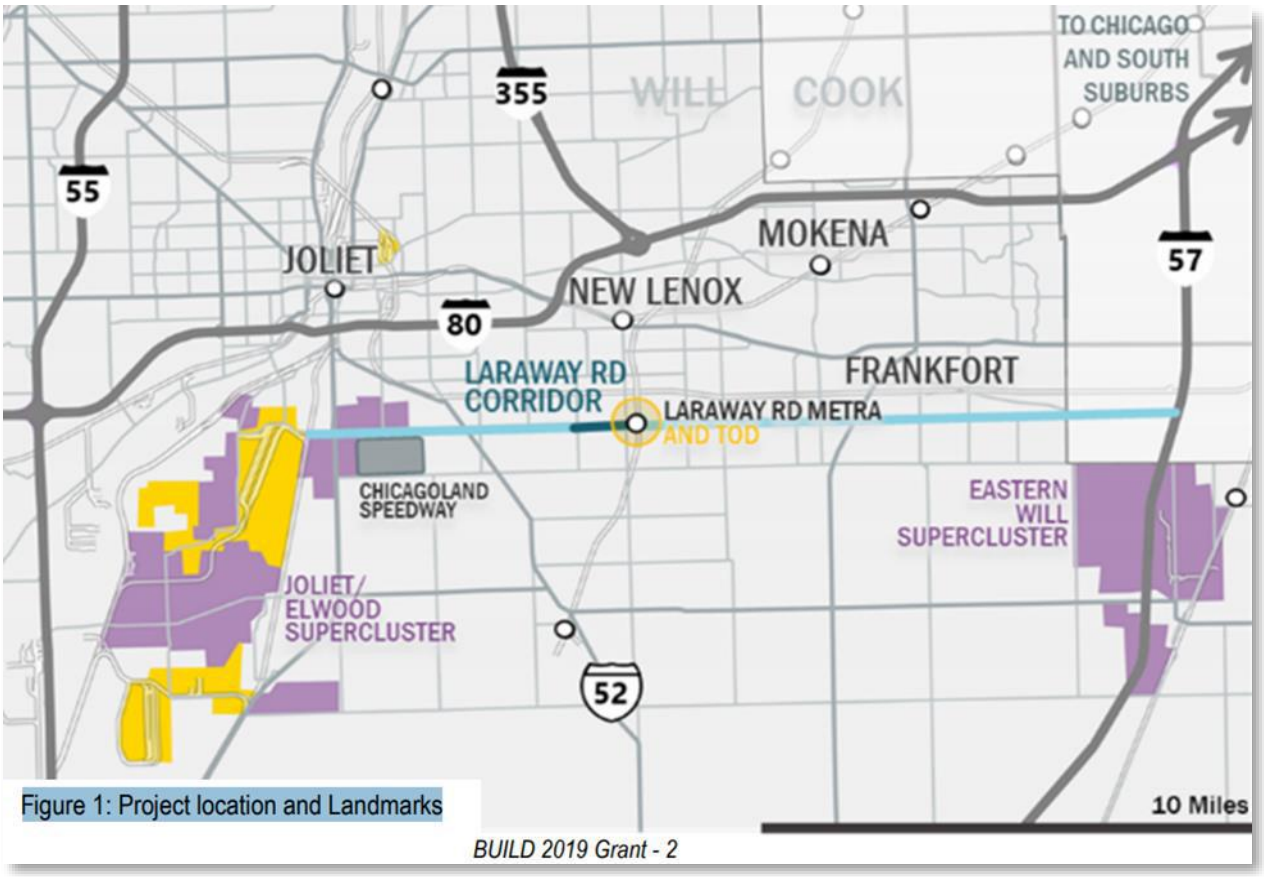


Figure 1: Project location and Landmarks

BUILD 2019 Grant - 2

WILL COUNTY DOT

Will County has designated Laraway Road as a “county highway” and a vital transportation piece of the Laraway Road Corridor Plan and the “Build Will” project. The Will County Division of Transportation (WCDOT) is undertaking significant improvements along the Laraway Road corridor. The WCDOT is evaluating improvements for the entire Laraway Road corridor from US Route 52 to Harlem Avenue.

It can be projected that traffic counts shall **significantly increase** along this corridor.

http://www.larawayroadcorridor.com/

JOINT PRESS RELEASE

MANHATTAN - PEOTONE
Fire Protection Districts

DATE: August 14, 2020

SUBJECT: Manhattan-Peotone Fire District's Board of Trustees Approve One-Year Intergovernmental Agreement

CONTACT: Jackie O'Hara, Manhattan Fire Protection District
(815) 478–3197, johara@manhattanfire.org

RELEASE: **FOR IMMEDIATE RELEASE**

MANHATTAN – PEOTONE, IL - The Manhattan Fire Protection District (MFPD) and Peotone Fire Protection District (PFPD) are rich in tradition with a long history of working together for the betterment of their residents. This month both organizations took a huge step to enhance the relationship.

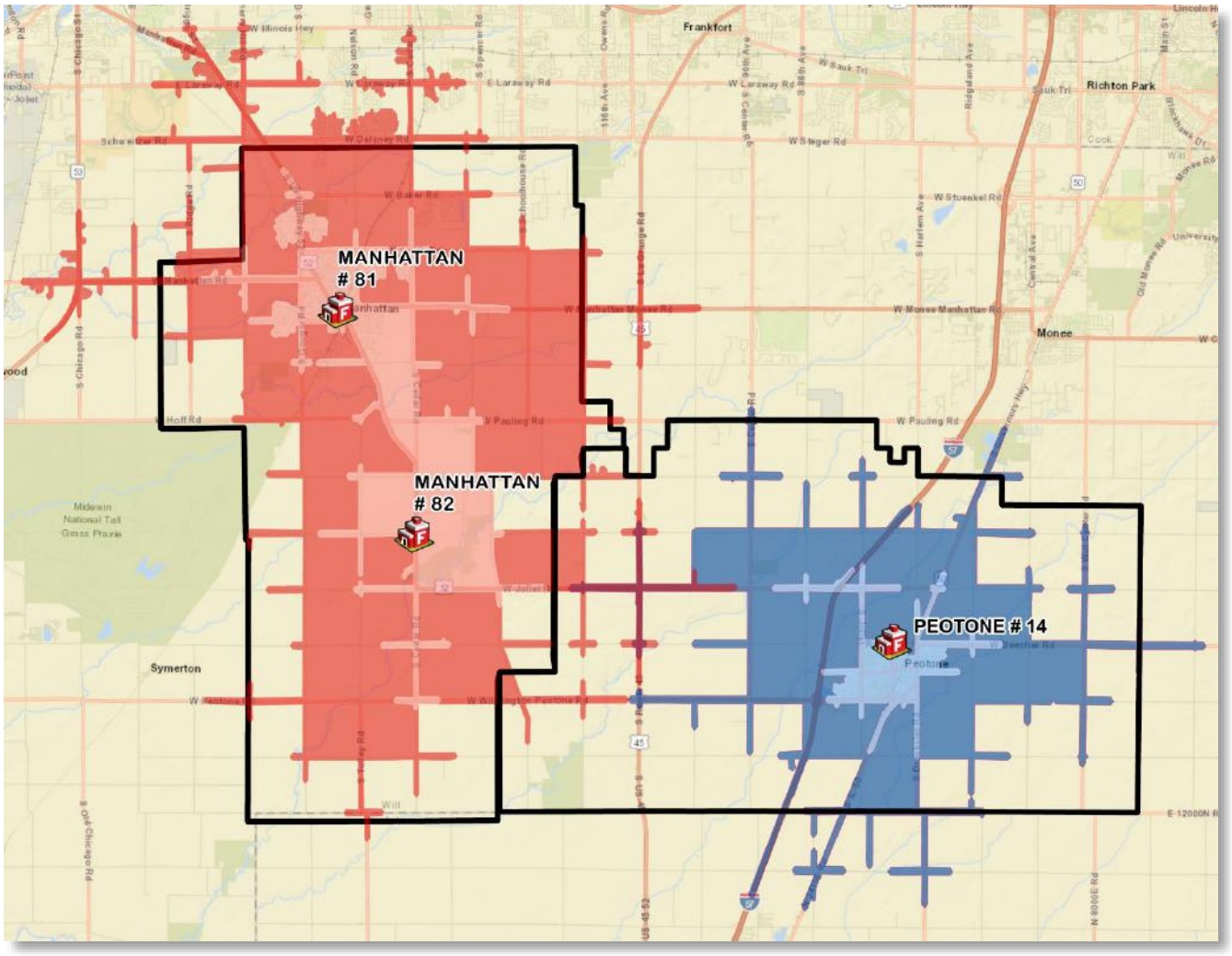
On August 13, 2020, the **Manhattan Fire Protection District** and **Peotone Fire Protection District** Board of Trustees voted to enter into a one-year intergovernmental agreement (IGA) to share administrative services.

"Both parties expect that this agreement will result in better utilization of financial resources and enhanced services to the residents of each Fire District," said Peotone Fire District Board President, Brian Hupe. "We would like to reassure the residents of both Peotone and Manhattan that this agreement will not increase taxes or disrupt the current level of operational services."

In this agreement, the MFPD will provide the PFPD with the service of its Fire Chief and Administrative Staff. The IGA will not involve sharing fire and emergency medical personnel other than automatic and mutual aid agreements already in place that have proven successful for many years.

"The sharing of Fire District administrative services will promote administrative staff level efficiencies while maintaining the response capabilities currently appreciated by the resident of both Fire Districts," stated Manhattan Fire Protection District Board President William Moncrief. "More importantly, this effort will offer a more robust response capability which will allow the enhancement of operational support and emergency response oversight for both our organizations."

The MFPD Fire Chief and Administrative Staff will begin administrative turnover activities at Peotone Fire Protection District effective September 1, 2020, with complete transition on October 1st, 2020, following the retirement of PFPD Fire Chief, William Schreiber.



On August 31st, 2021, the Manhattan Fire Protection District announced its desire to fully consolidate with the Peotone Fire Protection District and seek voter approval at the next election. The press release is included on the following three pages.

This merger has shown <u>significant cost savings</u> with the functional components already in just the previous year. **It is strongly encouraged to continue this process with formal, complete consolidation to streamline and strengthen both fire protection districts.** Regionalization and consolidations such as this eliminate excessive and expensive redundancies, improving each District's response capabilities and training levels to deliver a higher caliber of Fire, Rescue, and Emergency Medical Services to the residents and those in need.

Mergers are not a new concept. It is occurring nationwide as fire departments struggle to do more with less. **More fire departments and fire districts need to follow this example and proven strategy.**

PEOTONE FIRE PROTECTION DISTRICT
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PEOTONE, ILLINOIS 60468
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(708) 258-3614
EMERGENCY PHONE
911
Fax (708) 258-2323

Peotone Fire Protection District and Manhattan Fire Protection District see value in consolidation

For Immediate Release
August 31, 2021

Peotone, IL -- The Peotone Fire Protection District today announced that it believes that consolidation with neighboring Manhattan Fire Protection District would deliver benefits to both communities. A full consolidation of the two districts would mean that residents will benefit from the long-term delivery of public safety services at a lower cost to Peotone's taxpayers.

A consolidation would merge the two fire protection districts in to one streamlined agency tasked with providing high-quality public safety, fire, rescue and emergency medical services to both communities. Ultimately, Peotone residents would be taxed for fire protection services at a rate lower than what they're currently paying.

"Consolidation would reduce taxpayer's bills while also strengthening our ability to provide the full range of services that our residents expect and deserve," said Peotone Fire Protection District Board of Trustees President Brian Hupe. "As the region grows and evolves, we need to grow and evolve along with it. By consolidating our fire districts, we would be well-positioned to deliver robust, quality service over the long haul without having to ask taxpayers to pay more."

Currently, budget growth in Peotone and Manhattan over the next five to ten years does not support the ability to implement more stable, full-time staffing models, renovate dated facilities, invest in modern equipment or keep up with regional growth without seeking significant tax increases.

Without consolidation, residents in Peotone may, over the next five to ten-year period, be forced to choose between tax increases or a diminished level of service. And for its part, the Manhattan Fire Protection District will need to determine how to deliver and pay for a consistent level of staffing and coverage amid an increasing demand for services as the region's population—and calls for service—increase.

A consolidated fire protection district would provide for the needed resources and budgeting flexibility to hire nine full-time firefighters, potentially add new stations in both communities and renovate current facilities in the years to come. A consolidated district would also allow for greater investment in training and resources for full-time staff members.

The two districts have already successfully consolidated administrative functions. Under an intergovernmental agreement enacted last year, the districts have been sharing all administrative support functions (facilities/fleet/equipment management, human resources, payroll, benefits, etc.). This agreement has generated approximately $600,000 in cost recovery and savings in just one year.

"The communities we serve are better off over the long term with us operating as one district instead of two," said Steve Malone, who serves as Chief for both the Peotone and Manhattan Fire Protection Districts. "We'll be able to further reduce our administrative costs, eliminate duplicative costs and reinvest those dollars into hiring full-time firefighters and paramedics, upgrade our facilities and equipment, and ensure that our personnel have everything they need to serve the residents of Peotone and Manhattan proficiently and professionally."

Fire protection districts throughout the region are facing very serious personnel challenges since many rely heavily on part-time personnel. Increasingly, however, fully trained, and certified firefighters, EMTs and paramedics are leaving for higher-paid full-time opportunities. Finding part-time shift personnel is therefore growing ever more difficult. "The fire service has

not been immune to the shortage of employees, and it has become an epidemic within the fire service as a whole," said Chief Malone.

"The bottom line is that our personnel are our most valued assets. Our residents want professional, qualified, trained personnel who are a part of the community they're serving," said Hupe. "By consolidating the two districts we would be able to shift towards a more sustainable and predictable full-time staffing model by hiring men and women truly vested in the communities they'll serve."

Both boards of trustees for the Manhattan FPD and the Peotone FPD see value in consolidation. Formal consolidation, however, will require the voters of Peotone to place a referendum question on the ballot at a future election.

Both Districts are committed to providing information to residents about consolidation. They invite the public to ask questions about what the consolidation means to their respective community. "Our goal is to educate residents and share as much information about consolidation so that they can be informed about how essential public safety services are delivered and funded well into the future," said Chief Malone.

Please visit our websites for updates and more information.
www.manhattanfire.org
www.peotonefire.org

# # #


KNOWLEDGE
DUTY
TRUST
COMMUNITY
MFPD


PROGRAMS
&
SERVICES

Communications

Currently, the District contracts through Laraway Communications Center in Joliet, IL. It is a newer (2017) regional dispatch facility providing 911 service for **31** fire and police agencies as part of a state mandate requiring the consolidation of 50% of Will County dispatch centers.

Life Safety / Community Risk Reduction

As part of the Fire District mission, it advances public safety through fire prevention and education programs. Therefore, it is committed to providing preventative services to stop or minimize dangers to the people served before they occur. The District has one full-time Life Safety Educator and one part-time Battalion Chief.

Community Risk Reduction

Fire Prevention

Fire Prevention and inspection activities are primarily handled by the Village of Manhattan within its limits, as they are the legal Authority Having Jurisdiction (AHJ). Outside of the village limits, the Fire District inspects those properties conducted by the part-time position of Battalion Chief.

Public Education

The Life Safety Division plays a vital role in the mission of the fire district. The Division is responsible for developing and implementing programs and policies that prevent or reduce the chance of emergencies, such as loss of property, loss of life, personal injury, or environmental damage. The Division is also responsible for providing public education and coordinating special events.

Public Education (#Programs and Events Offered)	2016	2017	2018	2019	2020	Total	Average
Community Events/Block Parties/Birthday Parades	26	28	30	30	72	186	37
Senior Citizen Fall & Fire Prevention/ Safety Presentations	12	15	13	14	7	61	12
Fire/Active Shooter Drills	4	4	5	13	3	29	6
Fire Extinguisher Training	0	0	1	6	1	8	2
First Aid/ CPR/ Babysitting Class	19	12	12	51	15	109	22
Car Seats Inspections	71	63	23	36	10	203	41
Fire Station Tour/ Touch- A- Truck/Safety Talk	43	50	20	55	14	182	36
Knox Box/ Smoke Alarm/ CO Installs	6	7	3	10	5	31	6
Total Outreach	181	179	107	215	127	809	162

Public Education (# Reached)	2016	2017	2018	2019	2020	Total	Average
Community Events/Block Parties/Birthday Parades	491	530	1,652	1,852	8,420	12,945	2,589
Senior Citizen Fall & Fire Prevention/ Safety Presentations	250	250	155	530	50	1,235	247
Fire/Active Shooter Drills	1,570	1,731	1,830	4,318	1,570	11,019	2,204
Fire Extinguisher Training	0	0	12	37	10	59	12
First Aid/ CPR/ Babysitting Class	74	105	123	540	129	971	194
Car Seats Inspections	71	63	23	36	10	203	41
Fire Station Tour/ Touch- A- Truck/Safety Talk	43	2,854	353	2,903	519	6,672	1,334
Knox Box/ Smoke Alarm/ CO Installs	6	7	3	10	5	31	6
Instagram					127	127	127
Twitter		137					137
Facebook		1,863	1,487	2,247	2,776	8,373	2,093
Total Outreach	2,505	7,540	5,638	12,473	13,616	41,635	8,354

Training

Training is paramount to the safety of the firefighters and the citizens they protect. The District trains locally at the station, regionally through MABAS training events/centers and state-sponsored classes.

The District is responsible for performing a wide range of emergency and non-emergency functions. To ensure that our members stay safe and complete the tasks they are called, they must continually train. Training and learning in the fire service are a career-long commitment. The Training Division promotes individual and organizational effectiveness by developing various programs supporting its commitment to employee development and departmental enrichment.

CERTIFICATIONS	# of Personnel
Basic FF/FFII	39
ATF/FFIII	18
FAE	28
Haz Operations	39
Haz IC	3
Haz Technician	7
Con Space Operations	7
Con Space Technician	6
Rope Operations	21
Rope Technician	6
Collapse Operations	8
Collapse Technician	4
Trench Operations	8
Trench Technician	7
Vehicle & Machine Oper	28
Vehicle & Machine Tech	6
Water Operations	2
Water Craft Technician	1
Swift water	1
PLSE	0
FOI/CoFo	14
FOII/AdFo	4
CFO	2
ISO	4
HSO	6
FD Safety Officer	2

Fire department training is regulated by entities such as the Office of the State Fire Marshal (OSFM), the National Fire Protection Association (NFPA), the Illinois Department of Public Health (IDPH), Occupational Health and Safety Administration (OSHA), Insurance Services Office (ISO), and the Federal Emergency Management Agency (FEMA). These agencies, and others, provide parameters for entry-level training, continuing education, and officer development. For our members to meet these agencies' various demands and requirements, departmental training must remain dynamic.

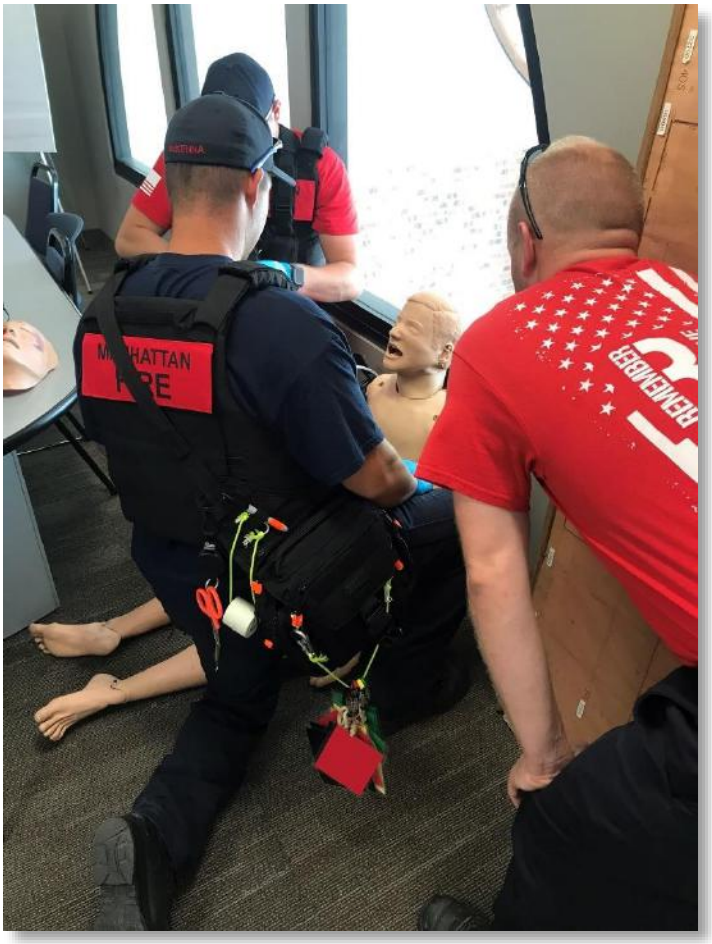
23,951 Hours of Training

2016-2020

EMS

The Emergency Medical Services (EMS) program responds to the District's medical emergencies, which is also most of the District's incidents (**41.9% - EMS only** – **47.7 % including vehicle accidents** identified as part of the Rescue section). All Fire Companies and Ambulances are ALS equipped.

The Fire District has **26** **Paramedics** and **3** **EMTs** (**crossed trained as Firefighter/Medics**) that maintain certifications in various medical disciplines that exceed the Illinois Department of Public Health requirements and are under the direction of resource hospital Silver Cross New Lenox.



Fire Suppression

The fires include but are not limited to single-family structures, multi-family structures, commercial buildings, strip malls, high-rise occupancies, industrial facilities, vehicle fires, brush fires, and dumpster fires. Within these categories, the District strives to provide a standard of coverage unique to the structure, depending on criteria such as construction type, risk factors, response times, occupancy type, known hazards, and many others.

To provide 24-hour coverage for the many types of incidents that may occur and scenarios that can arise, the District offers a **minimum of 6-8** firefighter/medics on duty per shift. The District relies heavily on mutual aid for the Effective Response Force (ERF) full concentration for Moderate to High-Risk events.

Rescue / Special Operations:

Rescue risks vary from elevator removal to vehicle accidents to “pin-in” extrication required accidents. Special Operations include all Technical Rescue types to Hazardous Material incidents.

Technical Rescue covers a wide range of incidents, including confined space rescue, trench collapse, rope or water rescue, and structural collapse.

Technical Rescue

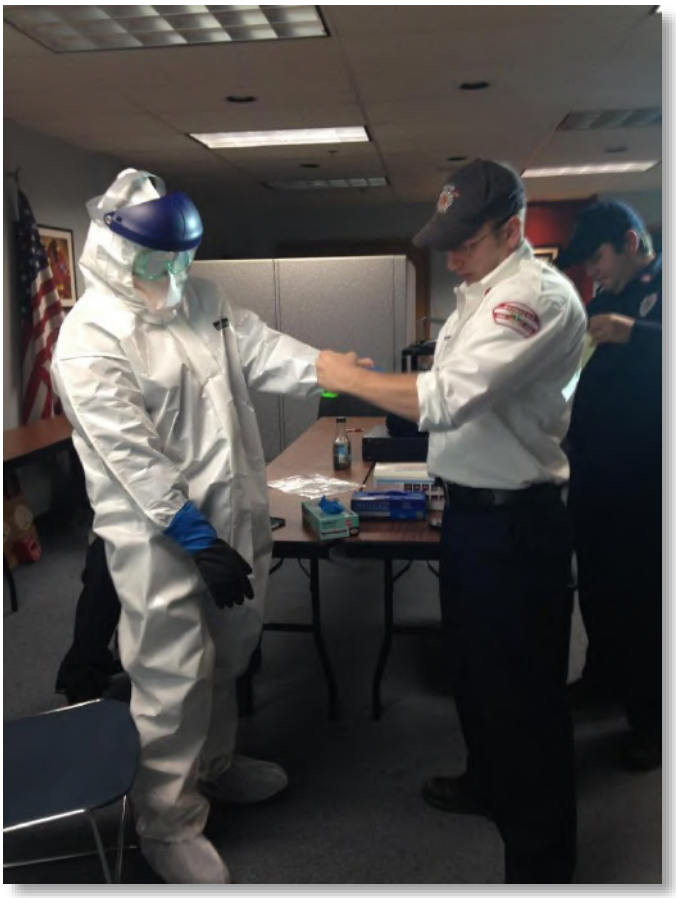
The Technical Rescue Program within the District can respond to all types of technical rescue incidents, including ice, swift water, trench, confined space, building collapse, rope, elevator, and vehicle extrication. The response level for technical rescue incidents is at the operations level, with technicians available for each rescue discipline at the regional team level. All District members receive training to the awareness/operations level for technical rescue responses per NFPA 1670, and the District is part of a regional team – C.A.R.T. (Combined Area Response Team – BLACK TEAM). There are **six (6) CART members** trained at the Technician level.

CERTIFICATIONS	# of Personnel
Collapse Operations	8
Collapse Technician	4
Con Space Operations	7
Con Space Technician	6
Rope Operations	21
Rope Technician	6
Trench Operations	8
Trench Technician	7
Vehicle & Machine Operations	28
Vehicle & Machine Technician	6

Hazardous Materials

Hazardous Materials

The Hazardous Materials Program within the District is responsible for all hazardous materials incidents, including gas spills, natural gas/propane leaks, and carbon monoxide. The District may respond to events such as tanker rollovers, fixed facility incidents, and incidents within waterways. Suppose the incident is beyond the level of capabilities of the on-scene crews. In that case, the incident upgrades to request a regional HazMat Team response and specialized resources to mitigate the incident, such as personnel/equipment from the Southwest Hazardous Materials Team (SWHMT). Thirty-nine (39) HazMat Operations trained personnel and one (1) HazMat Technicians from the District on the SWHMT.



CERTIFICATIONS	# of Personnel
Haz Operations	39
Haz Technician	7
Haz IC	3

Water Operations

Water rescue incidents have occurred within the District, and there is a definite possibility of future events with the several waterways and broad flood plains. The District has **two (2)** personnel certified in the Water Operations level and **one (1) in Watercraft Technician** level and personnel trained in the use of Cold-Water Immersion Suits. One (1) person is trained in **Swift Water,** and there are **no (0) trained Divers** in the District on the MABAS 19 Team. Regional Technician level Dive Teams are available through MABAS 19.

CERTIFICATIONS	# of Personnel
Swift water	1
Water Craft Technician	1
Water Operations	2

MABAS

This section is verbatim from the MABAS website to provide a general overview of the organization.

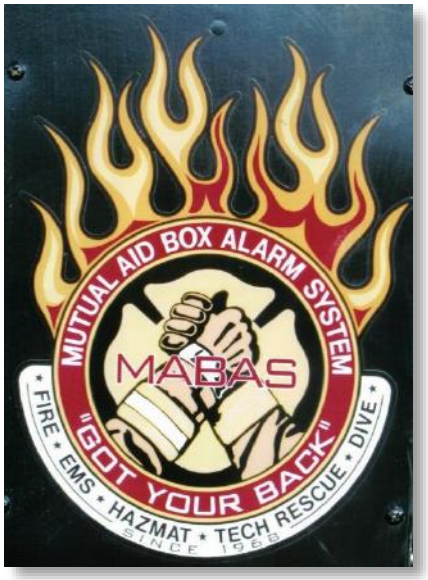
MABAS Mission Statement

MABAS-Illinois serves local fire agencies, MABAS Divisions, State of Illinois departments, and Cook County UASI-DHSEM by providing a systems-based resource allocation and distribution network of robust traditional and nontraditional Fire-EMS-Rescue and Special Operations teams for emergency and sustained response within and outside of the State of Illinois. These services accomplishment requires cooperation, standardization, reliability, partnering, brokering, ongoing communication, and compliance with customer specifications and expectations. Customer trust and reliance on the MABAS system are built upon personal relationships, credibility, and ongoing customer support.

MABAS Purpose Statement

The Mutual Aid Box Alarm System (MABAS) provides rapid emergency response and sustained operations when a jurisdiction or region is stricken by an overwhelming event generated by human-made, technological, or environmental threats. In response, MABAS shall mobilize and deploy a sustained fire, emergency medical services (EMS), hazardous materials, technical rescue, water rescue, urban search and rescue, incident management, and team resources to prevent life loss and human suffering further reduce property damage.

MABAS is a statewide mutual aid system, which has been in existence since the late 1960s. Pre September 11th, 2001, MABAS was heavily rooted throughout northern Illinois. Since September 11th, MABAS has rapidly grown throughout Illinois, Wisconsin, Indiana, Michigan, Iowa, and Missouri. Day-to-day MABAS extra alarms are systematically designed to provide the speed of response of emergency resources to the stricken community during an ongoing emergency. Declarations of Disaster provide a MABAS sustained system of response on top of daily mutual aid activations. Today MABAS includes approximately 1,175 of the state's 1,246 fire departments organized within 69 divisions. MABAS divisions geographically span an area from Lake Michigan to Iowa's border and south almost into Kentucky. Wisconsin divisions also share MABAS with their Illinois counterparts. The cities of Chicago, St. Louis, and Milwaukee are also MABAS member agencies. MABAS has expanded into all 102 Illinois counties.



MABAS includes approximately 38,000 of Illinois' 40,000 firefighters who staff emergency response units, including more than 1,600 fire stations, 2,735 engine companies, 500 ladder trucks, 1,300 ambulances (many paramedic ALS capable), 250 heavy rescue squads, and 1,000 water tenders. Fire/EMS reserve (back-up) units account for more than 1,000 additional emergency vehicles.

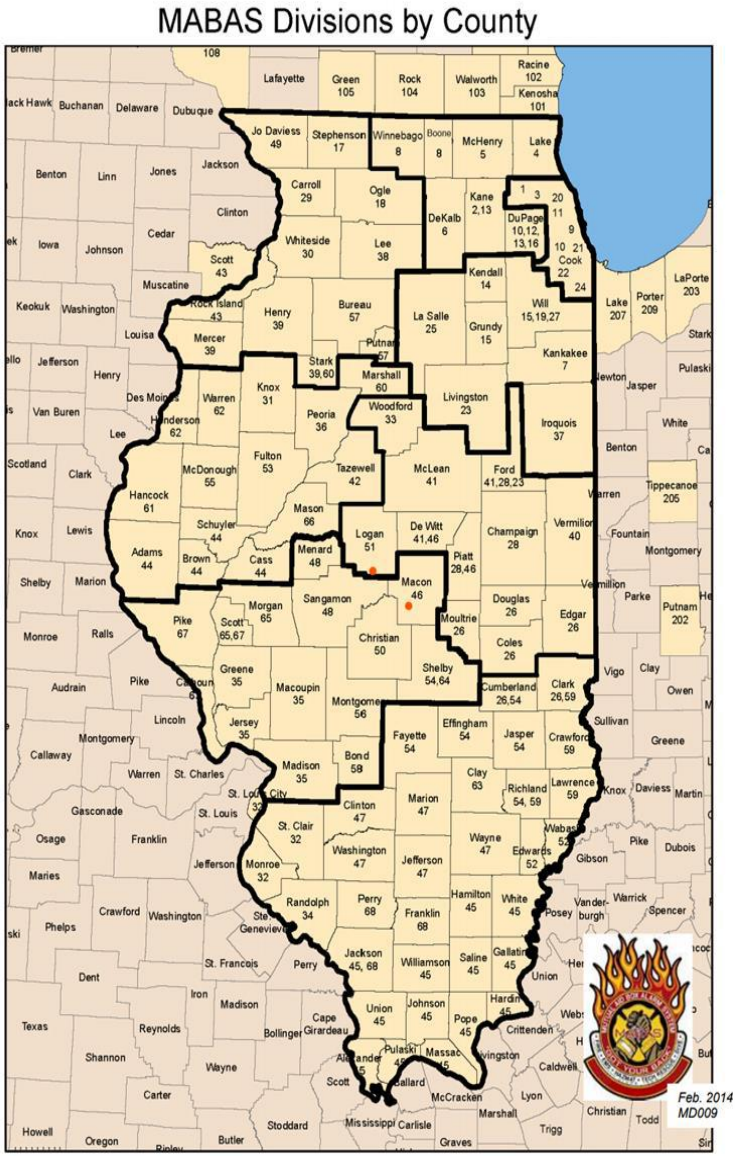
MABAS also offers specialized operations teams for hazardous materials (40 teams), underwater rescue/recovery (15 teams), technical rescue (39 teams), and a state-sponsored urban search/rescue team. Additional resources include the certified fire investigators, Incident Management Team members, and fleet support mechanics, which can be "packaged" as mobile support teams aiding with larger-scale incidents requiring complicated, time-consuming efforts beyond the capabilities of most.

MABAS is a unique organization in that every MABAS participant agency has signed the same contract with its 1,100 plus counterpart MABAS agencies. As a MABAS agency, you agree to operation standards, incident command, minimal equipment staffing, fireground safety, and on-scene terminology. MABAS agencies, regardless of their geopolitical origin, can work together seamlessly on any emergency scene. All MABAS agencies operate on a standard radio frequency (IFERN) and are activated for response through pre-designed

"run" cards. Each participating agency designs and tailors to meet their local risk needs. MABAS also provides mutual aid station coverage to a stricken community when their fire/EMS resources are committed to an incident for an extended period.

The stricken community commands MABAS extra alarms, and dispatch control is handled through the stricken community's MABAS division dispatch center. Over eight hundred (800) MABAS locally controlled additional alarm incidents occur annually throughout the 69 divisions of Illinois MABAS. The existing Illinois statute regarding a Declaration of Disaster allows the Governor to mobilize state assets under the Illinois Emergency Management Agency (IEMA). A memorandum of understanding between IEMA and MABAS, fire, EMS, and special operations resources can be activated as a State of Illinois asset when a Declaration of Disaster is initiated. Activation of the Statewide Plan through IEMA is designed to provide a quantity of response for sustaining incident operations. MABAS also offers various specialty equipment and apparatus staged strategically throughout the State to any MABAS Department upon request.

MABAS 19



The District provides mutual aid to and receives mutual support from other fire departments. Mutual aid received is noted in other areas of this report. Along with handling incidents within the District jurisdiction, the Peotone Fire Protection District is regularly requested to assist surrounding agencies with their incidents. The request may be to cover a fire station for subsequent incidents or help with personnel and equipment on the scene. A single incident can be taxing to any fire department's resources, which has resulted in mutual aid agreements pre-arranging the assistance before an incident and specifying who responds with what personnel, apparatus, and equipment.

The Fire Protection District is a member of **MABAS Division 19** – one of twelve (12) fire agencies. East Joliet, Frankfort, Homer Township, Lemont, Lockport, Manhattan, Mokena, New Lenox, Orland, Palos, Palos Heights, and Peotone Fire Districts comprise MABAS 19.

MABAS 19

PROTECTING

387	Sq. Miles
377,554	Population
$89.5B	EAV
$ 142,000,000	Budget
41	Fire Stations
47,752	Incidents (Annually)
556	Sworn Personnel
159	Non-Sworn Personnel
570	Paramedics
531	*Full-time*
39	*Part-time*
147	Daily Staffing (Min)
185	Daily Staffing (Max)
41	Ambulances
33	Engines
6	Squads
8	Trucks
7	Tenders
25	Chiefs
9	Battalion Chiefs

19 MABAS

# of Personnel	Certifications
570	Paramedics
605	HazMat Ops
106	HazMat Tech
308	TRT Ops
114	TRT Tech
192	Water Ops
149	Water Tech

MABAS 19 2021	ISO	Accredited	EAV (mil)	Budget (mil)	Tax Rate	Population	Calls	Size mile	# Sta	Sq miles per Fire Station	Daily Staff Min	Daily Staff Max	Sworn Staff	Non Sworn Staff	Cost per Capita	ENG	TRK	AMB	BC	CHF	TNDR	SQD	*JUMP COMP	# of FT medics	# of PT medics
East Joliet	4	No	$175	$2.9	$1.39	17,500	2,121	17	3	6	5	6	12	25	$166	1	--	3	--	2	1	1	Y	10	6
Frankfort	3	No	$1.49B	$15.8	$0.82	45,000	4,510	42	5	8	17	21	66	8	$351	4	1	4	1	2	1/eng*	2*	Y	66	
Homer	3	No	$550	$8.8	$1.11	16,500	1,781	22	3	7	10	12	37	1	$533	3	--	3	1	2	1	--	Y	37	
Lemont	2	Process	$1.34B	$12.5	$0.86	24,048	4,035	26	4	7	14	17	54	10	$520	3	1	4	1	3	1	--	Y	48	
Lockport	2	No	$1.9B	$24.5	$1.08	84,000	10,249	43	6	7	24	31	97	10	$292	5	1	6	1	3	--	--	N	97	
Manhattan	1	No	$343	$3.7	$0.94	15,271	1,301	73	2	36	6	8	15	18	$242	2	--	2	1	2	1	--	Y	15	8
Mokena	1	Yes	$614	$12.5	$1.03	20,500	2,500	13	3	4	9	10	37	1	$610	2	1	3	1	3	--	--	Y	35	
New Lenox	2	No	$1.45B	$10.1	$0.58	39,649	4,736	33	4	8	15	17	54	5	$255	3	1	4	1	2	1	1	Y	42	
Orland	1	Yes	$2.49B	$38.3	$1.26	70,284	10,600	30	6	5	29	38	125	28	$545	4	2	6	1	3	--	3*	N	122	
Palos	5	No	$589	$7.1	$1.16	25,000	2,682	14	2	7	9	12	38	1	$284	2	1	2	1	2	--	--	Y	38	
Palos Heights	3	No	$375	$4.1	$1.05	15,650	2,250	5	2	3	6	7	21	2	$262	2	--	2	--	1	--	--	Y	21	
Peotone	4	No	$165	$1.7	$1.02	4,152	987	70	1	70	3	6	--	50	$409	2	--	2	--	--	1	--	Y	--	25
DIVISION TOTAL	2.6	2/12 17%	$89.5B	$142.0	$1.02	377,554	47,752	387	41	9	147	185	556	159	$372	33	8	41	9	25	7	6		531	39
	ISO	ACCR	EAV	Budget (mil)	Tax Rate	Population	Calls	Size mile	# Sta	Sq miles	Daily	Daily	Sworn	Non	Cost per Capita	ENG	TRK	AMB	BC	CHF	TNDR	SQD	*JUMP COMP	# of FT	# of PT
	Average			$142,000,000	Average											* jump companies unless highlighted									

ISO

Insurance Service Office (ISO) provides a broad range of insurance, statistical, actuarial, and claims information. ISO utilizes a Public Protection Classification (PPC™) tool to rate communities against fire losses. In addition, ISO evaluates data in fire suppression, emergency communication, water supply, and risk reduction activities.

The process results in a ranking system that reflects District performance on a scale of 1-10, with one being the best.

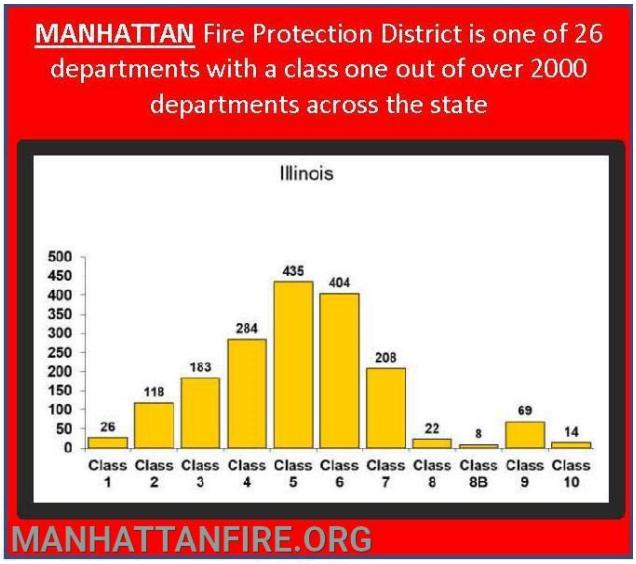
In 2020, ISO rated the District as **Class 1** **– one of 26 in Illinois and only 393 in the country!**

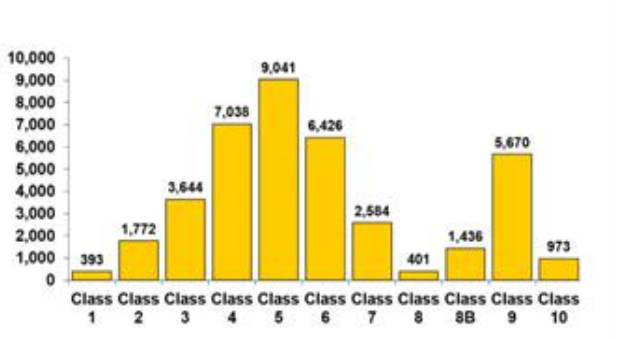
Determining the PPC for a Community

ISO evaluates Dispatch, the Fire Suppression capabilities of the District, and water system infrastructure during grading. Strengths and weaknesses relative to criteria in each category are utilized in determining the PPC. This system allows communities with different combinations of strengths and weaknesses to receive the same PPC.

Major items considered in grading are:

- Telephone Service
- Telecommunication Operators
- Dispatch Center alerting systems
- Engine Companies
- Reserve Engines
- Pump Capacity
- Ladder Companies
- Reserve Ladders
- Distribution of companies
- Number of personnel responding
- Training frequency and areas
- Water Supply Systems
- Hydrant Type and Size
- Hydrant Maintenance and Testing





The Effect of PPC on Insurance Premiums

ISO provides insurance companies with PPC information and associated details, including fire station locations, response area boundaries, hydrants' location, and other water supply

details. However, because insurance companies, not ISO, establish the premiums they charge to policyholders, it is difficult to generalize how an improvement (or deterioration) in PPC shall affect individual policies, if at all.

ISO's studies have consistently shown that, on average, communities with superior fire protection have lower fire losses than do communities whose fire protection services are not as comprehensive. Consequently, PPC does play a role in the underwriting process for many insurance companies and, as such, can help keep insurance premiums low. In addition, improving Class ratings is an outcome and benchmark measure within the District's reach**. For example, the District in 2020 achieved the pinnacle "Class 1" rating for hydranted areas in the District and a Class 4 for the rural areas. The District plans to achieve a higher rating at the next review for the rural areas.**

FSRS Feature	Earned	Total Possible
Emergency Communications	**9.97**	10
Fire Department	**47.8**	50
Water Supply	**36.6**	40
Community Risk Reduction	**-0.82**	5.50
Divergence	**3.75**	
Total Points	**97.3**	**100**

Class	Percentage Credited
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0 to 9.99

ALL HAZARD RISK ASSESSMENT

All Hazard Risk Assessment

The Fire District provides All-Hazards response services to the community, including both natural and man-caused events. The definition of key terms and their relationship to the risk assessment process are essential in conducting and interpreting a comprehensive risk assessment within an All-Hazards environment. An All-Hazards approach includes prevention, preparedness, response, and recovery actions that meet a full range of threats and hazards. All-Hazards include man-caused, natural, and technologically-caused incidents. The infrastructure consists of interdependent systems and networks that contribute to society and the government at any level. Critical infrastructures are those systems that are vital to the community, region, state, nation, or if they were unable to function.

Risk definitions include:

- **Risk**: *potential for an unwanted outcome resulting from an incident, event, or occurrence as determined by the likelihood and associated consequences*
- **Threat**: *natural or human-made occurrences or actions that have the potential to harm life and property*
- **Hazard**: *natural or human-made sources cause harm or difficulty*
- **Vulnerability**: *physical feature or operational attribute renders an entity open to exploitation or susceptible to a given hazard*
- **Consequence**: *the effect of an event, incident, or occurrence, including the number of deaths, injuries, and other human health issues, along with economic impact and different negative results on society*
- **Probability**: the *mathematical likelihood of an event occurring*

Risk Factors

Probability can be calculated through the following formulas:

- **Probability** = Threat x Vulnerability
- **Consequences** = the sum of human, economic, and psychological impacts

Risk management is the continual process of identification and evaluation of risk. Control measures are selected, implemented, and measured for performance. A continuous loop provides feedback on performance and areas for improvement to further reduce and control risks. Predictable harm can be managed down through directed efforts to reduce risk.

Risk assessment is defined in *NFPA 1600, Standards on Disaster/Emergency Management and Business Continuity/Continuity of Operations Programs*:

> "A process for identifying potential hazards/risk exposures and their relative probability of occurrence; identifying assets at risk; assessing the vulnerability of the assets exposed and quantifying the potential impacts of the hazard/risk exposures on the assets. Periodic reassessment is needed when changes to the entity occur. Reassessment is also necessary because hazards/risk exposures change over time, and the collective knowledge of hazards/risk exposures develops over time."

Risk can also be viewed by quantifying or measuring an identified risk considering its probability and severity. Two or more risks may interact, resulting in a more significant impact. Risk assessments remain complex, even when being reduced to a manageable set of factors. Historical data is a prime resource for risk assessment. While rare or unusual events can and shall happen, historical patterns are a reasonably accurate indicator of future events. Risk cannot be eliminated; however, they can be avoided. Risk can be transferred through insurance. Residual risk can be accepted. Risk/benefit-cost analysis is required to determine the level of risk that a community is willing to have a presence as a threshold. Elected officials determine the levels of risk acceptable, and staff takes appropriate action to allocate resources supplied to meet determined risk levels.

The District has conducted an occupancy community risk assessment to identify structural risks, potential impacts, and acceptance levels. Resource distribution and concentration are continually evaluated in efforts to reduce risk and resulting harm.

The United States Fire Administration provides an approach to developing a successful risk management plan:

1. Risk Identification
2. Risk Evaluation
3. Risk Control Techniques
4. Risk Management Monitoring

Identification, assessment, and control are addressed in this section.
Occupancy factors evaluated included:

- Construction type
- Built-in fire protection systems
- Life safety risk

Community Risk Assessment

The level of service provided by a Fire/EMS organization is based upon the District's ability to manage diverse types and sizes of emergencies reasonably expected after conducting a risk assessment. The first step identifies the scope and magnitude of the risks: fire, EMS, specialized rescue, or other events that threaten life safety, property, and environmental losses. The analysis is based on historical and potential future losses.

An All-Hazards approach to Risk Assessment is completed through a comprehensive analysis of District hazards. The Risk Assessment is conducted in two parts:

- Risks specific to the District, including Structure Fires, Emergency Medical Incidents, and Special Operations.
- Large-scale events are community risks that occur in and outside of the geographical boundaries of the District. These risks include man-caused, natural, and technological developments that cause disasters.

The following components were considered during this analysis:

- **Probability** – the likelihood that an event may occur within a given period. It is an estimate of a future event based on historical trends or patterns.
- **Consequence** – the severity of the resulting situation from an event. Life safety and economic risk are both considered. Life safety is inclusive of risk to occupants and responders. Economic impact weighs the loss of property, the revenue of assets.
- **Occupancy risk** – assess the relative risk to life and property resulting from an event in a specific or occupancy class. Occupancy risk can be impacted by sub-factors, such as construction type and occupant mobility.
- **Planning zones** – are geographic areas utilized during analysis to relate to station response areas or similar representations. The District has determined station response areas as planning tools for analysis. A station's first due district is studied for transportation networks, populations, density, topography, construction types, occupancy risk, and current service levels.
- **Community profile** – attributes of the community, served uniquely based upon demographics, socioeconomic, occupancy risk, and historical and current service levels.

Risk-Based Matrix

The Risk-Based Matrix model reflects the considerations of risk assessment in the District's response areas. The probability of an event occurring is always present. The frequency of occurrence can range from low to high. Any event has consequences ranging from high to low. Resources required in event management vary based upon the event and community commitment of resources.

Each quadrant illustrates the probability and consequences of any event.

- Low probability, low consequences
- Low probability, high consequences
- High probability, low consequences
- High probability, high consequences

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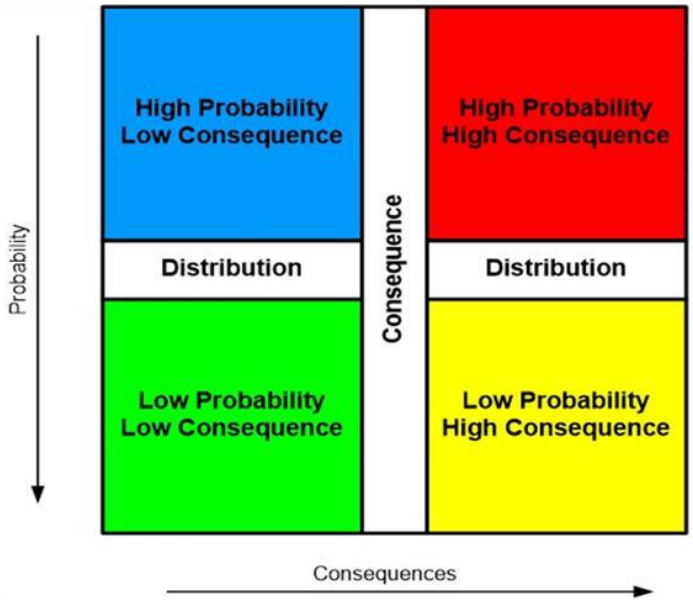
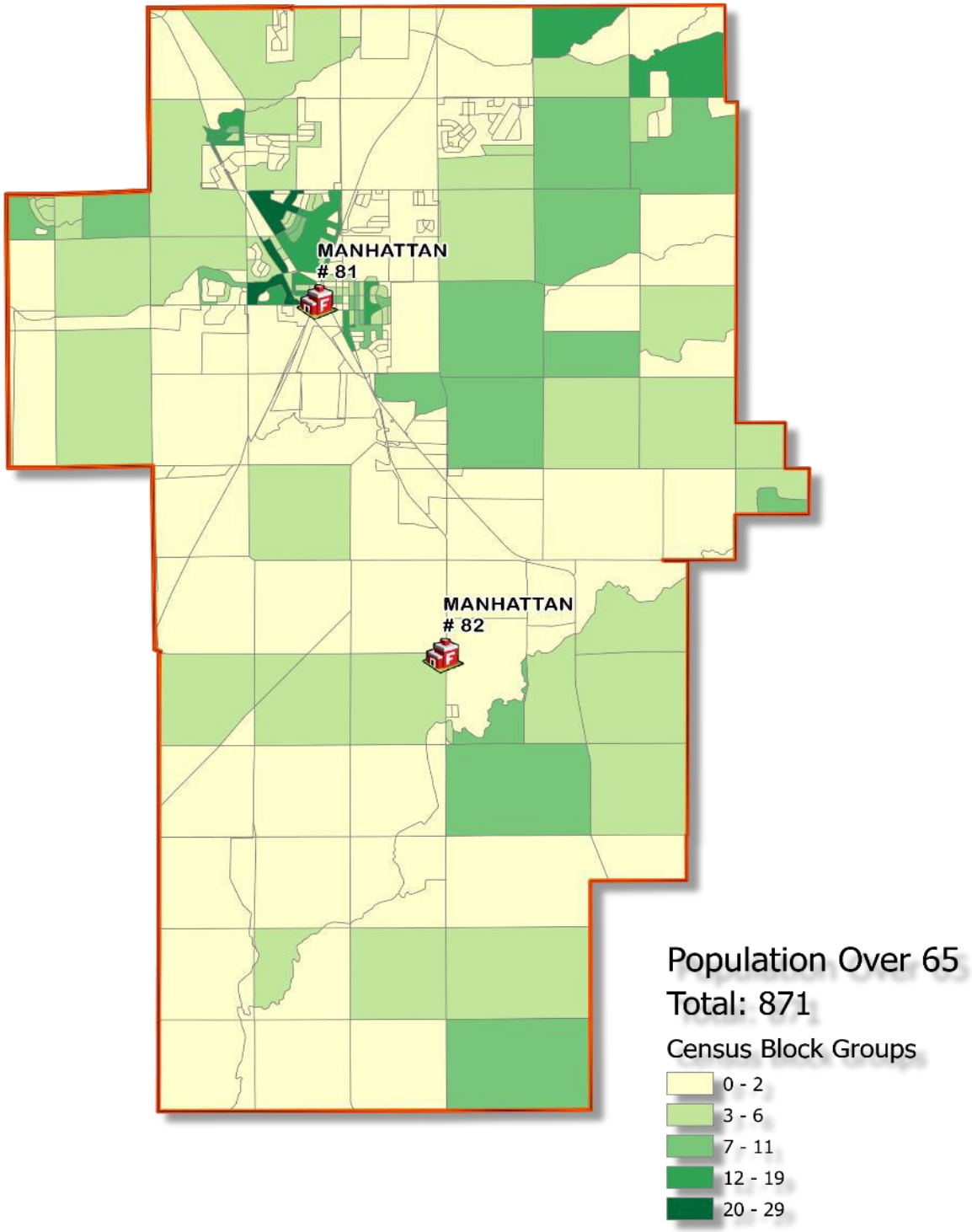


At-Risk Age Groups

At-risk age groups are those that are likely dependent on others and may need assistance in emergencies. As such, they tend to increase the demand and call volume for EMS.

> 65



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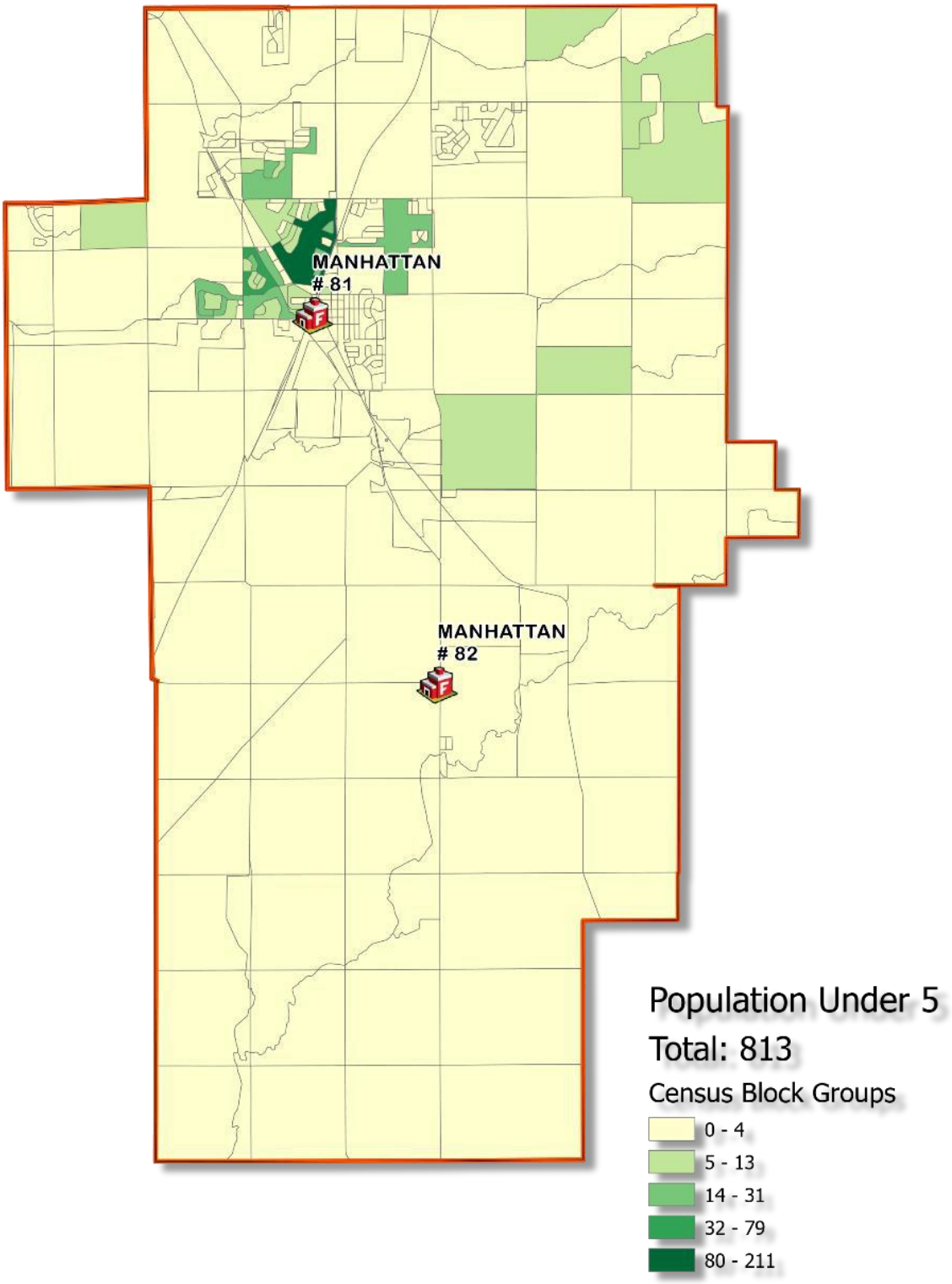
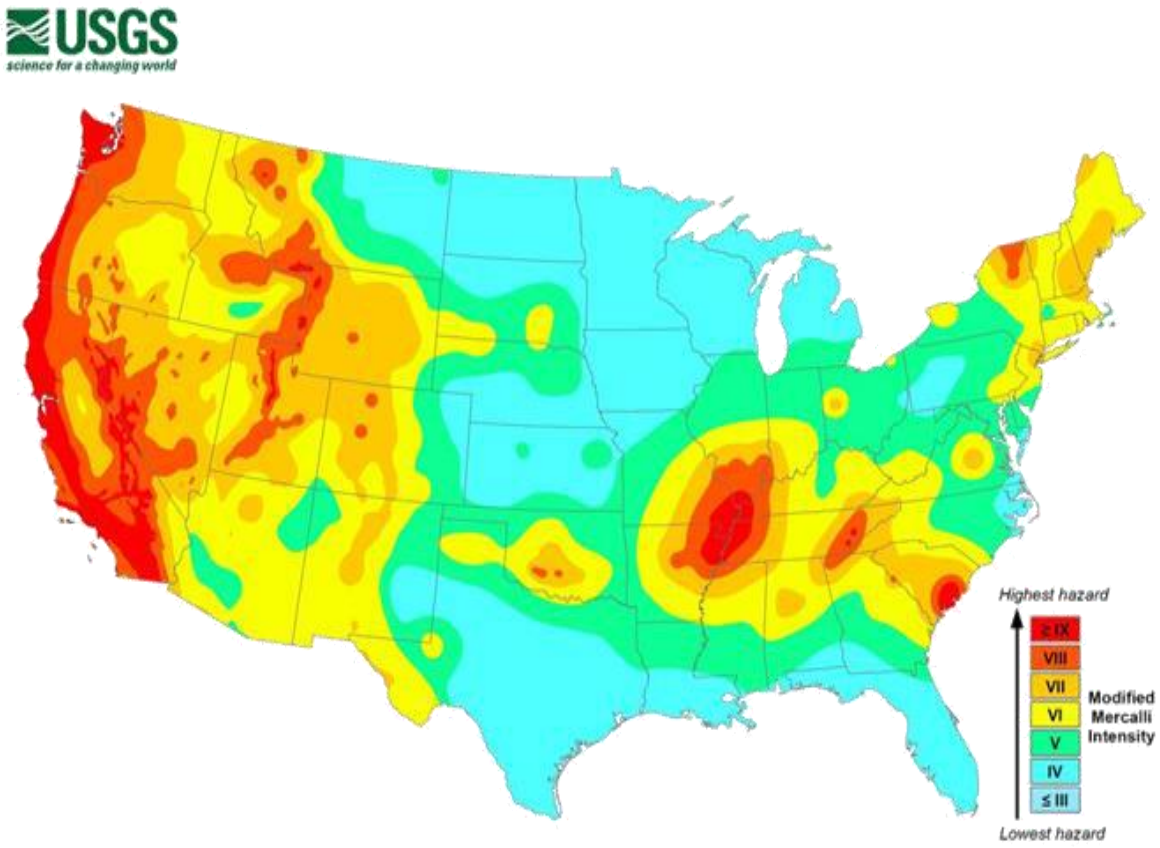

MANHATTAN
81
MANHATTAN
82
Population Under 5
Total: 813
Census Block Groups
0 - 4
5 - 13
14 - 31
32 - 79
80 - 211

Geological

In the latest report issued by the United States Geological Survey, Illinois's potential earthquake risk has risen. Significant fault lines are present in the area, with earthquakes in limited or no development areas. Due to earthquakes' estimated risk, FEMA and IEMA (Illinois Emergency Management District) has developed plans and conducted exercises in preparation.



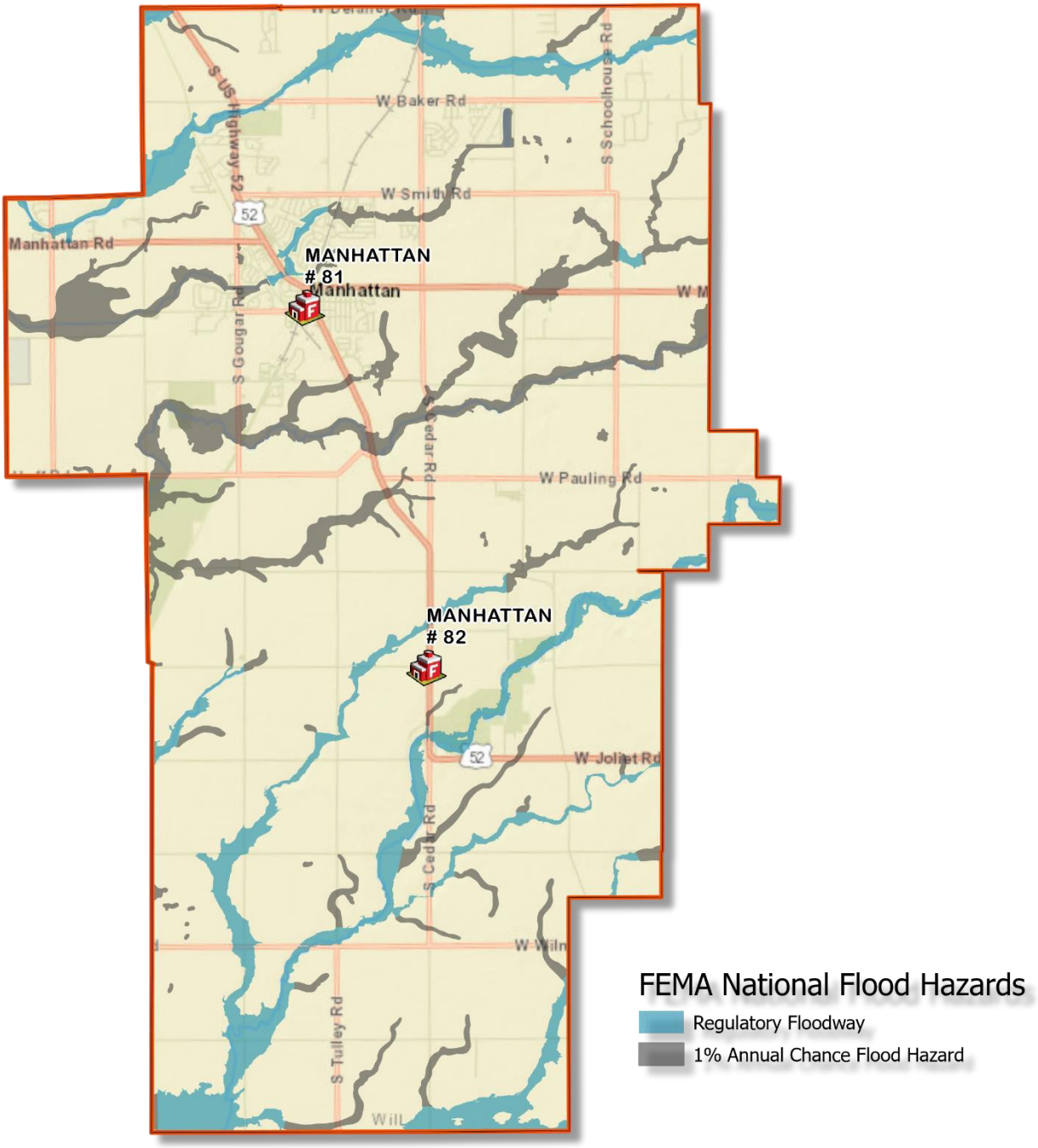
USGS map showing the intensity of potential earthquake ground shaking that has a 2% chance of occurring in 50 years

Weather

Weather can have a dramatic effect on the District's population, housing, and infrastructure. Events include extreme thunderstorms (which may produce tornados, high winds, or flooding), blizzards and ice storms, temperature extremes (high heat and below zero conditions), and more.

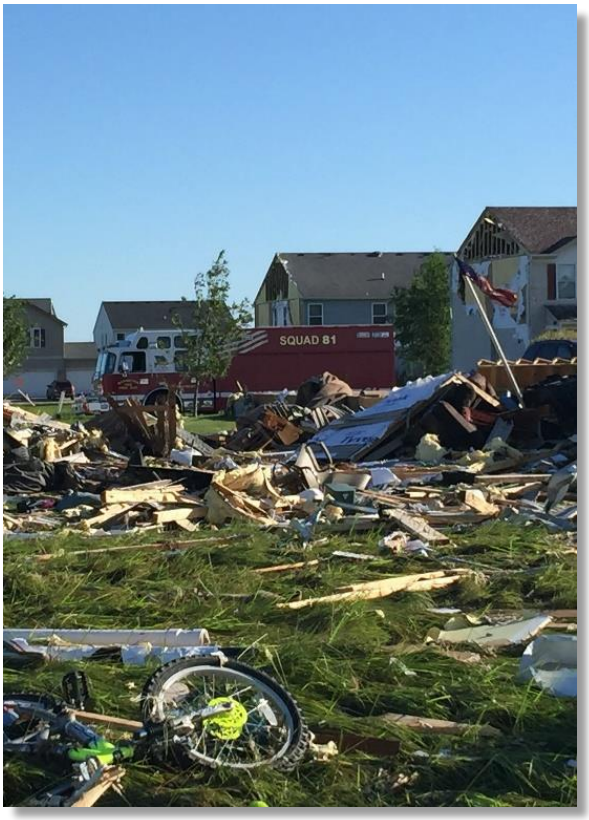
Type Count	Type Count	Type Count	Type Count	Type Count
Avalanche: 0	Blizzard: 2	Cold: 42	Dense Fog: 28	Drought: 23
Dust Storm: 0	Flood: 369	Hail: 1,009	Heat: 53	Heavy Snow: 49
High Surf: 0	Hurricane: 0	Ice Storm: 12	Landslide: 0	Strong Wind: 55
Thunderstorm Winds: 1,763	Tropical Storm: 0	Wildfire: 2	Winter Storm: 77	Winter Weather: 29
Other: 195				

Flooding


W Baker Rd
S Schoolhouse Rd
S US Highway 52
W Smith Rd
52
Manhattan Rd
MANHATTAN
81
Manhattan
S Gougar Rd
S Cedar Rd
W Pauling Rd
MANHATTAN
82
52
W Joliet Rd
S Cedar Rd
S Tulley Rd
FEMA National Flood Hazards
Regulatory Floodway
1% Annual Chance Flood Hazard

Tornado Events

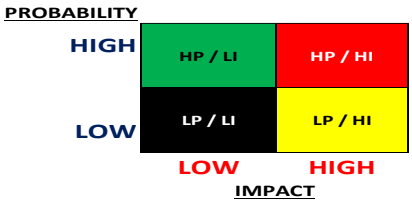
There is a **much higher risk** of tornadic activity with tornados touching down in the District and nearby.



Natural Event / Weather Risk Scoring

An additional scoring model utilized by the District to evaluate the risk of naturally occurring events was completed as below indicate the risks associated with natural events are primarily low to moderate.

NATURAL EVENT TYPE	PROBABILITY *Likelihood this will occur* *0 = N/A* *1 = Low* *2 = Moderate* *3 = High* *4 = Extreme*	IMPACT / CONSEQUENCES HUMAN *Possibility of death or injury* *0 = N/A* *1 = Low* *2 = Moderate* *3 = High* *4 = Extreme*	PROPERTY *Physical losses and damages* *0 = N/A* *1 = Low* *2 = Moderate* *3 = High* *4 = Extreme*	BUSINESS *Interruption of services* *0 = N/A* *1 = Low* *2 = Moderate* *3 = High* *4 = Extreme*	TOTAL IMPACT Human, Property, Business	AVERAGE IMPACT SCORE	PROBABILITY + IMPACT Probability + Impact (average)
Severe Thunderstorm	4	2	2	3	7	2.3	6.3
Extreme Winter/Ice Storm	4	2	2	3	7	2.3	6.3
Tornado	3	3	4	1	8	2.7	5.7
Temperature Extremes	3	2	1	3	6	2.0	5.0
Flood	3	2	3	3	8	2.7	5.7
Earthquake	1	3	4	1	8	2.7	3.7
Drought	2	2	1	1	4	1.3	3.3
Epidemic	1	4	1	4	9	3.0	4.0
Totals	21	20	18	19	57	19	5.0

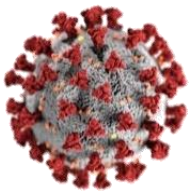


Risk Assessment
1-2 Low Threat
3-4 Moderate Threat
5-6 High Threat
7-8 Extreme Threat

The District is prepared for "All Hazard" responses and has plans to remain reliable and sustainable regardless of the environmental or large-scale incident. There are redundancies in place to keep operations always at the ready.

Risk assessment findings indicate a **higher probability and consequence from naturally caused events**.

The United States is currently under a "National Emergency" due to a **Global Pandemic from the COVID 19** (Novel Coronavirus) outbreak. At-Risk populations (> 65) are being significantly harmed. There are over 169 million confirmed cases worldwide, with over 3.5 million deaths. This number **rose exponentially throughout the year** and continues to rise daily. Unprecedented measures are taking place with US Borders shut to travel internationally, and mass closings of schools, sports, bars/restaurants, churches, theaters, and many businesses alike to "social distance" to "flatten the curve" to postpone and minimize the spread. States issued "stay home orders," and only essential businesses were open until positivity rates lowered. The US economy crashed to 2008 levels and is slowly recovering. Since December 2020, several vaccines have been approved for use, and mass vaccination rollouts are happening worldwide to combat the virus's spread in hopes of gaining herd immunity and reopen at a quicker rate.



A crisis such as this has and continues to affect the Fire and EMS Services everywhere dramatically. Increased responses, PPE/exposure protection, extended hospital turn-around times, isolation, staffing, supply, and more issues may overwhelm the entire health care industry.

Large Scale Incidents

Community risks exceed traditional fire and EMS to include significant scale events. In most cases, these events would be low-frequency/severe consequence events on a community basis. Department of Homeland Security (DHS) methodology was utilized to conduct risk assessments on the most anticipated events. Programs to reduce risk and increase preparedness capabilities can be performed in the large-scale event risk assessment process. Numerical scores were assigned in the assessment process allowing prioritization of risk reduction efforts.

The following assessment characteristics were utilized:

- Probability
- Vulnerability
- Onset speed
- Impact
- Preparedness
- Geographic size
- Potential for associated MCI
- Warning time
- Length of event
- Consequences

- **Hazardous Materials Incident (HM - Low)**
  - Lower-level HazMat responses are usually handled by local Fire Departments, with Higher-level responses by regional teams. NFPA defines a Level 3 HazMat incident as one that is beyond regional or state capabilities. Level 3 incidents may require federal resources during response or cleanup. These incidents pose an immediate severe and long-term risk to the community due to the release of substantial amounts of hazardous materials. This threat event would likely result from a railroad car release due to the number and type of HazMat transported through the community.

- **Weapons of Mass Destruction Event (WMD - Low)**
  - WMD events are defined as involving chemical, biological, radiological release, and exposure. Chemical event symptoms begin immediately after the exposure. Radiological and some biological events symptoms may start up to 12 hours after exposure, and others immediately.

- **Mass Violence Incident (MVI - Low)**

- A Mass Violence Incident (MVI) generally has ten (10) or more patients triaged as Yellow or Red. MVI differs from Mass Casualty Incidents (MCI) in that MVI is intentionally caused by human action. MCI can result from non-intentional events such as a vehicle accident. MVI requires tight integration with law enforcement to stabilize the incident and care for victims. Areas and occupancies with large groups of people are soft targets for an MVI. The District has potential targets with MVI probability. Examples of these events are Active Shooter Hostile, explosive device, or as simple as car vs. a crowd.

- **Significant Scale Power Failure (PGF - Low)**
  - Heavy reliance on electrical power has created the potential risk of power grid failure. The power grid is owned, operated, and managed by a private entity. Isolated power failures occur during storms several times a year and are short-lasting. A large-scale grid failure would have a significant effect on service demands and associated consequences

- **Public Health Incident (PH - Low)**
  - An increase in public health incidents, such as pandemics and viruses, has been noted in the last few years, and a historic one began in 2020 (COVID 19). A pandemics effects increase service demands and may lower personnel availabilities due to exposure and resulting illness, longer hospital turnaround time, isolations, and supply issues, to name just a few.

- **Cyber Attack (CA – Low)**
  - Targeted attacks on IT systems have been increasing worldwide. These attacks can include Denial of Service (DOS) and ransomware. Most fire service agencies have a high reliance on IT systems for communication and records systems.

	Future Frequency	Impact	Area Affected
Floods	Likely	Serious	Large
Severe Summer Storms	Likely-Frequent	Moderate	Community
Severe Winter Storms	Likely-Frequent	Moderate	Large
Tornado	Likely	Serious - Catastrophic	Community
Extreme Heat	Likely	Moderate	Large
Drought	Seldom	Moderate	Large
Earthquake	Seldom	Low-moderate	Community
Power Outage	Likely	Moderate-Serious	Community

Risk Assessment for Service Level Classifications

Risk assessments were also conducted for the following primary service types:

- **FIRE**
- **EMS**
- **HAZMAT**
- **RESCUE/TRT/DIVE**

FIRE RISK

Fire Risk

Fire risk drives the number of personnel, apparatus, and critical tasks required in suppression operations. Fire suppression services involve a full-range response from single/multi-family residential to commercial, industrial, and special occupancies. Public and private schools, colleges, universities, houses of worship, and healthcare facilities are also covered. Fire response is not limited to fixed property but also incorporates mobile and wildland-urban interfaces.

NATIONWIDE

80 % of all fire deaths occur in residential dwellings.

7 people die and 32 are injured every day.

Fire kills more people in the United States every year than all-natural disasters combined.

(Home Fire Sprinkler Coalition, May 2013)

Modern Fire Behavior

Thanks to NIST's recent work (National Institute of Scientific Technology) and UL (Underwriters Laboratory), the fire service is learning more now than ever about the effects of fire on modern construction. The graphs represent the time-temperature curve of a past, or "legacy" style home, compared to the dramatically explosive "modern" fire environment in a ventilation limited fire scenario. These conditions can occur in less than 5 minutes. Standard fire and life safety factors, such as fire flow and code compliance for life safety, are used to determine risk classification. Risk classifications range from Low, Moderate, High, and finally to Special/Maximum. Single-family dwellings, considered typical or moderate risk, comprise the majority of most communities.

MODERN FIRE BEHAVIOR REPORT and DATA

https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Building-and-life-safety/oshomes.pdf

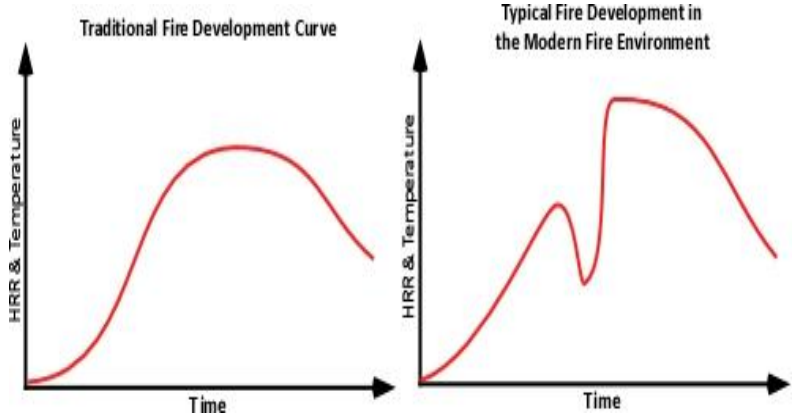
Fire Spread

Limiting fire growth to the smallest area within an occupancy decreases risk to occupants and firefighters. NFPA statistics have also shown a decrease in property loss by ideally limiting fires to the room of origin.

Several primary factors, including influence fire spread:

- Fuel load
- Compartmentalization
- Notification
- Time to apply water

This list is simplified as there is an unlimited number of variables that



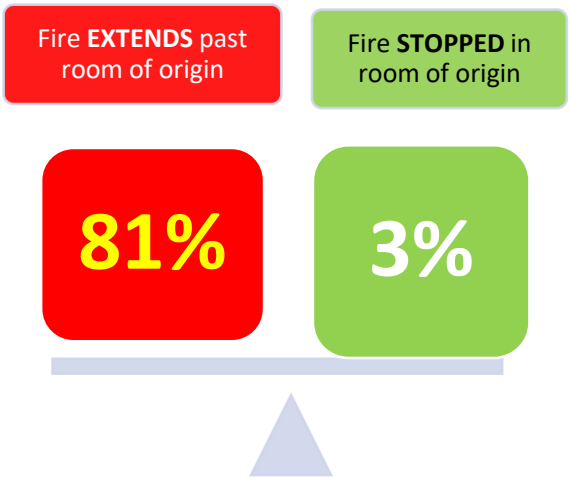
can influence fire spread. The Fire District does not directly control the first three bullet points. Risk can be affected by early detection systems providing early warning to occupants and the Fire District. The application of water to fire is dependent on the appropriate complement of apparatus and qualified personnel arriving on the scene promptly. The initial arrival of personnel can begin fire suppression operations to start controlling and limit fire spread.

Fire spread is grouped into five categories by NFIRS:

- Limited to the **object** of origin
- Limited to the **room** of origin*
- Limited to the **floor** of origin
- Limited to the **building** of origin
- Extended **past the structure** of origin

These categories allow the establishment of fire suppression goals and objectives to be established and measured. The District effectively limited **fires to the object or room of origin 45.8 % of the time,** as illustrated during the study period.

https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Building-and-life-safety/OSStructureFiresbyExtentofFlameSpread.ashx?la=en



Chances of **death or injury** if fire extends past room of origin

NFPA Study – 2009 to 2013
2,600 fatalities and 13,000 injuries

Fire Incident Response Summary

According to the National Fire Incident Reporting System (NFIRS), a summary of the four main classified fire types. These include structures (or fires inside a structure), vehicles, brush/wildland, and other fires classified by NFIRS Types. Also listed is the historical data for fire ground injuries and death to civilians and firefighters and dollar loss/save rates for the study period

NFIRS Historic Response

Year	2016	2017	2018	2019	2020	Totals	Average	*% of Inc*
100 Fire, other	2				1	**3**	2	*0.1%*
111 Building fire	7	7	3	7	2	**26**	5	*0.4%*
112 Fires in structures other than in a building				1		**1**	1	*0.0%*
113 Cooking fire, confined to container	2		2	1		**5**	2	*0.1%*
114 Chimney or flue fire, confined to chimney or flue		1			1	**2**	1	*0.0%*
116 Fuel burner/boiler malfunction, fire confined					1	**1**	1	*0.0%*
118 Trash or rubbish fire, contained			2	1	1	**4**	1	*0.1%*
Total	**11**	**8**	**7**	**10**	**6**	42	**8**	***0.7%***
Change over the previous year		**-3**	**-1**	**3**	**-4**			
		-27%	**-13%**	**43%**	**-40%**			
122 Fire in a motor home, camper, recreational vehicle					1	**1**	1	*0.0%*
131 Passenger vehicle fire	2	2	1	4	1	**10**	2	*0.2%*
132 Road freight or transport vehicle fire			1			**1**	1	*0.0%*
134 Water vehicle fire		1				**1**	1	*0.0%*
138 Off-road vehicle or heavy equipment fire	1			1		**2**	1	*0.0%*
140 Natural vegetation fire, other					3	**3**	3	*0.1%*
Total	**3**	**3**	**2**	**5**	**5**	18	**4**	***0.3%***
Change over the previous year		**0**	**-1**	**3**	**0**			
		0%	**-33%**	**150%**	**0%**			
142 Brush, or brush and grass mixture fire	8	8	16	8	7	**47**	9	*0.8%*
143 Grass fire	1				1	**2**	1	*0.0%*
171 Cultivated grain or crop fire		2				**2**	2	*0.0%*
Total	**9**	**10**	**16**	**8**	**8**	74	**10**	***1.3%***
Change over the previous year		**1**	**6**	**-8**	**0**			
		11%	**60%**	**-50%**	**0%**			
150 Outside rubbish fire, other	2		2			**4**	2	*0.1%*
151 Outside rubbish, trash or waste fire	1	1			3	**5**	2	*0.1%*
154 Dumpster or other outside trash receptacle fire	2		1	1	2	**6**	2	*0.1%*
160 Special outside fire, other		1				**1**	1	*0.0%*
161 Outside storage fire			1			**1**	1	*0.0%*
162 Outside equipment fire		1			1	**2**	1	*0.0%*
Total	**5**	**3**	**4**	**1**	**6**	19	**4**	***0.3%***
Change over the previous year		**-2**	**1**	**-3**	**5**			
		-40%	**33%**	**-75%**	**500%**			

Structure Fire Historical Statistics

FIRE DEATHS & INJURY	2016	2017	2018	2019	2020	TOTALS	AVERAGE
CIVILIAN							
Fire Death	-	-	-	-	-	**0**	-
Fire Injuries	-	-	-	-	-	**0**	-
FIREFIGHTER							
Fire Death	-	-	-	-	-	**0**	-
Fire Injuries	-	-	-		-	**0**	-
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	-

FIRE LOSS	2016	2017	2018	2019	2020	TOTALS	AVERAGE		
# of STRUCTURE FIRES	4	12	4	6	7	33	6.6		
Fire Loss	$128,250	$186,540	$70,500	$596,400	$353,070	$1,334,760	$266,952		
Property Saved	$776,500	$1,015,500	$850,000	$850,000	$425,000	$3,917,000	$783,400		
Loss Rate	17%	18%	8%	70%	83%	34%			
Save Rate	83%	82%	92%	30%	17%	66%			
CONTAINED TO:									
Unknown									
Point of Origin	**1**	**1**		1		**3**	1	*12.5%*	
Room of Origin	**3**	**1**	**2**	**1**	**1**	**8**	1.6	*33.3%*	**45.8%**
Floor of Origin		**1**				**1**	1	*4.2%*	
Building of Origin		**2**	**1**	**5**	**2**	**10**	2.5	*41.7%*	
Beyond Building of Origin		**2**				**2**	2	*8.3%*	
	4	**7**	**3**	**7**	**3**	**24**	**8.1**		

# of Fires & Dollar Loss per Station per Year												
	2016		2017		2018		2019		2020		Totals	
81	4	$128,250	9	$ 30,540	4	$70,500	4	$582,500	7	$353,070	28	**$1,164,860**
82		$ -	3	$156,000		$ -	2	$ 13,900		$ -	5	**$ 169,900**
Totals	4	**$128,250**	12	**$186,540**	4	**$70,500**	6	**$596,400**	7	**$353,070**	33	**$1,334,760**

Floor of Origin	
Basement	1
1st Floor	19
2nd Floor	4

Fire Risk level Classification

FIRE - RISK	
LOW	**Outside fires**
	Vehicles, Brush, Refuse
MODERATE	**Structures**
	SMALL - MEDIUM:
	Residential, Multifamily, Commercial
HIGH	**Target Hazards**
	LARGE - MEGA:
	Residential, Multifamily, Commercial
	or ***Schools, Hotels, Malls,***
	Nursing,Assisted Living

A definition of "fire risk analysis" considers fire potential (probability), life hazards and economic impact (consequences), occupancy use, construction features, fire protection systems, fire flow requirements, and community risk factors. Evaluating event probability, impact, and location (as part of this analysis of existing and potential community risk), the following **TYPE classification** of **fire risk hazard levels** have been established:

Low-Risk types are incidents typically requiring a single Fire Company. Examples are small brush and dumpster-type fires. Vehicle fires are also classified as Low Risk. However, the District should consider an additional fire company dispatched for traffic control and manpower tasks. Fully protected (alarmed/sprinklered) structures are also low-risk types classifications and, therefore, can be dispatched with a reduced response with the option to upgrade the response level at any time if further information confirming a fire is determined.

Moderate-Risk types are the structure fire incidents that make up almost all the Fire District. They involve Small to Medium Residential-Multifamily-Commercial occupancies. Typically, they are single-family residential to small six units or less multifamily apartment buildings and small to medium commercial or strip malls. NFPA structure classification, "low" type.

High-Risk types are Large to Mega Size Residential-Multifamily-Commercial structures. It includes Target Hazards, which risk a sizable loss of life, loss of economic value to the community, or high property loss. These include sites such as Schools, Hotels, Skilled Nursing facilities. NFPA structure classification, "medium to high."

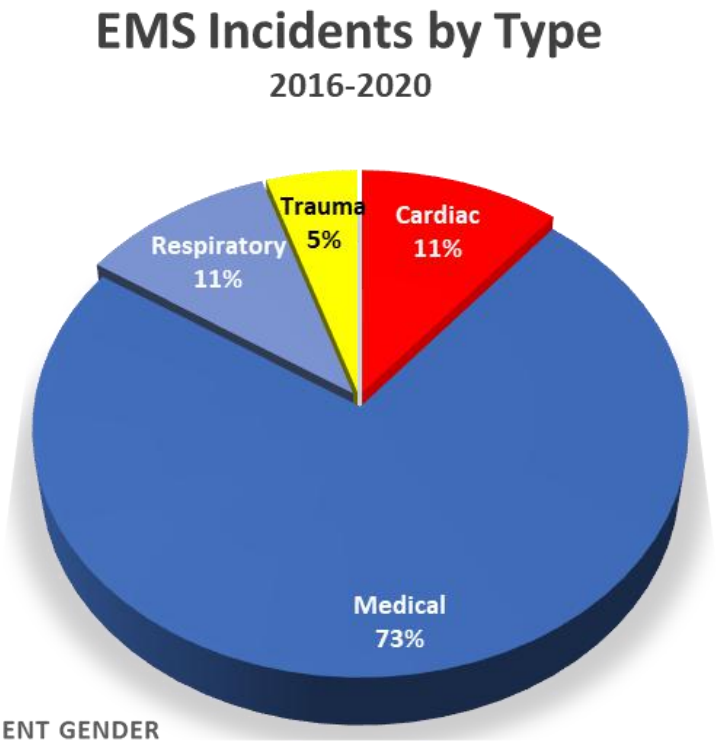
FIRE risk types historically are primarily classified as LOW to MODERATE

EMS RISK

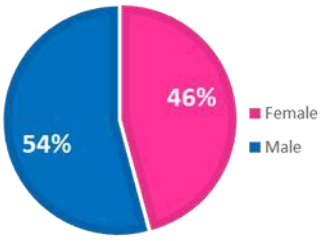
Risks to the EMS community range from treating and transporting the ill/injured, cardiac and respiratory problems, and the broad spectrum of medical issues to the potential mass casualty.

EMS is the highest demand for service the District provides, accounting for nearly **42% of the incidents** (**48%** when including vehicle accidents with injuries – categorized to the "Rescue" group). The Emergency Medical environment continues to evolve with a changing society. Events such as terrorism, active shooter, and other man-made hostile events are reshaping EMS roles and responsibilities, requiring continued planning and training to meet those risks.

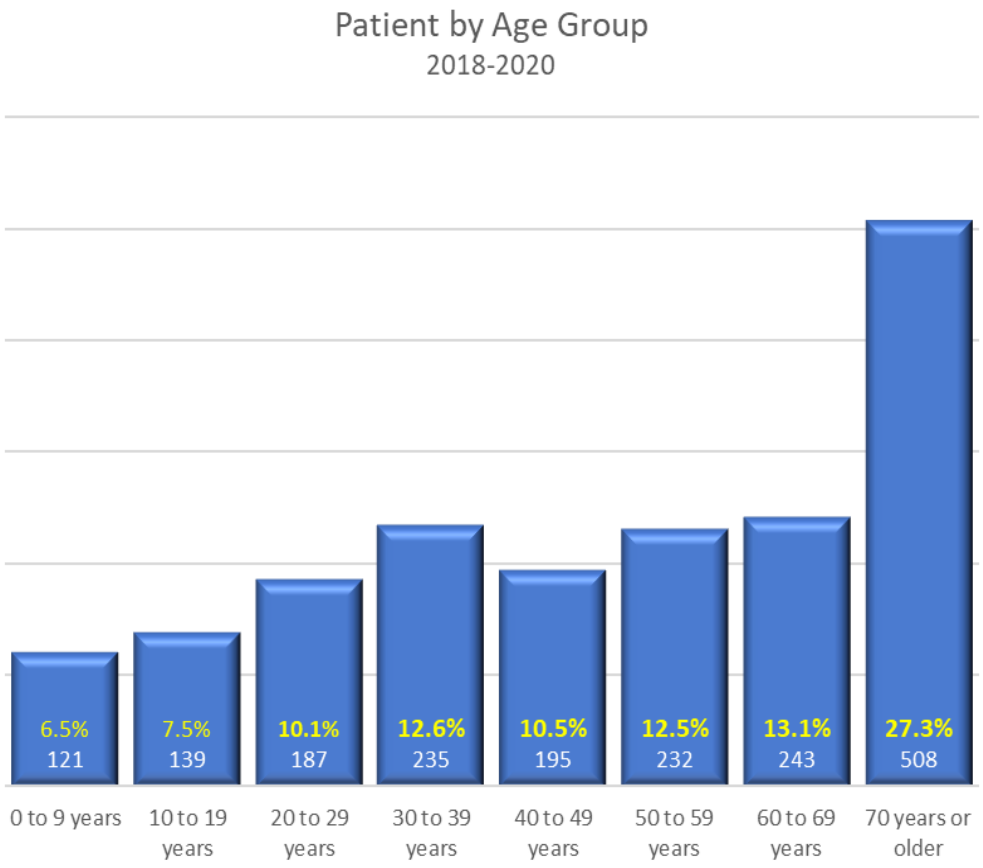
Top EMS Incident Types

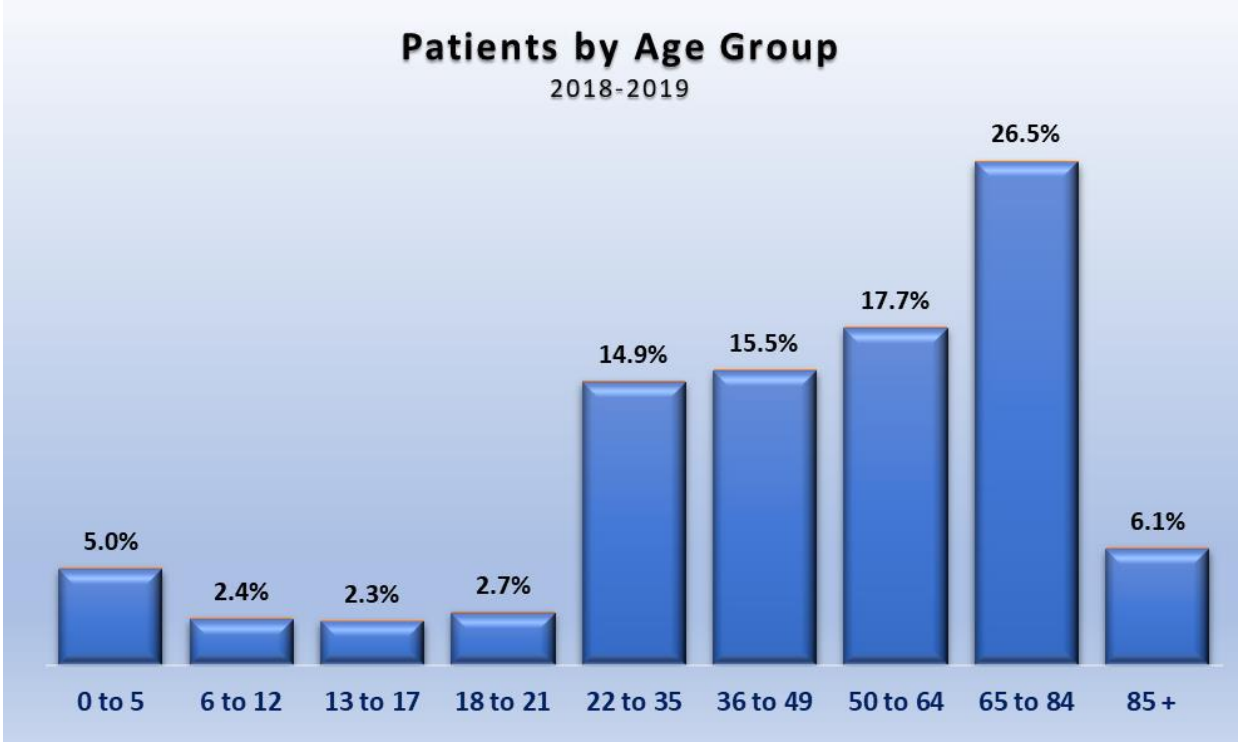


PATIENT GENDER

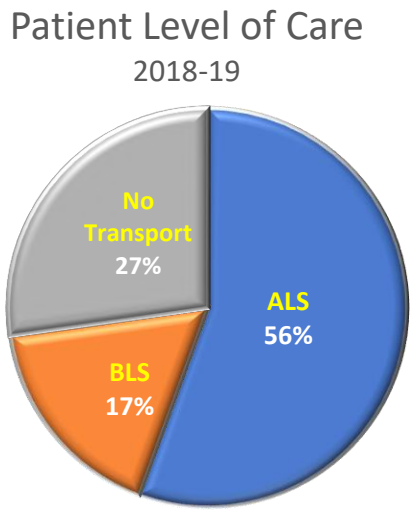


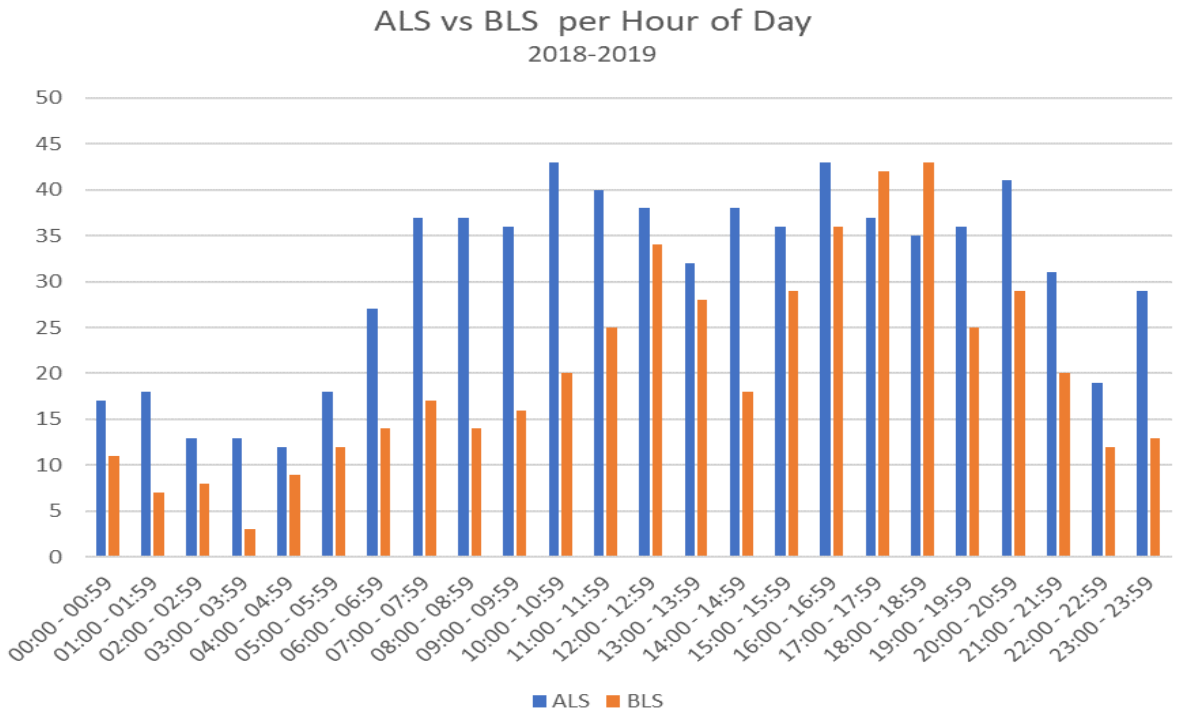
EMS by Category 2016-2020		
Cardiac	171	*9%*
Medical	1155	*62%*
Respiratory	167	*9%*
Trauma	78	*4%*
None	294	*16%*
	1865	

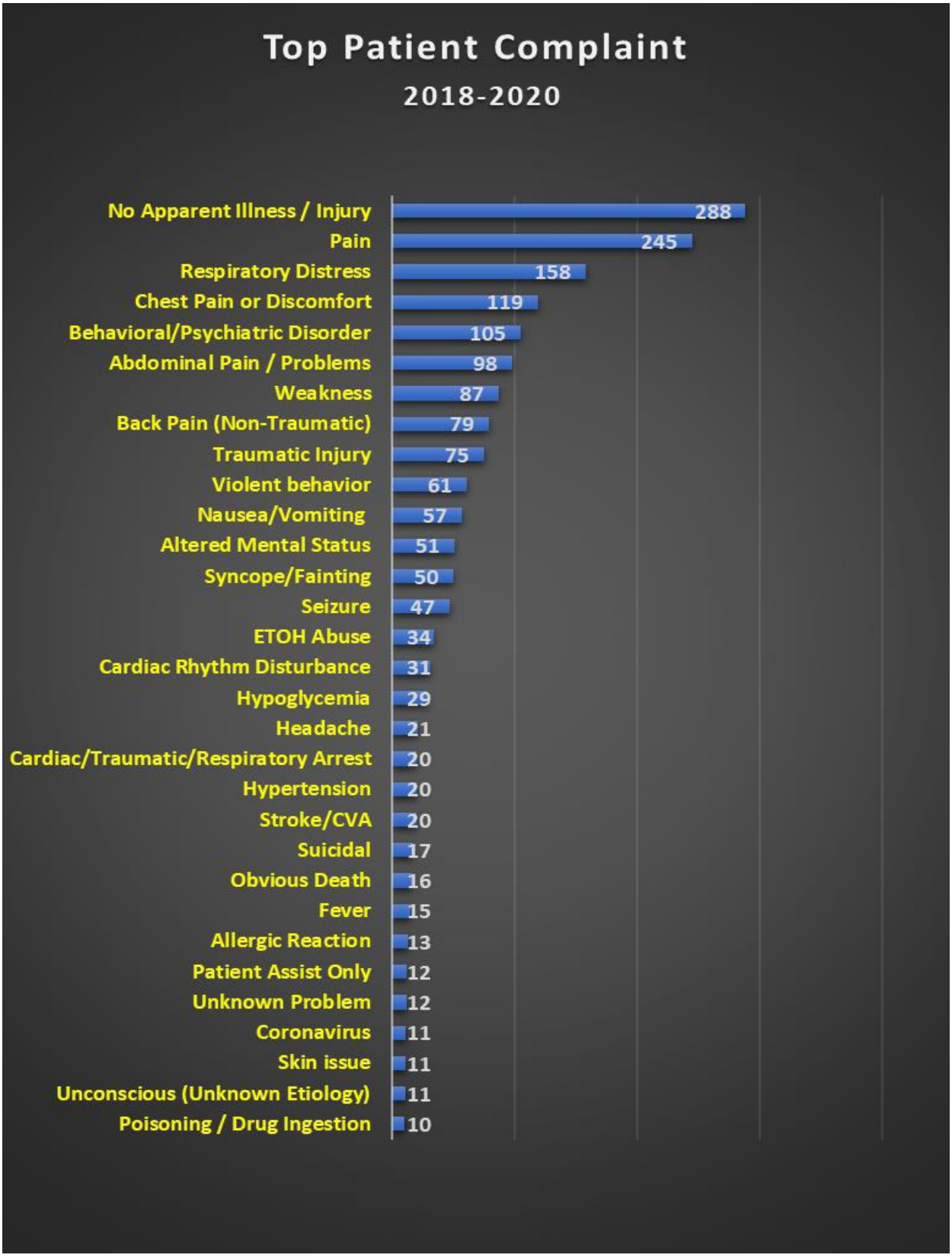

Patient by Age Group
2018-2020
6.5%
121
7.5%
139
10.1%
187
12.6%
235
10.5%
195
12.5%
232
13.1%
243
27.3%
508
0 to 9 years
10 to 19 years
20 to 29 years
30 to 39 years
40 to 49 years
50 to 59 years
60 to 69 years
70 years or older


Patients by Age Group
2018-2019
5.0%
2.4%
2.3%
2.7%
14.9%
15.5%
17.7%
26.5%
6.1%
0 to 5
6 to 12
13 to 17
18 to 21
22 to 35
36 to 49
50 to 64
65 to 84
85 +

HOSPITAL TRANSPORTED TO	2018	2019	2020	TOTAL	%
Silver Cross	390	317	438	**1,145**	***92.0%***
Amita Health - St Joseph	20	20	25	**65**	***5.2%***
Riverside Medical	7	1	6	**14**	*1.1%*
Unknown	1		13	**14**	*1.1%*
Provena St Mary's			4	**4**	*0.3%*
Bolingbrook Adventist			1	**1**	*0.1%*
Olympia Fields			1	**1**	*0.1%*
	418	**338**	**488**	**1244**	






Top Patient Complaint
2018-2020
No Apparent Illness / Injury 288
Pain 245
Respiratory Distress 158
Chest Pain or Discomfort 119
Behavioral/Psychiatric Disorder 105
Abdominal Pain / Problems 98
Weakness 87
Back Pain (Non-Traumatic) 79
Traumatic Injury 75
Violent behavior 61
Nausea/Vomiting 57
Altered Mental Status 51
Syncope/Fainting 50
Seizure 47
ETOH Abuse 34
Cardiac Rhythm Disturbance 31
Hypoglycemia 29
Headache 21
Cardiac/Traumatic/Respiratory Arrest 20
Hypertension 20
Stroke/CVA 20
Suicidal 17
Obvious Death 16
Fever 15
Allergic Reaction 13
Patient Assist Only 12
Unknown Problem 12
Coronavirus 11
Skin issue 11
Unconscious (Unknown Etiology) 11
Poisoning / Drug Ingestion 10

Primary Impression	2018	2019	2020	TOTAL	% of Incidents	Average
Abdominal Pain / Problems	27	46	25	**98**	*5.3%*	*49*
Airway Obstruction	2		3	**5**	*0.3%*	*3*
Allergic Reaction	3	7	3	**13**	*0.7%*	*7*
Altered Mental Status	15	17	19	**51**	*2.7%*	*26*
Asthma			1	**1**	*0.1%*	*1*
Back Pain (Non-Traumatic)	30	30	19	**79**	*4.2%*	*40*
Behavioral/Psychiatric Disorder	32	48	25	**105**	*5.6%*	*53*
Bowel Obstruction			1	**1**	*0.1%*	*1*
Cardiac Rhythm Disturbance	16	14	1	**31**	*1.7%*	*16*
Cardiac/Traumatic/Respiratory Arre	4	5	11	**20**	*1.1%*	*10*
Chest Pain or Discomfort	43	42	34	**119**	*6.4%*	*60*
CHF (Congestive Heart Failure)			1	**1**	*0.1%*	*1*
COPD , Non Asthma			1	**1**	*0.1%*	*1*
Coronavirus			11	**11**	*0.6%*	*11*
Dehydration			2	**2**	*0.1%*	*2*
Epistaxis (Non-Traumatic)			2	**2**	*0.1%*	*2*
ETOH Abuse	8	10	16	**34**	*1.8%*	*17*
Fever	3	7	5	**15**	*0.8%*	*8*
Headache	15	3	3	**21**	*1.1%*	*11*
Hyperglycemia			2	**2**	*0.1%*	*2*
Hypertension	4	9	7	**20**	*1.1%*	*10*
Hypoglycemia	13	12	4	**29**	*1.6%*	*15*
Hypotension	1		5	**6**	*0.3%*	*4*
Hypothermia	1			**1**	*0.1%*	*1*
Hypovolemia	2			**2**	*0.1%*	*2*
Nausea/Vomiting	20	19	18	**57**	*3.1%*	*29*
No Apparent Illness / Injury	86	101	101	**288**	*15.4%*	*144*
OB / Pregnancy Complications	2		1	**3**	*0.2%*	*2*
Obvious Death	6	4	6	**16**	*0.9%*	*8*
Other Endocrine/Metabolic Problem			1	**1**	*0.1%*	*1*
Pain	106	88	51	**245**	*13.1%*	*123*
Patient Assist Only	5	7		**12**	*0.6%*	*8*
Poisoning / Drug Ingestion	5	2	3	**10**	*0.5%*	*5*
Respiratory Arrest			1	**1**	*0.1%*	*1*
Respiratory Distress	42	51	65	**158**	*8.5%*	*79*
Seizure	14	18	15	**47**	*2.5%*	*24*
Sexual Assault	1			**1**	*0.1%*	*1*
Shock		1	1	**2**	*0.1%*	*1*
Skin issue			11	**11**	*0.6%*	*11*
Smoke Inhalation		1		**1**	*0.1%*	*1*
Stings/Venomous Bites		1		**1**	*0.1%*	*1*
Stroke/CVA	6	11	3	**20**	*1.1%*	*10*
Suicidal			17	**17**	*0.9%*	*17*
Syncope/Fainting	16	22	12	**50**	*2.7%*	*25*
TIA (Transient Ischemic Attack)			2	**2**	*0.1%*	*2*
Traumatic Injury			75	**75**	*4.0%*	*75*
Unconscious (Unknown Etiology)	5	6		**11**	*0.6%*	*7*
Unknown Problem			12	**12**	*0.6%*	*12*
Violent behavior	53		8	**61**	*3.3%*	*41*
Weakness		36	51	**87**	*4.7%*	*58*
Welfare Check	1	5		**6**	*0.3%*	*4*
	587	**623**	**655**	**1865**		

Cardiac Arrest

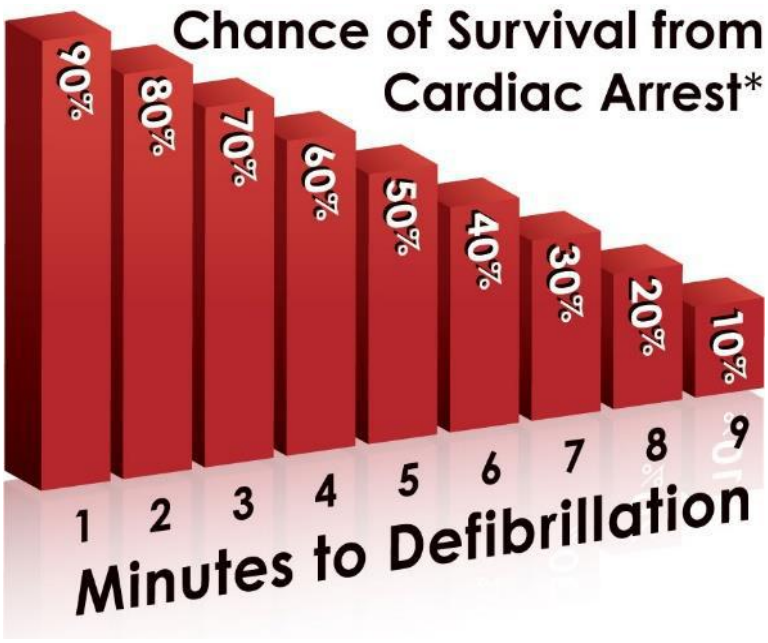
A sudden cardiac arrest patient that is not defibrillated within eight to ten minutes has virtually no chance of survival

EMS service-level objectives are typically designed to provide medical intervention within a six-minute timeframe. Respiratory and traumatic injuries are also heavily time and resource-dependent. In cardiac and respiratory arrest situations, survivability dramatically decreases beyond four to six minutes without proper intervention. Intervention includes early recognition, activation of 911, and bystander CPR until the arrival of emergency responders.

Early defibrillation is a critical link in the American Heart Association's Chain of Survival. Early defibrillation supports converting the heart from a chaotic rhythm back to normalcy. Oxygenated blood is not circulated throughout the body when the heart is in fibrillation. Without defibrillation within six minutes, the patient likely dies. The odds of survival decrease every minute without defibrillation.

Recognizing the cardiac arrest event, activating the EMS system, and beginning CPR in as short a time as possible increases survival rates. Having trained residents and access to AED's in public buildings has supported an increase in survival. Patient contact times increase during responses to high rise and other large structures.

The initiation of CPR and early defibrillation are critical initial links in the survival chain. The heart may start to beat chaotically in sudden cardiac arrest, requiring an electrical shock through a defibrillator to restore regular operation and blood flow. Survival is reduced each minute CPR or defibrillation does not occur. Witness-driven CPR and access to AED's dramatically increase survival.



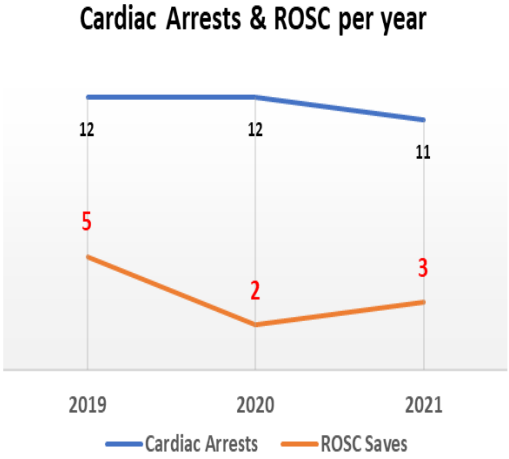
From 2019-2021, there has been **35** Cardiac/Respiratory Arrests in the District ***(average 12 year)***

R.O.S.C. Survival Rate = 29% *average* 10 Patients out of 35 Total Cardiac Arrest Incidents!

NATIONAL R.O.S.C. average: 7-11%

**R.O.S.C. – Return Of Spontaneous Circulation*

The District is developing strategies to continue to improve this critically important outcome measure.



EMS Risk level Classification

The District has identified statistically and strategically planning that emergency medical services are critical to the community. Statistical data substantiates that this is the highest level of service demand in all response zones.

Although the consequence of an individual incident may not be high (typically limited to one fire company and one ambulance company), the probability of multiples of these incidents occurring at the same time is minimal (**13.2% of the time - simultaneous incidents occur of any nature**). Thus, emergency medical incidents are of high importance and have an exceedingly high impact on District resources.

EMS Incidents can be broken into three significant TYPE group categories (with response) – Low, Moderate, High. The chart to the right is the corresponding Critical TASKS associated with each Risk Group.

EMS - RISK	
LOW	**Single Patient** *Injured/Illness*
MODERATE	**Severe Life Threat** *Cardiac Arrest/Trauma/Extrication*
HIGH	**Multi/Mass Casualty** *5 or more Pts*

EMS - TASKS / ERF	
LOW	
Command/Safety/Family Liaison	1
Patient Assessment/Treatment	1
Paramedic in Charge/ Reporting	1
Patient Movement/Transport	2
TOTAL ERF	**4-5**
MODERATE	
Command/Safety/Family Liaison	1
Patient Assessment/Treatment	1
Paramedic in Charge/ Reporting	1
Patient Movement/Transport	2
Resuscitation/Stabilization/Extricate	2
TOTAL ERF	**7**
HIGH	
Command	3
Scene Safety	1
Medical	2
Triage	4
Treatment	6
Transportation	12
Staging	1
TOTAL ERF	**29**

NFIRS Historic Response

	2016	2017	2018	2019	2020	Total	Average	% of Inc
300 Rescue, emergency medical call (EMS) call, other	2					**2**	2.0	*0.08%*
311 Medical assist, assist EMS crew	2	2	1			**5**	1.7	*0.20%*
320 Emergency medical service, other (conversion only)	6	4	2		1	**13**	3.3	*0.53%*
321 EMS call, excluding vehicle accident with injury	462	412	508	501	559	**2,442**	488.4	*99.19%*
300 - EMS	**472**	**418**	**511**	**501**	**560**	**2462**	492	
Change over the previous year		*-11%*	*22%*	*-2%*	*12%*	*% of Total Inc*		*41.9%*

EMS risk types are primarily classified as LOW to MODERATE

RESCUE RISK

Technical Rescue Risks

RESCUE - RISK	
LOW	**Elevator entrapment**
	Occupied, Lock Out,Wires Down
MODERATE	**MVA w/ extrication**
	Vehicle into Building
HIGH	**Spec Operations Technicians (TRT)**
	Confined Space, Trench,
	Structure Collapse, Water/Ice
	Low/High Angle Rope Rescues

Technical Rescue Risks

Rescue risks vary from elevator removal to pin-in vehicle accidents to Special Operations. Technical Rescue covers a wide range of incidents, confined space rescue, trench collapse, low/high angle rescue, water/ice rescue, and structural collapse. The hazard levels are established for technical rescue risk per Special Operations – Rope, Confined Space, Trench, and Water/Ice Rescue discipline. The District has begun to locate and assess critical characteristics of technical rescue hazards. Below-grade and confined space hazards exist. These "Special Operations" type incidents are rare. However, when they do occur, they most definitely fit the "low frequency, high risk" category and must be trained diligently. There are corresponding Critical Tasks associated with the **High-Risk type Group strictly at the Technician Level** team deployments supported by the initial Operations level response**.**

NFIRS Historic Response

	2016	2017	2018	2019	2020	Total	Average	% of Inc
322 Vehicle accident with injuries	64	63	53	62	38	**280**	56.0	*81.87%*
323 Motor vehicle/pedestrian accident (MV Ped)			1			**1**	1.0	*0.29%*
324 Motor vehicle accident no injuries	3	7	8	9	18	**45**	9.0	*13.16%*
352 Extrication of victim(s) from vehicle			4	4	1	**9**	3.0	*2.63%*
357 Extrication of victim(s) from machinery	1				1	**2**	1.0	*0.58%*
360 Water & ice-related rescue, other		1	1			**2**	1.0	*0.58%*
381 Rescue or EMS standby	2			1		**3**	1.5	*0.88%*
300 - RESCUE & EMS	**70**	**71**	**67**	**76**	**58**	**342**	68	
Change over the previous year		*1%*	*-6%*	*13%*	*-24%*	*% of Total Inc*		*5.8%*

RESCUE risk types are primarily classified as LOW to MODERATE

HAZMAT RISK

The risk of a Hazardous Material (HazMat) release can occur in commercial, industrial, farm, and transportation applications.

Flammable/combustible products are located throughout the District. Fuel spills, natural gas leaks, and carbon monoxide incidents are included in this category. Hazardous conditions within the District have included power lines down or arcing/shorting out.

HAZMAT - RISK TYPE

LOW	**Investigations - Outside Incident** *CO Detector (no illnesss), Fuel spill, Odor*
MODERATE	**Static** *Inside Gas leak, CO Detector w/ illness*
HIGH	**Dynamic/Active release** *Level A - Technical Team may be needed*

Most of the potential exposure for High-risk type incidents in the District includes transportation, roadway, rail, electrical, and pipelines, which require a regional response Technician Level response.

NFIRS Historic Response

	2016	2017	2018	2019	2020	Total	Average	% of Inc
400 Hazardous condition, other	1	1				**2**	1.0	*0.90%*
411 Gasoline or other flammable liquid spill	1	2		1		**4**	1.3	*1.79%*
412 Gas leak (natural gas or LPG)	16	20	23	29	20	**108**	21.6	*48.43%*
413 Oil or other combustible liquid spills				1		**1**	1.0	*0.45%*
421 Chemical hazard (no spill or leak)				1		**1**	1.0	*0.45%*
424 Carbon monoxide incident	1	5	1	5	7	**19**	3.8	*8.52%*
440 Electrical wiring/equipment problem, other	1	3	1		2	**7**	1.8	*3.14%*
441 Heat from short circuit (wiring), defective/worn	1		1		1	**3**	1.0	*1.35%*
442 Overheated motor		2	3		2	**7**	2.3	*3.14%*
444 Power line down	9	8	6	24	15	**62**	12.4	*27.80%*
445 Arcing, shorted electrical equipment	4	1		1		**6**	2.0	*2.69%*
461 Building or structure weakened or collapsed			1			**1**	1.0	*0.45%*
463 Vehicle accident, general cleanup	1			1		**2**	1.0	*0.90%*
400 - HAZARDOUS CONDITION	**35**	**42**	**36**	**63**	**47**	**223**	45	
Change over the previous year		*20%*	*-14%*	*75%*	*-25%*	*% of Total Inc*		*3.8%*

HAZMAT risk types are primarily classified as LOW to MODERATE

SERVICE/OTHER

Non-Emergency "Service" incidents make up a significant percentage of responses in the District. These incidents are not measured in benchmark standards for response time. Descriptions for these types of incidents include cover assignment/change of quarters, lock-out, assist police or other agency, water leak, smoke removal, and more listed in detail in the following historic response charts. Incidents involving "554 Assist invalid" could be included in EMS incidents.

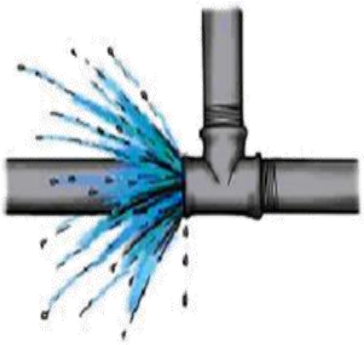
NFIRS Historic Response

500 Service Call, other	2	1	1			**4**	1.3	*0.29%*
510 Person in distress, other	1					**1**	1.0	*0.07%*
511 Lock-out	1	1	1	3		**6**	1.5	*0.43%*
520 Water problem, other		1				**1**	1.0	*0.07%*
522 Water or steam leak		1	1	1		**3**	1.0	*0.22%*
531 Smoke or odor removal	2	2	1	3	2	**10**	2.0	*0.72%*
541 Animal problem		1				**1**	1.0	*0.07%*
542 Animal rescue		1	2	2		**5**	1.7	*0.36%*
550 Public service assistance, other	24	7	6	7	4	**48**	9.6	*3.45%*
551 Assist police or other governmental agency	10	7	2	2	2	**23**	4.6	*1.65%*
552 Police matter	2	1	5	3		**11**	2.8	*0.79%*
553 Public service	7	4	5	15	23	**54**	10.8	*3.88%*
554 Assist invalid	17	34	26	23	41	**141**	28.2	*10.12%*
561 Unauthorized burning	1	1	1	2		**5**	1.3	*0.36%*
571 Cover assignment, standby, moveup	182	253	197	219	229	**1,080**	216.0	*77.53%*
500 - SERVICE CALL	**249**	**315**	**248**	**280**	**301**	**1393**	279	
Change over the previous year		*27%*	*-21%*	*13%*	*8%*		*% of Total Inc*	*23.7%*
600 Good intent call, other	3	1	1	2	3	**10**	2.0	*1.17%*
611 Dispatched & canceled en route	135	141	122	159	181	**738**	147.6	*86.52%*
621 Wrong location		1	1	1	1	**4**	1.0	*0.47%*
622 No incident found on arrival of incident address	11	8	12	12	10	**53**	10.6	*6.21%*
631 Authorized controlled burning	2	6	5	4	2	**19**	3.8	*2.23%*
650 Steam, other gas mistaken for smoke, other	1					**1**	1.0	*0.12%*
651 Smoke scare, odor of smoke	6	4	7	4	6	**27**	5.4	*3.17%*
652 Steam, vapor, fog, or dust thought to be smoke					1	**1**	1.0	*0.12%*
600 - CANCELED/GOOD INTENT	**158**	**161**	**148**	**182**	**204**	**853**	171	
Change over the previous year		*2%*	*-8%*	*23%*	*12%*		*% of Total Inc*	*14.5%*

700 False alarm or false call, other	7	4	1	5	12	**29**	5.8	*6.28%*
710 Malicious, mischievous false call, other					2	**2**	2.0	*0.43%*
711 Municipal alarm system, malicious false alarm		1				**1**	1.0	*0.22%*
712 Direct tie to FD, malicious/false alarm	15	1	1	4	2	**23**	4.6	*4.98%*
714 Central station, malicious false alarm		1		1	1	**3**	1.0	*0.65%*
730 System malfunction, other			2		1	**3**	1.5	*0.65%*
731 Sprinkler activation due to malfunction		1		2		**3**	1.5	*0.65%*
733 Smoke detector activation due to malfunction	10	21	18	23	8	**80**	16.0	*17.32%*
734 Heat detector activation due to malfunction	1		2	1		**4**	1.3	*0.87%*
735 Alarm system sounded due to malfunction	12	5	8	4	32	**61**	12.2	*13.20%*
736 CO detector activation due to malfunction			1	4	2	**7**	2.3	*1.52%*
740 Unintentional transmission of alarm, other	7	18	27	25		**77**	19.3	*16.67%*
741 Sprinkler activation, no fire - unintentional		1		1		**2**	1.0	*0.43%*
742 Extinguishing system activation					1	**1**	1.0	*0.22%*
743 Smoke detector activation, no fire - unintentional	4	4	6	8	15	**37**	7.4	*8.01%*
744 Detector activation, no fire - unintentional	1	1		3	1	**6**	1.5	*1.30%*
745 Alarm system sounded, no fire - unintentional	9	9	15	8	12	**53**	10.6	*11.47%*
746 Carbon monoxide detector activation, no CO	25	7	18	18	2	**70**	14.0	*15.15%*
700 - FALSE ALARM	**91**	**74**	**99**	**107**	**91**	**462**	92	
Change over the previous year		*-19%*	*34%*	*8%*	*-15%*	*% of Total Inc*		*7.9%*

813 Wind storm, tornado/hurricane assessment			1			**1**	1.0	*20.00%*
814 Lightning strike (no fire)	1	1	1	1		**4**	1.0	*80.00%*
800 - SEVERE WEATHER	**1**	**1**	**2**	**1**	**0**	**5**	1	
Change over the previous year		*0%*	*100%*	*-50%*	*-100%*	*% of Total Inc*		*0.1%*
900 Special type of incident, other				2		**2**	2.0	*100.00%*
900 - SPECIAL/CITIZEN COMPLAINT	**0**	**0**	**0**	**2**	**0**	**2**	0	
Change over the previous year				*200%*	*-100%*	*% of Total Inc*		*0.0%*


FIRE
PULL DOWN
ALARM
FIRE
ALARM



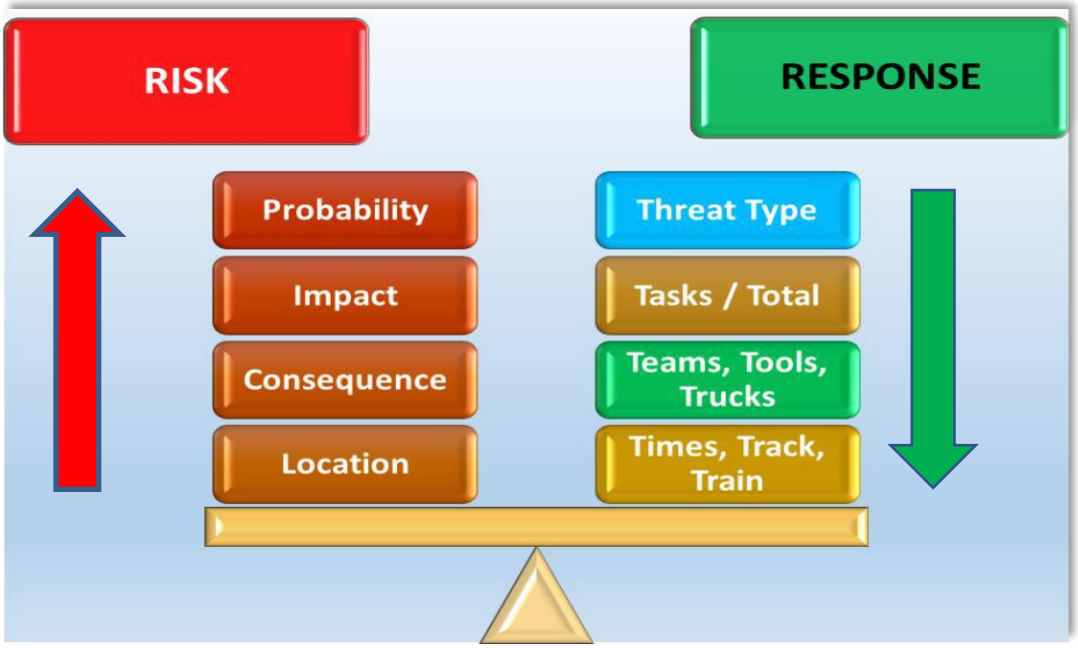

I`VE
FALLEN
and
I CAN`T
GET UP!


RISK
and
RESPONSE

SECTION 4 - RISK & RESPONSE

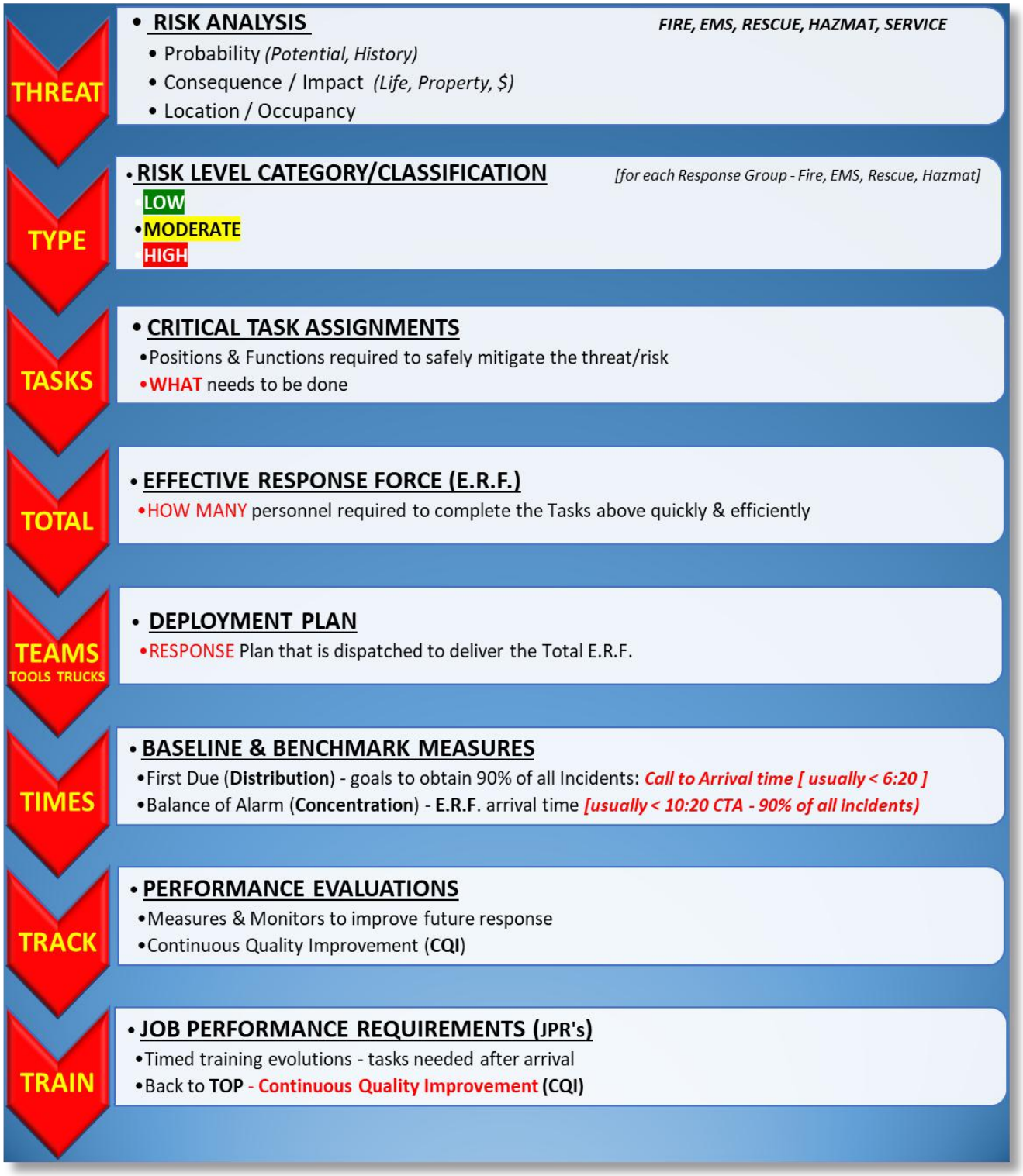
SECTION 4 - RISK and RESPONSE

To provide the optimum protection levels and a proactive Standards of Cover for the entire District is dependent on the Risk Assessment, and it is imperative to outweigh the **Response to the Risk**.



"Top Ten T's" – Risk Assessment and Response Cycle

A simple way to understand the reason and rationale that the District responds to incidents can be described in the chart below. The basis of how a Risk Assessment then becomes a Response Plan. These steps are broken down into a flowchart formula.



THREAT - Analysis

Analyzing the THREAT or Risk in all service categories can be accomplished in several ways. Two focus and starting points include the PROBABILITY of an incident occurring and the CONSEQUENCE/IMPACT that may result if this threat were to happen in all Risk Response Categories to the District – i.e.:

FIRE EMS RESCUE HAZMAT

- **PROBABILITY** can be determined by analyzing the POTENTIAL for an incident, with Historical demand as a critical indicator.
- **CONSEQUENCE** and **IMPACT** can also be determined by the potential and historic demand of prior incidents viewed through a scoring matrix emphasizing effects on Life, Property, or Economics.
- **LOCATION/OCCUPANCY** are essential measures.

Using a scoring system, such as the Structure Risk Assessment below (or OVAP), allows other measurements to determine a Risk Score and determine a Threat/Risk level category.

All emergency services provided (**FIRE, EMS, RESCUE, HAZMAT**) should be analyzed and classified as one of 3 risk type levels:

- **LOW**
- **MODERATE**
- **HIGH**

If necessary, SPECIAL can also be utilized as the risk type beyond HIGH and Aircraft Rescue Fire Fighting (ARFF), Wildland, or Marine.

Risk Assessment Methodology and Categorization

Risk assessment includes determining and defining the community's distinct threats based on occupancies such as single-family, multi-family, commercial, and other special type structures. Each scenario presents unique problems and requires an appropriate Fire, Rescue, or EMS response. After analysis of these and all other factors, the District had chosen to use the Structures:

SHOPS – ***S**ize, **H**eight, **O**ccupancy, **P**roblem, **S**core* as the basis to classify the potential risks associated.

"**SHOPS**" is also Blue Card Command "size up" as the acronym for defining a structure's:

Size, Height, Occupancy, Problem, Strategy, and ties in perfectly with a scoring system to determine a Structural Risk Assessment for most threat level responses – **EMS, FIRE, and SPECIAL OPERATIONS.**

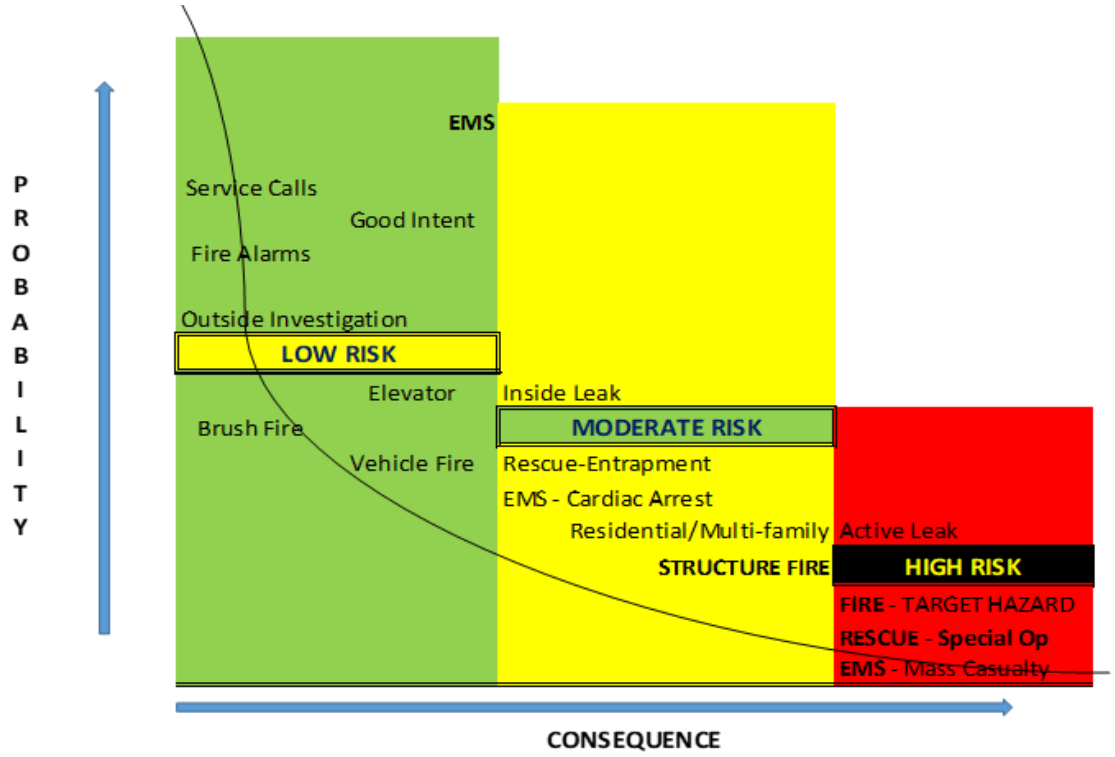
STRUCTURE RISK ASSESSMENT				
SIZE				
PRECONNECT	Small	Medium	Large	Mega
REACH	1	2	3	4
HEIGHT				
STORIES	One	Two	Three	Four+
	1	2	3	4
OCCUPANCY				
TYPE	Residential	Multifamily	Commercial	Target
	1	2	3	4
PROBLEM				
NATURE	EMS	FIRE	SPEC OP	SERVICE
	1	2	3	0
RISK SCORE				
LOW= < 3	MODERATE = 4-9			HIGH = > 10

For example, below is a chart of various typical structures common in the District and service risks scored according to the SHOPS guide.

SHOPS	Size	Height	Occupancy	Problem	SCORE
RESIDENTIAL	2	2	1	1	6
MULTIFAMILY	3	3	2	1	9
COMMERCIAL	3	1	3	2	9
TARGET	4	4	4	2	14

Example "SHOPS" scoring matrix

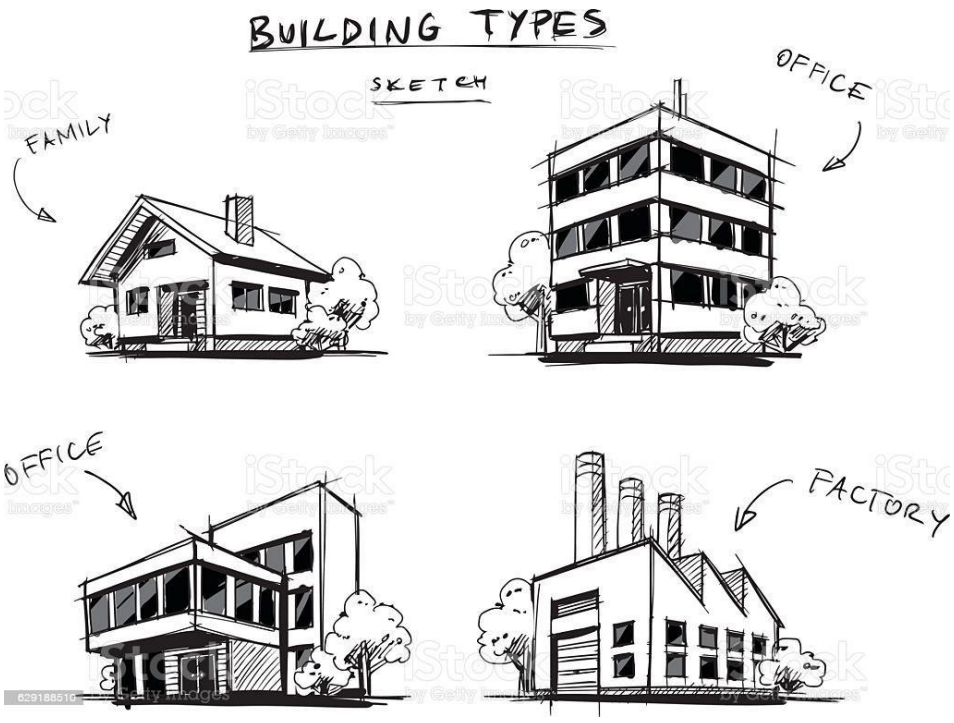
The last "S" for Special would allow the District to add a multiplier as needed [i.e., a + for a Target Hazard or - for fully protected]. Points are scored on a structured assessment. For example, the structure assessment utilizes a Size, Height, Occupancy, Problem, and Special. This assessment reflects the number of personnel needed to mitigate an incident based on critical task analysis, "Task Math," and impact the District and community. The more significant, taller buildings require more personnel to mitigate incidents in these structures and have different community impacts and risk considerations.



FIRES	PROBABILITY	CONSEQUENCE	RISK
Structure			
Residential s-m	Low	Moderate	Moderate
Multi-Family s-m	Low	Moderate	Moderate
Commercial s-m	Low	Moderate	Moderate
Target (+Large L-XL	Low	High	High
Non-Structure			
Oustide	Moderate	Low	Low
Vehicle	Moderate	Low	Low
EMS			
Medical	High	Low	Low
Cardiac Arrest	Low	High	Moderate
Mass Casualty	Low	High	High
RESCUE			
Elevator/Lock-out	Moderate	Low	Low
Entrapment	Low	Moderate	Moderate
Special Ops	Low	High	High
HAZMAT			
Outside Invest	Low	Low	Low
Inside Leak	Moderate	Moderate	Moderate
Active Leak	Low	High	High

Structure Stock in District

Building Type	TOTAL	Risk Level	% of Total
Assembly	7	H	0.1%
Educational	7	H	0.1%
Institutional/ Health Care	29	M	0.4%
Residential	3,383	M-H	50.3%
Merchantile	112	M	1.7%
Utility-Misc	85	M	1.3%
Manufacturing	53	M-H	0.8%
Storage	2,736	M	40.7%
High-Hazard	253	H	3.8%
No Data	58	-	0.9%
TOTAL COUNT	**6,723**		



Most Low-level Types are primarily first-due company assignments and, as such, are the prevalent incident responses. Therefore, as these are most calls for the District, it has been decided to classify and track these as "Low" risk type responses.

For "Structure Fires," - NFPA classifies Low Risk slightly differently.

The NFPA Fire Protection Handbook defines hazard levels of occupancies by type. Each hazard level carries inherent risks.

- **Low-Hazard Occupancies** — One-, two- or three-family dwellings and scattered small business and industrial occupancies.

The District classifies these as MODERATE-RISK TYPE

- **Medium-Hazard Occupancies** — Apartments, offices, mercantile, and industrial occupancies not typically requiring extensive rescue by fire fighting forces.

The District classifies these as HIGH-RISK TYPE

- **High-Hazard Occupancies**— Schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings, and other high-life hazard or large fire potential occupancies.

The District classifies these as TARGET HAZARDS.

TYPE – Classification of Risk Level

RISK RESPONSE
LOW
MODERATE
HIGH

Once the hazard assessment is complete, a risk level can be classified by category for all-hazard response.

These assignments then have corresponding critical TASKS that must be assigned and accomplished. Examples of Threat/Risk TYPE levels per Response type are listed below.

An additional level, SPECIAL, could be added as a category above HIGH if necessary.

Most Low-level types are primarily first-due company assignments and, as such, are the prevalent incident responses.

FIRE - RISK

LOW **Outside fires**
Vehicles, Brush, Refuse

MODERATE **Structures**
SMALL - MEDIUM:
Residential, Multifamily, Commercial

HIGH **Target Hazards**
LARGE - MEGA:
Residential, Multifamily, Commercial
or ***Schools, Hotels, Malls, Nursing,Assisted Living***

HAZMAT - RISK

LOW **Investigations - Outside Incident**
CO Detector (no illnesss), Fuel spill, Odor

MODERATE **Static**
Inside Gas leak, CO Detector w/ illness

HIGH **Dynamic/Active release**
Level A - Technical Team may be needed

EMS - RISK

LOW **Single Patient**
Injured/Illness

MODERATE **Severe Life Threat**
Cardiac Arrest/Trauma/Extrication

HIGH **Multi/Mass Casualty**
5 or more Pts

RESCUE - RISK

LOW **Elevator entrapment**
Occupied, Lock Out,Wires Down

MODERATE **MVA w/ extrication**
Vehicle into Building

HIGH **Spec Operations Technicians (TRT)**
Confined Space, Trench,
Structure Collapse, Water/Ice
Low/High Angle Rope Rescues

TASKS / TOTAL (ERF.)

Once a TYPE level has been identified, several Critical TASK Assignments are determined to mitigate the situation effectively and efficiently. Additionally, an ERF (Effective Response Force) of the number of personnel necessary to accomplish these tasks is allocated to each type level.

These **TASKS** are categorized by **LOW, MODERATE,** and **HIGH** for All-Hazard responses – EMS, FIRE, RESCUE, and HAZMAT. Additionally, SERVICE/INVESTIGATIONS are classified as LOW Levels.

TASKS & TOTAL [ERF] ***PER RISK TYPE & LEVEL***

EMS - TASKS / ERF	
LOW	
Command/Safety/Family Liaison	1
Patient Assessment/Treatment	1
Paramedic in Charge/ Reporting	1
Patient Movement/Transport	2
TOTAL ERF	**4-5**
MODERATE	
Command/Safety/Family Liaison	1
Patient Assessment/Treatment	1
Paramedic in Charge/ Reporting	1
Patient Movement/Transport	2
Resuscitation/Stabilization/Extricate	2
TOTAL ERF	**7**
HIGH	
Command	3
Scene Safety	1
Medical	2
Triage	4
Treatment	6
Transportation	12
Staging	1
TOTAL ERF	**29**

FIRE - TASKS / ERF	
LOW	
Command/Safety	1
Fire Attack/Investigation	1
Pump Operations	1
	3
Vehicle fires & Alarm Investigations	7
TOTAL ERF	**7-9**
MODERATE	
Command Aide/Safety	2
Fire Attack - 2nd (Backup)	2
Pump Operations/Aerial	2
Search/Rescue	2
OnDeck - Rapid Intervention	2
Ventilation	2
Utilities	1
EMS - Medical/Rehab	2
TOTAL ERF	**15**
HIGH	
Command/Safety	4
Fire Attack - 1st & 2nd (Backup)	4
Pump Operations/Aerial	2
Forcible Entry	2
Search/Rescue	3
OnDeck - Rapid Intervention	4
Water Supply	1
Ventilation	3
Utilities	2
EMS - Medical/Rehab	4
TOTAL ERF	**29**

HAZMAT - TASKS / ERF	
LOW	
Command/Safety	1
Investigation	2
TOTAL ERF	**3**
MODERATE	
Command/Safety	1
Hazmat Sector Officer	1
Investigation/Entry	2
Backup	2
Science/Research	1
EMS/Treatment	2
TOTAL ERF	**9**
HIGH	
Command	1
Safety	1
Hazmat Sector Officer	1
Entry	2
Backup	2
Science/Research	2
Decon	3
EMS/Treatment	2
TOTAL ERF	**14**

The number of **TASKS** needed to safely and efficiently mitigate the situation determines the number of personnel needed to complete those tasks – many of them simultaneously (i.e., "Task Math").

Thus, the **TOTAL** number of personnel equates to the Effective Response Force **(ERF).**

High-risk type levels for HAZMAT and RESCUE incidents usually require a regional response team.

These are low-frequency high risks events.

****Special Operations Teams needed****

RESCUE - TASKS / ERF	
LOW	
Command/Safety	1
Extrication	2
TOTAL ERF	3
MODERATE	
Command/Safety	1
Rescue Sector Officer	1
Stabilization	2
Extrication	2
Medical	1
TOTAL ERF	7
HIGH	
Special Op's Teams Level	

RESCUE - TASKS / ERF

HIGH - Special Op's Teams Level

COLLAPSE	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Squad Officers	2
Rescue Specialists	8
Monitoring	1
Cut Station	2
Equipment Log	1
TOTAL ERF	19

CONFINED SPACE	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Rigging / Haul Team	5
Monitoring	1
Ventilation	1
Air supply	1
Attendant	1
Scribe	1
TOTAL ERF	19

ROPE	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Rigging / Haul Team	5
TOTAL ERF	14

TRENCH	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Rigging / Haul Team	5
Monitoring	1
Ventilation	1
Shoring Team	8
TOTAL ERF	24

WATER	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Rope Tenders	4
TOTAL ERF	13

Critical Tasks

Some critical task definitions for structure fires are shown below:

- Attack lines – *used to control and extinguish the fire. Capable of a minimum of 150+ GPM.*
- Search and Rescue – *search and removal of live victims generally require two personnel inside with two outside to meet OSHA requirements.*
- Ventilation – *removal of toxic smoke, heat, and other gases from a structure. Must be coordinated with the attack to avoid an extension or additional risk to interior crews.*
- Water supply/Pump ops – establishing *a positive water supply requiring one qualified driver/operator.*
- Incident Command (IC) – Transfers and *provides command and control for the incident upon arrival from the initial arriving officer.*
- Back up line – they are *used to provide additional water supply for interior crews.*
- Rapid Intervention Crews/On-Deck (RIC) – *two (2) firefighters minimum to aid or assist interior crews if needed (rescue/resources)*
- Exposure line – *protection for internal or external areas that may be threatened by fire spread.*

Additional tasks shall be required, such as salvage and overhaul. It should also be noted that crews may be assigned multiple tasks as incident needs require. Automatic Aid (AA) and Mutual Aid (MA) are utilized to provide appropriate staffing and apparatus levels. Critical tasks must be conducted timely and appropriately to mitigate the incident and differ based on incident types and unique circumstances. Critical tasks for Fire, EMS, HM, Technical Rescue, and Water Rescue are considered representative of tasks required and may need to be modified to account for specific circumstances. In all incidents, firefighter safety remains paramount. Incident operations can be impacted by several variables that cannot always be accounted for. These variables introduce a level of unpredictability to operations magnified by a lack of staff, apparatus, or plans. Critical tasks are defined as the primary tasks required to manage and mitigate an incident. The number and type of tasks shall vary depending on the incident and severity.

Critical tasks may vary due to the following factors:

- Building construction
- Number of floors
- Number of occupants
- Exposures
- Extent/phase of fire
- Built-in protection systems
- Patient condition and safety concerns

Critical tasks determine staffing requirements and apparatus needs. These factors are dependent upon the CRA-SOC findings and requirements. Strategies to be utilized are dependent on staffing and apparatus as well. Fire growth, along with life safety risks, combines to establish fire ground priorities to mitigate losses. Fire control and life safety are strongly correlated but can also be two different activities. Fire control is applying a suppressant, most likely water, to control and extinguish a fire. Life safety relates to searching and removing victims from an affected area. Fire control activities are accomplished using hose lines that may fall into either handheld or master stream categories. Hose lines are primarily used in interior or offensive operations but can be used quickly, outside first, then inside. Master streams are designed to be used from stationary or fixed positions. Hand lines can flow up to 250 gallons per minute (GPM), while master streams can exceed 1,000 GPM.

A pre-flashover vs. post-flashover fire shall require different approaches based upon a fire extent. The decision on which strategy to use depends on the fire phase, life safety threat, and several resources, among other factors. The District recognizes two types of strategies: offensive and defensive. These strategies align with staffing and response levels established through risk assessment and historical patterns. The District usually responds with two (2) to three (3) certified personnel on each suppression unit and two (2) cross-trained firefighter/medics on each ambulance, providing a range of strategies that can be initiated on arrival.

- Offensive involves interior operations. Objectives are to confine the fire to the object or room of origin to minimize life safety risks to civilians and firefighters. Interior attacks contain risk and require compliance with OSHA 2 in/2 out unless there is evidence of life safety on arrival or dispatch information.
- Defensive attacks are supported from the outside and may involve a structure that is not tenable for offensive operations or deemed to be unsafe in risk/reward assessments.
- “Quick hit” is intended to reduce fire volume and spread with minimal risk to firefighters. Quick hit attacks are a combined exterior then interior operation. UL research has found that this technique can be beneficial due to rapid-fire growth and time requirements to deploy interior crews, which can be used to buy time for the arrival of additional personnel.

Critical tasks must be conducted in a manner that is timely and appropriate to mitigate the incident. Critical tasks shall differ based on incident types as well as severity and unique circumstances. In all incidents, firefighter safety remains paramount.

"Task Math" - Moderate risk type-level structure fires

NFPA 1710 FULL ALARM ASSIGNMENT - RESIDENTIAL STRUCTURE FIRE (MODERATE RISK)		
TASK	FIREFIGHTERS REQUIRED	COMPANY TYPICALLY ASSIGNED
INCIDENT COMMAND/SAFETY	2	CHIEF OFFICER
ATTACK LINE	2	ENGINE
BACK-UP LINE	2	ENGINE
ON DECK - RAPID INTERVENTION	2	ENGINE or TRUCK or AMB
PUMP OPERATIONS / AERIAL	2	ENGINEER
SEARCH & RESCUE	2	ENGINE or TRUCK
VENTILATION / UTILITIES	2	TRUCK
WATER SUPPLY	1	ENGINE

NFPA

NFPA 1710

5.2.3.1 Fire companies whose primary functions are to pump and deliver water and perform basic fire fighting at fires, including search and rescue, shall be known as engine companies.

5.2.3.1.1 These company's shall be staffed with a minimum of four on-duty members.

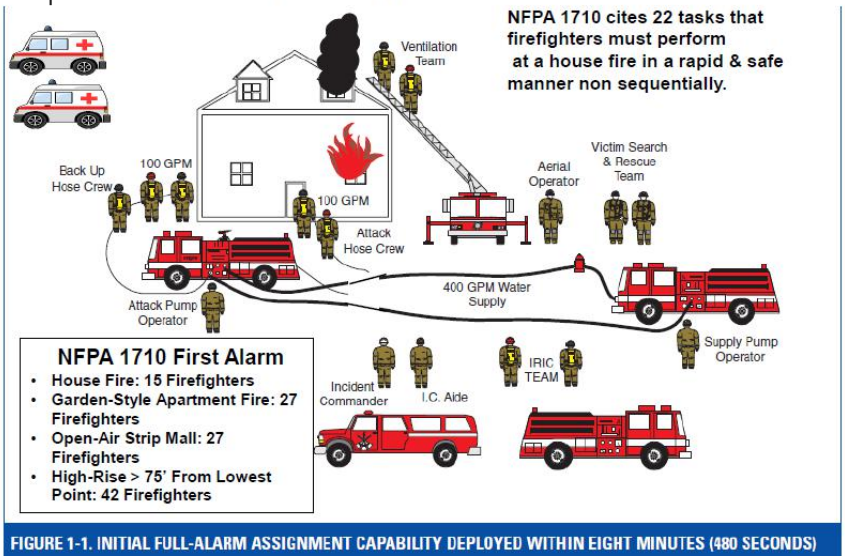


FIGURE 1-1. INITIAL FULL-ALARM ASSIGNMENT CAPABILITY DEPLOYED WITHIN EIGHT MINUTES (480 SECONDS)

TEAMS / TOOLS / TRUCKS

Critical tasks for each service level are identified to establish an Effective Response Force (**ERF**) to meet performance objectives as determined. Critical tasks are defined as essential major tasks accomplished to stabilize the incident.

Life safety is a priority in establishing critical tasks. Therefore, ERF determines the minimum staffing and apparatus required to arrive on the scene within an objective-based time frame to accomplish critical tasks.

After the critical **TASKS** are determined and an **ERF** is established indicating the number of personnel needed to accomplish these tasks, a deployment Response Plan is programmed into Dispatch CAD to bring those assigned personnel and apparatus/equipment needed.

Typical Minimum Response Plan

RESPONSE & DEPLOYMENT PLAN

TYPE	TYPICAL NATURE	TEAMS				TOTAL ERF	TIMES			
EMS RESPONSE	TYPICAL NATURE	ENG	TRK	AMB	CHF	# FF	FIRST DUE	ERF		
LOW	Injured/Illness	1 - *closest*		1		4-5	6:20	10:20	TRACK	TRACK
MODERATE	Cardiac / Traumatic Arrest	1 - *closest*		2	1	7	6:20	10:20		
HIGH	Multi/Mass Casualty	3	2	6	3	30	6:20	15:00		
FIRE RESPONSE	TYPICAL NATURE	ENG	TRK/TND	AMB	CHF	# FF	FIRST DUE	ERF		
LOW	**OUTSIDE** Grass/Refuse	1 - closest				3	6:20	10:20	TRACK	TRACK
	ALARM*/INVESTIGATION/VEHICLE	1		1	1	6				
MODERATE	**STRUCTURES**	4	1	2	1	21	6:20	10:20		
HIGH	Large - Mega (R,M,C) **TARGET HAZARDS**	4	3	2	4	31	6:20	15:00		
HAZMAT RESPONSE	TYPICAL NATURE	ENG	TRK	AMB	CHF	# FF	FIRST DUE	ERF		
LOW	**OUTSIDE** / Investigation CO (no illness), Fuel Spill	1 - closest				3	6:20	10:20	TRACK	TRACK
MODERATE	**INSIDE** / Static Release CO (with illness), inside Gas leak	1	1	1	1	9	6:20	10:20		
HIGH	**DYNAMIC** / Active Release ***Level A Team Response needed**	2	1	2	1	14	6:20	15:00		
RESCUE RESPONSE	TYPICAL NATURE	ENG	TRK	AMB	CHF	# FF	FIRST DUE	ERF		
LOW	Elevator entrapment Lock Out, Wires down	1 - closest				3	6:20	10:20	TRACK	TRACK
MODERATE	**MVA**	1	1 - either	1	1	9	6:20	10:20		
	Pin-In/Extrication	2	1	2	1	14				
HIGH	**SPECIAL OPERATIONS - TRT** Con Space, Collapse, Rope, Water	2	1	2	2	18	6:20	15:00		

These plans would automatically escalate if an alarm elevated levels, from a LOW to MODERATE or MODERATE to HIGH.

TIMES

NFPA 1710

Therefore, the District's benchmark time goals coincide with the National Fire Protection Association (NFPA) 1710 – the Standards for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operation, and Special Operations to the public by career Fire Districts.

Distribution

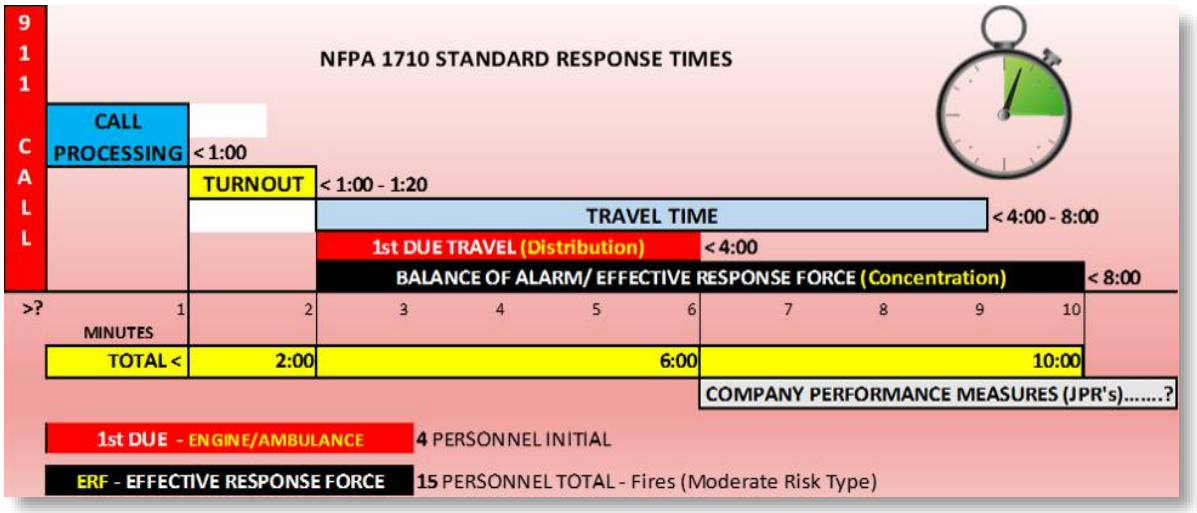
Distribution is the geographic location of all **first-due** resources for initial intervention.

Concentration

Concentration is the spacing of multiple resources arranged so that an initial "effective response force" (ERF) can arrive on the scene within the time frames outlined by the response time and on-scene performance objectives. It is also known as the **"balance" of the alarm.**

NFPA 1710 RESPONSE BENCHMARKS (MODERATE RISK)	
TASK	**TIME (<)**
DISPATCH – CALL PROCESSING	1 MINUTE
TURNOUT TIME (EMS)	1 MINUTE
TURNOUT TIME (NON-EMS)	1 MINUTE 20 SECONDS
ARRIVAL OF FIRST ENGINE COMPANY (TRAVEL TIME)	4 MINUTES
ARRIVAL OF FULL ALARM (ERF) ASSIGNMENT (TRAVEL TIME)	8 MINUTES
CALL TO ARRIVAL OF FIRST RESPONDER UNIT (DISTRIBUTION)	5 MINUTES 20 SECONDS
CALL TO ARRIVAL OF ERF (CONCENTRATION)	10 MINUTES 20 SECONDS

Total Response Time – "Hello to Hello time" – 911 pickup to Firefighter/Paramedic arrival



Benchmark Goal: ***90% of all Emergency Incidents***

NFPA 1710

EMERGENCY CALL PROCESSING

- < **1:00**

TURNOUT

- < **1:00 EMS**
- < **1:20 FIRE**

TRAVEL

- **< 4:00 (First Due)**
- **< 8:00 (Balance)**

ARRIVAL
FIRST DUE

- < **6:00 EMS**
- < **6:20 FIRE**

ARRIVAL
BALANCE OF ALARM

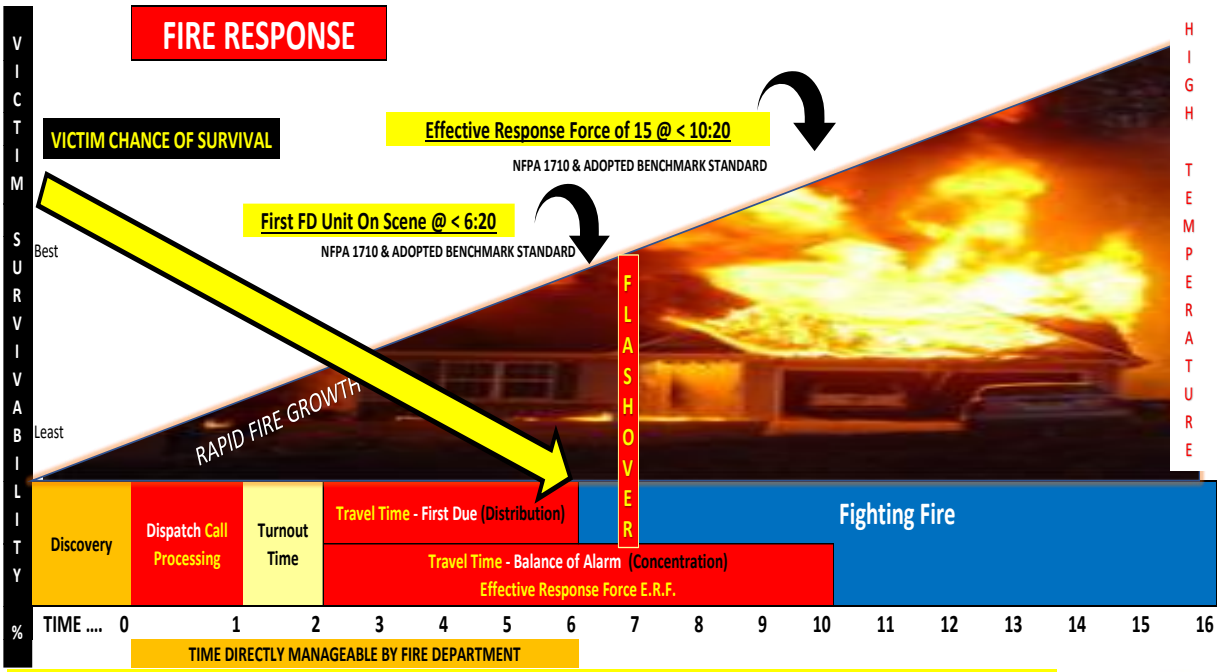
- < **10:20**

E.R.F.
Effective Response Force

For the general public,

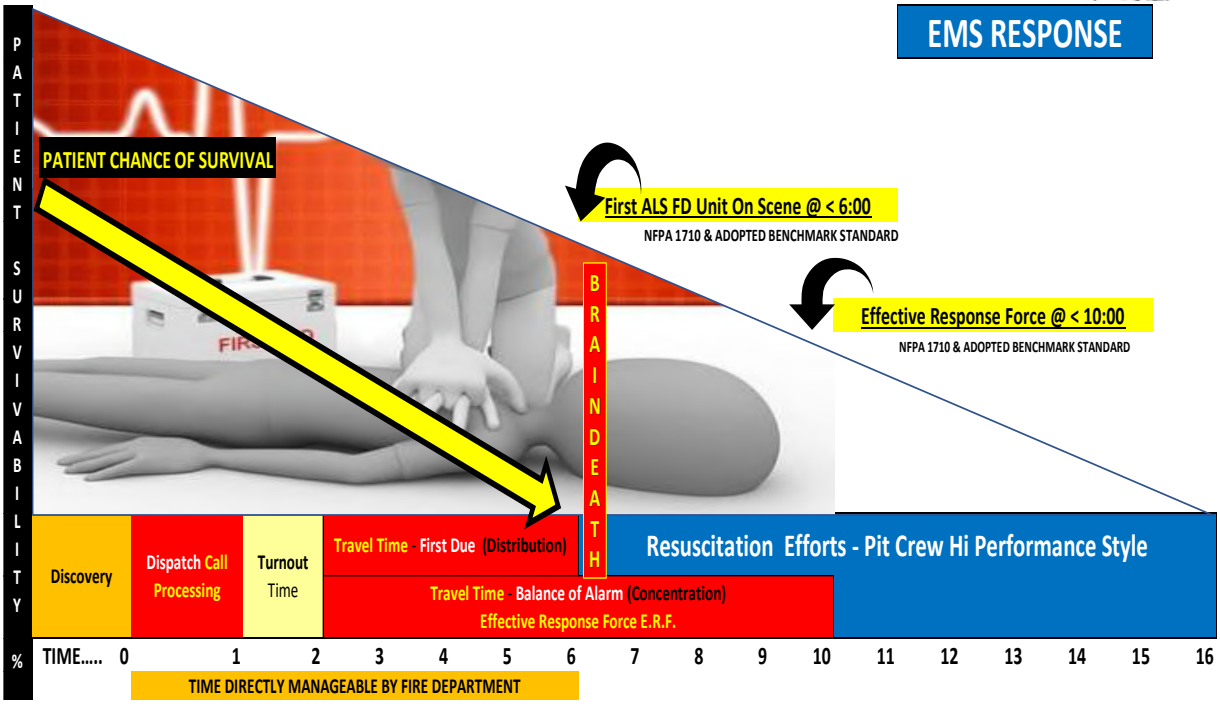
TOTAL RESPONSE TIME
(aka CALL TO ARRIVAL)

is the measurement that matters most.



SECONDS COUNT

MINUTES MATTER!



For every **minute** delay in access to a defibrillator - **chances of survival drop by 7-10 %**

Arrival within 6 to 7 minutes or less of both types of emergencies is **critical in terms of survivability!**

TRACK

As part of the ongoing Continuous Quality Improvement (CQI) program, we must measure the District's responses and performance to these "Threats" and risks to ensure efficient and effective delivery of services rendered that meet or exceed the District's benchmarks.

TRAIN

Additionally, training on the Critical Task Assignments' performance and proficiency must ensure rapid completion once the units and personnel arrive on the scene. Establishing Job Performance Requirements (**JPR'S)** baseline and benchmark times that meet minimum NFPA standards or goals set by the District shall ensure CQI as the goal.

Risk and Response – Total Deployment Plan (all combined)

THREAT ASSESSMENT — RISK & RESPONSE PLAN

EMS RESPONSE

TYPE OF RISK	TYPICAL NATURE	TASKS & TOTAL - ERF	# FF	TEAMS (TOOLS/TRUCKS) ENG	TRK	AMB	CHF	# FF	TIMES FIRST DUE	ERF	TRACK & TRAIN
LOW	**SINGLE PATIENT** *Injured/Illness*	Command/Safety/Family Liaison	1	1 - *closest* fire company		1		4-5	6:00	10:00	TRACK (PERFORMANCE) TRAIN
		Patient Assessment/Treatment	1								
		Paramedic in Charge/ Documentation	1								
		Patient Movement/Transport	2								
		TOTAL ERF	**5**								
MODERATE	**SEVERE LIFE THREAT** *Cardiac / Traumatic Arrest*	Command/Safety/Family Liaison	1	1 - *closest* fire company		2	1	7	6:00	10:00	
		Patient Assessment/Treatment	1								
		Paramedic in Charge/ Documentation	1								
		Patient Movement/Transport	2								
		Resuscitation/Stabilization/Extrication	2								
		TOTAL ERF	**7**								
HIGH	**MASS CASUALTY** *5 or more Pts*	Command	3	4		7	6	32	6:00	15:00	
		Scene Safety	1								
		Medical	2								
		Triage	4								
		Treatment	6								
		Transportation	12								
		Staging	1								
		TOTAL ERF	**29**								
	BOX ALARM - ADDITIONAL +										

FIRE RESPONSE

RISK LEVEL TYPE	TYPICAL Nature	TASKS	# FF	ENG	TRK/TNKR	AMB	CHF	# FF	FIRST DUE	ERF	TRACK & TRAIN
LOW	**INVESTIGATIONS, OUTSIDE FIRES** -Grass/Refuse	Command/Safety	1	1 - *closest* Fire Unit				3	6:20	10:20	TRACK (PERFORMANCE) TRAIN
		Fire Attack/Investigation	1								
		Pump Operations	1								
	ALARMS		**3**								
		ALARM INVESTIGATION									
		Vehicle fires & Alarm Investigations	7	1	1	1	1	7			
		TOTAL ERF	**7-9**								
MODERATE	**WORKING STRUCTURES** Small to Medium: Residential, Multifamily, Commercial	Command Aide/Safety	2	3	1	1	1	15	6:20	10:20	
		Fire Attack - 2nd (Backup)	2								
		Pump Operations/Aerial	2								
		Search/Rescue	2								
		OnDeck - Rapid Intervention	2								
		Ventilation	2								
		Utilities	1								
		EMS - Medical/Rehab	2								
		TOTAL ERF	**15**								
HIGH	**TARGET HAZARDS &** Large to Mega: **Residential, Multifamily, Commercial**	Command/Safety	4	4	3	2	4	29	6:20	15:00	
		Fire Attack - 1st & 2nd (Backup)	4								
		Pump Operations/Aerial	2								
		Forcible Entry	2								
		Search/Rescue & EMS	3								
		OnDeck - Rapid Intervention	4								
		Water Supply	1								
		Ventilation	3								
		Utilities	2								
		EMS - Medical/Rehab	4								
		TOTAL ERF	**29**								
	BOX ALARM - ADDITIONAL +										

HAZARD / HAZMAT RESPONSE

RISK LEVEL TYPE	TYPICAL Nature	TASKS	# FF	ENG	TRK	AMB	CHF	# FF	FIRST DUE	ERF
LOW	**OUTSIDE / Investigation** *CO (no illness), Fuel Spill, Odor* *Wires down*	Command/Safety	1	**1 -** *Closest* Fire Unit					**6:20**	**10:20**
		Investigation	1							
		Mitigation	1							
		TOTAL ERF	**3**					3		
MODERATE	**INSIDE / Static Release** *Inside Spill/Gas leak, CO (w/ illness)*	Command/Safety	1	**1**	**1**	**1**	**1**		**6:20**	**10:20**
		Hazmat Sector Officer	1							
		Investigation/Entry	2							
		Backup	2							
		Science/Research	1							
		EMS/Treatment	2							
		TOTAL ERF	**9**					15		
HIGH	**Dynamic/Active release** **Level A Team Response needed*	Command	1	**2**	**1**	**2**	**1**		**6:20**	**15:00**
		Safety	1							
		Hazmat Sector Officer	1							
		Entry	2							
		Backup	2							
		Science/Research	2							
		Decon	3							
		EMS/Treatment	2							
		TOTAL ERF	**14**					14		
	BOX ALARM - ADDITIONAL +									

TRACK (PERFORMANCE / TRAIN)

RESCUE RESPONSE

RISK LEVEL TYPE	TYPICAL Nature	TASKS	# FF	ENG	TRK	AMB	CHF	# FF	FIRST DUE	ERF
LOW	**Elevator entrapment** *Lock Out, Flooding, Damage Assessment*	Command/Safety	1	**1 -** *closest* Fire Company					**6:20**	**10:20**
		Extrication	2							
		TOTAL ERF	**3**					3		
MODERATE	**MVA**	Command/Safety	1	**1**		**2**	**1**		**6:20**	**10:20**
		Rescue Sector Officer	1							
		Medical	2							
		EMS/Treatment/Pt Movement	2							
			6					**7**		
	MVA w/ Extrication (PIN-IN) Vehicle into building	Stabilization	2	**+1**		**+1**	**+1**			
		Extrication	4							
		EMS/Treatment/Pt Movement	2							
		TOTAL ERF	**14**	**2**		**3**	**2**	14		
HIGH	**SPECIAL OPERATIONS - TRT** ***REQUIRES REGIONAL TEAM*** *Confined Space, Trench,* Structure Collapse, Water/Ice Low/High Angle Rope Rescues		**MIN.**	**2**	**1**	**2**	**2**		**6:20**	**15:00**
		SPEC OP'S TEAM NEEDS	**ERF**							
		Rope (High Angle)	14							
		Water (Ice/Dive)	13							
		Structural Collapse	19							
		Confined Space	19							
		Trench	24							
		TOTAL ERF	**13-24**					18		
	BOX ALARM - ADDITIONAL +									

TRACK (PERFORMANCE / TRAIN)

RESCUE - RISK TYPE

WATER	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Rope Tenders	4
TOTAL ERF	**13**

ROPE	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Rigging / Haul Team	5
TOTAL ERF	**14**

COLLAPSE	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Squad Officers	2
Rescue Specialists	8
Cut Station	2
Equipment Log	1
TOTAL ERF	**18**

CONFINED SPACE	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Ventilation	1
Monitoring	1
Rigging / Haul Team	5
Scribe	1
Attendant	1
Air supply	1
TOTAL ERF	**19**

TRENCH	
Incident Command	1
Rescue Officer	1
Safety	1
EMS / Treatment	2
Rescue Team & Back-up	4
Ventilation	1
Monitoring	1
Rigging / Haul Team	5
Shoring Team	8
TOTAL ERF	**24**


KNOWLEDGE
DUTY
TRUST
COMMUNITY
MFPD


SERVICE
DEMAND
&
PERFORMANCE

Service Demand and Performance

Why Measure Performance?

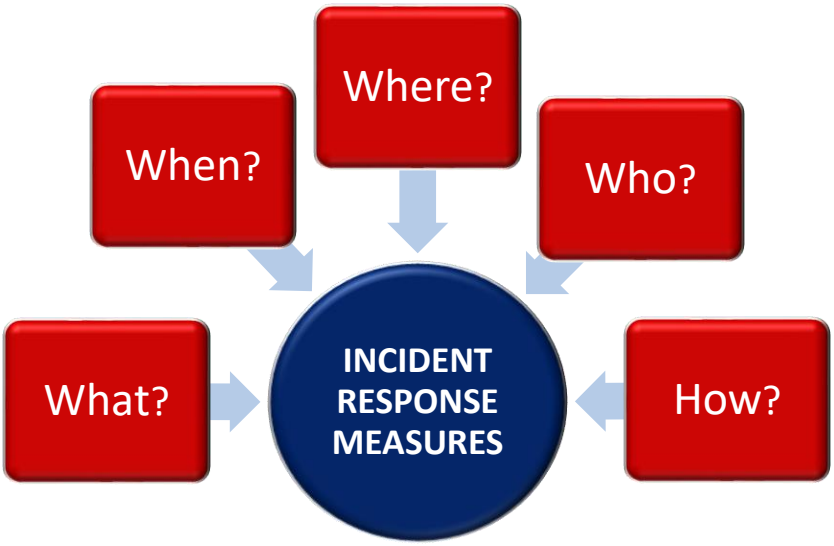
In the book *Reinventing Government,* the authors state:

- *"If you do not measure the results of your plan, you can't tell success from failure.*
- *If you cannot see success, you cannot reward it.*
- *If you cannot reward success, you are probably a rewarding failure.*
- *If you cannot see success, you cannot learn from it.*
- *If you cannot recognize failure, you cannot correct it.*
- *If you **can demonstrate results**, you **can win public support**."*

Success in the modern Fire Service can be measured in lives resuscitated and saved structure fires stopped near their origin, and satisfaction surveys are fact-based metrics. Without these baseline measurements and benchmark goals, we operate on opinion. Each minute of delay is critical to the occupants' and firefighters' safety and is directly related to property damage. The previous reflex chart provides emergency responders with a general rule of time over events. It highlights significant benchmarks. There are variations of fire growth that must also be taken into consideration when developing a response strategy. The shortest possible response times create the highest probabilities of resuscitation. A vital evaluation point lost on most agencies is the time crews reach the patient's side. Often the clock stops when the vehicle arrives or stops at the address. The key to a successful outcome is the point the patient is contacted. When evaluating total response time for EMS calls, this period can be substantial and may affect the outcome due to delayed intervention.

IF YOU DON'T KNOW THE SCORE, THEN HOW DO YOU KNOW YOU'RE **WINNING**?

Incident Response Measures / Service Demand



In order to review the system's incident deployment and response performance, several factors are usually analyzed and measured, which is referred to as "Service Demand." It starts with these questions.

- **WHAT:** What type of incident is it?

Fire, EMS, Rescue, Hazard, Service/Other are the main types. Nature of call or NFIRS (National Fire Incident Reporting System) coding a consistent formula for typing.

- **WHEN:** When did the incident occur?

These time measures start MACRO and end MICRO – Year, Month, Day of Week, and Hour of Day

- **WHERE:** Where was the incident location and occupancy?

Actual GIS plotting and occupancy type trends are reviewed

- **WHO:** Who responded to the incident?

What Shift, what station, what unit(s)

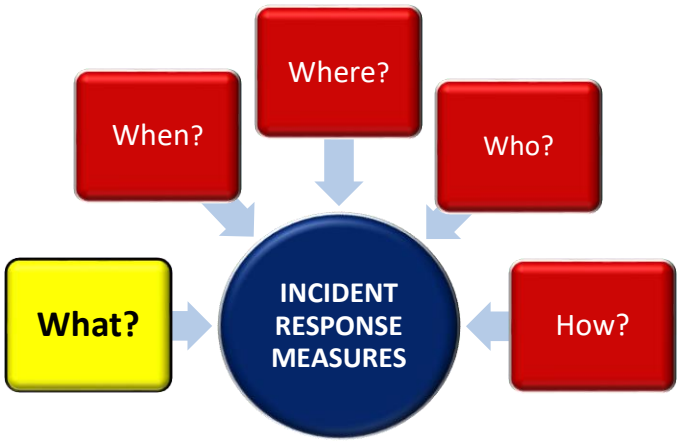
- **HOW:** How well did they perform?

Did the system perform as expected and planned? Did they respond within benchmark times or better?

If not, then why not? The emergency response plans can be predicted and planned by exploring the above metrics and others later in this section these questions.

WHAT - Types

Types of Incidents

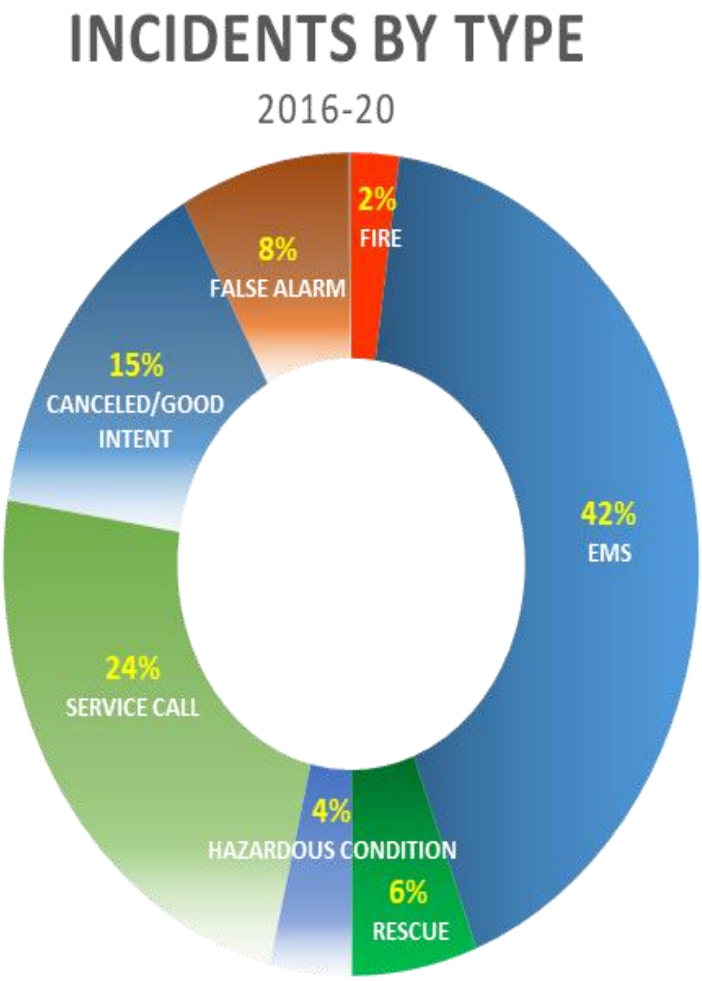


Below lists the types and number of requests for the Fire District's incidents from 2016-2020.

From January 1, 2016, through December 31, 2020 – the Fire District was dispatched to **5,872 incidents** or an average of **1,174 annually (high of 1,286 in 2020)**. Incident types are based on the National Fire Incident Reporting System (NFIRS) standard definition developed through the US Fire Administration, National Fire Data Center. Incident type is defined as the situation found upon arrival by emergency providers. It covers the large varieties of calls the modern fire district responds to daily and is divided into nine (9) series. Within each series are additional codes that define the incident more specifically. The majority of incident types are listed below, with the total volume for each.

NFIRS Code Summary

INCIDENT TYPE	2016	2017	2018	2019	2020	Total	Average	% of Inc
100 - FIRE	28	24	29	24	25	**130**	***26***	***2.2%***
200 - OVERHEAT, OVERPRESSURE	--	--	--	--	--	--	--	--
300 - EMS	472	418	511	501	560	**2,462**	***492***	***41.9%***
300 - RESCUE	70	71	67	76	58	**342**	***68***	***5.8%***
400 - HAZARDOUS CONDITION	35	42	36	63	47	**223**	***45***	***3.8%***
500 - SERVICE CALL	249	315	248	280	301	**1,393**	***279***	***23.7%***
600 - CANCELED/GOOD INTENT	158	161	148	182	204	**853**	***171***	***14.5%***
700 - FALSE ALARM	91	74	99	107	91	**462**	***92***	***7.9%***
800 - SEVERE WEATHER	1	1	2	1	0	**5**	***1***	***0.1%***
900 - SPECIAL/CITIZEN COMPLAINT	0	0	0	2	0	**2**	***0***	***0.0%***
	1,104	**1,106**	**1,140**	**1,236**	**1,286**	**5,872**	***1,174***	
Change over the previous year		*0.2%*	*3.1%*	*8.4%*	*4.0%*			


INCIDENTS BY TYPE
2016-20
2%
FIRE
8%
FALSE ALARM
15%
CANCELED/GOOD INTENT
42%
EMS
24%
SERVICE CALL
4%
HAZARDOUS CONDITION
6%
RESCUE

Incidents by NFIRS Types (Frequency)

Incidents: Count - Year by Incident Type

5,877 Incident records are being analyzed.

Year	2016	2017	2018	2019	2020	Totals	Average	% of Inc
321 EMS call, excluding vehicle accident with injury	462	412	508	501	559	**2,442**	488	*41.6%*
571 Cover assignment, standby, moveup	182	253	197	219	229	**1,080**	216	*18.4%*
611 Dispatched & canceled en route	135	141	122	159	181	**738**	148	*12.6%*
322 Vehicle accident with injuries	64	63	53	62	38	**280**	56	*4.8%*
554 Assist invalid	17	34	26	23	41	**141**	28	*2.4%*
412 Gas leak (natural gas or LPG)	16	20	23	29	20	**108**	22	*1.8%*
733 Smoke detector activation due to malfunction	10	21	18	23	8	**80**	16	*1.4%*
740 Unintentional transmission of alarm, other	7	18	27	25		**77**	19	*1.3%*
746 Carbon monoxide detector activation, no CO	25	7	18	18	2	**70**	14	*1.2%*
444 Power line down	9	8	6	24	15	**62**	12	*1.1%*
735 Alarm system sounded due to malfunction	12	5	8	4	32	**61**	12	*1.0%*
553 Public service	7	4	5	15	23	**54**	11	*0.9%*
745 Alarm system sounded, no fire - unintentional	9	9	15	8	12	**53**	11	*0.9%*
622 No incident found on arrival of incident address	11	8	12	12	10	**53**	11	*0.9%*
550 Public service assistance, other	24	7	6	7	4	**48**	10	*0.8%*
142 Brush, or brush and grass mixture fire	8	8	16	8	7	**47**	9	*0.8%*
324 Motor vehicle accident no injuries	3	7	8	9	18	**45**	9	*0.8%*
743 Smoke detector activation, no fire - unintentional	4	4	6	8	15	**37**	7	*0.6%*
700 False alarm or false call, other	7	4	1	5	12	**29**	6	*0.5%*
651 Smoke scare, odor of smoke	6	4	7	4	6	**27**	5	*0.5%*
111 Building fire	7	7	3	7	2	**26**	5	*0.4%*
712 Direct tie to FD, malicious/false alarm	15	1	1	4	2	**23**	5	*0.4%*
551 Assist police or other governmental agency	10	7	2	2	2	**23**	5	*0.4%*
631 Authorized controlled burning	2	6	5	4	2	**19**	4	*0.3%*
424 Carbon monoxide incident	1	5	1	5	7	**19**	4	*0.3%*
320 Emergency medical service, other (conversion only)	6	4	2		1	**13**	3	*0.2%*
552 Police matter	2	1	5	3		**11**	3	*0.2%*
600 Good intent call, other	3	1	1	2	3	**10**	2	*0.2%*
531 Smoke or odor removal	2	2	1	3	2	**10**	2	*0.2%*
131 Passenger vehicle fire	2	2	1	4	1	**10**	2	*0.2%*
352 Extrication of victim(s) from vehicle			4	4	1	**9**	3	*0.2%*
736 CO detector activation due to malfunction			1	4	2	**7**	2	*0.1%*
442 Overheated motor		2	3		2	**7**	2	*0.1%*
440 Electrical wiring/equipment problem, other	1	3	1		2	**7**	2	*0.1%*
744 Detector activation, no fire - unintentional	1	1		3	1	**6**	2	*0.1%*
511 Lock-out	1	1	1	3		**6**	2	*0.1%*
445 Arcing, shorted electrical equipment	4	1		1		**6**	2	*0.1%*
154 Dumpster or other outside trash receptacle fire	2		1	1	2	**6**	2	*0.1%*
561 Unauthorized burning	1	1	1	2		**5**	1	*0.1%*
542 Animal rescue		1	2	2		**5**	2	*0.1%*
311 Medical assist, assist EMS crew	2	2	1			**5**	2	*0.1%*
151 Outside rubbish, trash or waste fire	1	1			3	**5**	2	*0.1%*
113 Cooking fire, confined to container	2		2	1		**5**	2	*0.1%*
000 No Data					5	**5**	5	*0.1%*
814 Lightning strike (no fire)	1	1	1	1		**4**	1	*0.1%*
734 Heat detector activation due to malfunction	1		2	1		**4**	1	*0.1%*
621 Wrong location		1	1	1	1	**4**	1	*0.1%*
500 Service Call, other	2	1	1			**4**	1	*0.1%*
411 Gasoline or other flammable liquid spill	1	2		1		**4**	1	*0.1%*
150 Outside rubbish fire, other	2		2			**4**	2	*0.1%*

118 Trash or rubbish fire, contained			2	1	1	**4**	1	*0.1%*
731 Sprinkler activation due to malfunction		1		2		**3**	2	*0.1%*
730 System malfunction, other			2		1	**3**	2	*0.1%*
714 Central station, malicious false alarm		1		1	1	**3**	1	*0.1%*
522 Water or steam leak		1	1	1		**3**	1	*0.1%*
441 Heat from short circuit (wiring), defective/worn	1		1		1	**3**	1	*0.1%*
381 Rescue or EMS standby	2			1		**3**	2	*0.1%*
140 Natural vegetation fire, other					3	**3**	3	*0.1%*
100 Fire, other	2				1	**3**	2	*0.1%*
900 Special type of incident, other				2		**2**	2	*0.0%*
741 Sprinkler activation, no fire - unintentional		1		1		**2**	1	*0.0%*
710 Malicious, mischievous false call, other					2	**2**	2	*0.0%*
463 Vehicle accident, general cleanup	1			1		**2**	1	*0.0%*
400 Hazardous condition, other	1	1				**2**	1	*0.0%*
360 Water & ice-related rescue, other		1	1			**2**	1	*0.0%*
357 Extrication of victim(s) from machinery	1				1	**2**	1	*0.0%*
300 Rescue, emergency medical call (EMS) call, other	2					**2**	2	*0.0%*
171 Cultivated grain or crop fire		2				**2**	2	*0.0%*
162 Outside equipment fire		1			1	**2**	1	*0.0%*
143 Grass fire	1				1	**2**	1	*0.0%*
138 Off-road vehicle or heavy equipment fire	1			1		**2**	1	*0.0%*
114 Chimney or flue fire, confined to chimney or flue		1			1	**2**	1	*0.0%*
813 Windstorm, tornado/hurricane assessment			1			**1**	1	*0.0%*
742 Extinguishing system activation					1	**1**	1	*0.0%*
711 Municipal alarm system, malicious false alarm		1				**1**	1	*0.0%*
652 Steam, vapor, fog, or dust thought to be smoke					1	**1**	1	*0.0%*
650 Steam, other gas mistaken for smoke, other	1					**1**	1	*0.0%*
541 Animal problem		1				**1**	1	*0.0%*
520 Water problem, other		1				**1**	1	*0.0%*
510 Person in distress, other	1					**1**	1	*0.0%*
461 Building or structure weakened or collapsed			1			**1**	1	*0.0%*
421 Chemical hazard (no spill or leak)				1		**1**	1	*0.0%*
413 Oil or other combustible liquid spills				1		**1**	1	*0.0%*
323 Motor vehicle/pedestrian accident (MV Ped)			1			**1**	1	*0.0%*
161 Outside storage fire			1			**1**	1	*0.0%*
160 Special outside fire, other		1				**1**	1	*0.0%*
134 Water vehicle fire		1				**1**	1	*0.0%*
132 Road freight or transport vehicle fire			1			**1**	1	*0.0%*
122 Fire in a motor home, camper, recreational vehicle					1	**1**	1	*0.0%*
116 Fuel burner/boiler malfunction, fire confined					1	**1**	1	*0.0%*
112 Fires in structures other than in a building				1		**1**	1	*0.0%*
Totals	**1,104**	**1,106**	**1,140**	**1,236**	**1,291**	**5,877**	1,175	*100.0%*

Incidents by NFIRS Types (Numerical)

Incidents: Count - Year by Incident Type

5,877 Incident records are being analyzed.

Year	2016	2017	2018	2019	2020	Totals	Average	% of Inc
100 Fire, other	2				1	**3**	2	*0.1%*
111 Building fire	7	7	3	7	2	**26**	5	*0.4%*
112 Fires in structures other than in a building				1		**1**	1	*0.0%*
113 Cooking fire, confined to container	2		2	1		**5**	2	*0.1%*
114 Chimney or flue fire, confined to chimney or flue		1			1	**2**	1	*0.0%*
116 Fuel burner/boiler malfunction, fire confined					1	**1**	1	*0.0%*
118 Trash or rubbish fire, contained			2	1	1	**4**	1	*0.1%*
Total	**11**	**8**	**7**	**10**	**6**	**42**	**8**	***0.7%***
Change over the previous year		**-3**	**-1**	**3**	**-4**			
		-27%	**-13%**	**43%**	**-40%**			
122 Fire in a motor home, camper, recreational vehicle					1	**1**	1	*0.0%*
131 Passenger vehicle fire	2	2	1	4	1	**10**	2	*0.2%*
132 Road freight or transport vehicle fire			1			**1**	1	*0.0%*
134 Water vehicle fire		1				**1**	1	*0.0%*
138 Off-road vehicle or heavy equipment fire	1			1		**2**	1	*0.0%*
140 Natural vegetation fire, other					3	**3**	3	*0.1%*
Total	**3**	**3**	**2**	**5**	**5**	**18**	**4**	***0.3%***
Change over the previous year		**0**	**-1**	**3**	**0**			
		0%	**-33%**	**150 %**	**0%**			
142 Brush, or brush and grass mixture fire	8	8	16	8	7	**47**	9	*0.8%*
143 Grass fire	1				1	**2**	1	*0.0%*
171 Cultivated grain or crop fire		2				**2**	2	*0.0%*
Total	**9**	**10**	**16**	**8**	**8**	**74**	**10**	***1.3%***
Change over the previous year		**1**	**6**	**-8**	**0**			
		11%	**60%**	**-50%**	**0%**			
150 Outside rubbish fire, other	2		2			**4**	2	*0.1%*
151 Outside rubbish, trash or waste fire	1	1			3	**5**	2	*0.1%*
154 Dumpster or other outside trash receptacle fire	2		1	1	2	**6**	2	*0.1%*
160 Special outside fire, other		1				**1**	1	*0.0%*
161 Outside storage fire			1			**1**	1	*0.0%*
162 Outside equipment fire		1			1	**2**	1	*0.0%*
Total	**5**	**3**	**4**	**1**	**6**	**19**	**4**	***0.3%***
Change over the previous year		**-2**	**1**	**-3**	**5**			
		-40%	**33%**	**-75%**	**500 %**			
300 Rescue, emergency medical call (EMS) call, other	2					**2**	2	*0.0%*
311 Medical assist, assist EMS crew	2	2	1			**5**	2	*0.1%*
320 Emergency medical service, other (conversion only)	6	4	2		1	**13**	3	*0.2%*
321 EMS call, excluding vehicle accident with injury	462	412	508	501	559	**2,442**	488	*41.6%*
	472	**418**	**511**	**501**	**560**	**2462**	**492**	***41.9%***
322 Vehicle accident with injuries	64	63	53	62	38	**280**	56	*4.8%*
323 Motor vehicle/pedestrian accident (MV Ped)			1			**1**	1	*0.0%*
324 Motor vehicle accident no injuries	3	7	8	9	18	**45**	9	*0.8%*
352 Extrication of victim(s) from vehicle			4	4	1	**9**	3	*0.2%*
357 Extrication of victim(s) from machinery	1				1	**2**	1	*0.0%*

360 Water & ice-related rescue, other		1	1			**2**	1	*0.0%*
381 Rescue or EMS standby	2			1		**3**	2	*0.1%*
	70	**71**	**67**	**76**	**58**	**342**	**68**	***5.8%***
400 Hazardous condition, other	1	1				**2**	1	*0.0%*
411 Gasoline or other flammable liquid spill	1	2		1		**4**	1	*0.1%*
412 Gas leak (natural gas or LPG)	16	20	23	29	20	**108**	22	*1.8%*
413 Oil or other combustible liquid spill				1		**1**	1	*0.0%*
421 Chemical hazard (no spill or leak)				1		**1**	1	*0.0%*
424 Carbon monoxide incident	1	5	1	5	7	**19**	4	*0.3%*
440 Electrical wiring/equipment problem, other	1	3	1		2	**7**	2	*0.1%*
441 Heat from short circuit (wiring), defective/worn	1		1		1	**3**	1	*0.1%*
442 Overheated motor		2	3		2	**7**	2	*0.1%*
444 Power line down	9	8	6	24	15	**62**	12	*1.1%*
445 Arcing, shorted electrical equipment	4	1		1		**6**	2	*0.1%*
461 Building or structure weakened or collapsed			1			**1**	1	*0.0%*
463 Vehicle accident, general cleanup	1			1		**2**	1	*0.0%*
	35	**42**	**36**	**63**	**47**	**223**	**45**	***3.8%***
500 Service Call, other	2	1	1			**4**	1	*0.1%*
510 Person in distress, other	1					**1**	1	*0.0%*
511 Lock-out	1	1	1	3		**6**	2	*0.1%*
520 Water problem, other		1				**1**	1	*0.0%*
522 Water or steam leak		1	1	1		**3**	1	*0.1%*
531 Smoke or odor removal	2	2	1	3	2	**10**	2	*0.2%*
541 Animal problem		1				**1**	1	*0.0%*
542 Animal rescue		1	2	2		**5**	2	*0.1%*
550 Public service assistance, other	24	7	6	7	4	**48**	10	*0.8%*
551 Assist police or other governmental agency	10	7	2	2	2	**23**	5	*0.4%*
552 Police matter	2	1	5	3		**11**	3	*0.2%*
553 Public service	7	4	5	15	23	**54**	11	*0.9%*
554 Assist invalid	17	34	26	23	41	**141**	28	*2.4%*
561 Unauthorized burning	1	1	1	2		**5**	1	*0.1%*
571 Cover assignment, standby, moveup	182	253	197	219	229	**1,080**	216	*18.4%*
	249	**315**	**248**	**280**	**301**	**1393**	**279**	***23.7%***
600 Good intent call, other	3	1	1	2	3	**10**	2	*0.2%*
611 Dispatched & canceled en route	135	141	122	159	181	**738**	148	*12.6%*
621 Wrong location		1	1	1	1	**4**	1	*0.1%*
622 No incident found on arrival of incident address	11	8	12	12	10	**53**	11	*0.9%*
631 Authorized controlled burning	2	6	5	4	2	**19**	4	*0.3%*
650 Steam, other gas mistaken for smoke, other	1					**1**	1	*0.0%*
651 Smoke scare, odor of smoke	6	4	7	4	6	**27**	5	*0.5%*
652 Steam, vapor, fog, or dust thought to be smoke					1	**1**	1	*0.0%*
	158	**161**	**148**	**182**	**204**	**853**	**171**	***14.5%***
700 False alarm or false call, other	7	4	1	5	12	**29**	6	*0.5%*
710 Malicious, mischievous false call, other					2	**2**	2	*0.0%*
711 Municipal alarm system, malicious false alarm		1				**1**	1	*0.0%*
712 Direct tie to FD, malicious/false alarm	15	1	1	4	2	**23**	5	*0.4%*
714 Central station, malicious false alarm		1		1	1	**3**	1	*0.1%*
730 System malfunction, other			2		1	**3**	2	*0.1%*
731 Sprinkler activation due to malfunction		1		2		**3**	2	*0.1%*
733 Smoke detector activation due to malfunction	10	21	18	23	8	**80**	16	*1.4%*
734 Heat detector activation due to malfunction	1		2	1		**4**	1	*0.1%*
735 Alarm system sounded due to malfunction	12	5	8	4	32	**61**	12	*1.0%*
736 CO detector activation due to malfunction			1	4	2	**7**	2	*0.1%*

740 Unintentional transmission of alarm, other	7	18	27	25		**77**	19	*1.3%*
741 Sprinkler activation, no fire - unintentional		1		1		**2**	1	*0.0%*
742 Extinguishing system activation					1	**1**	1	*0.0%*
743 Smoke detector activation, no fire - unintentional	4	4	6	8	15	**37**	7	*0.6%*
744 Detector activation, no fire - unintentional	1	1		3	1	**6**	2	*0.1%*
745 Alarm system sounded, no fire - unintentional	9	9	15	8	12	**53**	11	*0.9%*
746 Carbon monoxide detector activation, no CO	25	7	18	18	2	**70**	14	*1.2%*
	91	**74**	**99**	**107**	**91**	**462**	**92**	***7.9%***
813 Wind storm, tornado/hurricane assessment			1			**1**	1	*0.0%*
814 Lightning strike (no fire)	1	1	1	1		**4**	1	*0.1%*
	1	**1**	**2**	**1**	**0**	**5**	**1**	***0.1%***
900 Special type of incident, other				2		**2**	2	*0.0%*
	0	**0**	**0**	**2**	**0**	**2**	**0**	***0.0%***
Totals	**1,104**	**1,106**	**1,140**	**1,236**	**1,291**	**5,877**	1,175	*100.0 %*

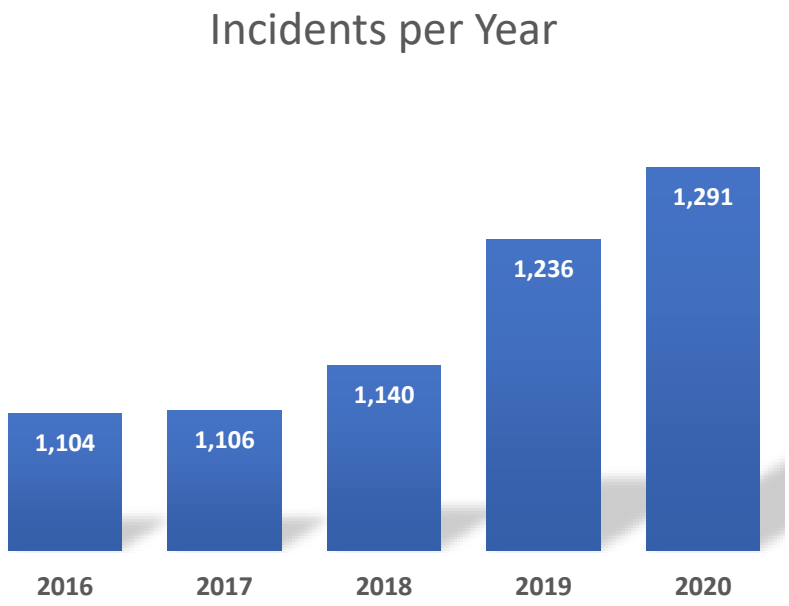
WHEN - Service Demand (Incident Frequency)

Call volume affects the amount of time a company is available to respond to emergencies within its respective first due area. Under optimal conditions, when stations are appropriately located, the call volume distribution should be evenly divided. This discussion on concentration focuses on fundamental workload issues. This section shall break this volume of incidents down from macro to micro specifics:

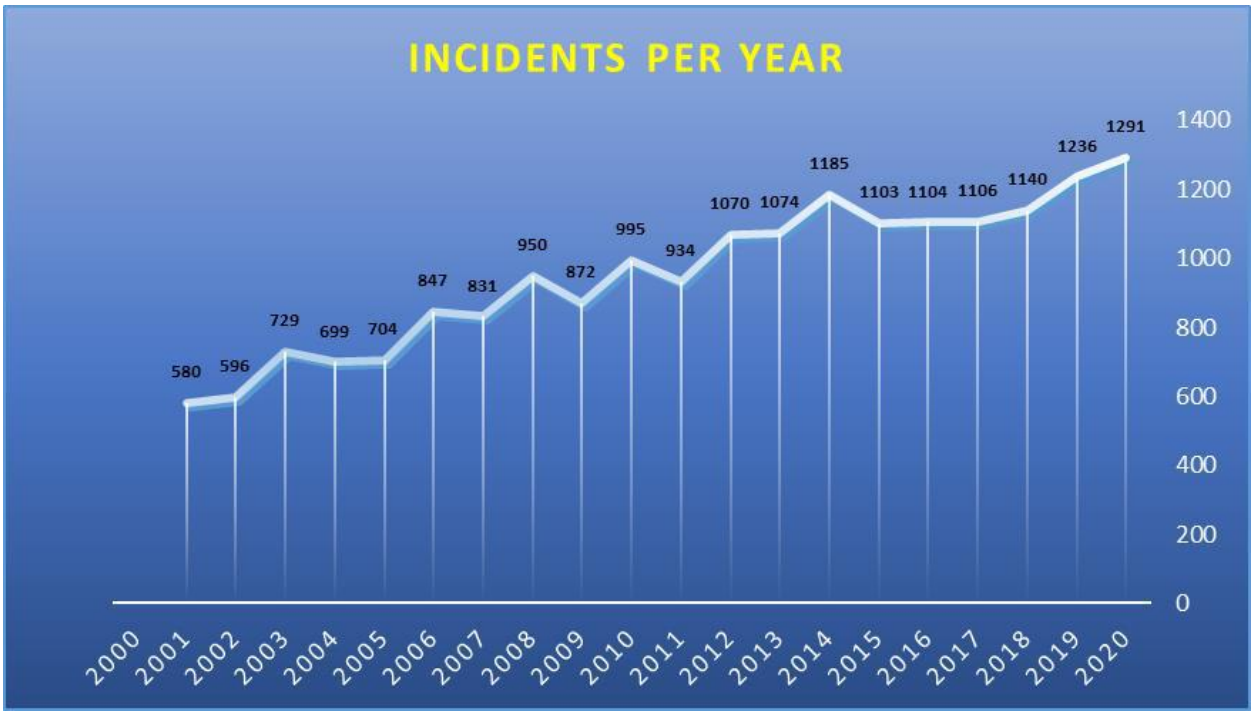
- **YEARLY**
- **MONTHLY**
- **DAY OF WEEK**
- **HOUR OF DAY**

Incidents per:

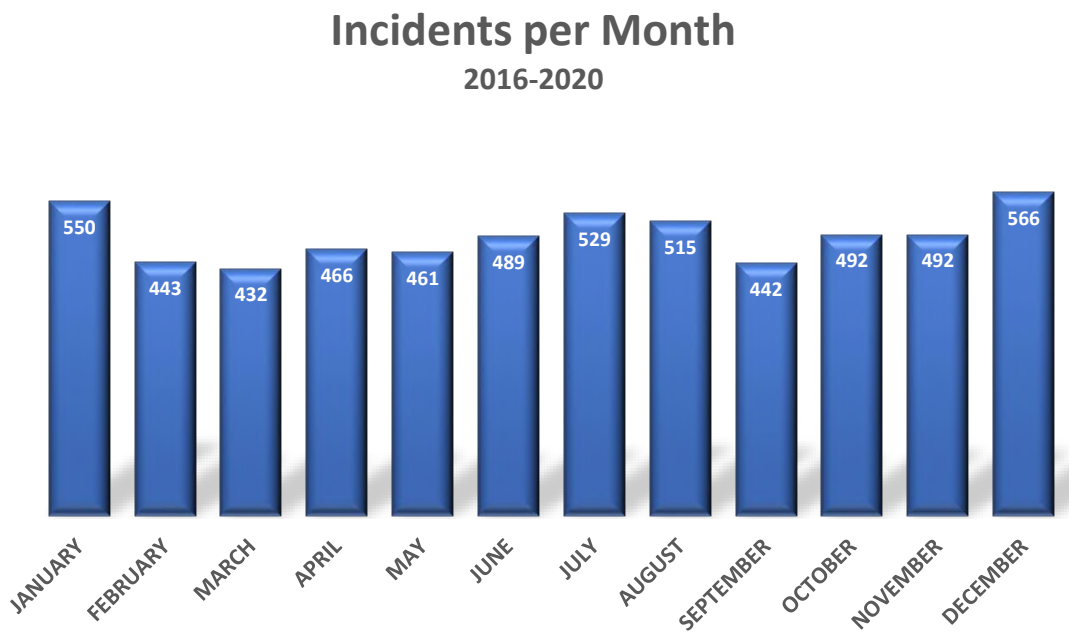
Year

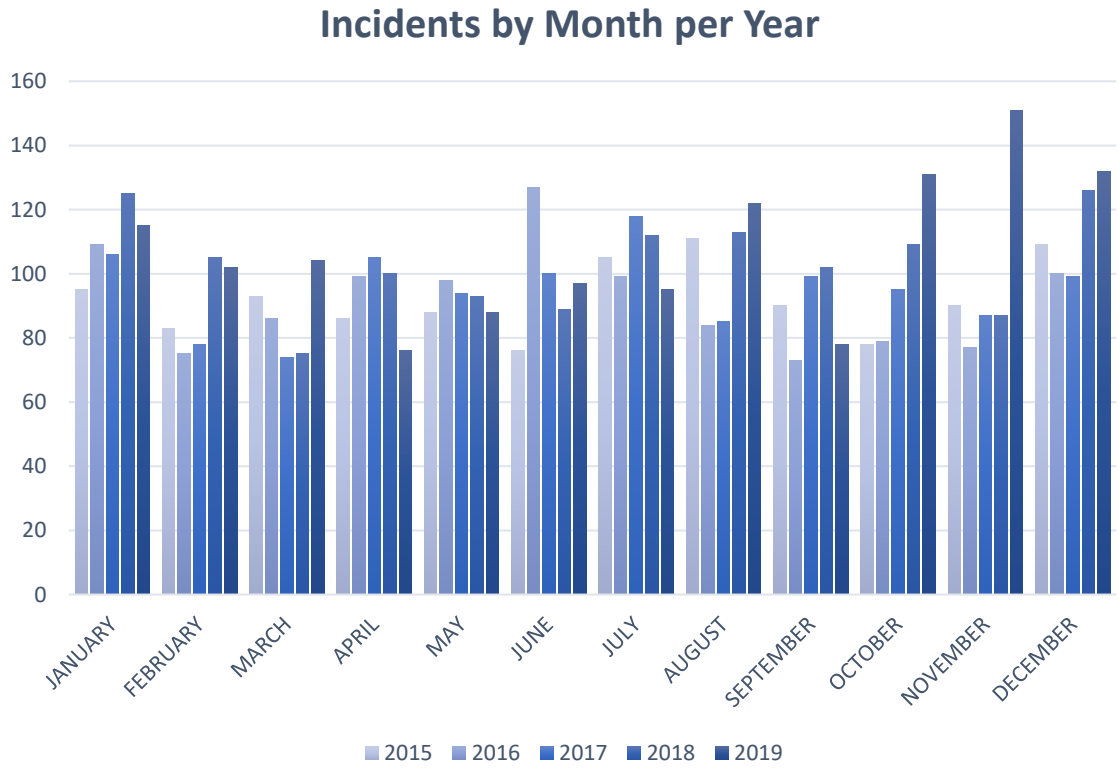


	2016	2017	2018	2019	2020
Incidents per Year	1,104	1,106	1,140	1,236	1,291
Change over the previous	*0%*	*0%*	*3%*	*8%*	*4%*

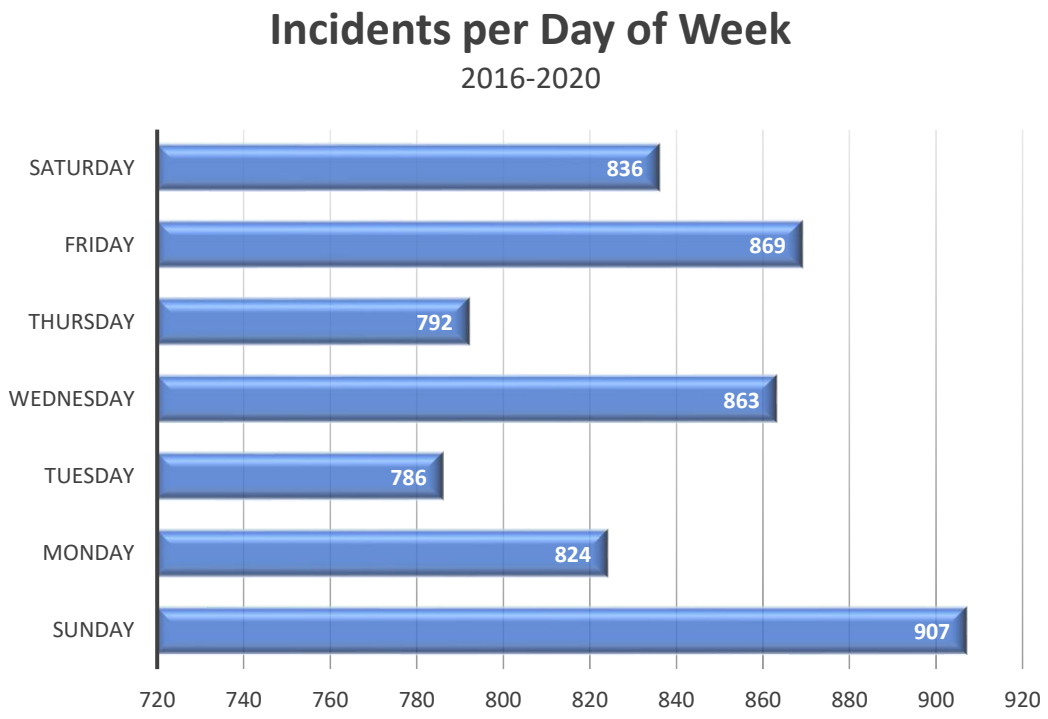


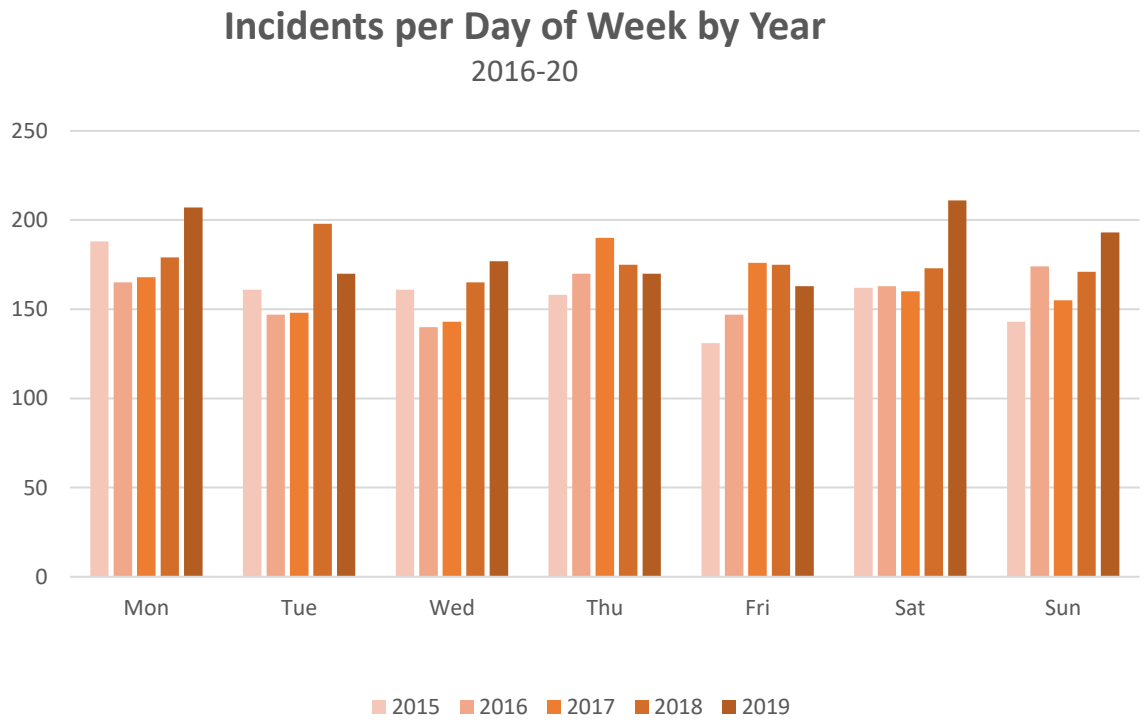
Month


Incidents per Month
2016-2020
550
443
432
466
461
489
529
515
442
492
492
566
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

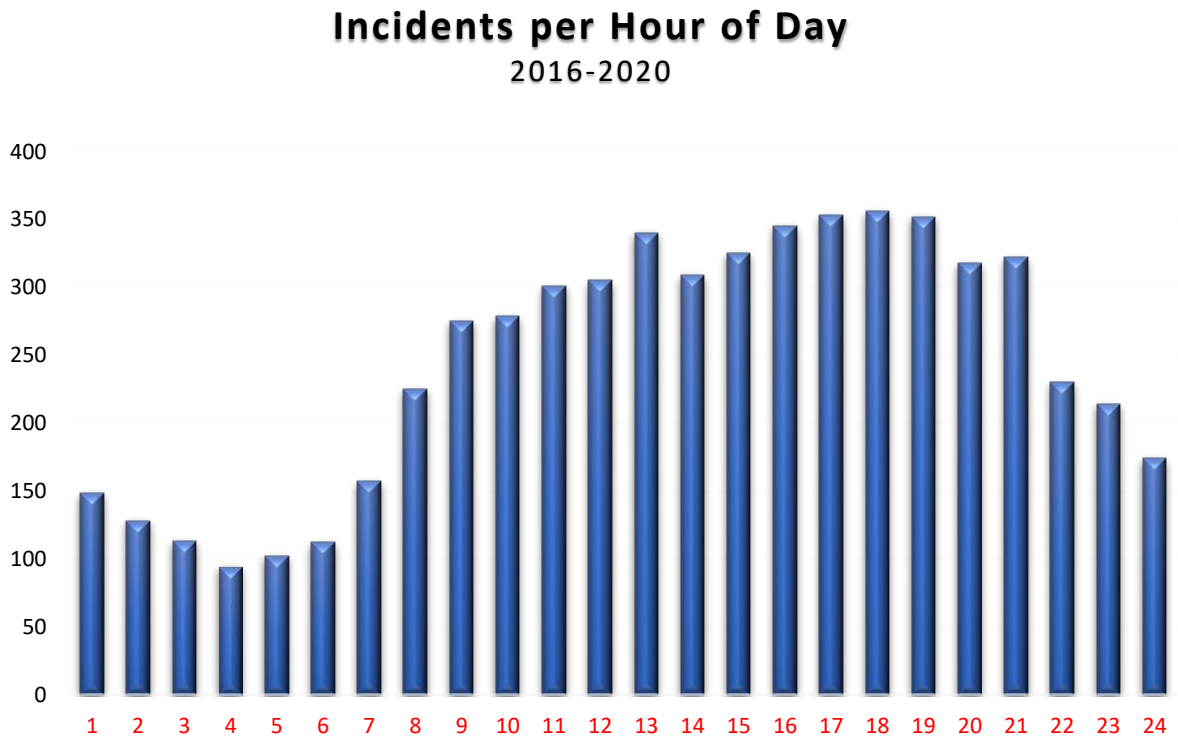

Incidents by Month per Year
160
140
120
100
80
60
40
20
0
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
2015
2016
2017
2018
2019

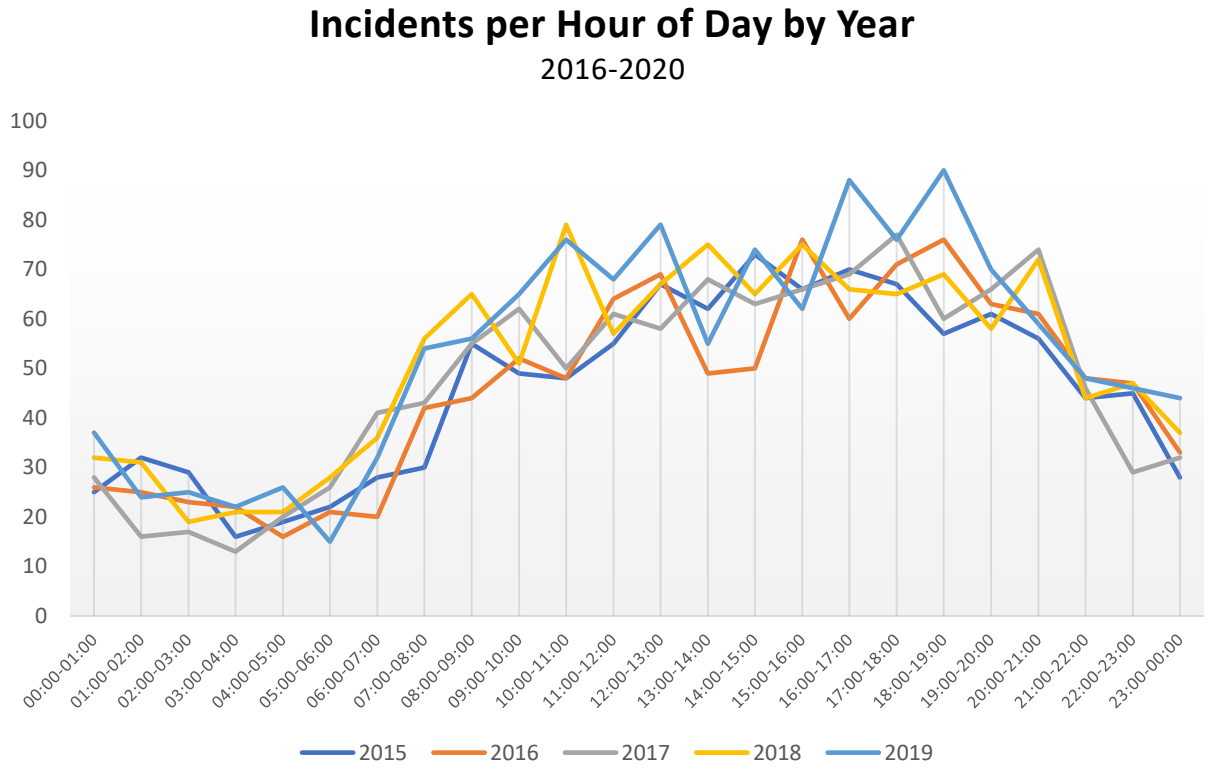
Day


Incidents per Day of Week
2016-2020
SATURDAY
FRIDAY
THURSDAY
WEDNESDAY
TUESDAY
MONDAY
SUNDAY
836
869
792
863
786
824
907
720
740
760
780
800
820
840
860
880
900
920


Incidents per Day of Week by Year
2016-20
250
200
150
100
50
0
Mon
Tue
Wed
Thu
Fri
Sat
Sun
2015
2016
2017
2018
2019

Hour


Incidents per Hour of Day
2016-2020
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24


Incidents per Hour of Day by Year
2016-2020
100
90
80
70
60
50
40
30
20
10
0
00:00-01:00
01:00-02:00
02:00-03:00
03:00-04:00
04:00-05:00
05:00-06:00
06:00-07:00
07:00-08:00
08:00-09:00
09:00-10:00
10:00-11:00
11:00-12:00
12:00-13:00
13:00-14:00
14:00-15:00
15:00-16:00
16:00-17:00
17:00-18:00
18:00-19:00
19:00-20:00
20:00-21:00
21:00-22:00
22:00-23:00
23:00-00:00
2015
2016
2017
2018
2019

Temporal

Hour of Day by Day of Week

Temporal Activity

2016-2020

	1 Mon	2 Tue	3 Wed	4 Thu	5 Fri	6 Sat	7 Sun	Total		
00:00-00:59	25	22	19	16	21	21	24	148	2.5%	
01:00-01:59	23	16	12	18	17	22	20	128	2.2%	
02:00-02:59	19	15	12	17	9	22	19	113	1.9%	
03:00-03:59	13	16	8	12	14	18	13	94	1.6%	
04:00-04:59	18	13	15	9	12	16	19	102	1.7%	
05:00-05:59	19	22	13	13	21	14	10	112	1.9%	
06:00-06:59	18	28	24	27	20	24	16	157	2.7%	
07:00-07:59	37	35	33	36	31	27	26	225	3.8%	
08:00-08:59	41	33	49	53	43	30	26	275	4.7%	
09:00-09:59	38	39	50	47	35	37	33	279	4.7%	
10:00-10:59	43	53	38	43	37	40	47	301	5.1%	
11:00-11:59	53	35	36	42	51	44	44	305	5.2%	
12:00-12:59	63	45	50	48	41	44	49	340	5.8%	
13:00-13:59	58	41	46	48	46	41	29	309	5.3%	
14:00-14:59	45	41	57	42	49	44	47	325	5.5%	
15:00-15:59	56	54	43	51	46	48	47	345	5.9%	
16:00-16:59	63	62	42	57	48	42	39	353	6.0%	
17:00-17:59	60	54	43	57	41	43	58	356	6.1%	
18:00-18:59	57	36	47	45	43	65	59	352	6.0%	
19:00-19:59	40	33	45	54	41	52	53	318	5.4%	
20:00-20:59	38	51	36	36	44	62	55	322	5.5%	
21:00-21:59	26	32	24	37	28	43	40	230	3.9%	
22:00-22:59	28	31	31	27	26	40	31	214	3.6%	
23:00-23:59	26	17	13	28	28	30	32	174	3.0%	
Total	907	824	786	863	792	869	836	5,877		
	15.4%	14.0%	13.4%	14.7%	13.5%	14.8%	14.2%			

75.0% 07:00-23:00

64.1% 07:00-19:00

Simultaneous Incidents

Simultaneous incidents occur when other incidents are underway at the time a new incident begins. The list below is a proportion of simultaneous incident occurrence by the number of simultaneous incidents, where "1 or more" means at least two incidents open, "2 or more" means there are at least three incidents open.

13.2 % for 1 or more simultaneous incidents.

1.2 % for 2 or more simultaneous incidents.

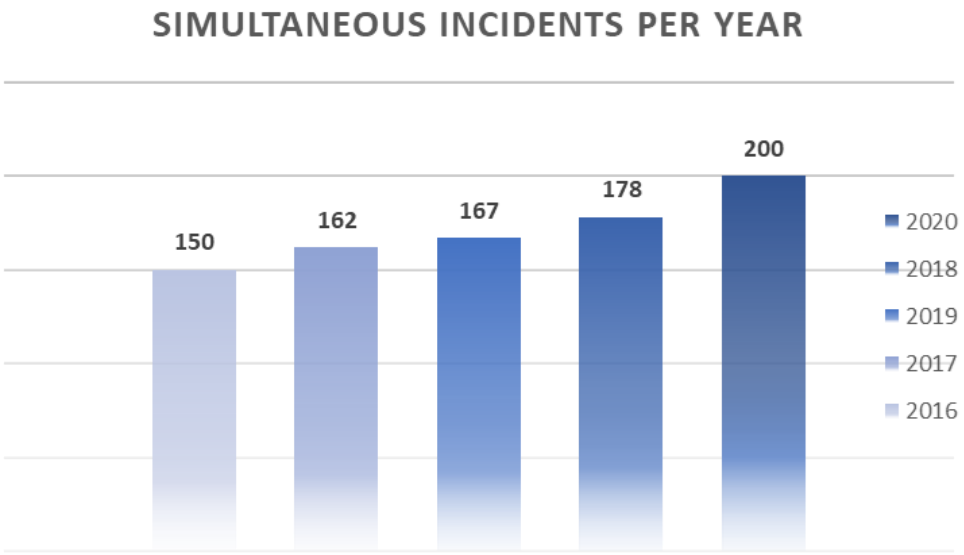
0.1 % for 3 or more simultaneous incidents.

Temporal Activity - Simultaneous Incidents

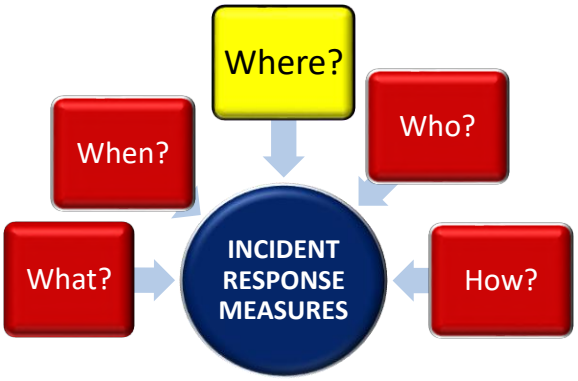
2016-2020

	1 Mon	2 Tue	3 Wed	4 Thu	5 Fri	6 Sat	7 Sun	Total	% of Inc
00:00-00:59	3	3	3	1	1	1	7	19	2.2%
01:00-01:59	3	4	0	3	3	2	2	17	2.0%
02:00-02:59	2	1	3	2	0	0	0	8	0.9%
03:00-03:59	0	3	0	1	1	0	1	6	0.7%
04:00-04:59	2	1	2	1	0	2	1	9	1.1%
05:00-05:59	1	2	2	1	1	0	1	8	0.9%
06:00-06:59	1	4	1	3	5	3	1	18	2.1%
07:00-07:59	1	8	7	3	4	2	2	27	3.2%
08:00-08:59	3	5	7	14	5	1	1	36	4.2%
09:00-09:59	3	11	4	7	6	2	5	38	4.4%
10:00-10:59	6	6	6	8	6	6	8	46	5.4%
11:00-11:59	8	3	4	10	8	9	4	46	5.4%
12:00-12:59	15	5	4	4	3	4	9	44	5.1%
13:00-13:59	15	6	8	7	4	11	5	56	6.5%
14:00-14:59	9	4	13	6	4	8	13	57	6.7%
15:00-15:59	9	13	4	7	12	5	10	60	7.0%
16:00-16:59	13	16	7	16	7	6	5	70	8.2%
17:00-17:59	16	8	13	14	8	5	8	72	8.4%
18:00-18:59	12	6	6	10	2	12	6	54	6.3%
19:00-19:59	8	5	3	8	3	5	13	45	5.3%
20:00-20:59	3	7	3	3	6	16	11	49	5.7%
21:00-21:59	0	3	1	2	4	10	1	21	2.5%
22:00-22:59	3	3	6	4	6	2	6	30	3.5%
23:00-23:59	2	2	3	4	2	3	5	21	2.5%
Total	138	129	110	139	101	115	125	857	
% of Inc	16.1%	15.1%	12.8%	16.2%	11.8%	13.4%	14.6%		

Concurrent Incidents	2016		2017		2018		2019		2020		TOTAL	% of Inc	Average/ yr
1 or more	135	12%	147	13%	164	14%	160	13%	170	13%	777	13.2%	86
2 or more	14	1%	13	1%	13	1%	6	0%	24	2%	70	1.2%	8
3 or more	1	0%	2	0%	1	0%	1	0%	3	0%	8	0.1%	1
4 or more	--		--		--		--		3	0%	3	0.1%	3
	150		162		178		167		200		858		
Change over the previous			8%		10%		-6%		20%				
TOTAL INCIDENTS	1104		1106		1140		1236		1291		5877		

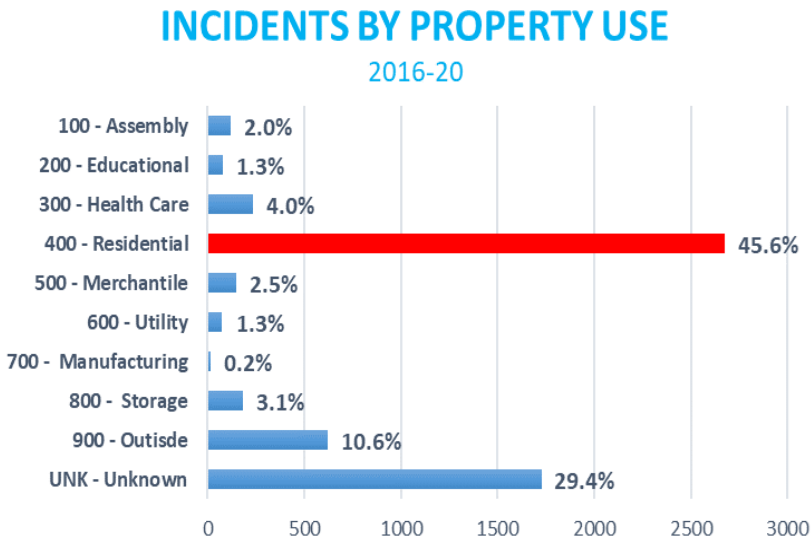


WHERE - Incident Location



Property Type/Use

The location of an incident can be categorized by use type of structure or outside physical setting and is also geolocated by GIS specialists for detailed visual analysis.



NFIRS Code Summary

INCIDENT TYPE	2016	2017	2018	2019	2020	Totals	*Avg Yr*	*% of Incidents*
100 – Assembly	20	17	26	27	29	**119**	*24*	*2.0%*
200 – Educational	17	12	15	23	11	**78**	*16*	*1.3%*
300 - Health Care	51	53	49	41	40	**234**	*47*	*4.0%*
400 – Residential	501	441	517	556	662	**2,677**	*535*	*45.6%*
500 – Mercantile	34	27	34	36	15	**146**	*29*	*#REF!*
600 – Utility	13	9	25	11	18	**76**	*15*	*2.5%*
700 - Manufacturing	0	0	4	6	3	**13**	*3*	*0.2%*
800 - Storage	16	30	30	20	87	**183**	*37*	*3.1%*
900 – Outside	115	118	113	131	146	**623**	*125*	*10.6%*
UNK – Unknown	337	399	327	385	280	**1728**	*346*	*29.4%*
	1104	**1106**	**1140**	**1236**	**1291**	**5,877**	*1175*	
Change over previous		*0%*	*3%*	*8%*	*4%*			

Incidents: Count - Year by Property Use (Sort by NFIRS Group)

Incidents: Count - Year by Property Use

5,877 Incident records are being analyzed.

Year	2016	2017	2018	2019	2020	Totals	Average	*% of Incidents*
100 Assembly, other			1	1	1	**3**	1	*0.1%*
110 Fixed use recreation places, other	1			1		**2**	1	*0.0%*
123 Stadium, arena			1			**1**	1	*0.0%*
124 Playground		1	2			**3**	2	*0.1%*
130 Places of worship, funeral parlors				1		**1**	1	*0.0%*
131 Church, mosque, synagogue, temple, chapel	6	2	4	6	1	**19**	4	*0.3%*
134 Funeral parlor					1	**1**	1	*0.0%*
150 Public or government, other					4	**4**	4	*0.1%*
151 Library	1	2	4	3		**10**	3	*0.2%*
161 Restaurant or cafeteria				1	11	**12**	6	*0.2%*
162 Bar or nightclub	11	12	13	14	11	**61**	12	*1.0%*
174 Rapid transit station	1		1			**2**	1	*0.0%*
	20	**17**	**26**	**27**	**29**	**119**	**24**	*2.0%*
211 Preschool	2			6	2	**10**	3	*0.2%*
213 Elementary school, including kindergarten	12	8	11	16	4	**51**	10	*0.9%*
215 High school/junior high school/middle school	2	4	2	1	4	**13**	3	*0.2%*
254 Day care, in commercial property	1		2		1	**4**	1	*0.1%*
	17	**12**	**15**	**23**	**11**	**78**	**16**	*1.3%*
311 24-hour care Nursing homes, 4 or more persons			1	1	3	**5**	2	*0.1%*
321 Mental retardation/development disability facility	35	25	29	22	18	**129**	26	*2.2%*
340 Clinics, Doctors offices, hemodialysis centers	8	19	12	11	10	**60**	12	*1.0%*
341 Clinic, clinic-type infirmary	3					**3**	3	*0.1%*
342 Doctor, dentist or oral surgeon's office					2	**2**	2	*0.0%*
361 Jail, prison (not juvenile)					1	**1**	1	*0.0%*
365 Police station	5	9	7	7	6	**34**	7	*0.6%*
	51	**53**	**49**	**41**	**40**	**234**	**47**	*4.0%*
400 Residential, other	35	1		3	1	**40**	10	*0.7%*
419 1 or 2 family dwelling	431	393	471	511	593	**2,399**	480	*40.8%*
429 Multifamily dwellings	34	44	42	42	68	**230**	46	*3.9%*
439 Boarding/rooming house, residential hotels			1			**1**	1	*0.0%*
459 Residential board and care	1	3	3			**7**	2	*0.1%*
	501	**441**	**517**	**556**	**662**	**2677**	**535**	*45.6%*
500 Mercantile, business, other	3	2	4	4		**13**	3	*0.2%*
519 Food and beverage sales, grocery store	7	9	11	10	7	**44**	9	*0.7%*
539 Household goods, sales, repairs				1		**1**	1	*0.0%*
549 Specialty shop			1	2		**3**	2	*0.1%*
557 Personal service, including barber & beauty shops			1	1	1	**3**	1	*0.1%*
559 Recreational, hobby, home repair sales, pet store				1		**1**	1	*0.0%*
564 Laundry, dry cleaning	3	1				**4**	2	*0.1%*

569	Professional supplies, services	2	1		1		**4**	1	*0.1%*
571	Service station, gas station	9	2	3	7	3	**24**	5	*0.4%*
580	General retail, other	5	7	9	1		**22**	6	*0.4%*
581	Department or discount store				1		**1**	1	*0.0%*
592	Bank	1	2	1	1	2	**7**	1	*0.1%*
596	Post office or mailing firms	2	2				**4**	2	*0.1%*
599	Business office	2	1	4	6	2	**15**	3	*0.3%*
		34	**27**	**34**	**36**	**15**	**146**	**29**	*2.5%*
600	Utility, defense, agriculture, mining, other	1			1		**2**	1	*0.0%*
610	Energy production plant, other					1	**1**	1	*0.0%*
615	Electric generating plant	1	1	1		2	**5**	1	*0.1%*
640	Utility or Distribution system, other					4	**4**	4	*0.1%*
642	Electrical distribution					1	**1**	1	*0.0%*
644	Gas distribution, pipeline, gas distribution	1	1	8	1	3	**14**	3	*0.2%*
645	Flammable liquid distribution, pipeline, flammable	3	5	10	7	5	**30**	6	*0.5%*
647	Water utility	7	1	5		2	**15**	4	*0.3%*
648	Sanitation utility			1	1		**2**	1	*0.0%*
655	Crops or orchard		1		1		**2**	1	*0.0%*
		13	**9**	**25**	**11**	**18**	**76**	**15**	*1.3%*
700	Manufacturing, processing			4	6	3	**13**	4	*0.2%*
		0	**0**	**4**	**6**	**3**	**13**	**3**	*0.2%*
800	Storage, other		1				**1**	1	*0.0%*
807	Outside material storage area	1				3	**4**	2	*0.1%*
808	Outbuilding or shed		4	1	1	4	**10**	3	*0.2%*
816	Grain elevator, silo		1			1	**2**	1	*0.0%*
819	Livestock, poultry storage				1		**1**	1	*0.0%*
849	Outside storage tank	1	1		1		**3**	1	*0.1%*
880	Vehicle storage, other		5				**5**	5	*0.1%*
888	Fire station	13	17	27	16	79	**152**	30	*2.6%*
899	Residential or self storage units	1	1	2	1		**5**	1	*0.1%*
		16	**30**	**30**	**20**	**87**	**183**	**37**	*3.1%*
900	Outside or special property, other	6	4	1	1	1	**13**	3	*0.2%*
931	Open land or field	15	22	21	15	22	**95**	19	*1.6%*
936	Vacant lot	1			1		**2**	1	*0.0%*
938	Graded and cared-for plots of land			1	2	1	**4**	1	*0.1%*
940	Water area, other	1	1	2	1		**5**	1	*0.1%*
946	Lake, river, stream	1	2				**3**	2	*0.1%*
952	Railroad yard	1		1			**2**	1	*0.0%*
960	Street, other	32	11	19	34	14	**110**	22	*1.9%*
961	Highway or divided highway	46	53	52	53	64	**268**	54	*4.6%*
962	Residential street, road or residential driveway	8	23	14	18	30	**93**	19	*1.6%*
963	Street or road in commercial area	1	1		1	1	**4**	1	*0.1%*
965	Vehicle parking area	1	1			3	**5**	2	*0.1%*
981	Construction site	1				1	**2**	1	*0.0%*

982 Oil or gas field					1	**1**	1	*0.0%*
983 Pipeline, power line or other utility right of way	1		2	5	7	**15**	4	*0.3%*
984 Industrial plant yard - area					1	**1**	1	*0.0%*
	115	**118**	**113**	**131**	**146**	**623**	**125**	*10.6%*
NNN None	2	1	2	1	3	**9**	2	*0.2%*
Not Listed	331	397	324	384	276	**1,712**	342	*29.1%*
UUU Undetermined	4	1	1		1	**7**	2	*0.1%*
	337	**399**	**327**	**385**	**280**	**1728**	**346**	*29.4%*
Totals	1104	1106	1140	1236	1291	5877	**1,175**	*100.0%*

*Incidents: Count - Year by Property Use (**Sort by Frequency**)*

Incidents: Count - Year by Property Use

5,877 Incident records were analyzed.

Year	2016	2017	2018	2019	2020	Totals	Average	*% of Incidents*
419 1 or 2 family dwelling	431	393	471	511	593	**2,399**	480	*40.8%*
Not listed	331	397	324	384	276	**1,712**	342	*29.1%*
961 Highway or divided highway	46	53	52	53	64	**268**	54	*4.6%*
429 Multifamily dwellings	34	44	42	42	68	**230**	46	*3.9%*
888 Fire station	13	17	27	16	79	**152**	30	*2.6%*
321 Mental development disability facility	35	25	29	22	18	**129**	26	*2.2%*
960 Street, other	32	11	19	34	14	**110**	22	*1.9%*
931 Open land or field	15	22	21	15	22	**95**	19	*1.6%*
962 Residential street, road or residential driveway	8	23	14	18	30	**93**	19	*1.6%*
162 Bar or nightclub	11	12	13	14	11	**61**	12	*1.0%*
340 Clinics, Doctor offices, hemodialysis centers	8	19	12	11	10	**60**	12	*1.0%*
213 Elementary school, including kindergarten	12	8	11	16	4	**51**	10	*0.9%*
519 Food and beverage sales, grocery store	7	9	11	10	7	**44**	9	*0.7%*
400 Residential, other	35	1		3	1	**40**	10	*0.7%*
365 Police station	5	9	7	7	6	**34**	7	*0.6%*
645 Flammable liquid distribution, pipeline,	3	5	10	7	5	**30**	6	*0.5%*
571 Service station, gas station	9	2	3	7	3	**24**	5	*0.4%*
580 General retail, other	5	7	9	1		**22**	6	*0.4%*
131 Church, mosque, synagogue, temple, chapel	6	2	4	6	1	**19**	4	*0.3%*
983 Pipeline, power line or other utility right of way	1		2	5	7	**15**	4	*0.3%*
647 Water utility	7	1	5		2	**15**	4	*0.3%*
599 Business office	2	1	4	6	2	**15**	3	*0.3%*
644 Gas distribution, pipeline, gas distribution	1	1	8	1	3	**14**	3	*0.2%*
900 Outside or special property, other	6	4	1	1	1	**13**	3	*0.2%*
700 Manufacturing, processing			4	6	3	**13**	4	*0.2%*
500 Mercantile, business, other	3	2	4	4		**13**	3	*0.2%*
215 High school/junior high school/middle school	2	4	2	1	4	**13**	3	*0.2%*
161 Restaurant or cafeteria				1	11	**12**	6	*0.2%*
808 Outbuilding or shed		4	1	1	4	**10**	3	*0.2%*
211 Preschool	2			6	2	**10**	3	*0.2%*
151 Library	1	2	4	3		**10**	3	*0.2%*
NNN None	2	1	2	1	3	**9**	2	*0.2%*
592 Bank	1	2	1	1	2	**7**	1	*0.1%*
459 Residential board and care	1	3	3			**7**	2	*0.1%*

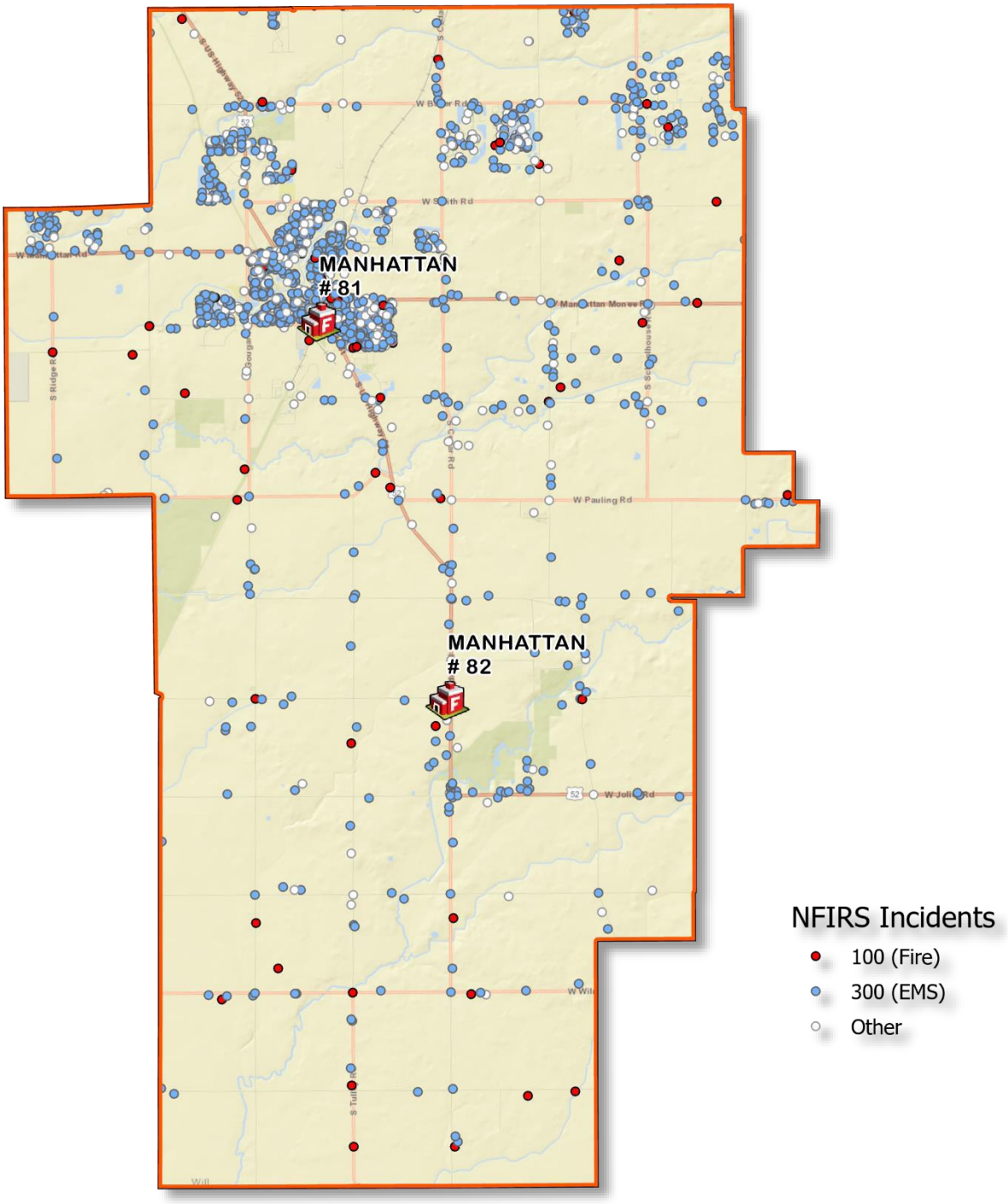
965	Vehicle parking area	1	1			3	**5**	2	*0.1%*
940	Water area, other	1	1	2	1		**5**	1	*0.1%*
899	Residential or self-storage units	1	1	2	1		**5**	1	*0.1%*
880	Vehicle storage, other		5				**5**	5	*0.1%*
615	Electric generating plant	1	1	1		2	**5**	1	*0.1%*
311	24-hour care Nursing homes, 4 or more persons			1	1	3	**5**	2	*0.1%*
	PROPERTY USE unknown	2	1	1		1	**5**	1	*0.1%*
963	Street or road in commercial area	1	1		1	1	**4**	1	*0.1%*
938	Graded and cared-for plots of land			1	2	1	**4**	1	*0.1%*
807	Outside material storage area	1				3	**4**	2	*0.1%*
640	Utility or Distribution system, other					4	**4**	4	*0.1%*
596	Post office or mailing firms	2	2				**4**	2	*0.1%*
569	Professional supplies, services	2	1		1		**4**	1	*0.1%*
564	Laundry, dry cleaning	3	1				**4**	2	*0.1%*
254	Day care, in commercial property	1		2		1	**4**	1	*0.1%*
150	Public or government, other					4	**4**	4	*0.1%*
946	Lake, river, stream	1	2				**3**	2	*0.1%*
849	Outside storage tank	1	1		1		**3**	1	*0.1%*
557	Personal service, including barber shops			1	1	1	**3**	1	*0.1%*
549	Specialty shop			1	2		**3**	2	*0.1%*
341	Clinic, clinic-type infirmary	3					**3**	3	*0.1%*
124	Playground		1	2			**3**	2	*0.1%*
100	Assembly, other			1	1	1	**3**	1	*0.1%*
UUU	Undetermined	2					**2**	2	*0.0%*
981	Construction site	1				1	**2**	1	*0.0%*
952	Railroad yard	1		1			**2**	1	*0.0%*
936	Vacant lot	1			1		**2**	1	*0.0%*
816	Grain elevator, silo		1			1	**2**	1	*0.0%*
655	Crops or orchard		1		1		**2**	1	*0.0%*
648	Sanitation utility			1	1		**2**	1	*0.0%*
600	Utility, defense, agriculture, mining, other	1			1		**2**	1	*0.0%*
342	Doctor, dentist, or oral surgeon's office					2	**2**	2	*0.0%*
174	Rapid transit station	1		1			**2**	1	*0.0%*
110	Fixed use recreation places, other	1			1		**2**	1	*0.0%*
984	Industrial plant yard - area					1	**1**	1	*0.0%*
982	Oil or gas field					1	**1**	1	*0.0%*
819	Livestock, poultry storage				1		**1**	1	*0.0%*
800	Storage, other		1				**1**	1	*0.0%*
642	Electrical distribution					1	**1**	1	*0.0%*
610	Energy production plant, other					1	**1**	1	*0.0%*
581	Department or discount store				1		**1**	1	*0.0%*
559	Recreational, hobby, home repair sales, pet store				1		**1**	1	*0.0%*
539	Household goods, sales, repairs				1		**1**	1	*0.0%*
439	Boarding/rooming house, residential hotels			1			**1**	1	*0.0%*
361	Jail, prison (not juvenile)					1	**1**	1	*0.0%*
134	Funeral parlor					1	**1**	1	*0.0%*
130	Places of worship, funeral parlors				1		**1**	1	*0.0%*
123	Stadium, arena			1			**1**	1	*0.0%*
Totals		**1,104**	**1,106**	**1,140**	**1,236**	**1,291**	**5,877**	**1,175**	*100.0%*

High-Frequency locations

Use	PropertyUseDesc	AddressString	Description	erofInc
Health/Correction	Mental retardation/development	17154 W HOFF RD	**Trinity Services**	101
Storage	Fire station	100 S PARK RD	**Manhattan Fire Protection 81**	88
Health/Correction	Clinic	380 W NORTH ST	**Vacant (former clinic)**	54
Health/Correction	Clinic	540 W North ST	**Silver Cross Clinic**	38
Health/Correction	Mental retardation/development	17150 W HOFF RD	**Trinity Services**	37
Education	Elementary school, including k	25440 S Gougar RD	**Wilson Creek Elementary**	36
Assembly	Bar tavern	525 S STATE ST	**Roadhouse 52**	34
Health/Correction	Police Station	240 MARKET PL	**Police Dept**	33
Manufacturing	Manufacturing, processing	26060 S RT 52	**Aero Press corporation**	30
Business	Bank	555 W NORTH ST	**BP Amoco Manhattan**	29
Health/Correction	Residential board and care	30545 S WALSH RD	**Trinity Services**	29
Education	Elementary school, including k	200 SECOND ST	**Anna McDonald School**	26
Assembly	Eating Drinking Places	525 W NORTH ST	**The Creamery**	25
Storage	Fire station	309 W MISSISSIPPI AVE	**Elwood Fire**	23
Storage	Fire station	501 N Main St	**Wilmington Fire**	23
Assembly	Bar tavern	160 E NORTH ST	**Gallaghers Pub**	20
Health/Correction	Mental retardation/development	14949 W BRUNS RD	**Trinity Services**	19
Storage	Fire station	28712 S CEDAR RD	**Manhattan Fire Protection 82**	19
Mercantile	Food Beverage Sales	100 MARKET PL	**Berkots**	18
Industrial	Flammable Liquid Distribution	15600 W BRUNS RD	**BP Pipeline**	17
Education	High school/junior high school	15606 W SMITH RD	**Manhattan Jr. High**	16
Education	Elementary school, including k	25610 S GOUGAR RD	**First School Day Care**	15
Assembly	Library	240 WHITSON ST	**Manhattan Public Library**	13
Health/Correction	Mental retardation/development	27655 S GOUGAR RD	**Trinity Services**	13
Assembly	Bar tavern	225 S STATE ST	**Fritz's Saloon**	12
Manufacturing	Manufacturing Processing	17128 W Hoff RD	**Trinity-Dog food packing facility**	12
Business	Mercantile, business, other	260 MARKET PL	**Village Hall**	11
Industrial	Sanitation utility	100 MARION ST	**Public Works**	11
Assembly	Food and beverage sales, groce	530 W NORTH ST	**Multi-use Strip Mall**	10
Storage	Fire station	911 S BRIGGS ST	**East Joliet Fire**	10
Education	Day care, in commercial proper	14935 W BRUNS RD	**Kid Country Childcare**	8
Industrial	Water Unitlity	520 W NORTH ST	**Watertower/Village Well**	8
Storage	Fire station	7550 W JOLIET RD	**Peotone Fire**	8
Storage	Livestock / Storage	15600 W ARSENAL RD	**Pawmer House Pet Hotel**	8
Assembly	Resturaunt	330 W NORTH ST	**Agave Azul**	7
Assembly	Raestraunt	130 W NORTH ST	**Pizza 4 U**	7
Health/Correction	Mental retardation/development	16404 W SWEEDLER RD	**Trinity Services**	7
Industrial	Energy Production Plant	27150 S Kankakee ST	**Lincoln Generating Facility**	7
Assembly	Train Station	15601 W SWEEDLER RD	**Manhattan Train Station**	5
Assembly	museum	245 S STATE ST	**Manhattan Historical Society**	5
Medical/Assembly	Church/Dr. Office	24520 S RT 52	**Multi-use Strip Mall**	5
Mercantile	Bank	550 W NORTH ST	**1ST Bank of Manhattan**	5
Assembly	Church	255 W NORTH ST	**St. Joseph Church**	4
Assembly	Church	235 W NORTH ST	**St. Joseph Rectory**	4
Assembly	Church, mosque, synagogue, tem	14101 W JOLIET RD	**Wilton Center Federated Church**	4
Business	Post office or mailing firms	185 S STATE ST	**Post Office**	4
Health/Correction	Dentist Office	175 S STATE ST	**Manhattan Dental**	4
Storage	Vehicle Storage	25330 S SCHOOLHOUSE RD	**Car Barn**	4
Storage	Vehicle Storage	13915 W BARR RD	**Riteway Snow Control**	4
Assembly	Resturaunt	120 E North ST	**Manhattan Pizza & Wings (taxpayer)**	3
Assembly	Church	335 E NORTH ST	**Manhattan United Methodist**	3
Business	Nursery / Garden	24900 S CHERRY HILL RD	**Green Glen Nursery**	3
Education	Elementry School	275 W NORTH ST	**St. Joseph School**	3
Health/Correction	Mental retardation/development	24409 S CEDAR RD	**Trinity Services**	3
Health/Correction	Mental retardation/development	23816 S CEDAR RD	**Trinity Services**	3
Industrial	Flammable Liquid distribution	15637 W BRUNS RD	**Enbridge**	3
Outside Special Property	Park	397 S STATE ST	**Manhattan Park District**	3
Storage	Storage Units	15325 W BAKER RD	**East Gate Storage**	3
Agricultural	Farm Land	31858 S TULLEY RD	**N/A**	2
Assembly	Restaurant or cafeteria	360 W NORTH ST	**China One**	2

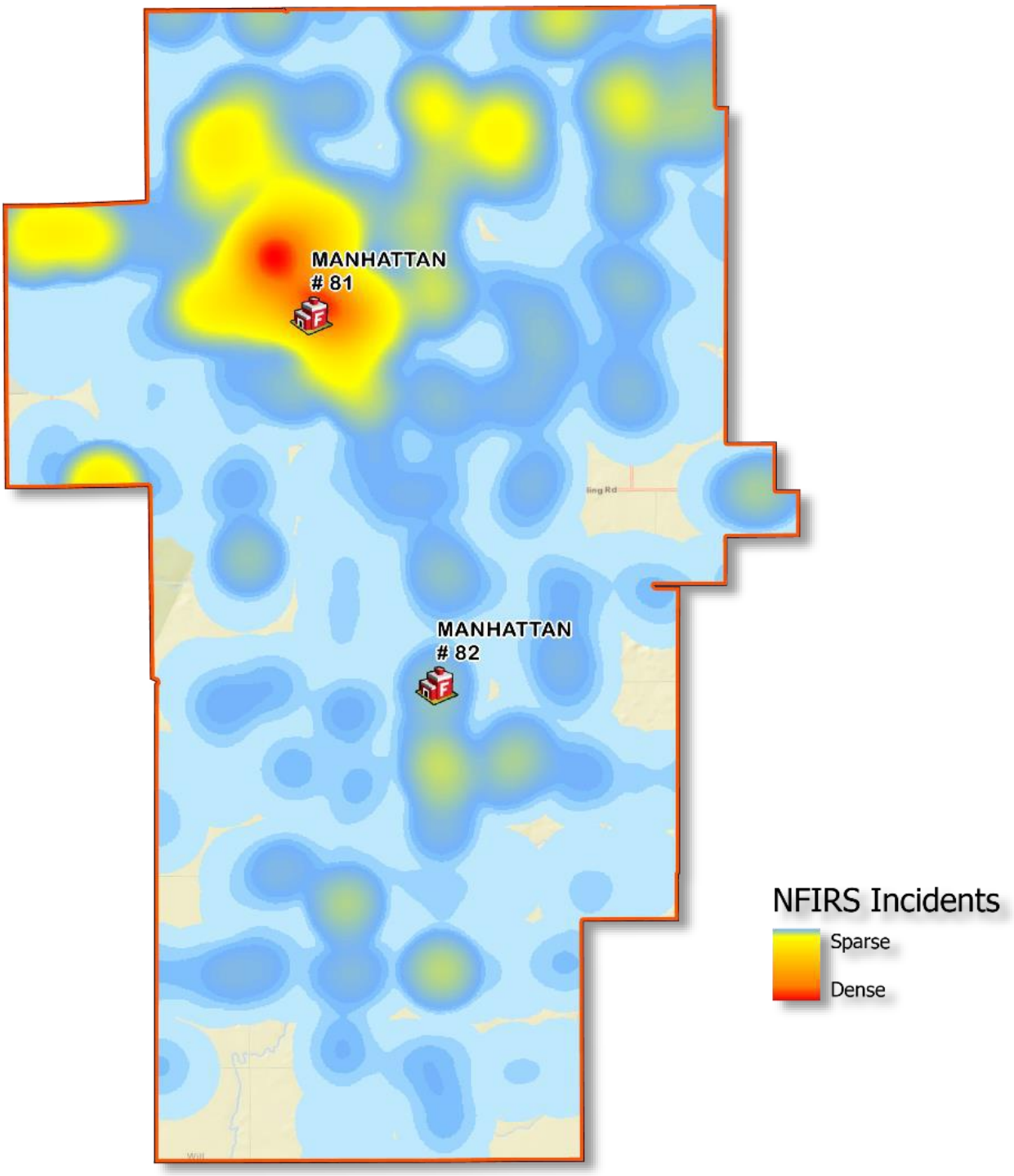
Geolocation - On Map

District-wide

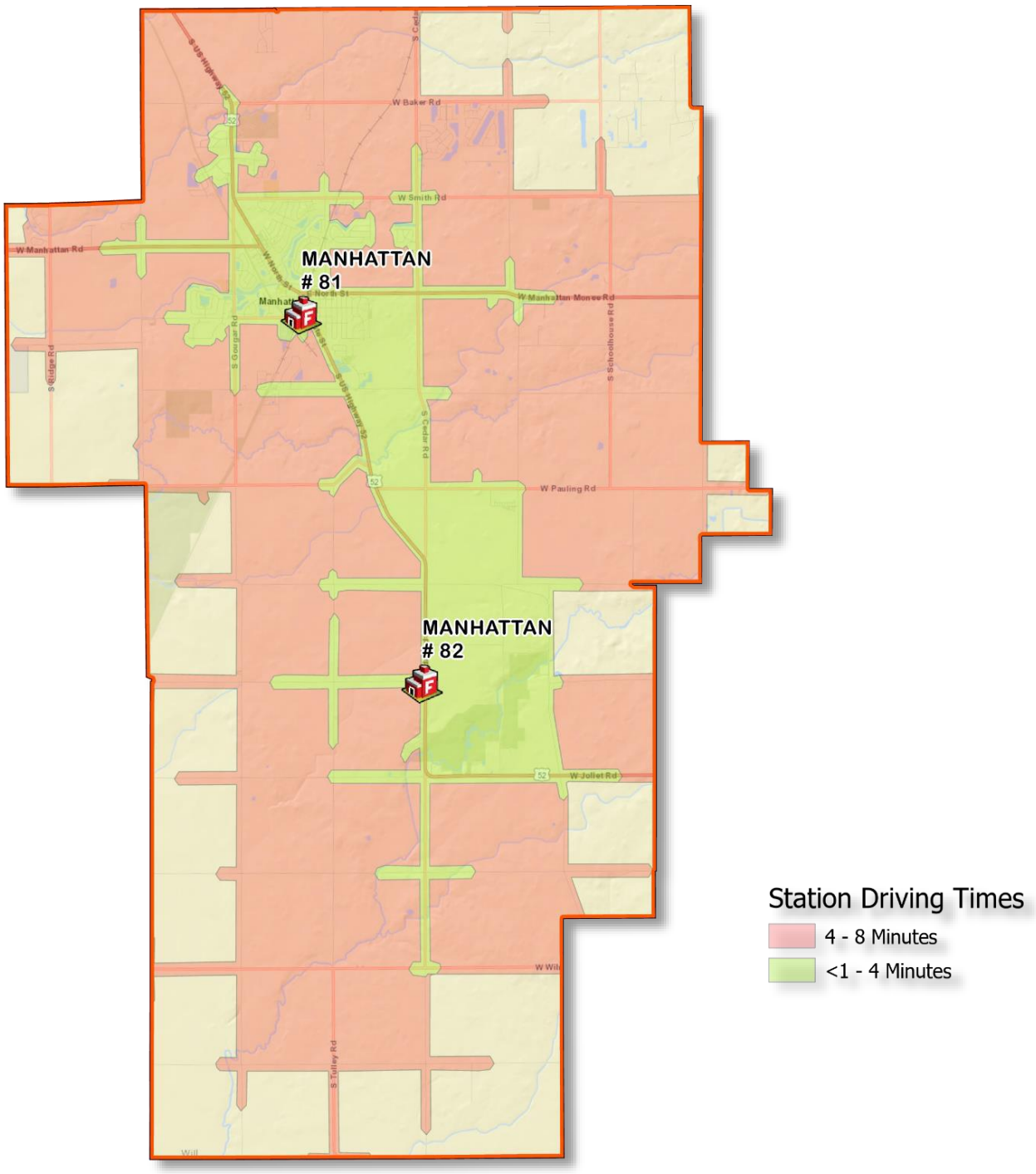


Incident Frequency (Heat)

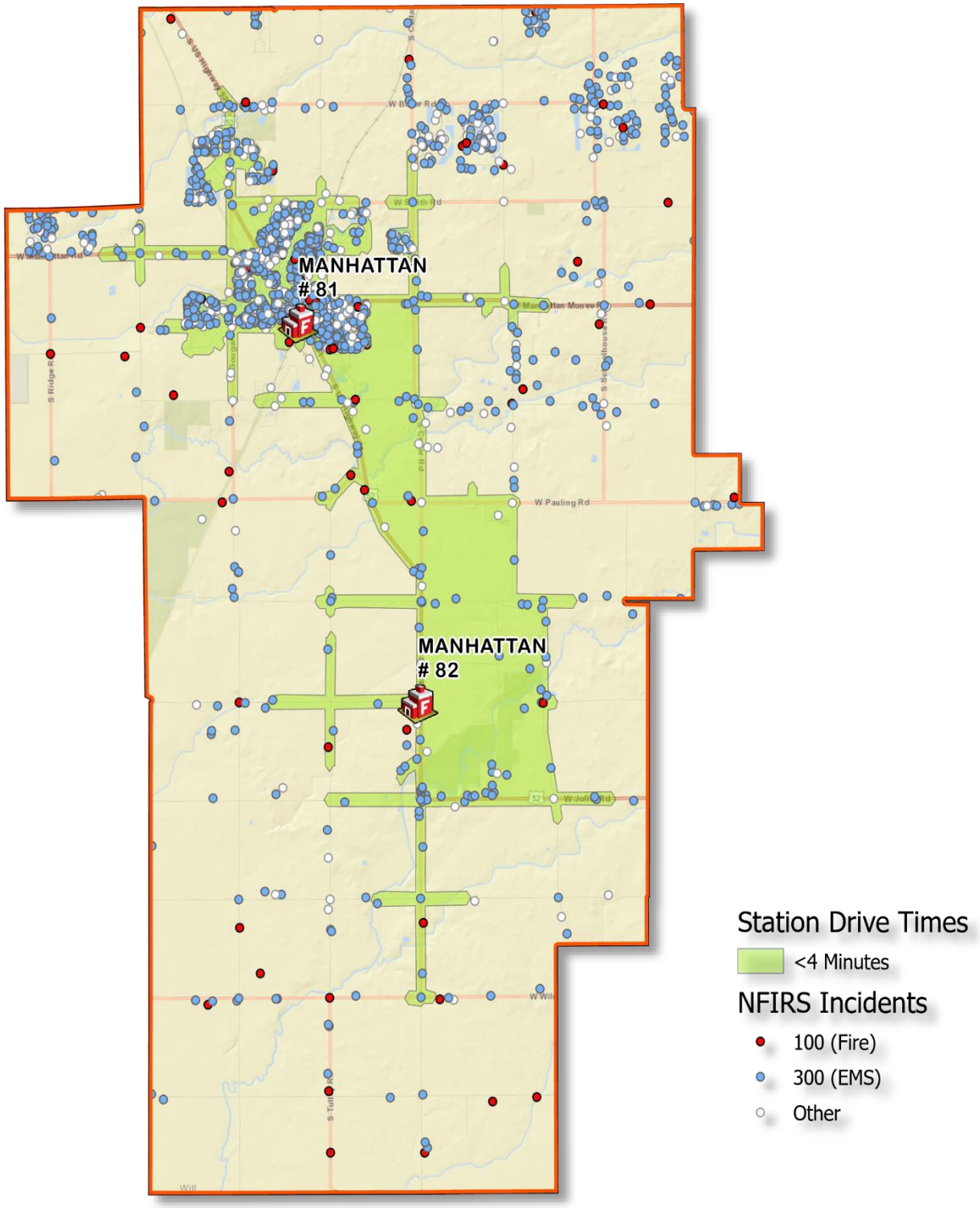
ALL



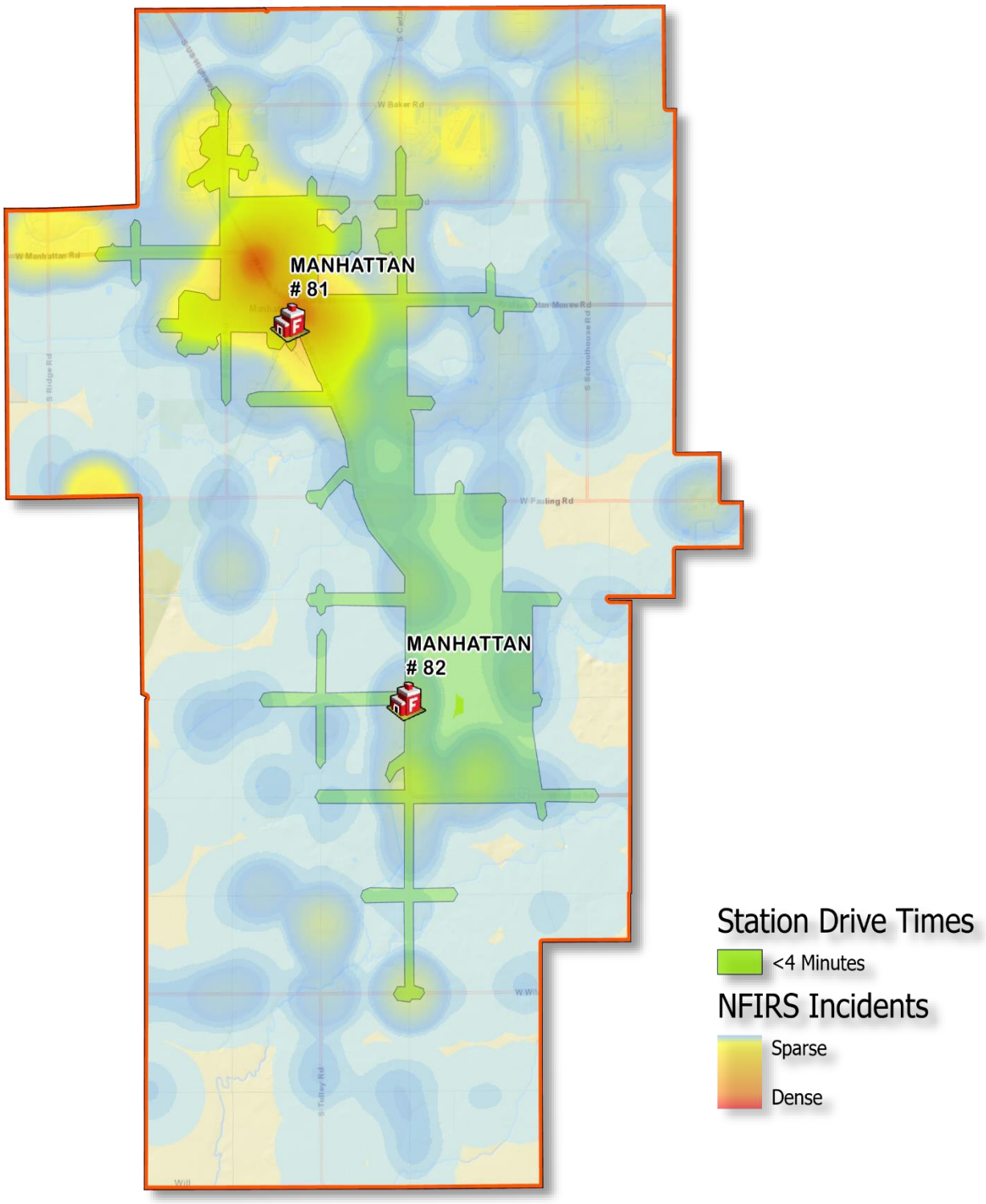
4/8-min Coverage



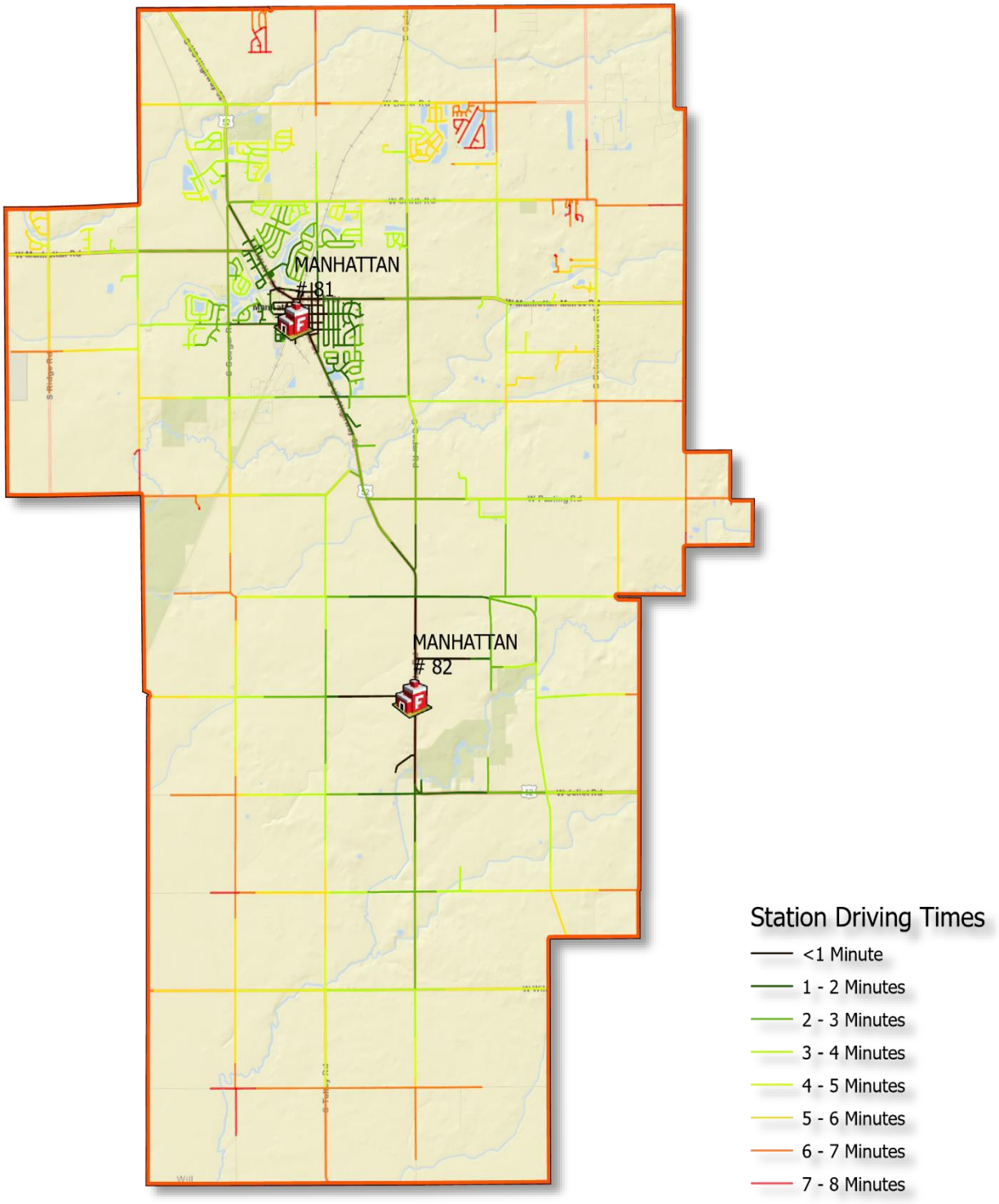
Incidents with 4-minute Travel Times



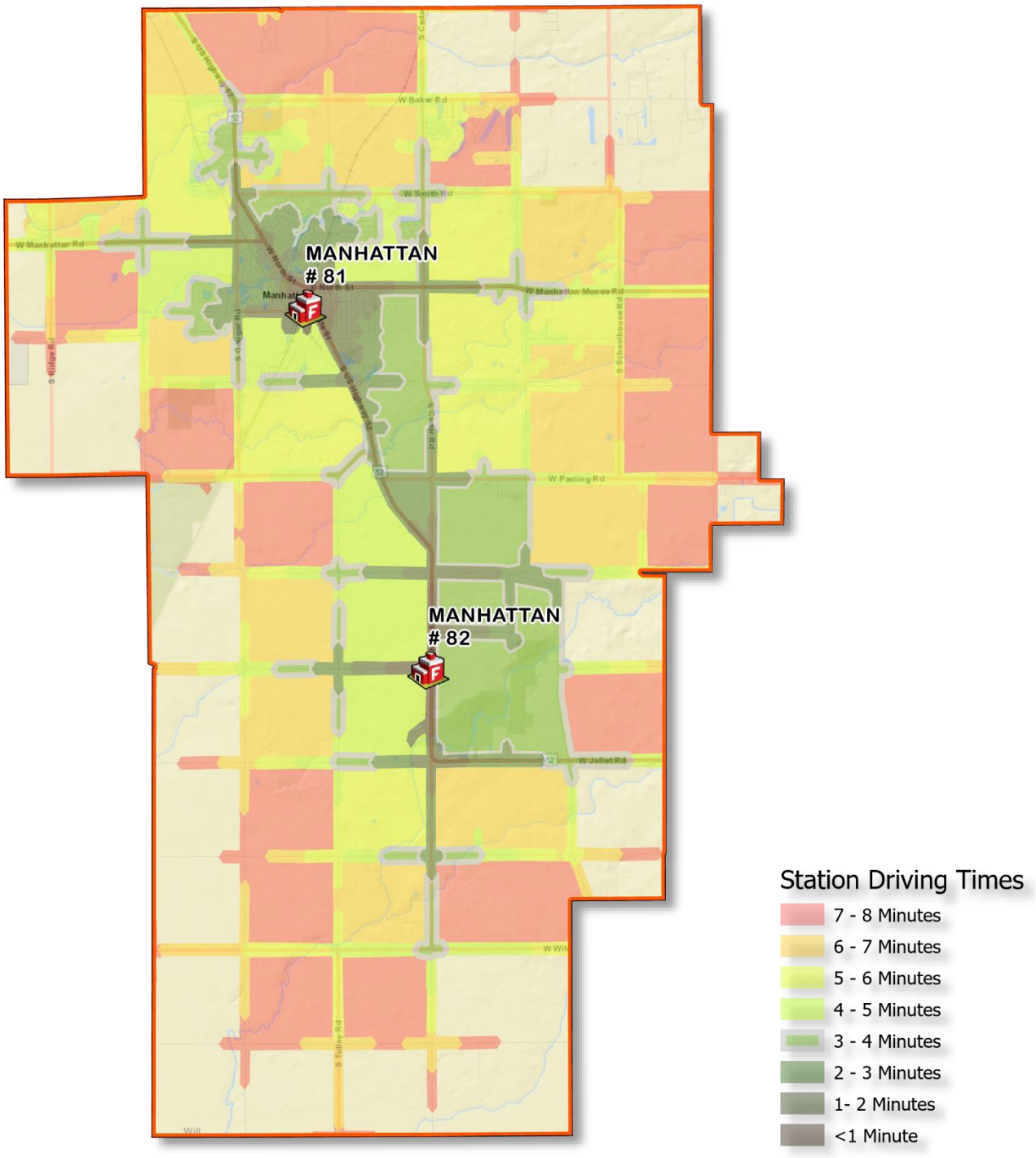
Incidents Heat Map with 4-minute Travel Times



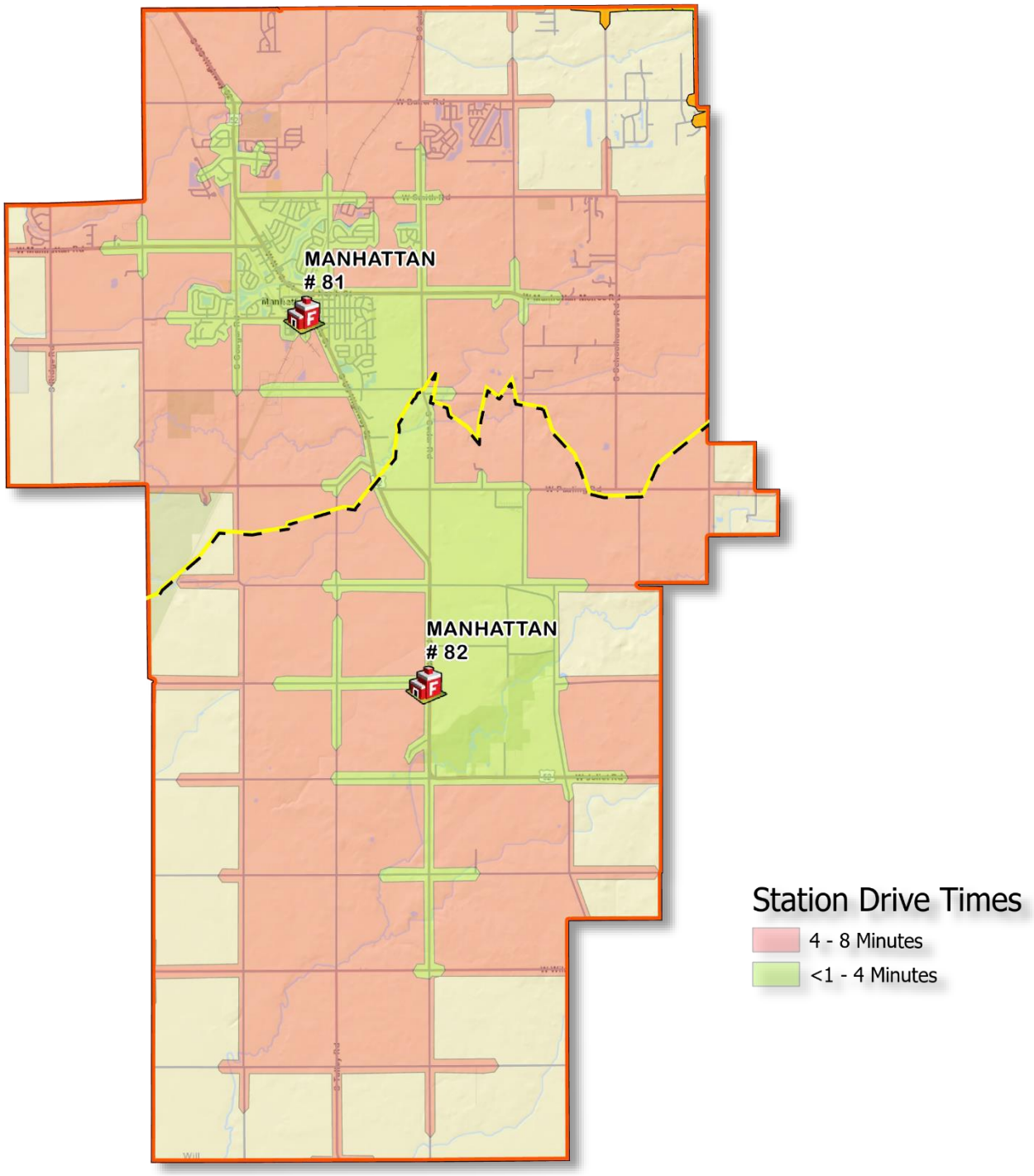
Streets Network



Drive Time by minute



Dynamic Still Districts

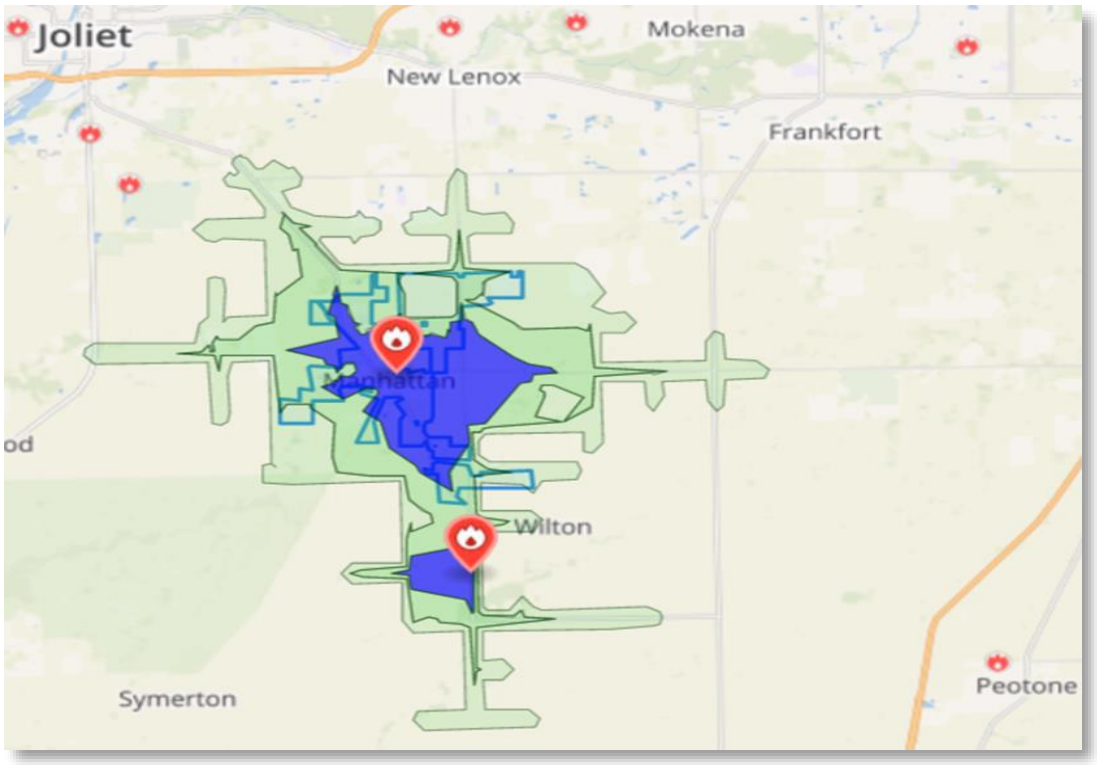


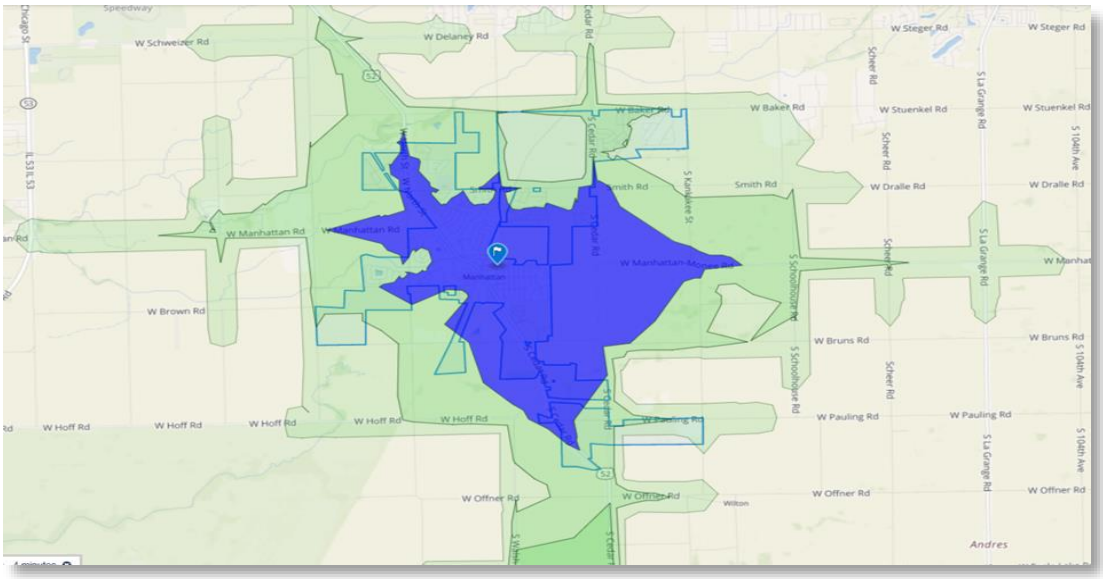
FireCares.org Map

A second source from **www.FireCares.org** verifies this GIS (Geographical Information System) data and mapping. Once the staff corrected and updated the information and data on this site, this source validates this study's efforts. It is available online for future reference as an excellent source.

"Travel" Service area from the Fire Stations [< 4 – 6 – 8 minute]

0-4 minutes – Blue
4-6 minutes – Dark Green
6-8 minutes – Light Green

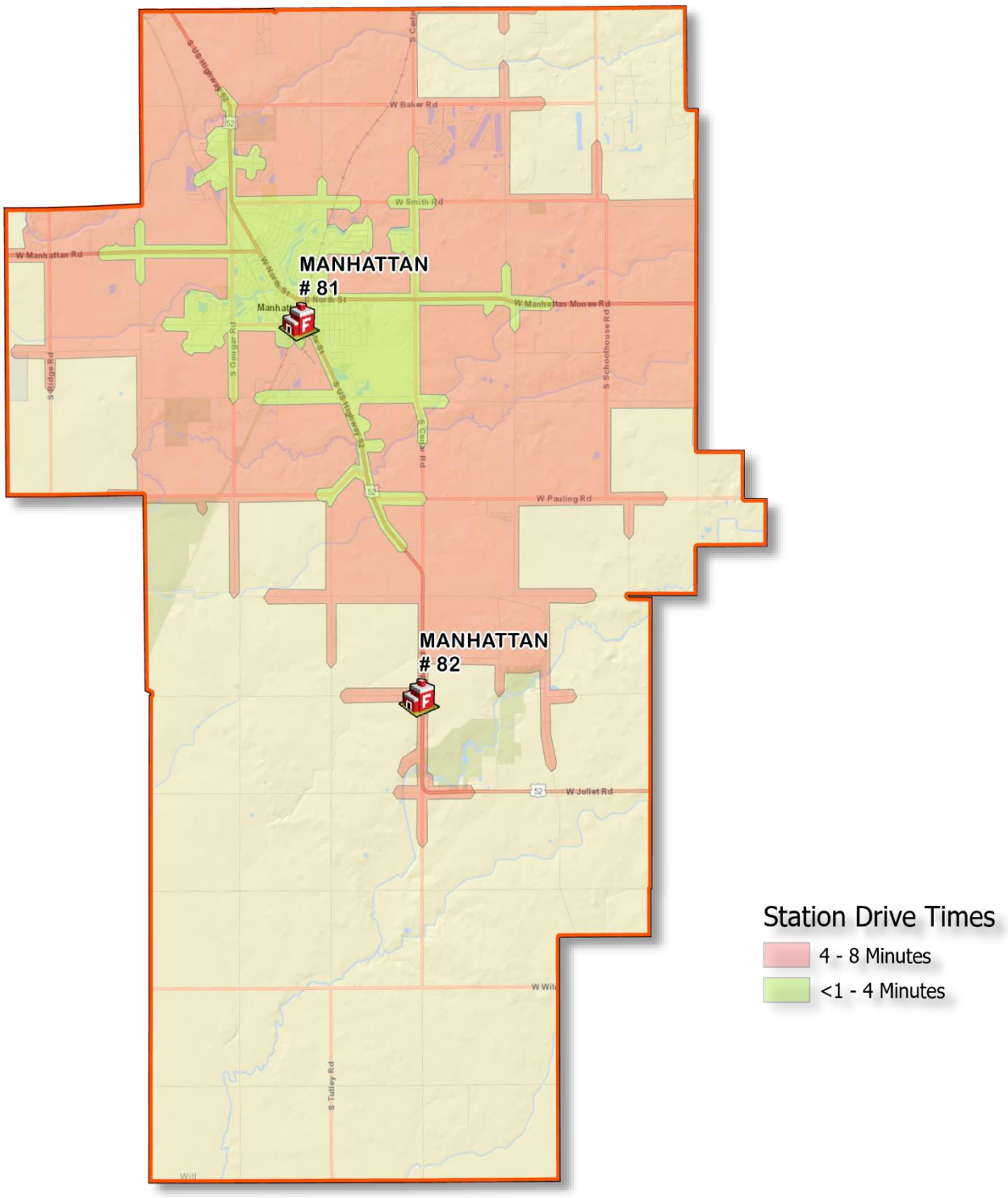




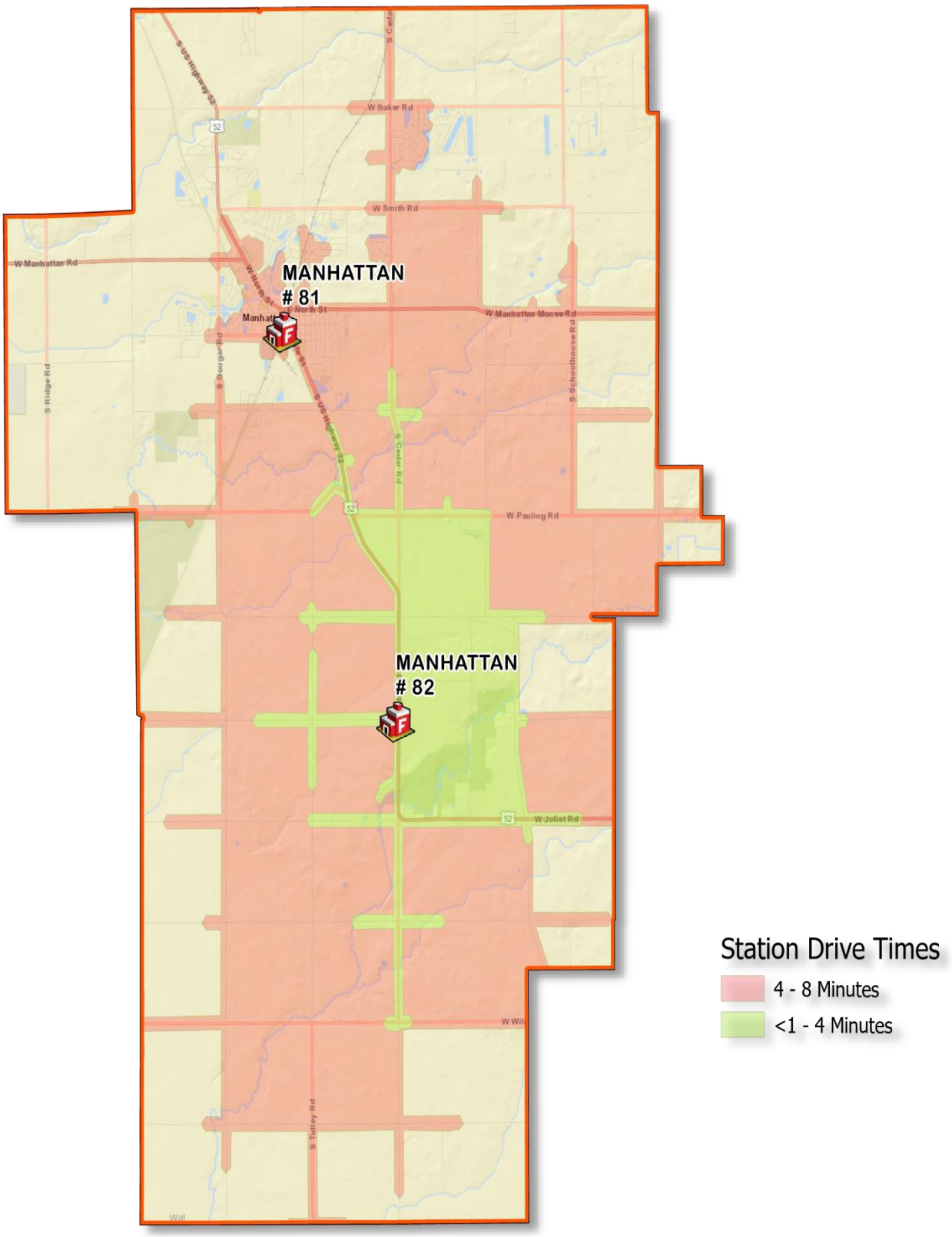
Per Station

4/8-min Coverage

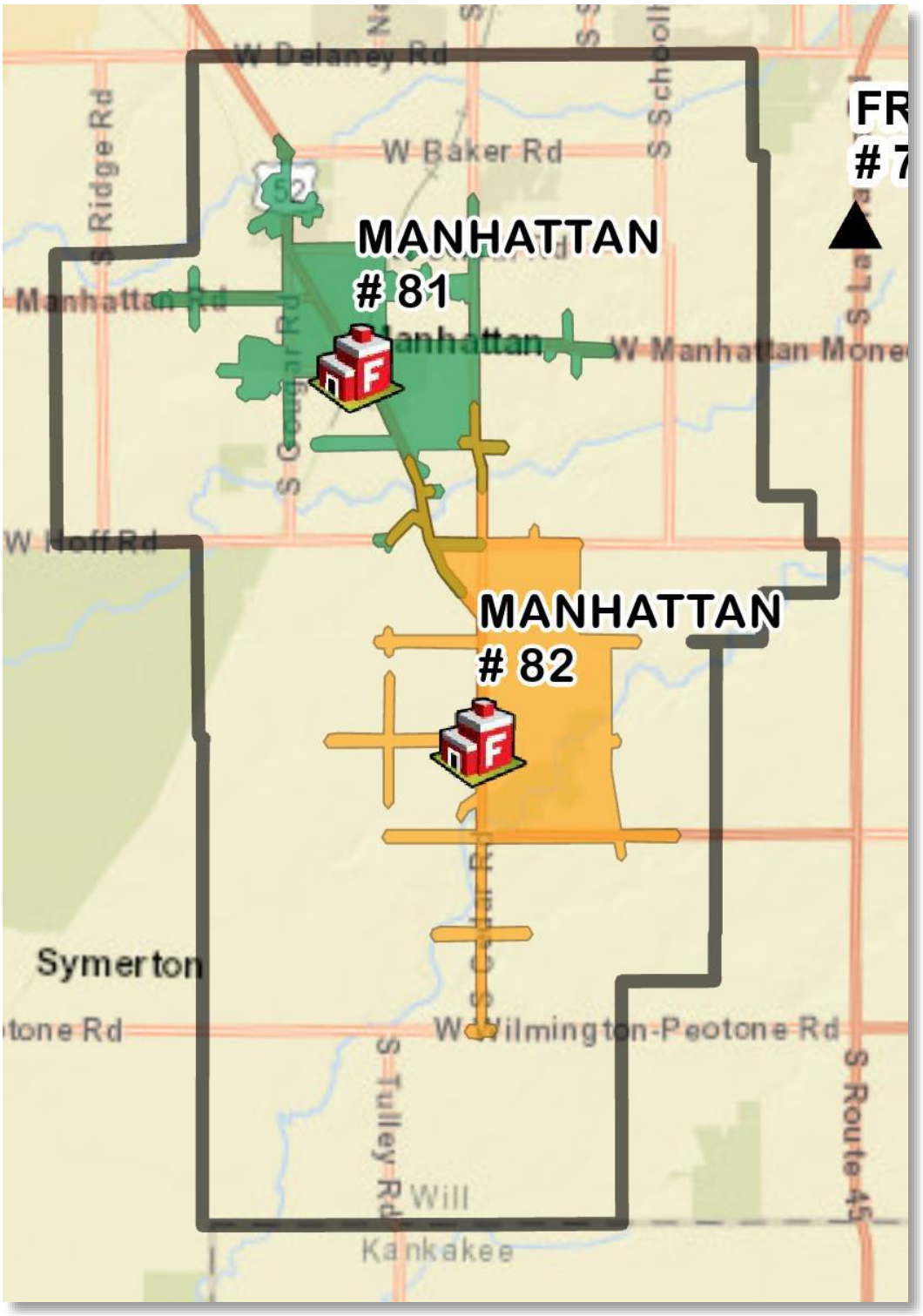
Station **81**

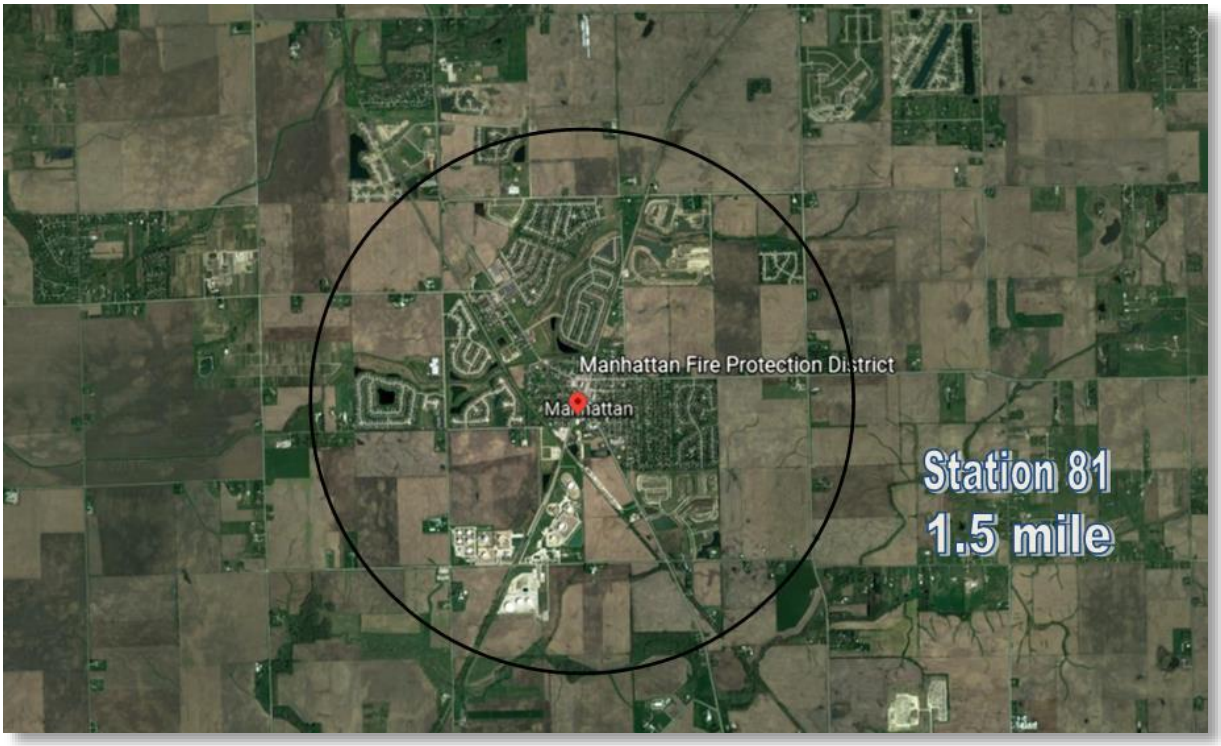


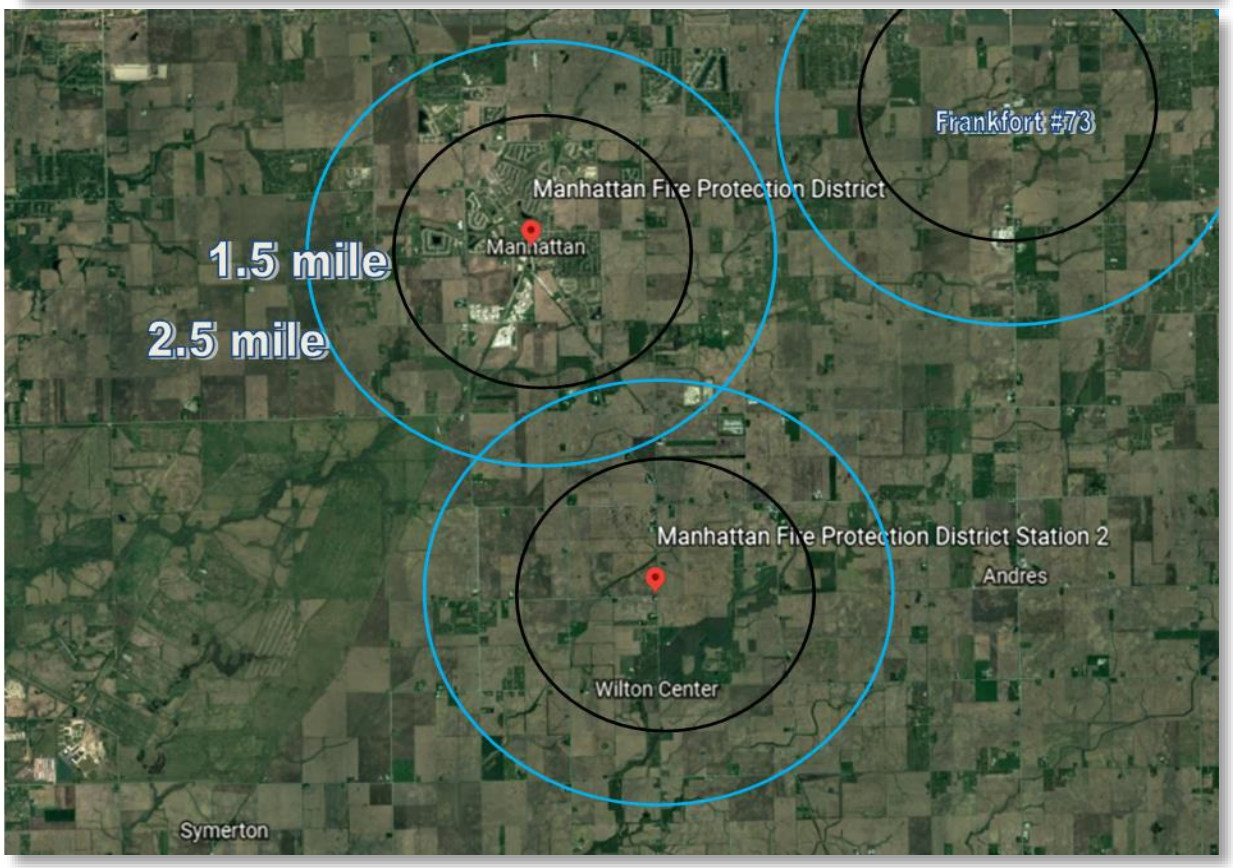
Station **82**


MANHATTAN
81
MANHATTAN
82
W Baker Rd
W Smith Rd
W Manhattan Rd
W Manhattan Monee Rd
W Pauling Rd
W Joliet Rd
S Ridge Rd
S Cedar Rd
S Schoolhouse Rd
S Tulley Rd
Station Drive Times
4 - 8 Minutes
<1 - 4 Minutes

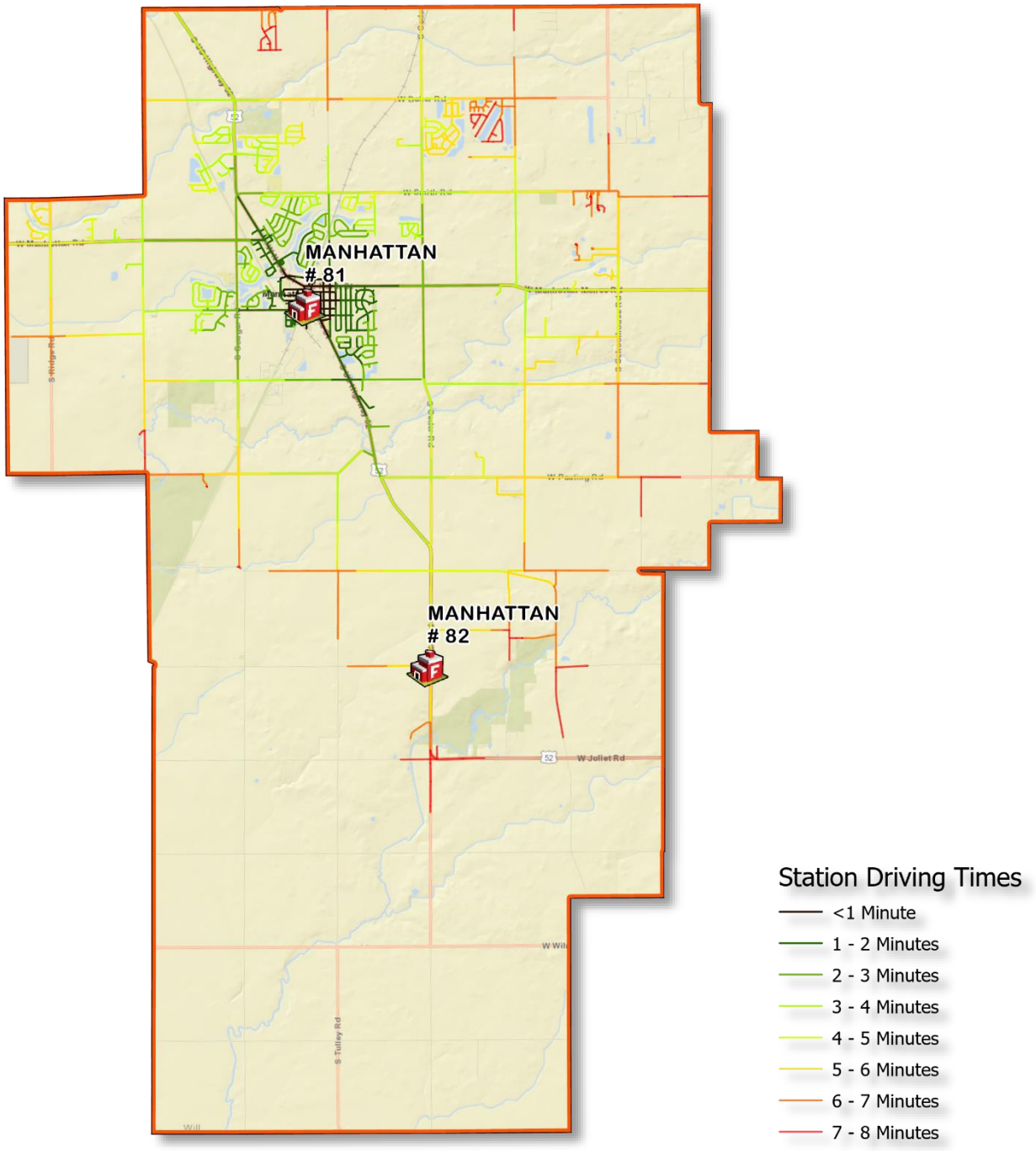
4-minute Travel Time Overlap



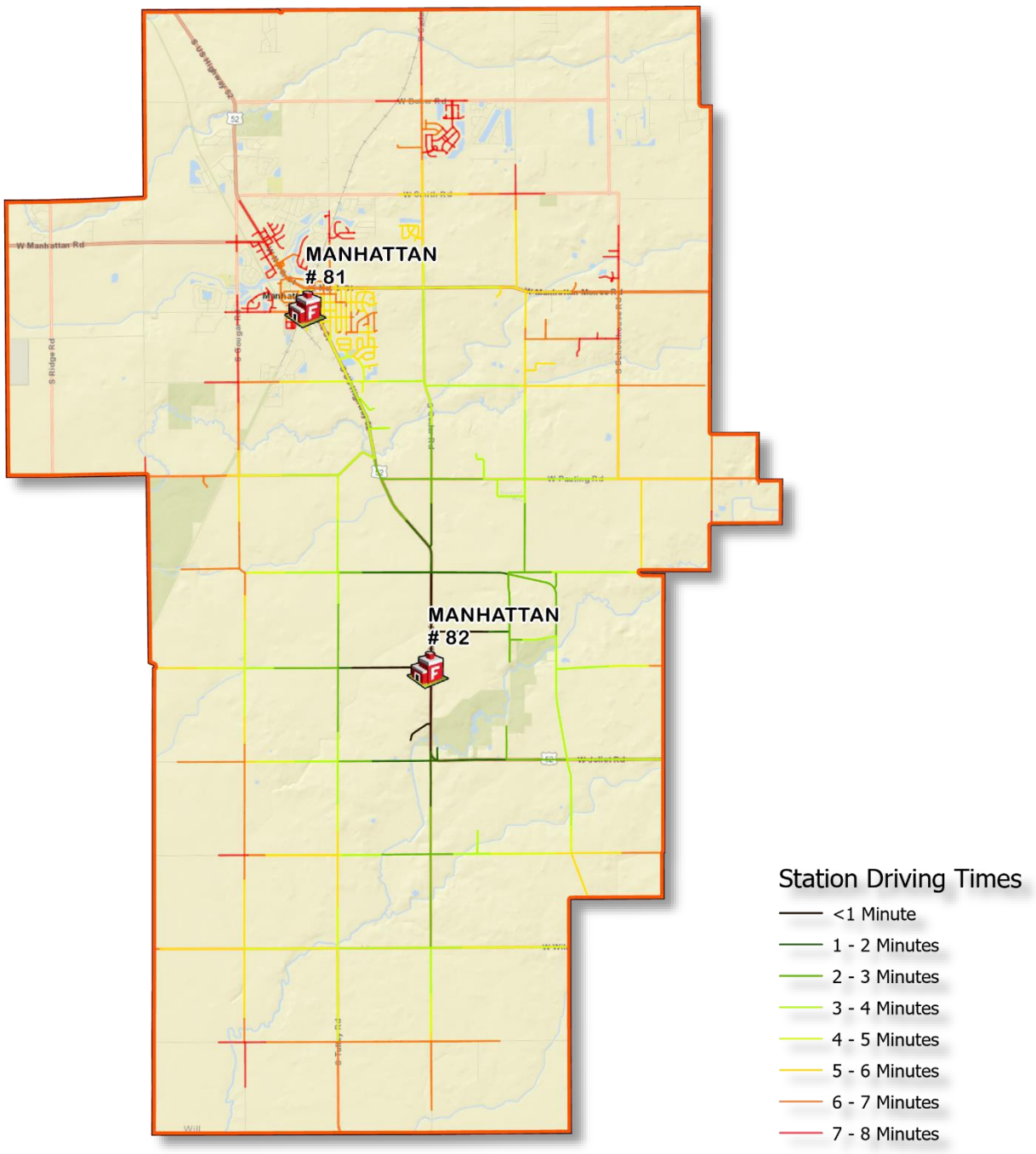

Manhattan Fire Protection District
Manhattan
Station 81
1.5 mile


Frankfort #73
Manhattan Fire Protection District
Manhattan
1.5 mile
2.5 mile
Manhattan Fire Protection District Station 2
Andres
Wilton Center
Symerton

Station **81**

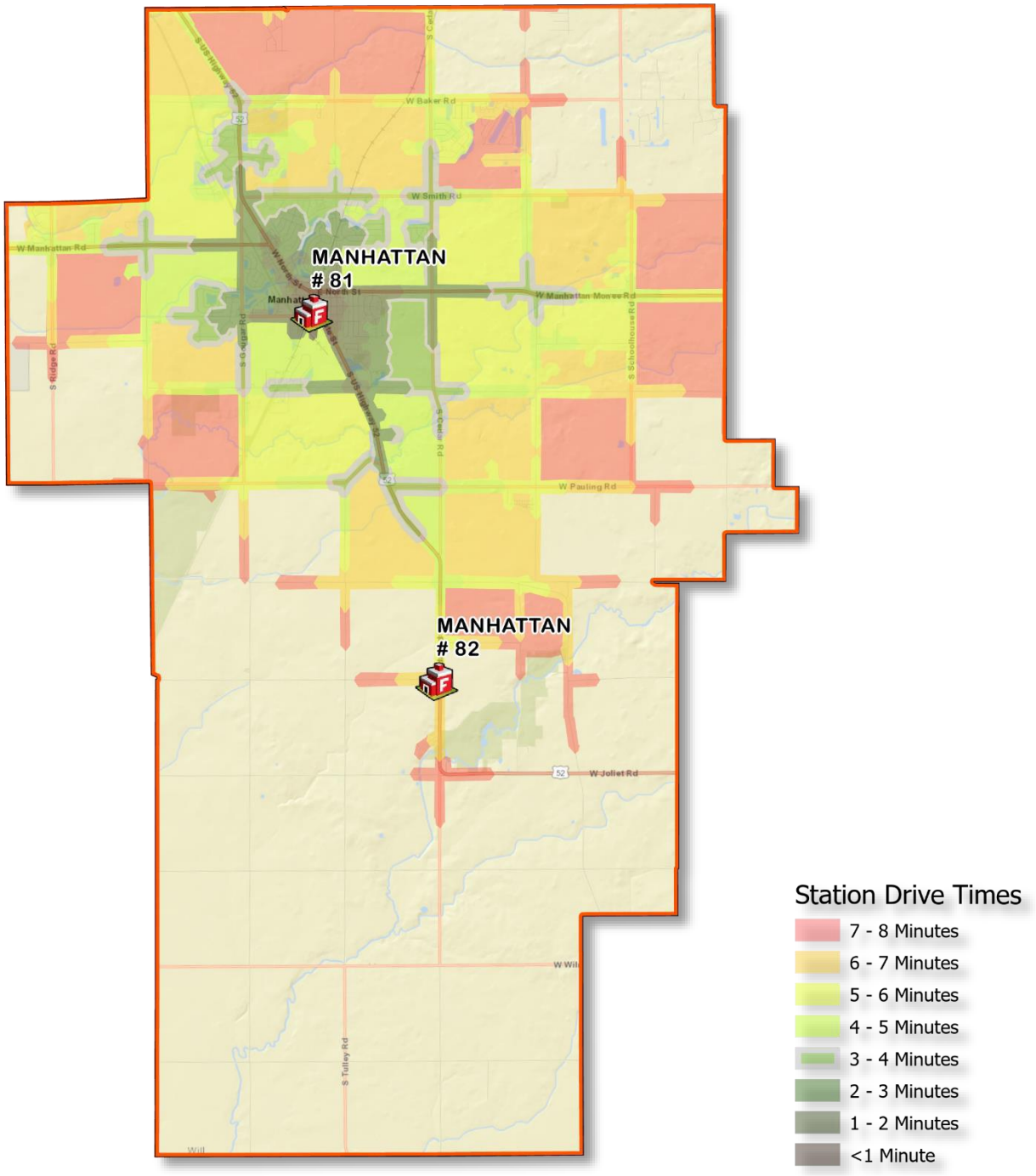

MANHATTAN
#-81
MANHATTAN
82
W Joliet Rd
Station Driving Times
<1 Minute
1 - 2 Minutes
2 - 3 Minutes
3 - 4 Minutes
4 - 5 Minutes
5 - 6 Minutes
6 - 7 Minutes
7 - 8 Minutes

Station **82**

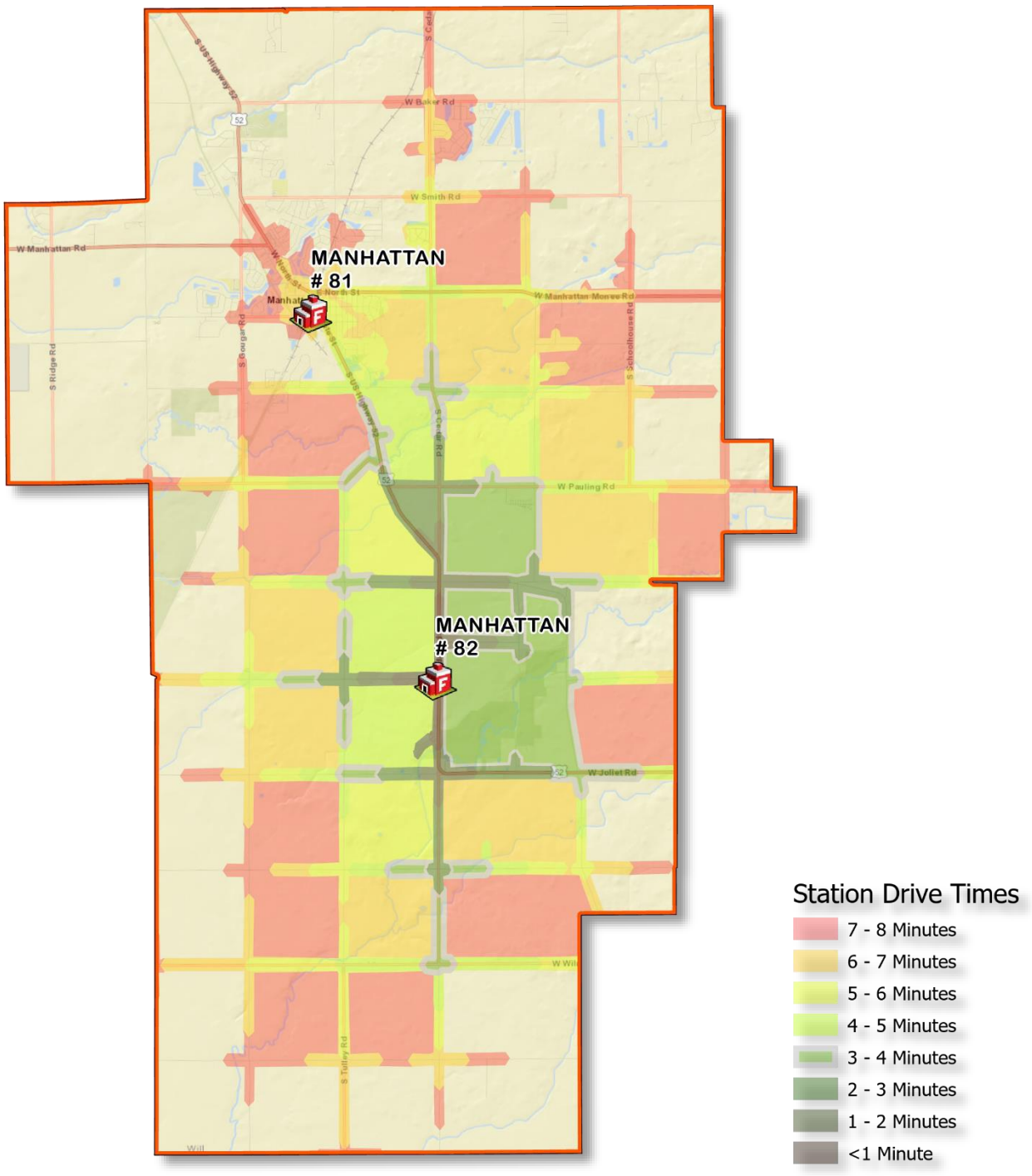

MANHATTAN
81
MANHATTAN
82
Station Driving Times
<1 Minute
1 - 2 Minutes
2 - 3 Minutes
3 - 4 Minutes
4 - 5 Minutes
5 - 6 Minutes
6 - 7 Minutes
7 - 8 Minutes

Drive Time by minute

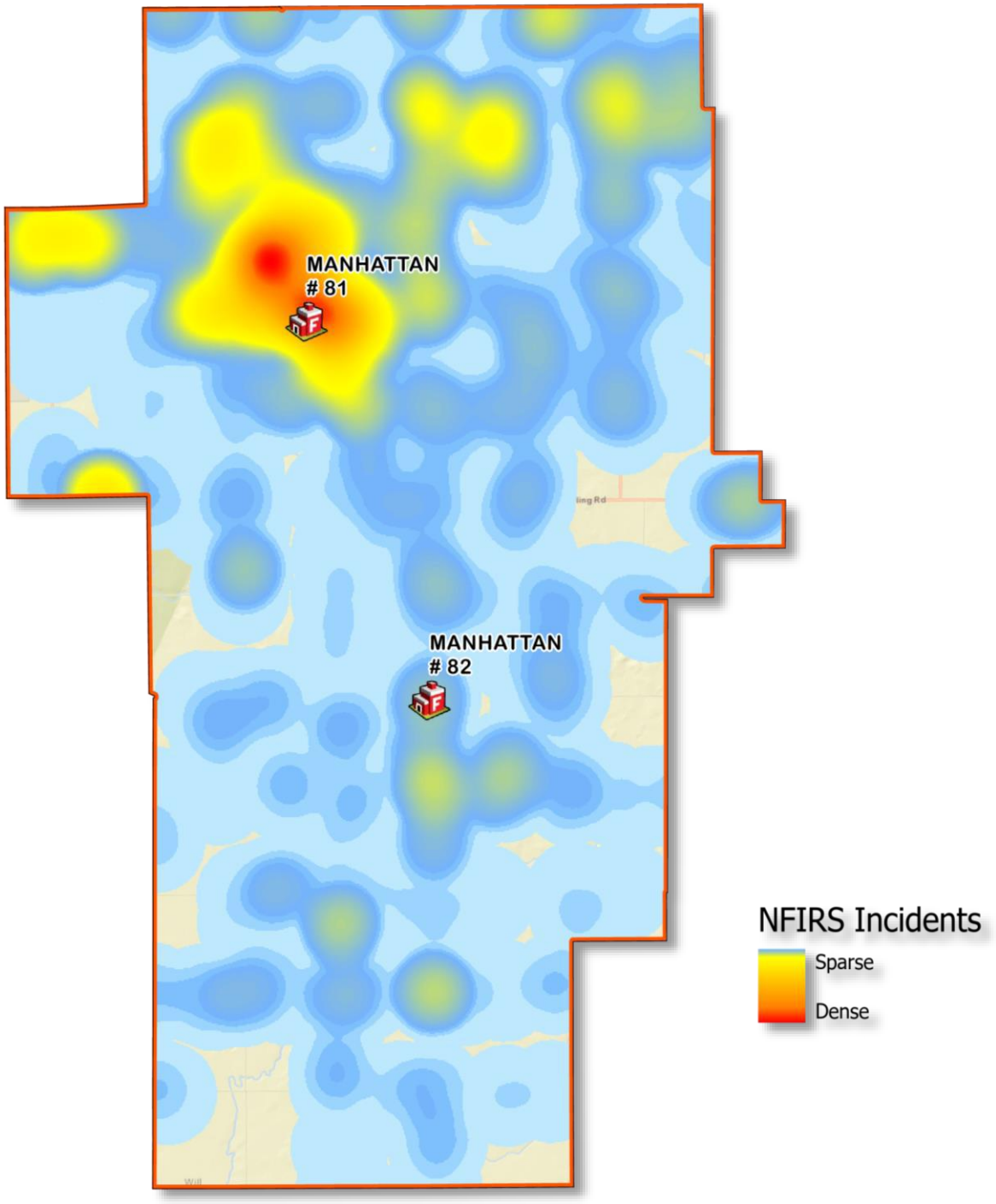
Station **81**



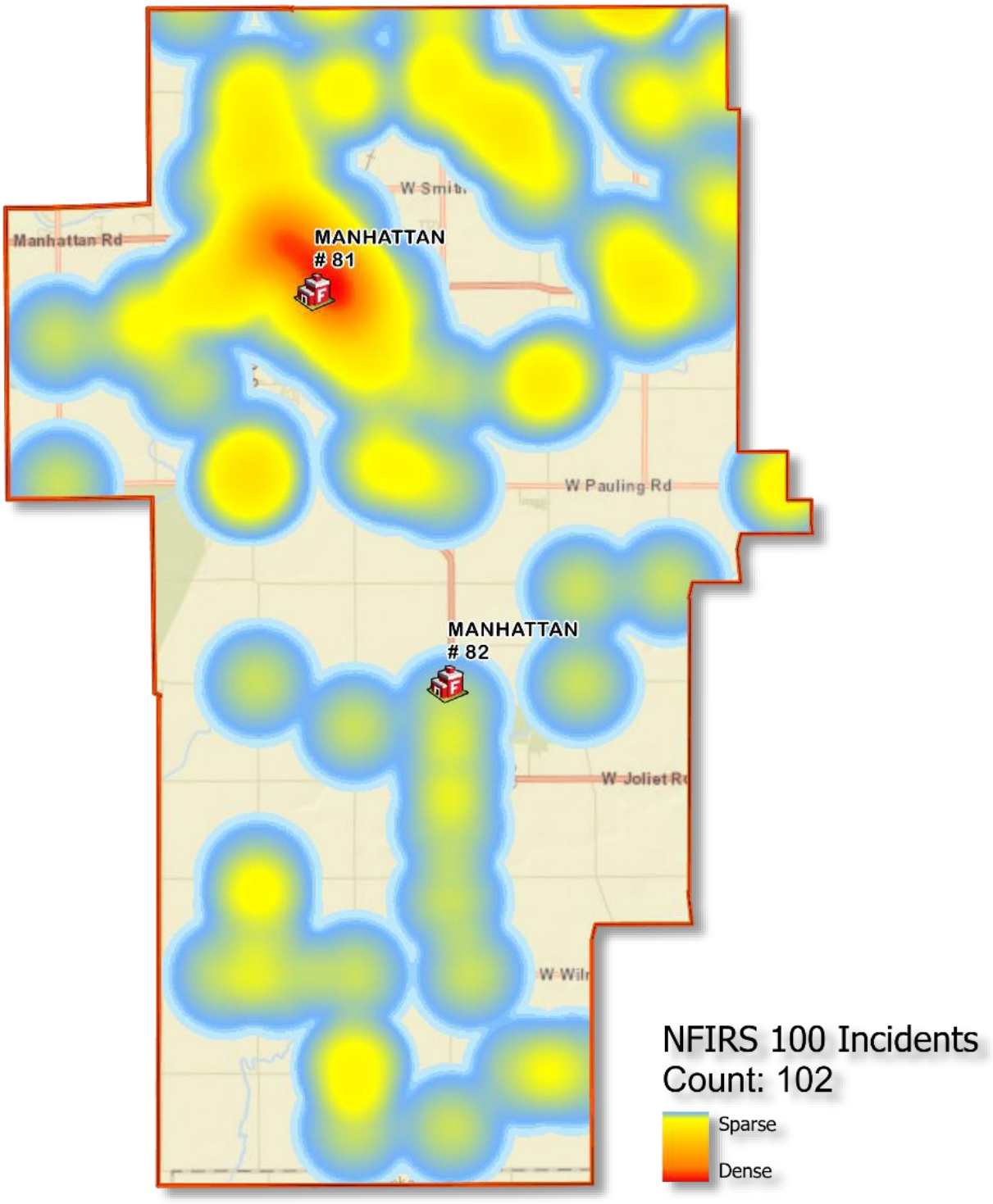
Station **82**


MANHATTAN
81
MANHATTAN
82
W Baker Rd
W Smith Rd
W Manhattan Rd
W Manhattan Monee Rd
W Pauling Rd
W Joliet Rd
S Ridge Rd
S Borgard Rd
S Schoolhouse Rd
S Center Rd
S Tolley Rd
Station Drive Times
7 - 8 Minutes
6 - 7 Minutes
5 - 6 Minutes
4 - 5 Minutes
3 - 4 Minutes
2 - 3 Minutes
1 - 2 Minutes
<1 Minute

NFIRS Type Coded [100-900] Incident Frequency (Heat Maps)

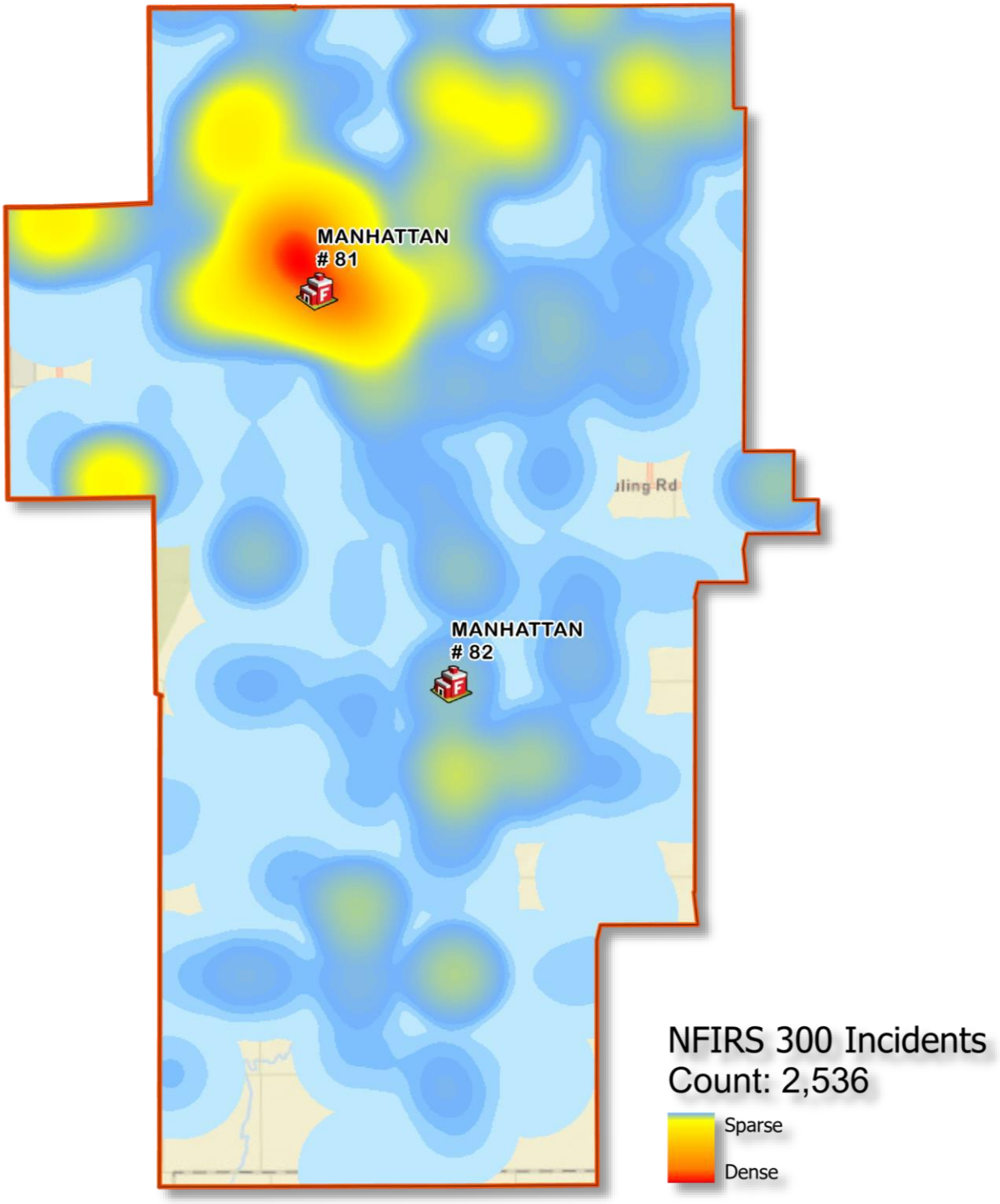


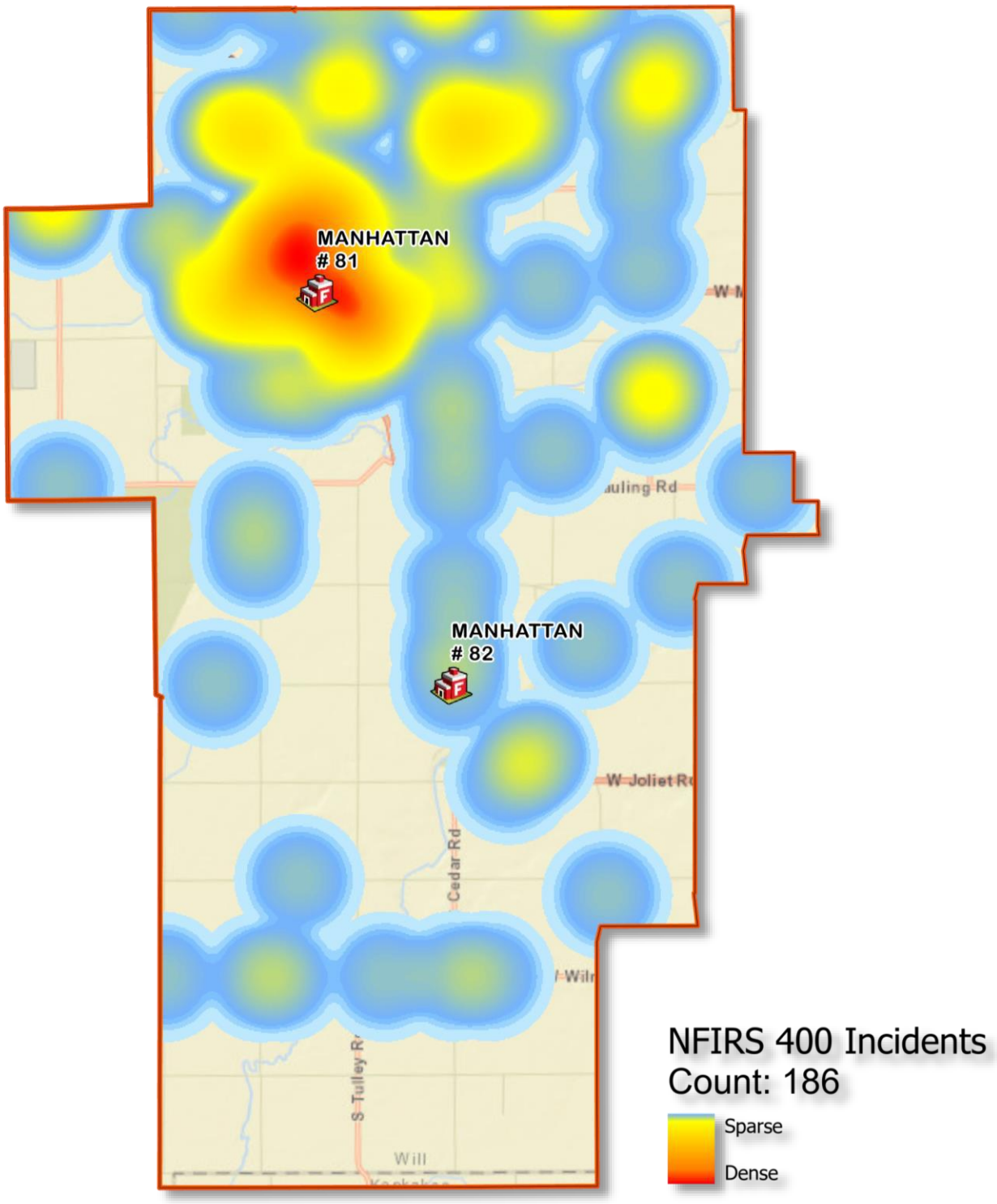
NFIRS 100 – FIRES

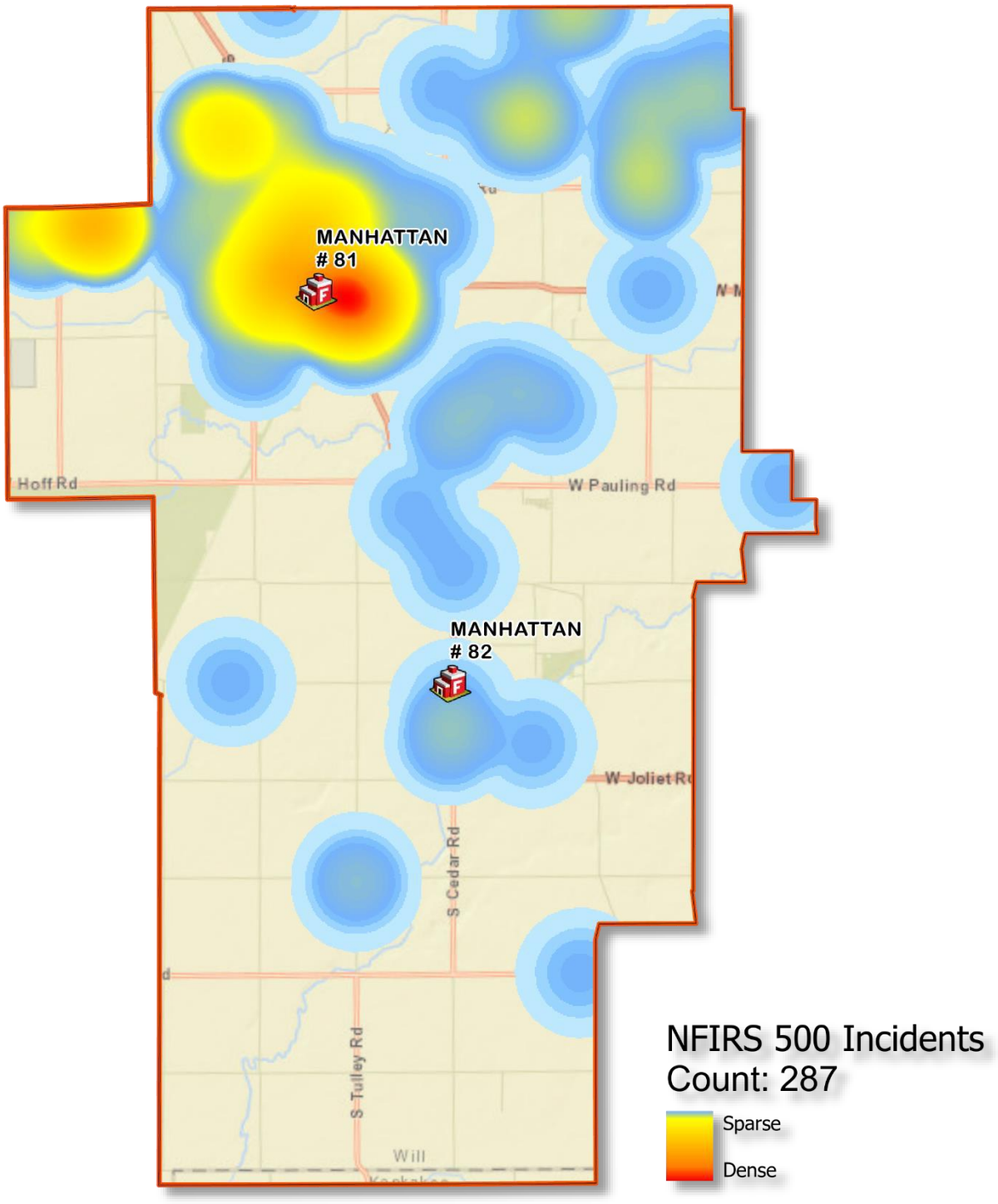


NFIRS 200 – OVERHEAT/OVERPRESSURE

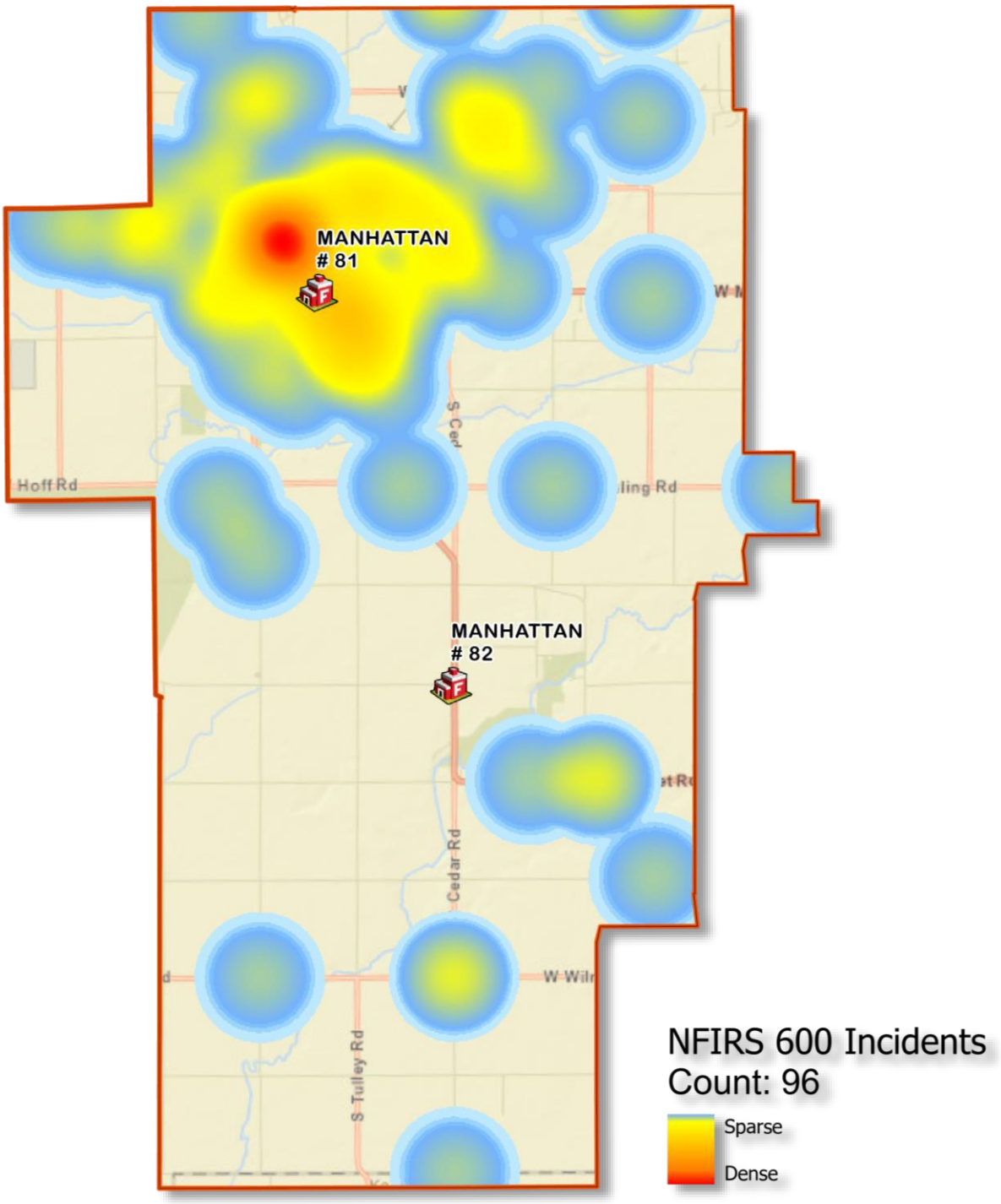
No Incidents reported


MANHATTAN
81
MANHATTAN
82
NFIRS 300 Incidents
Count: 2,536
Sparse
Dense

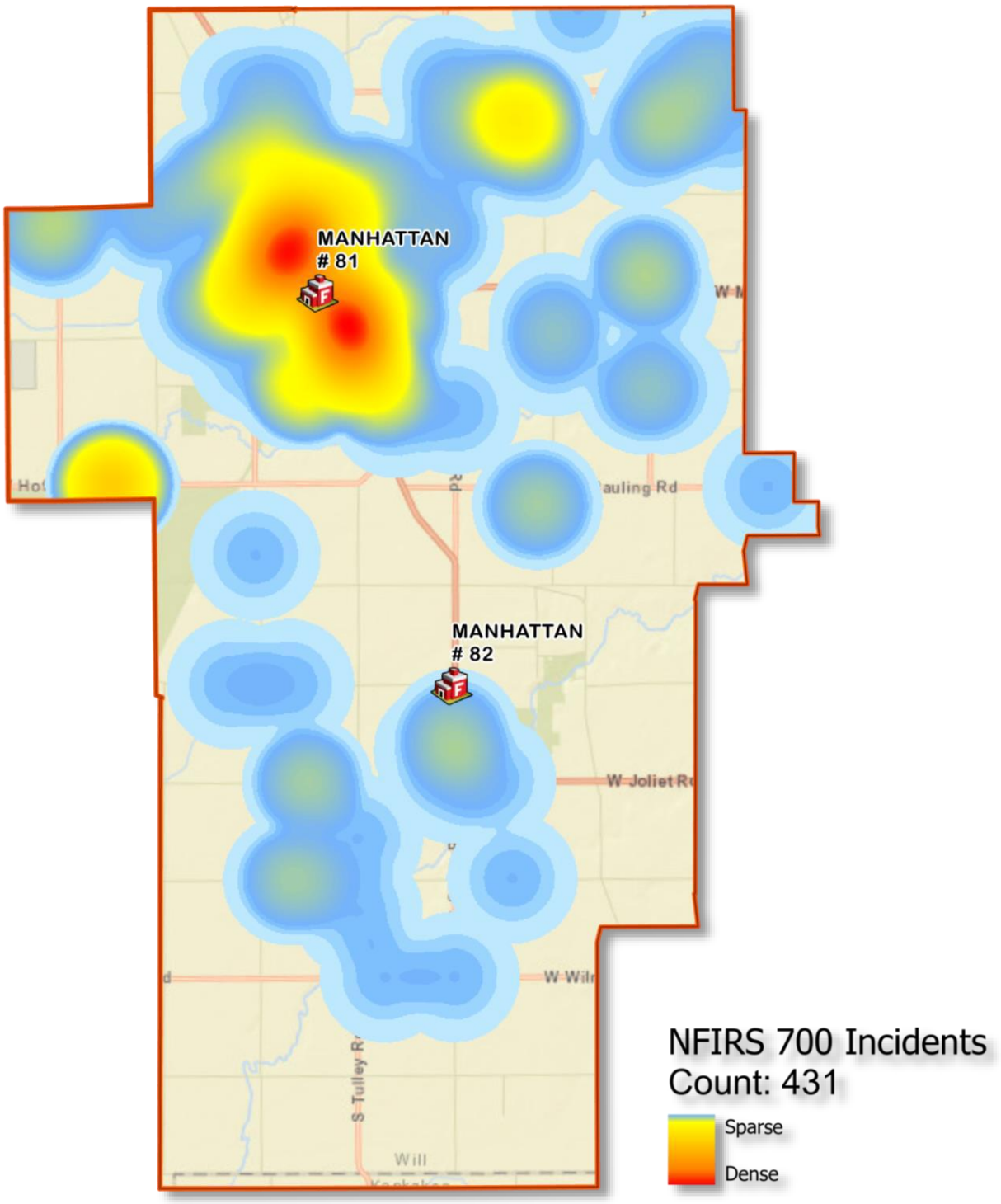

MANHATTAN
81
MANHATTAN
82
W Joliet Rd
Cedar Rd
S Tulley Rd
Will
NFIRS 400 Incidents
Count: 186
Sparse
Dense


MANHATTAN
81
MANHATTAN
82
Hoff Rd
W Pauling Rd
W Joliet Rd
S Cedar Rd
S Tulley Rd
Will
NFIRS 500 Incidents
Count: 287
Sparse
Dense

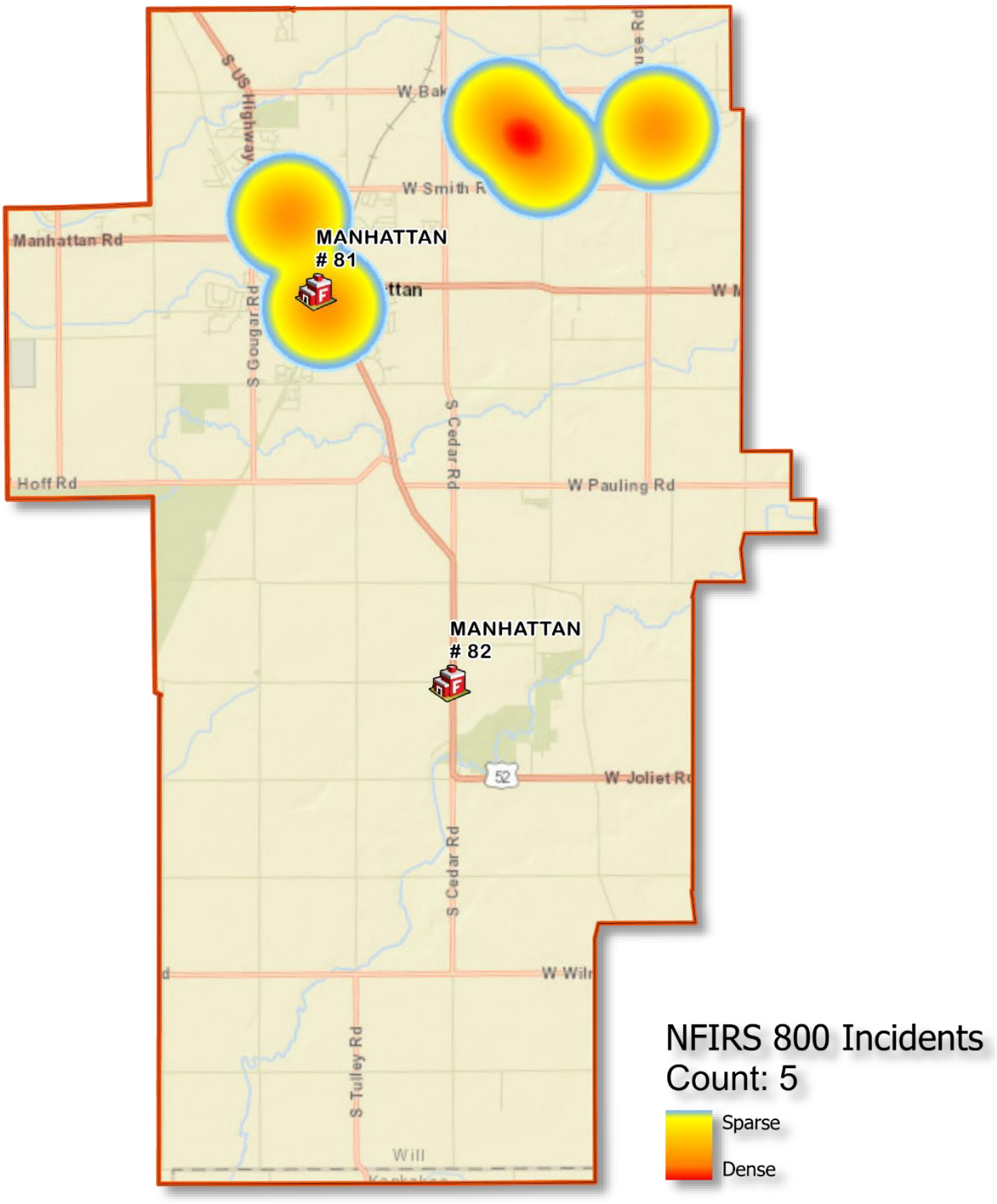
NFIRS 600 – CANCELED/GOOD INTENT

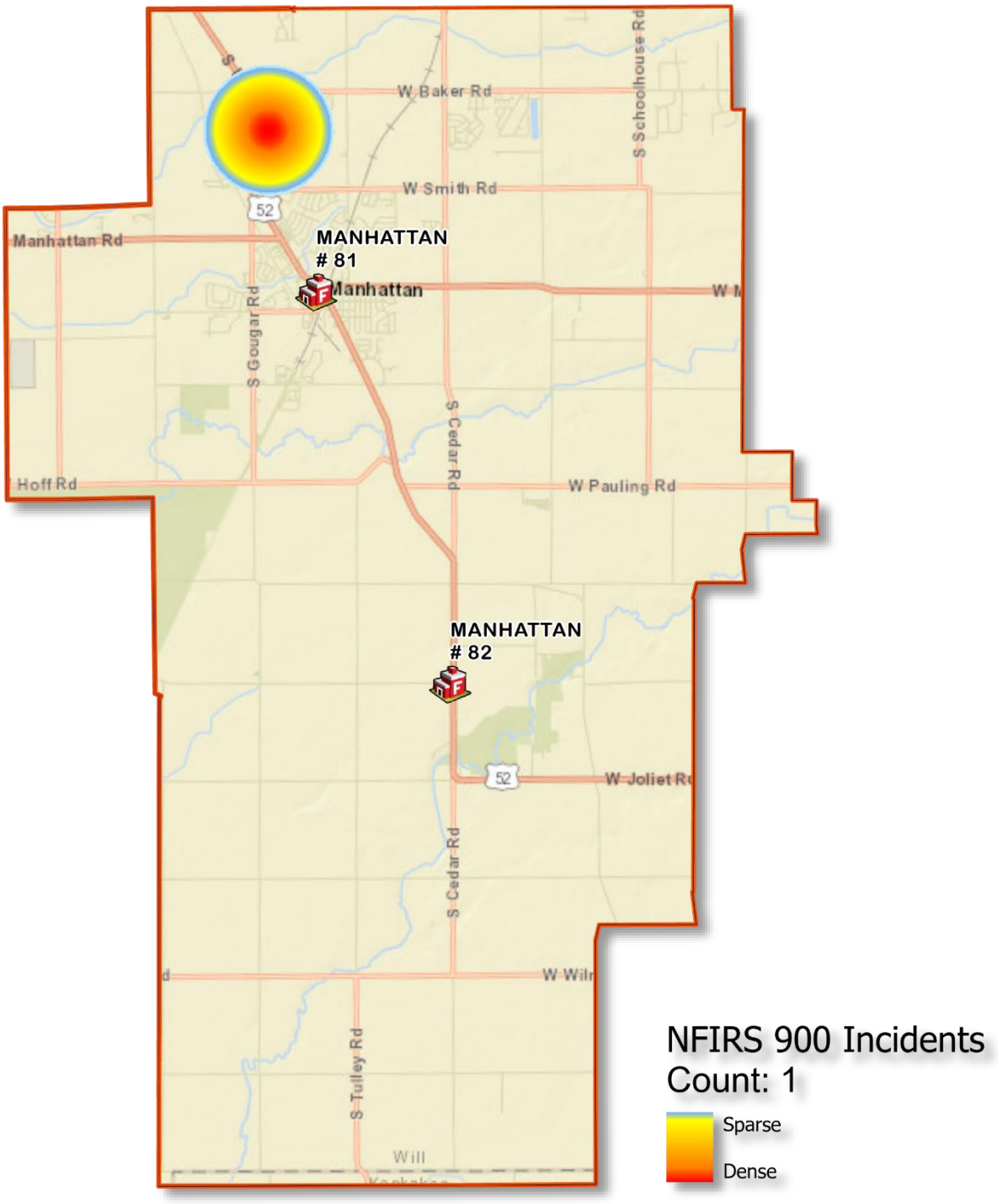


NFIRS 700 – FALSE ALARM



NFIRS 800 – SEVERE WEATHER




W Baker Rd
S Schoolhouse Rd
W Smith Rd
52
Manhattan Rd
MANHATTAN
81
Manhattan
S Gougar Rd
S Cedar Rd
Hoff Rd
W Pauling Rd
MANHATTAN
82
52
W Joliet Rd
S Cedar Rd
S Tulley Rd
Will
NFIRS 900 Incidents
Count: 1
Sparse
Dense

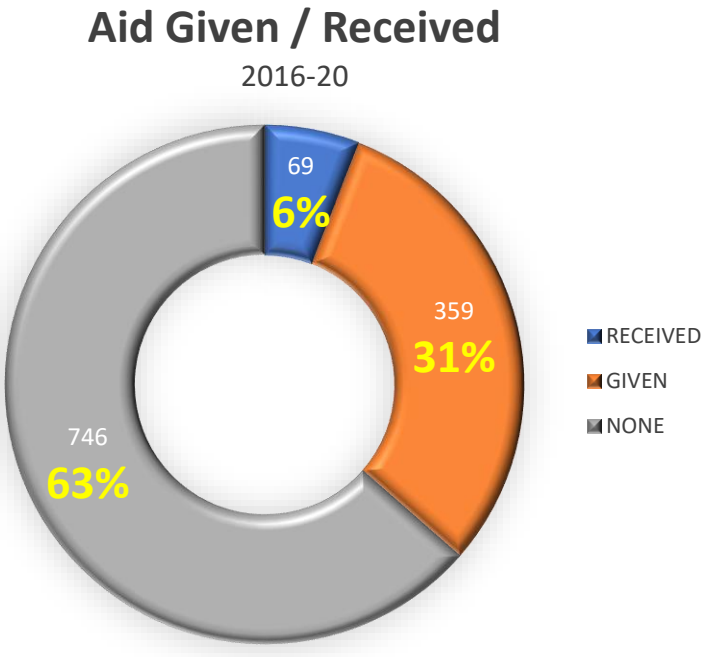
WHERE - Jurisdictions (Aid Agreements)

Aid

Incidents: Count - Year by Aid Type

There are 5,877 Incident records being analyzed.

	2016	2017	2018	2019	2020	Totals	*Average*	% of Inc
1 Received	23	17	27	16	66	**149**	30	
2 Automatic Aid Received	49	52	46	42	9	**198**	40	
Received	**72**	**69**	**73**	**58**	**75**	**347**	**69**	**5.9%**
Change over previous		-3	4	-15	17			
		-4%	***6%***	***-21%***	***29%***			
3 Given	238	266	215	251	342	**1,312**	262	
4 Automatic Aid Given	88	129	106	131	29	**483**	97	
Given	**326**	**395**	**321**	**382**	**371**	**1795**	**359**	**30.6%**
Change over previous		69	-74	61	-11			
		21%	***-19%***	***19%***	***-3%***			
None	**706**	**642**	**746**	**796**	**842**	**3,732**	**746**	**63.5%**
Totals	**1,104**	**1,106**	**1,140**	**1,236**	**1,288**	**5,874**	1,175	

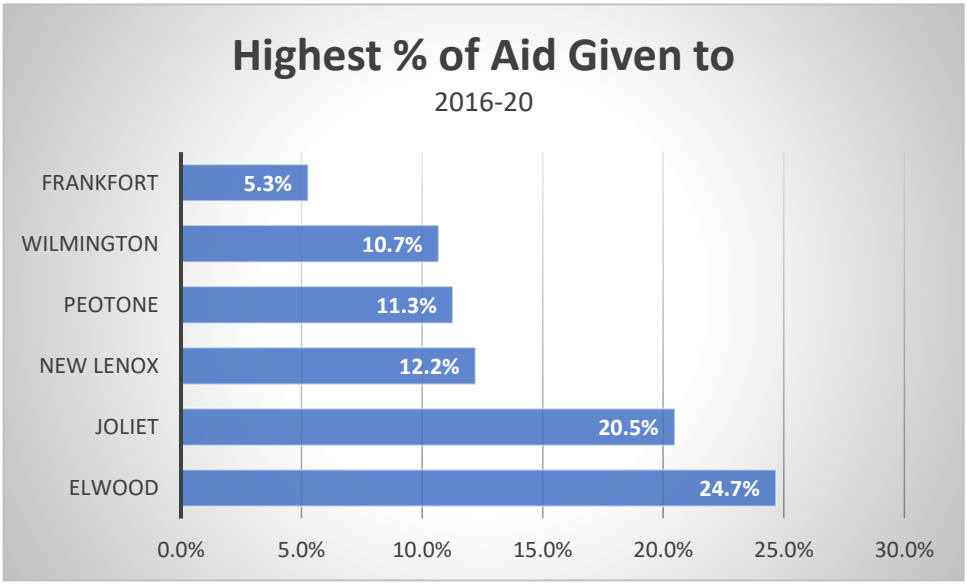


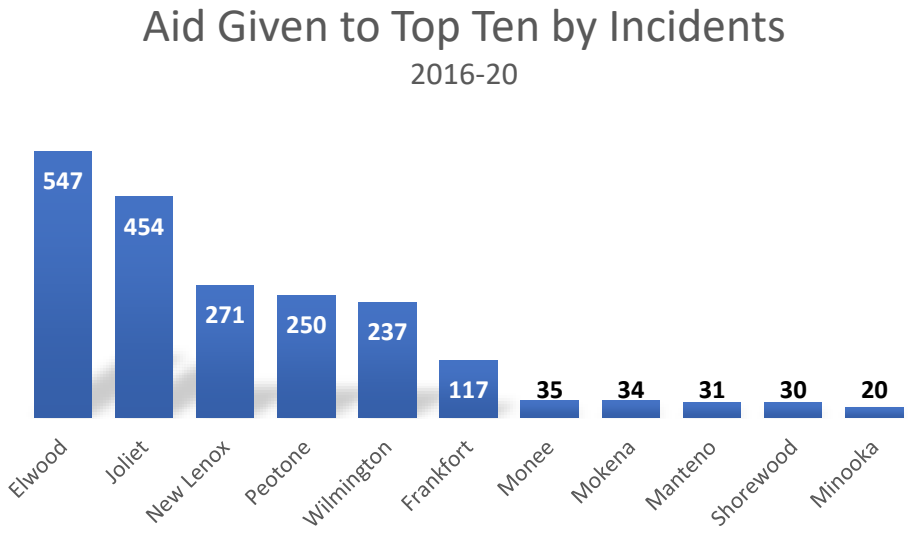
31% of the incidents occur outside of the District

Incidents: Count - Year by City

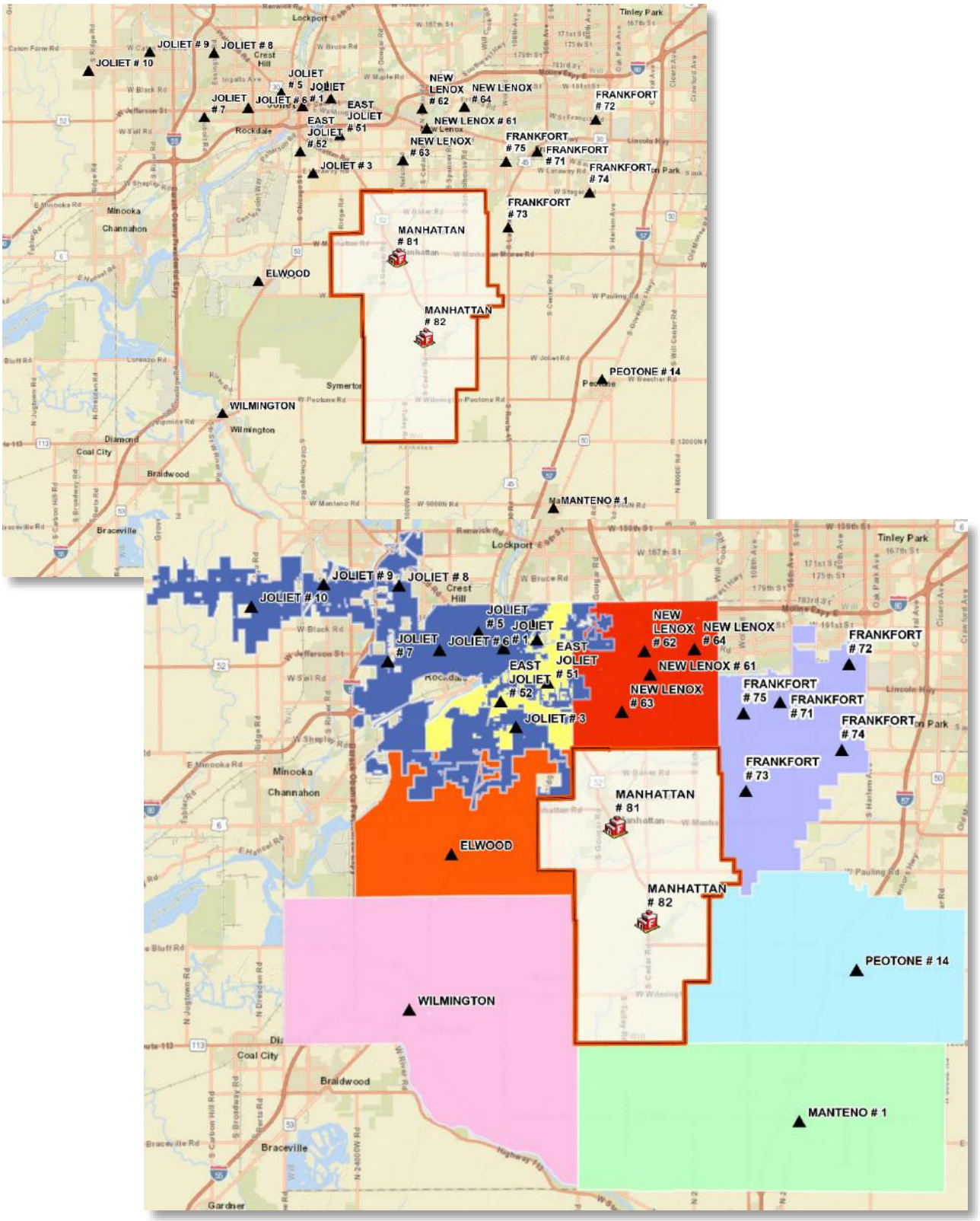
There are 5,877 Incident records being analyzed.

	2016	2017	2018	2019	2020	Totals	Average	% of Inc	
Manhattan	*671*	*643*	*749*	*764*	*812*	***3,524***	*728*		
Elwood	126	93	94	125	115	**547**	111	**24.7%**	
East Joliet	87	100	92	95	82	**454**	91	**20.5%**	
New Lenox	52	46	53	64	57	**271**	54	**12.2%**	
Peotone	31	38	38	57	90	**250**	51	**11.3%**	
Wilmington	50	57	31	51	54	**237**	49	**10.7%**	
Frankfort	21	43	20	20	13	**117**	23	**5.3%**	**84.6%**
Monee	6	13	4	7	5	**35**	7	1.6%	
Mokena	8	13	6	3	4	**34**	7	1.5%	
Manteno	9	3	8	5	6	**31**	6	1.4%	
Shorewood	8	10	7	2	3	**30**	6	1.4%	**90.5%**
Minooka	1	6	2	7	4	**20**	4	0.9%	
Richton Park	1	1	9	2	6	**19**	4	0.9%	
Braidwood	1	3	3	5	3	**15**	3	0.7%	
Morris	1	3	2	6	2	**14**	3	0.6%	
Kankakee	3	3	3	3	1	**13**	3	0.6%	
Coal City	5	1	1	4	2	**13**	3	0.6%	
Homer Glen	4	3	3		1	**11**	3	0.5%	
Channahon		3	3		5	**11**	4	0.5%	
Rockdale	1	3	2	2	3	**10**	2	0.5%	
Bourbonais	1	3	2	2	2	**10**	2	0.5%	
University Park	4	1		4		**9**	3	0.4%	
Lockport	1	1	1	1	3	**7**	1	0.3%	
Palos Heights	4	2				**6**	3	0.3%	
Orland Park	1		2	1	1	**5**	1	0.2%	
Beecher	1		1	2	1	**5**	1	0.2%	
Wilton Center					4	**4**	4	0.2%	
Palos Park	1	3				**4**	2	0.2%	
Lemont		3			1	**4**	2	0.2%	
Grant Park			2		2	**4**	2	0.2%	
Custer Park				2	1	**3**	2	0.1%	
Braceville			1		2	**3**	2	0.1%	
Romeoville		1			1	**2**	1	0.1%	
Oak Forest		2				**2**	2	0.1%	
Harvey		2				**2**	2	0.1%	
Woodridge	1					**1**	1	0.0%	
Willow Springs	1					**1**	1	0.0%	
Symerton					1	**1**	1	0.0%	
Verona				1		**1**	1	0.0%	
Sauk Village					1	**1**	1	0.0%	
Plainfield	1					**1**	1	0.0%	
Pembrook		1			1	**1**	1	0.0%	
Midlothian		1				**1**	1	0.0%	
Herscher				1		**1**	1	0.0%	
Gardner	1					**1**	1	0.0%	
Flossmoor			1			**1**	1	0.0%	
Crete		1				**1**	1	0.0%	
Bradley					1	**1**	1	0.0%	
Bonfield	1					**1**	1	0.0%	
Andres					1	**1**	1	0.0%	
Aid Given	**433**	**463**	**391**	**472**	**479**	**2,217**	448	100.0%	
Change over the previous		30	-72	81	7				
		7%	*-16%*	*21%*	*1%*				

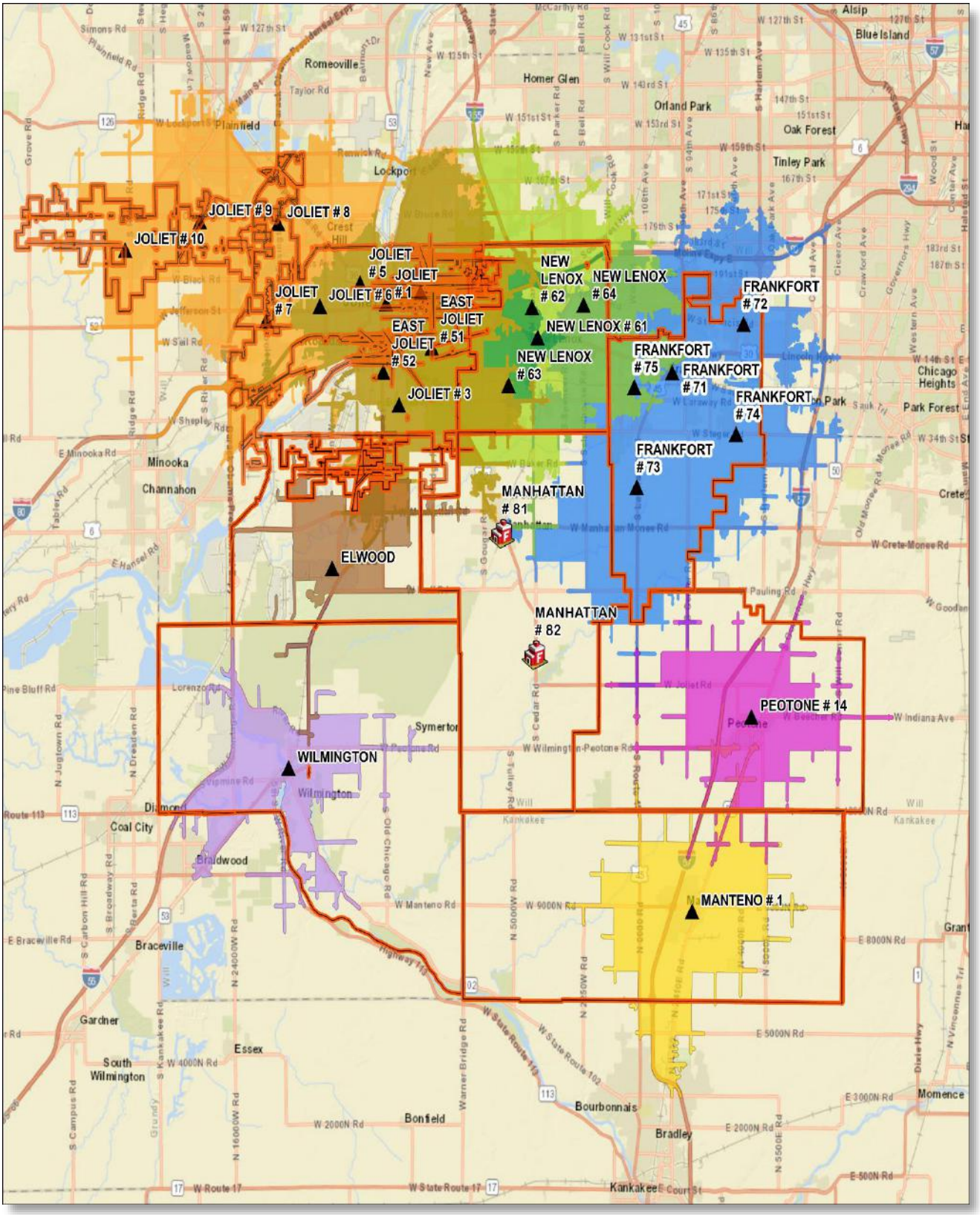

Highest % of Aid Given to
2016-20
FRANKFORT
WILMINGTON
PEOTONE
NEW LENOX
JOLIET
ELWOOD
5.3%
10.7%
11.3%
12.2%
20.5%
24.7%
0.0%
5.0%
10.0%
15.0%
20.0%
25.0%
30.0%


Aid Given to Top Ten by Incidents
2016-20
547
454
271
250
237
117
35
34
31
30
20
Elwood
Joliet
New Lenox
Peotone
Wilmington
Frankfort
Monee
Mokena
Manteno
Shorewood
Minooka

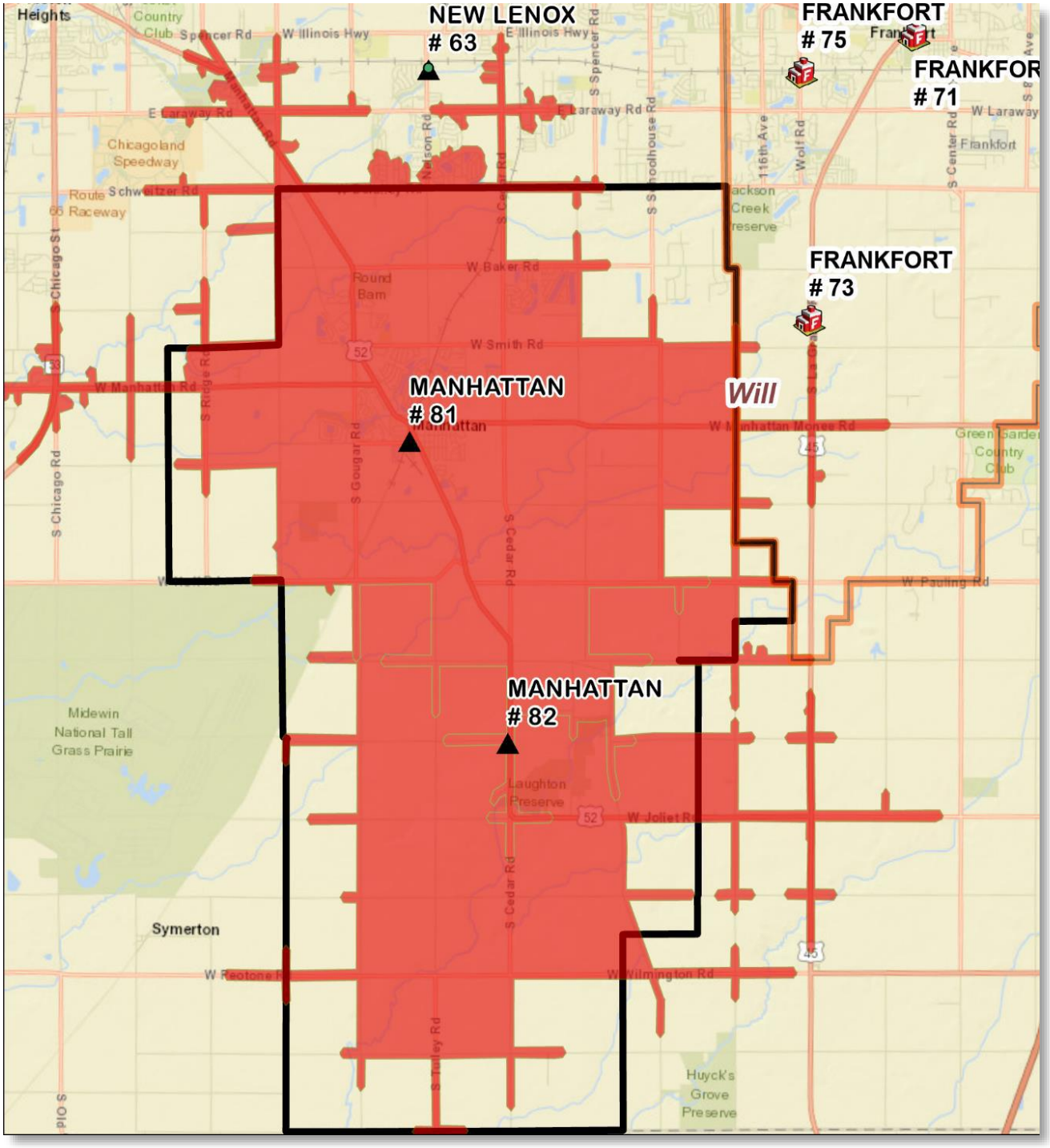
Surrounding Fire Districts

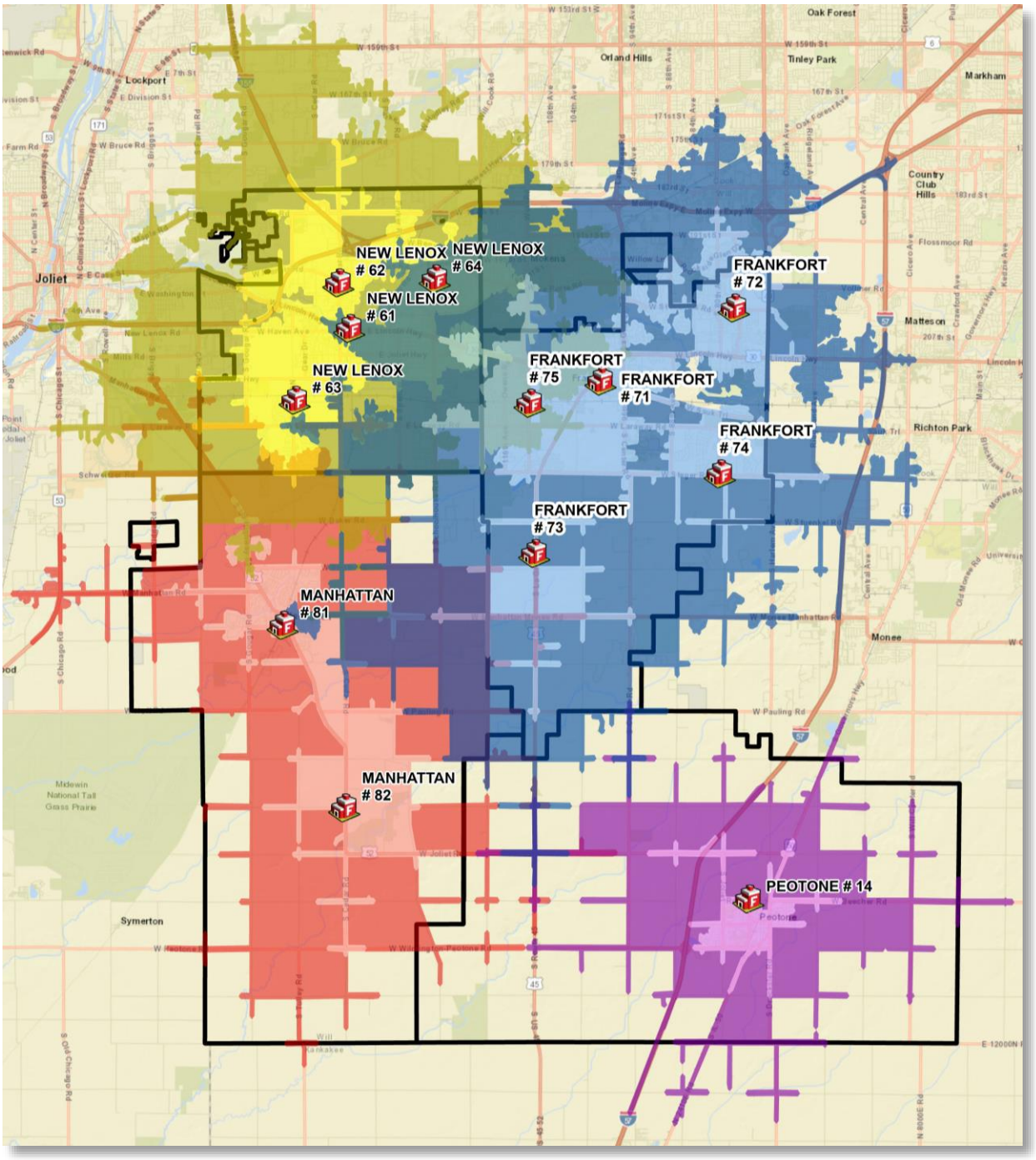


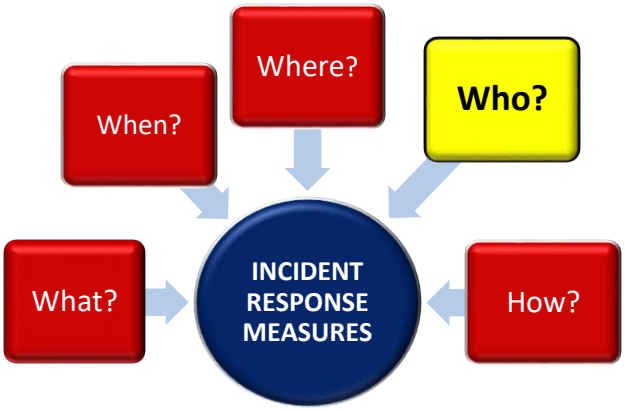
Surrounding Town 8-min Travel Times



8-Minute Travel Response area – outside of District




NEW LENOX # 62
NEW LENOX # 64
NEW LENOX # 61
NEW LENOX # 63
FRANKFORT # 72
FRANKFORT # 75
FRANKFORT # 71
FRANKFORT # 74
FRANKFORT # 73
MANHATTAN # 81
MANHATTAN # 82
PEOTONE # 14
Joliet
Lockport
Orland Hills
Tinley Park
Oak Forest
Markham
Country Club Hills
Matteson
Richton Park
Monee
Symerton
Peotone



Unit Workload

An essential workload indicator is the number of responses per unit and the time spent on those responses. The amount of time a unit is unavailable is a crucial factor in analyzing concentration and reliability. One workload issue is the number of calls that a unit services within its first due area versus the number it responds to outside its first due area, known as reliability.

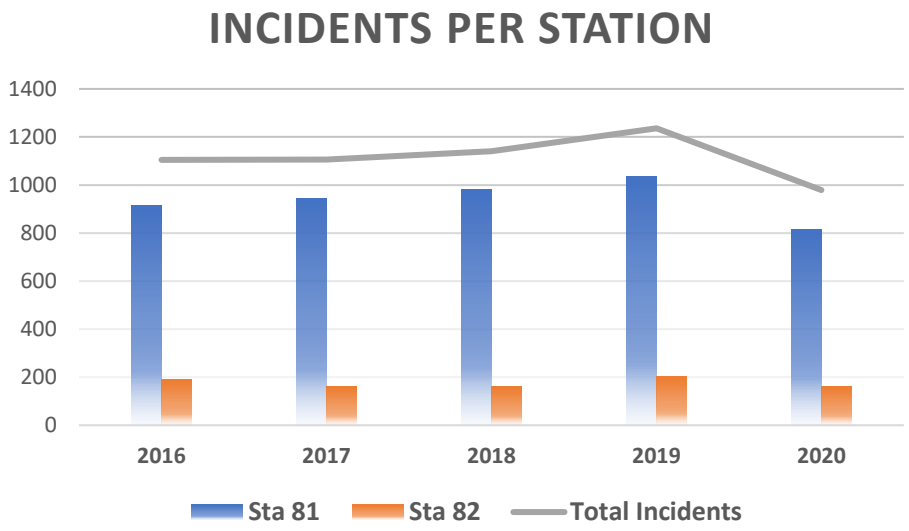
There are, generally, three (3) reasons for **responses** outside of the first due area:

- Concurrent calls outside a units Area of Responsibility
- Calls requiring multiple units
- Specialty unit capabilities take the unit out of its primary first due to providing services to the larger area

Fire, rescue, and EMS calls routinely require adjacent units and shall be discussed further in this section. This section analyzes the Station, the Shifts, and the Units that responded to the Incidents.

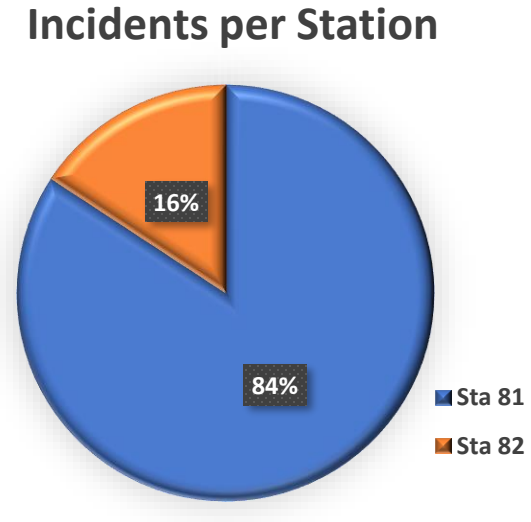
Incidents by:

Station



INCIDENTS PER STATION

	2016	2017	2018	2019	2020	2016-20	% of Inc	Average per Yr	Average per Day
Sta 81	914	944	980	1,035	1,100	4,973	*84.6%*	995	2.72
Change over Previous		3.3%	3.8%	5.6%	6.3%				
Sta 82	190	162	160	201	191	904	*15.4%*	181	0.50
Change over Previous		-14.7%	-1.2%	25.6%	-5.0%				
TOTAL	1,104	1,106	1,140	1,236	1,291	5,877			
Change over Previous		0.2%	3.1%	8.4%	4.5%				

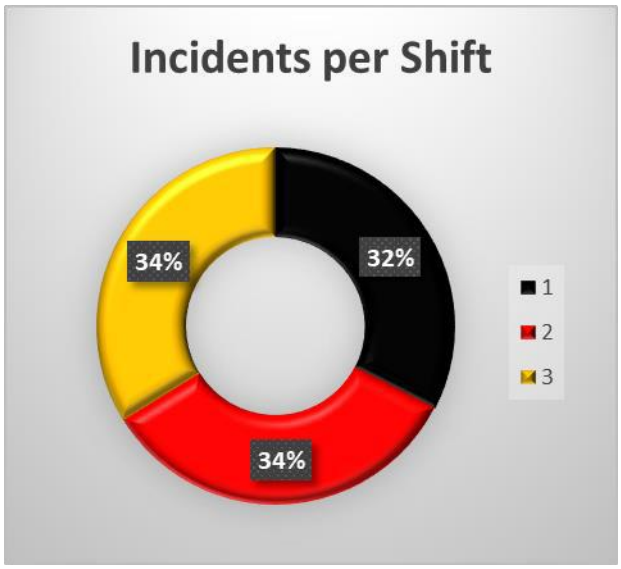


Station-Hour Demand Spreadsheet

Report based on 5,877 incident records from 1/1/2016 to 12/31/2020

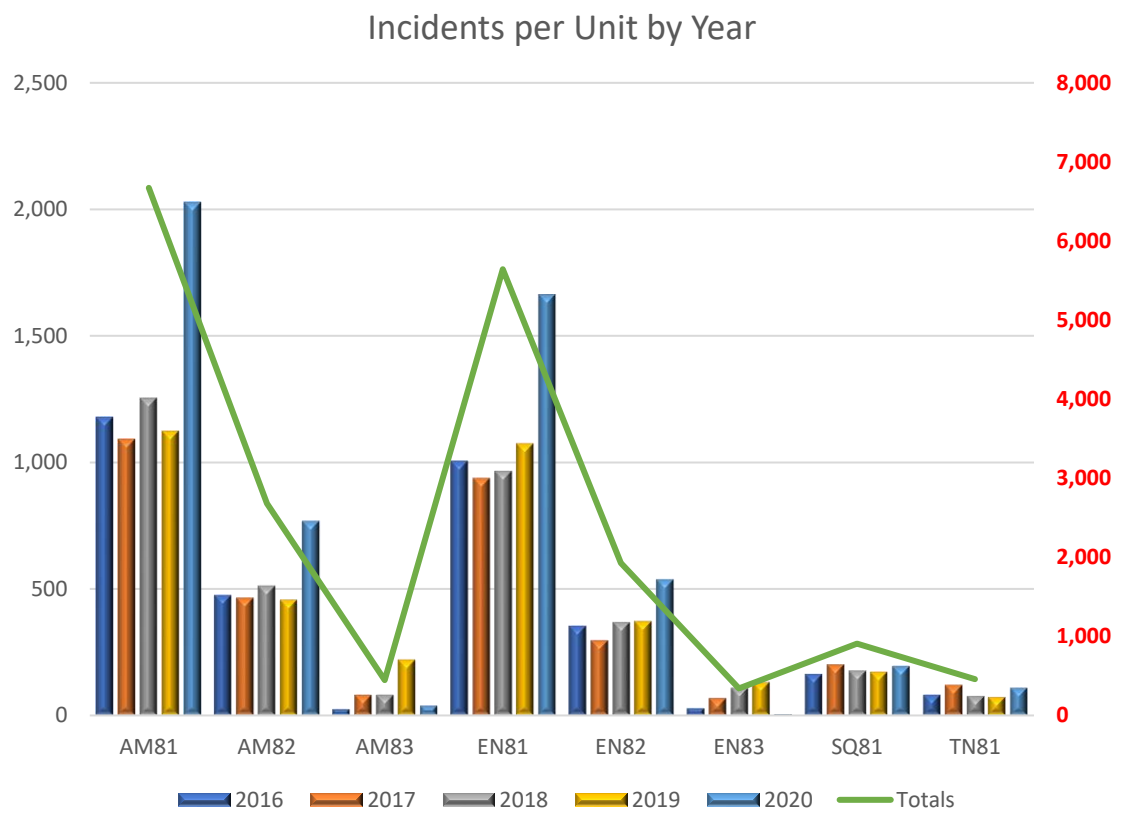
Station		81	82
	0:00	7.01%	1.19%
	1:00	5.85%	1.19%
	2:00	4.83%	1.06%
	3:00	4.16%	0.94%
	4:00	4.18%	1.03%
	5:00	5.92%	0.94%
	6:00	6.36%	1.89%
	7:00	10.50%	2.09%
	8:00	10.73%	3.40%
	9:00	10.89%	2.60%
	10:00	11.01%	2.76%
	11:00	12.08%	3.18%
	12:00	12.76%	3.08%
	13:00	10.91%	4.07%
	14:00	12.34%	3.17%
	15:00	14.59%	2.98%
	16:00	13.83%	3.72%
	17:00	12.84%	3.59%
	18:00	12.37%	3.60%
	19:00	11.35%	3.11%
	20:00	10.82%	3.67%
	21:00	9.20%	1.89%
	22:00	8.19%	1.52%
	23:00	7.25%	1.69%
Overall		**9.58%**	**2.43%**
Runs		**4,689**	**876**

Shift



	2016	2017	2018	2019	2020	Total	
B	342	383	357	411	442	**1493**	*32.6%*
R	386	367	371	419	431	**1543**	*33.6%*
G	376	356	412	406	416	**1550**	*33.8%*
	1104	**1106**	**1140**	**1236**	**1289**	**4586**	

Unit



	2016	2017	2018	2019	2020	Totals	% of Responses
AM81	1,176	1,091	1,254	1,123	2,028	**6,672**	30.2%
Change over previous		*-7%*	*15%*	*-10%*	*81%*		
AM82	475	465	513	457	770	**2,680**	12.1%
Change over previous		*-2%*	*10%*	*-11%*	*68%*		
AM83	24	82	81	220	39	**446**	2.0%
Change over previous		*242%*	*-1%*	*172%*	*-82%*		
EN81	1,003	936	966	1,074	1,663	**5,642**	25.5%
Change over previous		*-7%*	*3%*	*11%*	*55%*		
EN82	353	297	369	372	538	**1,929**	8.7%
Change over previous		*-16%*	*24%*	*1%*	*45%*		
EN83	28	69	109	132	4	**342**	1.5%
Change over previous		*146%*	*58%*	*21%*	*-97%*		
SQ81	164	201	177	172	195	**909**	4.1%
Change over previous		*23%*	*-12%*	*-3%*	*13%*		
TN81	81	121	76	72	109	**459**	2.1%
Change over previous		*49%*	*-37%*	*-5%*	*51%*		
UT81	81	108	111	85	95	**480**	2.2%
Change over previous		*33%*	*3%*	*-23%*	*12%*		
BT81	32	33	37	15	29	**146**	0.7%
Change over previous		*3%*	*12%*	*-59%*	*93%*		
CH81	156	221	177	223	392	**1,169**	5.3%
CH82	190	233	234	28	68	**753**	3.4%
BC81	24	17	38	88	215	**382**	1.7%
BC82	31	20	19	12		**82**	0.4%
UT82	5	2	5	1	16	**29**	0.1%
	3,823	**3,901**	**4,167**	**4,075**	**6,163**	**22,120**	**100.0%**
Change over previous count		*78*	*266*	*-92*	*2,088*		
Change over previous %		*2%*	*7%*	*-2%*	*51%*		

Unit Hour Utilization / UHU

Unit workload is an essential measure in the analysis. Unit Hour Utilization (UHU) is an accepted measurement tool to evaluate response workloads. UHU considers the number of incidents, time committed against the total potential time available. The following formula is utilized:

$$\frac{\text{(number of incidents) * (time committed per incident)}}{\text{Time}}$$

UHU is limited in that only emergency response incidents are considered in the calculation.

Other activities such as training, inspections, and others are not considered in calculations.

UHU is a technical measure of commitment time. UHU can be calculated on a variety of periods per day, month, or year. The calculations provided below are based on a year to avoid short-term fluctuations. UHU calculations result in a number that is percentages and is expressed as a decimal. A UHU of .25 would represent that 25% of the period is committed to incidents. It is generally accepted that a UHU over .35 illustrates a unit that is overcommitted.

Resource types may experience differing levels of workload based on commitment time. Suppression units may see a shorter commitment time, while ambulances may see more time due to transport and turnaround time. IDPH regulations require a written EMS report completed and submitted before an ambulance can return to service. This process is now completed digitally and can take 20-40 minutes for a detailed report. Hospital location is another factor in commitment time. Transport hospitals are in nearby communities and not within the District, which prolongs time commitment as units may not be available due to transport requirements.

Shift operations and activities such as mandatory training, physical fitness, inspections, and others, should be calculated to estimate total work time. Total Committed Time could add an aggregate of four to six hours daily of non-emergency UHU required actions; vehicle checks/maintenance, meals/shopping, training and fire prevention activities, fitness, and return time from incidents as per this example list.

Sample - DAILY ACTIVITY	Average Time
Roll Call	
Operations Review	0.25
DQD - Daily Quick Drill	
EMS & Fire Topics	0.5
Apparatus & Small Tools	
Operations/Functions/Review	1
Meal Shopping	0.5
Department Directed Training	
Daily Scheduled Drill	1
[1,2,4, or 8 hrs - class dependent]	
LUNCH	1
Preplan/Building Familiarization	1
Physical Fitness	1
Public Education/Relations	0.5
Company Directed Training	
Per Company Officer	varies
Average Daily Hours	**6.75**

Unit-Hour Utilization Spreadsheet

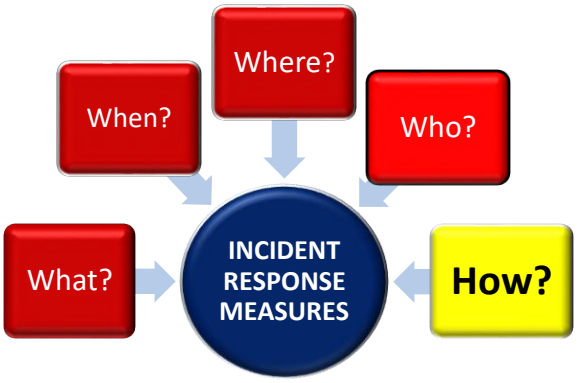
Report based on 23,318 apparatus response records from 1/1/2016 to 12/31/2020

Vehicle	AM81	EN81	AM82	EN82	SQ81	TN81	CH81	CH82	AM83	BC81	UT81	EN83	BT81	IN81	IN82
0:00	9.60%	4.23%	2.55%	1.37%	1.75%	1.39%	1.27%	0.44%	0.50%	1.24%	0.32%	0.03%	0.12%	1.25%	0.38%
1:00	8.74%	4.11%	2.64%	1.27%	1.08%	0.36%	1.13%	0.44%	0.54%	0.23%	0.18%	0.11%	0.00%	0.57%	0.00%
2:00	8.43%	3.25%	1.64%	1.57%	1.30%	0.56%	0.83%	0.25%	0.32%	0.60%	0.43%	0.21%	0.00%	0.30%	0.30%
3:00	7.75%	2.91%	1.53%	1.47%	1.57%	1.37%	1.37%	1.25%	0.38%	0.24%	0.05%	0.64%	0.00%	0.11%	0.11%
4:00	7.90%	3.65%	2.22%	1.64%	1.63%	0.12%	0.43%	0.16%	0.24%	0.20%	0.10%	0.13%	0.00%	0.83%	0.69%
5:00	7.73%	3.31%	2.74%	1.28%	3.52%	0.33%	1.65%	0.46%	0.72%	0.31%	0.11%	0.10%	0.00%	1.18%	0.94%
6:00	10.88%	3.61%	5.09%	1.97%	1.79%	0.23%	1.19%	0.69%	1.03%	0.16%	0.58%	0.03%	0.00%	0.12%	0.29%
7:00	19.35%	7.18%	6.58%	3.27%	2.85%	0.59%	0.96%	1.15%	0.46%	0.69%	0.38%	0.34%	0.02%	1.77%	0.58%
8:00	18.24%	7.26%	7.43%	3.75%	1.86%	0.68%	2.19%	1.05%	1.41%	0.12%	0.35%	0.49%	0.00%	0.49%	0.67%
9:00	20.67%	9.50%	7.73%	4.01%	1.05%	1.42%	1.46%	1.11%	1.81%	0.18%	0.54%	0.30%	0.00%	0.83%	0.11%
10:00	19.66%	7.69%	6.94%	4.63%	1.21%	1.03%	1.12%	0.50%	1.56%	0.32%	0.65%	0.56%	0.01%	0.84%	0.42%
11:00	21.28%	8.44%	8.00%	4.64%	3.75%	0.71%	4.03%	1.26%	2.17%	3.64%	0.71%	1.05%	1.09%	0.57%	0.00%
12:00	24.09%	9.02%	9.81%	3.71%	1.31%	0.86%	1.12%	0.67%	1.08%	0.73%	1.30%	0.44%	1.45%	0.17%	0.00%
13:00	17.86%	8.04%	9.14%	6.03%	1.35%	2.21%	1.67%	1.82%	1.40%	0.42%	1.20%	0.93%	0.49%	0.71%	0.00%
14:00	20.65%	8.06%	9.51%	4.84%	3.86%	0.72%	2.12%	1.39%	1.21%	0.88%	0.96%	0.51%	0.58%	0.23%	0.23%
15:00	20.61%	8.47%	5.65%	4.63%	3.42%	2.10%	1.39%	1.58%	1.72%	0.39%	0.79%	1.12%	0.62%	2.25%	0.86%
16:00	25.37%	11.03%	11.97%	4.50%	3.09%	1.81%	1.38%	1.10%	1.47%	1.30%	0.92%	0.36%	1.27%	1.71%	0.22%
17:00	22.28%	10.30%	9.29%	3.76%	2.82%	0.47%	2.12%	0.94%	1.80%	1.05%	0.70%	0.53%	0.61%	0.67%	0.47%
18:00	21.80%	8.53%	8.50%	4.77%	3.18%	0.74%	2.93%	1.77%	1.40%	0.67%	0.78%	0.94%	0.30%	2.09%	1.34%
19:00	20.67%	9.72%	6.41%	2.84%	2.44%	0.52%	1.21%	1.21%	1.27%	0.72%	1.03%	0.31%	0.04%	0.00%	0.89%
20:00	21.01%	8.95%	7.98%	3.30%	1.20%	1.47%	2.58%	0.74%	1.25%	1.17%	0.50%	0.69%	0.46%	0.37%	0.71%
21:00	16.61%	5.90%	5.03%	2.22%	1.96%	0.33%	1.02%	0.89%	0.66%	0.31%	0.65%	0.28%	0.13%	1.02%	0.69%
22:00	13.95%	5.79%	4.46%	2.00%	1.15%	0.36%	1.12%	0.86%	1.79%	1.06%	0.92%	0.31%	0.11%	0.87%	0.89%
23:00	13.07%	5.51%	4.27%	2.73%	1.54%	0.79%	1.36%	0.84%	0.46%	1.40%	0.30%	0.16%	0.08%	0.34%	0.27%
Overall	16.59%	6.85%	6.13%	3.18%	2.11%	0.88%	1.57%	0.94%	1.11%	0.75%	0.60%	0.44%	0.31%	0.80%	0.46%
Runs	6,672	5,642	2,680	1,929	909	459	1,169	753	446	382	480	342	146	109	65

ALL INCIDENTS 2016-2020	AM81		EN81		AM82		EN82		SQ81	
	ALL CALLS	FIRE/EMS	ALL CALLS	FIRE/EMS	ALL CALLS	FIRE/EMS	ALL CALLS	FIRE/EMS	ALL CALLS	FIRE/EMS
Incidents	6,672	5,035	5,542	3,044	2,680	1,679	1,929	913	909	570
Responses per Day	3.7		3.0		1.5		1.1		0.5	
% in Station Area	81.2%		81.3%		40.9%		35.3%		75.2%	
Hours	13,944	12,379	7,444	3,685	5,517	4,080	2,827	927	2,424	718
Reliability	81.5%		84.8%		89.1%		88.6%	88.6%		
First Arrival	2,133	1,656	1,337	513	571	350	346	101	196	91
FIRES	126	126	217	213	141	139	135	131	8	8
	1.8%		3.8%		5.2%		7.0%		0.8%	
Building	32	32	50	48	36	36	44	40	4	4
Wildland	40	40	82	80	63	61	46	46		
Vehicle	12	12	24	24	16	16	16	16	2	2
EMS	4,956	4,909	2,837	2,831	1,557	1,540	795	782	573	562
	74.4%		50.3%		58.2%		41.2%		63.1%	
Non-Vehicular	4,492	4,457	2,743	2,741	1,106	1,102	350	350	112	112
Vehicular / MVA	464	452	94	90	451	438	445	432	461	450
TECH RESCUE	24		10		21		20		28	
Tech Rescue										
OTHER	1,582		2,582		987		999		327	
	23.7%		45.8%		36.6%		51.8%		36.0%	
Canceled Enroute	106		423		46		76		74	
False/Good Intent	494		953		392		407		17	
HAZMAT	158		386		136		145		4	
Hazmat										
Performance										
Call Processing	90.5%	96.9%	63.0%	34.1%	66.4%	82.4%	56.2%	65.9%	65.3%	85.1%
90% Compliance	0:49	0:22	2:24	2:42	2:22	1:47	2:45	2:38	3:21	1:39
Turnout	84.8%	84.5%	83.8%	88.1%	74.6%	69.1%	71.9%	67.0%	66.8%	56.2%
90% Compliance	1:41	1:42	1:43	1:29	1:48	1:54	2:03	2:20	2:11	2:06
Travel	50.2%	53.6%	51.6%	62.6%	24.6%	30.9%	22.1%	40.2%	34.3%	36.0%
90% Compliance	8:56	7:44	9:38	6:58	11:33	8:48	12:01	8:00	9:21	8:04
Call to Arrival	63.8%	68.6%	60.4%	68.0%	32.2%	41.4%	27.1%	48.0%	39.0%	45.1%
90% Compliance	10:27	9:02	11:46	9:01	14:18	10:32	15:43	9:31	16:52	9:52
Turnout by Shift										
Station Compliance	84.8%	84.5%	83.8%	88.1%	74.6%	69.1%	71.9%	67.0%	66.8%	56.2%
Black	88.9%	89.2%	87.4%	94.9%	78.8%	70.8%	78.9%	65.2%	74.5%	65.0%
Red	85.4%	84.3%	86.1%	92.1%	84.8%	81.5%	71.8%	73.1%	74.5%	69.2%
Gold	83.6%	83.2%	89.3%	95.9%	70.3%	60.2%	73.3%	72.4%	63.2%	46.4%

**Reliability = % of incidents this vehicle was first arriving in it's assigned station area*

HOW - PERFORMANCE



There are several ways to measure performance. One of the more critical ways is to measure activities vs. outputs vs. outcomes.

Outcomes are the things that matter most to the community.

Activities show what we have done.

- Training, Inspections, Responding to emergencies

Outputs show how much did we accomplish with our activities.

- Completed xx hours of Training, xx % of inspections
- Responded to fires within X minutes, X % of the time

Outcomes show what is in it for the community.

- How likely is their life (or their family) going to be saved?
- How much of their property shall be saved (value, capabilities, business operations)?
- What shall be their quality of life?
- How much shall this cost them if they support (or do not) support my local FD (out of pocket)?

Two outcome performances that can be directly measured include fires in the room of origin and cardiac arrest survival rates.

How are we doing?

Fire Loss/Save Rate

An important measure in fireground performance is keeping a fire in the room of origin and not spreading. According to a recent NFPA study, the chances of Injury or Death in a home fire that is:

Contained to room of origin = 3%, Past Room of Origin = 81%!

Furthermore, studies have shown that the **cost of burn injuries:**

- One year in a Burn Center = $ 2.6 Million
- Average stay = 14 weeks ($700,000)
- Loss of income at work?
- *What is the cost of Pain and Suffering?*

The cost of being displaced by a fire for a year:

- Original mortgage payments
- The insurance deductible and any under coverage costs
- The added cost of a rental and insurance
- Moving costs
- Work and school commutes
- Lost financial records, taxes, ownership documents

The baseline performance measure in the District for structure fire responses:

45.8 % of the time – Fires were limited to object or room of origin

This baseline is considered a Key Performance Indicator (KPI) that should be tracked and improved to strive to meet the benchmark.

EMS Cardiac Arrest Survival Rate

Cardiac arrest survival/saves are an excellent "outcome" measure of performance. For cardiac arrest patients since **2019-21 (35 total),** the "save rate" for patients in cardiac arrest was **29% (10/35),** in which the patient had **Return of Spontaneous Circulation** (ROSC) at the time of arrival to the hospital**.** This outcome is above the estimated **national data average of 12%;** however, it is always a benchmark area for improvement to save as many lives as possible. Some local fire districts and departments are experiencing a much higher rate (40-65%), and the District should strive to maintain this very high save rate, if possible.

The baseline performance measure in the District for cardiac arrest resuscitation:

29 % of the time – Cardiac Arrest were "saved" with ROSC upon arrival at the hospital

Performance and Outcome Measures

Performance measures should establish the following characteristics to be considered valid and verifiable:

- Meaningful
- Understandable to internal and external stakeholders
- Based on goals and objectives related to a strategic plan
- Controllable by organizational action
- Useful
- Reliable
- Accurate to assess the performance
- Comparable
- Sustainable
- Value to obtain should not exceed the effort to collect

Performance objectives have been developed based on the community and the District's expectations, risk assessment, critical task functions, and planning zones. Each category of emergency service type was reviewed, and performance times were established. Current performance and goals viewed in the context demonstrate current capabilities and what would be demonstrated in the future. A baseline is a term used to describe the current performance. Benchmark is used to describe a future performance level objective.

Community Expectations

This section compares performance to objectives. Community expectations influence performance. Specific conclusions discovered after strategic planning can be summarized in the identification of four Strategic Priority areas:

- Financial Sustainability
- Community Involvement
- Operational Effectiveness
- Workforce Development

Each of these areas dovetails into the focus of a continual process and establishing measures of performance.

Deployment Performance

Deployment performance can be measured using three concepts: Distribution (what and where), Concentration (how much), and Reliability (how well). These concepts shall be used to create performance objectives, performance measures for response times and determine the District's ability to provide an effective response force for each risk category for each service provided.

Distribution (First Due) Performance

Distribution is defined as the systematic locating of geographically distributed first due resources (stations, apparatus, and personnel) for all-risk initial intervention. Distribution locations, also known as "points of service delivery," are established to ensure the rapid deployment of resources to intervene in routine emergencies and bring them to a successful conclusion. For the most part, this is **time and distance analysis**. The distribution system is set up to provide the appropriate emergency response to the variety of risks identified in the previous section.

The District uses an "all-risk" concept in that each first due station is equipped and staffed to provide a sufficient baseline response. The area covered by the first due units within adopted public policy response times is a distribution system's effectiveness. Specific performance objectives have been established for each service provided. A distribution network is considered successful when it can provide a resource to the scene of an emergency with the correct apparatus, equipment, and staffing to complete the following:

1. Assessment of the situation and take Command
2. Establishment of a plan of action capable of mitigating the emergency
3. Request for appropriate resources if necessary
4. Intervention to stop/impede the escalation of the emergency

The current distribution of resources for the District can be traced to several events throughout its history. The location and spacing of stations have been dependent on funding, land availability, infrastructure, and expected growth.

Distribution implies that certain risks shall require resources beyond that available on the initial incident. The depth of coverage includes analyzing whether enough resources are available within acceptable time frames to amass staffing, equipment, and apparatus to deal with identified risk levels. Distribution performance measurement emergencies are those incidents that directly impact the placement of fire stations and the resources in the stations. EMS, Rescue incidents, and structure fires are the key measured emergencies or Priority One calls. Other incidents are not modeled as they do not overly affect deployment but are a sub-set of the total workload. Incidents outside the District areas are not used for analysis. Measurement of incidents are from the Records Management Systems (RMS), GIS, StatsFD database and are reviewed based on incident type codes with outliers are removed.

Measuring the distribution system is typically accomplished using Travel Time or Total Response Time of first due company resources. Travel Time is the interval of time when the emergency unit begins responding to its arrival at the emergency scene. Total Response Time begins when the request for emergency services is received at the dispatch center and extends to the arrival of the first emergency unit at the emergency scene, including turnout from unit notification to the response.

Concentration (Balance of Alarm)

Concentration is defined as the number and spacing of resources needed to achieve an "effective response force" that can be assembled at the scene of an emergency within a defined period for each given risk and level of service. An effective response force is the accumulation of resources necessary to stop the emergency's escalation and bring it to a conclusion. In other words, concentration can place enough resources on a specific call to keep the event from becoming a significant emergency. Thus, concentration considers risk versus cost.

Both factors are variables, thus: **Increased Risk = Increased Concentration**

Concentration can be measured in several ways. The most common approach is to measure the community's percentage covered by an effective response force within adopted time frames. A first-alarm assignment is considered an effective response force for fire incidents. In arriving at a concentration level for the District, the challenge is to balance how much overlap there should be between station response areas. Some overlap is necessary to maintain response times and provide backup for distribution when first-due units are committed. A successful concentration network means that the system can provide the correct equipment, apparatus, and staffing to the scene of an emergency to complete the following:

1. Stop the emergency from continuing to escalate
2. Provide for the safety and security of citizens and emergency workers
3. Complete all critical tasks promptly
4. Provide for Incident Management and Command

Most of the areas now served started with limited development and minimal risk. As time passed and development continued, both the population base and risk increased. The location and spacing of resources have been dependent on funding, land availability, and infrastructure. Measuring the current concentration is accomplished using calls for service and the system performance of the company resources.

Resiliency

The dictionary definition of resilience is "the capacity to recover quickly from difficulties." The fire service translates this to how well we bounce back from adversity regardless of the cause. These could be wide-scale and far-reaching events such as severe weather extremes, massive, prolonged power outages, floods, mass casualty events, or multiple concurrent incidents that require a response and resilience. Even our Firefighters individually learn to "respond, handle the emotionally challenging scene, then return" to some normalcy.

The District response system is built on reliability, consistency, redundancy, and performance (including speed). There may be times that the system is pushed and stressed. Severe weather incidents such as

thunderstorms (or worse – tornado) spread resources thin as altered response levels are instituted. "Storm Mode" response procedures dispatch the closest fire company to investigation and alarm activations (without tone alerts – just radio notification).

The ability to recover to "normalcy" can include multiple considerations, such as:

- **Capability** – developed early through trained KSA (knowledge, skills, abilities)
- **Capacity** – resources ready state (mechanically sound and properly equipped)
- **Reliability** – the number of times a unit can respond to incidents in-still area as the first due
- **Availability** – use of resources and ability to add units to response or coverage

Response Time Measures

The rapid deployment of resources to emergencies is another distribution factor to consider. The Fire District uses a nationally recognized incident count to inform management better and determine resource allocation and deployment decisions. The use of "incident count" has been the District's raw reference numbers for deployment issues and data collection on response volumes. Incident count data is typically used and reported to describe service demand changes over time because the number and type of resources (i.e., Engines, Trucks, Ambulances) assigned or committed to each event is subject to operational policy. Thus, data that reflect the number of times a resource is "dispatched" to an event are not best suited for performing trend/historical or comparative analysis of incidents.

Response times are among the most frequently used measuring system performance related to the overall response time. In reviewing the CAD and RMS data, the Fire District tracks four response elements—turnout-time, travel, on-scene time, and when companies are available. Additionally, call handling time is also measured (the time "Dispatch" picks up the 911 call to the time units are notified or "dispatched"). The District uses NFPA 1710 as the benchmark goal for all these measures.

Response Time Performance

A chain of events is initiated when an emergency incident occurs or is discovered. Time elements are not controllable but can be enhanced by early recognition and notification. This can be especially critical in structure fires and cardiac arrest events. Due to technological limitations, initial call processing and dispatch may occur from two locations due to cellular tower placement and configuration. The four main components of measuring "Total Response Time" or TRT is from the initial 911 pickup at a Dispatch center – "Processing the call" and notifying the stations/units, the units "turning out" from notification to en route, "travel time" – how long it takes to get to the scene for both the initial responders and the rest/balance of the Effective Response Force.

Due to the community's characteristics, the District utilizes a single demand zone, Urban/Suburban, representing a population density of 2-3,000 per square mile, consisting of single-family, multi-family residential, mixed Commercial, and business occupancies. **However, the District is significantly rural farmland in nature as well, which is also non-hydranted.**

Response time performance is shown in the following tables. Performance is demonstrated in structure fires, EMS, HazMat, TRT, and Water incidents. Components of the response continuum are broken down to reflect distinct segments. These include call processing time, turnout time, travel time, and total response time. The District benchmark response goals reflect the National Fire Protection Association (NFPA) – National Standards NFPA 1710, as reflected below.

NFPA 1710 RESPONSE BENCHMARKS – 90% of Emergency Incidents	
Task	**Time (< or equal to)**
Call Processing (Dispatch)	1 minute
Turnout Time (EMS)	1 minute
Turnout Time (FIRE)	1 minute 20 seconds
Travel Time - First Engine or Ambulance	4 minutes
Travel Time - Full Alarm Assignment **(ERF)**	8 minutes
TOTAL RESPONSE TIME (1st EMS/FIRE Company)	**6:00 / 6:20 minutes**
TOTAL RESPONSE TIME (Effective Response Force - ERF)	**10: 00 / 10:20 minutes**

Benchmarks (Goals) Statements

The District has developed objectives for each of the significant services provided: Fire suppression, Emergency Medical Services (EMS), Rescue, and Special Operations. These performance objectives further define the quality and quantity of services. The "Benchmark" performance goals are per risk type. Once baseline (actual) times are determined, and benchmarks (goals) are set, the two primary components of a Continuous Quality Improvement program are in place.

FIRES

For **90 percent** of **all** fire incidents, the Fire District shall arrive with a "first due/distribution" total response time in less than **6 minutes 20 seconds with at least three personnel** with enough resources to stop the escalation of the fire and keep the fire to an area of involvement upon arrival. Initial response resources shall be capable of establishing Command, forcing entry if needed, containing the fire, rescuing at-risk victims, performing salvage operations, providing for the responders' safety and the general public. Apparatus shall have a minimum pump capacity of 1500 GPM and 750-gallon water tanks for Engines, 300+ gallons for Trucks. A positive water supply shall be established, and a hose line deployed attacking the fire flowing a minimum of 150 GPM within 5 minutes of arrival or less.

For **Moderate-risk** type fires, the "balance of alarm/concentration" (or Effective Response Force [ERF]) shall arrive in less than **10 minutes, 20 seconds (*total response time*) with a minimum of 15-17 personnel.** The ERF is capable of transferring Command/Safety, deploy a backup line, completing forcible entry and searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, assuming IRIC/RIT in on-deck positions (complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in and two-out), control utilities, other functions as ordered by Command as required, and occupant need services. The District standard operating procedures shall do these operations**.**

High-Risk type classified incidents shall have a minimum of 29 personnel within 15 minutes total response time. "Box alarm" deployment of resources shall allow Command to sector/divide/group the structure for a better span of control and accountability as well as to adjust Risk Management Plan and IAP as needed. Most of these additional resources shall come from mutual aid departments.

EMS

For 90 percent of **all** emergency medical incidents, the Fire District shall arrive "first due/distribution" in less than **6 minutes with at least two personnel** ALS trained, and equipped, capable of assessing scene safety and establishing command, sizing-up the situation, conducting an initial patient assessment, obtaining vitals and documenting patient's medical history, initiating mitigation efforts within one minute of arrival to provide medical services that shall stabilize the situation, provide care and support to the victim and reduce, reverse or eliminate the conditions that have caused the emergency while providing for the safety of the responders, and provide transportation of patient(s) if necessary to appropriate medical facilities in an effective, efficient manner.

Low-risk incidents or **Moderate-risk** incidents where resuscitation/rescue of victims is required, the Fire District ERF shall arrive in less than **10 minutes total response time with four to five personnel minimum (or seven personnel for Moderate risks).** The ERF brings resources to stabilize the situation, resuscitate/extricate the victim(s) from the emergency or location without causing further harm to the victim, responders, public, and the environment. Simultaneously, completing the patient assessment, providing appropriate treatment, performing defibrillation, initiating cardiopulmonary resuscitation (CPR), and providing intravenous (IV) access-medication administration with positive airway control.

Suppose High-Level responses are necessary for ERF concentration. In that case, they shall arrive in less than **15 minutes with 29 personnel** once dispatched, performing positions and functions directed by Command, including Medical, Triage, and Transport sectors. Most of these additional resources shall come from mutual aid departments.

RESCUE / SPECIAL OPERATIONS

For 90 percent of all Special Operations incidents (such as Technical Rescue and Water Rescue), the Fire District shall arrive "first due/distribution" in less than **6 minutes 20 seconds total response time (with at least three personnel)** with resources to establish the following functions. Establish Command, stabilize the situation, stop the escalation of the incident, contain the hazard where applicable, initiate an action plan, properly size up to determine if a moderate or high-level technical rescue response is required, request additional resources if needed, provide advanced life support to any victim without endangering response personnel or the public.

ERF Concentration per M**oderate Type level** shall arrive in less than **10 minutes, 20 seconds total response time with seven to fourteen personnel** necessary to the victim safely and efficiently.

High-Risk type-level ERF shall arrive in less than 15 minutes with minimum numbers of personnel ranging from 13-24 once dispatched depending on specialty/situation; then, a Technician/Team level response is necessary for ERF Concentration. The ERF shall be capable of appointing a site safety officer, establishing patient contact, staging, and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder and ALS medical support. Most of these additional resources shall come from mutual aid departments.

HAZMAT

Hazardous Materials Benchmark Statements:

For 90 percent of all hazardous materials response incidents, the total response time for the first-due unit's arrival, staffed with **three personnel minimum, shall be 6 minutes 20 seconds** for all risk levels. The first-due unit shall be capable of: establishing command, sizing up and assessing the situation to determine the presence of a potentially hazardous material or explosive device, determining the need for additional resources, estimating the potential harm without intervention, and begin establishing a hot, warm, and cold zone.

Moderate risk ERF Concentration level shall arrive in less than **10 minutes 20 seconds with nine personnel minimum** necessary to safely and efficiently isolate, identify, and mitigate the hazard.

For **High-risk** level incidents, the total response time for the arrival of the effective response force (ERF), including the hazardous materials response team, is staffed with **15 personnel within 15 minutes** in all areas. The ERF shall be capable of appointing a site safety officer and providing the equipment, technical expertise, knowledge, skills, and abilities to mitigate a hazardous materials incident by District standard operating guidelines.

Response Times PERFORMANCE

Baselines (Actual)

Actual baseline times for the District historically are as follows, with 90% benchmark goals.

FIRE and EMS Incidents **only** combined **Demand and Performance:** 2016-2020

PERFORMANCE MEASURES:		
RESPONS TIME SEGMENT	FIRE/EMS	ALL
BENCHMARK % ACHIEVED		
CALL PROCESSING (< 1:00)	79.6%	73.1%
TURNOUT (< 1:20)	81.6%	80.8%
TRAVEL (< 4:00)	51.1%	44.9%
CTA - CALL TO ARRIVAL (< 6:20)	62.8%	54.7%
TOTAL RESPONSE TIME		

90% PERFORMANCE MEASURES		
CALL PROCESSING	1:54	2:16
TURNOUT	1:45	1:48
TRAVEL	7:56	9:57
CTA - CALL TO ARRIVAL	9:27	12:42
TOTAL RESPONSE TIME		

INCIDENTS - TOTAL	2,898	5,877
APPARATUS RESPONSES	*13,851*	*23,269*
STAFF HOURS	13,582	20,679
DOLLAR LOSS	$ 1,334,260	--
INCIDENTS:		
FIRE	124	130
BUILDINGS	25	28
WILDLAND	51	54
VEHICLE	14	14
EMS	2774	2804
NON-VEHICULAR	2493	2514
VEHICULAR ACCIDENTS	281	290
RESCUE		
TECHNICAL	13	13
HAZMAT	--	223
HAZARDOUS CONDITION		
OTHER	--	2943
CANCELED ENROUTE	--	738
FALSE/GOOD INTENT	--	577
OTHER	--	1315

Performance Charts (Per Threat & Type)

MANHATTAN - NO AID GIVEN All Incidents - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**02:06 (3,747)**	02:16 (729)	02:02 (673)	02:04 (782)	02:03 (780)	02:06 (783)
Turnout	**01:44 (3,671)**	01:44 (723)	01:38 (640)	01:38 (752)	01:42 (745)	01:59 (811)
Travel-Distribution	**07:49 (3,725)**	07:56 (742)	07:23 (657)	07:35 (748)	08:01 (755)	08:01 (823)
Travel-2nd Arrival	**07:51 (3,693)**	07:54 (721)	07:27 (654)	07:42 (742)	08:01 (756)	08:10 (820)
Dispatch to Arrival	**08:54 (3,969)**	09:01 (766)	08:24 (691)	08:28 (803)	09:07 (841)	09:15 (868)
Call to Arrival-Distribution	**09:21 (4,021)**	**09:26 (767)**	**08:52 (695)**	**09:09 (811)**	**09:31 (842)**	**09:32 (905)**
Call to Arrival-2nd Arrival	**09:26 (3,871)**	09:26 (731)	08:56 (683)	09:12 (783)	09:32 (816)	09:47 (858)
Scene Duration	**76:06 (4,037)**	30:19 (772)	35:37 (707)	33:29 (813)	32:24 (844)	107:58 (900)
Total Duration	**108:09 (4,081)**	100:53 (777)	100:06 (711)	113:53 (819)	109:38 (854)	114:01 (919)

Fire & EMS - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**02:09 (2,743)**	02:17 (540)	02:10 (488)	02:10 (585)	02:03 (558)	02:04 (572)
Turnout	**01:43 (2,698)**	01:41 (532)	01:38 (475)	01:34 (559)	01:40 (531)	01:58 (601)
Travel-Distribution	**07:41 (2,734)**	07:42 (539)	07:17 (480)	07:39 (562)	07:42 (543)	07:44 (610)
Travel-2nd Arrival	**07:42 (2,732)**	07:42 (537)	07:17 (482)	07:42 (561)	07:45 (544)	08:00 (608)
Dispatch to Arrival	**08:46 (2,863)**	08:51 (553)	08:14 (500)	08:23 (594)	09:05 (585)	09:11 (631)
Call to Arrival-Distribution	**09:13 (2,877)**	**09:15 (553)**	**08:43 (503)**	**09:01 (596)**	**09:28 (585)**	**09:21 (639)**
Call to Arrival-2nd Arrival	**09:20 (2,836)**	09:18 (545)	08:50 (498)	09:04 (587)	09:28 (576)	09:42 (630)
Scene Duration	**85:19 (2,895)**	29:26 (554)	32:23 (510)	33:15 (599)	30:38 (589)	112:08 (642)
Total Duration	**113:39 (2,899)**	106:51 (555)	102:48 (510)	119:27 (600)	116:08 (591)	119:18 (642)

EMS - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**02:03 (2,414)**	02:08 (470)	02:04 (434)	02:04 (518)	01:58 (495)	01:56 (497)
Turnout	**01:40 (2,401)**	01:41 (468)	01:36 (427)	01:29 (501)	01:39 (477)	01:52 (528)
Travel-Distribution	**07:42 (2,415)**	07:50 (471)	07:10 (427)	07:30 (501)	07:58 (478)	07:49 (538)
Travel-2nd Arrival	**07:43 (2,401)**	07:54 (464)	07:10 (426)	07:39 (495)	07:58 (479)	08:01 (537)
Dispatch to Arrival	**08:47 (2,519)**	08:52 (483)	08:09 (441)	08:14 (527)	09:14 (513)	09:11 (555)
Call to Arrival-Distribution	**09:13 (2,529)**	**09:19 (483)**	**08:38 (443)**	**08:58 (528)**	**09:33 (513)**	**09:26 (562)**
Call to Arrival-2nd Arrival	**09:22 (2,485)**	09:22 (472)	08:41 (438)	08:58 (517)	09:37 (503)	09:42 (555)
Scene Duration	**85:21 (2,546)**	28:18 (485)	28:25 (450)	33:05 (531)	28:28 (516)	114:25 (564)
Total Duration	**114:03 (2,549)**	107:17 (485)	102:44 (450)	120:34 (532)	116:19 (518)	120:16 (564)

All Fires - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**01:55 (109)**	02:17 (21)	01:25 (20)	01:41 (26)	01:14 (17)	02:38 (25)
Turnout	**02:13 (103)**	01:49 (22)	01:50 (21)	01:55 (22)	02:11 (14)	02:44 (24)
Travel-Distribution	**08:17 (109)**	09:29 (24)	08:02 (20)	07:56 (25)	07:57 (15)	08:17 (25)
Travel-2nd Arrival	**08:17 (110)**	08:25 (23)	08:02 (21)	07:56 (26)	07:57 (15)	08:17 (25)
Dispatch to Arrival	**09:36 (122)**	09:39 (24)	08:14 (24)	08:53 (26)	09:33 (23)	10:20 (25)
Call to Arrival-Distribution	**09:37 (123)**	**09:39 (24)**	**09:37 (24)**	**09:16 (27)**	**09:33 (23)**	**09:18 (25)**
Call to Arrival-2nd Arrival	**09:49 (122)**	09:28 (23)	09:37 (24)	09:17 (28)	09:34 (22)	10:32 (25)
Scene Duration	**97:51 (124)**	76:42 (24)	183:12 (24)	76:37 (28)	117:39 (23)	97:27 (25)
Total Duration	**105:31 (124)**	87:58 (24)	191:07 (24)	85:53 (28)	121:43 (23)	101:50 (25)

Building Fires - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**00:43 (21)**	03:26 (4)	00:24 (4)	00:43 (3)	00:16 (7)	00:12 (3)
Turnout	**02:20 (20)**	01:49 (4)	02:20 (4)	01:55 (3)	02:10 (6)	03:04 (3)
Travel-Distribution	**06:55 (21)**	03:44 (4)	06:40 (5)	07:45 (3)	05:17 (6)	08:47 (3)
Travel-2nd Arrival	**06:55 (21)**	03:44 (4)	06:40 (5)	07:45 (3)	05:17 (6)	08:47 (3)
Dispatch to Arrival	**08:50 (25)**	05:18 (4)	08:01 (7)	08:50 (3)	07:27 (8)	10:20 (3)
Call to Arrival-Distribution	**08:49 (25)**	**06:31 (4)**	**08:21 (7)**	**09:06 (3)**	**07:40 (8)**	**08:48 (3)**
Call to Arrival-2nd Arrival	**09:06 (25)**	06:31 (4)	08:21 (7)	09:06 (3)	07:40 (8)	10:32 (3)
Scene Duration	**177:41 (25)**	99:57 (4)	183:12 (7)	66:19 (3)	130:24 (8)	140:32 (3)
Total Duration	**184:34 (25)**	106:28 (4)	191:07 (7)	75:25 (3)	139:29 (8)	149:20 (3)

Wildland Fires - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**02:34 (43)**	02:44 (5)	01:25 (9)	02:24 (13)	01:41 (5)	02:52 (11)
Turnout	**02:12 (42)**	01:30 (7)	01:50 (10)	02:34 (11)	01:39 (3)	02:12 (11)
Travel-Distribution	**08:17 (44)**	08:25 (8)	08:02 (9)	07:56 (12)	07:57 (4)	08:08 (11)
Travel-2nd Arrival	**08:17 (44)**	07:31 (7)	08:02 (9)	09:02 (13)	07:57 (4)	08:08 (11)
Dispatch to Arrival	**09:36 (49)**	09:18 (8)	08:12 (10)	10:30 (13)	09:33 (7)	09:17 (11)
Call to Arrival-Distribution	**09:39 (50)**	**09:28 (8)**	**09:37 (10)**	**10:36 (14)**	**09:33 (7)**	**09:18 (11)**
Call to Arrival-2nd Arrival	**09:37 (50)**	09:07 (7)	09:37 (10)	10:36 (15)	09:34 (7)	09:25 (11)
Scene Duration	**76:37 (51)**	71:59 (8)	48:45 (10)	81:06 (15)	21:58 (7)	60:27 (11)
Total Duration	**85:53 (51)**	78:44 (8)	51:40 (10)	89:16 (15)	31:27 (7)	69:45 (11)

Technical Rescue - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**03:01 (268)**	03:22 (57)	02:35 (59)	02:28 (56)	02:40 (58)	02:49 (38)
Turnout	**01:45 (246)**	01:39 (51)	01:44 (52)	01:40 (51)	01:43 (54)	02:00 (38)
Travel-Distribution	**07:13 (260)**	06:19 (57)	06:13 (57)	07:21 (51)	07:17 (58)	06:19 (37)
Travel-2nd Arrival	**07:13 (266)**	06:19 (59)	06:13 (59)	07:35 (54)	07:17 (58)	06:19 (36)
Dispatch to Arrival	**07:51 (280)**	07:11 (59)	08:05 (62)	07:32 (57)	08:00 (63)	07:57 (39)
Call to Arrival-Distribution	**08:50 (281)**	**08:25 (59)**	**08:36 (63)**	**09:26 (57)**	**09:05 (63)**	**08:41 (39)**
Call to Arrival-2nd Arrival	**09:02 (281)**	08:25 (59)	08:36 (63)	09:26 (57)	09:05 (63)	09:12 (39)
Scene Duration	**70:03 (283)**	33:51 (59)	32:57 (63)	32:54 (57)	40:05 (64)	105:00 (40)
Total Duration	**101:35 (284)**	91:42 (60)	82:58 (63)	106:17 (57)	101:35 (64)	110:00 (40)

Haz Mat - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**02:11 (198)**	02:20 (33)	01:09 (38)	02:14 (32)	01:48 (56)	03:04 (39)
Turnout	**01:50 (186)**	01:25 (32)	01:46 (35)	01:50 (30)	01:21 (52)	02:06 (37)
Travel-Distribution	**08:40 (188)**	08:55 (32)	07:18 (37)	07:00 (28)	08:42 (51)	08:44 (40)
Travel-2nd Arrival	**08:42 (185)**	08:55 (29)	07:18 (37)	07:07 (28)	08:42 (51)	08:44 (40)
Dispatch to Arrival	**09:39 (214)**	10:39 (34)	08:42 (39)	09:30 (34)	09:39 (62)	11:05 (45)
Call to Arrival-Distribution	**10:11 (216)**	**10:48 (34)**	**08:52 (39)**	**10:20 (34)**	**10:10 (62)**	**10:27 (47)**
Call to Arrival-2nd Arrival	**10:48 (204)**	10:48 (30)	09:18 (40)	10:28 (32)	10:10 (59)	12:43 (43)
Scene Duration	**68:27 (221)**	49:41 (34)	80:00 (42)	64:58 (36)	68:00 (62)	66:51 (47)
Total Duration	**74:36 (222)**	86:32 (34)	85:57 (42)	72:38 (36)	71:15 (63)	72:17 (47)

Service - NFIRS: 500, 600, 700, 800, 900 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**01:52 (803)**	02:04 (156)	01:36 (147)	01:28 (165)	02:03 (166)	02:03 (169)
Turnout	**01:52 (784)**	01:55 (159)	01:40 (130)	01:41 (163)	01:48 (162)	01:58 (170)
Travel-Distribution	**08:01 (800)**	08:08 (171)	07:51 (140)	07:26 (158)	08:04 (161)	08:24 (170)
Travel-2nd Arrival	**08:01 (773)**	07:53 (155)	07:58 (135)	07:32 (153)	08:04 (161)	08:24 (169)
Dispatch to Arrival	**09:06 (889)**	09:33 (179)	08:27 (152)	08:36 (175)	09:05 (194)	09:44 (189)
Call to Arrival-Distribution	**09:29 (924)**	**10:00 (180)**	**08:56 (153)**	**09:16 (181)**	**09:28 (195)**	**09:48 (215)**
Call to Arrival-2nd Arrival	**09:36 (828)**	09:52 (156)	08:56 (145)	09:17 (164)	09:32 (181)	09:51 (182)
Scene Duration	**33:16 (918)**	28:56 (184)	33:55 (155)	30:47 (178)	28:12 (193)	46:27 (208)
Total Duration	**40:34 (956)**	37:32 (188)	42:29 (159)	36:13 (183)	36:43 (200)	50:29 (226)

FIRE

FIRES – ALL COMBINED (No Aid Given)

Fire Risk – ALL *-90th Percentile Times-* **BASELINE Performance**		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**1:55**	2:17	1:25	1:41	1:14	**2:38**	1:00
Turnout Time	**1st Unit** Dispatch to Enroute	**2:13**	1:49	1:50	1:55	2:11	**2:44**	1:20
Travel Time	**1st Unit Distribution**	**8:17**	9:29	8:02	7:56	7:57	**8:17**	4:00
	ERF Concentration	**ERF Varies**	--	--	--	--	**--**	8:00
Total Response Time	**1st Unit on Scene Distribution**	**9:37**	**9:39**	**9:37**	**9:16**	**9:33**	**9:18**	6:20
	# INCIDENTS	**123**	**24**	**24**	**27**	**23**	**25**	
	ERF Concentration	**ERF Varies**	--	--	--	--	**--**	10:20
	# INCIDENTS							

All Fires ---> Incident Type Codes 1@

Effective Response Force **(ERF)** – Varies on Risk Level **(Low 3, Moderate 15, High 29)**

FIRES – LOW RISK

Fire Risk - LOW *-90th Percentile Times-* **BASELINE Performance**		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**1:55**	2:01	2:00	1:31	2:07	**1:38**	1:00
Turnout Time	**1st Unit** Dispatch to Enroute	**1:55**	2:04	1:49	1:54	1:41	**2:13**	1:20
Travel Time	**1st Unit Distribution**	**8:02**	8:08	8:11	7:42	8:04	**7:54**	4:00
	ERF Concentration	**Same as Above**	--	--	--	--	**--**	8:00
Total Response Time	**1st Unit on Scene Distribution**	**9:45**	**10:10**	**9:20**	**9:36**	**9:49**	**9:00**	6:20
	# INCIDENTS	**474**	**89**	**88**	**98**	**114**	**85**	
	ERF Concentration	**Same as Above**	--	--	--	--	**--**	10:20
	# INCIDENTS	**--**	**--**	**--**	**--**	**--**	**--**	

Fire - LOW ---> Incident Type Codes 100, 120, 122, 130, 131, 132, 134, 136, 137, 138, 150, 151, 152, 153, 154, 155, 160, 161, 162, 1621, 163, 164, 440, 441, 442, 443, 444, 445, 480, 481, 482, 631, 632, 650, 6511, 652, 653, 814, 700, 710, 711, 712, 713, 714, 715, 721, 730, 731, 732, 733, 734, 735, 740, 741, 742, 743, 744, 745, 2@@

Effective Response Force **(ERF) - 3**

FIRES – MODERATE RISK

Fire Risk - MODERATE *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**0:32**	0:32	0:24	0:26	0:16	**0:18**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**2:10**	1:30	2:20	1:15	2:10	**3:04**	1:20
Travel Time	1st Unit Distribution	**7:45**	3:44	5:54	6:55	5:20	**8:47**	4:00
	ERF Concentration	**16:33**	9:58	23:56	10:36	9:10	**10:08**	8:00
Total Response Time	1st Unit on Scene Distribution	**8:49**	**6:31**	**8:21**	**8:49**	**9:05**	**8:48**	6:20
	# INCIDENTS	**36**	**6**	**8**	**7**	**10**	**5**	
	ERF Concentration	**18:03**	**11:34**	**24:58**	**12:47**	**11:09**	**22:11**	10:20
	# INCIDENTS	**12**	**2**	**1**	**1**	**6**	**3**	

Fire - MODERATE ---> Incident Type Codes 110, 111, 112, 113,114,115, 116, 117, 118, 121, 123

Effective Response Force **(ERF) – 15**

FIRES – HIGH RISK

Fire Risk - HIGH *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch							1:00
Turnout Time	1st Unit Dispatch to Enroute							1:20
Travel Time	1st Unit Distribution			INSUFFICIENT RECORDS OR INCIDENTS				4:00
	ERF Concentration							8:00
Total Response Time	1st Unit on Scene Distribution							6:20
	# INCIDENTS							
	ERF Concentration							15:00
	# INCIDENTS							

Fire - HIGH ---> Incident Type Codes 133, 135, 1112

Effective Response Force **(ERF) – 29**

***DATA INCONSISTENCIES FROM RMS ISSUES IN ERF FIELDS – VOLATILE INFO**

EMS

EMS - LOW RISK (No Aid Given)

EMS Risk - LOW *-90th Percentile Times-* BASELINE Performance		2016-2019	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**2:03**	2:08	2:04	2:04	1:58	**1:56**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**1:40**	1:41	1:36	1:29	1:39	**1:52**	1:20
Travel Time	1st Unit Distribution	**7:42**	7:50	7:10	7:30	7:58	**7:49**	4:00
	ERF Concentration	**7:43**	7:54	7:10	7:39	7:58	**8:01**	8:00
Total Response Time	1st Unit on Scene Distribution	**9:13**	**9:19**	**8:38**	**8:58**	**9:33**	**9:26**	6:00
	# INCIDENTS	**2,529**	**483**	**443**	**528**	**513**	**562**	
	ERF Concentration	**9:22**	**9:22**	**8:41**	**8:58**	**9:37**	**9:42**	10:00
	# INCIDENTS	**2,485**	**472**	**438**	**517**	**503**	**562**	

EMS - LOW ---> Incident Type Codes 300, 311, 320, 321, 381, 554, 661

Effective Response Force **(ERF) - 5**

EMS – MODERATE RISK

EMS Risk – MODERATE *-90th Percentile Times-* BASELINE Performance		2016-2019	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	--	--	--	--	--	**2:43**	1:00
Turnout Time	1st Unit Dispatch to Enroute	--	--	--	--	--	**1:02**	1:00
Travel Time	1st Unit Distribution	--	--	--	--	--	**6:01**	4:00
	ERF Concentration	--	--	--	--	--	**6:30**	8:00
Total Response Time	1st Unit on Scene Distribution	--	--	--	--	--	**9:51**	6:00
	# INCIDENTS						**11**	
	ERF Concentration	--	--	--	--	--	**10:00**	10:00
	# INCIDENTS						**11**	

EMS - MODERATE ---> Incident Type Codes 3211 (Cardiac Arrest)

Effective Response Force **(ERF) – 7**

NOTE – Measurements based on 20 or fewer incidents can be very volatile.

RESCUE

RESCUE – ALL COMBINED (No Aid Given)

RESCUE Risk – ALL *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**3:01**	3:22	2:35	2:28	2:40	**2:49**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**1:45**	1:39	1:44	1:40	1:43	**2:00**	1:20
Travel Time	1st Unit Distribution	**7:13**	6:19	6:13	7:21	7:17	**6:19**	4:00
	ERF Concentration	**ERF Varies**	--	--	--	--	**--**	8:00
Total Response Time	1st Unit on Scene Distribution	**8:50**	8:2508	8:36	9:26	9:05	**8:41**	6:20
	# INCIDENTS	**281**	**59**	**63**	**57**	**63**	**39**	
	ERF Concentration Concentration	**ERF Varies**	--	--	--	--	**--**	10:20
	# INCIDENTS							

Tech Rescue ---> Incident Type Codes 35@, 36@
Effective Response Force **(ERF)** – Varies on Risk Level **(Low 3, Moderate 6, High 14-24)**

RESCUE – LOW RISK

RESCUE Risk - LOW *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**3:06**	2:14	3:21	2:00	1:42	**2:53**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**2:41**	1:34	1:22	3:14	1:14	**2:41**	1:20
Travel Time	1st Unit Distribution	**7:00**	8:19	4:00	4:49	6:45	**7:06**	4:00
	ERF Concentration	**Same as Above**	--	--	--	--	**--**	8:00
Total Response Time	1st Unit on Scene Distribution	**8:55**	**4:41**	**7:08**	**8:40**	**8:15**	**9:14**	6:20
	# INCIDENTS	**325**	**62**	**68**	**65**	**72**	**57**	
	ERF Concentration Concentration	**Same as Above**	--	--	--	--	**--**	10:20
	# INCIDENTS							

Rescue - LOW ---> Incident Type Codes 331, 353, 460, 463, 511, 555, 5551, 811, 812, 813
Effective Response Force **(ERF) - 3**

RESCUE – MODERATE RISK

RESCUE Risk - MODERATE *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**3:05**	3:22	3:06	2:30	2:40	**2:53**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**1:49**	1:39	1:43	1:45	1:43	**2:18**	1:20
Travel Time	1st Unit Distribution	**7:11**	6:29	6:13	7:21	8:01	**7:29**	4:00
	ERF Concentration	**7:17**	6:29	6:13	7:35	7:11	**7:00**	8:00
Total Response Time	1st Unit on Scene Distribution	**8:55**	**8:48**	**8:14**	**9:26**	**8:54**	**8:55**	6:20
	# INCIDENTS	**325**	**62**	**68**	**65**	**72**	**57**	
	ERF Concentration Concentration	**9:09**	**8:48**	**8:14**	**9:26**	**8:54**	**8:55**	10:20
	# INCIDENTS	**325**	**62**	**68**	**65**	**72**	**55**	

Rescue - MODERATE ---> Incident Type Codes 322, 323, 324, 340, 341, 342, 352, 370, 371, 372

Effective Response Force **(ERF) – 6**

RESCUE – HIGH RISK

RESCUE Risk - HIGH *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**2:38**		2:38	0:13			1:00
Turnout Time	1st Unit Dispatch to Enroute	**0:34**		0:06	:34			1:20
Travel Time	1st Unit Distribution	**4:58**		4:58	4:55			4:00
	ERF Concentration							8:00
Total Response Time	1st Unit on Scene Distribution	**7:42**		**7:42**	**5:42**			6:20
	# INCIDENTS	**3**		**1**	**2**			
	ERF Concentration Concentration							15:00
	# INCIDENTS							

Rescue - HIGH ---> Incident Type Codes 343, 350, 351, 354, 355, 356, 357, 360, 361, 362, 363, 364, 365, 461, 462

Effective Response Force **(ERF) - 13-29**

NOTE – Measurements based on 20 or fewer incidents can be very volatile.

HAZMAT

HAZMAT- ALL COMBINED (No Aid Given)

HAZMAT Risk – ALL *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**2:11**	2:20	1:09	2:14	1:48	**3:04**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**1:50**	1:25	1:46	1:50	1:21	**2:06**	1:20
Travel Time	1st Unit Distribution	**8:40**	8:55	7:18	7:00	8:42	**8:44**	4:00
	ERF Concentration	ERF Varies	--	--	--	--	--	8:00
Total Response Time	1st Unit on Scene Distribution	**10:11**	**10:48**	**8:52**	**10:20**	**10:10**	**10:27**	6:20
	# INCIDENTS	**216**	**34**	**39**	**34**	**62**	**47**	
	ERF Concentration Concentration	ERF Varies	--	--	--	--	--	10:20
	# INCIDENTS							

HazMat ---> Incident Type Codes 41@, 42@, 43@, 44@, 45@, 46@, 47@, 400@

Effective Response Force **(ERF)** – Varies on Risk Level **(Low 3, Moderate 7, High 13-24)**

HAZMAT- LOW RISK

HAZMAT Risk - LOW *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**2:02**	2:20	1:25	2:02	1:48	**3:04**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**1:50**	1:44	1:43	1:40	1:45	**2:06**	1:20
Travel Time	1st Unit Distribution	**8:44**	8:52	8:07	9:01	8:49	**8:31**	4:00
	ERF Concentration	Same as Above	--	--	--	--	--	8:00
Total Response Time	1st Unit on Scene Distribution	**10:20**	**10:45**	**8:56**	**10:39**	**10:10**	**10:02**	6:20
	# INCIDENTS	**271**	**57**	**41**	**51**	**78**	**44**	
	ERF Concentration Concentration	Same as Above	--	--	--	--	--	10:20
	# INCIDENTS							

HazMat - LOW ---> Incident Type Codes 400, 410, 411, 4122, 413, 420, 421, 671, 736, 746

Effective Response Force **(ERF) - 3**

HAZMAT- MODERATE RISK

HAZMAT Risk - MODERATE *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	2020	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch	**2:27**	2:20	1:09	2:14	1:40	**3:04**	1:00
Turnout Time	1st Unit Dispatch to Enroute	**1:34**	1:09	1:43	1:22	1:15	**1:39**	1:20
Travel Time	1st Unit Distribution	**8:37**	8:17	7:18	6:44	8:42	**10:55**	4:00
	ERF Concentration	**8:37**	8:52	7:18	6:44	8:42	**10:55**	8:00
Total Response Time	1st Unit on Scene Distribution	**9:49**	**9:29**	**8:43**	**9:32**	**10:05**	**10:27**	6:20
	# INCIDENTS	**127**	**17**	**25**	**24**	**34**	**27**	
	ERF Concentration Concentration	**10:05**	9:29	8:52	9:32	10:05	**10:36**	10:20
	# INCIDENTS	**119**	**13**	**25**	**22**	**34**	**27**	

HazMat - MODERATE ---> Incident Type Codes 412, 422, 423, 424, 672, 751

Effective Response Force **(ERF) – 7**

HAZMAT – HIGH RISK

HAZMAT Risk - HIGH *-90th Percentile Times-* BASELINE Performance		2016-2020	2016	2017	2018	2019	Target BENCHMARK
Alarm Handling	Pick-up to Dispatch			No Reportable High-Risk Level Incidents			1:00
Turnout Time	1st Unit Dispatch to Enroute						1:20
Travel time	1st Unit Distribution						4:00
	ERF Concentration						8:00
Total Response Time	1st Unit on Scene Distribution						6:20
	# INCIDENTS						
	ERF Concentration Concentration						15:00
	# INCIDENTS						

HazMat - HIGH ---> Incident Type Codes 430, 431, 451, 471

Effective Response Force **(ERF) - 14**

Call Processing

BENCHMARK (90% of Incidents)

< 1:04 (1:00)

Illinois established that 911 calls are transferred to the PSAP designated by the law enforcement district that has jurisdiction (in this case, Laraway Communication Center or **"LCC"**). NFPA 1221, Standards for Installation, Maintenance, and Use of Emergency Services Communications Systems, 2016 Edition, establishes a PSAP transfer performance standard of ≤ 30 seconds 95% of the time. Transfer times are not currently being tracked at this time. Estimates from the PSAP center establish an informal goal of 30-45 seconds transfer through a dedicated, one-button system.

NFPA 1710 requires that 90% of all calls must be "processed" in less than 64 seconds (95% < 106 seconds). Those times are listed below for this study period: **2016-2020**

Fire & EMS - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**01:54 (2,745)**	01:56 (538)	01:49 (490)	01:54 (586)	01:56 (560)	01:52 (571)

NO AID GIVEN All Incidents - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call Processing	**01:53 (3,747)**	01:55 (726)	01:46 (675)	01:51 (782)	01:55 (781)	01:54 (783)

The Baseline times show exceeding this 1:00 benchmark by 54 seconds on average (:49-:56+ range)

Call Processing Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	**02:06 (3,747)**	**02:16 (729)**	**02:02 (673)**	**02:04 (782)**	**02:03 (780)**	**02:06 (783)**
Station 81	**02:02 (3,314)**	02:07 (624)	01:55 (603)	02:02 (696)	02:00 (695)	02:03 (696)
Station 82	**02:38 (433)**	02:50 (105)	02:31 (70)	02:13 (86)	02:39 (85)	02:47 (87)

However, there is another time that needs to be reviewed. It is the time before the call is initiated. Per NFPA 1221 & 1710, the time an emergency call is initiated to being answered (ring time) is <15 sec for 95% of all calls and <40 sec for 99%. If a Primary PSAP (Public Safety Answering Point) is different from the Fire/EMS Dispatcher, that call must be transferred in less than 30 seconds. **These times, thus far, have not been obtained to validate benchmark compliance.**

Other times prior to Dispatch picking up 911 call to be processed ***(Not analyzed here, yet)***

911 Call Answered (**Ring Time**)	**< 15 sec**	**95%**
	< 40 sec	*99%*
PSAP 1 transfer to PSAP 2	**< 30 sec**	**90%**
(If not primary PSAP)		

Call Processing – tracked here ***("911 – Where and What is your Emergency?")***

Call Processing	**< 64 sec**	**90%**
	< 106 sec	*95%*

Turnout

The time when the Stations or Units are notified of the incident until the "wheels are turning" and the unit is heading to the incident.

BENCHMARK (90% of Incidents)

< 1:00 - EMS

< 1:20 - FIRES

Fire & EMS - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Turnout	**01:45 (2,737)**	01:45 (540)	01:39 (489)	01:38 (565)	01:42 (541)	01:59 (602)

NO AID GIVEN All Incidents - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Turnout	**01:46 (3,728)**	01:46 (734)	01:39 (659)	01:40 (760)	01:43 (757)	02:00 (818)

The Baseline times show exceeding this 1:00 benchmark by 45 seconds on average (:39-:59+ range)

Turnout Time Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	**01:44 (3,671)**	**01:44 (723)**	**01:38 (640)**	**01:38 (752)**	**01:42 (745)**	**01:59 (811)**
Station 81	**01:43 (3,238)**	01:41 (619)	01:38 (570)	01:34 (667)	01:39 (662)	01:58 (720)
Station 82	**01:55 (433)**	01:55 (104)	01:45 (70)	01:57 (85)	01:55 (83)	02:02 (91)

Travel

The time from the unit responds to when it arrives on the scene.

BENCHMARK (90% of Incidents)

< 4:00 – First Due Unit (Engine)

< 6:00 - Second-due Engine (per new 2020 edition NFPA 1710)*

< 8:00 – Effective Response Force (ERF) / Balance of Alarm

Fire & EMS - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Travel-Distribution	**07:56 (2,747)**	07:57 (541)	07:52 (481)	07:49 (569)	08:01 (545)	08:00 (611)

NO AID GIVEN All Incidents - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Travel-Distribution	**08:00 (3,742)**	08:03 (744)	07:55 (660)	07:46 (753)	08:05 (758)	08:15 (827)

The Baseline times show exceeding this 4:00 benchmark by 3:56 on average (3:49-4:01+ range)

Travel Time Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	**07:49 (3,725)**	**07:56 (742)**	**07:23 (657)**	**07:35 (748)**	**08:01 (755)**	**08:01 (823)**
Station 81	**07:37 (3,301)**	07:40 (636)	07:10 (589)	07:18 (669)	07:56 (671)	07:51 (736)
Station 82	**08:46 (424)**	09:39 (106)	08:26 (68)	08:30 (79)	08:19 (84)	08:20 (87)

Call to Arrival

The "**Total Response Time**" or "Hello to Hello" time from the 911 call to the first unit and ERF arrives.

BENCHMARK (90% of Incidents)

< 6:00 - 6:20 – First Due Unit

< 10:00 - 10:20 – Effective Response Force (ERF) / Balance of Alarm

Fire & EMS - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call to Arrival-Distribution	09:27 (2,875)	09:22 (553)	09:11 (503)	09:08 (596)	09:33 (585)	09:47 (638)

NO AID GIVEN All Incidents - Department-Wide 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Call to Arrival-Distribution	09:32 (4,020)	09:29 (767)	09:08 (695)	09:13 (811)	09:45 (842)	10:01 (905)

The Baseline times show exceeding this 6:00 benchmark by 3:27 on average (3:08-3:47+ range)

Call to Arrival Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	09:21 (4,021)	09:26 (767)	08:52 (695)	09:09 (811)	09:31 (842)	09:32 (905)
Station 81	09:05 (3,556)	09:08 (656)	08:43 (622)	08:50 (722)	09:09 (747)	09:24 (808)
Station 82	10:44 (465)	11:03 (111)	09:54 (73)	10:18 (89)	12:16 (95)	10:12 (97)

Dispatch to Arrival

The "Response Time" from the Unit/Station notification to the first unit and ERF arrives, exclusive of the Call Processing time from Dispatch.

BENCHMARK (90% of Incidents)

< 5:00 - 5:20 – First Due Unit

< 9:00 - 9:20 – Effective Response Force (ERF) / Balance of Alarm

Dispatch to Arrival Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	08:54 (3,969)	09:01 (766)	08:24 (691)	08:28 (803)	09:07 (841)	09:15 (868)
Station 81	08:36 (3,508)	08:39 (655)	08:14 (618)	08:06 (716)	08:49 (747)	09:13 (772)
Station 82	10:18 (461)	10:56 (111)	08:42 (73)	09:31 (87)	11:25 (94)	09:41 (96)

Scene Duration

The time from the arrival of the first unit until the last unit leaves the scene. There is no benchmark time; however, the longer the units are committed to the incident, the less likely they are able to respond to another incident.

Scene Duration Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	**32:47 (2,697)**	30:09 (554)	32:23 (510)	33:15 (599)	30:44 (589)	37:04 (445)
Station 81	**31:08 (2,331)**	29:05 (472)	30:04 (447)	33:09 (522)	30:34 (508)	36:09 (382)
Station 82	**43:20 (366)**	38:13 (82)	48:45 (63)	45:08 (77)	34:29 (81)	52:15 (63)

Time to Hospital (Transport)

The time from the Ambulance departs the scene until it arrives at the hospital.

Travel to Hospital Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	**22:18 (2,015)**	**21:46 (414)**	**22:39 (357)**	**22:29 (405)**	**22:53 (418)**	**21:52 (421)**
Station 81	**20:33 (1,760)**	20:03 (354)	21:32 (314)	20:30 (353)	20:04 (360)	20:37 (379)
Station 82	**28:23 (255)**	27:04 (60)	30:57 (43)	27:38 (52)	28:18 (58)	27:38 (42)

Time at Hospital (Turn-around)

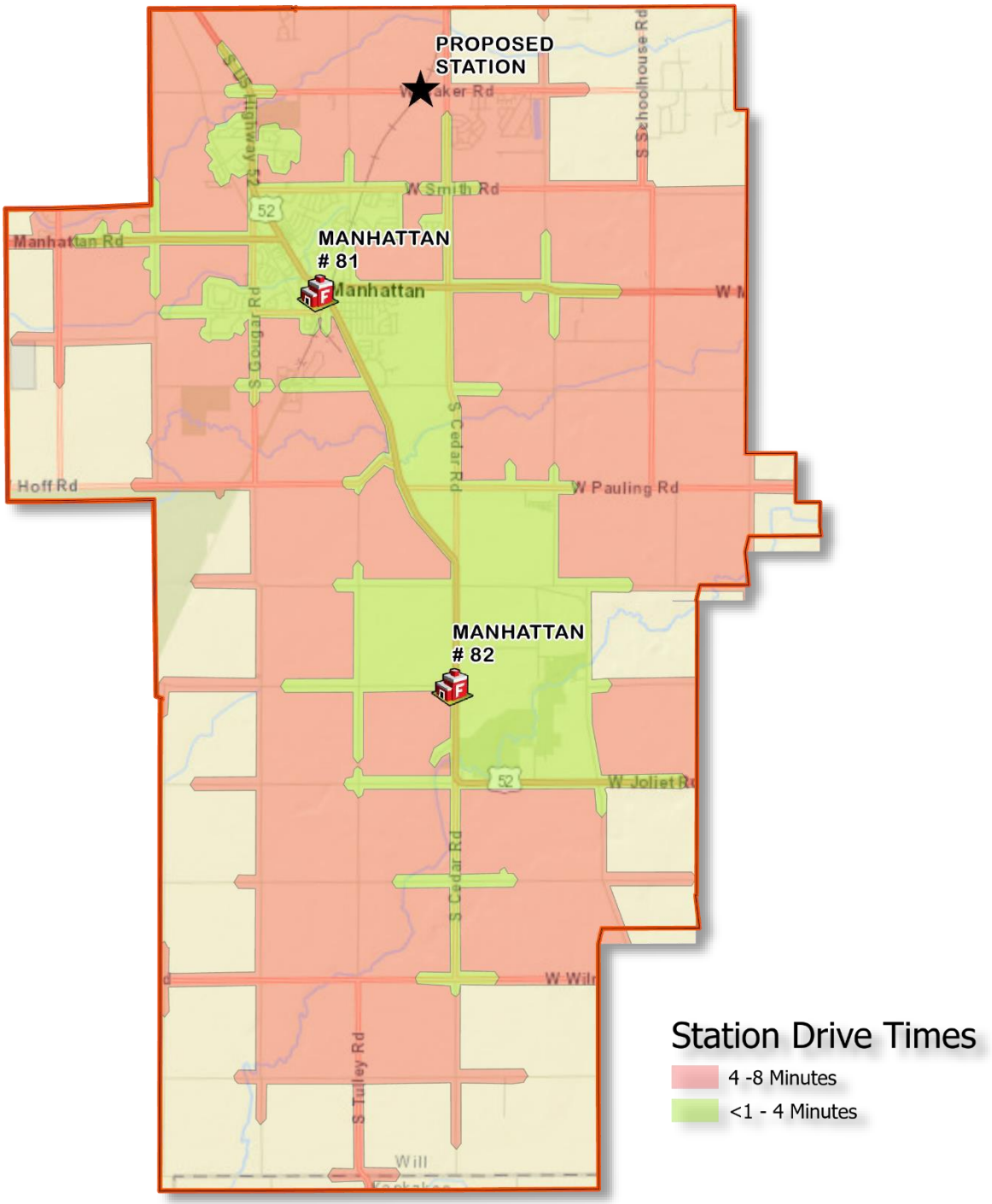
The time the Ambulance arrives at the hospital to its departure and the availability potential for another call (dependent on travel time and distance from the various hospitals back into the District).

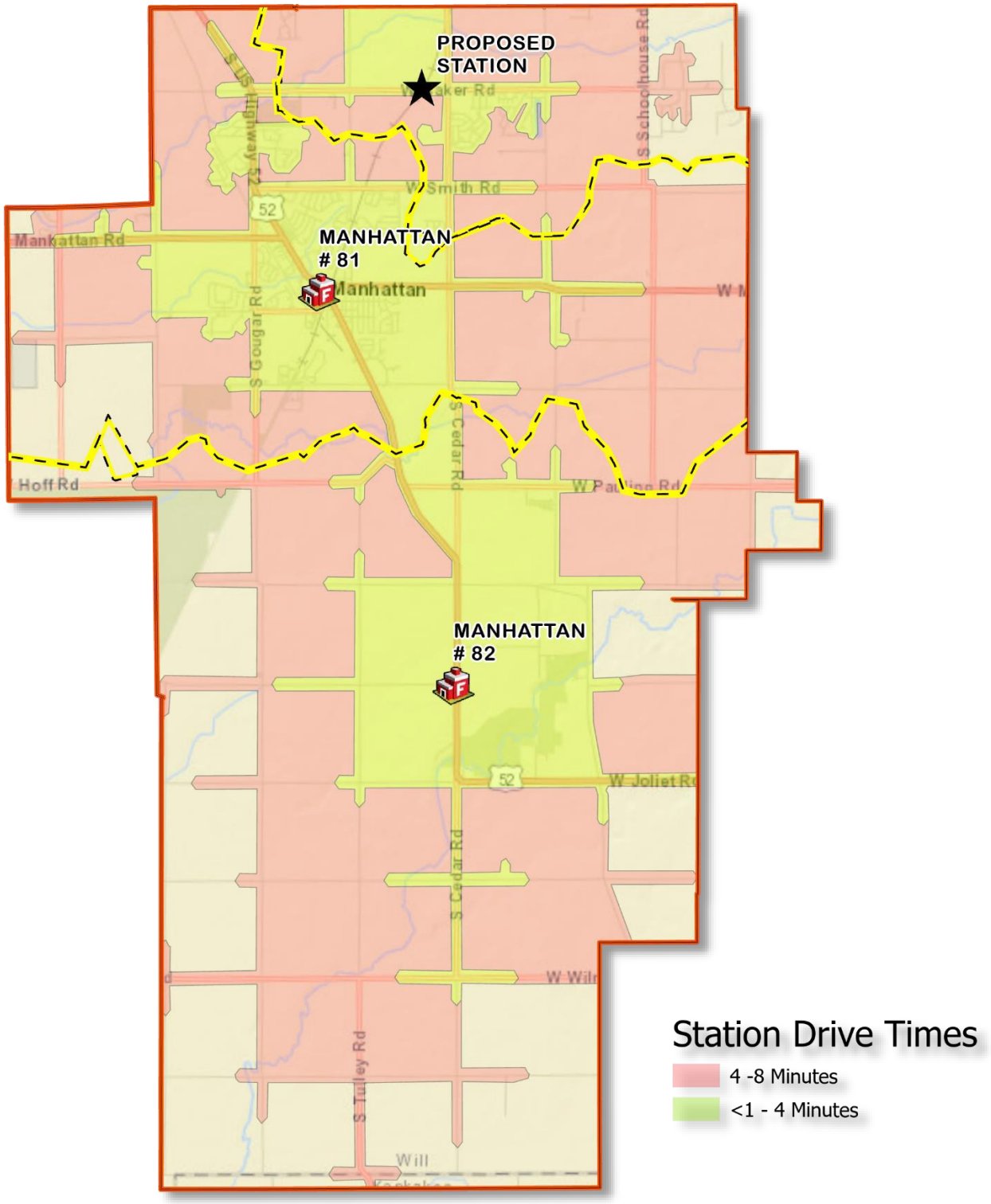
Hospital Duration Analysis 90% Baseline Performance	Overall	2016	2017	2018	2019	2020
Department-Wide	**75:33 (1,657)**	**67:39 (333)**	**62:54 (306)**	**85:36 (328)**	**77:07 (344)**	**73:47 (346)**
Station 81	**72:18 (1,439)**	66:20 (285)	63:49 (266)	82:57 (285)	74:15 (295)	72:05 (308)
Station 82	**91:03 (218)**	81:42 (48)	62:10 (40)	115:39 (43)	77:42 (49)	95:07 (38)

Options

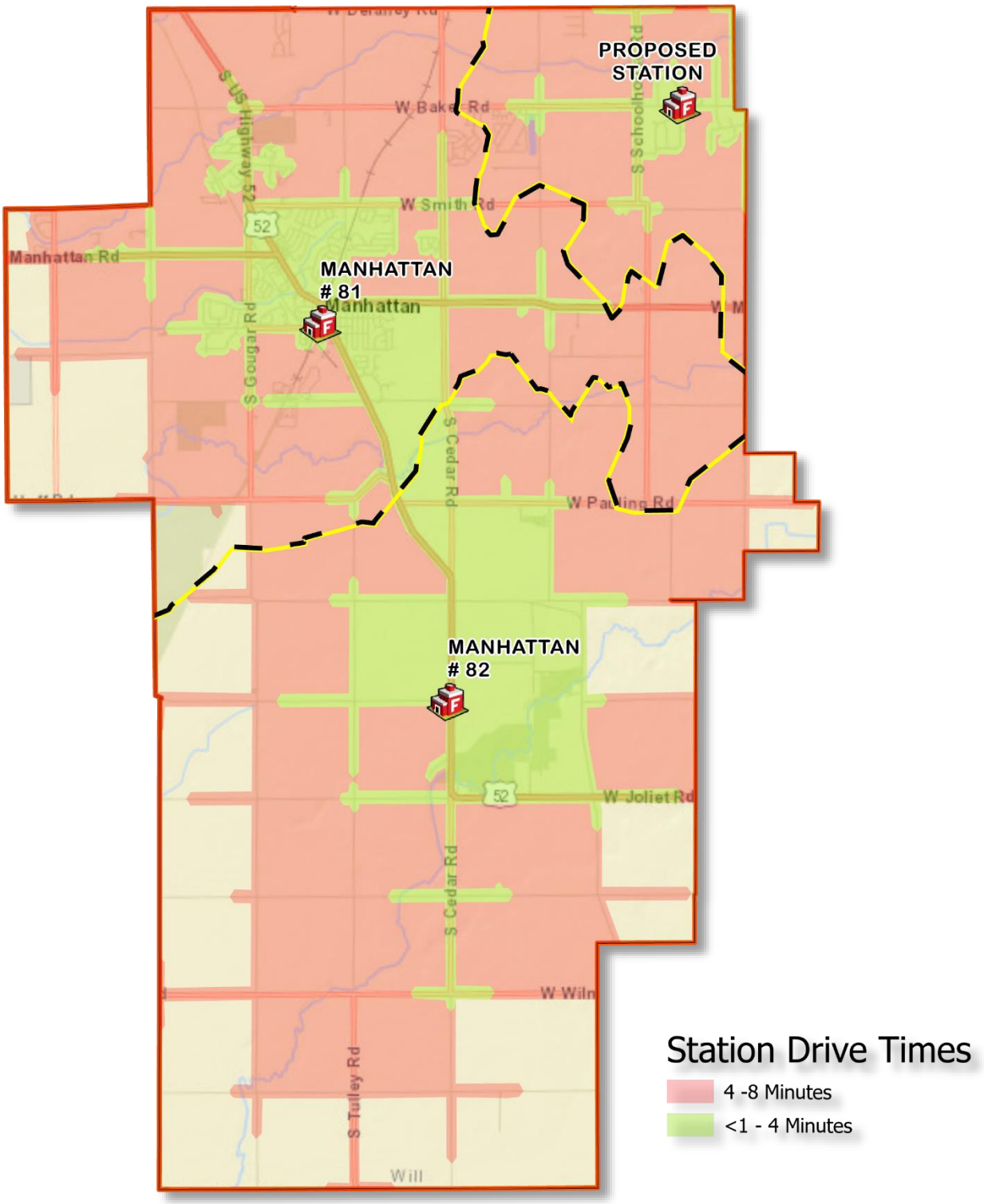
Travel Time Potential - PROPOSED New Station

The District currently owns property on Baker Rd just west of Cedar.



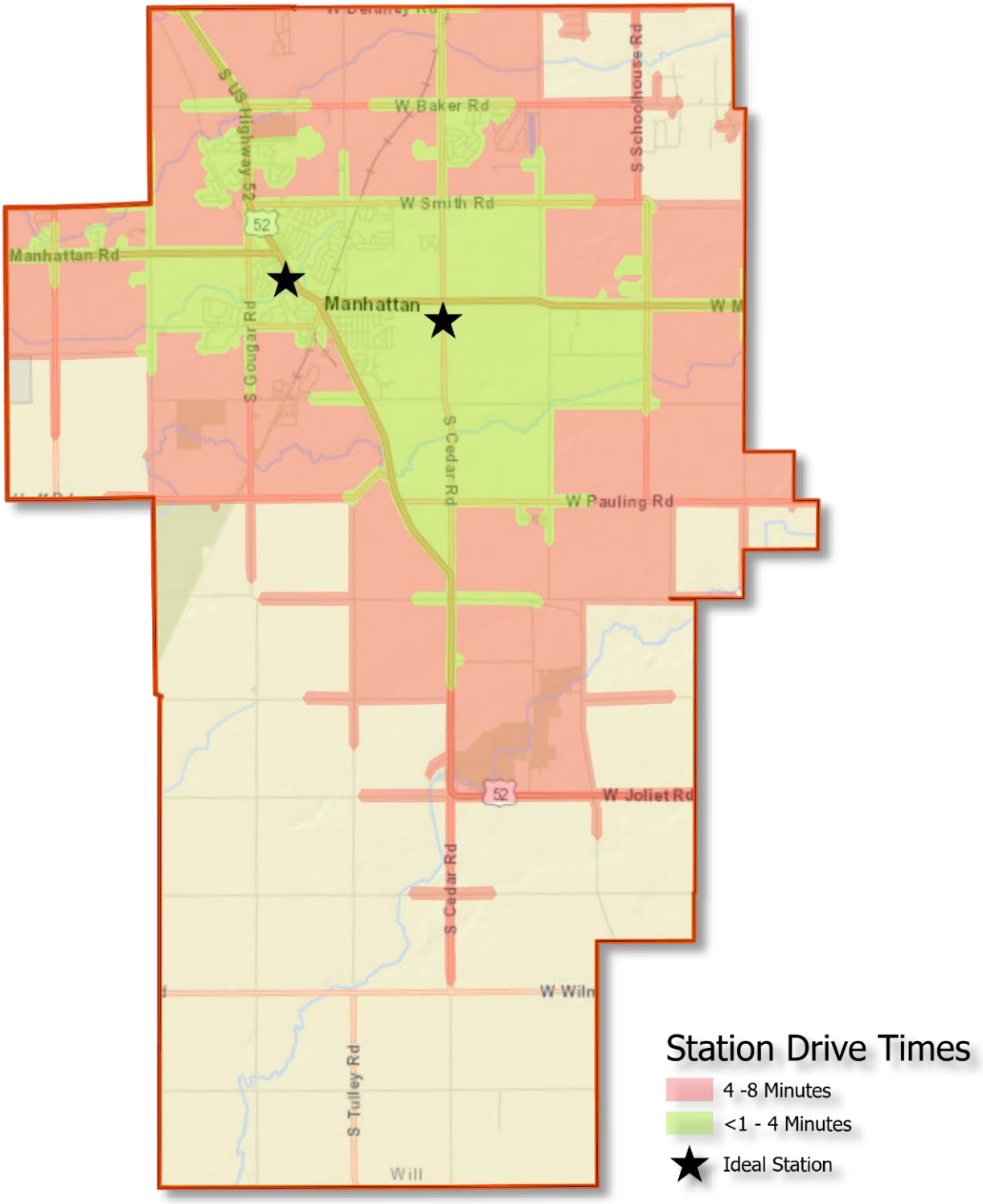

PROPOSED
STATION
MANHATTAN
81
MANHATTAN
82
Manhattan Rd
W Smith Rd
S Schoolhouse Rd
S Gougar Rd
S Cedar Rd
W Joliet Rd
Hoff Rd
S Tuley Rd
52
Will
Station Drive Times
4 -8 Minutes
<1 - 4 Minutes

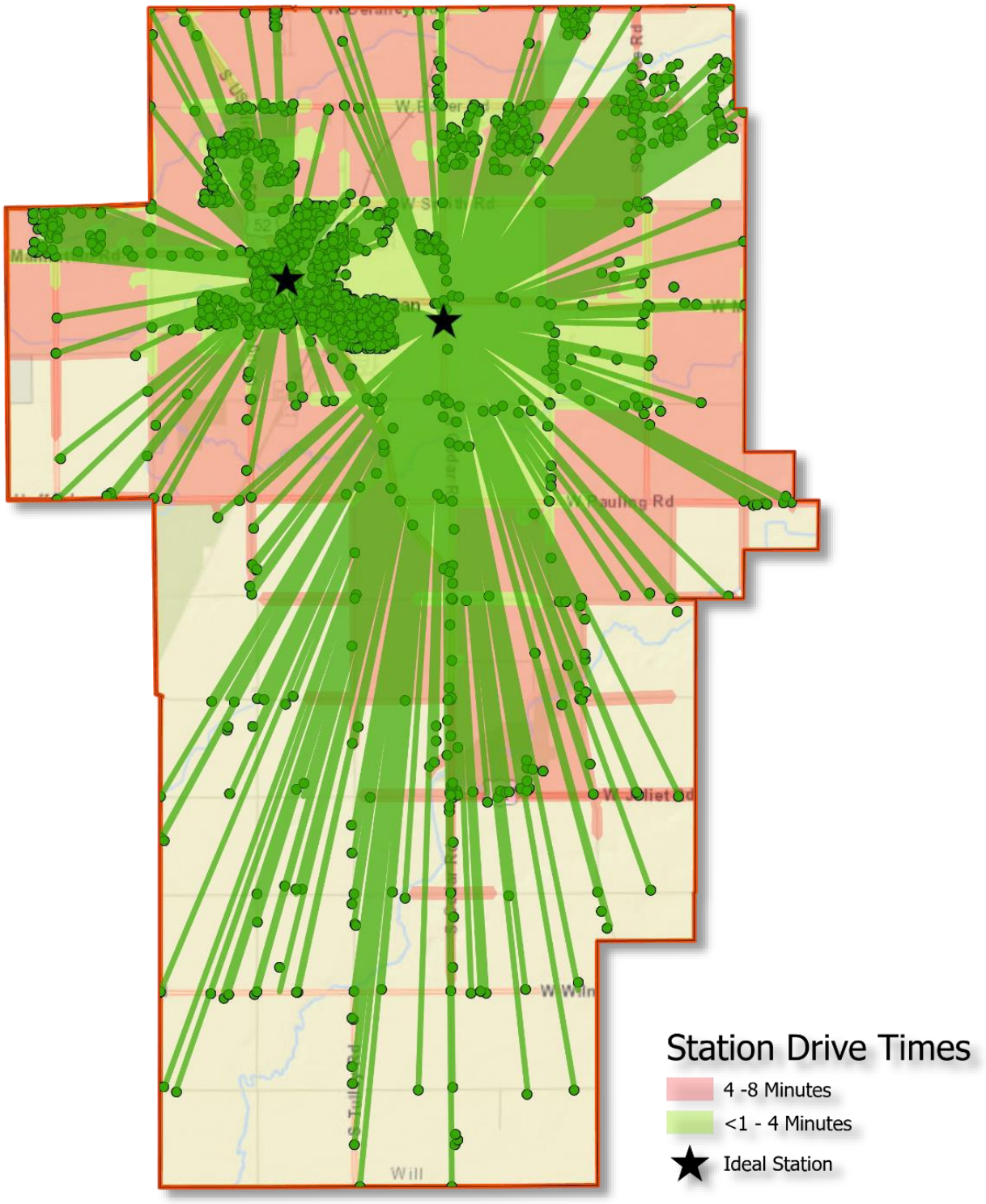
Optional Placement of Proposed Station



Ideal Placement - 2 Stations

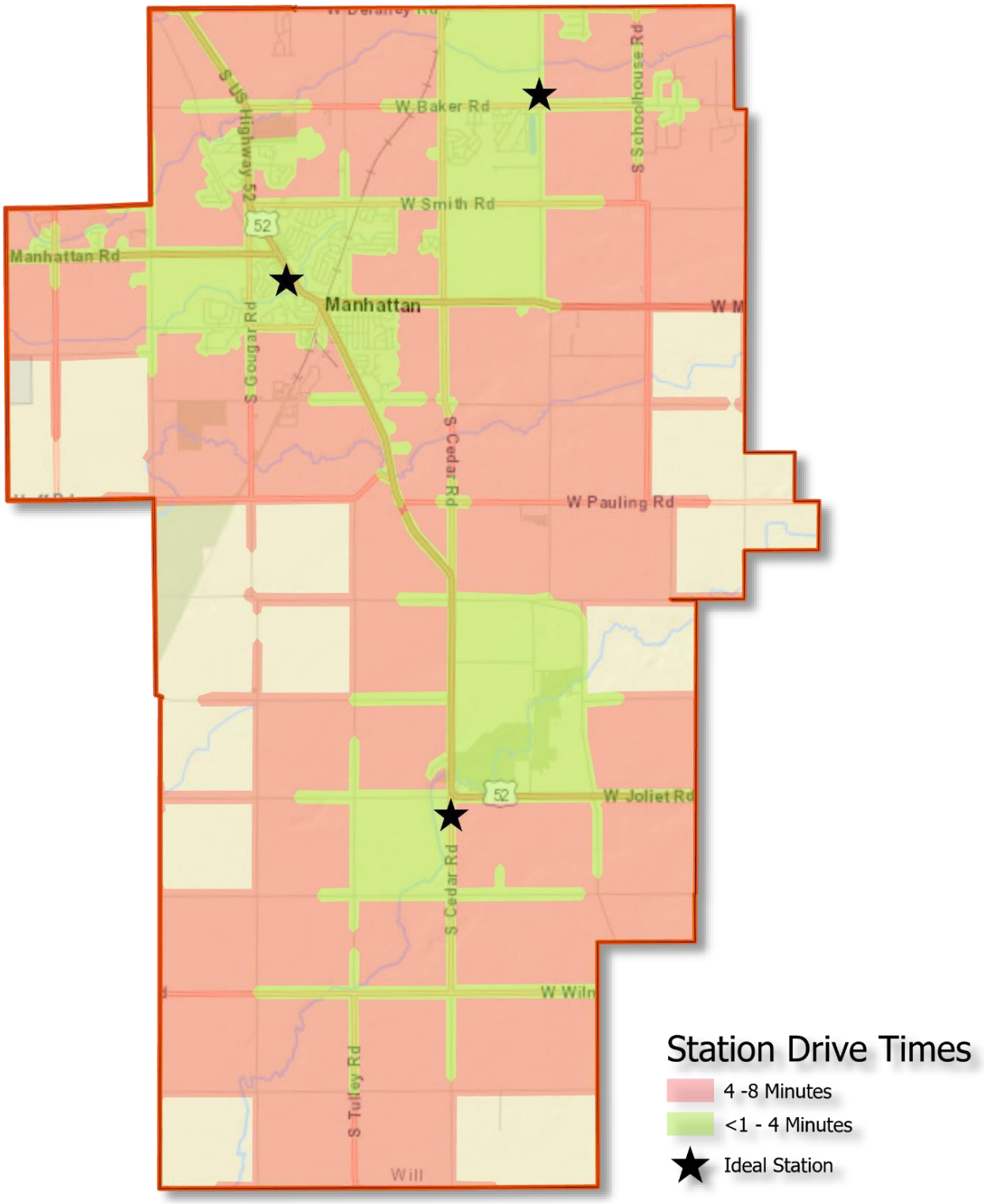
Based on current call volume

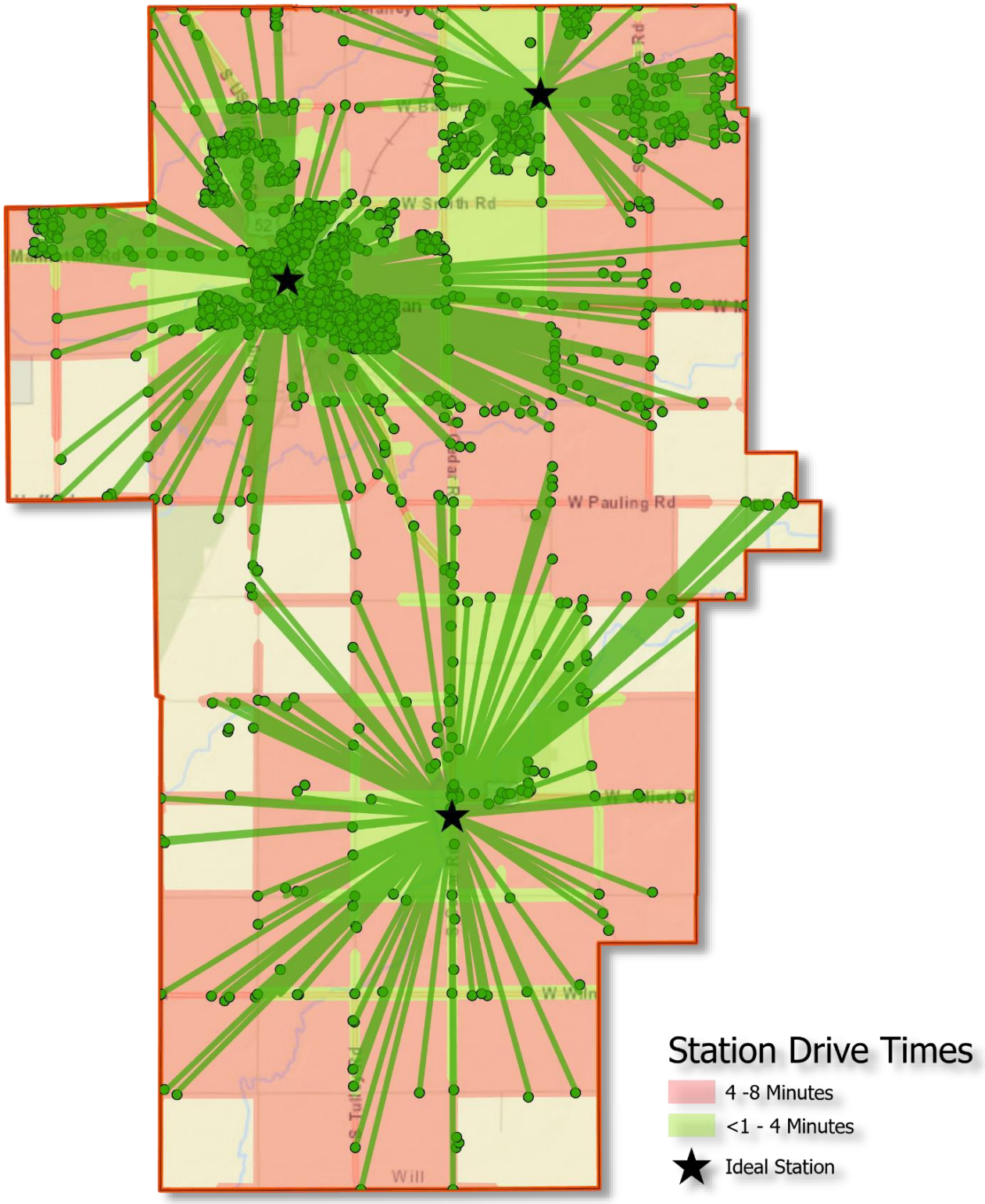



W Bauling Rd
W Joliet Rd
Will
Station Drive Times
4 -8 Minutes
<1 - 4 Minutes
Ideal Station

Ideal Placement - 3 Stations

Based on current call volume




W Pauling Rd
Station Drive Times
4 -8 Minutes
<1 - 4 Minutes
Ideal Station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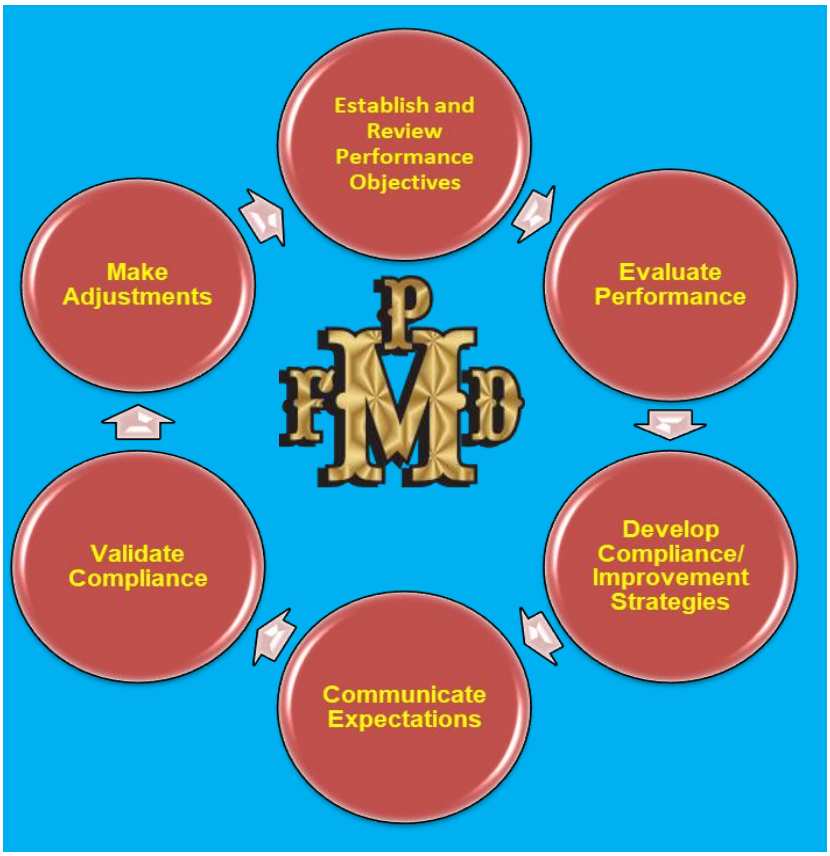
PLAN FOR MAINTAINING & IMPROVING CAPABILITIES

Plan for Maintain and Improving Response Capabilities

The plan is to develop, maintain, and improve response capabilities.

Compliance / Review Methodology

Implementing a plan to guide improving and maintaining Standards of Cover (SOC) response capabilities and performance has been a goal for the Fire Protection District. The District is committed to developing the SOC process to continually analyze the data and use the analytics for continual improvement to achieve this goal. Therefore, with the Chief's facilitation, the team shall be assigned to manage the compliance outlined in the following steps.



Step 1 – Establish and Review Performance Objectives to establish performance objectives.

- Identify services provided.
- Defined level of service.
- Identify and categorize levels of risk.
- Developed performance distribution/concentration measures and associated objectives.

While much of this process may remain the same with each CRA-SOC process, it is essential to review the underlying organizational assumptions and ensure they are accurate and relevant. This can be in the

form of environmental scanning with an emphasis on community expectations, updating and establishing any new performance measures shall occur when:

- The District delivers changes in the type(s) services.
- New mandated laws or regulations that require a change in the method of service delivery.
- Significant changes occur within the District boundaries.
- The Board of Trustees or the Fire Chief needs to adjust performance service delivery and associated performance objectives.

Step 2 – Evaluate Performance Objectives at all levels.

Performance as a District-wide level

DAILY	**STATION/UNIT** LEVEL	(including CQI on EMS)
MONTHLY	**SHIFT/ BATTALION** LEVEL	(each/all 3 shifts)
QUARTERLY	**OPERATIONS/ADMIN** LEVEL	(review all shifts)
YEARLY	**OPS/ADMIN/BATTALIONS**	(SOC/Deployments)

Step 3 – Develop Compliance Strategies that shall include, but are not limited to:

- Ensure the maximization of existing resources.
- Evaluation of partnering opportunities.
- Consideration of alternate means of service delivery.
- Create recommendations for allocating additional financial resources to improve service delivery.
- Individual or group actions that can improve service delivery.
- Recommend response performance reporting systems.

Step 4 – Communicate Expectations

This edition of the CRA-SOC clearly outlines service level-response performance objectives. These performance objectives need to be communicated to the operations personnel responsible for service delivery. The methods for communicating objective performance expectations may include, but are not limited to:

- Direct communication with crews by the Chiefs.
- Publish and post the CRA-SOC on the District internet and in-station.
- Exploring near real-time live delivery of response expectations via email alerts.

Step 5 – Validate Compliance

Chiefs shall monitor response performance data each Shift for gross deviance from performance standards:

- Monthly performance reports that include performance data by unit, station, and Shift shall be developed, standardized, and distributed to all personnel through the chain of command.
- Quarterly performance reports shall be developed and delivered at the quarterly meetings.

A comprehensive annual performance report shall be developed. The annual report shall include: all aspects of performance compliance for the previous calendar year, any significant trends identified by analyzing performance, any new external influences or altered conditions, new growth, development trends, and new or changing risks. The annual report shall be submitted to the Chief and Board of Trustees for their review and comments.

Step 6 – Make Necessary Adjustments

Reviewing the information developed to validate compliance and performance "gaps" can be identified and formulated for improvement developed by the Command Staff.

Annual Review of the CRA-SOC Document

In addition to developing an annual performance report as outlined, the SOC team shall review yearly the entire CRA-SOC to make any necessary adjustments. Following the SOC team's annual review, the CRA-SOC shall be reviewed and adopted annually by the Board of Trustees.

Accreditation Overview

It is recommended that the District achieves Accreditation status. This Community Risk Assessment / Standards of Cover (CRA/SOC) is one of the three components needed. The other two are a STRATEGIC PLAN and SELF-ASSESSMENT MANUAL.

What is Accreditation?

CFAI accreditation is a process of agency self-assessment. The Center for Public Safety Excellence (CPSE) and the Commission on Fire Accreditation International (CFAI) provide the accreditation model, various accreditation publications and training, and access to experienced peer assessors.

Working towards, achieving, and maintaining accreditation shall:

- Raise the profile of your agency with your community.
- Emphasize your agency's dedication to excellence to your stakeholders.
- Establish an agency-wide culture of continuous improvement.
- Assist with communicating your leadership's philosophies.
- Build positive relationships with your labor groups.
- Offer independent verification and validation of your agency's operations.
- Provide objective data and information for your elected officials.

Accredited agencies are often described as community-focused, data-driven, outcome-focused, strategic-minded, well organized, adequately equipped, and adequately staffed and trained. Part of the reason for this is the holistic scope of the CFAI model. It includes **eleven categories** with **252 performance indicators** that cover the span of fire and emergency service operations:

- **Governance and Administration**
- **Assessment and Planning**
- **Goals and Objectives**
- **Financial Resources**
- **Programs**
- **Physical Resources**
- **Human Resources**
- **Training and Competency**
- **Essential Resources**
- **External Systems Relationship**

Category 5 (Programs) covers the whole gamut:

- **Community Risk Reduction**
- **Public Education**
- **Fire Investigations**

CPSE Center for Public Safety Excellence

- **Domestic Preparedness**
- **Fire Suppression**
- **EMS**
- **Technical Rescue**
- **Hazmat**
- **Aviation Rescue and Firefighting**
- **Marine and Shipboard Rescue and Firefighting**
- **Wildland Firefighting**

Like many fire and emergency services agencies, you may find yourself living in a world between public service and private demand. Your agency's goals likely include reducing property and life loss and promoting employee safety. However, you often find yourself making choices. Before making choices, wouldn't you want to know your current status? That is where self-assessment is invaluable. Self-assessment is an excellent way of coping with the rise of performance-based budgeting. This type of budgeting requires measuring, benchmarking, and analysis, all of which are in the CFAI model. Government accountability has also been an emerging trend for the last few decades. Self-assessment provides a reliable response to increased oversight by managers and elected officials and potential criticism from the community.

Accreditation – Is it worth it?

Agency accreditation is a voluntary process. Some agencies seek a dollar-for-dollar return on investment before pursuing accreditation. The real investment is agency staff time, and the actual yield is a better-run, higher-performing agency. Accreditation is recognition of achievement Internationally. It shows your community that your agency performs to industry best practices and holds itself accountable through an external peer review. Document review and onsite assessment by CFAI peer assessors are comprehensive. Accreditation reports often include peer recommendations for improvement beyond those your agency may have considered.


KEY
FINDINGS
&
RECOMMENDATIONS
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SECTION 7 - Key Findings and Recommendations-

Key Findings & Recommendations

These findings and recommendations are a result of the Board of Trustees' oversight and efforts to continually examine and improve the most **effective and efficient** emergency services to the entire Fire Protection District. An extensive review of data was conducted from multiple sources: including NFIRS, CAD, RMS, Budgets, Audits, Annual Reports, and more. Additionally, data analytics utilizing GIS, StatsFD, and other software were part of this process. Below are several recommendations and observations made during site visits and include discussions with Command Staff. These are *in no particular order*, but all could help the District continue to improve and meet its mission.

ADMINISTRATION

- Initiate Automatic Resource Locator (ARL)/GPS = Closest available resource response
- Review Rural ISO Rating (possible rating reductions)
- Evaluate Divisional EMS and Rescue Billing levels for possible increased revenue sourcing,
- Pursue additional grant funding and bond/tax reallocation efforts
- Review process and expand Survey Card program and Stakeholder interactions
- Continue, expand, and complete Regionalization/Consolidation efforts for cost savings, elimination of redundancies, with a higher level of service improvements
- Completion of the CPSE Accreditation (including Self-Assessment Manual and Strategic Plan)
- Standardize reporting and utilize data for analysis on a monthly/quarterly basis
- Utilize ***Continuum***, or other data analytic resources for interactive real-time and monthly performance monitoring (in addition to StatsFD use internally)
- Work toward meeting Response Benchmarks – plans and processes to monitor compliance
- Continue outcome-based goal setting (patient surveys, cardiac arrest survival rates, et al.)
- Review Organization Chart/responsibilities. Consider additional Command/Admin staff (DC, BC, Training, EMS)
- Evaluate response plan to meet NFPA 1710 minimums for Low, Moderate, and High-Risk incidents
- Complete annual formal documented program appraisal program
- Develop QA-QI standard reporting for Manhattan and the entire region
- Evaluate ways to simplify deployment model currently and for potential mergers

APPARATUS

- Review and implement Fleet Replacement Schedule to meet NFPA standards
- Consider regionalized fleet maintenance facility

STAFFING

- Eliminate "reactive" jump companies for "proactive" dedicated companies
- Improve staffing inconsistencies
- Consider the use of "peak period" ambulance staffing, if needed as well as a "service/squad"

- Work toward 4-person fire companies (NIST manpower efficiency studies and NFPA 1710)
- Develop regionalized or shared resources/services (staffing, manning, reserves, etc.)
- Consider joint facilities/personnel with other FD's to reduce costs and improve coverage
- Deployment model to fit workload and monitor for maximizing efficiency

STATIONS

- Reduce turnout times (station alerting, layouts, toning procedures, etc.)
- Consider relocation of Stations (82 and 81?) to improve response times significantly (or addition of "substations")
- Further review of station location recommendations based on current deployment AND potential merger

TRAINING

- Evaluate Special Operations (Rescue, - Extrication, Water, CART, HazMat) Technician levels
- Continue Credential Certification for Officers
- Improve training division documentation
- Maximize programs to meet, and exceed minimum ISO training levels
- Work towards comprehensive training facility

DISPATCH

- Reduce Call Processing times to meet or exceed benchmarks and national standards
- AVL/ARL – CAD Dispatching with dynamic still districts and closest appropriate response throughout the region

MERGER AND CONSOLIDATIONS

The Fire District has many growth opportunities, especially regarding consolidation and merger potential with neighboring fire protection districts. This entails much discussion and detailed cost/benefit ratio analysis. However, these types of arrangements, either functional or full consolidation, merit a thorough review and deliberations as a cost-effective force multiplier reducing redundant expenses.

These strategies are the future of the fire service.

The proposed consolidation/merger has shown significant cost savings with the functional components already in the previous year. **It is strongly encouraged to continue this process with formal, complete consolidation to streamline and strengthen both fire protection districts.** Regionalization and consolidations such as this eliminate excessive and expensive redundancies, improving each District's response capabilities and training levels to deliver a higher caliber of Fire, Rescue, and Emergency Medical Services to the residents and those in need.

Mergers are not a new concept. It is occurring nationwide as fire departments struggle to do more with less. **More fire departments and fire districts need to follow this example and proven strategy.**

ADDITIONAL RECOMMENDATIONS TO FOLLOW upon completion and review of Strategic Plan and Self-Assessment Manual (SAM).


APPENDIX
81
MV12


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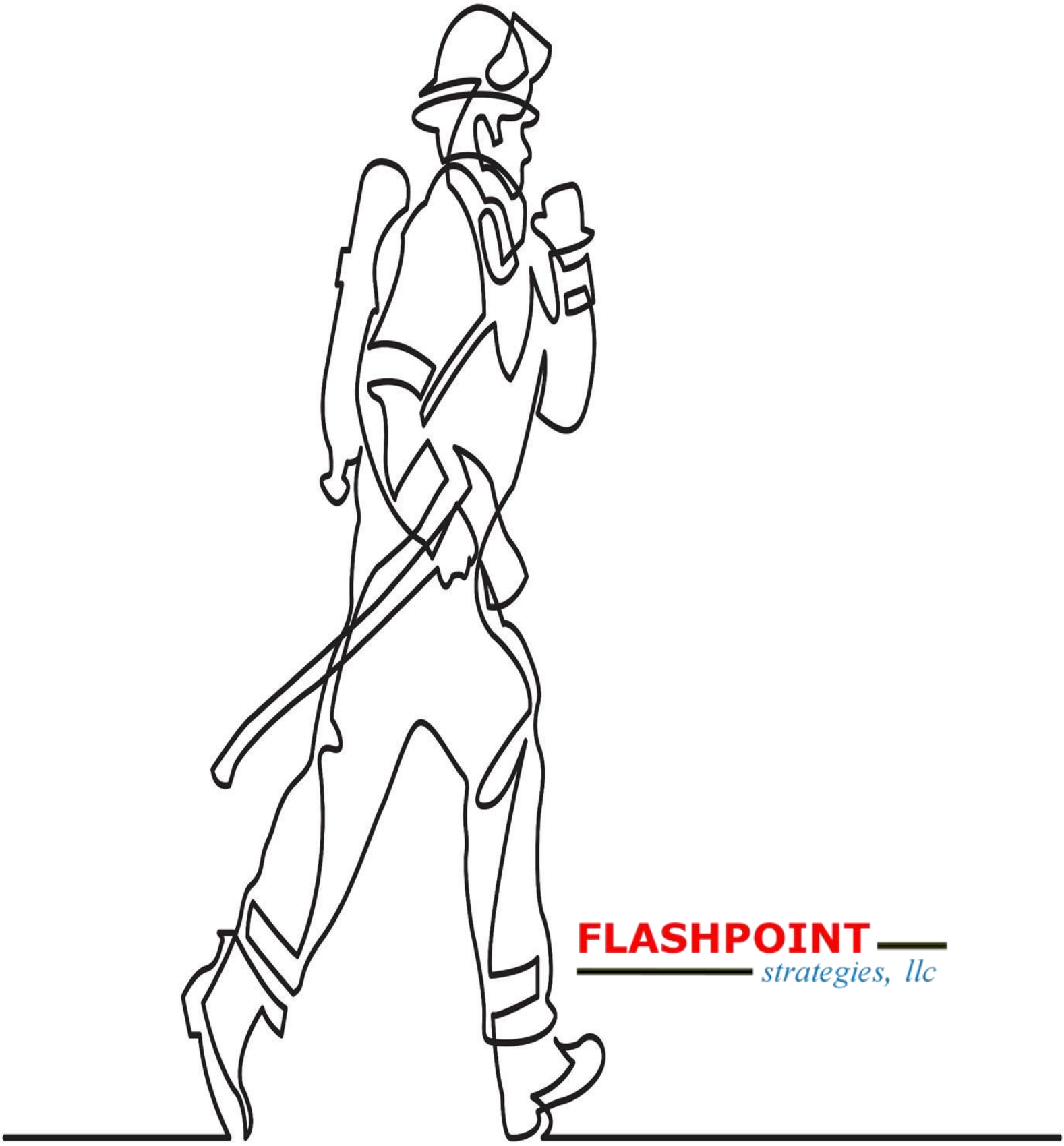

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MANHATTAN FIRE PROTECTION DISTRICT

COMMUNITY RISK ASSESSMENT
STANDARDS OF COVER

2021

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