

# Kearns Metro Township

## Community Risk Assessment



## Kearns Metro Township Planning Zone

UFA has one station within the Kearns Metro Township Planning Zone covering a total of 4.63 square miles with a population of 36,723 and responded to 2,476 calls for service in 2020.

Planning Zone	Population	Population Percentage of UFA	Square Miles	Population Density per Sq Mile	Classification
<b>Kearns</b>	36,723	8.14%	4.63	7,932	Urban

Kearns has increased its population from 35,773 in 2010 to 36,723 in 2020, showing an increase of 2.59% over a ten-year timeframe. Providing an exponential growth pattern and if all things remain equal, chart 54 demonstrates that Kearns could possibly grow to 38,437 by the year 2040.

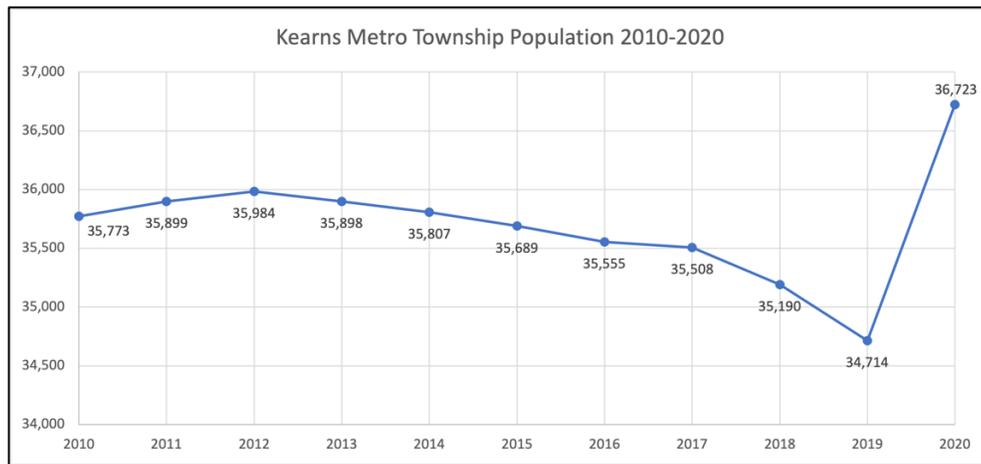


Chart 54 – Kearns Population 2010-2020

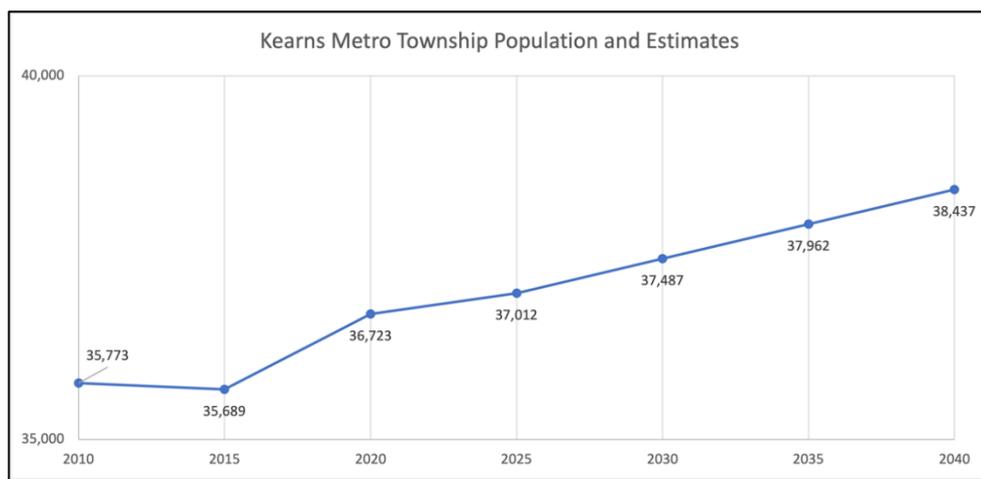


Chart 55 – Kearns Population and Estimates 2010-2040

## Kearns Station Information

### Station 109 information:

- Owner – UFSA
- Opened – 1991
- Address – 4444 West 5415 South
- Staffing and Apparatus –
  - Type 1, ML 109 (4 persons)
  - MA 109 (2 persons)



*Image 15 – Kearns Station 109*

## Surrounding UFA and Automatic/Mutual Aid Response Stations

Surrounding fire stations and fire departments that are within an eight-minute response to the Kearns are:

- UFA Station 101 (Millcreek), with a four-person medic engine and a two-person medic ambulance
- UFA Station 111 (Magna), with a four-person medic ladder and a two-person medic ambulance
- UFA Station 117 (Taylorsville), with a four-person medic engine, a four-person medic ladder and a two-person medic ambulance
- UFA Station 118 (Taylorsville), with a four-person medic engine and a two-person medic ambulance
- UFA Station 125 (Midvale City), with a four-person medic engine and a two-person peak-load medic ambulance
- Murray Station 81, with a three-person medic engine and a two-person medic ambulance
- Murray Station 83, with a three-person medic engine and a two-person medic ambulance

- South Salt Lake Station 42, with a three-person engine and a two-person medic ambulance
- West Jordan Station 52, with a three-person engine and a two-person medic ambulance
- West Jordan Station 53, with a three-person engine and a two-person medic ambulance
- West Jordan Station 54, with a three-person engine and a two-person medic ambulance
- West Jordan Station 55, with a three-person engine and a two-person medic ambulance
- West Valley Station 71, with a three-person medic engine and a two-person medic ambulance
- West Valley Station 72, with a three-person engine and a two-person medic ambulance
- West Valley Station 73, with a three-person engine and a two-person medic ambulance
- West Valley Station 74, with a three-person ladder and a two-person medic ambulance
- West Valley Station 75, with a three-person engine and a two-person medic ambulance
- West Valley Station 76, with a three-person engine

### Kearns – Incidents by Dispatch Type

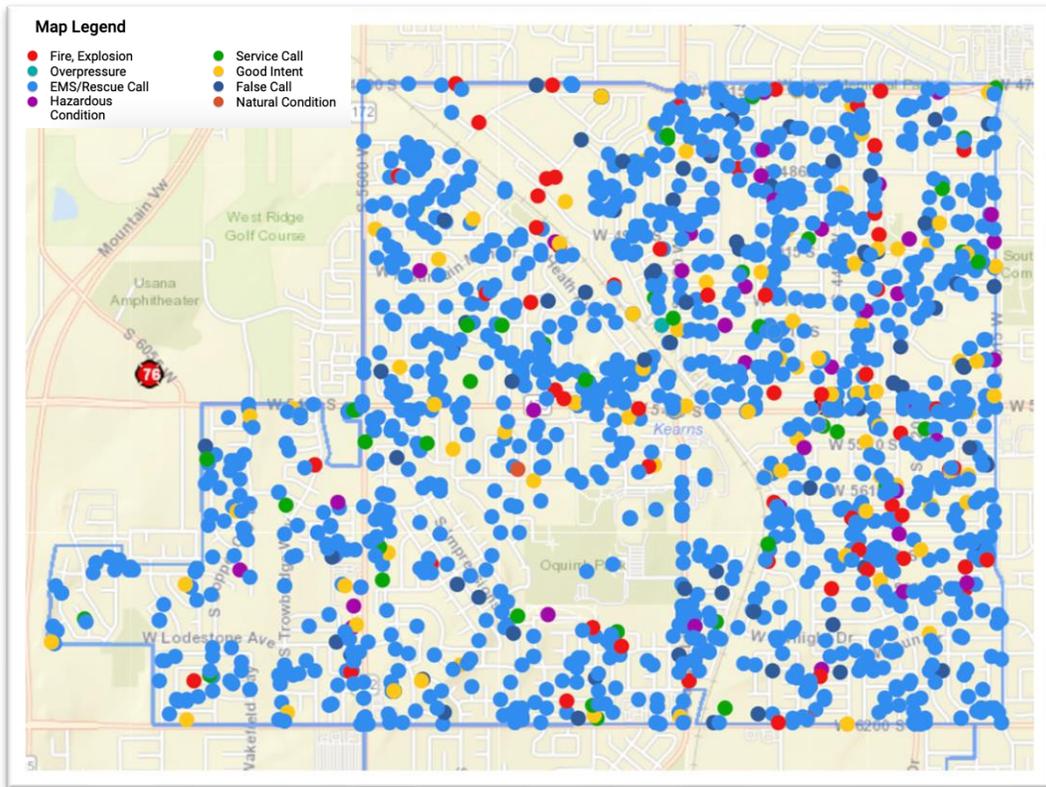
The following data is what the NFIRS type was when crews arrived on scene. This may be different than what was originally dispatched, including a reclassification of a call type from one to another. Cancelled calls occur if the company is cancelled en route to a call and never arrives on scene, which then changes the dispatch type to an NFIRS 611 call type.

	<b>CY 2020</b>	<b>CY 2019</b>	<b>CY 2018</b>
<b>Fire Suppression</b>	72	53	43
<b>EMS</b>	1,649	1,536	1,596
<b>Hazardous Materials</b>	43	28	28
<b>Service Calls</b>	76	92	96
<b>Good Intent</b>	328	226	246
<b>False Calls</b>	83	76	65
<b>Other (Misc., Flood, Overpressure)</b>	2	3	1
<b>Total</b>	2,253	2,014	2,075

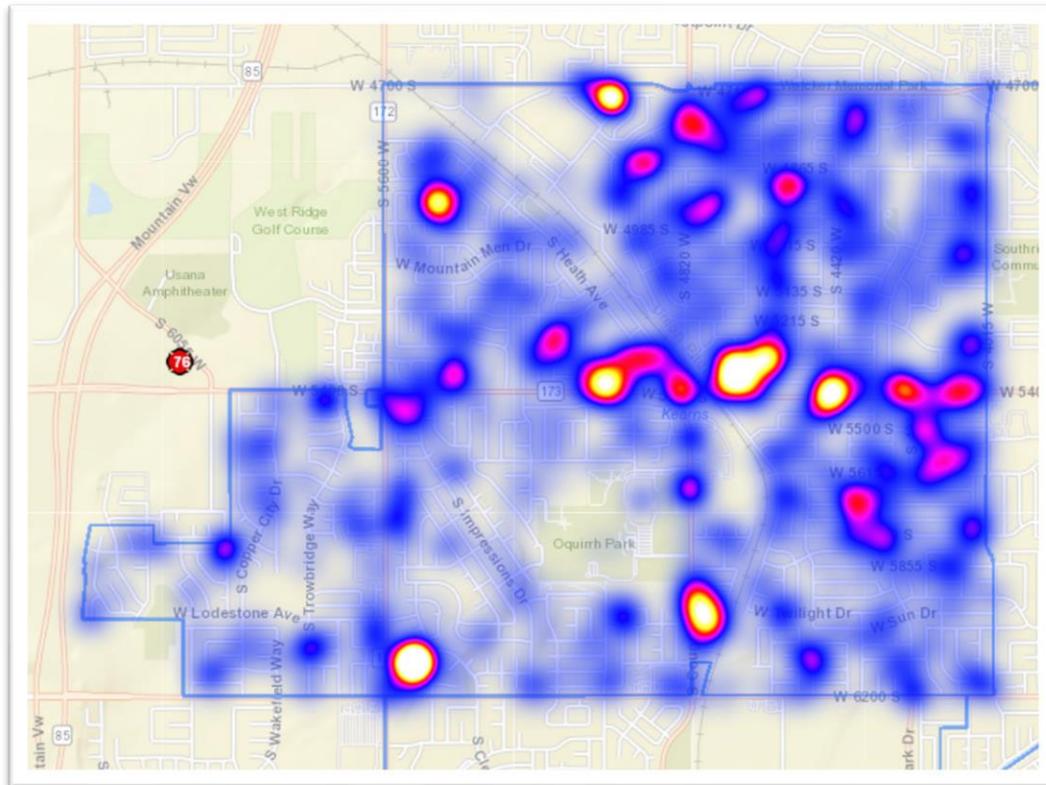
<b>Cancelled</b>	223	130	169
<b>Overall Total</b>	2,476	2,144	2,244

*Table 102 – Kearns Call Type*

# Kearns – 2020 Incidents and Heat Map



Map 152 – Kearns Incident Calls by Type



## NFPA 1710

The National Fire Protection Association is an international nonprofit organization that is devoted to eliminating death, injury, property, and economic loss due to fire, electrical and related hazards. The NFPA makes recommendations on over 300 codes and standards. NFPA 1710 recommendations are based off 90<sup>th</sup> percentile times.

### – In Other Words...

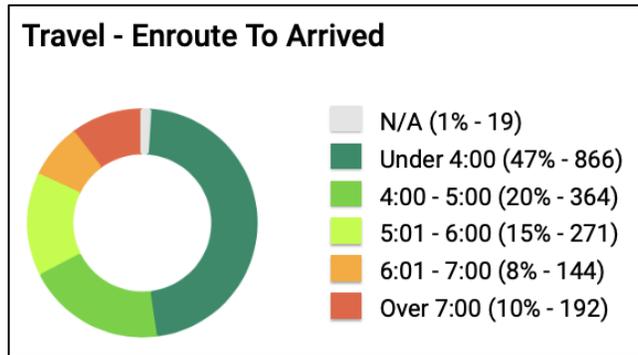
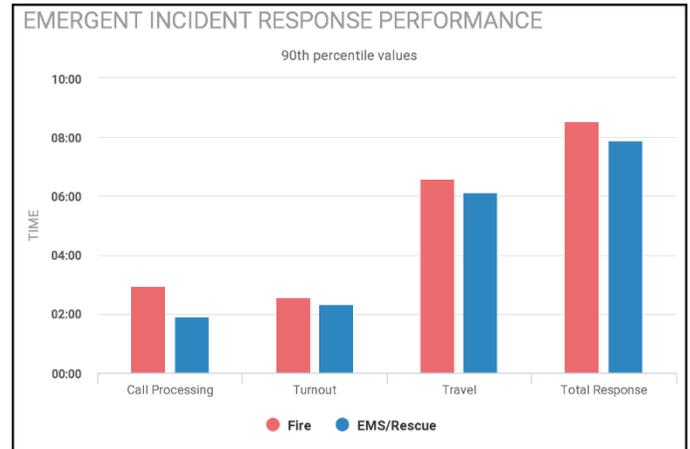
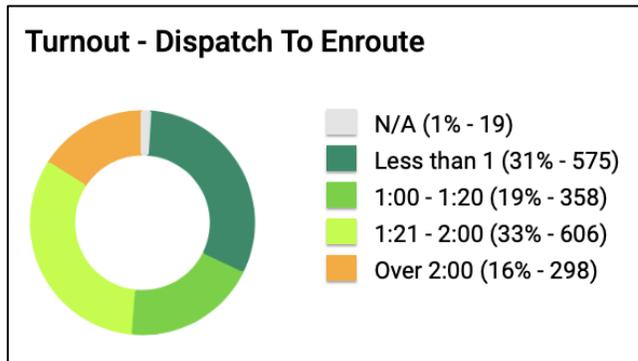
If a value is in the 90<sup>th</sup> percentile, it means the value is better than 90% of all other values in the dataset. In other words, it is within the top 10% of the values.

NFPA 1710 encompasses suggested standards for full-time fire departments and recommends the following times (all of which are at the 90<sup>th</sup> percentile): alarm processing – 64 seconds; turnout time for EMS responses – 60 seconds; turnout time for fire responses – 80 seconds; first arriver apparatus – 240 seconds (4 minutes); initial full-alarm assignment for low and medium hazard responses – 480 seconds (8 minutes); or initial full-alarm assignment for high hazard/high-rise responses – 610 seconds (10 minutes 10 seconds). The total response times are the cumulative totals of call processing time, turnout time, and travel time. NFPA 1710 recommends a total response time of 6:24 for the first arriving apparatus for fire and 6:00 for the first arriving apparatus for EMS.

### – Of Note...

NFPA 1710 response times have not been adopted by the UFA Board. One of the important elements of the community risk assessment and standards of cover is to identify current 90<sup>th</sup> percentile times (current baselines) within UFA and to identify realistic benchmarks for the UFA Board to consider for adoption.

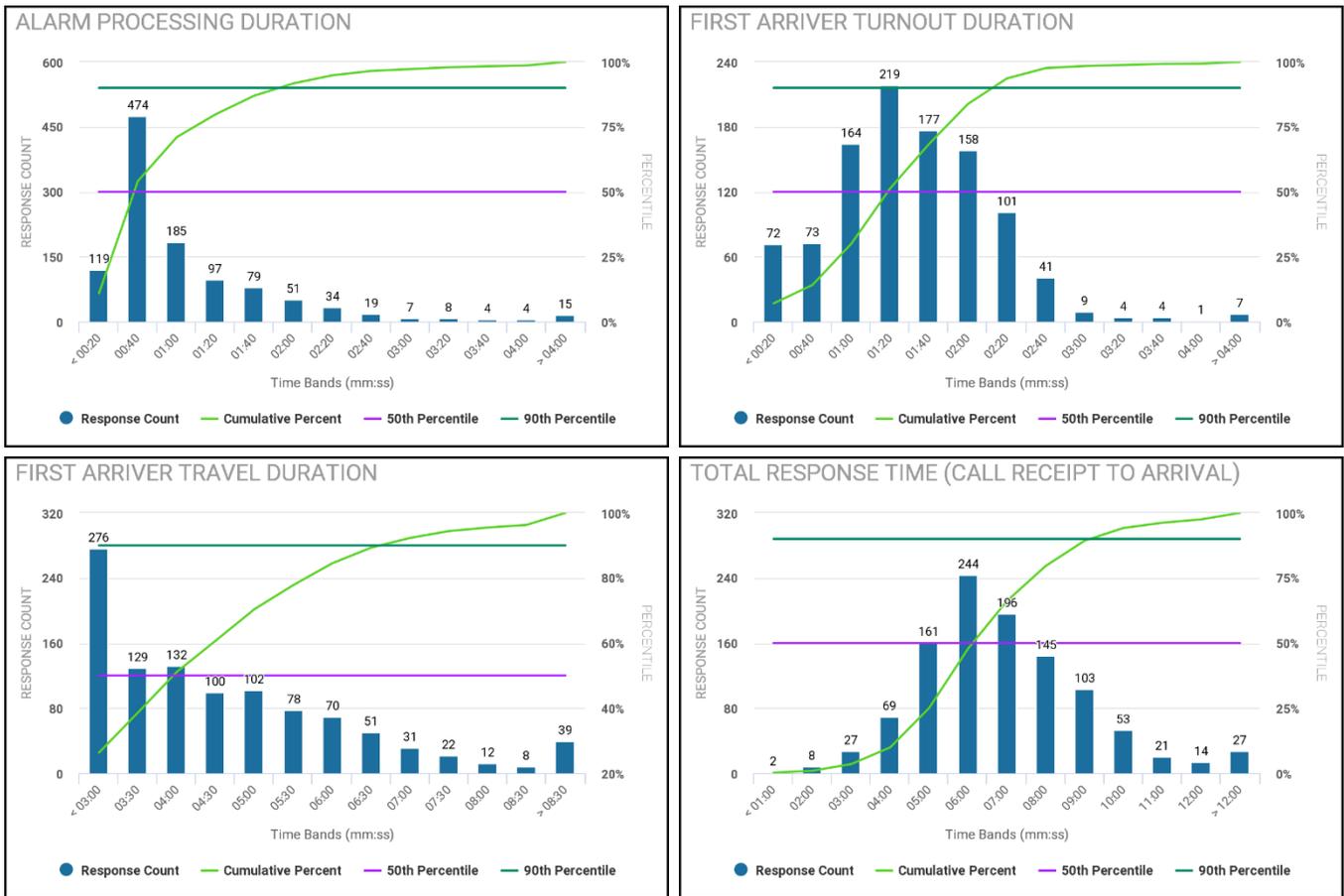
## Kearns – 2020 Dispatch and Response Times



Urban	Call Processing: Fire	Turnout Time: Fire	Travel Time: Fire	Total Response: Fire	Call Processing: EMS	Turnout Time: EMS	Travel Time: EMS	Total Response: EMS
<b>Kearns</b>	2:02	2:10	6:23	9:06	1:47	2:10	6:37	9:03
<b>UFA Urban 2018-2020</b>	2:16	2:39	7:36	10:34	1:47	2:32	6:29	9:18
<b>UFA Rural 2018-2020</b>	2:32	3:05	15:08	19:09	1:56	2:50	14:45	17:45
<b>NFPA 1710</b>	1:04	1:20	4:00	6:24	1:00	1:00	4:00	6:00

Table 103 – Kearns 2020 Emergent Response Times, 90<sup>th</sup> percentile values

## Kearns – 2020 Turnout and Travel Time



The charts above illustrate the alarm processing, turnout and travel times for all units responding to service calls within Kearns (90<sup>th</sup> percentile). The alarm processing for fire was 2:02 and 1:47 for EMS; turnout time was 2:10 for fire responses and 2:10 for EMS responses; travel time was 6:23 for fire responses and 6:37 for EMS. The 90<sup>th</sup> percentile total response time was 9:06 for fire and 9:03 for EMS. For the charts above, they show both fire and EMS response times together.

### 📌 – Of Note...

One item to note is that if you were to add the processing time, the turnout time, and the travel time, it will not necessarily (and often doesn't), sum the total response time. This is due to some of the limitations within the datasets and gaps within timestamps. Where there are missing timestamps, those particular key performance indicators (KPI) are excluded as they cannot accurately be calculated out.

## Kearns – 2020 Incidents by Time of Day

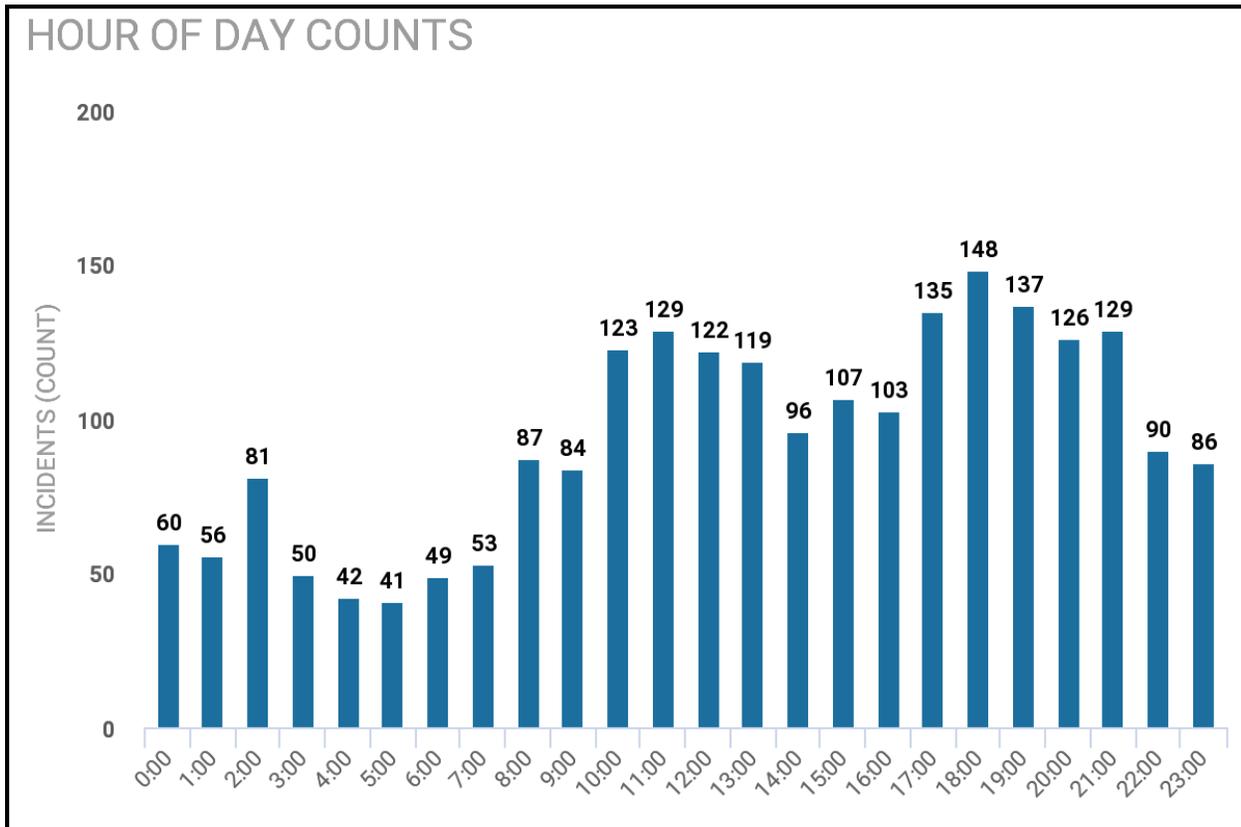


Chart 56 – Kearns 2020 Incidents by Time of Day

The above table demonstrates the incidents by time of day and the time of greatest demand within Kearns for all service calls. This chart illustrates that the greatest demand for service delivery begins to increase at 08:00 AM and starts to decrease at 7:00 PM.

## Kearns – 2020 Incidents by Day of Week

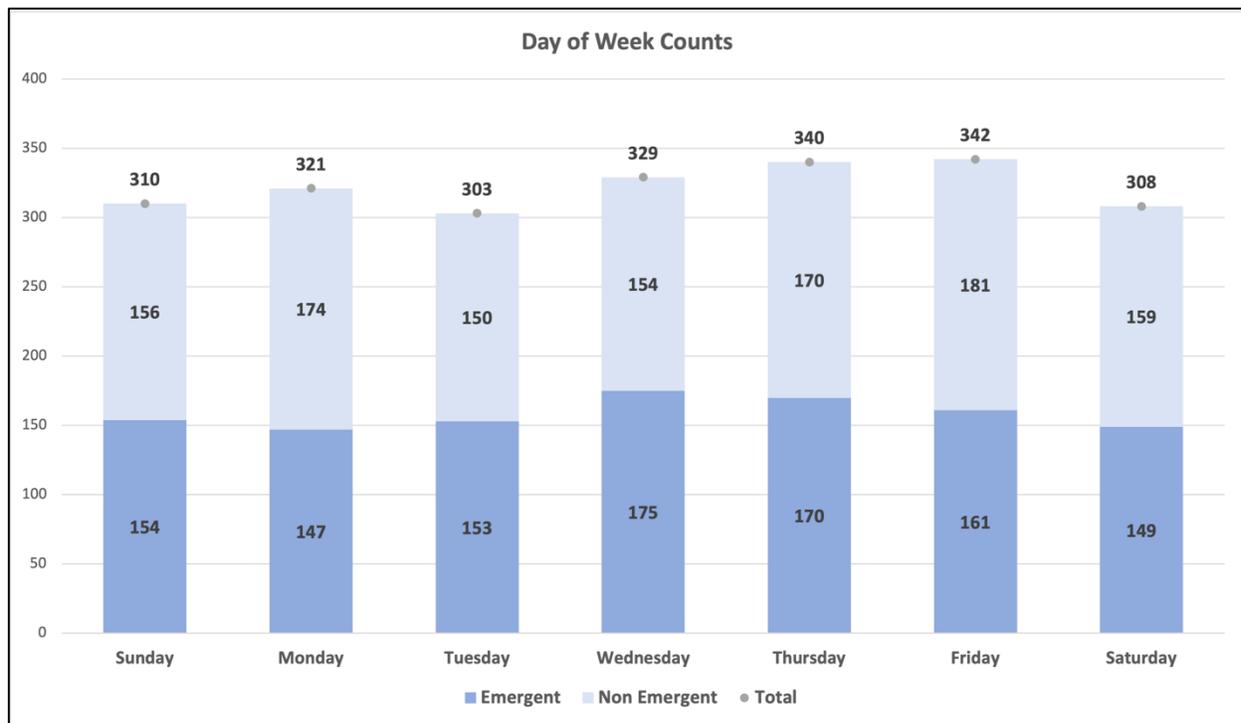


Chart 57 – Kearns Incidents by Day of Week

This chart demonstrates the call volume based on the day of the week, with an increase in all calls as well as the peak volume for all calls in Kearns occurring on Friday.

## Kearns – EMS Calls

EMS calls are filtered by final disposition codes and this data is taken from VECC and determined by the patient acuity at the time of call termination. Often times the EMS calls identified from final disposition are different than the number of EMS calls that were initially dispatched due to one being the initial call type, and one being what call type the call was closed as by responding fire crews.

	CY 2020	CY 2019	CY 2018
<b>ALS Transports</b>	813	790	705
<b>BLS Transports</b>	1,173	979	1,050
<b>Scene Release</b>	118	95	309
<b>Public Assistance</b>	10	9	10
<b>EMS Total Calls</b>	2,104	1,864	2,064

Note: There is possibly a difference if you were to add all calls due to data reporting mechanisms. Public assistance calls will sometimes get duplicated with a scene release, depending on dispatch code, but those calls do not carry across to the total calls. Also, cancelled calls go into a different final disposition so the numbers in the 'Incidents by Dispatch Type' are reflective of this difference.

Table 104 – Kearns EMS Calls

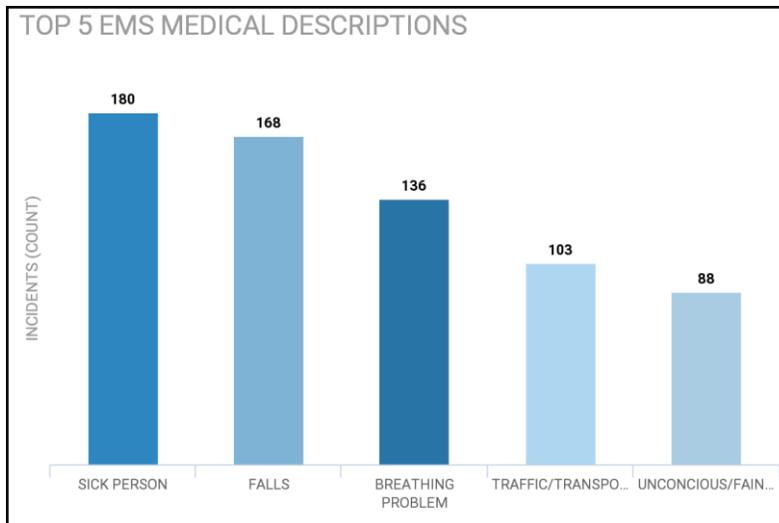


Chart 58 - Top 5 EMS Medical Calls – 2020

### Kearns – 2020 Fire Incidents by Dispatch Type

NFIRS Description	Incident Count	% of Incidents
<b>Structure Fire</b>	34	41.0%
<b>Natural Vegetation Fire</b>	15	18.1%
<b>Outside Rubbish Fire</b>	18	21.7%
<b>Vehicle Fire</b>	10	12.0%

NFIRS Description	Incident Count	% of Incidents
<b>Special Outside Fire</b>	1	1.2%
<b>Fire, Other</b>	3	3.6%
<b>Mobile Property Fire</b>	2	2.4%
<b>Total</b>	83	100%

Table 105 – Kearns 2020 Incidents by Dispatch Type

## Kearns – Building Occupancy Classification and Risk Categories

Occupancy Classification	Low	Moderate	High	Maximum	Total
<b>Assembly</b>	15	2	7	0	24
<b>Commercial/Industrial</b>	2	1	4	1	8
<b>Educational</b>	0	0	0	0	0
<b>Government</b>	15	0	0	0	15
<b>Healthcare</b>	0	0	0	0	0
<b>Hazardous</b>	Unknown	Unknown	Unknown	Unknown	37*
<b>Storage</b>	1	1	0	0	2
<b>Residential</b>	7,009	2,349	8	0	9,366
<b>Residential – Multi Unit</b>	35	24	1	1	61
<b>High Rise</b>	N/A	N/A	0	0	0
<b>Total</b>	<b>7,077</b>	<b>2,377</b>	<b>20</b>	<b>2</b>	<b>9,513</b>

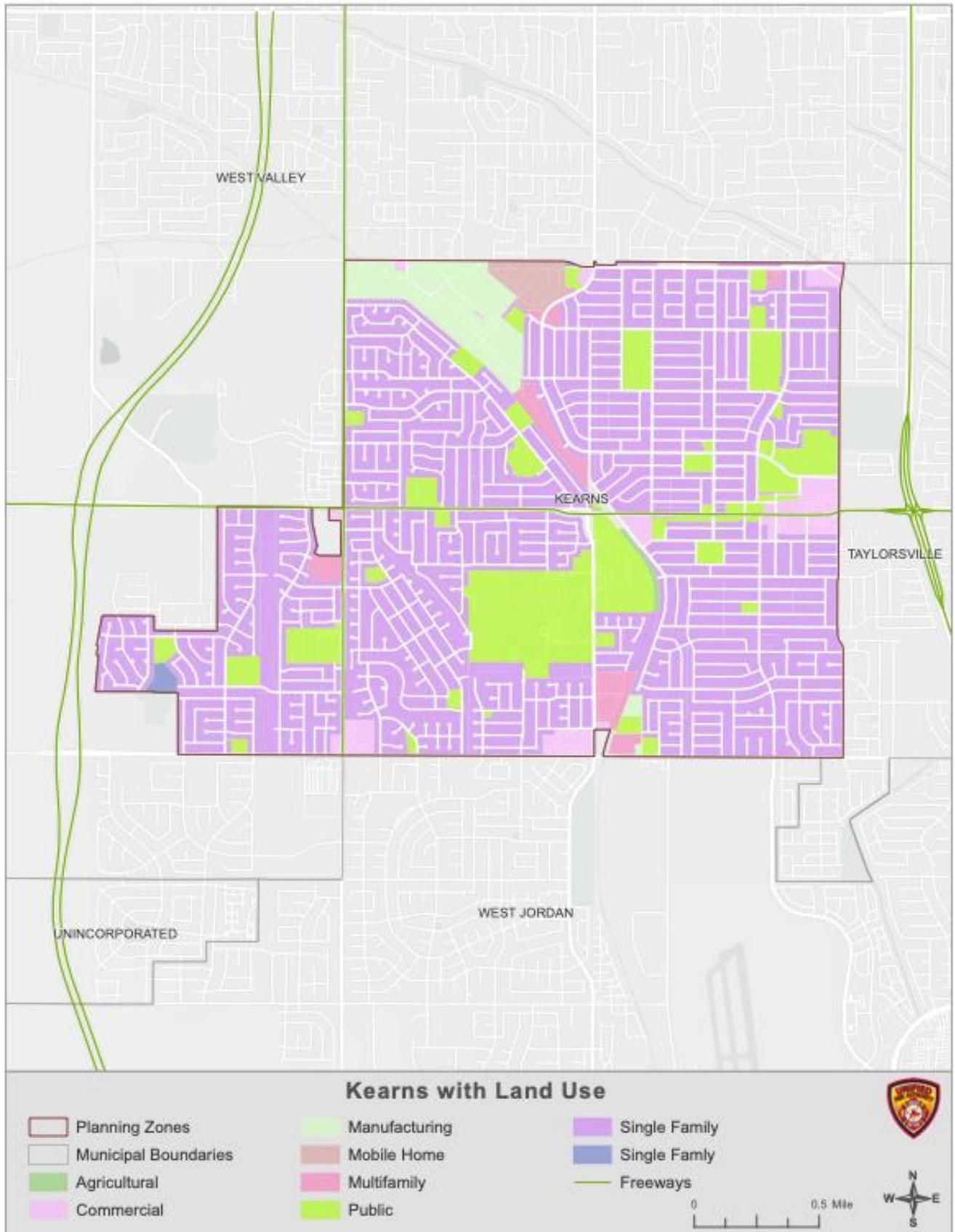
\*There is currently a gap within the identification of building size regarding hazardous materials sites. This is a gap that is being closed over the next several years as we collect the data and information.

*Table 106 – Kearns Building Occupancy and Risk Categories*

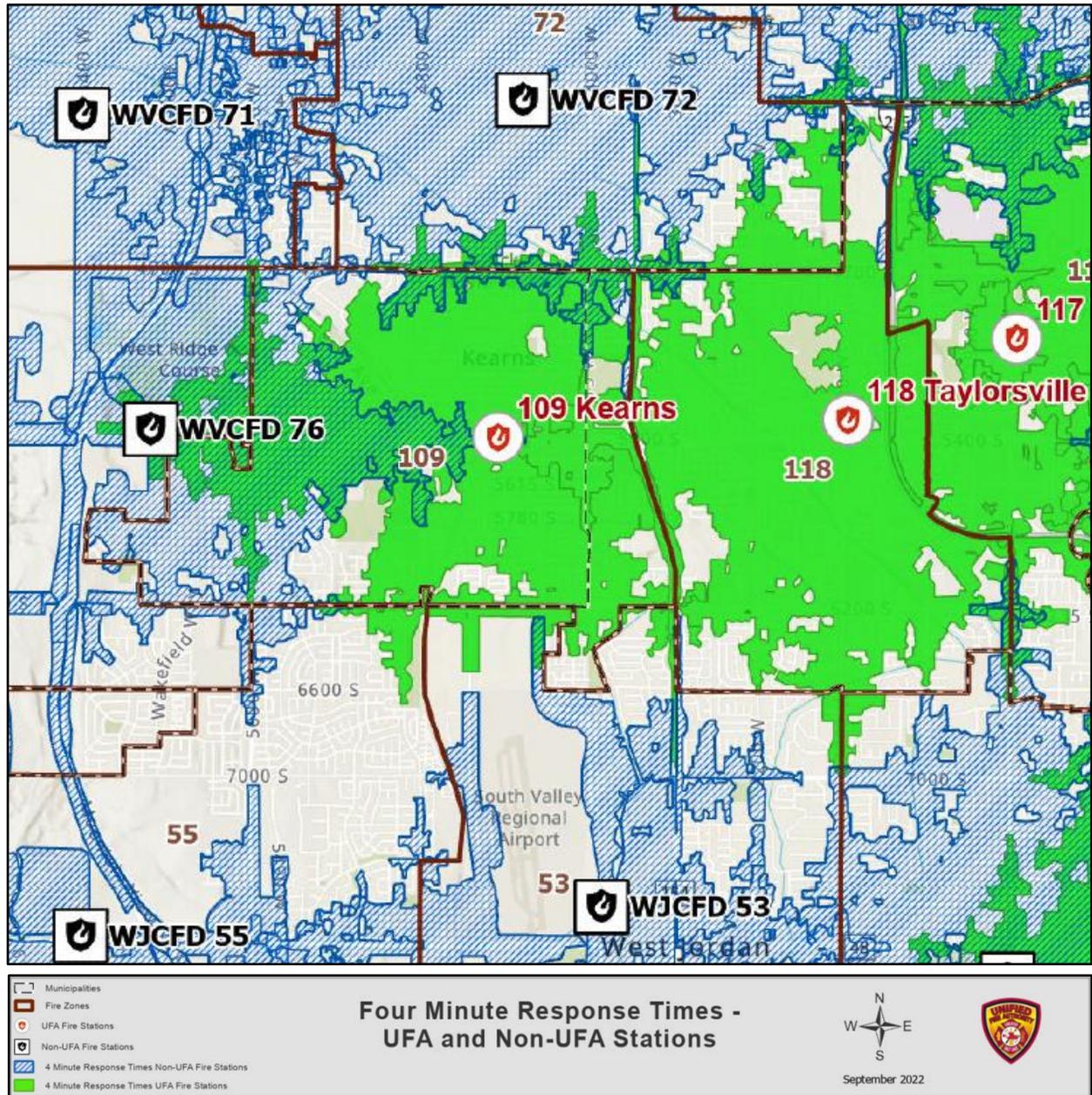
### Building Size / Considerations

For purposes of risk classification, UFA has outlined the following risk classifications for building size, regardless of occupancy type (except residential). Low risk = 1-4,999 square feet. Moderate risk = 5,000-9,999 square feet. High risk = 10,000-99,999 square feet. Maximum risk = >100,000 square feet.

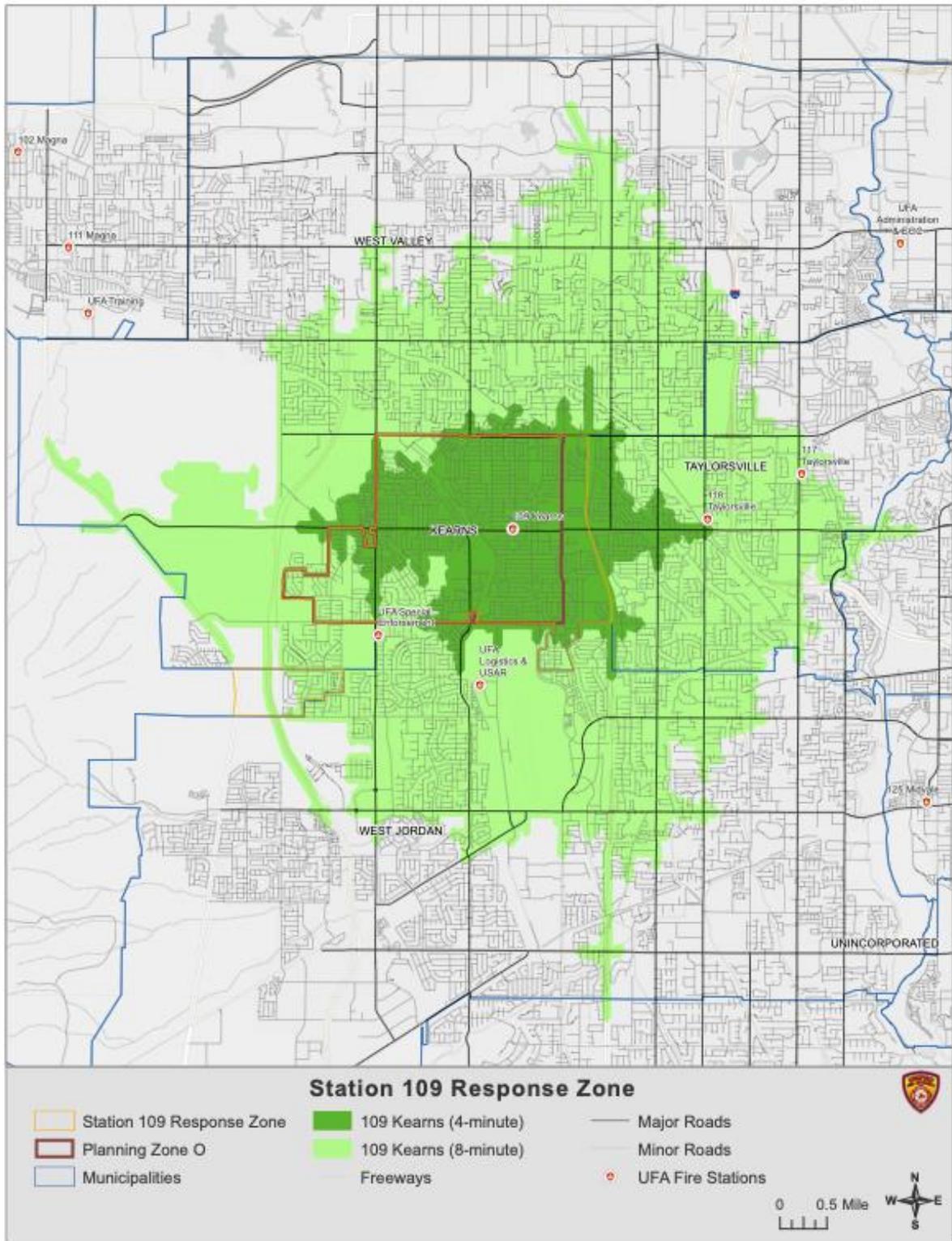
For residential occupancies, the following classifications apply. Low risk = 1-1,999 square feet. Moderate risk = 2,000-3,999 square feet. High risk = 4,000-9,999 square feet. Maximum risk = ≥10,000 square feet.



Map 154 – Kearns with Land Use



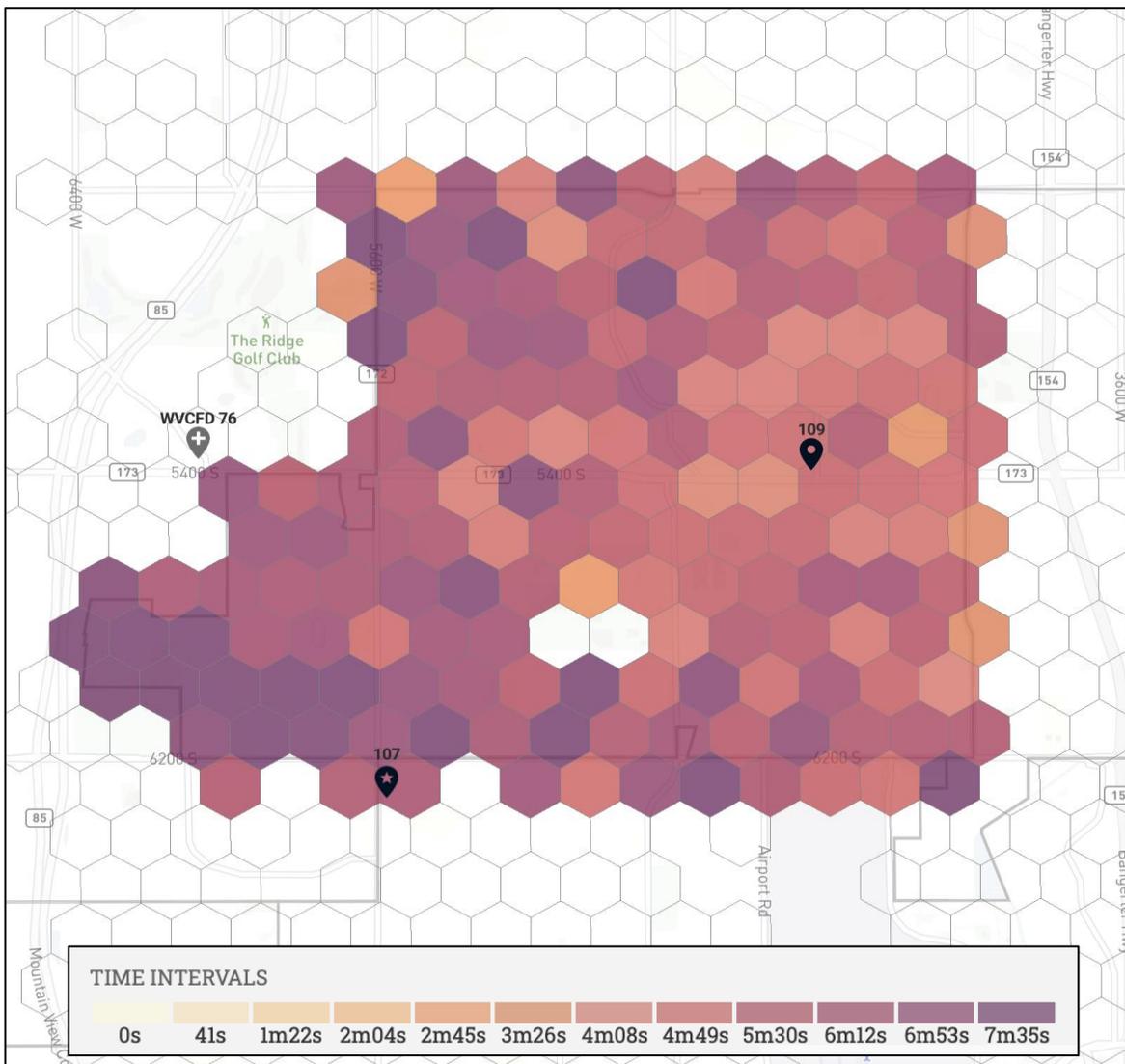
Map 155 - 4-Minute Travel Time, UFA and Aid



Map 156 - Station 109 4- and 8-Minute Travel Times

## Kearns – First Arriver Travel Times

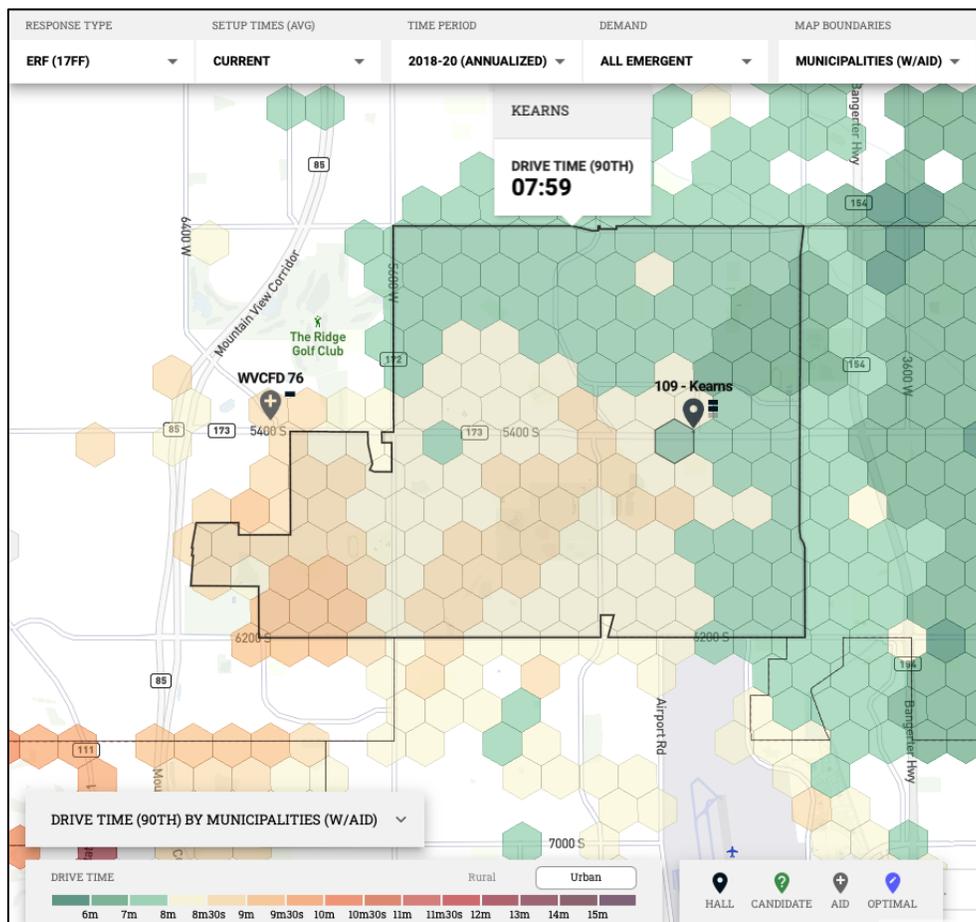
The following maps demonstrate the 90<sup>th</sup> percentile of travel times based off the last three years of historical data (2018-2020). The darker the color is, the more delayed the response, with the lighter colors demonstrating below or near target times. The darker colors on the bar within the key demonstrating longer travel times by apparatus. This map's drive times (or travel times) are based off the current NFPA 1710 standard of four minutes (90<sup>th</sup> percentile) from notification of the alarm to the arrival of the first arriving apparatus — not an adopted standard by UFA. UFA is currently in process of identifying benchmark and target standards to be adopted by the UFA Board of Directors. Currently, within Kearns, the 90<sup>th</sup> percentile drive time is 6:23 for fire and 6:37 for EMS, or a combined 90<sup>th</sup> percentile drive time of 6:23.



Map 157 – Kearns Response Times – All Aid

## Kearns – Residential Fire Effective Response Force (17 FF)

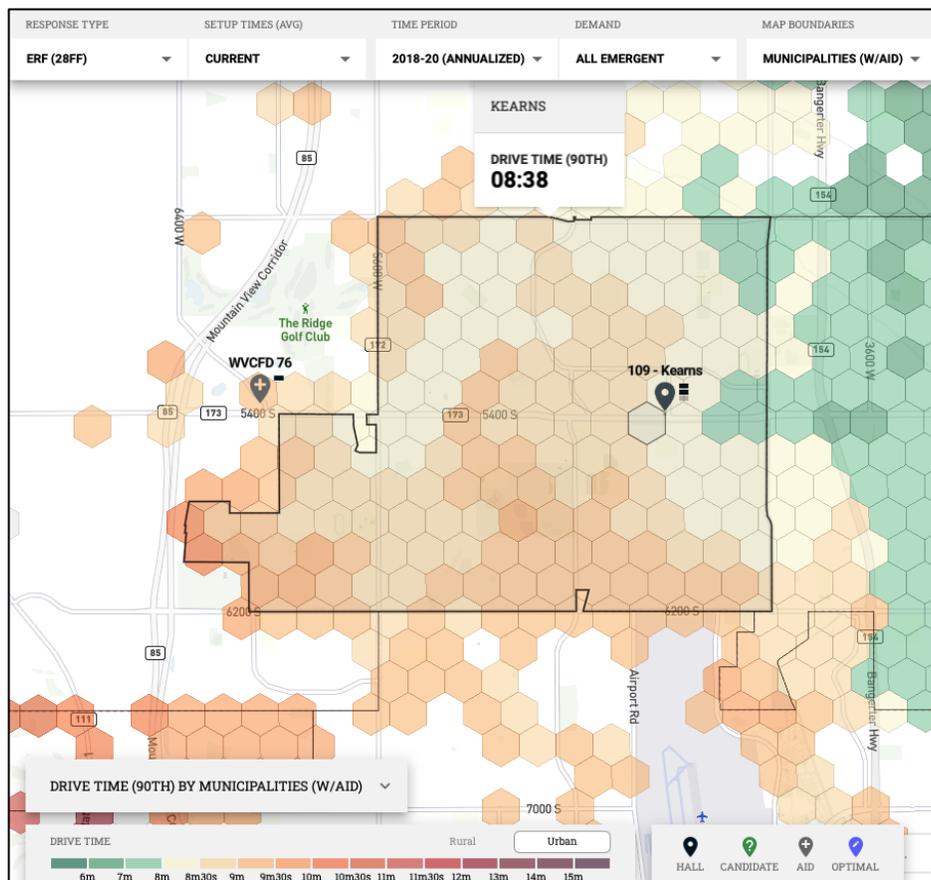
This map demonstrates the coverage of a multi-unit response to a residential fire based off all apparatus being within their station. The green to light yellow demonstrates the ability to have seventeen firefighters (a residential fire effective response force) on scene based off a residential urban fire force response. This map's drive times (or travel times) are based off the current NFPA 1710 standard of eight minutes (90<sup>th</sup> percentile) from notification of the alarm to the arrival of the initial full alarm assignment (a minimum of 17 firefighters) for a residential, low, or medium hazard assembly — not an adopted standard by UFA. UFA is currently in process of identifying benchmark and target standards to be adopted by the UFA Board of Directors. Based off predictive data, it is projected that the 90th percentile for 17 firefighters to arrive on scene would be 7:59.



Map 158 – Kearns Response Times – Residential Fire Effective Response Force (17 ERF)

## Kearns – Commercial Fire Effective Response Force (28 FF)

This map demonstrates the coverage of a multi-unit response to a commercial fire based off all apparatus being within their station. The green to light yellow demonstrates the ability to have twenty-eight firefighters (a commercial fire effective response force) on scene based off a residential urban fire force response. This map's drive times (or travel times) are based off the current NFPA 1710 standard of ten minutes and 10 seconds (90<sup>th</sup> percentile) from notification of the alarm to the arrival of the initial full alarm assignment (a minimum of 28 firefighters) for a commercial, high hazard or high-rise assembly — not an adopted standard by UFA. UFA is currently in process of identifying benchmark and target standards to be adopted by the UFA Board of Directors. Based off predictive data, it is projected that the 90th percentile for 28 firefighters to arrive on scene would be 08:38.



Map 159 – Kearns Response Times – Commercial Fire Effective Response Force (28 FF)

## Kearns Risk Assessments

Infrastructure – Transportation	Infrastructure – Dams	Earthquake Liquefaction	Earthquake Faults	Avalanche	Unreinforced Masonry	Wildland Urban Interface	Tier II Sites	Hospitals	Schools	≥100,000 sq ft Structures	Residential Population
Mod	Low	Low	Low	Low	Mod	Low	Low	Low	High	Low	Mod

Table 107 – Kearns Hazard Matrix

Transportation: Low Risk = 0-99 Linear Miles; Moderate Risk = 100-199 Linear Miles; High Risk = >200 Linear Miles
Dams: Low Risk = 0-3; Moderate Risk = 4-6; High Risk = ≥7
Liquefaction: The areas of liquefaction vary throughout the valley, with areas of high susceptibility running South and East from the Great Salt Lake
Earthquake Faults: Low Risk = 0-30,000 LF of fault line; Moderate Risk = 30,001-60,000 LF of fault line; High Risk = ≥60,001 LF of fault line
Unreinforced Masonry: Low Risk = 0-100; Moderate Risk = 101-1,000; High Risk = ≥1,001
Wildland Urban Interface: Low Risk = 0-25% WUI; Moderate Risk = 26-50% WUI; High Risk = ≥51% WUI
Tier II Sites: Low Risk = 1-5; Moderate Risk = 6-10; High Risk = ≥11
Hospitals: Low Risk = 0; Moderate Risk = 1; High Risk = ≥2
Schools: Low Risk = 0-5; Moderate Risk = 6-10; High Risk ≥11
100,000 sq ft Buildings: Low Risk = 0-5; Moderate Risk = 6-14; High Risk = ≥15
Population: Low Risk = 1-19,999; Moderate Risk = 20,000-39,999; High Risk = ≥40,000

### Infrastructure – Transportation

There are several high-level transportation routes within Kearns or directly bordering the city. Bangerter Highway runs directly on the east side of the township and the Mountain View Corridor runs directly on the west side of the township. Several arterials and state roads also run through Kearns, with 4700 South, 5415 South and 6200 S as well as 5600 West. There are 0 linear miles of Interstate/US Highway, 4.42 linear miles of State Highways, and 105 total linear miles of roadway. UTA also runs bus routes through the township, with the main bus routes running on 6200 S, 5400 S and 4700 S. There is a rail line that runs the length of the township from 4700 S to 6200 S near 4800 W. Kearns is in the moderate-risk category for road infrastructure.

### Infrastructure – Water

There is one water district within Kearns, the Kearns Improvement District.

### Infrastructure – Dams

There are no identified dams within Kearns. Kearns is in the low-risk category for dam infrastructure.

### Natural Hazards

Within Kearns, there are no concerns with avalanche areas. Kearns is in the low-risk category for avalanche. There are no identified fault lines that run through the city, although there are several faults on either side of the city (see Map 8). Kearns is in the low-risk category for liquefaction and low-risk category for fault lines. One of the biggest hazards that occur within an earthquake scenario is the number of unreinforced masonry (URM) buildings within Kearns, with an estimated 1,024 URM's, which constitutes about 4.17% of the overall URM's within UFA's response areas. Kearns is in the moderate-risk category for unreinforced masonry.

### Wildland Urban Interface

There is low risk of urban interface fires within Kearns. Kearns is in the low-risk category for Wildland Urban Interface.

### Hazardous Materials / Tier II Sites

There are three identified HazMat/Tier II Sites within Kearns, which is in the low-risk category.

### Hospitals

Kearns has no standalone hospitals. This places Kearns in the low-risk category for hospitals.

### Schools

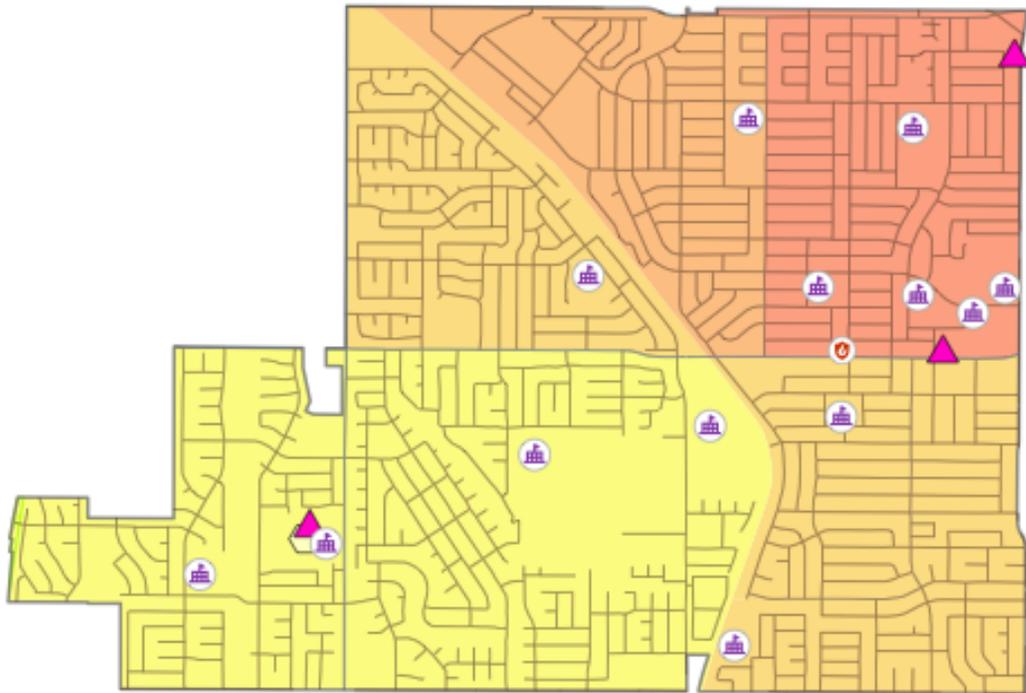
Kearns has eleven elementary schools, two middle schools, one high school, one public charter school K-9, and a private K-8 school within city boundaries which places it in the high-risk category.

### Target Hazards – Structures

Some of the target-hazard occupancies in Kearns include:

- Apartments – 4866 West 4780 South
- Carrington Apartments – 5959 South 4800 West

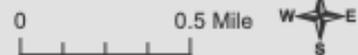
- Children Center – 5242 South 4820 West
- Kearns Oquirrh Park Fitness Center – 5624 S Cougar Lane
- Kearns Warehouse District – 4950 South 5200 West
- Builder Supply – 5367 West 4700 South
- Summit Senior – 5525 West 6200 South
- Salt Lake County Recreation Center – 5600 South 4800 West
- Strip Mall – 5500 South 4015 West
- Utah Olympic Oval – 5662 Cougar Lane



### Kearns with Threats and Hazards



- |                          |             |                            |
|--------------------------|-------------|----------------------------|
| Municipal Boundaries     | 51 - 100    | Fire Stations              |
| Wildland Urban Interface | 101 - 500   | Schools                    |
| Unreinforced Masonry     | 501 - 1,000 | Tier 2 Sites               |
| 0 - 50                   | Freeways    | 100,000 Sq. Foot Buildings |



Map 160 – Kearns with Combined Hazards

## Life and Property Loss

From 2015-2020, there have been two fatalities attributed to fire. There has been a total estimate of \$1,756,823.00 of property loss and a total estimate of \$473,681.00 of content loss due to fire.

## Unified Fire Shared Services

With a regional-response model, the Unified Fire Authority brings special services to bear when the situation calls for it, not relying on automatic or mutual aid which provides a quicker and more effective delivery of service to its residents.

### Battalion Chiefs

Unified Fire Authority staffs three operational battalion chiefs (BCs) daily, in addition to a 40-hour Operations Chief (OC). These BCs and OC respond to large, complex, or expanding incidents — providing incident command, safety, and operational direction. Each BC covers an area of UFA's service area and respond to calls for service in any jurisdiction. Battalion 11 is housed out of Station 101 in Millcreek, Battalion 12 is housed out of Station 121 in Riverton, and Battalion 13 is housed out of Station 118 in Taylorsville.

### Heavy Rescue Companies

Heavy Rescue specializes in structural collapse, confined space rescue, trench collapse rescue, vehicle extrication, machinery disentanglement, rope rescue (high angle, low angle, rigging) and rapid intervention (Firefighter Rescue). The UFA Heavy Rescue Program consists of two independent rescue companies strategically placed in UFA's jurisdiction. Station 117 in Taylorsville, and Station 121 in Riverton house our Heavy Rescue Teams.

### Hazardous Materials (HazMat) Companies

The Hazardous Materials Teams provide an efficient, effective, and professional Hazardous Material Mitigation response. HazMat Companies respond to hazardous material releases/spills for the purpose of mitigating the release/spill. They select and use proper specialized chemical personal protective equipment dependent on the nature of the incident. The HazMat Program consists of two independent HazMat

companies strategically placed in UFA's jurisdiction. Station 124 in Riverton, and Station 126 in Midvale house our HazMat Teams.

### Water Rescue Teams

UFA has swift water, standing water and ice rescue capabilities. These companies respond to victims recreating in our swift canyon rivers and our lakes and reservoirs. Station 116 in Cottonwood Heights, Station 117 in Taylorsville, Station 121 in Riverton, and Station 123 in Herriman house companies with water rescue capabilities.

### Wildland Division

UFA's Wildland Division provides highly trained and experienced wildland fire and all-risk response resources to local, state, and federal incidents. The Wildland Division oversees the training and certification of UFA personnel for response to wildland fires and all-hazard incidents. We also work with UFA Communities to educate residents on wildfire preparedness and provide mitigation services to reduce the risks of wildfire. UFA has a special capability where a Duty Officer is able to act as the Fire Warden within UFA's jurisdictions, allowing the ordering of resources much more quickly than having to rely on a Fire Warden that may or may not be readily accessible. Station 103 in Herriman currently houses the Duty Officer.

### Investigations Division

Arson and Explosive related incidents are considered two of the most dangerous criminal activities that threaten our citizens. The need exists to protect the citizens of our jurisdiction from loss of life and property by reducing the crime of arson, arson-related crimes, improvised explosive devices (IEDS) and the prevention of future violent crimes. The Investigations Division addresses this need by establishing a sound foundation of effective enforcement, focusing on the apprehension of the offender, while in partnership with other Local, state and federal law enforcement agencies. The team utilizes highly-trained Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) certified K-9's that assist with accelerant and explosives detection.

### Urban Search & Rescue

A FEMA Urban Search and Rescue Task Force is a team of individuals which serve as a resource for disaster response at local, state, and federal levels. It is comprised mainly of firefighters but includes structural engineers, medical professionals,

canine/handler teams and emergency managers with highly specialized training in urban search and rescue environments.

Utah Task Force 1 (UT-TF1) is one of 28 Type I, Federal Urban Search & Rescue (US&R) Task Forces in the United States. This program brings a highly trained, multi-hazard Task Force that is especially designed to respond to a variety of emergencies/disasters including earthquakes, hurricanes, tornadoes, floods, terrorist acts and hazardous material releases. Fire department personnel that are task force members receive specialized training and skills that directly benefit Unified Fire Authority.

### [Salt Lake County Emergency Management](#)

The Salt Lake County Division of Emergency Management serves our citizens by directing and coordinating resources for disasters and emergencies through preparation, planning, mitigation, response, and recovery. The Salt Lake County Emergency Coordination Center is activated and manned during any event—from small-scale to large-scale occurrences—to disasters both natural and man-made that can or have exceeded the resources of any particular jurisdiction. Currently, the Salt Lake County ECC assists and obtains resources for the 22 jurisdictions located within the Salt Lake Valley. Salt Lake County EM assists these jurisdictions through the activation of 15 Emergency Support Functions (ESFs) filled by employees from a multitude of backgrounds. The ESF employees have authority throughout Salt Lake County to fill and order additional support for the operations occurring in the field until the impacted jurisdiction can return to their normal operations and functions. The Emergency Management Division is committed to keeping the public safe through community outreach, training, dissemination of important public information, training of staff and the creation of a more resilient community through mitigation, preparation, response, and recovery. The ECC has been activated for many events such as Child Abduction Response Team (CART) Deployments, wildland fires such as the Rosecrest and Machine Gun fires, flooding, severe weather events, earthquakes, civil unrest, the COVID-19 pandemic, Line of Duty Deaths (LODD), and many other events.

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## Unified Fire Authority

3380 South 900 West  
Salt Lake City, UT 84119