

# Cottonwood Heights

## Community Risk Assessment



## City of Cottonwood Heights Planning Zone

UFA has two stations within the Cottonwood Heights Planning Zone covering a total of 9.23 square miles with a population of 33,617 and responded to 2,294 calls for service in 2020.

Planning Zone	Population	Population Percentage of UFA	Square Miles	Population Density per Sq Mile	Classification
<b>Cottonwood Heights</b>	33,617	7.45%	8.5	3,955	Urban

The City of Cottonwood Heights has decreased its population from 33,624 in 2010 to 33,617 in 2020, showing a decrease of 0.02% over a ten-year timeframe. Providing an decay growth pattern and if all things remain equal, chart 20 demonstrates that Cottonwood Heights will remain stable at 33,678 by the year 2040.

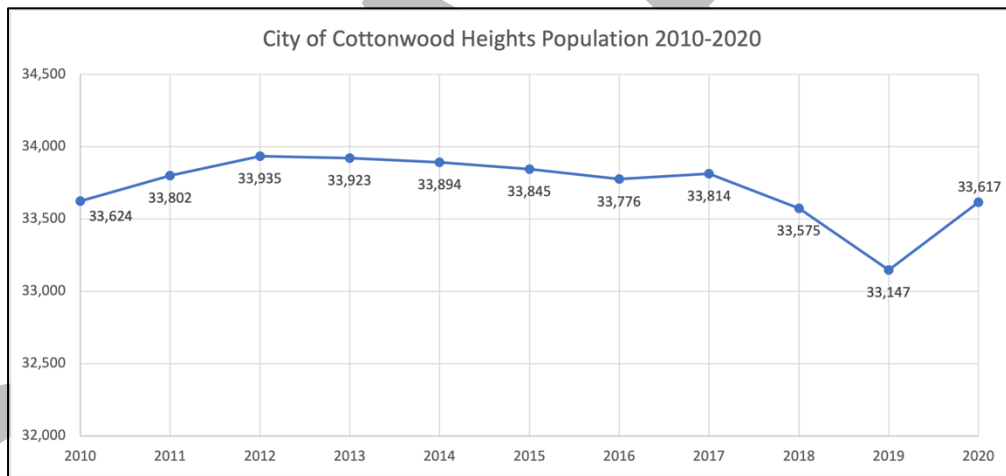


Chart 30 – Cottonwood Heights Population 2010-2020

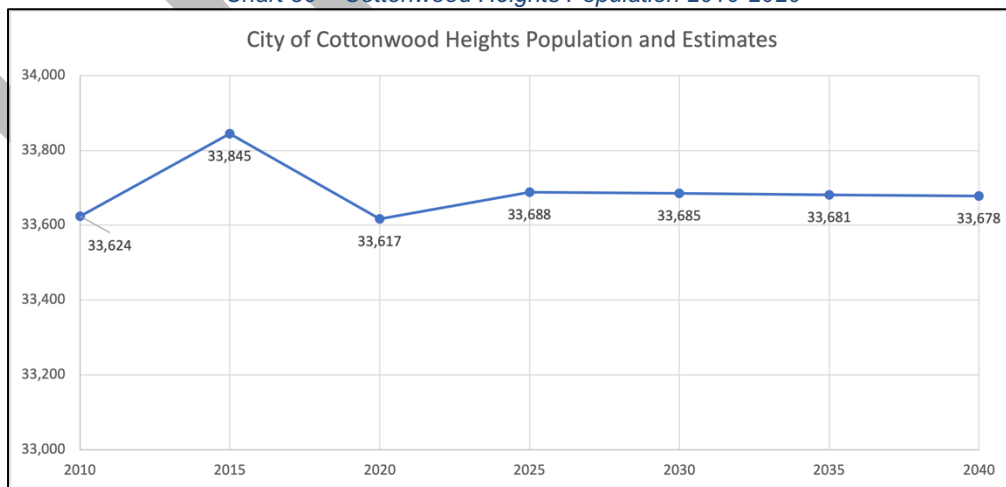


Chart 31 – Cottonwood Heights Population and Estimates 2010-2040

## Cottonwood Heights Station Information

### Station 110 information:

- Owner – Cottonwood Heights
- Opened – 1998
- Address – 1790 E. Fort Union Boulevard
- Staffing and Apparatus –
  - Type 1, ML 110 (4 persons)
  - MA 110 (2 persons)
  - Type 6, Brush Truck (cross-staffed)



Image 7 – Cottonwood Heights Station 110

### Station 116 information:

- Owner – Cottonwood Heights
- Opened – 1999
- Address – 8303 S. Wasatch Boulevard
- Staffing and Apparatus –
  - Type 1, ME 116 (3 persons)
  - MA 216 (peak load/seasonal)
  - Water Rescue (cross-staffed)



Image 8 – Cottonwood Heights Station 116

## Surrounding UFA and Automatic/Mutual Aid Response Stations

Surrounding fire stations and fire departments that are within an eight-minute response to the City of Cottonwood Heights are:

- UFA Station 104 (Holladay City), with a four-person medic engine and a two-person peak-load medic ambulance

- UFA Station 125 (Midvale City), with a four-person medic engine and a two-person peak load medic ambulance
- UFA Station 126 (Midvale City), with a four-person medic engine and a two-person medic ambulance
- Sandy City Station 32, with a two-person medic engine and a two-person medic ambulance
- Sandy City Station 35, with a two-person medic engine and a two-person medic ambulance
- Murray City Station 82, with a three-person medic engine and a two-person medic ambulance

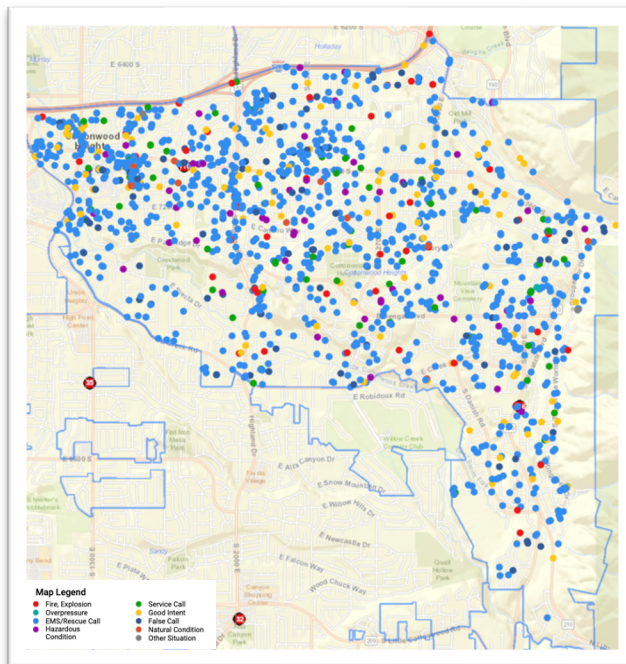
### Cottonwood Heights – Incidents by Dispatch Type

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.

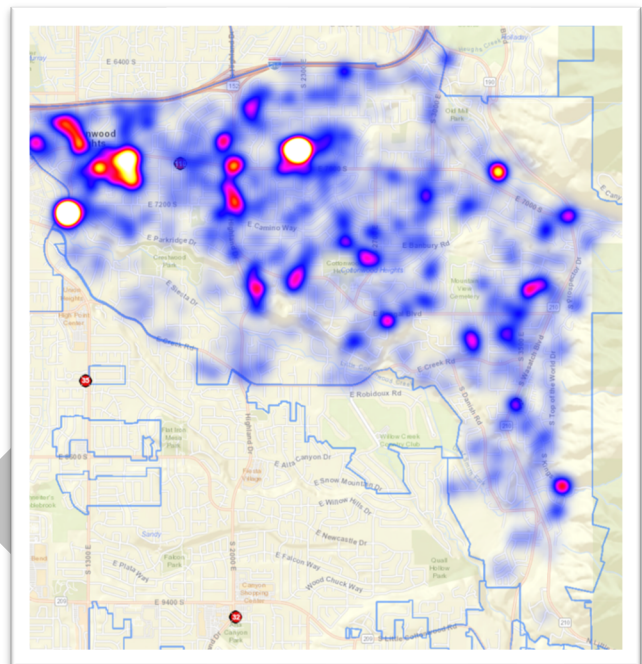
	CY 2020	CY 2019	CY 2018
<b>Fire Suppression</b>	51	30	44
<b>EMS</b>	1,444	1,368	1,474
<b>Hazardous Materials</b>	55	60	41
<b>Service Calls</b>	97	129	95
<b>Good Intent</b>	326	283	228
<b>False Calls</b>	109	155	128
<b>Other (Misc., Flood, Overpressure)</b>	14	6	7
<b>Total</b>	2,096	2,031	2,017
<b>Cancelled</b>	198	169	156
<b>Overall Total</b>	2,294	2,200	2,173

Table 72 – Cottonwood Heights Call Type

## Cottonwood Heights – 2020 Incidents and Heat Map



Map 104 – Cottonwood Heights Incident Calls by Type



Map 105 – Cottonwood Heights Call Volume Heat Map

### 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.

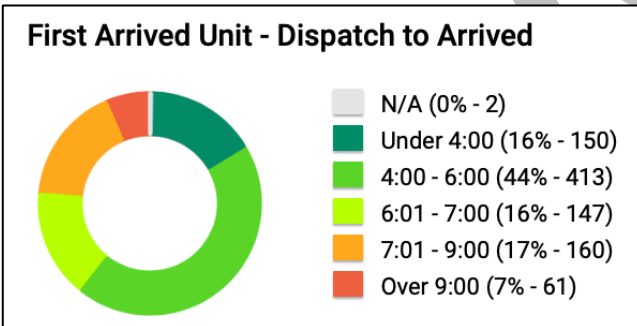
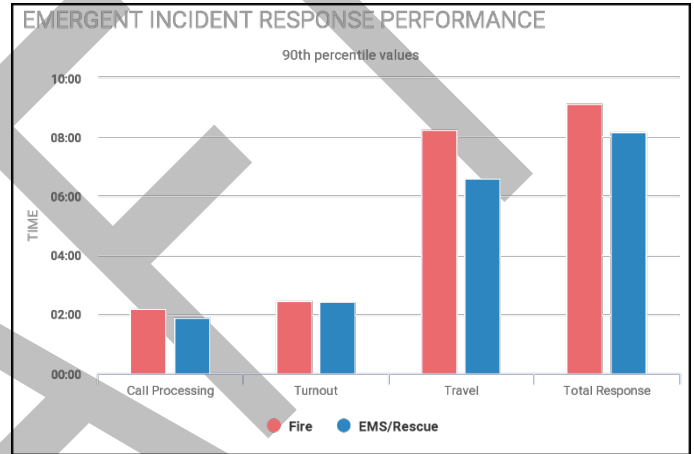
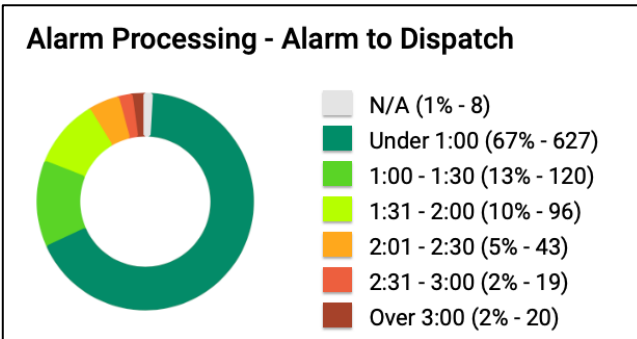
NFPA 1710 encompasses suggested standards for full-time fire departments and recommends the following times (all of which are at the 90<sup>th</sup> percentile): alarm processing – 64 seconds; turnout time for EMS responses – 60 seconds; turnout time for fire responses – 80 seconds; first arriver apparatus – 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 90th percentile times (current baselines) within UFA and to identify realistic benchmarks for the UFA Board to consider for adoption.

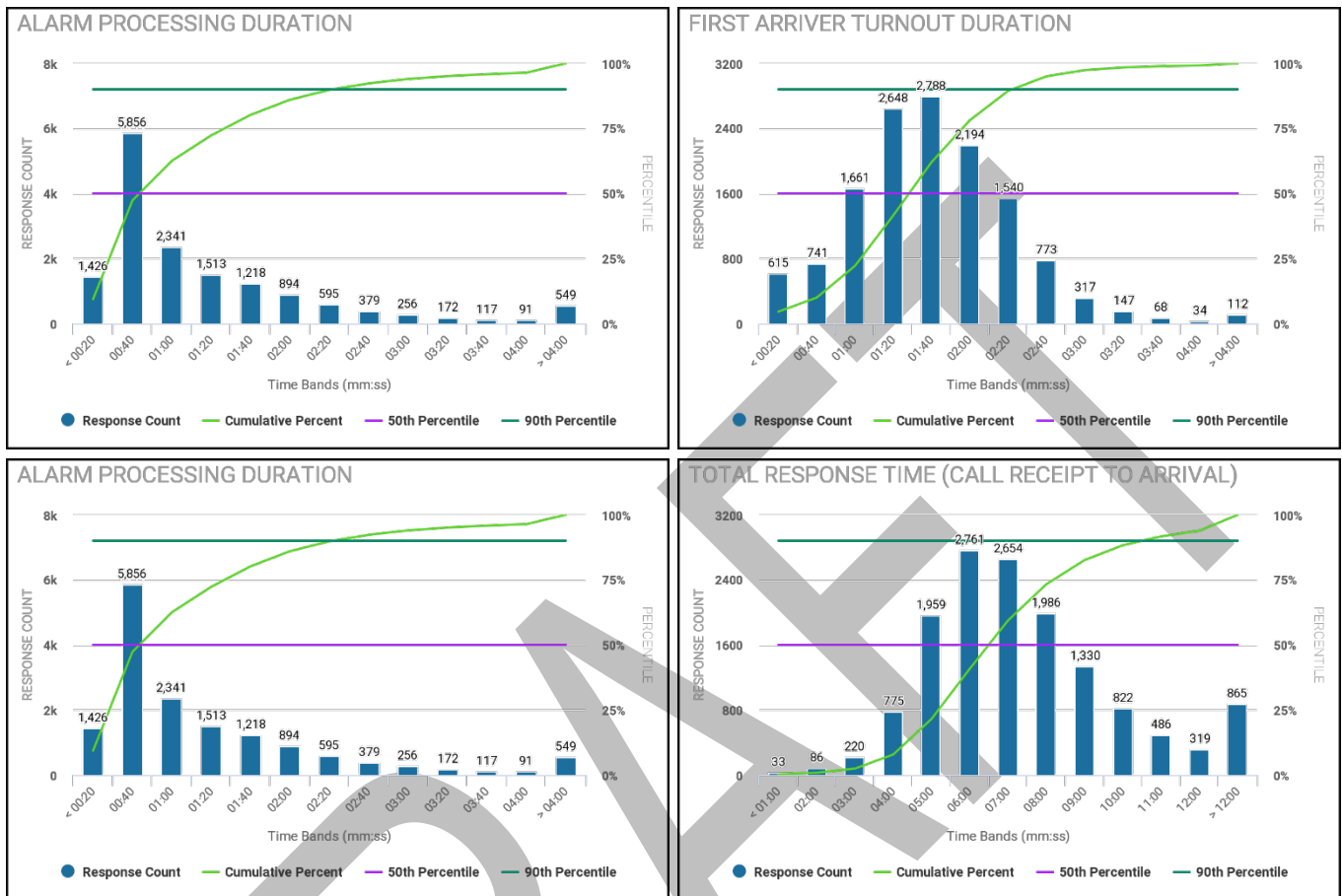
**Cottonwood Heights – 2020 Dispatch and Response Times**



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>Cottonwood Heights</b>	2:10	2:36	8:18	11:25	1:53	2:25	6:30	9:16
<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 73 – Cottonwood Heights 2020 Emergent Response Times, 90<sup>th</sup> percentile values

## Cottonwood Heights – 2020 Turnout and Travel Time



The charts above illustrate the alarm processing, turnout and travel times for all units responding to service calls within Cottonwood Heights (90<sup>th</sup> percentile). The alarm processing for fire was 2:10 and 1:53 for EMS; turnout time was 2:36 for fire responses and 2:25 for EMS responses; travel time was 8:18 for fire responses and 6:30 for EMS. The 90<sup>th</sup> percentile total response time was 11:25 for fire and 9:16 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.

## Cottonwood Heights – 2020 Incidents by Time of Day

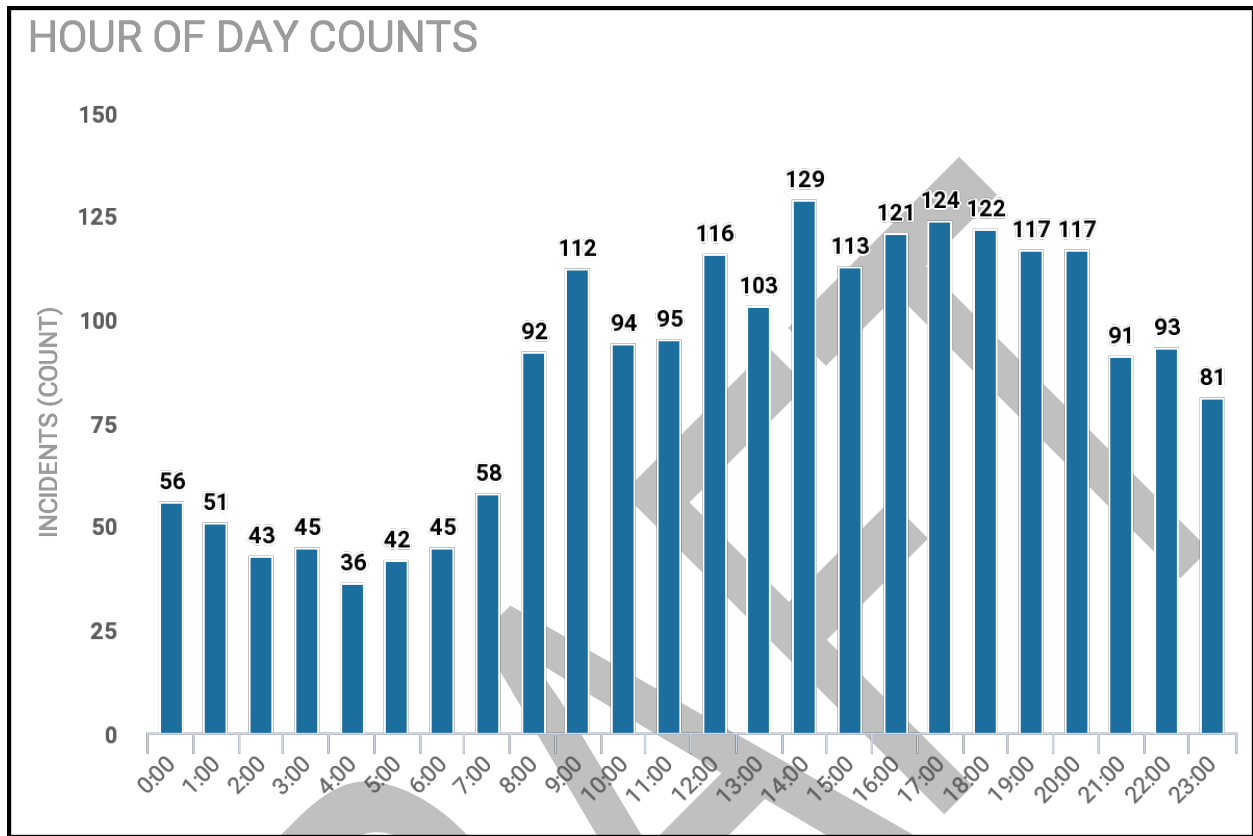


Chart 32 – Cottonwood Heights 2020 Incidents by Time of Day

The above table demonstrates the incidents by time of day and the time of greatest demand within Cottonwood Heights for all service calls. This chart illustrates that the greatest demand for service delivery begins at 07:00 AM and starts to decrease at 06:00 PM.

## Cottonwood Heights – 2020 Incidents by Day of Week

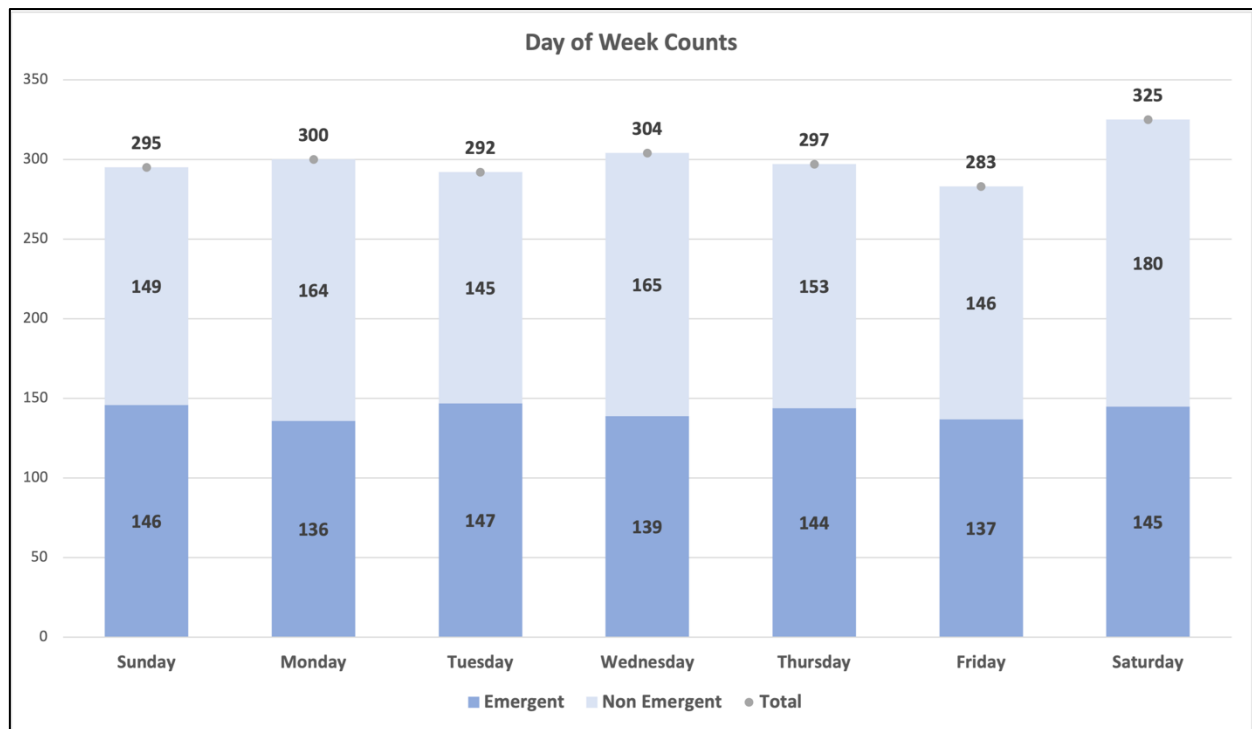


Chart 33 – Cottonwood Heights Incidents by Day of Week

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 Cottonwood Heights occurring on Saturday.

## Cottonwood Heights – 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>	704	650	761
<b>BLS Transports</b>	943	842	980
<b>Scene Release</b>	151	104	476
<b>Public Assistance</b>	28	16	12
<b>EMS Total Calls</b>	1,798	1,596	2,217

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 74 – Cottonwood Heights EMS Calls

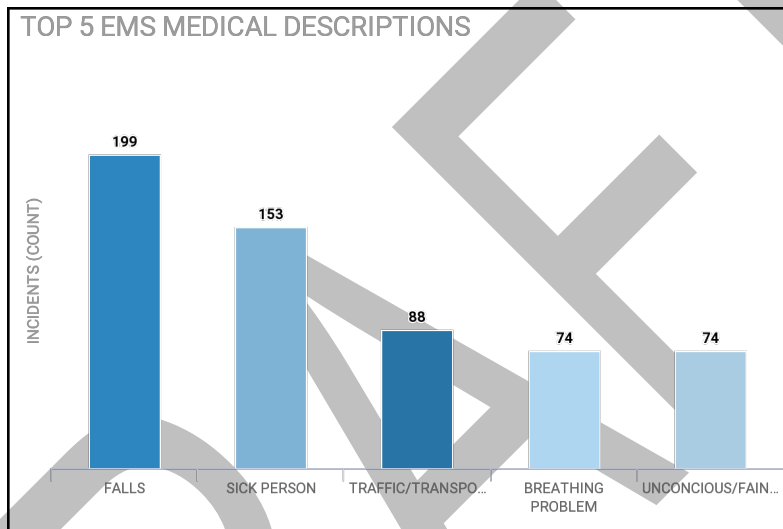


Chart 34 - Top 5 EMS Medical Calls - 2020

### Cottonwood Heights – 2020 Fire Incidents by Dispatch Type

NFIRS Description	Incident Count	% of Incidents
<b>Structure Fire</b>	24	47.1%
<b>Natural Vegetation Fire</b>	7	13.7%
<b>Outside Rubbish Fire</b>	13	25.5%
<b>Vehicle Fire</b>	2	3.9%

NFIRS Description	Incident Count	% of Incidents
<b>Crop Fire</b>	1	2.0%
<b>Fire, Other</b>	3	5.9%
<b>Mobile Property Fire</b>	1	2.0%
<b>Total</b>	51	100%

Table 75 – Cottonwood Heights 2020 Incidents by Dispatch Type

## Cottonwood Heights – Building Occupancy Classification and Risk Categories

Occupancy Classification	Low	Moderate	High	Maximum	Total
<b>Assembly</b>	7	0	6	0	13
<b>Commercial/Industrial</b>	4	7	9	8	28
<b>Educational</b>	0	3	5	0	8
<b>Government</b>	2	0	0	0	2
<b>Healthcare</b>	1	2	3	0	6
<b>Hazardous</b>	Unknown	Unknown	Unknown	Unknown	65
<b>Storage</b>	0	0	0	0	0
<b>Residential</b>	1,473	5,456	1,988	22	8,939
<b>Residential – Multi Unit</b>	54	217	68	3	342
<b>High Rise</b>	N/A	N/A	1	4	5
<b>Total</b>	1,541	5,685	2,080	37	9,408

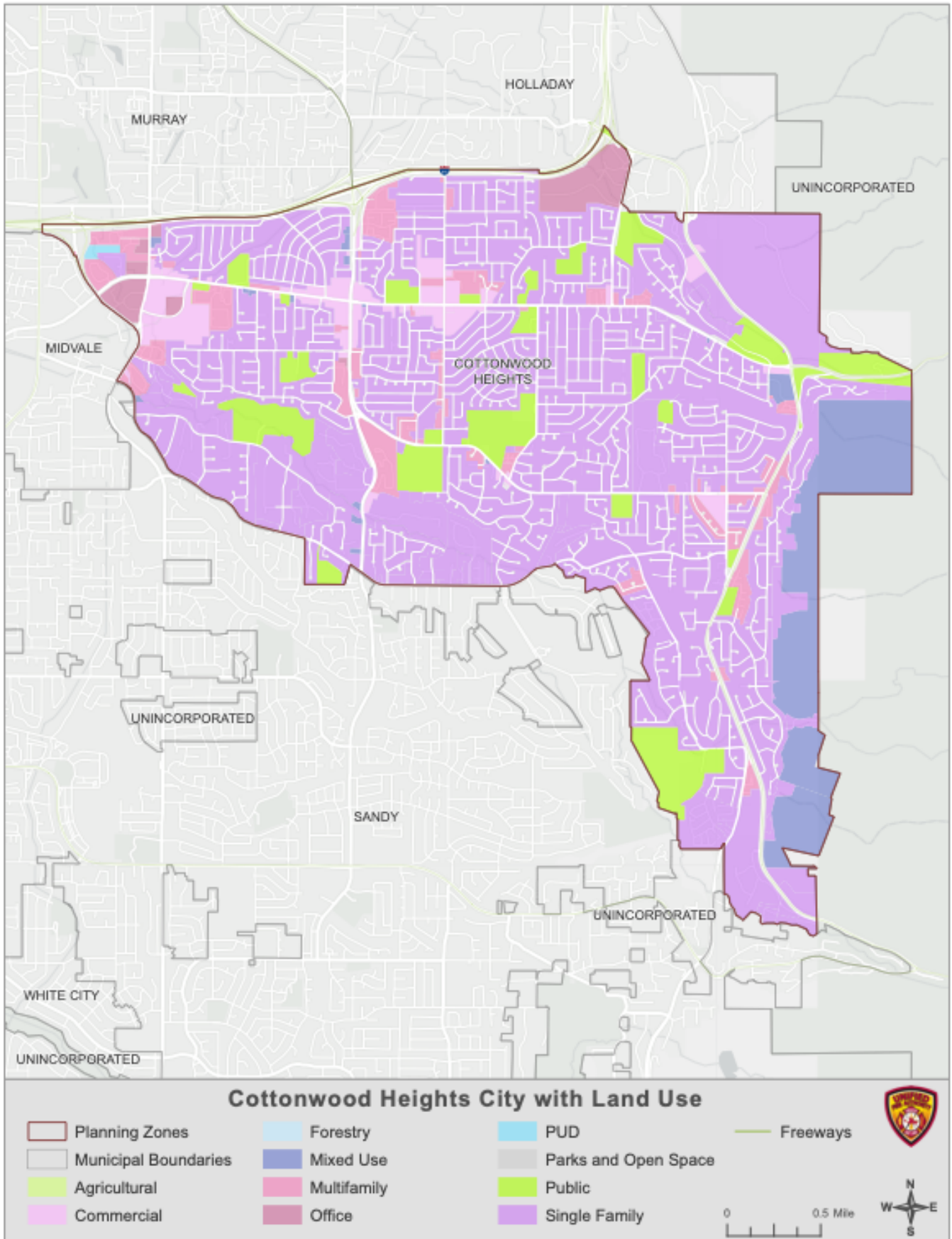
\*There is currently a gap within the identification of building size regarding hazardous materials sites. This is a gap that is being closed over the next several years as we collect the data and information.

*Table 76 – Cottonwood Heights Building Occupancy and Risk Categories*

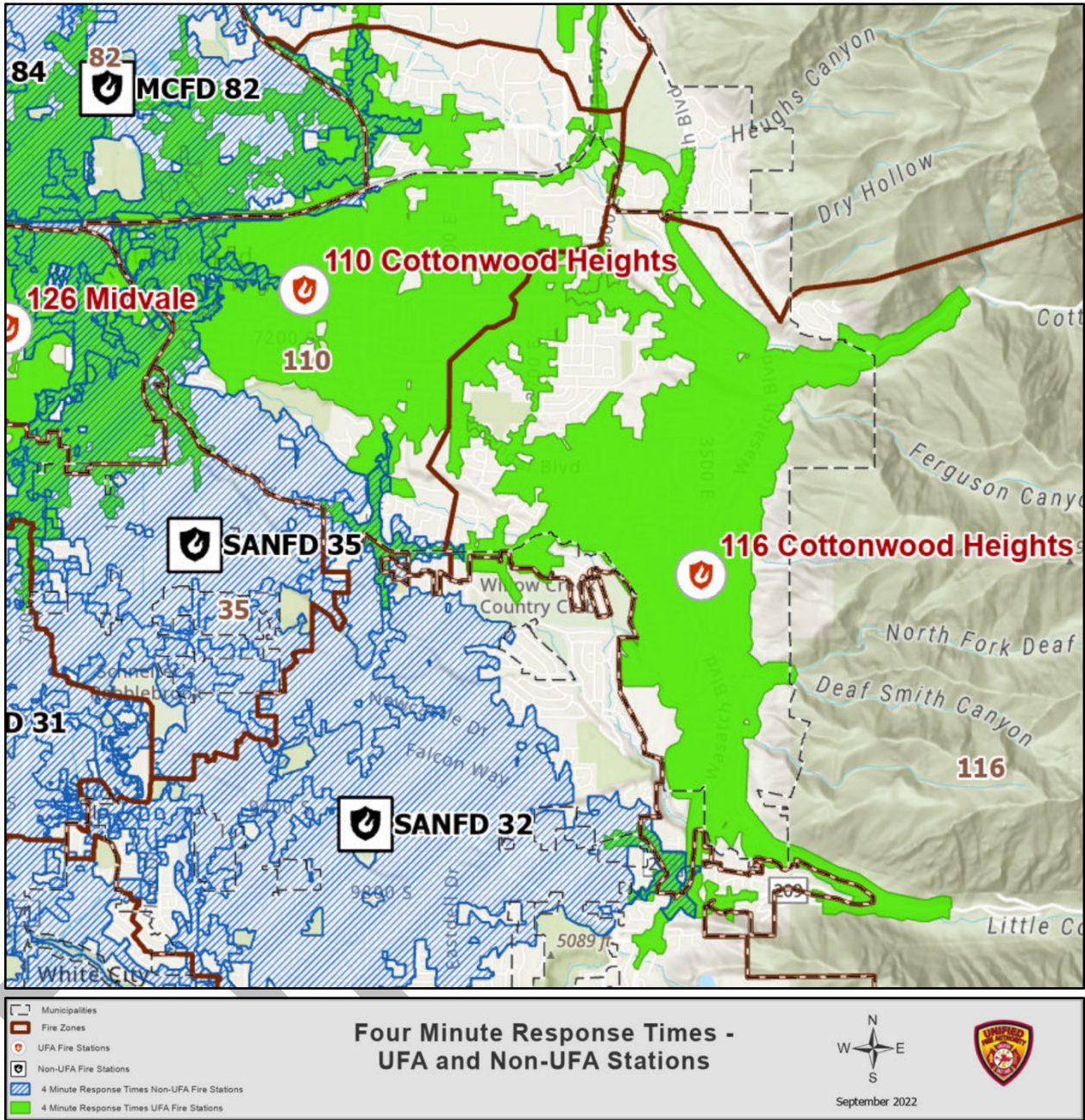
### Building Size / Considerations

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.

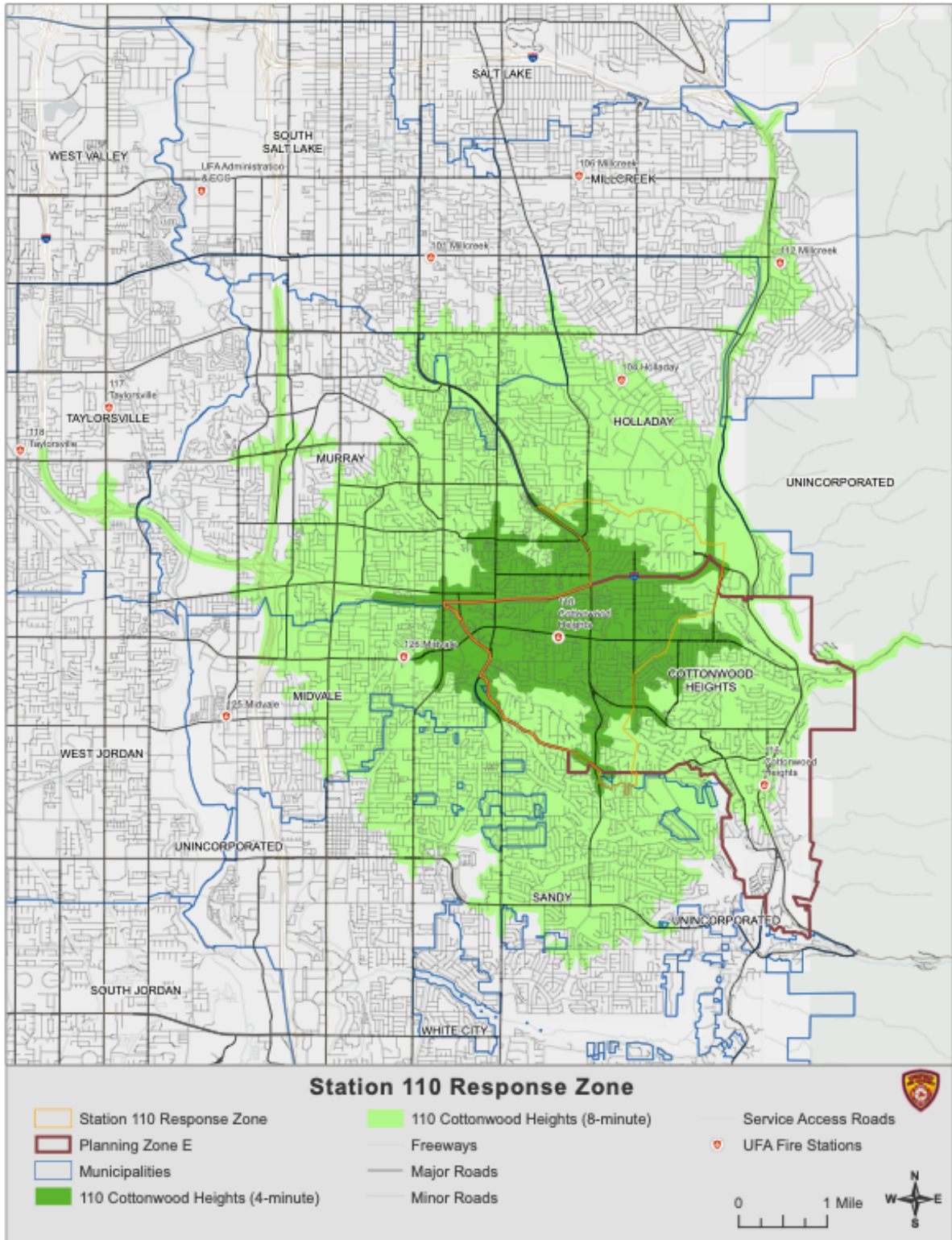
For residential occupancies, the following classifications apply. Low risk = 1-1,999 square feet. Moderate risk = 2,000-3,999 square feet. High risk = 4,000-9,999 square feet. Maximum risk = ≥10,000 square feet.



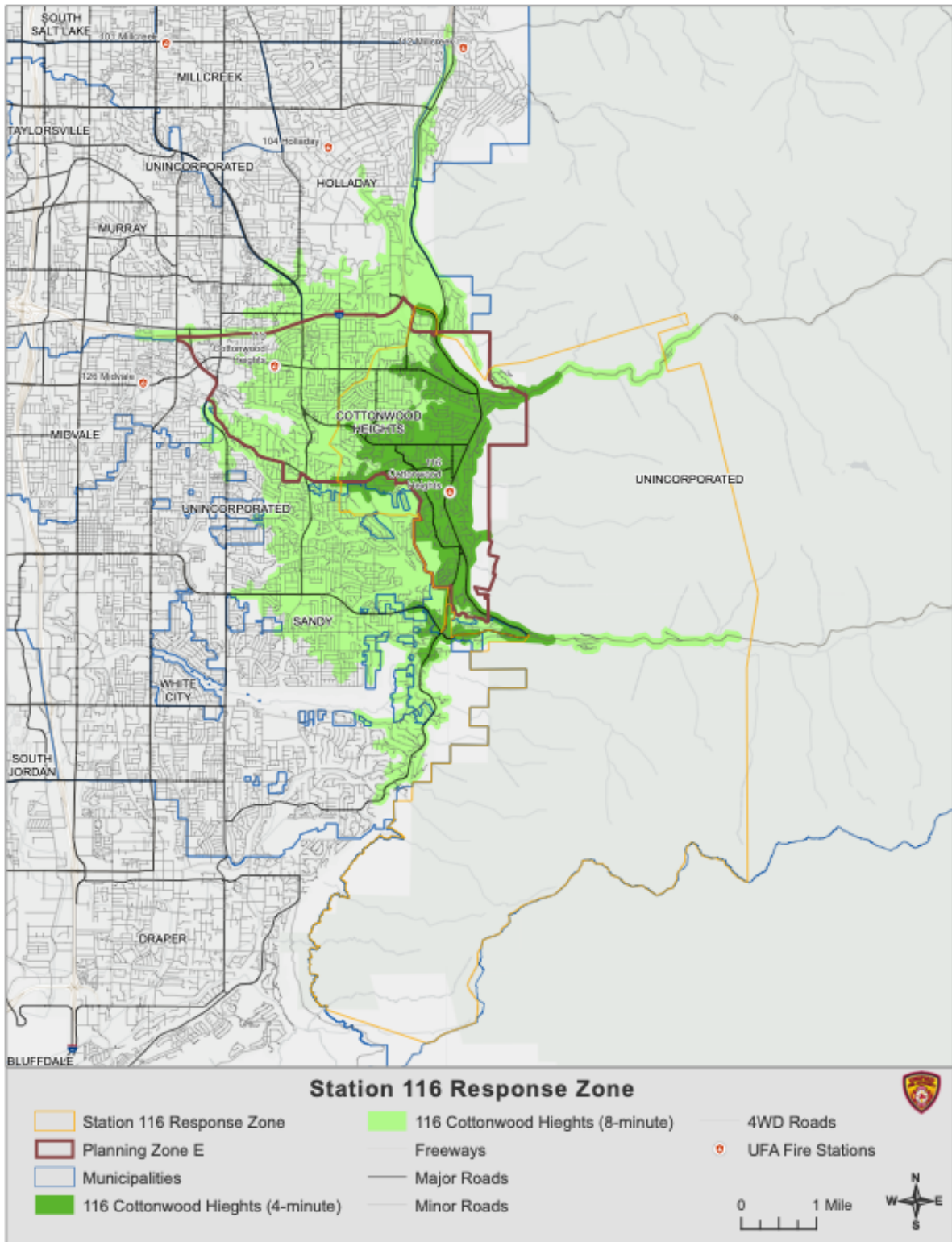
Map 106 – Cottonwood Heights with Land Use



Map 107 - 4-Minute Travel Times, UFA and Aid



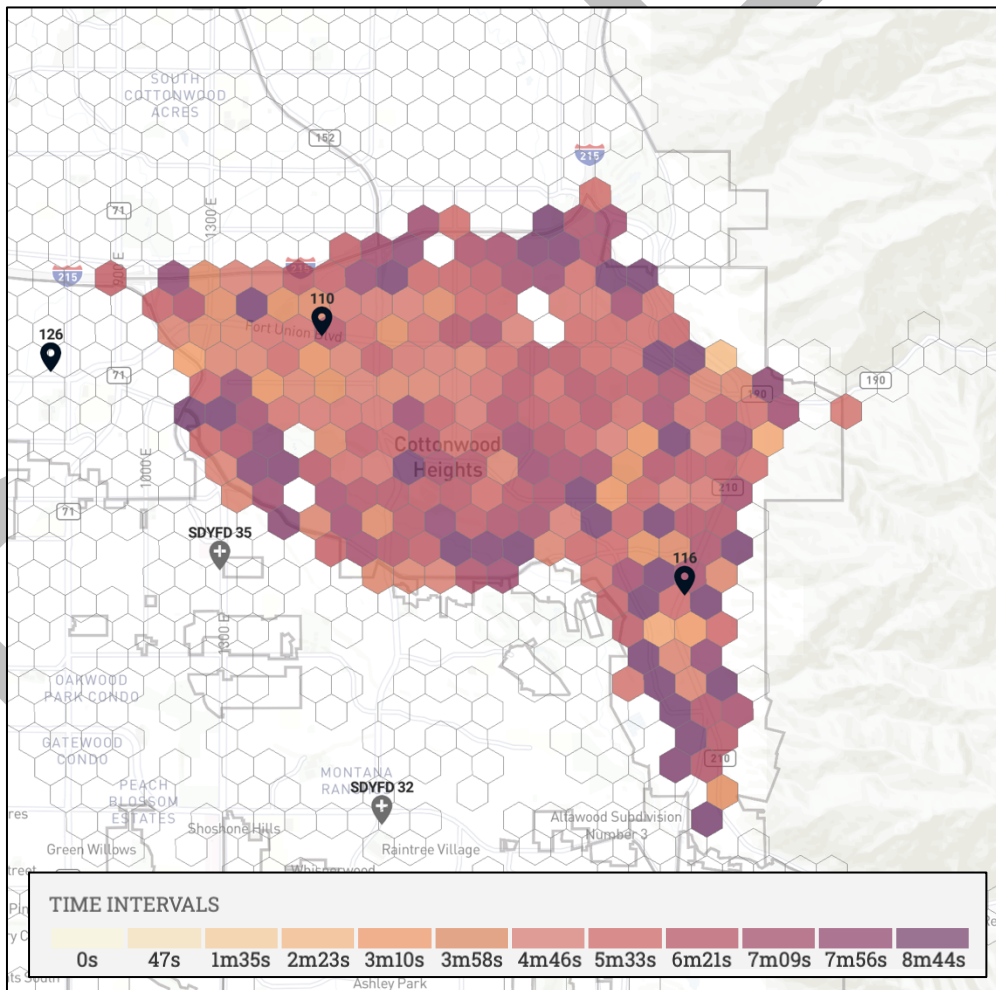
Map 108 - Station 110 4- and 8-Minute Travel Times



Map 109 - Station 116 4- and 8-Minute Travel Times

## Cottonwood Heights – First Arriver Travel Times

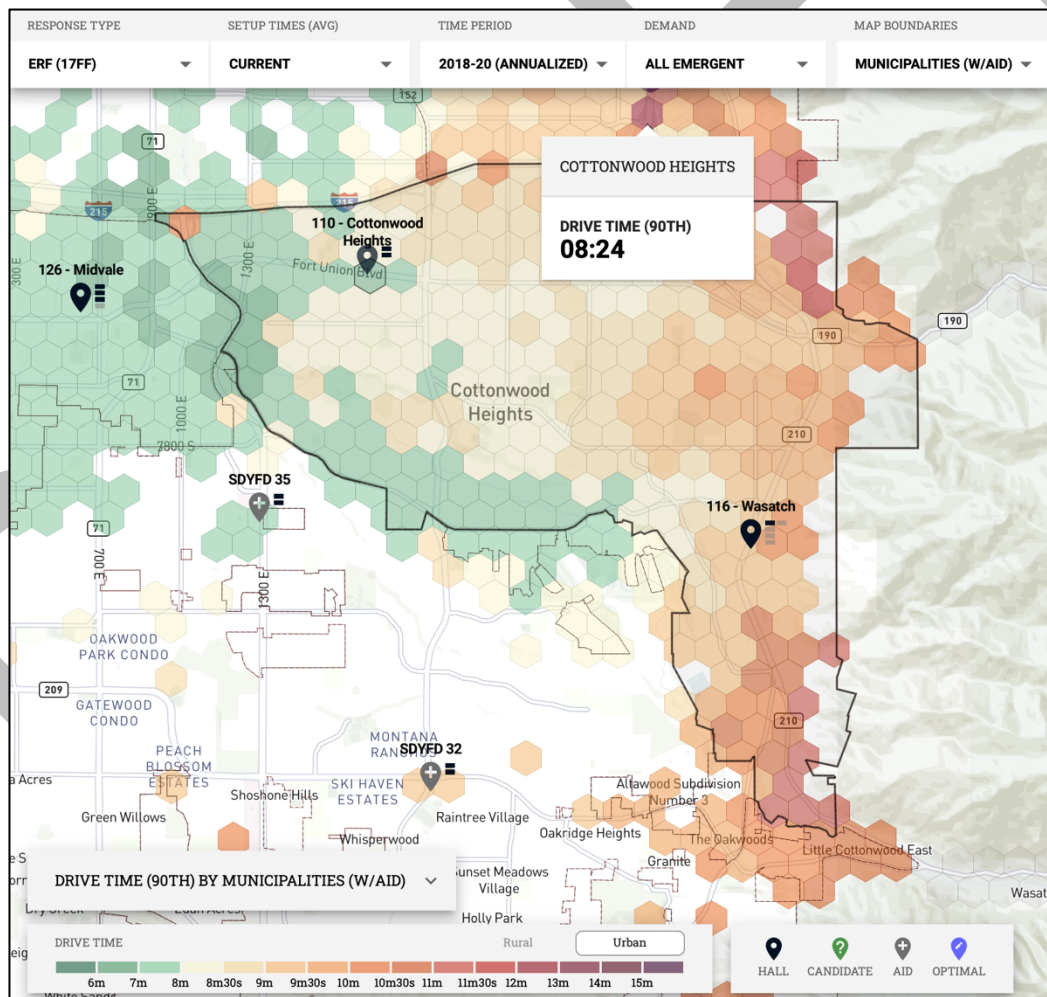
The following maps demonstrate the 90<sup>th</sup> percentile of travel times based off the last three years of historical data (2018-2020). The darker the color is, the more delayed the response, with the green and light colors demonstrating below or near target times. The darker colors on the bar within 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 Cottonwood Heights, the 90<sup>th</sup> percentile drive time is 8:18 for fire and 6:30 for EMS, or a combined 90<sup>th</sup> percentile drive time of 6:36.



Map 110 – Cottonwood Heights Response Times – All Aid

## Cottonwood Heights – Residential Fire Effective Response Force (17 FF)

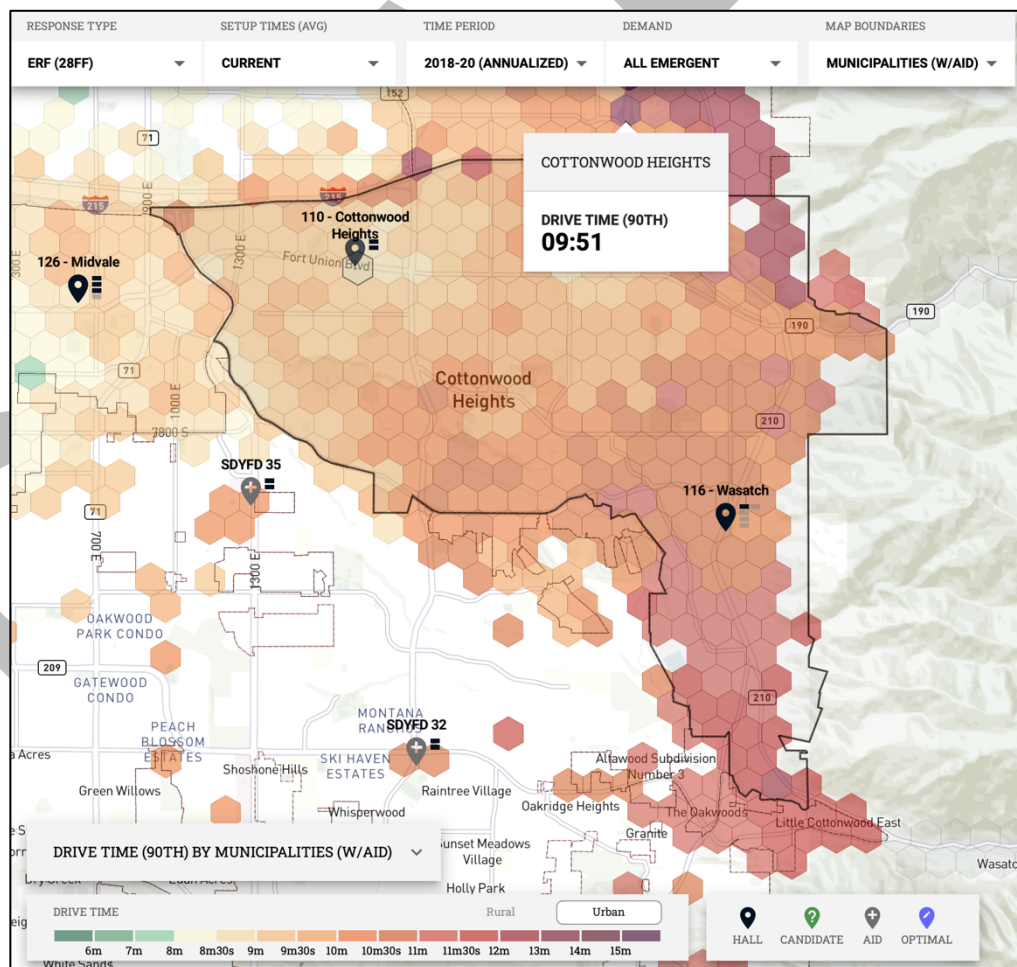
This map demonstrates the coverage of a multi-unit response to a residential fire based off all apparatus being within their station. The green to light yellow demonstrates the ability to have seventeen firefighters (a residential fire effective response force) on scene based off a residential urban 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 8:24.



Map 111 – Cottonwood Heights Response Times – Residential Fire Effective Response Force (17 ERF)

## Cottonwood Heights – 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 09:51.



Map 112 – Cottonwood Heights Response Times – Commercial Fire Effective Response Force (28 FF)

## Cottonwood Heights 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	Mod	Mod	High	Low	High	Mod	Mod	Low	Mod	High	Mod

Table 77 – Cottonwood Heights 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 Cottonwood Heights or directly bordering Cottonwood Heights. I-215 runs on the north border of the city. Several arterials and state roads also run through Cottonwood Heights, with Fort Union Blvd, Highland Drive, 2300 East, Bengal Blvd, Wasatch Blvd, and State Roads 190 (Big Cottonwood Canyon) and State Road 210 (Little Cottonwood Canyon). There are 8.5 linear miles of Interstate/US Highway, 5.33 linear miles of State Highways, and 152.1 total linear miles of roadway. UTA also runs bus routes through the city, with the main bus routes running on Fort Union Blvd, as well as routes into Big and Little Cottonwood Canyons. Cottonwood Heights is in the moderate-risk category for road infrastructure.

### Infrastructure – Water

There are several water districts within Cottonwood Heights, including the Cottonwood Improvement District, and the Jordan Valley Water Conservancy District.

### Infrastructure – Dams

There are six identified dams within Cottonwood Heights. Cottonwood Heights is in the moderate-risk category for dam infrastructure.

### Natural Hazards

Within Cottonwood Heights, there are no concerns with avalanche areas, however there are several areas that Cottonwood Heights units respond to that have avalanche as well as backcountry rescue potential within Unincorporated Salt Lake County. Cottonwood Heights is in the low-risk category for avalanche. There are several fault lines that run north-south through the city (see Map 8) and are components of the Wasatch Fault. Cottonwood Heights is in the moderate-risk category for liquefaction and high-risk category for fault lines. There is around 75,100 linear feet of fault lines in Cottonwood Heights. One of the biggest hazards that occur within an earthquake scenario is the number of unreinforced masonry (URM) buildings within Cottonwood Heights, with an estimated 2,902 URM's, which constitutes about 11.82% of the overall URM's within UFA's response areas. Cottonwood Heights is in the high-risk category for unreinforced masonry.

### Wildland Urban Interface

There is medium risk of urban interface fires within Cottonwood Heights, although on the eastern border of Cottonwood Heights, there is high risk of urban interface fires within Unincorporated Salt Lake County. Cottonwood Heights is in the moderate-risk category for Wildland Urban Interface.

### Hazardous Materials / Tier II Sites

There are eight identified HazMat/Tier II Sites within Cottonwood Heights, which is in the moderate-risk category.

### Hospitals

Cottonwood Heights has no standalone hospitals, which places it in the low-risk category.

### Schools

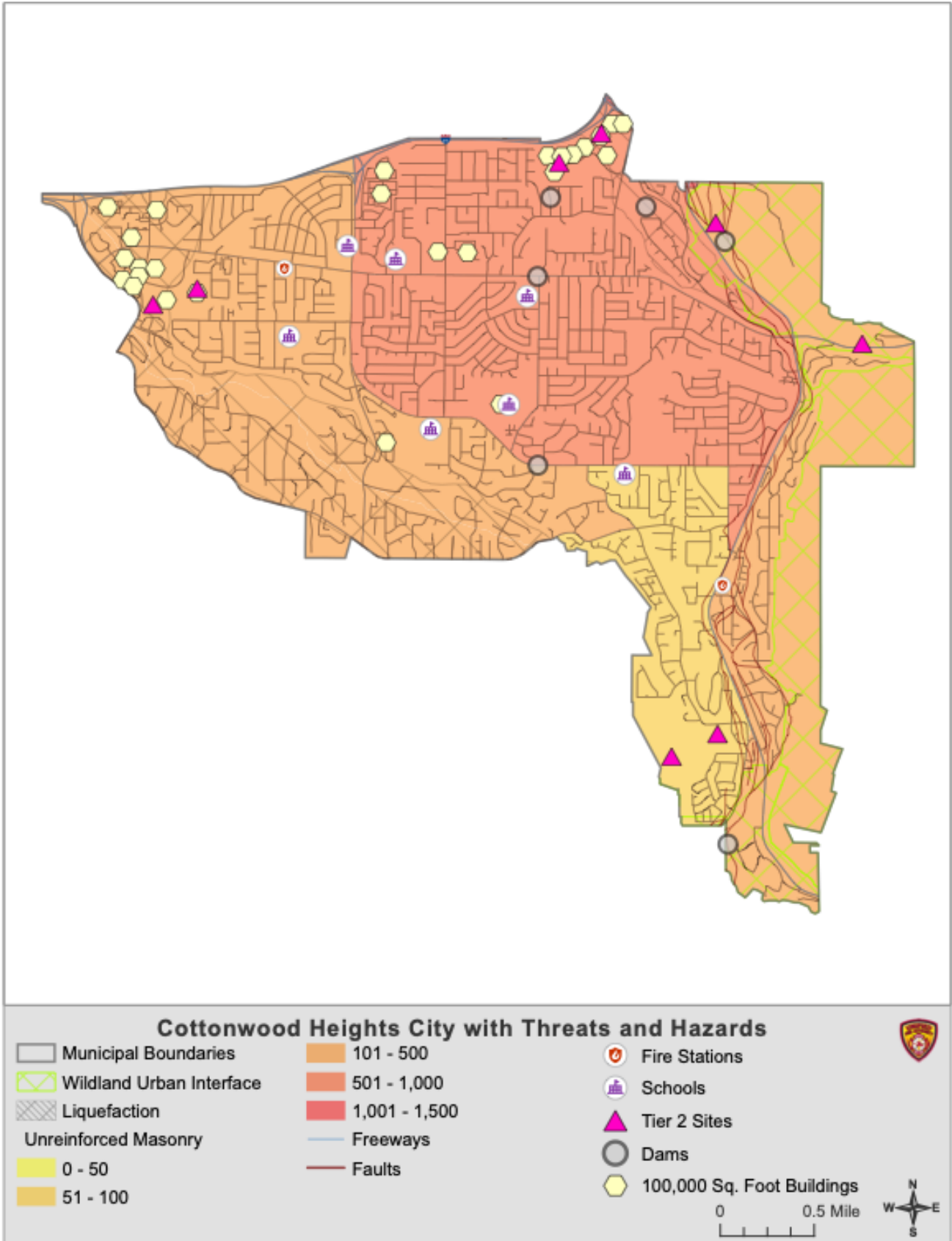
Cottonwood Heights has five elementary schools, one middle schools, and one high school within city boundaries, which places it in the moderate-risk category.

## Target Hazards – Structures

Some of the target hazard occupancies in Cottonwood Heights include:

- Metropolitan Water District of Sandy & Salt Lake – 3430 Danish Road
- Big Cottonwood Treatment Plant – 4101 E Big Cottonwood Canyon Road
- Praxair – 6880 S 2300 E

DRAFT



Map 113 – Cottonwood Heights with Combined Hazards

## Life and Property Loss

From 2015-2020, there have been zero fatalities attributed to fire. There has been a total estimate of \$2,068,827.00 of property loss and a total estimate of \$597,902.00 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 a swift water team, ice rescue team, as well as a dive rescue team. 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 Water Rescue Companies.

### 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.



## Unified Fire Authority

3380 South 900 West  
Salt Lake City, UT 84119