City of Yuma Fire Department
FIRE SERVICES AND FACILITIES PLAN

2023

CITY OF Yuma

INTERNATIONALLY ACCREDITED AGENCY CFAI 2018 - 2023

CITY OF YUMA
FIRE SERVICES AND FACILITIES PLAN

PREPARED BY THE CITY OF YUMA

DEPARTMENT OF COMMUNITY DEVELOPMENT

AND

FIRE DEPARTMENT

DECEMBER 2022

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Acknowledgments

We wish to thank the members of the City of Yuma Fire Department, who have offered their time, provided information, and have actively participated in reviewing and developing options for the Fire Services and Facilities Plan.

The study for this plan would have been incomplete without the efforts of the Geographic Information Systems Division of the Information Technology Services Department for the development and completion of the Travel Time and Station Location and Service Area maps, which aided in the visioning for this Plan.

The evaluation and recommendations are those of the Fire Services and Facility Committee. Principal members of the study team and their prime responsibilities are as follows:

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Stephen Legros – Fire Captain/Demand Projection and Station Location Analysis

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Kent Braddy– Geographic Information Systems (GIS) Analyst and Administrator

Eric Gutierrez – Senior GIS Technician

Traci Campuzano – Statistical Analyst

Mike Erfert - Public Information Officer/ Photography

City of Yuma Mission Statement

THE YUMA WAY

We are a strong team dedicated to serving our community, building relationships and creating opportunities.

WE VALUE

- Professionalism – Be our best. Set the standard.
- Accountability – Be responsible. Own our actions.
- Integrity – Be honest. Do the right thing.
- Responsiveness – Be deliberate. Follow through with intent.

City of Yuma Fire Department Mission Statement

THE YUMA FIRE DEPARTMENT EXISTS TO PROVIDE PROFESSIONAL SERVICES, PROTECTING LIFE AND PROPERTY TO ITS CITIZENS. WE ENSURE THE SAFETY AND SECURITY OF THOSE WE SERVE BY DELIVERING EMERGENCY MEDICAL TRANSPORT, FIRE PREVENTION, FIRE SUPPRESSION, AND EDUCATION TO THE COMMUNITY.

City of Yuma Fire Department Core Values

Family

Integrity

Respect for each other and the community

Excellence and Professionalism

Safety

Executive Summary

The City of Yuma, Arizona is an urban metropolitan area that has experienced moderate growth over the past decade from 93,064 in 2010 to 97,833 in 2021. The City continues to expand through development and population growth.

Part of the Public Services Element of the City of Yuma 2022 General Plan is the strategic placement of new fire stations and facilities throughout the community. This is essential to emergency services delivery in order to maintain the highest possible level of public service and an excellent Insurance Service Office (ISO) community rating. Since its inception, January 25, 1900, the City of Yuma Fire Department has made substantial strides to identify areas to improve fire and emergency response and the implementation of new technologies to better serve the expanding Yuma community. It is the purpose of this Fire Services and Facility Plan to further fortify and develop this vision into the next decade.

Current Operations

The residents of the City of Yuma are well served by their Fire Department. The average response time for incident calls is under seven minutes, which places Yuma at the leading edge with cities of its size. The response times take into consideration the time required to process the call placed to the 911 center, dispatch and the turnout time for crews to assemble and drive to the incident site. The travel time maps measure "wheels rolling" from departure from the fire station to the incident site.

The Fire Department has evolved from the traditional services of fire prevention and containment to its current mission, which has been broadened to include a range of sophisticated emergency response for rescue and mitigation services. Currently, emergency medical service (EMS) accounts for 71.7 percent of all emergency response for the Fire Department.

The City of Yuma maintains a balanced fleet of state of the art fire apparatus. These late model units serve a full range of emergency operations, which include ladder, engine, water and high angle rescue as well as hazardous materials response and mitigation.

As the population grows, so does the demand for more firefighters and more facilities to house them. This document provides an inventory of existing facilities and identifies new facilities to serve the City of Yuma as a growing community.

Fire Services and Facilities Plan

Scope

This Plan evaluates the level of service provided by the amount and effectiveness of current firefighting personnel in fire stations, deployment of resources and the mixture of units and their staffing. During the preparation of this Plan, alternatives for the future (in light of the anticipated continued growth in population and area) have been considered. The following items are specifically addressed:

- An overview of the current response system in place for calls associated with the Fire Department.
- An inventory and evaluation of the quality of existing fire station facilities and their housed apparatus.
- A description of future demand forecast for emergency services provided by the Fire Department.
- A description of how the plan is to be incrementally implemented throughout the next ten years.

Research in developing this Plan is focused on increasing and maintaining a high level of service through efficient staffing of personnel, equipment, apparatus and proper location of future facilities.

Plan Criteria

The Fire Department has a goal of an average drive time of 4 minutes for the first unit and 6 minutes for the second unit for emergency calls. This criterion is based upon the amount of time it takes from wheels rolling to the arrival of personnel. To assist in the quickest response, a series of travel distance maps were created by inputting the City's roadway system into a mapping and algorithm program.

The program calculates the shortest distance between the location of an incident and the nearest fire station to respond to a dispatched call.

The Plan illustrates the rise in the City's population in comparison to the increase in incidents ranging from fire to EMS calls. Therefore, additional fire stations and other fire facilities are necessary to fulfill the emergency needs of a growing community.

The criterion for what is expected in size and design for new facilities is addressed, along with the need for more space in the form of apparatus bays, dorms, service rooms and storage.

I. Introduction

Methodology

A committee comprised of the Department of Community Development and the Fire Department staff began this project by reviewing the existing plan and disseminating areas that could be improved upon or that had not been explored. The Fire Department provided considerable information about current practices, strategic delivery of service, history background and the needs for new facilities, apparatus and equipment. A study of the Fire Department's calls over the past five years was reviewed extensively and inserted into the Plan.

The committee met frequently to discuss emergency service and facility issues facing the Fire Department. Issues included meeting the demands of population and developmental growth, storage needs for vehicle apparatus, equipment and fire/emergency crews. Design issues of existing versus future fire stations were also discussed.

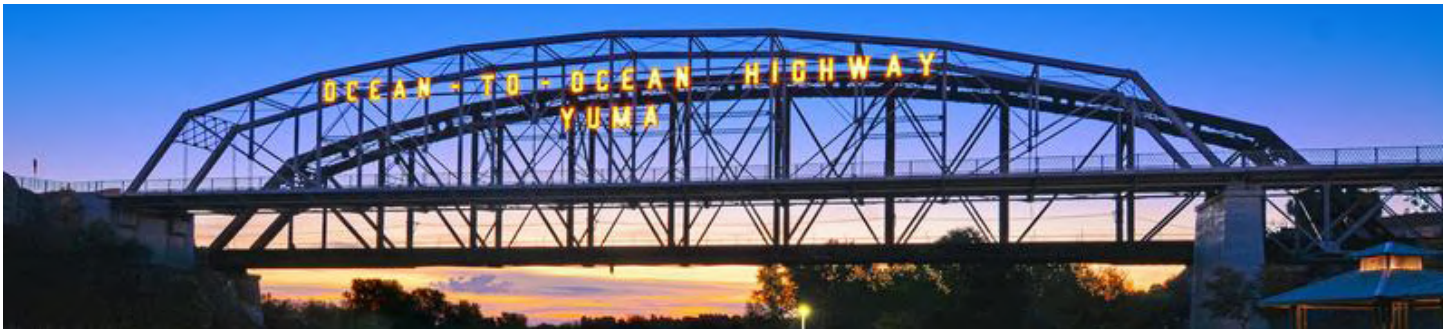
The Plan is based on existing plans and policies as adopted and implemented by the City of Yuma. The following documents have been referenced for this effort:

- Fire Department Strategic Management Plan
- 2017 Community Risk Assessment: Standards of Coverage
- Fire Department 2021 Annual Report
- City of Yuma General Plan

Future development of the City is based on the City of Yuma General Plan. The General Plan envisions a range of land uses to support the future development of the community.

Population analysis for this effort is based on the State of Arizona Office of Economic Opportunity Annual Population Estimates and 2019-2055 Population Projection Series.

CITY OF YUMA POPULATION					
Annual Estimates			Future Projections		
2001	2011	2021	2031	2041	2051
79,310	90,599	97,883	118,308	131,256	143,890



II. The Current System

The Department

The City of Yuma Fire Department serves the residents of the City Yuma within in an incorporated area of 120.7 square miles. The 2021 population is estimated at 97,883 persons. The Fire Department also provides services to the many winter visitors and migrant workers who make Yuma their home during the winter season. There are two areas within the City limits where primary fire service is provided by the Marine Corps Air Station – Yuma, the station itself composed of approximately 6.7 square miles, and a portion of the Barry M. Goldwater Range, composed of 57.7 square miles. Although the City of Yuma does provide emergency medical response within the Range. The Fire Department provides a full range of fire services including rescue, fire suppression and hazardous materials response.

Although fire suppression is the traditional service provided by fire departments consisting solely of the activities directly involved in fighting hostile fires that threaten life and property, the 21st Century Fire Service has evolved to encompass "All Hazard" mitigation. This expanded scope includes, emergency medical services, hazardous materials and technical rescue responses and community risk reduction activities. The ability of the fire department to effectively and efficiently provide these services is the primary basis for communities benefiting of an organized fire department.

Department Staffing – The City of Yuma Fire Department staff includes 138 employees. Staffing includes the areas of Administration, Community Risk Reduction (prevention) and Operations. Tables 2.1 and 2.2 detail the amount of staff positioned to each area and the amount of staff in relation to the overall number of incident calls over a ten year period between 2012 and 2021. The number of incidents has increased 45 percent since 2012, while the amount of staff has only increased by 12 percent.

Table 2.1: City of Yuma 2022 Fire Department Staffing

ASSIGNMENT	NUMBER OF POSITIONS
Administration	5
Professional Services	2
Community Risk Reduction	6
Operations	125
Total	138

Table 2.2: 2012-2021 Fire Department Staffing

YEAR	INCIDENTS	STAFFING
2012	12,037	123
2013	12,049	130
2014	13,092	131
2015	13,395	123
2016	14,118	126
2017	14,536	126
2018	15,158	136
2019	15,262	137
2020	16,379	138
2021	17,489	138

Currently the City of Yuma Fire Department is comprised of one battalion for Fire Stations No. 1 through No. 6. A battalion is comprised of: one Battalion Chief, 7 Fire Companies, 1 Ladder Company and 5 Ambulance Companies operating from 6 fire stations with a total of 39 firefighters. The Fire Department has three rotating crews. The current Command response model exceeds NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety*, recommendations for Span of Control, necessitating a second Battalion Chief for command overhead support. Under the current system, additional Command Support is accomplished through an "On Call" position. This method requires command staff to volunteer to be on call in the event that the On Duty Battalion is committed to a major indecent (e.g. Fire, Haz Mat, and Technical Rescue). The second Battalion is requested and responds to take command oversight of the remaining uncommitted YFD resources during the incidents duration. This method is unreliable due to the need for personnel to volunteer on their day off, and typically respond from a location other than a Fire Station, resulting in potential delays. The expansion of Fire Station 5 to include an additional Battalion Quarters will provide the ability to implement a second "On Duty" Battalion Chief for seamless continuity of command oversight.

Public Safety Dispatching

The City of Yuma Public Safety Communications Center services the City of Yuma Fire Department. The center handles emergency and non-emergency call taking and dispatching for all EMS, Police and Fire incidents in the City of Yuma and is staffed with 40 personnel.

Public safety dispatching in itself is very complex, and the agency utilizes several operating systems to provide timely, accurate response to calls for service within the city limits. It is the primary 9-1-1 Public Safety Answering Point (PSAP) for the City of Yuma.

Fire Dispatchers are certified in and use the Association of Public Safety Communications Officials (APCO) Emergency Medical Dispatch (EMD) program. The APCO EMD Program and EMD Guide cards provide a reliable method for call prioritization and effective use of fire resources. Once the call is prioritized and dispatched using the guide cards, the dispatcher can also provide pre-arrival instructions to the caller and provide the responding units with a short report of information regarding the circumstances of the call. Current mandatory staffing allows for no less than 2 fire radio dispatchers on duty during peak call hours of 9:00 AM to 9:00 PM, and no less than 1 during the hours of 9:00 PM to 9:00 AM, in addition to the support provided by fellow on-duty Police dispatchers.

The Fire Department and communications center have several redundancies in place to ensure efficient and timely delivery and receipt of calls for service. When a call is dispatched from the communications center, a message is sent to a paging interface and received via cellphone, by personnel in each unit via the City of Yuma's alpha paging system. These notifications contain incident location and type of emergency. A vocal announcement is transmitted over the portable radios and to each fire station and finally a call is sent to the dispatched units via mobile data computers (MDC) with the call/location information. Every Fire Department vehicle is equipped with an Tablet MDC and can acknowledge receipt of a call for service at the push of a button. This has cut down on the amount of radio traffic between dispatch and the responding units. The MDCs and paging interface also act as methods for sharing pertinent and time sensitive information with regard to weather warnings and road closures, etc.

Current Service Levels

The Insurance Services Office (ISO) provides a rating service evaluating the resources and abilities of individual fire departments. ISO ratings range in a numerical order from 1 to 10, while a rating of 10 means there is no available fire service. The City of Yuma Fire Department has an outstanding ISO rating of 2. This rating directly correlates to residential and commercial fire insurance rates. The proficiency of the Fire Department provides our citizens with reduced fire insurance premiums, compared to the surrounding areas.

Related to the ability to quickly respond to fires is the distribution of fire stations. Fire stations, the point of service delivery, are evaluated regarding their consistent distribution and spacing throughout the community (de-centralized). The ISO has a standard that reflects the belief that fire suppression services can be most effectively delivered to an area approximately 6 ½ miles around each fire station. These areas have been traditionally drawn in the shape of a polygon, which represents travel distances (road miles) from each fire station. Influencing factors of natural and/or man made barriers are taken into consideration as new fire station locations are identified. Recent improvements in mapping technology allow for station response districts and locations to be charted with respect to road limitations (speed limits) and other barriers.

FIRE SUPPRESSION – The Department's standard response for each type of fire call is as follows:

Commercial and Residential Fires - A ladder, medic ambulance, three engine companies and the battalion chief will respond, which is a commitment of at least fifteen fire and EMS personnel.

Semi-Tractor Trailer or Recreational Vehicle or Similar Fires –

For a "Special Duty 1" assignment, two engine companies and the battalion chief will respond, which is a commitment of at least seven firefighting personnel.

Passenger Car or General Fire Alarm –

For a "Special Duty 2," a single engine company will respond, which includes a minimum of three firefighter/EMS personnel.

EMERGENCY MEDICAL SERVICE (EMS) - Requests for EMS comprised over 71.7% of the Department's total call volume for 2021. The Department anticipates in excess of 16,000 EMS calls for service in 2022.

EMS was initiated in the early 1960's by providing trained personnel in cardiopulmonary resuscitation (CPR) and responses to drowning incidents. The early 1970's expanded this service with a new, fully equipped van with extrication and patient stabilization equipment. The first Emergency Medical Technician (EMT) was trained at Arizona Western College in 1974. The Fire Department had six personnel who received their EMT certification at that time. In February 2012, the Yuma Fire Department began Advanced Life Support (ALS) Ambulance Transport. The Fire Department has a current fleet of 5 fully staffed and 1 seasonally staffed Ambulance Transport Units serving the City of Yuma.

TECHNICAL RESCUE (TRT) operations are identified in the organizational structure of the City of Yuma Fire Department as Special Operations. This encompasses the disciplines of water, rope, confined space, trench rescue, structural collapse and palm tree rescue. With these capabilities, an effective and efficient program was established to rescue trapped or endangered persons using these skills.

LADDER TRUCK COVERAGE – Currently ladder truck coverage for the City of Yuma is performed by one platform ladder truck housed at Station No. 1 with the support of one smaller telescoping ladder trucks strategically located at Stations No. 2. A second platform ladder truck will be purchased and brought in to service when the City's population reaches 116,000.

RESERVE APPARATUS – Reserve apparatus is used when a front–line apparatus goes out of service for mechanical problems or in the event of a major emergency in which off-duty crews are called in as additional companies.

INCIDENT TYPES - The City of Yuma Fire department manages and track a series of differing incident type calls. This information is data is reported annually to the National Fire Incident Reporting System. (NFIRS). The majority of calls is considered emergencies and therefore requires quick response of efficient and trained firefighting and EMS personnel, equipment and apparatus. The following is a description of each type of incident call to which the Fire Department responds.

TABLE 2.3 CALLS FOR SERVICE PER YEAR

TYPE OF INCIDENT	2021	2020	2019	2018
Fire	362	391	289	295
Overpressure	8	10	11	7
Rescue & EMS	13,107	12,038	11,528	11,511
Hazardous Conditions	171	152	158	193
Service Call	1,302	1,382	926	871
Good Intent	1,931	1,704	1,651	1,591
False Alarm & False Call	605	690	692	684
Severe Weather	0	0	4	2
Special Incident	3	3	2	2
Other	0	9	0	4
Total	**17,489**	**16,379**	**15,262**	**15,159**

FIRE SUPPRESSION - Fire incidents shown in table 2.3 only include working fires or where there was actual fire damage. Fire incidents have been steady with a slight increase over the last 5 year period. This is similar to other cities experiencing growth like Yuma's. (See sec. IV. Demand Forecast Table 4.1.)

RESCUE & EMS - It is a common misconception that fire suppression is the major role of the Fire Department. EMS includes medical emergencies and automobile accidents with injuries. EMS is also seen in some instances as a last resort for health care for the uninsured. Because EMS calls are so large in number, any increase in utilization of these services on a per capita basis has major consequences for the overall demand of service provided by the Fire Department. It is expected that the demand for EMS will continue to increase.

HAZARDOUS CONDITIONS - Since 1990, the City of Yuma Fire Department has had a Hazardous Materials Response program designed and staffed to protect the community from the hazards associated with the uncontrolled release of hazardous materials. Hazardous condition calls are those incidents which could have, but did not cause a fire or medical incident, but still required attention of the Fire Department on an emergency basis. Hazardous conditions include the release of natural gas, flammable liquid spills with no fire, hazardous materials, and downed electrical wires.

SERVICE CALLS - Incidents that are not strictly defined as emergencies but receive a fire or EMS response and some Fire Department action are considered service calls. Service calls may include incidents involving broken water pipes, individuals who have fallen or any number of unusual events including rescuing animals and assisting the public with items such as locked vehicles or buildings.

GOOD INTENT – Also known as Public Assist calls for service, account for any non-emergency call for service and include incident types such as: Snake removal, lift assists, welfare checks, etc. With the prevalence of personal cell phones, these incidents have increased due to "Good Samaritans" or passersby reporting various incidents such as disabled vehicles, man-down or smoke in the area.

FALSE ALARM/FALSE CALL – This classification refers to those incidents that are caused by unintentional fire alarm or fire sprinkler activations, malicious alarm activations, or other false reporting where no emergency exists or is found.

SEVERE WEATHER - These are incidents where weather phenomena that occurs causes or is directly linked to emergency incidents such as hurricanes, tornadoes, micro burst, floods, earthquakes or other natural disasters.

Response Coverage

Overall coverage for the City is sufficient. If the City continues to annex and grow in population, coverage for some areas may become difficult, and positive response times could begin to diminish city-wide, reaching unacceptable limits if facility planning is not completed.

According to Table 2.4, the average response times are the longest for Station No. 5, which covers a larger area and distances greater than the other fire stations in the City. This area currently includes the response area that will become Station 7's response district. Station No. 3 appears to have the quickest response times, this can be attributed to its location between heavily residential and commercial developed areas in the central core of the City of Yuma. The Department operates from six stations with a normal on-duty staffing of 35 personnel. The average response time for EMS calls is 6 minutes, and the average response time for fire related calls is under 8 minutes.

Currently, both the central portion and fringe areas of the City are receiving adequate coverage. Some of the areas on the fringe are less developed, resulting in fewer calls for service and longer travel time. Table 2.5 shows a comparison the total number of incidents per Station between 2020 and 2021.

Table 2.4, 2021 Average Response Times per Fire Station

FIRE STATION	FIRE RELATED AVERAGE TIME	EMS RELATED AVERAGE TIME
No. 1	5:43	5:25
No. 2	9:59	5:31
No. 3	5:56	5:14
No. 4	8:41	5:26
No. 5	9:55	7:48
No. 6	9:54	5:51

Figure 2.1 2021 Average Response Times by Station

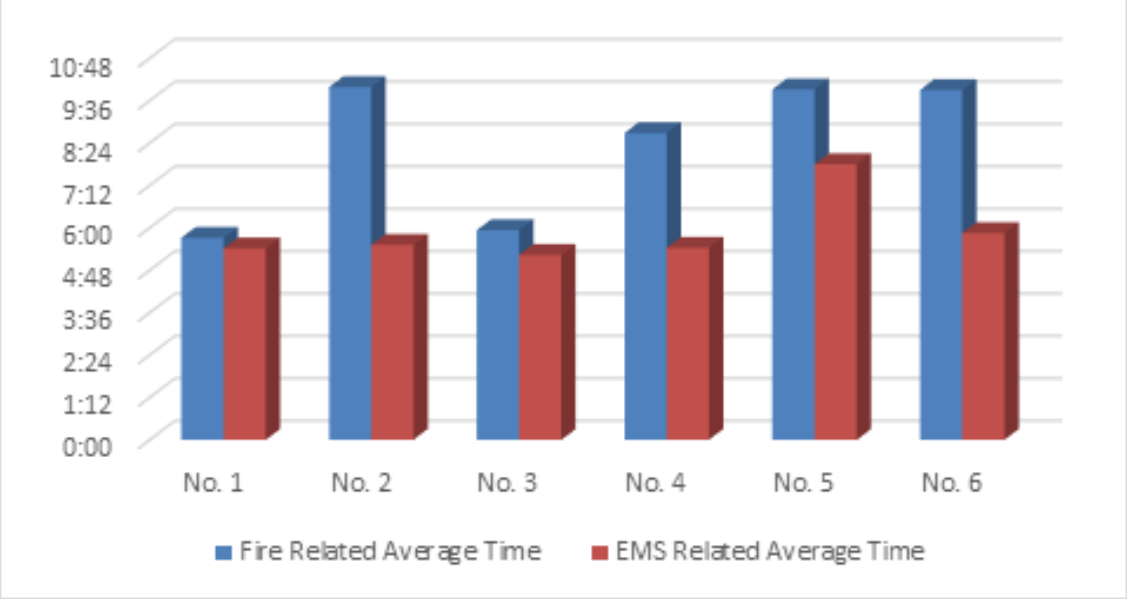
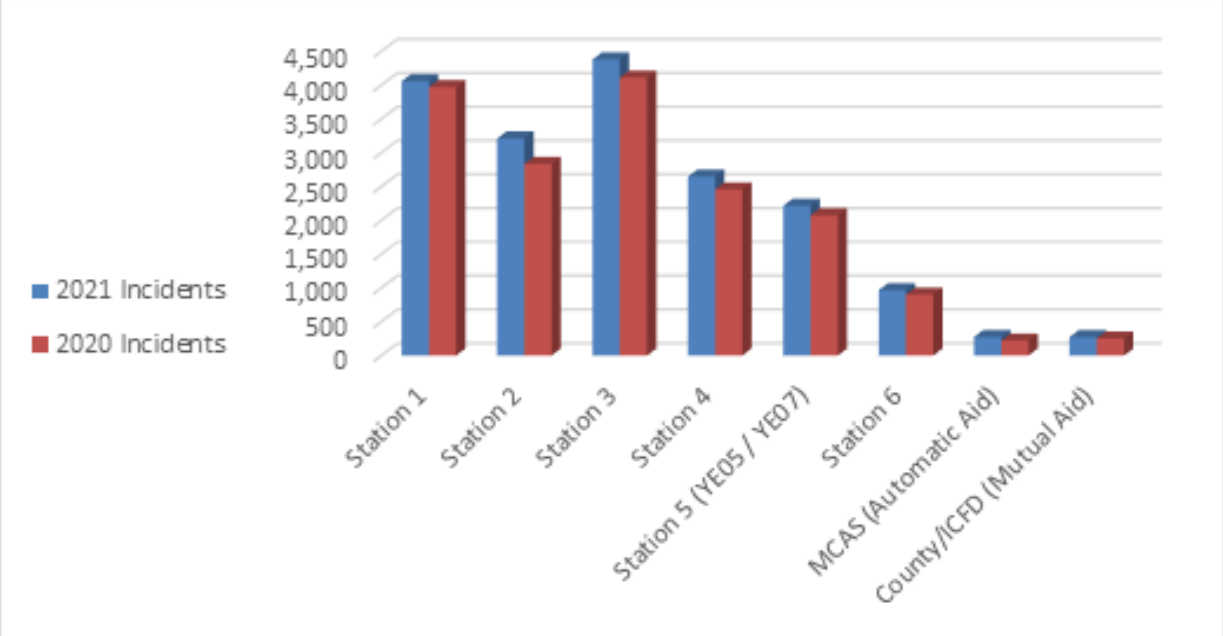


Table 2.5 Incident Count by Station

STATION	2021 INCIDENTS	2020 INCIDENTS
Station 1	4,059	3,973
Station 2	3,213	2,835
Station 3	4,381	4,113
Station 4	2,649	2,459
Station 5 (YE05 / YE07)	2,216	2,076
Station 6	969	901
MCAS (Automatic Aid)	276	222
County/ICFD (Mutual Aid)	275	254

Figure 2.2 Incident Count by Station



III. Fire Facilities Inventory Analysis

RESPONSE AREA MAPS

The first map illustrates the response areas for the existing fire stations. The map includes six fire stations plus the aide agreement with the Marine Corps Air Station Fire Department. (Note: The response area indicated for Fire Station No. 5 includes the Barry M. Goldwater Range, while this area is within the incorporated City limits, it is served as a wilderness area and therefore typically requires little or no emergency response.)

TRAVEL TIME MAPS

The first travel time current-station composite map (p.11) illustrates the estimated combined travel time provided by Fire Stations No. 1 through 6. Travel time coverage illustrates the Fire Department's ability to travel to an incident within 0 to 4 minutes (green) within 4 to 6 minutes (shown in yellow) and 6 to 8 minutes (shown in red). The subsequent series of maps illustrates the existing Fire Stations individual response travel times. By comparing the current-build and future station maps composite maps, it is evident, that as the build-out of fire stations occur, the time required to travel to emergency incidents decreases. This demonstrates how increasing the amount of strategically located fire stations reduces the amount of travel time by closing response gaps and overlapping response coverages. (Note: Areas within the urban boundary, which are not shaded are identified as being outside the 8 minute travel time designation boundary.)

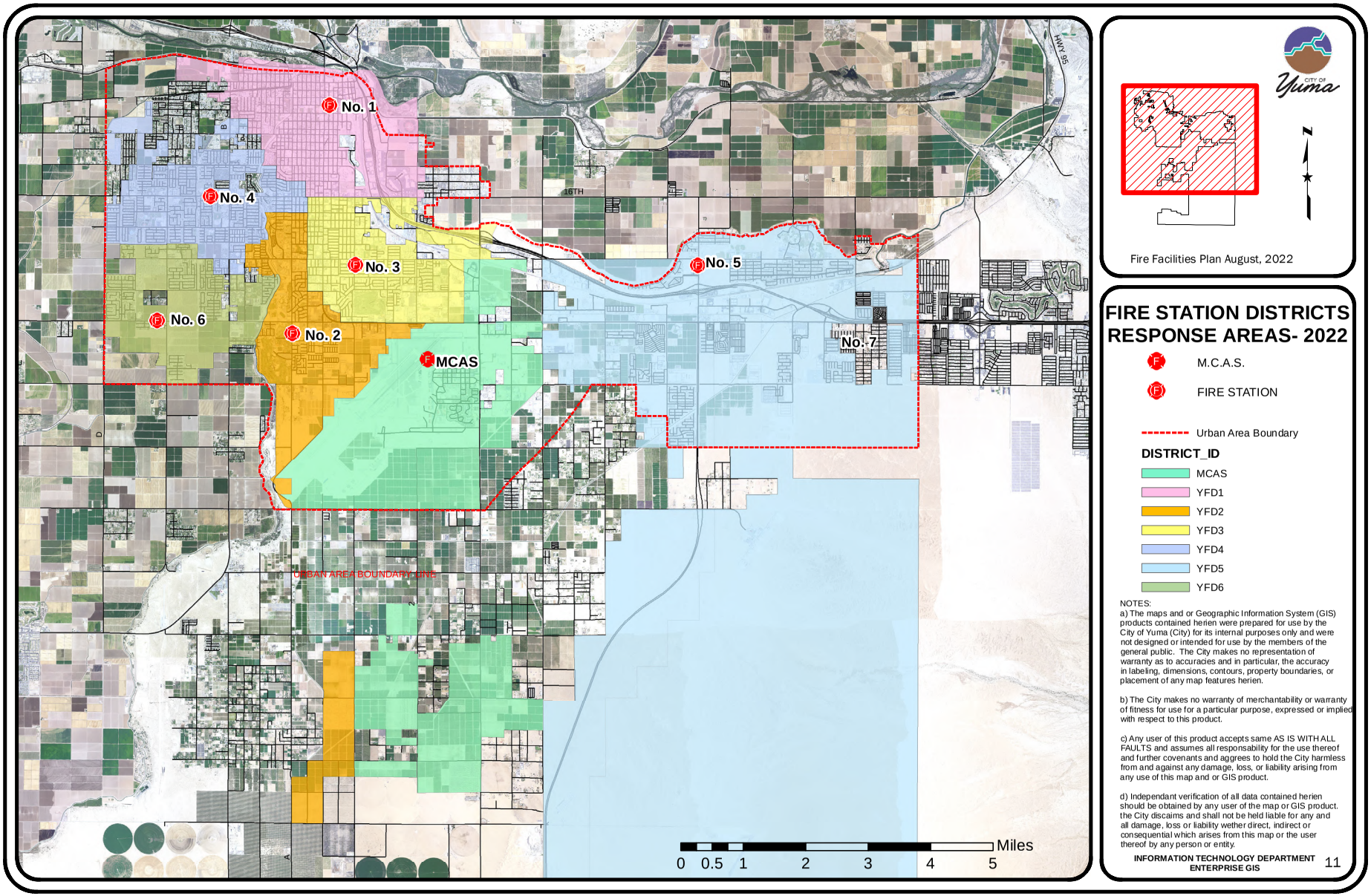
The final map features the Fire Department's composite response times based on the facilities full build-out to the year 2030. This map illustrates how the Fire Department is planning to maintain their current high level of service as the population and built environment enlarges. The projected build-out of four new fire stations will satisfy the future demand for emergency service

FIRE FACILITY ASSESSMENTS

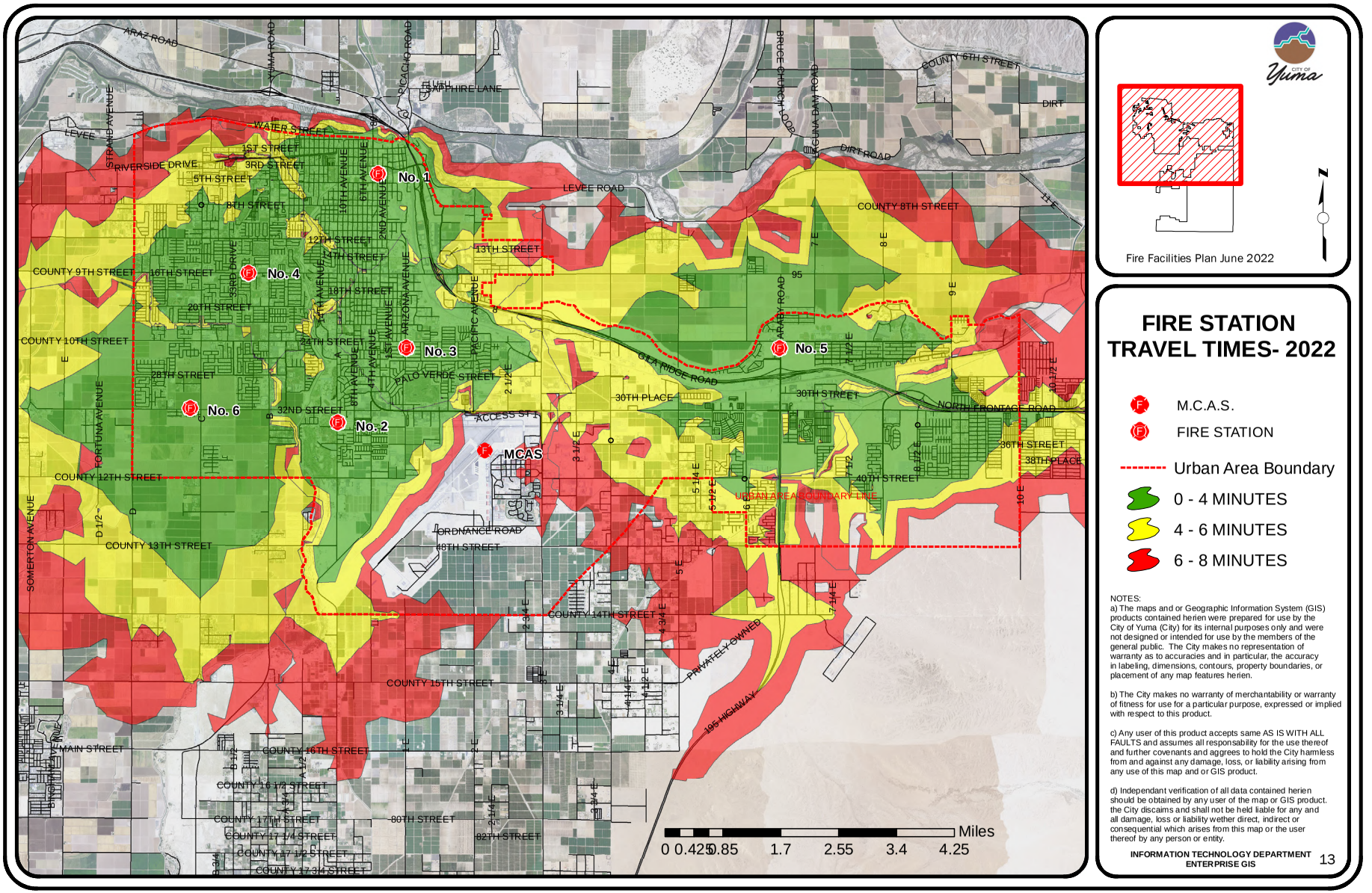
The information shown provides a brief description of the City of Yuma Fixed Fire Department Facilities to include the Public Safety Training Facility, Station No. 1 through Station No. 6, including build date, location, and the number and type of apparatus housed at each station. Deficiencies are noted, along with proposed improvements. Each fire station has its own character in reference to design, function, history and location.

Other facilities, like the training facility and classrooms have provided the necessary hands- on training to both recent hires and seasoned firefighters. Proposed changes to these facilities are discussed in detail in the following inventory.

Service Area Map – Existing Stations



Travel Time Response Maps Composite Existing Stations



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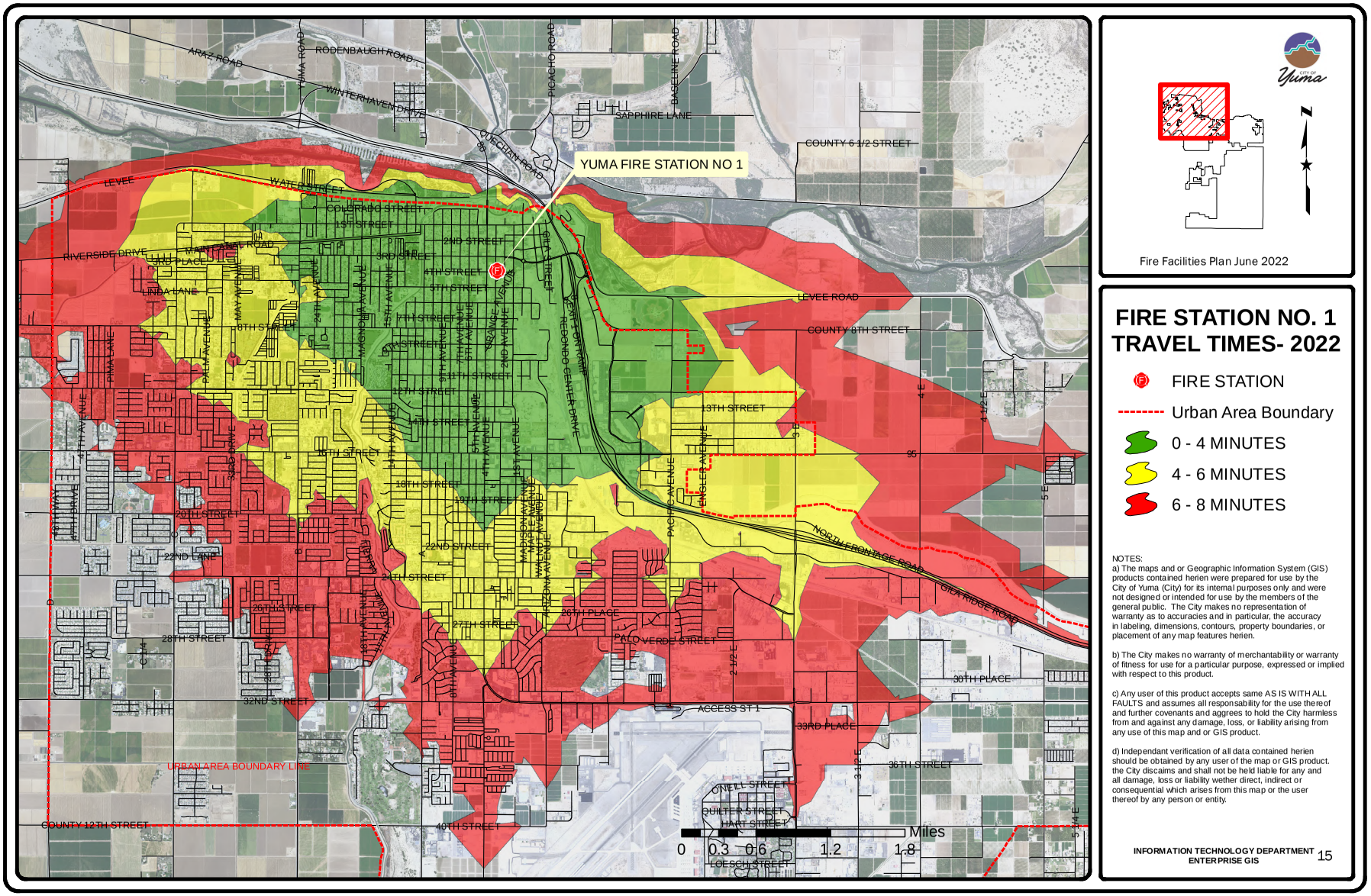
Travel Time Response Map Station 1



Fire Facilities Plan June 2022

FIRE STATION NO. 1 TRAVEL TIMES- 2022

- FIRE STATION
- Urban Area Boundary
- 0 - 4 MINUTES
- 4 - 6 MINUTES
- 6 - 8 MINUTES

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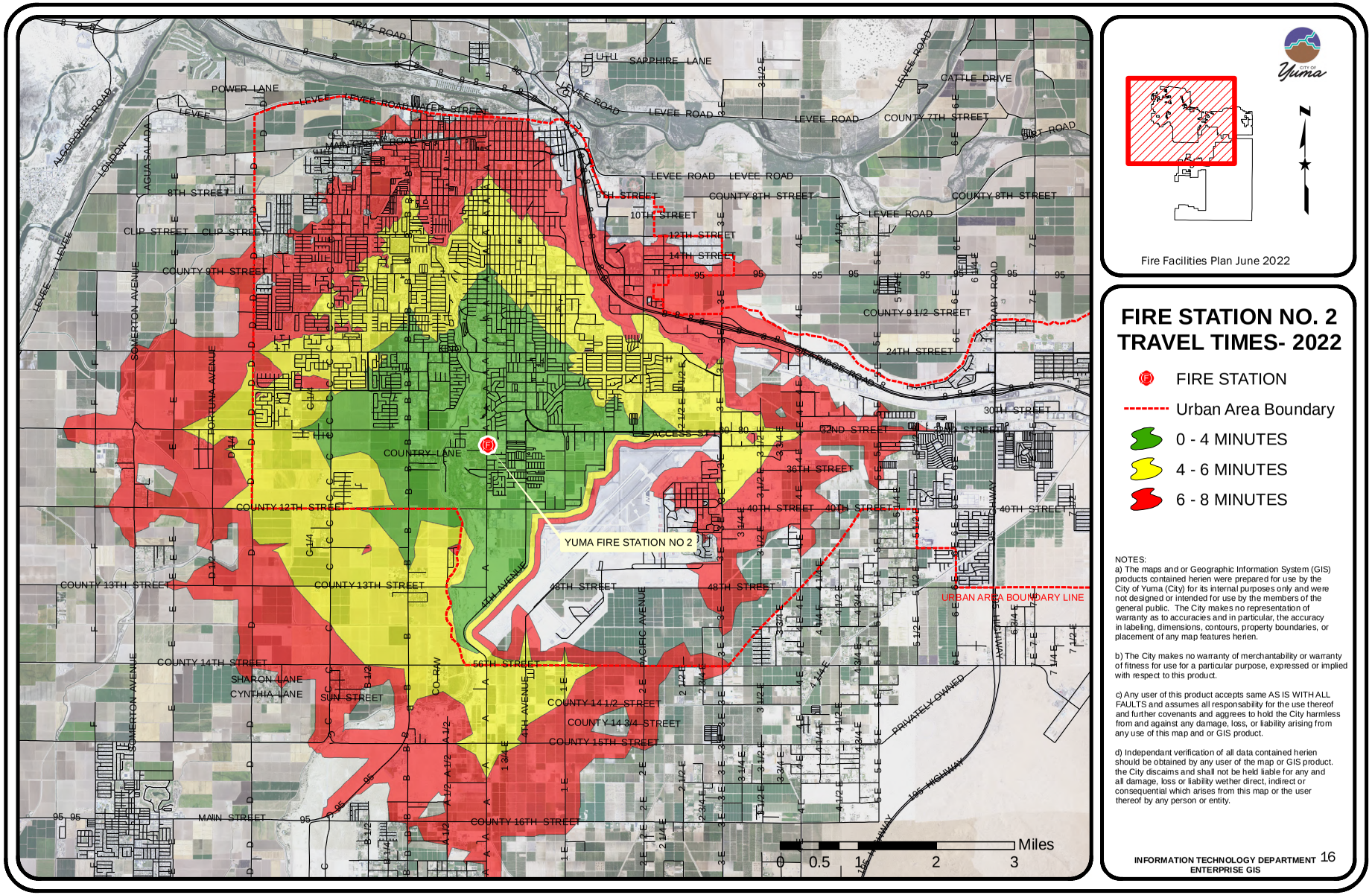

FIRE STATION NO. 2 TRAVEL TIMES- 2022

- FIRE STATION
- Urban Area Boundary
- 0 - 4 MINUTES
- 4 - 6 MINUTES
- 6 - 8 MINUTES

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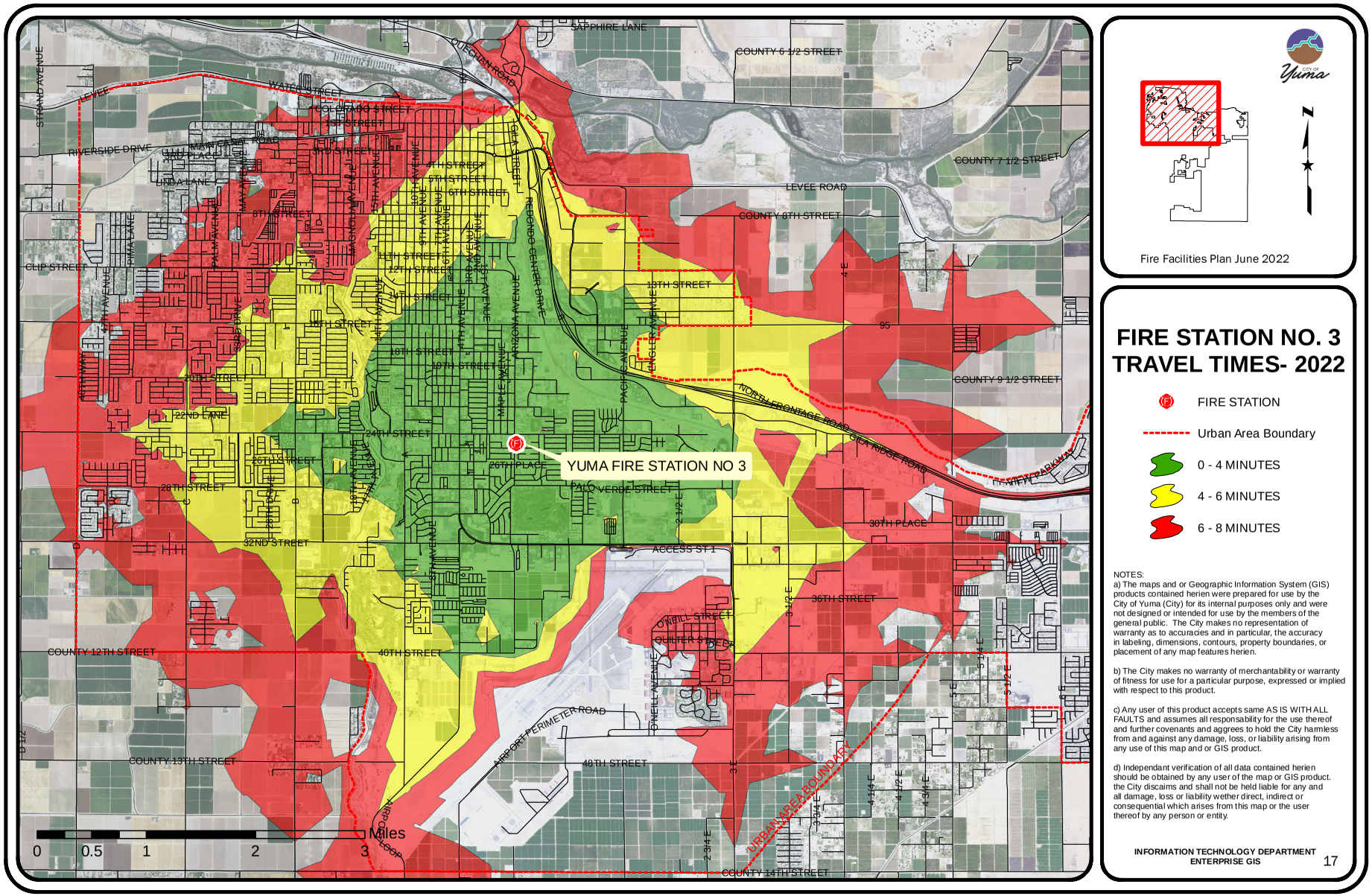

Fire Facilities Plan June 2022

FIRE STATION NO. 3 TRAVEL TIMES- 2022

- FIRE STATION
- Urban Area Boundary
- 0 - 4 MINUTES
- 4 - 6 MINUTES
- 6 - 8 MINUTES

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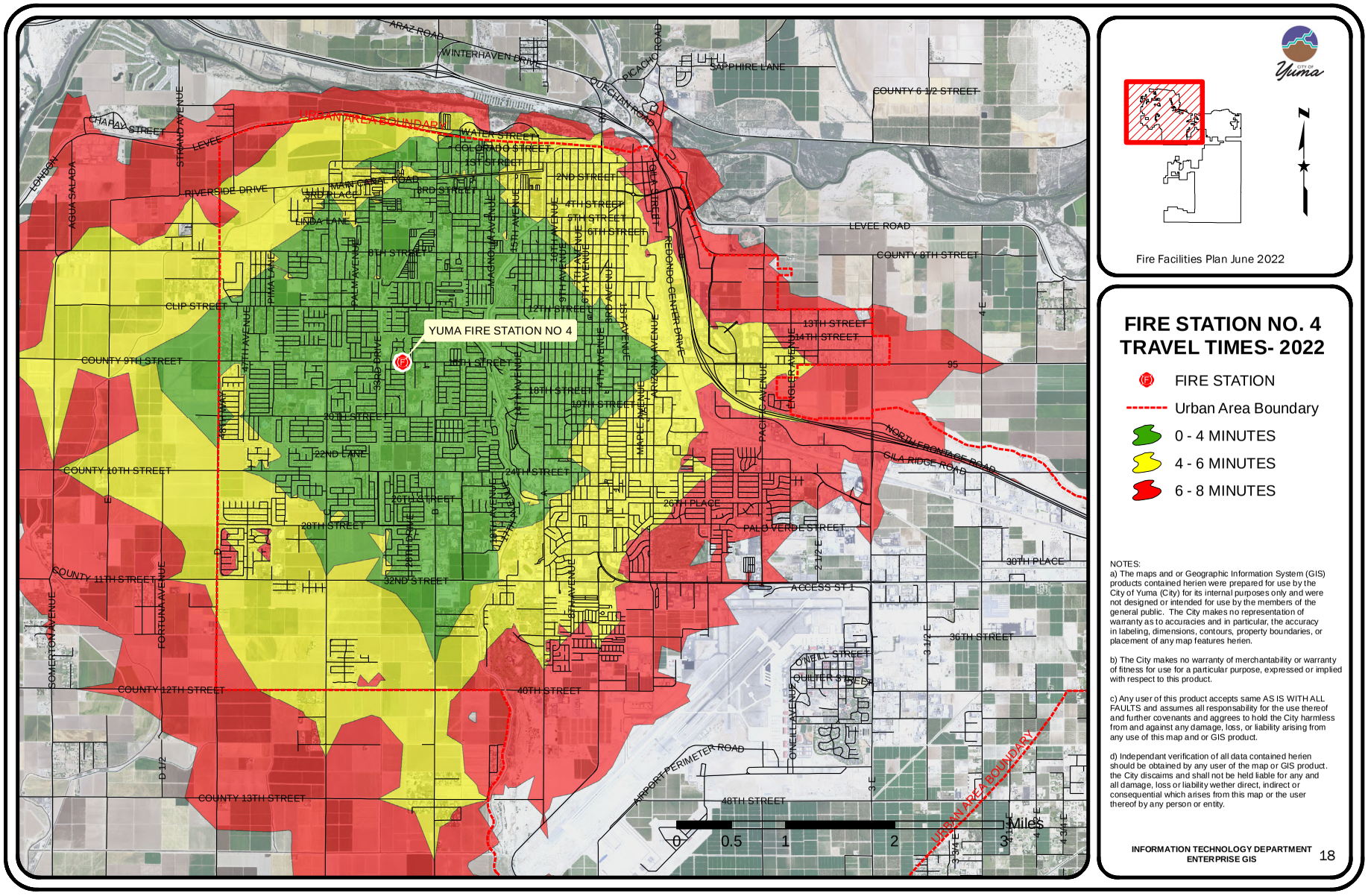
Travel Time Response Map Station 3

Travel Time Response Map Station 4



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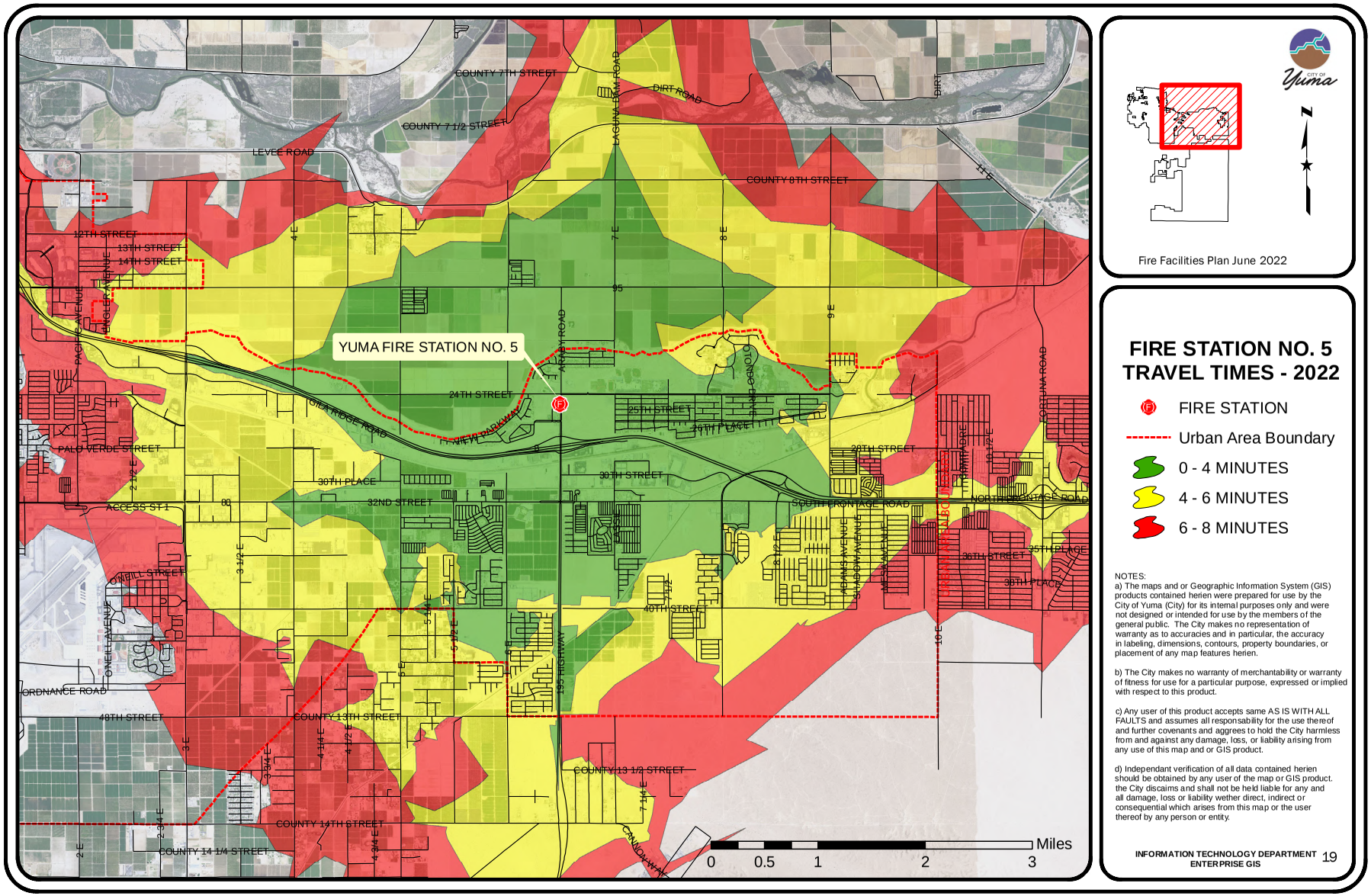

Fire Facilities Plan June 2022

FIRE STATION NO. 5 TRAVEL TIMES - 2022

- FIRE STATION
- Urban Area Boundary
- 0 - 4 MINUTES
- 4 - 6 MINUTES
- 6 - 8 MINUTES

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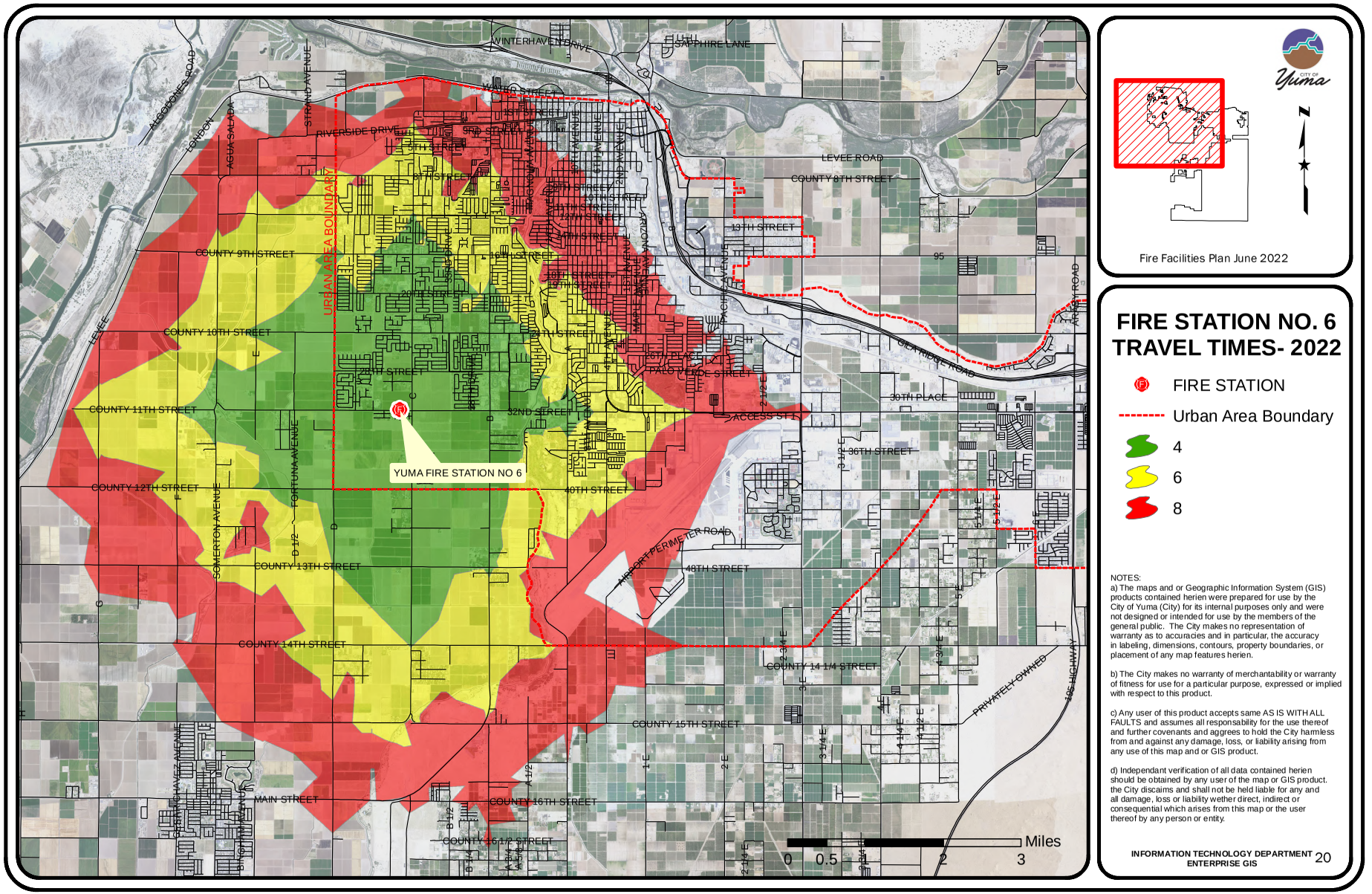
Travel Time Response Map Station 6



Fire Facilities Plan June 2022

FIRE STATION NO. 6 TRAVEL TIMES- 2022

- FIRE STATION
- Urban Area Boundary
- 4
- 6
- 8

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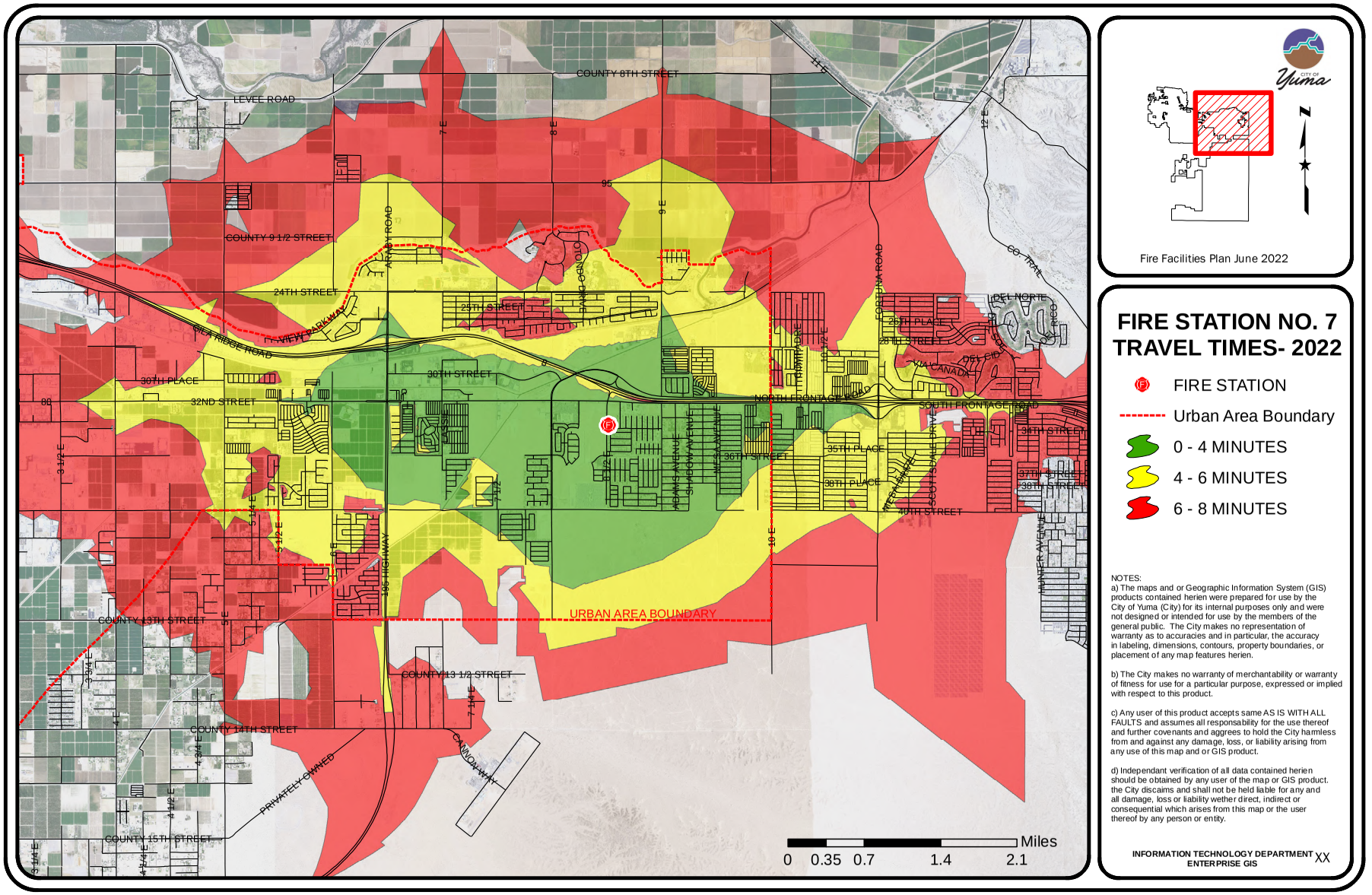

Fire Facilities Plan June 2022

FIRE STATION NO. 7 TRAVEL TIMES- 2022

- FIRE STATION
- Urban Area Boundary
- 0 - 4 MINUTES
- 4 - 6 MINUTES
- 6 - 8 MINUTES

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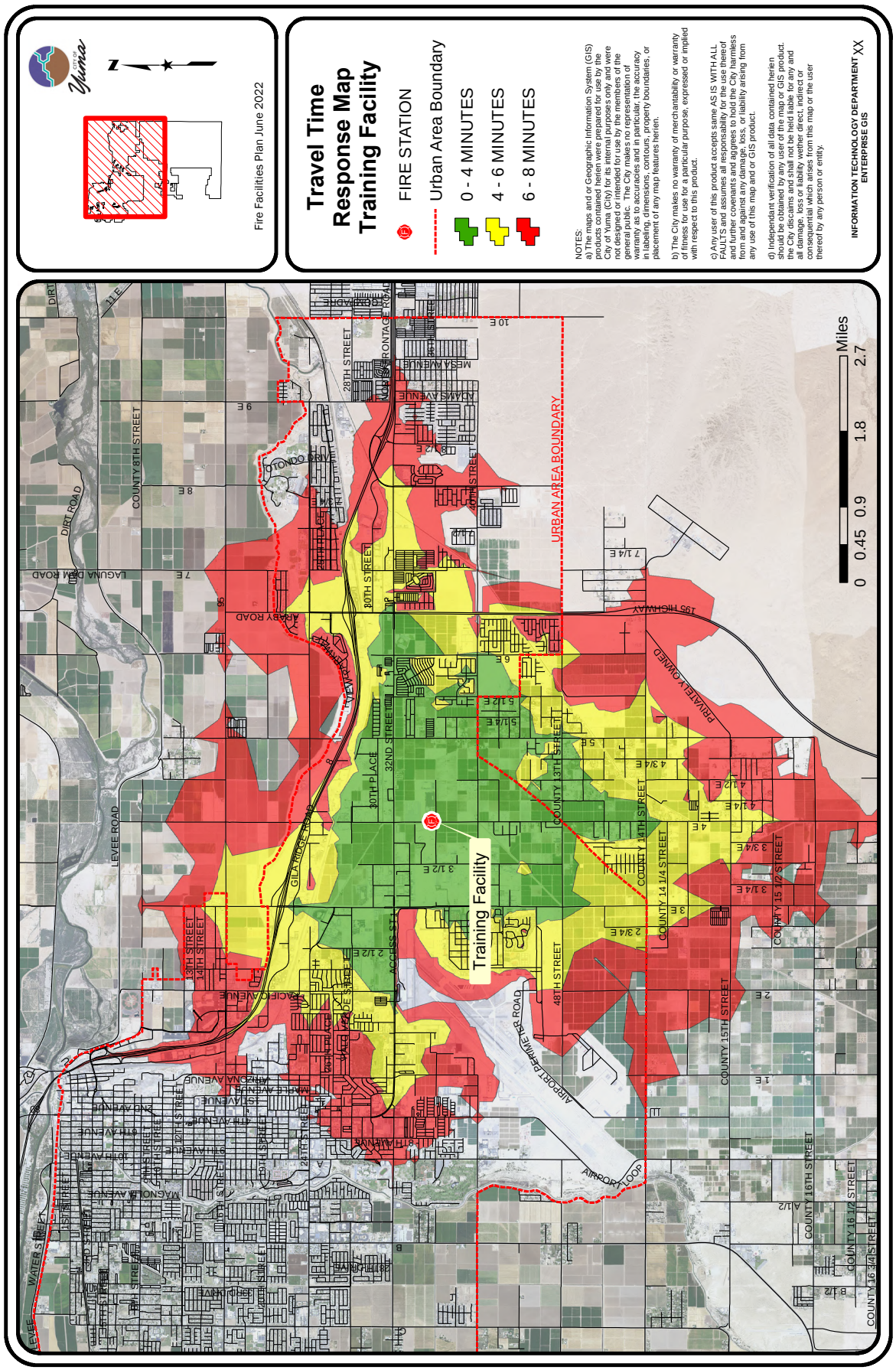
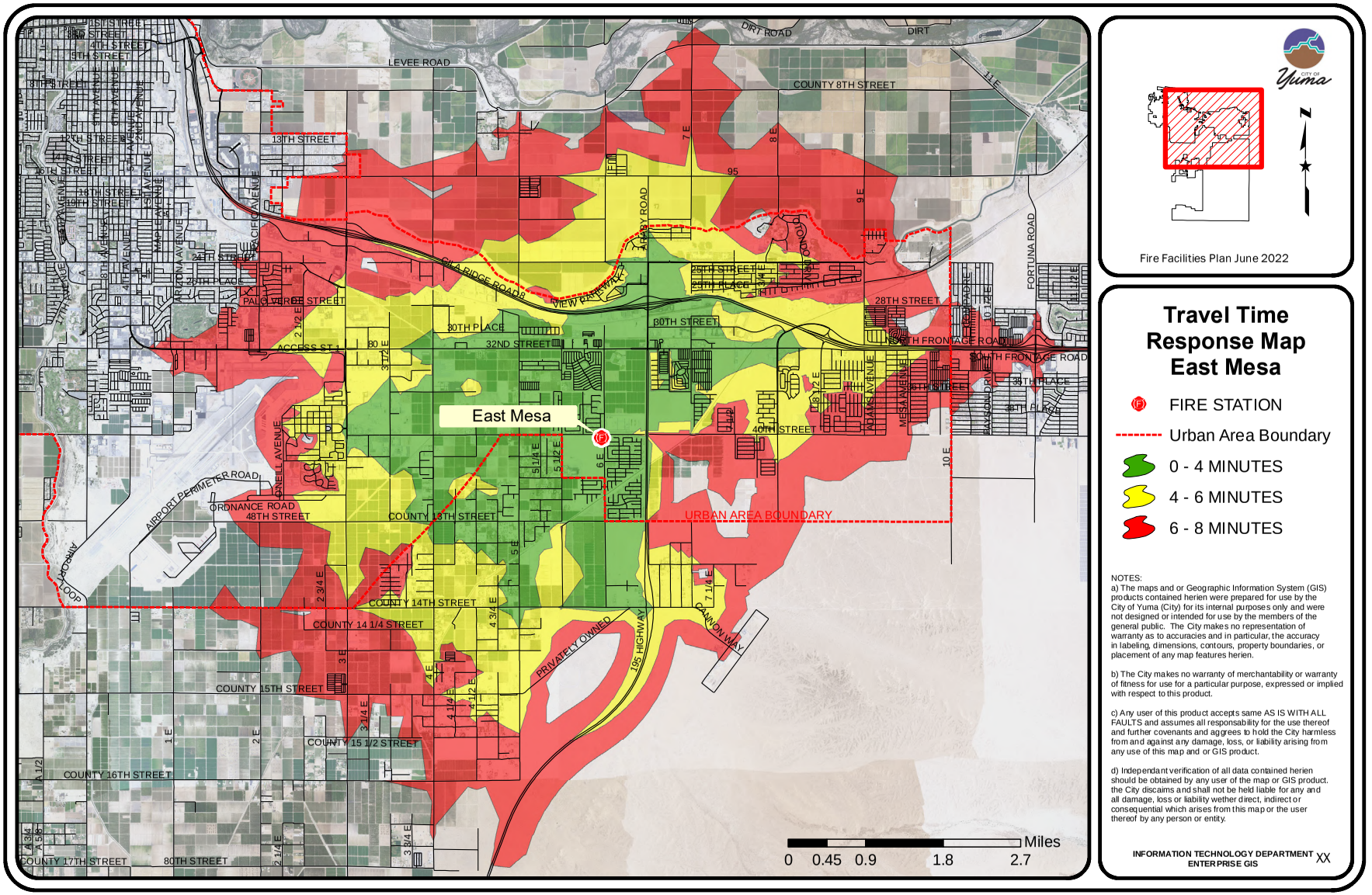
Travel Time Response Map Training Facility





Fire Facilities Plan June 2022

Travel Time Response Map East Mesa

- FIRE STATION
- Urban Area Boundary
- 0 - 4 MINUTES
- 4 - 6 MINUTES
- 6 - 8 MINUTES

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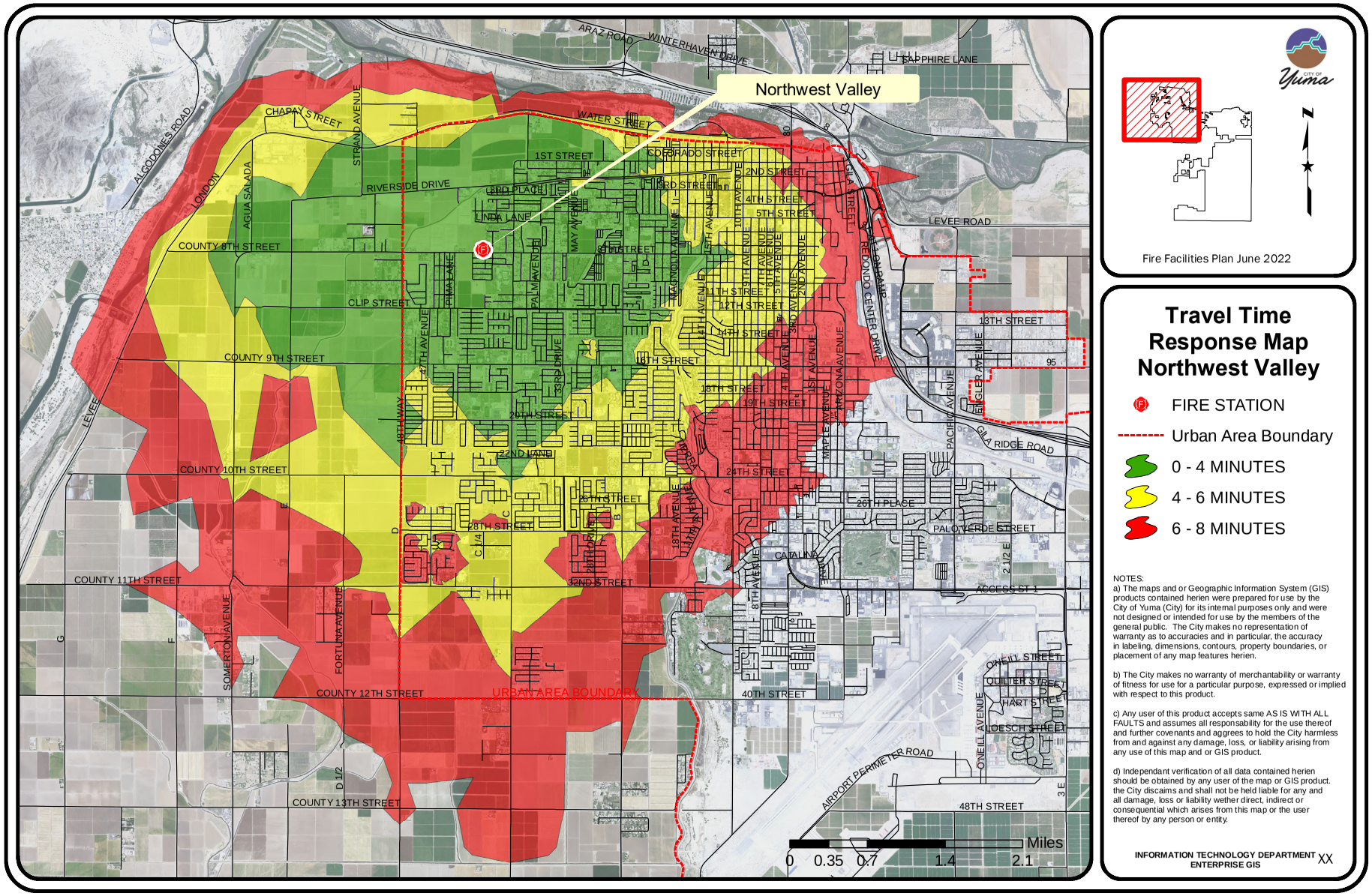
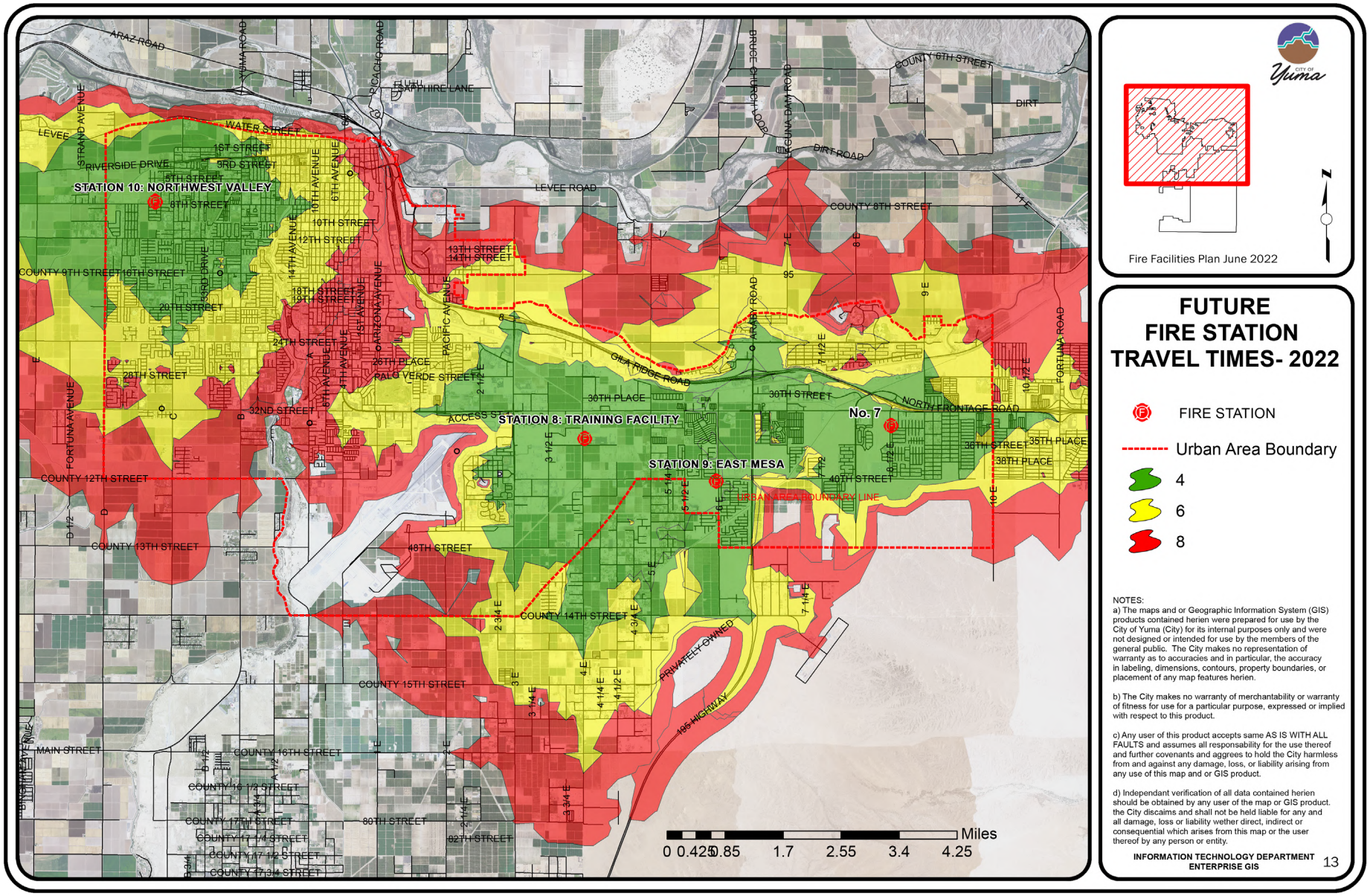
Travel Time Response Map Northwest Valley





Fire Facilities Plan June 2022

FUTURE FIRE STATION TRAVEL TIMES- 2022

FIRE STATION

Urban Area Boundary

4

6

8

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Operational Department Facilities Joint Public Safety Training Facility
3575 S. Avenue 4E

FACILITY FUNCTIONS AND CAPABILITY: The Joint Police/Fire Public Safety Training Facility is located east of Avenue 4e on a 26-Acre site. The drill ground consists of two fabricated steel/concrete, multi-story burn buildings, a training tower, liquid propane gas (LPG) training props (bedroom and commercial kitchen); 11 Acre asphalt driving track, surface streets, fire hydrants and underground vaults. The facility is equipped with 1 pit-set classroom trailer, one fixed classroom and one outside classroom shade with restrooms. These facilities and props provide firefighters the opportunity to sharpen firefighting techniques and skills, practice ground ladder evolutions, vehicle extrication, car fire responses and other general Fire Department training exercises. Classroom 1 is a 2000 square foot traditional classroom. This building has 1800 sq. ft. of classroom area with a 100 sq. ft. break area and 100 sq. ft. storage/IT closet. The classroom includes non-fixed tables and chairs and can accommodate 40 people. The room has two large screen televisions with DVD, computer and video conference capabilities. The room is equipped with whiteboards to accommodate presentation style instruction. Classroom 2 & 3 are housed in a pit-set mobile classroom and are approximately 700sqft each. These classrooms include non-fixed tables, chairs, and whiteboards to accommodate presentation style instruction.

SPECIFIC ISSUES

DESIGN: The Joint Police/Fire Public Safety Training Facility is isolated from civilians and other high flow traffic areas. This facility allows training exercises to occur without jeopardizing the well-being of the public. Routine maintenance and minor upgrades have kept the facility functional, but significant growth has been stagnant over the last several years. The facility lacks an appropriate drafting pit and additional training buildings such has residential housing or commercial style structures. This will allow personnel to train at an elite level and mimic incidents that they may encounter in the field. The facility also lack administration offices, additional storage/warehousing space, and gym and locker room facilities. 2nd Qtr.2022, the COY ITS began installation of an upgraded microwave tower and City of Yuma network connection to facilitate VoIP phones and robust network connectivity.

CONSTRUCTION: The Public Safety Training Facility was purpose built and meets NFPA 1402, Standard on Facilities for Fire Training and Associated Props and NFPA 1403, Standard on Live Fire Training Evolutions.

SAFETY: Classrooms incorporate Fire Sprinklers and Heat Detectors.

ENVIRONMENT: The PSTF Facility is located east of MCAS Yuma, isolated in a commercially zoned area. The use of propane props and simulated smoke have little/no impact on the surrounding area.

Battalion Fire Station No. 1
353 S. 3rd Avenue
Services, Facilities and Apparatus

Fire Station No. 1 was built in 2013 on a 4 acre property as a four bay structure with a total of approximately 18,000 square feet capable of housing eleven firefighting personnel. This station serves a 6.5 square mile area of the City. This facility replaced the old station that was constructed in 1958.

FACILITY FUNCTIONS AND CAPABILITY: This station includes the Battalion Chief's office and headquarters, the emergency medical services (EMS) decontamination equipment, fire apparatus maintenance, and storage for the Wildland Firefighting Response (Strike Team).

SPECIFIC ISSUES

DESIGN: Sleeping quarters consist of individual rooms, and private bathroom/shower facilities in accordance with NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program. In addition, the facility houses a fully equipped gym and ample storage. The current Station lacks necessary covered vehicle storage areas for reserve apparatus.

CONSTRUCTION: The construction included Energy Efficient design as well as technological upgrades to provide efficiency to daily operations. The station layout was designed specifically to increase flow to provide unobstructed paths to the apparatus bay to facilitate improving response times.

SAFETY: The fire station includes fire sprinklers, fire alarm, apparatus exhaust removal system, and EMS decontamination areas.

ENVIRONMENT: The station has little impact on the surrounding community. The facility was constructed with on-site retention, and oil-sand separator pits for runoff/effluent.

CODE COMPLIANCE: Fire Station No. 1 meets current ADA (Americans with Disabilities Act) standards for building construction. The dormitories and restrooms meet NFPA (National Fire Protection Association) Section 1500 for firefighter's health and safety. This station meets all of the criteria established by OSHA and Homeland Security.

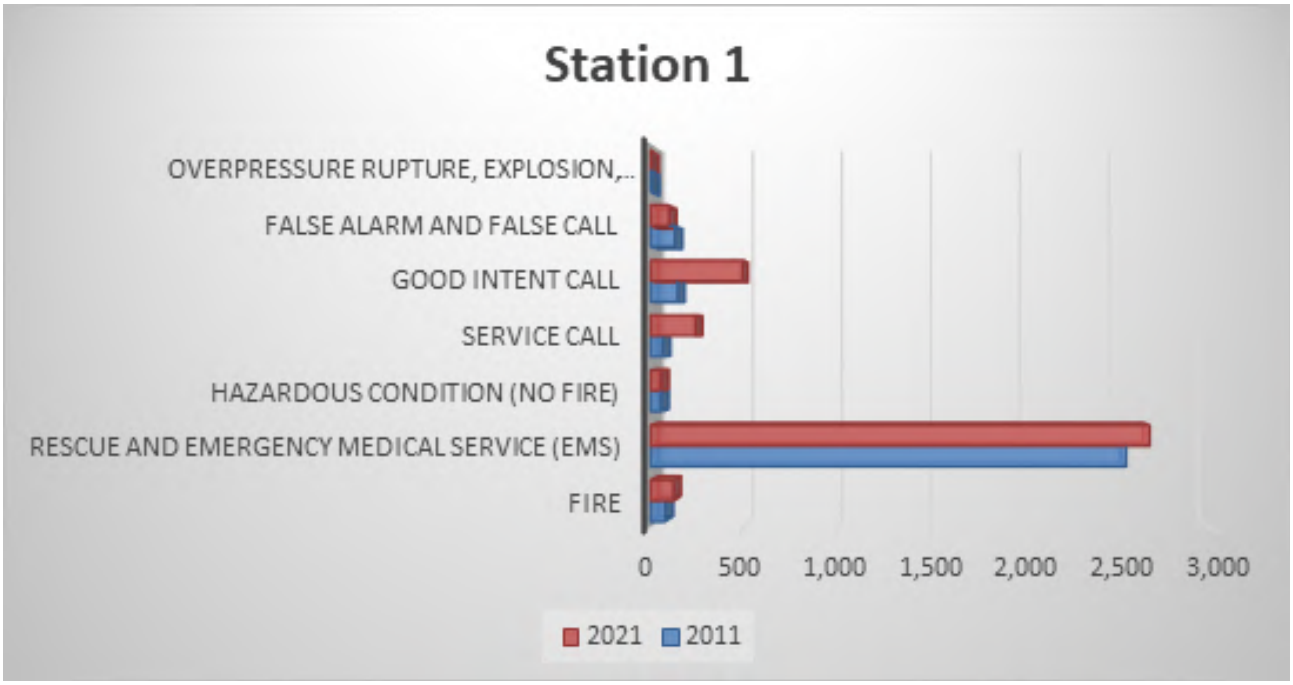
STAFF FACILITIES: The Shift Commander wing includes offices, kitchenette, restroom/shower and dormitory to accommodate daily shift operations.

Efficiency: Fully functional.

HOUSED APPARATUS

ENGINE AND MEDIC COMPANY

One 100ft Aerial Platform, Engine Pumper, Medic Ambulance, Battalion Chief Vehicle, 2500 Gal. Water Tender, Water Rescue Vehicle with jet skis, Zodiac Water Rescue Boat, UTV Rescue Vehicle.



Fire Station 1 Incident Totals

	2011	2021
Fire	82	125
Rescue and Emergency Medical Service (EMS)	2,542	2,668
Hazardous Condition (No Fire)	58	58
Service Call	66	242
Good Intent Call	146	493
False Alarm and False Call	133	101
Overpressure Rupture, Explosion, Overheat (No Fire)	7	2
	3,034	3,689

Station 1 Response Time Comparison

	Fire				
District	**2017**	**2018**	**2019**	**2020**	**2021**
FS#1	06:34	06:18	05:06	06:26	05:50
	Rescue & EMS				
	2017	**2018**	**2019**	**2020**	**2021**
	05:03	04:54	04:50	04:56	04:59

Residential Fire Station No. 2
3284 S. Avenue A
Services, Facilities and Apparatus

Fire Station No. 2 was constructed in 1997 on 1.26 acres located in the 3200 block of South Avenue A. The three bay structure was designed and built to meet all current seismic and "essential facility" standards. The building contains 11,910 square feet designed to house up to ten personnel. This station was designed with an office capable of serving as a back-up dispatch center. Station #2 has an approximate service area of 9 square miles.

FACILITY FUNCTIONS AND CAPABILITY: The operational support functions provided at this station include an indoor de-contamination area for the cleaning and sanitizing of emergency medical equipment as well as laundry equipment for uniforms and station linens, EMS supply cache.

SPECIFIC ISSUES

DESIGN: Due to sun exposure there is a need to construct a shade structure on the west side of the apparatus doors to provide additional work area for outside maintenance and training. Pursuit of funding and construction of this feature would enhance this facility. The hose rack is not functional and requires redesign. The current Station lacks necessary covered vehicle storage areas for reserve apparatus. The open ceiling design in the dorm area does not meet current NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program.

CONSTRUCTION: This station meets all of the criteria established by OSHA (occupational safety and health association), ADA (American Disabilities Act), and Homeland Security.

SAFETY: There are golf ball hazards due to the Golf Course Tee Box to the south of the Station. The Driving Range has been closed and no longer presents an issue.

ENVIRONMENT: No identified issues.

CODE COMPLIANCE: No identified issues.

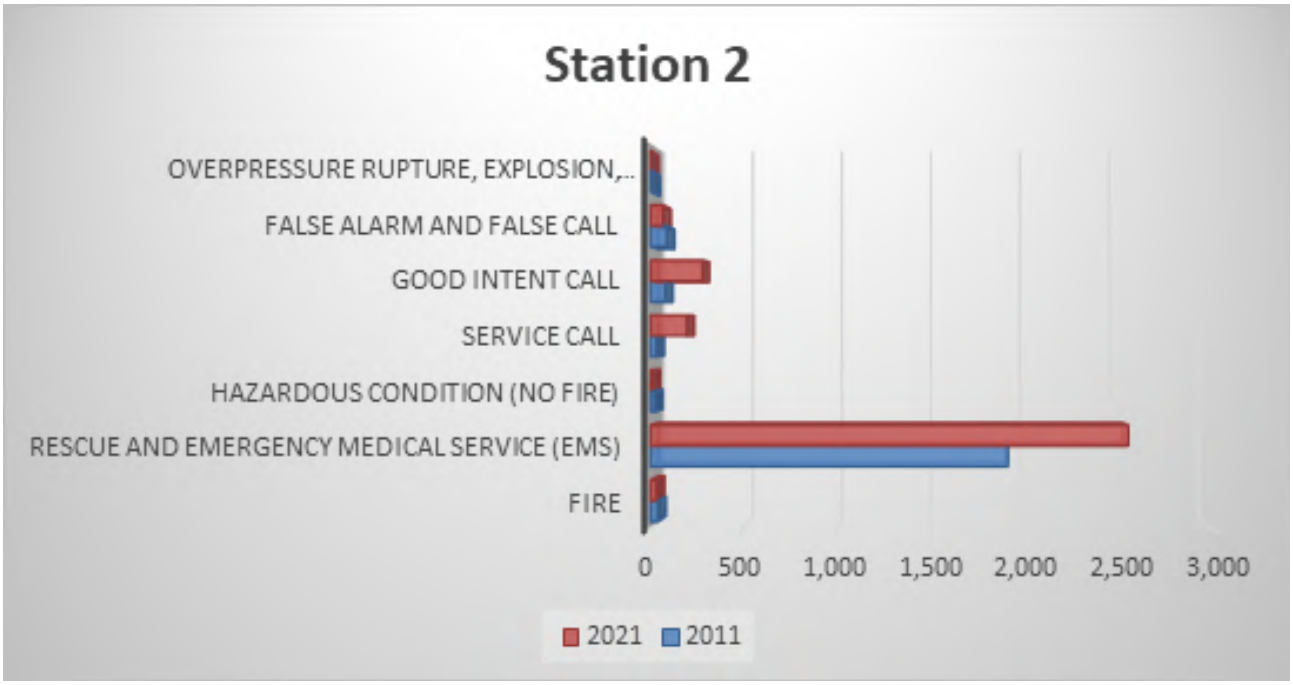
STAFF FACILITIES: Training opportunities are limited to inside activities due to lack of outside space. Not enough functional workstations for additional personnel. The apparatus bay is not climate controlled.

EFFICIENCY: This modern fire station meets the standards and needs of emergency response, special projects and housing first response teams.

HOUSED APPARATUS

Engine, Ladder, Medic, and Technical Rescue Company

Fire Engine Pumper, Reserve Ladder Truck and Special Operation/Technical Rescue Truck



Fire Station 2 Incident Totals

	2011	2021
Fire	42	34
Rescue and Emergency Medical Service (EMS)	1,912	2,554
Hazardous Condition (No Fire)	24	10
Service Call	33	197
Good Intent Call	80	280
False Alarm and False Call	89	69
Overpressure Rupture, Explosion, Overheat (No Fire)	9	1
	2,189	3,145

Station 2 Response Time Comparison

	Fire				
District	**2017**	**2018**	**2019**	**2020**	**2021**
FS#2	05:53	08:08	06:12	06:26	05:27
	Rescue & EMS				
	2017	**2018**	**2019**	**2020**	**2021**
	05:07	04:43	04:52	05:02	04:48

Residential Fire Station No. 3
508 E. 25th Street
Services, Facilities and Apparatus

Fire Station No. 3 was constructed in 2005 on 1.56 acres at the northeast corner of Arizona Avenue and 25th Street, serving an area of 5 square miles. This station consists of a three bay, 10,600 sq. ft. structure. This station is capable of housing eight personnel in private dorms.

FACILITY FUNCTIONS AND CAPABILITY: The operational support functions provided at this station are: receiving, storage, maintenance and supply of personal protective equipment.

SPECIFIC ISSUES

DESIGN: Sleeping quarters consist of individual rooms, and private bathroom/shower facilities in accordance with NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program.

CONSTRUCTION: The construction included Energy Efficient design as well as technological upgrades to provide efficiency to daily operations. The station layout was designed specifically to increase flow to provide unobstructed paths to the apparatus bay to facilitate improving response times.

SAFETY: The fire station includes fire sprinklers, fire alarm, apparatus exhaust removal system, and EMS decontamination areas.

ENVIRONMENT: The station has little impact on the surrounding community. The facility was constructed with on-site retention, and oil-sand separator pits for runoff/effluent.

CODE COMPLIANCE: Fire Station No. 3 meets current ADA (Americans with Disabilities Act) standards for building construction. The Dormitory and Restrooms meet NFPA (National Fire Protection Association) Section 1500 for firefighter's health and safety. This station meets all of the criteria established by OSHA and Homeland Security.

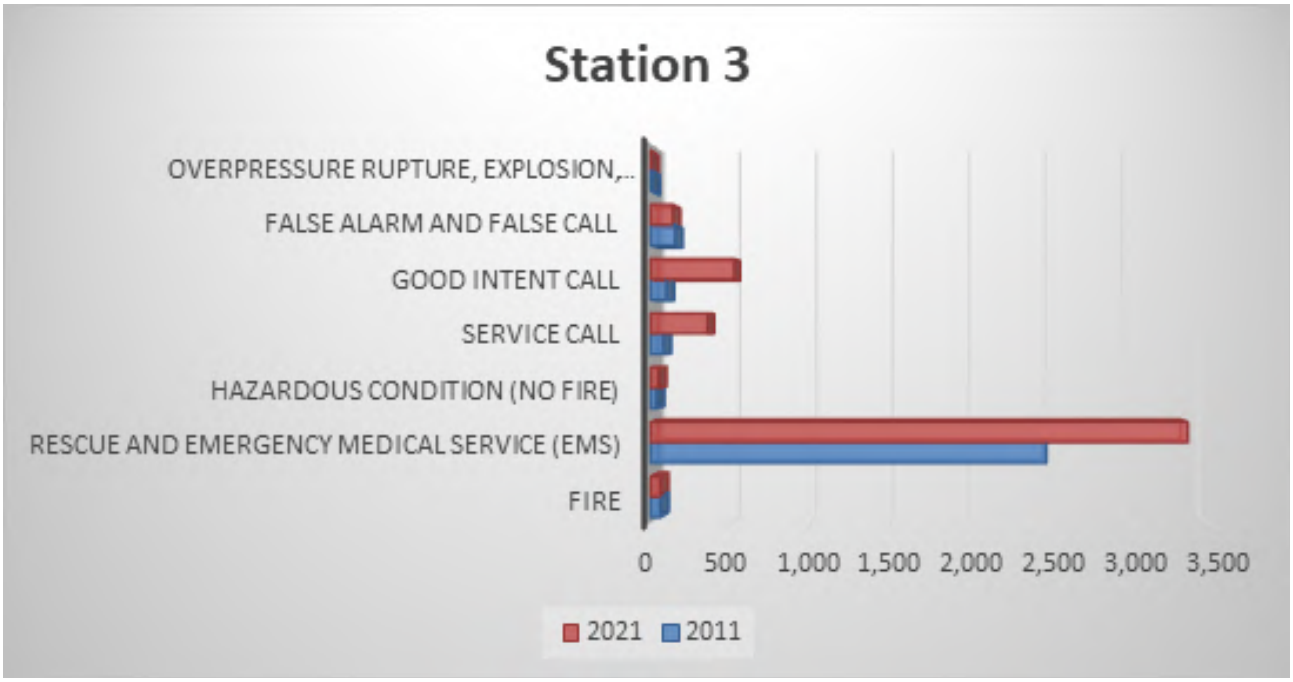
STAFF FACILITIES: The facility has ample room for staff functions as well as storage area for special projects.

EFFICIENCY: Fully functional.

HOUSED APPARATUS

ENGINE AND MEDIC COMPANY

Engine Pumper, Medic Ambulance, Reserve Engine Pumper



Fire Station 3 Incident Totals

	2011	2021
Fire	67	66
Rescue and Emergency Medical Service (EMS)	2,470	3,351
Hazardous Condition (No Fire)	39	52
Service Call	83	358
Good Intent Call	101	525
False Alarm and False Call	156	141
Overpressure Rupture, Explosion, Overheat (No Fire)	11	2
	2,927	4,495

Station 3 Response Time Comparison

	Fire				
District	**2017**	**2018**	**2019**	**2020**	**2021**
FS#3	06:15	07:53	06:45	02:57	06:51
	Rescue & EMS				
	2017	**2018**	**2019**	**2020**	**2021**
	04:40	05:12	05:32	05:08	05:36

Residential Fire Station No. 4
2850 W. 16th Street
Services, Facilities and Apparatus

Fire Station No. 4 was originally built in 1978 on 1.8 acres located in the 2800 block of West 16th Street between Avenues B and C. Remodeled in 2020, Fire Station No. 4 is a two bay 7300 square foot fire house and was the first fire station to be equipped with automatic fire sprinklers. This station is capable of housing six personnel. Fire Station No. 4 has an approximate 6 square mile service area.

FACILITY FUNCTIONS AND CAPABILITIES: The operational support functions provided at this station include an indoor de-contamination area for the cleaning and sanitizing of emergency medical equipment as well as laundry equipment for uniforms and station linens, EMS supply cache.

SPECIFIC ISSUES

DESIGN: The station bay openings have a low vertical clearance; therefore, the fire station does not accommodate aerial apparatus. Retrofitting the bays to provide the necessary clearance is not cost effective. The station was retrofitted with a vehicle exhaust removal system in 2020. The current Station lacks necessary covered vehicle storage areas for reserve apparatus.

CONSTRUCTION: The remodel included individual private dorm rooms. The establishment of a private captains' office was included. Upgrades to overcome ADA deficiencies were also completed and 4 private restroom/showers were constructed. This station meets all of the criteria established by OSHA and NFPA. The rear apron and asphalt parking lot were replaced with High PSI reinforced concrete.

SAFETY: The facility's perimeter was completely secured with the addition of an electric vehicle gate, per Homeland Security Regulations.

ENVIRONMENT: The installation of a vehicle exhaust extraction system and the replacement of existing landscaping vegetation with drought tolerant plants and trees was done to reduce irrigation water usage.

CODE COMPLIANCE: The facility is ADA compliant.

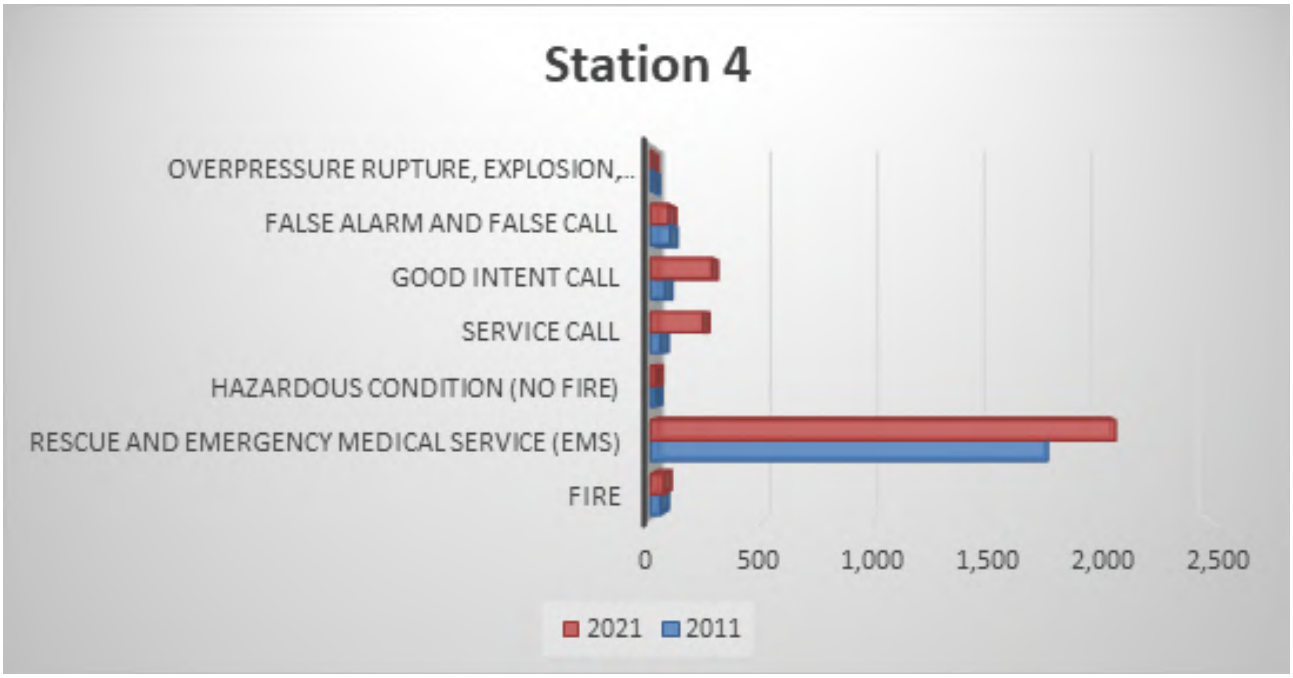
STAFF FACILITIES: Staff facilities are functional and incorporate adequate staff workspaces and a separate Captains Office.

EFFICIENCY: This station location is adequate and meets acceptable response times for its designated run area.

HOUSED APPARATUS

ENGINE AND MEDIC COMPANY

Engine Pumper, Medic Ambulance, Fire Scene Rehab Truck



Fire Station 4 Incident Totals

	2011	2021
Fire	48	61
Rescue and Emergency Medical Service (EMS)	1,770	2,072
Hazardous Condition (No Fire)	19	20
Service Call	47	235
Good Intent Call	64	274
False Alarm and False Call	88	82
Overpressure Rupture, Explosion, Overheat (No Fire)	7	0
	2,043	2,744

Station 4 Response Time Comparison

	Fire				
District	**2017**	**2018**	**2019**	**2020**	**2021**
FS#4	06:22	07:06	06:13	06:38	10:05
	Rescue & EMS				
	2017	**2018**	**2019**	**2020**	**2021**
	05:08	05:35	05:27	05:01	05:11

Residential Fire Station No. 5
6490 E. 26th Place
Services, Facilities and Apparatus

Station No. 5 was built in 1999 on a 4.2 acre parcel. The structure was built to meet all seismic and essential facility standards. This fire station includes three bays that accommodate fire apparatus. The facility has a total of 11,910 square feet designed to house up to ten personnel. Fire Station No. 5 has an approximate 8 square mile urban service area.

FACILITY FUNCTIONS AND CAPABILITIES: This station, in addition to fire suppression and EMS, provides a series of functions, which include the self-contained breathing apparatus (SCBA) and Hazardous Materials Response. The detached classroom has a seating capacity for forty-nine students.

SPECIFIC ISSUES

DESIGN: The current Station lacks necessary covered vehicle storage areas for reserve apparatus. The open ceiling design in the dorm area does not meet current NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program. The gym facility is of inadequate size to meet the needs of personnel in accordance with NFPA 1500, personnel are forced to move outside or into the apparatus bay.

CONSTRUCTION: The existing septic tank was abandoned and a connection to sanitary City sewer system- located on 26th Street was completed in 2003. This station meets all of the criteria established by OSHA, ADA, and Homeland Security.

SAFETY: Engine bays are equipped with a vehicle exhaust extraction system.

ENVIRONMENT: No identified issues.

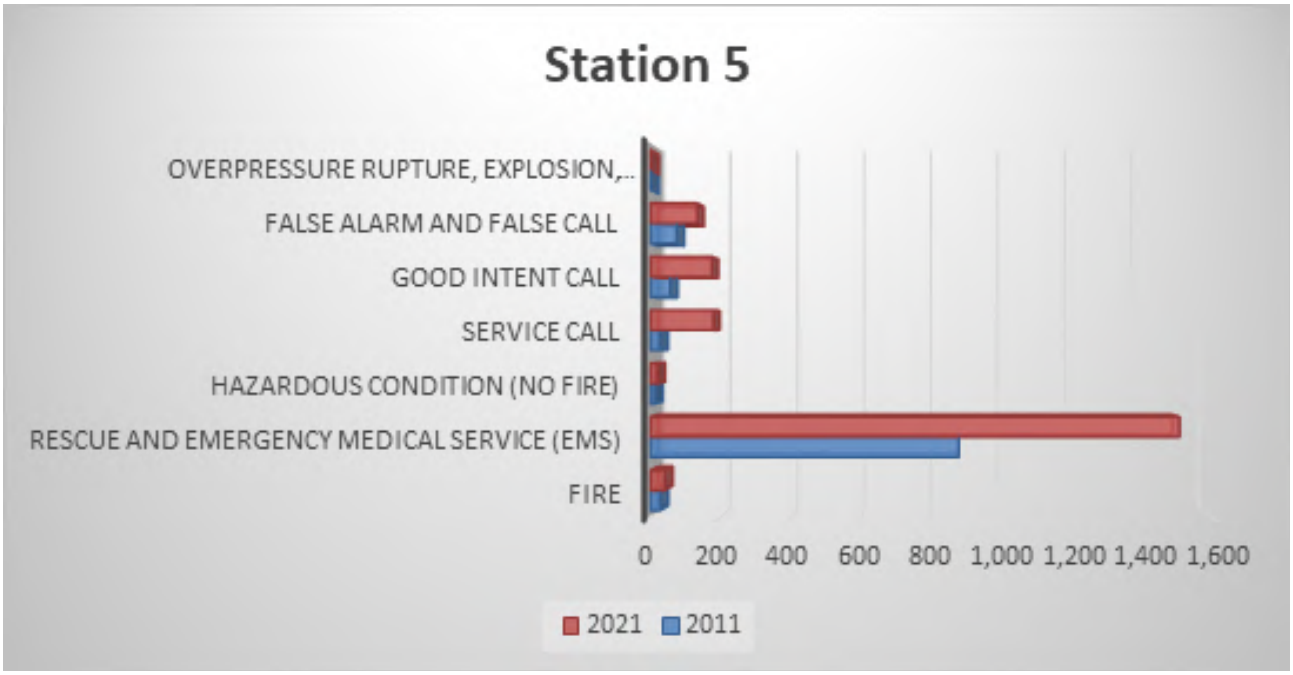
CODE COMPLIANCE: No identified issues.

STAFF FACILITIES: Engine bays are not environmentally controlled.

EFFICIENCY: This modern fire station meets the standards and needs of emergency response, special projects and housing first response teams.

HOUSED APPARATUS
2 ENGINE AND 1 MEDIC COMPANY

2 Engine Pumpers, Medic Ambulance, Special Operations (Haz Mat), Rescue UTV, Reserve Medic Ambulance



Fire Station 5 Incident Totals

	2011	2021
Fire	29	42
Rescue and Emergency Medical Service (EMS)	880	1,508
Hazardous Condition (No Fire)	13	20
Service Call	28	180
Good Intent Call	57	176
False Alarm and False Call	76	134
Overpressure Rupture, Explosion, Overheat (No Fire)	1	2
	1,084	2,062

Station 5 Response Time Comparison

	Fire				
District	**2017**	**2018**	**2019**	**2020**	**2021**
FS#5	08:45	07:53	10:17	07:37	09:02
	Rescue & EMS				
	2017	**2018**	**2019**	**2020**	**2021**
	06:57	07:02	07:25	07:07	07:23

Residential Fire Station No. 6
3151 S. Pinto Way
Services, Facilities and Apparatus

Fire Station No. 6 was built in 2007 on 1.8 acres located northwest of the intersection of Avenue C and 32nd Street. Fire Station No. 6 is a two bay 10,000 square foot fire house capable of housing eight personnel. Fire Station No. 6 has an approximate 5 square mile service area.

FACILITY FUNCTIONS AND CAPABILITIES:

The operational support functions provided at this station include an indoor de-contamination area for the cleaning and sanitizing of emergency medical equipment as well as laundry equipment for uniforms and station linens, and EMS supply cache.

SPECIFIC ISSUES

DESIGN: Sleeping quarters consist of individual rooms, and private bathroom/shower facilities in accordance with NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program.

CONSTRUCTION: The construction included Energy Efficient design as well as technological upgrades to provide efficiency to daily operations. The station layout was designed specifically to increase flow to provide unobstructed paths to the apparatus bay to facilitate improving response times.

SAFETY: The fire station includes fire sprinklers, fire alarm, apparatus exhaust removal system, and EMS decontamination areas.

ENVIRONMENT: The station has little impact on the surrounding community. The facility was constructed with on-site retention, and oil-sand separator pits for runoff/effluent.

CODE COMPLIANCE: Fire Station No. 6 meets current ADA (Americans with Disabilities Act) standards for building construction. The Dormitory and Restrooms meet NFPA (National Fire Protection Association) Section 1500 for firefighter's health and safety. This station meets all of the criteria established by OSHA and Homeland Security.

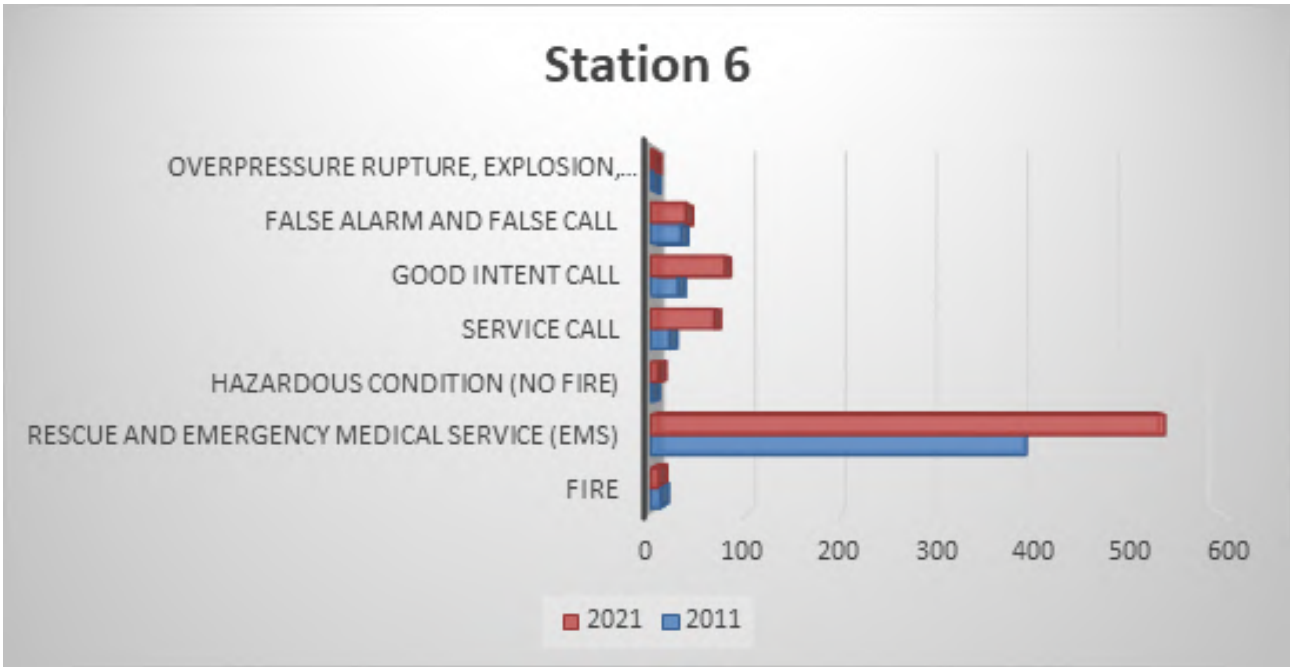
STAFF FACILITIES: The facility has ample room for staff functions as well as storage area for the Personal Protective Equipment (Turnout) project.

EFFICIENCY: Fully functional.

HOUSED APPARATUS

ENGINE COMPANY

Engine Pumper, Reserve Engine Pumper, Reserve Medic Ambulance



Fire Station 6 Incident Totals

	2011	2021
Fire	11	9
Rescue and Emergency Medical Service (EMS)	394	539
Hazardous Condition (No Fire)	1	8
Service Call	20	67
Good Intent Call	29	78
False Alarm and False Call	32	37
Overpressure Rupture, Explosion, Overheat (No Fire)	2	3
	489	741

Station 6 Response Time Comparison

	Fire				
District	**2017**	**2018**	**2019**	**2020**	**2021**
FS#6	08:29	07:45	06:23	07:11	06:04
	Rescue & EMS				
	2017	**2018**	**2019**	**2020**	**2021**
	05:46	05:38	05:40	05:47	05:21

Projected Fire Facilities

Four new fire stations and second Battalion Chief Quarters are projected for construction within the next five to ten years. The first, Fire Station No. 7, follows Fire Station 6, which was completed in 2007. Fire Stations No. 7 and Training Facility Fire Station will be built on the East Mesa in an area of the City experiencing both heightened residential and commercial activity. An expansion of Fire Station 5 to include a second Battalion Chief quarters and two additional fire stations identified as East Mesa Station and Northwest Valley Fire Station will serve as the community as the demand for fire and emergency services increase. Fire Station will be built as demand warrants, with design and construction based on need and available funding.

After a new building bid proposal is awarded by the City of Yuma, designs and needs of new facilities are reviewed and discussed by the Fire Department's Station Design and Review Committee. The committee is headed by Fire Department staff and includes other City staff participation. These departments may include the Department of Planning and Neighborhood Services, ITS and the Public Works Department. Architects and the committee meet to discuss opportunities, challenges and essentially the vision of how the new facility will appear, its functions and the people it will serve when completed. Finally, plans for the new facility are submitted to the City for review in order to obtain all necessary permits to grant permission to build.

These proposed facilities, after they are constructed and are outfitted with firefighters, equipment and apparatus, will add levels of service to new areas currently being developed. The following is a short description of each of the 4 new fire stations, East Battalion Headquarters, Training Facility expansion and warehouse facility.

RESIDENTIAL FIRE STATION NO. 7

Fire Station No. 7 is currently in the design phase and is proposed as a two bay station in the area of Avenue 8 ½ E and 32nd Street. The station will include captains' and firefighters' quarters and dorms, kitchen, exercise room, day room and areas for the station assigned projects. This station will be constructed in accordance with NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program. This Fire Station is scheduled to open in spring 2024.

FIRE STATION 5 BATTALION HEADQUARTERS/GYM EXPANSION

Fire Station 5 has been identified as the next location to serve as a second Battalion headquarters. Expansion of Fire Station 5 will include an additional apparatus bay, Battalion offices, dorm, restrooms, kitchenette and living quarters. In addition, this project would include a new, larger gym facility for station personnel. The current gym is not adequately sized in accordance with NFPA 1500, Standard on Fire Department Occupational Safety, Health and Wellness Program.

JOINT FIRE AND POLICE TRAINING FACILITY

In 2007 approximately 30 acres were committed to a joint training facility for the Fire and Police Departments, and the initial phases were completed in 2010. The site is located at the northeast corner of 36th Street and Avenue 4E. The joint training facility currently includes a high speed driving track, Fire Training and Burn buildings, and props for law enforcement and fire training. Design of the joint training facility was to be master planned to ensure all training and educational needs are satisfied. The remainder of the facility to be constructed includes Administrative office space, Locker/shower facilities, classrooms and associated technologies, and future conversion from propane props to natural gas. Currently there is no timeline or CIP projects designated for the remaining buildout of the facility.

RESIDENTIAL FIRE STATION: TRAINING FACILITY

This fire station will be adjacent to the joint fire and police training facility located at Avenue 4E and 36th Street. The fire station will consist of four bays, office and living space to accommodate 6-10 firefighters. This fire station is scheduled when population and service delivery demands dictate. This fire station is anticipated to be completed prior to 2032 and is dependent upon growth and service demand.

RESIDENTIAL FIRE STATION: EAST MESA

Included in the COY CIP: FY2027/FY2028. This fire station will be located in the vicinity of 40th Street and Avenue 6E. The fire station will include captains' and firefighters' quarters and dorms, kitchen, exercise room, day room and areas for the station assigned projects. This fire station is anticipated to be needed by 2025.

RESIDENTIAL FIRE STATION NORTHWEST VALLEY

This fire station will be located in the vicinity of 8th Street and Avenue C. The station will include captains' and firefighters' quarters and dorms, kitchen, exercise room, day room and areas for the station assigned projects. This fire station is anticipated to be needed by 2028.

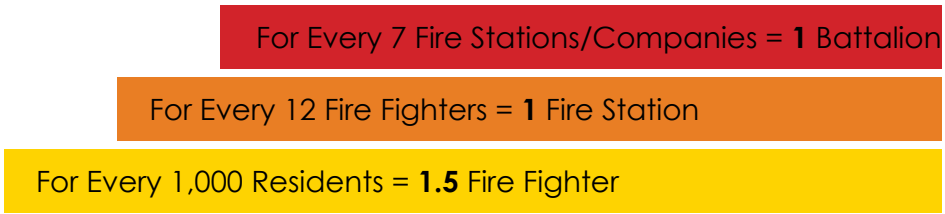
FIRE FACILITIES STORAGE/WAREHOUSING

Included in the COY CIP: FY2025/FY2026. Currently the Fire Department lacks the necessary storage and warehousing facility to fully support EMS Ambulance operations. There is direct need for additional space for receiving, shipping and warehousing of durable and disposable EMS supplies to support daily EMS operations. Current Fire Facilities that could support Storage/Warehousing facilities are Fire Station 4 and the Public Safety Training Facility as well as the former Fleet Services Yard. The facility should centrally located and easily accessible to adequately serve the City of Yuma Fire Department. There is no current CIP Project/timeline identified for this project.

IMPLICATIONS OF NEW FIRE STATIONS

Staffing of the Fire Department occurs through the ratio of: 1.5 Firefighter for every 1,000 residents and every 12 firefighters equal a fire station. This figure is derived from the necessary Effective Response Force required to complete critical tasks on a fire scene as outlined in the City of Yuma Fire Department, Standard of Cover document and the City of Yuma International Fire Accreditation 2018-2023. Each fire station that is established will consist of one Engine Company and as time passes will obtain an ambulance and perhaps a ladder company. Figure 3.1 illustrates the potential growth of facilities based upon population and firefighting personnel. Numbers are subject to the population growth of the City of Yuma.

Figure 3.1 Fire Department Growth Increment by Population



IV. DEMAND FORECAST

INNER-CITY COMPARISONS

Table 4.1 presents comparisons of the City of Yuma and four other cities in the western United States with populations that range from 96,000 to 153,000. It is interesting to compare fire departments with other cities with similar demographics. The City of Yuma Fire Department had a greater number of runs than the Fire Department of Escondido California which has a greater population. The distribution of square miles served per fire station of each community is also interesting to observe. The Roseville, CA. Fire Department reports that each station serves 5.5 square miles and 18,625 people per their 8 fire stations with a population of 149,792. The Surprise, AZ. has a larger population but each station serves 13.75 square miles and 17,270 people amongst their 8 fire stations. In the City Yuma, AZ. each fire station serves 9.3* square miles (urban boundary excluding MCAS and BMGR) and 16,313 people with 6 fire stations. Each fire department is assembled to meet their communities' needs with the resources available to them.

Table 4.1, 2021 CITY COMPARISONS

MUNICIPALITY	POPULATION	AREA SERVED (SQ MILES)	UNIFORMED PERSONNEL	FF'S PER 1000	NUMBER OF STATIONS	POPULATION PER STATION	SQUARE MILES PER STATION	NO. OF RUNS	FIREFIGHTERS PER STATION	RUNS 1000 POP
Roseville, CA	149,792	44	102	.68	8	18,724	5.5	18,291	12.75	122
Yuma, AZ,	97,883	120.7	125	1.27	6	16,313	9.3*	17,489	20.83	180
Goodyear, AZ	101,662	191	107	1.05	7	14,523	27.2	10,424	15.28	103
Escondido, CA	152,004	37.45	111	.73	7	21,714	5.35	16,934	15.14	111
Surprise, AZ	153,505	110	147	.96	8	19,188	13.75	18,674	16.25	122

One of the purposes of this study is to forecast the future demand for Fire Department services throughout the City of Yuma for the next ten year period. During this process, review of the last ten years is done to assist in determining future demand. The process of obtaining the future demand is described in this chapter.

As the City continues to expand through population growth, annexations and development, the demand for fire and emergency medical services will expand. The growth of the City by area impacts response time, while growth in population increases the demand for additional fire stations, firefighters and apparatus.

PAST TRENDS

The population of the City has increased by 23.4 percent over the twenty-year period from 2001 at 79,310 to 97,883 in 2021. The City can attribute a small portion of this growth to annexations but the majority of the population change has been from new development, growing families and people making Yuma their home.

Table 4.2: Incident distribution per 1000 residents

	2017	2018	2019	2020	2021
Population	**93851**	**95573**	**96349**	**97428**	**97883**
Incident Types					
Fire	2.98	2.95	3	4.06	3.74
Overpressure	0.085	0.073	0.072	0.1	0.081
Rescue/EMS	121.6	120.7	120.06	124.01	135.1
Hazardous Conditions	1.69	2	1.97	1.56	1.74
Service Call	5.86	9.2	9.69	14.27	13.25
Good Intent	14.18	16.95	17.21	17.74	19.71
False Alarm	7.7	7	7.2	7.09	6.17
Severe Weather	0.01	0.02	0.041	0	0
Special Incident	0.04	0.02	0.02	0.03	0.03
Other	0	0	0	0	0
Total	**154.23**	**159**	**159.01**	**168.88**	**178.46**

Table 4.2 shows the trend in calls per capita by type of call. The call categories used here conform to the National Fire Incident Reporting System standards.

The number of incidents reported to the Fire Department increased by 5,452 from 2012 to 2021 increasing from 12,037 responses to 17,489 responses. This is an increase of 45 percent, which is 40.7 percent faster than the growth of the population during the same period.

Most types of calls experienced an increase over the past ten years. EMS rescue calls have had the largest increase of about 52 percent, which accounts for much of the overall increase in calls since 2012. Fire calls appear to have remained consistent during the past ten years fluctuating approximately 21.3 percent over the last 10 years.

Table 4.3 Resident Population Served and Calls for Service, 2017-2021

YEARS	2017	2018	2019	2020	2021
POPULATION	93851	95573	96349	97428	97883
Fire	281	295	289	391	362
Overpressure	8	7	11	10	8
Rescue/EMS	11,437	11511	11528	12038	13107
Hazardous Cond.	159	193	158	152	171
Service Call	551	871	926	1382	1302
Good Intent	1,333	1591	1651	1704	1931
False Alarm	724	684	692	690	605
Severe Weather	1	2	4	0	0
Special Incident	4	2	2	3	3
Other	0	4	0	9	0
TOTAL	**14,498**	**15159**	**15262**	**16379**	**17489**

The total number of all calls has risen steadily between 2017 and 2021. Advanced Life Support (ALS) Ambulance Transport services began in 2012 and a 14.5 percent increase in EMS call volume can be seen from 2017-2018. Statistically, EMS responses account for approximately 71.1 percent of the departments overall call volume.

FORECAST METHODOLOGY

The per capita rates show fluctuation over time for almost all categories of calls. While there was a significant increase in EMS calls, there was a general increase in the amount of good intent calls and false alarms, while the fire calls per capita decreased. Trends of calls per capita appear to be moving slightly upward while the trend of hazardous condition calls per capita appears to move downward, with fluctuations from year to year.

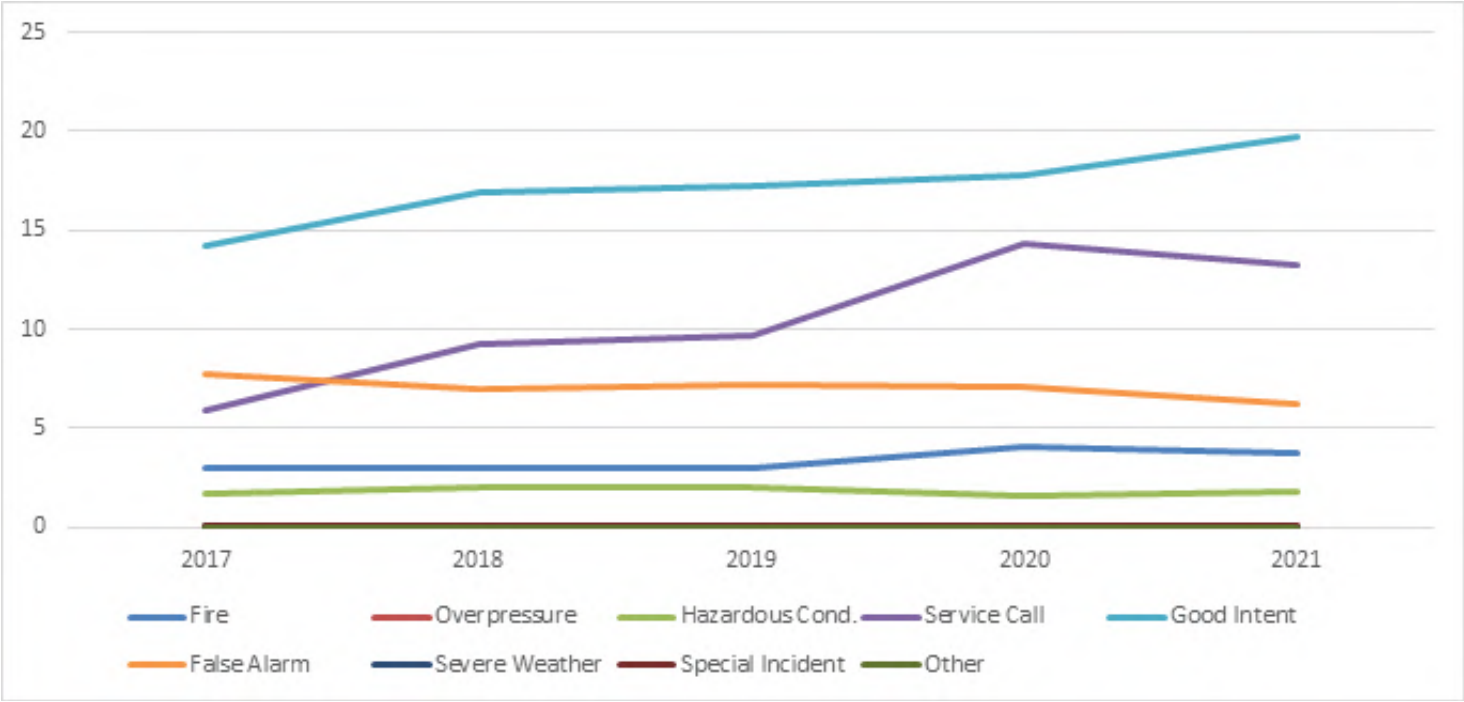


Figure 4.1 includes all calls except EMS (because their numbers largely outweigh the remaining calls). The balance of call types includes fire, hazmat, special duty, public assist and mutual aid. Fire calls have actually been steady with a slight increase. Hazardous materials calls are also in decline. Collectively, calls are growing. This is caused by an increase in EMS and Special Duty calls. In comparison, the remaining calls, such as fire, hazmat, and public assist calls have a minimal fluctuation. Figure 4.2 illustrates EMS calls increasing. Residents are using EMS increasingly more. This may be due to the combination of a gradually aging population and increasing awareness of emergency medical services.

Figure 4.2 Rescue/EMS Calls per 1,000 Population 2017-2022

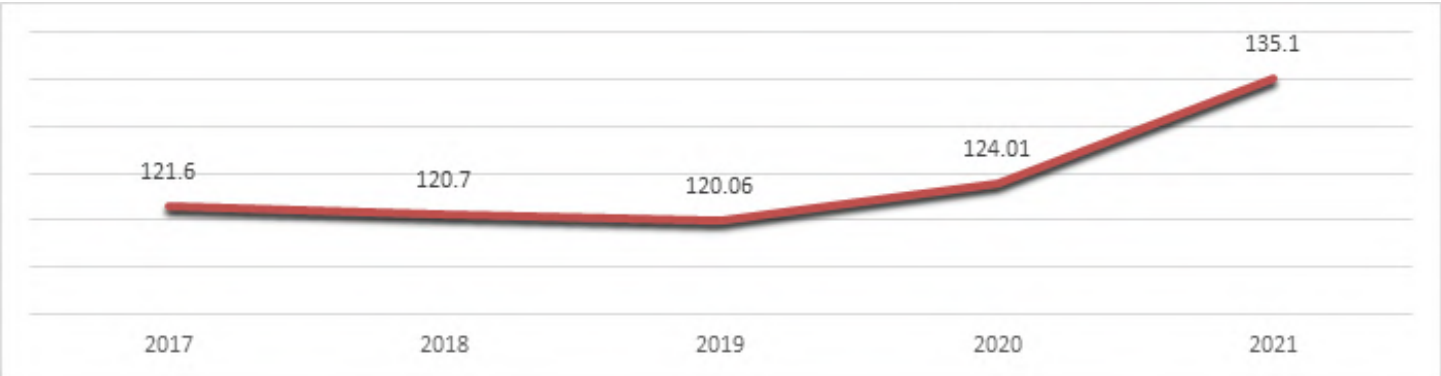


Figure 4.3 Total Incidents by Fire Station, 2011 and 2021

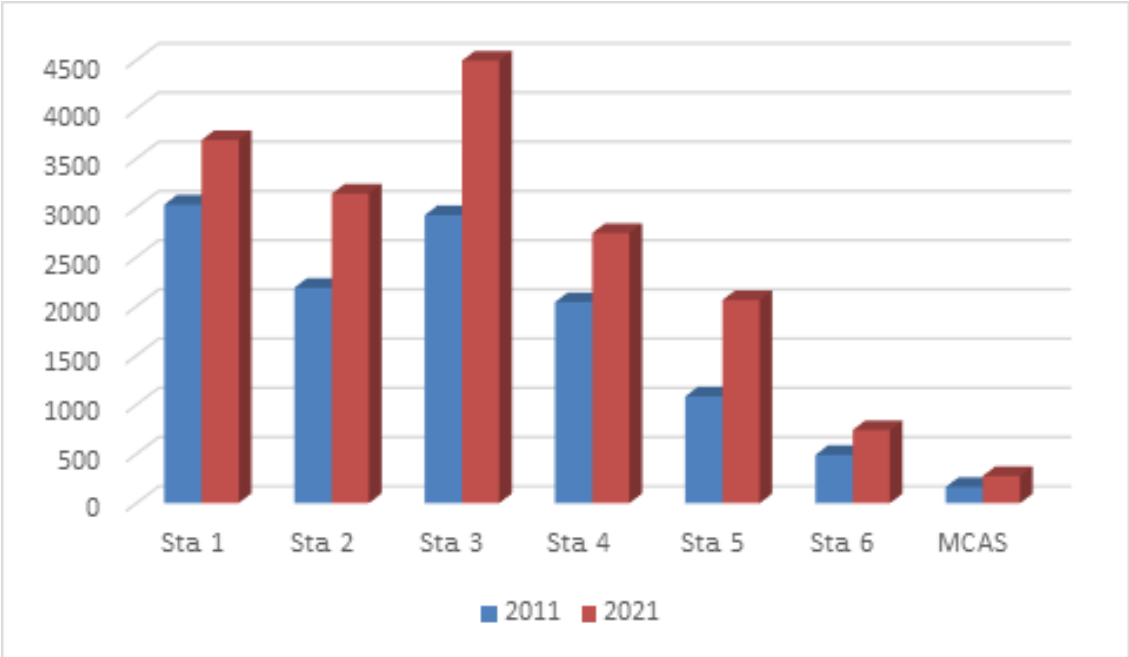
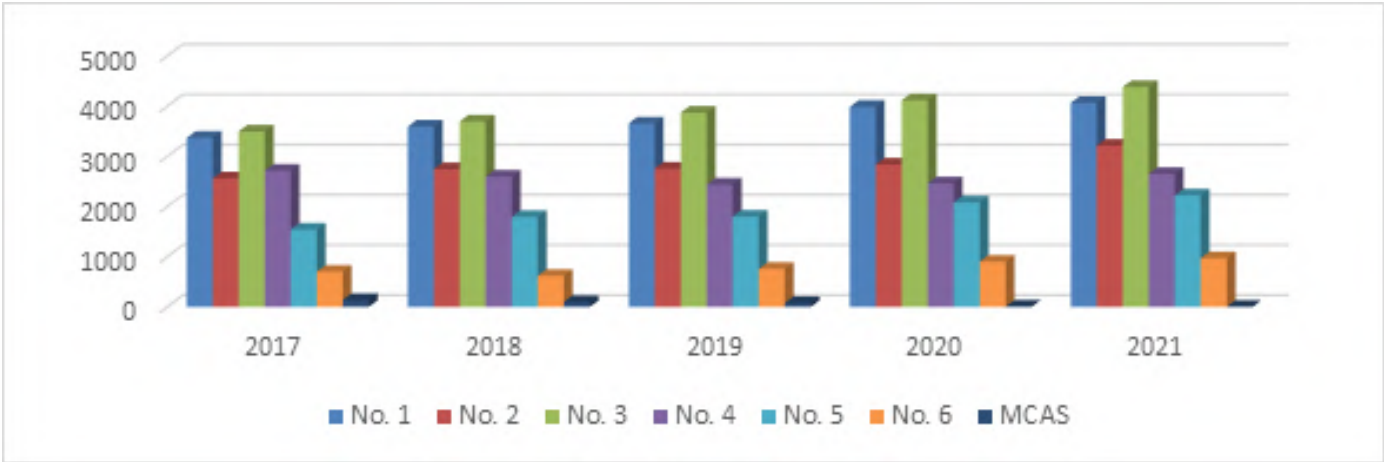


Figure 4.3 reflects a 10-year comparison of station responses from 2011 and 2021. Figure 4.4 reflects activity of each fire station over a five year span. Stations No. 1 and No. 3 appear to compete for the busiest of the six stations, while Station No. 6 has the least number of calls. As the vacant land in the service area for Station No. 5 begins to develop, incident calls are expected to increase. The U.S. Marine Corps Air Station (MCAS) has the lowest number of residential calls. The MCAS fire station was included in the comparison, because that station responds to calls for the City of Yuma Fire Department. They provide fire and emergency medical service to a small area in the City, in addition to its response to the needs of the air station.

Figure 4.4: Responses by Station 2017-2021



2021-2051 FORECAST

The change in population resulting from development of economic growth is the basis for the forecast of future fire facilities. Forecast rates were determined by using the increases noted below and applying the past rates of increases by service call type and projecting those numbers out to 2051.

CURRENT FORECAST

Table 4.2 shows the projected growth trend of the calls for the City of Yuma Fire Department with a 4.6 percent annual increase. Population analysis for this effort is based on the State of Arizona Office of Economic Opportunity Annual Population Estimates and 2019-2055 Population Projection Series.

Table 4.2: Current Trends Forecast

CURRENT RATE 4.6%	2021	2031	2041	2051
Est. Population	97,883	118,308	131,256	143,890
Fire	362	567	889	1,393
Rescue/EMS	13,107	20,550	32,220	50,518
Hazardous Condition	171	268	420	659
Service Call	1,302	2,041	3,200	5,017
Good Intent	1,931	3,027	4,746	7,441
False Alarm/Call	605	948	1,486	2,330
Severe Weather	3	5	8	13
Special Incident	3	5	8	13
Other	5	8	13	20
Total	**17,489**	**27,419**	**42,990**	**67,404**

V. IMPLEMENTATION

Implementation of this plan will begin with construction and grand opening of Fire Station No. 7 and will continue to proceed until three future fire stations are completed. The Fire Services and Facility Plan will be reviewed and updated every five years to reflect current growth and development needs and to maintain the vision of the Fire Department.

IMPLEMENTATION ACTION PLAN	
YEARS	**PROJECTS**
2022	• Complete design and begin construction bid process of new Fire Station No. 7 • Complete Microwave tower/Network upgrade at PSTF
2023 Thru 2025	• Complete construction and grand opening of new Fire Station No. 7 • Begin acquisition of property for Northwest Valley Fire Station • Begin acquisition of Property for East Mesa Fire Station • Begin design of Station 5 Battalion Quarters/Gym • Begin design for Station 2/Station 5 Dorm upgrades (NFPA 1500)
2024 Thru 2026	• Complete design of second phase of new training facility(14,000 square feet classroom and other outbuildings) • Complete construction of Station 5 Battalion Quarters/Gym • Complete acquisition of property for Northwest Valley & East Mesa Fire Station • Complete Station 2/Station 5 Dorm Upgrades (NFPA 1500)
2026 Thru 2028	• Begin construction of second phase of new training facility • Begin design of new Future Fire Station (East Mesa and/or Northwest Valley) based on growth.
2028 Thru 2030	• New facility development will depend upon population growth and demand of fire and emergency services • Complete design and construction of new Fire Station (East Mesa, Training Facility, Northwest Valley)

All of the previously identified factors and features essential for constructing new facilities suggest that strategic locations and design are essential. Participation of Fire Department staff in predevelopment meetings, annexations and accompanying agreements and the capital improvement program (CIP) will continue to offer recommended direction. In regard to future development, this Plan will be used to identify locations where new fire facilities and services will be established.

This Plan is based upon the municipal footprint of the City of Yuma 2022 General Plan. Any area established or incorporated outside of this footprint shall be considered on a case by case basis for providing facilities for fire and emergency protection. The build out of ten fire stations described in this Plan provide for the area identified within the City of Yuma 2022 General Plan as the ultimate City boundary. Any expansion of the urban boundary beyond this plan will require a review and possible expansion resulting in additional facilities.

Future station facilities must be able to meet the demands of today's emergency calls and today's firefighter. With increased efforts to decrease carcinogen exposures in firefighters, areas for decontamination and storage of personal protective equipment (PPE) is an increasing need for fire crews.

FIRE STATION FORM AND FUNCTION:

Fire station facilities must include the necessary amenities to support firefighting personnel and apparatus in order to properly serve the community now and in years to come. The functional areas within a fire station must include at a minimum the following:

APPARATUS BAY:

The apparatus bay serves to house all apparatus assigned to that fire station. An apparatus bay should include both front and rear entrances to make departures and arrivals easy, safe and efficient. Adequate space between emergency apparatus should be provided to allow easy movement for staff entering and exiting vehicles, as well as to provide access for maintenance.

ADMINISTRATIVE AND TRAINING AREAS:

These areas include office, decontamination area, work/equipment maintenance and conference rooms. Offices for battalion chiefs and captains should be separate and provide adequate privacy for concentration and discretion. Areas promoting station training, maintenance for fire equipment and storage should be designed in all future fire stations and be considered in existing building upgrades.

RESIDENTIAL AREAS:

These areas include the dorms, day room, bathrooms, showers, kitchen and fitness rooms. Dorms shall include individual rooms to meet NFPA 1500 code requirements in order to provide privacy and secure storage of personal items. Each station shall include separate male and female bath and shower rooms. The kitchen area should be open and include adequate seating for crews. Layout and size of the kitchen should be accommodating for a variety of meal preparation. The day room/recreation room should be designed with comfort and durability in mind. The fitness room should include features of full height and width mirrors and weight lifting/exercise equipment to provide a safe space for physical exercise workouts for firefighting and EMS crews

OUTSIDE STORAGE/SHADED PARKING:

With the growth of the Fire Department come added equipment and auxiliary response vehicles. It is necessary to consider added shaded storage areas/parking at Fire facilities to protect these assets from the elements and maintain response readiness. These structures could incorporate solar panels in the design to provide energy efficiency and reduction in utility consumption for the facility.

Figure 5.1, 5,2 and 5.3 display floor plans of residential, commercial and industrial fire station configurations. The main characteristics of the stations are the separate dorms located on both sides of the station, exercise room, large kitchen and dining area, day room, captains' quarters/office and the apparatus bay, which would house at least one engine company and perhaps either an ambulance or ladder company. Other areas of each plan include showers and bathrooms, watch and project rooms, laundry and turnout rooms. Rooms to support mechanical equipment, 72-hour emergency preparedness supplies, and electrical equipment rooms are also provided within fire stations. It is essential to include space for storage and maintenance of emergency apparatus, and equipment.

RESIDENTIAL FIRE STATION:

This design is of a typical layout to serve a primarily, residential development area. The station is equipped with the required facilities and normally house an engine company and ambulance company. This configuration is constructed to house up to 6 firefighting personnel.

COMMERCIAL FIRE STATION:

This design is larger than the Residential design and typically serves an area with a larger saturation of commercial structures (e.g. restaurants, mercantile, etc.) The station is equipped with the required facilities and may house multiple engine/ladder companies and ambulance companies to satisfy response requirements to higher risk/value target hazards. This configuration is constructed to house up t 8 firefighting personnel.

INDUSTRIAL FIRE STATION:

This design is the largest of the fire station layouts and typically serves an area with a high volume of commercial and industrial occupancies. These may include large warehousing facilities, industrial manufacturing facilities or large commercial occupancies. This station is equipped with the required facilities to house multiple engine/ladder companies, specialty response apparatus and ambulance companies to respond to high risk/value target hazards, including those that may pose unique or special hazards. This configuration is constructed to house 10+ firefighting personnel.

Table 4.2: Current Trends Forecast

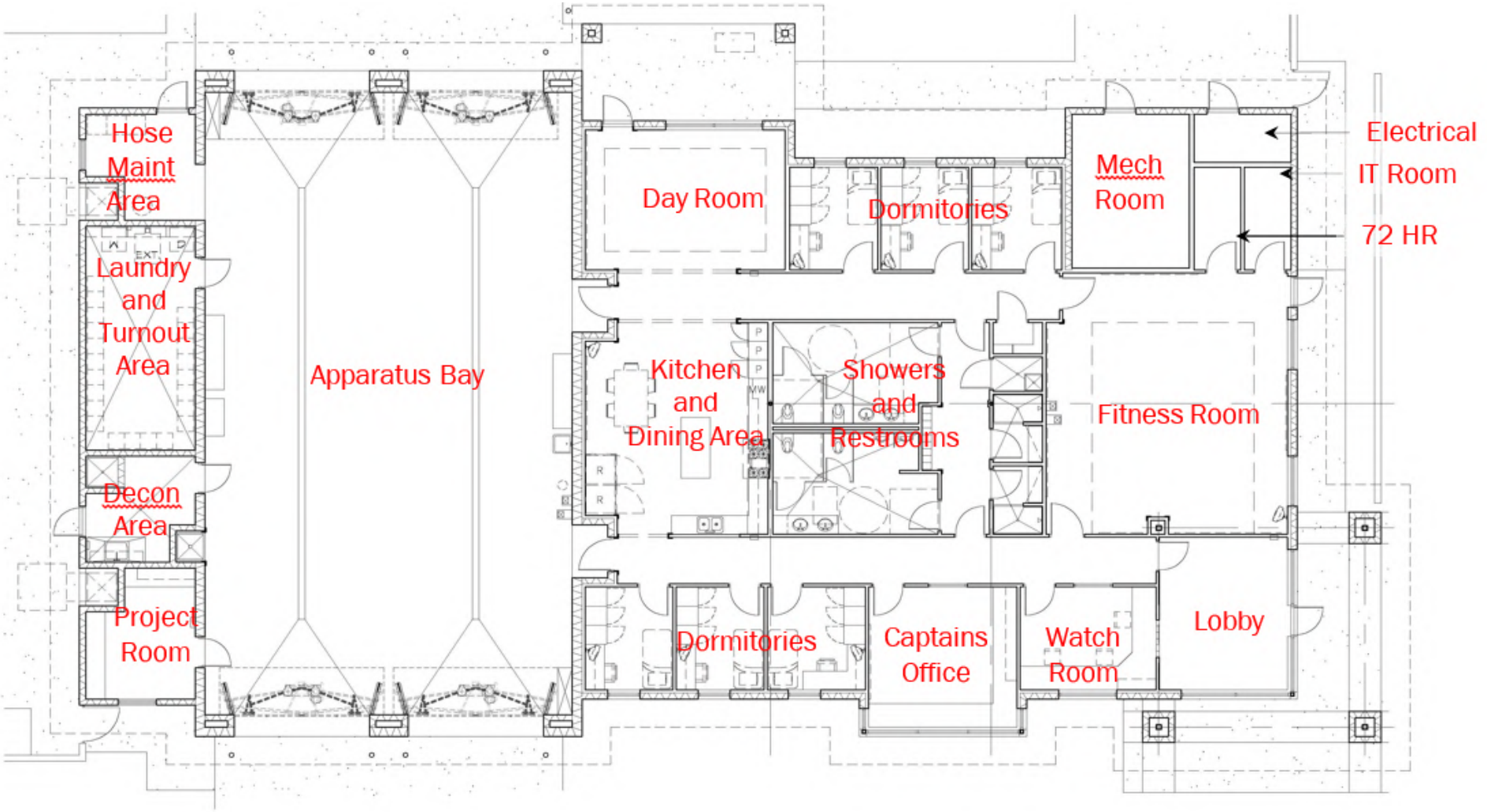


Figure 5.2 Commercial Three-Bay Fire Station Floor Plan Configuration
(Breckenridge Group Architects)

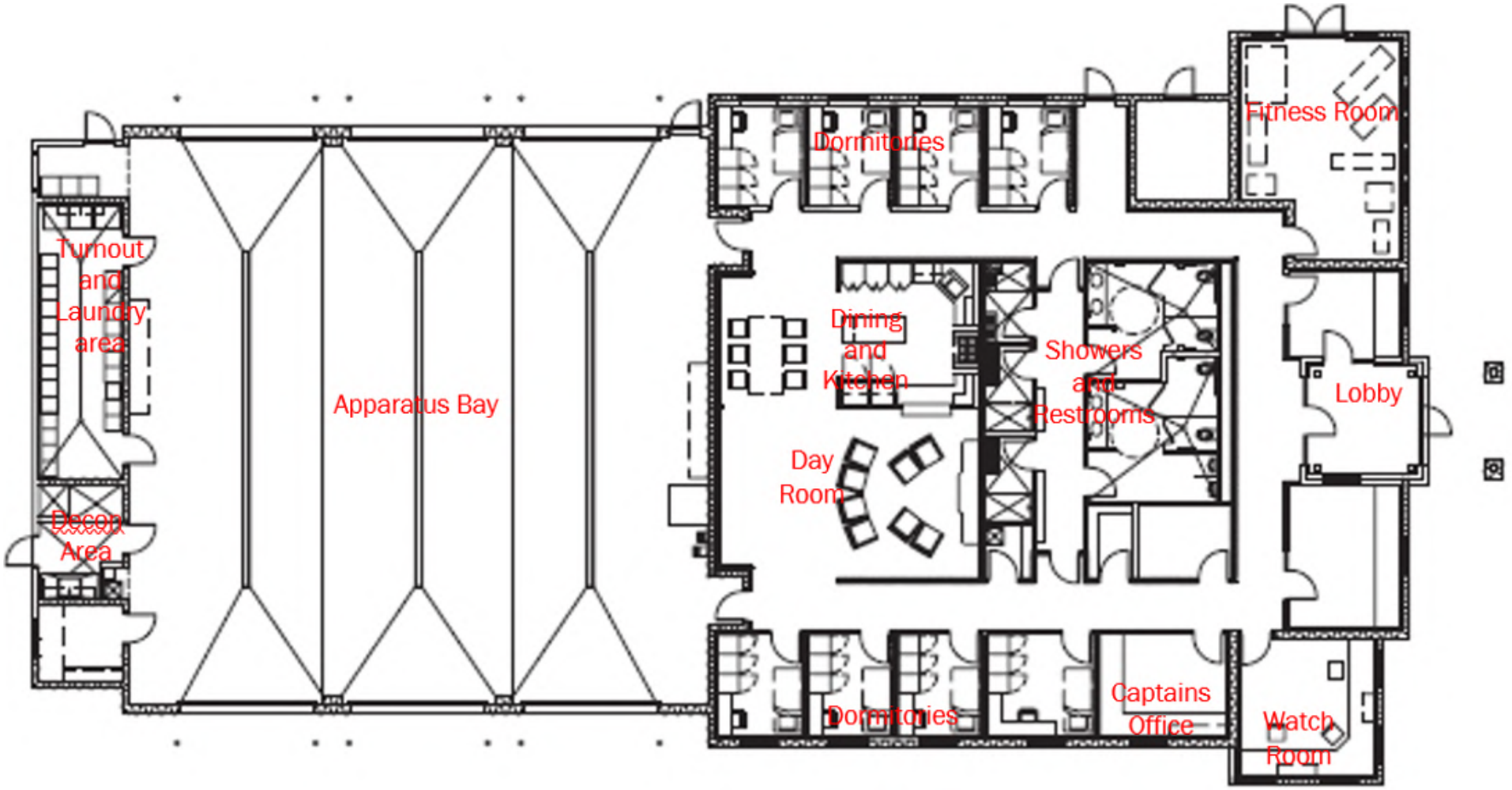


Figure 5.2 Commercial Three-Bay Fire Station Floor Plan Configuration
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