Fire Department Master Plan Update

CITY OF DINUBA, CALIFORNIA

FINAL REPORT

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1. INTRODUCTION AND EXECUTIVE SUMMARY

This chapter of the report is intended to describe the background of this study, its scope of work, and the methodologies utilized for the study. It also provides a summary of the key findings, conclusions, and alternatives examined in this report.

1. PROJECT OVERVIEW

The City of Dinuba has experienced considerable growth over the last decade – both in terms of population and commercial growth. This is a result of annexations, primarily to the west, that have increased the service area to which the City provides fire protective services. To respond to this growth and growth anticipated over the next 20 years, the City requested an update to its Fire Master Plan to determine the most efficient and effective way to provide these services to the community.

2. PROJECT SCOPE OF WORK

The City requested a comprehensive scope of work for this project. In general, this entailed evaluation of aspects of Fire Department service, including:

- **Analyzing levels of service**, including station locations, apparatus placement, response area coverage, response time performance and workload call distribution.
- **Analyzing and provide recommendations,** including improvements, additions, and changes to facilities, staffing, apparatus, training, and information management.
- **Analyzing and provide recommendations** regarding staffing levels and practices necessary to support recommended operational changes, including location and configuration of stations, scheduling of personnel, and composition of staff.
- **Analyzing and providing recommendations** to improve the efficiency and effectiveness of department operations as it relates to current deployment, response times, safety, and productivity.

- **Analyzing and providing visual models** of current response data. Provide recommendations on industry "Best Practices" and demonstrate the impact of hypothetical deployment and facility changes.

- **Analyzing past, current, and project growth** and the impact on fire/EMS services to develop long-term strategies to improve efficiency and effectiveness.

- **Providing a detailed work plan,** including timeline and cost for each project benchmark.

This Fire Service Master Plan should be viewed as a "living document" that can be easily updated as conditions change – such as annexation, growth parameters, and financial capabilities of the City.

3. PROJECT METHODOLOGIES

The processes utilized in developing this study were extensive, as described in the points below:

- Interviews were conducted with the Fire Chief and all other staff in the Dinuba Fire Department. The purpose of these meetings was to develop an understanding of the Department's organization, costs, staffing, and programs, as well as issues potentially impacting this study.

- Fire Department interviews were complemented by interviews with the City Manager, Assistant City Manager, Finance Director, and others to obtain information about organizational, financial and developmental issues facing the City now and in the years to come. All Fire Department employees were also provided the opportunity to give the project team feedback through a confidential employee survey. The results of the survey were provided to the Department during the project.

- Members of the City Council were also interviewed to obtain their views on key fire, emergency medical and financial issues.

- Interviews were followed-up by data collection. Data collection focused on documenting key aspects of fire service organization, staffing, staffing policies, budgets, salaries and fringe benefits, emergency medical service delivery, fire prevention programs, training, apparatus and facilities, and call for service workloads.

Throughout this process, the project team met with the Department, which reviewed findings for accuracy, and discussed issues, study direction, and alternatives.

4. SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

The following table provides a summary of key findings, conclusions, and alternatives examined in this report:

Finding	Recommendation
There are opportunities to improve the Insurance Services Office (ISO) Fire Suppression Rating in Dinuba	Develop an ISO improvement plan that focuses on maintaining the strengths, while improving identified deficiencies. Develop an annual training plan that includes multi-company and nighttime evolutions with mutual-aid partners. Establish pre-arranged first alarm response plans with Tulare County to respond to critical incidents at the time of initial dispatch. Establish an automatic first alarm response plan with mutual aid partners for any reported working fire to obtain ISO credit for automatic aid.
Current daily staffing results in the engine company being staffed with only two personnel at times.	Increase the daily staffing on each shift by one firefighter to ensure the engine is consistently staffed with three personnel.
Call data is reported in whole minutes. **Call processing time is often reported as 0:00.**	Work with the dispatch center to begin capturing and reporting call times in hh:mm:ss. Work with the dispatch center to establish and report performance standards related to processing high priority calls. Develop a system to ensure call times are accurately captured by the dispatch center and publicly report performance.
A second fire station is needed to ensure response time goals can be met in the western and northern portions of the City.	Pursue the feasibility of constructing a second fire station to house an additional engine company and existing ambulance on the City owned property at the northwest corner of Road 70 and Avenue 408, planning on construction in FY2017 and staffing in FY2018.
Shift personnel have reduced their participation in Company Inspections. **The single position assigned to fire prevention is unable to inspect all commercial occupancies on an annual basis**	Shift personnel need to continue to be involved in community inspections. Make company inspections and pre-fire plans a priority for the fire service.

Finding	Recommendation
The paid call firefighter program should be enhanced to improve reliability.	Require a minimum number of service hours for paid call firefighters and "schedule" these hours to better understand when PCFs are likely to respond to emergency incidents and participate in training activities.
The Department lacks appropriate administrative, fire prevention, and command positions.	Add a second Battalion Chief position to oversee operations and training and allow the Fire Marshal to focus on fire prevention and public education efforts. Add a fire inspector in FY 2015 to ensure businesses receive timely fire prevention inspection on an ongoing basis according to established inspection schedules.

2. SUMMARY OF THE 2004 MASTER PLAN

The original Master Plan Study for the Dinuba Fire Department was conducted in 1992 by Hughes, Heiss, and Associates, and an update to that plan occurred in 2004, conducted by the Matrix Consulting Group. The purpose of the 2004 update was to update the earlier Master Plan, as well as to challenge assumptions, which were the basis for the original plan. The following sections highlight key areas within the 2004 Master Plan update and provide a comparison of the 2004 plan to current operations.

1. IMPACT ON SERVICE DELIVERY

The original Master Plan identified several key areas that would impact service delivery for the Department. Those items included the population in the City, EMS service area in the County, the location of the station, and calls for service demands. The points below present a discussion of the Department:

- The 1992 Master Plan Study and 2004 Master Plan Update determined that even with future growth the Station was in the optimum location to maintain the current level of service (e.g., short response times). The Department still provides coverage from the same location 24 hours per day, seven days per week.
  - The current station's location is not sufficient to provide timely service delivery to the most northern and western portions of the City according to established goals in the City General Plan, which states a goal of a five minute response time from receipt of the call.
  - With respect to EMS calls, the station location allows the Department to meet its response time targets in the rural areas of the County. The current goal is ten minutes within one mile of the City limits, 20 minutes in rural areas, and no expectation in areas defined as wilderness.
  - The Department remodeled the station to accommodate staff and relocated the administrative offices next door, allowing the entire second floor to be used as living quarters, which helped to minimize the impact of increased on-duty staffing on space.

- The Department provided fire suppression services within the City of Dinuba and on an automatic or mutual aide basis outside the City limits. Through a contract with the County, the Department provided emergency medical response to approximately 400 square miles in Northern Tulare County.

  – Fire suppression services are still provided within the City (now approximately 6.5 square miles), as well as on an automatic/mutual aide basis outside of the City limits.

  – The EMS service area has remained the same at about 400 square miles.

- The 1992 population in the City was 13,600 and 13,000 in the EMS service area.

  – The population in the City during the 2004 update was approximately 18,000 and 17,000 in the EMS service area.

  – The current population in the City is estimated at 23,666 and 19,000 in the EMS service area.

  – This represents an overall growth rate in the City of 69% since 1992 and 28% since 2004.

- The Department responded to 2,036 calls for service in 1991 of which 91% (1,862) of calls were emergency medical service calls. This equated to 5.1 EMS calls per day, and one fire call every 2.1 days.

  – Calls for fiscal year 2002 – 2003 totaled two, 834 of which 78% (2,210) were EMS calls. The remaining 633 calls included fire (118), good intent, service calls, etc.

  – The calls for service in 2013 totaled 4,002 of which 89.2% (3,571) were EMS related. The remaining 431 were fire related calls.

  – The Department responds to an average of 11 calls per day; 9.8 of which are EMS related. Fire calls occur about 1.2 times per day. It is important to note that fire personnel respond to assist on EMS calls occurring in the City limits.

  – The Department is only responsible for providing fire suppression activities within the City limits or through an automatic/mutual aide basis when requested.

The overall service population for the Department has grown by 69% since the original master plan study. Calls for service have increased by 97%.

2. ORGANIZATION AND SERVICE DELIVERY REVIEW

The 2004 Master Plan update reviewed the Department's organization and service delivery capabilities to determine its ability to address future needs as population and demand for services grew. This included a review of service goals objectives, on-duty staffing, collect rates, and in-service training. The chart below presents a comparison of the current operations of the Department to the performance found in 2004.

The 2004 Master Plan study identified several key service level objectives to which the Department should attempt to achieve. Those included response times, company size, and initial response capabilities.

The table below was utilized in the 2004 Master Plan update to discuss fire and emergency medical service goals and compare the system performance in Dinuba for the 2004 update.

Target Area	Service Target	2004 Performance in Dinuba
Response Time to Fires	• Ability to respond to fires in four minutes in 80% - 90% of calls.	• This target is generally met in the City, though there are pockets in the periphery of the City which cannot meet it.
Response Time to Medical Calls	• Ability to respond to EMS calls in four minutes for 80% - 90% of calls in urban areas at a BLS level. • Ability to respond to EMS calls at an ALS level within eight minutes 80% - 90% in urban areas. • Ability to respond to EMS calls in eight minutes for 80% - 90% of calls in rural areas at a BLS level. • Ability to respond to EMS calls at an ALS level within 12 minutes 80% - 90% in rural areas.	• Both ALS and BLS targets are generally met within the City, though there are isolated pockets in the periphery of the City. • There are large areas in the northern portion of Tulare County which are the responsibility of Dinuba not meeting these targets.
Company Size	• Engine companies staffed at three persons.	• The single engine company in the City is generally staffed at four.

Target Area	Service Target	2004 Performance in Dinuba
Aerial Ladder Truck Availability	• Truck company available to respond to the scene of a fire within eight minutes. • Truck companies staffed at three.	• The truck company is staffed through call back and/or with paid call personnel. • This unit is variably staffed.
Full Incident Response Capability	• Ten to 15 personnel at the scene of a fire within eight to ten minutes.	• Response data indicate that this target is generally met through call back of off duty personnel and paid call staff.
Automatic Sprinkler Systems	• Sprinkler systems required in areas outside of the response targets described above or in high hazard buildings outside of the fire flow capacity which can be met by a full incident response.	• The City's sprinkler ordinance conforms to the Uniform Fire and Building Codes in which size generally dictates sprinkler needs (for structures in excess of 5,000 square feet).

There are a number of conclusions drawn from the data portrayed in the chart above in the 2004 update. These are summarized in the following points:

- The above comparison chart indicates that the Dinuba Fire Department does an effective job of meeting urban fire service targets, through off duty and paid call personnel.

- There are pockets in the City, however, in which response time targets are not met, and these will worsen during the planning period.

- The reliance on off duty and paid call personnel has become a planning issue in the period between the first master plan and the 2004 update. This will become an even more significant issue in the years to come.

- Finally, the City could mitigate many of the most significant problems associated with the difference between fire service targets and capabilities by enacting more stringent codes and ordinances to build-in fire protection.

Prior master plans for the City of Dinuba have also focused on organization and staffing. These are summarized in the next section.

3. ORGANIZATION AND STAFFING ANALYSIS

In addition to identifying opportunities for improvement within the operations and organization of the Department, the 2004 report highlighted several key areas on which

the Department needed to focus as demand for services increased. Key areas included an increase in calls for service, service delivery alternatives, establishment of a county service area, creation of an administrative captain position, as well as the adoption of a sprinkler ordinance. The points below highlight those key areas:

- The 2004 update recommended an additional six personnel to staff an ambulance in the Cutler-Orosi area that should be financed by the County.
- The 2004 update recommended increasing on duty staffing by three personnel to minimize the risk that concurrent calls would impact service delivery. This would bring the daily shift staffing to six personnel as compared with the five on duty at the time of the study.
- The 2004 update recommended a sprinkler ordinance for new development outside the five minute response time capability of the Department to mitigate the need for additional shift firefighters beyond those recommended.
- The 2004 update recommended the addition of a second mid-command staff position by 2006, resulting in one Battalion Chief responsible for fire prevention and the other for operations.

The Fire Department incorporated several recommendations made in the 2004 Master Plan update. The Department has maintained minimum on-duty staffing levels at five personnel, which enables the Department to have the capability to staff a three-person engine company and two two-person ambulances when all personnel are on shift. An Assistant Chief, Inspector and Clerical Assistant position were eliminated in 2009 due to a downturn in the economy. Shift captains are still responsible for assisting and coordinating several administrative functions, such as equipment/apparatus maintenance and fire and emergency medical service training, however, the Battalion Chief (Fire Marshal) oversees and manages operations, fire prevention, and training functions for the Department.

4. CHALLENGES FOR THE FUTURE

The comparison of the current service delivery impacts to the 2004 Master Plan update presents several key areas that will continue to present a challenge to the Department as demand for services increase. The points below present a discussion of the key challenges which the Department will face over the planning period:

- The service area and population have increased since the 2004 update. The City annexed land to the west of the previous City limits, constructed a golf course and has development plans for a custom housing development along the golf course.

- The Department has on-duty daily staffing of seven, with a minimum staffing level of five, which allows the Department to staff the first due engine with three personnel and a minimum of one ambulance. However, as calls increase, so does the risk of running concurrent calls, which will impact the Department's ability to meet those targets.

- For calls requiring a multiple engine company response, the Department relies on mutual and automatic aid, as well as paid call firefighters. The paid call force is an important part of the Department's ability to provide fire suppression services when a structure fire or multiple unit response is required, currently there are ten fully trained paid call firefighters and five in the background process. Recruiting and retaining an active paid call force will continue to be a challenge for the Department.

The Fire Department will continue to face some challenges similar to those it has faced over the last ten years. As identified in the points above, population growth will place greater demands on the Department and its resources, particularly as the risk for concurrent calls increases. Additionally, the Department's ability to recruit and retain an active paid call force will impact its ability to provide the needed level of service with respect to fires, as well as emergency medical calls.

The following table compares the status of the "issue areas" in 2004 to the current circumstances experienced by the Department:

Issue Area	1992 – Master Plan	2004 – Master Plan Update	Current
Stations	• In 1992, the Department operated one fire station, which was equipped and staffed 24 hours per day for fire and emergency medical services.	• The Department still operates one fire station (same facility) and continues to provide 24 hours per day for fire and emergency medical services.	• The Department operates from the same singe facility as in the previous studies. The station has been remodeled and Fire Administration moved to a building next to the station.
Service Area	• The Department provided fire suppression services only within the City limits and on an automatic/instant aid basis to other communities. • The Department provided emergency medical services to approximately 100 square miles within the northern part of Tulare County.	• The Department provides fire suppression services only within the City limits and on an automatic/instant aid basis to other communities. • The Department is responsible for providing emergency medical services to Northern Tulare County), which consists of 400 square miles.	• The Fire Service Area in the City limits has increased to 6.5 square miles. • The Emergency Medical Services Area continues to be approximately 400 square miles.
Population	• Population within the City was 13,600 and in the EMS Service Area it was 13,000.	• Current population estimates are 18,000 for the City and 17,000 within the EMS County Services Area.	• Current population in the City is approximately 23,666. • Population in the EMS Service Area is estimated at 19,000.
Calls for Service	• In 1992, an engine responded to 174 calls and an ambulance responded to 1,862 calls for service (2,036 total calls).	• Total calls for service for fiscal year 2003 were 2,834. Of the 2,834, 78% (2,210) were emergency medical service calls, and 22% (624) were fire related calls.	• Calls for service in 2013 totaled 4,002, with 89.2% (3,571) being EMS related.

3. ORGANIZATIONAL OVERVIEW

The information in this chapter was presented as part of the agency profile, which was delivered as an interim deliverable and verified as factual by departmental personnel. The information was derived from various data sources, interviews, and tours of the service area. The profile contains information related to:

- Organization and Staffing
- Department Budget
- Emergency Operations Daily Staffing
- Personnel Costs and Overtime Utilization
- Fire Department Roles and Responsibilities
- Fire Department Workloads and Response Times.

The first section below provides a general overview of the Dinuba Fire Department, including its organization and authorized staffing.

The basis of the evaluation, analysis of data, and reference information comes from California State laws and regulations, the National Fire Protection Association (NFPA), the Center for Public Safety Excellence (CPSE), firefighter health and safety requirements, federal and state mandates, and what are currently considered generally accepted best practices in providing emergency service delivery.

Each section in the report provides general information about the objectives, observations, analysis, and a discussion of any significant issues or conditions that are pertinent. Matrix Consulting Group's observations are supported by data collected as part of reviewing documents and interviews with key department staff. Finally, specific

recommendations are included to address identified issues or to take advantage of opportunities that may exist.

1. RESPONSIBILITIES AND LINE OF AUTHORITY

Governance of the Dinuba Fire Department is by the Dinuba City Council. The Council is elected directly by the voters and consists of four Council Members and one Mayor, each representing one of five Districts in the City. The day-to-day oversight of the city is the responsibility of a city manager, who is hired by the city council.

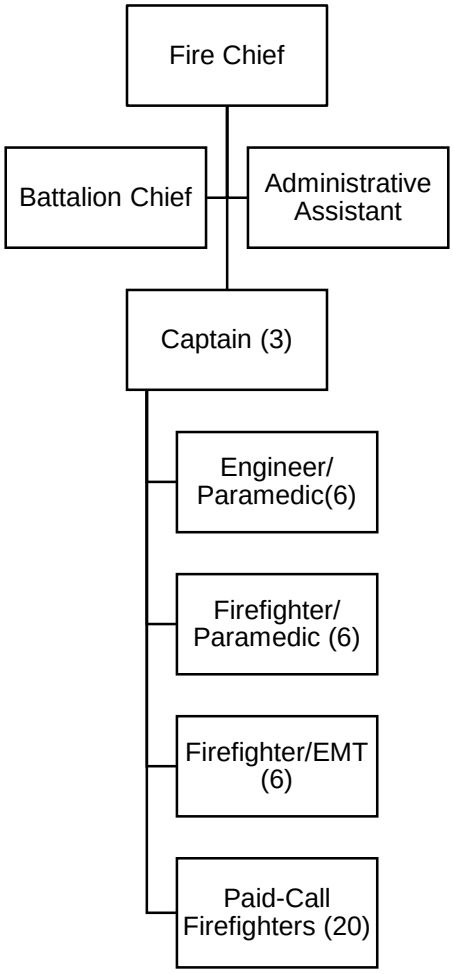
The Dinuba Fire Department (DFD) is one of several municipal services provided by the City of Dinuba. The Fire Chief is the position appointed to provide overall management and direction to the DFD. The Fire Chief reports directly to the City Manager.

2. ORGANIZATION OF THE DINUBA FIRE DEPARTMENT

The Dinuba Fire Department provides response to fires, medical emergencies, hazardous materials incidents, natural and man-made disasters, mutual aid assistance to neighboring departments and related emergencies in an effort to reduce life and property loss. In addition, the Fire Department inspects businesses and properties, assists with code enforcement (weed abatement), and conducts public education programs. The functions are performed with an authorized staffing of 24 full-time and 20 paid-call personnel. There are two functional areas in the Fire Department: Emergency Operations and Administration.

The organization chart below shows the current organizational structure of the Dinuba Fire Department when all 24 authorized full-time positions are filled:

Organizational Chart
Dinuba Fire Department



The following table shows the number of authorized positions over the past three fiscal years, as well as the current number of vacancies within the Dinuba Fire Department:

Dinuba Fire Department
Authorized Positions FY 12-14

Position	FY 2012	FY 2013	FY 2014	Vacant
Fire Chief	1	1	1	0
Battalion Chief	1	1	1	0
Administrative Assistant	1	1	1	0
Captain	3	3	3	0
Engineer/Paramedic	6	6	6	0
Firefighter/Paramedic	6	6	6	0
Firefighter/EMT	6	6	6	0
Total	**24**	**24**	**24**	**0**
Paid Call Firefighter	**20**	**20**	**20**	

The following points highlight the information presented above:

- The current number of authorized full-time positions is 24.
- There are currently 20 authorized paid-call firefighter positions.
- By classification, the number of personnel assigned to shift duties has remained constant over the three-year period.

Due to the lack of administrative positions in the Fire Department, many administrative duties have been transferred to the shift Captains. The following table illustrates the basic duties of the personnel in the Dinuba Fire Department:

Position/ Classification	Authorized	Current	Key Roles and Responsibilities
Fire Chief	1	1	• Provides the executive management of the Fire Department, including the development of policies and procedures, providing leadership for future services, budget development, identifying service gaps, working with the elected officials and City management to ensure that the DFD interests are considered. • Provides education regarding how the DFD operates, what its services are, what the resource needs are. • Supervises the Battalion Chief and Administrative Assistant. • Responds to critical incidents and assumes command.

Position/ Classification	Authorized	Current	Key Roles and Responsibilities
Administrative Assistant	1	1	• Reports to the Fire Chief. • Prepares payroll for the Department, maintains files, and provides general administrative support. • Processes RFPs and Department Purchase Orders. • Serves as the Records Manager for the department. • Maintains Injury Report Logs. • Assists Chief with budget development and maintenance.
Battalion Chief	1	1	• Reports to the Fire Chief. • Oversees Departmental training and fire prevention. • Completes and submits monthly NFIRS report. • Completes quarterly fire report for County. • Conducts plan reviews for fire sprinklers, alarms and new business licenses. • Conducts fire prevention inspections for businesses, schools, daycare facilities and State licensed facilities. • Serves as initial point of contact for citizen issues. • Oversees the fire investigation program and investigates suspicious fires. • Oversees the weed abatement program. • Responds to all critical incidents and assumes command in absence of the Fire Chief.

Captain	3	3	• Report to the Battalion Chief.
			• Serve as the Shift Commander on each fire shift.
			• Supervise personnel assigned to their shift.
			• Ensure minimum staffing levels are maintained.
			• Serve as incident commander on emergency incidents.
			• Each Captain has an ancillary administrative responsibility
			  ◦ Apparatus and Equipment maintenance.
			  ◦ Station maintenance, SCBA program, and hose maintenance.
			  ◦ EMS

Engineer/ Paramedic	6	6	• Report to assigned Shift Captain. • Drive apparatus to emergency scenes. • Respond to emergency calls for service. • Comply with training requirements. • Conduct company inspections as scheduled. • Conduct public education events as scheduled.
Firefighter/ Paramedic Firefighter EMT	12	12	• Report to assigned Shift Captain • Work on either the ambulance or engine company. • Respond to emergency calls for service. • Comply with training requirements. • Conduct company inspections as scheduled. • Conduct public education events as scheduled.

The current daily staffing of each unit of fire and EMS apparatus is shown below:

Shift Unit Assignments and Minimum Staffing

Units	Scheduled Staffing	Minimum Staffing
Engine	3	1
Ambulance	4	4

As shown above, a total of seven line personnel are scheduled each day to staff units with minimum staffing of five. If both ambulances are on a call, engine staffing is allowed to drop to a minimum staffing of one.

Personnel work 48-hour shifts on a rotating basis with 96 hours off after each 48-hour shift worked. The rotation results in a 56-hour average FLSA workweek for shift personnel. As discussed above, the scheduled staffing for each shift is seven personnel.

The table below shows the actual staffing for 2013 based on daily attendance rosters for calendar year 2013.

Dinuba Fire Department
Actual Staffing for Shifts – 2013

Month	AVG SHIFT STAFFING	COMP TIME OFF SHIFTS	VACATION SHIFTS	SICK LEAVE SHIFTS	OVERTIME SHIFTS
Jan	6.16	7	15	11	3
Feb	6.79	14	9	10	2
Mar	6.42	10	3	7	4
Apr	6.63	14	6	10	0
May	6.61	8	13	9	9
Jun	6.37	1	37	14	9
Jul	5.74	3	19	15	13
Aug	5.77	2	9	13	9
Sep	6.30	8	4	10	0
Oct	6.77	7	11	4	1
Nov	6.27	10	11	9	5
Dec	6.03	4	23	14	8
Year	**6.32**	**7.33**	**13.33**	**10.50**	**5.25**

As illustrated above, the actual daily staffing for the Dinuba Fire Department is approximately 6.3 personnel.

The Dinuba Fire Department provides services from a single fire station located in the historic downtown area of the City. The following table shows the location of the Dinuba facilities along with the most readily available mutual aid partners:

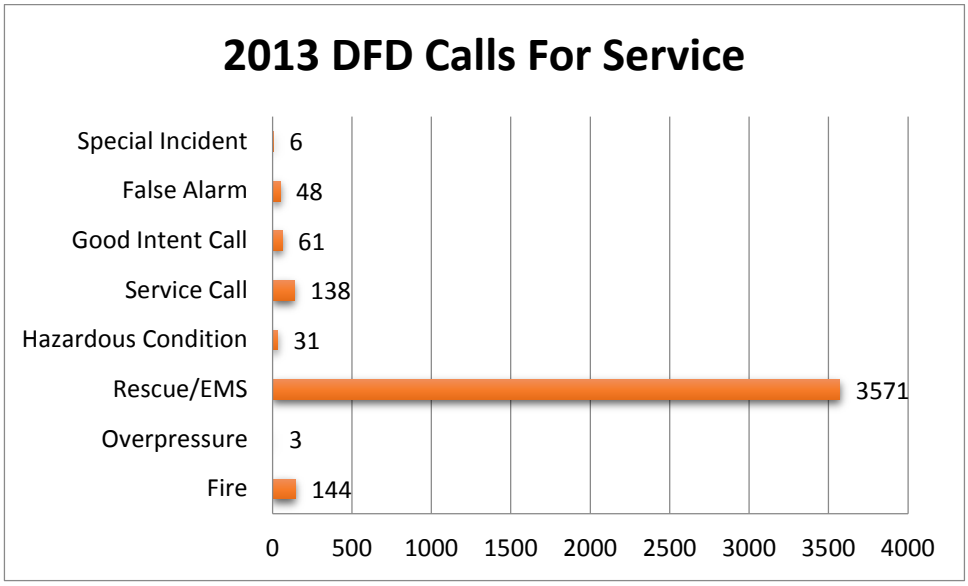
Dinuba California Fire Facilities

Agency	Facility	Street Address	City	Equipment/Apparatus
Dinuba	Fire Station	496 E. Tulare Street	Dinuba	One Engine Co., two Truck Co., four Medic Units
Dinuba	Admin Bldg.	420 E. Tulare Street	Dinuba	Chief's Vehicle & Battalion Chief Vehicle
Dinuba	Training Trailers	1088 E. Kamm Ave.	Dinuba	N/A
Dinuba	Training Facility (proposed)	Rd. 70 / Ave. 408	Dinuba	N/A
Reedley	Fire Station	1060 D Street	Reedley	One Engine/Truck Co.
Tulare	Station 2	3811 Avenue 400	Kingsburg	One Engine Co.
Tulare	Station 3	40404 Road 80	Dinuba	One Engine Co.
Tulare	Station 4	40779 Road 128	Cutler	One Engine Co.

The Dinuba Fire Department provides response to fires, emergency medical emergencies, hazardous materials incidents, natural and man-made disasters, mutual aid assistance to neighboring departments, and related emergencies in an effort to reduce life and property loss. In addition, the Fire Department inspects businesses and properties, assists with code enforcement, and conducts public education programs. There are three functional areas in the Fire Department: Fire Operations (Fire and EMS first responder), Fire Prevention, and Administration.

The following chart shows the 2013 calls for service for the DFD. In most communities, fire calls account for a small portion of the emergency activity of the Fire Department and this is the case in Dinuba. Emergency medical service (EMS) activity accounts for the greatest workload in terms of emergency response in the community

and EMS Service Area.



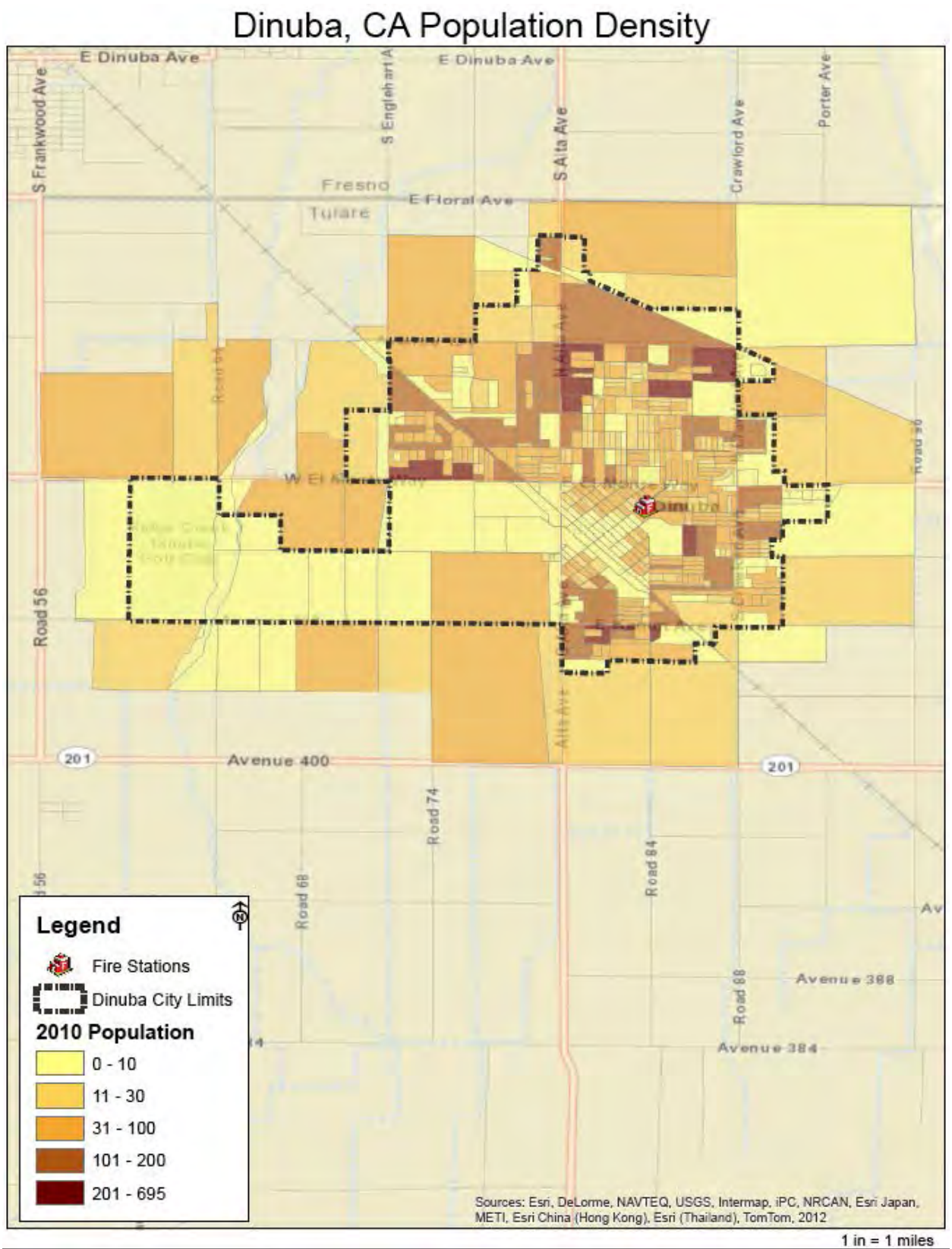
As illustrated in the chart above, the vast majority of calls are Rescue/EMS calls for service.

DFD responded to a total of 4,002 calls for service in 2013 according to records obtained by the project team. Of the 4,002 calls for service in 2013, 3,571 (89.2%) were EMS related while 431 (10.8%) were fire related.

DFD protects a service area in the City that can best be described as a mix of urban and suburban, while the EMS Service Area in the County is mostly rural. According to the 2012 population estimates provided by the United States Census Dinuba has an estimated population of 23,666 and covers a land area of 6.5 square miles for a density of 3,641 residents per square mile. Since much of Dinuba is rural, for the purposes of a fire protection study it makes sense to split the areas into different density categories. According to current industry best practices from the Center for Public Safety Excellence (CPSE), an urban setting is best described as having a population of over 30,000 and/or a density of more than 2,000 residents per square

mile. A Suburban setting is described as having a population of 10,000 to 29,999 and/or a density of 1,000 to 2,000 residents per square mile. A rural setting is described as having a population of less than 10,000 or a density of less than 1,000 residents per square mile. The service area protected by the Dinuba Fire Department clearly fits each of these descriptions in different sections of the City/County.

The map on the following page shows the population for the various sections of Dinuba. As shown core areas of the City are the most densely populated, with the newly annexed areas to the west and areas immediately outside the City having the least dense population:


Dinuba, CA Population Density
E Dinuba Ave
S Frankwood Ave
S Englehart Ave
S Alta Ave
Crawford Ave
Porter Ave
Fresno
Tulare
E Floral Ave
Road 56
Avenue 400
201
Road 74
Road 84
Road 68
Avenue 388
Avenue 384
Legend
Fire Stations
Dinuba City Limits
2010 Population
0 - 10
11 - 30
31 - 100
101 - 200
201 - 695
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012
1 in = 1 miles

3. INSURANCE SERVICES OFFICE (ISO)

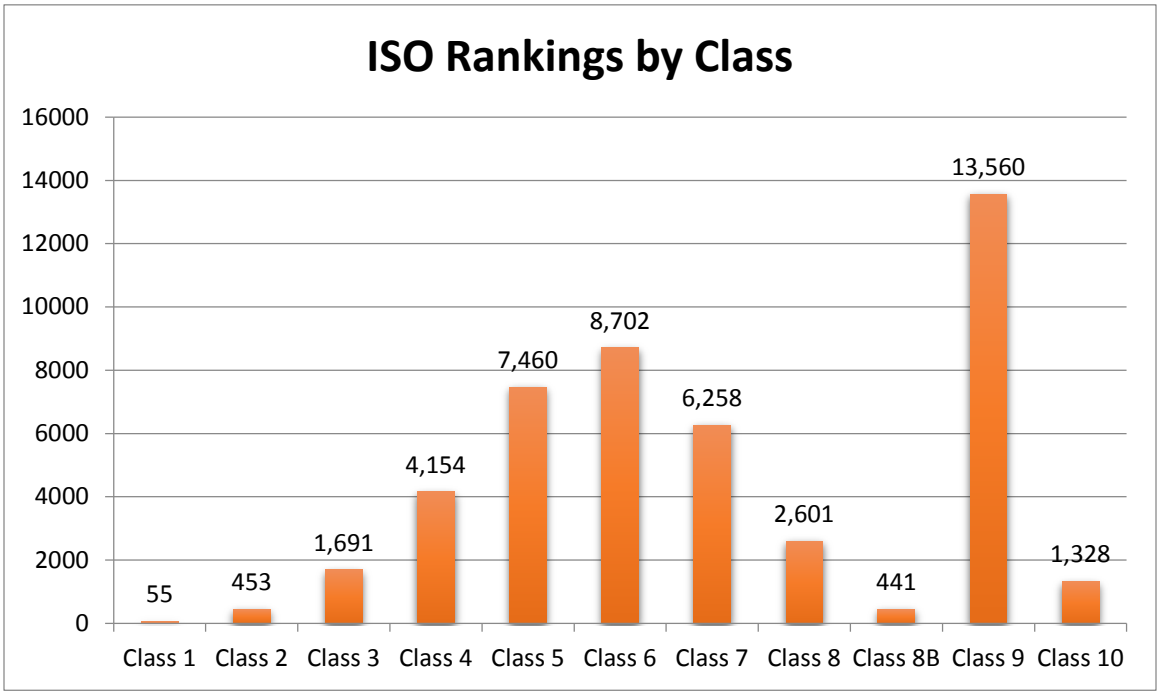
The current ISO property class rating for the City of Dinuba is Class 4 in the city for structures within 1,000 feet from a hydrant and Class 8b for those over 1,000 feet from a hydrant. The class rating is important to the community as many property insurance companies base the fire risk portion of premiums on the community's ISO rating. If Dinuba improved from a Class 4 to a Class 3, insurance rates would decrease for homeowners and businesses. Businesses see even greater rate benefits as a community continues to improve their rating down to the optimal rating of Class 1.

According to ISO:

"Virtually all U.S. insurers of homes and business property use ISO's PPC (Public Protection Classification) in calculating premiums. In general, the price of fire insurance in a community with a good PPC is substantially lower than in a community with a poor PPC, assuming all other factors are equal." (1)

The ISO uses a 1 to 10 rating scale, with Class 1 being the best level of service and Class 10 representing no fire service being provided at all. The ISO reviews fire protection in three major categories:

- Communication (10%)
- Water Supply (40%)
- Fire Department (50%)



The current ISO credit system is broken down into the following maximum percentage points [(2)]:

FIRE DEPARTMENT CLASSIFICATION	MAXIMUM PERCENT
Credit for:	
ENGINE COMPANIES	10.00
RESERVE PUMPERS	1.00
PUMP CAPACITY	5.00
LADDER-SERVICE COMPANIES	5.00
RESERVE LADDER COMPANIES	1.00
DISTRIBUTION	4.00
COMPANY PERSONNEL	15.00
TRAINING	9.00
TOTAL	**50.00**

The following changes would positively impact further ISO ratings:

- Multi-company training drills with first due mutual-aid companies.
- Training on multi-story operations.
- Nighttime company and multi-company evolutions.
- Increased apparatus staffing levels.

- Improved distribution of response resources.

The ISO Fire Suppression Rating Schedule states that response areas with five buildings that are three stories or 35 feet or more in height, or with five buildings that have a Needed Fire Flow (NFF) greater than 3,500 GPM, or any combination of these criteria, should have a ladder company. Based on this requirement it is important that Dinuba keep the ladder company in service.

Recommendation: Develop an ISO improvement plan for Dinuba Fire Department that focuses on maintaining the strengths of the agency while improving identified deficiencies.

Recommendation: Develop an annual training plan that includes multi-company and nighttime evolutions with mutual-aid partners.

It is important to note that the ISO has recently updated the content of the Fire Suppression Rating Schedule (FSRS) to include an increased reference to National Fire Protection Association (NFPA) standards. The revisions include [(3)]:

- Eliminating the current ISO equipment inventory and replacing it with reference to pumper and ladder equipment listed in NFPA 1901.
- Recognition of Initial Rapid Intervention Crew and Rapid Intervention Crew teams according to NFPA 1500.
- Additional emphasis on firefighter safety and training:
  - Training and credentialing for fire officers in accordance with National Incident Management System (NIMS) recommendations and NFPA 1021.
  - Training for fire apparatus drivers and operators in accordance with NFPA 1002 and 1451.
  - Reference to firefighter safety requirements.
- Recognition of automatic-aid personnel responding to first-alarm structure fires.
- Extension of full credit for automatic-aid response plans to first-alarm structure fires when the departments have satisfied the certain criteria for interoperability.

An additional key point noted is increased reference to the American Water Works Association (AWWA) standards. Revisions here include:

- Recognition for fire hydrants that produce flows up to 1500 GPM.
- More emphasis on hydrant inspection programs, including hydrant flow testing.
- A reference to implementation of master or strategic planning.
- Recognition of partial or full Commission on Fire Accreditation International (CFAI) accreditation through the Center for Public Safety Excellence (CPSE).
- Recognition for adoption and enforcement of model building and fire prevention codes.
- Recognition for public fire safety education programs.
- Recognition for adoption of fire department standard operating procedures via NIMS standards or FEMA publication FA-197.
- Recognition for adoption of a fire department incident management system according to NFPA 1561.

It is critical that as DFD reviews their readiness for a future ISO inspection, the contemplated changes are considered during decision-making process.

4 FINANCIAL RESOURCES

The City of Dinuba utilizes a variety of funds to pay for Fire Department operations. The tables on the following pages illustrate the annual operating and revenue structure of the Dinuba Fire Department for FY 2010-11 through FY 2013-14.

The following table illustrates the combined annual expenditures for the DFD:

COMPILED DEPARTMENT BUDGET					
EXPENDITURES	**FY10-11**	**FY11-12**	**FY12-13**	**FY 13-14 Adopted**	**% Change**
EMPLOYEE SERVICES					
Regular Salaries	1,412,755	1,595,492	1,718,841	1,798,376	27%
Part-Time Salaries	0	177	0	0	0%
Part-Time Clerical	0	291	0	0	0%
Overtime	51,745	94,400	110,335	56,325	9%
Temporary Help	0	0	0	0	0%
PERS	295,140	390,584	488,364	601,856	104%
Social Security	1,000	831	783	2,108	111%
Medicare	20,772	20,724	23,656	27,386	32%
LTD/Life Insurance	34,750	39,483	48,667	47,717	37%
Health/Dental/Vision	259,900	310,500	350,000	326,600	26%
Workers' Compensation	46,069	67,601	79,512	60,501	31%
Unemployment Insurance	13,562	16,585	8,245	3,917	-71%
Uniform Allowance	10,880	21,634	6,412	10,880	0%
Reserve Officer Uniform Allowance	1,500	2,474	(1,126)	1,500	0%
Physical Examinations	5,000	3,985	5,789	7,000	40%
Paid-Call Salaries	15,320	16,771	13,045	34,000	122%
TOTAL EMPLOYEE SERVICES	**2,168,393**	**2,581,532**	**2,852,523**	**2,978,166**	**37%**
MAINTENANCE & OPERATIONS					
Office Supplies	2,250	2,305	3,420	2,845	26%
Operating Supplies	62,703	48,756	45,531	61,000	-3%
Safety Equipment & Supplies	28,850	21,133	28,555	46,300	60%
Utilities	20,260	18,401	21,120	22,002	9%
Lubricants & Fuels	39,829	59,992	62,192	59,800	50%
Maintenance Contracts	17,825	17,908	30,487	25,220	41%
Professional & Technical Services	130	9,729	2,849	8,500	6438%
Contractual Services - TCCAD	69,600	71,433	72,890	75,741	9%
Training & Vocational	7,850	11,829	5,510	17,425	122%
Communication	14,249	17,080	15,991	14,995	5%
Dues & Subscriptions	3,725	2,570	2,509	3,000	-19%
Travel & Conference	725	973	3,133	2,300	217%
Advertising	0	519	2,752	0	0%
Vehicle Maintenance	2,000	45	125	1,200	-40%
Repairs to Building & Equipment	2,000	2,979	6,022	2,200	10%
Equipment Maintenance	5,850	13,587	8,127	10,320	76%
Special Dept. Expenses	2,000	2,465	3,077	0	-100%
Training Class Expense	14,790	11,870	10,355	10,311	-30%
Fire Prevention/Training	1,300	432	858	1,100	-15%
Fire Prevention/Maintenance	600	1,632	657	660	10%
TOTAL MAINTENANCE & OPERATIONS	**296,536**	**315,638**	**326,160**	**364,919**	**23%**
PRINCIPAL PAYMENTS					
2006 Truck Purchase	121,929	127,294	132,723	0	-100%
TOTAL PRINCIPAL PAYMENTS	**121,929**	**127,294**	**132,723**	**0**	**-100%**
INTEREST PAYMENTS					
2006 Truck Purchase	16,813	11,448	5,840	0	-100%
TOTAL INTEREST PAYMENTS	**16,813**	**11,448**	**5,840**	**0**	**-100%**
ALLOCATED COSTS					
Liability Insurance	32,855	33,714	38,714	37,972	16%
Prop/ Fire Insurance	26,883	22,757	26,132	26,580	-1%

COMPILED DEPARTMENT BUDGET					
EXPENDITURES	**FY10-11**	**FY11-12**	**FY12-13**	**FY 13-14 Adopted**	**% Change**
Auto Insurance	32,400	4,320	4,320	8,640	-73%
Risk Management	44,694	48,339	58,397	59,614	33%
Retiree Health Insurance	16,992	11,312	11,764	13,479	-100%
Construction Services	0	0	0	0	0%
PW Vehicle Maintenance	11,899	11,915	12,975	14,602	23%
Interdepartmental Overhead	215,368	236,219	243,306	250,605	16%
Collection Service	57,965	61,718	63,847	65,752	13%
TOTAL ALLOCATED COSTS	**439,056**	**430,294**	**459,455**	**477,244**	**9%**
CAPITAL OUTLAY					
Records Management	0	10,270	0	0	0%
Laptops & Computer Equipment	0	0	0	0	0%
Fire Vehicles	115,000	258,954	0	0	-100%
Impact Fee Study	0	0	0	21,500	N/A
Fire Station #2	0	0	0	40,000	N/A
Building	0	0	0	50,000	N/A
Ambulance Equipment	0	7,296	2,808	0	0%
FEMA Grant	10,500	4,383	19,478	0	-100%
WMD Grant	0	0	5,447	0	0%
Public Safety Sales Tax	0	0	0	0	0%
TOTAL CAPITAL OUTLAY	**125,500**	**280,903**	**27,733**	**111,500**	**-11%**
TRANSFERS					
All Transfers	0	0	0	0	0%
TOTAL TRANSFERS	**0**	**0**	**0**	**0**	**0%**
TOTAL DEPARTMENT EXPENDITURES	**3,168,227**	**3,747,109**	**3,804,434**	**3,931,829**	**24%**

As shown above, the total expenditures have increased 24% from $3.17 million in FY11 to $3.93 million in FY14. The largest increases are due to PERS obligations, benefit costs and employee salaries. With a total population of 23,666 this equates to per capita spending of $166.14 for fire protection in the City of Dinuba.

The following tables show the agency's current revenue structure. The principal revenue sources for the DFD are:

Fiscal Year 2013-14 Revenue

Item	Basis	Amount
Ambulance Fund	Fee based cost structure for ambulance services, State Grant, Ambulance Subscription, training classes, etc.	$1,327,740
Fire Impact Fees	Fees assessed on residents or business owners new construction and impact on Fire Services.	$18,604
General Fund	General chages for services provided by the Department including inspections, State Mutual aid, etc.	$14,025
Public Safety Sales Tax	Portion of the Public Safety Sales Tax (Measure F) used to fund Fire Department Operations.	$702,632
Revenue Total		**$2,063,001**

5. RESPONSE POLICIES, CAPABILITIES, AND INCIDENT DEMAND.

The following table shows how the Dinuba Fire Department responds to various types of emergency incidents:

Incident Type	Response	How Provided
Structure Fire	All engines, trucks, and ambulances; all personnel.	Engine or truck staffed with three; ambulance staffed with two; all other apparatus staff with responding paid call personnel.
Brush/Grass Fire	First out engine; all personnel.	Engine staffed with three.
Other Fire	First out engine; all personnel.	Engine staffed with three; ambulance staffed with two; all other apparatus staff with responding paid call personnel.
Emergency Medical Services	Within the City: engine and ambulance; Within the County area: ambulance and mutual aid engine.	Engine staffed with three; ambulance staffed with two.
Traffic Accident	Within the City: engine and ambulance. Within the County area: ambulance and mutual aid engine.	Engine staffed with three; ambulance staffed with two.
Service Call	As requested with appropriate vehicle	Staffed as appropriate.

The following table summarizes the calls for service by type of incident handled by the Fire Department in 2013:

Incident Type	Number of Calls	Percent of Total Calls
Fire	144	4%
Overpressure/Rupture	3	0%
Rescue and EMS	3,571	89%
Hazardous Conditions (No Fire)	31	1%
Service Call	138	3%
Good Intent	61	2%
False Alarm and False Call	48	1%
Special Incident Type	6	0%
Total	**4,002**	**100%**

The next table shows the above calls broken down by time of day and day of week for calendar year 2013:

Hour / Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total	Percentage
0	14	15	9	14	13	15	15	95	2.37%
1	16	3	18	7	12	16	20	92	2.30%
2	15	10	8	11	8	12	12	76	1.90%
3	15	6	7	11	14	10	10	73	1.82%
4	10	11	12	10	8	8	5	64	1.60%
5	4	13	12	8	11	8	8	64	1.60%
6	11	10	13	15	9	16	13	87	2.17%
7	15	24	16	19	11	22	20	127	3.17%
8	18	31	26	22	38	26	17	178	4.45%
9	16	27	23	25	22	34	27	174	4.35%
10	35	29	26	40	30	27	34	221	5.52%
11	32	27	29	31	26	24	36	205	5.12%
12	32	39	32	36	38	34	37	248	6.20%
13	34	30	27	26	26	24	30	197	4.92%
14	35	34	40	34	33	35	30	241	6.02%
15	26	34	40	26	33	42	27	228	5.70%
16	33	35	33	32	42	40	32	247	6.17%
17	25	29	31	31	32	30	35	213	5.32%
18	27	23	27	30	25	29	33	194	4.85%
19	38	32	34	35	33	28	33	233	5.82%
20	31	27	25	32	32	42	41	230	5.75%
21	31	27	25	30	27	34	20	194	4.85%
22	19	18	23	24	24	30	33	171	4.27%
23	16	17	20	22	16	23	36	150	3.75%
Total	**548**	**551**	**556**	**571**	**563**	**609**	**604**	**4,002**	**100%**
Percent	**13.7**	**13.8**	**13.9**	**14.3**	**14.1**	**15.2**	**15.1**		

As shown above, the Dinuba Fire Department is busiest on Friday and Saturday and slowest on Sunday in terms of calls for service. The hour of 12:00 p.m. – 1:00 p.m. is the busiest hour of the day and 4:00 a.m. – 6:00 a.m. is the slowest period of the day.

Due to the expanded nature of the EMS Service Area, it is important to know where the majority of EMS calls are occurring. The following table shows the EMS location by city for the 3,571 EMS related calls responded to in 2013:

EMS Calls by City

Location	Count	Percentage
Cutler	225	6%
Dinuba	2,608	73%
Fresno	1	0%
Goshen	1	0%
Ivanhoe	3	0%
Kingsburg	11	0%
Orange	1	0%
Orange Cove	12	0%
Orosi	425	12%
Reedley	53	1%
Seville	7	0%
Sultana	26	1%
Traver	3	0%
Visalia	191	5%
Yettem	4	0%
Total	**3,571**	**100%**

As shown, 73% of the EMS calls occur in the City of Dinuba, while the remaining 27% occur outside the City. Orosi has the highest incident rate 12% of EMS calls with Cutler accounting for approximately 6% of EMS calls.

6. MAJOR DEPARTMENT PROGRAMS.

The table on the following page describes the major fire service related programs in Dinuba:

Program	Description
Training for Career and Paid Call	**Career Personnel** The Fire Marshal who oversees training provides shifts with a monthly training schedule, which Captains incorporate into the in-service training. The amount of in-service training varies to do staffing levels and call volume. The Department also provides training to ensure staff meet certification requirements. Staff members also have the option to pursue training at schools and other programs external to the Department. Joint training is conducted with the California Department of Forestry. Another Captain coordinates training for emergency medical services. The Captain works with the Medical Director for quality control/quality assurance activities. In addition to the Captain, there are a few staff persons who provide continuing education instructions for the Department. Finally the Department subscribes to "Target Solutions" to allow personnel to attend online training offered from the vendor. **Paid Call Personnel** Scheduled training for paid call is provided during the first three Mondays of each month.
Fire Prevention	Fire Prevention activities are provided by the Fire Marshal, as well as Engine companies when staffing and call load permit. Public Education activities are provided as requested by the public. Staff also provide instruction to the public with regard to CPR and EMT training. Business inspections are coordinated by the Fire Marshal and performed by the engine companies as staffing and call volume permit. There is not a hazardous materials inspection program.
Apparatus Maintenance and Replacement	Apparatus maintenance and replacement is coordinated by a Fire Captain. Staff members perform daily equipment checks to ensure apparatus is functioning at level in which it can be used to respond to emergencies. Minor equipment repairs are performed by staff. Preventive maintenance and repairs are outsourced. The agency has a formal vehicle replacement schedule for emergency apparatus.

Data was provided by the Fire Department with regards to training. In general, the Fire Marshal manages the training programs, but the shift captain is responsible for entering training information for each person on their shift as it occurs – this does occasionally vary. The table below provides a summary by general category for the Department for 2013:

Category	Total Number of Hours
Administration	142
Education - Fire Prevention	97
Emergency Medical Services	1,250
Equipment / Apparatus	298
Fire	1,291
Fire Fighter Strategy and Tactics	707
Practical Training	279
Target Solutions	193
Total	**4,256**

The following table presents a summary fire prevention and inspection activity by month for 2013:

Month	Prevention / Inspections
January	38
February	12
March	41
April	20
May	1
June	9
July	3
August	5
September	4
October	21
November	3
December	0
Total	**157**

7. FIRE STAFF SALARIES

The following table lists current compensation levels for paid staff:

Dinuba Fire Department
Salary Ranges by Position

Position	Entry Level	Midpoint	Maximum
Fire Chief	$93,060	$103,086	$113,112
Battalion Chief	$79,356	$87,912	$96,468
Captain	$70,068	$77,616	$85,164
Engineer/Paramedic	$61,572	$68,202	$74,832
Firefighter/Paramedic	$57,996	$64,248	$70,500
Firefighter/EMT	$49,956	$55,338	$60,720

4. SYSTEM DEMAND PROJECTIONS

The Dinuba Fire Department faces challenges related to organizational growth and management in addition to the operational challenges of providing efficient and effective emergency response. The project team developed population projections for the City of Dinuba and the EMS service area. Data were collected from various sources to determine appropriate growth assumptions for the City, as well as the portion of the County to which the Department provides emergency medical services. In addition to collecting information from United State census counts, project team members conducted interviews with County and City staff relating to planning, development and growth within the Department's service area. The table below presents a comparison of the City and the EMS service area population:

Area	Population			
	1992	2003	2012	% Change
City	13,600	18,000	22,955	69%
County	13,000	17,000	19,000	46%
Total	**26,600**	**35,000**	**41,955**	**58%**

As the above table shows, the population in both the City and the EMS service areas grew by approximately 58% since the original Master Plan Study and approximately 20% since the 2004 update. Additionally, the population spilt between the City and the County has continued to grow, with the growth in the City outpacing growth in the County.

1. POPULATION GROWTH WITHIN THE CITY

The table below presents the population growth data for the City of Dinuba from 1990 to 2010. This includes census data from 1990, 2000, and 2010, and State estimated increase in population to the years 2020 and 2030:

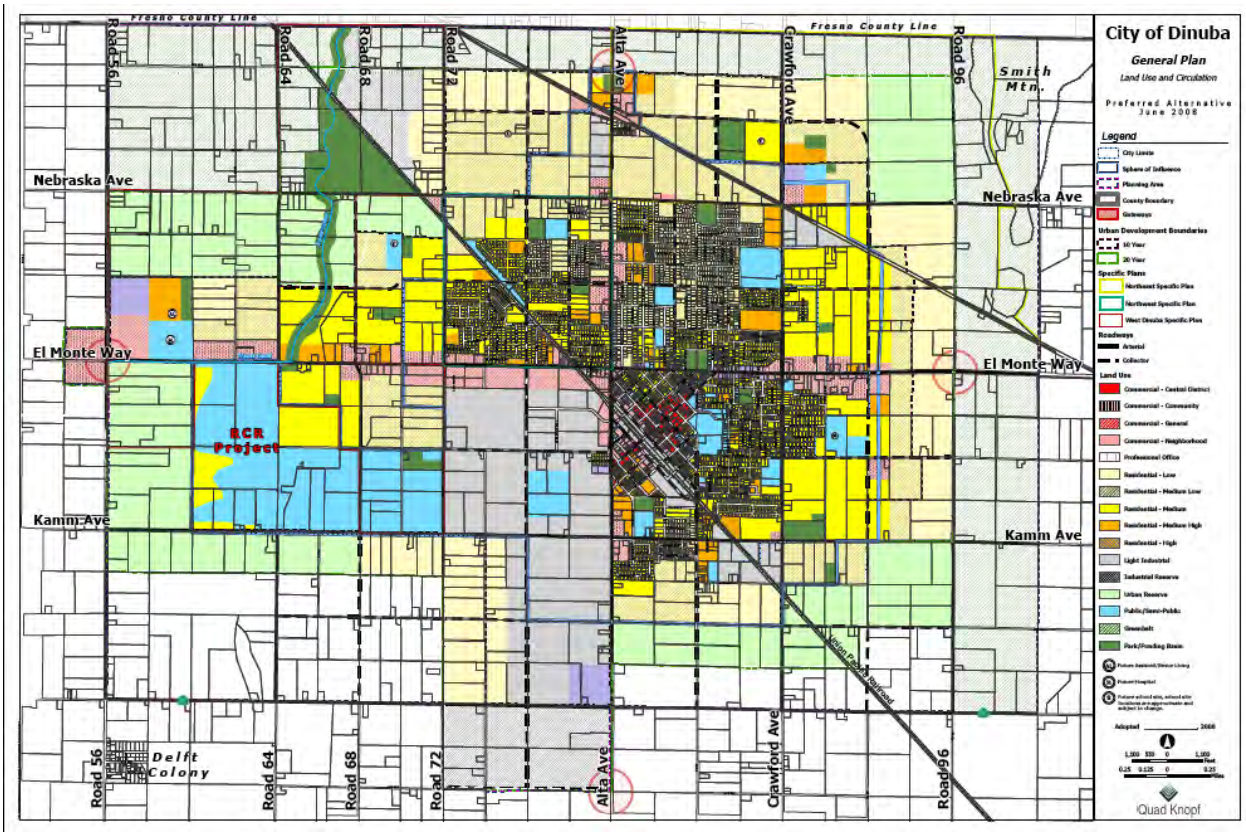
	1990	2000	2010	2020	2030
Population	12,743	16,844	21,453	26,151	31,878
% Increase	N/A	32.2%	27.4%	21.9%	21.9%

As the table indicates, the population of Dinuba has grown by approximately 30% each ten-year period since 1990. It is projected to grow by almost 22% through 2020 and a further 22% from 2020 to 2030.

As noted in the table above, the population is projected to increase to approximately 31,878 in 2030. This is a growth of 48.6% over the population of Dinuba in 2010.

2. LAND USE WITHIN THE CITY

The project team collected information from the City with respect to land use and how the City plans to grow. This is important, as the City currently has a wide variety of commercial, industrial, agricultural, and residential uses. The plan for commercial growth is to attract more businesses (such as the Best Buy distribution warehouse), while residential growth is mostly planned for the area surrounding the City golf course on the western edge of the town. The map below illustrates the current land use plan for the City:



As the map indicates, the largest amount of light industrial acreage lies in the southwest quadrant of the City, while the RCR project lies directly west of the light industrial area. The City expects growth to continue to the western portions of town for the foreseeable future.

3. CALLS FOR SERVICE PROJECTIONS

The project team developed calls for service projections based on the relationship between calls for service and population. The table below presents the projected number of calls for service in the year 2020 and 2030:

Year	2000	2013	2020	2030
Population	16,844	22,955	26,151	31,878
% Increase	32.2%	36.3%	13.9%	21.9%
Calls For Service	2,834	4,002	4,558	5,556
Calls For Service/Day	7.8	11.0	12.5	15.2

As the table indicates, the number of calls for service that the Fire Department will need to respond to will increase from 4,002 in 2013 to an estimated 4,558 in 2020 and 5,556 in 2030. Further, the average number of calls for service per day will increase from an average of 11 in 2013 to 12.5 in 2020 and 15.2 in 2030. Additionally, the population projections indicate a growth of 13.9%% between 2013 to the year 2020 and 22% between the year 2020 and 2030.

5. CURRENT DEPLOYMENT STRATEGIES AND PERFORMANCE

In order for a fire department to successfully mitigate emergency situations, it must maintain an adequate, well-trained staff of emergency service personnel to utilize apparatus and equipment effectively and efficiently. When there are too few emergency personnel at a scene the response effectiveness is reduced and the risk of injury to those responding increases.

1. CRITICAL TASKS REQUIRED AT FIREGROUND SCENES.

There are a number of tasks that must occur simultaneously to adequately combat different types of fires. The absence of adequate personnel to perform these tasks requires each task to be prioritized and completed in chronological order. These fire ground tasks include command, scene safety, search and rescue, water supply, fire attack, pump operations, ventilation, back up, and rapid intervention.

An initial full alarm assignment should be able to provide personnel to accomplish the following tasks:

- Establish incident command outside of the hazard area. This will allow coordination and direction of the incoming emergency response personnel and apparatus. A minimum of one person should be dedicated to this task.

- Establish an uninterrupted water supply of at least 400 gallons per minute for 30 minutes. Once established the supply line can be maintained by the pump operator to ensure uninterrupted water supply. A minimum of one person is assigned to this task that can then assume support role.

- Establish an effective water flow rate of 300 gallons per minute. This will be supplied to a minimum of two hand lines each operating at a minimum flow of 100 gallons per minute. Each hand line must have two individuals assigned with one serving as the attack line and the other as a back-up line.

- Provision of one support person to handle the hydrant hookup, utility control, forcible entry, and assist in deploying fire hose lines.

- Establish a search and rescue team. Each team will consist of a minimum of two personnel.

- Establish a ventilation team. Each team will consist of a minimum of two personnel.

- Establish an initial rapid intervention team (RIT). Each RIT team shall consist of a minimum of two properly trained and equipped personnel.

Critical tasking will vary depending on the size and nature of the incident. The Commission on Fire Accreditation International (CFAI) provides a sample critical tasking analysis for the number of emergency workers required for the various levels of risk [(6)]. The CFAI analysis is summarized in the table below showing the minimum required personnel to mitigate the initial emergency response requirements by occupancy risk:

Critical Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	4	2
Search and Rescue	4	2	2	0
Ventilation	4	2	2	0
Backup Line	2	2	2	2
Rapid Intervention	2	2	0	0
Pump Operator	1	1	1	1
Water Supply	1*	1*	1*	1*
Support (Utilities)	1*	1*	1*	1*
Command	1	1	1	1
Safety Officer	1	1	1	1
Salvage/Overhaul	2	0	0**	0
Command Aid	1	1	0	0
Operations Chief	1	1	0	0
Logistics	1	0	0	0
Planning	1	0	0	0
Staging Officer	1	1	0	0
Rehabilitation	1	1	0	0
Division Supervisors	2	1	0	0
High-rise Evacuation	10	0	0	0
Stairwell Support	10	0	0	0
Total Personnel	**50-51**	**21-22**	**14-15**	**8-9**

*Tasks can be performed by the same individual **Task can be performed by the attack crew

It is essential for the fire department to have a response plan in place to be able to deliver a sufficient number of personnel to the scene to accomplish the critical tasks. Structure fires are the most labor-intensive incidents and depending on weather conditions can require additional personnel to maintain an effective operation. The majority of risks in the City of Dinuba will fall into the moderate category as this risk category describes a typical single family home. As the size of structure, complexity of the incident, or life safety risks increase, so does the risk category. For this reason, high occupancy and unprotected structures fall into the high-risk category. This includes assemblies, schools, and buildings in the historic downtown.

At current daily staffing levels, DFD has seven personnel available for immediate response to all emergencies. If fully staffed, the daily workforce can be as high as a maximum of nine personnel, including the Chief and Fire Marshal. As shown above this is not adequate staffing to deploy an effective response force for the typical risk found in Dinuba, nor the more complex risks in the community. It is not fiscally possible or responsible to staff for the worst-case scenarios, which is why Dinuba, like most communities, has mutual aid agreements in place with surrounding jurisdictions. Dinuba continues to make use of paid call firefighters to boost staffing during critical incidents and ensure an effective response force can be deployed.

Tulare County Fire Department is the agency with the closest proximity to Dinuba. The typical staffing at their stations is three personnel, which means it will take a minimum of two mutual aid units to ensure an effective response force for the typical risk in Dinuba.

There are two methods by which resources are typically shared by municipalities, mutual aid and automatic aid. Mutual aid is a traditional agreement where assistance is requested from surrounding jurisdictions when the size and scope of an incident or series of incidents exceeds the resources of the responsible agency. In an automatic aid agreement resources are shared by sending the closest available unit to emergency incidents regardless of jurisdictional boundaries. This ensures the timely arrival of emergency response personnel.

In order to receive credit under ISO requirements, an agency must have a written automatic aid agreement, which:

- Includes a prearranged first-alarm response according to a definite plan.
- Aid is provided 24 hours per day, 365 days a year.
- Offsets a need in the community. For example a neighboring agency's ladder company responding by an automatic aid agreement can meet the ladder requirement if it is able to cover at least 50 percent of the ladder company standard.

Dinuba Fire Department currently operates with a "mutual" aid agreement with the fire agencies in Tulare County. The current agreement, which was approved in 1998, is in the process of being updated.

Recommendation: Establish pre-arranged first alarm response plans with the Tulare County to respond to critical incidents at initial time of dispatch.

Recommendation: Establish an automatic first alarm response plan with mutual aid partners for any reported working fire to obtain ISO credit for Automatic Aid.

2. THERE IS EXTENSIVE DEBATE REGARDING THE MOST APPROPRIATE APPROACH TO DEFINING SERVICE LEVELS IN THE FIRE SERVICE.

This section provides a summary of the various "standards" that have been developed for the evaluation of fire and rescue staffing and deployment. These

represent a range of thinking including efforts to scientifically identify critical points in the combat of structure fires as well as the need to intervene in medical emergencies. While these neither cover every eventuality nor cover each community's special needs, they serve as an important starting point for conducting such an analysis.

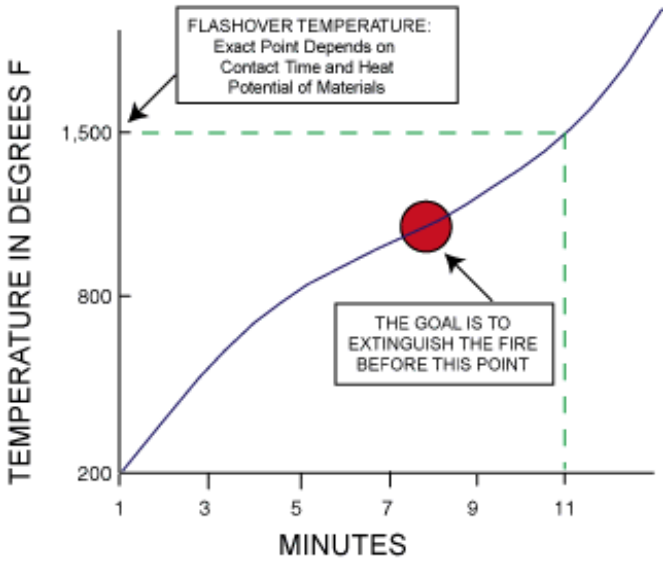
(1) The National Standards for Fire and EMS Service Delivery Are Based on Research into Fire Behavior and Cardiac Survival.

The standards promoted for fire rescue and EMS have their basis in research that has been conducted into two critical issues:

- What is the critical point in a fire's "life" for gaining control of the blaze?
- What is the impact of the passage of time on survivability for victims of cardiac arrest?

The following exhibit shows the typical "flashover" curve for interior structure fires. The point of "flashover" is critical, as it defines when all of the contents of a room become involved in the fire. This is also the point at which a fire changes from "room and contents" to a structure fire, involving a wider area of the building.

Generalized Flashover Curve



Note that this graphic depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. This demonstrates the criticality of early detection and fast reporting and dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly initiating the attack on a fire, "flashover" can be averted. The points below describe the major changes that occur at a fire when "flashover" occurs:

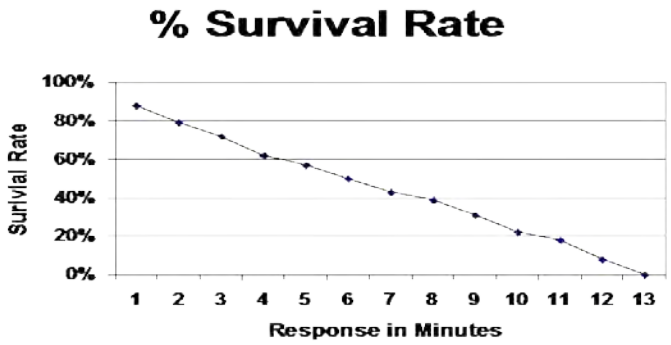
- It is the end of time for effective search and rescue in a room involved in the fire. It means that likely death of any person trapped in the room – either civilian or firefighter.
- After this point in a fire is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only hand-lines will have enough water supply to affect a fire after this point.
- The fire has reached the end of the "growth" phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.
- This also signals the changeover from "contents" to "structure" fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to become a major risk at this point, and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will "wait" for the eight-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

- Application of portable extinguisher or other "fast attack" methodology.
- Venting the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not venting a room – under some circumstances this will actually stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of a company that can safely initiate these actions. Under most circumstances, at least three firefighters are

required on-scene. Furthermore, OSHA requires that, except in exigent circumstances requiring action to safeguard life, a minimum of two people must be available as a rescue crew outside of a building before a crew can enter a burning building. The second issue to consider is the delivery of cardiac and other emergency medical first response. The exhibit below demonstrates the survivability of cardiac patients as a timeline:



This graph shows the results of extensive studies of the survivability of patients suffering from cardiac arrest. This is the most-often studied issue due to the ease of evaluating the outcome (a patient either survives or does not) from a cardiac arrest. This research results in the recommended standard of provision of basic life support (BLS) within four minutes of notification and the provision of advanced life support (ALS) within eight minutes of notification.

3. COMPARISON OF FIRE AND EMS GOALS WITH ACTUAL PERFORMANCE IN DINUBA.

The table below provides an overview of the discussion about fire and emergency medical service goals provided in the preceding subsections and compares them to the current system performance in Dinuba:

Target Area	Service Target	Performance in Dinuba
Response Time to Fires	• National Standard is the ability to respond to fires in four minutes travel time to 90% of calls. • The City of Dinuba has a goal in the general plan for response times of five minutes from time of call.	• Travel time for the Engine to emergency calls is typically six minutes 90% of the time.
Response Time to Medical Calls	• National Standard is the ability to respond to EMS calls in four minutes travel time for 90% of calls in urban areas at a BLS level. • National Standard is the ability to respond to EMS calls at an ALS level within eight minutes 90% in urban areas. • National Standard is the ability to respond to EMS calls in eight minutes for 90% of calls in rural areas at a BLS level. • National Standard is the ability to respond to EMS calls at an ALS level within 12 minutes 90% in rural areas. • The Tulare County goal is a ten minute response time for the EMS Metro Area (within one mile of city limits) and 20 minute response time to rural areas of the County.	• The Department is able to meet the County requirements for responding to EMS incidents. • The Department is unable to meet the four minute travel goal for areas in the northern and western portions of the City. • The Department has an overall travel time of 14 minutes to all EMS calls regardless of location at the 90th percentile.
Company Size	• Engine companies staffed at three persons.	• The single engine company in the City is generally staffed at three, but staffing can fall as low as one.
Aerial Ladder Truck Availability	• Truck company available to respond to the scene of a fire within eight minutes. • Truck companies staffed at three.	• The truck company is staffed through call back and/or with paid call personnel. • This unit is variably staffed.

Target Area	Service Target	Performance in Dinuba
Full Incident Response Capability	• Fourteen to 15 personnel at the scene of a fire within eight to ten minutes.	• Response data indicate that this target is generally met through mutual aid, call back of paid personnel and paid call response.
Automatic Sprinkler Systems	• Sprinkler systems required in areas outside of the response targets described above or in high hazard buildings outside of the fire flow capacity, which can be met by a full incident response.	• The City's sprinkler ordinance requires sprinklers in all new construction. Except commercial buildings under 5000 square feet.

There are a number of conclusions to be drawn from the chart above. These are summarized in the following points:

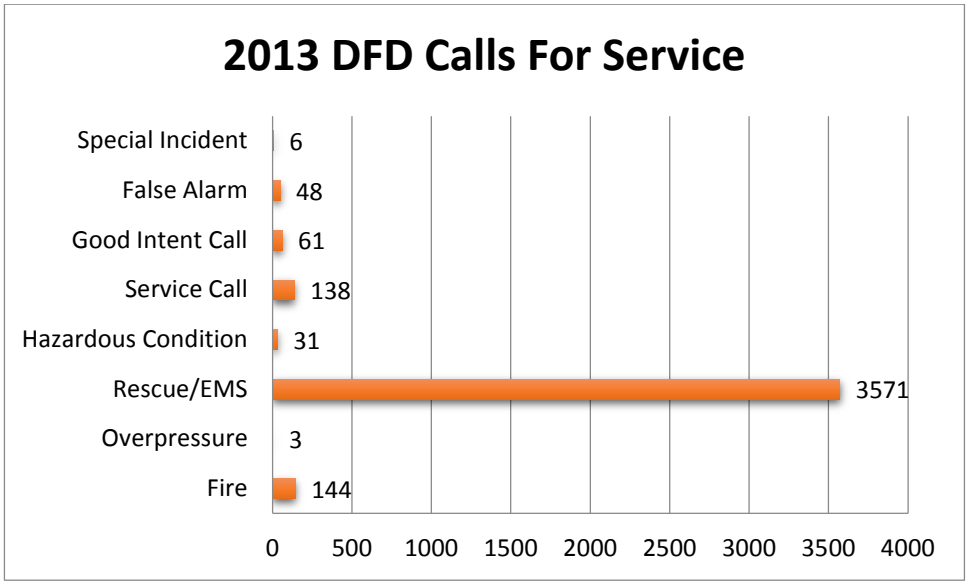
- The above comparison chart indicates that the Dinuba Fire Department does an effective job of meeting urban fire service targets in the majority of the City, but not in the most northern and western portions of the City.
- The Department requires mutual aid, off-duty callback, and/or paid call personnel to deploy an effective response force.
- The reliance on off-duty and paid call personnel has become a planning issue in the period between the last master plan update and this update. This will likely become an even more significant issue in the years to come.

These issues will be more fully explored in the next chapter of the report in conjunction with the development of the analysis of fire and emergency medical service needs.

4. EMERGENCY RESPONSE ACTIVITY

Nationwide and over the past ten years, there has been a declining trend in numbers of fire calls. As the frequency of fire calls reduced, the workload of fire departments increased as they became increasingly responsible for more issues in communities. These include: medical calls, hazardous materials incidents, technical rescue, and every type of household emergency. This has created the need for not only personnel trained as firefighters, but also who can respond to all community hazards.

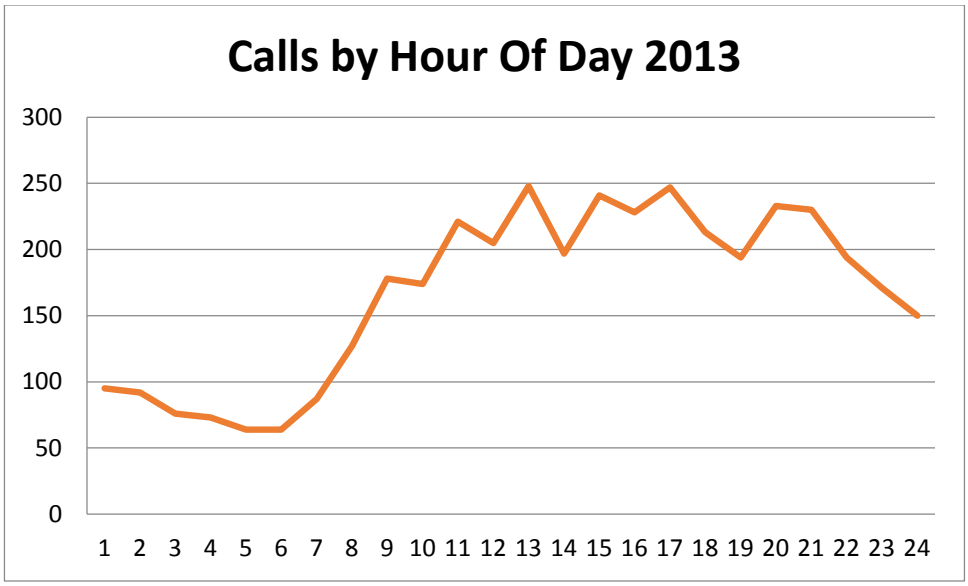
The following chart shows the calls for service responded to by Dinuba Fire Department in the calendar year 2013:



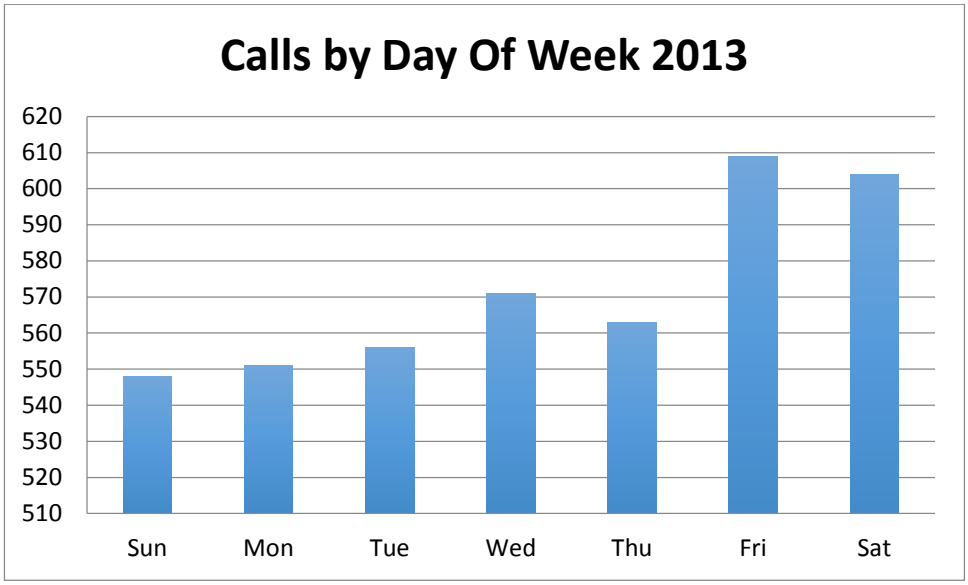
As is the case for most fire departments across the country, the majority of incidents responded to by DFD are medical related.

When calls for service are examined by time of day, the Dinuba Fire Department shows a trend of responding to the majority of calls between 8:00 a.m. and 11:00 p.m. The lowest demand of calls for service occurs between midnight and 7:00 a.m.

The following chart illustrates the calls for service by hour of day:



Calls for service range from 548 to 609 by day of the week. Sunday has the lowest call demand, and Friday and Saturday having the highest at 609 and 604, respectfully.



6. CURRENT AND FUTURE DEPLOYMENT RECOMMENDATIONS

This chapter of the report focuses on analyzing the current and projected organizational needs of the Dinuba Fire Department in terms of deployment and staffing.

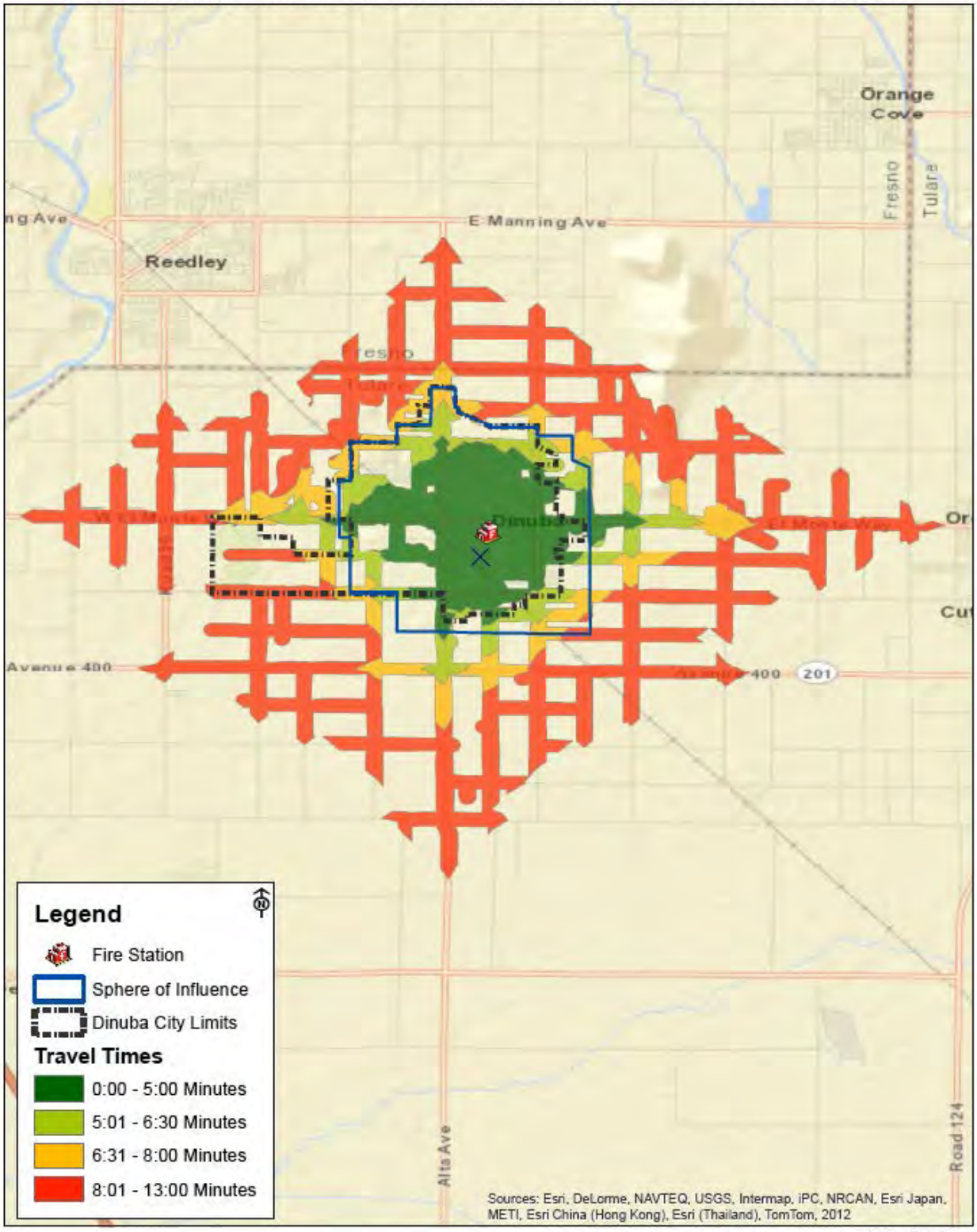
1. THE DISTRIBUTION ANALYSIS SHOWS ISSUES WITH CURRENT DEPLOYMENT.

The Dinuba Fire Department operates from one fire station located in the historic downtown area, within the city limits of Dinuba. This station is responsible for providing emergency response in a 6.5 square mile area. The current station is located in the most populous portions of the City, but away from newly developing areas.

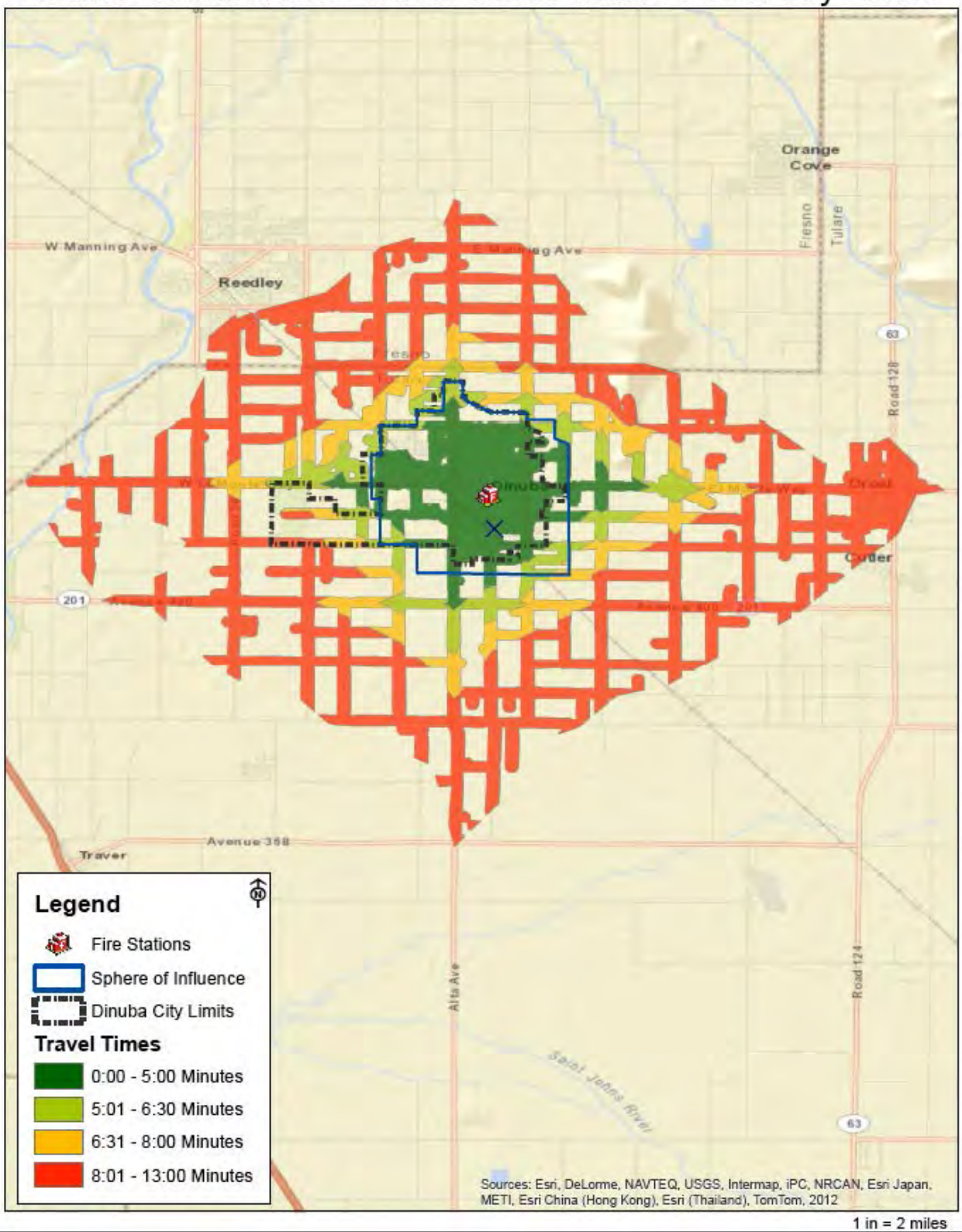
The General Plan for the City shows a desire for growth further west in Dinuba, near the existing municipal golf course.

The following maps demonstrate the travel time capability for emergency apparatus when it leaves the fire station using the current station location. The first map shows projected travel times for fire calls in the City and Sphere of Influence (SOI), while the second map illustrates predicted EMS travel times:

Predicted Fire Travel Times from Current Station



Predicted Ambulance Travel Times within SOI & City Limits

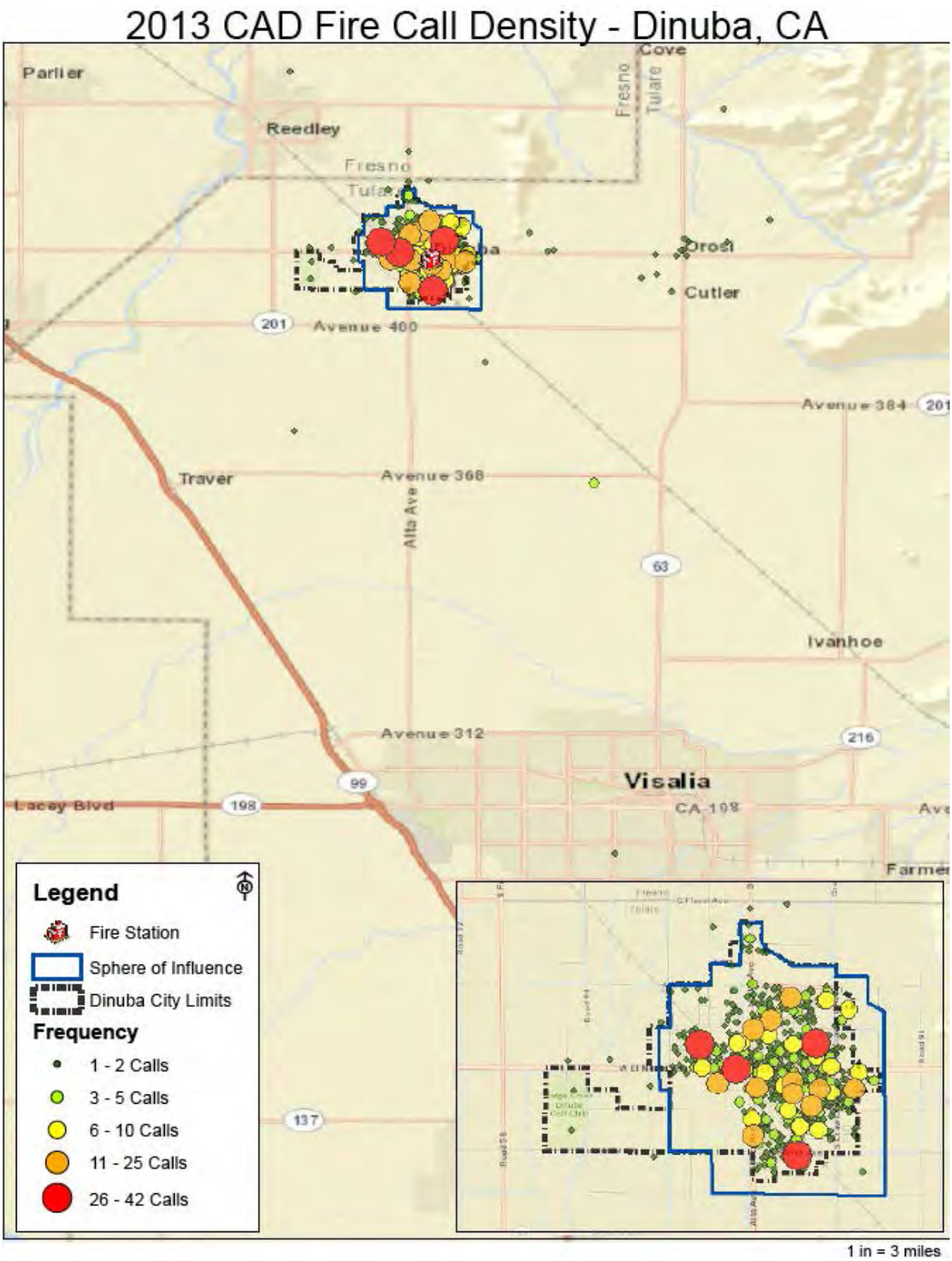


As shown, the current station location allows firefighters to reach the most populous portions of Dinuba within five-minutes, and the majority of the City to be reached within six minutes and 30 seconds travel time. The farthest western portions of the City require travel times (for both fire and EMS units) of over eight minutes.

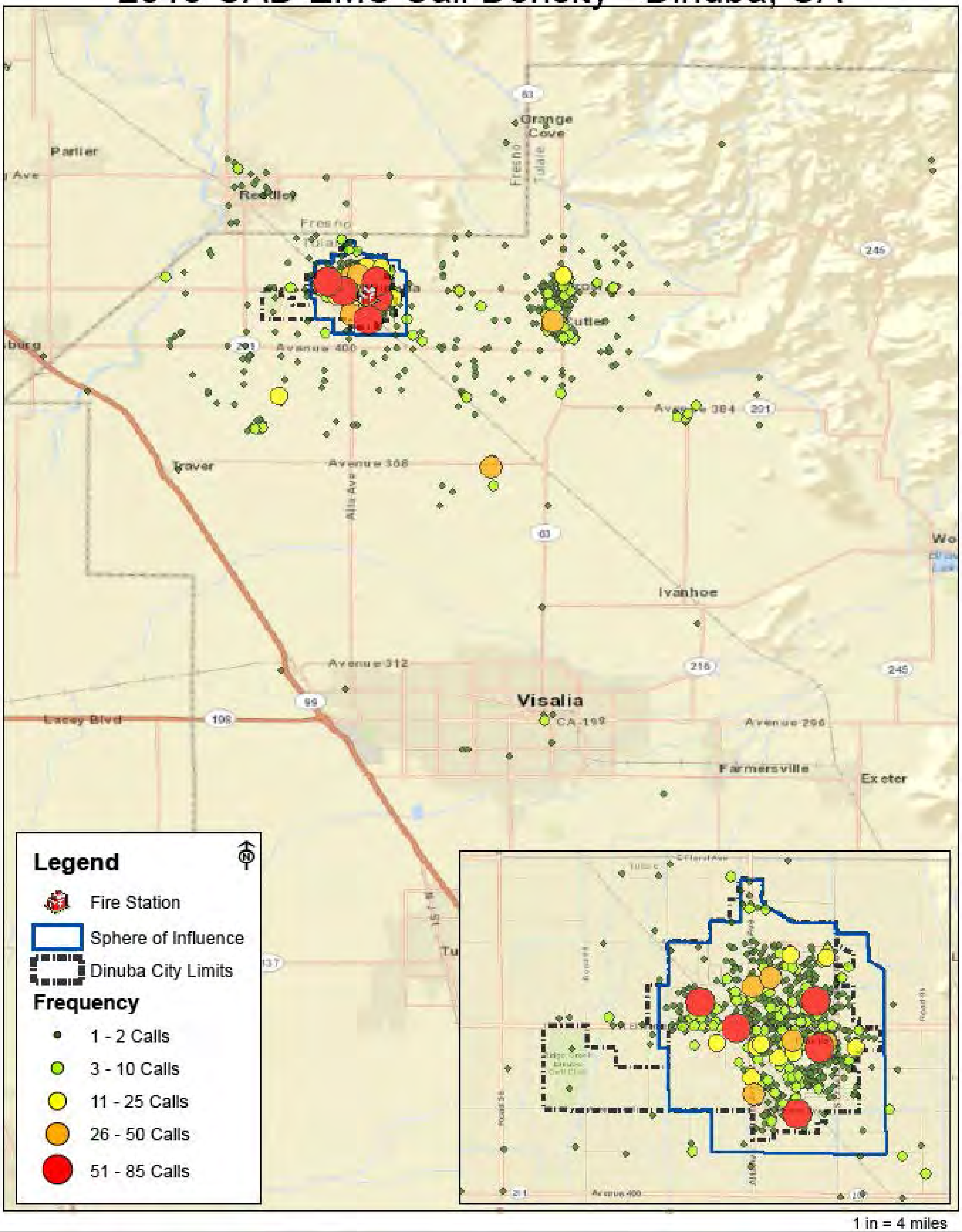
2. DEMAND ANALYSIS SHOWS LOW CALL OCCURANCE IN THE AREAS OUTSIDE THE EFFECTIVE RESPONSE TIME CAPABILITY.

As shown earlier, the DFD responded to 4,002 calls for service in 2013. A review of the geographic location of calls will allow the assessment of current station locations as compared to the call demand for fire services. This will also allow a graphic representation of areas, which may not be adequately covered by the current station.

The maps on the following pages illustrate the location of emergency calls in 2013. The first map illustrates the location of fire calls, while the second map illustrates the location of EMS calls:


2013 CAD Fire Call Density - Dinuba, CA
Parlier
Reedley
Fresno
Tulare
Cove
Fresno
Tulare
Orosi
Cutler
201
Avenue 400
Avenue 384
Traver
Avenue 368
Alta Ave
63
Ivanhoe
Avenue 312
216
99
Visalia
CA-198
Lacey Blvd
198
137
Legend
Fire Station
Sphere of Influence
Dinuba City Limits
Frequency
1 - 2 Calls
3 - 5 Calls
6 - 10 Calls
11 - 25 Calls
26 - 42 Calls
1 in = 3 miles

2013 CAD EMS Call Density - Dinuba, CA



The maps show the highest volume for fire service calls exists in the center of the City with one additional pocket of higher EMS call activity in the Cutler area. The area near the golf course currently experiences very low call volume.

3. WORKLOAD AND FAILURE RATES

The workload of emergency response units can be a factor in response time performance. If a station is committed to a call, it is not available for emergency response and another station would be required to respond out of district to handle the emergency.

One method for reviewing resource workload and availability is examining concurrent calls for service (more than one emergency call occurring at the same time). When this occurs, the already-limited resources are quickly stretched thin, and response times extend, as mutual aid units must be called or the calls hold until apparatus can "clear" from the current emergency call.

The following chart examined calls in 2013 to see how often multiple calls were received during the same time periods:

Level	# Calls	Percentage
1 Call	3,736	96.05%
2 Calls	252	3.98%
3 Calls	14	0.13%
Grand Total	**4,002**	**100%**

As shown in the table above, the majority of fire calls in Dinuba happen singularly. Many of the multiple response calls involved medical calls, which only require a single unit response to the County area. The greatest risk for call concurrence is during the peak demand periods of 8:00 a.m. – 11:00 p.m. As the City continues to grow it is important to measure the call concurrency issue. This is especially true if multiple

fire calls are received concurrently as they require multiple unit response, which stretch resources to capacity, and extend response times as mutual aid crews are called to handle the incident.

As discussed earlier in the report, the typical daily staffing for emergency response is just over six personnel. This staffing level does not allow enough flexibility for growing call demands as a second ambulance call results in the engine being staffed with only two personnel. This is an unsafe practice that should stop immediately. Continued growth and call for service growth will only impact this situation further.

Recommendation: Increase daily staffing to eight personnel daily in FY 2015 to ensure the engine can be staffed with a minimum of three personnel at all times.

4. RESPONSE TIME STANDARDS

The primary goal of an emergency service delivery system should be to provide sufficient resources to the scene of an emergency in time to take effective action to mitigate the impacts of the situation. Rapid response is required for fires, medical calls, and many other emergency situations.

When calculating response times there are three components that should be recorded:

1. **Call Processing**: The time from call receipt to dispatch of emergency personnel.
2. **Turnout**: The time from dispatch of the call to units responding to the call.
3. **Travel Time**: The time from initial response to arrival at the emergency.

National best practices have established the goal (benchmark) for call processing should be 90% of priority one calls in 60 seconds or less as optimal performance. Having 90% of calls processed in 90 seconds the minimal baseline acceptable performance standard. The goal (benchmark) for turnout should be 90% of calls

responded to within 60 seconds with 90% responded to in 90 seconds the minimal (baseline) performance standard. The goal for travel time will be dependent on the type of area being served and will be discussed later in the report. This is important as the two components of response time that are controllable are dispatch and turnout times. Travel time will be dictated by distance, weather and road conditions. Dinuba currently has a goal of turnout at 90 seconds or less in effect.

Tracking call processing and turnout time performance is problematic in Dinuba as the dispatch center currently only reports time in whole minutes. This does not allow an accurate evaluation of performance for any of the response elements, as a call showing received at 06:00 may have been received anytime from 06:00:00 to 06:00:59, and dispatch time showing 06:01 could actually be 06:01:00 to 06:01:59 meaning the call could have been processed in as little as one second, or as long as one minute 59 seconds. The same holds true for turnout time. As shown in the earlier map, Dinuba should expect good travel times in the urban portions of the city. The dispatch center also has no established performance targets for timely dispatching of high priority calls.

Recommendation: Work with the Dispatch Center to begin reporting call data in hh:mm:ss.

Recommendation: Work with Dispatch Center to establish and report performance standards related to the call processing of high priority calls.

5. NFPA STANDARDS

The National Fire Protection Association (NFPA) has developed response time standards for fire departments staffed by career firefighters. It is important to note that NFPA standards are not legal mandates, but rather something to benchmark the performance of a fire department against to measure performance.

NFPA 1710 contains time performance standards for structural fire response as well as medical response.

It is recommended that the first company arrive at the scene of a structure fire within five minutes of being dispatched 90% of the time. The use of the 90th percentile allows the majority of incidents to be evaluated as compared to "average" performance. This standard allows unusually long response times to be removed from the equation, as they are not typical of agency performance. It also provides the community with a real expectation of how long emergency response will take after they initiate a 911 call.

The standard also establishes a "company" as consisting of four personnel. This does not mean that four people must staff engine companies, but that true response time is not counted until four people have reached the scene to function as a single unit. For example, in Dinuba if the Battalion Chief responds to all structure fires and the engine is staffed with three personnel, when all four members are on scene the response time would be measured.

NFPA 1710 describes the following performance as meeting the structure fire response criteria:

- Turnout time within one minute, 90 percent of the time.
- Arrival of the first "company" within five minutes of dispatch 90 percent of the time, or
- Arrival of the entire initial response assignment (all units assigned to the call) within nine minutes of dispatch, 90 percent of the time.

NFPA 1710 also has three time standards within the standard for emergency medical response:

- Turnout time within one minute, 90 percent of the time.

- Arrival of a unit with first responder or higher capability within five minutes of dispatch, 90 percent of the time.
- Arrival of an advanced life support unit, where this service is provided by the fire department, within nine minutes of dispatch, 90 percent of the time.

The Commission on Fire Accreditation International (CFAI) understands the cost implications for most communities to fully comply with the above standards. For a community with urban, suburban, and rural areas like Dinuba, accreditation standards allow for a longer response time. This nationally recognized "best practice" standard is a great place to start as communities are looking to improve the performance of their fire department [(6)].

The benchmark performance standard (one that municipalities should strive to achieve) for fire calls in urban areas is as follows:

- Dispatch of units (call processing) within 60 seconds of call, 90% of the time.
- Turnout time within 80 seconds of dispatch, 90% of the time.
- Arrival of the first unit within 4 minutes of turnout and the second unit within eight minutes, 90% of the time.

The baseline performance standard (acceptable performance to be a credible agency) for fire calls in urban areas is as follows:

- Dispatch of units (call processing) within 90 seconds of call, 90% of the time.
- Turnout time within 90 seconds of dispatch, 90% of the time.
- Arrival of the first unit within five minutes/12 seconds (travel time) and the second unit ten minutes/24 seconds, 90% of the time.

For EMS calls, the performance standards are the same, with the exception of a 60 second turnout time expectation for benchmark performance.

In areas classified as suburban, the benchmark is for arrival of the first unit within five minutes of turnout and the second unit within eight minutes of turnout. The baseline performance in suburban settings is six minutes 30 seconds, and ten minutes 24 seconds, respectfully.

In the areas classified as rural, the benchmark is for the first unit to arrive in ten minutes 90% of the time, and the second unit in 14 minutes 90% of the time after turnout. The baseline performance expectations are measured at the 70% for rural areas and are 13 minutes and 18 minutes 12 seconds, respectfully.

6. HISTORICAL RESPONSE TIME PERFORMANCE

The adoption of the baseline performance expectations would require that Dinuba Fire Department respond to 90% of fire and EMS calls within six minutes 42 seconds, total response time in the areas classified as urban.

As stated earlier in the report, times are currently only recorded in whole minutes and show the following performance for 2013 at the 90th percentile for emergency calls occurring in Dinuba:

Call Processing	Turnout	Travel	Total
0:00	2:00	8:00	10:00

This data does show the need for improvement in travel, as even with the reporting of times by the dispatch center we would expect travel times to be six minutes or less.

An agency must separate non-emergency calls from true emergency calls to determine how well they are performing. Dinuba Fire Department currently designates

calls as emergency or non-emergency, which allows for proper analysis of only high priority emergency calls.

Recommendation: Develop a system to accurately capture the time elements of emergency response and publicly report performance.

7. THE CITY AND FIRE DEPARTMENT HAVE MITIGATED SOME IMPACTS ON FIRE SERVICE BY ENHANCING THE FIRE PROTECTION ORDINANCES.

As recommended in the 2004 update, the City of Dinuba passed adopted local fire codes, which require fire sprinklers in new residential construction. This has resulted in several homes being constructed with automatic sprinkler systems. The newly developing area around the municipal golf course will also have homes built with automatic fire sprinklers. While this does allow adequate time for planning and designing a new fire station, it does not preclude the need for a station to serve this area of the City as development continues.

The table below quantifies the trigger points for opening a new fire station in a developing community. This serves as a good indicator of when to construct a new facility, whether or not calls for service increases are experienced as growth occurs in accordance with the Dinuba General Plan. Given the timeframe required to design and construct a new facility, it is important these decisions are properly anticipated with good planning.

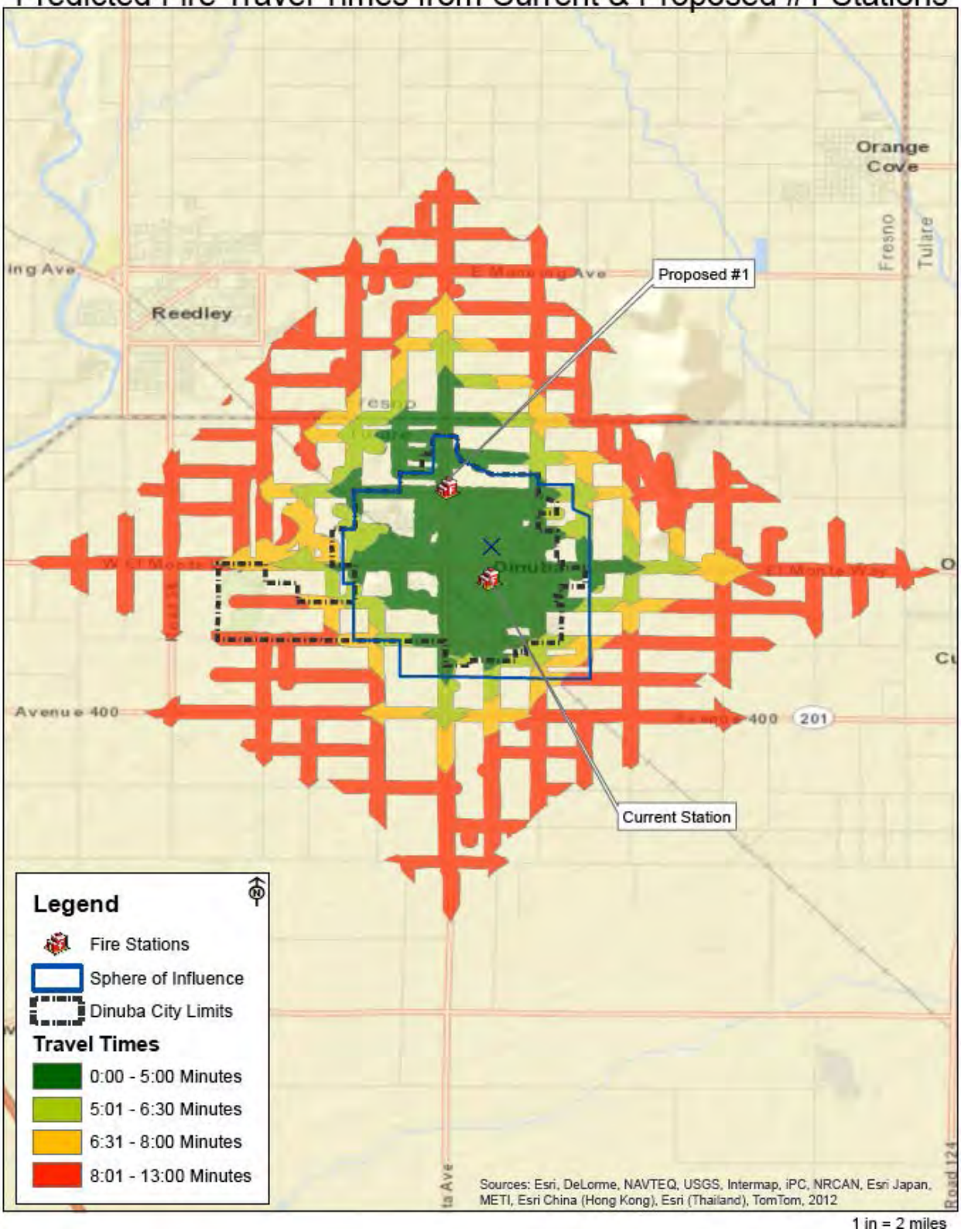
Action	Travel Distance	Response Time	Percent of Calls	Building/Risk Inventory
Maintain Status Quo	All risks within locally adopted distance.	First due unit is within locally adopted standards.	Low % of current out of district calls.	Low local building/risk inventory.
Temporary facilities and minimal staffing	Risks 1.5 to 3.0 miles from existing station.	First due unit exceeds five minute travel time 10% of the time, but does not exceed eight minutes.	More than 10% of calls are out of district.	New area has 25% of the same risk distribution as in initial area of coverage.
Permanent Station Needed	Risk locations exceeding four miles from the station.	First due company exceed 5 minute travel time 20 – 25% of the time. Some calls over eight minutes.	More than 20 – 25% of calls in outlying areas.	New area has 35% of same risk distribution as in initial area of coverage.
Permanent Station Essential	Outlying risk locations exceed five miles from station.	First due unit exceeds five minute travel time 30% of the time. Some calls over ten minutes.	More than 30% of calls are in outlying area.	New area has 50% of same risk distribution as in initial area.

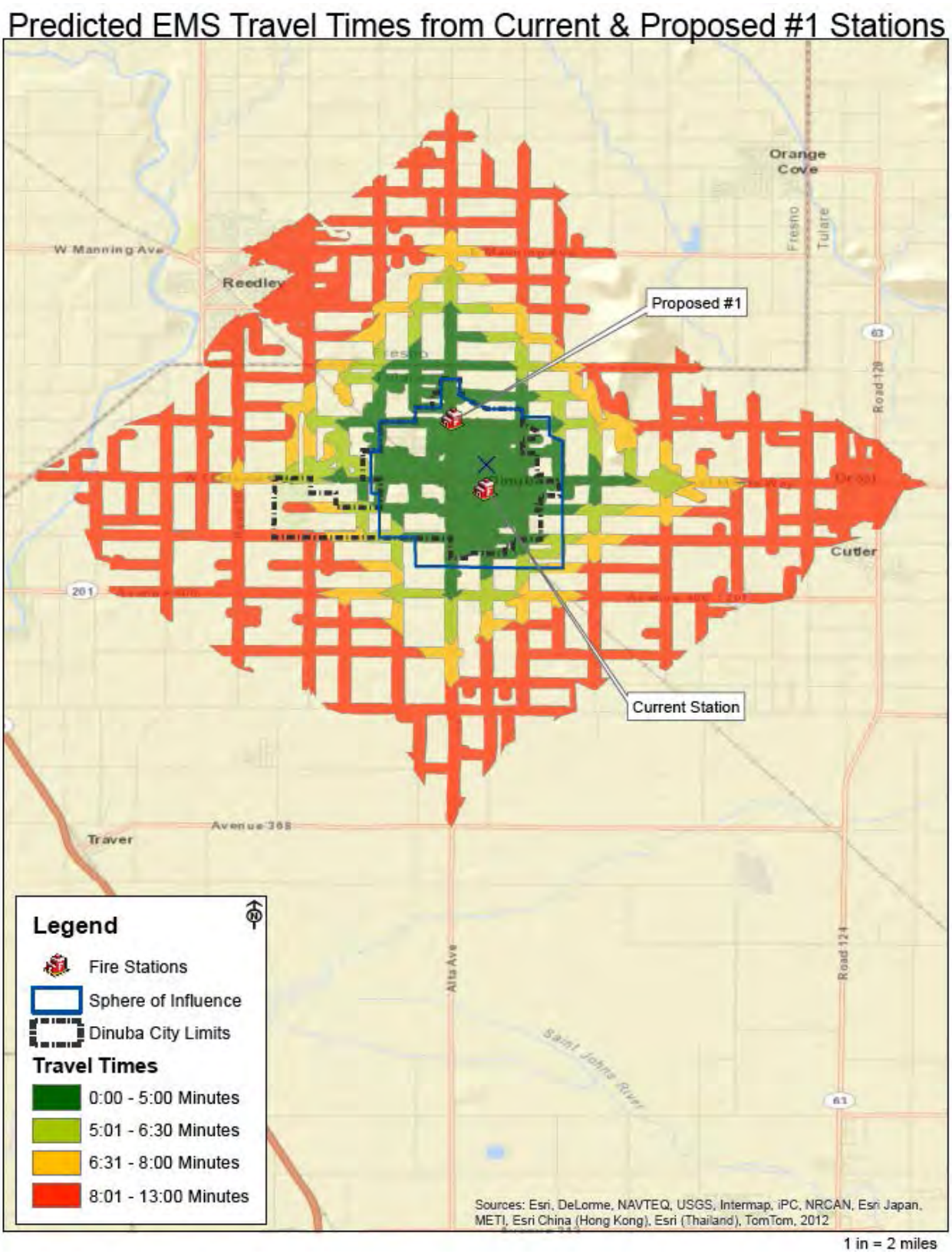
As shown in the earlier response maps, Dinuba is in need of a permanent station to serve the western portion of the City. However, Dinuba has not yet reached the essential point of requiring station construction, as the new development in the area is not progressing very rapidly and call volume is still relatively low in the area.

As part of the project, the City provided the team with three potential sites to be evaluated for a potential second station location. Utilizing our GIS technology, each site was evaluated to determine how well it would provide coverage to the underserved portions of the City, particularly the western and northern portions of Dinuba. The locations analyzed are as follows:

- Option 1: 42410 Road 80.
- Option 2: Northwest corner of Road 70 and Avenue 408.
- Option 3: Northwest corner of Avenue 416 and Road 72.

Predicted Fire Travel Times from Current & Proposed #1 Stations

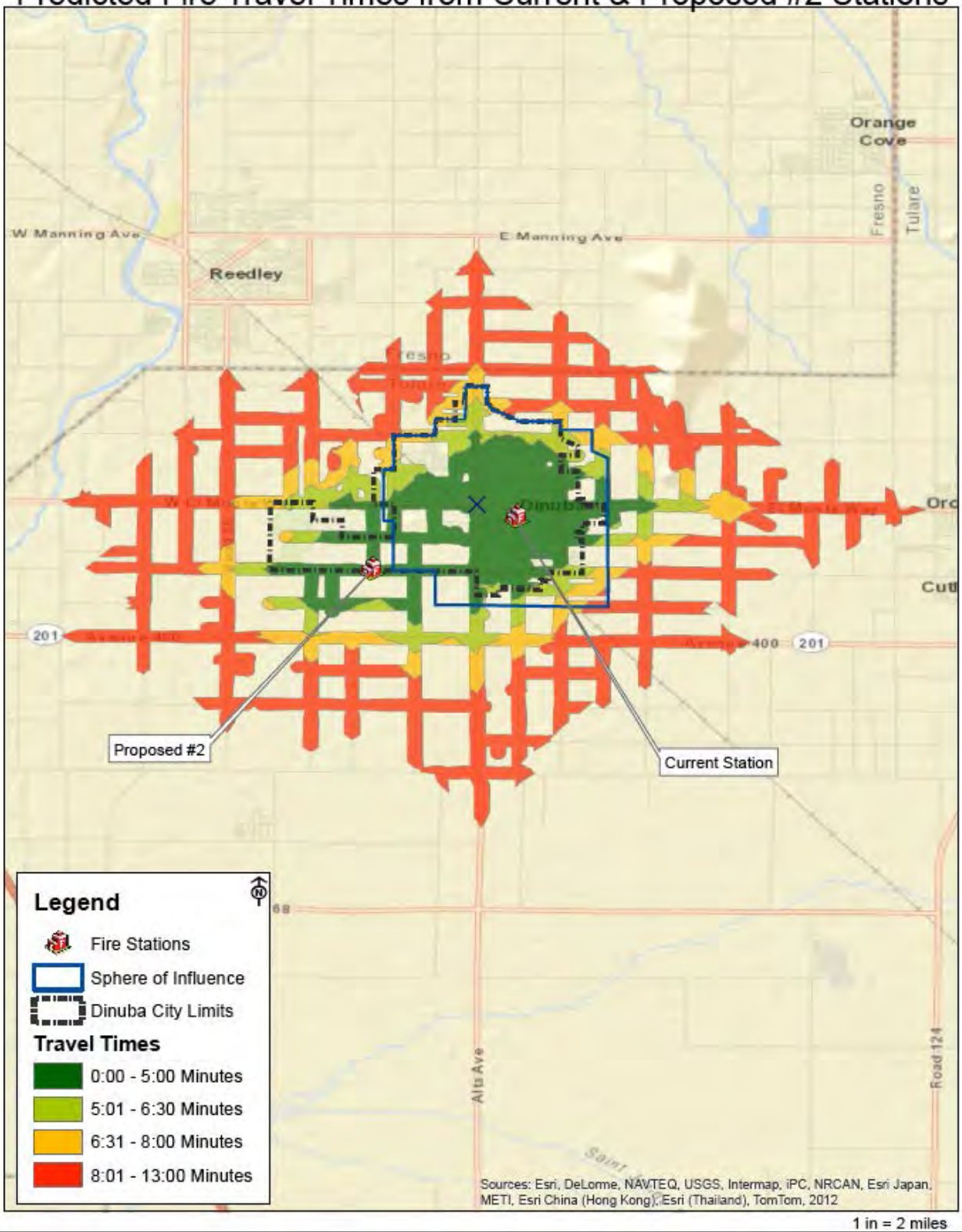



Predicted EMS Travel Times from Current & Proposed #1 Stations
Orange Cove
Fresno
Tulare
W Manning Ave
Reedley
Proposed #1
Road 120
Cutler
201
Current Station
Traver
Avenue 368
Alta Ave
Road 124
Saint Johns River
Legend
Fire Stations
Sphere of influence
Dinuba City Limits
Travel Times
0:00 - 5:00 Minutes
5:01 - 6:30 Minutes
6:31 - 8:00 Minutes
8:01 - 13:00 Minutes
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012
1 in = 2 miles

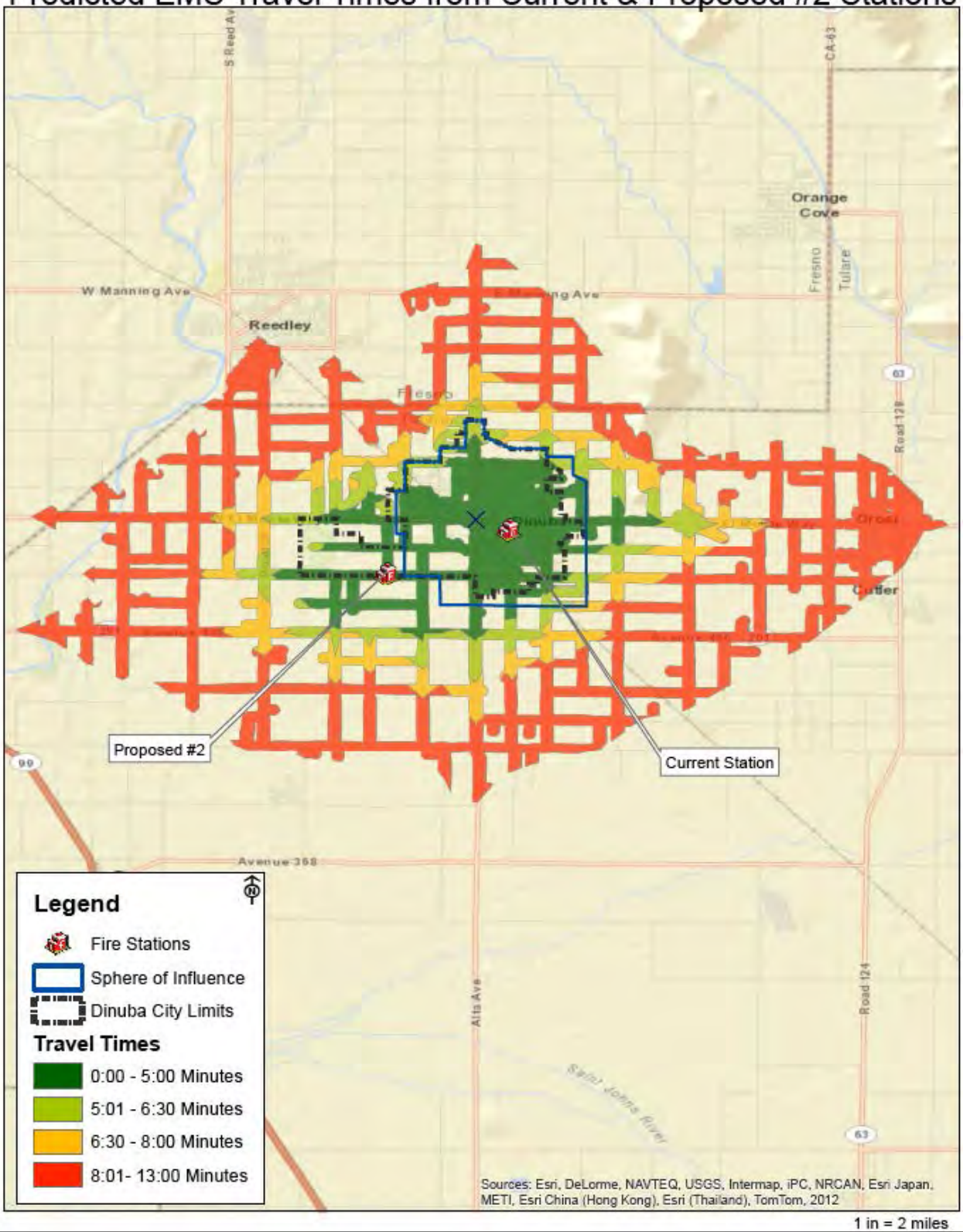
As shown in the maps above, the proposed station location at 42410 Road 80 would improve travel times to the northern portions of Dinuba, but would not impact the long travel times to the western portions of the City.

The next maps illustrate the predicted travel times for fire and EMS calls from the proposed station at the northwest corner of Road 70 and Avenue 408:

Predicted Fire Travel Times from Current & Proposed #2 Stations



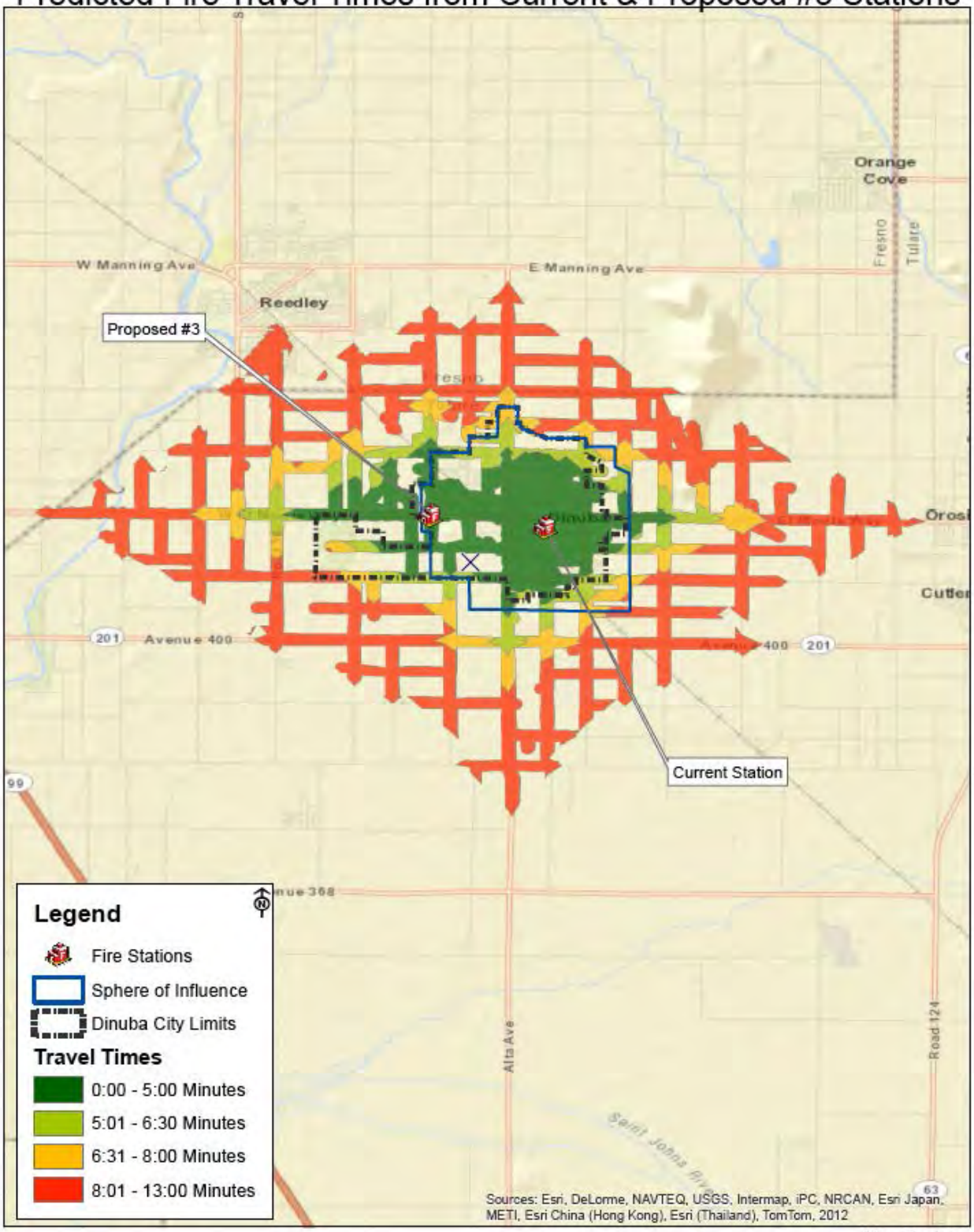
Predicted EMS Travel Times from Current & Proposed #2 Stations



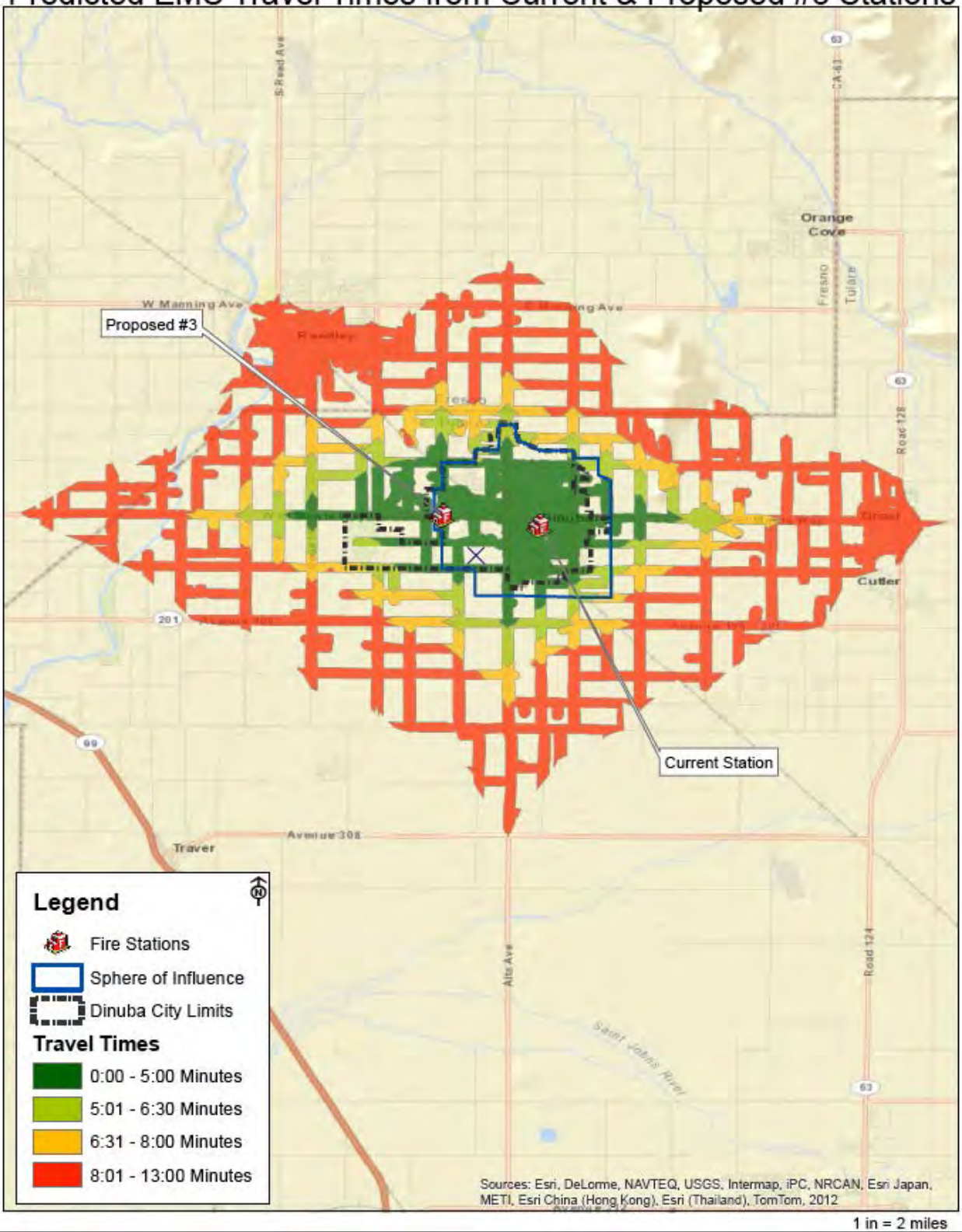
As shown in the maps above, the proposed site location #2 at the northwest corner of Road 70 and Avenue 408 greatly improves response times for both fire and EMS calls to the northern and western areas of Dinuba. This location provides optimal coverage as no area of the City should expect response times longer than six minutes and 30 seconds and the vast majority of the City would expect response times of less than five minutes.

The third location, proposed site #3 is located at the northwest corner of Avenue 416 and Road 72. The following maps illustrate the predicted travel times for fire and EMS calls from the proposed site #3:

Predicted Fire Travel Times from Current & Proposed #3 Stations



Predicted EMS Travel Times from Current & Proposed #3 Stations



As shown above, this site also improves response times to both the northern and western portions of Dinuba, but not to the same extent as site #2.

Recommendation: Continue to pursue the feasibility of constructing a second fire station, to house an engine company and ambulance, on the City owned property at the northwest corner of Road 70 and Avenue 408, planning on construction during FY 2017 and staffing in FY 2018.

8. THE DINUBA FIRE DEPARTMENT SHOULD IMPROVE THE PAID CALL FIREFIGHTER PROGRAM.

The Dinuba Fire Department has utilized paid call firefighters (PCF) to augment full time paid personnel. The Department currently has 20 positions authorized, with ten being filled. This is a similar situation to that found during the 2004 Master Plan Update when only nine of the 20 authorized positions were filled.

Typically, the paid call personnel are not available during the daytime, as many of them work in other professions that do not allow for emergency response during normal business hours. The low incidence of fire calls in Dinuba is another factor, which may impact involvement of the PCFs, as the majority of calls are EMS related and can be handled by on-duty personnel.

Given these factors the Department should continually find ways to recruit and retain PCFs as they are a critical component in ensuring an effective response force can be deployed in a timely fashion. Several agencies have found it beneficial to "schedule" the PCFs, which in effect allows them to tell the agency when they are available to respond to calls and attend training. This can be done on monthly basis with the agency requiring a commitment of at least 24 hours per month for training and emergency response availability for a PCF to remain active. This would ensure the Department knows when PCFs are available, and would allow recruiting efforts to focus

on finding candidates who can serve in times of low participation from the existing personnel.

Recommendation: The Department should require a minimum number of service hours from PCFs and "schedule" these hours to better know when a PCF response is likely.

9 THE FIRE DEPARMENT LACKS APPROPRIATE ADMINISTRATIVE, FIRE PREVENTION, AND COMMAND POSITIONS.

As stated earlier, currently the Fire Chief and Fire Marshal are the only administrative and command positions in the Fire Department. Personnel cutbacks eliminated an Assistant Chief and Fire Inspector position during the most recent economic downturn. This has caused the shift Captains to absorb many administrative functions, many of which it is difficult to effectively manage on a 48-hour-on/96-hour-off schedule such as training, EMS, and vehicle maintenance.

The Department is currently not able to keep up with the demand for annual fire inspections as plan reviews, training, and overseeing operations generally fills the available time of the Fire Marshal. As shown earlier in the report, there is an average of 13 fire prevention inspections being conducted each month, which means over 400 businesses are not inspected each year.

Proactive public education also no longer exists as a service of the Fire Department. Shift personnel are typically running calls at times when public education programs are delivered, which has resulted in the Department providing public education only when requested.

The project team believes these issues will continue through this planning period, and that organizational change is needed to ensure the businesses and residents of Dinuba receive high levels of service from the Fire Department.

Recommendation: The City of Dinuba should add a second Battalion Chief to oversee operations by FY 2016 to allow the Fire Marshal to focus on Fire Prevention.

Recommendation: The City of Dinuba should add a Fire Inspector during FY 2015 to ensure businesses receive timely fire prevention inspections on an ongoing basis according to established inspection schedules.

10 SUMMARY OF PROJECTED STAFFING NEEDS.

The following table summarizes the staffing needs of the Dinuba Fire Department as discussed above.

Fiscal Year	Staff/Shift	Total Staff	Purpose	Cost Per Year*
2015	1	3	Increase shift staffing by one to ensure a 3-person engine company can be staffed at all times.	$224,802
2016	N/A	1	Second Battalion Chief position to oversee operations and training.	$131,868
2015	N/A	1	Hire a Fire Inspector to ensure businesses receive timely fire prevention inspections.	$83,307
2018	4	12	Staff an additional engine company in the second fire station to provide effective response times to the northern and western portions of the City	$1,194,318
Total	**5**	**17**		**$1,634,295**

* Cost is projected at mid-step with 50% fringe benefit costs.

11. CONTINUE THE APPARATUS AND FLEET REPLACEMENT SCHEDULE TO ENSURE DEPARTMENTAL FLEET IS REPLACED ACCORDING TO GUIDELINES.

As part of the 2004 Master Plan Update recommendations the City established an equipment replacement fund for fleet assigned to the Fire Department. The replacement fund is based on replacement cycles of five years for ambulances, fifteen years for engines, twenty years for aerials and ten years for staff vehicles.

The following table shows the current apparatus and recommended replacement dates:

Dinuba Fire Department - Recommended Vehicle Replacement Schedule

YEAR	TYPE	AGE	ASSIGNMENT	FRONT LINE	RESERVE	REPLACEMENT
1997	Ford Rescue	17	Confined Space	15 years	5 years	2017
2000	Ferrara Engine	14	Front Line E-31	12 years	3 years	2015
2004	Smeal Truck	10	Font Line T-32	15 years	5 years	2024
2006	Ford Ambulance	8	Reserve	5 years	3 years	2014
2006	Chevy Pickup	8	Battalion 31	10 years	N/A	2016
2007	Smeal Engine	7	Front Line E-32	12 years	3 years	2022
2007	Smeal Truck	7	Front Line T-31	15 years	5 years	2027
2007	Ford Ambulance	7	Front Line	5 years	3 years	2015
2008	GMC Pickup	6	Chief	10 years	N/A	2018
2010	Ford Ambulance	4	Front Line	5 years	3 years	2018
2010	Ford Ambulance	4	Front Line	5 years	3 years	2018
2012	Ford Pickup	2	Utility	10 years	N/A	2022

The table shows that the agency should be planning to replace two vehicles in 2015 and another in 2016.

12. TRAINING FACILITIES

The Dinuba Fire Department currently maintains training props in the public works yard. The City owns land for the future construction of a fire and police training area. While the current props are adequate to meet the basic perishable training needs of the organization, the Department is finding it difficult, with the current call load, to effectively schedule and attend hands on training drills. This has led to the use of Target Solutions, and online-based training tool, to ensure personnel receive necessary training hours as time permits. In the employee survey, most employees agreed that they receive the appropriate amount of training to do their job well, but did not think that the hands-on training received is adequate.

7. RECOMMENDED LONG TERM STRATEGY

This chapter focuses on the long-term strategy related to the fire station locations, and how Dinuba officials can determine timing for adding additional stations if warranted. It is important to note that while the current location of the fire station is meeting the needs of the community, growth in the western portion of the City will change this statement. Therefore, the City should incorporate planning for a second station prior to development in the area.

1. FIRE STATION LOCATIONS

The preferred method used today for determining fire station locations is through geographical information systems (GIS). This method can take into account road networks, impedance factors, turn impedance, and elevation impedance.

For many years the basic criterion for station placement was road mileage only. The standard came from the ISO based on 1.5-mile station separation. The thought was that a fire apparatus could respond on 1.5 miles of roadway within five minutes of an emergency call.

The concept of using actual travel time more accurately represents the level of service for an all-risk approach. This method is performance-based and when performance lags steps can be taken to correct the issue.

One point that warrants restatement is that response time criteria should only be applied to calls that are high priority emergency calls. When incidents are analyzed, the data should be reviewed to ensure that nonemergency calls are not used when calculating performance. Non-life threatening calls, which are routinely handled by DFD,

should not be included in this analysis. To include these times in the analysis will skew the outcome, leading to false service indicators.

2. DETERMINING WHEN A STATION IS NEEDED

Proper timing for construction of a new station will require careful analysis and planning. A quantifiable threshold must be developed to determine the point at which a station is needed. Ultimately, a combination of financial measures and professional judgment from the leaders in the City will determine when a new station will be appropriate.

The Commission on Fire Accreditation International (CFAI) has developed a Trigger Mechanism Decision Matrix to provide options available when faced with various factors [(9)]. The system approach would suggest a tiered application of solution based on thresholds. In this system, first actions are to be analyzed when the performance indicators are within ten percent of the threshold values. At the point the threshold values are met, additional actions are indicated, and if the threshold are exceeded, new resources may need to be employed within the first due area to increase performance.

The Trigger Mechanism Decision Matrix is found on the following page:

THRESHOLD	POSSIBLE SOLUTIONS
Units within 90% of Threshold values: Unit/Station call loading • Above 3,150 calls per year – single unit • Above 7,900 calls per year – two units • Above 12,600 calls per year – three units First due unit availability less than 82% First due reliability under 82% Performance gap rate of 1 - 2%	• Change cover status/dynamic deployment • Decrease first-due area • Redeploy adjacent resources • Reconfigure station resources • Eliminate planned out of service time
Units at Threshold Values: Unit/Station call loading • 3,500 calls per year – single unit • 8,760 calls per year – two units • 14,000 calls per year – three units Unit availability under 80% First due reliability under 80% Performance gap rate of 3 – 5%	• Increase capacity of adjacent units • Increase/decrease mutual aid • Implement peak staffed units • Redeploy resources to problem areas • Relocate existing fire stations
Units over 110% of Threshold Values: Unit/Station call loading • Above 3,850 calls per year – single unit • Above 9,650 calls per year – two units • Above 15,400 calls per year – three units Unit availability under 78% First due reliability under 78% First due availability under 78% Performance gap rate over 5%	• Add new resources to station • Add new resources to adjacent stations • Add new station(s)

According to CFAI, trigger mechanism, when developed and employed with good science and data, can be a very valuable tool in compliance methodology [(9)].

Currently the Department is operating from a single station and runs just over 4,000 calls per year.

Below is a table to quantify the trigger points for opening a new fire station in a developing community. This will serve as a good indicator if calls for service increases are experienced as growth occurs in accordance with the Dinuba General Plan. Given

the timeframe required to design and construct a new facility, it is important these decisions are properly anticipated with good planning:

Action	Travel Distance	Response Time	Percent of Calls	Building/Risk Inventory
Maintain Status Quo	All risks within locally adopted distance.	First due unit is within locally adopted standards.	Enter percentage of current out of district calls.	Enter local building/risk inventory.
Temporary facilities and minimal staffing	Risks 1.5 to 3.0 miles from existing station.	First due unit exceeds five minute travel time 10% of the time, but does not exceed eight minutes.	More than 10% of calls are out of district.	New area has 25% of the same risk distribution as in initial area of coverage.
Permanent Station Needed	Risk locations exceeding four miles from the station.	First due company exceed 5 minute travel time 20 – 25% of the time. Some calls over eight minutes.	More than 20 – 25% of calls in outlying areas	New area has 35% of same risk distribution as in initial area of coverage
Permanent Station Essential	Outlying risk locations exceed five miles from station.	First due unit exceeds five minute travel time 30% of the time. Some calls over ten minutes.	More than 30% of calls are in outlying area.	New area has 50% of same risk distribution as in initial area.

As shown in the table above, the City of Dinuba does fall into the category of "Permanent Station Needed," but does not fall into that of "Permanent Station Essential".

APPENDIX A – REFERENCES

1. Insurance Services Office, "ISO's PPC Program, Better Fire Protection – As Measured by the PPC Program", ISO's Public Protection Classification (PPC).

2. Insurance Services Office, "Fire Suppression Rating Schedule".

3. Insurance Services Office, "Draft Concept FSRS 2009", ISO, 2008.

4. Government Sourcebook, "State and Local Fire Protection Spending per Capita", 2006.

5. National Fire Protection Association, "NFPA Report: U.S. Fire Department Profile Through 2009", October, 2010, by Karter, M. and Stein, P.

6. Commission on Fire Accreditation International (CFAI), "Fire & Emergency Service Self-Assessment Manual", 8th Edition, 2009.

7. National Fire Protection Association, NFPA 1901: Standard for Automotive Fire Apparatus, 2009 edition.

8. National Fire Protection Association, "Fire Loss in the United States During 2009", August 2010, by Karter, Michael.

9. Commission on Fire Accreditation International (CFAI), "Standards of Cover", 5th Edition, 2008.