



**CITYGATE ASSOCIATES, LLC**  
FIRE & EMERGENCY SERVICES

# CHINO VALLEY FIRE DISTRICT VOLUME 1 OF 3 - TECHNICAL REPORT

## STANDARDS OF COVER ASSESSMENT AND MASTER PLAN UPDATE

**MARCH 13, 2018**



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VOLUME 2 of 3 – Map Atlas (separately bound)

VOLUME 3 of 3 – Risk Assessment and Statistical Analysis Appendix (separately bound)



## EXECUTIVE SUMMARY

The Chino Valley Independent Fire District (District) retained Citygate Associates, LLC (Citygate) to conduct a comprehensive Standards of Coverage (SOC) assessment and update its 2012 Master Plan to assist with long-range planning relative to services provided by the District.

This study is presented in several parts, including this Executive Summary, which outlines the most significant challenges facing the District and includes key findings and recommendations; the fire station/crew deployment analysis supported by maps and response statistics; an evaluation of the District’s management services, staffing, fiscal status, and Emergency Operations Center (EOC) and District Operations Center (DOC) support expectations; and an assessment of future service needs. Section 5, beginning on page 127, integrates all the findings and recommendations presented throughout the report. A separate Map Atlas (Volume 2) contains all the maps referenced throughout this study. Volume 3 contains risk assessment and incident statistical analysis appendices. Overall, there are 61 findings and 14 specific action recommendations.

### **PROJECT SCOPE**

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Citygate utilized multiple sources to gather, understand, and model information about the District for this study. Citygate began by requesting a large amount of background data and information to better understand current costs, service levels, history of service level decisions, and prior studies.

Citygate interviewed the District’s SOC project team members and other District stakeholders, including the District Board of Directors and the Mayors of the Cities of Chino and Chino Hills. Citygate reviewed demographic information about the District and the potential for future growth and development. Citygate also obtained map and response data from which to model current and projected future fire service deployment to identify the location(s) of stations and crew quantities required to best serve the District as it currently exists and to facilitate future deployment planning.

Once Citygate gained an understanding of the District’s service area and its fire and non-fire risks, the Citygate team then developed a model of fire services that was tested against the travel time mapping and prior response data to ensure an appropriate fit. Citygate then proposed an approach to address current needs with effective and efficient use of existing resources, as well as address long-range needs. The result is a framework for improving District services while meeting reasonable community expectations and fiscal realities.

Following the deployment analysis, Citygate evaluated the District’s management services, specifically examining responsibilities, capabilities, and workload of the District’s six departments. Citygate evaluated the administrative staffing allocated to the various District

functions and operational staffing and performance by incident/hazard type. Citygate also conducted a comprehensive evaluation of the District’s overall fiscal stability, including an evaluation of revenues, expenditures, capital renewal/replacement, fiscal reserves, debt, unfunded liabilities, and short- and long-term financial planning and projections. Finally, Citygate reviewed and evaluated the District’s responsibilities and ability to support critical functions of the City of Chino, the City of Chino Hills, and the San Bernardino County Emergency Operations Centers.

The final element of the report identifies future District growth and service demand by risk type; future facility, staffing, and automotive fleet needs; and potential future EMS and regional collaborative opportunities. Citygate further identifies suggested near-term and longer-term next steps for the District’s consideration.

Citygate conducted its analysis, and made related findings and recommendations contained in this report, from May 2017 through December 2017.

### ***POLICY CHOICES FRAMEWORK***

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There are no mandatory federal or state regulations directing the level of fire service staffing, response performance, or outcomes. Thus, the level of fire protection services provided are a *local policy decision*, and communities have the level of fire services that they can afford, which is not always the level they may desire. However, the body of regulations on fire services provides that if services are provided at all, they must be done so with the safety of the firefighters and citizens in mind.

### ***OVERALL SUMMARY OF DISTRICT FIRE SERVICES***

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Overall, Citygate finds the District to be a mature, high-performing organization committed to excellence, innovation, and fiscal stewardship. In Citygate’s opinion, this study should be viewed as a healthy organizational “check-up” rather than a “major surgery” consultation.

The District is very well organized, adequately funded, and committed to providing excellent service to a predominantly urban/suburban land-use pattern with a road network and daily traffic congestion that make it difficult to serve some areas of the District quickly. Overall, the most significant challenges facing the District can be summarized in three themes: (1) *initial unit (first-due) response performance*; (2) *utilization of paramedic squads*; and (3) *management services capacity*.

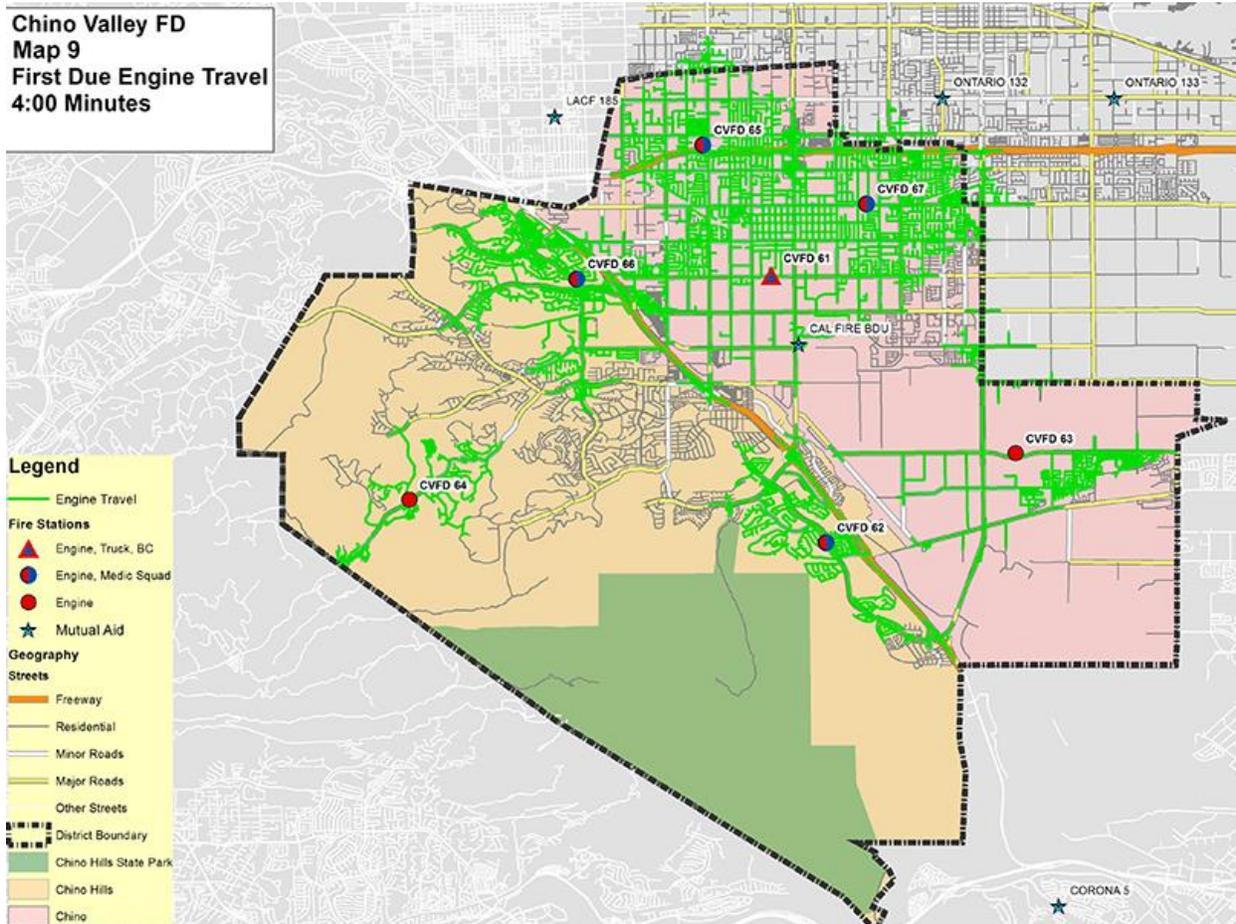
#### **Challenge #1: Initial Unit (First-Due) Response Performance**

Fire service deployment, simply stated, is about the *speed* and *weight* of the response. *Speed* refers to initial response (first-due) of all-risk intervention resources (engines, trucks, and/or

squads) strategically deployed across a jurisdiction for response to emergencies within a time interval to achieve desired outcomes. *Weight* refers to multiple-unit responses (Effective Response Force, or First Alarm) for more serious emergencies such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents. In these situations, a sufficient number of firefighters must be assembled within a reasonable time interval to safely control the emergency and prevent it from escalating into a more serious event.

If desired outcomes include limiting building fire damage to only part of the interior of an affected building and/or minimizing permanent impairment from a medical emergency, then initial units should arrive within 7:30 minutes from fire dispatch center notification, and all Effective Response Force (ERF) resources should arrive within 11:30 minutes of 9-1-1 notification, all at 90 percent or better reliability. Total response time to emergency incidents includes three distinct components: 9-1-1 call processing/dispatch time; crew turnout time; and travel time. Recommended best practices for these response components are 1:30 minutes, 2:00 minutes, and 4:00/8:00 minutes respectively for first-due and ERF responses in urban/suburban areas.

District call-to-arrival response performance is currently 8:43 minutes, or *16 percent slower* than the recommended 7:30-minute goal to achieve positive outcomes, due to travel times that are slower than desired. As Figure 1 illustrates, current fire station locations (distribution) provide 4:00-minute travel time to *only 57 percent* of the District’s public road network without traffic congestion. During periods with peak traffic congestion, the 4:00-minute travel time coverage is reduced by 25 percent to *33 percent* of the District’s public road network.

**Figure 1—4:00-Minute First-Due Travel Coverage**

As Figure 1 further illustrates, there are significant gaps in 4:00-minute first-due travel time coverage in several areas of the District, including the core commercial area in central Chino Hills. While some of these gaps cannot be economically mitigated, the larger gaps, particularly in Chino Hills, will require additional fire stations to improve first-due response performance. As discussed in detail in Section 2.9.1, two potential fire station sites evaluated by Citygate for this study would provide 4:00-minute first-due travel time to nearly all the core commercial/residential gap areas in central Chino Hills.

### Challenge #2: Utilization of Paramedic Squads

In January 2016, the District reduced the staffing of its seven Advanced Life Support (ALS) engines from four personnel to three personnel and added four two-person paramedic squads at Stations 62, 65, 66, and 67; however, the District did not modify its existing response plan other than to add the paramedic squads to all EMS and structure fire calls in tandem with the closest

ALS engine or First Alarm assignment as appropriate. The paramedic squads are single-purpose ALS EMS units built on a heavy duty four-door pickup truck chassis with utility body.

EMS calls for service received by the Ontario Fire Department Communications Center are classified into one of five categories based on the nature and severity of the medical emergency, utilizing Medical Priority Dispatch System (MPDS) protocols, from Alpha, the least severe, to Echo, the most acute. The Communications Center then dispatches EMS resource(s) pursuant to agency response plans and Inland Counties Emergency Medical Agency (ICEMA) response policies. In many MPDS systems, Alpha- and Bravo-level incidents call for only a Basic Life Support (BLS) response, while Charlie- through Echo-level incidents call for either an ALS or tiered BLS/ALS response. The District's response plan for EMS incidents includes one engine, one medic squad, and one ALS ambulance, resulting in a total of seven personnel, including at least four paramedics (three on District apparatus and one on the ambulance) on all EMS incidents.

Citygate's analysis of multiple large EMS systems has shown that only a very small subset of all EMS incidents *need* ALS interventions, and furthermore, many Alpha through Echo incidents *as dispatched* do not result in the patient being transported by ambulance. It should also be noted that, in a surprisingly high number of EMS incidents, the ambulance is cancelled prior to arrival. While Citygate's analysis also shows that some Alpha- and Bravo-level calls require acute-care transport, many incidents dispatched as either Charlie- or Delta-level require no transport, and even some Echo-level calls end up as low-acuity BLS incidents. Thus, while the District's current EMS response plan is appropriate for high acuity and/or multiple-patient calls, it is excessive for low-acuity and/or many single-patient calls. In addition, this response plan deploys all the resources within a station's first-due response area to all EMS calls, thus delaying the response to any concurrent calls for service within that response area. This could be substantially mitigated by deploying *only* a medic squad or engine, as appropriate, to low-acuity EMS calls, supported by an ALS engine or paramedic squad as needed.

In addition, although the medic squads provide enhanced daily staffing and EMS response capacity, in Citygate's opinion they are under-utilized due to their single-purpose EMS configuration. By including a fire pump, water tank, and minimal fire suppression and rescue equipment, these units would have the capability to initiate mitigation actions for most types of calls for service. Thus, if an engine is committed out of its first-due district on training or another incident, the medic squad could provide first-due response capacity for small or emerging fires.

### **Challenge #3: Management Services Capacity**

While the District has a highly qualified and capable management services support staff committed to providing excellent internal and external customer service, it is slightly understaffed to meet existing workload expectations in some departments, as summarized in Table 1.

**Table 1—Management Services Workload Gap Summary**

Department	Workload Capacity Gap	
	Under-Served Annual Hours	Additional FTE Personnel <sup>1</sup>
Emergency Services	1,830–2,680	0.93–1.37
Community Risk Reduction	716–1,432	0.36–0.73
Support Services	1,136–2,272	0.58–1.16
Finance	0	0
Human Resources	0	0
Fire Chief / BOD Clerk	0	0
<b>Total</b>	<b>3,682–6,384</b>	<b>1.87–3.25</b>

<sup>1</sup> FTE = full-time equivalent positions assuming 1 FTE = 1,960 hours

For the Emergency Services Department, critical workload capacity gaps include:

- ◆ Executive-level EMS program leadership
- ◆ Training program oversight/administration
- ◆ Succession development
- ◆ Special projects capacity.

For the Community Risk Reduction Department, workload capacity gaps include:

- ◆ Front counter support
- ◆ Staff training
- ◆ Succession development.

For the Support Services Department, critical workload capacity gaps include:

- ◆ Facilities and fleet maintenance coordination
- ◆ Information technology systems coordination
- ◆ Succession development.

Future management services workload is likely to increase as additional fire stations and operational personnel are added to serve existing and new development within the District, as further discussed in Section 3.2.

Other less significant challenges include:

- ◆ Fire Station 65 is in need of significant capital renewal
- ◆ The expectation that the Cities of Chino and Chino Hills have of District support for their Emergency Operations Centers
- ◆ Increasing simultaneous incident activity
- ◆ Increasing pension costs
- ◆ Operating costs associated with additional future fire station(s)
- ◆ Adoption of a formal multi-year Capital Plan consistent with recommended fiscal best practices for public agencies.

### **KEY FINDINGS AND RECOMMENDATIONS**

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The following are *key* findings and recommendations. A complete list of all **61** findings and **14** action recommendations can be found in Section 5.

#### **Key Findings**

- Finding #5:** Approximately 57 percent of the District’s total public road network is within 4:00-minute first-due travel time of an existing fire station *without traffic congestion*.
- Finding #6:** During peak traffic congestion periods, 4:00-minute first-due travel time coverage is *reduced by more than 24 percent* to 33 percent of the District’s total public road network.
- Finding #9:** Service demand is increasing steadily, averaging 6.6 percent annually over the most recent three-year period.
- Finding #11:** Call processing performance is consistently better than the recommended 1:30-minute best practice standard.
- Finding #12:** Crew turnout performance *consistently meets* a Citygate-recommended goal of 2:00 minutes or less.
- Finding #13:** First-due travel performance *fails to meet* a recommended best practice goal of 4:00 minutes or less for urban/suburban zones by 59 percent (2:22 minutes) due to large first-due response areas, topography and curvilinear roads in Chino Hills, and daily traffic congestion.

- Finding #15:** Call to first arrival performance *fails to meet* a Citygate-recommended goal of 7:30 minutes or less by 16 percent (1:13) to achieve desired outcomes in urban/suburban areas.
- Finding #19:** The District over-deploys to low acuity EMS calls.
- Finding #20:** The paramedic squads are underutilized due to their single-purpose EMS configuration.
- Finding #22:** There are significant 4:00-minute first-due travel time gaps in several areas of the District, which are further exacerbated by traffic congestion.
- Finding #23:** First-due and ERF response performance for Gap Area 1 in central Chino Hills can only be improved with additional fire station(s) or alternative deployment models.
- Finding #24:** First-due and ERF response performance for Gap Area 2 in northwest Chino Hills and Gap Area 3 in central Chino can only be improved with additional staffed resources.
- Finding #31:** District management services functions are slightly understaffed to meet key workload responsibilities and expectations; future management services workload is expected to increase as additional fire stations and associated operational personnel are added to serve new and existing developments within the District.
- Finding #46:** The District should adopt a formal multiple-year Capital Plan consistent with fiscal best practices for public agencies.
- Finding #48:** The District engages in comprehensive near-term and long-range fiscal planning to ensure long-term fiscal health and sustainability.
- Finding #52:** Annual emergency service demand is projected to increase approximately 4 to 6 percent annually over the next 10 years to 2027; this service demand increase can be absorbed within the District’s current and anticipated future service capacity.
- Finding #56:** Fire Station 65 is 40 years old and in need of significant capital renewal.
- Finding #57:** Near-term operational staffing considerations should focus on closing the large 4:00-minute first-due travel time gap in central Chino Hills; longer-term operational staffing considerations include a second shift Battalion Chief and additional operational staffing in the northwestern and southeastern area of the District as population and service demand warrant for those areas.

**Finding #58:** The District’s emergency response apparatus fleet has appropriate capabilities to protect the values at risk, with the possible exception of Foam 63.

**Finding #61:** Adaptive deployment of one or more multi-risk Peak Activity Units (PAU) could provide enhanced first-due response performance during peak traffic congestion and/or service demand periods.

## Key Recommendations

**Recommendation #1:** The District should consider deploying only a paramedic squad or engine to low-acuity EMS calls.

**Recommendation #2:** The District should consider providing minimal fire suppression and rescue capability to the paramedic squads to provide expanded service capability and deployment flexibility.

**Recommendation #3:** The District should consider adding additional staffed resource(s) to improve first-due response performance in Gap Area 1 in central Chino Hills as strategic priorities and long-term funding allow.

**Recommendation #5:** **Adopt Updated Deployment Policies:** The District’s Board of Directors should adopt updated, complete response performance measures to aid deployment planning and to monitor performance. The measures of time should be designed to deliver outcomes that will save patients medically salvageable upon arrival and to keep small but serious fires from becoming more serious. With this in mind, Citygate recommends the following measures for the District’s planning zones:

**5.1 Distribution of Fire Stations:** To treat pre-hospital medical emergencies and control small fires, the first-due unit should arrive within 7:30 minutes, 90 percent of the time from the receipt of the 9-1-1 call in urban/suburban planning zones and within 10:30 minutes in rural planning zones. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 4:00-minute (urban/suburban zones) or 7:00-minute (rural zones) travel time.

**5.2 Multiple-Unit Effective Response Force for Serious Emergencies:** In urban/suburban planning zones, to confine building fires near the room of origin, keep wildland fires under three acres in size, and treat multiple medical patients at a single

incident, a multiple-unit Effective Response Force of at least 20 personnel, including at least one Chief Officer, should arrive within 11:30 minutes from the time of 9-1-1 call receipt in fire dispatch, 90 percent of the time. For rural planning zones, the ERF should arrive within 17:30 minutes. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 8:00-minute (urban/suburban zones) or 14:00-minute (rural zones) travel time fire station spacing.

- 5.3** Hazardous Materials Response: Provide hazardous materials response designed to protect the community from the hazards associated with uncontrolled release of hazardous and toxic materials. The fundamental mission of the District response is to minimize or halt the release of a hazardous substance so it has minimal impact on the community. This can be achieved with a first-due total response time of 7:30 minutes (urban/suburban zones) or 10:30 minutes (rural zones) to provide initial hazard evaluation and/or mitigation actions. After the initial evaluation is completed, a determination can be made whether the District’s or one of the regional hazardous materials response teams is needed.
- 5.4** Technical Rescue: Respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue with a first-due total response time of 7:30 minutes (urban/suburban zones) or 10:30 minutes (rural zones) to evaluate the situation and/or initiate rescue actions. Following the initial evaluation, assemble additional resources as needed within a total response time of 11:30 minutes (urban/suburban zones) or 17:30 minutes (rural zones) to safely complete rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

**Recommendation #7:** The District should consider providing critical redundant fleet and facilities coordination capability and redundant information technology systems coordination capability as strategic planning and funding allow.

**Recommendation #8:** The District should consider developing a multiple-year Capital Plan consistent with fiscal best practice recommendations for public agencies.

**Recommendation #13:** The District should develop policies, guidelines, and procedures relating to staff roles and responsibilities to ensure continuity of business and emergency operations during significant emergency events.

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## SECTION 1—INTRODUCTION AND BACKGROUND

Citygate Associates, LLC’s (Citygate) Standards of Coverage assessment for the Chino Valley Fire District (District) is presented in this volume. Citygate’s scope of work and corresponding Work Plan was developed consistent with Citygate’s Project Team members’ experience in fire administration and deployment. Citygate utilizes various National Fire Protection Association (NFPA) and Insurance Services Office (ISO) publications as best practice guidelines, along with the self-assessment criteria of the Commission on Fire Accreditation International (CFAI).

### 1.1 REPORT ORGANIZATION

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**Volume 1** of this report is organized into the following sections. **Volume 2** of this report contains the Map Atlas. **Volume 3** contains a Risk Assessment (Appendix A) and Incident Statistical Analysis (Appendix B).

Executive Summary: Summary of current District services and significant future challenges.

- Section 1** Introduction and Background: An introduction to the study and background facts about the District and San Bernardino County.
- Section 2** Standards of Coverage Assessment: An overview of the SOC process and detailed analysis of existing deployment policies, outcome expectations, community risk, critical tasks, distribution and concentration effectiveness, reliability and historical response effectiveness, overall deployment evaluation, and viable service delivery alternatives.
- Section 3** Management, Fiscal, and Staffing Review: A detailed review and assessment of the District’s management services, operational and support staffing, fiscal health, and Emergency Operations Center (EOC) / District Operations Center (DOC) responsibilities and capabilities.
- Section 4** Future Service Needs Assessment: A comprehensive assessment of future service area growth, projected emergency and non-emergency service demand, future facility and staffing needs, automotive fleet needs and replacement cycles, prospective future EMS opportunities, and potential regional opportunities to enhance efficacy.
- Section 5** Findings and Recommendations: A list of all the findings and recommendations from this study grouped by deployment; administration-management, staffing, and fiscal; and alternative service models.
- Section 6** Next Steps: A summary of near-term and longer-term next steps for consideration by the District.

### 1.1.1 Goals of the Report

Findings and recommendations throughout this report are sequentially numbered. A complete list of these same findings and recommendations, in order, is included in Section 5.

This document provides technical information about the way fire services are provided and legally regulated and the way the District currently operates. This information is presented in the form of recommendations and policy choices for consideration by the District and the communities it serves.

The result is a solid technical foundation upon which to understand the advantages and disadvantages of the choices facing District leadership and the communities it serves regarding the way to best provide fire services and, more specifically, at what level of desired outcome and expense.

### 1.1.2 Limitations of Report

In the United States, there are no federal or state regulations requiring a specific minimum level of fire services. Each community, through the public policy process, is expected to understand the local fire and non-fire risks and its ability to pay, and then choose its level of fire services. **If** fire services are provided at all, federal and state regulations specify the way to do so safely for the public and for the personnel providing the services.

While this report and technical explanation can provide a framework for the discussion of District services, it cannot make the final decisions, nor can it determine the cost of every possible alternative in detail. Once final strategic choices receive policy approval, District staff can conduct fiscal analyses as typically completed in its normal operating and capital budget preparation cycle.

## 1.2 PROJECT APPROACH AND SCOPE OF WORK

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### 1.2.1 Project Approach and Research Methods

Citygate utilized multiple sources to gather, understand, and model information about the District for this study. Citygate began by requesting a large amount of background data and information to better understand current costs, service levels, history of service level decisions, and prior studies.

Citygate interviewed the District’s SOC project team members and other District stakeholders, including the District Board of Directors and the Mayors of the Cities of Chino and Chino Hills. Citygate reviewed demographic information about the District and the potential for future growth and development. Citygate also obtained map and response data from which to model current and projected future fire service deployment to identify the location(s) of stations and crew

quantities required to best serve the District as it currently exists and to facilitate future deployment planning.

Once Citygate gained an understanding of the District’s service area and its fire and non-fire risks, the Citygate team then developed a model of fire services that was tested against the travel time mapping and prior response data to ensure an appropriate fit. Citygate then proposed an approach to address current needs with effective and efficient use of existing resources, as well as address long-range needs. The result is a framework for improving District services while meeting reasonable community expectations and fiscal realities.

Following the deployment analysis, Citygate evaluated the District’s management services, specifically examining responsibilities, capabilities, and workload of the District’s six departments. Citygate evaluated the administrative staffing allocated to the various District functions and operational staffing and performance by incident/hazard type. Citygate also conducted a comprehensive evaluation of the District’s overall fiscal stability, including an evaluation of revenues, expenditures, capital renewal/replacement, fiscal reserves, debt, unfunded liabilities, and short- and long-term financial planning and projections. Finally, Citygate reviewed and evaluated the District’s responsibilities and ability to support critical functions of the City of Chino, the City of Chino Hills, and the San Bernardino County Emergency Operations Centers.

The final element of the report identifies future District growth and service demand by risk type; future facility, staffing, and automotive fleet needs; and potential future EMS and regional collaborative opportunities. Citygate further identifies suggested near-term and longer-term next steps for the District’s consideration.

### 1.2.2 Project Scope of Work

Citygate’s approach to this Standards of Coverage assessment involved:

- ◆ Reviewing District-provided data and information and conducting stakeholder listening sessions with project stakeholders.
- ◆ Utilizing a geographic mapping software program called FireView™ to model fire station travel time coverage.
- ◆ Using an incident response time analysis program called StatsFD™ to review the statistics of prior incident performance, plotting the results not only on graphs and charts, but also over Google Earth images using 3D tools.
- ◆ Utilizing the CFAI self-assessment criteria and NFPA Standard 1201 – Standard for Providing Emergency Services to the Public, and other NFPA standards, as the basis for evaluating support services, including administration, dispatch, fire prevention, safety, training, and facility and equipment maintenance.

- ◆ Recommending appropriate risk-specific response performance goals.
- ◆ Reviewing and evaluating the responsibilities, capabilities, staffing levels, and workload of the District’s Administrative, Emergency Services, Support Services, and Community Risk Reduction Departments.
- ◆ Evaluating administrative support allocated to the various District functions and divisions.
- ◆ Evaluating operational staffing and performance by incident type.
- ◆ Reviewing and evaluating the District’s overall fiscal health, including revenues, expenditures, debt, reserve funds, and capital and long-term fiscal planning.

### ***Future Service Needs***

Citygate’s assessment of future District service needs includes the following elements:

- ◆ Identification of future District population and related development growth
- ◆ Projected future emergency and non-emergency service demand
- ◆ Projected future facility and automotive fleet needs
- ◆ Projected future operational staffing needs
- ◆ Identification of potential future EMS and regional collaboration opportunities.

## ***1.3 FIRE DISTRICT OVERVIEW***

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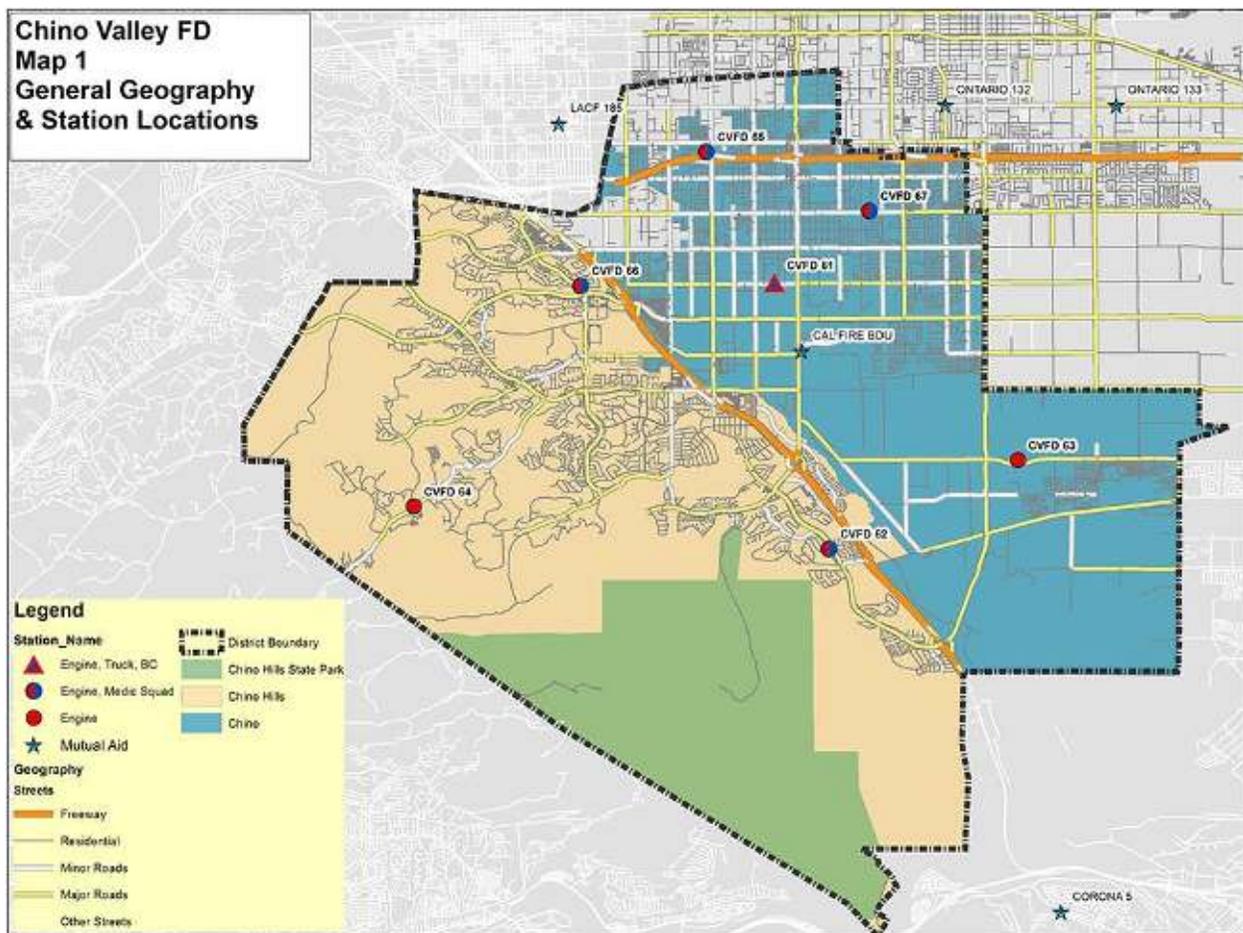
Located in the southwest area of San Bernardino County, the Chino Valley Fire District encompasses 80 square miles with an estimated population of 173,000, including the Cities of Chino and Chino Hills and unincorporated areas of San Bernardino County, as shown in Figure 2. The District is predominantly urban/suburban in nature, with more than 46,000 residential dwelling units and a large inventory of commercial and industrial occupancies. The District’s current assessed valuation is more than \$24 billion.

With elevation ranging from about 500 feet to 1,200 feet above sea level, the District enjoys a Mediterranean climate with warm to hot summers and cool winters, with an average of 17 inches of rainfall annually.

Created by a 1990 ballot measure in response to a proposal to create a single County-wide fire agency, the District operates under authority of California Health and Safety Code Section 13800 et seq. (Fire Protection District Law of 1987). With 140 employees, the District provides fire suppression, ALS pre-hospital emergency medical, rescue, hazardous material spill/release, and community risk reduction services from seven fire stations, an administrative headquarters

facility, fleet maintenance facility, and training center. The District responds to more than 11,000 calls for service annually, with dispatch services provided by the City of Ontario Fire Department Communications Center. The Insurance Services Organization (ISO), which collects and evaluates municipal fire protection capability using its Fire Suppression Rating Schedule to assign a Public Protection Classification rating from 1 to 10, has assigned the District a Class 3/9 Rating. Keeping in mind that a Class 1 represents the highest level of public fire protection and Class 10 represents a fire protection system that does not meet the ISO’s minimum criteria, the District’s Class 3 rating is applicable to properties within five road miles of a fire station and within 1,000 feet of a fire hydrant and Class 9 rating is applying to all other District properties.

**Figure 2—Chino Valley Fire District**



### 1.3.1 District Organization

The District is governed by a five-member Board of Directors elected to staggered four-year terms. The Board appoints the Fire Chief, who administers all District services. The District is further organized into six departments with 140.3 budgeted positions, as shown in Table 2 and Figure 3.

**Table 2—Fire District Organization**

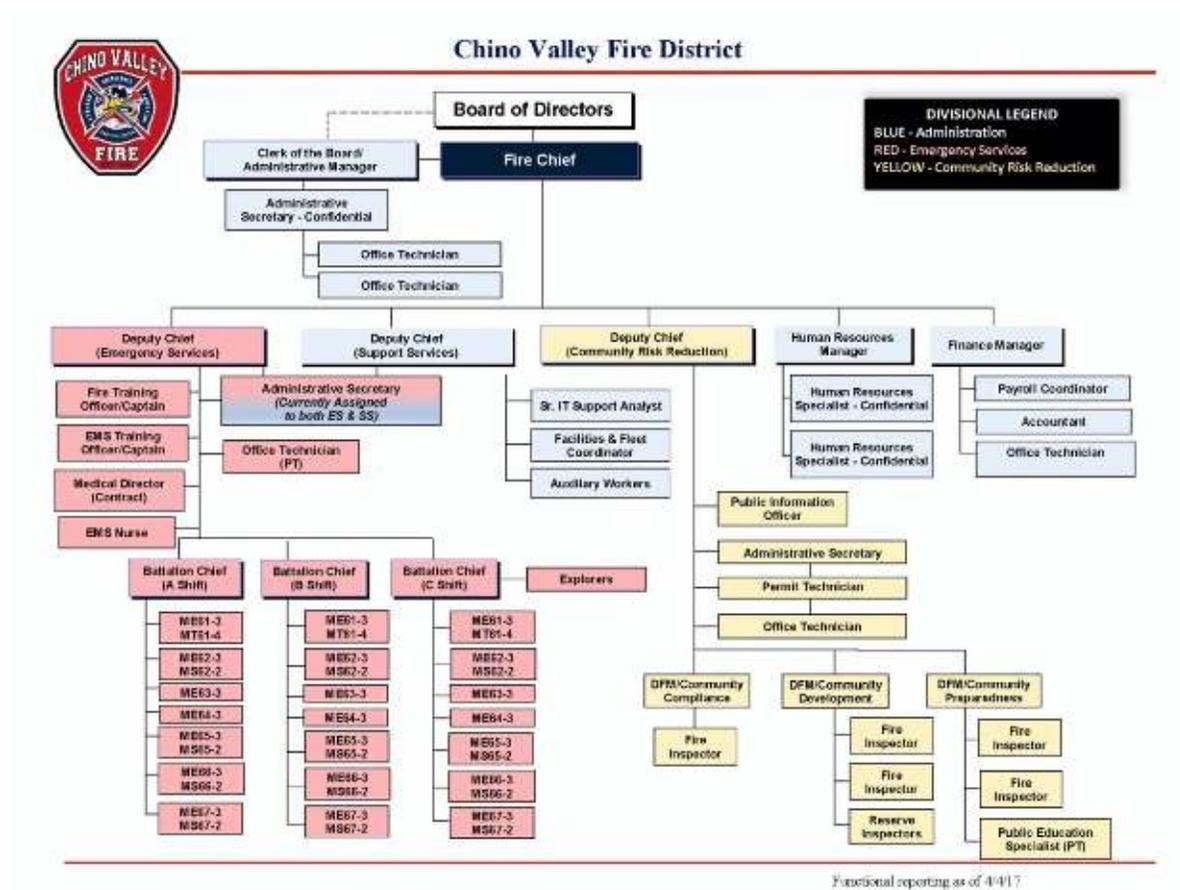
Department	Budgeted Positions
Administration <sup>1</sup>	17.5
Emergency Services	107.2
Community Risk Reduction	15.6
<b>Total</b>	<b>140.3</b>

Source: Chino Valley Fire District

<sup>1</sup> Includes the departments of Support Services, Finance, Human Resources, and Office of the Fire Chief / Clerk of the Board of Directors

Figure 3 shows the organizational structure of the District.

**Figure 3—Chino Valley Fire District Organizational Chart**



Source: Chino Valley Fire District

### 1.3.2 Facilities and Resources

The District provides services from seven fire stations, a fleet maintenance facility, a training facility, and an administrative headquarters facility, as shown in Table 3 and Figure 2.

**Table 3—Chino Valley Fire District Facilities and Assigned Resources**

Station	Address	Assigned Apparatus	Minimum Staffing
61	5078 Schaefer Avenue	<b>Medic Engine 61</b>	<b>3</b>
		<b>Medic Truck 61</b>	<b>4</b>
		Hazmat 61	
		Rescue 61 (USAR)	
		Water Tender 61	
		Patrol 61	
		<b>Battalion 1615</b>	<b>1</b>
62	5551 Butterfield Ranch Road	<b>Medic Engine 62</b>	<b>3</b>
		<b>Medic Squad 62</b>	<b>2</b>
		Brush Engine 62	
		Engine 62-A (reserve)	
63	7550 Kimball Avenue	<b>Medic Engine 63</b>	<b>3</b>
		OES Water Tender	
		Swift Water 63	
		Foam 63	
64	16231 Canon Lane	<b>Medic Engine 64</b>	<b>3</b>
		Engine 64-A (reserve)	
		Engine 64-B (reserve)	
65	12220 Ramona Avenue	<b>Medic Engine 65</b>	<b>3</b>
		<b>Medic Squad 65</b>	<b>2</b>
		Engine 65-A (reserve)	
66	13707 Peyton Drive	<b>Medic Engine 66</b>	<b>3</b>
		<b>Medic Squad 66</b>	<b>2</b>
		Engine 66-A (reserve)	
		Truck 61-A (reserve)	
67	5980 Riverside Drive	<b>Medic Engine 67</b>	<b>3</b>
		<b>Medic Squad 67</b>	<b>2</b>
		Engine 67-A (reserve)	
Administration	14011 City Center Drive		
Fleet Maintenance	5076 Carter Street		
Training	5092 Schaefer Avenue		
<b>Total</b>			<b>34</b>

Source: Chino Valley Fire District

Response personnel work a 48/96-hour shift schedule of two consecutive 24-hour days on duty followed by four days off duty. The District provides services with 13 Type-I structural fire engines, one Type-3 wildland fire engine, two 100-foot aerial ladder trucks, five paramedic squads, two 2,000-gallon water tenders, one hazardous materials unit, one urban search and rescue (USAR) technical rescue unit, one swift water rescue unit, one foam unit, and one wildland patrol unit.

### 1.3.3 Future Growth and Development

#### *Land Use*

The Envision Chino General Plan 2025 identifies six areas where more intense development is consistent with the City’s overall vision. Measure M, adopted by City voters in 1988, limits the expansion of multi-family housing by preventing the rezoning of any land zoned non-residential to residential use and the rezoning of any land zoned residential to higher density residential use. The Plan further establishes the following land-use goals:

1. Enhance the livability of Chino neighborhoods
2. Foster the development of new industrial uses in Chino
3. Revitalize older commercial and industrial areas in the center of Chino
4. Provide a clear transition for properties within the Sphere of Influence
5. Reduce Chino’s greenhouse gas emissions
6. Develop and implement comprehensive master plans for key sites and areas in Chino
7. Locate new development to create a consolidated pattern of urbanization, maximizing the use of existing services and facilities
8. Ensure convenient access to healthy foods for all residents.

In addition, the City of Chino Hills General Plan establishes the following five land-use goals:

1. Protect Chino Hills’ natural environment
2. Balance residential with commercial, business, and public land uses
3. Maintain the integrity of City neighborhoods
4. Provide for excellence in urban design
5. Plan for sustainable land uses.

Figure 4 shows current land-use zoning for the City of Chino, and Figure 5 shows the same information for the City of Chino Hills.

**Figure 4—City of Chino Zoning Map**

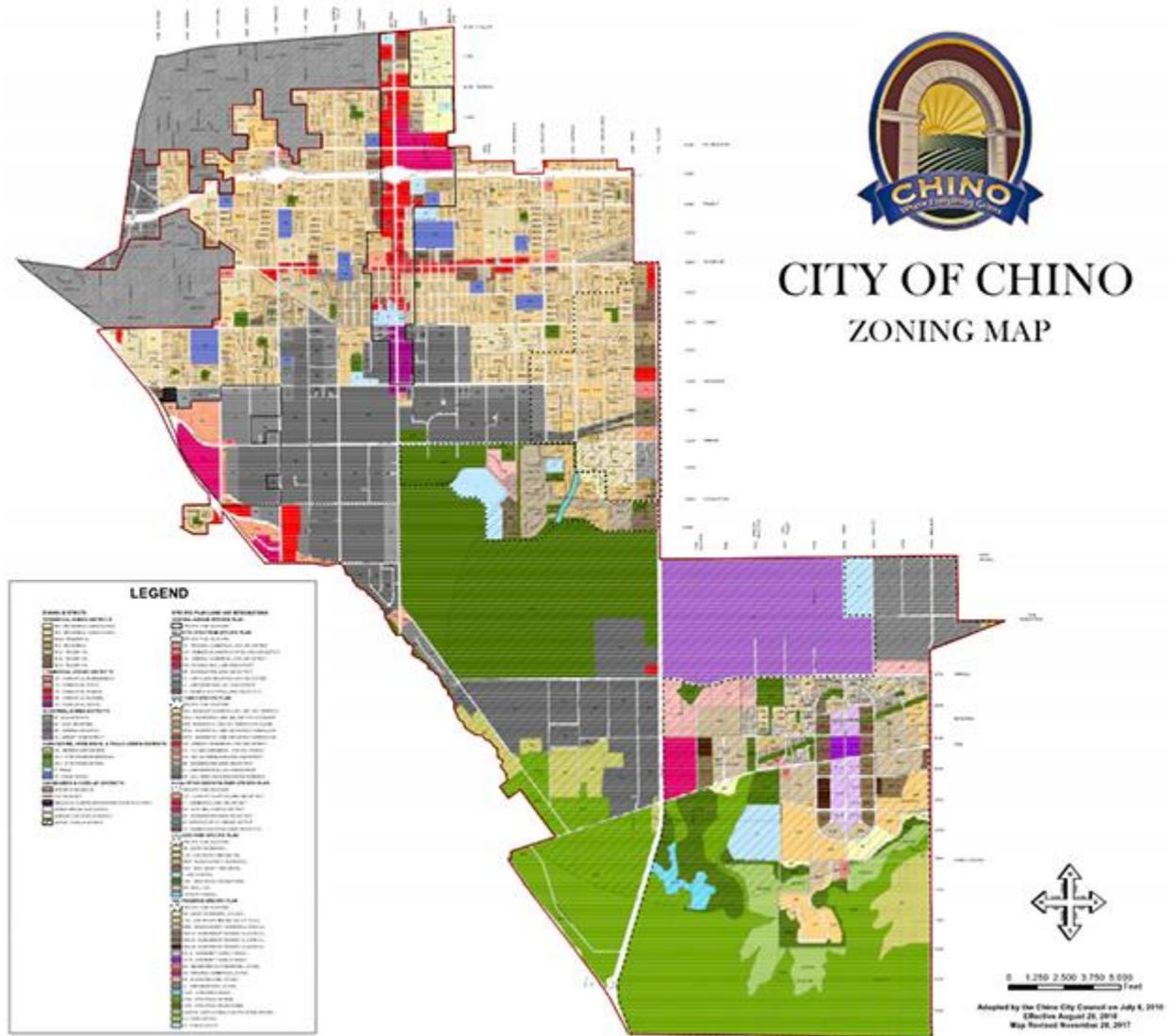
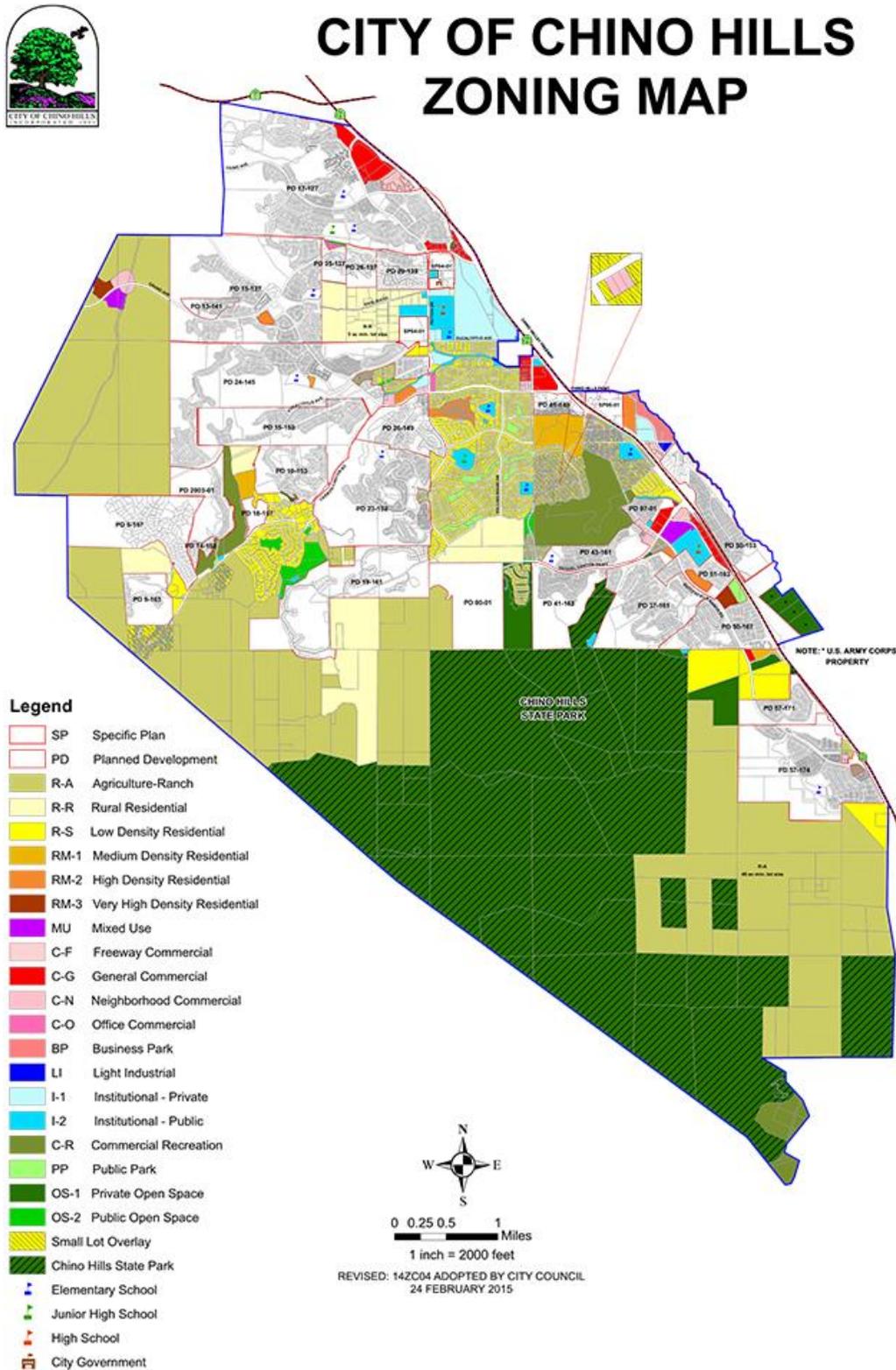


Figure 5—City of Chino Hills Zoning Map



**Future Growth**

Table 4 summarizes projected population and housing unit growth within the District to the year 2035.

**Table 4—Projected Population and Housing Growth**

Planning Area	Growth Factor								
	Population				Housing Units				
	2017 <sup>1</sup>	2035 <sup>2</sup>	Projected Growth (Units)	Projected Growth (Percent)	Persons Per Household <sup>1</sup>	2017 Dwelling Units <sup>1</sup>	2035 Dwelling Units <sup>3</sup>	Projected Growth (Units)	Projected Growth (Percent)
City of Chino	88,026	114,200	26,174	29.73%	3.51	24,361	32,536	8,175	33.56%
City of Chino Hills	80,676	89,000	8,324	10.32%	3.35	24,581	26,567	1,986	8.08%
<b>Total</b>	<b>168,702</b>	<b>203,200</b>	<b>34,498</b>	<b>20.45%</b>	<b>N/A</b>	<b>48,942</b>	<b>59,103</b>	<b>10,161</b>	<b>20.76%</b>

<sup>1</sup> California Department of Finance Table E-5 (January 2017)

<sup>2</sup> Source: Southern California Association of Governments (SCAG) Regional Growth Forecast (2016)

<sup>3</sup> Estimated using California Dept. of Finance Persons Per Household data (Table E-5)

As Table 4 shows, the City of Chino is projected to grow nearly 20 percent more than the City of Chino Hills over the next 18 years, with aggregate population and housing unit growth in both cities projected to be 20.5 percent, or an annual average of about 1.15 percent. No specific data was available relative to current and projected non-residential development; however, given the current zoning, it is reasonable expect approximately the same growth rate for non-residential development.

**Finding #1:** The District’s population is projected to grow 20.5 percent over the next 18 years to 2035, or an average annual growth of 1.15 percent.

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## SECTION 2—STANDARDS OF COVERAGE ANALYSIS

This section provides a detailed analysis of the District’s current ability to deploy and mitigate emergency risks within its service area. The response analysis uses prior response statistics and geographic mapping to help the District and the community to visualize what the current response system can and cannot deliver.

### **2.1 STANDARDS OF COVERAGE PROCESS OVERVIEW**

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The core methodology used by Citygate in the scope of its deployment analysis work is outlined in the “Standards of Cover” (SOC) 5<sup>th</sup> and 6<sup>th</sup> Editions, which is a systems-based methodology to fire services deployment as published by the CFAI. This approach ensures that factors such as local risk and demographics help determine the level of protection best fitting the District’s needs. Citygate has adopted this methodology as a comprehensive tool to evaluate fire station locations. Such a systems approach, rather than a one-size-fits-all prescriptive formula, assists elected officials in making informed decisions on fire and EMS deployment.

While working with multiple components to conduct a deployment analysis is admittedly more work, it yields a much better result than using only a singular component. For instance, if only travel time is considered, and frequency of multiple calls is not considered, the analysis could miss over-worked crews. If a risk assessment for deployment is not considered, and deployment is based only on travel time, a community could under-deploy to incidents.

Table 5 describes the eight elements of the Standards of Coverage process.

**Table 5—Standards of Coverage Process Elements**

SOC Element		Description
1	Existing Deployment Policies	A review of current agency deployment policies.
2	Community Outcome Expectations	A review of the community’s expectations relative to the agency’s response to emergencies.
3	Community Risk Assessment	A review of the assets at risk within the community.
4	Critical Task Analysis	A review of the essential tasks that must be performed and the personnel required to deliver a stated outcome for an ERF.
5	Distribution Analysis	A review of the spacing of initial response (first-due) resources (typically engines) to control routine emergencies.
6	Concentration Analysis	A review of the spacing of fire stations so that larger or more complex emergencies receive sufficient resources in a timely manner (ERF).
7	Reliability and Historical Response Effectiveness Analysis	Using recent prior response statistics, determining the percentage of conformance to established response performance goals the existing deployment system delivers.
8	Overall Evaluation	Proposing Standards of Coverage statements by risk type as appropriate.

Source: CFAI “Standards of Cover,” 5<sup>th</sup> Edition

Fire service deployment, simply stated, is about the *speed* and *weight* of the response. *Speed* refers to initial response (first-due), all-risk intervention resources (engines, trucks, and/or rescue ambulances) strategically deployed across a jurisdiction for response to emergencies within a specified time interval to control routine to moderate emergencies without the incident escalating to greater size or complexity. *Weight* refers to multiple-unit responses for more serious emergencies such as building fires, multiple-patient medical emergencies, vehicle collisions with extrication required, or technical rescue incidents. In these situations, a sufficient number of firefighters must be assembled within a reasonable time interval to safely control the emergency and prevent it from escalating into a more serious event. Table 6 illustrates this deployment paradigm.

**Table 6—Fire Service Deployment Paradigm**

Element	Description	Purpose
Speed of Response	Travel time of all-risk initial response intervention units strategically located across a jurisdiction.	Controlling routine to moderate emergencies without the incident escalating in size or complexity.
Weight of Response	Number of firefighters in a multiple-resource response for serious emergencies.	Assembling enough firefighters within a reasonable time frame to safely control the emergency without escalation.

Thus, smaller fires and less complex emergencies require a single-unit or two-unit response (engine and/or specialty resource) within a relatively short response time. Larger or more complex incidents require more units and personnel to control. In either case, if the crews arrive too late or the total number of personnel is too few for the emergency, they are drawn into an escalating and more dangerous situation. The science of fire crew deployment is to spread crews out across a community or jurisdiction for quick response to keep emergencies small with positive outcomes, without spreading resources so far apart that they cannot assemble quickly enough to effectively control more serious emergencies.

**2.2 CURRENT DEPLOYMENT**

The District’s 2012 Master Plan establishes first-due and ERF multiple-unit response performance goals as follows:

**SOC ELEMENT 1 OF 8**  
**EXISTING DEPLOYMENT**  
**POLICIES**

***Dispatch***

*The performance goal of the Dispatch Center should be to provide alarm processing within one minute 90 percent of the time.*

***Turnout***

*The performance goal of the Chino Valley Fire District is to turn out units for priority calls within one minute 90 percent of the time.*

***Distribution Reliability***

*The response goal of the Chino Valley Fire District is to provide first-unit (4 personnel) response (travel) time<sup>1</sup> of five minutes 90 percent of the time to moderate risk structure fires and core life-threatening emergencies.*

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<sup>1</sup> Not including turnout time



### **Availability**

*The goal of the Chino Valley Fire District is to have each unit available to respond to 90 percent of the calls in its first-in district.*

### **Unit Utilization**

*The goal of the Chino Valley Fire district is to have an annualized unit hour utilization rate of .30 or less.*

### **Concentration**

*The response goal of the Chino Valley Fire District is to provide a full-assignment response time<sup>2</sup> of eight minutes 90 percent of the time to moderate risk structure fires and core life-threatening emergencies.*

### **Effective Response Force**

*The goal of the Chino Valley Fire District is to provide a minimum staffing of 17 personnel on scene of any moderate risk structure fire in accordance with the concentration goal.*

**Finding #2:** The District has established response performance goals partially consistent with best practice recommendations published by the Commission on Fire Accreditation International.

Another source for deployment policy is the San Bernardino County General Plan and the Cities of Chino and Chino Hills General Plans. The County General Plan’s only reference to deployment policy are two programs intended to implement Safety Plan Element Goal S3,<sup>2</sup> which states “The County will protect its residents and visitors from injury and loss of life and protect property from fires.” These two programs are as follows:

- ◆ Fund, adopt, and implement a Countywide Fire Protection Master Plan (FPMP).
- ◆ The FPMP will use National Fire Protection Association Standards 1710 and 1720 as goals for creation of the Standards of Cover.

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<sup>2</sup> County of San Bernardino General Plan – Safety Element Section VIII B

The City of Chino General Plan contains three policies relating to fire service deployment:

- Policy P1: The City shall continue to support the CVIFD to provide adequate fire protection services to the City of Chino.
- Policy P2: The City shall work with the CVIFD to ensure that first response travel time is maintained and enhanced.
- Policy P4: The City shall continue to support and implement the CVIFD’s Master Plan.

The City of Chino Hills General Plan contains no specific fire service deployment policies or goals.

NFPA Standard 1710,<sup>3</sup> a recommended deployment standard for career fire departments in urban/suburban areas, calls for arrival of the initial (first-due) intervention unit within 6:20 minutes from the time of call receipt in fire dispatch and arrival of all the resources comprising the First Alarm (ERF) within 10:20 minutes, 90 percent of the time. The standard further identifies a minimum initial ERF of 14–15 personnel for a fire in a typical 2,000 square-foot, two-story, single-family dwelling without a basement or other exposed buildings.

In Citygate’s experience, very few fire agencies can meet this response performance standard, primarily due to existing resource distribution and the costs associated with relocating those resources. Citygate therefore recommends that its *urban/suburban* client agencies consider a first-due performance measure of 7:30 minutes or less from fire dispatch notification, 90 percent of the time, and a performance measure of 11:30 minutes or less for arrival of the last ERF resource. For *rural* agencies, Citygate recommends a first-due performance measure of 11:30 minutes or less and an ERF performance measure of 15:30 minutes or less.

A third source for deployment policy is the local/regional emergency medical services (EMS) system. Oversight of pre-hospital emergency medical services in San Bernardino County is provided by the ICEMA, a multi-county Local Emergency Medical Services Authority (LEMSA) operating pursuant to Division 9 of Title 22 of the California Code of Regulations. Like many other California LEMSAs, ICEMA has established Exclusive Operating Areas (EOA) within its jurisdiction for the provision of ALS emergency ambulance transportation services. San Bernardino County is divided into 26 EOAs, and the District’s service area is included in Service Areas 2 and 3, where American Medical Response, West (AMRW) is the EOA contract ambulance transportation provider. This is a performance-based contract requiring ALS ambulance response performance of 9:59 minutes (crew notify to arrival) or less at 90 percent or

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<sup>3</sup> NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2016 Edition)

better reliability (calculated monthly). This ambulance response performance standard is predicated on ALS services provided by the fire agencies within the exclusive operating area.

### 2.2.1 Current Deployment Model

#### *Resources and Staffing*

The District’s current deployment model includes seven ALS engines staffed with a minimum of three personnel each,<sup>4</sup> one ALS ladder truck staffed with four personnel, four paramedic squads staffed with two personnel, and one Battalion Chief for a total daily staffing of 34 personnel, as summarized in Table 7.

**Table 7—Chino Valley Fire District Deployment Model**

Station	Minimum Daily Staffing
61	8
62	5
63	3
64	3
65	5
66	5
67	5
<b>Total</b>	<b>34</b>

Source: Chino Valley Fire District

As Table 7 shows, the District’s current deployment model can provide the minimum staffing for building fires as recommended by NFPA 1710 or, as the critical task section of this report will review, enough personnel for serious incidents requiring multiple units. The District’s deployment model includes automatic/mutual aid agreements with adjacent agencies, as summarized in Table 8, and the District is also a signatory to the San Bernardino County Mutual Aid Plan and the State of California Master Mutual Aid Agreement.

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<sup>4</sup> Including at least one EMT-Paramedic

**Table 8—Automatic Aid Agencies and Resources**

Agency	Station No.	Apparatus Type	Minimum Staffing
Brea/Fullerton Fire Department	4	Type-1 Engine	3
City of Corona Fire Department	5	Type-1 Engine	3
City of Montclair Fire Department	151	Type-1 Engine	3
City of Ontario Fire Department	132	Type-1 Engine	4
	133		4
Los Angeles County Fire Department	185	Type-1 Engine	3

Source: Chino Valley Fire District

In addition, the District contracts with CAL FIRE for wildland fire protection services within specific wildland response zones, making all CAL FIRE’s suppression resources available within those contract areas as needed.

***Response Plan***

The District is an “all-risk” fire agency providing the people it protects with services that include fire suppression, pre-hospital ALS EMS, hazardous material and technical rescue response, and other non-emergency services, including community risk reduction and other public safety-related services.

Given these risks, the District utilizes a tiered response plan calling for different types and numbers of resources depending on incident/risk type. The City of Ontario Fire Department’s computer-aided dispatch (CAD) system selects and dispatches the closest and most appropriate resource types pursuant to the District’s response plan, as shown in Table 9.

**Table 9—Response Plan by Incident Type**

Incident Type	Response	Total Staffing
Structure Fire	4 Engines, 1 Truck, 1 Medic Squad, BC, Safety Officer	20
Structure – Commercial	5 Engines, 1 Truck, 1 Medic Squad, BC, Safety Officer	23
Medical Emergency	1 Engine, 1 Medic Squad, 1 Ambulance	7
Vegetation	5 Engines, 1 WT, 1 Patrol, BC, 2 Safety Officers	20
Vehicle Fire	1 Engine	3
Commercial Vehicle	1 Engine	3
Vehicle Collision	1 Engine, 1 Medic Squad, 1 Ambulance	7
Hazmat	1 Engine, BC	4
Technical Rescue	3 Engines, 1 Truck, BC, 1 Ambulance, 1 Safety Officer	23
Aircraft Crash	2 Engines, 1 Truck, 1 Foam, BC, 1 Ambulance	14
Railcar Incident	3 Engines, 1 Truck, BC	14

Source: Chino Valley Fire District

**Finding #3:** The District has a standard response plan that considers risk and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engine companies, trucks, squads, ambulances, specialty units, and command officers customarily needed to effectively control that type of incident based on Fire District experience.

**2.3 OUTCOME EXPECTATIONS**

**SOC ELEMENT 2 OF 8**  
**COMMUNITY OUTCOME**  
**EXPECTATIONS**

The Standards of Coverage process begins by reviewing existing emergency services outcome expectations. This includes determining for what purpose the response system exists and whether the governing body has adopted any response performance measures. If so, the time measures used must be understood and good data must be available.

Current national best practice is to measure percent completion of a goal (e.g., 90 percent of responses) instead of an average measure. Mathematically this is called a “fractile” measure.<sup>5</sup>

<sup>5</sup> A *fractile* is that point below which a stated fraction of the values lie. The fraction is often given in percent; the term percentile may then be used.

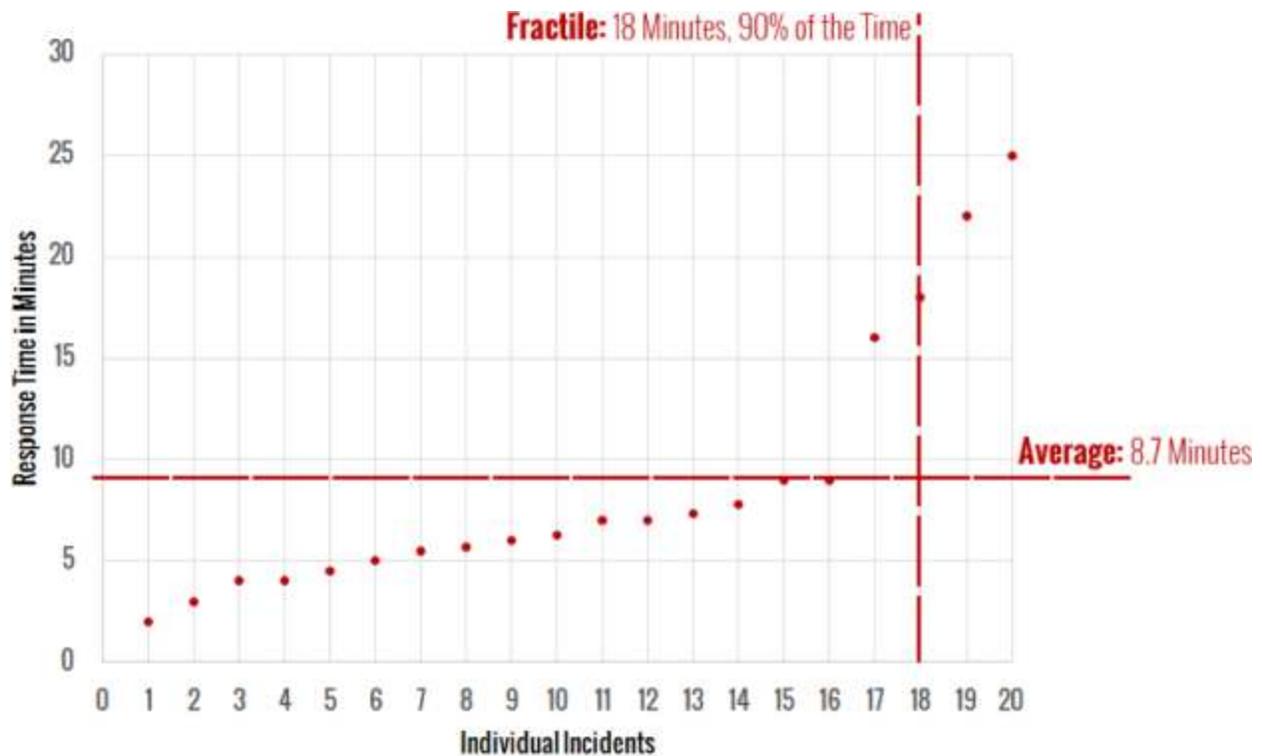
This is because the measure of average only identifies the central or middle point of response time performance for all calls for service in the data set. Using an average makes it impossible to know how many incidents had response times that were way above the average, or just above.

For example, Figure 6 shows response times for a fictitious fire department. This agency is small and receives 20 calls for service each month. Each response time has been plotted on the following graph from shortest response time to longest response time.

Figure 6 shows that the average response time is 8.7 minutes. However, the average response time fails to properly account for four calls for service with response times far exceeding a threshold in which positive outcomes could be expected. In fact, it is evident in Figure 6 that 20 percent of responses are far too slow and that this jurisdiction has a potential life-threatening service delivery problem. Average response time as a measurement tool for fire services is simply not sufficient. This is a significant issue in larger cities if hundreds or thousands of calls are answered far beyond the average point.

By using the fractile measurement with 90 percent of responses in mind, this small jurisdiction has a response time of 18:00 minutes, 90 percent of the time. This fractile measurement is far more accurate at reflecting the service delivery situation in this small agency.

**Figure 6—Fractile versus Average Response Time Measurements**



More importantly, within the Standards of Coverage process, positive outcomes are the goal, and from that crew size and response time can be calculated to allow appropriate fire station spacing (distribution and concentration). Emergency medical incidents have situations with the most severe time constraints. The brain can survive only 4:00 to 6:00 minutes without oxygen. Heart attacks and other events can cause oxygen deprivation to the brain. Heart attacks make up a small percentage; drowning, choking, trauma constrictions, or other similar events have the same effect. In a building fire, a small incipient fire can grow to involve the entire room in a 6:00- to 8:00-minute time frame. If fire service response is to achieve positive outcomes in severe emergency medical situations and incipient fire situations, *all* responding crews must arrive, assess the situation, and deploy effective measures before brain death occurs or the fire spreads beyond the room of origin.

Thus, from the time of 9-1-1 receiving the call, an effective deployment system is *beginning* to manage the problem within a 7:00- to 8:00-minute total response time. This is right at the point that brain death is becoming irreversible and the fire has grown to the point of leaving the room of origin and becoming very serious. Thus, the District needs a first-due response goal that is within a range to give the situation hope for a positive outcome. It is important to note the fire or medical emergency continues to deteriorate from the time of inception, not the time the fire engine starts to drive the response route. Ideally, the emergency is noticed immediately and the 9-1-1 system is activated promptly. This step of awareness—calling 9-1-1 and giving the dispatcher accurate information—takes, in the best of circumstances, 1:00 minute. Then crew notification and travel time take additional minutes. Upon arrival, the crew must approach the patient or emergency, assess the situation, and deploy its skills and tools appropriately. Even in easy-to-access situations, this step can take 2:00 minutes or more. This time frame may be increased considerably due to long driveways, apartment buildings with limited access, multi-storied apartments or office complexes, or shopping center buildings.

Unfortunately, there are times when the emergency has become too severe, even before the 9-1-1 notification and/or fire department response, for the responding crew to reverse; however, when an appropriate response time policy is combined with a well-designed deployment system, then only anomalies like bad weather, poor traffic conditions, or multiple emergencies slow the response system down. Consequently, a properly designed system will give citizens the hope of a positive outcome for their tax dollar expenditure.

For this report, “total” response time is the sum of the alarm processing, dispatch, crew turnout, and road travel time increments. This is consistent with CFAI best practice recommendations.

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## 2.4 COMMUNITY RISK ASSESSMENT

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**SOC ELEMENT 3 OF 8**  
**COMMUNITY RISK**  
**ASSESSMENT**

The third element of the SOC process is a community risk assessment. Within the context of an SOC study, the objectives of a community risk assessment are to:

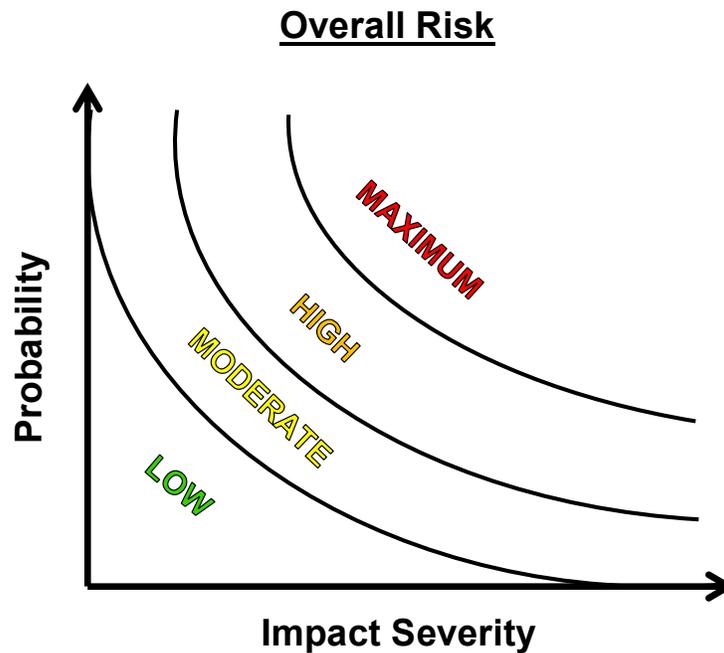
1. Identify the values at risk to be protected within the community or service area
2. Identify the specific hazards with the potential to adversely impact the community or service area
3. Quantify the overall risk associated with each hazard
4. Establish a foundation for current/future deployment decisions and risk-reduction/hazard mitigation planning and evaluation.

A *hazard* is broadly defined as a situation or condition that can cause or contribute to harm. Examples include fire, medical emergency, vehicle collision, earthquake, flood, etc. *Risk* is broadly defined as the *probability of hazard occurrence* in combination with the *likely severity of resultant impacts* to people, property, and the community as a whole.

### 2.4.1 Risk Assessment Methodology

The methodology employed by Citygate to assess community risks as an integral element of an SOC study incorporates the following elements:

- ◆ Identification of geographic planning sub-zones (risk zones) appropriate to the community or jurisdiction.
- ◆ Identification and quantification (to the extent data is available) of the specific values at risk to various hazards within the community or service area.
- ◆ Identification of the fire and non-fire hazards to be evaluated.
- ◆ Determination of the probability of occurrence for each hazard.
- ◆ Identification and evaluation of multiple relevant Impact Severity Factors for each hazard by planning zone using agency/jurisdiction-specific data and information.
- ◆ Quantification of overall risk for each hazard based on probability of occurrence in combination with probable impact severity as shown in Figure 7.

**Figure 7—Overall Risk**

### 2.4.2 Values at Risk

*Values at risk*, broadly defined, are those tangibles of significant importance or value to the community or jurisdiction potentially at risk of harm or damage from a hazard occurrence. Values at risk typically include people, critical facilities/infrastructure, buildings, and key economic, cultural, historic, and/or natural resources.

#### *People*

Residents, employees, visitors, and travelers through a community or jurisdiction are vulnerable to harm from a hazard occurrence. Particularly vulnerable are specific at-risk populations, including those unable to care for themselves or self-evacuate in the event of an emergency. At-risk populations typically include children less than 10 years of age, the elderly, and people housed in institutional settings. Key demographic data for the District includes the following:

- ◆ Just over 21 percent of the population is under 10 or over 65 years of age
- ◆ The District's population is predominantly Hispanic/Latino (42 percent), followed by Asian (23 percent), White (15 percent), Other ethnic origins (13 percent), and Black / African American (6 percent)
- ◆ Of the population over 24 years of age, 40 percent has completed high school or equivalency

- ◆ Of the population over 24 years of age, 31.5 percent has an undergraduate, graduate, or professional degree
- ◆ Nearly 66 percent of the population 16 years of age or older is in the workforce; of those, nearly 10 percent are unemployed
- ◆ The population below the federal poverty level is 8.6 percent
- ◆ Nearly 89 percent of the population has health insurance coverage.

The District’s service area includes more than 47,000 housing units, as well as a large inventory of office, professional services, retail sales, restaurants/bars, motels, churches, schools, government facilities, healthcare facilities, industrial, and other non-residential building occupancies.

There are multiple economic, cultural, and natural resources to be protected within the District, as well as critical facilities, where a hazard occurrence with significant impact severity would likely affect critical public or community services.

### 2.4.3 Hazard Identification

Citygate utilizes prior risk studies where available, fire and non-fire hazards as identified by the CFAI, and agency/jurisdiction-specific data and information to identify the hazards to be evaluated for this study.

Following review and evaluation of the hazards identified in the 2011 Chino and Chino Hills Hazards Mitigation Plan Updates (LHMP), and the fire and non-fire hazards as identified by the CFAI as they relate to services provided by the District, Citygate evaluated the following six hazards for this risk assessment:

1. Building Fire
2. Wildland Fire
3. Medical Emergency
4. Hazardous Materials Release/Spill
5. Technical Rescue
6. Aviation Risk

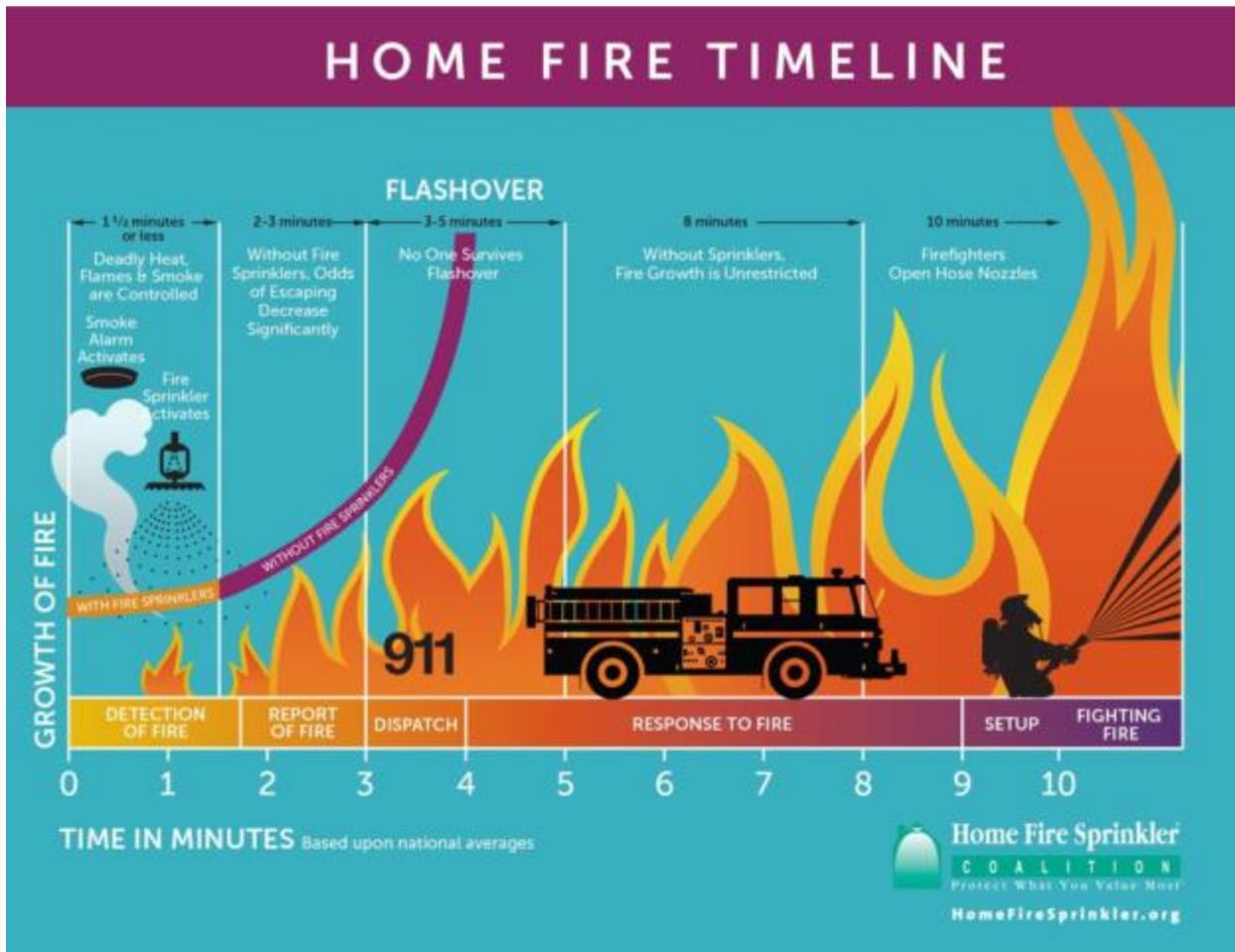
Because building fires and medical emergencies have the most severe time constraints if positive outcomes are to be achieved, following is a brief overview of building fire and medical emergency risk. **Appendix A** found in Volume 3 contains the full risk assessment for all six hazards.

**Building Fire Risk**

One of the primary hazards in any community is building fire. Building fire risk factors include building density, size, age, occupancy, and construction materials and methods, as well as the number of stories, the required fire flow, the proximity to other buildings, built-in fire protection/alarm systems, an available fire suppression water supply, building fire service capacity, fire suppression resource deployment (distribution/concentration), staffing, and response time.

Figure 8 illustrates the building fire progression timeline and shows that flashover, which is the point at which the entire room erupts into fire after all the combustible objects in that room reach their ignition temperature, can occur as early as three to five minutes from the initial ignition. Human survival in a room after flashover is extremely improbable.

**Figure 8—Building Fire Progression Timeline**



### ***Wildland Fire Risk***

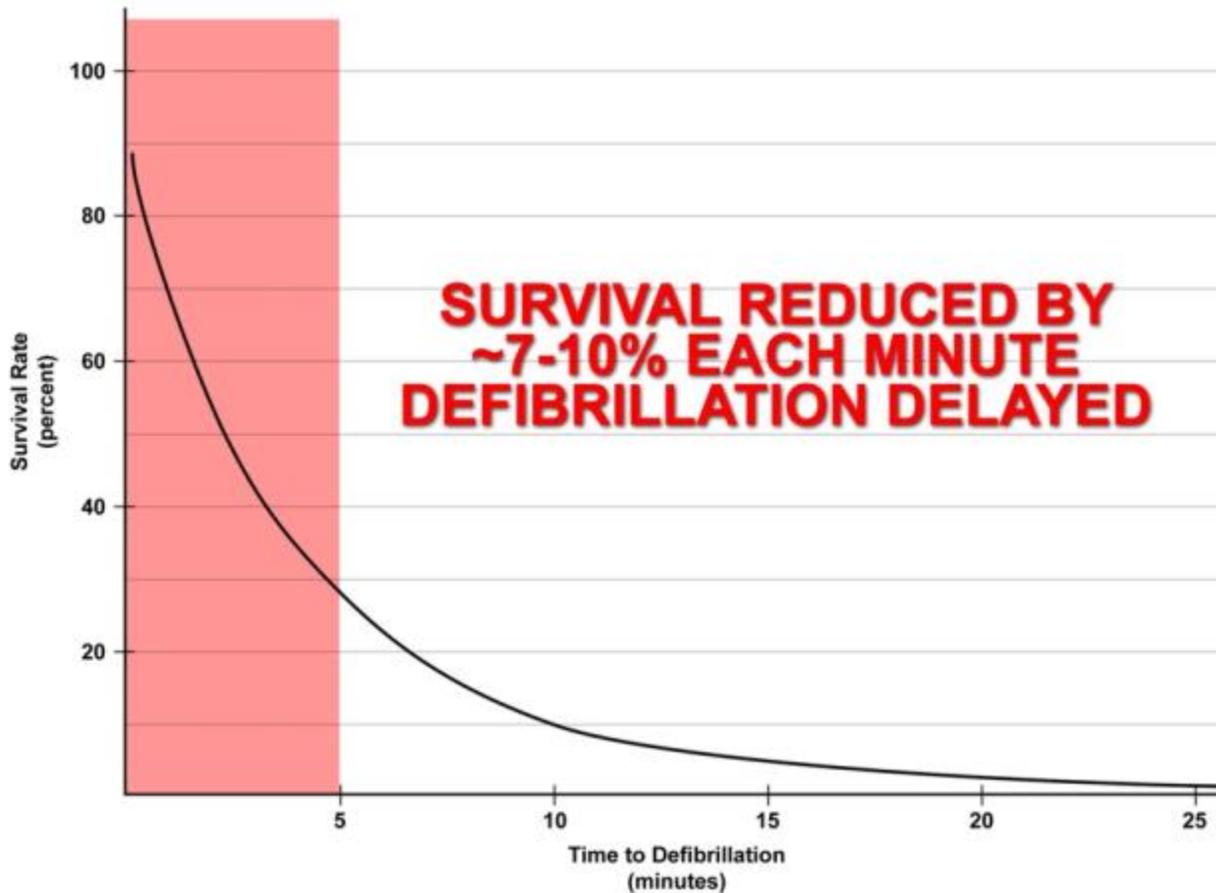
Many areas of the District are vulnerable to a wildland fire; however, the highest risk is in the wildland-urban interface (WUI) areas where human population and related development exist within a predominantly wildland vegetation fuel environment.

**Finding #4:** Large areas of the City of Chino Hills west of Highway 71 are within a **Very High** wildland Fire Hazard Severity Zone (FHSZ), as identified by the California Department of Forestry and Fire Protection (CAL FIRE).

### ***Medical Emergency Risk***

Fire agency service demand in most jurisdictions today is predominantly for medical emergencies. Figure 9 illustrates the reduced survivability of a cardiac arrest victim as time to defibrillation increases.

**Figure 9—Survival Rate versus Time to Defibrillation**



Source: [www.suddencardiacarrest.com](http://www.suddencardiacarrest.com)

#### 2.4.4 Risk Assessment Summary

Citygate’s evaluation of the values at risk and hazards likely to impact the District’s service area yields the following:

1. The District serves a diverse population, with densities ranging from less than 1,000 per square mile to more than 10,000 per square mile, over a widely varied land-use pattern
2. The District’s population is projected to grow 20.5 percent over the next 18 years to 2035, for an average annual growth of 1.15 percent
3. The District has a large inventory of residential, commercial, office, industrial, educational, and other non-residential uses typical of other southern California communities of similar size and demographics

4. The District has significant economic and natural resource values to be protected, as identified in this assessment
5. Several areas of the District within the City of Chino Hills are within a **Very High** wildland Fire Hazard Severity Zone as recommended by the California Department of Forestry and Fire Protection (CAL FIRE)
6. The District has established an effective year-round inspection program to ensure that required wildland defensible space is appropriately established and maintained
7. The Carbon Canyon Community Wildfire Protection Plan identifies multiple priorities to reduce wildland fire impacts within the canyon area
8. The two Cities and San Bernardino County have established appropriate emergency evacuation protocols, procedures, and resources in their Emergency Operations Plans
9. San Bernardino County has established a mass emergency telephone notification system to effectively communicate emergency information to the public in a timely manner
10. The District’s overall risk for six hazards related to emergency services provided range from **Low** to **High**, as summarized in Table 10.

**Table 10—Overall Risk by Hazard**

Hazard		Planning Zone						
		Sta. 61	Sta. 62	Sta. 63	Sta. 64	Sta. 65	Sta. 66	Sta. 67
1	Building Fire	High	Moderate	Moderate	Moderate	High	High	High
2	Wildland Fire	Moderate	Moderate	Moderate	High	Moderate	Moderate	Moderate
3	Medical Emergency	High	High	High	Moderate	High	High	High
4	Hazardous Material	Moderate	Moderate	Moderate	Low	Moderate	Moderate	Moderate
5	Technical Rescue	Moderate	Low	Moderate	Low	Moderate	Moderate	Low
6	Aviation	Low	Low	Moderate	Low	Low	Low	Low

**Appendix A** found in Volume 3 contains a more in-depth discussion of the risk factors evaluated and resultant risk assessment scoring.

## 2.5 CRITICAL TASK TIME MEASURES—WHAT MUST BE DONE OVER WHAT TIME FRAME TO ACHIEVE THE STATED OUTCOME EXPECTATION?

### SOC ELEMENT 4 OF 8 CRITICAL TASK TIME STUDY

Standards of Coverage (SOC) studies use task time information to determine the number of firefighters needed within a time frame to accomplish the desired fire control objective on moderate residential fires and modest emergency medical incidents. The time it takes to complete one specific task is called an “evolution.” These task time evolutions are shown on Table 11 and Table 12 to demonstrate the amount of time these operations require. These tables start with the time of fire dispatch notification and finish with the outcome achieved. These tables are composite tables from Citygate clients in suburban/rural departments similar to the Chino Valley Fire District, with units staffed with three to four personnel per engine or ladder truck. These tasks and times are also consistent with national published studies.<sup>6</sup> There are several important themes contained in these tables:

- ◆ The evolution test results were obtained at training sites under best-case conditions: clear weather with moderate temperatures. The structure fire response times are from actual events, showing how units arrive at staggered intervals.
- ◆ It takes a considerable amount of time after a task is ordered by command to accomplish it and arrive at the desired outcome.
- ◆ Task completion time is usually a function of how many personnel are *simultaneously* available. The fewer firefighters available, the longer some tasks will take to complete. Conversely, with more firefighters available, some tasks are completed concurrently.
- ◆ Some tasks must be conducted by a minimum of two firefighters to comply with safety regulations. For example, two firefighters are required to search a smoke-filled room for a victim.

### 2.5.1 Critical Firefighting Tasks

Table 11 shows company and individual tasks required to control a typical single-family dwelling fire with five apparatus and one Chief Officer with a total *Effective Response Force* of 17 personnel. These tasks are taken from fire departments’ operational procedures, which are

<sup>6</sup> Report on Residential Fireground Field Experiments, National Institute of Standards and Technology Technical Note #1661, April 2010. NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2016 Edition.

consistent with the customary findings of other agencies using the Standards of Coverage process. No conditions existed to override the Occupational Safety and Health Administration (OSHA) “two-in/two-out” safety policy, which requires that firefighters enter serious building fires in teams of two, while two more firefighters are outside and immediately ready to rescue them should trouble arise.

**Scenario:** Simulated approximately 2,000 square-foot, two-story residential fire with unknown rescue situation. Responding companies receive dispatch information typical for a witnessed fire. Upon arrival, they find approximately 50 percent of the home involved in fire.

**Table 11—First Alarm Residential Fire Critical Tasks – 17 Personnel**

Critical Task Description	Task Time <sup>1</sup>	Total Elapsed Time
9-1-1 call	0:00	0:00
9-1-1 call processing/dispatch	1:30	1:30
Crew turnout	2:00	3:30
1 <sup>st</sup> engine travel time to incident (90%)	4:00	7:30
2 <sup>nd</sup> engine travel time to incident (90%)	5:30	9:00
3 <sup>rd</sup> engine travel time to incident (90%)	7:00	10:30
Establish incident command, incident size-up, and conditions report	2:30	
Secure utilities	1:30	
Establish water supply	3:00	
Chief Officer travel time to incident (90%)	8:00	11:30
Deploy attack line to building access point	3:00	
4 <sup>th</sup> engine/truck travel time to incident (90%)	8:00	11:30
Deploy first ladder to roof	3:00	
Deploy second attack line	3:00	
Establish Initial Rapid Intervention Crew (IRIC)	1:00	13:30
Attack team entry/initiate fire suppression	0:15	
Primary victim search	8:00	17:30
Deploy back-up attack line	3:00	
Deploy 2 <sup>nd</sup> ladder to roof	3:00	
Vertical ventilation established	8:00	
Secondary victim search	8:00	
Check for fire extension in attic/hidden spaces	10:00	
<b>Fire contained</b>	5:00	<b>20:45</b>

<sup>1</sup> The task times represent the time needed to complete each individual task; many are occurring simultaneously

The duties in Table 11, grouped together, form an *Effective Response Force* or *First Alarm*

*Assignment.* These distinct tasks must be performed to effectively achieve the desired outcome; arriving on-scene does not stop the escalation of the emergency. While firefighters accomplish these tasks, the incident progression clock keeps running.

Fire in a building can double in size during its *free-burn* period before fire suppression is initiated. Many studies have shown that a small fire can spread to engulf an entire room in less than 4:00 to 5:00 minutes after free burning has started. Once the room is completely superheated and involved in fire (known as flashover), the fire will spread quickly throughout the structure and into the attic and walls. For this reason, it is imperative that fire suppression and search/rescue operations commence before the flashover point occurs if the outcome goal is to keep the fire damage in or near the room of origin. In addition, flashover presents a serious danger to both firefighters and any occupants of the building.

A 2010 National Institute of Standards and Technology (NIST) study<sup>7</sup> tested multiple crew staffing and arrival timing scenarios relative to the completion of 22 critical tasks for a low-hazard residential building fire using four fire companies (three engines and one truck). The study found that the three-person crews completed all 22 critical tasks nearly 7 percent faster (on average) than the two-person crews, and the four-person crews completed the same tasks nearly 25 percent faster than the three-person crews. These findings support the CFAI critical time task element of the SOC analysis process and the critical task times reflected in Table 11 and Table 12.

### 2.5.2 Critical Medical Emergency Tasks

The District responds to over 7,000 EMS incidents annually, including vehicle accidents, strokes, heart attacks, difficulty breathing, falls, childbirths, and other medical emergencies.

For comparison, Table 12 summarizes the critical tasks required for a cardiac arrest patient.

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<sup>7</sup> NIST Technical Note 1661, Report on Residential Fireground Field Experiments (April 2010)

**Table 12—Cardiac Arrest Critical Tasks – 3 Personnel<sup>8</sup> + ALS Ambulance**

Critical Task Description	Task Time	Total Elapsed Time
9-1-1 call	0:00	0:00
9-1-1 call processing/dispatch	1:30	1:30
Crew turnout	2:00	3:30
1 <sup>st</sup> engine travel time to incident (90%)	4:00	7:30
Assess patient / start CPR	0:55	
Ambulance travel time to incident	8:00	10:00
Attach cardiac monitor to patient	0:30	
Attach auto pulse CPR unit	0:30	
Establish Intravenous line	2:00	13:55
Initiate bag valve mask ventilation	0:20	
Administer epinephrine	0:30	16:00
Intubate patient	0:40	16:40
Defibrillate patient; positive change in patient rhythm	0:30	17:10
Secure patient on gurney	0:45	17:55
<b>Secure patient in ambulance ready for transport</b>	2:40	<b>20:35</b>

### 2.5.3 Critical Task Analysis and Effective Response Force Size

What does a deployment study derive from a critical task analysis? The total task times (as shown in Table 11 and Table 12) to stop the escalation of an emergency must be compared to outcomes. Nationally published fire service “time vs. temperature” tables show that after approximately 4:00 to 5:00 minutes of free burning, a room fire will escalate to the point of flashover. At this point, the entire room is engulfed in fire, the entire building becomes threatened, and human survival near or in the room of fire origin becomes impossible. Additionally, brain death begins to occur within 4:00 to 6:00 minutes of the heart stopping. Thus, the Effective Response Force must arrive in time to prevent these emergency events from becoming worse.

The District’s daily staffing level is sufficient to deliver a single Effective Response Force of 20 firefighters to a building fire—if they can arrive in time, which the mapping and statistics sections of this study will show is not always possible. Mitigating an emergency event is a team effort once the units have arrived. This refers to the *weight* of response analogy; if too few personnel arrive too slowly, then the emergency will escalate instead of improving. The outcome

<sup>8</sup> Minimum of one paramedic

times, of course, will be longer and yield less desirable results if the arriving force is later or smaller.

The quantity of staffing and the arrival time frame can be critical in a serious fire. Fires in older and/or multi-story buildings could well require the initial firefighters needing to rescue trapped or immobile occupants. If the ERF is too small, rescue and firefighting operations *cannot* be conducted simultaneously.

Fires and complex medical incidents require that additional units arrive in time to complete an effective intervention. Time is one factor that comes from *proper station placement*. Good performance also comes from *adequate staffing* and training. But where fire stations are spaced too far apart, and one unit must cover another unit's area, or multiple units are needed, these units can be too far away and the emergency will escalate and/or result in less than desirable outcome.

Previous critical task studies conducted by Citygate and NFPA Standard 1710 find that all units need to arrive with 15+ firefighters within 11:30 minutes (from the time of call) at a room and contents structure fire to be able to *simultaneously and effectively* perform the tasks of rescue, fire suppression, and ventilation.

A question one might ask is, “If fewer firefighters arrive, *what* from the list of tasks mentioned would not be completed?” Most likely, the search team would be delayed, as would ventilation. The attack lines would only consist of two firefighters, which does not allow for rapid movement of the hose line above the first-floor in a multi-story building. Rescue is conducted with only two-person teams; thus, when rescue is essential, other tasks are not completed in a simultaneous, timely manner. Effective deployment is about the **speed** (*travel time*) and the **weight** (*firefighters*) of the response.

Twenty initial firefighters could handle a moderate-risk, confined residential fire; however, even an ERF of 20 personnel will be seriously slowed if the fire is above the first floor in a low-rise apartment building or commercial/industrial building. This is where the capability to add additional personnel and resources to the standard response becomes critical.

Given that the District's response plan delivers 20 personnel to a moderate risk building fire, it reflects the District's goal to confine serious building fires to or near the room of origin and to prevent the spread of fire to adjoining buildings. This is a typical desired outcome in urban/suburban areas and requires more firefighters more quickly than the typical rural outcome of keeping the fire contained to the building, not room, of origin.

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## 2.6 DISTRIBUTION AND CONCENTRATION STUDIES—HOW THE LOCATION OF FIRST-DUE AND FIRST ALARM RESOURCES AFFECTS EMERGENCY INCIDENT OUTCOMES

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### SOC ELEMENT 5 OF 8 DISTRIBUTION STUDY

### SOC ELEMENT 6 OF 8 CONCENTRATION STUDY

The District is served today by seven fire stations deploying seven engine companies, one aerial ladder truck, four paramedic squads, and one Battalion Chief as the duty Incident Commander. It is appropriate to understand using geographic mapping tools what the existing stations do and do not cover within travel time goals, if there are any coverage gaps needing one or more stations, and what, if anything, to do about them.

In brief, there are two geographic perspectives to fire station deployment:

- ◆ **Distribution** – the spacing of first-due fire units to control routine emergencies before they escalate and require additional resources.
- ◆ **Concentration** – the spacing of fire stations sufficiently close to each other so that more complex emergency incidents can receive sufficient resources from multiple fire stations quickly. This is known as the **Effective Response Force**, or, more commonly, the “First Alarm Assignment”—the collection of a sufficient number of firefighters on scene delivered within the concentration time goal to stop the escalation of the problem.

To analyze first-due fire unit travel time coverage, Citygate used a geographic mapping tool called FireView™ that can measure theoretical travel time over the street network. For this time calculation, Citygate used the base map and street travel speeds calibrated to actual fire apparatus travel times from previous responses to simulate actual travel time coverage. Using these tools, Citygate ran several deployment tests and measured their impact on various parts of the District. The first-due travel time measure used was 4:00 minutes over the District’s road network, which is generally necessary to achieve desired outcomes to critical emergencies. When 3:30 minutes are added for dispatch processing and crew turnout time, then the maps effectively show the area covered within 7:30 minutes of the Ontario Fire Department Communications Center receiving the 9-1-1 call for the first-due unit, and 11:30 minutes (8:00 minutes travel time) for an Effective Response Force (First Alarm) response.

### 2.6.1 Deployment Baselines

#### *Map 1 – General Geography and Station Locations*

Map 1 shows the District boundary and fire station locations, including adjacent agency mutual aid stations. This is a reference map for other maps that follow. Station symbols denote the type

of staffed fire apparatus at each station. It is important to remember that all District fire apparatus are staffed with at least one paramedic.

***Map 2 – Risk Assessment: Planning Zones***

This map shows the initial response (first-due) area for each District station, which are also the seven planning zones used for this study.

***Map 3 – Risk Assessment: Critical Facilities***

Map 3 shows the locations of the District’s 132 critical facilities as described in Appendix A.1.4 found in Volume 3.

***Map 4 – Risk Assessment: High Needed Fire Flow Locations***

This map displays the locations of 313 buildings within the District with needed fire flow greater than 2,500 gallons per minute as determined by the ISO. As the map illustrates, these buildings are located in the commercial zoning areas of the District.

***Map 5 – Risk Assessment: Population Density***

Map 5 shows the District’s population density, aggregated by census block group, ranging from less than 1,000 to more than 10,000 per square mile. The higher population density areas are also the areas where the calls for service and building densities are higher. These are also the areas where the District’s ERF (First Alarm) response times need to be shorter to facilitate desired outcomes.

***Map 6 – Risk Assessment: High-Risk Occupancies***

This map shows the location of the District’s 902 high- or maximum-risk occupancies as defined by the CFAI.

***Map 7 – Risk Assessment: Wildland Fire Hazard Severity Zones***

Map 7 shows the areas of the District wildland fire hazards severity zones as recommended by the California Department of Forestry and Fire Protection (CAL FIRE).

***Map 8 – Risk Assessment: Hazardous Materials Sites***

This map shows the location of the 527 sites within the District requiring a State or County hazardous material operating permit or Hazardous Materials Business Plan (HMBP).

***Map 9 – First-Due Unit Distribution: 4:00-Minute First-Due Travel Time Coverage (Non-Congested)***

Map 9 shows 4:00-minute first-due travel time coverage from the District’s current fire station locations, with green indicating the street segments that a response unit could be expected to

reach within this time interval assuming it is in its station and encounters *no traffic congestion*. The modeling tool uses actual fire apparatus speed by roadway type.

The purpose of response time modeling is to determine response time coverage across a jurisdiction’s geography and station locations. This geo-mapping design is then validated against dispatch time data to reflect actual response times. There should be some overlap between station areas so that a second-due unit can have a chance of an acceptable response time when it responds to a call in another station’s first-due response area.

As discussed in Appendix B.3 found in Volume 3, District-wide first-due *travel time* to 90 percent of all incidents ranges, by station area, from 5:17 to 8:30 minutes over the three-year study period.

**Finding #5:** Approximately 57 percent of the District’s total public road network is within 4:00-minute first-due travel time of an existing fire station *without traffic congestion*.

**Map 10 – First-Due Unit Distribution: 4:00-Minute First-Due Travel Time Coverage WITH TRAFFIC CONGESTION**

This map shows 4:00-minute first-due travel time coverage during daily traffic congestion periods. Note that 4:00-minute travel time coverage is **reduced by more than 24 percent**, to only 33 percent of total public road miles, from non-traffic congestion periods.

**Finding #6:** During peak traffic congestion periods, 4:00-minute first-due travel time coverage is *reduced by more than 24 percent* to 33 percent of the District’s total public road network.

**Map 11 – ISO 1.5-Mile Coverage Areas**

Map 11 displays the ISO recommendation that urban stations cover a 1.5-mile *distance* response area. Depending on a jurisdiction’s road network, the 1.5-mile measure usually equates to a 3:30- to 4:30-minute travel time. However, a 1.5-mile measure is a reasonable indicator of station spacing and overlap. As can be seen, the 1.5-mile ISO coverage is similar to the non-congested coverage in Map 9.

**Map 12 – Concentration: Effective Response Force (ERF) 8:00-Minute Travel Time Coverage (Non-Congested)**

This map shows in blue where the District’s current response plan *should* deliver the initial ERF of four engines, one truck, one medic squad, one Battalion Chief, and one Safety Officer (total of 20 personnel), within 8:00 minutes travel time *without traffic congestion*.

As discussed in Appendix B.3 found in Volume 3, District-wide ERF *travel time* to 90 percent of all incidents ranges, by station area, from 7:53 to 10:40 minutes over the three-year study period.

**Finding #7:** Approximately 92 percent of the District’s public road network is within 8:00-minute ERF travel time of an existing fire station *without traffic congestion*.

**Map 13 – Concentration: Effective Response Force (ERF) 8:00-Minute Travel Time Coverage WITH TRAFFIC CONGESTION**

Map 13 shows that 8:00-minute ERF travel time coverage during daily traffic congestion periods is **reduced by more than 50 percent**, to 42 percent of total public road miles, from non-traffic congestion periods.

**Finding #8:** During peak traffic congestion periods, 8:00-minute ERF travel time coverage is *reduced by more than 50 percent* to 42 percent of the District’s total public road network.

**Map 14 – 8:00-Minute Truck Travel Time Coverage (Non-Congested)**

This map shows 8:00-minute travel time coverage for the District’s single aerial ladder truck from Station 61.

**Map 15 – 8:00-Minute Truck Travel Time Coverage WITH TRAFFIC CONGESTION**

Map 15 shows 8:00-minute travel time coverage for the District’s aerial ladder truck from Station 61 during peak traffic congestion periods is **reduced by more than 50 percent**, to 42 percent of the District’s total public road network, from non-congested periods.

**Map 16 – Battalion Chief 8:00-Minute Travel Time Coverage**

This map shows that the duty Battalion Chief can be expected to reach approximately 92 percent of the District’s total public road network within 8:00 minutes travel time from Station 61 *without traffic congestion*.

### ***Map 17 – Battalion Chief 8:00-Minute Travel Time Coverage WITH TRAFFIC CONGESTION***

Map 17 shows that 8:00-minute travel time for the duty Battalion Chief from Station 61 is **reduced by 42 percent**, to approximately 50 percent of the District’s total public road network, from non-congested periods.

### ***Map 18 – All Incident Locations***

This map shows the location of all 11,465 incidents from January 1, 2016 through December 31, 2016. It is apparent from this map that incidents occur on almost every road segment within the District.

### ***Map 19 – Emergency Medical Services and Rescue Incident Locations***

Map 19 illustrates only the emergency medical and rescue call locations for 2016. With the majority of the calls for service being medical emergencies, virtually all areas of the District require pre-hospital emergency medical services.

### ***Map 20 – All Fire Type Locations***

This map shows the location of all 297 fire incidents in 2016. All fires include any type of fire call, from vehicle to dumpster to building. There are obviously fewer fires than medical or rescue calls. Even given this, it is evident that fires occur in all planning zones, and fires are more concentrated where populations, buildings, and traffic are more densely spaced due to zoning and historic growth.

### ***Map 21 – Structure Fire Locations***

Map 21 displays the location of the 122 structure fires in 2016. While the number of structure fires is a smaller subset of total fires, there are two meaningful findings from this map. First, there are structure fires in every District planning zone, and, second, there are few building fires in the District overall.

The location of many of the building fires parallels the older and higher risk building types in the District in which more significant risk, and the ISO-evaluated buildings, are more common. These areas and buildings pose a significant fire and life loss risk. Additionally, fires in the more complicated building types must be controlled quickly or the losses could be more significant.

### ***Map 22 – Emergency Medical Services and Rescue Incident Location Densities***

This map examines, by mathematical density, where clusters of emergency medical services incident activity occurred in 2016. In this set, the darker density color plots the highest concentration of EMS/rescue incidents. This type of map makes the location of frequent

workload more meaningful than just mapping the locations of all EMS incidents, as was done for Map 19.

This perspective is important because the deployment system needs an overlap of units to ensure the delivery of multiple units when needed for more serious incidents or to handle simultaneous calls for service, as is evident in the higher concentration areas between District stations.

### ***Map 23 – All Fire Location Densities***

Map 23 is similar to Map 20, but shows the hot spots of activity for all types of fires. Again, fire density is greater in the higher population and building density areas of the District.

### ***Map 24 – Structure Fire Densities***

Map 24 shows only the building fire workload by density. Similar to Map 23, building fire density is concentrated in the higher population density areas of the District.

## **2.7 STATISTICAL ANALYSIS**

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**SOC ELEMENT 7 OF 8**  
**RELIABILITY & HISTORICAL**  
**RESPONSE EFFECTIVENESS**  
**STUDIES**

The maps described in Section 2.6 and presented in Volume 2 show the ideal situation for response times and the response effectiveness with no competing calls, units out of place, or simultaneous calls for service. Examination of the response time data provides a picture of response performance with simultaneous calls, rush

hour traffic congestion, units out of position, and delayed travel time for events such as periods of severe weather.

### **2.7.1 Service Demand**

For 2016, the District responded to 11,465 calls for service for an average daily service demand of 31.41 incidents. Of those, 2.65 percent were fire incidents, 73.74 percent were EMS incidents, and 23.61 percent were other incidents (e.g., alarm activation with no fire, false alarm, no incident found, public assist, smoke scare, assist other agency, smoke or odor removal, electrical problem, water leak, rescue, hazardous material incident, animal problem, etc.).

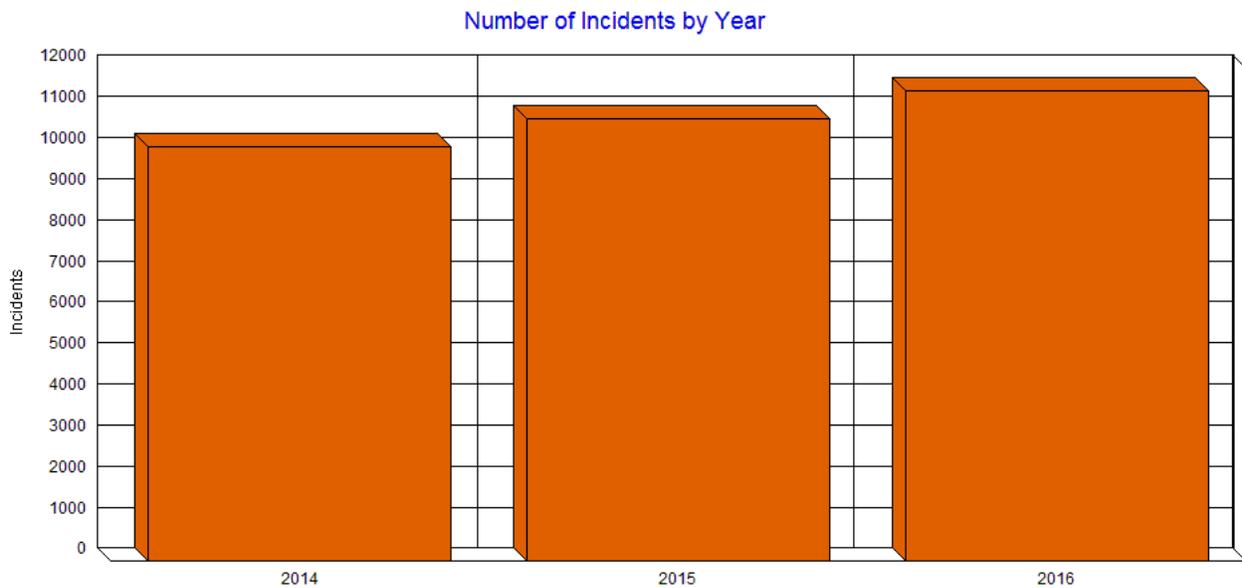
Annual service demand is trending steadily upward, averaging 6.6 percent annually over the most recent three-year period, as shown in Table 13 and Figure 10.

**Table 13—Annual Service Demand**

Year	Incidents
2014	10,087
2015	10,783
2016	11,465
<b>Total</b>	<b>32,335</b>

Source: Chino Valley Fire District incident records

**Figure 10—Annual Service Demand by Year**



**Finding #9:** Service demand is increasing steadily, averaging 6.6 percent annually over the most recent three-year period.

Figure 11 illustrates annual service demand by station over the three-year study period. Note that four of the seven stations had increased service demand in 2016, with a significant increase for Station 65.

**Figure 11—Service Demand by Station by Year**

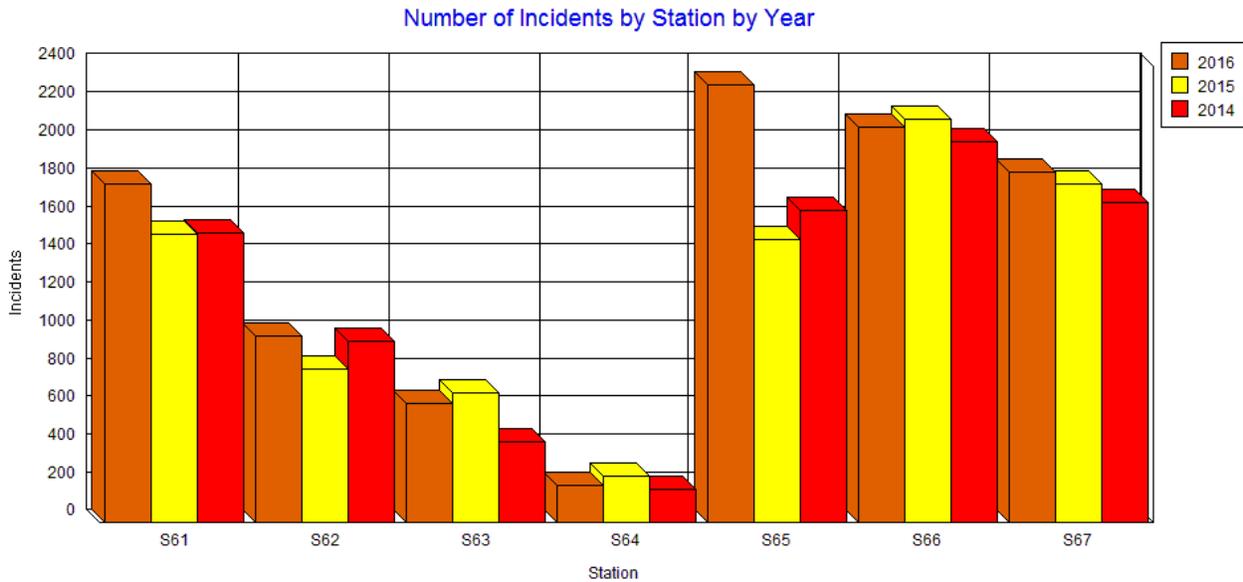


Figure 12 illustrates annual service demand by incident category. Note the steady increase in EMS incidents and the smaller increase in other incident types.

**Figure 12—Annual Service Demand by Incident Type**

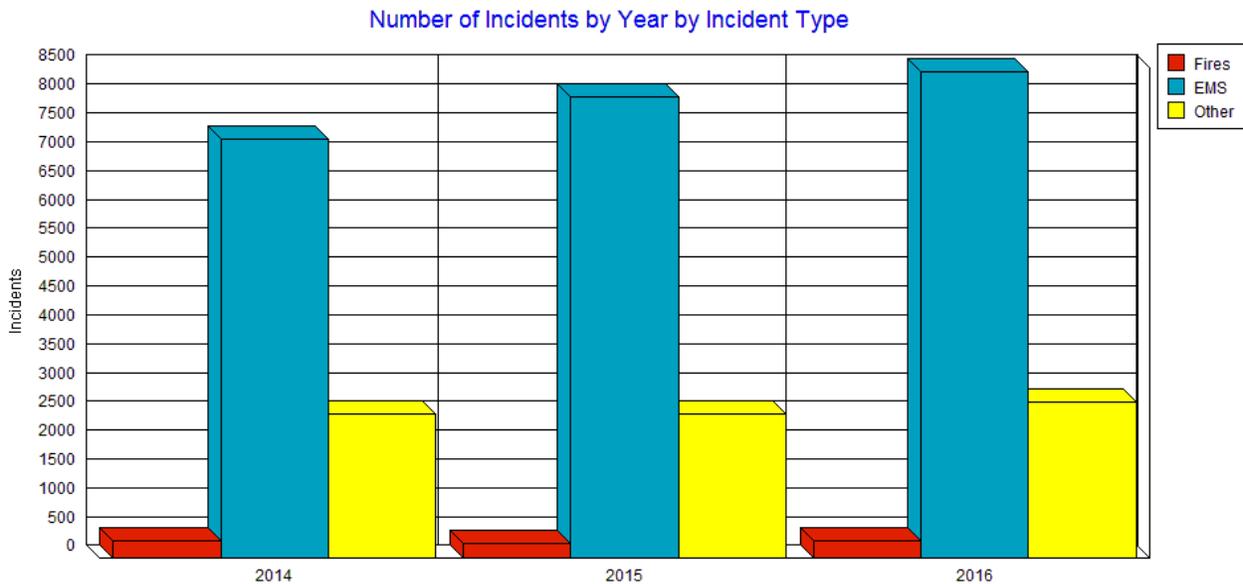
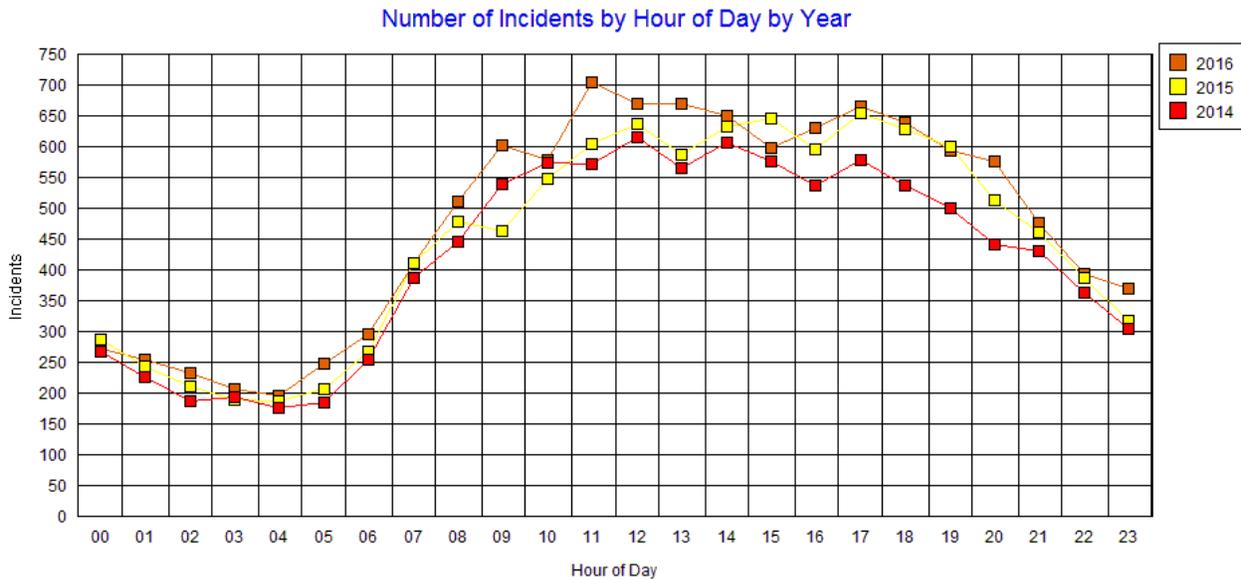


Figure 13 illustrates annual service demand by hour of day. Of note is the consistency of service demand during early morning hours, with larger variation from about 9:00 am to 9:00 pm. This service demand curve is typical for urban/suburban departments, with increased service demand

during typical business hours and peak demand period from approximately 10:00 am to 10:00 pm.

**Figure 13—Service Demand by Hour of Day and Year**



**Finding #10:** The District has consistent day-of-week and month-of-year service demand, indicating the need for a 24-hour-per-day, seven-day-per-week fire and EMS emergency response system.

### 2.7.2 Operational Performance

Once incident types are quantified, the analysis shifts to the time required to respond to those emergencies. Fractile analyses track the percentage of incidents meeting defined criteria, such as the first apparatus to reach the scene within progressive time segments. Based on national best practice recommendations and Citygate’s experience, this study’s first-due response time test measurement is for the 90 percent call to arrival to be *7:30 minutes or less* for urban/suburban planning (demand) zones. This is comprised of three component elements: call processing time, turnout time, and travel time.

#### *Call Processing*

*Call processing* time is the time it takes to answer the 9-1-1 call, determine the nature of the emergency, enter information into the computer-aided dispatch (CAD) system, and dispatch the

appropriate resource(s). Recognized best practice<sup>9</sup> is for 90 percent of calls to be dispatched within 90 seconds; where language barriers exist, or medical self-help instructions are needed, these calls should be dispatched within 120 seconds. Multiple law enforcement communications centers serve as Public Safety Answering Points (PSAP) for 9-1-1 calls within the region. The Ontario Fire Department Communications Center serves as a secondary PSAP and provides dispatch services for the District. Table 14 shows 90<sup>th</sup> percentile call processing performance, from the time the Ontario Fire Department Communications Center receives the transferred 9-1-1 call from the PSAP to completion of the dispatch.

**Table 14—90<sup>th</sup> Percentile Call Processing Performance**

Response Zone	Overall	2014	2015	2016
District-Wide	01:21	01:18	01:21	01:23

As Table 14 shows, call processing performance is 35 percent *slower* (0:21) than the District’s current 1:00-minute goal; however, it is consistently seven percent *faster* (better) than the 1:30-minute best practice standard over the three-year study period.

**Finding #11:** Call processing performance is *consistently better* than the recommended 1:30-minute best practice standard.

***Crew Turnout***

*Crew turnout* time is the time it takes for the crew(s) to hear the dispatch message, confirm the response travel route, don appropriate safety clothing, and board the apparatus for response. While a nationally recommended best practice standard is 60 to 80 seconds,<sup>10</sup> it has long been recognized as a standard rarely met in practical experience. Citygate has long recommended that, due to this and the floor plan design of some fire stations, most agencies should be able to reasonably achieve a 2:00-minute crew turnout time at 90 percent compliance. Table 15 shows the District’s 90<sup>th</sup> percentile turnout time performance.

**Table 15—90<sup>th</sup> Percentile Crew Turnout Performance**

Response Zone	Overall	2014	2015	2016
District-Wide	02:03	02:06	02:00	02:02

<sup>9</sup> NFPA Standard 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2016)

<sup>10</sup> NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2016)

As Table 15 shows that while crew turnout performance fails to meet the District’s current 1:00-minute goal by 100 percent, it *consistently meets* the Citygate-recommended 2:00-minute goal.

**Finding #12:** Crew turnout performance *consistently meets* a Citygate-recommended goal of 2:00 minutes or less.

**Travel**

*Travel* time is defined as the time segment that begins with the start of apparatus movement and ends when that apparatus stops moving on arrival at the emergency. It is important to understand that this time segment *does not include* the time required to exit the apparatus and walk to an EMS patient or to deploy a hose line on a fire.

**First-Due Travel**

The recommended best practice standard for first-due travel is 4:00 minutes or less for urban/suburban demand zones.<sup>11</sup> Table 16 shows the District’s 90<sup>th</sup> percentile first-due travel time performance.

**Table 16—90<sup>th</sup> Percentile First-Due Travel Time Performance**

Response Zone	Overall	2014	2015	2016
District-Wide	06:22	06:32	06:32	06:03

As Table 16 shows, first-due travel time performance *fails to meet* the District’s current 5:00-minute goal by 27 percent (1:22) and also *fails to meet* the recommended 4:00-minute best practice goal for urban/suburban areas by 59 percent (2:22), primarily due to large first-due response areas, topography and curvilinear roads in Chino Hills, and daily traffic congestion.

**Finding #13:** First-due travel performance *fails to meet* a recommended best practice goal of 4:00 minutes or less for urban/suburban zones by 59 percent (2:22 minutes) due to large first-due response areas, topography and curvilinear roads in Chino Hills, and daily traffic congestion.

<sup>11</sup> NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2016)

## ERF Travel

Recommended best practice standards for ERF travel is 8:00 minutes or less for urban/suburban zones.<sup>12</sup> Table 17 shows the District’s 90<sup>th</sup> percentile ERF travel time performance.

**Table 17—90<sup>th</sup> Percentile ERF Travel Time Performance**

Response Zone	Overall	2014	2015	2016
District-Wide	10:40	N/A	N/A	10:40

As Table 17 shows, ERF travel time performance is 33 percent (2:40) *slower* than the best practice recommendation and current District goal of 8:00 minutes. It is important to note that this performance is based on only four incidents where the full ERF arrived at the incident from the initial dispatch and that small data sets are extremely volatile and subject to highly variable results.

**Finding #14:** ERF travel performance *fails to meet* a recommended best practice goal of 8:00 minutes or less for urban/suburban areas by 33 percent (2:40 minutes); however, this result should be considered with caution as it is based on a very small quantity of incidents in which all the needed units arrived and times can be very different due to the possibility of all incident locations being close to or far from the fire stations.

### *Call to Arrival*

#### Call to First Arrival

A person needing help in an emergency measures the speed of the fire department response from the time assistance is first requested until help arrives. This measure is referred to as call to first arrival and is also the District’s primary customer service measure. Citygate recommends a 7:30-minute-or-less call to first arrival goal to achieve desired outcomes in urban/suburban areas. Table 18 summarizes District call to first arrival performance.

<sup>12</sup> NFPA 1710 – Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2016)

**Table 18—90<sup>th</sup> Percentile Call to First Arrival Performance**

Response Zone	Overall	2014	2015	2016
District-Wide	08:43	08:53	08:54	08:22

**Finding #15:** Call to first arrival performance *fails to meet* a Citygate-recommended goal of 7:30 minutes or less by 16 percent (1:13) to achieve desired outcomes in urban/suburban areas.

### Call to ERF Arrival

Citygate recommends an ERF call to arrival goal of 11:30 minutes or less to achieve desired outcomes in urban/suburban areas. Table 19 shows the District’s 90<sup>th</sup> percentile ERF call to arrival performance. It is important to note that this performance is based on only four incidents in which the full ERF arrived at the incident from the initial dispatch, and that small data sets are subject to highly variable results.

**Table 19—90<sup>th</sup> Percentile ERF Call to Arrival Performance**

Response Zone	Overall	2014	2015	2016
District-Wide	12:05	N/A	N/A	12:05

**Finding #16:** ERF call to arrival performance *is slightly slower* (5 percent) than a Citygate-recommended goal of 11:30 minutes or less to achieve desired outcomes in urban/suburban areas; this result should be considered with caution as it is based on a very small dataset.

### 2.7.3 Simultaneous Incident Activity

Simultaneous incident activity measures the percentage of concurrent or overlapping incidents. For multiple-station departments, simultaneous incident activity in different station areas may have very little operational impact. Table 20 shows simultaneous incident activity for 2016.

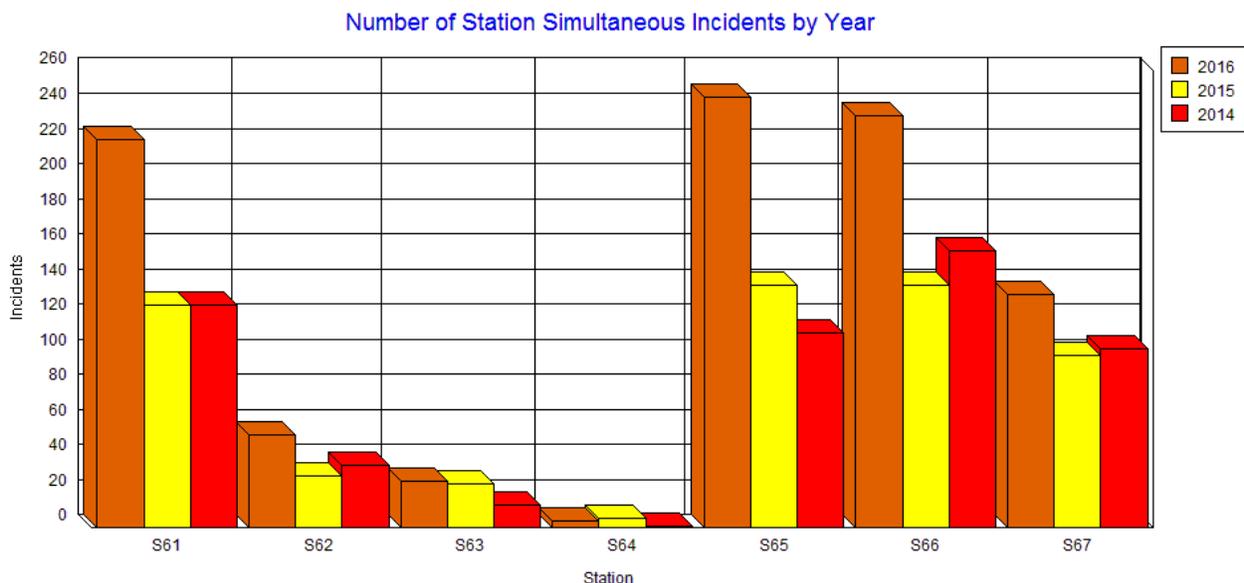
**Table 20—Simultaneous Incident Activity (2016)**

Number of Simultaneous Incidents	Percentage of Total Calls for Service
2 or more	53.5%
3 or more	19.0%
4 or more	5.2%
5 or more	0.2%

Source: Chino Valley Fire District incident records

Simultaneous incidents within a single station response area can result in significantly longer response times because the second or successive concurrent call must be handled by a unit from a more distant station. Figure 14 shows simultaneous incident activity within the same station response area by station for 2016. Note that Stations 61, 65, and 66 had more than 220 simultaneous incidents, as well as the increasing trend in every station except Station 64. While Station 65 has two staffed resources, simultaneous incident activity comprised 10.6 percent of that station’s total serve demand in 2016. This is a metric to monitor closely as it relates to first-due response performance and related customer service.

**Figure 14—Simultaneous Incident Activity within Same Station Response Area**



**Finding #17:** More than 53 percent of all incident activity in 2016 involved two or more simultaneous (concurrent) incidents; 19 percent involved three or more simultaneous incidents.

**Finding #18:** Simultaneous incident activity *within the same station response area* is increasing annually, comprising 10.6 percent of total service demand for Station 65; simultaneous incident activity has the potential to impact first-due response time performance when a resource from another station must respond to the second or subsequent simultaneous emergency incident.

#### 2.7.4 Statistical Analysis Summary

Citygate’s analysis of the most recent three calendar years of incident data yields the following conclusions. See **Appendix B** found in Volume 3 for the full statistical analysis.

- ◆ The District responds to more than 11,000 calls for service annually, or about 31.4 calls for service per day
- ◆ Service demand is increasing an average of about 6.6 percent annually
- ◆ 2.65 percent of calls for service were fire incidents
- ◆ 73.74 percent of calls for service were EMS incidents
- ◆ 23.61 percent of calls for service were other incidents (e.g., alarm activation with no fire, false alarm, no incident found, public assist, smoke scare, assist other agency, smoke or odor removal, electrical problem, water leak, rescue, hazardous material incident, animal problem, etc.)
- ◆ Station 66 has the highest overall service demand, followed by Station 65 and then Station 67
- ◆ The District has consistent day-of-week and month-of-year service demand, indicating the need for a 24-hour-per-day, seven-day-per-week fire and EMS emergency response system
- ◆ Less than one percent of calls for service involved aid to other jurisdictions
- ◆ Overall simultaneous incident activity is increasing annually, potentially impacting first-due response time performance at Stations 61, 65, and 66

- ◆ Overall hourly station service demand and unit-hour utilization percentages are well below recommended maximum saturation rates and also meet the District's established unit utilization and availability goals
- ◆ 9-1-1 call processing and dispatch performance is *consistently faster* than a 90-second best practice standard by 10 percent (9 seconds)
- ◆ Fire crew turnout performance *consistently meets* a Citygate-recommended best practice goal of 2:00 minutes or less
- ◆ First-due travel time performance *fails to meet* a recommended 4:00 minutes or less best practice goal for urban/suburban zones by 59 percent (2:22 minutes)
- ◆ First-due travel time performance also *fails to meet* the District's current 5:00-minute goal by 27 percent (1:22 minutes)
- ◆ Effective Response Force (multiple-unit First Alarm) travel time performance *fails to meet* a recommended 8:00-minute best practice goal for urban/suburban zones by 33 percent (2:40 minutes)
- ◆ Call to first arrival performance *fails to meet* the District's current 7:00-minute goal by 24.5 percent (1:43 minutes)
- ◆ Call to first arrival performance also *fails to meet* a Citygate-recommended best practice goal of 7:30 minutes or less for urban/suburban zones by 16 percent (1:13 minutes).

## 2.8 PARAMEDIC SQUAD UTILIZATION

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In January 2016, the District amended its deployment model from seven four-person ALS engines and one four-person ALS truck to seven three-person ALS engines, one four-person ALS truck, and four two-person paramedic squads. The paramedic squads are staffed with two Firefighter-Paramedics at Stations 62, 65, 66, and 67 and respond to all EMS and structure fire calls in tandem with the closest ALS engine or First Alarm assignment as appropriate. The paramedic squads are single-purpose ALS units on a heavy duty four-door pickup truck chassis with utility body.

EMS calls for service received by the Ontario Fire Department Communications Center are classified into one of five categories based on the nature and severity of the medical emergency, utilizing Medical Priority Dispatch System (MPDS) protocols, from Alpha, the least severe, to Echo, the most acute. The Communications Center then dispatches EMS resource(s) pursuant to agency response plans and Inland Counties Emergency Medical Agency (ICEMA) response policies. In many MPDS systems, Alpha- and Bravo-level incidents call for only a Basic Life Support (BLS) response, while Charlie- through Echo-level incidents call for either an ALS or

tiered BLS/ALS response. The District’s response plan for EMS incidents includes one engine, one medic squad, and one ALS ambulance, resulting in a total of seven personnel, including at least four paramedics (three on District apparatus and one on the ambulance) on all EMS incidents.

Citygate’s analysis of multiple large EMS systems has shown that only a very small subset of all EMS incidents need advanced life support interventions and, furthermore, many Alpha through Echo incidents *as dispatched* do not result in the patient being transported by ambulance. It should also be noted that in a surprisingly high number of EMS incidents, the ambulance is cancelled prior to arrival. While Citygate’s analysis also shows that some Alpha- and Bravo-level calls end up requiring acute-care transport, many incidents dispatched as either Charlie-level or Delta-level require no transport, and even some Echo-level calls end up as low-acuity BLS incidents. Thus, while the District’s current EMS response plan is appropriate for high-acuity and/or multiple-patient calls, it is excessive for low-acuity and/or many single-patient calls. In addition, this response plan deploys all the resources within a station’s first-due response area to all EMS calls, thus delaying the response to any concurrent calls for service within that response area. This could be substantially mitigated by deploying *only* a medic squad or engine to low-acuity EMS calls, supported by an engine/medic squad as needed.

In addition, although the medic squads provide enhanced daily staffing and EMS response capacity, they are under-utilized in Citygate’s opinion due to their single-purpose EMS configuration. By including a fire pump, water tank, and minimal fire suppression and rescue equipment, these units would have the capability of mitigating the preponderance of all calls for service. Thus, if an engine is committed out of its first-due district on training or another incident, the medic squad could provide first-due response capacity for nearly all call types.

**Finding #19:** The District over-deploys to low-acuity EMS calls.

**Finding #20:** The paramedic squads are underutilized due to their single-purpose EMS configuration.

**Finding #21:** Including a fire pump, water tank, and minimal fire suppression and rescue equipment would expand the service capabilities and deployment flexibility of the paramedic squads.

**Recommendation #1:** The District should consider deploying only a paramedic squad or engine to low-acuity EMS calls.

**Recommendation #2:** The District should consider providing minimal fire suppression and rescue capability to the paramedic squads to provide expanded service capability and deployment flexibility.

## 2.9 OVERALL EVALUATION

### SOC ELEMENT 8 OF 8 OVERALL EVALUATION

The District serves a predominantly urban/suburban land use pattern with a geographically challenging road network in Chino Hills and daily traffic congestion that makes it difficult to serve some areas of the District in sufficient time to achieve desired outcomes.

While the state Fire Code requires fire sprinklers even in residential dwellings, it will be many more decades before enough homes are replaced or remodeled with automatic fire sprinklers. If desired outcomes include limiting building fire damage to only part of the inside of an affected building and/or minimizing permanent impairment resulting from a medical emergency, then the District will need both first-due and ERF coverage in all planning zones consistent with Citygate’s recommended first-due response performance of 7:30 minutes or less from 9-1-1 notification, and ERF response performance within 11:30 minutes of 9-1-1 notification, all at 90 percent or better reliability.

Citygate’s deployment analysis yields the following:

- ◆ Service demand is predominantly EMS related (74 percent) and increasing annually
- ◆ The District’s apparatus fleet is appropriate to protect the values at risk within the District
- ◆ Nearly 6 percent of calls for service are cancelled prior to arrival
- ◆ Fire station hourly service demand is significant, but not yet close to saturation
- ◆ Engine unit-hour utilization (UHU) is well below Citygate’s recommended 30 percent saturation rate
- ◆ Medic Squad 66 UHU is at or near the 30 percent saturation rate during peak demand hours, and Medic Squad 65 is just behind
- ◆ First-due travel times are longer than recommended best practices to achieve desired outcomes in almost half of the District

- ◆ Effective Response Force call to arrival performance just misses Citygate’s 11:30-minute best practice goal
- ◆ There is minimal serious building risk that is not within reach of the current 8:00-minute ladder truck / Battalion Chief travel time
- ◆ The District over-deploys to low-acuity EMS calls.

### 2.9.1 Response Performance Gap Analysis

Gap analyses assess the size, location, and values to be protected in the gap areas beyond the 7:30-minute first-due response time goal. Assuming call processing and turnout times remain within the Citygate-recommended total of 3:30 minutes, that leaves 4:00 minutes for travel time. As shown in Map 9, areas of the District not covered in 4:00 minutes travel time *without traffic congestion* include, by size:

- Gap Area 1:** A large section of central Chino Hills generally bordered by Chino Hills Parkway on the north, Highway 71 on the east, Soquel Canyon Parkway on the south, and Carbon Canyon Road on the west.
- Gap Area 2:** The area of Chino Hills generally north and west of the intersection of Carbon Canyon Road and Chino Hills Parkway.
- Gap Area 3:** A large area of central Chino generally bound by Clover Street on the north, Euclid Avenue on the east, Kimball Avenue on the south, and Central Avenue on the west.
- Gap Area 4:** The southeastern corner of Chino generally bound by Pine Avenue on the north, the District boundary on the east and south, and Euclid Avenue on the west.
- Gap Area 5:** A portion of the unincorporated area of the District generally bound by Highway 60 on the north, Pipeline Avenue on the east, Chino Avenue on the south, and Highway 71 on the west/southwest.
- Gap Area 6:** A small area in the very northeastern corner of the District, generally bound by the District boundary on the north and east, Francis Avenue on the south, and Monte Vista Avenue on the west.

As illustrated in Map 10, these gap areas are significantly larger during traffic congestion periods.

**Finding #22:** There are significant 4:00-minute first-due travel time gaps in several areas of the District, which are further exacerbated by traffic congestion.

Another factor to consider is the values at risk within these gap coverage areas, the two most significant of which are people and buildings. As Map 5 shows, the population density in these gap areas ranges from less than 1,000 per square mile to 10,000 per square mile. These gap areas also include a significant percentage of the District’s residential, commercial, and industrial building inventory.

For Gap Area 1, with the highest population density and related building risk of all six gap areas, first-due response performance can only be improved by adding one or more fire stations and/or alternative deployment model(s) as discussed in Section 4.6. Additional fire station(s) should be considered within the area generally bordered by Chino Hills Parkway on the north, Yorba Avenue / Butterfield Ranch Road on the east, Soquel Canyon Parkway on the south, and Peyton Avenue on the west.

**Finding #23:** First-due and ERF response performance for Gap Area 1 in central Chino Hills can only be improved with additional fire station(s) or alternative deployment models.

**Recommendation #3:** The District should consider adding additional staffed resource(s) to improve first-due response performance in Gap Area 1 in central Chino Hills as strategic priorities and long-term funding allow.

For Gap Area 2 and Gap Area 3, with lower population densities and related building risk than Gap Area 1, first-due and ERF response performance can similarly also only be improved with additional staffed resources within those areas. While these areas currently have lower service demand than other gap areas, the District should consider adding staffed resources to these gap areas as strategic priorities and long-term funding provide.

**Finding #24:** First-due and ERF response performance for Gap Area 2 in northwest Chino Hills and Gap Area 3 in central Chino can only be improved with additional staffed resources.

**Recommendation #4:** The District should consider adding additional staffed resources to improve first-due response performance in Gap Area 2 in northwestern Chino Hills and Gap Area 3 in central Chino as strategic priorities and long-term funding allow.

For Gap Area 4, lower population density, building risk, and service demand do not justify additional response capacity to improve response performance; however, as this gap area is further developed, the District should evaluate the need and benefit of additional service capacity within this area.

**Finding #25:** Lower population density, building risk, and service demand do not currently justify the additional response capacity needed to improve response performance in Gap Area 4.

Gap Area 5 and Gap Area 6 are too small to economically improve first-due and ERF response performance.

**Finding #26:** Gap Area 5 in northwestern Chino and Gap Area 6 in northeastern Chino are too small to economically improve first-due and ERF response performance.

## 2.9.2 Recommended Response Performance Goals

It is apparent from the GIS element of this study that the District’s service area includes very diverse population densities and topography. In such districts, Citygate recommends agencies adopt tiered service level measures reflective of the lighter risks and populations to be protected in the more rural areas. Doing so provides the shortest response times for the higher intensity risks in the urban/suburban areas while still providing a reasonable service level for the lower risk rural areas. Given the differential population density and risks within the District’s service area, consideration could be given to a tiered response time policy, as shown in Table 21.

**Table 21—Recommended Response Time Goals by Population Density (in Minutes)**

Population Density (Per Square Mile)	First-Due		Effective Response Force <sup>2</sup>	
	Travel Time	Total Response Time <sup>1</sup>	Travel Time	Total Response Time <sup>1</sup>
>1,000	4:00	7:30	8:00	11:30
≤1,000	7:00	10:30	14:00	17:30

<sup>1</sup> Includes call processing and crew turnout time

<sup>2</sup> Minimum of 20 personnel, including at least one Chief Officer

Based on the technical analysis and findings contained in this Standards of Coverage assessment, Citygate offers the following deployment recommendations:

**Recommendation #5: Adopt Updated Deployment Policies:** The District’s Board of Directors should adopt updated, complete response performance measures to aid deployment planning and to monitor performance. The measures of time should be designed to deliver outcomes that will save patients when possible and to keep small but serious fires from becoming more serious. With this in mind, Citygate recommends the following measures for the District’s planning zones:

**5.1 Distribution of Fire Stations:** To treat pre-hospital medical emergencies and control small fires, the first-due unit should arrive within 7:30 minutes, 90 percent of the time from the receipt of the 9-1-1 call in urban/suburban planning zones and within 10:30 minutes in rural planning zones. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 4:00-minute (urban/suburban zones) or 7:00-minute (rural zones) travel time.

**5.2** Multiple-Unit Effective Response Force for Serious Emergencies: In urban/suburban planning zones, to confine building fires near the room of origin, keep wildland fires under three acres in size, and treat multiple medical patients at a single incident, a multiple-unit Effective Response Force of at least 20 personnel, including at least one Chief Officer, should arrive within 11:30 minutes from the time of 9-1-1 call receipt in fire dispatch, 90 percent of the time. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 8:00-minute (urban/suburban zones) or 14:00-minute (rural zones) travel time fire station spacing.

**5.3** Hazardous Materials Response: Provide hazardous materials response designed to protect the community from the hazards associated with uncontrolled release of hazardous and toxic materials. The fundamental mission of the District response is to minimize or halt the release of a hazardous substance so it has minimal impact on the community. This can be achieved with a first-due total response time of 7:30 minutes (urban/suburban zones) or 10:30 minutes (rural zones) to provide initial hazard evaluation and/or mitigation actions. After the initial evaluation is completed, a determination can be made whether the District's or one of the regional hazardous materials response teams is needed.

**5.4** Technical Rescue: Respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue with a first-due total response time of 7:30 minutes (urban/suburban zones) or 10:30 minutes (rural zones) to evaluate the situation and/or initiate rescue actions. Following the initial evaluation, assemble additional resources as needed within a total response time of 11:30 minutes (urban/suburban zones) or 17:30 minutes (rural zones) to safely complete rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

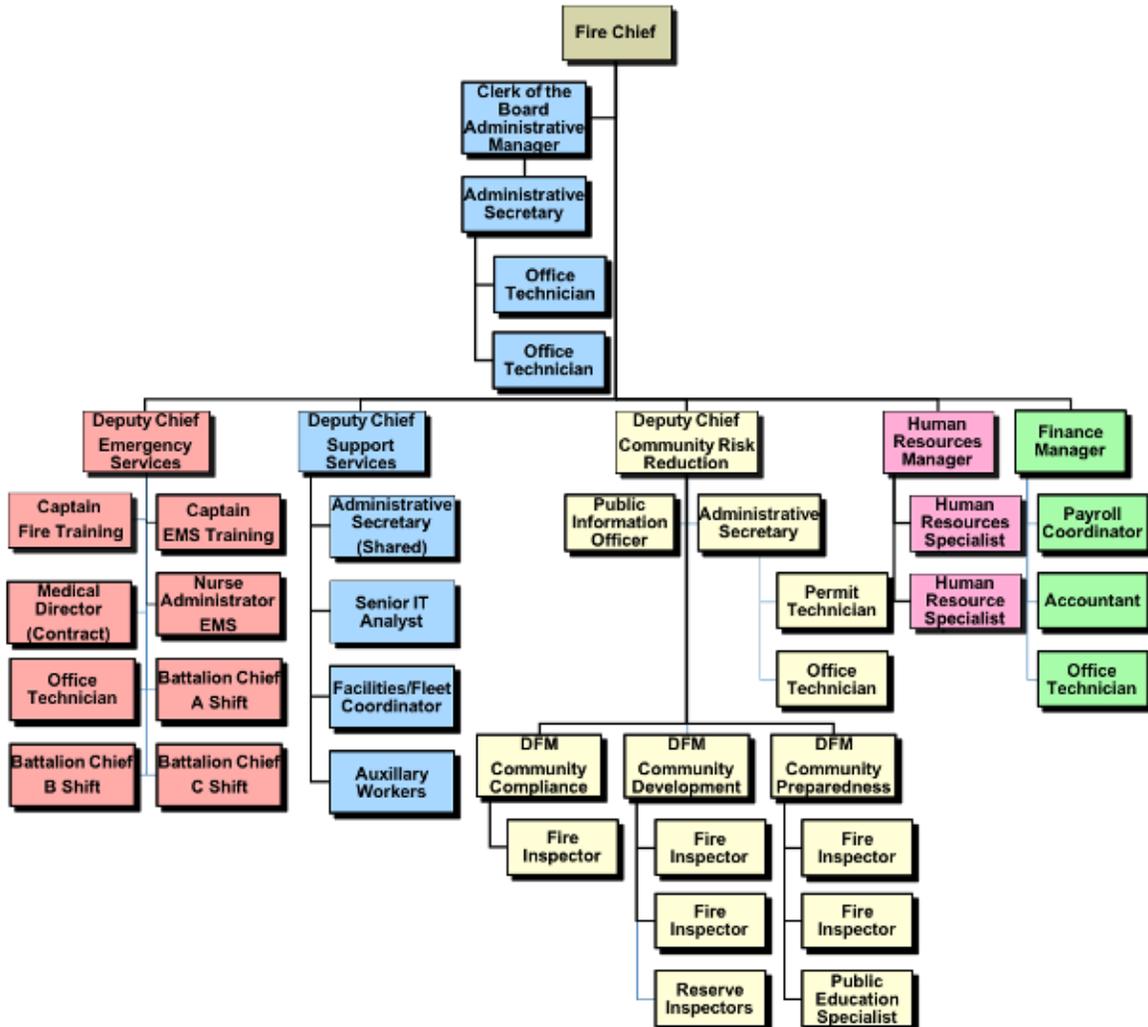
## SECTION 3—MANAGEMENT, FISCAL, STAFFING, AND EOC/DOC REVIEW

This section provides a detailed review and assessment of the District’s management services, operational and support staffing, fiscal health, and Emergency Operations Center (EOC) / District Operations Center (DOC) responsibilities and capabilities.

### 3.1 MANAGEMENT SERVICES ASSESSMENT

The District’s management services organization includes 35.3 personnel organized into six departments as illustrated in Figure 15.

**Figure 15—Administrative/Management Organization**



Source: Chino Valley Fire District

This staff is responsible for administering and managing all District administrative support functions and services, including overall District administration; human resources; accounting; budgeting; risk management; policies and procedures; information technology; training; health and safety; community risk reduction compliance, planning, and preparedness; coordination with other local/regional service providers/stakeholders; and other related administrative support responsibilities.

### 3.1.1 Assessment Methodology

For this assessment, Citygate administered a Strengths, Weaknesses, Opportunities, and Threats (SWOT) questionnaire to each manager, which was followed up with a focused individual interview. Citygate also conducted a workload capacity analysis for each division, followed again with focused individual interviews of each manager to:

- ◆ Identify *key* primary and secondary responsibilities
- ◆ Identify percentage of time currently allocated to each responsibility
- ◆ Identify critical workload capacity gaps, including what key responsibilities/expectations are not being performed or not being performed to desired/expected levels or timeliness
- ◆ Identify redundant capability to maintain critical business services (e.g., payroll, accounts payable, employee benefits, IT technical support, etc.)
- ◆ Identify single points of failure for critical business processes/services, if any
- ◆ Identify and quantify, to the extent possible, specific workload capacity gaps relative to critical business systems and assigned key primary and secondary responsibilities
- ◆ Estimate annual hours and related full-time equivalent (FTE) personnel needed to close identified workload capacity gaps by division.

Citygate’s review and assessment of the District’s management services yielded the following.

### 3.1.2 Emergency Services

The District’s Emergency Services management staff includes a Deputy Fire Chief, two training Captains, a Nurse Administrator, a contract Medical Director, a shared Administrative Secretary, and one Office Technician for a total of 6.5 District personnel.

***Key Program Responsibilities***

- ◆ All emergency and non-emergency response services including:
  - Emergency medical services (EMS)
  - Fire suppression
  - Hazardous materials response
  - Technical rescue
  - Disaster mitigation
- ◆ Training
- ◆ EMS program
- ◆ Weed abatement inspections
- ◆ Commercial occupancy inspections
- ◆ Fire and life safety education
- ◆ NFIRS reporting and incident records quality control
- ◆ Daily operational staffing management
- ◆ Liaison to Ontario Fire Department Communications Center
- ◆ Pre-incident planning
- ◆ Designated Infectious Control Officer (DICO)
- ◆ Other District-wide management responsibilities, including policy/procedure development/updating, budget development and management, special projects as assigned, and general oversight/management of assigned program(s)

Citygate’s review of the District’s Emergency Services management function yielded the following:

***Strengths***

- ◆ Very well-qualified, professional, and compassionate staff committed to the organization and the communities served
- ◆ Strong administrative skills
- ◆ Strong work ethic / organizational culture
- ◆ Strong community support

- ◆ High-quality customer service
- ◆ Focus on community and customer service
- ◆ Adequately funded
- ◆ Open to new ideas
- ◆ Strong executive team
- ◆ Strong collaboration
- ◆ Good labor–management relationship
- ◆ Desire to improve
- ◆ Compensation/benefits facilitate recruitment and retention of high-quality personnel

***Weaknesses/Concerns***

- ◆ Span of control is too wide
- ◆ Lack of training program management at the Chief Officer level
- ◆ Organizational resistance to change
- ◆ Lack of a comprehensive succession plan

***Opportunities***

- ◆ Services could be improved in emerging emergency medical services
- ◆ Deputy Chiefs could be reorganized
- ◆ Succession development could be improved
- ◆ Technology applications could be improved
- ◆ Other value-added services – future perspective view

***Threats***

- ◆ Privatization
- ◆ Complacency/inertia
- ◆ Cultural resistance to change
- ◆ Attrition of experienced personnel

**Single Points of Failure**

Citygate’s assessment of the District’s Emergency Services management functions did not identify any single points of failure.

**Workload Capacity Gaps**

Citygate’s assessment of the Emergency Services management functions yielded workload capacity gaps and estimated annual hours to close those gaps as summarized in Table 22.

**Table 22—Emergency Services Management Workload Capacity Gap Analysis Summary**

Workload Capacity Gap Description	Estimated Additional FTE Capacity Needed (Annual Hours) <sup>1</sup>
<i>Executive-level leadership of EMS program</i>	980–1,470 <sup>2</sup>
Succession development <sup>3</sup>	240–480
Training Program management <sup>3</sup>	1,470–1,960
Special projects surge capacity <sup>4</sup>	120–240
<b>Total Additional Capacity (Annual Hours)</b>	<b>1,830–2,680</b>
<b>Equivalent Personnel Capacity (FTE)<sup>1</sup></b>	<b>0.9–1.4</b>

<sup>1</sup> FTE = full-time equivalent positions assuming 1 FTE = 1,960 hours annually  
<sup>2</sup> Achievable through re-alignment of Deputy Chief responsibilities according to District executive staff  
<sup>3</sup> Coaching/mentoring at the Chief Officer level  
<sup>4</sup> Chief Officer / administrative support-level capacity

District executive staff advised Citygate that needed executive-level leadership of the EMS program can be achieved through re-alignment of Deputy Chief responsibilities.

**Finding #27:** The District’s Emergency Services management function has numerous strengths; however, it also lacks sufficient capacity to effectively manage the District’s EMS and training programs, develop and implement an effective succession development plan, and maintain minimal reserve capacity for special projects as assigned. Citygate estimates an additional 0.9 to 1.4 FTE positions would be needed to close those gaps.

### 3.1.3 Community Risk Reduction

The District’s Community Risk Reduction (CRR) staff includes a Deputy Fire Chief, one Fire Marshal, three Deputy Fire Marshals (one currently vacant), five full-time Inspectors, five part-time volunteer Inspectors, one Administrative Secretary, one Permit Technician, one Office Technician (currently on extended leave), one Public Information Officer, and one part-time Public Education Specialist for a total of 14.6/2.5 full-time/volunteer personnel.

#### *Key Program Responsibilities*

- ◆ California Fire Code adoption/enforcement
- ◆ New development/construction plan review and related inspections
- ◆ Mandated occupancy inspections
- ◆ Annual business occupancy inspections
- ◆ Fire hydrant inspections
- ◆ Burn permit management
- ◆ Weed abatement program management
- ◆ Pre-fire plans
- ◆ Fire and life safety education programs
- ◆ Fire investigations
- ◆ Management of District social media platforms
- ◆ Public records requests
- ◆ Laserfiche database management

Citygate’s review of the District’s Community Risk Reduction Department yielded the following:

#### *Strengths*

- ◆ Competent staff committed to the Department’s mission with minimal supervision
- ◆ Monthly staff meetings to clarify leader’s intent and discuss issues of concern

#### *Weaknesses/Concerns*

- ◆ Limited career path for most Department staff
- ◆ Lack of “mission focus” by some staff

- ◆ Database is not well organized or easily accessibility
- ◆ Lack of internal data analysis capability
- ◆ Inspection data is not complete
- ◆ Current Community Preparedness Deputy Fire Marshal vacancy
- ◆ Lack of oversight / quality assurance of engine company inspections
- ◆ Incompatible databases (Image Trend Elite / New World)
- ◆ Insufficient weed abatement program management
- ◆ Insufficient cross training of Fire Inspectors
- ◆ Insufficient succession planning
- ◆ Insufficient career development of Department staff
- ◆ Lack of a District Operations Center (DOC)
- ◆ Lack of formal EOC/DOC procedures
- ◆ Lack of critical 72/96-hour emergency supplies (food, water, batteries, etc.) for District personnel

### *Opportunities*

- ◆ Civilian (non-safety) Fire Marshal can stabilize CRR Department management
- ◆ Formal career development standards for Fire Marshal and Deputy Fire Marshal positions could improve professional standards and upward mobility
- ◆ Expanded community preparedness focus could reduce service demand
- ◆ Expanded personnel development through leadership assignments and coaching/mentoring
- ◆ Electronic building plan submittal/permit issuance process could make this more process more customer friendly and efficient

### *Threats*

- ◆ Difficulty extrapolating data from current database
- ◆ Uncertainty that all occupancies are being inspected on an annual or rotating basis
- ◆ Single points of failure

**Single Points of Failure**

Citygate’s assessment of the Community Risk Reduction Department identified the following single points of failure:

1. The District currently has no quality assurance process in place for the contract plan reviews, wherein a developer/contractor can select one of four approved private-sector firms to review their plan(s) for conformance with fire and life safety standards.
2. Some positions only have a single employee trained for their respective responsibilities.

**Finding #28:** The District lacks a quality assurance process for contracted private-sector development/building plan reviews to check for conformance with applicable fire and life safety standards.

**Recommendation #6:** The District should consider establishing an appropriate quality assurance process for its private-sector development and building plan reviews.

**Workload Capacity Gaps**

Citygate’s assessment of the Community Risk Reduction Department yielded workload capacity gaps and estimated annual hours to close those gaps as follows.

**Table 23—Community Risk Reduction Workload Capacity Gap Analysis Summary**

Workload Capacity Gap Description	Estimated Additional FTE Capacity Needed (Annual Hours) <sup>1</sup>
Front counter support <sup>2</sup>	490–980
CRR staff training <sup>3</sup>	280–560
Succession development <sup>4</sup>	436–872
<b>Total Additional Capacity (Annual Hours)</b>	<b>716–1,432</b>
<b>Equivalent Personnel Capacity (FTE)<sup>1</sup></b>	<b>0.36–0.73</b>

<sup>1</sup> FTE = full-time equivalent positions assuming 1 FTE = 1,960 hours annually  
<sup>2</sup> Normally provided by Office Technician (currently on extended leave)  
<sup>3</sup> Relating to assigned technical responsibilities (20–40 hours per employee annually)  
<sup>4</sup> 156–312 hours for mentoring/coaching at the Fire Marshal/Deputy Fire Marshal level and 280–560 aggregate hours of individual employee succession development training

Front counter support is normally provided by the Office Technician, who is currently on extended leave.

**Finding #29:** The District’s Community Risk Reduction Department lacks sufficient capacity to provide appropriate technical training of staff and to develop and implement an effective succession development plan; Citygate estimates an additional 0.36–0.73 full-time equivalent positions would be needed to close those gaps.

### 3.1.4 Support Services

The District’s Support Services management staff consists of a Deputy Fire Chief, a shared Administrative Secretary, a Facilities/Fleet Coordinator, a Senior Information Technology Analyst, and one full-time and one part-time hourly Auxiliary Worker for a total of 5.1 full-time equivalent personnel.

#### *Key Program Responsibilities*

- ◆ Fleet maintenance
- ◆ Facilities maintenance
- ◆ Dispatch services
- ◆ Technology systems management
- ◆ Service Center operations (station supplies)
- ◆ Mail distribution
- ◆ Department of Motor Vehicles reporting
- ◆ Environmental reporting
- ◆ Policy development / updating
- ◆ Special projects

Citygate’s review of the District’s Support Services yielded the following:

#### *Strengths*

- ◆ Internal fleet, facilities, and information technology capability
- ◆ Efficiencies
- ◆ Flexibility

- ◆ Ability to control costs
- ◆ Good internal communication
- ◆ Competent, self-motivated staff
- ◆ Well-funded
- ◆ Strong Board of Directors support

### *Weaknesses/Concerns*

- ◆ Lack of sufficient capacity to meet current critical responsibilities and expectations relative to facility and fleet maintenance coordination
- ◆ Lack of redundant capability for critical functions, including IT, fleet maintenance, and facility maintenance
- ◆ Job descriptions constraints on training (labor agreement issue)
- ◆ Lack of succession development
- ◆ Ineffective use of Deputy Chief capacity due to high volume of lower-level work performed

### *Opportunities*

- ◆ New positions (Fleet maintenance, facilities maintenance, and IT Analyst) provide ability to create the vision for those functions
- ◆ Succession development to prepare employees for higher-level positions and responsibilities

### *Threats*

- ◆ Single points of failure
- ◆ Concern that Support Services may not require oversight at the Deputy Chief level
- ◆ Lack of a succession development plan

### *Single Points of Failure*

Citygate’s assessment of Support Services identified the following single points of failure:

1. Lack of redundant fleet maintenance and facilities maintenance coordination capability; a single person is currently assigned and trained to perform these key/critical functions.

2. Lack of redundant information technology systems coordination capability; the IT Analyst is the only current employee assigned and trained to perform this critical function.

**Recommendation #7:** The District should consider providing critical redundant fleet and facilities coordination capability and redundant information technology systems coordination capability as strategic planning and funding allow.

**Workload Capacity Gaps**

Citygate’s Support Services assessment yielded workload capacity gaps and estimated annual hours to close those gaps as summarized in Table 24.

**Table 24—Support Services Workload Capacity Gap Analysis Summary**

Workload Capacity Gap Description	Estimated Additional FTE Capacity Needed (Annual Hours) <sup>1</sup>
Redundant facilities/fleet maintenance coordination	490–980
Redundant information technology systems coordination	490–980
Succession development <sup>2</sup>	156–312
<b>Total Additional Capacity (Annual Hours)</b>	<b>1,136–2,272</b>
<b>Equivalent Personnel Capacity (FTE)<sup>1</sup></b>	<b>0.58–1.16</b>

<sup>1</sup> FTE = full-time equivalent positions assuming 1 FTE = 1,960 hours annually

<sup>2</sup> 96–192 hours manager/supervisor coaching/mentoring and 60–120 aggregate hours of individual employee succession development training

**Finding #30:** The District’s Support Services Department lacks sufficient workload capacity to provide critical redundant fleet and facilities coordination, information technology systems coordination, and succession development training. Citygate estimates an additional 0.58–1.16 full-time equivalent positions would be needed to close those gaps.

### 3.1.5 Finance

The District’s Finance Department consists of a Finance Manager, Payroll Coordinator, Accountant, and one Office Technician for a total of four full-time equivalent personnel.

#### *Key Program Responsibilities*

- ◆ Annual budget development
- ◆ Financial reporting
- ◆ General accounting
- ◆ Payroll
- ◆ Accounts payable
- ◆ Accounts receivable
- ◆ Purchasing
- ◆ District investments
- ◆ Fiscal analysis
- ◆ Long-range fiscal planning
- ◆ Special projects as assigned

Citygate’s review of the District’s Finance Department yielded the following:

#### *Strengths*

- ◆ Strong fiscal reserves

#### *Weaknesses/Concerns*

- ◆ Future personnel costs, particularly employee benefit costs

#### *Opportunities*

- ◆ The District could improve cost recovery where it has the legal ability to do so, such as with unpaid inspection fees

#### *Threats*

- ◆ Cities seeking alternative service provider in the event of a significant economic downturn; ensuring stakeholders understand and value the services the District provides

### *Single Points of Failure*

Citygate’s assessment identified the lack of redundancy in the oversight of the Finance Department as a single point of failure; the Finance Manager is the only current employee trained to perform this critical function.

### *Workload Capacity Gaps*

Citygate’s assessment of the Finance Department yielded no significant workload capacity gaps that could not be resolved within current budgeted staffing capacity.

## **3.1.6 Human Resources**

The District’s Human Resources Department consists of a Human Resources Manager and two Human Resource Specialists for a total of three full-time equivalent personnel.

### *Key Program Responsibilities*

- ◆ Employee recruitment
- ◆ Employee benefit programs
- ◆ Risk management
- ◆ Special projects as assigned

Citygate’s review of the District’s Human Resources Department yielded the following:

### *Strengths*

- ◆ Innovation of the District
- ◆ Engagement with District personnel
- ◆ Accessibility to District personnel
- ◆ Human Resources supports operational staff

### *Weaknesses/Concerns*

- ◆ Legal obligations take priority over other needed elements (e.g., proactive risk management, succession development planning, etc.)
- ◆ Lack of proactive risk management tools, resources, and education
- ◆ Very infrequent Safety Committee meetings
- ◆ Lack of a formal District Succession Development Plan

### *Opportunities*

- ◆ Administrative support team could be further developed
- ◆ Automation of appropriate human resource processes

### *Threats*

- ◆ Lack of organizational risk management buy-in

### *Single Points of Failure*

Citygate’s assessment identified the lack of redundancy in the oversight of the Human Resources Department as a single point of failure; the Human Resources Manager is the only current employee trained to perform this critical function.

### *Workload Capacity Gaps*

Citygate’s assessment of the Human Resources Department yielded no significant workload capacity gaps that could not be resolved within current budgeted staffing capacity.

## **3.1.7 Office of the Fire Chief / Clerk of the Board of Directors**

### *Strengths*

- ◆ Cohesive management team
- ◆ Good labor-management relationship
- ◆ Solid financial condition with ongoing growth

### *Weaknesses/Concerns*

- ◆ Increasing personnel costs
- ◆ Unprepared for the significant growth occurring within the District
- ◆ Cities view District as contractual agreement rather than as “their” Fire Department
- ◆ Lack of “organizational focus” on EMS
- ◆ Lack of cross-training for administrative support staff
- ◆ Lack of automated public document access

### *Opportunities*

- ◆ Consideration of emerging EMS trends
  - Community paramedicine

- Telemedicine
- Other emerging concepts
- ◆ Public/private partnerships to enhance services
- ◆ Use of new technologies as they become available to enhance services provided
- ◆ Automation of business processes (e.g., public records access, expense reports filing, agenda distribution, etc.)

**Threats**

- ◆ Increasing personnel costs
- ◆ Lack of focus on staying relevant with customers
- ◆ Other agencies offering similar services at a perceived lower cost
- ◆ Increasing regulatory constraints and retirement costs
- ◆ Complacency/inertia
- ◆ Strained stakeholder relationships
- ◆ Job description restrictions on training and expanded scope of work for some personnel

**3.1.8 Management Services Assessment Summary**

Overall, Citygate’s assessment of the District’s management services functions finds that while it has highly capable, committed, and engaged staff, it is slightly understaffed to meet existing workload expectations in some departments, as summarized in Table 25. Future management services workload is likely to increase as additional fire stations and personnel are added to serve existing and new developments within the District, as further discussed in Section 3.2.

**Table 25—Administration/Management Workload Gap Summary**

Department	Workload Capacity Gap	
	Annual Hours	FTE Personnel <sup>1</sup>
Emergency Services	1,830–2,680	0.93–1.37
Community Risk Reduction	716–1,432	0.36–0.73
Support Services	1,136–2,272	0.58–1.16
Finance	0	0
Human Resources	0	0
Fire Chief / BOD Clerk	0	0
<b>Totals</b>	<b>3,682–6,384</b>	<b>1.87–3.25</b>

<sup>1</sup> FTE = full-time equivalent positions assuming 1 FTE = 1,960 hours

**Finding #31:** District management services functions are slightly understaffed to meet key workload responsibilities and expectations; future management services workload is expected to increase as additional fire stations and associated operational personnel are added to serve new and existing developments within the District.

**Finding #32:** The District has significant exposure to critical business process/service interruptions in the Support Services Department.

### 3.1.9 Technology Assessment

#### *Technology Applications*

The District utilizes a wide range of available technologies across multiple programs and functions, including:

- ◆ Incident dispatching
- ◆ Incident alerting
- ◆ Voice and data communications
- ◆ Desktop/mobile computing
- ◆ Incident reporting and records
- ◆ Administrative business services and records
- ◆ Public information access

## **Incident Dispatching**

District dispatch services are contractually provided by the City of Ontario Fire Department Communications Center. As a secondary Public Safety Answering Point (PSAP), the Communications Center receives 9-1-1 calls from multiple primary PSAPs in San Bernardino County, processes the caller's information, determines and dispatches the appropriate resources, tracks resource status, and provides radio and data communications to and from fixed and mobile receivers.

The Ontario Fire Communications Center utilizes a TriTech Software Systems Computer Aided Dispatch (CAD) system to dispatch resources and to create and maintain electronic incident records. The current CAD system, implemented in 2004 and still supported by TriTech, is reported by both Ontario Fire Department and the District as functional and reliable with no identified faults. This system is also capable of supporting Automatic Vehicle Location (AVL) data to determine resource location and tracking, and the Ontario Fire Communications Center is working to implement that feature for the District in early 2018.

The Ontario Fire Communications Center also employs FirstWatch, a software product that translates data into easily understood real-time information to maintain situational awareness, monitor specific performance metrics, etc. The District does not currently utilize any of the available features of this product.

## **Incident Alerting**

Fire stations are alerted to emergencies via a tone-activated radio system, followed by a verbal announcement via radio. All District facilities utilize state-of-the-art digital alerting equipment manufactured by GT Engineering. This system is capable of selectively activating specific zones and/or resources within a facility rather than the more typical facility-wide alerting, which results in less disruption of other station personnel, particularly at night. In addition, each alert is also delivered simultaneously to the Mobile Data Computer (MDC) on each resource dispatched. Redundancy is provided with telephone notification of the stations if needed. The District has contracts in place to provide support and maintain these systems, and no deficiencies in performance or reliability were reported.

For personnel not assigned to a fire station (e.g., Chief Officers, administrative staff, off-duty personnel), dispatch notifications are provided by the District's cellular service provider as text messages. Anecdotal evidence provided to Citygate suggests that these text notifications are occasional delayed.

## **Voice Communications**

The District is a participant in the San Bernardino County 800 MHz radio communications system, which is operated and maintained by the San Bernardino County Information Services

Division. The County maintains an updated trunked digital radio system designed for Public Safety coverage of the operational area, meeting current standards as prescribed by the Federal Communications Commission. For interoperability, the County also maintains a VHF radio system that can be integrated with the 800 MHz system or operated as a standalone system as needed. The District deploys VHF radios, both mobile and portable, in all response units to provide VHF radio communications as may be needed for mutual aid throughout the State.

The District utilizes a state-of-the-art Cisco Voice Over Internet Protocol (VoIP) telephone system in all its facilities. This system provides full-featured digital voice communications with substantial flexibility and options. The only issue identified relative to this telephone system is that callers must navigate a somewhat cumbersome directory tree rather than the call being answered directly by a District employee.

The District also utilizes Verizon Cellular as its mobile telephone service provider, and all Chief Officers, Department heads, and mobile apparatus are provided with a District smartphone for business use.

### **Data Communications**

The District utilizes Fujitsu MDCs and iPads in its automotive fleet for data communications. Data communications with the Ontario Fire Communications Center are accomplished through MobileCOM, an integrated accessory TriTech CAD software application that provides dispatch notification, status change, information, GPS mapping and navigation, and State and national database query capabilities. This system utilizes dual cellular telephone services to ensure reliability of data communications throughout the District. No significant issues or problems with this system were reported.

### **Desktop/Mobile Computing**

All District facilities have desktop computers and related IT hardware available for use by assigned staff, with business-class fiber optic broadband connectivity provided by Spectrum. The District employs New World ERP, an integrated business database, for all District divisions. All District facilities have automatic back-up generators in the event of an electrical power failure.

In addition to data communications with the Ontario Fire Communications Center, the District's MDCs and iPads also have broadband internet connectivity and function-specific software applications.

All District data is stored on on-site servers, with cloud-based backup. The District does not utilize a secondary off-site solution for data backup.

### **Incident Reporting and Records**

The District currently utilizes Image Trend Elite, an internet-based software application, as its incident record management system (RMS) compliant with National Fire Incident Reporting System (NFIRS), having transitioned from Zoll Fire/EMS RMS in February 2017. The District also utilizes ePCR, an internet-based electronic patient care report (PCR), where additionally required for emergency medical incidents.

### **Administrative Business Services and Records**

The District employs information technology solutions to facilitate and support a wide variety of District business services and record-keeping functions, including:

- ◆ Board of Directors agendas, minutes, communications, and records
- ◆ Financial transactions and records
- ◆ Human resource transactions and records
- ◆ Community Risk Reduction transactions and records
- ◆ Critical facility and target hazard plans
- ◆ District Operations Center (DOC) plans and records
- ◆ Public Records Act requests
- ◆ Automotive fleet maintenance requests and records
- ◆ Facility maintenance requests and records
- ◆ Training records
- ◆ Policies and procedures
- ◆ Physical asset management
- ◆ Permanent record management.

### **Public Information Access**

The District maintains a public website at <http://www.chinovalleyfire.org> that provides District information, including access to public documents reflecting the District's philosophy of transparency. The District also has Facebook, Twitter, Instagram, and YouTube social media accounts.

## Information Technology Coordination and Support

Prior to 2015, IT support was provided by the City of Chino Hills. The District hired its own full-time Senior Information Technology Analyst in 2015, whose responsibilities include coordination and technical support for all IT hardware and software systems. The District contracts with the City of Chino Hills for back-up IT coordination as needed.

While having in-house IT support provides distinct advantages, the Senior IT Analyst reports spending the majority of his time on technician-level tasks such as installing new hardware/software or troubleshooting IT problems, leaving little or no time to focus on higher analyst-level functions, including research and development of new technology applications, long-term strategic IT planning, and budgeting and asset management. With more than 100 new IT devices and several new technologies implemented over the past two years, he reports that he is continually challenged to meet his expected responsibilities within a normal 40-hour workweek and typically works 50+ hours per week to keep up with program demands.

### *Opportunities to Innovate/Integrate Using Technology*

Pursuant to this assessment, Citygate identified the following opportunities to utilize technology to enhance, innovate, or integrate:

1. Integration of existing District AVL equipment into the Ontario Fire Communications Center CAD system to facilitate improved emergency response travel time performance by dispatching the closest available resource(s) by location and projected shortest travel time.
2. Utilization of FirstWatch to monitor in real time: (1) District resource status and staffing, (2) Ontario Fire Communications Center call processing performance, (3) specific District response performance metrics, and (4) additional data as useful and available.
3. Collaboration with the Inland Counties Emergency Medical Agency to develop and implement an electronic patient care report application that better meets District needs while maintaining state and Inland Counties Emergency Medical Agency reporting and confidentiality requirements.
4. Development of an Information Technology Strategic Plan that includes a process to identify and evaluate new and/or emerging technologies for District application.
5. Evaluation of the potential to enhance District radio and/or data communication systems through FirstNet, a dedicated nationwide public safety broadband system; collaboration with the San Bernardino County Information Services Division and

other regional public safety partners to evaluate regional opportunities using FirstNet.

6. Integration of emerging bio-metric technology to provide monitoring and recording of individual medical and health metrics in real time to enhance personnel health and safety.
7. Integration of GPS-based personnel tracking devices to provide enhanced emergency incident personnel accountability and safety.
8. Evaluation of emerging robotic technologies to perform high-risk tasks.

## **3.2 STAFFING EVALUATION**

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### **3.2.1 Operational Staffing**

Given the overall risk rating for each hazard by planning zone in Table 10, Citygate finds the District’s operational staffing level for each hazard appropriate for the values to be protected and consistent with other agencies of similar size, demographics, risk, and service capacity. The District’s minimum daily staffing also provides sufficient capacity for concurrent incidents, including at least one incident requiring a full Effective Response Force (ERF) of 20–23 personnel. More than one concurrent incident requiring a full ERF requires automatic/mutual aid assistance from neighboring agencies.

**Finding #33:** The District’s daily operational staffing is appropriate for the values to be protected and is also adequate for anticipated concurrent incident service demand.

### **3.2.2 Management Services Support Staffing**

As discussed in Section 3.1.8, the District’s management services functions are currently understaffed by an estimated 1.9 to 3.25 personnel to meet existing workload expectations/responsibilities. Also, future management services workload is expected to increase as additional fire stations and associated operational personnel are added to serve current and new developments within the District.

**Finding #34:** The District’s management services capacity is slightly inadequate to meet current service demand expectations.

### 3.2.3 Management Services to Emergency Services Operational Staffing Ratio

The District currently has 105 operational personnel and 35.3 management services personnel for a total of 140.3 personnel and a 2.97:1 operational to management services staffing ratio. Should the District add the 3.25 management services personnel as discussed in Section 3.1.8, the staffing ratio would be 2.72:1.

## 3.3 FISCAL EVALUATION

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### 3.3.1 Fiscal Policies and Procedures

#### *Budgeting Practices*

The District prepares and adopts a preliminary budget on or before June 30 of each year as required by the California Health and Safety Code (Fire Protection District Law of 1987). Fire district budgets must also conform to the accounting and budgeting procedures contained in Title 2 of the California Code of Regulations. The District's annual budget is a line item list of General Fund revenues and expenditures, including the accounts into which the various revenues and expenditures are assigned, with aggregate revenue totals for property taxes, contract revenue, other revenue, and prior year rollovers; and aggregate expenditure totals for salaries and benefits, services and supplies, capital outlay, and prior year encumbrance rollovers.

Following adoption, the expenditures set forth in the preliminary budget are considered appropriated, with the exception of capital expenditures and new employee positions, until a final budget is adopted by the District Board of Directors on or before October 1. Published District budgets reviewed for this assessment reflect a budget resolution adopted in September of each year.

Multiple documents used to develop the District's annual budget were reviewed for this assessment, including fiscal data since fiscal year (FY) 2008–09, and fiscal projections to FY 2026–27. From the documents reviewed, it is evident that the District is tracking both revenues and expenditures on a multi-year basis, providing data to evaluate revenue and expenditure trends over time.

**Finding #35:** The District tracks revenues and expenditures on a multiple-year basis consistent with recognized best practice recommendations.

The District's budget document also clearly describes the process/activities involved in creating the annual budget, implementing it, and evaluating it for delivery of services and capital items

consistent with best practice recommendations for public agencies.<sup>13</sup> The District also conforms to the stringent budget criteria established by the California Society of Municipal Finance Officers (CSMFO) and has received the CSMFO Operating Budget Excellence Award for multiple years.

**Finding #36:** The District’s annual budget process conforms to best practice recommendations of the Government Finance Officers Association and the California Society of Municipal Finance Officers.

**Finding #37:** The District has received the California Society of Municipal Finance Officers’ Operating Budget Excellence Award for multiple years.

### *Fiscal Policies*

The District has comprehensive fiscal policies, including procurement, travel reimbursement, fund balance reporting, intangible assets, investments, administration of user fees, and use of technology. These policies are consistent with recommended best practices for public agencies to ensure that the District:

- ◆ Institutionalizes sound financial management practices
- ◆ Clarifies strategic intent to provide best value to the community(s) served
- ◆ Defines boundaries for the financial actions of staff and a policy framework in which staff can innovate to realize the organization’s strategic intent
- ◆ Promotes long-term and strategic financial thinking
- ◆ Manages the District’s financial risks
- ◆ Acts within recognized fiscal best practices.

**Finding #38:** The District has established fiscal policies consistent with best practice recommendations for public agencies.

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<sup>13</sup> Government Finance Officers Association (GFOA), *Recommended Budget Practices from the National Advisory Council on State and Local Budgeting*. <http://www.gfoa.org/print/451>  
Also, *Incorporating the Capital Budget into the Budget Document*. <http://gfoa.org/print/446>

### 3.3.2 Revenues

Table 26, Table 27, and Figure 16 show recent historical and projected District revenues.

**Table 26—Revenue History (In Thousand Dollars)**

Revenue Source	FY 2008–09	FY 2009–10	FY 2010–11	FY 2011–12	FY 2012–13	FY 2013–14	FY 2014–15	FY 2015–16	FY 2016–17
Property Tax	21,066	20,344	20,063	20,077	19,986	21,564	24,511	24,767	25,780
Licenses and Permits	321	317	450	366	690	655	803	701	840
Intergovernmental Transfers	0	0	0	0	0	0	548	35	35
Charges for Services	7,436	7,849	7,583	7,258	7,034	8,393	6,761	9,008	9,103
Use of Money and Property	403	142	112	85	99	115	155	196	100
Other Revenue	1,358	258	758	243	139	331	212	152	95
<b>Total Revenues</b>	<b>30,583</b>	<b>28,911</b>	<b>28,966</b>	<b>28,029</b>	<b>27,948</b>	<b>31,058</b>	<b>32,989</b>	<b>34,859</b>	<b>35,953</b>
<b>Change</b>		<b>-5.47%</b>	<b>0.19%</b>	<b>-3.24%</b>	<b>-0.29%</b>	<b>11.13%</b>	<b>6.22%</b>	<b>5.67%</b>	<b>3.14%</b>

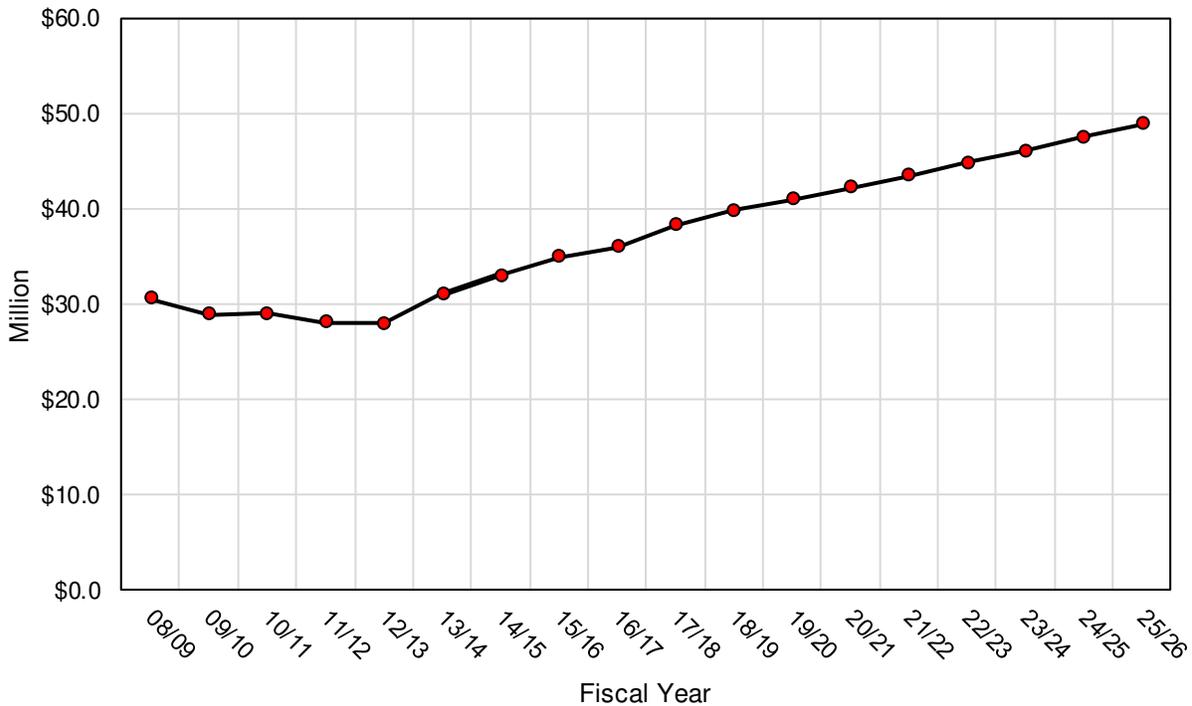
Source: Chino Valley Fire District fiscal data

**Table 27—Projected Revenues (In Thousand Dollars)**

Revenue Source	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22	FY 2022–23	FY 2023–24	FY 2024–25	FY 2025–26
<b>Property Tax</b>	27,735	28,845	29,710	30,601	31,519	32,465	33,439	34,442	35,475
<b>Charges for Services</b>	9,060	9,422	9,705	9,996	10,296	10,605	10,923	11,251	11,588
<b>Other Revenue</b>	1,449	1,492	1,537	1,583	1,631	1,680	1,730	1,782	1,836
<b>Total Revenues</b>	<b>38,244</b>	<b>39,759</b>	<b>40,952</b>	<b>42,181</b>	<b>43,446</b>	<b>44,749</b>	<b>46,092</b>	<b>47,475</b>	<b>48,899</b>
<b>Change</b>	<b>6.37%</b>	<b>3.96%</b>	<b>3.00%</b>						

Source: Chino Valley Fire District fiscal projections

**Figure 16—District Revenues by Year**



As Table 26 shows, 71.7 percent of FY 2016–17 revenues are derived from property taxes. Of the different revenues sources used to support local government services, secured property taxes can be reliable and predictable over time, but are also subject to fluctuation as economic factors affect property values. Supplemental property taxes can also fluctuate when the local market intersects with factors affecting the local/regional economy. Property tax revenue has increased 22 percent over the past nine years from \$21.07 million in FY 2008–09 to \$25.78 million in FY 2016–17. Based on expected continued growth in both Cities, property tax revenue is projected to increase an average of 3.62 percent annually over the next nine years to FY 2025–26.

The District’s second largest revenue source is contract revenue from the City of Chino. Although the District overlays the City of Chino, the City and District negotiated an equity agreement whereby the City makes fire protection payments to the District equivalent to the property tax for the former Redevelopment District Areas of the City. Over the previous nine years, contract revenue has increased 22.4 percent from \$7.44 million in FY 2008–09 to \$9.1 million in FY 2016–17 for an average annual increase of 2.80 percent, comprising 25.3 percent of all revenue in FY 2016–17. Contract revenues are projected to increase an average of 3.03 percent annually over the next nine years to FY 2025–26.

Other District revenue sources include permit and inspection fees, mutual aid reimbursements, grants, interest, and other minor revenue sources. While these other revenues, in aggregate, have increased an average of 5.1 percent over the past nine years, the total amount received by the District fluctuates significantly from year to year, ranging from a high of \$2.08 million in FY 2008–09 to a low of \$694,000 in FY 2011–12. Other revenue accounts for 2.98 percent of all FY 2016–17 revenue. Other revenues are projected to increase an average of 5.8 percent annually over the next nine years to \$1.84 million in FY 2025–26.

Total District revenues have increased 17.6 percent from \$30.58 million in FY 2008–09 to \$35.95 million in FY 2016–17 for an average annual growth of 2.2 percent, including the economic downturn years. The District projects total revenue to grow by 36.01 percent to \$48.90 million in FY 2025–26, or an average annual growth of 3.48 percent, beginning with 6.37 percent projected growth in FY 2017–18 and 3.96 percent in FY 2018–19 before leveling off at 3.00 percent annually thereafter. While this projection may seem high, it is not unrealistic in Citygate’s opinion given the future projected growth in both Cities as discussed in Section 4.1.

### 3.3.3 Expenditures

Table 28, Table 29, and Figure 17 show recent historical and projected District expenditures by category.

**Table 28—Expenditure History (In Thousand Dollars)**

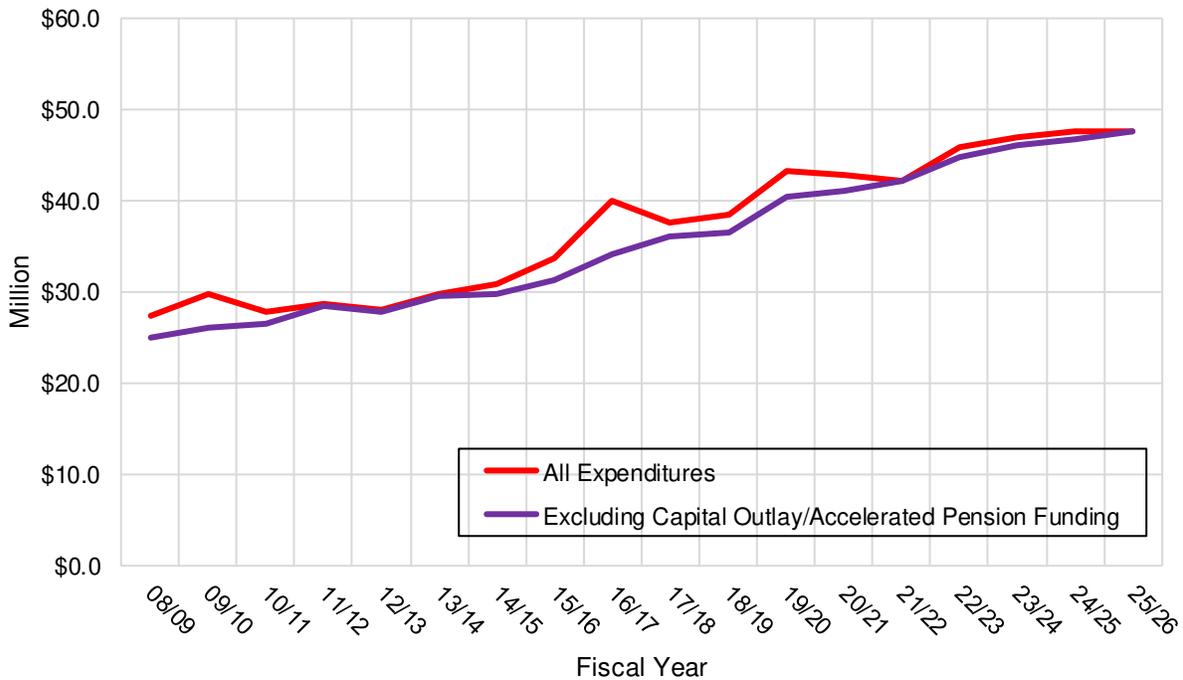
Expenditure Category	FY 2008–09	FY 2009–10	FY 2010–11	FY 2011–12	FY 2012–13	FY 2013–14	FY 2014–15	FY 2015–16	FY 2016–17
Salaries and Benefits	21,191	22,273	22,857	24,595	24,144	25,271	25,156	26,766	28,883
Services and Supplies	3,840	3,682	3,676	3,909	3,756	3,996	4,485	4,505	5,269
Capital Outlay	2,376	3,773	1,250	224	78	383	984	2,489	923
Debt Service	0	0	0	0	0	177	177	0	0
Pension Trust Fund	0	0	0	0	0	0	0	0	5,000
<b>Total Expenditures</b>	<b>27,407</b>	<b>29,729</b>	<b>27,783</b>	<b>28,728</b>	<b>27,979</b>	<b>29,828</b>	<b>30,802</b>	<b>33,759</b>	<b>40,074</b>
<b>Change</b>		<b>8.47%</b>	<b>-6.55%</b>	<b>3.40%</b>	<b>-2.61%</b>	<b>6.61%</b>	<b>3.27%</b>	<b>9.60%</b>	<b>18.71%</b>

**Table 29—Projected Expenditures (In Thousand Dollars)**

Expenditure Category	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Salaries and Benefits	30,242	30,695	34,353	34,856	35,902	38,460	39,613	40,194	40,784
Services and Supplies	5,771	5,887	6,004	6,125	6,247	6,372	6,499	6,629	6,762
Capital Outlay	1,533	1,608	2,343	1,941	119	620	888	747	146
Debt Service	0	0	0	0	0	0	0	0	0
Pension Trust Fund		230	518	0	0	389	0	0	0
<b>Total Expenditures</b>	<b>37,546</b>	<b>38,420</b>	<b>43,219</b>	<b>42,922</b>	<b>42,267</b>	<b>45,841</b>	<b>47,000</b>	<b>47,571</b>	<b>47,692</b>
<b>Change</b>	<b>-11.18%</b>	<b>2.33%</b>	<b>12.49%</b>	<b>-0.69%</b>	<b>-1.52%</b>	<b>8.45%</b>	<b>2.53%</b>	<b>1.21%</b>	<b>0.25%</b>

Source: Chino Valley Fire District fiscal projections

**Figure 17—District Expenditures by Year**



As Table 28, Table 29, and Figure 17 illustrate, total expenditures increased 46.2 percent from \$27.41 million in FY 2008–09 to \$40.07 in FY 2016–17 for an average annual change of 5.11 percent. During the same period, annual operating expenditures, excluding capital outlay and accelerated pension liability funding, increased \$7.24 million from \$25.03 million in FY 2008–09 to 34.15 million in FY 2016–17, or an average annual change of 4.01 percent.

### ***Personnel Costs***

As Table 28 shows, employee salary and benefit costs have increased 36.3 percent from \$21.19 million in FY 2008–09 to \$28.88 million in FY 2016–17, comprising an average of 85.5 percent of the District’s annual operating budget over the same period. As shown in Table 29, personnel costs are projected to increase an average of 4.58 percent annually over the next nine years to \$40.78 million in FY 2025–26, including the projected addition of Station 8 in FY 2019–20 and Station 9 in FY 2022–23.

### ***Services and Supplies Costs***

Services and supplies costs, as shown in Table 28 have increased 37.2 percent from \$3.84 million in FY 2008–09 to \$5.27 million in FY 2016–17, representing an average of 14.33 percent of the District’s annual operating budget over the same period. As Table 29 shows, services and supplies costs are projected to increase an average of 3.15 percent annually over the next nine years to \$6.76 million in FY 2025–26, including the projected addition of Station 8 and Station 9.

### ***Capital Costs***

The District has established two dedicated reserve funds for capital renewal and replacement as follows:

1. **Equipment Replacement Fund** – Established to provide for vehicle, apparatus, and major equipment replacement. Funded through the accumulation of depreciation and amortization of capital assets in the fund.
2. **Facilities Acquisition and Maintenance Fund** – Established to fund future facility acquisition, maintenance, and repairs. Funded from proceeds from the sale of District property with an annual 3 percent inflation adjustment.

As Table 30 shows, the District expended \$11.81 million in capital outlay from FY 2008–09 through FY 2016–17, comprising 4.52 percent of total expenditures over the same period. Future planned capital expenditures, as illustrated in Table 31 and Figure 18, are projected to be \$9.95 million over the next nine years to FY 2025–26, or an annualized average of \$1.11 million.

The District’s annual budget document includes a detailed fund balance summary, including a \$590,525 Equipment Replacement Fund balance and \$48,406 Facilities Acquisition and Maintenance Fund balance as of June 30, 2017. The budget document further includes a detailed explanation of transactions for each fund.

**Table 30—Capital Outlay Expenditure History (In Thousand Dollars)**

Capital Outlay Category	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17
Equipment	1,177	3,520	1,193	195	72	312	928	435	597
Facilities	1,199	254	57	29	06	71	56	1,379	326
<b>Total</b>	<b>2,376</b>	<b>3,773</b>	<b>1,250</b>	<b>224</b>	<b>78</b>	<b>383</b>	<b>984</b>	<b>1,814</b>	<b>923</b>
<b>Percent of Total Expenditures</b>	<b>8.67%</b>	<b>12.69%</b>	<b>4.50%</b>	<b>0.78%</b>	<b>0.28%</b>	<b>1.29%</b>	<b>3.19%</b>	<b>7.37%</b>	<b>2.30%</b>

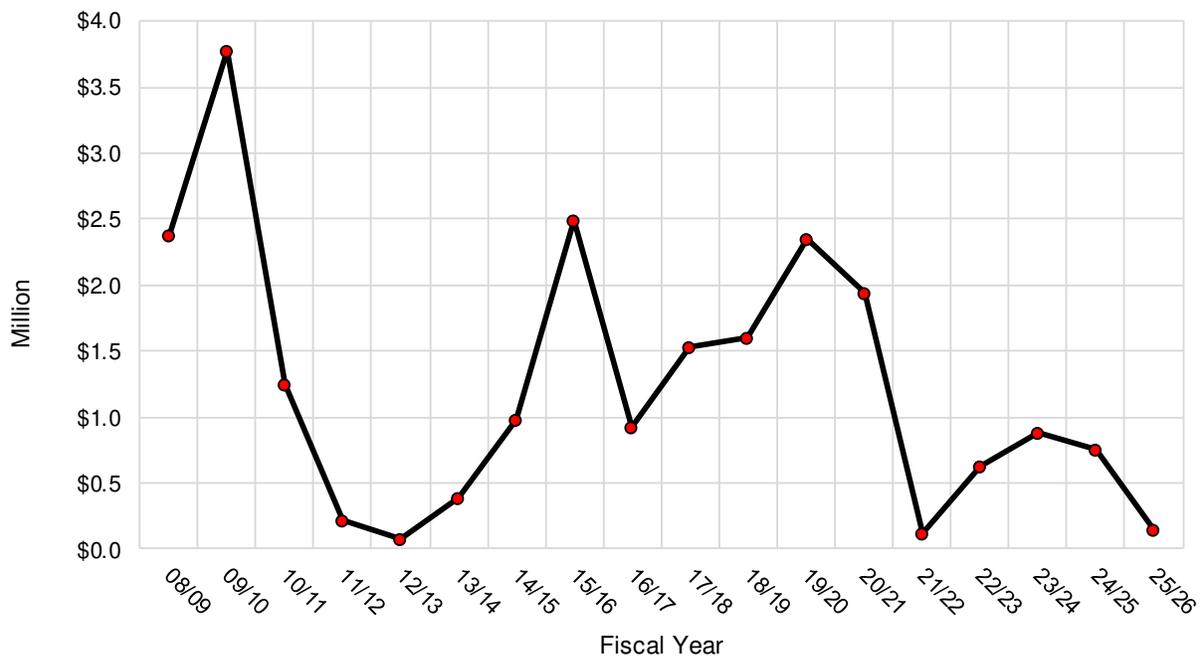
Source: Chino Valley Fire District fiscal records

**Table 31—Projected Capital Outlay Expenditures (In Thousand Dollars)**

Expenditure Category	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Equipment	1,023	1,608	2,343	1,941	119	620	888	747	146
Facilities	510	00	00	00	00	00	00	00	00
<b>Total</b>	<b>1,533</b>	<b>1,608</b>	<b>2,343</b>	<b>1,941</b>	<b>119</b>	<b>620</b>	<b>888</b>	<b>747</b>	<b>146</b>
<b>Percent of Total Expenditures</b>	<b>4.08%</b>	<b>4.19%</b>	<b>5.42%</b>	<b>4.52%</b>	<b>0.28%</b>	<b>1.35%</b>	<b>1.89%</b>	<b>1.57%</b>	<b>0.31%</b>

Source: Chino Valley Fire District fiscal projections

**Figure 18—Capital Outlay Expenditures**



While the District has developed informal cost and expected service life projections for vehicles and major equipment, best practices recommend a multiple-year Capital Plan as discussed in Section 3.3.6.

### 3.3.4 Revenues versus Expenditures

Table 32, Table 33, and Figure 19 compare recent historical and projected revenues to expenditures.

**Table 32—Revenue versus Expenditure History (In Thousand Dollars)**

Category	FY 2008–09	FY 2009–10	FY 2010–11	FY 2011–12	FY 2012–13	FY 2013–14	FY 2014–15	FY 2015–16	FY 2016–17
Revenues	30,583	28,911	28,966	28,029	27,948	31,058	32,989	34,859	35,953
Expenditures – All	27,407	29,729	27,783	28,728	27,979	29,828	30,802	33,759	40,074
<b>Revenue vs. Expenditures</b>	<b>3,176</b>	<b>(818)</b>	<b>1,183</b>	<b>(699)</b>	<b>(31)</b>	<b>1,230</b>	<b>2,187</b>	<b>1,100</b>	<b>(4,121)</b>
Expenditures <sup>1</sup>	25,031	25,956	26,533	28,504	27,901	29,445	29,818	31,270	34,151
<b>Revenue vs. Expenditures<sup>1</sup></b>	<b>5,552</b>	<b>2,955</b>	<b>2,433</b>	<b>(475)</b>	<b>47</b>	<b>1,613</b>	<b>3,171</b>	<b>3,589</b>	<b>1,802</b>

<sup>1</sup> Excluding capital outlay expenditures

Source: Chino Valley Fire District fiscal records

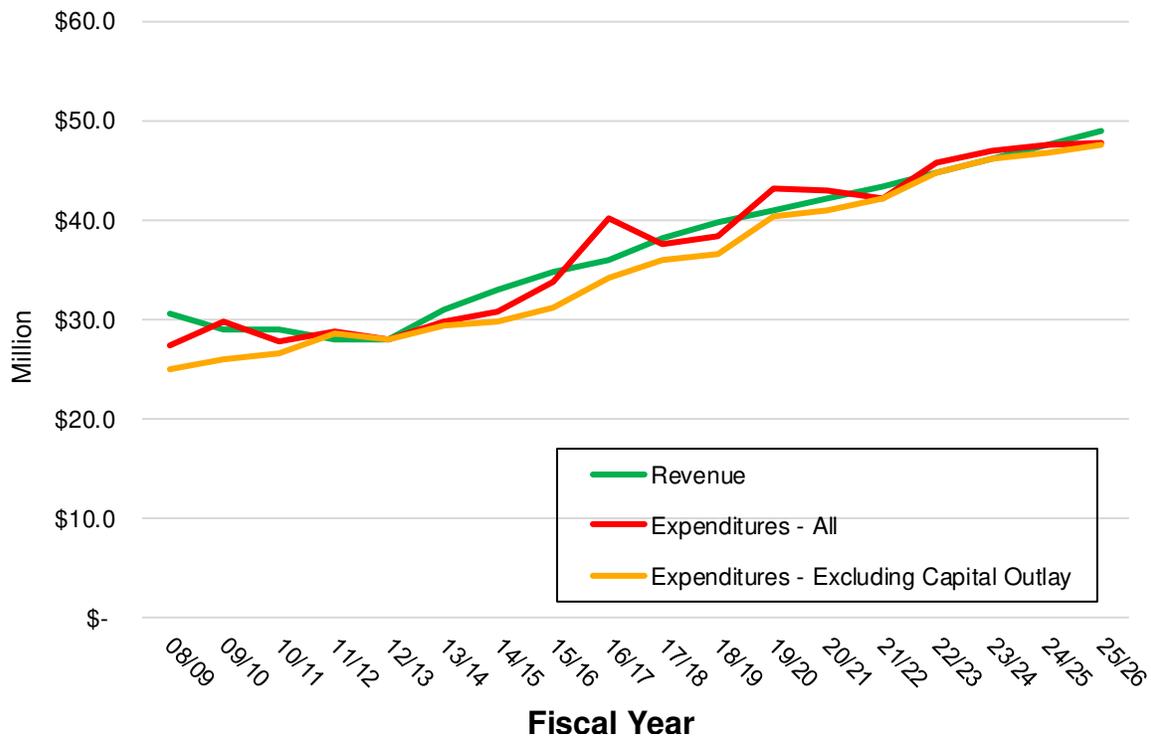
**Table 33—Projected Revenues versus Expenditures (In Thousand Dollars)**

Category	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22	FY 2022–23	FY 2023–24	FY 2024–25	FY 2025–26
Revenues	38,244	39,759	40,952	42,181	43,446	44,749	46,092	47,475	48,899
Expenditures - All	37,546	38,420	43,219	42,922	42,267	45,841	47,000	47,571	47,692
<b>Revenue vs. Expenditures</b>	<b>698</b>	<b>1,339</b>	<b>(2,267)</b>	<b>(741)</b>	<b>1,179</b>	<b>(1,091)</b>	<b>(908)</b>	<b>(96)</b>	<b>1,207</b>
Expenditures <sup>1</sup>	36,013	36,582	40,357	40,980	42,149	44,831	46,113	46,824	47,546
<b>Revenue vs. Expenditures<sup>1</sup></b>	<b>2,231</b>	<b>3,177</b>	<b>595</b>	<b>1,200</b>	<b>1,297</b>	<b>(82)</b>	<b>(21)</b>	<b>651</b>	<b>1,353</b>

<sup>1</sup> Excluding capital outlay expenditures

Source: Chino Valley Fire District fiscal projections

**Figure 19—Revenues versus Expenditures**



As Table 32 and Figure 19 illustrate, annual revenues have historically exceeded expenditures, excluding capital outlay by an average of 8.2 percent, with the exception of FY 2011–12 where expenditures exceeded revenues by 1.7 percent. When capital expenditures are included, revenues have exceeded expenditures by an average of 1.64 percent annually. The negative FY 2016–17 ratio is due to the District’s initial \$5.0 million contribution to an IRS Section 115 Pension Trust Fund.

Excluding capital outlay, revenues are projected to continue to exceed expenditures over the next nine years to FY 2025–26 by an average of 2.9 percent annually as summarized in Table 33 and Figure 19, *except* for FY 2022–23 and FY 2023–24 where expenditures are projected to exceed revenues by 0.18 percent and 0.05 percent respectively, primarily due to increased personnel costs associated with the planned opening of Station 68. Including capital outlay, however, expenditures are projected to *exceed* revenues by an average of 2.3 percent for *five of the nine* years to FY 2025–26.

**Finding #39:** Excluding capital outlay, revenues are projected to exceed expenditures by an average of 2.9 percent over the next nine years to FY 2025–26, primarily due to increased personnel costs associated with the planned opening of Station 68.

**Finding #40:** Including planned capital outlay, *expenditures are projected to exceed revenues* by \$0.1 to \$2.3 million over five of the next nine years to FY 2025–26. Given the uncertainty of rising pension and health care costs, this is a very small safe operating margin. The District must continue planning to avoid structural deficit spending.

### 3.3.5 Fiscal Reserves

Fiscal documents reviewed for this assessment include a fund balance policy that classifies fiscal reserves as follows:

- ◆ **Non-Spendable:** Funds that are inherently not in spendable form, such as prepaid deposits and deposits on file with other agencies.
- ◆ **Restricted:** Funds restricted by external limitations, such as law, regulation, or constraints imposed by creditors, grantors, or contributors. The District currently has no restricted funds; however, for the purpose of this analysis, Citygate considers the District’s IRS Section 115 Pension Trust Fund as a restricted reserve fund.
- ◆ **Committed:** Funds can only be used for the purpose specified by the District Board of Directors as follows:
  - **Workers’ Compensation Reserve Fund** – Established at a level equal to the total estimated value of all open claims and an estimated value of incurred but not reported claims at the end of each fiscal year. Funds from this account will be drawn down to pay significant expenses against a particular workers’ compensation claim file such as a single invoice in excess of \$50,000 and/or a lump sum payment when a claim is closed by way of Compromise and Release.
  - **Equipment Replacement Fund** – Provides for vehicle, apparatus, and major equipment replacement; funded through the accumulation of depreciation and amortization of capital assets in the fund.

- **Facilities Acquisition and Maintenance Fund** – Derived from proceeds from the sale of District property, with an annual three percent inflation adjustment.
- **Compensated Absences Fund** – Established at a level equal to 33 percent of employee accrued leave balances. Funds from this account will be drawn down to pay off accrued leave balance(s) due to an employee upon separation when the value of the leave accruals for a specific employee is \$50,000 or more.
- **Emergency Contingency Fund** – Established at a level equal to two months of the District’s approved expenditure budget. Funds may be utilized for emergency operating purposes in the event of the declaration of a local, State, or federal state of emergency.
- ◆ **Assigned:** Funds that are constrained by the District’s intent to be used for specific purposes, but are neither restricted or committed; examples include:
  - **Continuing Budget Appropriations** – Balance of multi-year funding requirements for approved projects or other expenditures.
  - **Budget Transfers for Revenue Shortfalls** – Amount to be transferred from fund balance to cover a projected budget deficit, if applicable, in the following fiscal year.
- ◆ **Unassigned:** Excess funds not otherwise classified, to include:
  - **Minimum Fund Balance** – As per Board policy, the District maintains a general contingency reserve fund equal to three months of the District’s approved expenditure budget. In the event that the unassigned fund balance is not sufficient to meet the three-month minimum, the remaining balance of funds not otherwise classified shall be maintained in this account.
  - **All Other** – All other funds not otherwise classified.

**Finding #41:** The District has established fiscal reserves conforming to best practice guidelines for public agencies.

### ***Fund Balance***

Table 34 and Figure 20 show the District’s historical end-of-year General Fund balance from FY 2008–09 through FY 2016–17.

Chino Valley Fire District—Standards of Cover Assessment and Master Plan Update

Volume 1—Technical Report

**Table 34—General Fund Balance History (In Thousand Dollars)**

Reserve Account	FY 2008–09	FY 2009–10	FY 2010–11	FY 2011–12	FY 2012–13	FY 2013–14	FY 2014–15	FY 2015–16	FY 2016–17
<b>Reserved</b>	1,768	668	0	0	0	0	0	0	0
<b>Unreserved</b>	0	0	0	0	0	0	0	0	0
Designated	4,237	4,401	0	0	0	0	0	0	0
Undesignated	17,094	18,895	0	0	0	0	0	0	0
<b>Non-Spendable</b>	0	0	87	203	84	63	61	1,247	1,247
<b>Restricted</b>									
Retirement Trust Fund	0	0	0	0	0	0	0	0	5,000
<b>Committed</b>	0	0	9,891	10,013	10,869	11,042	10,715	9,817	
Workers' Comp. Reserve									1,147
Equipment Replacement									439
Facilities									48
Compensated Absences									2,061
Emergency Contingency									7,045
<b>Assigned</b>	0	0	1,491	1,348	421	0	0	1,438	0
Budget Transfers									
<b>Unassigned</b>	0	0	13,678	8,134	8,294	9,970	12,228	11,288	5,486
<b>Total Fund Balance</b>	<b>23,098</b>	<b>23,964</b>	<b>25,147</b>	<b>19,698</b>	<b>19,667</b>	<b>21,074</b>	<b>23,004</b>	<b>23,791</b>	<b>22,473</b>
<b>Percent of Operating Budget</b>	<b>92.28%</b>	<b>92.33%</b>	<b>94.78%</b>	<b>69.11%</b>	<b>70.49%</b>	<b>71.57%</b>	<b>77.15%</b>	<b>76.08%</b>	<b>65.80%</b>

Table 35 and Figure 20 show the projected year-end General Fund balance through FY 2025–26.

Chino Valley Fire District—Standards of Cover Assessment and Master Plan Update

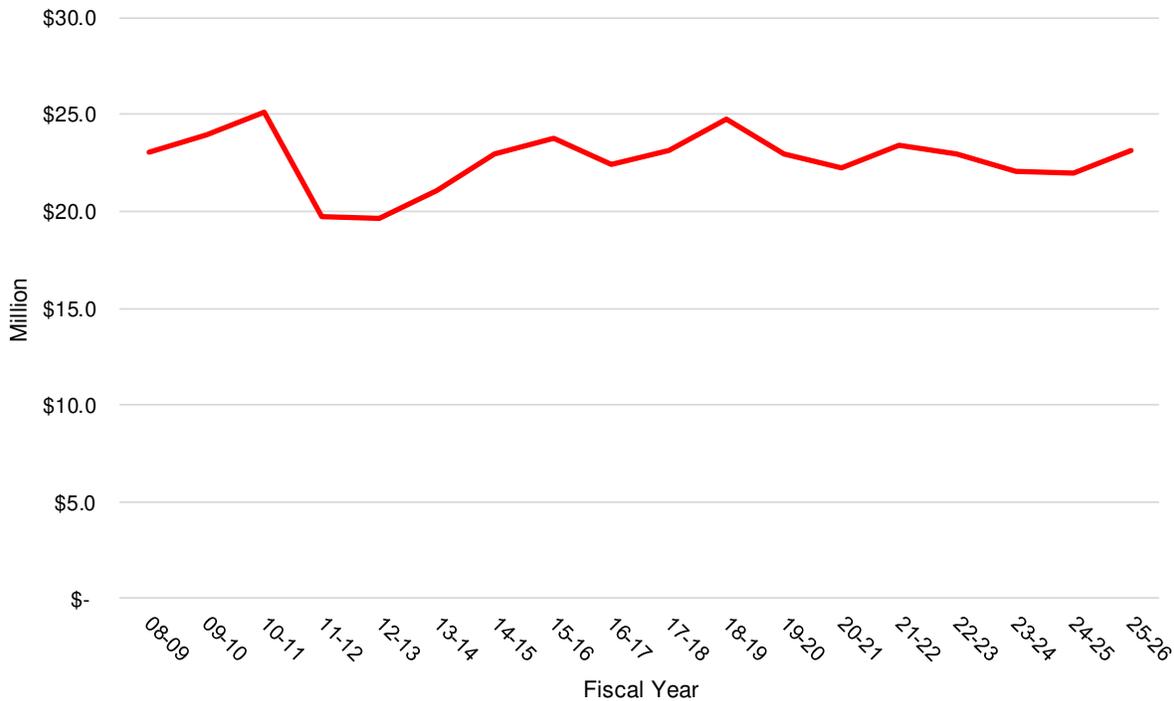
Volume 1—Technical Report

**Table 35—Projected General Fund Balance (In Thousand Dollars)**

Reserve Account	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
<b>Reserved</b>	0	0	0	0	0	0	0	0	0
<b>Unreserved</b>	0	0	0	0	0	0	0	0	0
Designated	0	0	0	0	0	0	0	0	0
Undesignated	0	0	0	0	0	0	0	0	0
<b>Non-Spendable</b>	1,247	1,247	1,247	1,247	1,247	1,247	1,247	1,247	1,247
<b>Restricted</b>									
Retirement Trust Fund	5,000	5,230	5,748	5,748	5,748	6,137	6,137	6,137	6,137
<b>Committed</b>									
Workers' Comp. Reserve	1,147	1,147	1,147	1,147	1,147	1,147	1,147	1,147	1,147
Equipment Replacement	1,314	931	(105)	(707)	462	1,361	1,729	2,290	3,403
Facilities	50	51	53	54	56	58	60	61	63
Compensated Absences	2,122	2,186	2,252	2,319	2,389	2,460	2,534	2,610	2,688
Emergency Contingency	6,258	6,403	7,203	7,154	7,045	7,600	7,833	7,929	7,949
<b>Assigned</b>									
Budget Transfers		2,267	741		852	908	96		
<b>Unassigned</b>	6,033	5,278	4,706	5,289	4,485	2,048	1,275	541	534
<b>Total Fund Balance</b>	<b>23,171</b>	<b>24,740</b>	<b>22,992</b>	<b>22,251</b>	<b>23,429</b>	<b>22,967</b>	<b>22,058</b>	<b>21,962</b>	<b>23,169</b>
<b>Percent of Operating Budget</b>	<b>64.34%</b>	<b>67.63%</b>	<b>56.97%</b>	<b>54.30%</b>	<b>55.59%</b>	<b>51.23%</b>	<b>47.84%</b>	<b>46.90%</b>	<b>48.73%</b>

Source: Chino Valley Fire District fiscal projections

**Figure 20—General Fund Balance**



As Table 34 shows, the District’s year-end General Fund balance decreased 2.7 percent from \$23.1 million in FY 2008–09 to \$22.5 million in FY 2016–17. Over the same period, the year-end General Fund balance as a percentage of the District’s annual operating budget has decreased 26.5 percent from 92.3 percent in FY 2008–09 to 65.8 percent in FY 2016–17. This decrease in the General Fund balance is predominantly due to planned one-time expenditures in FY 2011–12 to pay off the District’s CalPERS \$4.7 million side fund balance and \$5.0 million initial funding of an IRS Section 115 Retirement Trust Fund in FY 2016–17 to accelerate funding of future pension liabilities.

As Table 35 and Figure 20 illustrate, the District’s year-end General Fund balance is projected to fluctuate over the next 10 years, from a low of \$21.96 million in FY 2024-25 to a high of \$24.74 million in FY 2018-19. Even at its lowest projection, the District’s fund balance would still be 47 percent of its annual operating budget. Changes in the projected fund balance are primarily due to planned expenditures,<sup>14</sup> including:

- ◆ Planned staffing of Station 68 in FY 2019–20
- ◆ Adding a second operational Battalion Chief per shift in FY 2019–20

<sup>14</sup> Projected dates for these expenditures are subject to change based on strategic and fiscal planning and priorities.

◆ Planned staffing of Station 69 in FY 2022–23.

Recognized fiscal best practices for public agencies<sup>15</sup> recommend an operating fund balance equal to *at least* two months’ operating expenditures as a fiscal reserve for unanticipated contingencies or emergencies, equating to \$6.0 million, or 16.67 percent of the District’s FY 2017–18 operating budget excluding capital outlay. The District’s current General Fund balance of \$22.47 million, equaling 65.8 percent of its current operating budget, and projected future fund balances of 47 percent or more *significantly exceed* this recommendation.

Fiscal best practices further recommend that public agencies consider establishing restricted reserve funds to meet future anticipated costs, such as capital asset renewal/replacement, other post-employment benefits (OPEB), or other long-term fiscal liabilities. The District has established such reserve funds.

**Finding #42:** The District’s year-end General Fund balance has decreased 2.7 percent from FY 2008–09 due to planned one-time expenditures to retire a CalPERS side fund loan and to pre-fund future pension liabilities.

**Finding #43:** The District’s year-end General Fund balance is projected to fluctuate from \$21.96 to \$24.74 million over the next 10 years to FY 2026–27.

**Finding #44:** The District’s current General Fund balance equates to 65.8 percent of its current operating budget excluding capital outlay and is projected to be 47 percent or higher over the next 10 years, *exceeding* recommended fiscal best practices for public agencies.

**Finding #45:** The District has established restricted reserve funds to meet anticipated future costs, conforming to fiscal best practices for public agencies.

### 3.3.6 Capital Funding

The District has established restricted reserve funds for equipment replacement and facilities acquisition and maintenance. Although the District does not have a formal Capital Plan conforming to recognized fiscal best practices, it does maintain informal cost and expected

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<sup>15</sup> Government Finance Officers Association (GFOA), *Recommended Budget Practices from the National Advisory Council on State and Local Budgeting*. <http://www.gfoa.org/print/451>

service life projections for vehicles and major equipment. Table 36 summarizes the District’s projected capital fund reserves.

**Table 36—Capital Fund Balances (In Thousand Dollars)**

Capital Fund	FY 2016–17	FY 2017–18	FY 2018–19	FY 2019–20	FY 2020–21	FY 2021–22	FY 2022–23	FY 2023–24	FY 2024–25	FY 2025–26
Equipment Replacement	439	1,314	931	(105)	(707)	462	1,361	1,729	2,290	3,403
Facilities	48	50	51	53	54	56	58	60	61	63

Source: Chino Valley Fire District fiscal projections

While the District’s informal cost and expected service life projections were not reviewed for this study, Citygate recommends that the District develop a multiple-year Capital Plan consistent with fiscal best practices as previously discussed, to include:

- ◆ A definition of *capital asset*, frequently including expected asset life and a minimum cost threshold.
- ◆ All projects and funding sources in the capital budget, including any debt service to be associated with a given project.
- ◆ An outline in the capital budget of the process of adopting the budget, the process for prioritization and evaluation of projects for funding, and the process for reporting on the status and expected completion dates of new and ongoing capital projects.
- ◆ A good description of each project, noting those projects that are part of regular replacement cycles and that have an impact on the annual operating budget. The purpose of the project item and the funding source should also be described.

**Finding #46:** The District should adopt a formal multiple-year Capital Plan consistent with fiscal best practices for public agencies.

**Recommendation #8:** The District should consider developing a multiple-year Capital Plan consistent with fiscal best practice recommendations for public agencies.

### 3.3.7 Debt

The District has no current or anticipated debt service.

### 3.3.8 Unfunded/Underfunded Fiscal Liabilities

While the District has not fully funded its existing pension and compensated absence liabilities, it has established reserve funds consistent with fiscal best practices for public agencies. These reserves, in combination with anticipated general fund revenues, are adequate, in Citygate’s opinion, to meet anticipated pension and compensated absence liabilities over at least the next several years. The District expressed intent to prioritize accelerated funding of its long-term liabilities over the next several years, including use of the recent IRS Section 115 Retirement Trust Fund.

**Finding #47:** The District has appropriate designated reserve funds that, in combination with projected future general fund revenues, are sufficient to meet anticipated pension and compensated absence liabilities over the next several years.

### 3.3.9 Fiscal Planning

Consistent with fiscal best practices for public agencies and prudent business fiscal management in general, the District, both historically and in an ongoing basis, engages in comprehensive near-term and long-range fiscal planning to ensure long-term fiscal health and sustainability.

**Finding #48:** The District engages in comprehensive near-term and long-range fiscal planning to ensure long-term fiscal health and sustainability.

### 3.3.10 Overall Fiscal Evaluation

Overall, Citygate’s fiscal evaluation finds that the District is fiscally sound, with an overall fund balance adequate to ensure fiscal sustainability well into the future. The District has adopted comprehensive fiscal policies, conducts long-range fiscal planning, has established solid fiscal reserves, and maintains overall expenditures within revenues consistent with recognized fiscal best practices. The District also has no debt and is appropriately managing its projected pension and compensated leave balance obligations.

## 3.4 EOC/DOC ASSESSMENT

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### 3.4.1 EOC Support Expectations

Emergency management in the City of Chino is a responsibility of the Police Department, with a dedicated Emergency Operations Center (EOC) in the Police Department and a full-time

Administrative Services/Emergency Manager. The City’s Emergency Operations Plan<sup>16</sup> identifies three levels of activation during emergencies, ranging from minimal (Level 1) to full activation (Level 3) depending on the nature and scope of the emergency. In addition, the Plan designates the Fire District as responsible for filling the Operations Section Chief position for emergencies primarily related to services provided by the District, as well as the Fire and Rescue Branch Director, Fire Operations Unit Leader, Disaster Medical Unit Leader, Search and Rescue Unit Leader, and Hazmat Unit Leader positions as activated. However, the Emergency Manager advised Citygate that the City’s expectation relative to District support for the EOC would primarily be to provide a liaison to the Operations Section assuming that a Fire District Operations Center (DOC) is operational.

In the City of Chino Hills, the City Manager serves as the Director of Emergency Services and EOC Director. The City does not have a dedicated EOC facility, but rather an “EOC in a Box,” where EOC supplies and equipment are stored in the Police Department and can be readily accessed and set up within the multi-purpose meeting room as needed. The City’s Emergency Operations Plan<sup>17</sup> identifies three levels of EOC activation similar to the City of Chino. The Plan further identifies the Fire District as responsible for filling the Fire and Medical/Health Branches of the Operations Section as activated. Although Citygate was unable to make contact with a City representative for this assessment, Fire District Deputy Fire Marshal Danielle Barnes advised that the City of Chino Hills’s expectation for EOC support is similar to the City of Chino.

The San Bernardino County Office of Emergency Services (OES), a division of the San Bernardino County Fire Department, serves as the lead agency for the San Bernardino County Operational Area, including cities and special districts, under the State’s emergency services organization. County OES maintains a dedicated primary EOC in the City of Rialto, with two alternate backup sites. Like the Cities of Chino and Chino Hills, the County Emergency Operations Plan<sup>18</sup> identifies three levels of EOC activation from “low” to “high.” While the Plan does not specifically identify the District as responsible for filling specific EOC positions, it does address that involvement of special districts may be necessary in the County EOC depending on the location, nature, and size of the emergency. Ideally, this would involve an agency representative to serve in the EOC Management Section. Alternately, coordination between the District and County EOC should occur through either the Incident Commander (IC) and the County EOC or, when operational, the District Operations Center and the County EOC.

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<sup>16</sup> City of Chino Emergency Operations Plan, Part V EOC Position Checklists

<sup>17</sup> City of Chino Hills Emergency Operations Plan, Section 7.4

<sup>18</sup> San Bernardino County Emergency Operations Plan, Section 7.4

**Finding #49:** The Cities of Chino and Chino Hills expect the District to fill specific positions within their respective Emergency Operations Centers as identified in their Emergency Operations Plans.

### 3.4.2 EOC Roles and Responsibilities

The Chino and Chino Hills Emergency Operations Plans both include position checklists that describe the responsibilities and expected actions for each EOC position. Citygate’s review of these checklists suggests that persons assigned to fill each position are expected to not only be familiar with the Standardized Emergency Management System (SEMS) and Incident Command System (ICS), but also EOC operations in general. In addition, they should be familiar with the assigned EOC position function and possess the technical skills and/or experience necessary to perform the assigned position effectively. In Citygate’s experience, mid-level EOC technical positions, such as Unit Leader, are best performed by a company officer or equivalent staff person with the requisite knowledge, skills, and training. Higher level EOC positions, such as Branch Director of Section Chief, are generally best performed by a Chief Officer or equivalent staff position with the appropriate knowledge, skills, and training.

### 3.4.3 District’s Ability to Meet EOC Support Expectations

Personnel assigned to fill EOC positions are expected to have the completed the following training:

- ◆ ICS-100 Introduction to the Incident Command System
- ◆ ICS-200 ICS for Single Resource and Initial Action Incidents
- ◆ ICS-300 Intermediate ICS for Expanding Incidents
- ◆ ICS-400 Advanced ICS
- ◆ IS-700a National Incident Management System (NIMS), An Introduction
- ◆ IS-800b National Response Framework, An Introduction

In addition, EOC personnel should have completed specific EOC position training and have any technical skills and/or experience as may be required to perform the assigned position effectively, such as:

<u>EOC Position</u>	<u>Suggested Qualifications</u>
◆ Operations Section Chief	Chief Officer qualified as a Type-3 Operations Section Chief or higher
◆ Fire/Rescue Branch Director	Company or Chief Officer familiar with fire/rescue resource capabilities and local/regional/state mutual aid systems, policies, and procedures
◆ Fire Operations Unit Leader	Company or Chief Officer familiar with local/regional fire resource capabilities and local/regional mutual aid policies and procedures
◆ Disaster Medical Unit Leader	EMT-P or higher familiar with EMS and hospital resource capabilities and mass casualty and disaster medical policies and procedures
◆ Search and Rescue Unit Leader	Technical rescue or Urban Search and Rescue (USAR) team leader familiar with technical rescue resource capabilities and technical rescue policies and procedures
◆ Hazmat Unit Leader	Hazardous Materials Specialist or Technician familiar with local/regional hazardous materials response resource capabilities and hazardous materials incident policies and procedures

District staff advised Citygate that there is currently no policy, guideline, or procedure relating to EOC assignments and the Duty Chief is responsible for identifying need and assigning District personnel as appropriate. To assist the Duty Chief in performing this responsibility effectively and ensuring that appropriately qualified District personnel are assigned, Citygate suggests that the District develop an EOC assignment list with at least four qualified personnel for each expected support position to provide sufficient depth for multiple operational period events and employee absences. In addition, the District should ensure that all personnel with potential to be assigned to an EOC position have completed all requisite training.

**Finding #50:** The District does not currently maintain a roster of personnel qualified and trained to fill specific Emergency Operations Center support positions.

**Recommendation #9:** The District should ensure that a minimum of four personnel are appropriately trained and qualified to fill each specific Emergency Operations Center support position as expected and identified in the Chino and Chino Hills Emergency Operations Plans; the District should also develop and maintain a list of personnel qualified to fill each position, including their emergency contact information.

#### 3.4.4 District Operations Center Needs Assessment

The District has established a District Operations Center (DOC) in the training room of the Administrative Building in Chino Hills. The DOC is maintained for immediate activation, including position binders, telephones, computer terminals, and displays. There are also an adjacent break room and nearby conference rooms for use as needed. The building has an automatic emergency electrical generator sufficient to power the entire building in the event of an electrical power interruption. The District also maintains a 72-hour emergency food and water cache on site. The DOC was first activated during the 2011 freeway fire. The District has a DOC procedures binder for fire incidents only, which has not been reviewed and updated in several years, according to staff.

**Finding #51:** It is desirable for the District to maintain effective District Operations Center capability to provide operational and City Emergency Operations Center support during significant emergency events.

**Recommendation #10:** The District should update its District Operations Center procedures to address all types of emergency events, activation guidelines and procedures, staffing assignments, call-back priorities and procedures, and training.

San Bernardino County, like the State of California and most other counties, utilizes WebEOC as its emergency management software solution. The County has also made this emergency management tool available to all cities and special districts within the County to facilitate real-

time electronic sharing of emergency management information and to provide enhanced emergency management coordination and situational awareness throughout the county. While both Chino and Chino Hills have adopted and implemented WebEOC, the District has not done so to date.

**Recommendation #11:** The District should implement WebEOC as soon as possible to ensure integrated local/regional emergency incident coordination and situational awareness, as well as provide initial and ongoing training as needed to maintain proficiency.

Also, while incoming telephone calls are answered by an automated system with caller-selected options, callers can also directly dial any extension.

**Recommendation #12:** The District should consider designating multiple specific telephone extensions as public information lines, staffed during District Operations Center activations and answered with a recording at other times; these telephone numbers should then be advertised to the public through multiple media formats during emergency events.

Given the District’s responsibility to coordinate emergency operations with the two City EOCs and the County EOC during emergencies pursuant to SEMS principles and guidelines, and given the two City EOC support expectations cited previously, it is appropriate for the District to maintain rapid DOC activation capability, including initial and recurring position training, activation guidelines and procedures, staffing assignments, call-back priorities and procedures, and direct public access to staffed emergency information telephone lines. In addition, the District should consider activating the DOC frequently, even for smaller emergencies and/or short periods of time, to maintain DOC staff familiarity and proficiency.

### 3.4.5 Staff Roles and Responsibilities during an Emergency

Many public agencies, including the Cities of Chino and Chino Hills, have established policies and procedures relating to staff roles and responsibilities during emergency events. For example, the City of Chino Hills Emergency Operations Plan directs each City department to develop pre-designated emergency assignments, work locations, and policies/procedures regarding which employees will report automatically for work during off-duty hours and which employees will remain on standby when a major emergency occurs. The plan further includes specific guidelines

for emergencies that occur during off-duty hours. While the District has not developed similar guidelines, policies, or procedures, it should consider doing so given its relationship with the two Cities and the need to maintain continuity of business and emergency operations during significant emergency events.

**Recommendation #13:** The District should develop policies, guidelines, and procedures relating to staff roles and responsibilities to ensure continuity of business and emergency operations during significant emergency events.

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## SECTION 4—FUTURE SERVICE NEEDS ASSESSMENT

### 4.1 FUTURE GROWTH

Table 37 summarizes projected growth for the Cities of Chino and Chino Hills to the year 2035.

**Table 37—Projected Population and Housing Growth**

Planning Area	Growth Factor								
	Population				Housing Units				
	2017 <sup>1</sup>	2035 <sup>2</sup>	Projected Growth (Units)	Projected Growth (Percent)	Persons Per Household <sup>1</sup>	2017 Dwelling Units <sup>1</sup>	2035 Dwelling Units <sup>3</sup>	Projected Growth (Units)	Projected Growth (Percent)
City of Chino	88,026	114,200	26,174	29.73%	3.51	24,361	32,536	8,175	33.56%
City of Chino Hills	80,676	89,000	8,324	10.32%	3.35	24,581	26,567	1,986	8.08%
<b>Total</b>	<b>168,702</b>	<b>203,200</b>	<b>34,498</b>	<b>20.45%</b>	<b>N/A</b>	<b>48,942</b>	<b>59,103</b>	<b>10,161</b>	<b>20.76%</b>

<sup>1</sup> California Department of Finance Table E-5 (January 2017)

<sup>2</sup> Source: Southern California Association of Governments (SCAG) Regional Growth Forecast (2016)

<sup>3</sup> Estimated using California Dept. of Finance Persons Per Household data (Table E-5)

As Table 37 shows, the City of Chino is projected to grow nearly 20 percent more than the City of Chino Hills over the next 18 years, with aggregate population and housing unit growth in both cities projected to be 20.5 percent, or an annual average of about 1.15 percent. No detailed data was available relative to current and projected non-residential development; however, given the current zoning, it is reasonable to expect approximately the same growth rate for non-residential development.

### 4.2 FUTURE SERVICE DEMAND

#### 4.2.1 Emergency Service Demand

Although incident data prior to 2014 was not reviewed for this study, total emergency service demand has increased 13.67 percent over the past three calendar years, or an average of 6.6 percent annually, as summarized in Table 38.

**Table 38—Recent Emergency Service Demand Summary**

Emergency Service Demand Category	Year			Total	Percent of Total Service Demand	3-Year Change	Annualized Change
	2014	2015	2016				
Medical Emergency	6,135	6,470	7,289	<b>19,894</b>	61.52%	18.81%	6.27%
Building Fire	90	78	96	<b>264</b>	0.82%	6.67%	2.22%
Hazardous Materials	58	46	51	<b>155</b>	0.48%	-12.07%	-4.00%
Wildland Fire	24	36	47	<b>107</b>	0.33%	95.83%	31.94%
Other	3,780	4,153	3,982	<b>11,915</b>	36.85%	5.34%	1.78%
<b>Total</b>	<b>10,087</b>	<b>10,783</b>	<b>11,465</b>	<b>32,335</b>	<b>100.00%</b>	<b>13.66%</b>	<b>4.55%</b>

Incident figures do not include incidents for which no station is identified and incidents outside the District.

As Table 38 illustrates, medical emergencies comprise the majority of emergency service demand (61.5 percent), followed by other incident types (36.85 percent). The other three significant emergency service demand categories in aggregate comprise less than two percent of total service demand. As Table 38 further illustrates, medical emergency service demand has increased 18.8 percent over the past three years, or an average annualized increase of 6.3 percent. All other emergency service demand, in aggregate, has increased 5.67 percent, or an average annualized increase of 1.9 percent.

Service demand is generally a function of population and demographics: higher population densities and lower socio-economic demographics tend to drive service demand up. Population and housing units are projected to increase by approximately 30 percent and 10 percent respectively within the Cities of Chino and Chino Hills over the next 18 years to 2035, or an average annualized growth rate of approximately 1.7 percent and 0.6 percent.

As Map 5 in Volume 2 illustrates, the District’s population density ranges from less than 1,000 to more than 10,000 people per square mile. Also, as **Error! Reference source not found.** in appendix A.1.4 (in Volume 3) shows, the District’s population is generally educated, employed, and covered by health insurance. In addition, a majority of the housing units are owner-occupied, and violent crime and poverty rates within the District are low. These factors, in aggregate, tend to result in lower service demand than other communities of similar population density with lower socio-economic demographics.

Given the District’s demographics, zoning regulations, service demand history, and projected growth, Citygate projects a continued service demand increase, averaging approximately 4 to 6 percent annually, over the next 10 years to 2027, with the preponderance of that service demand EMS related. While additional fire stations will be required to meet response performance goals as development within the District continues to expand, Citygate believes this increased service

demand can be absorbed within the District’s current and anticipated expanded service capacity without exceeding individual unit saturation rates as discussed in Appendix B.2 found in Volume 3.

**Finding #52:** Annual emergency service demand is projected to increase approximately 4 to 6 percent annually over the next 10 years to 2027; this service demand increase can be absorbed within the District’s current and anticipated future service capacity.

#### 4.2.2 Non-Emergency Service Demand

For the purpose of this section, non-emergency service demand relates to those services provided to both internal and external customers other than emergency incident responses, including accounting, community risk reduction, payroll, employee benefits, public information requests, training, EMS quality assurance, etc.

Although this study did not include a detailed forensic workload analysis, the District should anticipate additional demand for Community Risk Reduction Department services given future development activity associated with projected future District growth as discussed in Section 4.1. In addition, the District should anticipate increased internal service demand as additional operational personnel, facilities, and equipment are added to meet operational deployment goals.

**Finding #53:** The District should anticipate additional non-emergency service demand as a result of projected future development activity and anticipated additional operational personnel, facilities, and equipment.

The Community Risk Reduction Department needs approximately 0.36 to 0.73 additional FTE to meet *current* workload expectations and timelines and may require additional capacity to effectively handle any increased service demand. The District’s operational to management services staffing ratio is currently 2.97:1, which would decrease to 2.72:1 if all administrative staffing recommendations are implemented.

**Finding #54:** The District should consider striving to maintain an approximately 2.75:1 operational to management services staffing ratio to effectively meet internal and external customer service needs and expectations.

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## 4.3 FUTURE FACILITY NEEDS

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### 4.3.1 Future Facility Needs

In the near term, the District should consider adding at least one, and potentially two, fire stations or alternative deployment models, as discussed in Section 4.6.1, to mitigate the large 4:00-minute first-due travel time gap in central Chino Hills. As discussed in Section 2.9.1, adding one fire station in this gap area will expand the District’s current 4:00-minute first-due travel time coverage from 5.1 to 10.8 percent, and adding two stations will add from 14.6 to 19.6 percent additional 4:00-minute first-due coverage, or nearly all the gap area.

Over the longer term, the District should continue to evaluate the need for additional fire station facilities and/or alternative deployment models to mitigate the 4:00-minute first-due travel time gaps in the northwest and southeast areas of the District as development and service demand increase. The District’s Administrative Headquarters facility is also at or near maximum capacity, and the District will need to consider the additional office, meeting, and storage space needed to accommodate any additional administrative support staff.

**Finding #55:** The District’s Administrative Headquarters facility is at or near maximum capacity; the District will need to consider additional office, meeting, and storage space as may be needed to accommodate any additional administrative support staff.

**Recommendation #14:** The District should continue to evaluate the need and cost-effectiveness of additional fire station facilities and/or alternative deployment models in the northwest and southeast 4:00-minute first-due travel time gaps as development, population, and service demand increase in those areas.

### 4.3.2 Future Facility Maintenance Needs

As Table 39 shows, the District’s 10 facilities range in age from seven to 40 years. In addition, all are in good to excellent condition and are adequate to meet current and anticipated space needs, with the exception of Station 65, which is in need of significant capital renewal, and the Administrative Headquarters, which may need additional space to accommodate future additional administrative support staff.

**Table 39—Facility Summary**

Facility	Year Built	Age (Years)	Condition
Station 61	2011	7	Excellent
Station 62	1999	19	Excellent
Station 63	2005	13	Excellent
Station 64	1991	27	Excellent
Station 65	1978	40	Poor
Station 66	1990	28	Good
Station 67	2011	7	Excellent
Administration	2008	10	Excellent
Fleet Maintenance	1985	33	Excellent
Training	2011	7	Excellent

Source: Chino Valley Fire District

Capital renewal needs for Station 65 include:

- ◆ Dormitory-style bathrooms do not accommodate simultaneous multi-gender use
- ◆ No dedicated physical fitness workout area; physical fitness equipment is currently located throughout the building wherever space allows
- ◆ Sleeping area HVAC system not effective since conversion from dormitory-style sleeping area to individual bedrooms
- ◆ Insufficient storage space outside of living/office areas for personal protective clothing
- ◆ Facility is not compliant with the access requirements of the Americans with Disabilities Act (ADA)
- ◆ Very limited office work space
- ◆ Ongoing frequent plumbing and electrical problems
- ◆ Apparatus bay doors are original and in need of replacement.

**Finding #56:** Fire Station 65 is 40 years old and in need of significant capital renewal.

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## 4.4 FUTURE STAFFING NEEDS

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### 4.4.1 Future Operational Staffing Needs

Near-term operational staffing needs relate to the additional staffing required to close the 4:00-minute first-due travel time gap in central Chino Hills. This could range from one or more two-person ALS Rapid Response Units (RRU) to one or more three-person ALS engines as fiscal and strategic planning and long-term funding allow. The RRU concept is more fully discussed in Section 4.6.1.

Over the near- to mid-term horizon, the District should also evaluate the need and funding for a second shift Battalion Chief to maintain a manageable supervisor/subordinate ratio as additional response personnel are added and to also provide the needed capacity to manage division sub-level programs such as SCBAs, communications equipment, safety clothing and equipment, etc.

Over the longer term, the District should continue to evaluate the need for additional operational staffing in the northwestern and southeastern area of the District as population and service demand continue to increase.

**Finding #57:** Near-term operational staffing considerations should focus on closing the large 4:00-minute first-due travel time gap in central Chino Hills; longer-term operational staffing considerations include a second shift Battalion Chief and additional operational staffing in the northwestern and southeastern area of the District as population and service demand warrant for those areas.

### 4.4.2 Future Administrative Support Staffing Needs

Near-term administrative support staffing needs are summarized in Section 3.1.8. Future administrative support staffing needs relate predominantly to support required for any additional operational personnel. To effectively meet internal and external customer service needs and expectations, the District should consider striving to maintain an approximately 2.75:1 operational to management services staffing ratio as additional operational personnel are added.

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## 4.5 FUTURE AUTOMOTIVE FLEET NEEDS

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The District's apparatus fleet has appropriate capabilities to protect the values at risk within the District, with the only potential exception being the foam unit at Station 63. While Foam 63 meets Index A Aircraft Rescue and Fire Fighting (ARFF) requirements,<sup>19</sup> Index B ARFF

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<sup>19</sup> Federal Aviation Regulations, Part 139.315.

capability *may be required* based on the larger size and frequency of aircraft currently operating from Chino airport. Index B ARFF requires one vehicle with 500 pounds of sodium-based dry chemical, Halon 1211, or clean agent *and* 1,500 gallons of Aqueous Film Forming Foam (AFFF), or two vehicles: one with 500 pounds of sodium-based dry chemical, Halon 1211, or clean agent, *or* 450 pounds of potassium-based dry chemical and 100 gallons of AFFF; and a second vehicle with 1,500 gallons of AFFF.

The District’s front-line apparatus fleet ranges in age from one to 26 years, averaging 7.4 years. The District’s reserve apparatus fleet ranges in age from 12 to 28 years, averaging 19.5 years, and the District’s staff fleet ranges in age from 1 to 16 years, averaging 7.9 years. Overall, Citygate found the District’s emergency response fleet to be in good to excellent condition with a very good internal inspection, preventive maintenance, and repair program. The District’s reserve response fleet is in fair to very good condition.

Response apparatus are typically assigned a useful service life ranging from 12 to 25 years depending on anticipated use and the environment they operate in. That useful service life is also typically divided into front line status followed by some years as a reserve apparatus. Busy inland southern California fire agencies should be able to reasonably expect 10 to 15 years of front line service and five to 10 years of reserve service from a quality fire apparatus.

Pursuant to Citygate’s evaluation of the District’s automotive fleet, the District should consider prioritizing and replacing the following apparatus as funding permits:

- ◆ Engine 64A
- ◆ Foam 63

**Finding #58:** The District’s emergency response apparatus fleet has appropriate capabilities to protect the values at risk, with the possible exception of Foam 63.

**Finding #59:** The District’s emergency response apparatus should reasonably be expected to have a useful service life of 20 to 25 years, including 10 to 15 years of front line service and five to 10 years of reserve status.

**Finding #60:** The District’s front-line response fleet is in good to excellent condition; the reserve fleet is in fair to very good condition.

Citygate finds that the District’s paramedic squads are under-utilized due to their single-purpose EMS configuration, and the District should consider expanding their capability with a fire pump, water tank, and minimal fire suppression and rescue equipment to provide all-risk first-due

service capability. This vehicle configuration would also be suitable for the alternate deployment model discussed in Section 4.6.1.

## 4.6 POTENTIAL OPPORTUNITIES TO ENHANCE EFFICACY

### 4.6.1 Emergency Services

Given daily traffic congestion impacts throughout much of the District, first-due response performance could potentially be improved with dynamic deployment of one or more Peak Activity Units (PAU) during these or other high-service demand periods. Such units would also be very helpful if they were posted in gap areas before fire stations can be built.

These PAUs could be staffed with two personnel, including at least one paramedic, to provide Advanced Life Support EMS and initial fire suppression and rescue response to areas difficult to reach within the preferred 4:00-minute first-due travel time. PAU(s) could be staffed and deployed during peak traffic congestion periods to provide enhanced first-due response performance to prioritized areas of the District known to be impacted by traffic congestion, or deployed for a specific shift periods of 6, 8, 10, or 12 hours, similar to the dynamic deployment model used by many ambulance companies. In addition to providing enhanced first-due response performance, PAU(s) would also provide additional available ERF staffing capacity.

If service demand during daylight hours is straining response capacity, particularly in the gap areas described in Section 2.9.1, the District could implement an adaptive service model at the lowest cost by dynamically deploying<sup>20</sup> one or more PAU(s) on 12-hour daylight shifts from “phantom stations,”<sup>21</sup> using the personnel from the least-busy nighttime-hour paramedic squad(s) on an alternate 40-hour workweek schedule. This model could also be implemented experimentally for evaluation of impact using personnel on overtime.

**Finding #61:** Adaptive deployment of one or more multi-risk Peak Activity Units (PAU) could provide enhanced first-due response performance during peak traffic congestion and/or service demand periods.

<sup>20</sup> Dynamic deployment refers to the strategic “staging” of a response resource to provide first-due travel time within a specified or desired time interval

<sup>21</sup> “Phantom station” refers to a pre-designated location, other than an existing fire station location, from which assigned response resources are staged for immediate response

## 4.6.2 Support Services

One potential opportunity to enhance District support services involves partnering with one or more of the local community colleges and/or four-year colleges/universities to provide internships for students in specific fields of study such as accounting, business, communications, marketing, information technology, etc. This would not only provide additional management services support capacity at no cost to the District, it would also provide practical application of academic concepts for the interns. This model could potentially be utilized to bridge shorter-term management services capacity needs or also on an ongoing basis.

A second alternative involves using more reserves/volunteers to perform more of the unskilled and semi-skilled tasks in District support programs, such as the service center/warehouse, fleet maintenance shop, and information technology. Expanded use of reserves/volunteers could free up capacity for full-time staff for program planning and higher-level analytical and/or technical work.

## 4.7 FUTURE EMS OPPORTUNITIES

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The District provides a high-quality first responder paramedic program to ensure ALS care in each neighborhood before the arrival of the paramedic ambulance from the regional contract supervised by the Inland Counties EMS Agency.

EMS is highly regulated under state law by a State EMS Agency and through duties delegated to County level EMS agencies. Units of local government (cities and districts) can only provide EMS under this regulatory constraint. Regional ambulance providers are under an increasing, two-fold fiscal pressure—steadily rising incident volumes and very low, under-cost payments by Medicare and MediCal. First responder programs do not receive payments from transport revenues. Some local governments charge a First Responder fee and partially collect from commercial insurance companies.

Some of the EMS incident increases are due to patients who do not have acute medical problems who could be seen by same-day clinic appointments or be transported through a means other than an emergency ambulance. Insurers and EMS agencies are pilot testing alternative treatment pathways, commonly called “Community Paramedicine” or alternative destination transport methods.

However, the pilot programs have been funded mostly by grants, not by government agencies or commercial insurance companies. Late in 2017, one large national insurance company said it would start doing so in 2018.

As of this writing, available EMS options are largely up to the local EMS agency and available payments come from Federal, State and commercial insurance payers. The District operates a significant paramedic program that can be adapted to new models; however, the District will

need to ensure it maintains appropriate management-level coordination with ICEMA and other local/regional EMS providers as it develops proposed changes to the EMS program, depending on what alternative payment/billing pathways might open.

## SECTION 5—FINDINGS AND RECOMMENDATIONS

Following is a complete list of the findings and recommendations contained in this report, grouped and presented by subject, beginning with deployment.

### 5.1 DEPLOYMENT FINDINGS AND RECOMMENDATIONS

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- Finding #1:** The District’s population is projected to grow 20.5 percent over the next 18 years to 2035, or an average annual growth of 1.15 percent.
- Finding #2:** The District has established response performance goals partially consistent with best practice recommendations published by the Commission on Fire Accreditation International.
- Finding #3:** The District has a standard response plan that considers risk and establishes an appropriate initial response for each incident type; each type of call for service receives the combination of engine companies, trucks, squads, ambulances, specialty units, and command officers customarily needed to effectively control that type of incident based on Fire District experience.
- Finding #4:** Large areas of the City of Chino Hills west of Highway 71 are within a **Very High** wildland Fire Hazard Severity Zone (FHSZ), as identified by the California Department of Forestry and Fire Protection (CAL FIRE).
- Finding #5:** Approximately 57 percent of the District’s total public road network is within 4:00-minute first-due travel time of an existing fire station *without traffic congestion*.
- Finding #6:** During peak traffic congestion periods, 4:00-minute first-due travel time coverage is *reduced by more than 24 percent* to 33 percent of the District’s total public road network.
- Finding #7:** Approximately 92 percent of the District’s public road network is within 8:00-minute ERF travel time of an existing fire station *without traffic congestion*.
- Finding #8:** During peak traffic congestion periods, 8:00-minute ERF travel time coverage is *reduced by more than 50 percent* to 42 percent of the District’s total public road network.
- Finding #9:** Service demand is increasing steadily, averaging 6.6 percent annually over the most recent three-year period.

- Finding #10:** The District has consistent day-of-week and month-of-year service demand, indicating the need for a 24-hour-per-day, seven-day-per-week fire and EMS emergency response system.
- Finding #11:** Call processing performance is *consistently better* than the recommended 1:30-minute best practice standard.
- Finding #12:** Crew turnout performance *consistently meets* a Citygate-recommended goal of 2:00 minutes or less.
- Finding #13:** First-due travel performance *fails to meet* a recommended best practice goal of 4:00 minutes or less for urban/suburban zones by 59 percent (2:22 minutes) due to large first-due response areas, topography and curvilinear roads in Chino Hills, and daily traffic congestion.
- Finding #14:** ERF travel performance *fails to meet* a recommended best practice goal of 8:00 minutes or less for urban/suburban areas by 33 percent (2:40 minutes); however, this result should be considered with caution as it is based on a very small quantity of incidents in which all the needed units arrived and times can be very different due to the possibility of all incident locations being close to or far from the fire stations.
- Finding #15:** Call to first arrival performance *fails to meet* a Citygate-recommended goal of 7:30 minutes or less by 16 percent (1:13) to achieve desired outcomes in urban/suburban areas.
- Finding #16:** ERF call to arrival performance *is slightly slower* (5 percent) than a Citygate-recommended goal of 11:30 minutes or less to achieve desired outcomes in urban/suburban areas; this result should be considered with caution as it is based on a very small dataset.
- Finding #17:** More than 53 percent of all incident activity in 2016 involved two or more simultaneous (concurrent) incidents; 19 percent involved three or more simultaneous incidents.
- Finding #18:** Simultaneous incident activity *within the same station response area* is increasing annually, comprising 10.6 percent of total service demand for Station 65; simultaneous incident activity has the potential to impact first-due response time performance when a resource from another station must respond to the second or subsequent simultaneous emergency incident.
- Finding #19:** The District over-deploys to low-acuity EMS calls.

**Finding #20:** The paramedic squads are underutilized due to their single-purpose EMS configuration.

**Finding #21:** Including a fire pump, water tank, and minimal fire suppression and rescue equipment would expand the service capabilities and deployment flexibility of the paramedic squads.

**Finding #22:** There are significant 4:00-minute first-due travel time gaps in several areas of the District, which are further exacerbated by traffic congestion.

**Finding #23:** First-due and ERF response performance for Gap Area 1 in central Chino Hills can only be improved with additional fire station(s) or alternative deployment models.

**Finding #24:** First-due and ERF response performance for Gap Area 2 in northwest Chino Hills and Gap Area 3 in central Chino can only be improved with additional staffed resources.

**Finding #25:** Lower population density, building risk, and service demand do not currently justify the additional response capacity needed to improve response performance in Gap Area 4.

**Finding #26:** Gap Area 5 in northwestern Chino and Gap Area 6 in northeastern Chino are too small to economically improve first-due and ERF response performance.

**Recommendation #1:** The District should consider deploying only a paramedic squad or engine to low-acuity EMS calls.

**Recommendation #2:** The District should consider providing minimal fire suppression and rescue capability to the paramedic squads to provide expanded service capability and deployment flexibility.

**Recommendation #3:** The District should consider adding additional staffed resource(s) to improve first-due response performance in Gap Area 1 in central Chino Hills as strategic priorities and long-term funding allow.

**Recommendation #4:** The District should consider adding additional staffed resources to improve first-due response performance in Gap Area 2 in northwestern Chino Hills and Gap Area 3 in central Chino as strategic priorities and long-term funding allow.

**Recommendation #5:** **Adopt Updated Deployment Policies:** The District’s Board of Directors should adopt updated, complete response performance measures to aid deployment planning and to monitor performance. The measures of time should be designed to deliver outcomes that will save patients when possible and to keep small but serious fires from becoming more serious. With this in mind, Citygate recommends the following measures for the District’s planning zones:

- 5.1 Distribution of Fire Stations:** To treat pre-hospital medical emergencies and control small fires, the first-due unit should arrive within 7:30 minutes, 90 percent of the time from the receipt of the 9-1-1 call in urban/suburban planning zones and within 10:30 minutes in rural planning zones. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 4:00-minute (urban/suburban zones) or 7:00-minute (rural zones) travel time.
- 5.2 Multiple-Unit Effective Response Force for Serious Emergencies:** In urban/suburban planning zones, to confine building fires near the room of origin, keep wildland fires under three acres in size, and treat multiple medical patients at a single incident, a multiple-unit Effective Response Force of at least 20 personnel, including at least one Chief Officer, should arrive within 11:30 minutes from the time of 9-1-1 call receipt in fire dispatch, 90 percent of the time. This equates to a 90-second dispatch time, 2:00-minute company turnout time, and 8:00-minute (urban/suburban zones) or 14:00-minute (rural zones) travel time fire station spacing.
- 5.3 Hazardous Materials Response:** Provide hazardous materials response designed to protect the community from the hazards associated with uncontrolled release of hazardous and toxic materials. The fundamental mission of the District response is to minimize or halt the release of a hazardous substance so it has minimal impact on the community. This can be achieved with a first-due total response time of 7:30 minutes (urban/suburban zones) or 10:30 minutes (rural zones) to provide initial hazard evaluation and/or mitigation actions. After the initial evaluation is completed, a determination can be made whether the District’s or one of the regional hazardous materials response teams is needed.

- 5.4** Technical Rescue: Respond to technical rescue emergencies as efficiently and effectively as possible with enough trained personnel to facilitate a successful rescue with a first-due total response time of 7:30 minutes (urban/suburban zones) or 10:30 minutes (rural zones) to evaluate the situation and/or initiate rescue actions. Following the initial evaluation, assemble additional resources as needed within a total response time of 11:30 minutes (urban/suburban zones) or 17:30 minutes (rural zones) to safely complete rescue/extrication and delivery of the victim to the appropriate emergency medical care facility.

## **5.2 ADMINISTRATION, MANAGEMENT, STAFFING, AND FISCAL FINDINGS AND RECOMMENDATIONS**

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- Finding #27:** The District’s Emergency Services management function has numerous strengths; however, it also lacks sufficient capacity to effectively manage the District’s EMS and training programs, develop and implement an effective succession development plan, and maintain minimal reserve capacity for special projects as assigned. Citygate estimates an additional 0.9 to 1.4 FTE positions would be needed to close those gaps.
- Finding #28:** The District lacks a quality assurance process for contracted private-sector development/building plan reviews to check for conformance with applicable fire and life safety standards.
- Finding #29:** The District’s Community Risk Reduction Department lacks sufficient capacity to provide appropriate technical training of staff and to develop and implement an effective succession development plan; Citygate estimates an additional 0.36–0.73 full-time equivalent positions would be needed to close those gaps.
- Finding #30:** The District’s Support Services Department lacks sufficient workload capacity to provide critical redundant fleet and facilities coordination, information technology systems coordination, and succession development training. Citygate estimates an additional 0.58–1.16 full-time equivalent positions would be needed to close those gaps.
- Finding #31:** District management services functions are slightly understaffed to meet key workload responsibilities and expectations; future management services workload is expected to increase as additional fire stations and associated operational personnel are added to serve new and existing developments within the District.

- Finding #32:** The District has significant exposure to critical business process/service interruptions in the Support Services Department.
- Finding #33:** The District’s daily operational staffing is appropriate for the values to be protected and is also adequate for anticipated concurrent incident service demand.
- Finding #34:** The District’s management services capacity is slightly inadequate to meet current service demand expectations.
- Finding #35:** The District tracks revenues and expenditures on a multiple-year basis consistent with recognized best practice recommendations.
- Finding #36:** The District’s annual budget process conforms to best practice recommendations of the Government Finance Officers Association and the California Society of Municipal Finance Officers.
- Finding #37:** The District has received the California Society of Municipal Finance Officers’ Operating Budget Excellence Award for multiple years.
- Finding #38:** The District has established fiscal policies consistent with best practice recommendations for public agencies.
- Finding #39:** Excluding capital outlay, revenues are projected to exceed expenditures by an average of 2.9 percent over the next nine years to FY 2025–26, primarily due to increased personnel costs associated with the planned opening of Station 68.
- Finding #40:** Including planned capital outlay, *expenditures are projected to exceed revenues* by \$0.1 to \$2.3 million over five of the next nine years to FY 2025–26. Given the uncertainty of rising pension and health care costs, this is a very small safe operating margin. The District must continue planning to avoid structural deficit spending.
- Finding #41:** The District has established fiscal reserves conforming to best practice guidelines for public agencies.
- Finding #42:** The District’s year-end General Fund balance has decreased 2.7 percent from FY 2008–09 due to planned one-time expenditures to retire a CalPERS side fund loan and to pre-fund future pension liabilities.
- Finding #43:** The District’s year-end General Fund balance is projected to fluctuate from \$21.96 to \$24.74 million over the next 10 years to FY 2026–27.

- Finding #44:** The District’s current General Fund balance equates to 65.8 percent of its current operating budget excluding capital outlay and is projected to be 47 percent or higher over the next 10 years, *exceeding* recommended fiscal best practices for public agencies.
- Finding #45:** The District has established restricted reserve funds to meet anticipated future costs, conforming to fiscal best practices for public agencies.
- Finding #46:** The District should adopt a formal multiple-year Capital Plan consistent with fiscal best practices for public agencies.
- Finding #47:** The District has appropriate designated reserve funds that, in combination with projected future general fund revenues, are sufficient to meet anticipated pension and compensated absence liabilities over the next several years.
- Finding #48:** The District engages in comprehensive near-term and long-range fiscal planning to ensure long-term fiscal health and sustainability.
- Finding #49:** The Cities of Chino and Chino Hills expect the District to fill specific positions within their respective Emergency Operations Centers as identified in their Emergency Operations Plans.
- Finding #50:** The District does not currently maintain a roster of personnel qualified and trained to fill specific Emergency Operations Center support positions.
- Finding #51:** It is desirable for the District to maintain effective District Operations Center capability to provide operational and City Emergency Operations Center support during significant emergency events.
- Recommendation #6:** The District should consider establishing an appropriate quality assurance process for its private-sector development and building plan reviews.
- Recommendation #7:** The District should consider providing critical redundant fleet and facilities coordination capability and redundant information technology systems coordination capability as strategic planning and funding allow.
- Recommendation #8:** The District should consider developing a multiple-year Capital Plan consistent with fiscal best practice recommendations for public agencies.

- Recommendation #9:** The District should ensure that a minimum of four personnel are appropriately trained and qualified to fill each specific Emergency Operations Center support position as expected and identified in the Chino and Chino Hills Emergency Operations Plans; the District should also develop and maintain a list of personnel qualified to fill each position, including their emergency contact information.
- Recommendation #10:** The District should update its District Operations Center procedures to address all types of emergency events, activation guidelines and procedures, staffing assignments, call-back priorities and procedures, and training.
- Recommendation #11:** The District should implement WebEOC as soon as possible to ensure integrated local/regional emergency incident coordination and situational awareness, as well as provide initial and ongoing training as needed to maintain proficiency.
- Recommendation #12:** The District should consider designating multiple specific telephone extensions as public information lines, staffed during District Operations Center activations and answered with a recording at other times; these telephone numbers should then be advertised to the public through multiple media formats during emergency events.
- Recommendation #13:** The District should develop policies, guidelines, and procedures relating to staff roles and responsibilities to ensure continuity of business and emergency operations during significant emergency events.

### ***5.3 FUTURE SERVICE DEMAND, ALTERNATE SERVICE DELIVERY MODELS, AND RECOMMENDED STRATEGIES FINDINGS AND RECOMMENDATIONS***

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- Finding #52:** Annual emergency service demand is projected to increase approximately 4 to 6 percent annually over the next 10 years to 2027; this service demand increase can be absorbed within the District’s current and anticipated future service capacity.
- Finding #53:** The District should anticipate additional non-emergency service demand as a result of projected future development activity and anticipated additional operational personnel, facilities, and equipment.

- Finding #54:** The District should consider striving to maintain an approximately 2.75:1 operational to management services staffing ratio to effectively meet internal and external customer service needs and expectations.
- Finding #55:** The District’s Administrative Headquarters facility is at or near maximum capacity; the District will need to consider additional office, meeting, and storage space as may be needed to accommodate any additional administrative support staff.
- Finding #56:** Fire Station 65 is 40 years old and in need of significant capital renewal.
- Finding #57:** Near-term operational staffing considerations should focus on closing the large 4:00-minute first-due travel time gap in central Chino Hills; longer-term operational staffing considerations include a second shift Battalion Chief and additional operational staffing in the northwestern and southeastern area of the District as population and service demand warrant for those areas.
- Finding #58:** The District’s emergency response apparatus fleet has appropriate capabilities to protect the values at risk, with the possible exception of Foam 63.
- Finding #59:** The District’s emergency response apparatus should reasonably be expected to have a useful service life of 20 to 25 years, including 10 to 15 years of front line service and five to 10 years of reserve status.
- Finding #60:** The District’s front-line response fleet is in good to excellent condition; the reserve fleet is in fair to very good condition.
- Finding #61:** Adaptive deployment of one or more multi-risk Peak Activity Units (PAU) could provide enhanced first-due response performance during peak traffic congestion and/or service demand periods.
- Recommendation #14:** The District should continue to evaluate the need and cost-effectiveness of additional fire station facilities and/or alternative deployment models in the northwest and southeast 4:00-minute first-due travel time gaps as development, population, and service demand increase in those areas.

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## SECTION 6—NEXT STEPS

The purpose of this study was to compare the District’s current performance against the local risks to be protected and recognized best practices. This analysis of performance forms the basis from which to make recommendations for changes, if any, in fire station locations, staffing, equipment, and support services. Citygate suggests that the District leadership work through the issues identified in this study as follows:

### 6.1 NEAR-TERM

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- ◆ Review and absorb the content, findings, and recommendations of this report.
- ◆ Share key elements of this report with project stakeholders as appropriate.
- ◆ Adopt updated response performance goals as recommended in Section 2.9.2.
- ◆ Collaborate with the City of Chino Hills to initiate site planning and development of a temporary and/or permanent Station 68 to serve the gap area in central Chino Hills.
- ◆ Develop a strategic plan to prioritize and address the other recommendations contained in this report.

### 6.2 LONGER-TERM

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- ◆ Collaborate with the Cities of Chino and Chino Hills to initiate location planning and site acquisition for future fire stations within the Cities’ current/projected spheres of influence, considering the deployment recommendations in this report.
- ◆ Monitor response performance and adjust deployment policies as appropriate.