Sandoval County Fire Department,

New Mexico

Emergency Services

Master Plan

May 2016

Emergency Services
Consulting International

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Executive Summary

Emergency Services Consulting International (ESCI) was engaged by Sandoval County Fire Department (SCFD) to conduct an emergency services master plan. This report is the culmination of that evaluation. Throughout this document, the Sandoval County Fire Department is alternatively referred to as SCFD, Sandoval County, the agency, or client.

PURPOSE AND APPROACH

The purpose of the study was to:

A. Assess the current fiscal, service level, and infrastructure conditions of the agency; recommending improvements to the existing processes where appropriate.

B. Predict the community growth and development; assessing the impact of that predicted growth on the emergency service delivery system.

C. Recommend short, mid, and long-term strategies to increase efficiency and effectiveness; planning for investments to stay ahead of the impacts that will likely be felt by the community in response to predicted growth.

This report evaluated the agency, as it existed when ESCI consultants arrived onsite to conduct a current conditions assessment (January 11-14, 2016). The agency has undoubtedly continued to conduct business as the leadership felt appropriate. However, ESCI has focused on the "snapshot in time" of the agency during the site visit. Changes that have occurred in the intervening period between the site visits and the publishing of this report were not factored into the assessment.

This report contains the following major sections: Current Conditions (organizational overview, management components, finances, capital, staffing, training, and service delivery elements); Future Growth & System Impacts; and Short-term, Mid-term, and Long-term strategies that incorporate ESCI's findings and recommendations.

The approach taken by the ESCI project team in developing this study was to evaluate the agency as it operates today, then identify areas where process improvement can be recommended. This information was gathered through data analysis and interviews with the staff members for the agency. The combined information evaluated by the subject matter experts on the ESCI team who offered considerations and recommendations for improvement as appropriate. Following each section is a list of the individual recommendations.

EVALUATION OF CURRENT CONDITIONS

An analysis of current conditions documented in seven survey sections reviews the agency's organizational composition, management components, finances, staffing and personnel management, training, service delivery, and capital assets and infrastructure. Each evaluation component includes an introductory explanation of the subject area and a discussion of desirable outcomes and identified best practices.

The criteria used to evaluate a fire agency has developed over many years. These gauges include relevant guidelines from national accreditation criteria, the National Fire Protection Association (NFPA) standards, federal and state mandates for fire and EMS systems, recommendations by various organizations such as the Center for Public Safety Excellence (CPSE), and generally accepted best practices within the fire and EMS industry.

The evaluation of current conditions offers the agency a detailed assessment of existing fire operations and provides the ESCI project team with a snapshot in time, the basis from which the balance of the Emergency Services Master Plan is developed.

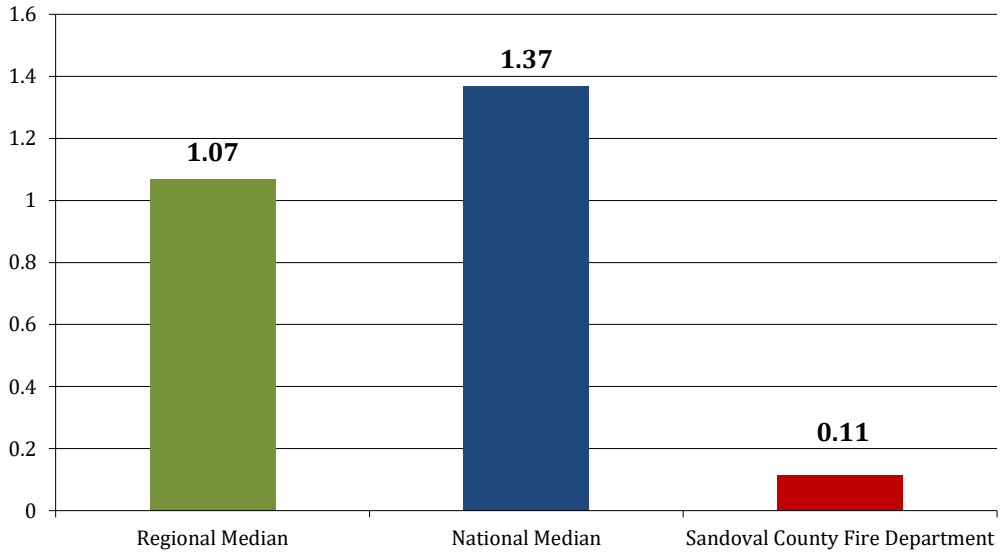
In completing the evaluation phase, the team members generally found the agency staffed with dedicated personnel and provided an excellent value for the services provided. SCFD is challenged with an expansive area to cover and scarce resources with which to meet the emergency demands in a timely fashion. All department personnel, both career and volunteer, face increasing demands, while also trying to address the management, administrative, and operational needs of a modern day fire department.

The following discusses some of the key findings:

Staffing Levels

Sandoval County Fire Department is severely understaffed when compared to their national and regional counterparts. The following figure depicts these comparisons:

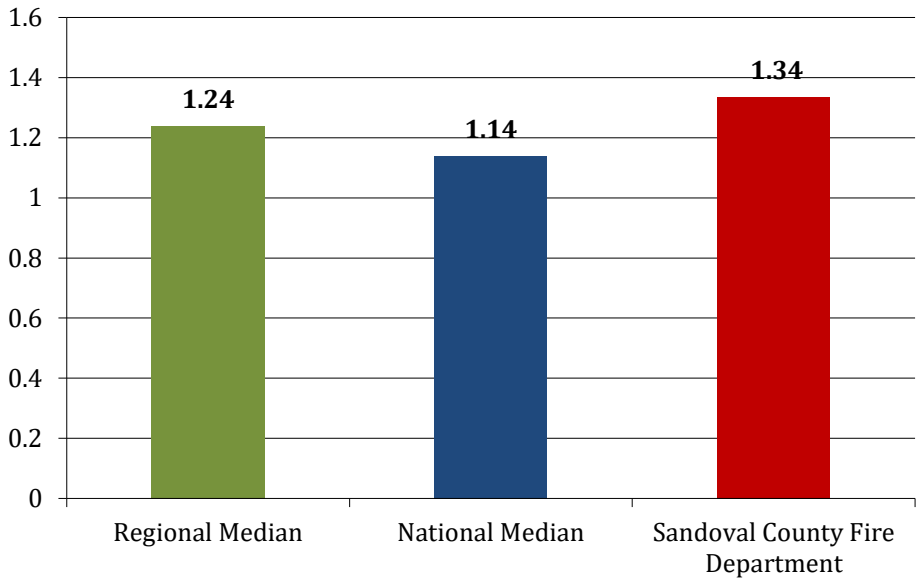
Figure 1: Career Firefighters per 1,000 Population[1]



[1] Data drawn from NFPA reports "U.S. Fire Department Profile- 2015" and "U.S. Fire Loss- 2015"

As Figure 1 clearly depicts, the career staffing is approximately one tenth the average staffing of their regional counterparts (similar population served by fire departments in Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming), and even less as a national comparison. There is better news when comparing to volunteer staffing. The following figure reflects a favorable staffing level for volunteers as compared to the average of their regional counterparts and nationally.

Figure 2: Volunteer Firefighters per 1,000 Population[2]



ESCI recommends moving the shift lieutenants into a command unit to manage the shift and all of its activities as shift commanders. This configuration, referred to in the fire service industry as a quick response vehicle (QRV), allows the shift commander to respond quickly to incident in remote areas of the district, potentially sparing a long response for the first response vehicles staffed with career personnel in stations 21 and 43. It also provides flexibility in that the shift commanders supervise the career staff at both stations 21 and 43 instead of the current practice of going without supervision at station 43.

The vacant seats left by moving the lieutenants to a QRV are recommended to be backfilled by new firefighter/paramedics. This boosts total response capability, improves safety, increases the effective response force, and improves service. Savings from one of the vacant deputy chief positions helps offset this cost.

Maintain volunteer staffing levels to at least 18 active, qualified per district, with some requiring much more than that, depending on the number of stations and the response demand for the area. In addition, make QRV's available to core volunteers in each of the eight districts who have received training to

[2] Ibid

become certified to at least Emergency Medical Technician (EMT). A QRV staffed with a volunteer in each district should be assigned to a shift configuration so the duties are rotated among a small core of these volunteers, and the QRV should be allowed to be taken home with the volunteer having duty for the district that shift.

Training

SCFD has a new, modern training tower facility, includes multiple prop systems, and an engine pump-testing pit. Live fire training is not supported at the facility; however, SCFD staff can access fire training at the New Mexico State Training Academy in Socorro. Training at this facility must be sponsored by SCFD, which requires that personnel are compensated while attending, making these options too expensive to routinely rely upon. Emergency driving grounds are available for drivers training, and most SCFD fire facilities have adequate classrooms for training (except northern volunteer stations).

Personnel in both the career and volunteer ranks state that training is lacking in frequency and in some cases logistically challenging (for districts remote from the training center). The fire chief indicates that training is in his top three most critical concerns for the department. The training function has been submitted as a key resource needing to be addressed, yet continues to be unfunded moving forward. While it is now on the five-year plan for Sandoval County, ESCI contends this is a critical gap facing the department and a serious liability facing the county.

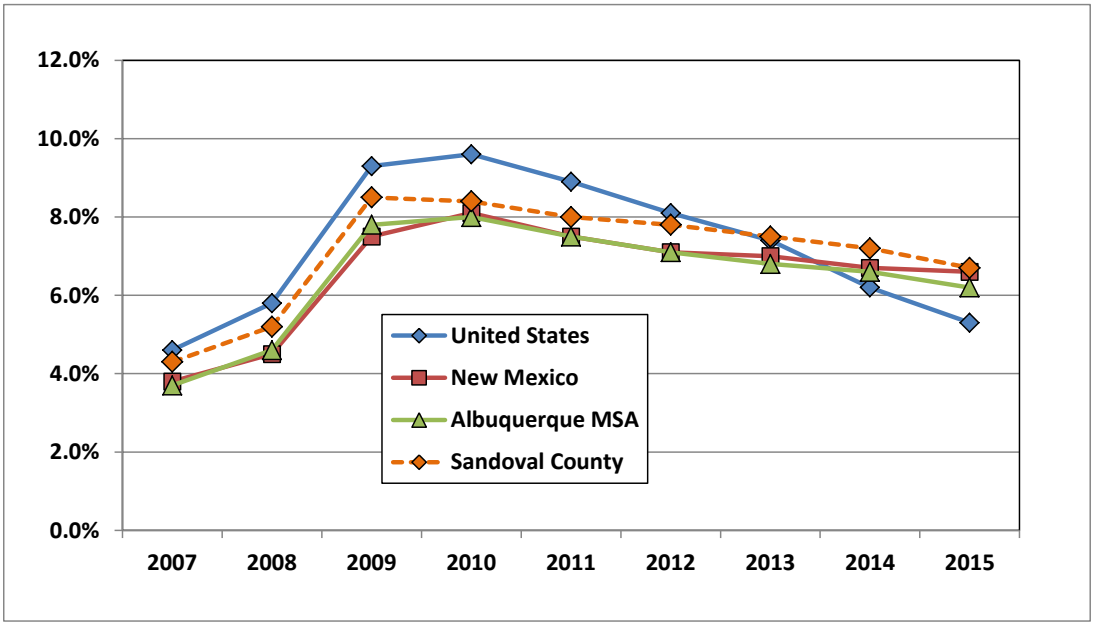
ESCI recommends under-filling one of the vacant deputy chief positions with an assistant chief of training. The training chief, in collaboration with the shift commanders (recommended earlier) for career staff, the assistant chief of volunteer recruitment and retention, and the district chiefs, should develop an annual training plan that addresses the gaps throughout the agency. While some of the training can be centralized at the training facility, much of the routine training needs to be exported to the remote districts to ensure maximum participation by volunteer personnel in those districts. ESCI recommends that the training chief work a flexible schedule to accommodate these remote training sessions. Additional sessions scheduled jointly with neighboring agencies can provide for seamless operations when mutual aid is relied upon.

Fiscal Analysis

Sandoval County Fire Department has one of the most complicated budgets ESCI has ever worked with. With over forty different funds to manage and not integrated as a single rolled up budget makes managing the finances exceedingly challenging and time-consuming for the fire chief.

The following graphics illustrate the fiscal climate Sandoval County is in, and by extension, the fiscal health of Sandoval County Fire Department. Figure 3 compares the unemployment rate in the United States, New Mexico, the Albuquerque Metropolitan Statistical Area (MSA), and Sandoval County.

Figure 3: Comparison of Unemployment Rates for United States, New Mexico, Albuquerque MSA and Sandoval County

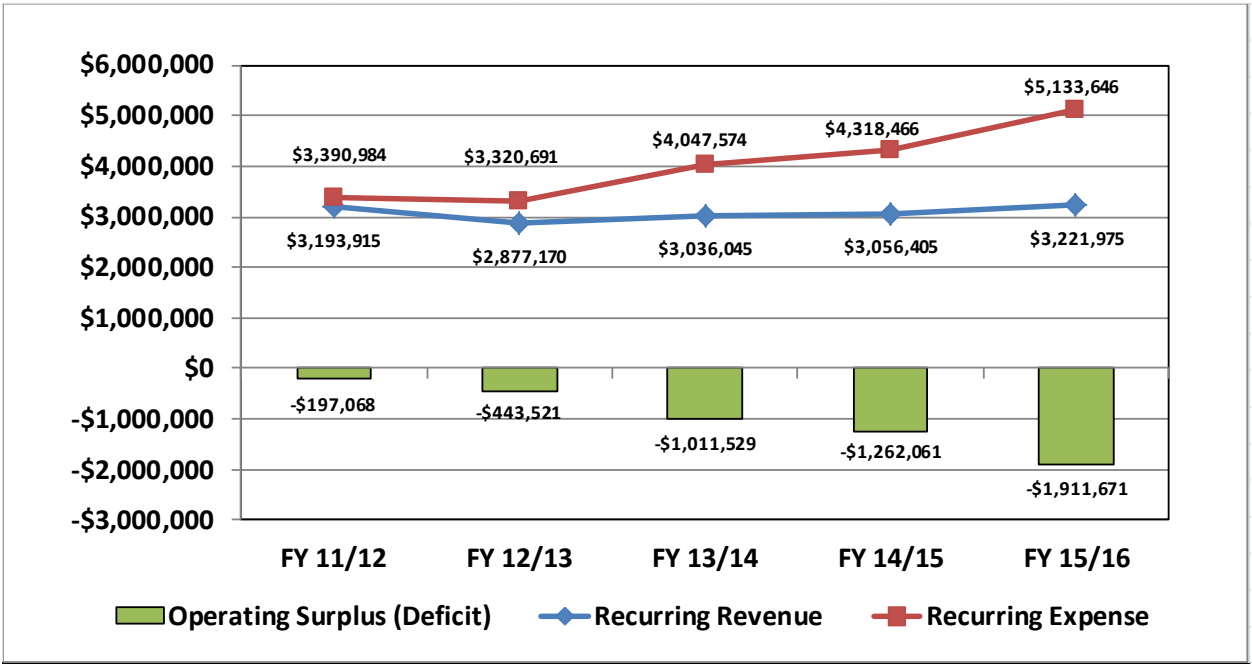


Source: New Mexico Department of Workforce Solutions

Historically, Sandoval County has had a higher unemployment rate than the MSA and the State of New Mexico, but slightly less than the U.S. unemployment rate until 2013, where Sandoval County exceeded all three comparisons and remains higher than all three to this day.

As a subset of Sandoval County, the total department recurring expenses began to exceed recurring revenues in FY 11/12 creating an annual operating deficit that has grown from $197,068 in FY 11/12 to $1,911,671 in FY 15/16. This trend is driven by increases in both personnel services and fire district and countywide fire department operating costs. The net effect of this trend is that cash balance carried forward has been reduced from $1,530,061 in FY 11/12 to $1,072,774 in FY 15/16 (a 30 percent decrease) even while the county General Fund contribution to fire department operations has increased from $435,562 in FY 11/12 to $1,000,000 in FY 15/16 (a 129 percent increase). This situation is graphically illustrated in the following graph, Figure 4:

Figure 4: SCFD Recurring Revenue, Expenditure and Net Revenue Trends



	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
Recurring Revenue	$3,193,915	$2,877,170	$3,036,045	$3,056,405	$3,221,975
Recurring Expense	$3,390,984	$3,320,691	$4,047,574	$4,318,466	$5,133,646
Operating Surplus (Deficit)	-$197,068	-$443,521	-$1,011,529	-$1,262,061	-$1,911,671

As Figure 4 illustrates, the historical trend reflects a widening gap between SCFD expenses and SCFD revenues. The following figure extends that trend line into the projected future, assuming no other changes in the status quo.

Figure 5: Department Revenues and Expenditures – Forecast (Status Quo-Paid)

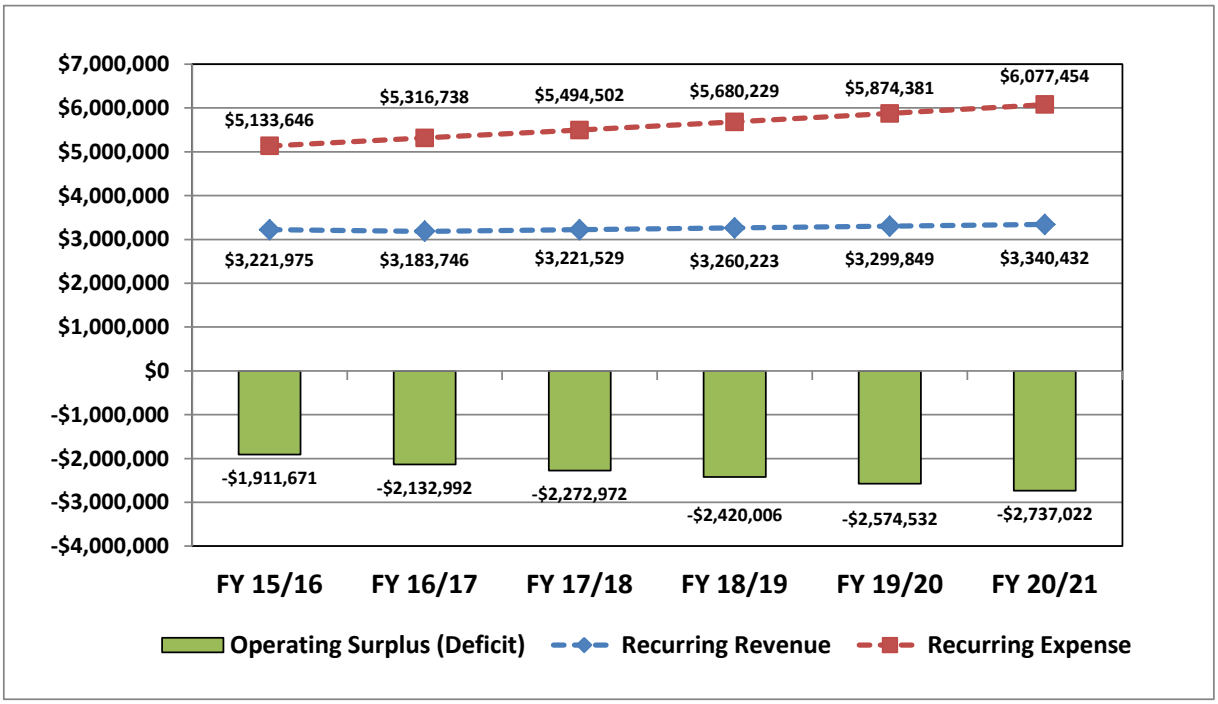


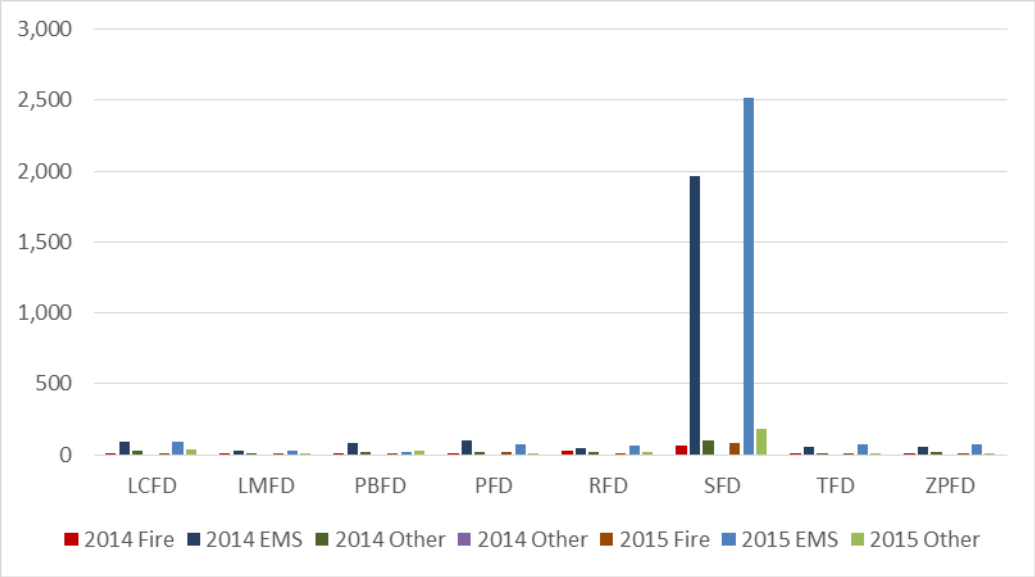
Figure 5 illustrates the relationship between forecast recurring expenditures and recurring revenues through time assuming no change in current staffing and service level (status quo). As discussed earlier, the department will have effectively used its entire reserve for cash forward by the end of the current fiscal year. The department is spending considerably more to maintain the current level of service than it is bringing in with all of its various dedicated revenue sources. The only way that the county can continue to support the current level of fire and EMS services is to either increase the transfer from the General Fund from its current level of $1 million to $2.74 million by FY 20/21 or add other, yet unidentified, revenue sources. The current trajectory of General Fund transfers is unsustainable without crippling other county services since the General Fund is not expected to increase at a rate capable of sustaining this rate of transfer. It should be noted that fire department administration is aware of this trend and is already taking steps to reduce expenses to the extent it can and still maintain current service levels.

Service Delivery and Performance

Response performance criteria and actual service delivery performance analyzed in the Service Delivery and Performance section provide information with which the agency can develop future deployment methodologies and identify desired levels of response performance and staffing.

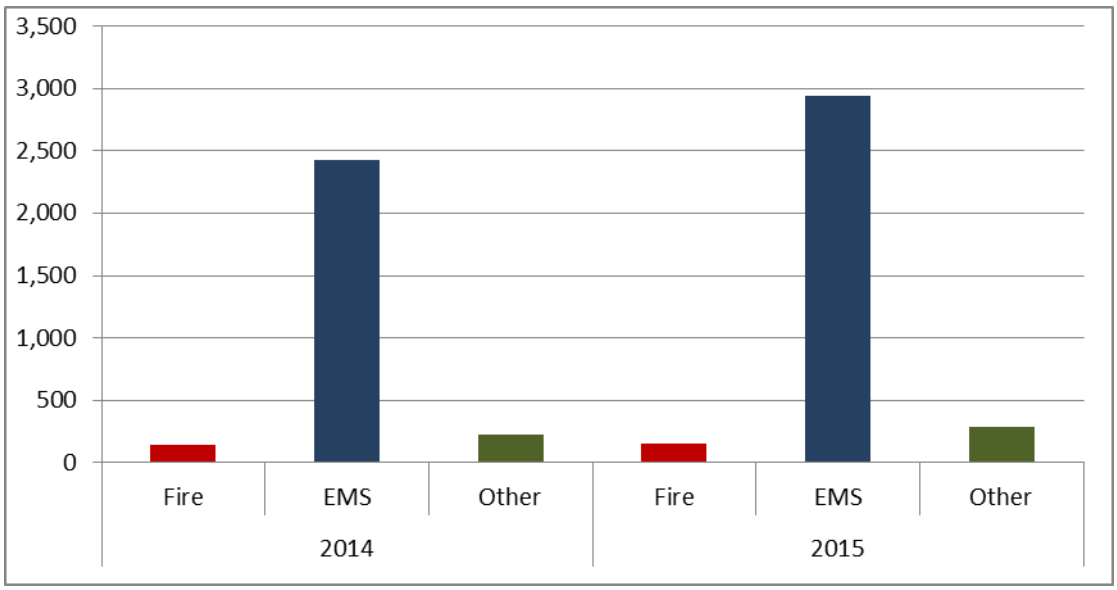
The districts each serve an important role in providing emergency services to the citizens of the county and those visiting or traversing the county. However, the demand for services is not evenly distributed. The following figure depicts the distribution of emergency response demand by district area.

Figure 6: District Service Demand by Category



Clearly, Figure 6 illustrates that the South Fire District carries a tremendous share of the emergency workload. As the most populous area in the county, it stands to reason that demand is concentrated in this area. It also illustrates why the career staff are assigned to this area. Because this area represents the vast majority of emergency responses, data analysis focused significantly in this area.

Figure 7: South Fire District Overall Service Demand by Category

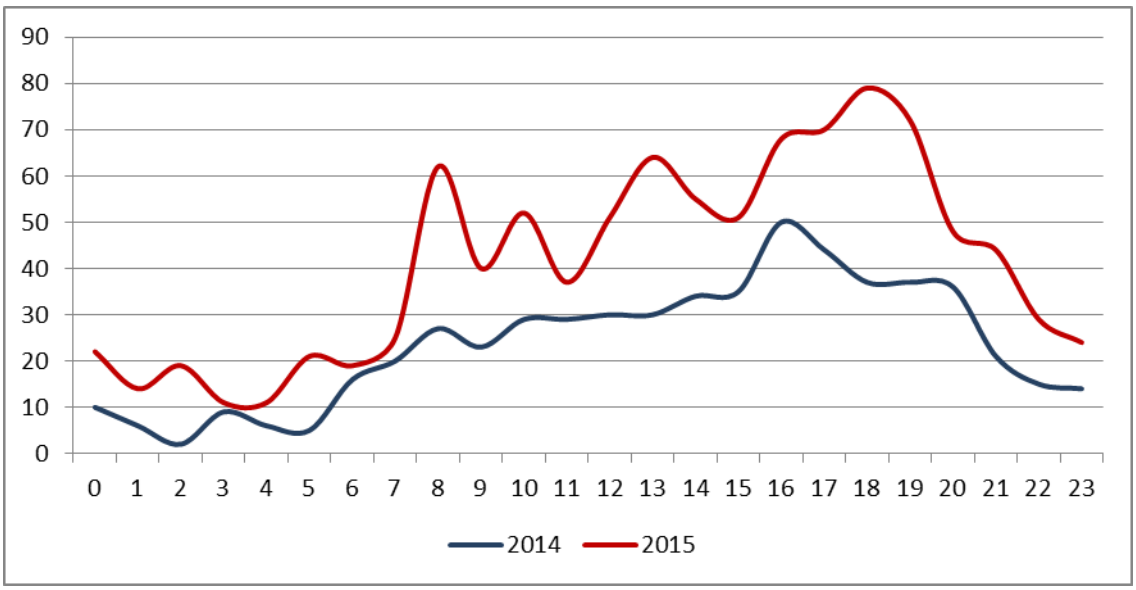


As is typical throughout the United States, Emergency Medical Services (EMS) calls make up the vast majority of the response burden for the fire department. This is not to say that fires do not occur or that the risk is low. On the contrary, structure fires are a serious threat and wildland fires pose a huge countywide threat. They do not have to occur frequently to overshadow the EMS burden in destruction,

property loss, and risk to human lives. One need only reflect on the burned out Station 54 (Cochiti Mesa) to recognize fires potential for indiscriminate damage and loss.

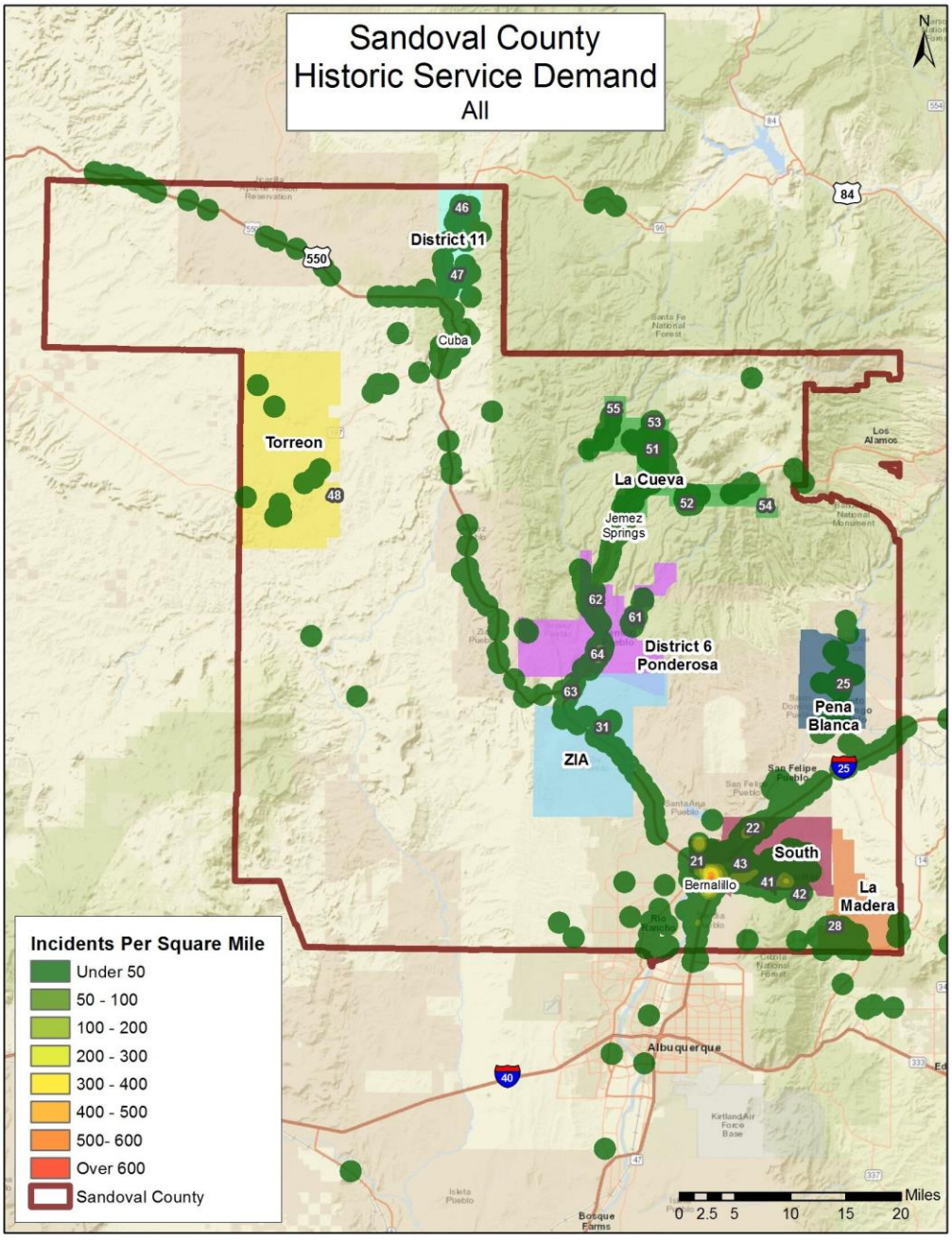
The time of day incidents occur is also instructive to monitor, since volunteer response availability typically precedes and follows typical work hours. The following figure illustrates activity spiking during the waking hours of a given day, reflecting a connection between emergency demand and human activity. During this same period (mostly during working hours), it is not unusual to see a significant downturn in volunteer availability. Off work hours, however, we typically see a significant increase in volunteer availability for response. During the workday and typical work hours, career staff is more heavily relied upon to address responses while the volunteer force is significantly unavailable due to their day jobs.

Figure 8: Sandoval County Fire Department Service Demand by Hour of Day



Geographic plotting of historic emergency response demand illustrates where incidents have typically occurred in relation to the resources deployed. The following figure plots those incidents for 2015.

Figure 9: Sandoval County Fire Department Geographic Service Demand - All Incidents

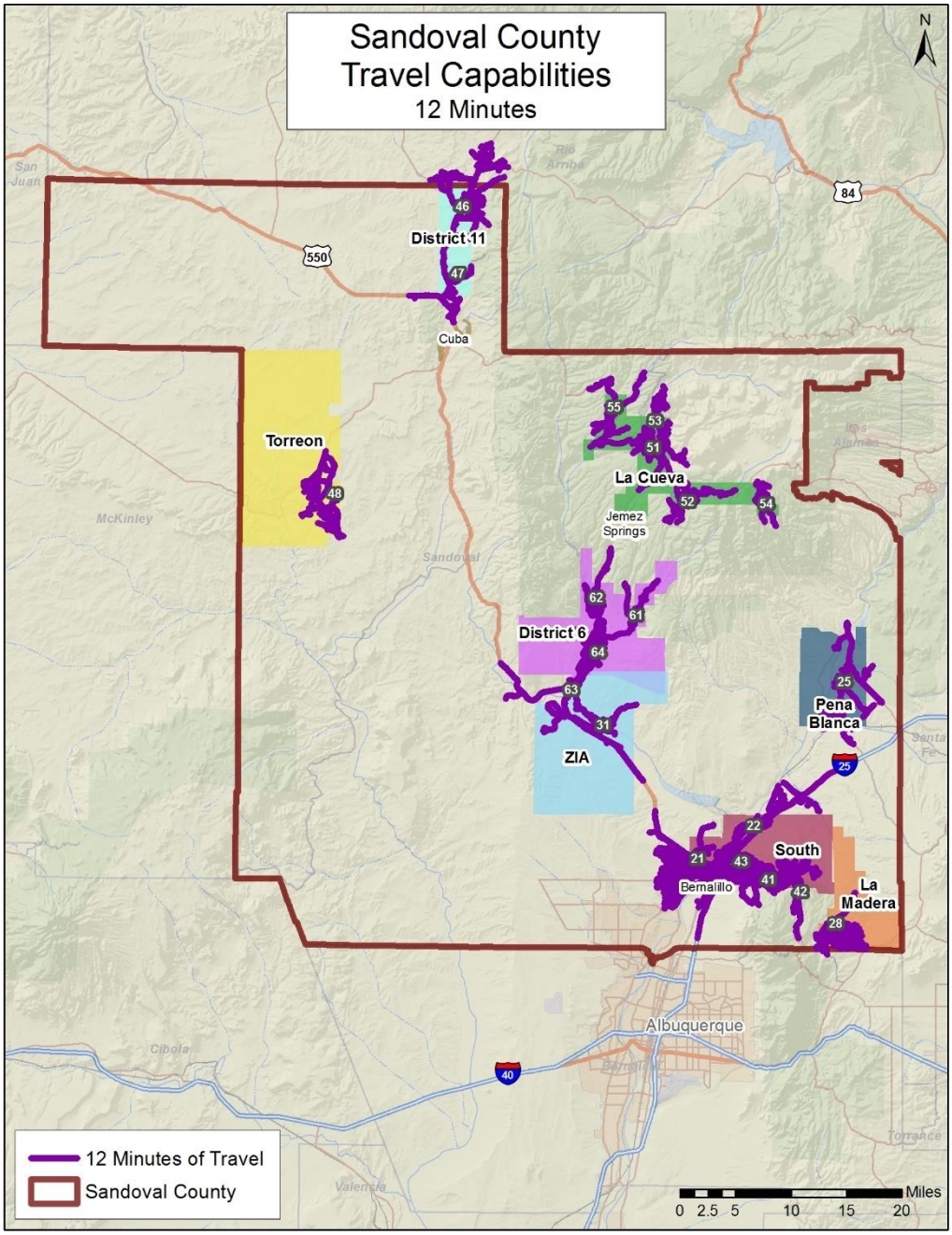


The emergency incidents tend to occur in populated areas and along roadway corridors. This is why those areas outside of existing fire districts are concerning, since the travel times to arrive at these incidents are extended, outcomes tend to be poorer.

The following figure demonstrates the theoretical travel time capability from existing fire stations as they are currently deployed. This assumes a response vehicle is in the fire station, staffed, and running; ready to respond immediately. The travel time depicted is twelve minutes, which is an excessive timeframe

when considering cardiac arrest or a structure fire, but is consistent with National Fire Protection Association Standard 1720 (NFPA 1720). This standard calls for a one-minute call processing time by the dispatch center, a one-minute turnout time (reaction time for the firefighters to hear the dispatch, put on their protective clothing, mount the appropriate response units and begin the response) and twelve minutes for travel time, for a total response time of fourteen minutes.

Figure 10: 12-Minute Travel Capability



Comparing Figure 10 with Figure 9 illustrates who is at risk with this type of travel time standard. Yet, this is the standard ESCI recommends the county adopt. In fact, ESCI recommends meeting or exceeding this performance standard eighty percent of the time for all incidents handled in the county.

Concurrent responses indicate how often simultaneous utilization of the same resources occurs. The following figure illustrates the frequency with which this occurs.

Figure 11: Concurrent Incidents

	1	2	3	4	5
2014	84.8%	13.7%	1.3%	0.2%	0.0%
2015	79.1%	16.6%	3.7%	0.5%	0.1%

The headings of each column in dark blue indicate how often an incident occurs at the same time another incident occurs. The analysis indicates that most incidents within the study area occurred singularly (79.1% of the time in 2015), but there are a significant number of instances where simultaneous calls were present. In order to achieve the 80% objective (travel time of 12 minutes or less 80% of the time) requires that concurrent incidents not exceed 20 percent and the study area is below this threshold in 2015 at 16.6%. However, this area is growing and will likely exceed twenty percent in the coming two-three years.

The total response performance—including call processing time, turnout time, and travel time—for medical incidents for each district is shown in the below figure.

Figure 12: Overall Response Performance by District – Medical Incidents

	Average	80th	90th
LCFD	0:11:23	0:17:47	0:22:39
LMFD	0:06:56	0:11:36	0:14:18
PBFD	0:08:19	0:16:00	0:18:00
PFD	0:08:28	0:12:45	0:14:58
RFD	0:11:15	0:19:43	0:26:09
SFD	0:10:14	0:14:03	0:19:02
TFD	0:14:07	0:24:17	0:27:00

Note that Zia Pueblo Fire District is not listed in the above figures because they do not respond to medical incidents. The following figure depicts the total response performance for all other emergency responses, including fires.

Figure 13: Overall Response Performance by District – All Other Incidents (Emergency Only)

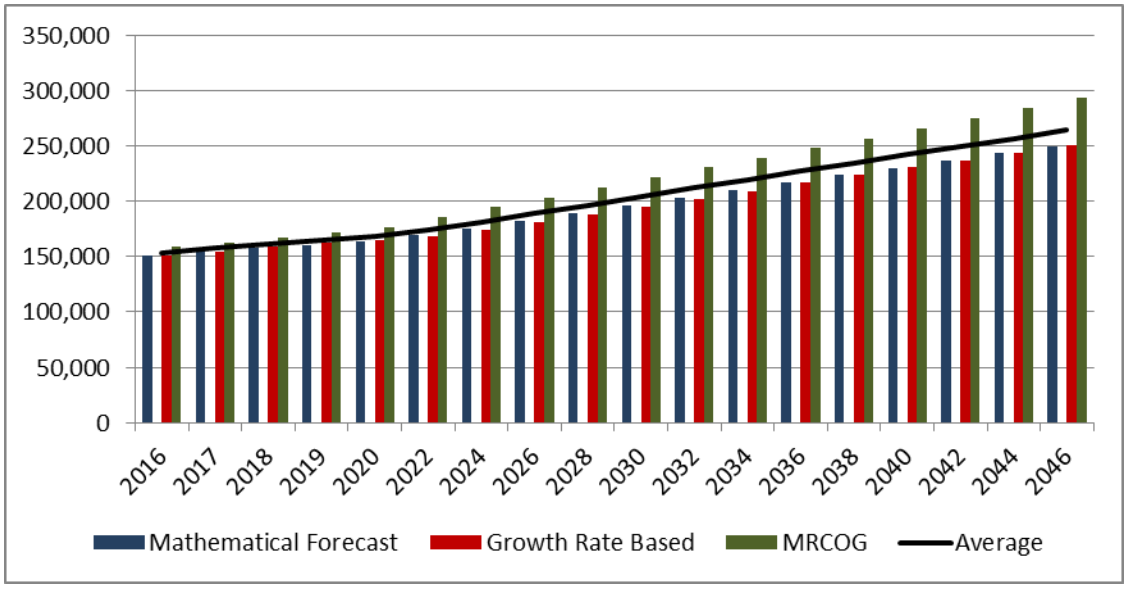
	Average	80th	90th
LCFD	0:15:08	0:24:42	0:28:56
LMFD	0:15:35	0:19:58	0:26:33
PBFD	0:14:52	0:19:09	0:23:11
PFD	0:12:28	0:19:05	0:22:35
RFD	0:17:58	0:28:42	0:35:25
SFD	0:12:27	0:17:51	0:20:32
TFD	0:17:47	0:31:37	0:35:16
ZPFD	0:05:12	0:07:00	0:11:00

As indicated previously, the large geographic area that most stations are responsible for, combined with the wide distribution of incidents, response times are well above industry norms. For ZPFD however, the relatively small service area and limited overall response totals has led to a better overall response performance.

Future System Demand Projections

The Sandoval County Fire Department service area is experiencing consistent and significant population growth. The overall annual average growth is estimated at 2.9 percent. Although there are different methods of calculating potential future population growth, the population of Sandoval County will continue to increase for the near future, reaching an estimated 250,000 by 2046, as illustrated in the following figure.

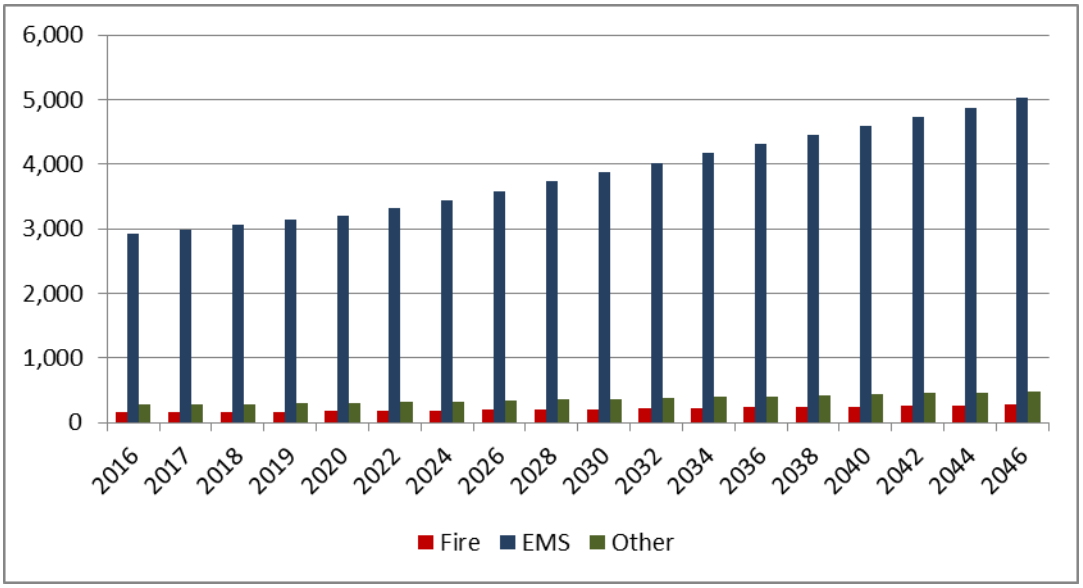
Figure 14: Future Population Projection



ESCI evaluated historical service demand, historical incident rates, and potential changes to the population in the future, to develop a model of future service demand. First, historical service demand was multiplied by the historical per capita usage rate average; secondly, the resulting per capita incident

rate was multiplied by the projected future population. This method indicates slow but steady growth over the planning period as illustrated below, with a majority of service demand coming from medical incidents.

Figure 15: Future Service Demand Projection



Future Delivery System Models

It is clear that Sandoval County represents a significant challenge to serve. The tax base and wide expanse between fire districts, coupled with relatively low population density in the vast majority of the county makes significant growth of career staff unlikely. It is ESCI's opinion that a combination of reliance upon a well-trained core of career personnel responding to the southeast corners of the county where the population density is, together with an active volunteer cadre in each of the fire districts, and triaged and coordinated by shift commanders in QRVs makes this an effective response system.

Strategies, Recommendations & Conclusion

This report contains short-term, mid-term and long-term strategies that are provided in the interest of improving and maintaining system integrity. Each strategy is discussed in detail and guidance provided. Short-term strategies primarily focus on adjustments to current conditions, which either address existing gaps or implement industry best practices. Many can be implemented directly by the fire chief. Others require budget enhancement and/or policy discussion by the policy-makers.

Short-term Strategies

ESCI recommends that cadre of core volunteers in each district be trained to EMT or higher certification, assign them to a duty rotation and assign them to a take-home quick response vehicle (QRV) for rapid initial response and assessment. The combination of all of the system enhancements (career staff augmentation, a shift commander assignment, and an assistant chief of training) should net a stronger tiered response system. When an incident occurs, the duty volunteer on a QRV should be able to respond directly to the scene and would likely arrive first. The rest of the volunteers in that district would respond

to their assigned fire station for a more robust response. Developing a system of support to help volunteers obtain the necessary DOT and OSHA physicals and certifications will net significant improvement as well. The fire chief has recognized this and began using a mobile clinic to provide physicals for the volunteers last year.

The shift commander may also be responding to the scene as an advanced life support resource to back up the initial response, depending on how critical the call is triaged to be by the dispatch center (this assumes dispatch is using MPDS protocols appropriately). The remaining career staffed first response units may hold back (again, depending on the nature and severity of the call), or may respond if medical transport or sustained fire attack is required.

In the more densely populated area in the southeast corner of the department, the shift commander will respond quickly to assess and initiative patient care, triage, or command of an incident, whichever is called for. The remainder of the career staff will respond on first response units as appropriate for a more robust response with greater resources. Additional volunteer assets may also respond to achieve an effective response force to manage an incident, again depending on the nature of the incident.

In this tiered response system, SCFD is maximizing the use of all of the resources at its disposal; not overcommitting scare resources unless called for given the nature of the incident; relies appropriately upon the volunteers in each of their districts, but provides them with response support; and appropriately relies upon the career personnel for back-up response to the outlying areas and responses in the most densely populated (and greatest demand for service) area of the county.

Mid-term Strategies

Mid-term strategies are discussed next and likely require policy-maker involvement prior to implementation. They include addressing potential future staffing issues, training enhancements and the relocation of the entire administrative staff in a building more suitable to the administration of a fire department, preferably collocated in an existing fire station.

Long-term Strategies

The report ends with the long-term strategies, such as a funded and scheduled apparatus replacement plan, complete with the philosophy to use in setting the intervals at which vehicles are replaced or rotated into a reserve. While beyond the scope of this report, ESCI also suggests emergency communications system improvements in Sandoval County, such as adherence to Medical Priority Dispatch Protocols (MPDS) for call triage and proper resource assignment, as well as procedural changes and technology enhancements to improve data gathering and analysis to make sound management decisions.

Conclusion

Notwithstanding the fiscal environment as outlined in this report, there are several recommendations with respect to staffing modifications and additions that are expected to create a safe and reasonable level of service to the citizens of Sandoval County. The county must balance the need to provide the service with the ability to pay for these services. Finding that balance point requires a policy decision from the county elected officials.

Evaluation of Current Conditions

Using organizational, operational, staffing, and geographic information system (GIS) models; the first phase of the study provides an assessment of existing conditions in the Sandoval County Fire Department (referenced herein as "Sandoval" or "SCFD") as they provide services to their constituents. Emergency Services Consulting International (ESCI) has evaluated and analyzed data and utilized other information based on New Mexico laws and regulations, National Fire Protection Association (NFPA) standards, Commission on Fire Accreditation International (CFAI)[3] self-assessment criteria, health and safety requirements, federal and state mandates relative to emergency services, and generally accepted best practices within the emergency services community.

The purpose of this section is two-fold. First, it verifies the accuracy of baseline information, along with ESCI's understanding of the organization's composition. This provides the foundation from which the Emergency Services Master Plan is developed. Secondly, the overview serves as a reference for the reader who may not be fully familiar with the details of the agency's operations. Where appropriate, ESCI includes recommended modifications to current observations based on industry standards and best practices.

Each section in the following report provides the reader with general information about that element, as well as observations and analysis of any significant issues or conditions that are recognized. Data provided by SCFD and collected as part of the data review and personal interview process supports the observations Finally, specific recommendations are included to address identified issues or to take advantage of opportunities that may exist.

[3] The CFAI organization is now a subsection of the Center for Public Safety Excellence (CPSE) but maintains its prime function of accrediting fire agencies.

ORGANIZATIONAL OVERVIEW

The Organizational Overview component provides a summary of the agency's composition, discussing its configuration and the services that it provides. Data provided by SCFD administrative and management staff, as well as line personnel, both career and volunteer, was combined with information collected in the course of ESCI's fieldwork to develop the following overview.

Governance

The Sandoval County Fire Department is one of several county departments that serve the citizens of Sandoval County, excluding municipalities in the county that have their own fire departments. Sandoval County also has numerous towns and Pueblos that have a variety of relationships with SCFD, described in detail later in this report. The county is classified as suburban at its greatest density (Bernalillo, Rio Rancho areas), and either rural or wilderness for a great majority of the county. The county spans 3,700 square miles with a population of 137,608[4]. Of that, SCFD directly serves approximately 37,314[5].

A five-member commission elected by the citizens of the county at large governs the county. Their authority is defined in county ordinance. The commission meetings are held twice per month on the first and third Thursday of each month. Written minutes of their meetings are available and posted on their website at www.sandovalcounty.com. The commission hires a county administrator to manage the day-to-day operations of the county through subordinate county department heads.

SCFDs fire chief is one of those county department heads and is a classified position, meaning that the incumbent is not an at will employee nor a contractual employee. The authority of the fire chief is defined in county ordinance. The fire chief has access to both the county attorney and the human resources director for legal, personnel, or procedural questions. By county policy, the fire chief receives a performance review by the city manager annually.

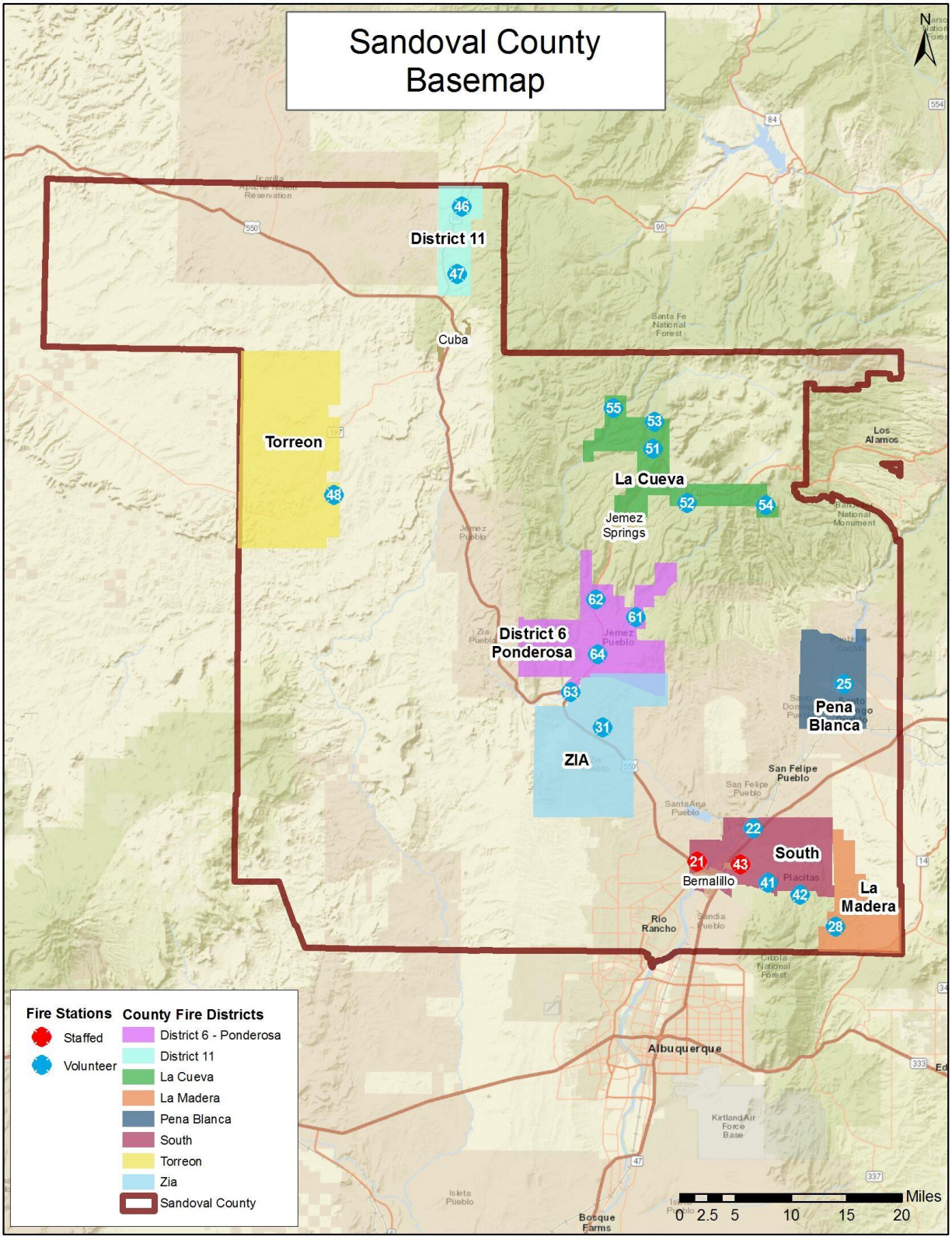
SCFD has a set of rules and regulations (R&Rs) as well as standard operating guidelines (SOGs). They were last updated in 2009 and are currently being revised with an expected completion date of mid-2016. SCFD staff has the opportunity to provide feedback on each SOG or R&R prior to adoption. A hard copy set of these regulatory documents is available to staff at each station.

Organizational Design

Sandoval County Fire Department covers a large and diverse area, from high desert to high mountain peaks. The map in Figure 16 reflects the Sandoval County Fire Department service area.

[4] Source U.S. Census Bureau: State and County Quick Facts.
[5] Sandoval County population, minus Rio Rancho and Bernalillo.

Figure 16: Sandoval County Fire Department Service Area

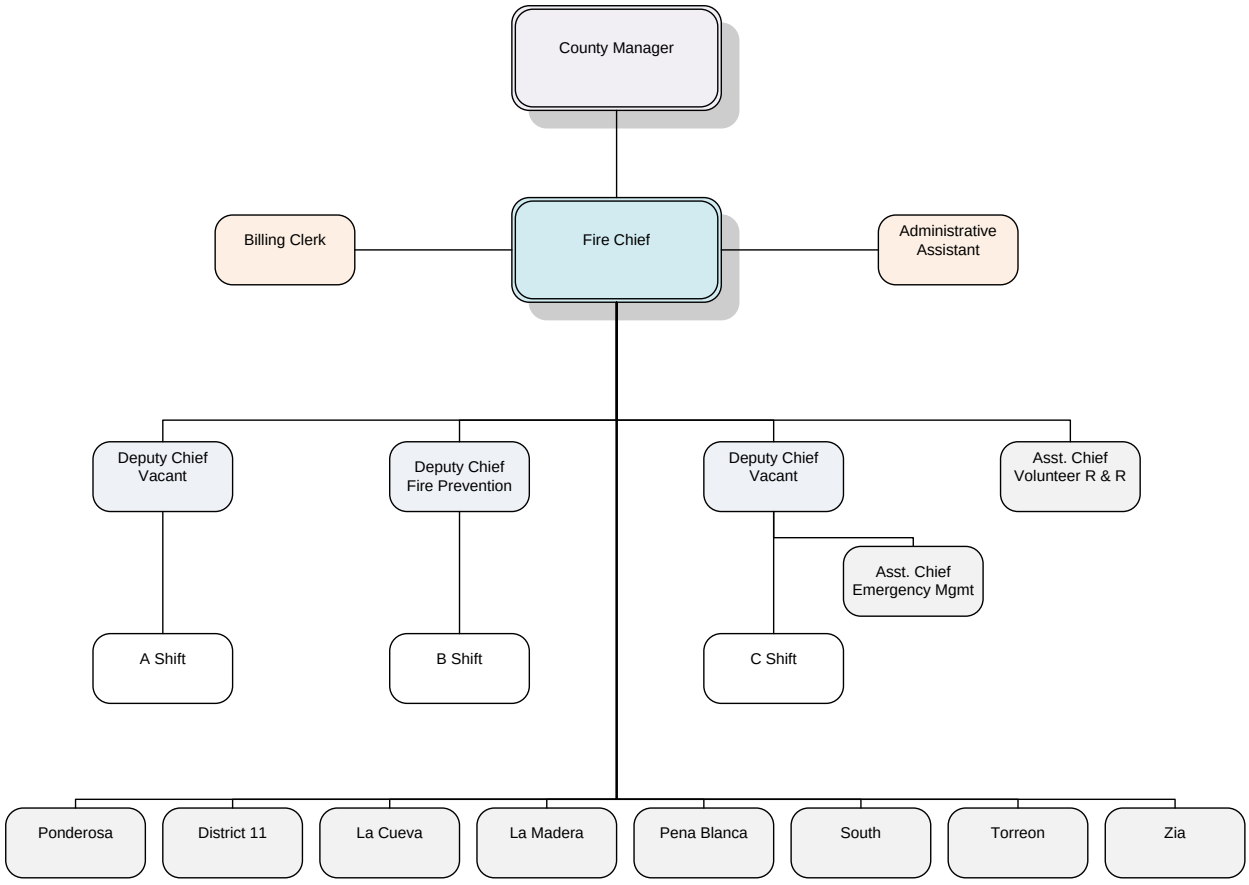


SCFD has a typical fire service hierarchy, as depicted in

Figure 17. It has an administration consisting of a fire chief, a subordinate deputy chief (two additional deputy chiefs recently retired and the positions are being held open until the conclusion of this study), two assistant chiefs, and eight district chiefs. The administrative staffs are career employees, with the exception of the eight district chiefs, who are volunteer staff.

In 2003, Sandoval County had eight separate fire departments. Each department had its own challenges related to funding and service delivery. Because of a study conducted in 2004, the county adopted ordinance 05-03-038A providing for the administration of the Sandoval County Fire Department and its eight individual fire districts. However, due in part to an anomaly in state law, the separate fire districts needed to stay intact as separate departments to maintain the state shared revenue stream being received from the state fire marshal's office. In addition, from a practical standpoint due to the county's size, each district needed to maintain its semi-independent state in order to reduce the county into manageable segments. The County has maintained the eight district chief's, who are effectively equivalent in rank to assistant chief for the county fire department.

Figure 17: Sandoval County Fire Department Organizational Chart



Note: The volunteer recruitment and retention assistant chief and the communications administrator are direct reports to the fire chief.

Service Area and Infrastructure

SCFD has an extremely difficult area to serve in that it is a very large rural or wilderness area with several pockets of density, in some cases separated by many miles of wilderness areas. These pockets of higher density require a higher level of service due to higher frequency of emergencies. The county contains a medium sized city (Rio Rancho), many small towns (Bernalillo, Corrales, Cochiti Lake, Jemez Springs, Cuba), four sovereign nations (Zia Pueblo, Santa Ana Pueblo, San Felipe Pueblo, and Jemez Pueblo), eight other sovereign nations which spill over into other counties (Cochiti Pueblo, Jicarilla Apache Reservation, Laguna Pueblo, Navajo Nation, San Ildefonso Pueblo, Sandia Pueblo, Santa Clara Pueblo, and Santo Domingo Pueblo), and six national protected areas. While SCFD does not serve all of these areas, it does serve many of them, assists all of them, and must travel through or around these areas to provide service to its own constituents.

As stated earlier, SCFD is made up of eight separate fire districts, each with their own volunteer district chief, fire stations, equipment and volunteers, as well as unincorporated Sandoval County. SCFD contracts

with cities, towns, and tribes to either provide service on the county's behalf provide service by the county, or partner together to serve areas for mutual benefit. The department, on its own and through the eight fire districts, operates out of twenty fire stations, with a separate fire administration building and training tower.

In these fire stations, the department operates twenty front line fire engines, five "quick attack" units, one "quint" ladder truck, two paramedic units, nine transport-capable rescue units, nineteen water tenders, and fourteen "brush units". In addition, the department has two reserve medic units, two reserve fire engines, twenty-three specialty support units, and thirty command vehicles for a total of 127 units. The department's service area poses virtually every fixed and transportation emergency risk imaginable. The area is known for hosting very large wildfire complexes most years.

Despite these risks and the complex geo-political structure, the department has extremely low staffing. Administratively, the department currently has a fire chief, a deputy chief, two assistant chiefs, one administrative assistant, one full time EMS billing clerk, and one part-time billing clerk. Three administrative and support volunteers support the management team. Two deputy chief positions were recently vacated due to retirements.

This management structure is charged with managing training, supporting, assisting, and coordinating with twelve career personnel (firefighter/EMT Intermediates, firefighter/paramedics, and lieutenants) of which only four are on duty per day serving on a rotating schedule, and 19 PRN (as needed) personnel. Management is also charged with training, supporting, assisting, conferring and coordinating with the eight district chiefs served by approximately 183 volunteer personnel, 80 of which are currently active and qualified to fight interior structure fires. The career personnel staff two fire stations in the core density of the county; near Bernalillo on either side of Interstate 25 (stations 21 and 43).

Insurance Services Office (ISO) Rating

In New Mexico, insurance ratings provided by the Insurance Services Office (IS0) are used to establish property owner's insurance costs, and by the State Fire Marshal's (SFM) office to distribute financial allocations from the State Fire Fund. These funds are based on the ISO rating for each district and the funds must be used for the direct benefit of the district. This is typically fire apparatus and equipment or facilities improvements. For fiscal year 2016, the combined total for all fire districts and Sandoval County Fire Department is $1,178,635. The ratings by district are depicted in

Figure 18.

Figure 18: ISO Rating by District

District/Department	Classification
La Cueva	8
La Madera	8
Pena Blanca	8
Ponderosa	6
Regina (District 11)	5
Sandoval Co. Admin	7
South Fire District	5
Torreon	9
Zia Pueblo	9

Recommendations:

- Complete the revisions and updates of the rules and regulations and standard operating guidelines

MANAGEMENT COMPONENTS

Effective fire department management is a common challenge for fire service leaders. Today's fire department must address management complexities that include an effective organizational structure, adequacy of response, maintenance of competencies, a qualified work force, and financial sustainability for the future.

The following subsections break down the various management components into their individual elements and discuss them as they apply to SCFD.

Foundational Management Elements

When core management elements are in place, they align effort and inform members of the following:

- The purpose of the organization (*mission*)
- Where the organization is going (*vision*)
- How the members will treat each other and their customers (*values or guiding principles*)
- How the organization will achieve the desired future state (*goals and objectives*)
- What each person's role is in accomplishing that future state (*work assignments*)
- The *timelines* and *priorities* for each component of the effort

These make up a strategic plan, which provides a work plan for the entire organization extending three to five years into the future. Sandoval County Fire Department has a document, which is internally called a strategic plan that spans the period 2012-2016, however it does not lay out the department's mission, vision or values/guiding principles. It does identify the organizations strategic goals (strategic initiatives), and individual goals and objectives. They do not have persons responsible for managing or coordinating the goals and objectives, nor do they have timetables identified, except that they should be complete by 2016. As the time to re-establish the strategic plan at the end of this year, it should incorporate the missing elements, and developed in collaboration with internal and external stakeholders. The department has hired ESCI to develop this master plan, so the department has achieved the major elements.

The department has recently reviewed a set of rules and regulations, as well as create a new process that regularly reviews and updates standard operating procedures. A code of ethics or code of conduct exists, but is not in the hands of the members of the department. The fire chief reports that training occurs on department policies, but believes that improvements need to be made in the process.

When asked to identify the top three critical issues facing his organization, the fire responded as follows:

1. Staffing Shortages
2. Training Challenges
3. Policies & Procedures

Agency Communication

The fire chief, command staff and administrative assistants conduct weekly staff meetings with the on duty career staff. Minutes, however, are not kept of these meetings. Disconnects can occur if

communication flow does not permeate the department, and while some topics may be sensitive and not appropriate for general audiences, a summary of general discussion helps keep all personnel connected to the leader's intent.

Communication is difficult in SCFD, given the 3,700-mile service area. In some cases, it would require a ninety-minute trip one-way to meet with some districts. E-mail memos are relied upon, partly out of necessity. A department update is distributed at least six times per year, and the fire chief has a well-established open door policy. The fire chief, deputy chief and volunteer chief of recruitment and retention also attends the Sandoval County Chief's Association meeting, which occurs monthly. The intent of the meeting is to discuss issues of common interest. According to the district chief's, these meetings have become led by the command staff, and could be more powerful if the district chief leads them and there is enough time to problem-solve between districts. The district chiefs believe that the district-by-district comment portion of the meeting needs to be an area of emphasis on the agenda.

Externally, communication with the citizens is primarily done through customer service cards provided to citizens who have used the services of the SCFD. This allows citizens to either complain or compliment crews they interacted with. The department also has a website on the Sandoval County webpage with helpful information. Each district website links to the SCFD, but each district page is set up differently, with some missing key information and many not updated regularly.

Record Keeping and Documentation

Computer utilizing a Windows operating system keeps most department records. Tyler® Financial Management software is also used. The fire chief provides a monthly report to the county commission, which includes monthly ambulance revenues, management reports and operational reports. The department does not produce an annual report, which would analyze and summarize the activities of the department annually and help educate the citizens of the activities and challenges facing their fire department.

The department maintains fire and medical incident reports as well as member exposure reports. The incident reports reviewed by ESCI are often duplicated, incomplete, or missing. ESCI had a difficult time reconciling incident reports against the CAD data. Often, this was due to volunteer units not responding, so no chart was generated, but the incident showed up in the CAD data. A concerted effort to enforce accurate completion of incident reports and records to facilitate better management decisions based on sound data must be initiated

The records for self-contained breathing apparatus testing, hose testing, ladder testing, pump testing, breathing air testing and vehicle maintenance records are kept by the agency being contracted to perform the services. The deputy chief calibrates gas monitors as appropriate.

Recommendations:

- Re-create the strategic plan at the end of 2016, addressing the missing elements and including internal and external stakeholders in its development
- Revise/update the code of ethics/code of conduct as a policy and train all personnel in its interpretation
  - Provide a copy to all personnel, career, PRN, or volunteer
- Incorporate a "six-minute review" on policies during all training sessions
- Keep written minutes, or a summary, of the weekly staff meetings and circulate them throughout the department
- Flip the Sandoval County Chiefs Association meeting format, allowing the district chief's association to set the agenda and run the meeting, with a spot on the agenda for the fire chief or other command staff to speak on issues of broader application
- Update the district webpages linked to the SCFD website and standardize the look and information provided on each district page
- Create an annual report and publish it electronically, posting it on the website
- Enforce proper completion of all incident reports with occasional random audits of reports to ensure accuracy and elimination of redundancy

FISCAL ANALYSIS

This section provides information on the financial condition and outlook of the department. It begins with a review of selected national, state and local economic data to provide for the department's current condition and forecast outlook. Historical revenues and expenses are examined, highlighting key aspects and factors affecting the Sandoval County Fire Department revenue and expense trends. Finally, using information provided by department staff, the county Finance Director and regional economic contextual information, a forecast of revenues and expenses through fiscal year 2020/2021 is provided. This presentation and analysis, as well as various staffing and funding cases modelled, relied on the financial documentation provided by the county. Additional information sources included; the US Census Bureau, US Department of Commerce Bureau of Economic Analysis, the University of New Mexico Bureau of Business and Economic Research, the New Mexico, the Greater Albuquerque Association of REALTORS, the New Mexico Department of Workforce Solutions, the Sandoval County Economic Alliance and the Sandoval County Clerk/Auditor. The assumptions used in the forecast were developed by ESCI and reviewed by department staff.

ECONOMIC CONTEXT

Economic data from Sandoval County suggests that the local economy is recovering from the 2008-2011 recession but has yet to fully recover. Economic activity including levels of employment, home sales/values and per capita income among other measures, while recovering from their lowest levels, are still below their pre-recession peaks.

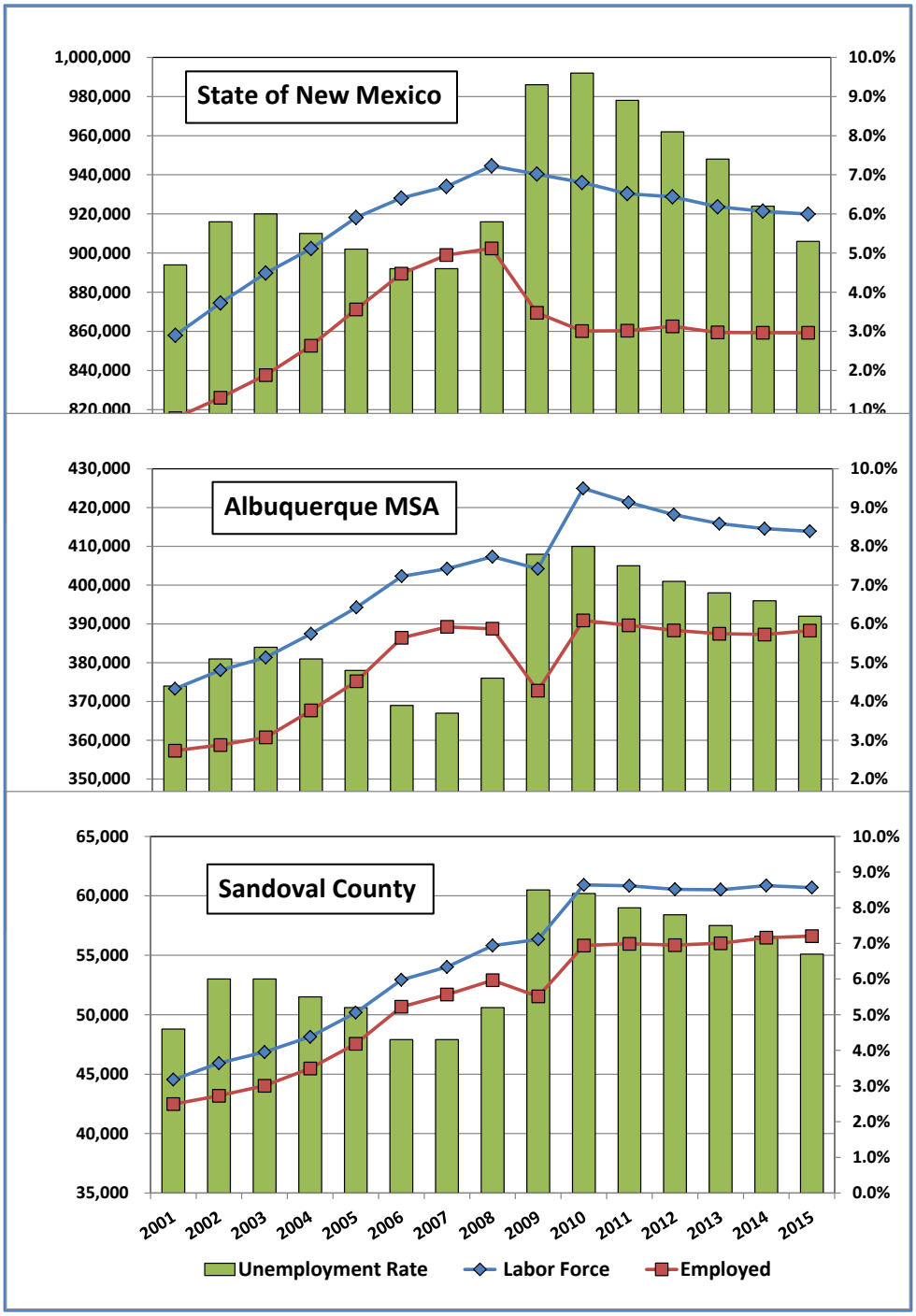
The following figure shows trends in total civilian workforce employment for all sectors, available total labor force and unemployment rates first across the state of New Mexico, the Albuquerque Metropolitan Statistical Area (MSA) and Sandoval County from 2001 through 2015. The statewide labor force increased steadily from 858,000 in 2001 to its 2008 peak of 945,000 after which it began a steady decline to its current level of 920,000. Those employed climbed steadily from 816,000 in 2001 to 902,000 at the peak in 2008. The number of employed in New Mexico declined rapidly over the next two years from the peak to approximately 860,000; a decline of 4.7 percent. Interestingly, the number of employed in New Mexico has remained relatively constant at approximately 860,000 since falling to that point by 2010.

On the other hand, the Albuquerque MSA experienced a relatively steady rise in the workforce from 373,000 in 2001 to a peak of 423,000 in 2010, with a one-year reduction in 2009. After reaching its 2010 peak, the labor force in the MSA has also experienced a gradual decline that appears to be leveling off. Other than a one-year dip in 2009, from which the MSA recovered by 2010, the total available workforce employed reached a plateau by 2007 and has essentially leveled off, hovering around 390,000 jobs since 2007.

Sandoval County's available workforce experienced a trajectory similar to the MSA, as might be expected, climbing steadily from 44,535 in 2001 to 56,000 by 2010 with slight dip during the recession. However, unlike the state and even the MSA, Sandoval County's available workforce has not seen a steady decline after reaching its 2010 peak. Rather, it has stayed relatively static at around 56,000.

Unemployment levels statewide, which had climbed from 4.7 percent in 2001 to almost 6 percent by 2003, hit a pre-recession low in 2007 of 3.8 percent. The unemployment rate statewide shot up to 7.5 percent in 2009 and peaked at 8.1 percent in 2010, after which it began a steady decline over the next five years to a rate of 6.6 percent in 2015. Unemployment trends in the Albuquerque MSA tracked those of the state reaching a pre-recession low in 2007 of 3.7 percent, climbing rapidly over the next two years to 7.8 percent and peaking at 8 percent in 2010. Unemployment in the MSA has declined steadily from 2010 to 6.2 percent in 2015.

Figure 19: New Mexico/Albuquerque MSA/Sandoval County Civilian Employment, Available Labor Force and Unemployment Rate

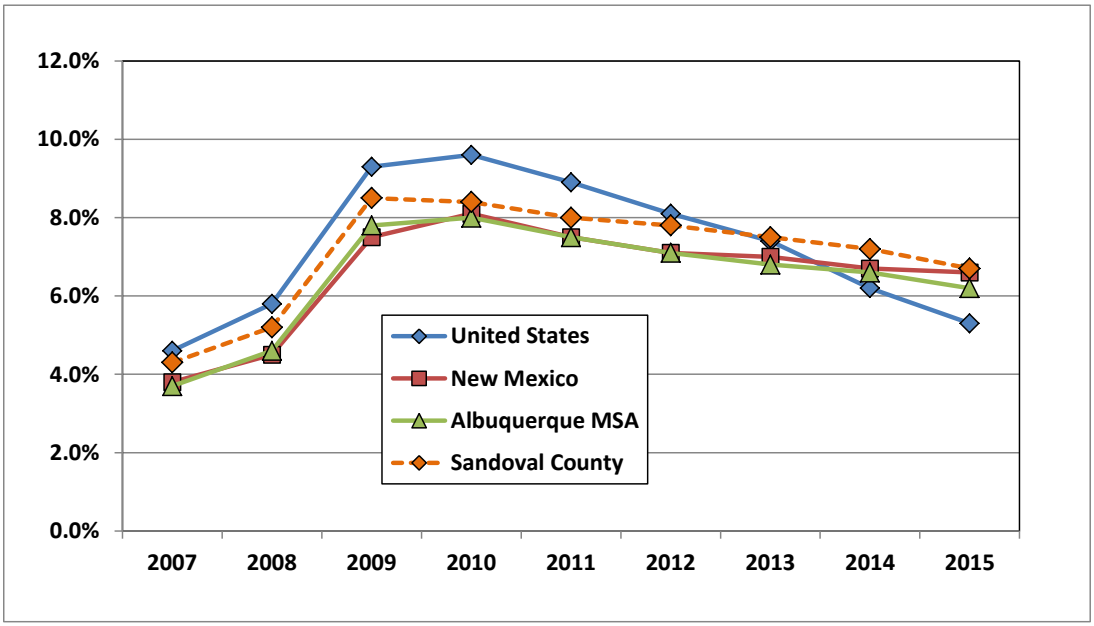


Source: New Mexico Department of Workforce Solutions

Sandoval County unemployment rates have trended similarly to the statewide and MSA rates, reaching pre-recession lows in 2006-07 of 4.3 percent but peaking earlier at 8.5 percent in 2009. Rates have been slightly higher in Sandoval County than the MSA and across the state but all have been lower than the

United States as a whole. By 2013, nationwide trends dropped lower than in New Mexico. The trend of falling unemployment rates appears to be continuing which is a good sign for the local economy. As seen in the previous figure, Sandoval County's workforce is relatively static while those employed continues to climb thus the county is not losing eligible workforce unlike the trend observed both statewide and in the MSA that appear to be losing eligible workers.

Figure 20: Comparison of Unemployment Rates for United States, New Mexico, Albuquerque MSA and Sandoval County

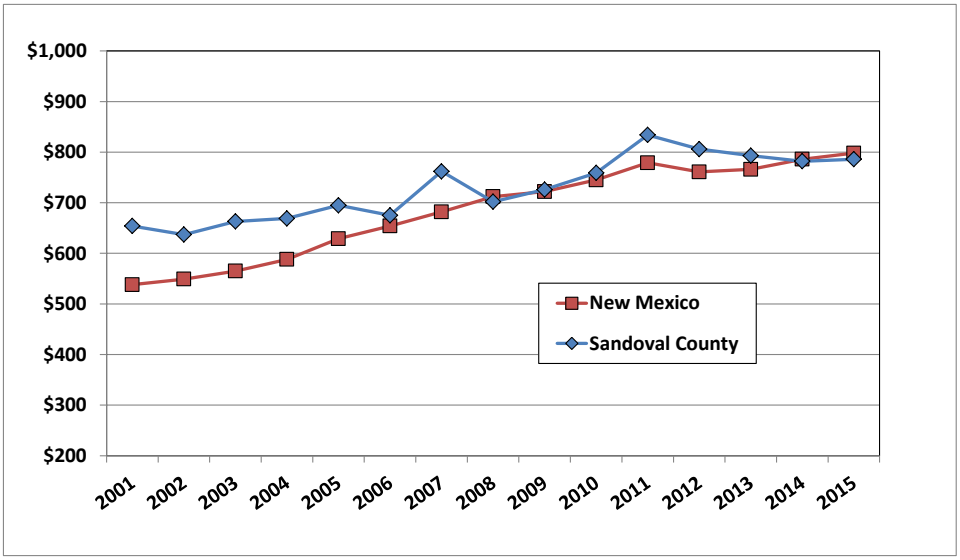


Source: New Mexico Department of Workforce Solutions

The state has not recovered the number of jobs lost to the recession peak of 902,000 it has stabilized at approximately 860,000. This differs from the trend seen for the Albuquerque MSA and Sandoval County, which, despite a one-year loss, essentially plateaued with the recession at approximately 390,000 jobs for the MSA and 56,000 for Sandoval County. Sandoval County has actually seen a very slight improvement in job level since the recession.

The following figure shows average weekly wages for the third quarter for New Mexico and Sandoval County employees covered under the state unemployment compensation rules; respectively, for September from 2001 through 2015. While state wages have grown steadily with only a slight dip during the recession, they were below those of Sandoval County until 2008. From that point on, state and county average wages have tracked more closely. However, Sandoval County wages have experienced greater fluctuation over time while still seeing an increase. In fact, Sandoval weekly wages peaked in 2011 at $834, after which they began to decline until seeming to plateau in 2014-15.

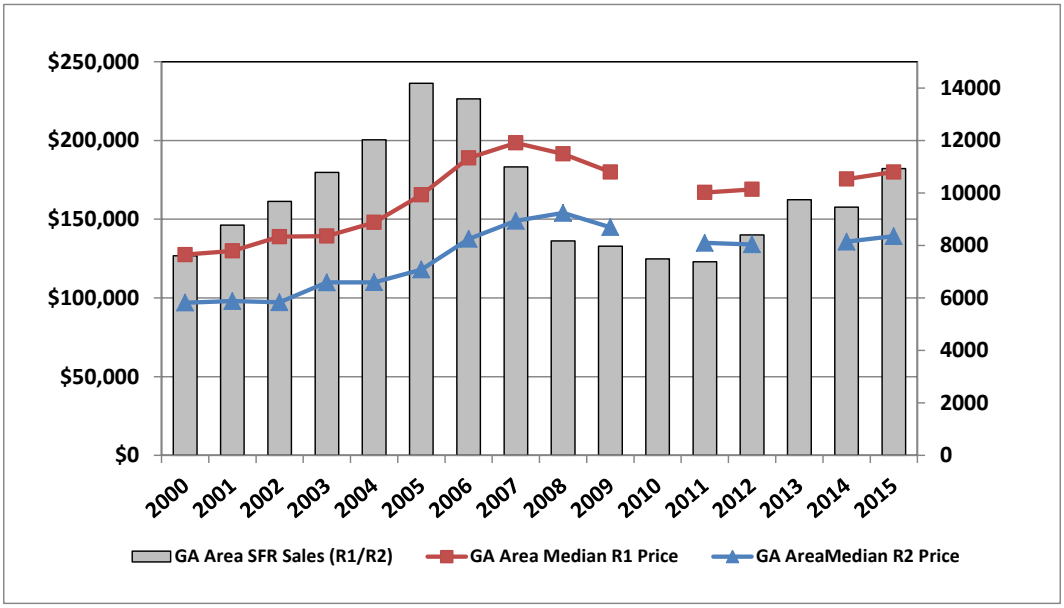
Figure 21: State of New Mexico and Sandoval County Average Weekly Pay (Third Quarter) 2001-2015



Source: New Mexico Department of Workforce Solutions

The following figure shows the median annual sales price and annual number of sales for single-family homes (R1 and R2) in greater Albuquerque area (which includes Sandoval County) from 2000 through 2015, year-to-year in December. R1 are detached units while R2 are condominiums. Sales volume peaked in 2005 14,183 units with median sales prices for R1 units peaking in 2007 at $198,500 and R2 peaking one year later at $154,000. Sales volume and prices reached a recession low in 2011. Sales volume dropped 48 percent to 7376 units, while median sales price for R1 units fell 16 percent to $167,000 and R2 units fell 12.4 percent to $135,000. By 2015, sales volume had recovered about half of that recession losses and continues to improve. Median home prices for R1 homes had made up almost 60 percent of recession losses by 2015, while R2 home had recovered just 24 percent. Both trends suggest a continuing optimism and strengthening in the regional economy.

Figure 22: Greater Albuquerque Area Single Family Residential (R1/R2) Sales/Prices 2000-2015



Source: Greater Albuquerque Association of REALTORS (from Southwest MLS data)

In order to gain a fuller appreciation for real estate trends in the Sandoval County area, data from several Sandoval County MLS districts was examined. The following figure is a partial map of Sandoval County showing MLS district boundaries as well as cities, towns and key roads for orientation. The four districts examined were Mid-North Rio Rancho (151), North Rio Rancho (160), Bernalillo/Algodones (170) and Placitas (180).

Figure 23: Sandoval County MLS District Map

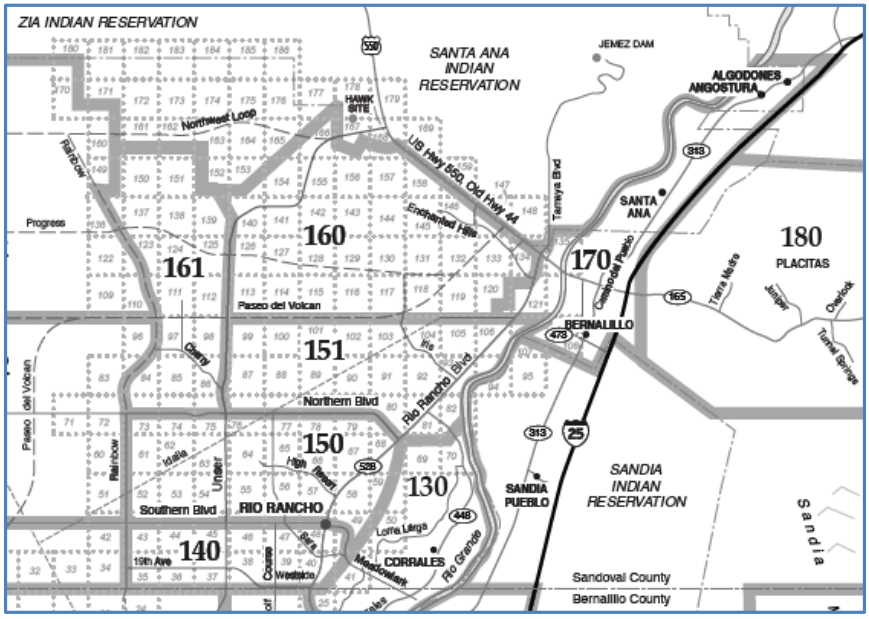
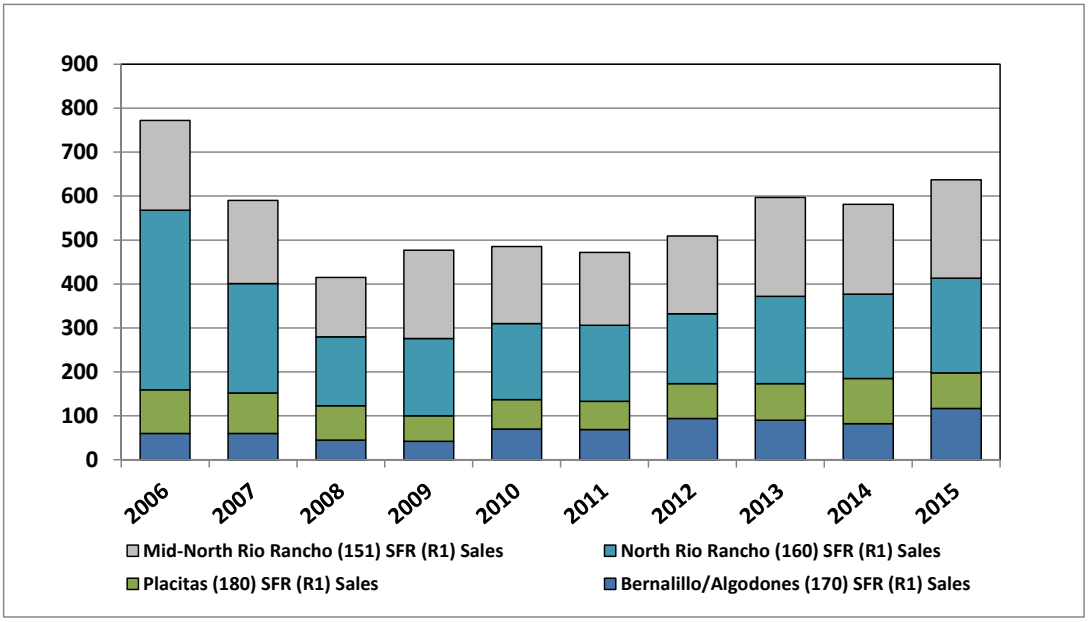


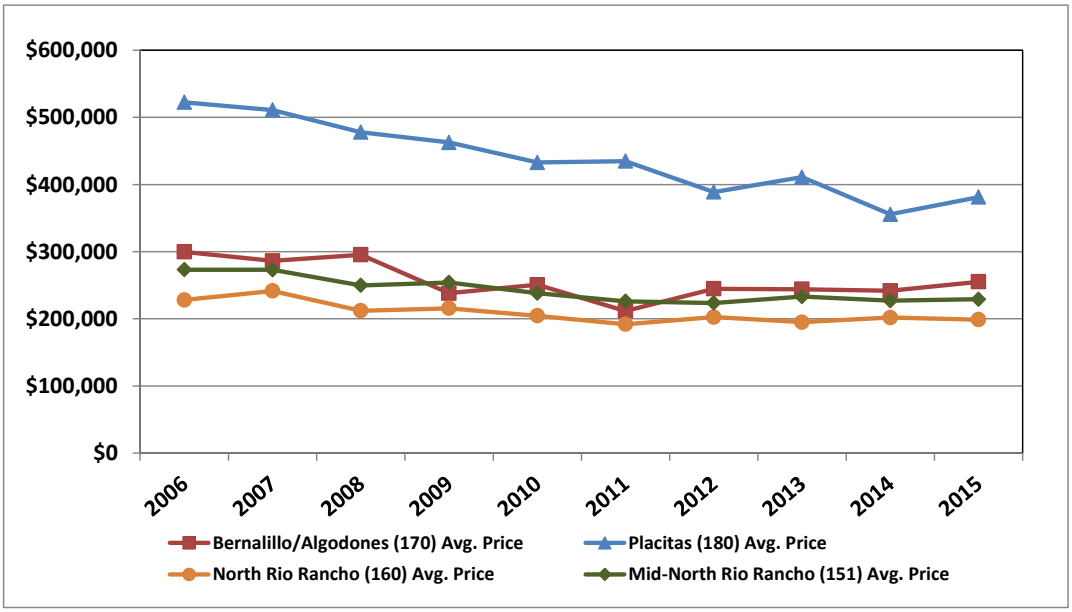
Figure 24: Annual SFR (R1) Sales Volume for Mid-North Rio Rancho (151), North Rio Rancho (160), Bernalillo/Algodones (170) and Placitas (180) MLS Districts for the Period 2006-2015



Source: Greater Albuquerque Association of REALTORS

The previous figure shows the annual sales volume for single-family residential (SFR) properties (R1 only) for the four MLS districts identified. While the trend is similar to the overall Greater Albuquerque Area, the Sandoval County area experienced the recession-related sales slump earlier with sales volume at its lowest in 2008 versus 2011 for the larger area. Sales volume has been slowly, but steadily increasing since the 2008 low point. However, even as sales volume has increased, the following figure shows a different picture from the Greater Albuquerque Area (GAA) with respect to SFR R1 prices. While GAA prices hit their low in 2011, they have been rebounding since then as discussed above. Conversely, those Sandoval County districts shown in the following figure have all seen prices fall through 2011 after which they leveled off with exception of the Placitas district where prices continued to fall through 2014. There is a slight uptick in prices for 2015 in the Placitas and Bernalillo/Algodones districts, which may or may not signal an improvement in the industry.

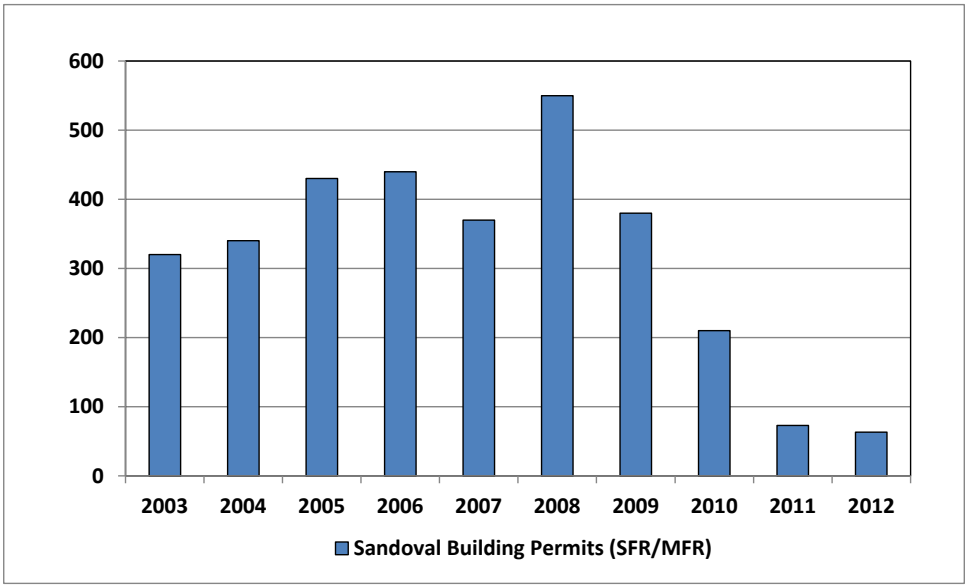
Figure 25: Annual SFR (R1) Sales Volume for Mid-North Rio Rancho (151), North Rio Rancho (160), Bernalillo/Algodones (170) and Placitas (180) MLS Districts for the Period 2006-2015



Source: Greater Albuquerque Association of REALTORS

The following figure shows the number of single- and multi-family home permits issued for the period 2003 through 2012 for the Town of Springdale. By the recession's low point in 2011, construction activity in Sandoval County had slowed considerably, with only 73 and 63 residential permits issued in each of 2011 and 2012. This was down from a peak of 550 permits issued in 2008.

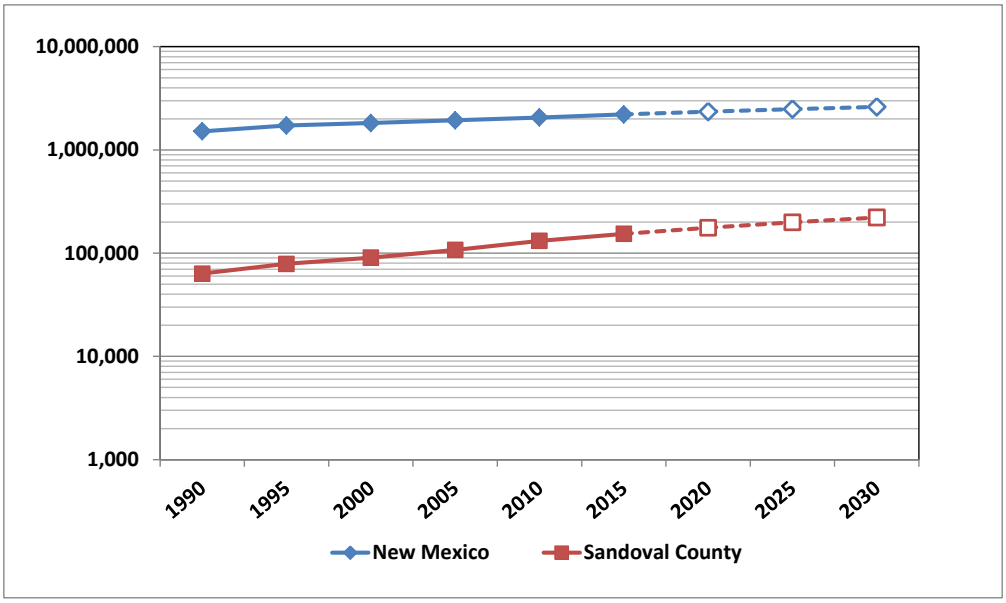
Figure 26: Sandoval County Single- and Multi-Family Permits Issued 2006-2012



Source: US Census Bureau

The following figure provides population data in five-year increments from 1990 through 2015, with projections through 2030, for the State of New Mexico and Sandoval County. Both New Mexico and Sandoval County have shown continued population growth even through the recession. State population has grown from 1,515,069 in 1990 to 2,208,450 in 2015 for an annual increase of approximately 1.8 percent per year. Sandoval County has experienced an increase of 90,729 residents between 1990 and 2015 going from 63,319 to 154,048 for an annual increase of approximately 5.5 percent. Sandoval is expected to continue growing, reaching almost 200,000 residents by 2025. The annual growth rate is predicted to average approximately 3 percent. This will require an expansion of housing inventory through new construction, particularly as available inventory of used homes continues to contract.

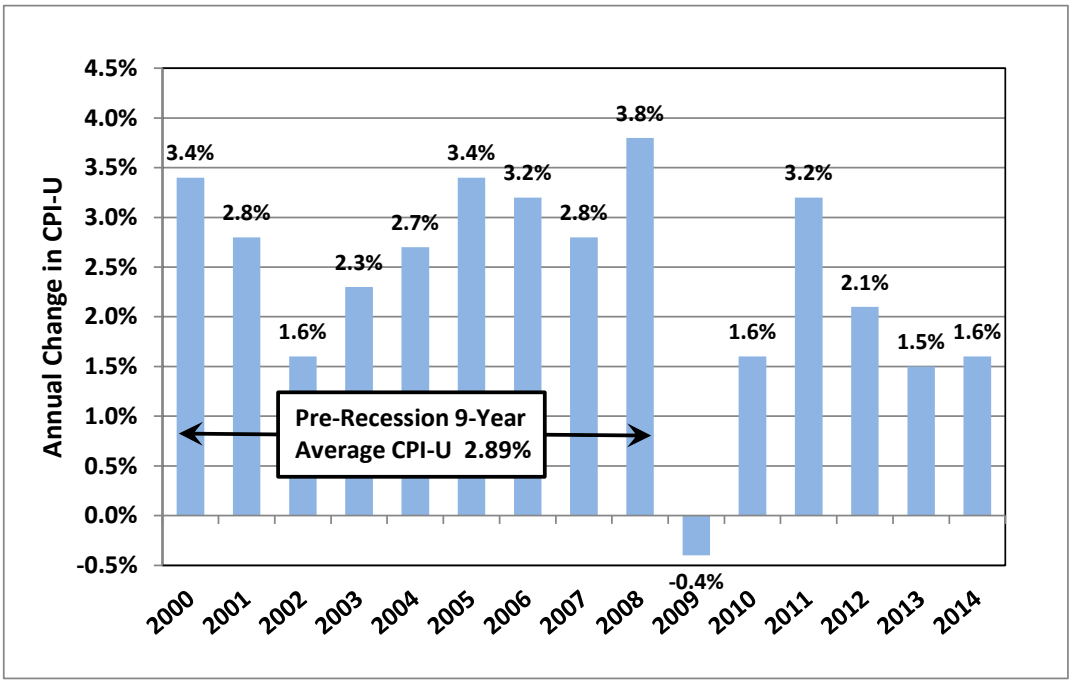
Figure 27: Sandoval County and Selected Town Population Data



Source: Bureau of Business and Economic Research, University of New Mexico

Inflation is another measure of economic activity. While an inflation measure specific to Sandoval County is not available, the figure, which follows, shows the trend from 2000 through 2014 of the national Urban Consumer Price Index for All Urban Consumers (CPI-U). While variable in the nine years preceding the recession the average annual inflation factor was approximately 2.89 percent. It was actually -0.4 in 2009, immediately after the pre-recession peak of the economy in 2008 and jumped to 3.2 percent by 2011, generally regarded as the low point in the recession economy. As the economy began to show signs of recovery, the annual inflation index dropped to 2.1 percent in 2012 and then appeared to stabilize around 1.5-1.6% over the next two years.

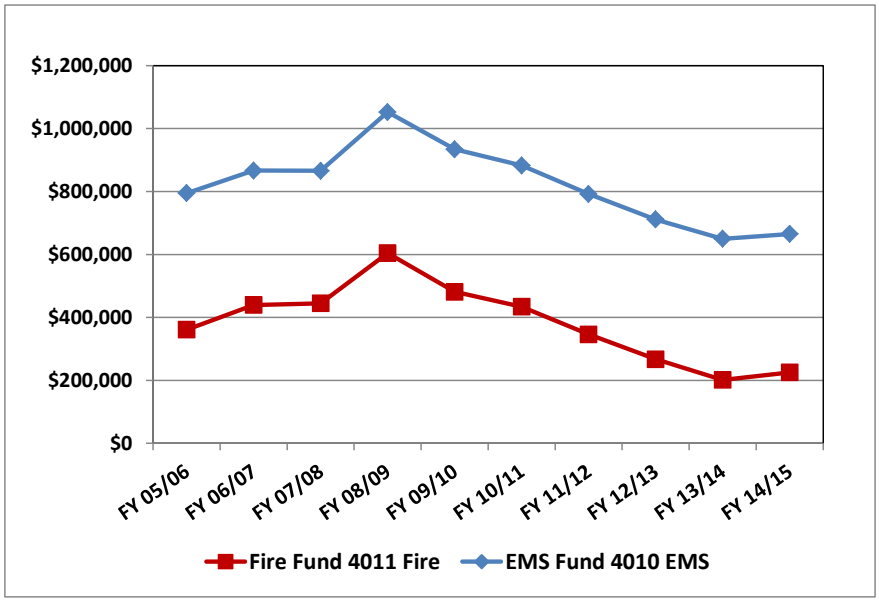
Figure 28: Inflation Trends: West Urban CPI-U



Source: US Bureau of Labor Statistics

The primary source of revenue for the fire department is the Gross Receipts tax, which is a very sensitive indicator of the economic climate. Consumer and business confidence translates into the purchase of taxable goods and services. GRT is remitted to the state which provides each county with its' respective share, including any additional levies adopted.

Figure 29: Sandoval County Gross Receipts Tax EMS (4010) and Fire (4011) Funds FY



Source: Sandoval County Finance Office

Figure 29 shows the Sandoval County ¼ percent levy for the EMS (4010) and Fire (4011) funds. The SACo ¼ percent GRT is only partially allocated to the fire fund with the bulk servicing fire protection bond indebtedness. Gross Receipts Tax (GRT) revenue peaked in FY 08/09 and continued a steady decline until appearing to bottom out in FY 13/14. A slight uptick in revenues for FY 14/15 may be signaling a turn in the local economy, which is supported by improving employment and real estate sales figures. It is interesting to note that with the low point in GRT revenues in FY 13/14, the Department of Labor named Sandoval County one of only four New Mexico counties as a "Labor Surplus Area" meaning that employers in Sandoval County would be given preference in obtaining Federal contracts in order to get Federal funding to those most in need.

HISTORICAL REVENUES AND EXPENSES

An analysis of departmental historical revenues and expenses was completed in order to help identify relevant financial trends, strengths and weaknesses and to lay the groundwork for the financial forecast presented in the next section of the report. The historical analysis helps illustrate how the department funds its services – where the money comes from and where it goes. Historical budget data (both prior audited and current adopted) available from various sources did not always match or was at times incomplete and assumptions or adjustments were made in order to develop a comprehensive picture of department financial position.

As shown in the following figure, the department is actually comprised of at least 24 separate budgets or funds. Some of these are countywide and some are specific to various fire or EMS districts or even just pass-through budgets such as Navajo Nation EMS (however, they are part of the overall fire and EMS service for the county and are, therefore, accounted for in this analysis). The following figure shows those expenditure or revenue budgets that were complete and those for which assumptions were made. These 24 separate audited revenue and expenditure budgets for FY 11/12 through FY 14/15 as well as the adopted FY 15/16 period were used to develop the "cash basis" analysis for the overall department provided below. This composite approach should provide management and elected officials with solid basis with which to develop future policy.

Figure 30: Countywide and District Budgets Comprising Sandoval County Fire Department

Sandoval County Fire Department Budget Inventory		FY 2011/12 Audited		FY 2012/13 Audited		FY 2013/14 Audited		FY 2014/15 Audited		FY 2015/16 Budgeted	
		Revenue	Expense	Reven ue	Expense	Revenue	Expense	Revenue	Expense	Revenue	Expense
4010-17-058	EMS/Fire Department	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4011-17-059	SaCo 1/4% Fire Fund	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y[2]
4012-17-060	South District (Placitas) Fire District	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4013-17-061	Algodones Fire District	Y	Y[1]	Y	Y[1]	Y	Y[1]	Y	Y	Y[2]	Y[2]
4014-17-062	Pena Blanca Fire District	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4015-17-063	Ponderosa Fire District	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4016-17-065	La Madera Fire District	Y	Y[1]	Y	Y[1]	Y	Y[1]	Y	Y	Y	Y[2]
4017-17-066	La Cueva Fire District	Y	Y[1]	Y	Y[1]	Y	Y[1]	Y	Y	Y	Y[2]
4019-17-071	Torreon Fire District	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4020-17-073	Zia Pueblo Fire District	Y	Y[1]	Y	Y	Y	Y	Y	Y	Y	Y
4021-17-074	Regina Fire District	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4035-17-076	Sandoval County EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4036-17-077	Algodones EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y[2]	Y[2]
4037-17-078	Santo Domingo EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4038-17-079	Jemez Pueblo EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4039-17-081	La Cueva EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4041-17-083	Ponderosa EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4042-17-084	La Madera EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4043-17-085	Regina EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4044-17-086	Pena Blanca EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4045-17-087	Torreon EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4049-17-183	Navajo Nation EMS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4170-17-090	SaCo Fire	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4241-17-172	Wildland Reimbursement	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

[1]Audited detail from department doesn't match summary from finance director; department capex and finance director total expense used.

[2]Estimate for FY 15/16, no data available, assume same as previous year.

The Sandoval County commission adopted ordinance 05-03-30-8A in 2005, consolidating nine volunteer fire districts (see the previous figure, Funds 4012-17, 4019-21) and the county fire marshal's office into the Sandoval County Fire Department. Each fire district receives separate funding (State Fire Protection Fund) through the State Fire Marshal's Office using a formula based upon the district's Insurance Services Office (ISO) Property Protection Class (PPC) rating and level of service. These funds must be accounted for separately and can only be used for operating and capital expenses of the district, not for personnel expenses.

New Mexico also provides funding to separate EMS districts, which are generally coincident with the fire districts (see the previous figure, Funds 4035-39, 4041-45 and 4049). The New Mexico EMS and Primary Care Bureau of the Department of Health administers these funds which also must be separately accounted for and which are provided to each separate district based upon their respective level of service. Like the Fire Protection Fund, these EMS funds can only be used for EMS capital equipment and operating costs; not personnel costs.

The separate fire districts develop annual operating budgets for their districts in conjunction with the county fire chief utilizing their allotted state Fire Protection and EMS Funds for operation of the individual districts. These funds comprise the majority of district operating revenues fund normal operating

expenses of the respective districts such as vehicle maintenance and fuel, station utility costs, insurance, station maintenance, personal protective equipment and office supplies, etc.

The Sandoval County Fire Department itself is comprised of two major funds (Figure 30, Fund 4010 and 4011) and several minor funds (see the previous figure, Fund 4170 and 4241). Other funds are associated with the fire department but not considered here as they are either not directly related to the provision of fire and EMS services or they are relatively minor.

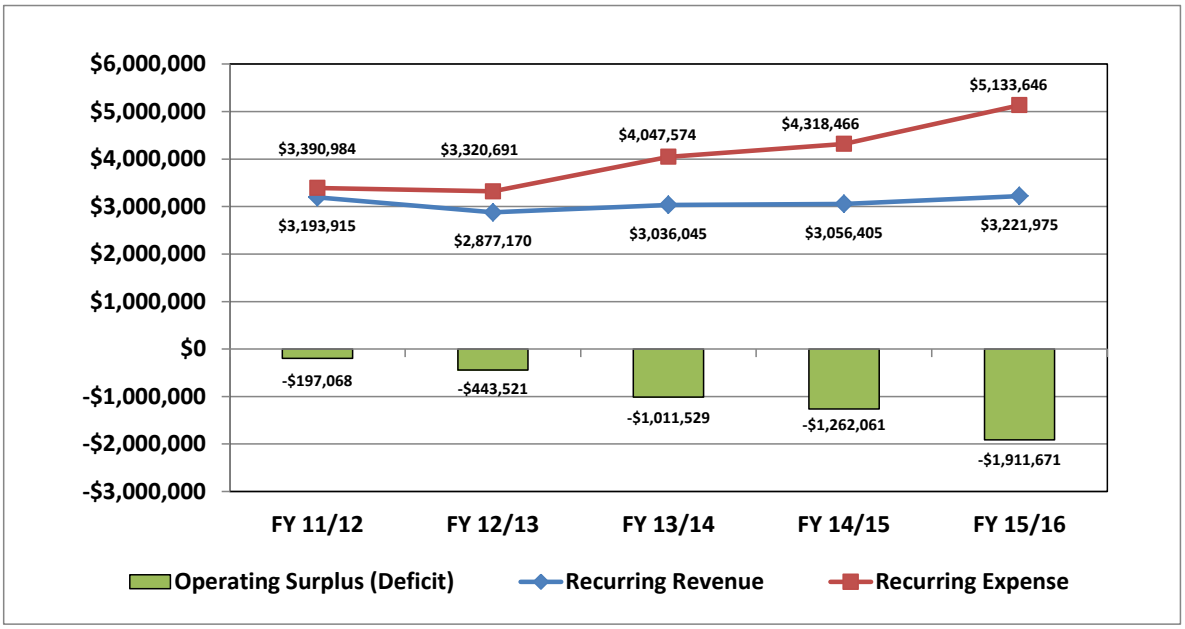
The County Fire Protection Gross Receipt Tax, or the 1/4% Fire Tax (see the previous figure, Fund 4011), is a gross receipts tax approved by voters in a county referendum. Before 2004, the Sandoval County Volunteer District Chiefs and the Sandoval County Fire Marshal's Office controlled the ¼% Percent Fire Tax. This fund is utilized on a countywide basis to fund both operating and capital expenses that benefit the entire county on an equitable basis. A significant portion of this revenue stream services a 15-year $5 million bond, which funded capital facilities and equipment throughout the county. The 1/4% Fire Tax is used to maintain the County's radio communications infrastructure including upgrades, preventative maintenance, site rental, electric and propane expense; purchase capital equipment including fire apparatus, rescue vehicles and command vehicles; construct and re-mode stations; and facilities maintenance and other operating expenses. This fund does not cover personnel costs.

County voters also approved a 1/4% EMS/Communications Tax in 2004 (see the previous figure, Fund 4010) which is used to fund fire department personnel costs, operating and capital expenses not funded through other departmental budgets. The department also receives various other revenues within the 4010 fund, which will be discussed in more detail in a later section. The two most significant are an annual transfer from the county General Fund and ambulance billing revenue.

To better establish long-term policy to guide the department, management needs to know how much total revenue can be expected each year and how much it will expend on a cash basis. Further, it needs to know how much cash forward will be available leading into each fiscal year and whether that cash is to be reserved for specific purposes or not. It also needs to know how much debt it carries and for what period. Budget preparation for management purposes has a different goal from the annual financial audit. For example, one key difference is in the accounting for ambulance billing revenue. While a financial auditor looks at accounts receivable and may book that as revenue, the manager is better served looking at annual cash actually received versus what is expected from the given payor mix.

By utilizing a composite approach to the annual budget process where all funds are part of the overall organization, management can obtain a clearer picture of the overall direction of fire rescue and EMS services throughout the county. The following figure illustrates the concept of recurring revenue and recurring expenditures, which leads to annual operating deficits or surpluses. Because the Sandoval County Fire Department is funded separately from the county General Fund, it needs to balance revenues and expenditures and should provide for its own reserve for cash forward to cover the first 2-2.5 months of operating expenses as well as a reserve for contingencies.

Figure 31: Recurring Revenue, Expenditure and Net Revenue Trends



Source: Departmental Audited and Adopted Budget Documents

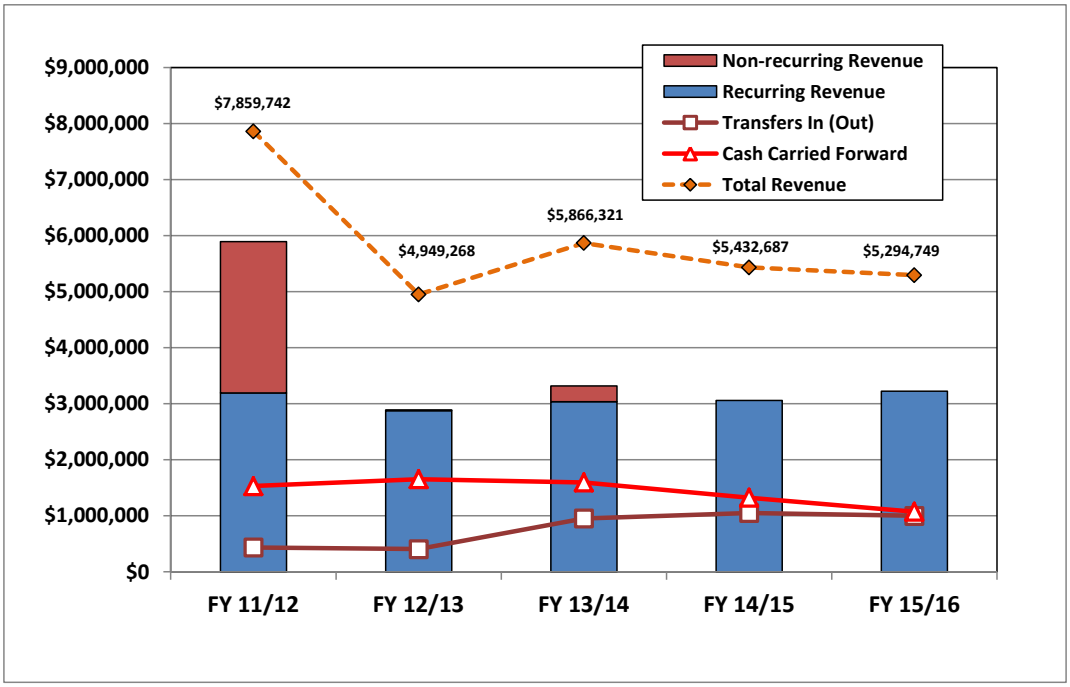
Recurring revenues are tax proceeds, billing revenues, long-term contracts, interest, etc. These revenue sources are differentiated from large grants and other one-time sources, cash balance forward and intergovernmental transfers into the department. Recurring expenses are personnel services, operating costs and some level of annual capital replacement and could include some level of annual facility replacement if planned for in a long-range capital improvement plan (CIP). The difference between recurring revenue and recurring expense illustrates the financial trajectory of the department.

The previous figure shows that the department began spending more each year than it generated in recurring revenue in FY 11/12, the year it showed an operating deficit of $197,068. This operating deficit has increased at a rapid rate to the point where, in the FY 15/16 adopted budget, the department will generate a deficit of $1,911,671. This deficit must be funded using cash reserves and/or transfers from other funds, such as the county General Fund. Such transfers may require a reduction of other General Fund services. Conversely, additional revenue sources would need to be found to sustain the current level of expenditures.

Revenues

As discussed above, when viewing the department as a whole, there are several principal categories of revenue; recurring revenues, non-recurring revenues, cash carried forward (both restricted and un-restricted reserves) and transfers in from other funds (such as county General Fund). Figure 2 shows how those major categories of revenue have changed over the past five years. Recurring revenue, shown in blue, has changed very little over the five years, averaging approximately $3 million per year. Non-recurring revenue is relatively minor except in FY 11/12 when the county received $2.7 million in American Recovery and Reinvestment Act (ARRA) funding to construct a fire station.

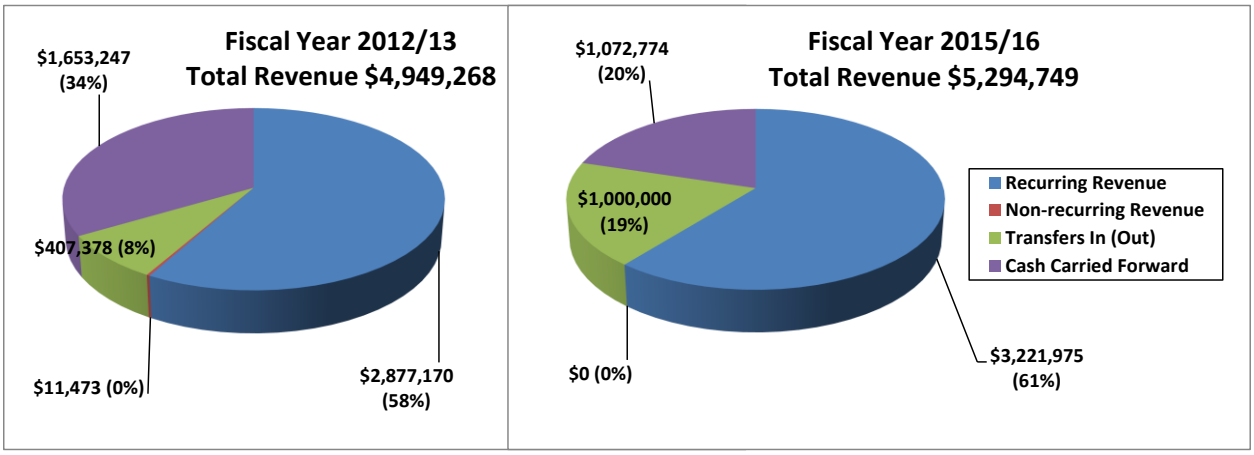
Figure 32: All Revenue Sources by Category for FY 11/12 through FY 15/16



Source: Departmental Audited and Adopted Budget Documents

Absent non-recurring sources, overall department revenue has remained relatively flat over the five-year period. However, beginning in FY 13/14 the transfer from the county General Fund to the fire department has doubled from approximately $500,000 to approximately $1,000,000 annually. At the same time, the cash carried forward has begun an annual decline from over $1.5 million in FY `13/14 to $1 million by FY 15/16. This trend shows the department spending significantly more each year in recurring expenditures than it brings in with recurring revenue sources. The trend clearly shows that while total revenue has averaged approximately $5.15 million and the recurring revenue category has remained approximately 60 percent of total revenues, cash carried forward has decreased from 34 percent to 20 percent of the total and General Fund transfers in have more than doubled from 8 percent to 19 percent.

Figure 33: Comparison of Revenue Sources as Percent of Total by Category for FY 12/13 and FY 15/16

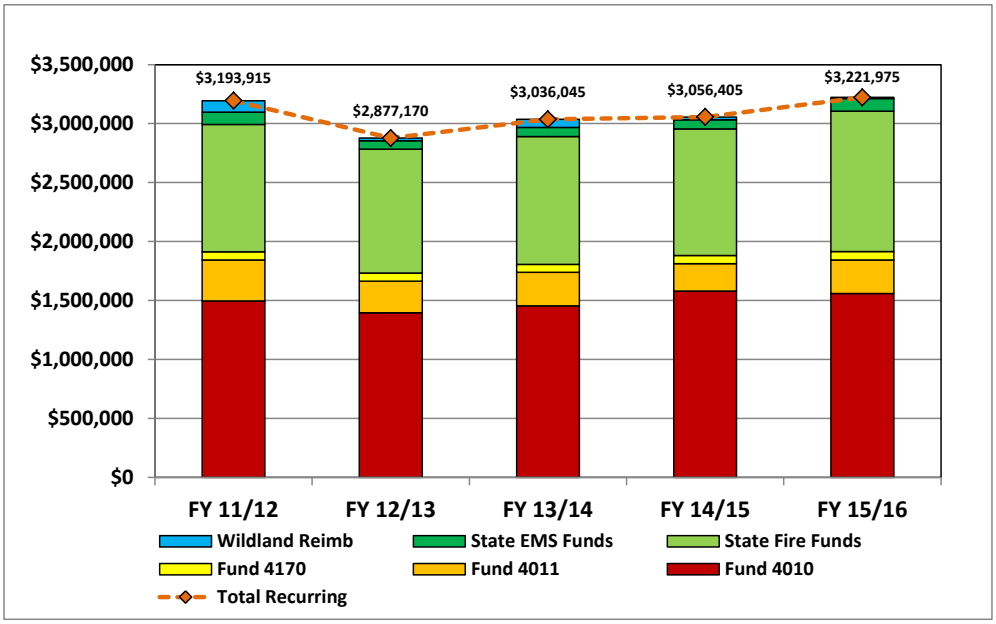


Source: Departmental Audited and Adopted Budget Documents

As discussed above there are multiple sources of recurring revenue; countywide sources and single-district sources, that when taken together comprise the sum total of recurring revenue for the department (and/or fire and EMS services for the entire county). The following figure shows those major sources. The primary message from this figure is that the recurring revenue for the department has not changed significantly in five years, fluctuating between approximately $3.2 million on the high end and $2.9 million on the low end, averaging around $3 million annually with no discernible trend up or down. The major recurring revenue components are:

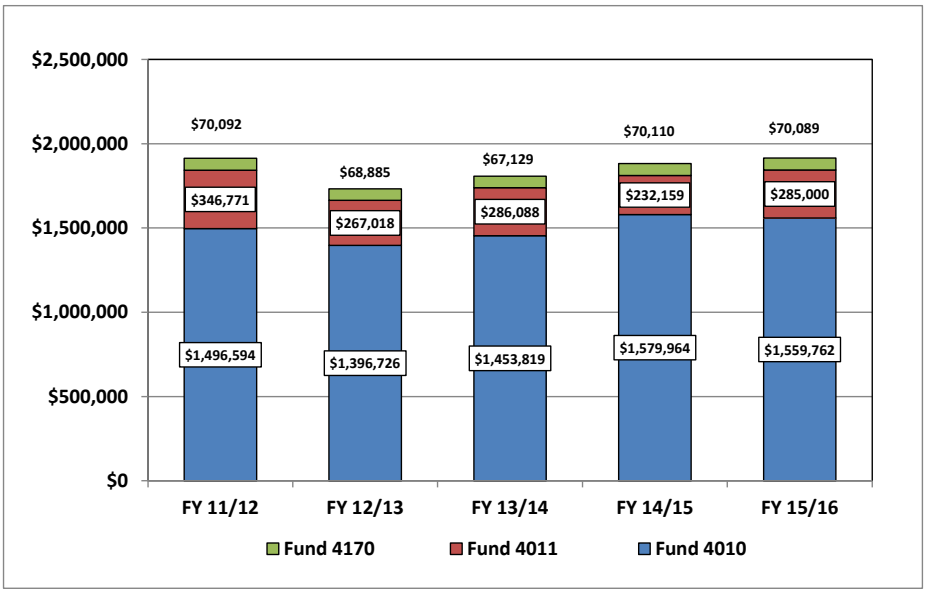
- Fund 4010 revenue (multiple sources) shown in red.
- Fund 4011 revenue (that portion of the 1/4% Fire Tax not allocated to bonded debt service) shown in orange.
- State Fire Funds (composite here of nine separate district funds) shown in light green.
- State EMS Funds (composite here of eleven separate district funds, including countywide EMS district) shown in dark green.
- Fund 4170 shown in yellow.
- Wildland Reimbursement Fund shown in blue.

Figure 34: Sandoval County Fire Department Total Recurring Revenue – All Sources



Source: Departmental Audited and Adopted Budget Documents

Figure 35: Funds Containing Major Countywide Recurring Revenue Sources

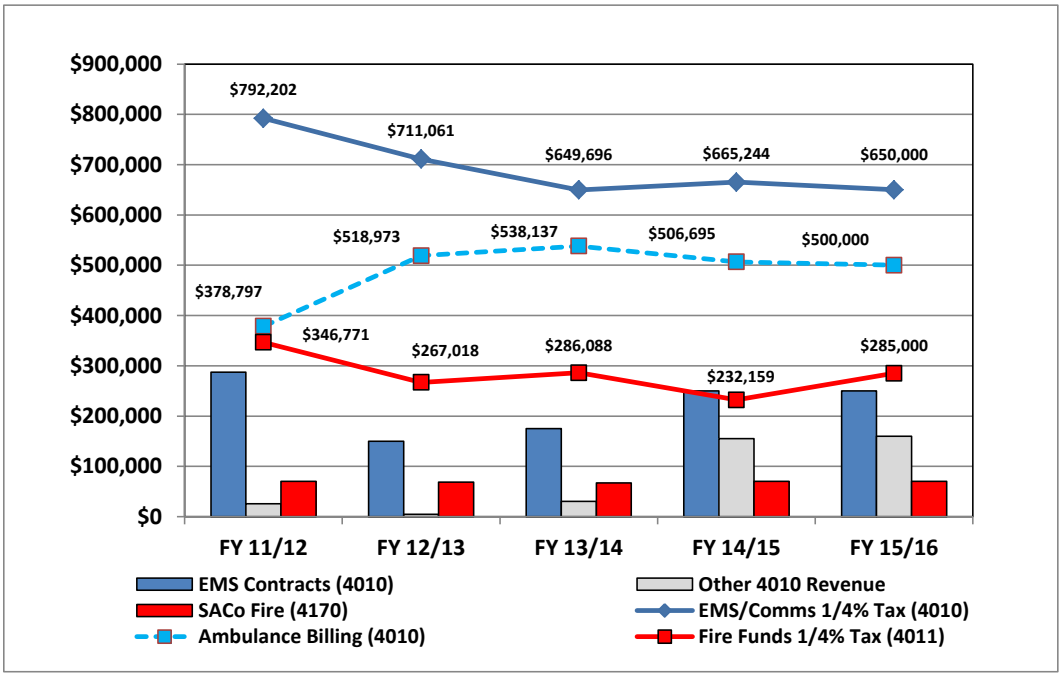


Source: Departmental Audited and Adopted Budget Documents

Other than State EMS and Fire funds, the major countywide sources of department recurring revenue is found in the 4010 and 4011 funds (minor contribution from 4170 Fund). The previous figure shows those funds that contain major recurring countywide revenue sources. With some fluctuation, the total recurring revenue in each of these funds has remained relatively constant over the last five years. The following figure shows the recurring revenue in these funds in more detail. The blue line represents the EMS/Communications ¼% Tax which declined from $792,202 in FY 11/12 to approximately $650,000 in FY

13/14 where it seems to have stabilized. The red line shows the portion of the ¼% Fire Tax allocated to Sandoval County Fire Department operating and capital expenses. This source has declined from $346,771 in FY 11/12 to $232,159 in FY 14/15. This source has actually shown an increase to $285,000 in FY 15/16. Ambulance billing revenue increased markedly from $378,797 in FY 11/12 to almost $520,000 in FY 12/13 and it has averaged between $500,000 and $540,000 since then declining slightly from FY 13/14 to FY 15/16. ESCI recommends that the department conduct an in-depth analysis of ambulance billing and recovery by payor mix for the last five years to include aging studies.

Figure 36: Breakdown of Countywide Recurring Revenue Sources



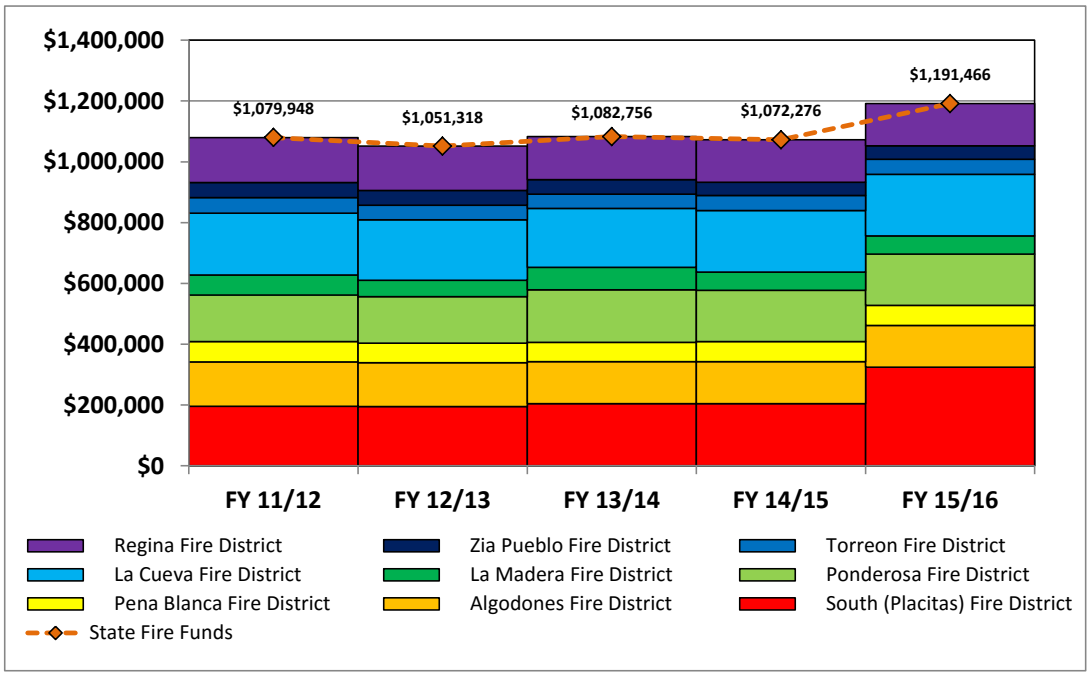
Source: Departmental Audited and Adopted Budget Documents

EMS contracts with various Santa Ana and Bernalillo have varied but generally average approximately $200,000 annually. These agreements should be reviewed at least every two years and there should be a readily supportable formula for contract cost. These contract amounts have apparently remained at the same level for approximately ten years and, according to department staff analysis, are well below the actual cost of providing EMS service to the contracted parties. Other revenue sources are grouped together and shown in grey and have increased from less than $50,000 in FY 11/12 to approximately $150,000 in FY 14/15 and FY 15/16.

The other significant sources of revenue considered part of the overall Sandoval County fire and EMS service for the purposes of this study are the state contributed EMS and Fire Funds. The following figure shows the State Fire Funds by district for the five-year period FY 11/12 through FY 15/16. Total Fire Funds have averaged just under $1.1 million for the period FY 11/12 through FY 14/15. These funds have increased by just over $100,000 in FY 15/16 with the bulk of the increase accruing to the South (formerly

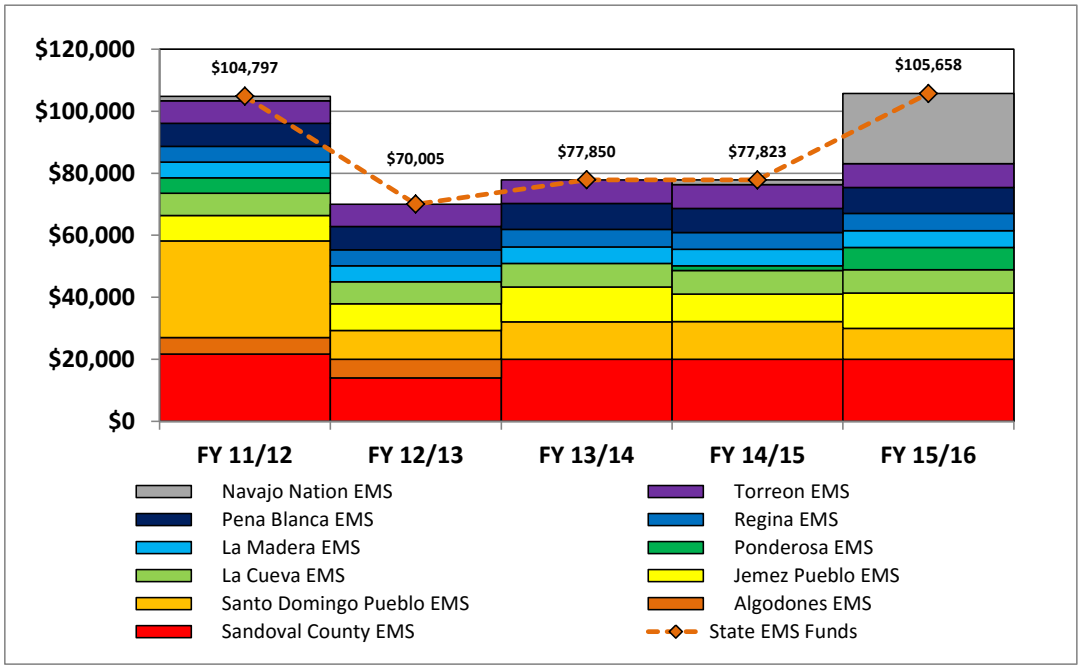
Placitas) District based upon service level improvements in that district according to the state distribution formula.

Figure 37: State Fire Fund Recurring Revenues by Fire District



Source: Departmental Audited and Adopted Budget Documents

Figure 38: State EMS Fund Recurring Revenues by EMS District



Source: Departmental Audited and Adopted Budget Documents

Figure 38 shows the State EMS Funds by district for the five-year period FY 11/12 through FY 15/16. As mentioned above, several of these EMS funds are pass-through from the state to providers other than Sandoval County Fire Department entities such as Navajo Nation EMS. However, they are all included here since they are county budgeted funds and go toward the provision of EMS services within the county. Total EMS Funds as a percentage of the overall recurring revenue stream are relatively minor and have decreased from approximately $105,000 in FY 11/12 to between $70,000 and $78,000 for the next three years increasing in FY 15/16 to $105,000 again. While most district funds have remained relatively stable, several districts have fluctuated significantly at different times. Specifically, the Santa Domingo Pueblo District decreased from $31,000 in FY 11/12 to an average of $10,000 for the next four years, the Navajo Nation District was virtually unfunded until FY 15/16 when it jumped to $23,000 and the Algodones District which received approximately $5,000 in FY 11/12 and FY 12/13 was unfunded for the remaining three years of the review period.

Figure 39: Sandoval County Fire Department Revenue Trend

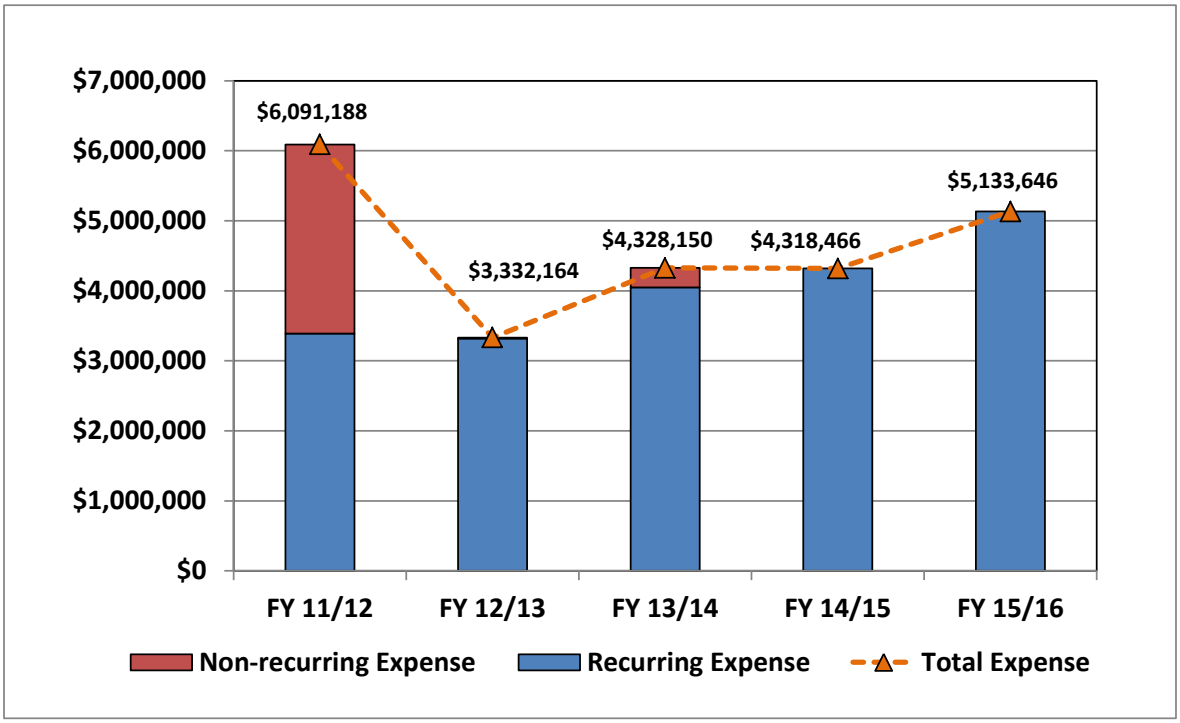
	Actual FY 11/12	Actual FY 12/13	Actual FY 13/14	Actual FY 14/15	Budget FY 15/16
Recurring Revenue	**$3,193,916**	**$2,877,170**	**$3,036,045**	**$3,053,405**	**$3,221,975**
EMS/Communications 1/4% Tax (4010)	$792,202	$711,061	$649,696	$665,244	$650,000
Ambulance Billing (4010)	$378,797	$518,973	$538,137	$506,695	$500,000
EMS Contracts (4010)	$287,500	150000	$175,000	$250,000	$250,000
Other Revenue (4010)	$38,096	$16,693	$90,987	$155,025	$159,762
Fire Funds 1/4% Tax (4011)	$346,771	$267,018	$286,088	$232,159	$285,000
SACo Fire (4170)	$70,092	$68,885	$67,129	$70,110	$70,089
State Fire Funds (all districts)	$1,079,948	$1,051,318	$1,082,756	$1,072,276	$1,191,466
State EMS Funds (all districts)	$104,797	$70,005	$77,850	$77,823	$105,658
Wildland Reimbursement (4241)	$95,712	$23,217	$68,403	$24,074	$10,000
Non-Recurring Revenue	**$2,700,204**	**$11,473**	**$280,576**	**$0**	**$0**
Transfers In (Out)	**$435,562**	**$407,378**	**$953,397**	**$1,051,724**	**$1,000,000**
Cash Carried Forward	**$1,530,061**	**$1,653,247**	**$1,596,304**	**$1,324,559**	**$1,072,774**
EMS/Fire (4010)	$269,557	$309,085	$234,459	$201,633	$217,626
SACo Fire Fund 1/4% Tax (4011)	$493,096	$537,106	$446,309	$371,879	$264,020
SACo Fire (4170)	$30,030	$7,702	$18,717	$10,269	$4,056
State Fire Funds	$680,764	$775,542	$867,416	$676,885	$572,921
State EMS Funds	$17,043	$5,284	$8,541	$3,997	$6,556
Wildland Reimbursement (4241)	$39,571	$18,528	$20,861	$59,896	$7,596
Total Revenue	**$7,859,743**	**$4,949,268**	**$5,866,321**	**$5,429,687**	**$5,294,749**

Expenditures

As discussed above with revenues, when viewing the department as a whole, there are several principal categories of expenditures; recurring and non-recurring. Recurring expenditures are broken into personnel services, operating expenses and capital replacement. Major capital construction projects such as are typically found in a five-year capital improvement plan (CIP) are considered non-recurring or one-time expenditures. The following figure shows overall expenditures and recurring in blue versus non-recurring expenditures in red for the past five years. With the exception of a major $2.7 million fire station

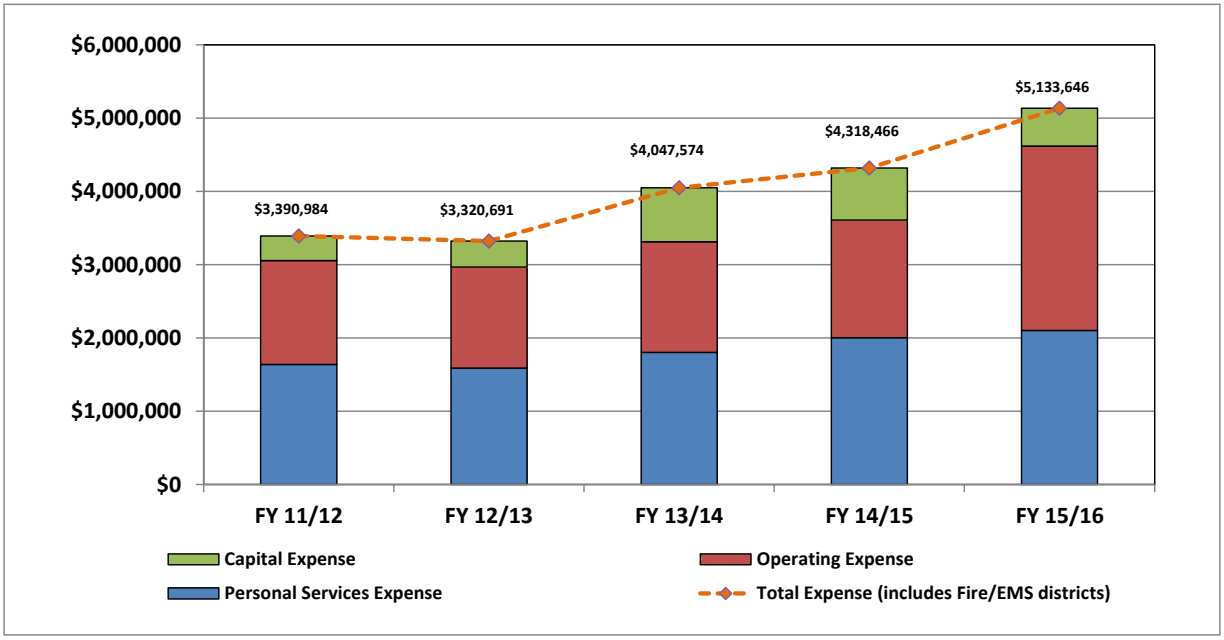
project funded by ARRA in FY 11/12 and some grant funded capital purchases in FY 13/14, the overall expenditure trend shown in the figure is driven by recurring costs.

Figure 40: Total Department Expenditures for FY 11/12 through FY 15/16



Source: Departmental Audited and Adopted Budget Documents

Figure 41: Total Department Recurring Expenditures for FY 11/12 through FY 15/16

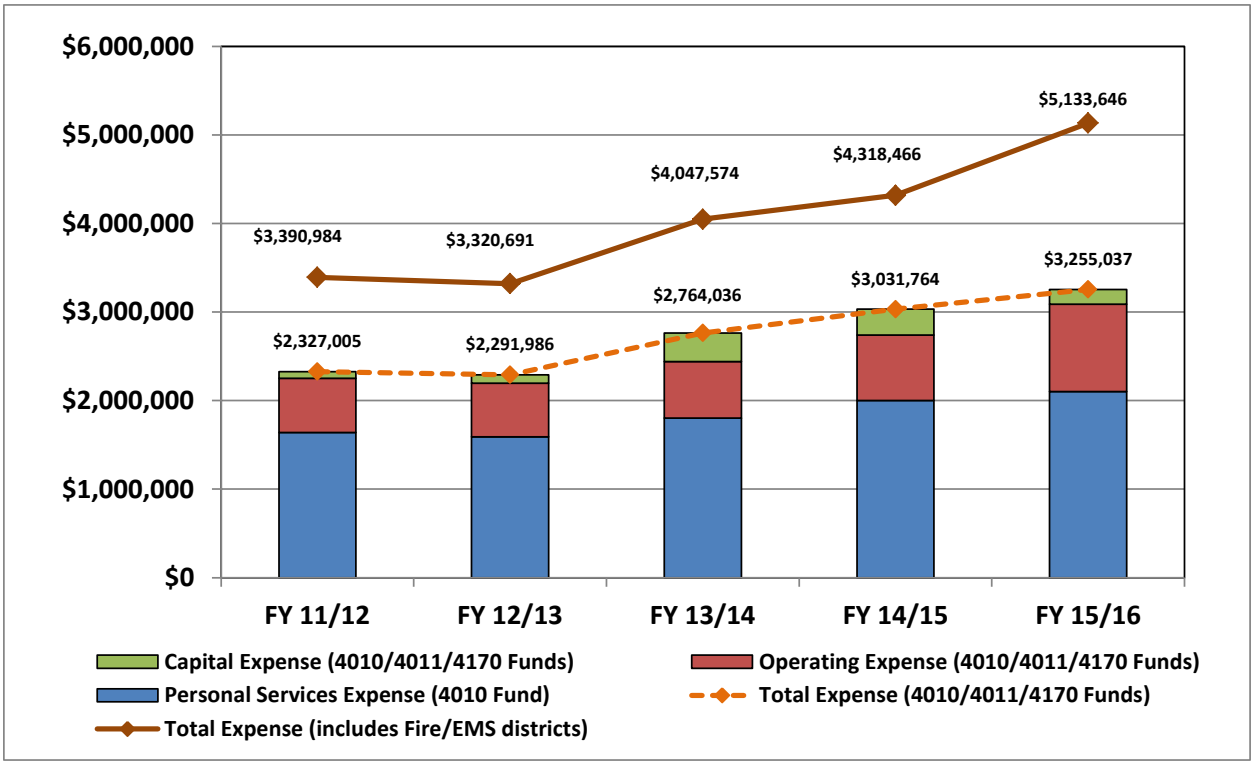


Source: Departmental Audited and Adopted Budget Documents

Total recurring expenditures for the department, which includes fire and EMS district expenses, have risen from $3,390,984 in FY 11/12 to $5,133,646 in FY 15/16, and increase of $1,742,662 or 51.4 percent in four

years. This increase actually took place between FY 12/13 and FY 15/16 for an annual increase of approximately 18.2 percent in total recurring costs of operating the department. To better understand where the increases are occurring, it is necessary to drill down into the expenditure budgets. First, the following figure shows countywide fund recurring expenditures (non-district expenditures) for Funds 4010, 4011 and 4170. Total department recurring expenses, including district expenses, are also shown to provide the reader with a feel for the combined impact of the separate district expenses on the overall expenditure trend.

Figure 42: Countywide (Funds 4010, 4011 and 4170) Recurring Expenditures for FY 11/12 - FY 15/16



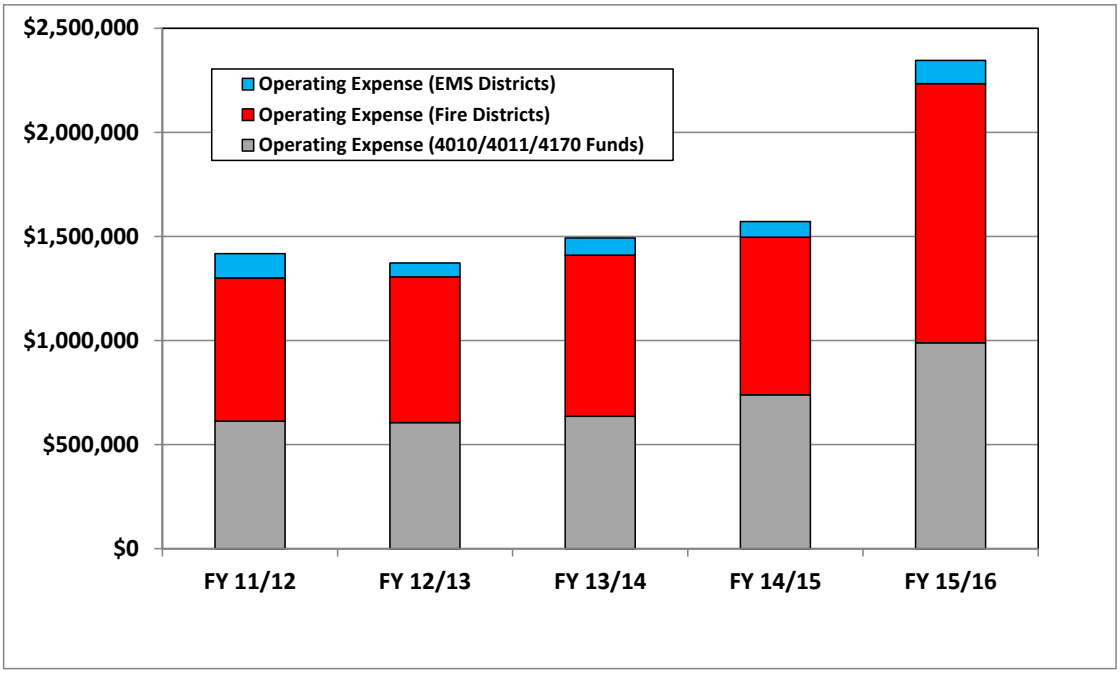
Source: Departmental Audited and Adopted Budget Documents

In the previous figure, the rise in costs is driven by the countywide funds through FY 14/15 after which there is a significant increase in district operating expenses as well as a continued increase in countywide expenses. The countywide recurring total rises from approximately $2.3 million in FY 12/13 to $3.25 million in FY 15/16, an increase of approximately $960,000 or 42 percent in three years. This equates to an annual increase of approximately 14 percent. The remaining increase seen in the total is attributed to a rise in district operating costs.

The next figure shows the recurring operating costs for the countywide funds (4010, 4011 and 4170) compared to the composite EMS district and Fire district recurring operating costs. Countywide operating costs increased from $611,955 in FY 11/12 to $988,166 in FY 15/16, a 61 percent increase, the bulk of which has occurred over the last two years. Fire district collective operating costs have risen from $688,590 in FY 11/12 to $1,245,280 in FY 15/16, an 81 percent increase, the bulk of which has occurred between FY 14/15 and FY 15/16. The EMS district collective operating costs have fluctuated between a

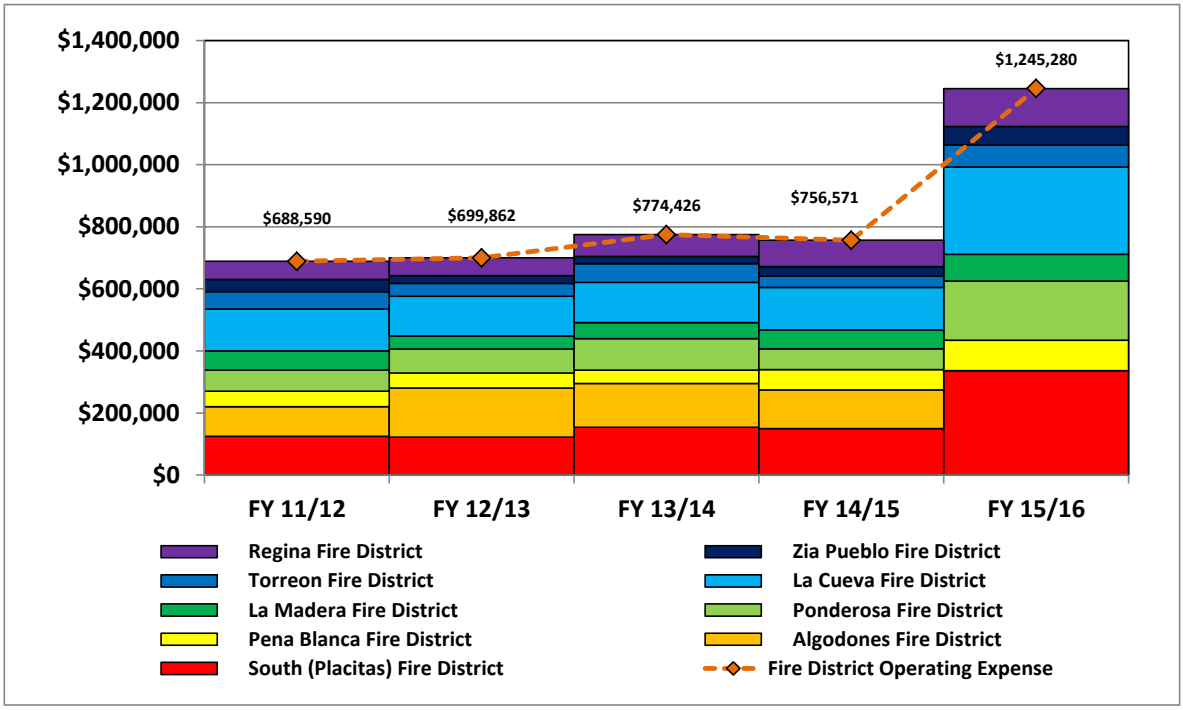
low of $67,000 in FY 12/13 and highs of between $112-116,000 in FY 11/12 and FY 15/16. Thus, the bulk of the operating increase has been felt in the fire district and countywide operating budgets. Personnel Services have steadily increased as seen in the previous figure (shown in blue) from $1,638,481 in FY 11/12 to $2,100,487 in FY 15/16, an increase of $462,006 or 28 percent. The majority of this increase in personnel services occurred between FY 12/13 and FY 15/16 for an annual increase of approximately 9.4 percent. Various positions have been added over that time frame, however, which has added to rising costs. Staffing levels have remained essentially the same from FY 14/15 through the current fiscal year.

Figure 43: Countywide Versus EMS and Fire District Operating Costs FY 11/12 - FY 15/16



Source: Departmental Audited and Adopted Budget Documents

Figure 44: Fire District Operating Costs FY 11/12 - FY 15/16

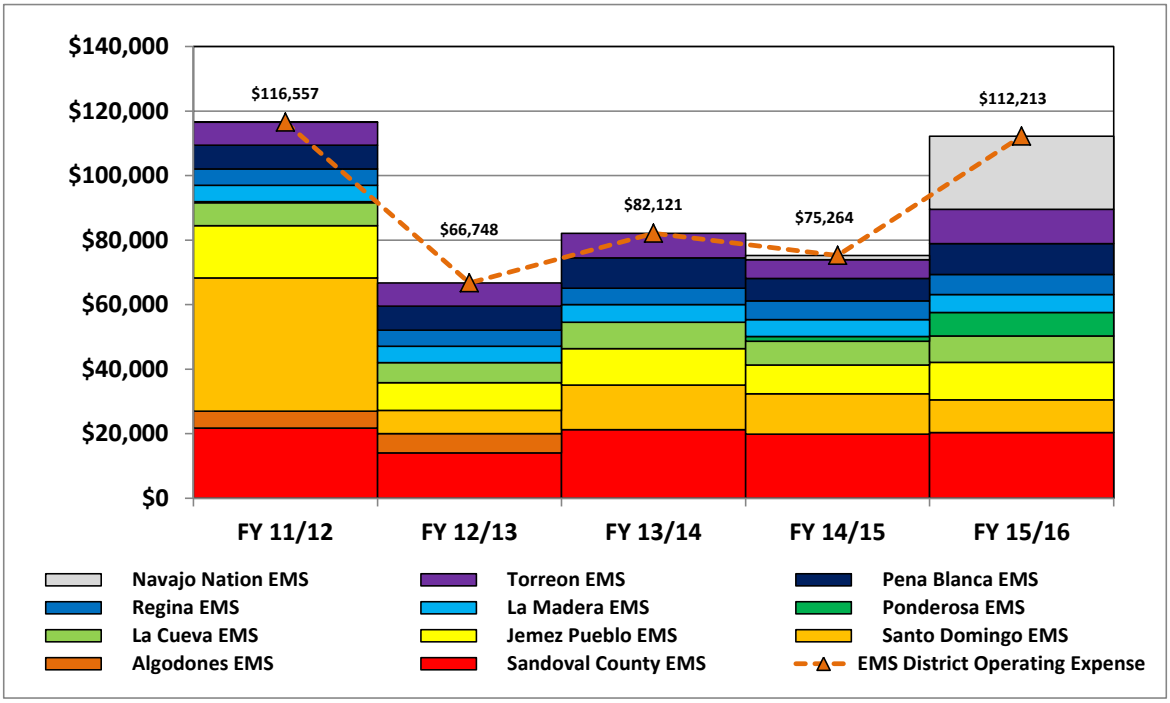


Source: Departmental Audited and Adopted Budget Documents

The previous figure shows fire district operating costs by individual district for the period FY 11/12 though FY 15/16. It is very apparent that several districts experienced a sizeable increase in operating costs in FY 15/16 over the previous four years when expenses remained relatively stable for all districts with very little year-to-year fluctuation. South, La Cueva and Ponderosa Fire Districts saw the largest increases. It should be noted here that the major increase in the South (Placitas) district for FY 15/16 is due to the consolidation of the Algodones Fire District within South District. Although this consolidation was actually legally authorized effective July 1, 2013 the districts were still budgeted and funded separately until FY 15/16.

The next figure shows the operating costs by district and fiscal year for the EMS districts. Several of the districts have shown significant fluctuation in operating costs although the total magnitude of these changes on the overall recurring operating costs has been relatively minor. Santo Domingo saw a significant decrease in costs from FY 11/12 to FY 12/13 while Navajo Nation saw a major increase in FY 15/16 compared to past years.

Figure 45: EMS District Operating Costs FY 11/12 - FY 15/16



Source: Departmental Audited and Adopted Budget Documents

Figure 46: Sandoval County Fire Department Expenditure Trend

	Actual FY 11/12	Actual FY 12/13	Actual FY 13/14	Actual FY 14/15	Budget FY 15/16
Personnel Services	**$1,638,481**	**$1,590,582**	**$1,803,519**	**$2,002,127**	**$2,100,487**
Salary	$1,146,045	$1,105,510	$1,187,060	$1,298,095	$1,342,415
Benefits	$492,436	$485,071	$616,459	$704,031	$758,072
Operating Expenses	**$1,417,101**	**$1,374,844**	**$1,509,079**	**$1,605,998**	**$2,516,017**
Countywide (4010/4011/4170)	$611,955	$605,723	$635,402	$738,965	$988,166
Fire District	$688,590	$699,862	$774,426	$756,571	$1,245,280
EMS District	$116,557	$66,748	$82,121	$75,264	$112,213
Wildland (4241)	$0	$2,512	$17,130	$35,198	$170,358
Capital Expenses	**$3,035,606**	**$366,738**	**$1,015,552**	**$710,342**	**$517,142**
Non-Recurring	$2,700,204	$11,473	$280,576		
Recurring	$335,402	$355,265	$734,976	$710,342	$517,142
Total Expenses	**$6,091,188**	**$3,332,164**	**$4,328,150**	**$4,318,466**	**$5,133,646**

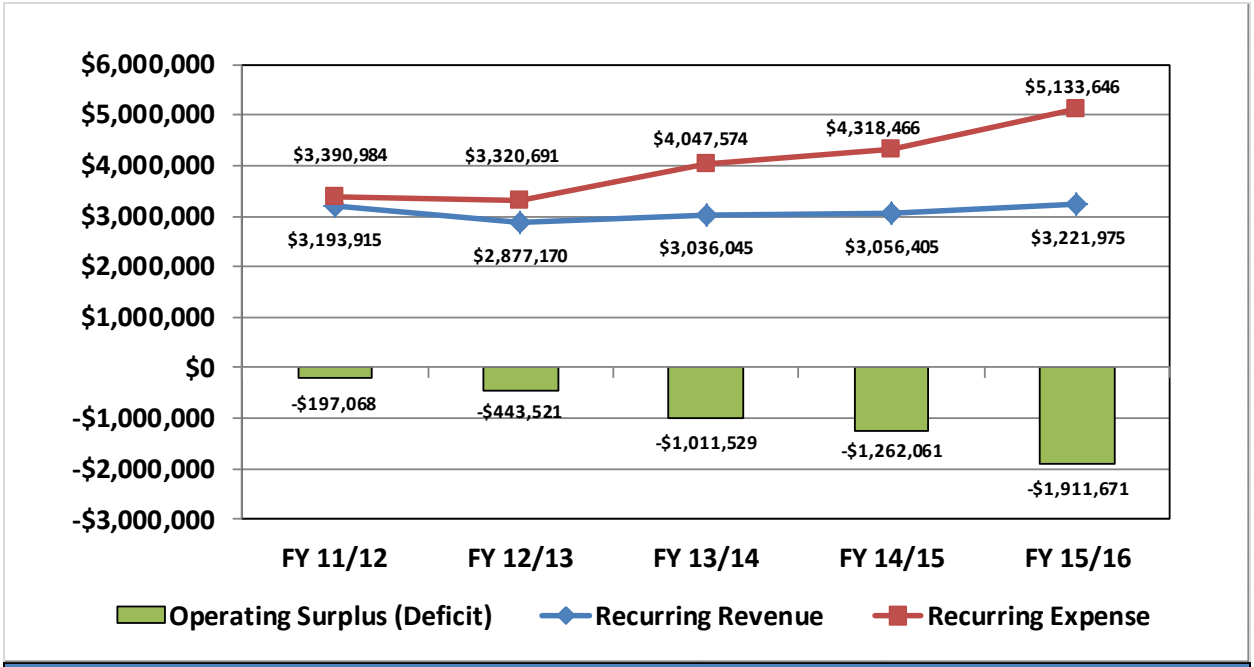
Source: Departmental Audited and Adopted Budget Documents

The previous figure summarizes the Sandoval County Fire Department expenditure trends for the period FY 11/12 through FY 15/16 and includes countywide as well as discrete EMS and Fire District expenditures.

Net Income/Deficit

As shown in the next figure, total department recurring expenses began to exceed recurring revenues in FY 11/12 creating an annual operating deficit that has grown from $197,068 in FY 11/12 to $1,911,671 in FY 15/16. This trend is driven by increases in both personnel services and fire district and countywide fire department operating costs. The net effect of this trend is that cash balance carried forward has been reduced from $1,530,061 in FY 11/12 to $1,072,774 in FY 15/16 (a 30 percent decrease) even while the county General Fund contribution to fire department operations has increased from $435,562 in FY 11/12 to $1,000,000 in FY 15/16 (a 129 percent increase).

Figure 47: Recurring Revenue, Expenditure and Net Revenue Trends



	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
Recurring Revenue	$3,193,915	$2,877,170	$3,036,045	$3,056,405	$3,221,975
Recurring Expense	$3,390,984	$3,320,691	$4,047,574	$4,318,466	$5,133,646
Operating Surplus (Deficit)	-$197,068	-$443,521	-$1,011,529	-$1,262,061	-$1,911,671

Source: Departmental Audited and Adopted Budget Documents

STAFFING AND PERSONNEL MANAGEMENT

An analysis of staffing is a review of personnel levels and distribution of those levels among primary, support, and administrative functions. Such analyses include a review of staff allocation, scheduling, standards of cover, and career and volunteer firefighter/EMS distribution. By the term personnel management, we mean those systems by which the human resource functions are implemented and managed throughout an organization. A review of SCFD personnel management will consider polices and handbooks, job descriptions, reports, and record-keeping, compensation systems, disciplinary processes, counseling services, new hire recruitment and processing, testing and promotion processes. This section will discuss the "human resources" side of the agencies.

One of the primary responsibilities of a fire organization's administration and support staff is to ensure that the operational entities of the organization have the ability and means to accomplish their responsibilities on an emergency incident. Efficient and effective administration support is critical to the success of a fire agency.

In addition, many public safety members of the management team have emergency scene command and control responsibilities. One of the key factors to an organization's overall strength and success is to identify and place administrative and operationally competent and experienced personnel into these positions. It is not enough to be operationally sound or administratively gifted, public safety fire administration services must be both.

It is imperative that appropriate training, education and hands-on experience be provided to public safety members of the fire management and overhead team. It takes an adequate and properly trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved.

Tasks performed at a fire can be broken down into three key components – life safety, staffing and fire flow. Life safety tasks are based on the number of building occupants, their location, status, and ability to take self-preservation action. Life safety related tasks involve search, rescue, and evacuation of victims. Staffing is defined as the personnel available and assigned to mitigate an incident in a timely manner. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks and complete some in chronological order, rather than concurrently. These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Back-up/rapid intervention

The first 15 minutes is the most crucial period in the suppression of a fire. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations. Critical tasks must be conducted in a timely manner in order to control a fire or to treat a patient. All agencies are responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner.

Like any other part of a fire department, administration and support require appropriate resources to function properly. Analyzing the administrative and support positions of a fire department facilitates an understanding of the relative number of resources committed to this important function. The appropriate balance of the administration and support components to the operational component is critical to the success of the department's mission and responsibilities.

Career Personnel Overview

Sandoval County Fire Department has human resource policies and regulations adopted and in place as expected in a modern agency. Training is provided to each new employee on the various county and department specific policies and procedures. Manuals and other printed information are provided to each career employee. County based regulations; policies, guidelines and manuals are reviewed annually and updated per governmental changes. Personnel salary and benefit information is available. Salary and benefit data, including additional compensation for applicable firefighter certifications, assignment pay, clothing allowances, and longevity pay are all available for review. In addition, costs and data on retirement benefits and rates and insurance are available and kept on record in human resources.

Reports and records, such as personnel records, initial employment applications, performance evaluations, injury and exposure reports, and health records are filed and maintained in the county human resources office.

Recruitment efforts for new firefighters are facilitated through local media advertising. There is an application process established that follows county protocols and includes reference checks, qualification review and checks, knowledge testing, an interview and medical examination. Additionally, the SCFD has required medical examinations be conducted every two years based on NFPA 1582 for any career or volunteer member operating in areas designated "immediately dangerous to life and health"[6] (IDLH). A Department of Transportation physical is required for all members driving county vehicles and apparatus. SCFD members are also included in the county random drug testing pool. Internally based promotional testing processes have been established and are conducted on an as needed basis.

Sandoval County convenes an operating safety committee, which includes a member of SCFD, to review incidents, procedures, and injuries. Employee periodic performance reviews are set by County and SCFD policy to be completed each year, however through interviews this is not done on a regular periodic basis.

[6] National Institute for Occupational Safety and Health (NIOSH) defined thresholds for airborne contaminants.

Performance evaluations is the avenue an agency and employee can communicate, improve performance or deficiencies, or give employees feedback on personal performance. SCFD should implement a formal evaluation process on an annual basis for all employees.

There are no periodic skills testing for firefighters beyond the annual physical abilities test for interior firefighters only. A skill-testing component to a training program is essential to ensure members are performing in a safe manner and is essential to mitigate risk or injury. ESCI recommends the SCFD institute a performance-based skills testing process for all career firefighters on a regular, calendared basis.

There are formal disciplinary procedures and policies, including grievance processes, established and in place and regularly communicated through the career staff of the organization. Details are contained in the personnel rules and regulations manual and labor agreements with information clearly provided to each employee.

Counseling services are available to all members and appear well developed and useful. The SCFD provides an employee assistance program available for career status staff. A well-established chaplain program is also in place to provide support when necessary and a robust self-help space on SCFD's website.

SCFD has a total full time staffing of 21 FTE positions. One fire chief, three deputy chiefs (two of which are currently vacant due to retirement), two assistant chiefs, three administrative assistants, and various part time administrative volunteers make a total of nine FTE assigned to fire administration. The administrative staff to total fire career department staff ratio is 43 percent, within industry standards understanding the career staff FTE count. However, SCFD command and administrative staff are responsible for approximately an additional 183 volunteer members located throughout the county. The administrative staff to total fire career, paid call, and volunteer staff ratio is .08 percent, well below industry benchmarks and averages (which includes the district chiefs).

Three fire lieutenants, six firefighter/paramedics, and three firefighter/EMT's comprise the career operational staffing of twelve FTE's. There are a total of four firefighters on duty daily split between two fire stations. The fire chief and three deputy chiefs are dynamically involved in operational roles depending on location and incident type.

The SCFD manages a call back system to recall staff in order to augment crews on an incident or fill openings for sick and vacation leave. The callback system has not worked well for emergency incidents, according to the fire chief. Off duty, members are the first called for an opportunity to work a period of time, or a shift. When SCFD staff is unavailable, off duty staff from neighboring agencies may be called to fill SCFD positions. These are known as "PRN Staff" (as needed staff) and are used to fill vacancies. Approximately 19 PRN staff are on the SCFD call back list and are certified. Most are also career firefighters from other neighboring departments. PRN staff are required to possess the necessary qualifications and certifications for the positions filled. The PRN system appears to be a viable alternative when no other SCFD staff returns a call back request. ESCI believes this is an efficient use of personnel to augment or fill vacancies.

Figure 48: Career-Staffing Assignments

Station	Location	Full Time Staffing
Fire Station 21	Santa Ana	1-Lieutenant 1 Firefighter Paramedic
Fire Station 43	Placitas	1 Firefighter Paramedic 1-Firefighter EMT
Total Career Daily Staff		**4 FTE**

Training Staff

SCFD does not have a member dedicated to training. This places program needs assessment, design, coordination, and evaluation with volunteer district chiefs and career lieutenants who are assigned to shift operational and personnel responsibilities. This results in a significant workload and, as discussed further in the training section, ESCI encourages SCFD to re-evaluate the resources and assign a dedicated position to this function. The implementation of a dedicated training officer is further discussed in the training section of this report.

We also note that SCFD should consider an enhanced and formalized cooperative training strategy among their regional neighbors. All fire departments, nationally as well as within the SCFD region, share essentially the same needs with regard to training their personnel. Further, the regional agencies respond to emergencies together via mutual aid procedures and, in the interest of firefighter safety and effectiveness should be trained to common standards and practices. Finally, a regionalized, collaborative approach to training delivery, in addition to the benefits noted, can substantially reduce costs and increase efficiency of educational efforts. This is another compelling reason to establish a dedicated training officer.

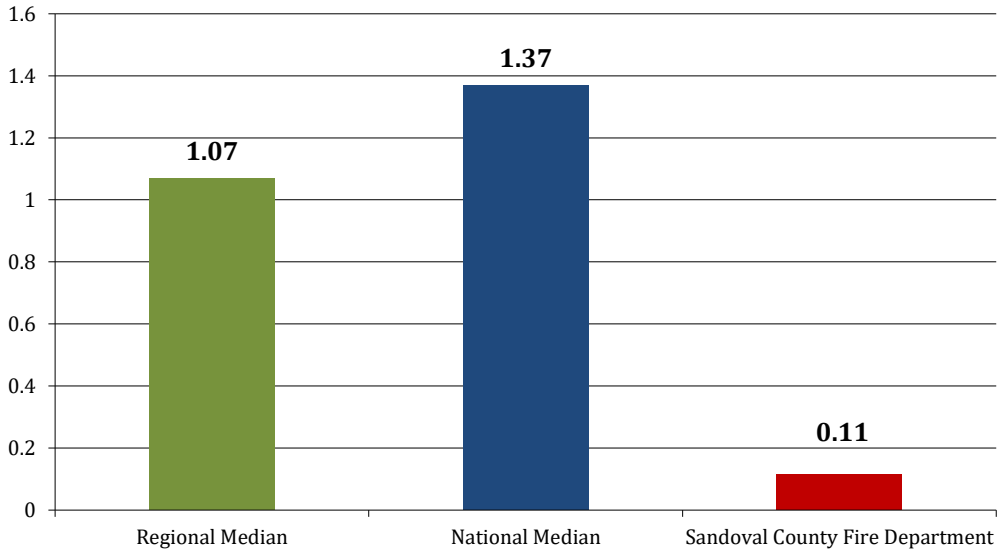
Staffing Discussion

Considerable ongoing local, regional, and national discussion and debate draws a strong focus and attention to the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. While there are published national standards regarding firefighter staffing, they generally speak in terms of the number of career firefighters assigned to a particular response apparatus, often characterized as a “minimum of four personnel per engine company.” ESCI notes that the more critical issue is the number of firefighters that are assembled at the scene of an incident in conjunction with the scope and magnitude of the job tasks expected of them, regardless of the type or number of vehicles upon which they arrive.

It is important to understand that the assembly of firefighters on an incident, also called an “Effective Firefighting Force” or “Effective Response Force,” is a determination made at the community level based on risk, capability, and citizen expectations. There is not a mandated requirement, which supersedes local policy, though there are standards that are discussed in detail in this report. In the Service Delivery section, resource concentration is evaluated to determine if SCFD is capable of establishing an effective response in a timely manner in many areas of the response area.

Another means of comparison, also used on a national basis, is that of measuring the number of firefighters on staff per 1,000 population of the service area. The following figure illustrates the current comparison of SCFD staffing with both national and regional norms.[7]

Figure 49: Career Firefighters per 1,000 Population[8]



At minimum daily staffing levels, SCFD has four emergency personnel available to respond to all emergencies. The figure above shows that there are .11 career firefighters per 1,000 population. This staffing is well below the national and regional medians. SCFD staffing levels are severely low to safely support the capability to respond to one house fire without volunteer system back up, or regional mutual aid assistance. As will be seen later in this report, a majority of the department's workload is medical in nature; however, the risk of fires major car accidents, rescue calls and other complex incidents requiring more responders still exists. A different staffing emphasis must be employed to improve staffing during incidents and oversight beyond reliance upon off duty administrative staff responding from home.

Sandoval County Fire Department's staffing shortage is quantified by the recent Insurance Services Organization's (ISO) recent rerate of South District, which received only 18.8% of the total possible credit it was eligible to receive for the "company" staffing level, which is the number of personnel available on units to respond to the calls. ESCI believes that a combination of investing in additional career personnel, coupled with a greater emphasis on the volunteer program throughout the county will shore up many of those points not earned in the ISO rerate.

ESCI recommends moving the shift lieutenants off the front line units (ambulances and engines) and onto a command unit to provide shift commanders capable of not only supervising the career crews at both

[7] Data drawn from NFPA reports "U.S. Fire Department Profile- 2015" and "U.S. Fire Loss- 2015"
[8] Command staff members calculated at 50 percent for availability to respond to an incident

stations 21 and 43, but also triaging calls that come in to determine the best response configuration to send county-wide. It allows the shift commander to respond to an incident ahead of the career unit coming from either of those stations in an effort to keep those few first response units in service and available for another incident if not needed on the initial call. Further, it allows the shift commander to respond and help volunteer district units with either logistical or command assistance and assess whether the career-staffed units are needed to any area of the county. The vacant seats left behind by the lieutenants when they move to an SUV should be backfilled by firefighter/paramedics. This ensures first response capability as well as the shift command supervision that also augments first response capability.

Volunteer Staffing

There are eight volunteer district chiefs located throughout the county who are responsible for the operations and activities of their individual fire districts. SCFD's emergency response volunteer staffing is comprised of those community individuals that primarily live or work in those particular districts and serve the interest of the communities to provide the necessary staffing. Volunteer district chiefs are responsible for supervising all activities of their district including personnel management, staff training and readiness, maintenance of apparatus and equipment, assuring all required record keeping is accurate and up to date, to conduct periodic meetings with volunteer members, chair district business meetings, ensure stations are routinely inspected and operational, and other duties. The district chief is basically the "fire chief" of the district and the communities it serves. However, the district chief's report to the SCFD fire chief, who has ultimate responsibility for staffing, training, recruitment, budgeting and all other administrative matters.

SCFD has implemented Standard Operating Procedure 101.4, "Volunteer Management" that discusses the volunteer system and outlines various activities for the volunteer program. The SOP prescribes application, membership, and various processes of preparing volunteer staff for fire/EMS services. The SOP includes a point system for volunteer participation and qualifications beyond various OSHA, and DOT requirements as a tool to track and understand individuals' capability and limits on an emergency scene. The point system outlines required thresholds a member must reach to be operational in "hot" (dangerous) or "cold" (safe) zones, a medical operational member, or administrative support member. Points are tracked at the district level and must comply with SCFD SOP 101.4.

The Insurance Services Office (ISO) assumes that volunteers are not available for every response. ISO gives credit of one responder for every three volunteers on the roster. The number of firefighters necessary for a fire response in a rural environment is suggested as six by National Fire Protection Association (NFPA) Standard 1720. Using the ratio of one available volunteer for every three on roster means the minimum number of active, qualified volunteer personnel that should be on the roster is 18 (minus any on-shift personnel) (6 X 3 = 18). This would be the minimum as most volunteer departments have more on the roster than actively participate and more than one unit responding. The district should have enough well-trained personnel on roster to staff a typical incident. Each SCFD volunteer district has close to the 18 members available for incident staffing; some have more than that amount. However, not all volunteer personnel are active or are qualified to fight interior structure fires. The volunteer staffing is divided by district and shown in Figure 50 below:

Figure 50: Volunteer Staffing per District

District/Station	Location	Current Personnel	Active, Qualified[9]
South District	Algodones, Placitas	51	21
District 3	Zia	14	4
District 5	Cochita Mesa, La Cueva, Seven Springs, Sierra Las Pinos	31	13
District 6	Canon, Ponderosa, Jemez	21	12
District 10	Pena Blanca	18	7
District 11	La Jara, Regina	17	4
District 15	Torreon	16	9
District 16	La Madera	15	10
Total Volunteer Staff		**183**	**80**

As in career staffing, volunteer firefighter staffing can be benchmarked against regional and national agencies, as is depicted in the following graph.

Figure 51: Volunteer Firefighters per 1,000 Population[10]

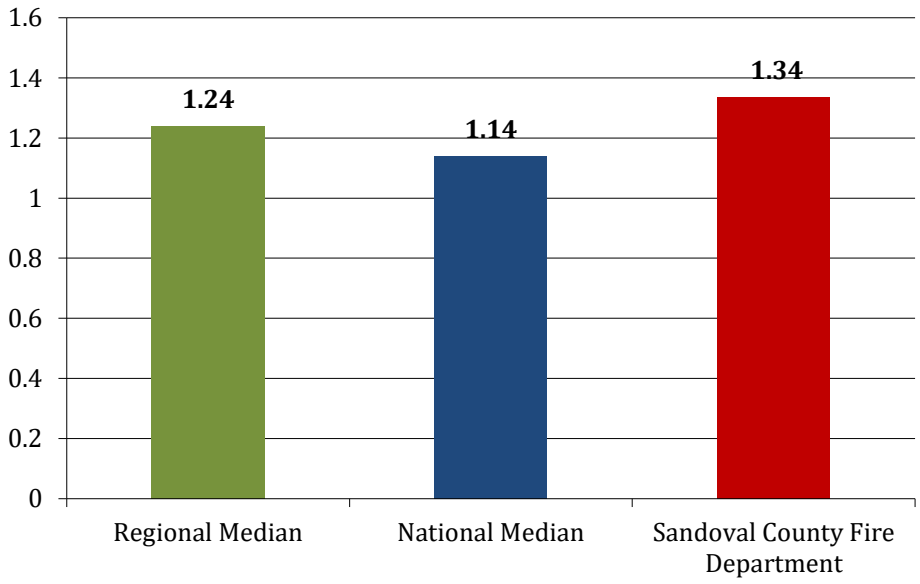


Figure 51 shows a SCFD volunteer staffing ratio of 1.34 firefighter per 1,000 population. This staffing is slightly above national and regional median.[11] SCFD staffing levels are higher because of staffing and station locations positioned to cover a large geographic area. The many districts and communities are not

[9] The number of active, qualified volunteers is fluid and can change.

[10] Command staff members calculated at 50 percent as available to respond to an incident.

[11] Data drawn from NFPA reports "U.S. Fire Department Profile- 2015" and "U.S. Fire Loss- 2015".

contiguous and therefore must be able to meet service challenges with volunteers from the nearest district. ESCI does not believe the volunteer staff is too large; in fact, the volunteer ranks should be increased with active, qualified personnel.

Recommendations:

- SCFD should implement a formal employee performance evaluation process on an annual basis for every employee.
- Implement a performance-based skills testing process for all career firefighters on an annual, calendared basis.
- Move three shift lieutenants to SUV's as shift commanders, providing supervision over both career stations and provides a Quick Response Unit capability in those situated that are triaged as such to the entire county.
- Hire three firefighter/paramedics to fill the seats on the first response units vacated by the movement of the shift lieutenants to shift commander positions.
- Maintain a minimum of 18 active, qualified volunteer staff members in each district.

TRAINING

Although the delivery of fire suppression and emergency medical services lies at the core of each department's mission, it is necessary for every emergency services agency to be supported by other activities. These activities provide the basis for employee training, education, career development, public safety education, fire prevention, and code enforcement.

Training is the acquisition of knowledge, skills, and competencies as a result of teaching new information or practicing existing abilities that come together to form a useful proficiency. One of the most cost effective, critical investments a fire agency can make is in the training and development of its personnel. The three physical resources that a fire department provides in responding to an emergency are properly located facilities, the right kind of equipment in proper working order, and skilled firefighters to perform the tasks required. In order to ensure that the firefighters are skilled, a comprehensive training program must be in place. These newly acquired skills or enhanced competencies provide firefighters with the ability to adaptively problem solve during a compressed period under significant pressure. This section evaluates the training program for the participating agencies.

For training to be fully effective, it should be based on established standards. There is a variety of sources for training standards. The following figures display that the study agency uses National Fire Protection Association (NFPA), International Fire Service Training Association (IFSTA) and New Mexico State established standards as the basis for its fire suppression training practices.

Firefighters operate in an increasingly complex, dangerous, and dynamic environment, as demonstrated by over 100 fatalities and 3,000 serious injuries annually.[12] Effective training of firefighters is the single most important factor that prepares them to meet the challenges of the situations and environments in which they work. The delivery of safe and effective fire and emergency medical services is, therefore, clearly dependent on a well-trained response force. The International Fire Service Training Association (IFSTA) states:

> *…regardless of the particular system used, an effective training program will include: (1) the continuous training of all levels of personnel in the organization; (2) a master outline or plan; (3) a system for evaluating the scope, depth, and effectiveness of the program: and (4) revising the program, as required, to include changing state and federal mandates, advances in equipment, products, and operational techniques.*

Without a high quality comprehensive training program, emergency outcomes are compromised, response personnel are at risk, and the agencies may be exposed to liability for the actions of its employees. Training and education of the various agency personnel are critical functions. Anthony Granito, author of *Fire Service Instructor's Guide*, states the following:

[12] Source: NFPA.

> *"A good training program is undoubtedly the single most important factor producing and maintaining a high proficiency in any fire department. It not only produces high efficiency initially, but also affects future efficiency when we consider that the rawest recruit now being trained may be chief of the department or at least a senior officer in 20 or 30 years."*

The function of a training program is not merely one of imparting personal knowledge and technical skills to an individual, it is developing the self-confidence to perform correctly under stressful, if not hostile, conditions. A training program must be systematic and must provide constructive feedback to the trainee, firefighter, or officer. The goals of training should always focus on performance; never merely on acquiring a certain number of training hours.

Specific key elements of an effective training program should include:

- Training administration
- Training schedules
- Training goals and objectives
- Methodology for success
- Varied types of reinforcement
- Organizational priority for training
- Training division staffing
- Training facilities
- Motivation for training
- Company operations & performance
- Member targeted training
- Peer group commitment to training

Providing quality and safe fire and emergency services requires a well-trained force. Training and education of fire department personnel are critical functions for both career and volunteer SCFD staff, and is an essential foundation for a safe and efficient agency. Without quality, well led, comprehensive training programs, emergency outcomes are compromised and departmental personnel are at risk.

> *Communities choose to provide emergency response services for protection of the entire community. Communities then have expectations that the services will be available and effective when they are needed. In turn, fire and emergency service personnel have an obligation to develop and maintain appropriate skills. When a citizen's life, family, or property is threatened, firefighters who perform well under these difficult conditions will earn the highest respect and admiration for the fire department, and community support of the department will be strengthened. But when firefighters are not trained well enough to perform as expected, community respect and support can disappear. Many times the difference is in the training that the responders have received.*[13]

[13] Laughlin, Jerry W. *Fire Protection Handbook*, 20th Edition, 2008. NFPA, Quincy, MA.

General Training Competencies

General training competencies in SCFD appear mostly adequate with attention given to key areas such as Incident Command System (ICS) certification levels for responders and on scene accountability systems established and used for emergency scene personnel tracking. There are agency wide standard operating guidelines (SOGs) in use for training, including the volunteer and career staff. Staff is trained at various operational levels such as special rescue procedures, hazardous materials response, wildland, vehicle extrication and defensive driving. Recruit training academies are conducted as necessary for career staff and two times per year for volunteer recruits. Task books are utilized for all new career recruits. The eight district chiefs manage and monitor volunteer recruit training and follow SCFD SOP Volunteer Management 101.4.

Training Methodology, Operation and Performance

SCFD standards require career staff to receive a minimum of 32 hours per year off duty for fire training, an additional 32 hours per year off duty for EMS training, and volunteer staff to train a minimum of two hours per month. Interviews revealed many staff members desire more opportunities for training and, in a few cases, believe they are under prepared for the job. Career staff members currently do not meet ISO requirements for training scores due to low opportunities to actually train and/or members not recording training hours. However, when ISO scores are blended with volunteer staffing training records the overall ISO score increases to an acceptable standard. ESCI believes there is an opportunity to take advantage of higher ISO scoring if certain steps are taken regarding training.

Generally, the command staff regards and places training as a high priority but not all available opportunities are explored to support the priority. According to ESCI interviews, manipulative skills training and task performance measurements are intermittent or not completed due to budget issues. The main reason is a perceived limitation of scheduling on duty (active) apparatus and equipment for training and the belief they would be unavailable to respond during a training session. ESCI contends this is less a budget issue and more a planning issue. Therefore, this area of deficiency should immediately be addressed. There are methods available for staff to plan and execute training using on duty resources and personnel, and be available to respond to incidents. It appears there is enough reserve apparatus and other equipment that can be used on the training grounds to provide more manipulative, multi-unit/station, and scenario based training without taking front line resources out of service in the event of an emergency.

Recruit training is outlined in a training manual that details all subject matter, courses, and required time spent in each area. There must be a total of 50 hours of study for career recruits, including task book assignments. ESCI found there is no initial manipulative training for volunteer recruits, which by most standards is an important element to firefighter skills. Familiarity of SCFD evolutions and equipment results in an improved foundation for the recruit whether career or volunteer. It appears on-going volunteer member training is well developed and regularly conducted with leadership provided by district chiefs. However, district chiefs are concerned about centralized training at Station 21 rather than at the local districts. With travel times added to the commute for volunteers, it becomes a much larger commitment for the volunteers, potentially reducing enthusiasm for maintaining their volunteer status.

An emphasis on hands-on training at the local districts has logistical challenges, but must be a priority. The district chiefs are requesting Firefighter 1 refresher training, hazardous materials training and other skills maintenance topics, but do not often have the skills within the district to teach them independently. This places a burden on SCFD to provide county standardized hands on training offered locally. The Assistant Chief for Volunteer Recruitment & Retention has been providing training support on an as-requested basis by the district chiefs, but likely at the expense of volunteer recruitment. An Assistant Chief of Training working with the Assistant Chief of Volunteer Recruitment and Retention becomes a complete solution for local training demands in the districts as well as for the career staff. Care must be taken to prevent locally tailored training at each district from becoming eight separate approaches to an emergency. It is imperative that training be conducted to a consistent standard for each of the eight districts.

Training Administration

The SCFD command staff, district chiefs, and lieutenants plan and execute training on a needed basis. There is no single member assigned to focus on managing and administering training. As a result, there is no annual training plan, no SCFD specific training standard, and no monthly training schedule/calendar in place. ESCI considers this an area of significant needed improvement. Firefighter training is a major foundation to support safe operations. According to the fire chief, a training officer position has been requested for a number of budget years and now resides in the County five-year budget plan. This position should be immediately created and filled. The position must have sufficient rank to have the authority to enforce the training standards once created. Specifically, one of the vacant deputy chief positions should be under-filled with an assistant chief/training officer.

Annual training hours are tracked and input into the Image Trends computer system, however, command staff believe not all hours are being input and that training time may be occurring and not all accounted for. This would appear to be an internal training issue with staff members. Lesson plans are used during formal class training and occasionally there are night drill training sessions conducted.

Inter-station and multi-agency training drills are an essential component to quality training. Crews learn how to work together, become familiar with nearby agency equipment, and clarify the command structure on an emergency scene. It is neither prudent nor safe to learn how to work together during an emergency incident. ESCI recommends SCFD begin scheduling inter-station training with career and volunteer units where possible. In addition, SCFD should reach out to Rio Rancho, Bernalillo, and other agencies to schedule and conduct multi agency training.

SCFD staff should be commended for their priority and attention to safety. Interviews suggest there are few injuries sustained during operations and the command staff has a high regard to keep firefighters safe and healthy, despite the lack of training as stated above. Another positive area is post-incident analyses. These analyses are conducted after incidents such as structure fires or other complex incidents using a lessons-learned approach and can be initiated by any member.

Training Facilities

SCFD has a new, modern training tower facility, includes multiple prop systems, and an engine pump-testing pit. Live fire training is not supported at the facility; however, SCFD staff can access fire training at the New Mexico State Training Academy in Socorro. Training at this facility must be sponsored by SCFD, which requires that personnel are compensated while attending, making these options too expensive to routinely rely upon. Emergency driving grounds are available for drivers training, and most SCFD fire facilities have adequate classrooms for training (except some northern volunteer stations).

All instructional materials, print media, and computer-based systems (Target Solutions) are available for each member. Volunteer staff can also access these programs, but some have reported not having adequate training in computer use to use some of these resources. Training equipment is not inventoried and tracked. Training equipment is an expensive capital investment and should be monitored and regularly inventoried. ESCI recommends SCFD implement an inventory system for training equipment in all facilities.

Recommendations:

- Manipulative skills training and the use of the training tower are reported as infrequent because of budgeting. Re-examine the calendar, budget and operational systems to support more manipulative training.
- Implement a training officer position for training program development, scheduling, delivery, and evaluation by under-filling a vacant deputy chief position with a new Assistant Chief of Training position.
- Improve data collection from members related to hours training and input into Image Trend system.
- Begin discussions with neighboring agencies to initiate formal, scheduled multi agency training activities on a regular basis.
- Imbed additional manipulative skills training into new career recruit training.
- Set annual training goals and objectives.
- Develop a monthly training calendar that includes mandatory daily training for each member.
- Annual training report should be considered as part of the fire department annual report to community.
- Consider scheduling live fire training at Socorro for staff through the year.
- Implement an inventory system for training equipment and conduct an inventory annually.
- Initiate a training program for volunteer staff, which includes hands-on skills.

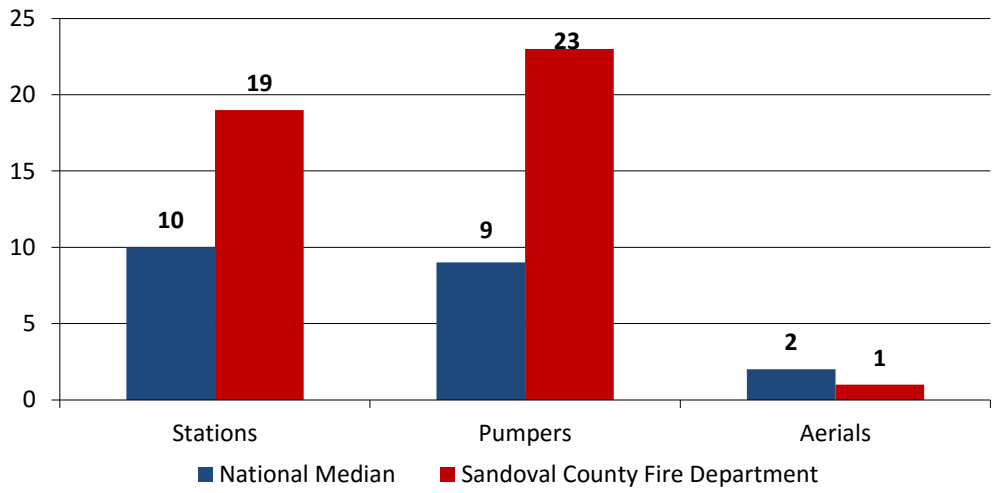
CAPITAL ASSETS

Regardless of an emergency service agency's financial capabilities, if appropriate capital equipment is not available for the use by responders, it is impossible for a fire department to deliver services effectively. Two primary capital assets that are essential to the provision of emergency response are facilities and apparatus (response vehicles).

SCFD maintains a balance of three basic resources needed to carry out its emergency mission: People, equipment, and facilities. Because firefighting is an extremely physical pursuit, the adequacy of personnel resources is a primary concern; but no matter how competent or numerous the firefighters are, the department will fail to execute its mission if it lacks sufficient fire apparatus distributed in an efficient manner.

The department maintains 20 fire stations, many vehicles, representing millions of dollars' worth of capital assets. These assets are necessary to provide service and must be maintained and replaced as needed. A comparison of SCFD major capital assets, fire stations, pumpers (engines) and aerial trucks are displayed in the following figure, mirrored against national median data.

Figure 52: Capital Assets per 1,000 Population



Relative to national comparators, SCFD compares high in regard to number of fire stations and pumpers than similar-sized organizations, based on population. It should be noted that the Sandoval County population is spread out over 3,700 square miles in various centers and pueblos. Fire stations, equipment, and staff members are located near the population clusters. Using the population factor is only one indicator, and should be considered as such. It is the opinion of ESCI, that the number of facilities and apparatus covering the county areas appears adequate.

Facilities

Fire stations play an integral role in the delivery of emergency services for a number of reasons. A fire station's location will dictate, to a large degree, response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure. Fire stations also need to be designed to adequately house equipment and apparatus, as well as meet the needs of the organization, the community served, and the personnel assigned to these stations. It is important to research need based on call volume, response time, types of emergencies, and projected growth prior to making a station placement commitment.

ESCI toured all SCFD fire stations and found most facilities are well kept, in good condition, and adequate. The administrative office building is beyond capacity for staff operations, is not suitable for daily activities, and is technically located outside SCFD response area. Together with county staff, SCFD should begin planning for a new larger office space.

Fire station 43, which houses a full time staff of two firefighters daily, the county EOC center, and a backup communications center, does not appear to have backup generator power. This should be immediately rectified in order to provide uninterrupted power in the event of a power failure.

It was noted through interviews and site visits that there is no inventory for various equipment provided to and stored in fire stations. ESCI recommends implementation of an inventory system for all equipment located in fire stations, e.g. supplies, hose, tools, small power equipment, etc. This will enable the SCFD to track assets and ensure equipment is located where it needs to be to best serve the needs of the communities.

The following figures summarize ESCI's non-engineering/non-architectural review of each facility within the SCFD study area.

Figure 53: Sandoval County Fire Department Administrative Offices

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Brick/stucco
Date	1970
Seismic protection/energy audits	No
Auxiliary power	Generator
Condition	Poor condition Facility is over capacity for staff positions and office space.
Special considerations (ADA, mixed gender appropriate, storage, etc.)	No
Square footage	1500
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Conference Room meeting area	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	Yes
Security, locked doors	Yes
Apparatus exhaust system	No

Figure 54: Station 21 – Santa Ana Pueblo

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Steel Frame with Stucco
Date	2012
Seismic protection/energy audits	No
Auxiliary power	Generator
Condition	Excellent, The department flagship station
Special considerations (ADA, mixed gender appropriate, storage, etc.)	Mixed gender and ADA compliant
Square footage	13,172
FACILITIES AVAILABLE	
Exercise/workout	Yes
Kitchen/dormitory	Yes/Yes
Lockers/showers	Yes/Yes
Training/meetings	Yes/Yes
Washer/dryer	Yes/Yes
FACILITIES AVAILABLE	
Sprinkler system	Yes
Smoke detection	Yes
Security	No
Apparatus exhaust system	Yes

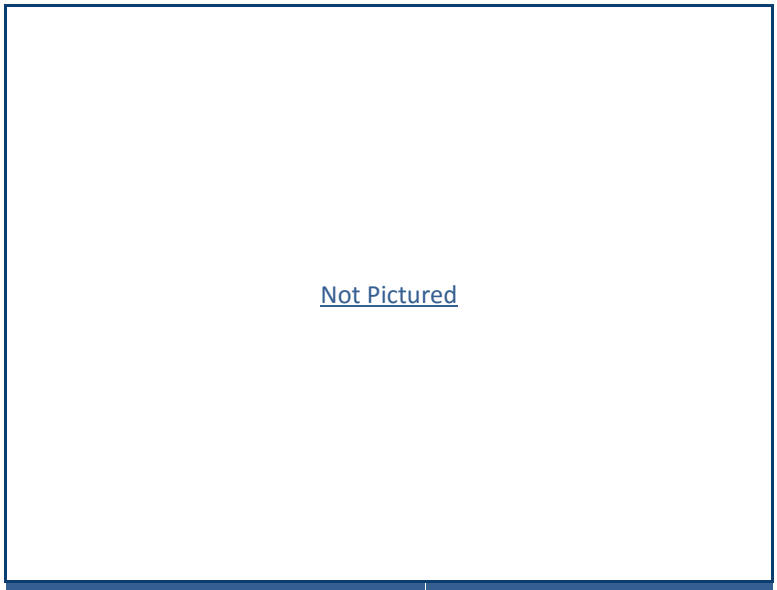
Figure 55: Station 22 -- Algodones

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Clad/ Wood Frame
Date	1990, approximate
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Fair
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA No mixed gender rooms
Square footage	5,550
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	Yes/Yes
Lockers/showers	Yes/Yes
Training/meetings	No/No
Washer/dryer	No/No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	Yes
Security	No
Apparatus exhaust system	No

Figure 56: Station 25 – Pena Blanca

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Building
Date	1990, approximate
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA compliant
Square footage	4,800
FACILITIES AVAILABLE	
Exercise/workout	Limited area
Kitchen/dormitory	Small kitchen no dorm
Lockers/showers	No shower
Training/meetings	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 57: Station 28 – La Madera



SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Building
Date	2001
Seismic protection/energy audits	No
Auxiliary power	Yes
Condition	Excellent
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA compliant
Square footage	4,000
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	Yes, small kitchen
Lockers/showers	No
Training/meetings	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 58: Station 31 – Zia Pueblo

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Frame Building
Date	1970 The Pueblo of Zia owns the building and is building a brand new station in 2016.
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Poor
Special considerations (ADA, mixed gender appropriate, storage, etc.)	None
Square footage	2,000
FACILITIES AVAILABLE	
Exercise/workout	Some exercise equipment
Kitchen/dormitory	Small kitchen
Lockers/showers	None
Training/meetings	Yes, a small training room
Washer/dryer	None
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 59: Station 41 -- Placitas

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Frame/ Metal Frame
Date	1994 with addition in
Seismic protection/energy audits	No
Auxiliary power	Yes, generator
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA no bunk room
Square footage	10,000
FACILITIES AVAILABLE	
Exercise/workout	Yes
Kitchen/dormitory	Small Kitchen
Lockers/showers	No
Training/meetings	Yes
Washer/dryer	Yes
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 60: Station 42 – Placitas (Perdiz Canyon)

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Construction (Old Military Building)
Date	1940's, moved to site in 1970's
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Fair
Special considerations (ADA, mixed gender appropriate, storage, etc.)	None
Square footage	3,000
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	Yes/Yes not in use
Lockers/showers	Yes, not in use
Training/meetings	No
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	NO
Apparatus exhaust system	No

Figure 61: Station 43 -- Placitas

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Stud/ Stucco
Date	2010
Seismic protection/energy audits	No
Auxiliary power	No, this should be immediately corrected
Condition	Excellent
Special considerations (ADA, mixed gender appropriate, storage, etc.)	Yes
Square footage	9,000
FACILITIES AVAILABLE	
Classroom	Large, well-appointed classroom facility (EOC room)
Exercise/workout	Yes, limited
Emergency Operations Center	Located in station, also dispatch back up
Kitchen/dormitory	Yes/Yes
Lockers/showers	Yes/Yes minimal closet storage available
Training/meetings	Yes/ Emergency Operations Center
Washer/dryer	Yes
Sprinkler system	Yes
Smoke detection	Yes
Security	No

Apparatus exhaust system	Yes

Figure 62: Station 46 – District 11 (Regina)

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Frame
Date	1980
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good, current renovation for underway for living quarters and office area
Special considerations (ADA, mixed gender appropriate, storage, etc.)	Yes
Square footage	4,800
FACILITIES AVAILABLE	
Exercise/workout	Yes
Kitchen/dormitory	Yes/ No
Lockers/showers	Yes/ Yes
Training/meetings	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

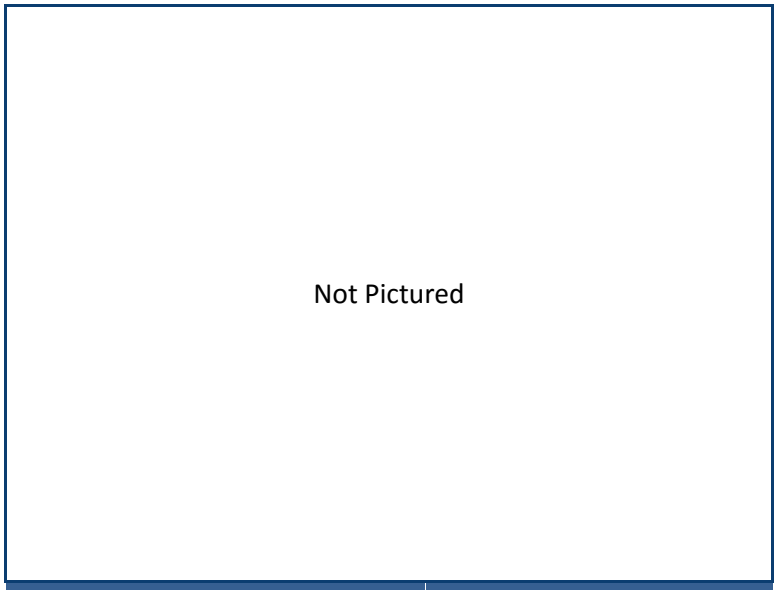
Figure 63: Station 47 – La Jara

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Staffing configuration	Volunteer
Construction type	Metal Stud with Stucco
Date	2011
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Great
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA compliant
Square footage	4,800
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	Yes/ No
Lockers/showers	Yes
Training/meetings	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 64: Station 48 -- Torreon

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Stud
Date	2009
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Excellent
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA
Square footage	4,800
FACILITIES AVAILABLE	
Exercise/workout	Limited
Kitchen/dormitory	Yes/No
Lockers/showers	No/No
Training/meetings	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 65: Station 51 – La Cueva



SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Frame
Date	1980's Due for a renovation and training room
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA
Square footage	4,880
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Training/meetings	Yes
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

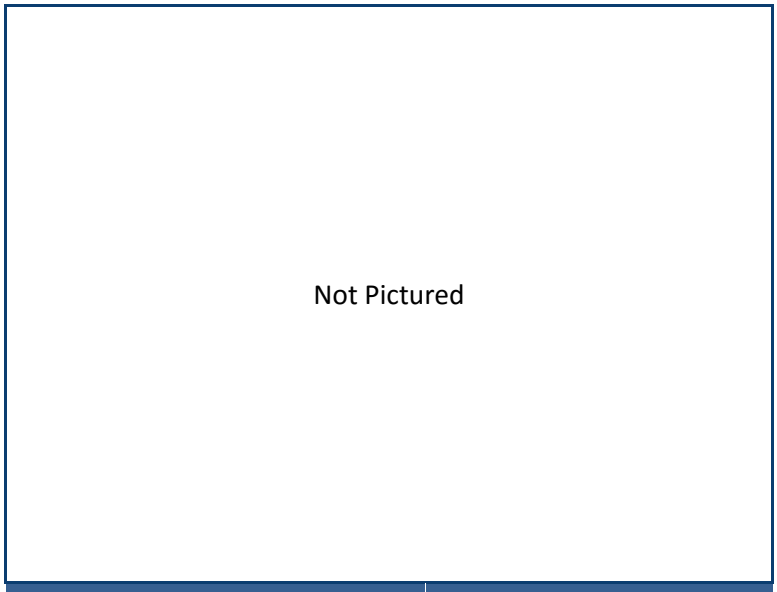
Figure 66: Station 52 – Sierra Los Pinos

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Frame
Date	1990's
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA
Square footage	4,220
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Training/meetings	Yes
Washer/dryer	No
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 67: Station 53 – Thompson Ridge

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Wood Frame
Date	1990's
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	None
Square footage	1,600
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Training/meetings	No
Washer/dryer	No
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 68: Station 54 – Cochiti Mesa (closed due to fire)



SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Building
Date	2001
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Not usable (burned in forest fire in 2011 and closed after)
Special considerations (ADA, mixed gender appropriate, storage, etc.)	Building is used for storage only
Square footage	1,600
FACILITIES AVAILABLE	
Exercise/workout	NA
Kitchen/dormitory	NA
Lockers/showers	NA
Training/meetings	NA
Washer/dryer	NA
FACILITIES AVAILABLE	
Sprinkler system	NA
Smoke detection	NA
Security	NA
Apparatus exhaust system	NA

Figure 69: Station 55 – Seven Springs

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Building
Date	2001
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA
Square footage	1,600
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Training/meetings	No
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 70: Station 61 -- Ponderosa

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Frame/Wood Frame
Date	1996
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	ADA
Square footage	4,800
FACILITIES AVAILABLE	
Exercise/workout	Yes
Kitchen/dormitory	Small kitchen
Lockers/showers	No
Training/meetings	Yes
Washer/dryer	Yes
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

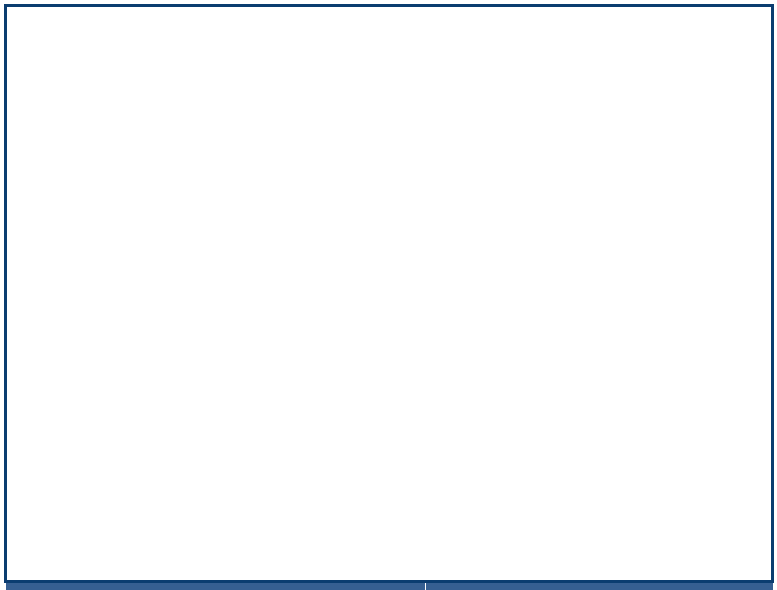
Figure 71: Station 62 -- Canon

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Frame, Sub Station with truck bays only
Date	1999
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	None
Square footage	2,400
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Training/meetings	No
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No
Sub Station with truck bays only	Yes

Figure 72: Station 63 – San Ysidro

SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Frame
Date	1980's
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Good
Special considerations (ADA, mixed gender appropriate, storage, etc.)	None
Square footage	1,600
FACILITIES AVAILABLE	
Exercise/workout	No
Kitchen/dormitory	No
Lockers/showers	No
Training/meetings	Yes, next door
Washer/dryer	No
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Figure 73: Station 64 – Jemez Pueblo



SURVEY COMPONENT	OBSERVATIONS
STRUCTURE	
Construction type	Metal Frame
Date	2015
Seismic protection/energy audits	No
Auxiliary power	No
Condition	Excellent
Special considerations (ADA, mixed gender appropriate, storage, etc.)	Yes
Square footage	2,400
FACILITIES AVAILABLE	
Exercise/workout	Next door
Kitchen/dormitory	Next door
Lockers/showers	No
Training/meetings	Next door
Washer/dryer	Next door
FACILITIES AVAILABLE	
Sprinkler system	No
Smoke detection	No
Security	No
Apparatus exhaust system	No

Apparatus

Fire apparatus are typically unique pieces of equipment, often very customized to operate efficiently in a narrowly defined mission. A pumper may be designed such that the compartments fit specific equipment and tools, with virtually every space on the truck designated in advance for functionality. This same vehicle, with its specialized design, cannot be expected to function in a completely different capacity, such as a wildland engine, hazardous materials unit or a rescue squad. For this reason, fire apparatus offers little flexibility in use and reassignment. As a result, communities across the country have sought to achieve the longest life span possible for these vehicles.

Unfortunately, no mechanical piece of equipment can be expected to last forever. As a vehicle ages, repairs tend to become more frequent, parts more difficult to obtain, and downtime for repair increases. Given the emergency mission that is so critical to the community, this factor of downtime is one of the most frequently identified reasons for apparatus replacement.

Because of the large expense of fire apparatus, most communities find the need to plan for the cost of replacement. To do so properly, agencies often turn to the long-accepted practice of establishing a life cycle for the apparatus that result in a replacement date anticipated well in advance. Forward thinking organizations then set aside incremental funds during the life of the vehicle so replacement dollars are ready when needed.

ESCI observed district vehicles and generally found them to be well maintained and generally in good condition. The figure below is a listing of fire vehicles including year purchased, make/model, and general condition.[14]

[14] Vehicle condition data provided through interviews with SCFD command staff.

Figure 74: SCFD Administrative Apparatus

SCFD Administration Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
CO1	UNIT/SUV	2015	Chevy Tahoe	Good
Medic 21	AMBULANCE	2014	DODGE 4500	Good
Medic 23	AMBULANCE	2014	DODGE 4500	Good
Squad Fast Attack	ENG/SQUAD	2014	FORD F550	Good
C-5	UNIT/SUV	2014	FORD EXPLORER	Good
C-3	UNIT/SUV	2013	FORD F150 4X4	Good
Medic 22	AMBULANCE	2012	FORD F450 4X4 (HORTON BOX)	Fair
Medic 44	AMBULANCE	2012	FORD F450 4X4 (HORTON BOX)	Fair
C-4	UNIT/SUV	2012	FORD F150 4X4	Good
C-2	UNIT/PICK UP	2009	FORD F150	Fair
C-13	UNIT/PICK UP	2008	FORD F250 4X4	Fair
U-99	UNIT/SUV	2008	FORD EXPIDITION	Fair
Unit 71	RV	2005	CHEVY MOBILE COMMAND UNIT	Good
CO6	UNIT/PICK UP	2005	FORD F150 PICKUP	Fair
MD-11	UNIT/SUV	2004	FORD EXPLORER	Good
U-21	UNIT/SUV (POOL)	2004	FORD EXPEDITION	Fair
Chaplain	UNIT/SUV	2004	FORD EXPEDITION	Fair

Figure 75: South District

South District Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
Squad 21 Fast Attack	ENG/SQUAD	2014	FORD F550	Good
Brush 41	ENGINE, BRUSH	2014	FORD F550 4X4	Good
Brush 22	ENGINE, BRUSH	2012	FORD F550 4X4	Good
Tender 43	TENDER	2012	INTERNATIONAL 7400 WORKSTAR	Good
U-22	UNIT/PICK UP	2012	FORD F150 4X4	Good
Engine 43	ENGINE	2011	INTERNATIONAL 7400 WORKSTAR	Good
AIR-21	UNIT/PICK UP	2009	FORD F450	Good
Engine 22	ENGINE	2008	INTERNATIONAL 7400 WORKSTAR	Fair
Fuel21	SUPPORT	2008	FORD F350 4X4, RESCUE	Good
Tender 22	TENDER	2008	INTERNATIONAL 7400 WORKSTAR	Good
U-41	UNIT/SUV	2008	FORD EXPEDITION	Good
U-43	UNIT/SUV	2008	HONDA CRV	Good

South District Apparatus				
Apparatus Designation	Type	Year	Make / Model	Condition
U-42	UNIT/SUV	2008	FORD EXPIDITION	Fair
U-44	UNIT/SUV	2008	FORD EXPIDITION	Fair
Truck 21	ENG/LADDER	2007	SPARTAN 75ft AERIAL	Good
Engine 41	ENGINE	2006	INTERNATIONAL 4400	Good
Rescue 41	AMBULANCE Vol	2002	FORD RESCUE AMBULANCE	Fair
Engine 42	ENGINE	1996	INTERNATIONAL 4900	Good
Rescue 42	AMBULANCE Vol	1996	FORD RESCUE	Fair
Tech21	AMBULANCE	1996	CHEVY RESCUE	Poor
Brush 43	ENGINE, BRUSH	1996	FORD BRUSH PICKUP	Fair
HAZMAT21	SERVICE	1996	FORD UTILITY F250 PICKUP	Poor
Tender 21	TENDER	1996	GMC TENDER	Fair
Tender 42	TENDER	1995	INTERNATIONAL TENDER	Fair
Tender 41	TENDER	1995	INTERNATIONAL TENDER	Fair
Service 41	SERVICE	1994	CHEVY 1 TON PICKUP, SERVICE	Poor
Engine 44	ENGINE	1993	INTERNATIONAL, ENGINE	Fair

Figure 76: District 3 Apparatus

District 3 Apparatus				
Apparatus Designation	Type	Year	Make / Model	Condition
U-31	UNIT/SUV	2004	CHEVY TAHOE	Fair
Brush 31	ENGINE, BRUSH	2003	FORD F550 BRUSH PICKUP	Good
Engine 31	ENGINE	1996	GMC FIRE ENGINE	Fair

Figure 77: District 5 Apparatus

District 5 Apparatus				
Apparatus Designation	Type	Year	Make / Model	Condition
U-52	UNIT/SUV	2013	FORD F150 4X4	Good
Brush 53	ENGINE	2011	FORD F550	Good
Engine 55	ENGINE	2010	INTERNATIONAL 7400 WORKSTAR	Good
U-51	UNIT/SUV	2009	CHEVROLET SUBURBAN	Good
Rescue 51	AMBULANCE Vol	2008	HORTON	Good
Tender 52	ENG/TENDER	2008	INTERNATIONAL 7400 WORKSTAR	Good
Brush 51	ENGINE, BRUSH	2008	FORD F550, 4x4, REG CAB	Good

District 5 Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
Engine 51	ENGINE	2007	INTERNATIONAL 7400 WORKSTAR 4X4	Good
Brush 55	ENGINE, BRUSH	2004	FORD F550	Good
Tender 51	TENDER	2004	FREIGHTLINER	Good
Rescue 52	AMBULANCE Vol	2002	FORD EXCURSION, RESCUE	Good
Service 51	SERVICE	1999	FORD F350, SERVICE	Fair
Engine 52	ENGINE	1996	FREIGHTLINER FL80	Good
Tender 53	TENDER	1996	FREIGHTLINER TANKER	Good
Engine 53	ENGINE	1995	FREIGHTLINER FL80	Good
Unit 53	PLOW TRUCK	1987	DODGE, BRUSH	Fair
Engine 54	ENGINE	1986	GMC 7000	Fair
Brush 52	ENGINE, BRUSH	1979	GMC SIERRA	Fair
Tender 54	TENDER	1974	AMERICAN GENERAL	Fair

Figure 78: District 6 Apparatus

District 6 Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
U-64	UNIT/SUV	2016	FORD F150 4x4	Good
Rescue 64	AMBULANCE Vol	2014	FORD F-350	Good
Squad 64 Fast Attack	ENG/SQUAD	2014	FORD F550	Good
Brush 62	ENGINE, BRUSH	2008	FORD F550, 4X4, SUPERCREW	Good
Engine 64	ENGINE	2007	INTERNATIONAL 7400 WORKSTAR	Good
Tender 61	TENDER	2007	INTERNATIONAL 7400 WORKSTAR	Good
Tender 62	TENDER	2007	INTERNATIONAL 7400 WORKSTAR	Good
U-64	UNIT/SUV	2007	FORD EXPIDITION	Good
SR-61	UNIT/PICK UP	2003	FORD F550 UTILITY PICKUP	Good
Engine 61	ENGINE	1996	GMC FIRE ENGINE	Good
Engine 62	ENGINE	1996	GMC TOPKICK	Good
Tender 63	TENDER	1996	GMC TOPKICK	Good
Engine 63	ENGINE	1993	INTERNATIONAL, ENGINE	Good

Figure 79: District 10 Apparatus

District 10 Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
U-25	UNIT/PICK UP	2012	FORD F150 4X4	Good
Engine 25	ENGINE	2008	INTERNATIONAL 7400 WORKSTAR	Good
Tender 25	ENG/TENDER	2008	INTERNATIONAL 7400 WORKSTAR	Good
Brush 25	ENGINE, BRUSH	2008	FORD F550, 4X4, SUPERCREW	Good
Rescue 25	AMBULANCE Vol	2002	02 FORD F350 XLT RESCUE	Poor
Tender 25-2	TENDER	1996	GMC TENDER	Good
Engine 25-2	ENGINE	1985	FORD C-3000	Fair

Figure 80: District 11 Apparatus

District 11 Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
Rescue 46	AMBULANCE Vol	2014	FORD F-350	Good
Squad 46 Fast Attack	ENG/SQUAD	2014	FORD F550	Good
U-46	UNIT PICK UP	2011	FORD F150 4X4	Good
Engine 46	ENGINE	2008	INTERNATIONAL 7400 WORKSTAR	Good
Tender 46	TENDER	2008	INTERNATIONAL 7400 WORKSTAR	Good
U-47	UNIT/SUV	2008	FORD EXPEDITION	Good
Engine 47	ENGINE	1996	GMC C-60, ENGINE	Good
Rescue 47	AMBULANCE Vol	1996	FORD F350, RESCUE	Fair
Brush 47	ENGINE, BRUSH	1996	CHEVY 3500, BRUSH	Fair
Tender 47	TENDER	1989	INTERNATIONAL, TENDER	Fair
Brush 46	ENGINE, BRUSH	1988	CHEVY 3500, BRUSH	Fair
Rescue 46	AMBULANCE Vol	2014	FORD F-350	Good
Squad 46 Fast Attack	ENG/SQUAD	2014	FORD F550	Good

Figure 81: District 15 Apparatus

District 15 Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
Engine 48	ENGINE	2008	INTERNATIONAL 7400 WORKSTAR 4X4	Good
Rescue 48	AMBULANCE Vol	2008	FORD F350 4X4	Good
Tender 48	ENGINE, TENDER	2008	INTERNATIONAL 7400 WORKSTAR 4X4	Good
U-48	UNIT/PICK UP	2003	FORD F250 PICKUP	Fair
U-49	UNIT/PICK UP	2003	FORD F150 XLT PICKUP	Fair
Brush 48	ENGINE, BRUSH	1997	FORD F350 BRUSH PICKUP	Fair
Brush 54	ENGINE, BRUSH	1994	CHEVY	Fair

Figure 82: District 16 Apparatus

District 16 Apparatus				
Apparatus Designation	**Type**	**Year**	**Make / Model**	**Condition**
U-28-2	UNIT/SUV	2014	FORD F150 4X4	Good
Rescue 28	AMBULANCE Vol	2008	FORD F350 4X4, RESCUE	Good
Service 28	PICK UP	2008	FORD F250, 4X4, REG CAB	Good
Tender 28	TENDER	2008	INTERNATIONAL 7400 WORKSTAR	Good
U-28	UNIT/SUV	2004	CHEVY TAHOE	Fair
Squad 28 Fast Attack	ENGINE	2002	FORD F550 SQUAD	Fair
Brush 28	ENGINE, BRUSH	2001	FORD F350 XLT BRUSH PICKUP	Fair
Tender 28-2	TENDER	1999	INTERNATIONAL TENDER	Good
Engine 28	ENGINE	1998	GMC ENGINE	Good

SERVICE DELIVERY AND PERFORMANCE

The most important aspect of any emergency services agency is its ability to deliver services when requested. This section of the report evaluates the current and historical service delivery elements of demand, distribution, concentration, reliability, and response performance. The following districts are abbreviated throughout this section as follows:

La Cueva Fire District -- LCFD

La Madera Fire District -- LMFD

Pena Blanca Fire District -- PBFD

Ponderosa Fire District -- PFD

District 11 (RFD) -- RFD

South Fire District -- SFD

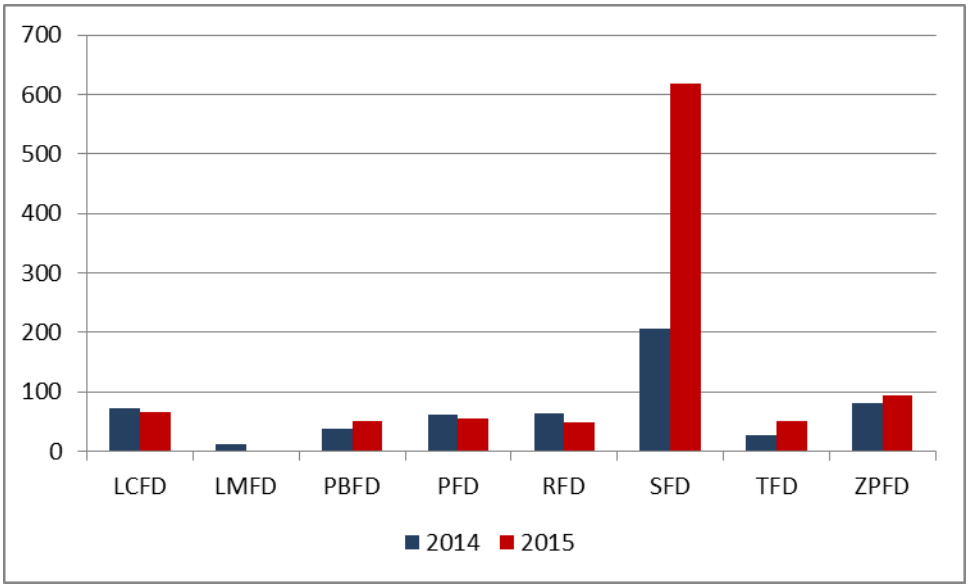
Torreon Fire District -- TFD

Zia Pueblo Fire District -- ZPFD

Demand

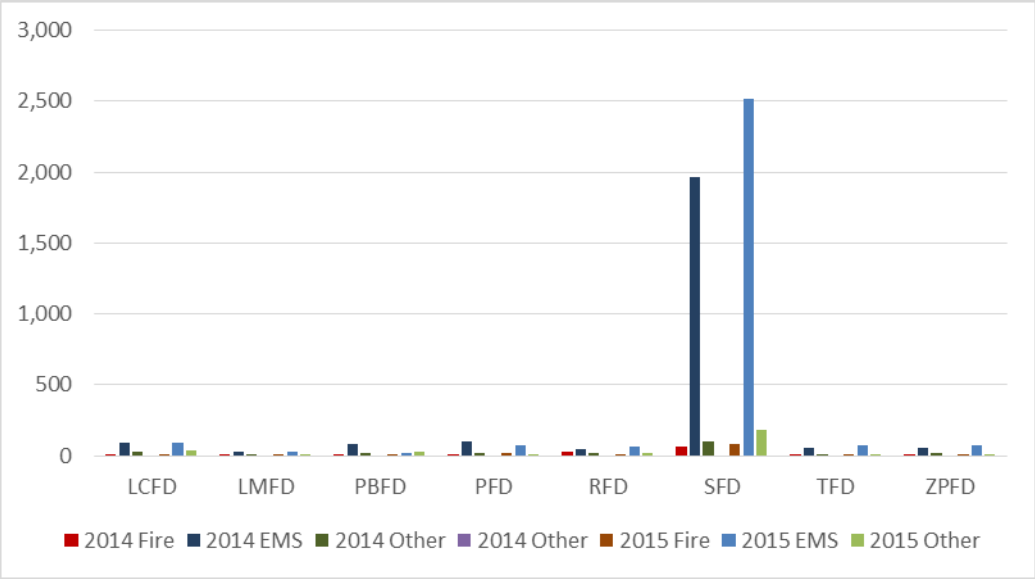
Service demand can be measured or defined in a number of ways. For the purposes of this report, consider service demand as all incidents responded to by the study districts. ESCI reviewed two years of available call data to determine how service demand has changed over the past several years. The data provided by client representatives separated into emergency medical services incidents and fire incidents. Since not all of the study districts participate in EMS, these incident types are presented separately, beginning with fire incidents, which include all non-transport medical responses such as first responder, alarms, assists, and service calls.

Figure 83: Overall Service Demand History



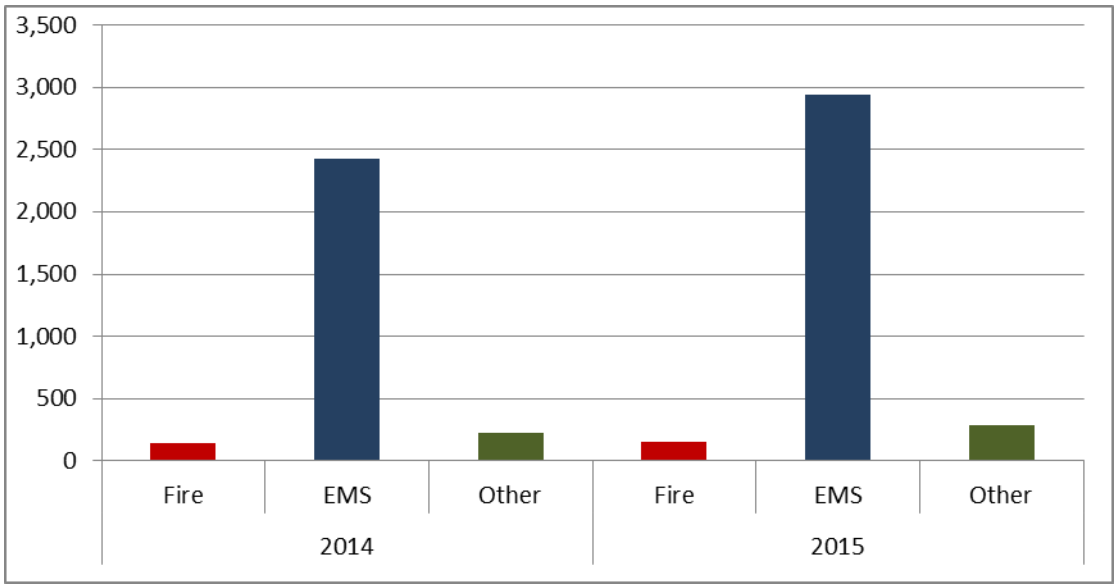
Based on this analysis, the overall rate of service demand has increased 26.6 percent from 2014 to 2015. A majority of this increase is due to SFD's total demand, which changed a dramatic 92.6 percent over the data period. A majority of this increase was in medical first responder incidents and is more likely due to a change in incident reporting than actual service demand increases. This is detailed further as total service demand is reviewed based on primary incident category as shown below by district.

Figure 84: District Service Demand by Category



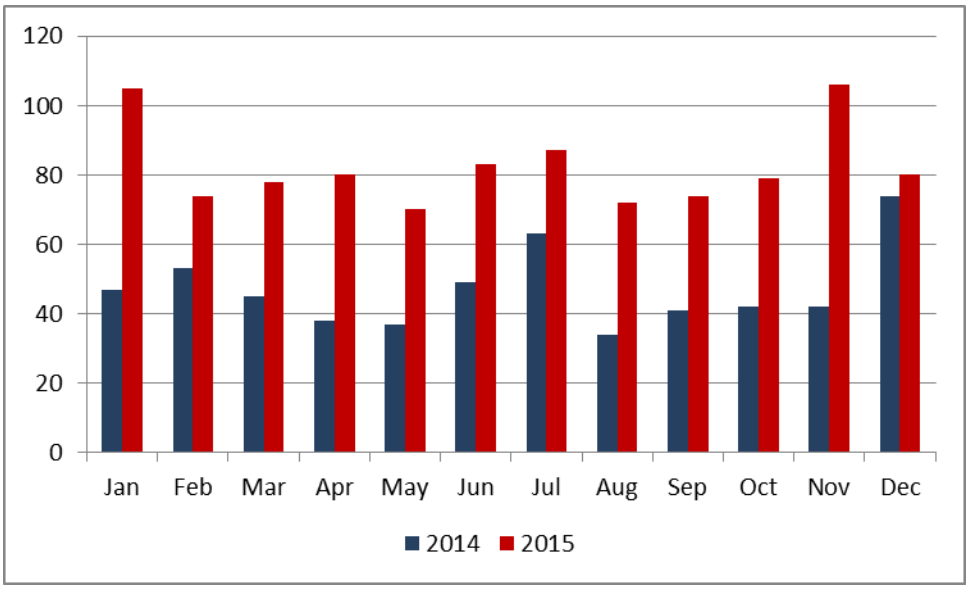
Since the volume of SFD incidents tends to overshadow the other districts, this information was also reviewed as an aggregate as shown in the following figure.

Figure 85: South Fire District Overall Service Demand by Category



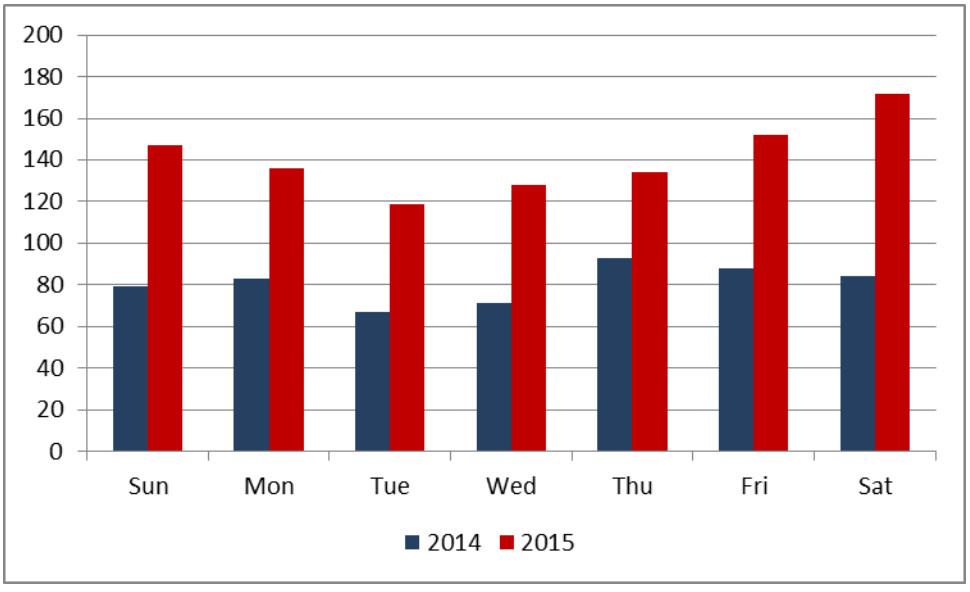
This type of analysis indicates that the region as a whole saw an increase of nearly 21 percent in the medical category; again, likely due to a change in how these incidents are reported. When this information is viewed temporally, beginning with monthly service demand, it is clear that there is little in the way of a trend regarding monthly service demand over the two-year period.

Figure 86: Sandoval County Fire Department Service Demand by Month



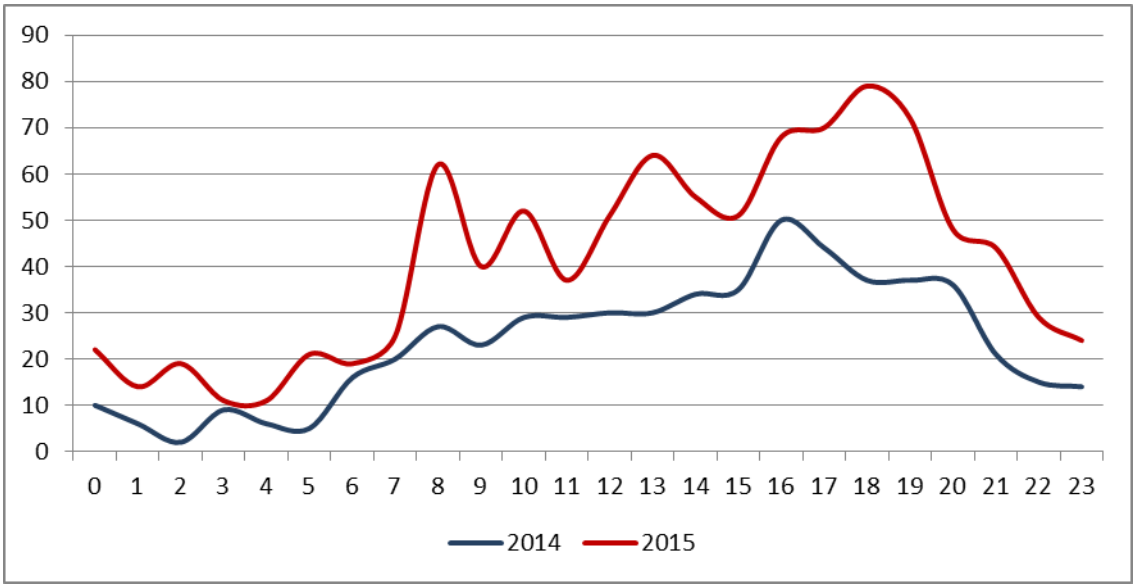
The same is true from a monthly perspective as shown in the following figure.

Figure 87: Sandoval County Fire Department Service Demand by Day of Week



When viewing the data by hour of day, however, it is apparent that service demand across the region is driven by human activity.

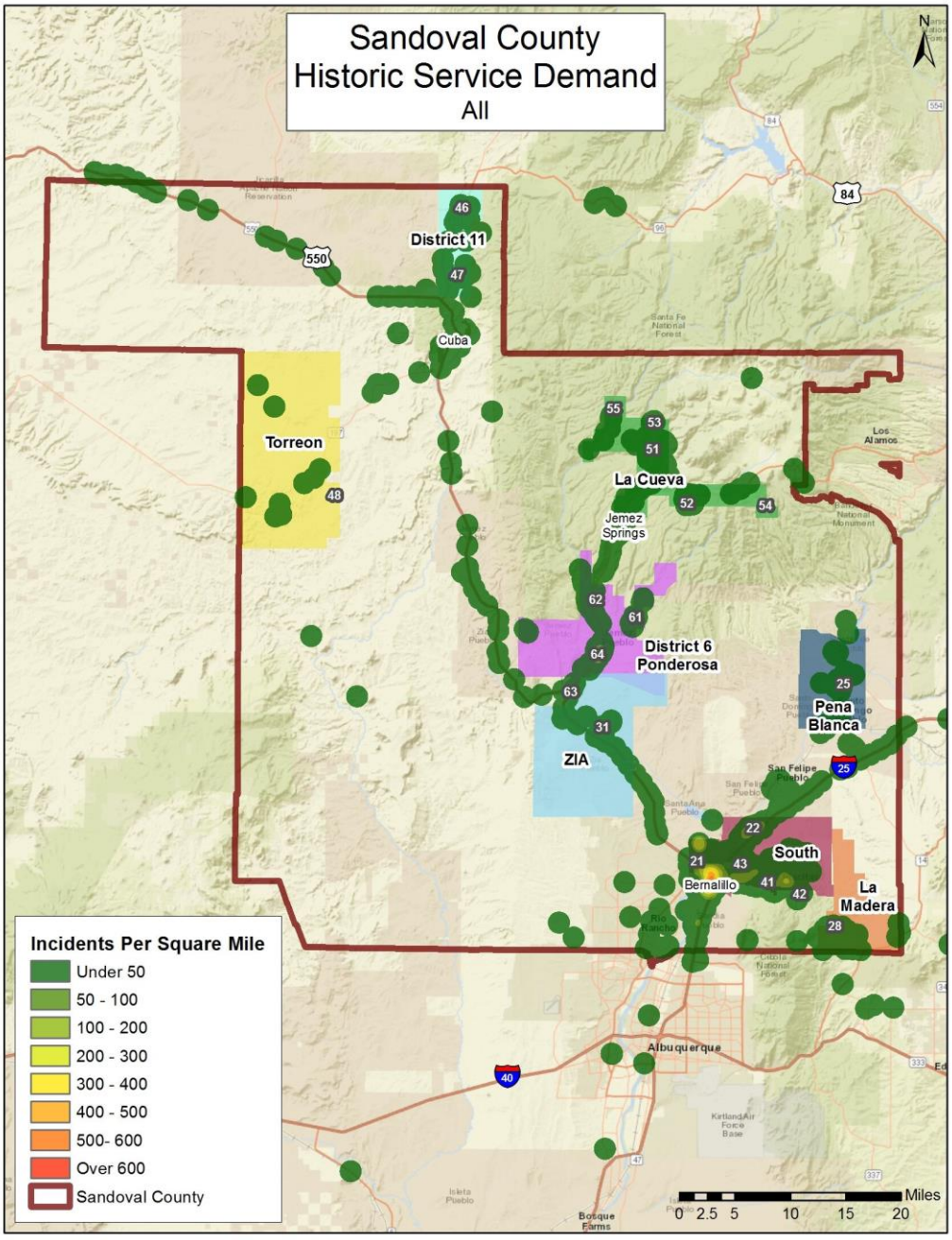
Figure 88: Sandoval County Fire Department Service Demand by Hour of Day



As can be seen in the figure above, service demand begins to increase between the hours of 6:00 a.m. and 7:00 a.m.; peaking during the mid-afternoon hours; and then declining into the evening. This pattern is very common among agencies that participate in the provision of emergency medical services.

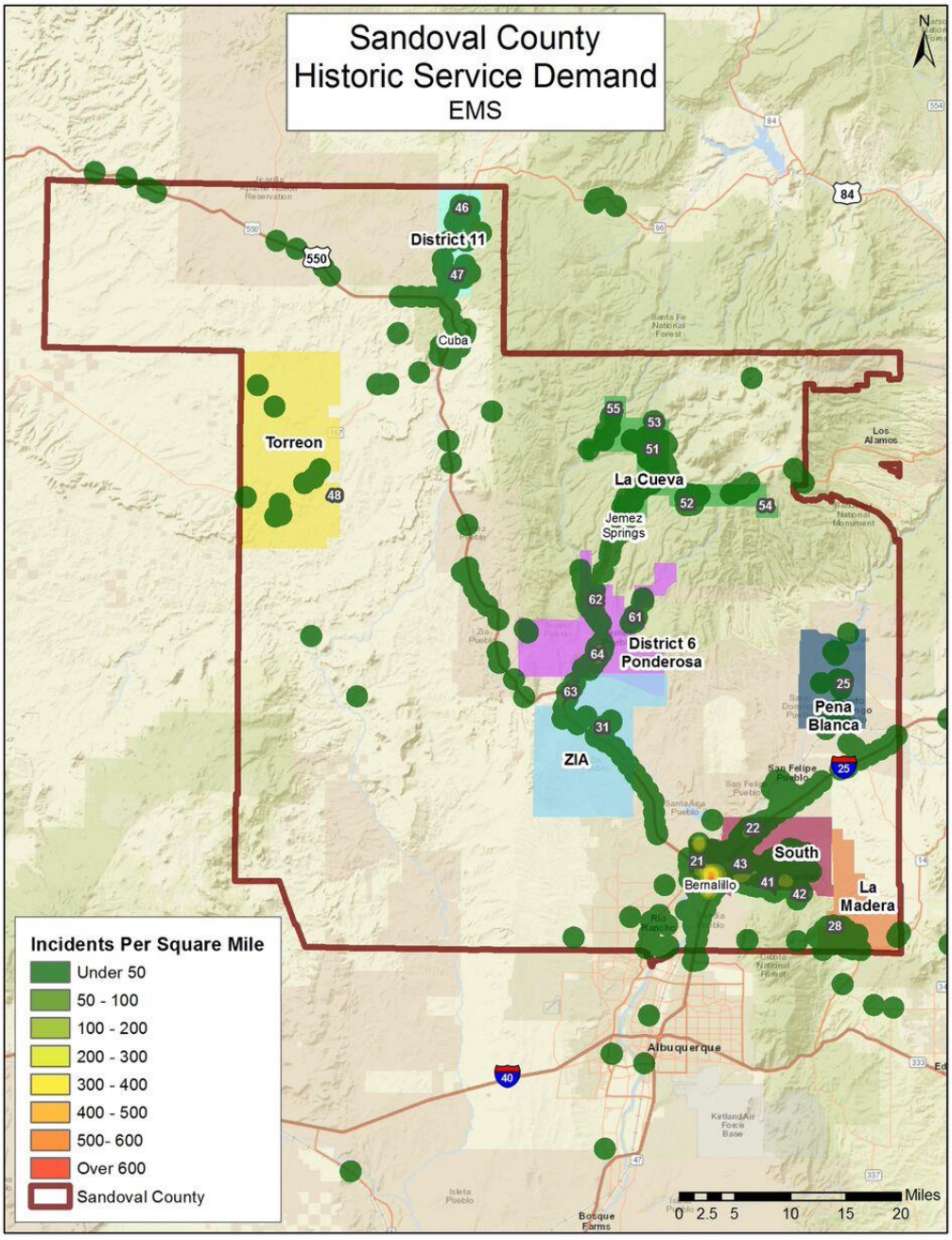
Although evaluating service demand numerically illustrates how demand has changed, it is more useful to determine *where* incidents are occurring to maximize the deployment of resources. The following figure illustrates the study districts' overall geographic service demand for all incident types for 2014 and 2015.

Figure 89: Sandoval County Fire Department Geographic Service Demand - All Incidents



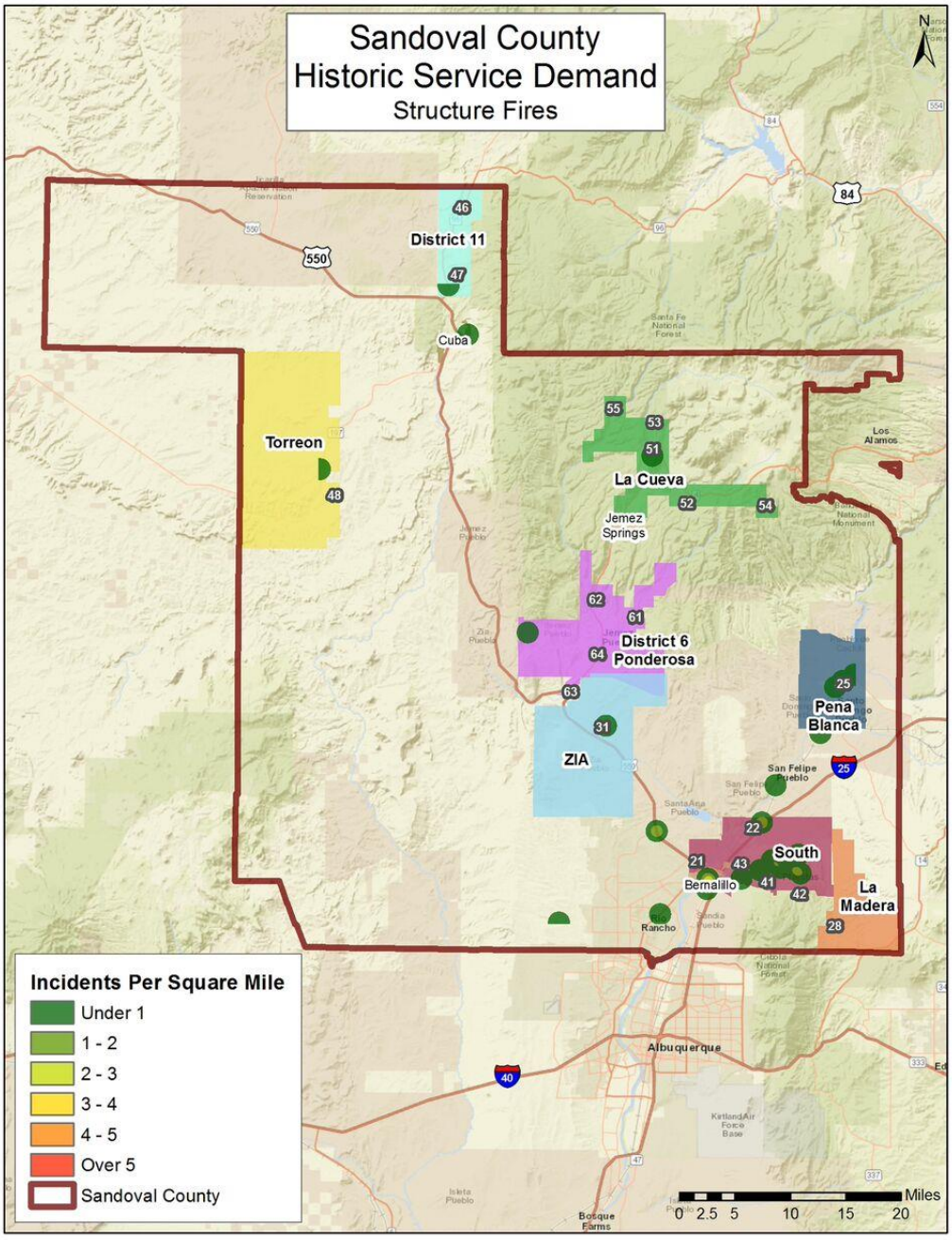
Overall incident volume is relatively low and tends to concentrate near the major road network. Since medical incidents comprise a good portion of overall workload, those incidents were also viewed separately as illustrated below.

Figure 90: Sandoval County Fire Department Geographic Service Demand – Medical Incidents



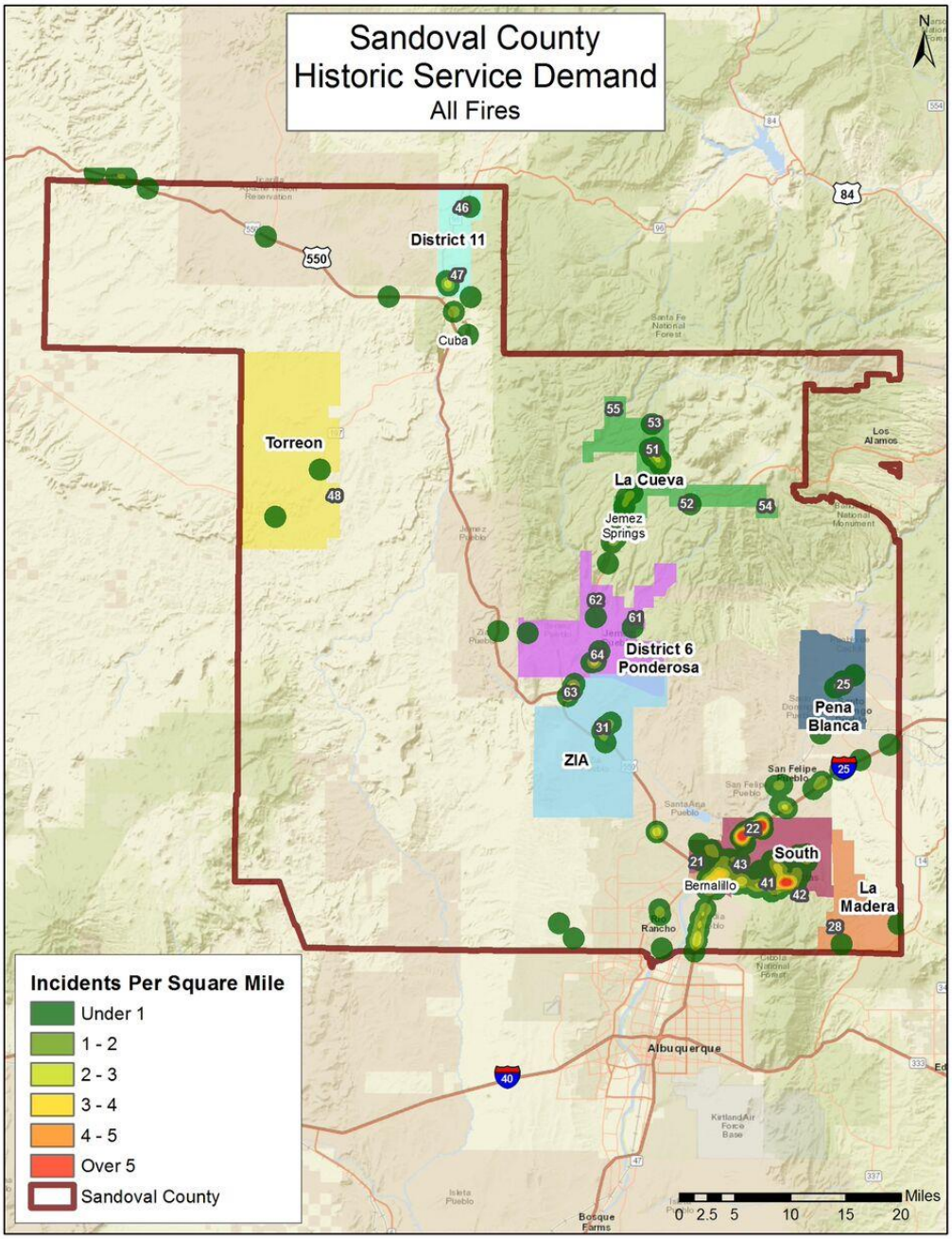
As expected, medical service demand closely resembles overall service demand since those incidents are more common than fires. When evaluating actual structure fires, it is easy to see a much different pattern as shown below.

Figure 91: Sandoval County Fire Department Geographic Service Demand - Structure Fires



This is not to say that fires do not occur very often in Sandoval County. Although they do not occur in the same frequency as EMS incidents, fires of all types are plentiful and do pose a risk to the community, especially during wildfire season, as depicted in the following figure.

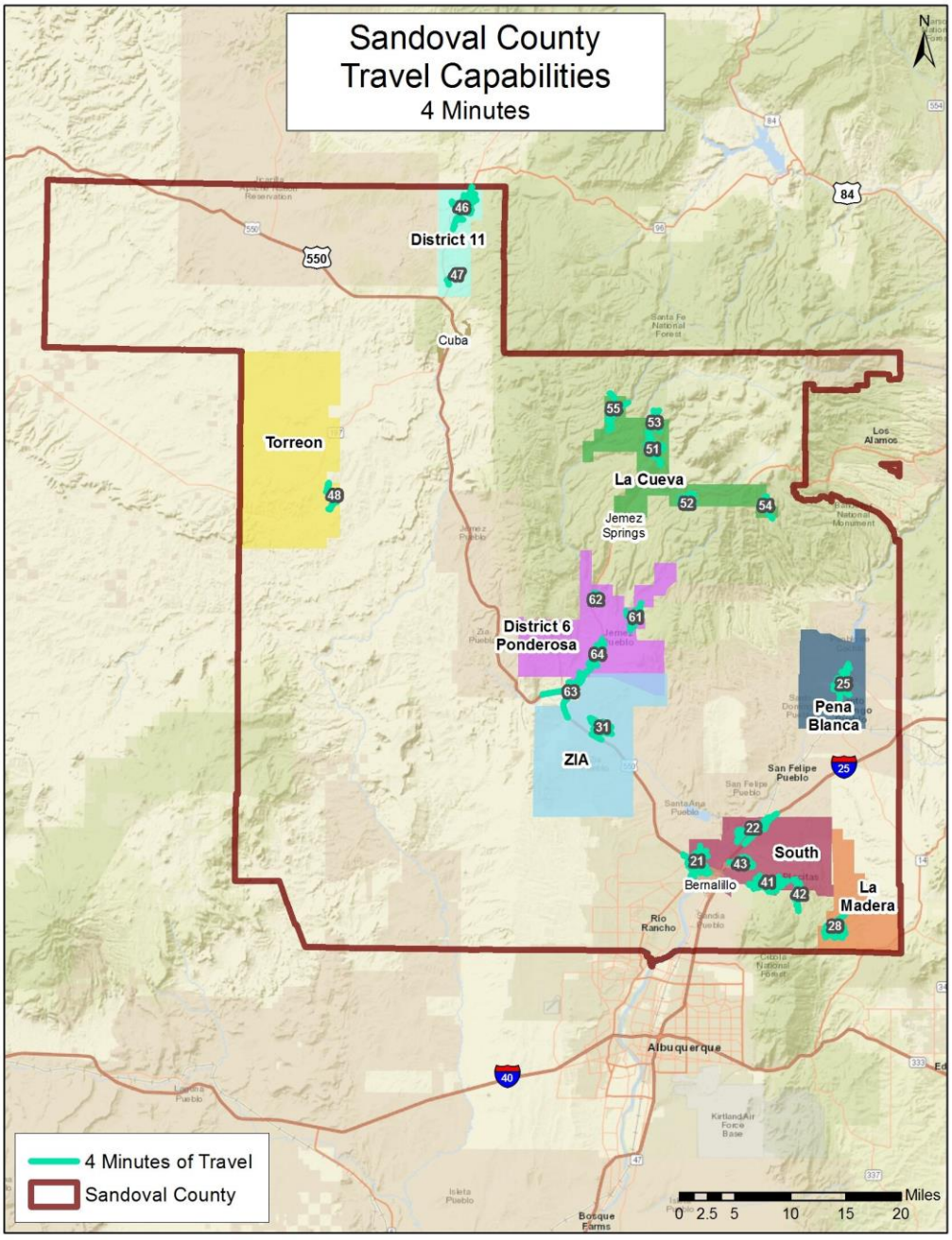
Figure 92: Sandoval County Fire Department Geographic Service Demand - All Fires



Distribution

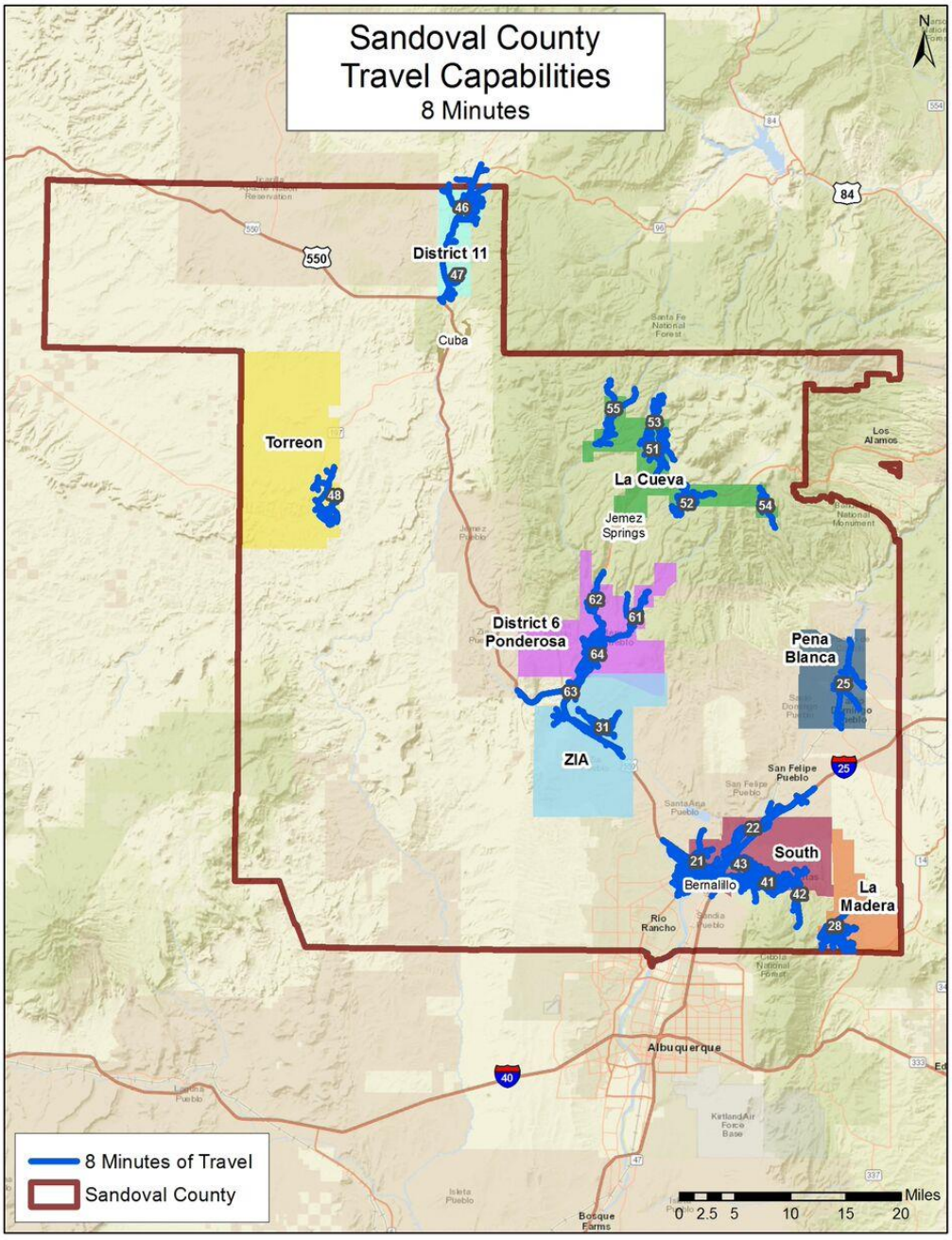
Distribution is an analysis that illustrates travel capability of specific units based on the existing roadway network. In essence, travel time is mapped using geographic information system (GIS) software and a model is created that estimates how much of a given area can be covered within a specified period. The figures below illustrate the study district's four, eight, and 12-minute travel capabilities.

Figure 93: Four-Minute Travel Capabilities



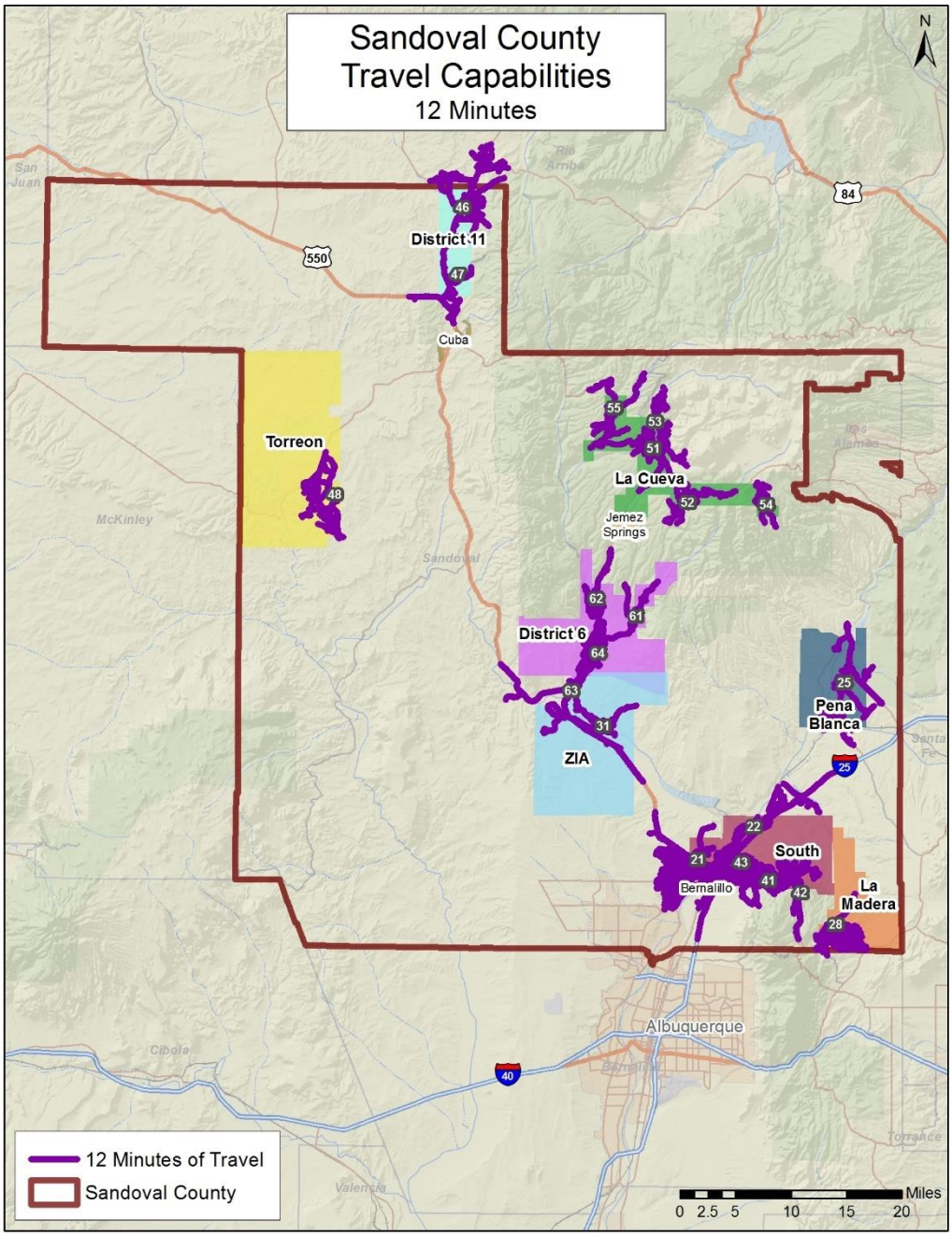
As can be seen in the figure above, four minutes of travel does not cover much of Sandoval County. If extending this travel model to eight minutes, coverage is significantly expanded as shown below.

Figure 94: Eight-Minute Travel Capability



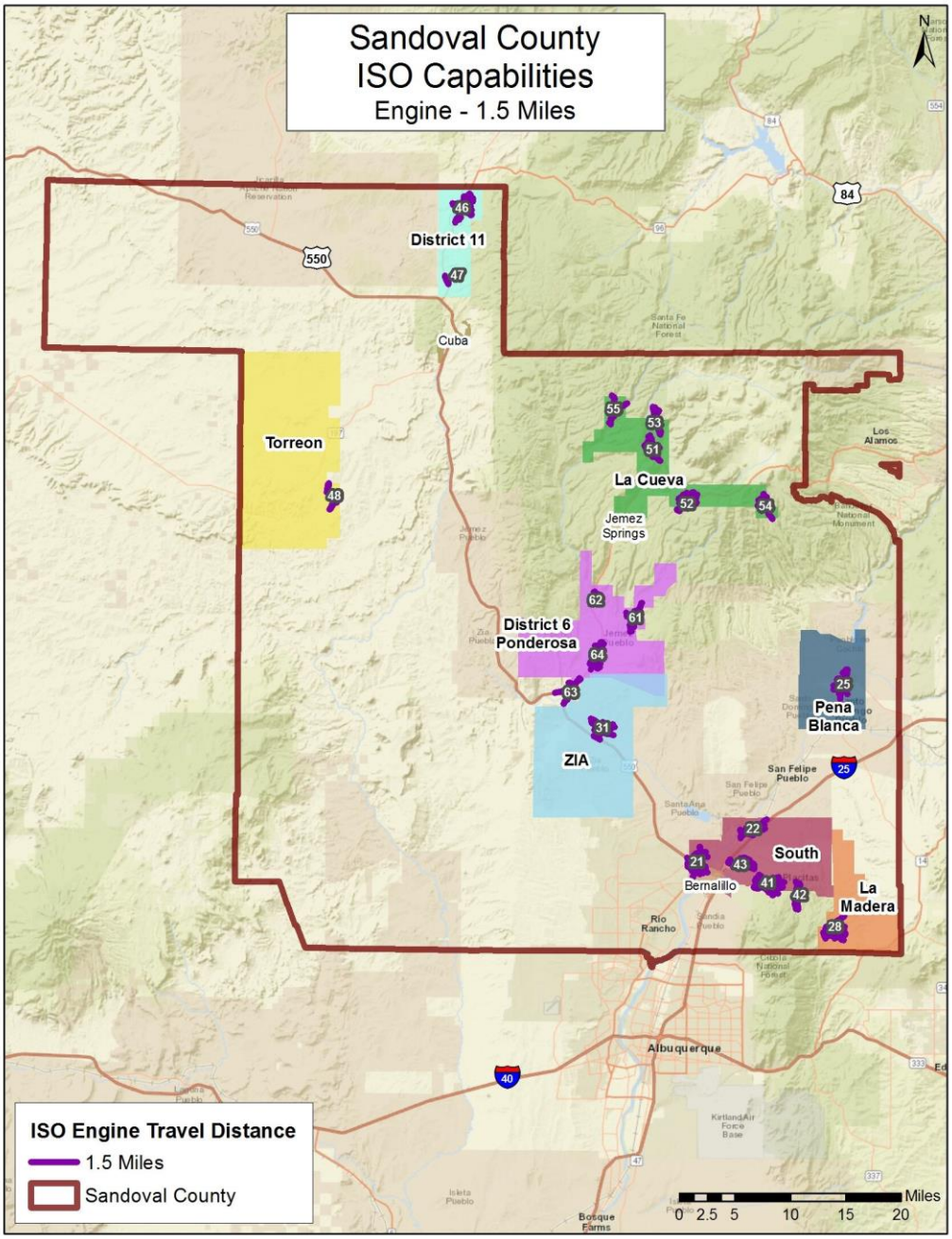
Even at eight minutes, although better coverage than the four-minute model, there are still substantial areas of historical service demand that remain uncovered. If expanding the travel model to 12 minutes, much more of the historical demand is reachable as shown below.

Figure 95: 12-Minute Travel Capability



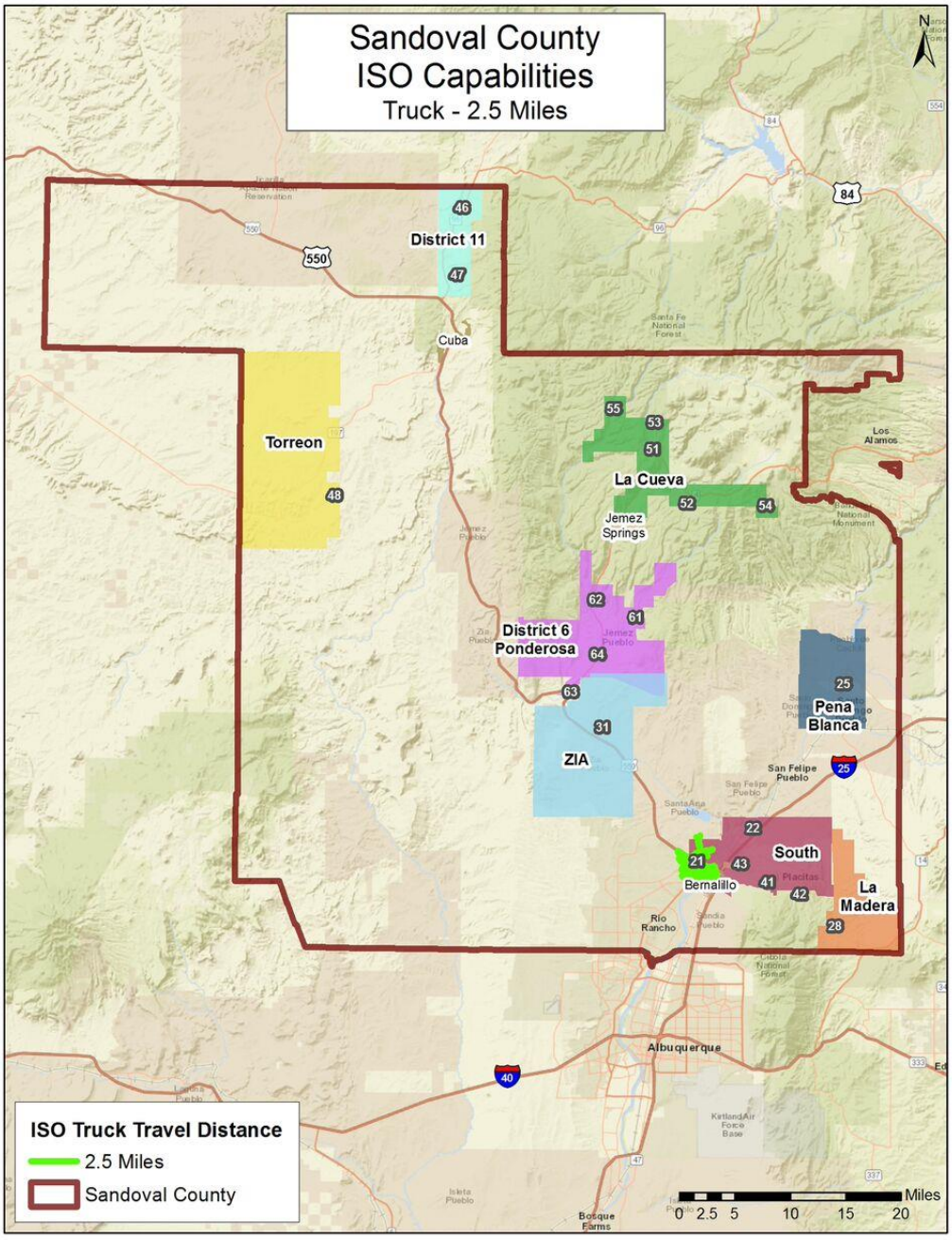
The Insurance Services Office (ISO) also provides guidance on where stations should be located. To receive maximum credit under the distribution section of the Public Protection Classification (PPC) system, a property must be within 1.5 miles of a fire engine; within 2.5 miles of an aerial apparatus; and within five miles of from a fire station. The following figures illustrate these three ISO travel distances.

Figure 96: ISO 1.5 Mile Engine Travel Distances



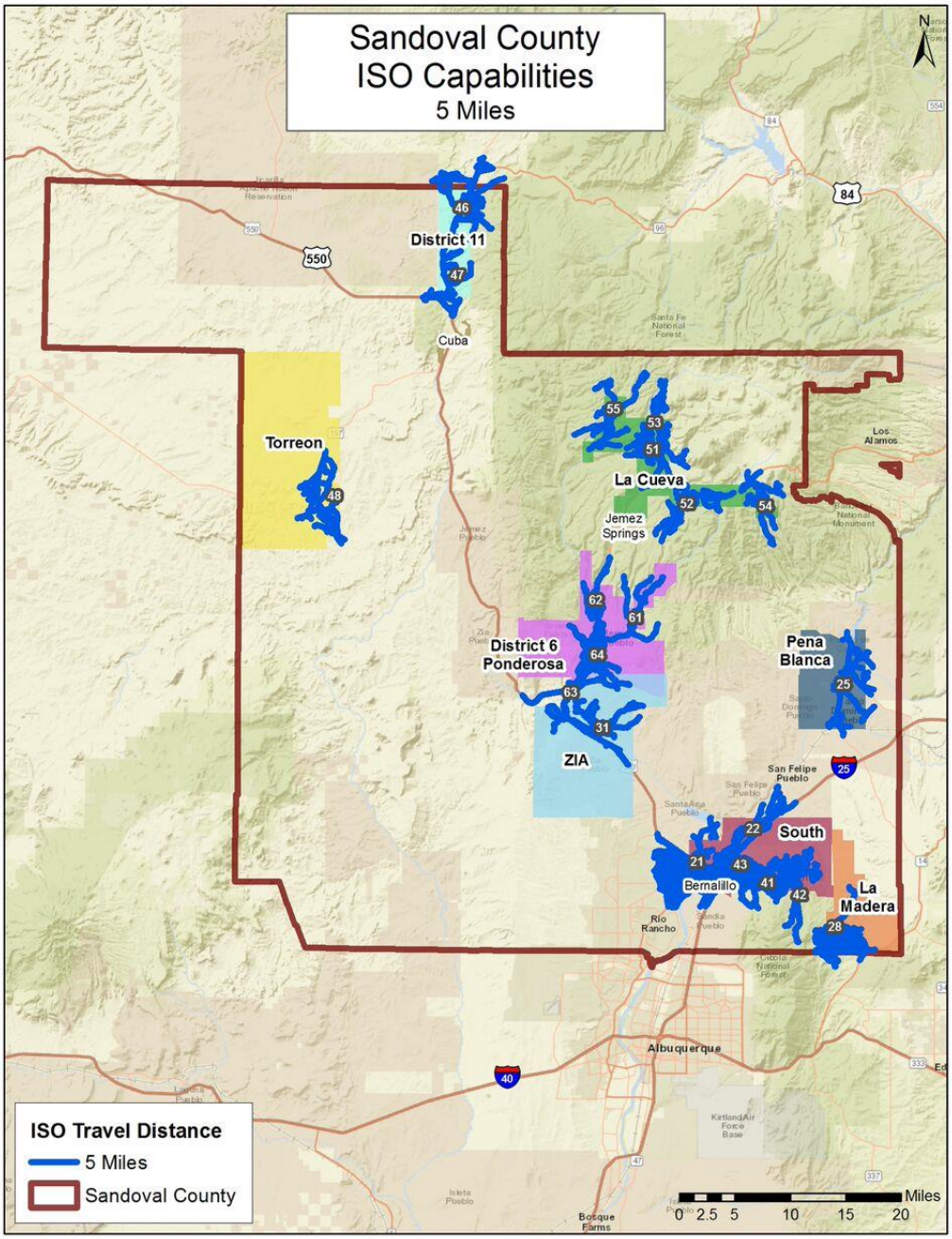
South District contains the only aerial ladder within Sandoval County and that 2.5 Mile ISO travel distance is indicated below.

Figure 97: ISO 2.5 Mile Aerial Travel Distances



The final ISO distance is five miles. Properties more than five miles from a fire station may expect to pay higher fire insurance rates or find it difficult to be covered. The following figure illustrates the five-mile travel distance.

Figure 98: ISO Five-Mile Travel Distance

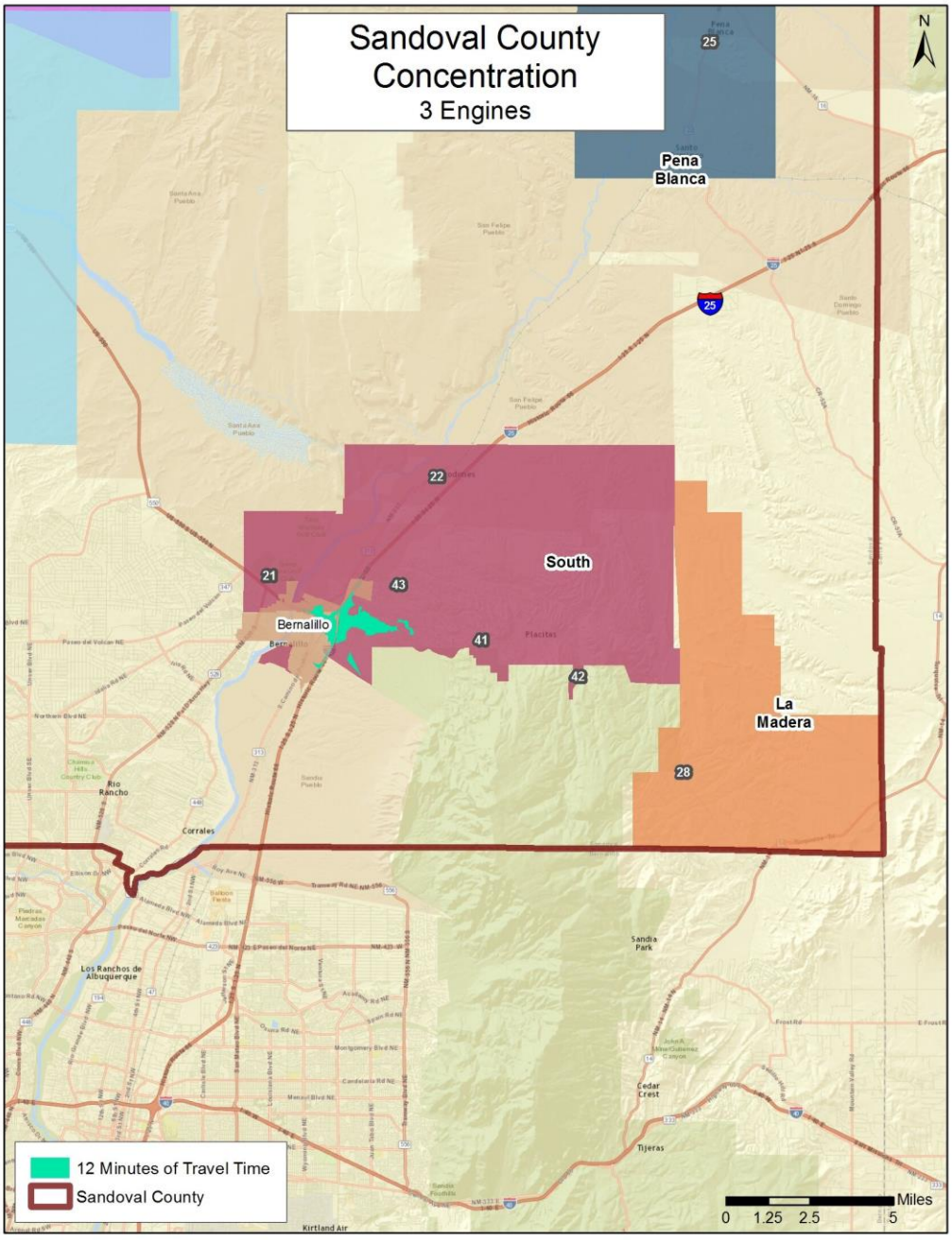


Concentration

Resource concentration is an analysis that determines how quickly an organization can assemble the appropriate number of apparatus and/or personnel on the scene of a major incident. In many cases, this is conducted considering a single-family detached dwelling that is considered moderate risk in which at least two engines and one aerial apparatus would be needed to effectively mitigate the incident. The figure below illustrates the study area's concentration capability within eight minutes of travel and

includes use of mutual aid departments from outside the area when appropriate that have engine and/or ladder capabilities.

Figure 99: Sandoval County Fire Department Resource Concentration Capability



As can be seen in the figure above, the county has difficulty in assembling multiple apparatus on incident scenes within 12 minutes of travel. Unfortunately, the only way to increase this capability is to add stations and apparatus with appropriate staffing. Given the large geographic size of Sandoval County, it is ESCI's opinion that this may not be feasible and is discussed in detail in another section of this report.

Reliability

The workload on emergency response units can be a factor in response time performance. The busier a given unit, the less available it is for the next emergency. If a response unit is unavailable, then a unit from a more distant station must respond, increasing overall response time. A cushion of surplus response capacity above average values must be maintained due to less frequent, but very critical times, when atypical demand patterns appear in the system. Multiple medical calls, simultaneous fires, multi-casualty incidents, search and/or rescue calls, or multiple alarm fires are all examples.

One way to look at resource workload is to examine the amount of time multiple calls occur within the same period on the same day. ESCI examined the 2014 and 2015 incident data to find the frequency that the districts are handling multiple calls within any given period. This is important because the more calls occurring at one time; the more stretched available resources become, leading to extended response times from distant responding available apparatus. The following figure illustrates total incident historical concurrency rates based on incidents that occurred in during 2014 and 2015 across Sandoval County.

Figure 100: Incident Concurrency

	1	2	3	4	5
2014	84.8%	13.7%	1.3%	0.2%	0.0%
2015	79.1%	16.6%	3.7%	0.5%	0.1%

This analysis indicates that most incidents within the study area occurred singularly but there are a significant number of instances where simultaneous calls were present. ESCI's general threshold for concurrent incidents is 10 percent and the study area is above this limit. This rate of secondary incidents is due in no small part to medical incidents, which typically only occupy one unit at a time. If these were multiple fire incidents, there would a general cause for concern.

Response Performance

Perhaps the most visible and notable of emergency services to the public, response performance is the primary measure by which the public determines overall effectiveness. Response time can be measured in a number of ways but industry standards suggest that performance be measured on a percentile rather than simply reporting the average.

Response time, however, is not simply a matter of operational response. The response time continuum begins when someone calls 9-1-1 and ends when the appropriate resources are on the scene of the incident. The response time continuum, the time between when the caller dials 9-1-1 and when assistance arrives, is comprised of several components:

- Processing Time – The amount of time between when a dispatcher answers the 9-1-1 call and resources are dispatched
- Turnout Time – The amount of time between when units receive notification of the incident and when they are en route

- Travel Time – The amount of time the responding unit actually spends on the road to the incident
- Response Time – A combination of turnout time and travel time and generally accepted as the most measurable element

Before entering this discussion, however, it is important to provide a brief discussion about the presentation of the statistical information, particularly regarding average versus percentile measures.

The "average" measure is a commonly used descriptive statistic also called the mean of a data set. It is a measure to describe the central tendency, or the center of a data set. The average is the sum of all the points of data in a set divided by the total number of data points. In this measurement, each data point is counted and the value of each data point has an impact on the overall performance. Averages should be viewed with a certain amount of caution because the average measure can be skewed if an unusual data point, known as an outlier, is present within the data set. Depending on the sample size of the data set, this skewing can be either very large or very small.

As an example, assume that a particular station with a response time objective of six minutes or less had five calls on a particular day. If four of the calls had a response time of eight minutes while the other call was across the street and only a few seconds away, the average would indicate the station was achieving its performance goal. However, four of the five calls, or 80 percent, were beyond the stated response time performance objective.

The reason for computing the average is its common use and ease of understanding. The most important reason for not using averages for performance standards is that it does not accurately reflect the performance for the entire data set.

With the average measure, it is recognized that some data points are below the average and some are above the average. The same is true for a median measure, which simply arranges the data set in order and finds the value in which 50 percent of the data points are below the median and the other half are above the median value. This is also called the 50th percentile.

When dealing with percentiles, the actual value of the individual data does not have the same impact as it did in the average. The reason for this is that the percentile is nothing more than the ranking of the data set. The 90th percentile means that 10 percent of the data is greater than the value stated and all other data is at or below this level.

Higher percentile measurements are normally used for performance objectives and performance measurement because they show that the large majority of the data set has achieved a particular level of performance. This is then compared to the desired performance objective to determine the degree of success in achieving the goal.

For this analysis, ESCI was most interested in the ability to respond with the appropriate resources to the highest percentage of incidents. For this reason, ESCI analyzed National Fire Incident Reporting System (NFIRS) and computer aided dispatch (CAD) data and generated average and 90th percentile response performance for emergency incidents only.

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 recommends that career fire departments be en route to emergency incidents within 60 seconds for medical responses and 80 seconds for fire responses; allowing an extra 20 seconds to don protective clothing that is not required for medical incidents. This time period is known as turnout time. *NFPA 1720: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer or Combination Departments*, however, does not contain a turnout time performance recommendation since personnel are often responding from home, work, or elsewhere from within and outside the community. For volunteer and combination fire department, the same travel time recommendations remain but the overall response performance recommendation is tiered based on population density.

NFPA 1710 includes a performance objective of 240 seconds or less of travel time for the arrival of the first arriving engine company in urban areas serviced by career fire departments.[15] *NFPA 1710* does not differentiate between the various population densities and assumes that all areas served by career or mostly career fire departments will adhere to a single performance objective. The volunteer and combination response performance recommendation is summarized below.

Figure 101: NFPA 1720 Response Performance Recommendations

Classification	Population Density	Response Target	Percentile
Urban	>1,000	9:00	90th
Suburban	500 – 999	10:00	80th
Rural	<500	14:00	80th

For this analysis, ESCI was able to analyze Computer Aided Dispatch (CAD) data and National Fire Incident Reporting System (NFIRS) data that records alarm time, en route time, arrival time, and available time, depending on the system. For EMS incidents, receive time was provided for a small number of incidents only. En route time (the time units were actually responding to the incident) was provided for most incidents, as was arrival time. For non-transport incidents, en route time was not provided. Therefore, turnout time could not be calculated for this call type. The following figure summarizes the study area's overall turnout time performance for medical incidents.

[15]National Fire Protection Association. *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*, 2010.

Figure 102: Historical Turnout Time Performance – Medical Incidents

	Average	80th	90th
2014	0:01:23	0:02:38	0:03:43
2015	0:01:44	0:03:00	0:04:06

The following figure breaks down the aforementioned response performance by district.

Figure 103: Historical Turnout Time Performance by District – Medical Incidents

	Average	80th	90th
LCFD	0:02:31	0:05:41	0:07:00
LMFD	0:00:44	0:01:00	0:02:18
PBFD	0:01:56	0:05:00	0:07:00
PFD	0:02:36	0:04:42	0:06:02
RFD	0:00:55	0:01:00	0:02:18
SFD	0:01:31	0:02:47	0:03:47
TFD	0:01:58	0:04:00	0:06:00

Based on this analysis, LMFD, RFD, and SFD have much quicker turnout times. The times in SFD can be attributed to the staffed stations. The other stations have typical turnout times seen in similar volunteer organizations. The following figure summarizes the study area's overall response performance (dispatch time to first arriving unit time) during 2014 and 2015 for medical incidents.

Figure 104: Overall Response Performance – Medical Incidents

Response	Average	80th	90th
2014	0:10:15	0:14:19	0:20:00
2015	0:10:14	0:14:34	0:18:52

The following breaks down this analysis further by district.

Figure 105: Overall Response Performance by District – Medical Incidents

	Average	80th	90th
LCFD	0:11:23	0:17:47	0:22:39
LMFD	0:06:56	0:11:36	0:14:18
PBFD	0:08:19	0:16:00	0:18:00
PFD	0:08:28	0:12:45	0:14:58
RFD	0:11:15	0:19:43	0:26:09
SFD	0:10:14	0:14:03	0:19:02
TFD	0:14:07	0:24:17	0:27:00

All other incidents, including fires, were calculated separately as a region as shown below.

Figure 106: Overall Response Performance – All Other Incidents (Emergency Only)

	Average	80th	90th
2014	0:12:28	0:19:24	0:24:13
2015	0:12:41	0:18:18	0:22:48

This analysis indicates that, despite quick turnout times at some stations, the overall geography and distribution of service demand across the area is causing extended overall response times. The following figure breaks down the aforementioned response performance by district for all other incident types.

Figure 107: Overall Response Performance by District – All Other Incidents (Emergency Only)

	Average	80th	90th
LCFD	0:15:08	0:24:42	0:28:56
LMFD	0:15:35	0:19:58	0:26:33
PBFD	0:14:52	0:19:09	0:23:11
PFD	0:12:28	0:19:05	0:22:35
RFD	0:17:58	0:28:42	0:35:25
SFD	0:12:27	0:17:51	0:20:32
TFD	0:17:47	0:31:37	0:35:16
ZPFD	0:05:12	0:07:00	0:11:00

As indicated previously, the large geographic area that most stations are responsible for, combined with the wide distribution of incidents, response times are well above industry norms. For ZPFD however, the relatively small service area and limited overall response totals has led to a better overall response performance.

Mutual and Automatic Aid

Communities have traditionally forged limited agreements to share resources under circumstances of extreme emergencies or disasters. These agreements, known as mutual aid agreements, allow one community to request the resources of another in order to mitigate an emergency or disaster that threatens lives or property. There are numerous mutual aid agreements, both formal and informal, in place between fire, police, and emergency medical agencies within the study area, both with participating departments and those surrounding the study area.

However, it is important to define the level of mutual aid systems in place in this region. Mutual aid can take several forms, and this analysis of mutual aid programs will begin with a brief explanation of the various types of mutual aid systems used by the fire service in various parts of North America.

Basic Mutual Aid upon Request

This form of mutual aid is the most basic and is typically permitted under broad public laws that allow communities to share resources upon request during times of disaster or during local and regional

emergencies. Often, these broad laws permit communities to make decisions quickly regarding mutual aid under specified limitations of liability. These broad laws can allow a community to tap into resources from their immediate neighbors, as well as very distant resources in communities with which they have very little day-to-day contact otherwise. Under this level of mutual aid, specific resources are typically requested by the fire department, through the appropriate chain of command, and sometimes coordinated by local or regional emergency management personnel. Depending on the level of the request, the response can sometimes be slow and the authorization process may be cumbersome due to the exchange of official information or even elected official's approval that may be required.

Written Mutual Aid Agreements

This form of mutual aid takes the previous form one-step further by formalizing written agreements between communities (typically immediate neighbors in a region) in an effort to simplify the procedures and, thus, cut response time. Usually, these written agreements include a process that takes the request and response authorization down to a lower level in the organization, such as the Fire Chief or other incident commander. By signing such agreements, communities are "pre-authorizing" the deployment of their resources under specified circumstances as spelled out in the agreement. Most often, these agreements are generally reciprocal in nature and rarely involve an exchange of money for service, though they may include methods for reimbursement of unusual expenses for long deployments.

Automatic Aid Agreements

Once again, this form of mutual aid takes the process an additional step further by spelling out certain circumstances under which one or more community's specific resources will respond automatically upon notification of a reported incident in the neighboring community. In essence, automatic aid agreements expand a community's initial first alarm response to certain types of incidents by adding resources from a nearby neighbor to that response protocol. Typically, such agreements are for specific geographic areas where the neighbor's resource can be expected to have a reasonable response time and are for only specific types of incidents. An example of such an agreement would be having a neighboring community's engine respond to all reported structure fires in an area where it would be closer than the second or third-due engine from the home community. In other cases, the agreement might cover a type of resource, such as water tender or aerial ladder, than the home community does not possess. An example of this would be having a neighboring community's water tender respond to all reported structure fires in the areas of the home community that do not have pressurized hydrants.

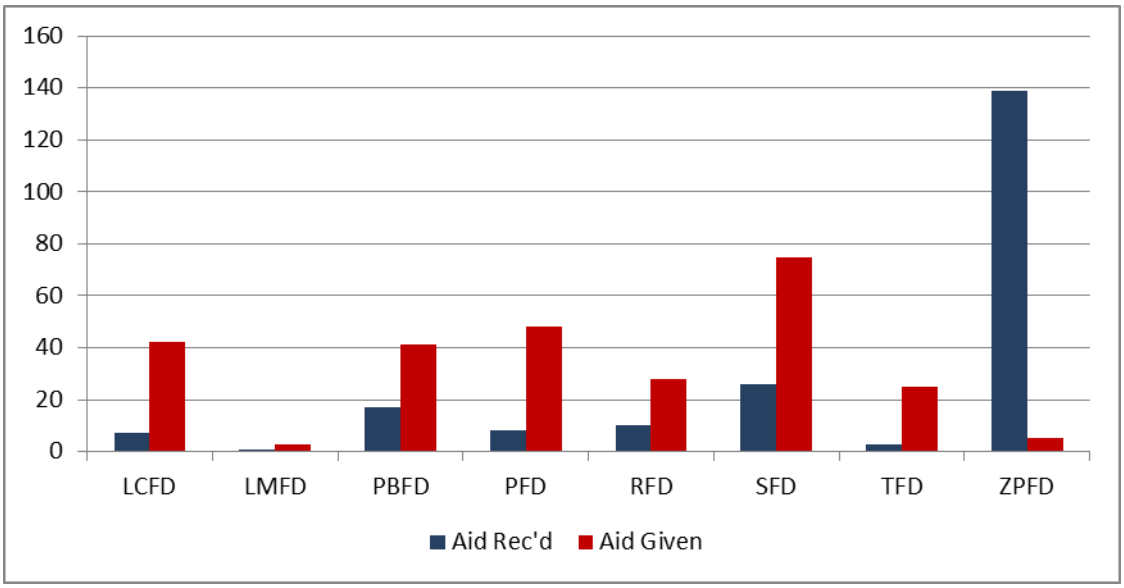
Automatic aid agreements may be purely reciprocal or they may involve the exchange of money for the services provided. Purely reciprocal agreements are common, but typically used where each community has some resource or service it can provide to the benefit of the other. These services or resources need not be identical. For instance, one community may send an engine to the other community on automatic response to structure fires, while the second community agrees to send a water tender to the first community's structure fire calls in exchange. These reciprocal agreements are sometimes made without detailed concern over quantification of the equality of the services exchanged, since they promote the effectiveness of overall services in both communities. In other cases, the written agreements spell out

costs that one community can charge the other for services, typically where no reasonable reciprocation can be anticipated.

One primary purpose of automatic aid agreements is to improve the regional application of resources and staffing. Since fire protection resources are frequently established because of the occupancy risks in a community and not necessarily a heavy workload, these resources may be idle during frequent periods of time. While fire departments make productive use of this time through training, drills, pre-incident planning, and other functions, the fact is that these expensive resources of apparatus and staff are not heavily tied up on emergency incidents. Communities that share certain resources back and forth are, in essence, expanding the emergency response workload of those units across a larger geographic area that generally ignores jurisdictional lines. This expanded use of resources can strongly benefit both communities that might otherwise have significantly increased costs if they had to procure and establish all the same resources alone. Automatic aid can be used effectively to bolster a community's fire protection resources or to reduce unnecessary redundancy and overlap between communities.

Sandoval County already actively participates in both automatic and mutual aid with surrounding departments, particularly for structure fires. It is evident from the geographic area and placement of the stations that other departments may be in a better position to serve as the primary response resource to some areas. The figure below summarizes how mutual and automatic are have been historically used by the study districts.

Figure 108: Mutual Aid Utilization



From this analysis, each of the study districts (with the exception of ZPFD) is *giving* mutual aid significantly more than *receiving*. Since the study area is comprised of multiple districts as part of a larger overall system, this type of mutual and automatic aid is expected.

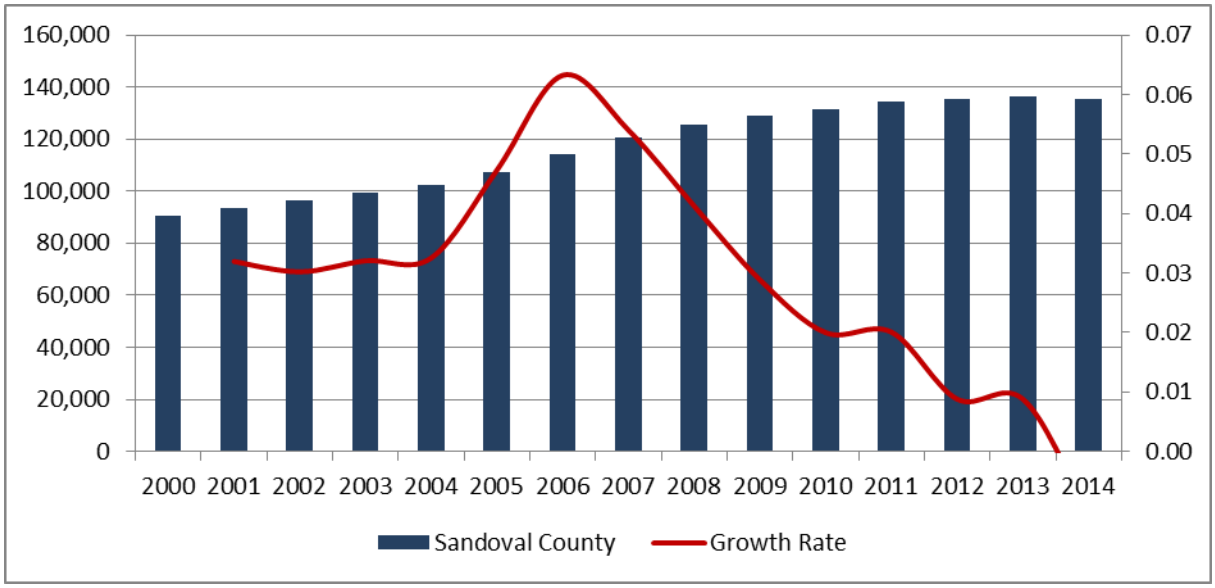
Future System Demand Projections

In order to project potential future service demand, it is first necessary to evaluate historical population growth and current community risk. These elements, combined with historical per capita incident rates allow for a more accurate projection of future demand.

Population Growth Projections

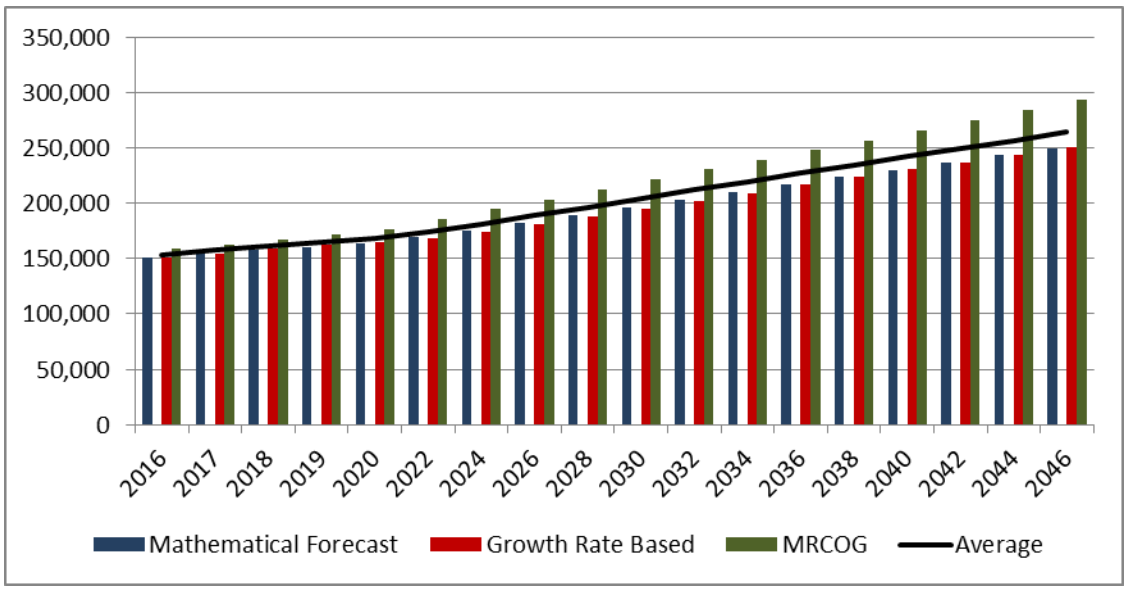
Population and human activity typically drive emergency services demand. This holds true for Sandoval County as well. As the population of the area has risen, so has the overall service demand. The overall population of Sandoval County has risen steadily over the last several decades. As illustrated in the following figure, the area has seen a general population growth of 49.3 percent since 2000 although the growth rate has slowed in recent years.

Figure 109: Historical Population Growth



The overall annual average growth is estimated at 2.9 percent. Although there are different methods of calculating potential future population growth, the population of Sandoval County will continue to increase for the near future, reaching an estimated 250,000 by 2046, as illustrated in the following figure.

Figure 110: Future Population Projection



The forecast of population growth is based on several models that include:

- Mathematical forecast based on historical growth
- Historical growth rate average
- Local growth rate projections from the Mid-Region Council of Governments (MRCOG)
- Average of the previous three models

This information will be used in the following section to project future service demand.

Community Risk Analysis

The fire service assesses the relative risk of properties based on a number of factors. Properties with high fire and life risk often require greater numbers of personnel and apparatus to effectively mitigate a fire emergency. Staffing and deployment decisions should be made with consideration of the level of risk within geographic sub-areas of a community. Unlike medical responses that focus on human life, fire incidents are intended to protect property in addition to life. Property values translate into tax revenue for municipalities and the protection of that valuation is often imperative to the success of a fire department.

The following translates land use (potential scale and type of development within geographic sub-areas) to categories of relative fire and life risk.

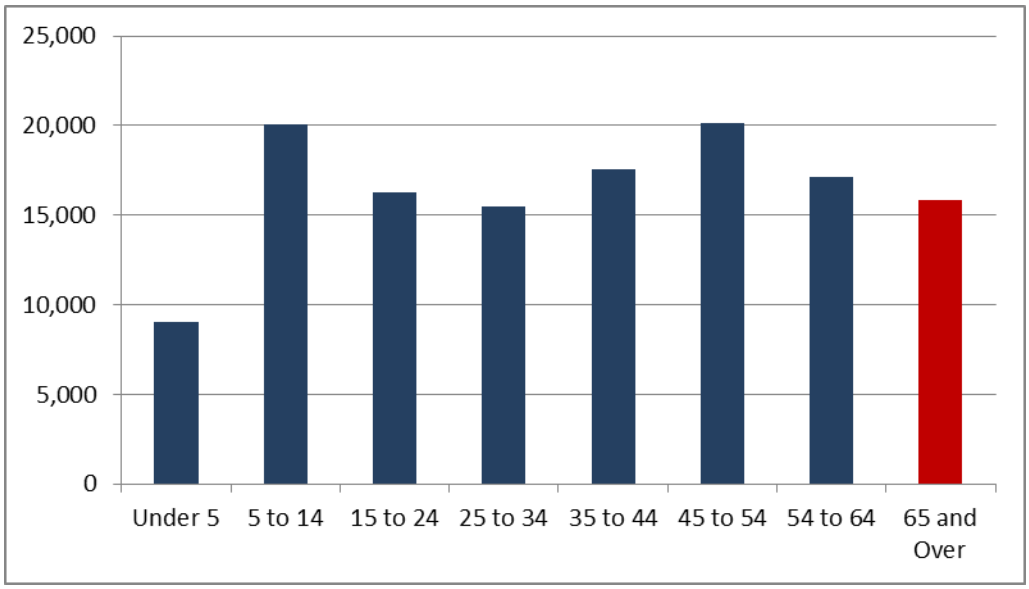
- Low risk – Areas zoned and used for agricultural purposes, open space, low-density residential, and other low intensity uses.
- Moderate risk – Areas zoned for medium-density single-family properties, small commercial and office uses, low-intensity retail sales, and equivalently sized business activities.

- High risk – Higher-intensity business districts, mixed use areas, high-density residential, industrial, warehousing, and large mercantile centers.

Sandoval County has a diverse mix of risk across the jurisdiction including some high-risk industrial occupancy. Proper code enforcement and fire prevention efforts will assist the department in ensuring that these properties are operating safely.

In addition to occupancy risk, the relative age of a population can affect service demand and service delivery. Studies have shown that departments that participate in emergency medical services generally see utilization rates higher in certain age groups; typically, those over the age of 65. The following figure illustrates how the population in the County is distributed across the various age groups

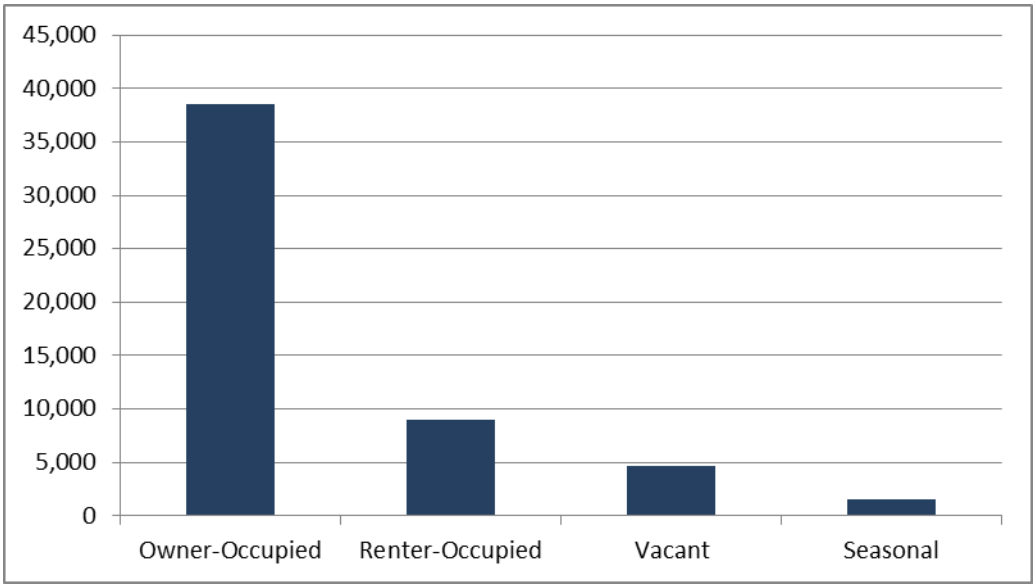
Figure 111: Sandoval County Population Age Distribution by Age Group



Although the relative distribution of the population indicates lower than expected population age 65 and over, anecdotal information indicates that the community is aging and this will likely change in the near future. This change in population distribution will likely lead to increased service demand, particularly with regard to medical incidents.

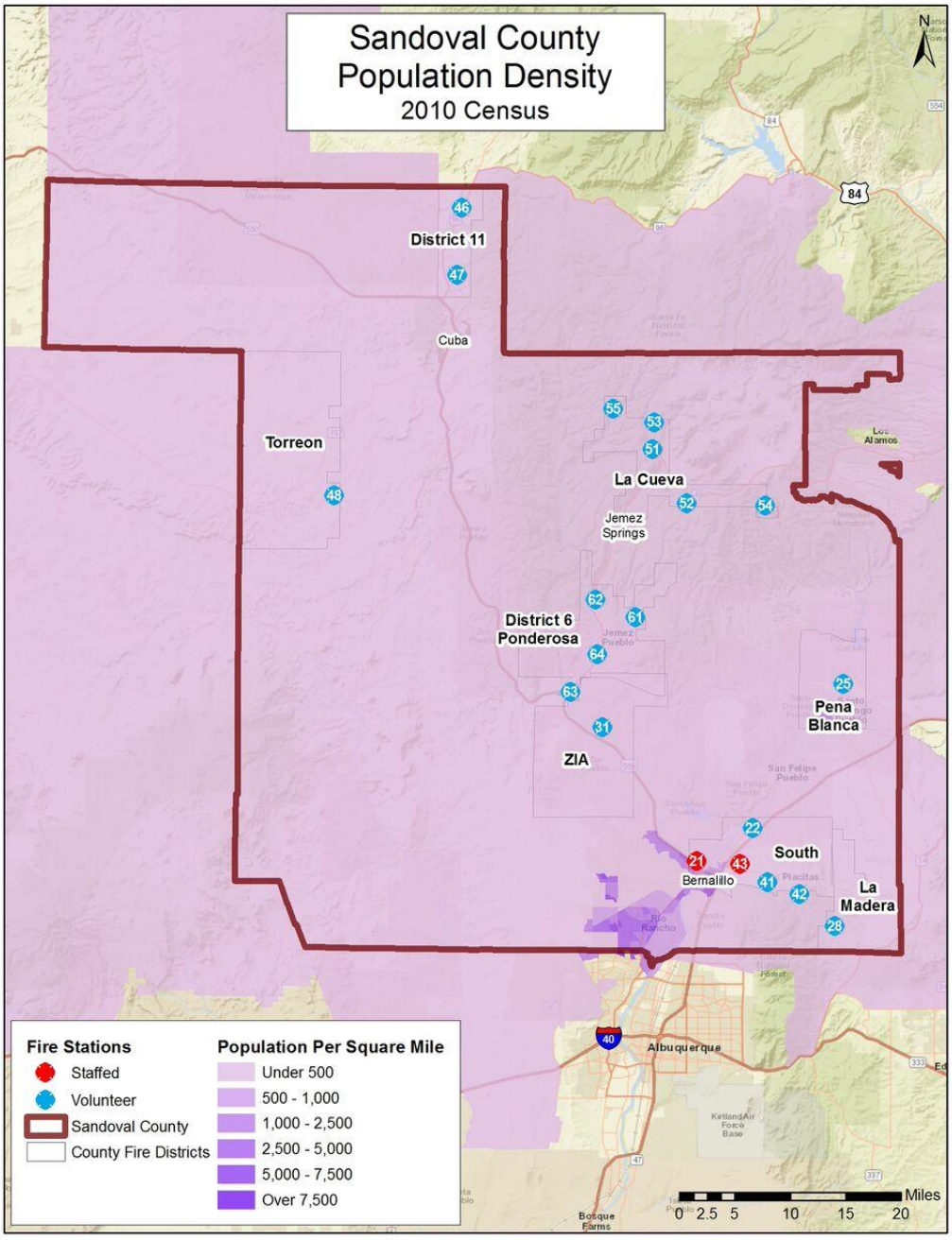
Many communities across the nation see a correlation between housing occupancy type and service demand. In some cases, high rental property and vacancy rates lead to increased service demand. This is commonly tied to socioeconomic issues but is highly variable. Sandoval County, however, currently enjoys a relatively low renter and vacancy rate, which should remain steady into the future.

Figure 112: Sandoval County Housing Occupancy and Tenure



As mentioned previously, population tends to drive service demand and those areas with higher population densities commonly have higher incident volumes. The following figure illustrates the population density of Sandoval County based on NFPA categories of urban (greater than 1,000 per square mile); suburban (between 500 and 1,000 per square mile); and rural (less than 500 per square mile).

Figure 113: Population Density



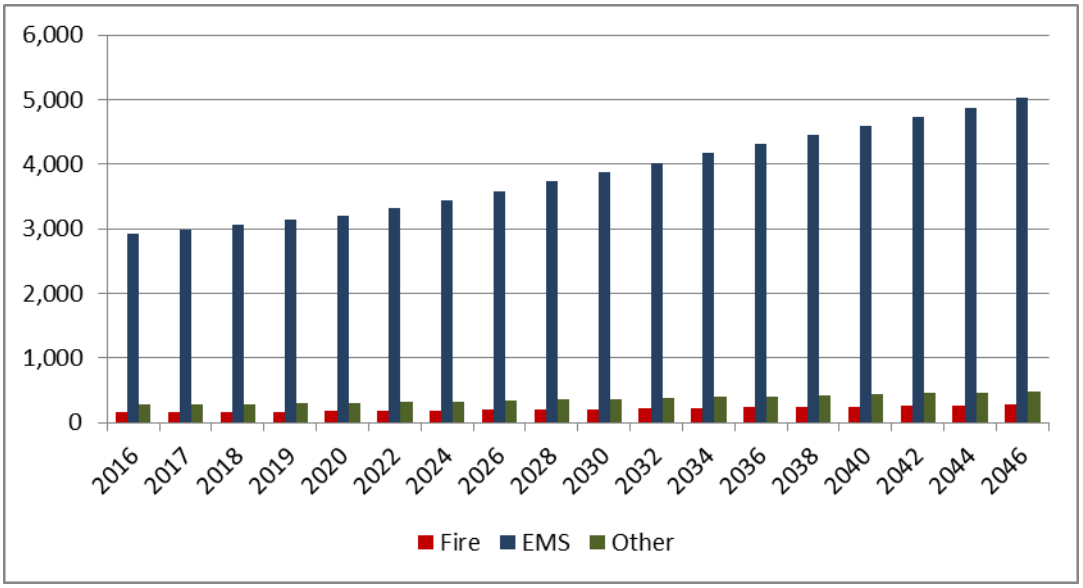
As can be seen in the figure above, the majority of Sandoval County is rural (less than 500 persons per square mile) with higher population densities in the south in and near Bernalillo and Rio Rancho. Higher populations tend to lead to higher levels of service demand as has already been discussed.

Service Demand Projections

Using the information from the previous sections of this report, ESCI evaluated historical service demand, historical incident rates, and potential changes to the population in the future, to develop a model of future service demand. First, historical service demand was multiplied by the historical per capita usage

rate average; secondly, the resulting per capita incident rate was multiplied by the projected future population. This method indicates slow but steady growth over the planning period as illustrated below, with a majority of service demand coming from medical incidents.

Figure 114: Future Service Demand Projection



FUTURE DELIVERY SYSTEM MODELS

The preceding sections of this report are intended to form the basis by which future recommendations can be made concerning the deployment of resources. The overall intent is to provide policymakers with the necessary information that will allow them to make an informed decision about the future of emergency services delivery in their community in three primary areas: stations, apparatus, and personnel. The following discussion relative to each of these categories provides recommendations for future deployment of resources to improve the overall delivery of emergency services to the community.

Response Standards and Targets

In order to determine future service delivery models for the study area, it is first necessary to establish response standards and targets that will be used to establish an appropriate deployment of physical resources. Although there are nationally published standards for the deployment of stations and apparatus, often these standards are simply too restrictive for many organizations. In this report section, ESCI will provide an overview of the published standards and then work to establish an appropriate set of response standards and targets for the study area that deliver an expected level of service within the fiscal constraints of the region.

NFPA 1710 recommends that career fire departments adopt response performance objectives that deliver an equal level of service across the entirety of the response area irrespective of population density, geography, or response area size. For an area the size of the study region, it is improbable that a single response performance objective can be accomplished. The standard recommends the following for career fire departments:

- Call Processing 0:60 at the 90th Percentile
- Turnout 0:60 at the 90th Percentile[16]
- Total Response 5:00 at the 90th Percentile[17]

For volunteer and combination fire departments, NFPA 1720 provides a separate set of response performance objectives based on various levels of population density. NFPA 1720 does not provide for a turnout time performance objective since many personnel may be responding from home, work, or elsewhere throughout the community. The standard recommends the following for volunteer and combination fire departments:

- Call Processing 0:60 at the 90th Percentile
- Turnout No standard
- Total Response Urban – 9:00 at the 90th Percentile
  Suburban – 10:00 at the 80th Percentile
  Rural – 14:00 at the 80th Percentile

The standard also defines the various population densities as follows:

- Urban Greater than 1,000 population per square mile
- Suburban 500 to 1,000 population per square mile
- Rural Less than 500 population per square mile

Although the aforementioned response performance objectives are detailed within each respective published standard, it should be noted that few, if any, departments actually meet these objectives with consistency. In ESCI's 40 years of working with fire departments of various size and deployment model, no client department has been able to routinely meet the published standards. In addition, within each standard, there is the ability of the Authority Having Jurisdiction (AHJ) to establish response performance objectives based on local expectations and abilities.

ESCI recommends that Sandoval County Fire Department attempt to achieve compliance with NFPA 1720 as their adopted response performance objectives as listed below:

Figure 115: Recommended Response Performance Objectives

	Population Density	Performance Objective	Percentile
Urban	>1,000	9:00	90th
Suburban	500 – 999	10:00	80th
Rural	<500	14:00	80th

[16] 1:20 for fire incidents.

[17] 5:20 for fire incidents.

Stations

The deployment of physical resources is important for an emergency services delivery system for several reasons. These include the ability to respond quickly to the highest percentage of incidents as well as being in proximity to where volunteers can quickly access the buildings and apparatus. Given the large geographic area of Sandoval County, the 12-minute travel model presented previously in this report is the best model to provide service to current and historical demand.

Although, in the future, additional stations would increase the overall coverage of historical incidents, the availability of volunteers to staff these stations may not be satisfactory, and the expense of hiring additional career personnel for these sparsely populated areas is not prudent. This will be discussed later in this section. Based on this potential, no additional stations are recommended within the system at this time.

Apparatus

The deployment of apparatus within any emergency services system is only as good as the availability of personnel to operate them. Understanding that a majority of Sandoval County's service demand is medical in nature (EMS Incidents), it may serve the system better to deploy alternative service delivery vehicles that can more quickly respond to medical incidents.

One method to consider is to implement a cadre of dependable personnel at each of the volunteer stations that are assigned specific duty shifts with a take-home quick response vehicle. These personnel should be credentialed as at least basic medical responders (if not advanced levels) and would be the guaranteed medical responder to all EMS incidents within their assigned district. The vehicles assigned to these personnel can be small SUVs or even cars equipped with sufficient medical equipment to render initial care while awaiting the arrival of the transport ambulance.

For the career stations, it is ESCI's recommendation that the current Lieutenants be removed from the ambulances and placed in quick response units as well to affect a quicker response throughout the service area. This will allow for a quicker triage of patients in some cases as well as the potential for cancelling the responding ambulance and returning it to service more quickly.

Personnel

As already discussed, Sandoval County uses a mix of career and volunteer personnel to fulfil the mission of the organization. As a majority of the incidents is medical in nature, it is imperative that the system have an adequate number of medically trained personnel, both career and volunteer. Based on the distribution of service demand, it is recommended that ZPFD implement a medical response program to improve the overall level of service to that district. This can be accomplished at the basic level but future demand may require some personnel to train to advanced EMT or even Paramedic level.

For volunteer and combination fire departments across the United States, recruitment and retention of volunteer members has been one area that has suffered far more than actual service delivery. Several articles of research have been published over the past decade in an attempt to assist volunteer and

combination departments in addressing the issue of declining numbers of volunteer or paid on call (POC) personnel. One such study, conducted by the National Volunteer Fire Council offered an extensive list of statistics and suggestions focusing on the following issues:

- What makes members want to volunteer?
- What keeps volunteers serving?
- What makes your members leave your organization?

The study evaluated these questions and offered a vast array of information, but little in the way of solid suggestions on how to address these issues.

It is no secret within the fire service, as well as other industries that rely on volunteer members, that volunteerism has been on the decline for many years. Since September 11, 2001, however, volunteerism, in general, saw an enormous increase, from 59.8 million in 2002 to 65.4 million Americans in 2005; but that surge has since subsided. During that period, only 25 percent of males volunteered compared to 32.4 percent of females. In addition, the age with the highest percentage of volunteerism was the 35 to 44 years of age bracket. Unfortunately, only 1.3 percent of all volunteerism goes into public safety organizations, of which fire departments comprise only a fraction.[18]

With a shift in demographics throughout the United States, the groups that have been relied upon for decades are no longer available, or no longer have the desire, to volunteer. Public safety organizations, including fire departments, must be willing to thoroughly evaluate the demographics of their communities and then take an in-depth look at the organization to identify what they have to offer, as well as incentives that could be implemented and/or improved.

Based on the report issued by the National Volunteer Fire Council, in general, individuals are willing to volunteer when:

- The experience is rewarding and worth their time
- The training requirements are not excessive
- The time demands are not excessive
- They feel valued
- Conflict is minimized

There are caveats, however, attached to these generalizations. As we all know, time is a precious commodity in today's society, as many of us work more hours at one, two, or three jobs in order to offset the rising cost of living and the inability of most salaries to keep up with the current rate of inflation. With this in mind, fire departments must be able to make any time commitment by their members worthwhile

[18] Corporation for National and Community Service. *Volunteering in America: State Trends and Rankings,* June, 2006.

and ensure that time is not wasted on repetitive or needless exercises that serve little purpose other than to occupy time meant for practical training. This is increasingly important as training requirements continue to rise as does call volume, particularly in those departments participating in Emergency Medical Services activities.

Individuals charged with operating emergency services agencies with an ever-increasing level of efficiency must realize that, in today's economic environment, volunteerism may be the best method for accomplishing a mission that is vital to community sustainability. Administrators must be able to recognize and swiftly deal with factors that cause a decline in volunteerism, such as:

- Abuse of the emergency services system
- Sociological conditions
- Internal leadership problems, either in the administrative or field operational ranks
- Community demographics, such as an aging community, just to name a few

In an environment of tax rollbacks, property tax capping, hiring freezes due to local government budgetary overruns and an overall decrease in fires throughout the country, emergency services administrators may be better served to bolster the volunteer ranks of their departments rather than continuing the push for more career personnel.

Once an effective recruitment program is implemented, tested, evaluated, and modified based on results, the departments should then focus on retention of those volunteers/POCs. As mentioned earlier, in today's economic environment, monetary incentives are becoming increasingly rare. Many departments rely on the formal paid-on-call staff (those that receive a standard rate of pay for work performed whether per hour or per call) rather than the typical volunteer member that works in a strictly volunteer (no-pay) status. Which option to utilize rests with the department officials and jurisdictional authorities with insight and control of the budget.

Regardless of which compensatory mechanism is chosen, other, non-monetary aspects tend to maintain a volunteer's interest in the organization. As indicated in the report issued by the National Volunteer Fire Council, department leadership is a major factor in a member's decision to leave an organization. Conflicts between members and leadership cause tension throughout the organization and tend to increase anxiety, even among those members not directly involved in the conflict. It is beneficial, therefore, for leadership to recognize that conflict resolution is essential to maintaining an effective organization.

It has also been determined that, once individuals become part of an organization, those who truly are volunteering for the good of the community take a great deal of pride in the organization and expect the same from other members. This takes form in many ways, including pride in the uniform, public outreach through education and/or demonstrations and fundraising, pride in the building and apparatus, and involvement in organizational development and advancement.

Another important aspect of retaining volunteers is recognition. Most individuals that volunteer do not expect any compensation for their time and efforts, but many express the desire that their dedication be acknowledged. This can be accomplished through informal programs such as a simple "thank you," or cards and letters that recognize individuals for special contributions. Formal programs can also be initiated where members are recognized for completion of various courses, or years of service awards. The use of the local media is a key component to this aspect of retention. Although members build respect for one another internally, the use of local newspapers, television, and radio can bring external positive recognition to the organization. This can also, in turn, have the effect of producing more members as the image of the organization is positively portrayed in the media.

As mentioned previously, many volunteers do not expect monetary compensation. This does not mean that monetary compensation cannot be used as an incentive to both recruit and retain volunteers. Many organizations have developed programs to make volunteering more attractive with either direct or indirect monetary incentives. Some examples are listed below.

- Indirect Monetary Incentives
  - Retirement plans
  - Pension plans
  - IRAs
  - Tax exemptions (local, state, and federal)
  - Tuition assistance
  - Health club memberships
  - Local business gift certificates
- Direct Monetary Incentives
  - Length of service bonus plans
  - Pay-per-call or pay-by-hour
  - Annual reimbursement for time

There is little doubt that recruitment and retention of volunteers has become difficult for many organizations. The demands of today's society and a shift in demographics have made it harder to find individuals willing to contribute the necessary time and energy to an organization that offers little tangible return. Although there are many resources available that identify the issues with attracting volunteers, it is impossible to define a specific set of incentives and programs that work for every jurisdiction. SCFD should lead the effort to ensure that sufficient volunteer personnel are recruited and retained to ensure sustainability of the system in the future.

Recommendations:

- Adopt NFPA 1720 Standards for response – twelve-minute travel times or less, 80% of the time.
- Train a cadre of core volunteers in each district to EMT or higher certification, assign them to a duty rotation and assign them to a take-home quick response vehicle for rapid initial response and assessment.

Short-Term Strategies

The previous sections of this report provide an assessment of the current conditions of the four agencies being evaluated. They include minor recommendations to improve service, capture industry best practices as the agencies exist today. Those recommendations are listed here in a prioritized manner as short-term recommendations. The following discussion further defines the short-term recommendations as ESCI views them.

The prioritization system is as follows.

- *Priority 1 – Items Involving Immediate Internal Safety Concerns*
- *Priority 2 – Considerations That May Present Legal or Financial Exposure*
- *Priority 3 – Matters That Address a Service Delivery Issue*
- *Priority 4 – Considerations to Enhance the Delivery of a Service*
- *Priority 5 – An Important Thing to Do*

Priority 1 – Items Involving Immediate Internal Safety Concerns

The recommendation deals with an improvement or initiative that solves an issue affecting the safety of firefighters and/or other personnel. These are not matters that simply make it easier to do a particular function but, in fact, change a currently unsafe situation into a safe one.

- Move three shift lieutenants to SUV's as shift commanders, providing supervision over both career stations and provides a Quick Response Unit capability in those situated that are triaged as such county-wide.
- Hire three firefighter/paramedics to fill the seats on the first response units vacated by the movement of the shift lieutenants to shift commander positions.
- Manipulative skills training and the use of the training tower are reported as infrequent because of budgeting. Re-examine the calendar, budget and operational systems to support more manipulative training.
- Implement a training officer position for training program development, scheduling, delivery, and evaluation by under-filling a vacant deputy chief position with a new Assistant Chief of Training position.
- Implement a performance-based skills testing process for all career firefighters on an annual, calendared basis.
- Imbed additional manipulative skills training into new career recruit training.
- Consider scheduling live fire training at Socorro for staff through the year.
- Initiate a training program for volunteer staff, which includes hands-on skills.

Priority 2 – Considerations That May Present Legal or Financial Exposure

The recommendation resolves a situation that is creating or has the potential to create an opportunity for legal action against the entity or its officials. It also may be a situation that could subject the entity to a significant expense.

- Complete the revisions and updates of the rules and regulations and standard operating Guidelines.
- Revise/update the code of ethics/code of conduct as a policy and train all personnel in its interpretation
- Enforce proper completion of all incident reports with occasional random audits of reports to ensure accuracy and elimination of redundancy

Priority 3 – Matters That Address a Service Delivery Issue

The recommendation addresses a service delivery situation that, while it does not create an immediate safety risk to personnel or the public, it does affect the department's ability to deliver service in accordance with its standards of performance. For example, adding a response unit to compensate for a growing response workload or delivering training needed to allow personnel to deal effectively with emergency responses already being encountered.

- Maintain a minimum of 18 active, qualified volunteer staff members in each district. Assist volunteers obtain the necessary DOT and OSHA physicals and certifications.
- Adopt NFPA 1720 Standards for response – twelve-minute travel times or less, 80% of the time.
- Train a cadre of core volunteers in each district to EMT or higher certification, assign them to a duty rotation and assign them to a take-home quick response vehicle for rapid initial response and assessment within their district.

Priority 4 – Considerations to Enhance the Delivery of Services

Recommendations that improve the delivery of a particular service. For example, relocating a fire station to improve response times to a particular part of town or adding a piece of equipment that will improve the delivery of a service.

- Improve data collection from members related to hours training and input into Image Trend system.
- Begin discussions with neighboring agencies to initiate formal, scheduled multi agency training activities on a regular basis.
- Set annual training goals and objectives.
- Develop a monthly training calendar that includes mandatory daily training for each member.
- Annual training report should be considered as part of the fire department annual report to community.
- Implement an inventory system for training equipment and conduct an inventory annually.

Priority 5 – An Important Thing to Do

The recommendation does not fit within any of the above priorities, but is still worth doing and can enhance the department's morale and/or efficiency

- Re-create the strategic plan at the end of 2016, addressing the missing elements and including internal and external stakeholders in its development
    - Provide a copy to all personnel, career, PRN, or volunteer
- Incorporate a "six-minute review" on policies during all training sessions
- Keep written minutes, or a summary, of the weekly staff meetings and circulate them throughout the department
- Flip the Sandoval County Chiefs Association meeting format, allowing the district chief's association to set the agenda and run the meeting, with a spot on the agenda for the fire chief or other command staff to speak on issues of broader application
- Update the district webpages linked to the SCFD website and standardize the look and information provided on each district page
- Create an annual report and publish it electronically, posting it on the website
- SCFD should implement a formal employee performance evaluation process on an annual basis for every employee.

Additional Commentary on Staffing

As described previously, the SCFD operates from two career staffed stations and eighteen volunteer stations (eight fire districts), with a separate administrative building for the fire department management team. These fire station locations within the service area are able to provide a response to the major concentrations of population within the county's jurisdiction. However, there are large expanses of the county with little or no population concentration, which make siting new fire stations an impractical solution to the nearly county-wide response gaps. Existing career staff is deployed in the most populated concentration in the unincorporated county. Those personnel, however, are challenged with the unenviable task of serving the fire and medical needs throughout the county as either primary response or augmenting the volunteer response. In essence, the majority of Sandoval County Fire Department's service area is served by eight volunteer fire districts, anchored by a skeletal career staff housed in the southeast (most densely populated) area of the county, whose purpose is to ensure a response and a medical transport system.

While ESCI recommends that the career staff be adjusted to maximize their utility, the volunteer programs in each of the eight fire districts must be a strong focus for the initial response in their areas. The tax base is simply not sufficient to support career staff additions in the outlying areas, nor do the demand for service and the population density justify such an endeavor. Specifically, the career staff enhancement ESCI recommends includes:

- Convert one of the existing vacant deputy chief positions to an assistant chief of training on a flexible day schedule to provide training for career staff and volunteer personnel mostly centered at their district stations.
- Move the three shift lieutenants off the front line ambulances and engines and onto an SUV carrying the necessary medical and incident command support equipment to perform as shift

commanders county-wide. This is a hybrid of what is known in the industry as Quick Response Vehicles (QRVs), with the lieutenants serving shift commanders. The shift commanders would be responsible to directly supervise the crews at both station 21 and station 43, as well as responding to, assessing, triaging and managing incident demand throughout the SCFD service area. This may include responding to some remote incidents in concert with the local volunteer fire district personnel and having the ambulance move up to a central area in anticipation of the need for a transport, but not overcommitting and placing themselves substantially out of position for the next likely incident to occur.

- Fill the vacant ambulance/engine seats left by the lieutenant moves recommended above with firefighter/paramedics to provide a full first response capability on either an engine or an ambulance, as the need dictates.

The savings of the second deputy chief vacancy can be used to partially offset the cost of the three new firefighter/paramedics.

There should also be a strong focus on a core group of reliable response volunteers within each district who are trained at least to the EMT level and assigned a duty rotation and a take-home QRV. The combination of all of the system enhancements should net a stronger tiered response system. When an incident occurs in remote areas of the county, the duty volunteer on a QRV should be able to respond directly to the scene and would likely arrive first. The rest of the volunteers in that district would respond to their assigned fire station for a more robust response with greater resources. The shift commander may also be responding to the scene as an advanced life support resource to back up the initial response, depending on how critical the call is triaged to be by the dispatch center (this assumes dispatch is using MPDS protocols appropriately). The remaining career staffed first response units may hold back (again, depending on the nature and severity of the call), or may respond if medical transport or sustained fire attack is required.

In the more densely populated area in the southeast corner of the department, the shift commander will respond quickly to assess and initiative patient care, triage, or command of an incident, whichever is called for. The remainder of the career staff will respond on first response units as appropriate for a more robust response with greater resources. Additional volunteer assets may also respond to achieve an effective response force to manage an incident, again depending on the nature of the incident.

In this tiered response system, SCFD is maximizing the use of all of the resources at its disposal; not overcommitting scare resources unless called for given the nature of the incident; relies appropriately upon the volunteers in each of their districts, but provides them with response support; and appropriately relies upon the career personnel for back-up response to the outlying areas and responses in the most densely populated (and greatest demand for service) area of the county.

Mid-Term Strategies

Mid-term recommendations are those that will require a substantial amount of work by the agencies. In some cases, there will be a significant financial impact (positive or negative) and local policymakers will

need to be involved from the beginning. The following recommendations are provided in no specific order and are offered as possible strategies to improve future operations.

Future Staffing

In addition to the severe shortage of line personnel, SCFD is also uniquely in need of administrative staff to manage the difficult challenges of a huge service area, eight separate volunteer fire districts and a career staff in the southeast corner of the county. With greater reliance upon volunteers, there is a greater administrative burden to support the activities of the volunteer districts. The recommended Assistant Chief of Training will need to collaborate with the Assistant Chief of Volunteer Recruitment and Retention and the volunteer fire district chiefs to meet the ongoing and diverse needs of the volunteers in each of the districts. However, the Assistant Chief of Volunteer Recruitment and Retention is a grant-funded position. Once the grant runs its course, the county must secure the position on a permanent basis. Failing to do so threatens to plunge the volunteer program into chaos and cripple the SCFD response system. In the future, additional administrative staff may be needed to address these needs adequately.

Training

While off-the-shelf training curricula is available and widely used in the fire service (such as IFSTA Essentials and the IFSTA Firefighting series), it is important to augment with agency-specific training procedures. Whether adopting some or all of the off-the-shelf offerings along with agency-specific procedures, all of the SCFD sanctioned procedures must be documented and compiled in a single location for ease of access and review by all personnel. These combined documents would be collectively referred to as the SCFD Training Manual. Once the training manual is compiled, all personnel must be briefed on the expectations related to the training manual, and that training manual must guide all training.

A companion to the training manual is individualized task books. Task books are used by state and federal wildland firefighting agencies and cross over easily to local fire agencies. The task books should be position specific (i.e., firefighter, engineer, lieutenant, captain, paramedic) and the competencies contained in the task book reflect the skills that should be mastered by a person in that position.

The task book allows the individual to take responsibility and control over his or her own training development. It also provides the assistant chief of training with an immediate glimpse into individuals' capabilities and areas needing additional work. It gives both a clear understanding of the areas yet to be mastered.

Providing these training aids to the career and volunteer personnel provide a level of shared accountability in that, the individual has responsibility to know where individual strengths and gaps lie and mention those gaps to the training chief. The training chief can, based on collective gaps within a specific district, develop training activities, which develop the skills of numerous people in the same district. It avoids having a training session for one or two people while losing the interest of the majority who already have had the training. For those individuals lagging behind their counterparts within the same district, specialized training offerings can be provided in a more centrally located area where multiple personnel

from any of the eight districts with the same gap can assemble and receive the training to catch up to their contemporaries.

SCFD Administration Building

The Sandoval County Administration Building is wholly inadequate. It is separated from the county administration and separated from the Sandoval County Fire Department. The building is old, overcrowded, and is better suited as a storage building than one containing offices. ESCI recommends that a suitable fire station (either Station 21 or Station 43) be remodeled to accommodate the entire administrative staff of the Sandoval County Fire Department, including room for future growth. This provides adequate space for the administrative function, creates better connectivity between the line staff, the command staff, and the administrative, and support staff.

Strategic Planning

With the many changes recommended in this report, it makes the need for a strategic plan more important. A strategic plan is used to guide the work effort of an organization for a five-year period. The elements of a strategic plan include the following:

- Creation or review and validation of the organization's mission (primary purpose for existing), vision for the future (what does the organization want to look like in the future) and cultural values (the often unwritten rules of behavior and conduct that make an employee successful)
- Conducting a SWOT analysis (strengths, weaknesses, opportunities, and threats to the organization)
- Identification of strategic initiatives (broad areas of emphasis)
- Identification of goals (actions required to achieve a strategic initiative
- Identification of objectives (measurable and quantifiable actions required to achieve a goal)
- Identification of critical tasks (the specific actions needed in the immediate term to achieve an objective)
- Desired outcomes (what is the intention of the objective? What does successful implementation look like?)
- Assignments and timelines

A strategic plan can be performed using strictly internal staff to conduct. The drawback to this approach is that it relies upon internal personnel to understand what the community it serves actually wants and prioritizes. A better approach is to include the community in a series of public forums to gather feedback on what the community wants. Once this is performed, internal staff can develop and refine a strategic plan that reflects the feedback from the community, ensuring close alignment between community expectations and organizational delivery of services. Of course, Sandoval can also contract with an outside agency to facilitate such a process as well.

Long-Term Strategies

The short and mid-term strategies discussed will move the organization forward substantially. A longer-term, high-level view of future needs is also important to provide a "big picture" view of how the organization needs to continue with future initiatives. Primarily, long-term strategies are centered on future workload projections and how they influence the future deployment of fire stations and personnel.

Apparatus Replacement Planning

As stated previously, no piece of mechanical equipment can be expected to last forever. As a vehicle ages, repairs tend to become more frequent, parts are more difficult to obtain, and downtime for repair increases. Given the emergency mission that is so critical to the community, downtime is one of the most frequently identified reasons for apparatus replacement.

Because of the expense of fire apparatus, most communities develop replacement plans. To enable such planning, communities often turn to the accepted practice of establishing a life cycle for the apparatus that results in an anticipated replacement date for each vehicle. The communities then set aside incremental funds during the life of the vehicle so cash is available when needed. This decision is influenced by many factors:

- Actual hours of use of any specific piece of equipment can vary significantly in comparison to other similar apparatus, even within the same fire department. Attempts to shuffle like apparatus among busy and slower fire stations to distribute hours of use more evenly have proven difficult. Frequent changes in apparatus could create familiarity and training challenges. In addition, certain response areas may have equipment and tool requirements that are not common to others.
- Actual hours of use, even if evenly distributed, do not necessarily equate to intensity of use. For example, a pumper making mostly emergency medical responses will not age as rapidly as a pumper with a high volume of working fire incidents that require intense use of the pump or hydraulics. However, for every hour you idle an engine it is equivalent to driving 33 to 35 miles of wear and tear. Likewise, road mileage can also be a poor indicator of deterioration and wear.
- Technology, which is increasingly a factor in fire equipment design, becomes outdated even if the apparatus wear is not as significant. In some departments, crews at different fire stations deal with widely different technology on pumpers simply because of the age of the equipment. These differences can be significant, affecting everything from safety and lighting systems to automated digital pump pressure controls and injection foam generation.

NFPA 1901: Standard for Automotive Fire Apparatus is a nationally recognized standard for the design, maintenance, and operation of fire suppression apparatus.[19] The issue of replacement cycles for various

[19] *NFPA 1901: Standard for Automotive Fire Apparatus*, 2009 edition.

types of apparatus has been discussed in the committee that develops the standard for many years. In developing its latest edition, the NFPA Fire Department Apparatus Committee called for a life cycle of 15 years for front-line service and five years in reserve status for engines; 15 years in front-line service and five years in reserve status for ladder trucks.

Does this mean that a fire engine cannot be effective as a front-line pumper beyond 15 years? A visit at many departments in the United States might prove otherwise. Many volunteer fire departments with only a hundred or so calls per year often get up to 25 years from a pumper, though the technology is admittedly not up to date. Likewise, busy downtown fire stations in some urban communities move their engines out of front-line status in as little as eight years.

The reality is that it may be best that SCFD establish a life cycle for use in the development of replacement funding for various types of apparatus; yet, apply a different method (such as a maintenance and performance review) for actually determining the replacement date in real life, thereby achieving greater cost efficiency when possible.

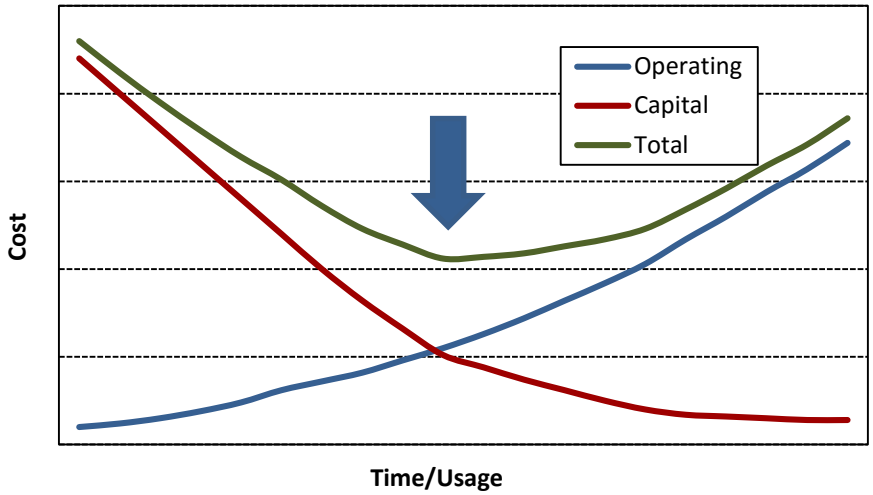
Further, the department has recognized that service time is not the only factor that should be considered in deciding when a vehicle needs to be replaced. Planning can be based on a scoring system; assigning points relative to observations that are revisited annually as a part of the budget process. The criteria evaluated may be:

- Reliability
- Maintenance Cost
- Condition

ESCI reviewed the vehicle replacement planning documentation provided and found the SCFD does not have an established, fully adequate and well-developed strategy. We offer the following as a general discussion only to provide some additional input on vehicle replacement approaches.

A conceptual model that may be used when a replacement cycle is considered is the *Economic Theory of Vehicle Replacement*. The theory states that, as a vehicle ages, the value of the capital equipment diminishes and its operating cost increases. The combination of these two factors produces a total cost curve. The model suggests the optimal time to replace any piece of apparatus is when the operating cost begins to exceed the capital costs. This optimal time may not be a fixed point, but rather a range of time. The flat spot at the bottom of the total curve in the following figure represents the replacement window.

Figure 116: Economic Theory of Vehicle Replacement



Shortening the replacement cycle to this window allows an apparatus to be replaced at optimal savings to the department. If an agency does not routinely replace equipment in a timely manner, the overall reduction in replacement spending can result in a rapid increase of maintenance and repair expenditures. Officials who assume that deferring replacement purchases is a good tactic for balancing the budget need to understand two possible outcomes that may happen because of that decision:

1) Costs are transferred from the capital budget to the operating budget.
2) Such deferral may increase overall fleet costs.

ESCI commends the department for its thoughtful approach in adopting a five-year plan in 2011; however, the plan will end in 2016. The SCFD vehicle replacement plan initiated in 2011 will expire in 2016. ESCI recommends the SCFD create a new replacement plan and funding, and gain approval for inclusion into the Sandoval County five-year budget plan.

The following section describes a sample plan based on apparatus approximate useful life as discussed by SCFD staff. With respect to SCFD, many apparatus do not fit neatly into a useful lifetime solely based on years or mileage. Some vehicles in the SCFD fleet may be ten or more years old, yet only have 5,000 miles and are still in quite good condition.

The following figure is a replacement schedule guideline developed as a reference by SCFD command staff.

Figure 117: SCFD Vehicle Useful Life Estimate[20]

Description	Approximate Useful Life	Expected Replacement Cost
Engine	25 Years	$300,000
Aerial Ladder Truck	20 Years	$600,000
Wildland Brush Engine	20 Years	$150,000
Volunteer Rescue Ambulance	15 Years	$190,000
Career Rescue Ambulance	7 Years	$190,000
Squad Fast Attack	25 Years	$200,000
Water Tender	25 Years	$250,000
SUV	15 Years	$45,000
Pick Up Truck	15 Years	$45,000
Engine Tender	20 Years	$300,000

Using the above data, the following figure is an example of a replacement schedule calculating only SCFD front line engines.

[20] Useful life data and apparatus replacement cost estimates were provided by SCFD command staff

Figure 118: Apparatus Replacement Schedule Example (Engines only)

Unit	Year	Replacement Cost w/inflation	Annual Fund Contributions w inflation	Current Cash Requirements	Current Age	Life Expected	Year Replaced
Engine 22	2008	$1,015,906	$40,636	$325,090	8	25	2033
Engine 25	2008	$1,015,906	$40,636	$325,090	8	25	2033
Engine 28	1998	$1,015,906	$40,636	$731,453	18	25	2023
Engine 31	1996	$1,015,906	$40,636	$812,725	20	25	2021
Engine 41	2006	$1,015,906	$40,636	$406,363	10	25	2031
Engine 42	1996	$1,015,906	$40,636	$812,725	20	25	2021
Engine 43	2011	$1,015,906	$40,636	$203,181	5	25	2036
Engine 44	1993	$1,015,906	$40,636	$934,634	23	25	2018
Engine 46	2008	$1,015,906	$40,636	$325,090	8	25	2033
Engine 47	1996	$1,015,906	$40,636	$812,725	20	25	2021
Engine 48	2008	$1,015,906	$40,636	$325,090	8	25	2033
Engine 51	2007	$1,015,906	$40,636	$365,726	9	25	2032
Engine 52	1996	$1,015,906	$40,636	$812,725	20	25	2021
Engine 53	1995	$1,015,906	$40,636	$853,361	21	25	2020
Engine 54	1986	$1,015,906	NA	$1,015,906	30	25	OVERDUE
Engine 55	2010	$1,015,906	$40,636	$243,818	6	25	2035
Engine 61	1996	$1,015,906	$40,636	$812,725	20	25	2021
Engine 62	1996	$1,015,906	$40,636	$812,725	20	25	2021
Engine 63	1993	$1,015,906	$40,636	$934,634	23	25	2018
Engine 64	2007	$1,015,906	$40,636	$365,726	9	25	2032
TOTAL/Avg.	**2003**	**$11,174,971**	**$446,999**	**$6,014,166**	**13.5**		

Based on the above example, were the County of Sandoval to *fully* fund fire department apparatus replacement plan (engines only), a current cash replacement fund balance of $6,014,166 would be needed, with an additional annual contribution planned for $446,999. Of course, State Fire Marshal shared revenues offset these costs to some degree based in part on the ISO rating for a given district.

Emergency Communications

While it is beyond the scope of this project to assess the emergency communications system of Sandoval County, it was anecdotally evaluated and found to be short of the necessary criteria to meet industry standards. While ESCI did not physically assess the center, it was clear in the data provided to perform the study that critical data elements are not generated, or are not generated accurately.

In interviews with personnel, concerns were expressed that dispatchers were not monitoring crews while on a call, crews are not properly sent on Medical Priority Dispatch System (MPDS) coded calls. MPDS is a unified system used to dispatch appropriate aid to medical emergencies including systematized caller interrogation and pre-arrival instructions. Often, the incorrect unit is dispatched. Dispatchers who

dispatched a call often switch to another console in the middle of a call, requiring a different dispatcher to finish the call without having the history of the incident or a fell for the dynamics of the call.

The dispatch center needs both a significant technology upgrade to automate most of the functions and dispatcher training which focuses on responder safety and MPDS procedures. The dispatch function is a critical component of emergency services to the county.

REVENUE AND EXPENDITURE FORECAST

ESCI developed a forecast of revenues and expenditures to assess the near term financial sustainability of current operations. The forecast is based on historical actual revenues and expenditures and informed assumptions about how those revenues and expenditures will change in the future. The key assumptions used in the forecast are presented below followed by the forecast results and selected metrics.

Forecast Assumptions

Revenue Forecast Assumptions

- EMS/Communications ¼% Tax (4010)
  - Slight uptick in this revenue is observed from actual FY 13/14 to FY 14/15.
  - Audited FY 15/16, when received will confirm if there is an improving trend.
  - Local economic data such as increase in home sales with bottoming out and slight improvement in prices, continued rise in employed workers and pay levels and overall improvements with the Albuquerque MSA suggest slow improving trend.
  - GRT estimated to increase at rate of 2 percent per year.
- Ambulance Billing Revenue (4010)
  - EMS response and subsequent transport based upon population growth and demographics.
  - Sandoval population estimated to increase at annual rate of 3 percent.
  - EMS revenue should track population growth rate and increase at 3 percent annually.
- Ambulance Contracts (4010)
  - No change is anticipated in the current contract rates of $150,000 and $100,000 per year for Santa Ana Region Fire/EMS and the Town of Bernalillo; respectively.
  - County should consider re-negotiating at least every two years; contract amounts static for approximately ten years and department has data showing contract amounts do not cover cost of providing service.
  - Contract amounts fixed at FY 15/16 rates for forecast period.
- Other Revenue (4010)
  - This category of revenue increased significantly in FY 14/15 with the addition of a FEMA volunteer coordinator and supporting revenue and the addition of helicopter revenue.
  - This revenue category has been relatively stable for the last two years and is expected to increase with the rate of inflation at 2 percent annually.
- Fire Fund ¼% Tax (4011)
  - As with EMS/Communications ¼% GRT, a slight uptick in this revenue is observed from actual FY 13/14 to FY 14/15; however, a large portion of this revenue stream is used to service bonded indebtedness, which will continue though the forecast period.
  - GRT at FY 15/16 level is estimated to increase at rate of 2 percent per year.
- SACo Fire (4170)
  - This revenue stream has remained relatively static for the past five years and is maintained for the forecast period at the FY 15/16 rate.
- State Fire Funds (all districts)

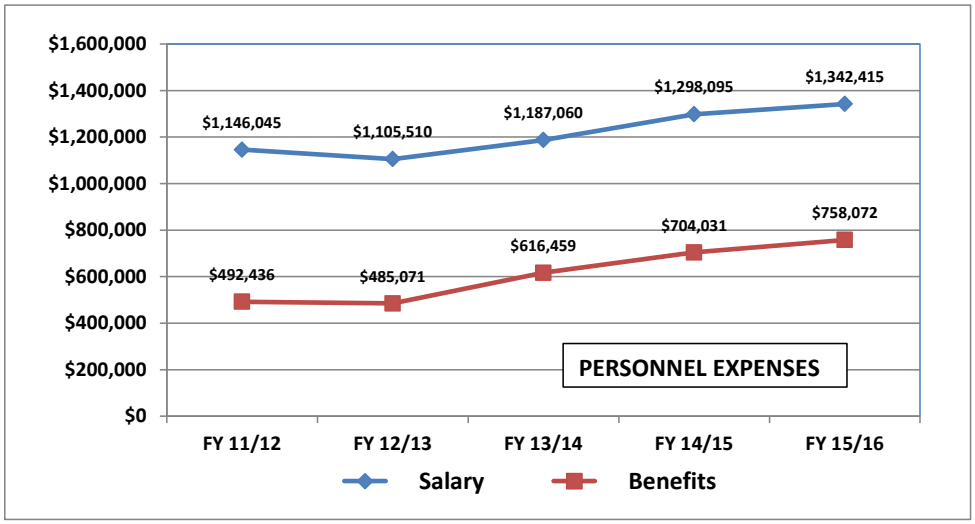
  - In aggregate, these funds are relatively static but they are based upon a formula using ISO PPC ratings and if improvements are made, then the funds may be increased.
  - FY 15/16 saw an increase of approximately $100,000 over the prior four years.
  - Due to the static nature of these funds, an average of all five years was used ($1.1 million) and maintained through the forecast period.
- State EMS Funds (all districts)
  - In aggregate, these funds are relatively static but have shown some fluctuation.
  - Due to the static nature and relatively small amount of these funds, an average of all five years was used ($87,000) and maintained through the forecast period.
- Wildland Reimbursement (4241)
  - This funding source is relatively small but can be expected to continue year-to-year.
  - Variation in amount is based upon wildland response and will fluctuate; therefore, an average of all five years was used ($45,000) and maintained through the forecast period.
- Non-recurring Revenues
  - It is unknown where or when such sources may arise and are typically based upon funding from other governmental sources such as state or federal that must be applied for and are applied to major capital projects or apparatus purchases.
  - No non-recurring sources were programmed for the forecast period.
- Transfers In (Out)
  - The major transfer experienced annually by the fire department is a transfer from the General Fund into the 4010 Fund.
  - This specific transfer has grown significantly in the past several years and is projected to be the major source of revenue to offset increasing expenditures in the forecast period; particularly since cash carried forward will essentially be fully depleted by the end of FY 15/16 at the current rate of expenditure.
  - During the forecast period, this source of revenue is used to balance the budget and is increased accordingly.
- Cash Carried Forward (aggregate)
  - FY 15/16 will see almost complete use of the current year cash carried forward amount of $1,072,774 to offset increased expenditures.
  - Unless other revenue sources are found there will be no cash carried forward in aggregate for the fire department during the forecast period.

Expense Forecast Assumptions

- Salaries/Wages
  - Although salaries/wages have increased from $1,105,510 in FY 12/13 to $1,342,415 in FY 15/16 or 7 percent annually, staffing has been added to the department.
  - Assuming the current level of staffing with no changes, salaries/wages are increased at 3.4 percent annually for the forecast period.
- Employee Benefits

- Although total employee benefits (including volunteer compensation) have increased from $485,071 in FY 12/13 to $758,072 in FY 15/16 or 19 percent annually, staffing has been added to the department.
- As above, rate of increase for benefits from FY 14/15 to FY 15/16 (7.7 percent) should be more representative of status quo staffing levels projected into the near future.
- Assuming the current level of staffing with no changes, benefits are increased at 7.7 percent annually for the forecast period.

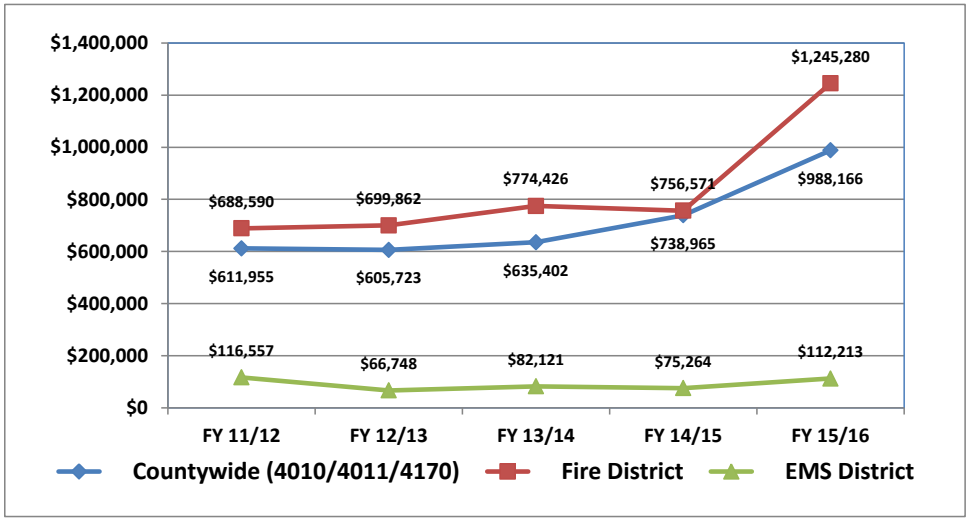
Figure 119: Personnel Services Expenses FY 11/12 through FY 15/16



- Countywide Operating Expenses (Funds 4010/4011/4170)
  - Operating expenses have increased significantly from FY 13/14 to FY 15/16 rising from $635,402 to $988,166 in two years for an annual rate of 27.8 percent.
  - It is forecast that this trend will not continue and that the annual rate of increase will be no more than the inflation rate estimated at 2 percent per year.
  - FY 15/16 costs are used as the basis for the forecast period applying an annual increase of 2 percent over the forecast period.
- Fire District Operating Expenses (all districts)
  - Operating expenses remained relatively static with only slight annual increases from FY 11/12 through FY 14/15
  - The aggregate experienced a large, one-year increase from $756,571 to $1,245,280 or 64.6 percent between FY 14/15 and FY 15/16.
  - It is forecast that this trend will not continue and that the annual rate of increase will be no more than the inflation rate estimated at 2 percent per year.
  - FY 15/16 costs are used as the basis for the forecast period applying an annual increase of 2 percent over the forecast period.
- EMS District Operating Expenses (all districts)

- Operating expenses remained relatively static with only slight annual changes from FY 11/12 through FY 15/16 and the aggregate amount is relatively small.
- It is forecast that the annual rate of increase will be no more than the inflation rate estimated at 2 percent per year.
- FY 15/16 costs are used as the basis for the forecast period applying an annual increase of 2 percent over the forecast period.

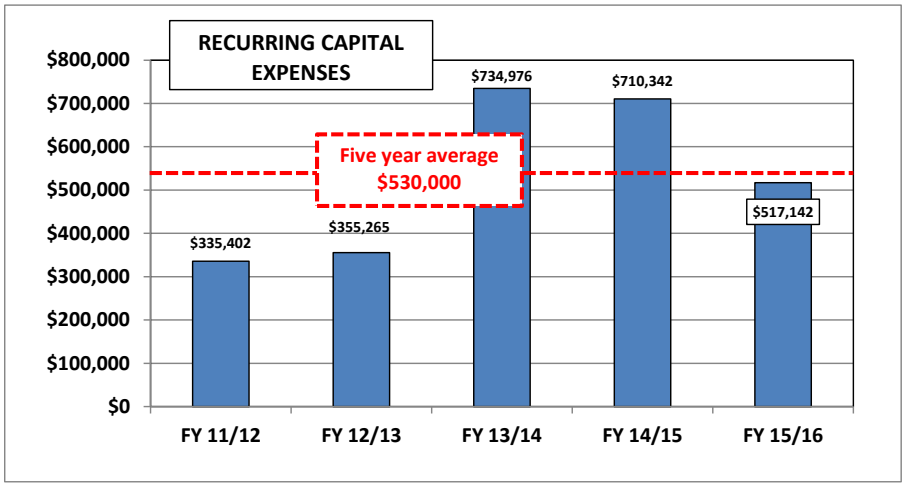
Figure 120: Operating Expenses FY 11/12 through FY 15/16



- Wildland Operating Expenses (4241)
  - Wildland operating expenses have increased significantly over the period FY 11/12 to FY 15/16 from nothing in FY 11/12 to $170,358 in FY 15/16.
  - It is unknown whether further major increases in this expense will be experienced.
  - For the purposes of this forecast, the FY 15/16 amount of $170,358 is projected to remain relatively static and increase only at the rate of inflation.
  - The FY 15/16 amount is used as the basis and increased at a rate of 2 percent per year for the forecast period.
- Non-Recurring Capital Expenses
  - Large one-time expenditures for capital apparatus or facilities are generally programmed through a five-year capital improvement plan (CIP) and one-time funding sources generally secured for such expenditures. These could be bonded funds, loans, grants, etc. which could come from a variety of sources.
  - It is not anticipated that the department will be in a position to undertake such projects during the forecast period.
  - No non-recurring expenditures were programmed for the forecast period.
- Recurring Capital Expenses
  - Annual capital apparatus and equipment replacement and facility repairs up to a certain point can be considered recurring expenses to maintain a certain level of service.
  - Aggregate recurring capital expenses have varied considerably over the past five years.

- For the forecast period, an average of the last five years of recurring capital expenses ($530,000) has been used as a basis for the forecast period.
- The five-year average has been increased at an annual rate of 3 percent, which corresponds to ESCI experience with the fire apparatus and construction industry nationwide.

Figure 121: Recurring Capital Expenses FY 11/12 through FY 15/16



Financial Forecast Results

Applying the revenue forecast assumptions identified above results in the revenue forecast presented in the following figure. Total revenue grows from approximately $5.3 million in FY 15/16 to $7.2 million by FY 20/21. The annual growth rate in revenue is approximately 7.3 percent per year. This increase is driven primarily by an increase in transfer from the county General Fund to the fire department to supplement lack of sufficient other revenue sources. Total reserves for cash carried forward are depleted in the first year of the forecast period with no cash reserves added in subsequent year. This need for a significant increase in transfer from the General Fund will force a re-prioritization of county services if no additional recurring revenue sources are found.

Figure 122: Revenue Forecast by Revenue Type

	Budget FY 15/16	Forecast FY 16/17	Forecast FY 17/18	Forecast FY 18/19	Forecast FY 19/20	Forecast FY 20/21
Recurring Revenue	**$3,221,975**	**$3,183,746**	**$3,221,529**	**$3,260,223**	**$3,299,849**	**$3,340,432**
EMS/Communications 1/4% Tax (4010)	$650,000	$663,000	$676,260	$689,785	$703,581	$717,653
Ambulance Billing (4010)	$500,000	$515,000	$530,450	$546,364	$562,754	$579,637
EMS Contracts (4010)	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
Other Revenue (4010)	$159,762	$162,957	$166,216	$169,541	$172,932	$176,390
Fire Funds 1/4% Tax (4011)	$285,000	$290,700	$296,514	$302,444	$308,493	$314,663
SACo Fire (4170)	$70,089	$70,089	$70,089	$70,089	$70,089	$70,089
State Fire Funds (all districts)	$1,191,466	$1,100,000	$1,100,000	$1,100,000	$1,100,000	$1,100,000
State EMS Funds (all districts)	$105,658	$87,000	$87,000	$87,000	$87,000	$87,000
Wildland Reimbursement (4241)	$10,000	$45,000	$45,000	$45,000	$45,000	$45,000
Non-Recurring Revenue	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Transfers In (Out)	**$1,000,000**	**$2,358,378**	**$2,698,898**	**$3,043,579**	**$3,435,216**	**$3,881,714**
Cash Carried Forward	**$1,072,774**	**$36,103**	**$0**	**$0**	**$0**	**$0**
Total Revenue	**$5,294,749**	**$5,578,227**	**$5,920,428**	**$6,303,802**	**$6,735,065**	**$7,222,146**

Figure 123: Expenditure Forecast by Expenditure Type

	Budget FY 15/16	Forecast FY 16/17	Forecast FY 17/18	Forecast FY 18/19	Forecast FY 19/20	Forecast FY 20/21
Personnel Services	**$2,100,487**	**$2,204,501**	**$2,314,561**	**$2,431,066**	**$2,554,444**	**$2,685,152**
Salary	$1,342,415	$1,388,057	$1,435,251	$1,484,050	$1,534,507	$1,586,681
Benefits	$758,072	$816,444	$879,310	$947,017	$1,019,937	$1,098,472
Operating Expenses	**$2,516,017**	**$2,566,337**	**$2,617,664**	**$2,670,017**	**$2,723,418**	**$2,777,886**
Countywide (4010/4011/4170)	$988,166	$1,007,929	$1,028,088	$1,048,650	$1,069,623	$1,091,015
Fire District	$1,245,280	$1,270,186	$1,295,589	$1,321,501	$1,347,931	$1,374,890
EMS District	$112,213	$114,457	$116,746	$119,081	$121,463	$123,892
Wildland (4241)	$170,358	$173,765	$177,240	$180,785	$184,401	$188,089
Capital Expenses	**$517,142**	**$545,900**	**$562,277**	**$579,145**	**$596,520**	**$614,415**
Non-Recurring						
Recurring	$517,142	$545,900	$562,277	$579,145	$596,520	$614,415
Total Expenses	**$5,133,646**	**$5,316,738**	**$5,494,502**	**$5,680,229**	**$5,874,381**	**$6,077,454**

Applying the expense forecast assumptions identified above results in the expense forecast presented in the previous figure. Personnel expenses represent roughly 44 percent of total forecasted annual recurring expenses by FY 20/21, up from 41% in the adopted FY 15/16 budget as shown in the next figure. Total Personnel Services expenses grow from $2.1 million in FY 15/16 to $2.69 million by FY 20/21 for an annual rate of 5.6 percent per year. Total operating expenses grow from $2,516,017 in FY 15/16 to $$2,915,896 in FY 20/21. Overall, operating expenses are forecasted to increase by approximately 2 percent per year. Recurring capital expenses grow from $517,142 in FY 15/16 to $614,415 by FY 20/21.

Figure 124: Comparison of Department Recurring Expenditures by Major Category FY 15/16 and FY 20/21

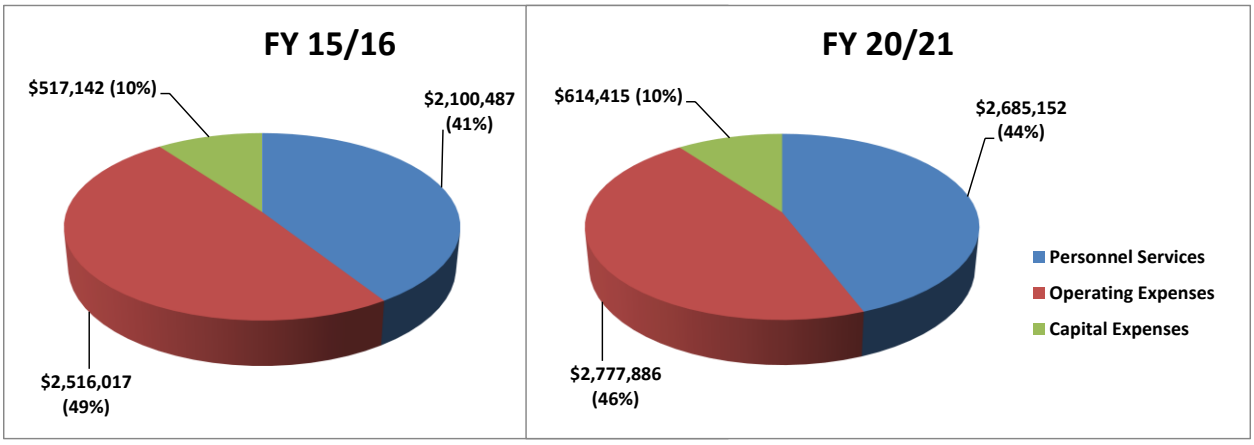
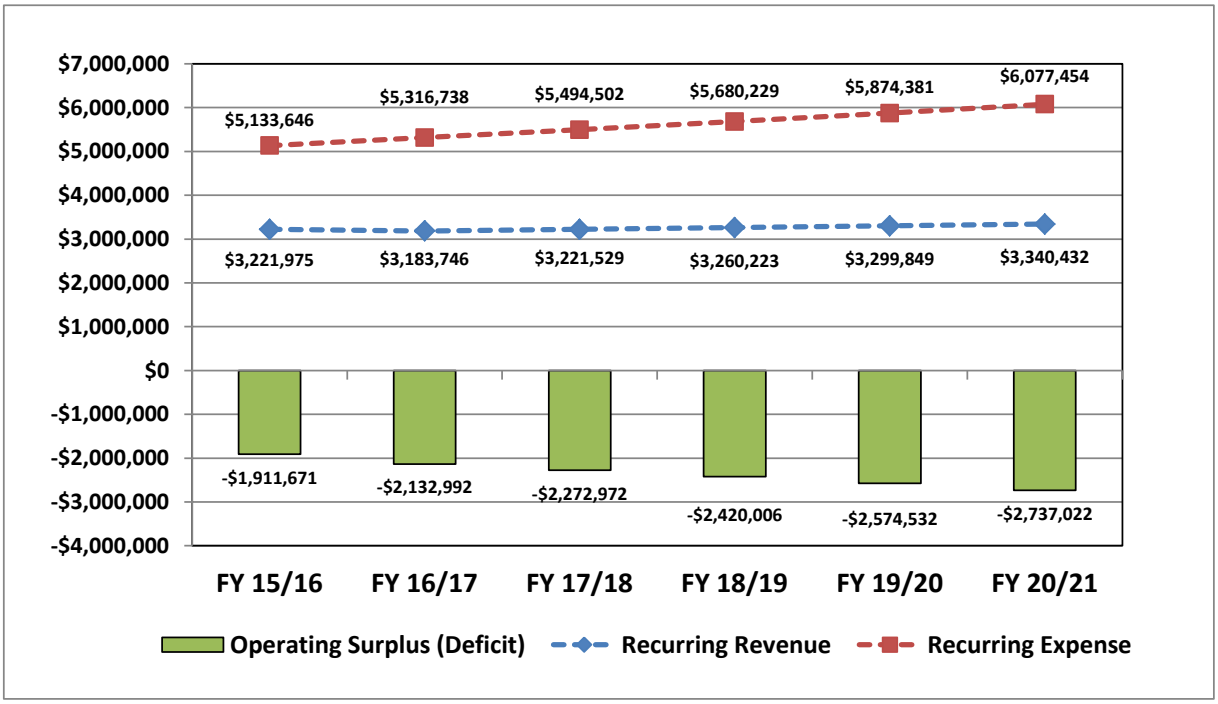


Figure 125: Department Revenues and Expenditures – Forecast (Status Quo-Paid)



The previous figure illustrates the relationship between forecast recurring expenditures and recurring revenues through time assuming no change in current staffing and service level (status quo). As discussed earlier, the department will have effectively used its entire reserve for cash forward by the end of the current fiscal year. The department is spending considerably more to maintain the current level of service than it is bringing in with all of its various dedicated revenue sources. The only way that the county can continue to support the current level of fire and EMS services is to either increase the transfer from the General Fund from its current level of $1 million to $2.74 million by FY 20/21 or add other, yet unidentified, revenue sources. The current trajectory of General Fund transfers is unsustainable without crippling other county services since the General Fund is not expected to increase at a rate capable of

sustaining this rate of transfer. It should be noted that fire department administration is aware of this trend and is already taking steps to reduce expenses to the extent it can and still maintain current service levels.

Conclusion

Notwithstanding the fiscal environment as outlined in this report, there are several recommendations with respect to staffing modifications and additions that are expected to create a safe and reasonable level of service to the citizens of Sandoval County. The county must balance the need to provide the service with the ability to pay for these services. Finding that balance point is a dilemma facing the county that requires a policy decision from the county elected officials.

The ESCI project team began collecting information concerning the Sandoval County Fire Department in late 2015. The team members would like to thank the SCFD fire chief, his staff, members and employees for their tireless efforts in bringing this project to fruition.

Appendices

APPENDIX A: TABLE OF FIGURES

APPENDIX B: DATA SURVEY TABLES

SURVEY TABLE 1: ORGANIZATION OVERVIEW

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
RESPONSIBILITIES & AUTHORITY	
Type of governing body?	**County Commission**
Head of governing body (name, title)	**Chairman Darryl Madalena**
Top appointed official (name, title)	**Phil Rios County Manager**
Meeting schedule	**First and Third Thursday each month**
Is elected official authority defined? Where?	**Yes, County Ordinance**
Fire chief position (name)	**James Maxon**
Hired by contract?	**No and not serve at will – only terminated for cause (classified**
Term of contract	**N/A**
Performance evaluations given? (How often)	**Yes, once per year (by policy), last fire chief evaluation in 2012**
Fire chief's authority defined? Where?	**Yes, in county ordinance (will provide as separate document)**
Policy & administration roles defined? Where?	**Chiefs Roles and Responsibilities Document**
SUCCESS ATTRIBUTES	
Rules and regulations last reviewed/updated?	**Rules & Regulations, SOPs last updated 2009- revision nearly**
Process for revision provided to line staff?	**Yes – drafts sent out for feedback, hard copy at each station**
Legal counsel retained? (Name, specialty)	**We use our county attorney when needed**
Consultation available to fire chief?	**Yes**
Labor counsel available to fire chief?	**Yes, from HR or legal**
Governing body minutes maintained? Where?	**County Commission minutes are on www.sandovalcounty.com**
ORGANIZATIONAL STRUCTURE	
Structure type (Describe hierarchy)	**Will provide a chain of command chart**
Descriptions of all jobs maintained?	**Yes**
Job descriptions last updated? (Date)	**Varies but within a few years**
Positions with employment agreements	**One contract emergency management position (EMPG grant 50%)**
CHAIN OF COMMAND	
Span of control (highest ratio in organization)	**Fire Chief has 8 career direct reports (high ratio)**
Hiring/Firing authority (describe)	**Per county personnel ordinance and collective bargaining agreement**
FORMATION	
When was organization formed?	**July 1, 2005**
Is FD history maintained?	**Somewhat**
Individual or group responsible	**Not specifically assigned**
AGENCY DESCRIPTION	
Agency type (district, municipality, etc.)	**County Fire Department with eight legally defined districts**
Area in square miles	**3,700**
Headquarters location (physical address)	**314 Melissa Road Bernalillo NM 87004**
Number of fire stations	**20 stations (1 inactive station because of fire)**
Other facilities	**Fire Administration, EOC within fire station, Training Tower**
Emergency vehicles (number, type)	
Engine	**20 Engines and 5 Quick Attacks**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Engine, reserve	**2**
Ladder truck	**1 Quint**
Ladder, reserve	**None**
EMS unit (ALS, BLS, 1st Responder)	**2 Medic Units 9 transport capable volunteer rescues**
EMS unit, reserve	**2 Medic Units**
Command Vehicles	**30**
Boat/Water craft	**0**
Tenders/Brush	**19 Tenders/ 14 Brush Trucks**
Support Vehicles (not staff vehicles)	**23**
ISO rating	**Two (5), One (6), Three (8B), Two (9) – 8 separate districts**
Date of most recent rating	**2015**
Total FD personnel, uniformed & civilian	(Only one category per person unless a position is specifically split)
Admin. & support personnel, full-time	**1 Chief, 1 Deputy Chiefs, 2 Assistant Chiefs, 2 Admin. Asst.**
Admin. & support personnel, volunteer	**3**
Admin. & support personnel, part time	**1 EMS Billing Clerk**
Operational personnel, full-time	**12**
Operational personnel, part time	**15**
Operational personnel, volunteer	**130**

SURVEY TABLE 2: MANAGEMENT COMPONENTS

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
STRATEGIC PLANNING	
Mission statement adopted?	**Yes**
Displayed? (Where?)	**Around department on brochures, on facebook page, on website**
Vision established & communicated?	**No**
Values of staff established?	**No**
Strategic or master plan?	**Strategic Plan expired one year ago**
Adopted by elected officials?	**Yes**
Published and available?	**Yes**
Periodic review?	**Yes**
Agency goals & objectives established?	**Yes, but not updated since recession started**
Date developed?	**Approximately 2009**
Periodic review?	**N/A - expired**
Code of ethics/conduct established?	**Not in the hands of all personnel**
REGULATORY DOCUMENTS	
Rules available for review during site visit?	**Yes**
Last date reviewed?	**2015**
SOPs available for review during site visit?	**Yes**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Regularly updated?	**New process put into place in 2015**
SOGs used in training evolutions?	**Yes**
Policies available for review during site visit?	**Yes**
Internally reviewed for consistency?	**Yes**
Internally reviewed for legal mandates?	**Yes**
Training on policies provided?	**Yes, but there needs to be improvements made (six minute reviews?)**
CRITICAL ISSUES	
Critical issues from fire chief's perspective	
First critical issue	**Staffing**
Second critical issue	**Training**
Third critical issue	**Policies & Procedures (and training on them)**
COMMUNICATION	
Internal Communications	
Regularly scheduled FD staff meetings?	**Weekly (Command staff and admin assistants) invite on duty lieutenant. if available**
Written staff meeting minutes?	**No**
Memos used?	**Yes – primarily e-mail memos**
Member newsletters?	**Chief updates via e-mail at least six times each year (electronic)**
Member forums (all hands meetings)?	**Not possible for entire department but it accomplished on a district by district basis.**
Open door policy?	**Yes, well known open door policy.**
Vertical communication path clearly identified (Chain of Command)?	**Yes, but challenges occur in volunteer ranks. District chief is 1st step**
External Communications	
Community newsletter issued?	**No**
Department website?	**Yes**
Advisory committee(s) used?	**No**
Formal complaint process in place?	**Yes, and customer service cards**
Community survey used?	**Thank You Cards request contact for feedback**
DOCUMENT CONTROL	
Process for public records access in place?	**Yes, we follow the county policy**
Hard copy files protected? (How?)	**Yes, lock and key and alarm**
Computer files backed up (on site/off site)?	**Off site**
SECURITY	
How are FD buildings secured?	**Most have combo locks**
How are FD offices secured?	**Alarm and combo**
How are FD computers secured?	**Log in and password protected**
How are FD vehicles secured?	**Inside or locked**
Is capital inventory maintained?	**Yes, per county policy**
Asset security system used? (Describe)	**Yes, truck checks are made on a regular basis.**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
How often is a capital inventory performed?	**Once per year**
Monetary controls used	
Cash access controls in place? (Describe)	**No cash**
Credit card controls in place? (Describe)	**Yes, only County Finance Director has one**
Purchasing controls in place? (Describe)	**Yes, automated purchase order system with copies to Finance, District Chief's, Fire Chief, Deputy Chief – all approval by the Fire Chief per County Policy.**
REPORTING & RECORDS	
Records kept by computer?	**Yes**
What operating system?	**Windows and Tyler (Financial Management Software)**
Periodic reports to elected officials	**Monthly report to County Commission required**
Financial reports?	**Ambulance Revenues monthly**
Management reports?	**Yes**
Operational reports?	**Yes**
Annual report produced?	**No**
Distributed to others?	**N/A**
Analysis of data provided in report?	**N/A**
Required records maintained?	**Yes**
Incident reports?	**Yes**
Patient care reports?	**Yes**
Exposure records?	**Yes**
SCBA testing? (internally or contracted?)	**Contracted – Emergency Service Supply Company**
Hose testing? (internally or contracted?)	**Contracted – Fire One**
Ladder testing? (internally or contracted?)	**Contracted - Fire One**
Pump testing? (internally or contracted?)	**Contracted - Fire One**
Breathing air testing? (Who tests?)	**Mesa Air per relevant standards.**
Vehicle maintenance records (who keeps?)	**Yes, at Public Works**
Gas monitors calibrated (who performs?)	**Deputy Chief**
PLANNING	
Does FD have a capital facilities plan?	**Expires at the end of 2015**
Plan period?	**5-year plan**
Periodic review?	**Yes**
Specific projects identified? (list)	**Yes**
Funding identified or set aside?	**Yes**
Apparatus/equipment replacement plan	**Plan will be updated when we can bond again in 2020. The county maintains a plan that we include our front line ambulances on.**
Plan period?	**Has been a 5-year plan**
Periodic review?	**Yes**

SURVEY TABLE 3: FISCAL MANAGEMENT

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
FINANCE OVERVIEW	
Designated fiscal year?	**Yes, July 1 – June 30**
Current year FD general operating fund budget	**$2,715,530**
FD general fund property tax levy (if district)	**N/A**
Levy rate (5-year history)	**N/A**
Levy collection rate (5-year history)	**N/A**
Outstanding bonds, fire department	**$5 million bond from 2005 through 2019 (used for apparatus)**
BUDGETARY CONTROLS	
Budget officer (Name)	**Cassandra Herrera Finance Director**
Budget development process	**Fire Chief makes preliminary budget to be presents to County Manager**
What is the role of elected officials?	**Approval**
What is the role of administration?	**Recommend**
What is the role of management team?	**Stay practical and present a budget**
What is the role of staff?	**Request needs**
Budget adoption process	
Describe budget approval process	**Fire Chief looks at budget needs and makes a budget for each area of the department. Fire Chief is responsible for making sure that projected revenues match each budget request. Fire Chief is also responsible for the collection of EMS Billing revenues, and contract revenues (EMS and Communications) from other entities. Each of the eight districts have their own budgets from NM State Fire Funds and NM State EMS Funds. Each District Chief meets with the Fire Chief and is able to design a budget that meets the needs of their district (collaborative approach). Career staff are based in the South District and are part of that budget. Fire Chief has the final say on all budget matters before they go to the Finance Director or County Manager. Fire Excise Tax budget is set by the Fire Chief after looking at tax projections and history. Fire Chief negotiates contracts with outside ambulance transport providers (3), communications contracts (5), and the contract for the county to provide ambulance transport to the Town of Bernalillo and Santa Ana Pueblo. County serves as fiscal agent for Federal Pueblos (3) that receive State EMS Funds. Final preliminary budget request is presented to the County Manager. Final budget is made by County Manager and presented to County Commission for approval.**
Auditor	**State Fire Marshal 100% audit for State Fire Funds on an annual basis. EMS Bureau**
Is there an FD central supplies/logistics?	**We have central receiving and purchasing. There is not a central supplies or logistics warehouse.**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Are there joint agreements/ventures?	**We have a JPA for dispatch services. Dispatch fees through the JPA are**

SURVEY TABLE 4: STAFFING & PERSONNEL MANAGEMENT

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
POLICIES, RULES, REGULATIONS, & OPERATIONAL GUIDELINES	
Human resource manager (Name)	**Patricia Miller**
Personnel policy manual maintained?	**Yes**
Manual provided at initial hiring?	**Yes**
Training provided?	**Yes**
Periodically reviewed & updated? (Frequency)	**Yes, annual**
Outdated policies retained?	**Yes**
COMPENSATION, POINT SYSTEM, & BENEFITS	
Uniformed employee compensation, FT annual	Modify titles to reflect actual positions (# of positions held & annual salary)
Fire chief	**$81,690**
Deputy chief	**$70,695**
Asst. chief	**$59,427**
Fire marshal	**N/A**
Battalion chief	**N/A**
Training captain, nonexempt	**N/A**
Deputy fire marshal, nonexempt	**N/A**
Emergency management coordinator, exempt	**N/A**
Field training officer, captain, non-exempt	**N/A**
EMS program coordinator, non-exempt	**N/A**
Captain	**N/A**
Information Technology coordinator	**N/A**
EMS field supervisor	**N/A**
Fire Investigator	**N/A**
Fire plans examiner/inspector	**N/A**
Lieutenant	**$58,433**
Engineer	**N/A**
Firefighter/paramedic	**$43,324 (the collective bargaining agreement has salary steps)**
Public Information Officer	**N/A**
Firefighter II	**N/A**
Firefighter I entry level	**$42,084**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Firefighter trainee (unauthorized to enter IDLH w/o supervision)	**N/A**
Additional compensation	Modify descriptions to reflect other compensation
EMT premium pay? (Amount)	**N/A**
Paramedic pay? (Amount)	**N/A**
Clothing allowance? (Amount)	**Clothing provided by agency**
Longevity pay? (Amount)	**Yes, in contract**
Other specialty pay (Be specific – amount)	**N/A**
Non-uniformed employee comp., FT annual	Modify titles to reflect actual positions (annual salary)
Administrative assistant	**$38,476**
Secretary to the Board	**N/A**
Career employee benefits	Modify descriptions to reflect other benefits
Social Security	**7.65% for all employees**
Worker's compensation	**Yes**
Pension	**PERA 30.75%**
Deferred compensation	**See salary schedule**
LOSAP	**State Retirement $100.00 per month after 10 years or $250 @ 25 YR**
Other benefits/incentives	**$10.00 per call or training session**
REPORTS & RECORDS	
Personnel records maintained?	**Yes**
Application retained?	**Yes**
Historical records archived?	**Yes**
Performance evaluations retained?	**Yes**
Injury & accident records retained?	**Yes**
Health & exposure records maintained?	**Yes**
DISCIPLINARY PROCESS	
Disciplinary policy established?	**Yes**
Disciplinary process communicated?	**Yes**
Appeal process provided?	**Yes**
Recent litigation (Describe)	**No**
Pending litigation (Describe)	**No**
COUNSELING SERVICES	
Critical incident stress debriefing?	**Yes, well established Chaplain Program with 24 hotline**
Employee assistance program? (Describe)	**Yes, EAP for all paid employees**
Intervention program? (Describe)	**Yes, through Chaplain or Peer Support**
APPLICATION & RECRUITMENT PROCESS	
Recruitment program? (Describe)	**Yes, for volunteers on social media or direct mail**
Application process	**Yes, formal process**
Qualification check?	**Yes**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Reference check?	**Yes**
Background check?	**Yes**
Physical standards established?	**Yes, for interior firefighters and those that drive**
Knowledge testing?	**Yes**
Interview?	**Yes**
Medical exam required?	**Yes**
Psychological exam required?	**No**
TESTING, MEASURING & PROMOTION PROCESS	
Periodic skills testing?	**No**
Periodic physical competence testing?	**Annual Physical Abilities for interior firefighters**
Periodic performance review?	**Yes, for volunteer and career**
Promotional testing? (Frequency & process)	**Yes, as needed**
HEALTH & SAFETY	
Medical standards established?	**Yes, in accordance with NFPA 1582 or DOT Physical for drivers**
Periodic medical exam?	**Yes, initially or at least every two years**
Safety committee established?	**At the county level**
ADMINISTRATION & OTHER SUPPORT STAFF	
Fire chief	**1**
Deputy chief	**3**
Asst. chief	**2 (1 Emergency Manager & 1 Volunteer Recruitment &Retention - SAFER Grant funded**
Admin. B/C	**N/A**
Admin. Capt.	**N/A**
Administrative assistant	**3 (1 general duty, 2-EMS Billing)**
Receptionist	**Staffed with volunteers**
Total administrative & support staff (Number)	**3**
USE OF CAREER & VOLUNTEER PERSONNEL	
Career schedule	
Length of normal duty period (length of shift)	**48/96 (Maximum of 96 consecutive hours)**
FLSA period	**28 days**
Duty hours per week (average)	**53**
Normal shift begins (time)	**0900**
Call-back requirements?	**Voluntary and not effective**
Residency requirements?	**No**
Standby duty requirements?	**No**
Operational career services	List all that apply
Fire suppression	**Cross Staffing of two paid per career station for fire or EMS**
Public education	**N/A**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Hazardous materials response (level)	**Operational**
Volunteer services	
Chaplain	**3**
Civilian administrative volunteer	**3**
RESPONSIBILITIES & ACTIVITY LEVELS OF PERSONNEL	
Committees and work groups	List all that apply
EMS quality management	**Medical Directors**
Training	**Spread throughout dept. without a single person responsible**
Safety	**Deputy Chief EMS**
Standards	**Fire Chief with LMC, Volunteer Chiefs Assoc., or staff**

SURVEY TABLE 5: SERVICE DELIVERY & PERFORMANCE

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
DEMAND	
Risk Analysis	
Target hazards identified? (How?)	**Yes, through Pre Plans**
Call distribution tracked by type/severity?	**No**
Call distribution tracked geographically?	**No**
Fire-flows identified? (by area & high hazard?)	**Yes, by ISO and by Pre Plans**
DISTRIBUTION	
Facilities	**We have facilities geographically located based on population.**
Effective reach identified (1st due travel time)	**Only within an ISO scale because the county is 3,700 square miles.**
Geographical barriers/gaps identified?	**Yes**
Overlap of response areas identified?	**We don't have much overlap because everything is far apart.**
Apparatus	
Are vehicles appropriate to risk?	**Yes**
Pumping capacity effective for initial attack?	**Yes**
Ladders appropriate for rescue/elevated ops?	**Yes, we have one quint for the Hyatt and Casino**
Staffing	
Adequate for initial attack of typical risk?	**No**
Volunteer staffing turnout time tracked?	**No but I know it is not good**
CONCENTRATION	
Effective response force	**Does not meet NFPA 1710 or NFPA 1720 (South District is closest to meeting a standard)**
Defined by call type?	**The department page large geographic areas of districts in hopes of having enough firefighters to answer the call. The amount of firefighters responding varies greatly by each area of the county. The career staff are concentrated in one area. I will provide some run summaries with number of personnel for each district.**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Achieved by 10 minutes?	**South District can usually meet this requirement in certain parts of the district.**
RELIABILITY	
Workload Analysis	
Unit-hour utilization (UHU) tracked?	**No**
Failure rate by unit/station identified?	**No**
Concurrent calls/demand shifting quantified?	**No**
Percent of responses achieving timely assembly of effective response force tracked?	**No**
PERFORMANCE	
Cascade of Events	
Alarm time measured?	**Yes**
Call-processing time measured?	**Yes**
Notification time measured?	**Yes**
Turnout time measured?	**Yes**
En route time measured?	**Yes**
Travel time measured?	**Yes**
Arrival time measured?	**Yes**
Total response time measured?	**Yes**
MUTUAL AID/AUTO AID	
Given to others?	**Yes, we are automatic aid to Town of Bernalillo on all fires.**
Received from others?	**Yes, often**
FIRE STATIONS	
Total number of fire stations	
Number of stations staffed full-time	**2**
Number of stations staffed part-time	**0**
Number of stations staffed with volunteers	**18**
Number of stations unstaffed (mostly storage)	**1**
Response-time goals adopted?	
For fire emergencies?	**No**
For EMS emergencies?	**Yes, in the Bernalillo area**
Standard response protocols adopted?	
By alarm type (units per alarm – describe)	**Per dispatch guide**
By apparatus type (min. persons per unit type)	**Only for EMS and a minimum of 4 to structure fires**
Call-back system in place? (describe)	**Yes, but is in ineffective**
RISK (HAZARD) ANALYSIS	
Major hazards identified & mapped?	**Yes**
Pre-incident plans used? (describe)	**Yes, in most districts**
Disaster plans in existence? (describe)	**Yes, our emergency manager maintains several disaster plans.**
Maps in all vehicles? (MDC's, hard copy, etc.)	**Yes**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Duty officer system in place? (describe)	**Yes, there is a 24-hour**
Scene accountability maintained? (describe)	**Yes, each member of the department is issued an ID that doubles as an on scene accountability tag.**
Liaison with water district(s)	**Fire Marshal**
Hydrant location/placement?	**Yes, the water systems in the county are all privately owned and operated.**
Main installation?	**Yes**
Fire flows calculated?	**Yes**
Fire hydrants marked?	**Some are**
Water sources identified?	**Yes, GPS locations**

SURVEY TABLE 6: SUPPORT PROGRAMS—TRAINING DIVISION

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
GENERAL TRAINING COMPETENCY	
Incident command system–cert levels defined?	**Yes**
Accountability procedures in place?	**Yes, In SOP's**
Policy and procedures on training in place?	**Yes**
Safety procedures in place?	**Yes**
Recruit academy? (frequency, partners?)	**Yes, usually twice per year for volunteers and as needed for career**
Special rescue (high angle, confined space…)?	**Yes, a new program that is being developed**
Hazardous materials cert. level?	**Yes, all operations personnel required to be OPS level**
Wildland firefighter (describe, cert. level)	**Yes, S-130-S-190 for all wild land personnel**
Vehicle extrication?	**Yes**
Defensive driving? (program used, frequency?)	**Yes, we use the VFIS training curriculum and it is mandatory before anyone can operate a county vehicle.**
Use and care of small tools?	**No**
Radio communications & dispatch protocols?	**Yes**
EMS skills & protocols? (who conducts?)	**Medical Directors and Deputy Chief of EMS**
TRAINING METHODOLOGY	
Manipulative skills?	**Somewhat defined**
Task performances/frequency?	**Training conducted monthly in each district. Career staff training is not consistent.**
Annual training hours tracked? (By individual?)	**Yes, we track training in our Image Trend system**
Use of lesson plans?	**Yes, for formal courses**
Night drills? (Frequency?)	**Often**
Multi-agency drills? (Frequency? Agencies?)	**Not often**
Inter-station drills? (Frequency?)	**Not often**
Disaster drills conducted? (Frequency?)	**Yes at least once per year**
Pre-fire planning included in training?	**Yes, but this varies by district**
TRAINING OPERATION & PERFORMANCE	

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Attention to safety? (describe)	**We have very few injuries during training. Safety is part of the department culture.**
Post-incident analysis conducted? (circumstances?)	**Yes, on most structure fires or other calls as needed.**
Training procedures manual developed & used?	**No**

TRAINING ADMINISTRATION & BUDGET	
Director of training program (Name)	**No** **This is our biggest weakness. We do not have a training officer.**
Goals & objectives identified?	**No**
Certified instructors used? (Qualifications)	**Yes, we use certified instructors for all formal courses like FF-1, extrication, wild land, EMT, and ICS.**
Annual training report produced?	**No**
Priority by management toward training?	**Yes, the Chief has asked for a training officer for several years in the budget and put it in the county five-year plan. The Fire Chief started formal training academies in 2014 for both career and volunteer firefighters. There is a formal training process that is called zero to hero in 12 months that was conceptualized by the Fire Chief. We were able to secure a grant for a training tower in 2013.**
Budget allocated to training? (Amount)	**$75,000**
Condition of capital facilities for training admin.?	**Good condition**
Adequate office space, equipment, supplies?	**No**
Current operating budget? (Amount)	**Varies per district**
Current reserves? (Amount)	**See budget**
Clerical staff support assigned to training admin?	**No**
TRAINING FACILITIES & RESOURCES	
Adequate training ground space/equipment?	**Yes**
Training facilities (tower, props, pits)	**Yes**
Live fire props?	**No, but we have access to them**
Fire and driving grounds?	**Yes**
Maintenance of training facilities adequate?	**Yes**
Classroom facilities adequate?	**No**
Video, computer simulations available?	**Yes**
Instructional materials available?	**Yes**
RECORDKEEPING	
Individual training files maintained?	**Yes, each member has a file**
Records & files computerized?	**Partial and moving to all computerized**

Daily training records kept?	**Yes, for career staff**
Company training records kept?	**Yes, for career staff**
Training equipment inventoried? (Frequency?)	**No**
PERSONNEL TRAINED	
Number of personnel trained (latest full year)?	**462**
Total training hours delivered (latest full year)?	**1318**
Fire-related training hours?	**840**
EMS-related training hours?	**478**

SURVEY TABLE 7: CAPITAL ASSETS, CAPITAL IMPROVEMENT & REPLACEMENT PROGRAMS

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
FIRE STATIONS/STRUCTURES	
Capital Improvement Plan maintained?	**Yes, up to 2016 and a new plan needs to be created**
Period of plan (from–to)	**2011 to 2016**
Funding mechanism identified?	**Yes, with a few exceptions**
APPARATUS	
Apparatus Replacement Plan maintained?	**Needs to be updated**
Period of plan (from–to)	**2011 to 2016**
Funding mechanism identified?	**Funding is an issue since we are not getting excise tax like we were**
SUPPORT EQUIPMENT	
Equipment Replacement Plan maintained?	**No**

SURVEY TABLE 8: EMERGENCY MEDICAL SERVICES

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
MEDICAL DIRECTION & CONTROL	
Written patient care protocols adopted?	**Yes**
MPD board-certified in Emergency Medicine?	**Yes, two Medical Directors**
Participated in NAEMSP fellowship?	**Yes**
Assistant medical directors appointed?	**Yes**
Frequency of medical director crew interaction?	**Required to participate in case reviews three times per year**
Field response/ride-along by medical director?	**Yes**
QUALITY ASSURANCE/QUALITY IMPROVEMENT	
Internal committee? (Meeting frequency?)	**QA/QI is performed by company officer and Deputy Chief EMS**
Lessons learned are shared? (Describe)	**Yes, our system provides direct feedback**
Case reviews conducted regularly? (Frequency?)	**Yes, four times each year in every region of our system**
Case reviews conducted by whom?	**Medical Directors**

SURVEY COMPONENT	CLIENT AGENCY INFORMATION
Does Medical director participate?	**Yes, always**
Feedback given to individual providers?	**Yes**
PCRs spot-evaluated for accuracy?	**Yes, and 100% when a controlled substance is used.**
Annual or regular reports on QA/QI results?	**No**
Key performance indicators identified?	**No**
Targeted case studies performed?	**No**
Episodic case reviews performed?	**No**
Patient refusals reviewed & percent tracked?	**No**
Cardiac arrest outcomes monitored?	**At the request of a crew or Chief Officer**
Methods of determining outcomes (Describe)	**Medical Directors contact hospital**
Post-arrest event review?	**Yes, most of them are reviewed with the responders**
CLINICAL SKILLS & CONTINUING EDUCATION	
Clinical skills documented for each member?	**Yes**
Documentation method (electronic, paper)?	**EPCR system called Image Trend**
Intubation/airway success rates?	**Yes**
IV/IM/IO vascular access success rates?	**Yes**