Declaration of Deployment Analysis

Palomar Mountain

Volunteer Fire Department

Contents

Letter of Transmittal 4
Executive Summery 5
Introduction to Current Deployment: 7
Comparisons of Demand and Density 7
Isolated Department 8
Map of Current Deployment 9
Summary 10
History of Past Decisions 10
Current Deployment Activity 13
Evaluating Community Demographics 16
Critical Tasking 20
Structural Fire Objective 21
Wildland Fire Objective 21
EMS Objectives 22
Rescue Objectives 23
Effects of Isolation 23
Adoption of Performance Measures 25
Description of Physical Resources 26
Summary of Recommendations 36
Glossary of Legal Terms 38
Glossary of Operational Terms 39
Bibliography 42
Appendix - Evaluating EMS Capability 44
Appendix - Individual Building Risk Assessment 46

Figure 1 - Comparison of Demand and Density 8
Figure 2 – Current Deployment 13
Figure 3 - Current Measured Trends 14
Figure 4 - Emergency Incident Activity 15
Figure 5 – Annual Fire, Injury and Life Loss 16
Figure 6 - General Information 16
Figure 7 - Demographic Characteristics 17
Figure 8 - Performance Measured Distribution 18
Figure 9 - Distribution Standard 19
Figure 10 - Concentration Standard 19
Figure 11 - Total Response Force 19
Figure 12 - Service Level Standard 20
Figure 13 - Minimum Training Requirement 20
Figure 14 - Critical Tasking 20
Figure 15 - Structural Fie Objective 1st Engine 21
Figure 16 - Structural Fire Other Units 21
Figure 17 - Wildland 1st Engine 22
Figure 18 - Wildland and Other Units 22
Figure 19 – EMS First Engine 22
Figure 20 - EMS Care ALS Level 23
Figure 21 - Rescue 1st Engine 23
Figure 22 - Actual Performance Measure 25
Figure 23 – Physical Resources 26
Figure 24 - Summary of Recommendations 36
Figure 25 – Performance Guidelines 44
Figure 26 – Community Risk Model 47

PALOMAR MOUNTAIN
VOLUNTEER FIRE DEPARTMENT

Letter of Transmittal

To: Fire Board of Directors of the Palomar Mountain Volunteer Fire Department

From: George E. Lucia Sr. Fire Chief

Subject: Creation of Deployment Declaration in Accordance with NFPA 1720

The department has been undergoing considerable assessment over the last two years to try to determine its future involvement in providing fire protection. While conducting this research it has become obvious that it is important to come up with some form of methodology that clearly identifies what the organizational capacity is of the department and what it should be in the future to provide an adequate level of service to the citizens in Palomar Mountain.

The following document is entitled "Declaration of Deployment". It is patterned after the Standard of Cover documentation which is used by most urban and suburban fire departments to establish their levels of service. The difference in this document is that it does not apply to one size fits all. It is based upon the physical, economic, geographical and demographical, and climalogical conditions that exist in Palomar. By adopting this document, the Board of Directors is declaring that they believe there is a level of expectation that the community should demand of its fire department.

This methodology is not "cookie cutter" approach. Instead the focus is on the specific facts that make up the risk assessment and therefore the risk exposure in the community. A reading of this document will provide a foundation for community expectations but moreover, should be used to drive public policy in responding to changes in those expectations over time.

In summary, a community that is isolated, such as Palomar Mountain, needs to develop a deployment plan that has both an initial attack component and a concentration component so that an effective attack can be mounted on any structure fire that occurs in its area. Merely putting a fire truck in a community and staffing it with two people without consideration for how they will be reinforced is misleading and inappropriate. This Deployment Declaration clearly makes the case for establishing a program that has depth.

Respectfully submitted,

Fire Chief George E. Lucia Sr.
Palomar Mountain Volunteer Fire Department

P.O. BOX 235 PALOMAR MOUNTAIN, CA 92060-0235 (760) 742-3701

The Palomar Mountain Volunteer Fire Department dedicates itself to providing a professional service that protects life and property, and preserves the Palomar Mountain quality of life.

Executive Summery

This report was commissioned by the Palomar Mountain Volunteer Fire Department Board of Directors. PMVFD Fire Chief George E. Lucia has developed recommendations based on the submitted White Paper dated May, 04, 2013 by Ronny J. Coleman and as recommended by legal counsel William D. Ross, working for the PMVFD Fire Board of Directors in a correspondence dated June 07, 2013.

The research draws attention to current declining trends toward a lack of local volunteer firefighter staffing resources available to the community of Palomar Mountain during the initial critical time period of a fire emergency. We define the critical time period as the first hour of firefighting operations.

The report will highlight the data that supports a history of a healthy community volunteer fire department from its inception during the mid-1970 through 2007 when local fire emergency levels were set and maintained by the needs of the community. It ends within the context of today.

The report will bring into focus the breaking point as a result of the San Diego County Fire Authority's inflexible requirements for admission, training, attendance and service requirement to be a member of the Palomar Mountain Volunteer Fire Department, and how this drove away current local resident membership and has caused no new local interest in serving the volunteer fire department on Palomar Mountain.

The PMVFD currently is at a dangerously low staffing level that is putting current firefighters, residents and visitors of our community in danger.

Adopting this deployment declaration sets the baseline for minimum fire protection needed and demanded by the residents of the community of Palomar Mountain. The data supports the fact that the current "one size fits all" policy of the San Diego County Fire Authority has diluted good fire protection in our community to give way to providing fire service in other areas of San Diego County that are underserved or not protected, something that the county supervisors repeatedly promised would never happen.

The solution on a proactive basis is to adopt a flexible system of firefighters, one side being SDCFA career bound, experience seeking firefighters to assist local volunteer fire departments when available along with the other side, local PMVFD community volunteer firefighters, that may not be *all risk* but are available day and night at no cost and reduced training standards, as community stakeholders.

This parallel system would actually cost less tax dollars and return home rule to our community.

Our opportunity to revive the Palomar Mountain Community Volunteer Fire Department is passing the golden hour and may die soon. It is feared that the San Diego County Supervisors commitment to back country fire protection may diminish with term limits, fire not being in the county charter and changes in economic priorities. Action needs to be taken now to adopt this deployment declaration, specifically the adoption of performance measures (figure 22) and the summary of recommendations (figure 24).

The following are performance measures and recommendations that need to be adopted.

Actual Performance Measures			
Incident Type	Actual Minimum	Time	%
Structural Fire	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80
Wildland Fire	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80
Medical (EMS)	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80
Rescue	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80

Recommendations	Time Frame in Month of Year	Impact/Cost Anticipated	Delegated Person
Reestablish and maintain an active volunteer fire force of a minimum of 12-15 personnel to provide both distribution and concentration within the first 30 minutes of an incident.	As soon as possible	Insert estimate	Fire Chief George Lucia
Consider adding an additional station in cooperation with Palomar Observatory to aid in concentration. Seek out and recruit a minimum of 12 volunteers to respond to this station	Within 24 months	Insert estimate	Fire Chief George Lucia
Develop long range capital improvement plan to establish replacement cycle for fire apparatus.	Within 36 months	Insert estimate	Department staff

Introduction to Current Deployment:

The Declaration of Deployment Analysis process is a document that local communities can use to assess the Level of Service presently being afforded to the Community. It also is used to describe the form of delivery of emergency fire and rescue services provided by the volunteer fire department. It also serves as a guide for making changes and improvements in the local fire protection delivery system.

The analysis process is not solely a fire department document but one where community participation fosters and improves with the stakeholders' understanding of community risks, emergency incident challenges, and deployment practices. The report includes the amount and type of resources needed to provide a minimum level of service to protect property and save lives. It also helps to define the rules of engagement for the department by setting parameters on the level of capability that can be provided when relying on recalled fire forces (volunteers).

> **This document is intended to be the appropriate documentation that a department utilizes when it desires to remain in conformance with NFPA 1720.**

Each community is different, and the application of fire protection for one jurisdiction may not be appropriate for another. One jurisdiction may be protected by an all career fire department. In that case the proper management tool should be to apply the principles of the standard of cover. This document is NFPA 1710. Another department may be a combination career and volunteer, or an all volunteer fire department. This is where the Deployment Declaration fits in. This method of analysis still includes an assessment of risk, the community's expectations, the fire station locations, response time goals, and the agency's mission of providing an array of emergency services, but is not based entirely upon the same outcomes.

Comparisons of Demand and Density

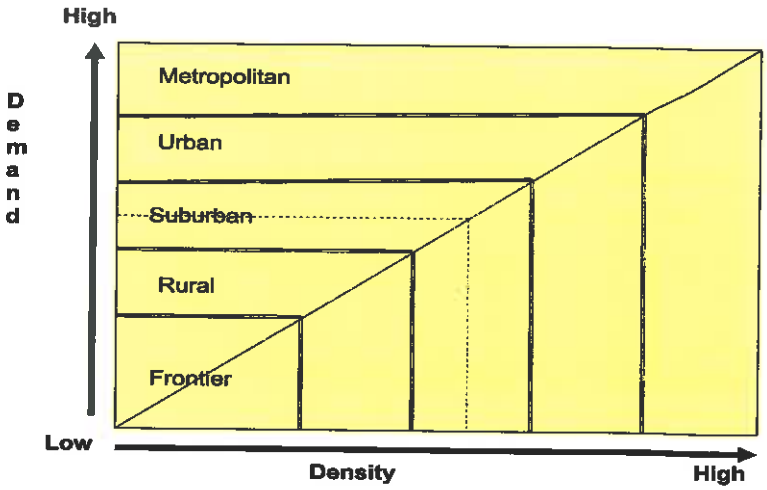
The following chart illustrates the relationship between demand and the density of human population. It creates several separations in the context of how much fire protection is needed based upon the relationship of these two factors.

- ✓ Low demand and low density is generally considered to be remote (frontier) type fire protection.
- ✓ Below average demand and below average population density is considered to be rural.
- ✓ Average demand and average population density is considered to be suburban.
- ✓ Above average demand and above average population density is considered to be urban.
- ✓ High demand and high density is considered to be metropolitan.

Considering the existing population concentration in the area of Palomar Mountain those risks that are within eight driving miles should be classified as below average demand and average population density. This area would then be classified as rural. Those areas beyond the eight mile radius are considered low demand and low density or are classified as remote.

The chart below illustrates this relationship.

Figure 1 - Comparison of Demand and Density



For purposes of creating a method for distinguishing how these categories apply to volunteer organizations we have broken down these considerations into more specific geographic and demographic differences. To further analyze these conditions for Palomar Mountain, we have provided four distinctions regarding the actual physical location of this department geographically. The distinctions help define the subtle differences of departments that are essentially rural, but different in their makeup.

These four distinctions have been identified as:

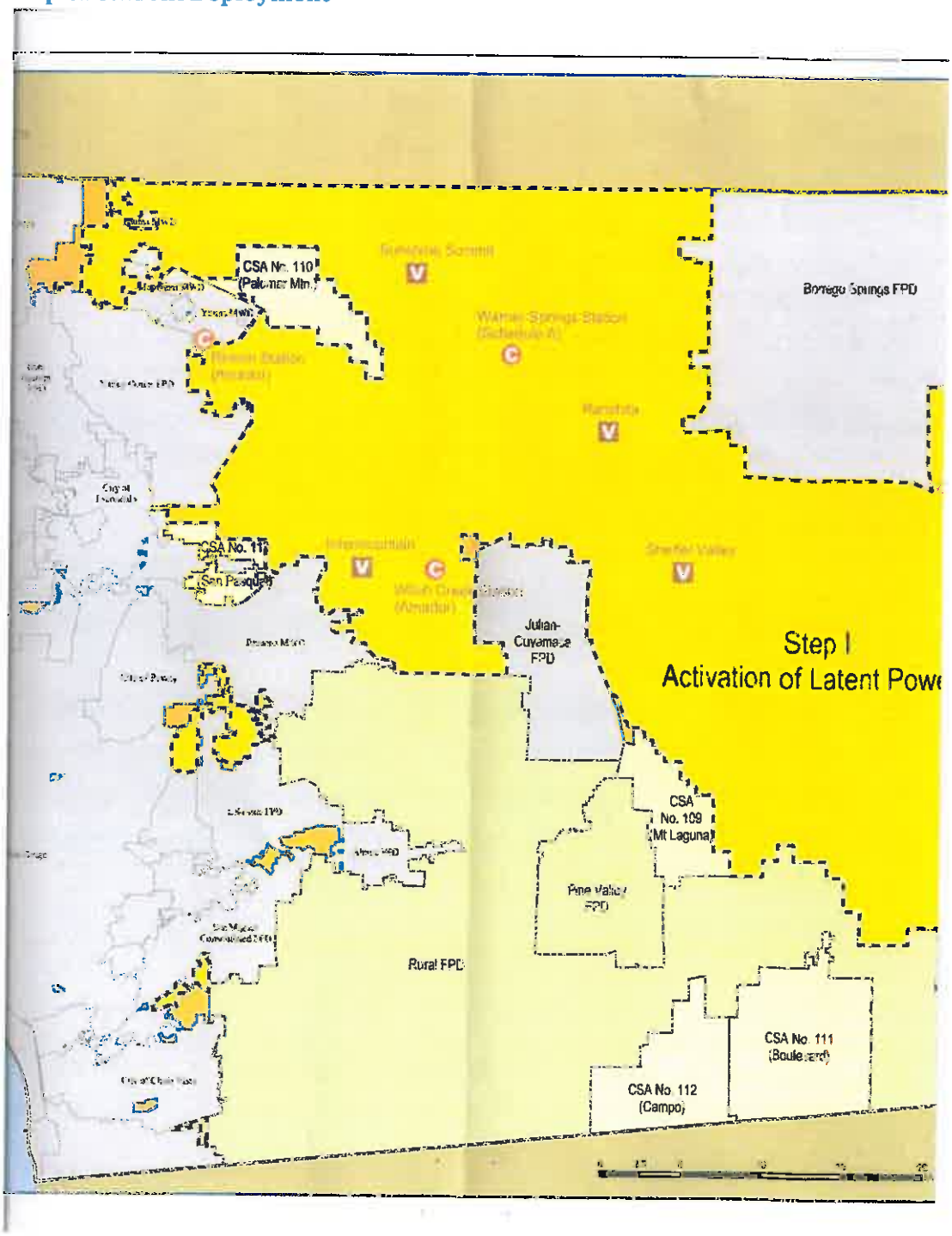
a. Isolated department – set in middle of nowhere
b. Cross-roads department – where state highways cross
c. Freeway based – parallel to freeway passage
d. Fringe department – set adjacent to rural community

Isolated Department

The definition of an isolated fire department is a community or designated place on a map in which a concentration of risks occurs but the organization is remotely located from any other community. Generally speaking, isolated fire agencies protect extremely large areas with extremely low population densities as per the demand density chart. Isolated agencies may still have large structural risks, such as barns and agricultural structures. But the risks are limited in number due to the fact that the population center is limited. The hallmark of an isolated agency is isolation and extremely limited resources. Typically they can also have wildland fire risks. Merely looking at a map does not really describe how isolated Palomar Mountain is. There are only two roads in and out. There is a significant grade to be overcome by any unit responding into the area to assist local resources. The community is isolated vertically.

The Palomar Mountain Volunteer Fire Department fits the basic category of being an isolated department. Portions of the study area are within eight miles driving distance but other portions are in excess of the eight mile travel time resulting in two different demand zones. Those concentrated closely around the existing fire station and those beyond eight miles.

Map of Current Deployment



Summary

Each community is different, and the application of fire protection for one jurisdiction may not be appropriate for another. One jurisdiction may be protected by an all career fire department. Another department may be a combination career and volunteer, or an all volunteer fire department. That is where the Deployment Declaration fits in. This proposed method of analysis still includes an assessment of risk, the community's expectations, the fire station locations, response time goals and the agency's mission of providing an array of emergency services.

History of Past Decisions

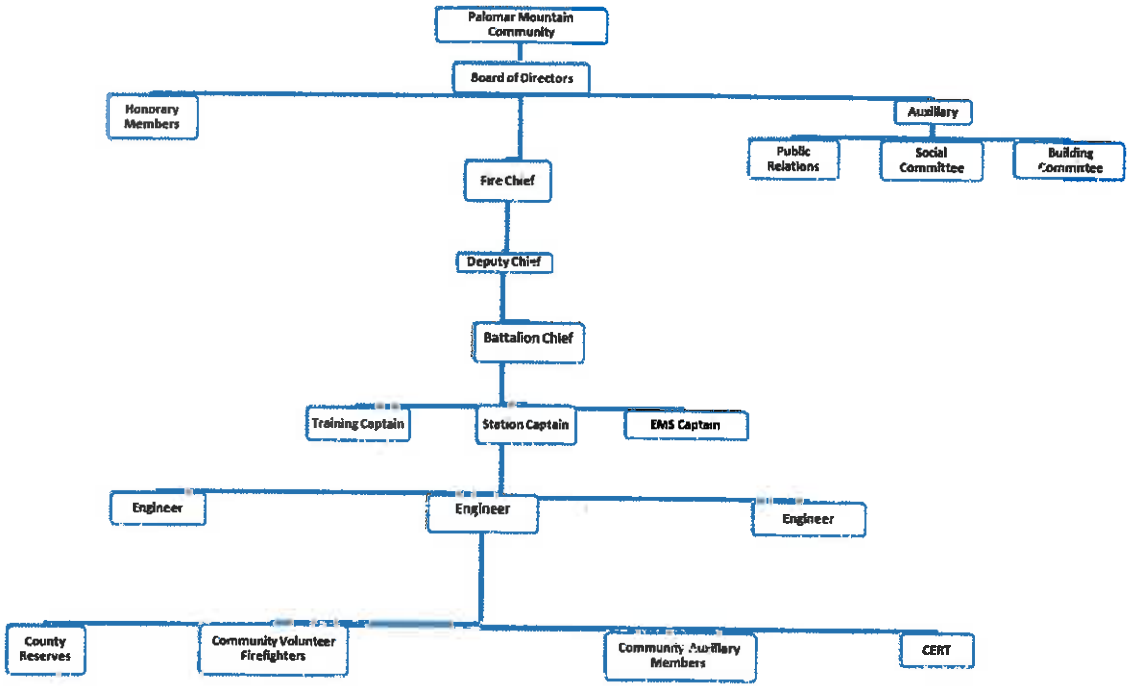
It is important to understand the nature under which the current level of service for Palomar Mountain was established, the laws, ordinances and the funding mechanisms that created the current level of deployment.

The following is a bulleted list of the rational for the location of existing fire station(s), major milestones, organizational chart and funding sources for the Palomar Volunteer Fire Department

- The Palomar Mountain Volunteer Fire Department is a 501c3 organization. It is a private organization operating under the provisions of state law. Its legal basis is under the jurisdiction of the Secretary of State and is operating in the context of both state and local government.
- The Palomar Mountain Volunteer Fire Department was first organized on October 1st 1975. The County of San Diego had made a decision to discontinue the contract with Cal Fire for fire protection in the back country. When the Cal Fire contract expired on July 1st 1976, the department began to provide emergency response services. At that time, the community provided an initial enrollment of 25 volunteers. Local resident Bill Richardson was the first Fire Chief. The County of San Diego provided used firefighting equipment to the Palomar Mountain Fire Department. There was a county fire office that also assisted with providing training and some supplies.

  Initially the Palomar Mountain Volunteer Fire Department had no facilities to house the equipment. Vehicles were parked at various times at areas around the mountain top. These locations included the county yard, Bailey's Hotel, the Palomar Observatory, and the Crestline Water Company building.

  The 501c3 Corporation engaged in fund raising efforts to identify a fire station site. A piece of property was purchased at the intersection of Crest Line Road and East Grade Road. The station was constructed using locally donated funds. The house adjacent to the fire station building is co-located to provide a community center for Palomar Mountain.
- The following Organizational Chart defines the relationship to governing body.



- The following are major milestones of the department in service delivery during the past period. The events are based on chronological order.

  70s - 1976 –Department is active as a 501(c)(3) with 18 members. The first pumper was delivered that spring and housed at the observatory. The department attempted to acquire permission to construct a building on Forest Service land to house the engine. This request was not approved by Forest Service.

  In 1977 the First Annual Palomar Mountain Volunteer Fire Department Barbecue is held to raise money.

  80s - CSA 110 formed in 1983 to provide additional funding (1% of property tax collected). Donations of land and money from fundraisers continued to be realized. In October, 1987 the Palomar Fire burns up the West slope of the mountain.

  90s - Current fire station property is acquired. In 1993 a building is purchased and erected with a gravel floor to house the apparatus. In 1995 a concrete floor is added inside and aprons are added to the front and back driveway. Two Unimogs are acquired as fire apparatus. In October 1999, the La Jolla Fire strikes Palomar Mountain.

  00s - The first new engine is acquired through grants – a 2001 International Type 1. In 2003 a Type 2 engine and a water tender with a capacity of 3200 gallons are added.

In October 2003, the department responds to both the Cedar Fire and the Paradise Fire with enough personnel to still staff the station.

2005 – Voter approved Proposition L Benefit Fee is put into effect.

2008 – DPLU Contract Revenue ($30,000.00) begins. In September 2007, the department holds its 30th annual barbecue fundraiser. In October 2007, the Poomacha Fire burns Palomar Mountain.

2008 – SDCFA is formed.

2009 – Contract is signed between SDCFA and PMVFD. Contract is amended over the next four years.

10s - New contract signed July, 2013

June 7, 2013 – Board of Director communications regarding analysis of proposed agreement, William D. Ross

- Funding sources and any restrictions on use of funds

FY 2012-2013

Property Taxes Secured from CSA-110 (old boundaries) - $31,503.00

Service to Property Owners – CSA-110 (Prop L Benefit Fee) - $52,462.00

Operating Transfer from General Fund (DPLU Contract Revenue) - $30,000.00

Total Revenue - $113,965.00

FY 2012-2013 - Contract Value - $108,000.00

Fire Mitigation Fee The last time the department was given a value (two or three years ago) it was approximately $19,600.00. The Fire Mitigation Fee Program was established in San Diego County in January 1986. The Purpose was to make provisions for assessing and collecting fees for additional fire protection or equipment needed to maintain the level of fire service in a community without directly impacting existing taxpayers.

The fee is based upon new construction square footage within a focused jurisdiction and paid by the developer / owner.

Pre San Diego Fire Authority (CSA 110) allowed the local fire chief to set the five year plan of proposed needs and use of this mitigation fund revenue. Use of this funding must be approved by the SD County supervisors. Fiscal recap actual reports were submitted to the local jurisdiction.

Palomar Mountain Volunteer Fire Departments last reported balance of dedicated mitigation funds was just under 20k.

Current San Diego Fire Authority (CSA 135) has comingled all fire mitigation fee revenue from all CSA 135 areas (formally many smaller CSA areas) and is used as specified by the SD Fire Authority without consideration as to where the construction or development is located and regardless of the impact of development upon local service levels. The Palomar Mountain Volunteer Fire Department now does not set five year goals in this system and does not receive any fiscal recap actual reports from the San Diego County Fire Authority,

Barbecue Fundraiser – generally brings in around $8,000.00 to $10,000.00 annually.

Other funding sources – EMS Account (Tobacco Grant) - $5,000.00 plus some income based on number of verification forms sent in by all participating parties and the number of forms based on call volume. In 2012/13 we collected $663.00 by way of the verification forms for a total of $5,663.00. This was to be used to fund medical supplies and provide education for EMT's. Individual stations will no longer benefit. County will be taking this entire funding source.

Other funding sources – some money sent to department by individual donations from the newsletter published each year. One to two thousand dollars is normal.

Privately raised funds – the department still participates in local fund raising efforts that generate a source of income for the department

Current Deployment Activity

The department's deployment commitment for the types of service provided relates to a multiple of factors, the geography of the area, the demographics of the population, the density of the population and most notably, the economic resources allocated to provide these services. Clarification of these services types amplifies the operational capability of the department.

The basic service provided by a volunteer fire department is to fight fires. If the department engages in other types of services, this can have an effect on the organization's ability to perform. A component of fire department deployment relates to the type of services which are provided by a fire department through their discretionary commitment, which may include rescue and medical, hazmat, wildland, and swift water rescue. In many rural areas the fire department may be the only public safety resource that is available.

The department's deployment commitment for the types of service provided relates to a multiple of factors, the geography of the area, the demographics of the population, the density of the population and most notably, the economic resources allocated to provide these services. Clarification of these service types amplifies the operational capability of the department.

Figure 2 – Current Deployment

Current Fire Department Deployment to Typical Emergencies

Type of Emergency	Units and Number of Personnel Responding
a. Structure Fire: Commercial	Type 1 Engine, 750 gpm Water Tender 3500 gallon Chief Officer Response
b. Structure Fire: Residential	Type 1 Engine, 750 gpm Water Tender 3500 gallon Chief Officer Response (Note: there are distinctions between hydrated and non hydrated areas)
c. Wildland	Type II, 500 gpm
d. Vehicle Fire	Type 1 Engine, 750 gpm Water Tender 3500 gallon Chief Officer Response
e. Rescue, Medical Aid, Injury Accident	Type I Engine and Squad
f. Other	N/A

Figure 3 - Current Measured Trends

Response Trends	Rural	Remote
First Engine En-route to On Scene	180 seconds	180 seconds
Second Engine En-route to On Scene	300 seconds	300 seconds
Rescue En-route to On Scene	180 seconds	180 seconds
Water Tender En-route to On Scene	300 seconds	300 seconds
First Chief Officer in Route	180 seconds	180 seconds
BLS Ambulance Dispatch to On Scene	30 minutes	1 hour
ALS Ambulance Dispatch to On Scene	30 minutes	1 hour
Initial Attack Commences within 8 miles	15 minutes	N/A
Initial Attack Commences over 8 miles	16 minutes to 1 hour*	30 minutes to 1 hour
Incident Under Control/Mitigated		

Note: this response time relates to operation on unpaved roads in remote areas of Palomar Mountain

A **baseline** forms a point of reference to gauge the delivery of current services. In essence, what is expected to be accomplished upon arrival of the fire department. A **benchmark** is a target for improvement. This document provides both in the context of declaring deployment for the community.

In summary, the resources the department currently possesses and the area it covers, are isolated and remote and the ability to perform initial attack to keep fires small is linked to arrival times and recall times of the volunteer firefighters.

An effective appraisal of current deployment of resources from receipt of a 911 call to the arrival of the first unit on scene is an important consideration. It relates also to the workload the department experiences. The following data from a 4 year period provides a realistic workload response for a volunteer fire department and can be used as an indication of community expectations.

Figure 4 - Emergency Incident Activity

Emergency Incident Activity						
Incident Type	**Year 2010**	**Year 2011**	**Year 2012**	**Year 2013**	**Total**	**%**
Structure Fire	0	0	2	2	2	.42
Medical Aid (EMS)	22	43	41	16	122	26
Wildland Fire	10	11	13	0	34	7.2
Vehicle Accident	20	37	19	19	117	25
Other	71	55	42	21	189	40
Total	134	146	128	58	468	100%

The department's record keeping system has identified that the preponderance of the calls are on Thursday, Friday and Saturday. This is directly attributed to a major transition on the weekends of tourists, weekend residents and organizational activity such as car rallies, motorcycle and bicycle rides that are focused on the Palomar Mountain area.

The department has pre-fire planned the existence of water supplies and un-hydrated areas and placed this information in pre-fire planning format. There are approximately 100 water tanks available.

Figure 5 – Annual Fire, Injury and Life Loss

Annual Fire, Injury and Life Loss						
Year	Structural Fires	Structural Fire Loss	Content Fire Loss	Total Fire Loss	Number of Injuries	Loss of Life #
2013	2	300,000	100,000	400,000	0	0
2012	0	0	0	0	0	0
2011	0	0	0	0	0	0
2010	0	0	0	0	0	0

Evaluating Community Demographics

The following demographics have been developed by a review of census data for an area identified as zip code as 92060.

Figure 6 - General Information

General Information	
Population	690
Density per square mile	20
Housing Units	250
Land Area	35.5 sq miles
Water Area	0

Palomar Mountain Volunteer Fire Department (PMVFD) is considered to be an isolated rural area. It sits at an elevation of 5,325 feet. According to the CSA 110 description in the LAFCO Document the fire department protects a resident population of approximately 690 people. They protect approximately 35.5 square miles. The area has a transient population that varies at different times of the year and is consistent with seasonal activity. The area has one fire station located at 21610 Crestline Road, Palomar, CA 92060. The current per capita fire cost is approximately $216.00. The area is surrounded by the Cleveland National Forest, California State Park and they have one major target hazard; the Palomar Observatory. Its sphere of influence was adopted on June 6th, 1983 and re-affirmed May 7th, 2007.

The PMVFD is the only consistent provider of emergency services in spite of the presence of both state and federal areas. The US Forest Service does not provide year round fire coverage nor does the California State Park system. There are no available resources that can respond to assist you within a reasonable timeframe.

Access to this entire area is limited. There are two roads that provide access. One is labeled the East Grade; the other is labeled the South Grade. South Grade Road, the stretch of San Diego County Route S6 going from State Route 76 to the summit is the primary access. The road has a consistent track record of having many motorcycle, bicycle and motor vehicle accidents. There are more than 20 hairpin curves in one 7 mile stretch.

The access roads are both on the same side of the mountain and terminate on Hwy 76. There are no available fire suppression resources that can respond to assist PMVFD within a reasonable timeframe for initial action. The closest responding resource is 45 minutes away. That asset is the Rincon Cal Fire Station 70.

Figure 7 - Demographic Characteristics[1]

General Characteristics	Number	Percent	U.S.
Total population	225	100.0	100%
Male	123	54.7	49.1%
Female	102	45.3	50.9%
Median Age	46.7	(X)	35.3
Under 5 years	7	3.1	6.8%
18 years and over	178	79.1	74.3%
65 years and over	35	15.6	12.4%
One race	220	97.8	97.6%
White	209	92.9	75.1%
Black or African American	1	0.4	12.3%
American Indian and Alaska Native	3	1.3	0.9%
Asian	3	1.3	3.6%
Native Hawaiian and Other Pacific Islander	4	1.8	0.1%
Some other race	0	0.0	5.5%
Two or more races	5	2.2	2.4%
Hispanic or Latino (of any race)	14	6.2	12.5%
Average Household Size	2.23	(X)	2.59
Average family size	2.73	(X)	3.14
Total housing units	256	100.0	100.0%
Occupied housing units	101	39.5	91.0%
Owner-occupied housing units	75	74.3	66.2%
Renter-occupied housing units	26	25.7	33.8%
Vacant housing units	155	60.5	9.0%
Social Characteristics	**Number**	**Percent**	**U.S.**
Population 25 years and over	158	100.0	
High school graduate or higher	153	96.8	80.4%
Bachelor's degree or higher	42	26.6	24.4%
Civilian veterans	39	23.6	12.7%
Disability status (population 21 to 64 years)	0	0.0	19.2%
Foreign born	8	3.6	11.1%
Now married (population 15 years and over)	90	47.4	54.4%
Speak a language other than English at home (5 years and over)	7	3.2	17.9%
Economic Characteristics	**Number**	**Percent**	**U.S.**

[1] Brainy Zip, 92060

In labor force (population 16 years and over)	108	59.0	63.9%
Mean travel time to work in minutes (population 16 years and older)	33.0	(X)	25.5
Median household income (dollars)	43,750	(X)	41,994
Median family income (dollars)	44,583	(X)	50,046
Per capita income (dollars)	27,055	(X)	21,587
Families below poverty level	0	0.0	9.2%
Individuals below poverty level	4	1.8	12.4%
Housing Characteristics	**Number**	**Percent**	**U.S.**
Single-family owner-occupied homes	61	100.0	
Median value (dollars)	156,300	(X)	119,600
Median of selected monthly owner costs	(X)	(X)	
With a Mortgage	1,167	(X)	1,088
Not mortgaged	266	(X)	295

The following describes the current capability of the department with respect to distribution. There is only one station in the system. Therefore, it is important to recognize that Station 1 provides both distribution and concentration for approximately the first hour of operation of any incident that occurs on the top of Palomar Mountain. It should be noted that the performance measurement does not evaluate any suburban concentration based upon the density and demographics. There is a zero in suburban because the area does not meet the description of a suburban protection zone.

Distribution is the percentage of the jurisdiction that is covered within the adopted performance measure (time) for the arrival of the first due unit.

Figure 8 - Performance Measured Distribution

Performance Measured Distribution										
		Square Miles Covered by Station			Population			Dwelling Units		
		Suburban	Rural	Remote	Suburban	Rural	Transitory	Suburban	Rural	Remote
Stations	1	0	23 sq miles	Anything beyond 5 miles	0	225	15,000 on specific holidays and weekends	0	250	unknown

The following paragraph describes the distribution standard for performance of companies stationed at the top of the hill.

Figure 9 - Distribution Standard

Distribution Standard
For 80% of all calls for service, within Rural or Remote Demand Zone(s) the first due unit shall arrive within following Response Times.

Rural 15 minutes
Remote 30 minutes

The first due unit shall be sufficiently staffed with a minimum of 4 personnel and capable of advancing the initial hose line for fire control or initiating rescue operations, or emergency medical intervention.

Concentration is about having the correct amount and type of equipment in the station and its orderly arrival at the scene of the emergency.

Figure 10 - Concentration Standard

Concentration Standard:
All other responding units within the first alarm assignment to areas, within Rural or Remote Demand Zone(s) shall all arrive within the following Response Times.

Rural 30 minutes
Remote 45 minutes

All Units should be sufficiently staffed with a minimum of 2 personnel for 80 percent of all requests for emergency service.

A Total Response Force is defined as the minimum amount of staff, and equipment which must reach a specific emergency within a targeted travel time.

Figure 11 - Total Response Force

Total Response Force				
Demand Zone	**Demographics**	**Minimum Equipment & Staff to Respond**	**Response Time Minutes**	**Objective (%)**
Rural Area	<500 people per sq mile	2 Engines, 1 Water Tender, 1 Chief Officer	15	80%
Remote Area	Travel Distance >8 miles	2 Engines, 1 Water Tender, 1 Chief Officer	30	80%
Special Risk	Determine AHJ	Determine by AHJ based on risk	Determine AHJ	80%

The Service Level designation on the left hand column of the Level of Service Matrix (Figure 17) is used to describe the level that a department can achieve if its record keeping system contains data that will support that level of staffing being available on a regular basis.

Figure 12 - Service Level Standard

Service Level Standard
Based on the equipment and average number of personnel responding to a structure fire alarm an Offensive or Defensive Service Level ___ shall be maintained 80% of the time.

Description of the minimum level of Training Required:

Firefighter-To respond as a full fledge competent member of an engine company to all calls for service, including structure, and wildland fires, Haz Mat incidents in addition to EMS calls or a calls involving vehicle extrication.

Pump Operator- To drive fire apparatus in a safe manner, Code 3 to emergencies incidents, lay hose lines, pump at correct pressures and maintain a water supply. Operate Aerial Ladder

Company Officer- To respond as a Company Officer of an engine company to all calls for service including structure, and wildland fires, Haz Mat incidents in addition to or EMS call and assume the role of Incident Commander.

Chief Officers- Respond to and assume command (IC) of structure and wildland fires, Haz Mat incidents and other major emergencies.

Figure 13 - Minimum Training Requirement

Minimum Training Requirements	
Firefighter	Entry Level FFI, Hazmat FRO, First Responder, Attend approved volunteer academy
Pump Operator	In house training, IFSTA, Driver/Operator
Company Officer	Nothing at this time
Chief Officer	(See existing Chief resume)

Critical Tasking

It is known that fire growth, along with property or life risk, combine to determine the fire ground tasks that must be accomplished to stop fire loss or save lives.

Figure 14 - Critical Tasking

Low Risk Minimum Tasks Necessary at a 2000 Square foot Residential Structure Fire							
Tasks	Department Service Level						Company Assigned
	A	B	C	D	E	F	
Attack Line		2					First due
Rapid Intervention Team		2					Second due
Search and Rescue		0					
Ventilation							
Back Up Line		2					Second due

Safety Officer		1					(incident commander serves in this capacity)
Pump Operator		1					First due
Water Supply		1					First due
Command Officer		1					(serves as safety officer also)
Total Personnel		9					
Place an AM or PM for Service Level if different. AM (0700-1859) PM (1900-0659)							The most significant factor on call workload and available staffing is the fact that the majority of the emergency calls are on Thursday through Sunday when a transient population is in place.

Structural Fire Objective

To maintain a service level capability to ensure the arrival of sufficient equipment and personnel, to stop the escalation of the fire and keep the fire to the area of involvement, upon the arrival of the first engine, while proving the safety of the first responders.

Figure 15 - Structural Fie Objective 1st Engine

The first engine to an area within Rural, or Remote Demand Zones(s) shall arrive within the Total Response Time for 80 percent of all requests for service.

Rural 15 minutes
Remote 30 minutes

The first due unit shall be staffed with a minimum of 4 personnel and capable of advancing an initial hose line for fire control or initiating rescue operations, or emergency medical intervention.

Figure 16 - Structural Fire Other Units

All other responding units to areas within Rural or Remote Demand Zones(s) shall all arrive within the following Response Times.

Rural 30 minutes
Remote 1 hour

All units should be staffed with a minimum of 4 personnel for 80 percent of all requests for emergency service.

Wildland Fire Objective

To maintain a wildland service capability of appropriately trained personnel to ensure the arrival of personnel and resource to begin an initial attack hose line on the fire, while providing safety of on-scene personnel. Note: this area involves both federal and state resources who have prime responsibility for wildland fire. Palomar only participates as a defense mechanism to the community but it is not their primary responsibility.

Figure 17 - Wildland 1st Engine

The first engine to urban wildland areas within Rural, or Remote Demand Zones(s) shall arrive within the Total Response Time for 80 percent of all requests for service.

Rural 15 minutes
Remote 30 minutes

The first due unit shall be staffed with a minimum of 4 personnel and capable of advancing an initial attack hose line to initiate fire control.

Figure 18 - Wildland and Other Units

All other responding units to urban wildland areas within Rural or Remote Demand Zones(s) shall all arrive within the following Response Times.

Rural 45 minutes
Remote 1 hour

All units should be staffed with a minimum of 4 personnel for 80 percent of all requests for emergency service. (Note: the only way this can be provided is through mutual aid with neighboring communities due to the isolation of Palomar Mountain)

EMS Objectives

To maintain an EMS service level capability to ensure the arrival of sufficiently trained and equipped personnel to provide medical services that will stabilize the situation, provide First Responder, or higher level care, to the victims and reduce or eliminate the conditions that have caused the emergency, while providing for the safety of the first responders.

Figure 19 – EMS First Engine

The first unit (s) with First Responders or higher EMS capability to an area within Rural, or Remote Demand Zones(s) shall arrive within the Total Response Time for 80 percent of all requests for emergency medical care.

Rural 15 minutes
Remote 30 minutes

The first unit (s) shall be staffed with a minimum of 4 personnel for 80 percent of requests for emergency medical care.

Figure 20 - EMS Care ALS Level

ALS level care to areas within Rural or Remote Demand Zones(s) shall arrive within the following Response Times.

Rural 1 hour
Remote 1 hour 30 minutes

Private resources provide this level of service. These units should be staffed with a minimum of 2 Paramedic for 100 percent of all requests for emergency medical care. (Note: this resource has a minimum of 1 hour travel time under normal conditions)

Rescue Objectives

To maintain a rescue capability that ensures the arrival of sufficiently trained personnel, and equipment to stabilize the situation and extricate or rescue the victim(s) of the emergency situation or location, ensuring the safety to the first responders.

Figure 21 - Rescue 1st Engine

The first unit (s) to an area within Rural, or Remote Demand Zones(s) shall arrive within the Total Response Time for 80 percent of all requests for service. The response times vary considerably if the rescue incident is on the highway or is off highway in remote areas.

Rural 15 minutes
Remote 30 minutes

The first due unit (s) shall be staffed with a minimum of 4 personnel for 80 percent of requests for emergency care.

Effects of Isolation

There is a significant difference between the level of service that can be delivered in a community that is dense and one that is not dense. For this reason, the standard of cover documentation recognizes the difference between urban, suburban, rural and remote fire protection scenarios. The manner in which service is provided on each of these levels is directly dependent upon the ability of a community to afford the level of service.

In the case of Palomar Mountain, this is a remote and isolated location. Having a single fire station in a community is of course an asset. However, the number of people that are on the apparatus and the number that need to be assembled to handle specific emergencies are impacted by a variety of conditions.

Accompanying this narrative is a chart that talks about the different people on a piece of fire equipment in comparison to what they are capable of doing when they arrive on the scene of a structure fire. Notably this chart does not apply to vehicles fires, wildland fires or for that matter any other type of emergency including emergency medical services. The purpose behind this chart is to clearly define the fact that for purposes of fighting fires in structures there are limitation to fire departments that operate

in remote areas. Essentially this is another way of looking at the concept of distribution and concentration.

The distribution of remotely isolated fire departments is not measured in minutes but in miles. The distance between wildland fire agencies such as those utilized by California Department of Fire or US Forest Service BLM or BIA, are based on catchment basins that are not linked to a standard "five minute" response time. The same set of circumstances applies to a community that is rural or remote and/or isolated each individual fire station is somewhat isolated.

If you review the chart as noted below, you will note that sending two firefighters to the scene of an emergency by themselves with no back up is a severe restriction of their ability to actually provide fire and life safety. They are going to be required to operate in a defensive position until sufficient personnel are on the fire scene to allow an interior attack under safe conditions.

As a matter of law, firefighters, no matter how highly trained they are, are not allowed to arbitrarily engage in interior firefighting attack until they are able to assemble four people on the fire ground. Granted there are some exceptions in this documentation for immediate threat for life but in general it is set up in such a way that a two person fire company is essentially nothing more than a scouting party.

The previous configuration of the Palomar Fire Department which allowed for two people to be on duty immediately supported by a volunteer cadre is the bridge between these issues. Whenever a station is completely isolated from its next available support, there has to be an alternative in place to assure that those two people are not going to be thrown into dangerous conditions all the time.

Based upon best practices of having a cadre of adequately trained volunteers who would respond to the fire station and support the initial attack makes a lot of sense. Eliminating this volunteer cadre automatically means that the next available resource to assist the two person company that would be struggling with an emergency, is about 45 minutes away. There is no logical argument as to why anyone would want to dispose of the volunteer contingent in view of that fact alone.

As mentioned earlier, the idea of concentration is to be able to put a minimum number of people on the fire ground within a certain timeframe in order for effective operations to occur. Most fire departments today recognize that if you are willing to have an initial attack on a single family dwelling and plan on making an interior attack in a safe and effective manner, you need between 12 and 15 people on the fire ground.

This declaration of deployment recommends the estimation of volunteer firefighters to support whatever staffing level is put into the existing fire station regardless of their status. In other words, if two people are placed in that fire station and expected to respond to calls they need to have positive reinforcement within the first 10 to 15 minutes or there is absolutely no way their safety can be guaranteed. Moreover, it is highly unlikely that they will be able to do much except protect the exposures to a building once it is fully involved. In fact, there are only two people in that capacity in and of itself. One person to operate the pump and someone needs to be the incident commander. This begs the question of who is going to put water on the fire. If you take one of the people as part of the

two person company and assign them to the nozzle they can't go anywhere by themselves. Then, if you eliminate the individual who is operating as incident commander and put them on the nozzle there is nobody to engage in overall scene coordination which is counterproductive for effective firefighting operations.

In essence this section raises the fact that even though personnel are being placed in a station on 24/7 basis, until such time as the department can fully afford to achieve a critical mass of staffing to perform safely, a volunteer contingent that is resident on the top of the mountain is an appropriate policy. The elimination of the volunteer in deference to merely putting the station because they are available defies in the face of logic of standards of cover. It is understandable how a fire department can find itself confronted with these staffing requirements but no excuse for not developing a proper contingency to putting these firefighters in dangerous situations.

To the average citizen, seeing a fire station along side of the road automatically means that they have a level of service. Unfortunately the average citizen sometimes does not understand that existence of a fire station does mean that they have fire protection at all. It merely means that there is a building that houses a piece of fire apparatus that may or may not be able to respond appropriately to the next emergency. Again, firefighters in the front seat of an apparatus allowing them to be seen by the public, also does not constitute fire protection. There are numerous scenarios on record of single and two person fire apparatus responding to significant emergencies and being rendered essentially nothing more than observers of the process. They lack the capacity to do much about the event. There are also records of individuals who are engaged in heroic behavior with limited capacity who have managed to save both lives and property. But public policy is not supposed to be based upon the randomness of these two scenarios. The entire purpose of setting public policy is to create a community expectation that defines what level of risk the community is facing and simultaneously recognizing that there are certain risks that cannot be protected.

A good example of the scenario being referenced is to understand the difference between fighting a fire in a single family dwelling located on a street in Anytown USA, compared to a small volunteer fire department responding to a gigantic warehouse that has been position in a community for the very simple reason that there was lots of space available. In one case, the department may be adequately prepared. In the other case, the department may be overwhelmed before they even leave the fire station.

Fire protection cannot afford to be superficial. It has to be well planned and it has to be executed in a fashion that demonstrates to the taxpayers are getting what they paid for.

Adoption of Performance Measures

Performance Measures are how fire departments measure the quality of service they provide their community. Developing performance measures is a process by which the fire department establishes the criteria for determining the quality of service they provide. The purpose of this report is to recommend the adoption of the following table as an indication of service levels.

Figure 22 - Actual Performance Measure

Actual Performance Measures			
Incident Type	Actual Minimum	Time	%
Structural Fire	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80
Wildland Fire	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80
Medical (EMS)	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80
Rescue	First Alarm		
Rural	within 8 miles	15	80
Remote	beyond 8 miles	30	80

Description of Physical Resources

The following is a description of the existing resources utilized to meet the performance measures indicated.

Figure 23 – Physical Resources

Description	Photo
Fire Station	

Command Vehicle	
CERT Type 6 Gel Truck	

7719-Type 1 2151 GPM 2001 International Pumper Int, DT 530 Mileage 21,000	
7769-Brush Type 3 500 Gallon tank 750 GPM 2003 Outlander Pumper Caterpillar inline 6 Mileage 20,000	
7759-Water Tender 3200 Gallon tank 500 GPM 2003 International Tanker Mileage 11,000 Int. DT 530 *Snap tank on side, holds 3,000 gallons	

7789-Rescue Hydraulic tools Low angle Rope Rescue gear 2000 Ford F450 Mileage 23,000	
7788-Rescue 2001 Ford Mileage 230,000 Medical supplies Gurney MIC supplies	

U79-Utility/Chief's vehicle 1999 Ford F-250 Mileage 70,000	
Prevention Trailer To teach people about fire extinguisher, fire alarms, and smoke detectors. Has been used for scout visits, school and residents	
Air Room 6000 PSI bottles Cascade system Compressor To refill our Scott 4.5 30 minute bottles	

Communication Room Dispatching center for large incidents on the mountain, snow events, and day to day operations	
Radio Charging Station Located in Comm. room	
Radio communication tower/dish Maintained by PMVFD and HP Wren There are radio communications towers on Crestline Road through Palomar Mtn Radio Club	

Conference Room Used for daily morning staff meetings, monthly board meetings, and community meetings	
Training Room/supplies we have many tables and chairs for large meetings, and training events	
	

Smoke Machine To provide realistic training in multiple settings	
Generator Honda 6500, used during black outs	

Hose drying rack	
Laundry we have separate washer, dryer and sink for station use only	
Water supply: Front standpipe, can be gravity fed from tank or pressurized by a pump	

Pump, used to refill engines, water tenders and for training. used to pressurize the front standpipe.	
Pit: holds 20,000 gallons. Has 4 separate chambers each holding 5,000	
Goose neck: is gravity fed from a tank on the hill. Allows rapid refilling of water tenders and engines	

Tank: holds 10,000 gallons Diesel Fuel Tank: Holds 500 gallons	

Summary of Recommendations

The Table below provides a listing of recommendations that will assist the organization in improving its Deployment in accordance with NFPA 1720.

Figure 24 - Summary of Recommendations

Recommendations	Time Frame in Month of Year	Impact/Cost Anticipated	Delegated Person
Reestablish and maintain an active volunteer fire force of a minimum of 12-15 personnel to provide both distribution and concentration within the first 30 minutes of an incident.	As soon as possible	Insert estimate	Fire Chief George Lucia
Consider adding an additional station in cooperation with Palomar Observatory to aid in concentration. Seek out and recruit a minimum of 12 volunteers to respond to this station	Within 24 months	Insert estimate	Fire Chief George Lucia

Develop long range capital improvement plan to establish replacement cycle for fire apparatus.	Within 36 months	Insert estimate	Department staff

Glossary of Legal Terms

Articles of Incorporation – a corporations organizing documents, which, when duly filed with the Secretary of State's Office creates the corporation. Once accepted and acknowledged by the State, the articles of incorporation become the equivalent of a charter or a constitution for that corporation.

Association – a group of individuals who act in furtherance of a specific purpose without incorporating. This type of organization is also known as an unincorporated organization.

Census Designated Place (CDP) - CDP is the abbreviation for Census designated place, the statistical counterpart of incorporated places and are delineated to provide data for settled concentrations of population that identifiable by name but are not legally incorporated under the laws of the state in which they are located. CDPs are delineated cooperatively by state and local officials and the Census Bureau, following Census Bureau guidelines.

Corporation – a legally created entity that has been accepted approved and recognized by the State through a formalized process.

Fire District – a political subdivision of the state that has the authority to impose taxes and organize the deployment of fire and emergency services. (Also known as a Fire Protection District) In the State of California there are also Special Districts that carry out multiple functions, water districts and park districts that operate fire protection.

Non-Profit Corporation – a corporation formed for some charitable, benevolent or other purpose not designed to result in profits that will benefit its owners, directors or officers. It is sometimes called a Not For Profit Corporation.

Glossary of Operational Terms

Advanced Life Support (ALS): Medical care by paramedics. This would include administration of medication, defibrillation, and airway management.

Alarm: Notification of a signal from a device or person indicating the existence of an emergency.

Alarm Processing Time: The elapsed time from receipt of an alarm in a dispatch center to notification of the fire companies that are to initiate response.

Arrival: The point at which the fire companies dispatched to the scene are stopped at the scene of the emergency.

Authority Having Jurisdiction (AHJ): An agency having jurisdiction for enforcing the regulations pertaining to the jurisdiction.

Baseline: A point of departure, a starting point, your present status, a point of comparison which can be measured aligned with a benchmark.

Benchmark: What you would like to obtain, a point that can be measured, a standard of achievement, a point of reference. The difference the starting point and what you desire to achieve.

CAD: Computer Aided or Assisted Dispatching.

Call: A request for assistance of equipment and personnel.

Call Processing Interval: The time between the first ring of a 911 call at a dispatch center and the time the dispatch operator activates the station or other alerting devices.

Community: Refers to those living in a particular location.

Defibrillator: The delivery of an electric shock to a patient whose heart is fibrillating to restore the heart to normal rhythmic activity.

Deployment: The process by which resources are distributed throughout the service area.

Dispatch: The procedure to dispatch emergency resources to an address or location for a specific purpose.

Distribution: A measurement of the jurisdiction covered by the first due units within a response time standard.

Effective Response Force: The number of personnel that is assembled at the scene of an emergency to conduct the critical tasks in order to control the emergency situation.

Emergency Demand Zone: The geographic area designated by the fire department to determine an emergency response pattern.

Engine Company: A company, usually an engine, deployed with hose and water for fire attack.

ESO: Acronym for Emergency Services Organization (Used in VCOS Summit)

Fire Demand Zone: An area for fire hazard analysis.

Fire Apparatus Engineer: The operator or driver of a fire engine, whose primary function is to pump water.

Fire Captain: The supervisor of a fire crew, either engine, truck or other apparatus.

First Alarm Assignment: The number of companies and staffing that respond to a specific type of emergency.

Flashover: A designated temperature at which a fire causes complete destruction of all materials in the fire area.

Hazardous Material: A substance that presents a danger to person(s) due to toxicity, chemical reaction, etc.

High Risk Hazard: An area with a high concentration of property risk, or possible loss of life or financial impact on the community.

Initial Attack: The beginning phase of initial fire suppression.

Incident Command System (ICS): The on-scene incident chain of command system, which identifies the key roles and those tasks to manage an incident.

Incident Commander: The officer at the top of the incident management team in overall charge of the incident.

Level of Service: A standard of service used by governmental agencies to measure the effectiveness of service being provided.

Multiple Casualties: A medical incident that involves more than a specific number of patients with injuries.

Mutual Aid: Reciprocal assistance by other emergency service providers, usually through a prearranged plan.

NFIRS: National Fire Incident Reporting System.

On Scene Time: The point at which a responding unit arrives on scene.

Public Safety Answering Point (PSAP): A facility in which 9-1-1 or other emergency calls are answered.

Rescue Unit: A specific and specialized unit for the delivery of emergency medical care.

Rapid Intervention Team (RIT): A crew for the specific and intended purpose only of rescuing emergency personnel during emergency operations.

Response Time: The elapsed time from the point of notification (Dispatch) to a responding company and their arrival at the scene.

Staffing: The number of personnel assigned to respond on a specific vehicle. For purposes of this document, there are two types of staffing; on-duty and recalled. On duty means there is hard staffing in the station on a 24 hour, 7 day a week basis. Recalled staffing is defined by a person who receives notification of an emergency and responds to the fire station to become part of a team to respond on a vehicle. On duty staffing and recall staffing are utilized by the Palomar Mountain Volunteer Fire Department.

Ventilation: The systematic removal and replacement of heated smoke, air and gases from a structure with cooler air.

Bibliography

Agreement No___, Between the County of San Diego, on behalf of County Service Are 135, and the Mount Palomar Volunteer Fire Department, Revised April 10, 2013

Business Search Results, California Secretary of State Debra Bowen, http://kepler.sos.ca.gov/cbs.aspx

Carver, John, Boards That Make a Difference, A New Design for Leadership in Nonprofit and Public Organizations, Jossey-Bass

Chait, Richard P., Ryan, William P., Taylor, Barbara E., Governance as Leadership, Reframing the Work of Nonprofit Boards, John Wiley & Sons.

Chapter 5; Wildfires, San Diego Government- Focus 2005

Coleman, Ronny J., Future of the Palomar Fire Department, May 4th, 2013, submitted to Palomar Mountain Volunteer Fire Department Board of Directors

CSA 110 – Palomar Mountain, LAFCO Directory

Diane Jacob website – Series of documents, http://dianejacob.com/legislation/public

Drucker, Peter F., with Collins, Jim, Kotler, Philip, Kouzes, James, Rodin, Judith, Rangan, V. Kasturi, and Hesselbein, Frances, The Five Most Important Questions You Will Ever Ask About Your Organization. Jossey –Bass, Copyright Leader to Leader Institute 2008

Drucker, Peter F., Managing the Nonprofit Organization, Principles and Practices, Harper Collins Publishers

Emergencies on Palomar Mountain, Brochure

From the Economic History Files; Private Fire Brigades, http://thesocietypages.org/economicssociliogy/2008

Grand Jury Report, 2007-2008, May 29th, 2008

January 9th, 2010 Video

John Wiley & Sons, Inc, The Nonprofit Board Answer Book, A Practical Guide for Board Members and Chief Executives, Jossey-Bass

Lucia, George, Changes to the Scope of Work, PMVFD, April 15, 2010, Request for Response

Macro-Report; Options for Providing Structural Fire Protection and Emergency Medical Services in Unincorporated Sand Diego County, LAFCO, December 5, 2005

Ordinance #9950 (N.S.) – An ordinance providing for Board of Supervisors approval of the creation and continued existence of volunteer fire companies.

Privatizing Police and Fire Departments, Part I and II, http://americanlyyours.com

Public contracts Code, Section 25810, California Regulations

Reddick, Herman, Personal Communications, March 15, 2013

Reddick, Herman, Notice oif Proposed New Classifications, March 20th, 2013

Roberts, Dave, President, Personal Communications to Herman Reddick, March 02, 2013.

Roberts, Ron, Chairman, In support of a next-generation response to emergencies and disasters (District: all)

San Diego County Fire Authority, Fire Summit 2013, April 13, 2013, Reddick and Porter

San Diego County Fire Authority, http://www.sdcounty.ca.gov/sdcfa

San Diego County Recovery, http://www.adcountyrecovery.com

Statistics for Palomar Mountain Fire Department, December 31, 2012

The Fire Next Time – Will we be Ready?, San Diego County Grand Jury 2007- 2008 May 29th 2008

Time to Re- Privatize Fire Departments, http://spectatopr.org/archives

Appendix - Evaluating EMS Capability

The following chart illustrates the scope of performance for first responders, but is not in an order that suggests a particular performance sequence. Based on the guidelines, and the historical data on the types of medical emergencies occurring in their jurisdiction, volunteer fire departments should establish a minimum staffing objective in response to medical emergencies. Inherent in the written objective is an understanding that this minimum is predicated on the availability of volunteer firefighters. It must be acknowledged that NFPA 450 Guide for Emergency Medical Services and Systems specifies that most experts agree that four responders, two at least trained in ACLS and two trained in BLS, are the minimum required to provide ACLS to cardiac arrest victims.

Figure 25 – Performance Guidelines

Check	Performance Guidelines
	Determine vital signs and identify normal ranges
	Identify and report various forms of emergency medical identification found on the patient
	Conduct a primary assessment for life threatening conditions
	Provide BLS/CPR in accordance with America Heart Association/Red Cross standards
	Control bleeding
	Dress and bandage soft issue injuries
	Care for a person in shock
	Supplement respirations with available mechanical aids to breathing, including oxygen
	Perform secondary assessment
	Immobilize musculoskeletal injuries
	Immobilize the spine
	Move a sick or injured person from a hazardous environment in such a manner that the chance of aggravating injuries is minimized
	Move a person in conjunction with patient care activities in such a manner that the chance of aggravating injuries is minimized
	Care for a person who has non-traumatic chest pain
	Care for a person who is experiencing respiratory distress
	Care for a person who is experiencing a diabetic emergency
	Care for a person who has ingested, injected, inhaled, or absorbed a poison

	Care for a person who is experiencing an altered level of consciousness
	Care for a person who has thermal, chemical, or electrical burns
	Care of a person who is adversely affected by the environment
	Provide initial care of a person with behavioral problems
	Provide initial care for a person who is physically and/or sensory impaired
	Recognize a multiple casualty incident and initiate an appropriate response
	Triage injured persons found at a multiple casualty incident
	Recognize potential dangers at an emergency scene and take appropriate actions to protect first responders and other persons
	Use available equipment to gain access to trapped and injured persons in order to provide life saving care

Appendix - Individual Building Risk Assessment

Today local government and citizens look to the fire department to be properly prepared in order to be able to mitigate emergencies that threaten their communities. In turn, many fire departments are looking for specific tools in which to gauge community risks.

The questions that need to be answered are: What is the definition of a Risk? and What is Risk Assessment? Communities aware of generalized past and current emergency events that could also occur in their own community can be informed and use this information to provide the impetus and understanding to promote local preparedness. Hence, many jurisdictions are moving toward a system or process that will help identify hazards and ensure that proper mitigated strategies are in place and that adequate resources can and are being deployed.

The National Fire Protection Association (NFPA) Standards 1710 and 1720 are causing fire departments to review their deployment strategies. In addition, the present state of our economy is causing challenges for fire departments to substantiate current deployment practices. The NFPA further states: "That entity shall identify hazards, the likelihood of their occurrences, and the vulnerability of people, property, the environment and the entity itself to those hazards."

The Risk Assessment Worksheet was developed by the London Fire Services of Ontario, Canada, using Risk, Hazard and Value Evaluation (RHAVE) as the model. RHAVE was a software-automated data collection system. RHAVE is based on the original work of the International Association of Fire Chiefs' Accreditation Task Force. Further project work was funded by a cooperative agreement with the United States Fire Administration and the Commission of Fire Accreditation International. However, RHAVE is no longer available.

The RHAVE process categorized risks into four categories: Maximum, Significant, Moderate and Low, based on an Occupancy Vulnerability Assessment Profile (OVAP). Below is a brief example of definitions associated with the four categories:

- Maximum Risk: A high risk of life loss, loss of economic value to the community, or large property damage in the event of fire. Examples would be main shopping centers, large department stores, hotels and areas where the highest fire flows would be required.
- Significant Risk: A built up area that contains a significant number of large to medium sized structures with a predominate concentration of property presenting an ample risk to life loss, and severe financial impact on the community in the event of a fire.
- Moderate Risk: Built up areas of average size, with risk of life loss or moderate damage to property in the event of fire, usually limited to the occupants, primarily a single or multi-family dwelling.
- Low Risk: A remote structure in a rural area, a detached residential garage, out buildings, or rural land with no occupied structures.

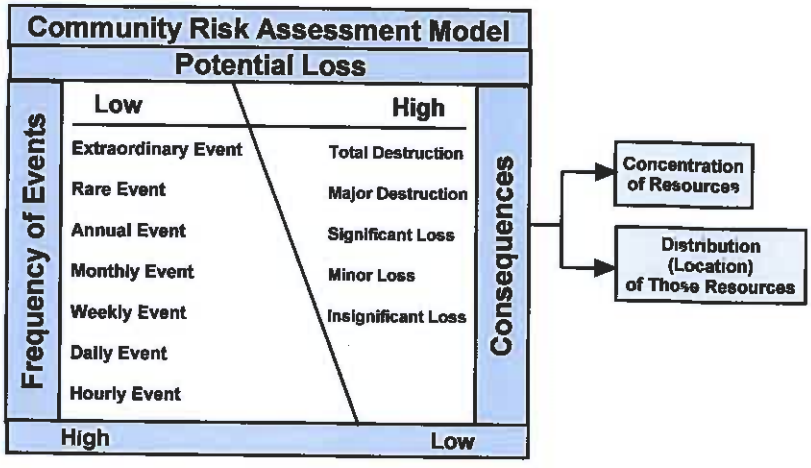
The RHAVE process is specifically not designed to perform certain tasks, as indicated below:

- It is not a fire spread or fire behavior modeling process.
- It is not a cost-benefit or zero tolerance models. It does not compare one building to another in order to determine which has lowest cost to protect.
- It does not predict losses or outcomes, but rather it characterizes potential for loss.
- It cannot force an internal assessment of the conditions of a structure unless the authority to conduct such assessment already exists.
- It is entirely dependent upon accurate input so as to be useful for decision makers.
- It is not designed to replace pre-incident plans or any other aids used during actual emergency operations.

The desired outcome when using the RHAVE process is an accurate and current description of the ***values at risk*** in your community.

The London Fire Department, at the time, did not have on board computers, so a worksheet heavily weighted toward RHAVE was developed for field use. The worksheet supported engine company officers and fire prevention inspectors in developing a Community Risk profile, so that current resources were properly deployed, and provided justification should additional resources be needed. The RHAVE process results in a collection of information and data for identification and assessment of fire related risks in the community. It determines what values are exposed to loss in a community, the probability of an event occurring and potential consequences of an event on the community.

Figure 26 – Community Risk Model



Though RHAVE is no longer available, it should not be used as a limiting factor in developing a Community Risk profile. The worksheet is a viable and effective alternative in data collection to identify Community Risk that can result in the proper deployment of community resources.

Building Risk Assessment Worksheet

Fire Management Area_____

General Information

Address: _____

Telephone Number _____ Building Owner or Manager _____

Occupancy Type: (Use Building Code) _____ Number of Units: _____ Special Hazard: _____

Completed by: _____ Date_____

Emergency Response Information

First Due Engine: _____ Map Page: _____ GPS: North _____ South _____

Distance to Closest Station: _____ Est. Response time _____ (Use ISO) (1.7 X Distance) +.065=Time

Water Demand

Building Area Square Feet: _____

Water Flow (GPM)
Pts
1 __ 500-1500
2 __ 1750-3000
3 __ 3250-4500
4__ 4750-6000
5 __ 6000-8000

Sprinklers
Pts
1___ Yes → Adjust Water Flow
2 ___ No

Available Water Flow _____GPM
Pts
1 ___ Sufficient
2 ___ Insufficient

A___ → B___ = C___ → D___ → = C x D ____Water Demand Factor (WDF)

Building Information

Exposure Separation
Pts
1___ 101+
2___ 61-100
3___ 31-60
4 ___11-30
5 ___ 0-10

Type of Construction
Pts
1___Type I- FR, II- FR
2___Type II 1-HR, III 1-HR
3___ Type IV-HT, V I-HR
4___ Type II-A, III-A
5 ___Type V-B

Building Height
Pts
1___1-2 Stories
2___3-4 Stories
3___5-6 Stories
4___ 7-8 Stories
5 ___10+ Stories

Building Accessibility
Pts
1___ All sides
2___ 3 Sides
3 ___2 Sides
4 ___1 Sides
5 ___Extra Ordinary Effort

Building Size Sq Ft
Pts
1___ 0-7500
2___7,500- 15,000
3___15,001-25,000
4___25,001-40,000
5 ___+40,000

A___ → B___ → C___ → D___ → E _____ = ____ Building Factor (BF)
A+B+C+D+E

Life Safety Information

Occupant Load

Pts
1 ___0 -10
2 ___11 - 50
3 ___51-100
4 ___101- 300
5 ___>300

A___

Occupant Mobility

Pts
1 ___ Awake/ambulatory 1-2 Stories
2 ___Asleep/ambulatory 1-2 stories
3 ___Awake/ambulatory > 3 stories
4 ___Asleep/ambulatory > 3 stories
5 ___Non ambulatory or restrained
0 ___Not a factor

B___

Warning Alarm

Pts
1___ Automatic-Central
2 ___ Automatic-local
3 ___ Manual-central
4 ___ Manual-local
5 ___No alarm system
0 ___Not a factor

C____ = D____ Multiply by E___ =___Life Safety Factor (LF)

A+B+C=D

Warning System

Pts
1___Conforms to Code
2 ___Does not conform to code

E___

Other

___ Hose Cabinets
___ Standpipes
___ Fire Extinguisher

Risk

Probability

Regulatory Oversight

Pts
.333____Highly regulated, mandatory compliance
.666____Highly regulated, inspections scheduled
1.000___Regulated, inspections scheduled random
1.333___Regulated, voluntary compliance
1.666___Unregulated, uninspected
0 ___Not a factor

A___

Human Activity

Pts
.333____No access to unauthorized persons
.666____Controlled access to unauthorized persons
1.000___Business activity, sales and retail
1.333___Group activity transient population
1.666___Domestic activity, no occupant control
0____Not a factor

B___

Fire Experience

Pts
.333____Daily event
.666____Weekly event
1.000___Monthly event
1.333___Annual event
1.666___Rare occurrences

C___

A+B+C___

Probability (P)

Capacity to Control Fire

Pts
.333___ Control within building of origin
.666___ Exposure to complex of building
1.000___Major deployment
1.333___Extreme resistance to control
1.666___Hazard to firefighting activities

A___

Hazard Index

Pts
.333____ Limited hazards
.666____ Common hazards (residential type)
1.000____Mixed hazards (business type)
1.333____Extreme resistance to control
1.666____Hazardss to firefighting activities

B___

Fire Load

Pts
.333____Light
.666____Ordinary-Hazard Group 1
1.000___ Ordinary-Hazard Group 2
1.333 ___Industrial hazards (explosives)
1.666___ Multiple and complex hazards

C___

A+B+C_____

Consequence(C)

P x C Risk Factor (RF) _____

Value

Property Value

Pts
1.00___Personnal family loss
1.10___Business loss, minor casually exposure
1.20___Moderate economic impact to community, severe casually exposure
1.30___Severe economic impact to community tax base or job loss
1.40___irreplaceable major loss to community (non-monetary)
infrastructure, culture, historical

↓

_____ **Value Factor (VF)**

↓

Factor Summary

Water Demand (WD) _____
+
Building (BF) _____
+
Life Safety LF) _____
+
Risk Factor (RF) _____
=
Factor Score (FS) _____

↓

_____ **Value Factor (VF) x Factor Score (FS) =** ___ **Occupancy Vulnerability Assessment Profile (OVAP)** →

Risk Rating
(Based on OVAP)
Maximum 60+
Significant 40-59
Moderate 15-39
Low <15

↓

Risk Rating_____