County of Santa Cruz

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NANCY GORDON, DIRECTOR

February 12, 2013 Agenda: March 5, 2013

Board of Supervisors
701 Ocean Street
Santa Cruz, CA 95060

Santa Cruz County Fire Improved Insurance Services Office (ISO) Rating Final Report

Dear Members of the Board:

On January 15, 2013 your Board directed staff to return on or before March 19, 2013 with the final corrected Santa Cruz County Fire Department (County Fire) report from the Insurance Services Office, Inc. (ISO); an independent company that serves communities, fire departments, and insurance regulators by classifying communities' public structure fire protection services throughout the United States. ISO collects and analyzes relevant data utilizing their Fire Suppression Rating Schedule (FSRS) from which they assign a Public Protection Classification (PPC) ranging from 1 to 10. Class 1 generally represents superior property fire protection and Class 10 represents less than ISO's minimum standards (unprotected). Upon review of the initial report, County Fire staff discovered possible discrepancies that required further examination and clarification from County Fire's appointed ISO representative. Staff is pleased to report these issues have been resolved and the final report is available to present to your Board (see Attachment A).

The report is segmented into three categories of fire suppression, the first of which is **Receiving and Handling Fire Alarms.** This category encompasses a review of the department's fire alarm and communication system and primarily focuses on the facilities and support for handling and dispatching fire alarms. This section, weighted at 10 points, accounts for 10% of the total classification. County Fire received a perfect rating of 10 points in this category.

The second category, **Fire Department**, focuses on the department's first alarm response, initial attack, number and distribution of fire stations and engine companies, apparatus, reserve apparatus, pumping capacity, equipment, personnel, and training. There are three main point values designated within this section: **Training** (9 points), **Equipment** (26 points), and **Personnel** (15 points).These three values equal a possible 50 points, accounting for 50% of the total classification.

County Fire was awarded 6.27 out of the 9 possible **Training** points for its diverse range of medical, hazardous materials, wildland, and structure emergency response training. Scoring in this category is focused primarily on structure fire fighting, while points for other types of response training are capped. In order to improve this score in the future, more emphasis would need to be placed specifically on structure firefighting as well as improved documentation.

The **Equipment** portion of the review is tied to **Personnel** and includes not only the number and type of engines, but the number of firefighters on each of those engines, and the location and response time of that equipment. The basis for rating the recommended number of personnel on an engine is derived from the National Fire Protection Association (NFPA) which recommends a minimum of four responders for initial attack in the hazardous areas of a working structure fire. County Fire currently operates at reduced 2 person staffing per engine, resulting in the need for an additional engine in order to equal the minimum 4 person staffing recommended. Simply put, reduced staffing levels not only result in a lower **Personnel** score, but a lower **Equipment** rating as well. County Fire received 14.76 points out of a possible 26 points available for **Equipment** and 3.94 out of 15 possible points for **Personnel**. These point values combined with **Training** points above for a total of 24.97 out of 50 points in the **Fire Department** category.

The third and final category is **Water Supply**. This score can be valued up to 40 points, accounting for 40% of the total classification. ISO reviews the community's water supply to determine fire suppression adequacy. Points are awarded based on hydrant size, type, installation, condition, and frequency of inspection. County Fire received a score of 23.94 in this category.

One final factor, **Divergence**, is considered in the final calculation and mathematically reduces the total score based upon the disparity between the fire department's effectiveness and the water supply score. County Fire's Divergence score was -1.98.

As you will see in the attached report, County Fire's final FSRS Score totaled 56.92 out of 100, resulting in an improvement of one classification from a split class of 6/8B, to a split class of 5/8B as detailed in the previous letter to your Board.

It is therefore RECOMMENDED that your Board accept this report on Santa Cruz County Fire Department's improved rating from the Insurance Services Office, Inc.

Very truly yours,

Nancy Gordon
Director

RECOMMENDED:

SUSAN A. MAURIELLO
County Administrative Officer

NCG/GP

cc: County Fire
Fire Department Advisory Commission

Public Protection Classification

Summary Report

Santa Cruz Co FD

California

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Background Information

Introduction

ISO collects and evaluates information from communities in the United States on their structure fire suppression capabilities. The data is analyzed using our Fire Suppression Rating Schedule (FSRS™) and then a Public Protection Classification (PPC™) number is assigned to the community. The surveys are conducted whenever it appears that there is a possibility of a classification change. As such, the PPC program provides important, up-to-date information about fire protection services throughout the country.

The Fire Suppression Rating Schedule (FSRS) recognizes fire protection features only as they relate to suppression of first alarm structure fires. In many communities, fire suppression may be only a small part of the fire department's overall responsibility. ISO recognizes the dynamic and comprehensive duties of a community's fire service, and understands the complex decisions a community must make in planning and delivering emergency services. However, in developing a community's Public Protection Classification, only features related to reducing property losses from structural fires are evaluated. Multiple alarms, simultaneous incidents and life safety are not considered in this evaluation. The PPC program evaluates the fire protection for small to average size buildings. Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual classification.

A community's investment in fire mitigation is a proven and reliable predictor of future fire losses. Statistical data on insurance losses bears out the relationship between excellent fire protection – as measured by the PPC program – and low fire losses. So, insurance companies use PPC information for marketing, underwriting, and to help establish fair premiums for homeowners and commercial fire insurance. In general, the price of fire insurance in a community with a good PPC is substantially lower than in a community with a poor PPC, assuming all other factors are equal.

ISO is an independent company that serves insurance companies, communities, fire departments, insurance regulators, and others by providing information about risk. ISO's expert staff collects information about municipal fire suppression efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a Public Protection Classification – a number from 1 to 10. Class 1 represents an exemplary fire suppression program, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria.

ISO's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. A community's PPC depends on:

- **Needed Fire Flows**, which are representative building locations used to determine the theoretical amount of water necessary for fire suppression purposes.
- **Receiving and Handling Fire Alarms**, including telephone systems, telephone lines, staffing, and dispatching systems.
- **Fire Department**, including equipment, staffing, training, and geographic distribution of fire companies.
- **Water Supply**, including condition and maintenance of hydrants, alternative water supply operations, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires up to 3,500 gpm.

Data Collection and Analysis

ISO has evaluated and classified over 48,000 fire protection areas across the United States using its Fire Suppression Rating Schedule (FSRS). A combination of meetings between trained ISO field representatives and the dispatch center coordinator, community fire official, and water superintendent is used in conjunction with a comprehensive questionnaire to collect the data necessary to determine the PPC number. In order for a community to obtain a classification better then a Class 9, three elements of fire suppression features are reviewed. These three elements are Receiving and Handling Fire Alarms, Fire Department and Water Supply.

A review of the **Receiving and Handling Fire Alarms** fire alarm and communication system accounts for 10% of the total classification. The review focuses on the community's facilities and support for handling and dispatching fire alarms. This section is weighted at **10 points,** as follows:

- Telephone Service 2 points
- Number of Needed Operators 3 points
- Dispatch Circuits 5 points

A review of the **Fire Department** accounts for 50% of the total classification. ISO focuses on a fire department's first alarm response and initial attack to minimize potential loss. In this section, ISO reviews such items as engine companies, ladder or service companies, distribution of fire stations and fire companies, equipment carried on apparatus, pumping capacity, reserve apparatus, department personnel, and training. The fire department section is weighted at **50 points,** as follows:

- Engine Companies 10 points
- Reserve Pumpers 1 point
- Pumper Capacity 5 points
- Ladder/Service Companies 5 points
- Reserve Ladder/Service Trucks 1 point
- Distribution of Companies 4 points
- Company Personnel 15 points
- Training 9 points

A review of the **Water Supply** system accounts for 40% of the total classification. ISO reviews the water supply a community uses to determine the adequacy for fire suppression purposes. Hydrant size, type, and installation is also considered, as well as the inspection frequency and condition of fire hydrants. The water supply system is weighted at **40 points,** as follows:

- Credit for Supply System 35 points
- Hydrant Size, Type & Installation 2 points
- Inspection/Condition of Hydrants 3 points

There is one additional factor considered in calculating the final score – **Divergence**.

Even the best fire department will be less than fully effective if it has an inadequate water supply. Similarly, even a superior water supply will be less than fully effective if the fire department lacks the equipment or personnel to use the water. The FSRS score is subject to modification by a divergence factor, which recognizes disparity between the effectiveness of the fire department and the water supply.

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

Public Protection Classification Number

The PPC number assigned to the community will depend on the community's score on a 100-point scale:

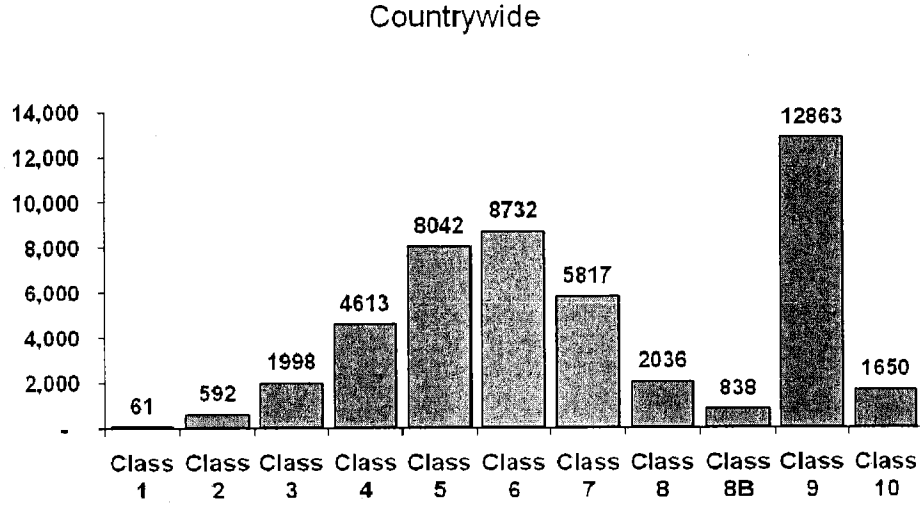
PPC	Points
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

The classification numbers are interpreted as follows:

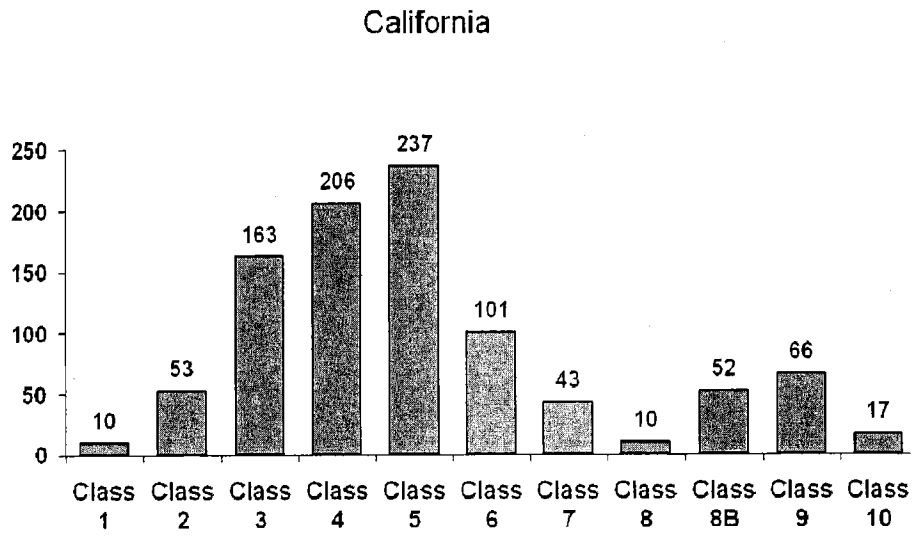
- Class 1 through (and including) Class 8 represents a fire suppression system that includes an FSRS creditable dispatch center, fire department, and water supply.
- Class 8B is a special classification that recognizes a superior level of fire protection in otherwise Class 9 areas. It is designed to represent a fire protection delivery system that is superior except for a lack of a water supply system capable of the minimum FSRS fire flow criteria of 250 gpm for 2 hours.
- Class 9 is a fire suppression system that includes a creditable dispatch center, fire department but no FSRS creditable water supply.
- Class 10 does not meet minimum FSRS criteria for recognition.

Distribution of Public Protection Classification Numbers

The 2011 published countrywide distribution of communities by the Public Protection Classification number is as follows:



The 2011 published statewide distribution of communities by the Public Protection Classification number is as follows:



Assistance

The PPC program offers help to communities, fire departments and other public officials as they plan for, budget, and justify improvements. ISO is also available to assist in the understanding of the details of this evaluation.

ISO Public Protection representatives can be reached by telephone at (800) 444-4554. The technical specialists at this telephone number have access to the details of this evaluation and can effectively speak with you about your PPC questions. What's more, we can be reached via the internet at www.isomitigation.com/talk/.

We also have a website dedicated to our Community Hazard Mitigation Classification programs at www.isomitigation.com. Here, fire chiefs, building code officials, community leaders and other interested citizens can access a wealth of data describing the criteria used in evaluating how cities and towns are protecting residents from fire and other natural hazards. This website will allow you to learn more about ISO's Public Protection Classification program. The website provides important background information, insights about the PPC grading processes and technical documents. ISO is also pleased to offer Fire Chiefs Online — a special secured website with information and features that can help improve your ISO Public Protection Classification, including a list of the Needed Fire Flows for all the commercial occupancies ISO has on file for your community. Visitors to the site can download information, see statistical results and also contact ISO for assistance.

In addition, on-line access to the Fire Suppression Rating Schedule and its commentaries is available to registered customers for a fee. However, fire chiefs and community chief administrative officials are given access privileges to this information without charge.

To become a registered fire chief or community chief administrative official, register at www.isomitigation.com.

Classification Details

Public Protection Classification

ISO concluded its review of the fire suppression features being provided for/by Santa Cruz Co FD. The resulting community classification is **Class 5/8B**.

If the classification is a single class, the classification applies to properties with a Needed Fire Flow of 3,500 gpm or less in the community. If the classification is a split class (e.g., 6/9), the following applies:

- The first class (e.g., "6" in a 6/9) applies to properties within 5 road miles of a recognized fire station and within 1,000 feet of a fire hydrant or alternate water supply.
- Class 8B or class 9 applies to properties beyond 1,000 feet of a fire hydrant but within 5 road miles of a recognized fire station.
- Alternative Water Supply: The first class (e.g., "6" in a 6/10) applies to properties within 5 road miles of a recognized fire station with no hydrant distance requirement.
- Class 10 applies to properties over 5 road miles of a recognized fire station.
- Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual classification.

Summary Evaluation Analysis

The following points represent the analysis of the application of the criteria outlined in the FSRS of four topics– Receiving and Handling Fire Alarms, Fire Department, Water Supply, and the Divergence factor for Santa Cruz Co FD:

FSRS Feature	Earned Credit	Credit Available
Receiving and Handling Fire Alarms		
414. Credit for Telephone Service	**2.00**	2
422. Credit for Operators	**3.00**	3
432. Credit for Dispatch Circuits	**5.00**	5
440. Credit for Receiving and Handling Fire Alarms	**10.00**	**10**
Fire Department		
513. Credit for Engine Companies	**4.84**	10
523. Credit for Reserve Pumpers	**0.37**	1
532. Credit for Pumper Capacity	**5.00**	5
549. Credit for Ladder Service	**2.89**	5
553. Credit for Reserve Ladder and Service Trucks	**0.56**	1
561. Credit for Distribution	**1.10**	4
571. Credit for Company Personnel	**3.94**	15
580. Credit for Training	**6.27**	9
590. Credit for Fire Department	**24.97**	**50**
Water Supply		
616. Credit for Supply System	**21.32**	35
621. Credit for Hydrants	**1.50**	2
631. Credit for Inspection and Condition	**1.11**	3
640. Credit for Water Supply	**23.93**	**40**
Divergence	**-1.98**	--
Total Credit	**56.92**	**100**

General Information

To determine the Total Credit, the points for Receiving and Handling Fire Alarms, Fire Department and Water Supply are added together and the Divergence factor is applied. To establish the points for each category, FSRS items labeled as "Credit for..." are totaled. These particular items are intermediate values. Usually these intermediate values are based upon a 100-point scale, but they can be different. The ratios between the actual points scored in each of these sub-items and the points available for full credit are then multiplied by the points available for the sub-item.

For instance, Item 414 "Credit for Telephone Service (CTS)" is valued at 2 points. To determine the credit earned, the totals for Item 411 "Review of Telephone Lines (TL)", Item 412 "Review of Telephone Directory (TD)", and Item 413 "Review of Recording Device (RD)" are summed. In Item 411, up to 60 points can accrue; Item 412 has a combined value of 20 points; and 20 points are available for Item 413. The sum of these three Items is divided by 100 and then multiplied by the 2 point weight in Item 414 to determine the final score for "Credit for Telephone Service (CTS)".

The formula for Item 414 "Credit for Telephone Service (CTS)" looks like this:

$$\mathbf{CTS} = \frac{\mathbf{TS}}{\mathbf{100}} \times 2$$

Where TS = TL + TD + RD

Detailed Evaluation Analysis

On the following pages are the details of the evaluation of each category for Santa Cruz Co FD. These details relate only to the fire insurance classification for this jurisdiction. They are not for property loss prevention or life safety purposes and no life safety or property loss recommendations are made.

At the end of the detailed analysis the relative class is indicated. The relative class represents the classification each category would have achieved if the individual score was translated into a 100-point scale instead of the points available for that category.

Receiving and Handling Fire Alarms

Ten percent of a community's overall score is based on how well the communications center receives and dispatches fire alarms. Our field representative evaluated:

- the telephone service, including the number of telephone lines coming into the center
- the listing of the emergency number and business number in the telephone directory
- the automatic recording of emergency calls
- the communications center, including the number of operators on-duty and awake at the center
- the dispatch circuits and how the center notifies firefighters about the location of the emergency

Note: This evaluation includes information from multiple PSAP's (Public Safety Answering Points), the least creditable PSAP is used for the calculation of each Item under Receiving and Handling of Fire Alarms.

Item 414 - Credit for Telephone Service (2 points)

The first item reviewed is Item 414 "Credit for Telephone Service (CTS)". This item reviews the facilities provided for the public to report fires including the telephone line used to report an emergency, business and private alarm lines including progression of emergency calls to business lines. Also analyzed is the listing of fire and business numbers in the telephone directory and the automatic recording of emergency calls. ISO uses National Fire Protection Association (NFPA) 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems* as the reference for this section.

To determine the score for Item 414, three sub-items (Item 411, Item 412, and Item 413) were evaluated. The details are as follows:

Item 411 - "Review of Telephone Lines (TL)"	Earned Credit	Credit Available
A. Number of needed fire lines* For maximum credit, there should be 2 incoming telephone lines reserved for receiving notification of fires. The Communication Center serving Santa Cruz Co FD has 14 lines reserved. The telephone directory listed both a business and an emergency number.	**25.00**	**25**
B. Number of needed fire, business, and private alarm lines* For maximum credit, there should be 2 incoming lines reserved for notification of fires (and other emergency calls) plus 1 additional line for conducting other fire department business and, if applicable, for private alarms. The Communication Centers serving Santa Cruz Co FD have 1 line in addition to the 14 lines reserved for receiving notification of fires (and other emergency calls). The telephone directory listed both a business and an emergency number.	**25.00**	**25**
C. Progression of emergency calls to business lines For maximum credit, unanswered emergency calls should progress to the business number.	**10.00**	**10**
D. If detailed information of a fire is received and transmitted through more than one communication center, DEDUCT For no deduction of points, fire calls should be immediately transferred from the answering point to the dispatcher who will then obtain the needed information from the caller for dispatching.	**0.00**	**-20**
Review of Telephone Lines (TL) total:	**60.00**	**60**

***Note:** When only one telephone number is listed in the telephone directory the telephone lines provided cannot be reserved for emergency calls because the general public is not given a choice of telephone lines to use. Therefore, the operator/telecommunicator must accept both emergency and business calls over the same lines. The number of needed fire, business, and alarm lines will show a reduction in credit.

Item 412 - "Review of Telephone Directory (TD)"	Earned Credit	Credit Available
A. Emergency number on the inside front cover or the front page For credit, the fire emergency telephone number should be printed on the inside front cover or front page of the white pages in the telephone directory.	10	10
B. Emergency number and business number listed under "Fire Department" For credit, both the number to report a fire and the fire department business number should be listed under "FIRE DEPARTMENT" in the white pages (or government section) of the telephone directory. The fire number is listed and the business number is listed.	5	5
C. Emergency number and business number listed under the name of the city For credit, both the number to report a fire and the fire department business number should be listed under the community or fire district in the white pages (or government section) of the telephone directory. The fire number is listed and the business number is listed.	5	5
D. If the numbers for individual fire stations are listed, DEDUCT For no deduction of points, the individual fire stations should not be listed in the telephone directory.	0	-10
Review of Directory Listing (TD) total:	20	20

Item 413 - "Review of Recording Device (RD)"	Earned Credit	Credit Available
A. Review of the recording device (RD): For credit, a voice recorder should automatically record all emergency calls and the operator should be able to immediately play back any emergency call to review the conversation.	20	20
Review of Recording Device (RD) total:	20	20

The Items "TL", "TD", and "RD" are then added together and divided by the total possible points (100 points) to determine the factor that is applied to the 2 points available for Item 414 "Credit for Telephone Service (CTS)".

414 "Credit for Telephone Service (CTS)" = 2.00 points

Item 422 - Credit for Operators (3 points)

The second item reviewed is Item 422 "Credit for Operators (CTO)". This item reviews the number of operators on duty and awake at the center to handle fire calls and other emergencies. All emergency calls including those calls that do not require fire department action are reviewed to determine the proper staffing to answer emergency calls and dispatch the appropriate emergency response. NFPA 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems,* recommends that ninety-five percent of emergency calls shall be answered within 15 seconds and ninety-nine percent of emergency calls shall be answered within 40 seconds. In addition, NFPA recommends that ninety percent of emergency alarm processing shall be completed within 60 seconds and ninety-nine percent of alarm processing shall be completed within 90 seconds of answering the call.

To receive full credit for operators on duty, ISO must review documentation to show that the communication center meets NFPA 1221 call answering and dispatch time performance measurement standards. This documentation may be in the form of performance statistics or other performance measurements compiled by the 9-1-1 software or other software programs that are currently in use such as Computer Aided Dispatch (CAD) or Management Information System (MIS). If the necessary data is not available, the number of needed operators will be determined by specification criteria using a "Call Volume Matrix Table" (see the following page).

CALL VOLUME MATRIX TABLE #1
For Public Safety Answering Points that Perform Call Taking and Dispatching

Alarms per Year	Number of Needed Telecommunicators
Less than 731	1*
731 to 10,000	2
10,001 to 25,000	4**
25,001 to 50,000	5**
50,001 to 100,000	6**
100,001 to 150,000	7**
150,001 to 200,000	8**
200,001 to 250,000	9**
250,001 to 300,000	10**
Over 300,000***	11**

CALL VOLUME MATRIX TABLE #2
For Public Safety Answering Points that Perform Call Taking Without Dispatching

Alarms per Year	Number of Needed Telecommunicators
Less than 10,001	1
10,001 to 50,000	2
50,001 to 100,000	4**
100,001 to 150,000	5**
150,001 to 200,000	6**
200,001 to 250,000	7**
250,001 to 300,000	8**
Over 300,000***	9**

* *Communication centers that provide emergency medical dispatching (EMD) protocols need two telecommunicators on duty at all times.*

** *Includes a supervisor in the communication center.*

*** *For every 10 additional calls (alarms) that are averaged per hour (87,600 calls per year), one additional telecommunicator is added.*

To determine the score for Item 422, two sub-Items (421.A and 421.B) are summed. The details are as follows:

Item 421 - "Review of Operators (PO)"	Earned Credit	Credit Available
A. Number of operators on-duty (OD): For maximum credit, there should be 2 operators on duty at all times. There are an average of 3.00 operators on duty at the communication center.	**80.00**	**80**
B. Number of operators awake at all times (OA): For maximum credit, all operators should be awake at all times. There is an average of 3.00 operators awake at all times.	**20.00**	**20**
Review of Operators (PO) total:	**100.00**	**100**

After the items "OD" and "OA" are summed up to determine the points received for the "Review of Operators", the sum is divided by the total possible points (100 points) to determine the factor that is applied to the 3 points available for Item 422 "Credit for Operators (CTO)".

Item 422 "Credit for Operators (CTO)" = 3.00 points

Item 432 - Credit for Dispatch Circuits (5 points)

The third item reviewed is Item 432 "Credit for Dispatch Circuits (CDC)". This item reviews the dispatch circuit facilities used to transmit alarms to fire department members. A "Dispatch Circuit" is defined in NFPA 1221 as "A circuit over which an alarm is transmitted from the communications center to an emergency response facility (ERF) or emergency response units (ERUs) to notify ERUs to respond to an emergency". All fire departments (except single fire station departments with full-time firefighter personnel receiving alarms directly at the fire station) need adequate means of notifying all firefighter personnel of the location of reported structure fires. The dispatch circuit facilities should be in accordance with the general criteria of NFPA 1221. "Alarms" are defined in this Standard as "A signal or message from a person or device indicating the existence of an emergency or other situation that requires action by an emergency response agency".

There are two different levels of dispatch circuit facilities provided for in the Standard – a primary dispatch circuit and a secondary dispatch circuit. In jurisdictions that receive 730 alarms or more per year (average of two alarms per 24-hour period), two separate and dedicated dispatch circuits, a primary and a secondary, are needed. In jurisdictions receiving fewer than 730 alarms per year, a second dedicated dispatch circuit is not needed. Dispatch circuit facilities installed but not used or tested (in accordance with the NFPA Standard) receive no credit.

The score for Credit for Dispatch Circuits (CDC) is influenced by monitoring for integrity of the primary dispatch circuit. There are up to 1.5 points available for this Item. Monitoring for integrity involves installing automatic systems that will detect faults and failures and send visual and audible indications to appropriate communications center (or dispatch center) personnel. ISO uses NFPA 1221 to guide the evaluation of this item.

Additional points are available for dispatch recording facilities at the Communication Center. All alarms that are transmitted over the required dispatch circuits need to be automatically recorded (including the dates and times of transmission) to earn the maximum points in this item.

ISO's evaluation includes a review of the communication system's emergency power supplies. To receive maximum credit, two sources of power need to be provided for the operation of the communications network including dispatch circuits and its related support systems and equipment. A common arrangement is to have the primary power come from a utility distribution system and a secondary power source from an automatic starting emergency engine-generator and/or an Uninterruptible Power Supply (UPS) and Battery System – (SEPSS-Stored Emergency Power Supply Systems).

To determine the score for Item 432, four sub-items (Item 431.A, Item 431.B, Item 431.C and Item 431.D) needed to be evaluated.

The score that Santa Cruz Co FD received for Item 432 was calculated as follows:

Item 432 - "Credit for Dispatch Circuits (CDC)"	Earned Credit	Credit Available
Item 431A - "Dispatch Circuits Provided" The points are determined by prorating the value of the type of dispatch circuit using the percentage of members dependent upon each circuit.	**40.00**	**40**
Item 431B - "Monitoring for Integrity of Circuit" For maximum credit, the dispatch circuit should have an automatic system that will detect faults and failures and send visual and audible indications to appropriate personnel. These systems are subject to field verification and demonstration.	**30.00**	**30**
Item 431C - "Dispatch Recording Facilities at Communication Center" For maximum credit, all alarms that are transmitted over the required dispatch circuits need to be automatically recorded.	**10.00**	**10**
Item 431D - "Emergency Power Supply" For maximum credit, emergency power supplies need to be provided and regularly tested (one hour weekly, under load, with test documentation).	**20.00**	**20**
Item 431E - "When no circuit is needed" If all responding firefighters are in the same building as the communication center and are alerted, no dispatch circuit is needed and the maximum points are credited. However, the community does not operate in this fashion.	**0.00**	**100**
Dispatch Circuits (DC) total:	**100.00**	**100**

After the Items in 431 are summed up to determine the points received for the "Credit for Dispatch Circuits (CDC)", the sum is divided by the total possible points (100 points) to determine the factor that is applied to the 5 points available for Item 432 "Credit for Dispatch Circuits (CDC)".

Item 432 "Credit for Dispatch Circuits (CDC)" = 5.00 points

The final step in determining the credit for "Receiving and Handling Fire Alarms" is to add Item 414, Item 422, and Item 432:

Item	Earned Credit	Credit Available
414. Credit for Telephone Service (CTS)	**2.00**	2
422. Credit for Operators (CTO)	**3.00**	3
432. Credit for Dispatch Circuits (CDC)	**5.00**	5
Item 440. Credit for Receiving and Handling Fire Alarms:	**10.00**	**10**

Fire Department

Fifty percent of a community's overall score is based upon the fire department's structure fire suppression system. ISO's field representative evaluated:

- Engine and ladder/service vehicles including reserve apparatus
- Equipment carried
- Distribution of fire companies
- Available and/or responding firefighters
- Automatic Aid with neighboring fire departments
- Training

Basic Fire Flow

The Basic Fire Flow for the community is determined by the review of the Needed Fire Flows for selected buildings in the community. The following building addresses were used to determine the Basic Fire Flow:

- 4500 gpm 23800 Summit Road, Los Gatos
- 3500 gpm 463 Corralitos Road, Watsonville
- 3500 gpm 23800 Summit Road, Los Gatos
- 3500 gpm 321 Corralitos Road, Watsonville
- 3000 gpm 783 San Andreas Road, Watsonville

The fifth largest Needed Fire Flow is determined to be the Basic Fire Flow. Since the FSRS develops a PPC for properties with a Needed Fire Flow of 3,500 gpm or less, the maximum that the Basic Fire Flow can be is 3,500 gpm. The Basic Fire Flow for Santa Cruz Co FD has been determined to be 3000 gpm.

Item 513 - Credit for Engine Companies (10 points)

The first item reviewed is Item 513 "Credit for Engine Companies (CEC)". This item reviews the number of engine companies, their pump capacity, hose testing, pump testing and the equipment carried on the in-service pumpers. To be recognized, pumper apparatus must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* which include a minimum 250 gpm pump, an emergency warning system, a 300 gallon water tank, and hose.

The review of the number of needed pumpers considers the Basic Fire Flow; the response distance to built-upon areas; the method of operation; and the response outside the city. Multiple alarms, simultaneous incidents, and life safety are not considered.

Item 510.A. Number of Needed Engine Companies (NE):

BASIC FIRE FLOW, GPM	ENGINE COMPANIES
500 - 1,000	1
1,250 - 2,500	2
3,000 - 3,500	3

The FSRS indicates that a minimum of 12 engine companies are needed in the fire district to suppress fires in structures with a Needed Fire Flow of 3,500 gpm or less. This number is calculated as follows:

The greater of:

a) 3 engine companies to support a Basic Fire Flow of 3000 gpm.

b) 12 engine companies to provide fire suppression services to areas with a reasonable number of properties without a responding fire station within 1½ miles.

c) 12 engine companies based upon the fire department's method of operation to provide a minimum two engine response to all first alarm structure fires.

There are 0 additional engine companies needed for response outside the city.

The FSRS recognizes that there are 12 engine companies in service.

For maximum credit, at least two engine companies should respond to all reported first alarms for fires in buildings (except when only one engine company is needed). The credit for engine companies has been reduced by 0.0 percent because the FSRS review deemed there is an adequate response to all reported fires in the district.

For each in-service engine, ISO reviews the pump capacity (as indicated by a pumper test), the hose (including hose testing) and the equipment carried.

For maximum credit, pumper service tests must be done annually and documented. ISO evaluates the pumper service tests using NFPA 1911, *Standard for the Inspection, Maintenance, Testing and Retirement of In-service Automotive Fire Apparatus.* This Standard indicates that the service tests should be conducted for:

- 20 minutes @ 100% capacity at 150 psi
- 10 minutes @ 70% capacity at 200 psi
- 10 minutes @ 50% capacity at 250 psi