Insurance Services Office Evaluation

Assisting Communities
With Their ISO Rating

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A Report From

MIKE PIETSCH, P.E. CONSULTING SERVICES, INC.

To

THE CITY OF LAS CRUCES

Improving
The City of Las Cruces'
ISO Public Protection Classification

(Fire Suppression Rating Study)

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Submitted by:

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What is Insurance Services Office, Inc. (ISO)?

To help establish appropriate fire insurance premiums for residential and commercial properties, insurance companies need reliable, up-to-date information about a municipality's fire protection services. Insurance Services Office, Inc. (ISO) is the principal (and most precise) provider of this information through the Public Protection Classification (PPC) program.

What is the Public Protection Classification (PPC) Program?

ISO collects information on a community's public fire protection and analyzes the data using their Fire Suppression Rating Schedule (FSRS). ISO then assigns a Public Protection Classification from 1 to 10. Class 1 represents the best public protection, and Class 10 indicates less than the minimum recognized protection.

By classifying a community's ability to extinguish or control a structural fire, ISO assists communities in evaluating their public fire protection infrastructure. The program provides an objective, countrywide standard that assists communities in planning and budgeting for facilities, equipment, and training. By securing lower fire insurance premiums for communities with better public protection, the PPC program provides incentives and rewards for communities that choose to improve their firefighting services.

ISO has extensive information on more than 50,000 fire-response jurisdictions.

Explanation of the Fire Suppression Rating Schedule (FSRS)

The Fire Suppression Rating Schedule is the manual ISO utilizes in reviewing the firefighting capabilities of individual communities. This schedule evaluates the three major items comprising a community's fire suppression infrastructure and develops a numerical grading called a Public Protection Classification (PPC). The items considered are Fire Alarm, Fire Department, and Water Supply.

Fire Alarms

Ten percent of the grading point total is based on how efficiently calls for emergency service are received and dispatched. ISO Field Representatives will evaluate the communications center. They consider the number of operators at the center, the telephone service, including the number of telephone lines coming into the center, and the listing of emergency numbers in the principal telephone directory. Field Representatives will also evaluate the number of dispatch circuits and how the center notifies firefighters of an emergency.

Fire Department

Fifty percent of the grading point total is based on the infrastructure of the fire department. ISO reviews the distribution of fire companies throughout the graded area and verifies apparatus response to structural alarms of fire. The ISO Field Representative inventories each engine, ladder and service company, both in service and reserve, to verify the existence of nozzles, hose loads, breathing apparatus, and other major equipment. ISO will review the fire-company records to determine:

- Type and extent of training provided fire-company personnel
- Firefighter response to emergency calls for service
- Maintenance and testing of fire department's apparatus
- Engine, ladder and service companies availability for response to first alarm structural fires
- Location of companies to minimize response times to fire emergencies

Water Supply

Forty percent of the grading point total is based on the community's water supply, distribution system, and proximity of fire hydrants to existing structures. This item focuses on the community's ability to provide sufficient water supply for fire suppression beyond maximum daily consumption. ISO surveys all components of the water supply system, including pumps, storage, and filtration. Field Representatives will observe fire-flow tests at representative locations throughout

the community to determine the rate of flow provided by the distribution system. Last, ISO will count the distribution of fire hydrants no more than 1,000-foot hose lay distance from each needed fire flow (targeted structures) and the available inspection records in order to evaluate the inspection frequency and condition of the fire hydrants.

The Effect of PPC Code on Fire Insurance Premiums

All insurance companies (whether they admit or not) utilize ISO's PPC classes in establishing premiums for both commercial and residential property policies. Here's how it works:

PPC and Commercial Fire Insurance Premiums

Insurers determine insurance premiums for commercial properties after analyzing size, construction type, occupancy, protection (such as fire extinguishers and automatic sprinklers), and exposure to adjacent structures. For individual properties, either class rating or specific rating applies. In class rating, the insurer develops rates for similar types – or classes – of buildings, such as small churches, schools, or motels.

Specific rating includes an on-site survey and analysis of conditions at the particular property to determine the premium rate. Insurers use specific rating for buildings protected by automatic sprinklers, buildings with specific hazards or processes, or other properties that do not meet the criteria for class rating.

Both class rating and specific rating consider the Public Protection Classification at the property. Insurers develop their rating systems in order that the lower (better) the PPC at a given commercial property, the lower the insurance rate. In addition a lower (better) PPC has been shown to be an excellent economic development tool along with positively affecting a community's bond rating.

ISO's Methodology

A community may request an ISO survey anytime they wish. At that time an ISO Field Representative will be assigned the survey. He will contact the community and set a time convenient to both the community and ISO. He will analyze the community's fire defenses as outlined under the "Explanation of the FSRS".

An extensive amount of support data will be required to verify answers to specific questions that are utilized to analyze the three major items that comprise a community's grading point total. When all the questions are answered and the support data is properly formatted the Field Representative will return to his office and complete the grading. When the Field Representative completes the grading he submits it for review. After the review is complete the community is notified of their updated rating.

Normally the entire process from field survey to the community being notified requires 6 to 9 months.

Explanation of Las Cruces' Study

This report will analyze a grading scenario that should result if the City of Las Cruces requested a rating review by ISO.

This scenario will require that the City of Las Cruces operate 9 engine companies and 3 ladder truck companies deployed from 9 fire stations. However, with 1 fire station relocation (#1) and the consolidation of 2 fire stations (#2 and #4) the number of required fire stations along with the corresponding apparatus and staffing can be reduced to 7 engine companies and 3 ladder truck companies deployed from 7 fire stations.

Water supply must provide at least 3500-gpm for 3-hours while delivering a maximum daily consumption rate which has occurred during the last 3-years. Throughout the community the distribution system capacity and fire hydrant placement must meet the needed fire flow demand as determined by the ISO rating document.

The communications center will be analyzed based on NFPA 1221 as interpreted by ISO.

After this scenario is presented a list of suggested improvements will follow which, if implemented, would improve the ISO Public Protection Classification for the City of Las Cruces.

Executive Summary

Based on information obtained during my recent survey of the City of Las Cruces the fire department will be required by the ISO Fire Suppression Rating Schedule to have 9 engine companies and 3 ladder truck companies in-service available to respond to structural alarms of fire deployed from 9 fire stations. However, with 1 fire station relocation and the consolidation of 2 fire stations the required apparatus can be reduced to 7 engine companies and 3 ladder truck companies. Throughout this report the word "company" implies both apparatus and staffing. 2 reserve engines and 1 reserve ladder truck are also required.

In addition to eliminate areas at the airport rated ISO PPC 10 (no recognized fire protection) a tenth engine company is needed at fire station #7. Please note that this fire station is not required to develop your grading point total only to extend the credit to a very critical area within the City of Las Cruces. It is for this reason that the report states 9 engine companies are required instead of 10.

At present the City of Las Cruces has the ISO equivalent of 6 engine companies, and 2.12 ladder truck companies deployed from 6 fire stations. Adequate reserve apparatus exist. All reserve apparatus are equipped identical to the in-service apparatus (front line).

Areas of significant deficiency within the *Fire Department* section are: The lack of an adequate number of fire stations along with the additional apparatus and staffing required for the additional fire stations, a training field is not provided for the Las Cruces Fire Department; therefore the required number of training field evolutions are not performed, staffing for the in-service apparatus does not meet ISO's requirement, preplans for all commercial structures within the city limits of the City of Las Cruces do not exist, and an engine company is not provided at the airport fire station (fire station #7) to eliminate areas rated class 10.

The *Water Supply* section demonstrates an excellent (almost perfect) grading point total (39.36 out of a possible 40 – ISO Class 1). The only deficient item is the lack of a fully creditable hydrant inspection program.

Fire Service Communications demonstrated 3 areas of deficiency. These are: Monitoring for integrity of the primary dispatch circuit is not provided, 2 separate independent dispatch methods are not provided for fire emergencies, and an adequate number of dispatchers are not available in the communications center serving the City of Las Cruces.

At present the City of Las Cruces has an ISO Public Protection Classification of 4/9 (65.57 grading point total). My study indicates that the City of Las Cruces would continue to achieve an ISO PPC 4 (68.61 grading point total) with Las Cruces' existing fire defense infrastructure (please see the accompanying

information at the conclusion of this report), if the support data required by ISO was properly formatted and presented to the Field Representative by my company. However, upon re-survey by ISO the second rating will be a 10, not a 9, resulting in an ISO PPC 4/10; this means the built-upon area at the airport will be rated a class 10 (no recognized fire protection). It is critical that the built-upon area at the airport be provided a structural engine company in order that the class 10 is eliminated.

Please note that the point total developed by my study, which justifies sustaining the Class 4 rating, is much nearer the threshold of 70.00 (ISO PPC 3) than the point total developed by ISO in 2001. Therefore, with the implementation of several of the less expensive suggestions within this report an ISO PPC 3 is very achievable. Furthermore, with the implementation of several of the planned improvements within the fire department, which require significant capital expenditures, an ISO PPC 2 is feasible.

Improving the ISO PPC from a 4 to a 3 or 2 will reduce the cost of insurance for the residential and commercial property owners within the city limits of the City of Las Cruces.

The City of Las Cruces is presently an ISO Class 4 and well over 50,000 in population. Based on these facts an improvement in classification will be edited at ISO's Home Office in New Jersey (much more severe edit) not an ISO Regional Office. I know this as fact; I edited these ratings for over 11 years. It has been my experience that an improvement in classification for a community the size of Las Cruces must move well into the new class in order to guarantee that the community remains in that class after the review is complete.

I would not feel comfortable submitting a grading less than 73.00 to New Jersey if a Public Protection Classification of 3 was the mission of the City of Las Cruces. If the mission of the City of Las Cruces were to achieve a Public Protection Classification of 2 the grading point total would need to exceed 83.00.

Analysis of the Grading

This report will analyze a grading scenario that should result if an ISO Public Protection Survey was requested. For this scenario a point total to 2 decimal places will result. This point total should occur if an ISO Public Protection Survey commenced. In November of 2001 the City of Las Cruces was assigned an ISO rating of Class 4 (65.57). My study indicates that the point total would be **68.61** (ISO PPC 4) if an ISO survey commenced with the City of Las Cruces' fire defense infrastructure, as it existed on March 25, 2011. Please see the accompanying grading summary at the conclusion of this report for the development of this point total.

At the conclusion of this scenario will be a list of suggested improvements, which, if implemented, would allow the City of Las Cruces to improve its ISO rating to a Public Protection Classification of 3 or 2. All of the suggestions are prioritized by their importance and tempered by their cost.

These suggested improvements relate only to fire insurance classification for the City of Las Cruces. Therefore, they are not for property loss prevention or life safety purposes and no life safety or property loss prevention suggestions are inferred.

Grading Scenario

The Basic Fire Flow will be 3500-gpm. Based on the existing fire defense infrastructure of the City of Las Cruces the point total for this scenario is **68.61 (ISO Class 4)**. Please see the grading summary at the conclusion of this report for a more detailed explanation. The grading point total of 68.61 will be the benchmark for improving this classification to **73.00 (Class 3)** or **83.00 (Class 2).** The suggestions are as follows:

General

1. An excellent map exists which demonstrates the streets, fire station locations, and existing fire hydrants within the city limits of the City of Las Cruces. Making sure each fire hydrant (public and private) available to the Las Cruces Fire Department is plotted on this map is critical to improving the ISO Public Protection Classification of your community. This suggestion is an **absolute.**

2. Request a Needed Fire Flow Report (Batch Report) from ISO's Regional Office. The Fire Marshal's Office should analyze the Batch Report and determine if properties exist on this report that is not receiving deserved credits for their automatic sprinkler protection. Needed fire flows (basis of the grading point total) may exist on this report that could be incorrect. The reason or reasons behind a number of needed flows being incorrect on ISO's Batch Report could rest with the building owner or ISO. If the needed fire flows identified by the Fire Marshal are found to be incorrect they must be corrected by ISO **prior** to a Public Protection Survey commencing. A Public Protection Field Representative cannot alter this report; a Property Field Representative must correct it. Having these needed fire flows corrected by ISO is a totally non-adversarial process. ISO (to guarantee consistency) desires a fair evaluation of all individual properties they analyze for the insurance industry. ISO encourages that all questions concerning credits deserved by the individual properties be addressed.

   This suggestion is an **absolute.**

3. A second map must be developed that demonstrates the built-upon and non built-upon area with the desired graded boundary served by the Las Cruces Fire Department. This map must also demonstrate the areas within the city limits of Las Cruces that cannot be built upon (flood plain, golf course, lake, etc.). This suggestion is an **absolute.**

Please wait until phase 2 (preparing the pre-survey packet) before developing this map. It may not be required at that time.

4. Additional maps should be developed which are hybrids of the map in suggestion #1 above. At present these maps are available in an excellent format.

    a. A separate map with the buildings 3-story and greater in height with the 2.5-mile polygons around each fire station housing a ladder truck company.

    b. A separate map with the each existing fire station surrounded by its 1.50-mile polygon.

    c. When the batch (needed fire flow) report is updated the needed fire flows 2500-gpm and above which appear on this report should be shown on a separate map by their identification number.

Fire Department

For a community to provide a reasonable level of protection under the analysis system used, a fire department should have suitably located apparatus of proper types. In general, the maximum response distances for the first due engine company should not exceed 1.5-miles and for the first due ladder/service truck company should not exceed 2.5-miles. Critical to the timely extinguishment or control of a fire is the need for sufficient firefighters arriving with the first responding apparatus. A comprehensive training program for these firefighters is essential for effective fire ground operations.

At the present time, the apparatus needs of your community under the ISO rating document would be reasonably satisfied by maintaining 9 engine companies and 3 ladder truck companies in-service available to respond to structural alarms of fire deployed from 9 fire stations. 2 reserve engines and 1 reserve ladder truck are also required.

The following suggestions are offered for your consideration:

1. The Las Cruces Fire Department does not have access to a fully ISO compliant training facility within a reasonable driving distance of the City of Las Cruces. Training field evolutions, to receive ISO rate credit, must be the firefighter and their apparatus specific to the city where they are employed. It is for these reasons this report suggests the Las Cruces Fire Department be provided a training facility consisting of a 4-story drill tower, fire building, and a flammable liquids pit (substituting classroom training along with videos is acceptable when the EPA does not allow the burning of flammable liquids). This facility must be on at least a 2-acre site.

   To maximize available ISO credits this facility must be utilized. As a minimum 8 drills of 3-hour duration should be accomplished for each firefighter on an annual basis. These drills must be at the training facility or a suitable off-site location. 4 of these drills must be multi-company; the remaining 4 drills can be single-company or multi-company. 2 of either type must be at night. Records must be maintained documenting the drills for full credit for a contiguous 12-month period.

   At present training field evolutions are not performed due to the lack of an adequate facility. If a creditable training facility was provided and utilized to the extent ISO requires **4.41 points** would be added to the grading point total.

2. Preplanning all commercial structures within the city limits of the City of Las Cruces and updating them semi-annually would **add 1.89 points** to the grading point total. At present very few of the commercial structures are preplanned. The few pre-plans which do exist have not been updated.

3. Improved record keeping at the company level. At present a sufficient number of 1-hour company drills are performed each month by each shift. However, records cannot be located that document this training in all cases. If proper records existed documenting the 1-hour company drills **0.39 points** would be added to the grading point total.

4. Provide the Las Cruces Fire Department with 3 additional engine companies housed at the proposed 3 additional fire stations demonstrated in suggestion #6 under Fire Department. The point total for these additional engine companies is a significant part of the point total improvement exhibited within suggestion #6 under Fire Department. However, if 1 fire station can be relocated and 2 fire stations can be consolidated the additional 10 required engine companies can be reduced to 8.

5. Provide the Las Cruces Fire Department with 1 additional elevating platform or aerial ladder truck company (minimum height of the aerial device or elevating platform should be 100-feet). This additional ladder truck company should be housed at existing fire station #6. Providing this ladder truck company will **add 4.63 points** to the grading point total.

6. In order to improve first due response distances consideration should be given to the erection of 3 additional fire stations each housing an engine company if fire station relocations and/or consolidations are **not** a viable option. The suggested fire stations are listed in their priority order.

    a. Provide a 8th fire station in the vicinity of Sonoma Ranch Blvd. and Demos Ave. This station should house an engine company. Providing this 8th fire station, apparatus, and staffing would add **2.53 points** to the grading point total. Within the body of this report the 8th fire station will be designated as P-8.

    b. Provide a 9th fire station in the vicinity of Elks Dr. and Jasmine Dr. This station should house an engine company. Providing this 9th fire station, apparatus and staffing would add **1.92 points** to the grading point total. Within the body of this report the 9th fire station will be designated as P-9.

    c. Provide a 10th fire station in the vicinity of McGuffey St. and Monte Sombra Ave. This station should house an engine company.

Providing this 9th fire station, apparatus and staffing would add **1.53 points** to the grading point total. Within the body of this report the 9th fire station will be designated as P-10.

8. The following deployment of apparatus is suggested if the additional 3 fire stations are erected:

    a. Existing Fire Station #1: Engine company and a ladder truck company (100' minimum height).

    b. Existing Fire Station #2: Engine company.

    c. Existing Fire Station #3: Engine company.

    d. Existing Fire Station #4: Engine company and a ladder truck company (100' minimum height).

    e. Existing Fire Station #5: Engine company.

    f. Existing Fire Station #6: Engine company and a ladder truck company (100' minimum height).

    g. Existing Fire Station #7: Engine company – only to eliminate areas which will be rated ISO PPC 10.

    h. Proposed Fire Station P-8: Engine company.

    i. Proposed Fire Station P-9: Engine company.

    j. Proposed Fire Station P-10: Engine company.

9. In order to improve first due response distances consideration should be given to relocating fire station #1 and consolidating fire stations of #2 and #4 along with the erection of 2 additional fire stations each housing an engine company. This assumes fire station relocations and consolidations **are** a viable option. The benefit to the City of Las Cruces would be such that 2 engine companies (apparatus and staffing) are now available to be deployed from 2 of the proposed additional fire stations and the maintenance expense involved with older fire stations would be eliminated. The savings would be the one-time capital expense of approximately 1.00 million dollars for the cost of 2 additional engines and approximately 1.50 million dollars perpetual for staffing the 2 engine companies. The maintenance costs involving the 3 older fire stations would need to be developed from Las Cruces Fire Department records.

a. Existing fire station #1 should be re-located to the vicinity of Temple St. and N. Main St. housing the engine company and ladder truck company presently deployed from fire station #1. Relocating this fire station would eliminate the need for proposed fire station P-9. Relocating this fire station will add **2.09 points** to the grading point total.

b. Consolidate fire stations #2 and #4 into a single fire station in the vicinity of Gladys Dr. and Missouri Ave. This fire station should house the existing engine company and ladder truck company presently deployed from fire station #4. The engine company presently housed at existing fire station #2 should be deployed from 1 of the proposed fire stations above. The benefit from this fire station consolidation is an engine company is freed to be deployed from a proposed fire station.

c. Erect proposed fire station #8 in the vicinity of Sonoma Ranch Blvd. and Demos Ave. This station should house an engine company. Providing this 8th fire station, apparatus, and staffing would add **2.53 points** to the grading point total. Within the body of this report the 8th fire station will be designated as P-8.

d. Erect proposed fire station #10 in the vicinity of McGuffey St. and Monte Sombra Ave. This station should house an engine company. Providing this 9th fire station, apparatus and staffing would add **1.53 points** to the grading point total (please remember proposed fire station P-9 was eliminated with the relocation of fire station #1). Within the body of this report the 9th fire station will be designated as P-10.

10. The following deployment of apparatus is suggested if the relocation of fire station #1 and the consolidation of fire stations #2 and #4 are viable options.

a. Relocated Fire Station #1: Engine company and a ladder truck company (100' minimum height).

b. Consolidated Fire Station #2 and Fire Station #4: Engine company and a ladder truck company (100' minimum height)..

c. Existing Fire Station #3: Engine company.

d. Existing Fire Station #5: Engine company.

e. Existing Fire Station #6: Engine company and a ladder truck company (100' minimum height).

f. Existing Fire Station #7: Engine company – only to eliminate areas which will be rated ISO PPC 10.

g. Proposed Fire Station P-8: Engine company.

h. Proposed Fire Station #P-10: Engine company.

11. Provide following list of equipment is required for each in-service and reserve engine and ladder truck.

    a. Engines in-service and reserve:
        1. 1000-feet of 4 or 5-inch hose (reserve engines require only 800-feet of 2, 2.5 or 3-inch hose in lieu of the 1000-feet of 4 or 5-inch)*.
        2. 400-feet of 2, 2.5, or 3-inch hose*.
        3. 300-gallon or larger booster tank.
        4. 200-feet of booster (redline) hose or 200-feet of pre-connected 1.5-inch or 1.75-inch hose.
        5. 400-feet of 1.5 or 1.75-inch hose*.
        6. 200-feet of spare 1.5 or 1.75-inch hose (may be on the apparatus or in the fire station).
        7. 200-feet of spare 2.5 or 3-inch hose (may be on the apparatus or in the fire station).
        8. A heavy stream device (monitor – ground or portable) capable of delivering 1000-gpm*.
        9. A large spray nozzle for the heavy stream device (may be carried on the engine, ladder or ladder/service vehicle for full credit)*.
        10. A distributing, piercing or cellar nozzle.
        11. Foam eductor or a built-in foam pro-portioning system.
        12. 10-gallons of foam concentrate via a built-in tank or in 5-gallon containers.
        13. 15-gallons of foam concentrate in reserve. This can be on the apparatus or in the fire station.
        14. 2, 2.5-inch shut-off straight stream nozzles attached to a play pipe capable of delivering at least 250-gallons per minute*.
        15. 2, 1.5 or 1.75-inch combination nozzles*.
        16. 2, 2.5-inch combination nozzles*.
        17. 4 self contained breathing apparatus (minimum of 30-minute capacity)*.
        18. 4 spare cylinders (minimum capacity of 30-minutes).
        19. 2, 12 x 14-foot salvage covers.

20. 2 hand lights (flashlights are not creditable).
21. 1, 2.5 or 5-inch hose clamp.
22. 1 hydrant hose gate (2.5-inch). A gated wye (2.5-inch x 1.5-inch x 1.5-inch) is creditable.
23. Gated wye (2.5-inch x 1.5-inch x 1.5-inch).
24. Mounted radio*.
25. Portable radio*.
26. 24-foot extension ladder*.
27. 12 or 14-foot roof ladder.

b. Ladder Trucks in-service and reserve (aerial ladder or elevating platform is creditable):
    1. 100-foot aerial device*.
    2. Elevated stream device (elevated monitor with a minimum of a 500-gpm large spray nozzle)*.
    3. 6 self-contained breathing apparatus (minimum of 30-minute capacity District)*.
    4. 6 spare cylinders (minimum capacity of 30-minutes).
    5. 10, 12 x 18-foot salvage covers.
    6. Electric generator (minimum of 2.5-KW)*.
    7. 3 portable flood lights.
    8. 1 smoke ejector or positive ventilation fan*
    9. 1 oxy-acetylene cutting unit (a thermal imaging camera, plasma cutting unit or chain saw with a carbide tip will substitute)*.
    10. 1 power saw*.
    11. 4 hand lights (flashlights are not creditable).
    12. A hose hoist or hose roller.
    13. 6 pike poles (2 @ 6-feet, 2 @ 8-feet, 2 @ 12-feet).
    14. Mounted Radio*.
    15. Portable radio*.
    16. 1, 14-foot extension ladder.
    17. 1, 24-foot or 28-foot extension ladder*.
    18. 1, 35-foot extension ladder*.
    19. 1, 40-foot extension ladder (or second 35-foot extension ladder)*.
    20. 1, 16-foot roof ladder*.
    21. 1, 20-roof ladder (or second 16-foot roof ladder)*.
    22. 1, 10-foot collapsible (attic) ladder.

Substitutions exist for some of the above required equipment. Please contact my company for assistance as part of the contract for this report. If each of the in-service and reserve apparatus were fully equipped as outlined above **0.33 points** would be added to the grading point total**.**

11. Providing additional firefighters for the existing engine and ladder trucks. The ISO Rating Document requires 6 firefighters per company on-duty with each existing engine and ladder truck. This level of staffing is needed at the fire site for optimum utilization of the apparatus, and when the staffing level drops below 4 firefighters per engine or ladder truck company, the ability to utilize the apparatus effectively is seriously impaired.

    Increasing the paid on-duty (24/7) staffing by 1 firefighter would increase the grading point total by **0.41 points.**

    Please note that there exists a possible 15 points available for staffing. The City of Las Cruces received 7.78 of the 15 available points.

Receiving and Handling Alarms of Fire

In order to assure a timely response to fire emergencies a communications center must have adequate telephone facilities (emergency and business circuits) for the public to report emergencies, sufficient operators on duty, and the facilities to dispatch fire department companies without interruption.

The following suggestions are offered for your consideration:

1. Provide a secondary dispatch method for all fire department emergency calls for service. If this secondary dispatch method was provided **1.75 points** would be added to the grading point total.

2. Provide the primary fire department dispatch circuit with monitoring for integrity. This requires a visual and audible alert be activated if a principal component of the dispatch circuit is rendered inoperable. To receive credit under the ISO Rating Document the following must be satisfied: Please note that any requirement followed by an N/C results in *no credit* for this monitoring even though all the other items are provided. The items without an N/C must be available for full credit. Pro-rated credit is available for the items without an N/C.

    a. A list of the principal components of the primary dispatch circuit that are monitored must be provided: **N/C**

    b. All portions of the circuit and all components must be identified for integrity status/failure condition. In addition all circuit components must be monitored for power supply and emergency power integrity/failure with both visual and audible trouble signals: **N/C**

    c. Power supply and emergency power integrity/failure condition must be monitored for the circuit and all components at all locations including remote radio transmitter/receiver antenna sites. **N/C**

    d. All portions of the circuit and all components must be identified for integrity status/fault condition and all circuit components must be monitored for power supply and emergency power integrity/failure with visual and audible trouble signals. **N/C**

    e. Verification of visual signal activation with test circuit failure feature as specified in NFPA Standard 1221 must be provided.

    f. Verification of audible signal activation with test circuit failure feature as specified in NFPA Standard 1221 must be provided.

The audible trouble signal can be an intermittent or continuous tone or buzzer.

g. Verification of reactivation of audible trouble signal when an additional fault condition occurs while previous silenced fault condition remains active as specified in NFPA Standard 1221 must be provided.

h. Trouble signals routed to a dedicated display screen or panel not used for routine dispatching activities as specified in NFPA Standard 1221 must be provided.

i. Trouble signals must be displayed at a location where personnel are in constant attendance and are responsible to respond to a trouble signal as specified in NFPA Standard 1221. **N/C**

j. For radio circuits duplicate transmitters must be provided for the primary dispatch circuit as specified in NFPA Standard 1221. **N/C**

Providing this level of monitoring would **add 1.50 points** to the grading point total.

3. Provide additional personnel for the communications center in order that 10 dispatchers and 1 supervisor are maintained on-duty at all times. These must be 11 separate individuals to optimize the ISO rate credit. A supervisor cannot be an on-duty dispatcher and receive dual credit as a dispatcher and a supervisor. The dispatchers must be in the communications center while the supervisor must be in the communications center building to be credited by ISO as on-duty. Based on the annual call volume of approximately 347,312 calls for emergency service (Fire, First Responder, and Law Enforcement) NFPA 1221 and the ISO Rating Document require this level of staffing. At present the ISO equivalent of 7 dispatchers and1 supervisor are on-duty at all times in the communications center. If these additional personnel were assigned to the communications center **0.81 points** would be added to the grading point total. This item can be prorated therefore each additional dispatcher or supervisor provided will increase the grading point total.

Water Supply

For a water supply works to be considered adequate under the analysis system used, it should be able to deliver the basic fire flow (3500-gpm) for a 2-hour period and during that period provide consumption demands at the maximum daily rate.

The arterial mains and secondary feeder mains should be of sufficient capacity to deliver the needed fire flows throughout the community. The arterial mains should extend to all areas of the community; they should be looped for mutual support and spaced at approximately 3000-foot intervals or less. The minimum size distribution main should be 6-inches (8-inches is preferred) in diameter and this size used only in widely spaced residential areas when the gridiron is such that there is not over 600-feet between connections to other mains. A 6-inch dead-end main is not considered satisfactory for supplying fire hydrants. A minimum size of 8-inch pipe (10-inch is preferred) should be used in commercial and high-density residential areas and this size pipe should be limited to areas with an excellent gridiron. This will help insure meeting the corresponding fire demand throughout the community.

Before the water supply available can be fully utilized by the fire department, there must be sufficient fire hydrants in the vicinity of the subject buildings. The number of hydrants required varies with the fire flow demand but when the spacing is not over 300-feet in commercial, industrial, and institutional areas and not over 600-feet in one and two family dwelling areas, sufficient hydrants normally will be available. Hydrants should conform to the American Water Works Association Standards. The connection from the distribution main to the hydrant should be not less than 6-inches in diameter. All hydrants should be inspected twice per year with a pressure test (a pressure test is not a flow test); complete records should be kept of all inspections.

The following suggestions are offered for your consideration:

1. The City of Las Cruces is to be commended for the excellent water system available to the Las Cruces Fire Department. Based on information obtained during my survey the water supply, distribution system capacities, and fire hydrant placement graded perfect within the standards of the ISO rating document.

2. Fire hydrants should be inspected semi-annually with proper records maintained throughout the city limits of the City of Las Cruces. Each hydrant should be pressure tested semi-annually (a pressure test is **not** a flow test) as part of the hydrant inspection process. If this level of hydrant inspection and documentation were provided **0.64 points** would be added to the grading point total. At present the fire hydrants are inspected

annually, with a pressure test. Excellent records are currently available that document that the testing is performed.

Summary of Suggested Improvements

When a sufficient number of the suggested improvements are implemented, hence the point total exceeds the number 73.00, I would feel comfortable requesting a future survey if the mission of the City of Las Cruces is to obtain an ISO Public Protection Classification of 3.

The point total to exceed is 83.00 if the mission of the City of Las Cruces is to obtain an ISO PPC of 2.

Action Plan #1:

1. Complete the suggested improvements that are economically feasible within the budget constraints of the City of Las Cruces that can be completed in 2-years or less that will allow the City of Las Cruces to attain an ISO PPC 3. This could include establishing an engine company at Fire Station #7, erect a training field, establish monitoring for integrity for the primary dispatch method, provide a secondary means for receiving fire department emergency calls for service, and preplanning the commercial structures within the city limits of the City of Las Cruces.

2. Request a survey from ISO. Once a Field Representative is assigned to the City of Las Cruces the City of Las Cruces should initiate a request for a pre-survey packet. This packet is extremely time consuming and tedious to complete. I know as I designed this packet in 1997 for all Field Representatives throughout the United States. My assistance will save City Officials a considerable amount of time in filling out this packet and assure that the ISO Field Representative has the extensive amount of required support data properly formatted to maximize Las Cruces' ISO Rating.

3. Set a mutually convenient time for the City of Las Cruces and the ISO Field Representatives to complete the ISO rating survey for the City of Las Cruces. The information transfer would proceed effortlessly if I assisted the City of Las Cruces throughout the survey process. This will save your City Officials, Fire Chiefs, and Support Staff a great deal of time and allow them to continue their normal daily activities. My assistance assures the ISO Field Representative will have the exact information he requires.

Action Plan #2:

1. Complete the suggested improvements that are economically feasible within the budget constraints of the City of Las Cruces that will allow the City of Las Cruces to attain an ISO PPC 2. This could include erecting the suggested fire stations and providing the additional apparatus and staffing required at these fire stations, providing a third ladder truck company deployed from fire station #6, providing additional staffing for the in-service apparatus, establishing an engine company at Fire Station #7, erecting a training field, establish monitoring for integrity for the primary dispatch method, provide a secondary means for receiving fire department emergency calls for service, and preplanning the commercial structures within the city limits of the City of Las Cruces.

2. Request a survey from ISO. Once a Field Representative is assigned to the City of Las Cruces the City of Las Cruces should initiate a request for a pre-survey packet. This packet is extremely time consuming and tedious to complete. I know as I designed this packet in 1997 for all Field Representatives throughout the United States. My assistance will save City Officials a considerable amount of time in filling out this packet and assure that the ISO Field Representative has the extensive amount of required support data properly formatted to maximize Las Cruces' ISO Rating.

3. Set a mutually convenient time for the City of Las Cruces and the ISO Field Representatives to complete the ISO rating survey for the City of Las Cruces. The information transfer would proceed effortlessly if I assisted the City of Las Cruces throughout the survey process. This will save your City Officials, Fire Chiefs, and Support Staff a great deal of time and allow them to continue their normal daily activities. My assistance assures the ISO Field Representative will have the exact information he requires.

Conclusion

Accomplish as many improvements as possible that will have a significant impact on the emergency response and the ISO rating for the City of Las Cruces. When these are implemented, request an ISO survey.

The City of Las Cruces can attain an ISO rating of 3/10 without large capital expenditures that are not already planned. To eliminate the class 10 rating an engine company must be deployed from the Airport Fire Station (Fire Station #7). I would not go forward with an ISO rating without this engine company being in-service. The class 10 issue is more heavily emphasized in 2011 by the insurance industry than in 2001. In addition it would be a huge benefit to the City of Las Cruces if a training facility was functioning by the time an ISO survey commenced.

In order for the City of Las Cruces to attain an ISO Rating of Class 2 significant capital expenditures for additional fire stations along with the corresponding apparatus and staffing will be required. Within the body of the ISO rating document providing additional fire stations and apparatus without the corresponding staffing could actually reduce (negatively affect) the grading point total. Most likely attaining an ISO PPC 2 is a long range goal (5 to 10-years) for the City of Las Cruces.

I would very much like to thank Fire Chief Travis Brown and his Staff, Mr. Allen Wright with the GIS Department, Mr. John Reid with the Utilities Department, and Mr. Hugo Costa with the 911 Center for the excellent cooperation afforded me during my recent survey. Without their support and continued cooperation after my field evaluation was complete the accuracy and timeliness of this report would be seriously compromised.

I very much appreciate the opportunity afforded me by the City of Las Cruces and look forward to working with your community in the future.

Sincerely,

W. Michael Pietsch, P.E.
Civil Engineer

WMP/spp

Grading Summary Sheet

The City of Las Cruces

Classification 4 – 68.61

I.	Receiving & Handling Fire Alarms:			***Total 5.94, Maximum = 10***	
	a.	Item 414	-	2.00	**2**
	b.	Item 422	-	2.19	**3**
	c.	Item 432	-	1.75	**5**
II.	Fire Department			***Total 30.71, Maximum = 50***	
	a.	Item 513	-	6.56	**10**
	b.	Item 523	-	0.66	**1**
	c.	Item 532	-	5.00	**5**
	d.	Item 549	-	3.25	**5**
	e.	Item 553	-	0.64	**1**
	f.	Item 561	-	2.23	**4**
	g.	Item 571	-	7.78	**15**
	h.	Item 581	-	4.59	**9**
III.	Water Supply			***Total 39.36, Maximum = 40***	
	a.	Item 616	-	35.00	**35**
	b.	Item 621	-	2.00	**2**
	c.	Item 631	-	2.36	**3**
IV.	Divergence*			-7.40	
Las Cruces' Total:				***68.61***	***Maximum = 100.00***

THE CITY OF LAS CRUCES GRADING SUMMARY

Page 1

VI. ***Total:***		***Maximum Credit:***
Fire Alarm	5.94	10.00
Fire Department	30.71	50.00
Water Supply	39.36	40.00
Divergence*	-7.40	____
Las Cruces' Total	***68.61***	**100.00**

Class 4

Credit	***Relative Classification***
90.00 - 100.00	1
80.00 - 89.99	2
70.00 - 79.99	3
60.00 - 69.99	***4***
50.00 - 59.99	5
40.00 - 49.99	6
30.00 - 39.99	7
20.00 - 29.99	8
10.00 - 19.99	9
00.00 - 9.99	10

*Divergence is a reduction in credit to reflect a difference in the relative credits for Fire Department and Water Supply.

THE CITY OF LAS CRUCES GRADING SUMMARY

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Insurance Services Office, Inc. (ISO) Evaluation

City Council Work Session

July 11, 2011

What is ISO

- Independent company that evaluates a community's fire protection services
- Most reliable and principal provider of information used by insurance companies to determine residential and commercial rates
- Public Protection Classification (PPC) is a nationwide standard established by ISO

Public Protection Classification

- Rates ability to control and extinguish a structure fire on a scale of 1 to 10
- Class 1 is considered the best protection and Class 10 is less than minimum
- Provides incentives and rewards to communities that choose to improve their fire protection
- Lower ratings have been shown to assist with economic development and bond rating

Fire Suppression Rating Schedule

- Criteria used to evaluate firefighting capabilities of individual communities
- Evaluates three main areas of fire suppression infrastructure using a weighted scale
  - Receiving and Handling of fire alarms (10%)
  - Fire Department (50%)
  - Water supply (40%)

Receiving and Handling of Fire Alarms

- Considers how efficiently calls for emergency service are received and dispatched
- Evaluates the communications center; number of operators, telephone service, number of telephone lines coming into the center
- Number of dispatch circuits and how the center notifies firefighters of an emergency

Water Supply

- Focuses on the community's ability to provide sufficient water supply for fire suppression beyond maximum daily consumption.
- ISO surveys all components of the water supply system, including pumps, storage, and filtration.
- Count the distribution of fire hydrants no more than 1,000-foot hose lay distance from each needed fire flow (targeted structures).
- Examine inspection records in order to evaluate the inspection frequency and condition of the fire hydrants.

Fire Department

- ISO reviews the distribution of fire companies throughout the graded area and verifies apparatus response to structural alarms of fire.
- Evaluates the number of personnel based on the ISO requirement of 6 firefighters per company on-duty with each existing engine and ladder truck.
- There exists a possible 15 points available for staffing. The City of Las Cruces received 7.78 of the 15 available points.

Fire Department

- Examines the inventory of each engine, ladder and service company, both in service and reserve, to verify the existence of nozzles, hose loads, breathing apparatus, and other equipment.
- Reviews the fire-company records to determine:
  - Type and extent of training provided.
  - Firefighter response to emergency calls for service.
  - Maintenance and testing of fire department's apparatus.
  - Engine, ladder and service companies availability for response. to first alarm structural fires.
  - Location of companies to minimize response times to fire emergencies.

Classification 4 – 68.61

I.	Receiving & Handling Fire Alarms:	***Total 5.94***	***Maximum = 10***
a.	Telephone Service	2.00	**2**
b.	Operators	2.19	**3**
c.	Dispatch Circuits	1.75	**5**
II.	Fire Department	***Total 30.71***	***Maximum = 50***
a.	Engine Companies	6.56	**10**
b.	Reserve Pumpers	0.66	**1**
c.	Pumper Capacity	5.00	**5**
d.	Ladder Service	3.25	**5**
e.	Reserve Ladder	0.64	**1**
f.	Distribution	2.23	**4**
g.	Company Personnel	7.78	**15**
h.	Training	4.59	**9**
III.	Water Supply	***Total 39.36***	***Maximum = 40***
a.	Supply System	35.00	**35**
b.	Hydrants	2.00	**2**
c.	Inspection and Condition	2.36	**3**
IV.	Divergence*	-7.40	
Las Cruces' Total:		***68.61***	***Maximum = 100.00***

Recommendations for Improvement

- Staffed Fire Station 7 (1.23)
- Training grounds and structure (4.41)
- Staffed Fire Station 8 (2.53)
- Pre-planning of commercial structures (1.89)
- Secondary dispatch method and monitoring of fire department circuit at MVRDA (3.25)

Recommendations for Improvement

- Additional truck company at Station 6 (4.63)
- Fire Station 9 in the vicinity of Elks Dr. and Jasmine Dr. (1.92)
- Fire Station 10 in the vicinity of McGuffey St. and Monte Sombra Ave. (1.53)
- Additional staffing for MVRDA (.81)

Current station location and coverage for 1.5 mile response

Recommended additional stations and coverage for 1.5 mile response

"Therefore, with the implementation of several of the less expensive suggestions within this report an ISO PPC 3 is very achievable. Furthermore, with the implementation of several of the planned improvements within the fire department, which require significant capital expenditures, an ISO PPC 2 is feasible."

ISO Class 3 Actions and Timeline

- Establish a program for the pre-planning of commercial buildings (in progress)
- Improve tracking mechanism for training records (in progress)
- Complete purchase and installation of training structure (8 months)
- Work with MVRDA to establish monitoring of fire department circuit and secondary dispatch method (1 year)
- Open Fire Station 7 with staffed engine company (8-24 months)
- Reduce divergence

ISO Class 2 Actions

- Open Fire Station 8 with staffed engine company
- Additional truck company at Station 6
- Reduce divergence by 3 points

Questions