



**Williamson County  
Emergency  
Services District #3**

# **HUTTO FIRE RESCUE**

## *ISO Action Plan*

**Hutto Fire Rescue – “Every Shift...Every Day!”**

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# Williamson County Emergency Services District #3

## Hutto Fire Rescue

501 Exchange Boulevard, P.O. Box 175

Hutto, TX 78634

Phone (512) 759-2616 FAX (512) 846-1946

[www.huttofirerescue.org](http://www.huttofirerescue.org)



**“YOUR HOMETOWN FIRE DEPARTMENT”**

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April 24, 2012

Board of Commissioners  
Williamson County Emergency Services District #3  
501 Exchange Boulevard  
Hutto, TX 78634

City Council  
City of Hutto  
401 W. Front Street  
Hutto, TX 78634

RE: *Improving the City of Hutto/Williamson County Emergency Services District #3 Insurance Services Office-Public Protection Classification in Hydranted Areas*

Board of Commissioners & City Council:

Submitted to you is the beginning of the Insurance Services Office-Public Protection Classification (ISO-PPC) rerating process. This project will continue in the early fall with an on-site visit from ISO to the Hutto Community. This project will assist to strengthen the local economy through the improvement of fire protection services and the subsequent reduction of insurance premiums, which in turn helps to attract new businesses and keep existing ones. This document contains two reports developed by Mike Pietsch, P.E., Consulting Services Inc: *Improving the City of Hutto's ISO Public Protection Classification (Areas afforded Fire Hydrant Protection)*; and *Improving Williamson County ESD #3's ISO Public Protection Classification (Areas afforded Fire Hydrant Protection)*. This study, which was approved in the FY2011-2012 Budget by the Williamson County ESD #3 Board of Commissioners, is provided to you the decision makers for the Hutto Community, in order to help you plan for the level of fire protection services required for the Hutto Community now and in the future. In addition, this document contains estimated budgets concerning facilities, equipments, apparatus, and personnel. A comparison to National budget averages for fire protection is also included.

The ISO-PPC is the nationwide classification system used by ISO to reflect a community's local fire protection for property insurance rating purposes. The public fire protection of a city, town, or area is graded using ISO's *Fire Suppression Rating Schedule* to develop the community's classification from 1 (the best) to 10 (the worst). This score is based on such features as water distribution, fire department equipment and staffing, and fire alarm facilities. The score that is determined from applying the *Fire*

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**“RESIDENTIAL FIRE SPRINKLERS SAVES LIVES!”**

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*Suppression Rating Schedule* is translated into a public protection classification. A perfect score in Texas is 106.5. It consists of 50 points for fire department capabilities, 40 points for water supply and distribution, 10 points for receiving and handling fire alarms, and 6.5 points for a “*Texas Addendum*” that grades fire safety education, building code enforcement, fire code enforcement, fire investigation capabilities, and firefighter training.

Each year the bar gets raised a little bit higher regardless of our organizational challenges. We must therefore continue to deliver the level of service that has come to be expected from us by our taxpayers, as well as prepare for the continued expansion of those services. This report provides you the decision makers for the Hutto Community with one tool to do exactly this. The growth that is on the horizon with the new Temple College/Texas State Technical College campus, and all of the ancillary businesses that will follow, require us to move forward, all the while improving service levels through careful planning and unwavering commitment to our residents and business owners.

Respectfully Submitted,



Scott D. Kerwood, PhD, MIFireE, CFO, EFO, CFPS, CMO  
Fire Chief

# **Improving The City of Hutto's ISO Public Protection Classification**

**(Areas Afforded Fire Hydrant Protection)**





*Assisting Communities  
With Their ISO Rating*

**Mike Pietsch, P.E. Consulting Services, Inc.**

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**A Report From**

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

**To**

**THE CITY OF HUTTO**

**Improving  
The City of Hutto's  
ISO Public Protection Classification  
(Areas Afforded Fire Hydrant Protection)**

**February 1, 2012**

***Submitted by:***

***W. Michael Pietsch, P.E.  
Civil Engineer***

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A Report From

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

To

CITY OF HUTTO

Improving  
The City of Hutto's  
ISO Public Protection Classification  
(Areas Afforded Fire Hydrant Protection)

### **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 while 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 will inventory 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 also reviews 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 in the community to determine the rate of flow provided by the distribution system. Last, fire hydrant distribution is analyzed by counting the fire hydrants within a 1,000-foot hose lay distance from each needed fire flow (targeted structures).

## **Texas Addendum**

Unique to the State of Texas is a document titled the Texas Addendum (sometimes called the Texas Exception). This document analyzes the effectiveness of the Fire Marshal and Building Code Offices and assigns additional credit for compressed air foam systems on in-service engines. A second section of this document assigns credit to communities that allowed a certain percentage of their firefighters to attend Fireman's Training School and volunteer firefighters that have obtained at least the basic firefighter certification.

Mathematically, this section could add an additional 11.39 points to a grading point total. Normally 4 to 7 additional grading points are achieved via the Texas Addendum.



## **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 questions are answered and the support data is properly formatted the Field Representative will return to his office and complete the grading. When the grading is complete he submits it for review. After the review is complete the grading is then submitted to the community for their review. If the community feels all grading items were analyzed fairly the grading is sent to the State Fire Marshal's Office for their approval.

***Fire Suppression Rating Study for the City of Hutto***

Once the State Fire Marshal's Office approves the grading the community is notified via a letter to the District Manager or Mayor of their new rating. This entire process normally takes around 1 year.

## **Explanation of Study**

This report will analyze the ISO PPC (Public Protection Classification) for the City of Hutto utilizing the Hutto Fire Department which serves the City of Hutto and then develop a grading scenario that should result if an ISO survey was requested. Based on the grading scenario developed by this report a list of suggested improvements will be demonstrated, which if implemented will assist the City of Hutto in improving the ISO PPC for all areas within the boundary of the City of Hutto afforded fire hydrant protection.

Normally a set of reports for several communities served by a single fire department are not redundant within the suggested improvements section. However, since different groups could possibly consider the various reports (a total of 2 were submitted to the community – 1 for the City of Hutto and 1 for Williamson County ESD #3) each report will have the entire set of suggested improvements.

Areas void of fire hydrant protection (structures outside a 1000-foot hose lay distance of a creditable fire hydrant) are not considered within this report. Hopefully after an ISO evaluation for areas afforded fire hydrant protection a study will be funded addressing areas void of fire hydrant protection.

This scenario will require that the Hutto Fire Department have in-service: 3 engine companies, 1 ladder truck company, and 1 ladder/service (rescue) truck company. These apparatus should be available to respond to all reported structure fires from 3 fire stations to optimize the grading point total that develops the ISO PPC for areas afforded fire hydrant protection within the City of Hutto.

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.

The Offices of the Fire Marshal and Chief Building Official will be reviewed based on the Texas Addendum. The Texas Addendum is a separate rating document developed by the Texas Department of Insurance and interpreted by the Texas State Fire Marshal. The Texas Addendum is not an ISO document regardless of any copyrights you might see.

***Fire Suppression Rating Study for the City of Hutto***

At the conclusion of this scenario a list of suggested improvements will be presented which, if implemented, will improve the ISO Public Protection Classification for City of Hutto.

## **Executive Summary**

Based on information obtained during my recent survey for the City of Hutto the Hutto Fire Department will be required by the ISO Rating Document to have in-service, available to respond to all reported structural alarms of fire, a minimum of 3 engine companies, 1 ladder truck company, and 1 ladder/service (rescue) truck deployed from 3 fire stations. At present the Hutto Fire Department responds only 2 engine companies to all first alarm structure fires. The 2 engine companies are deployed from only 1 fire station.

Tankers will not be addressed within the body of this report. Tankers do not receive a significant amount of ISO rate credit for class 8 or better if the area has a creditable water system with fire hydrant protection. Tankers are an integral part of an alternative water supply evaluation for areas outside a 1000-foot hose lay distance of a creditable fire hydrant. Hopefully after a successful ISO evaluation for the areas afforded fire hydrant protection a companion study will be funded which considers areas void of fire hydrant protection as defined by the ISO rating document.

The Hutto Fire Department will be required to have a reserve engine and a reserve ladder truck (even though a ladder truck is presently not provided) unless an agreement for reserve apparatus is available. Due to the fact that ISO's rating document allows a memorandum of understanding between fire departments for reserve apparatus this will report will not suggest the purchase of additional apparatus to serve as reserve unless replacement apparatus is funded. If replacement apparatus is provided it would be beneficial within the ISO rating document to retain the phased out apparatus as reserve.

Areas of significant deficiency within the *Fire Department* section are: Insufficient staffing for the in-service apparatus (by far the most significant deficiency within the entire process that develops the ISO grading point total for your community), a ladder truck company is required but not provided, a third engine company is required but not provided, a ladder/service (rescue) truck company is required but not provided, 2 additional fire stations are required, the training program does not meet all of the requirements within the ISO rating document, and reserve apparatus are required but not provided.

The *Water Supply* section demonstrates a very good level of compliance with the ISO Rating Document. Water supply, where fire hydrants are available for fire protection, is sufficient throughout the majority of the City of Hutto based on the fire demand. 1 item that demonstrates a deficiency is the lack of a complete fire hydrant inspection program.

*Fire Service Communications* demonstrated 1 significant area of deficiency and 2 deficiencies of far less importance. The significant area of deficiency is that

## ***Fire Suppression Rating Study for the City of Hutto***

monitoring for integrity status is not provided for the primary dispatch method. The second deficiency (far less significant) is that telephone directory listings are not complete based on the ISO rating document and NFPA 1221. The third deficiency of far less significance is the fact the emergency power for the existing fire station is not tested weekly under a load for 1-hour.

*Fire Safety Control* demonstrated only 1 significant area of deficiency. The only significant deficiency is the fact that a photocopy of the fire exit drills are not on file; available for ISO.

At present, the City of Hutto is assigned an ISO PPC of 4. This rating was established on July 19, 2005. The grading scenario presented within this report demonstrates that the ISO rating will remain an ISO PPC 4 with the existing fire defense infrastructure for the areas afforded fire hydrant protection within the City of Hutto. However, with the implementation of several of the suggested improvements within this report which do not require significant capital expenditures an ISO PPC 3 is very achievable. To attain an ISO PPC 2 will require the purchase of an elevating platform or aerial ladder truck company (apparatus and staffing) and the erection of a second fire station.

If an ISO PPC of 3 were attained for the areas presently assigned an ISO PPC 4 the commercial property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **9 per cent** (effect of lowering the PPC from a 4 to a 3) and the residential property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **3 per cent** (effect of lowering the PPC from a 4 to a 3).

If a sufficient number of the suggested improvements were implemented in order that an ISO PPC of 2 were attained the commercial property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **11 per cent** (effect of lowering the PPC from a 4 to a 2) and the residential property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **10 per cent** (effect of lowering the PPC from a 4 to a 2).

As pointed out in the above paragraphs an ISO PPC of 3 is critical to the commercial property owners and an ISO PPC of 2 is critical to the homeowners.

If a sufficient number of the suggested improvements were implemented in order that an ISO PPC of 1 were attained the commercial property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **13 per cent** (effect of lowering the PPC from a 4 to a 1) and the residential property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **11 per cent** (effect of lowering the PPC from a 4 to a 1).

## **Fire Suppression Rating Study for the City of Hutto**

Even though a Class 1 does not receive an appreciable reduction in insurance premiums over an ISO PPC of 2 it has been shown to be an extremely valuable economic development tool.

As an example of the effect of an improved ISO PPC: If a homeowner's premium is \$1,000 per year and the ISO PPC improves from a 4 to a 2 resulting in a 10% reduction in the ISO PPC the 10% reduction applies to the entire premium in Texas (not just the fire portion as it does in other States). Therefore, the homeowner would see the entire \$100 reduction in annual premium if all endorsements (perils and property value) remained the same. This information is generated and updated by the Texas Department of Insurance and published by The Texas State Fire Marshal's Office; not ISO. Whereas \$100 per year may not seem like a significant amount of money; consider each home in the City of Hutto afforded fire hydrant protection and extrapolate \$100 per year over the 20-year life span of an ISO PPC and that amount of money is very significant to the citizens of your community.

*The City of Hutto has presently been assigned an ISO rating of 4 for areas within a 1000-foot hose lay distance of a fire hydrant and 5-road miles of a fire station housing an engine company.. If this rating of 4 improves to a 2 it is most likely that the City of Hutto will be edited at ISO's Home Office in New Jersey (much more severe edit) not ISO's Regional Office in Austin. I know this as fact; I edited these ratings for over 11 years. It has been my experience that any grading point total that develops an ISO PPC must move well into the new class in order to guarantee that the rating remains in that class after the review is complete.*

*I would not feel comfortable submitting a grading point total less than 73.00 to New Jersey if the mission of the City of Hutto is to achieve a Public Protection Classification of 3. The grading point total would need to exceed 83.00 for an ISO PPC of 2 or 93.00 for an ISO PPC 1.*

## **Analysis of the Report**

This report will demonstrate a grading point total which develops an ISO rating which should result if an ISO Public Protection Survey was requested for the areas within the City of Hutto afforded fire hydrant protection.

Each of the suggestions presented within this report is prioritized by its importance and tempered by its cost. The suggested improvements within this report relate only to a fire insurance classification for the City of Hutto. These suggestions are not for property loss prevention or life safety purposes and no life safety or property loss prevention recommendations are implied or made.



## **Grading Scenario**

The Basic Fire Flow will be 3500-gpm. Based on the existing fire defense infrastructure of City of Hutto the grading point total for the areas afforded fire hydrant protection is 66.44 (ISO PPC 4). Please see the grading summary at the conclusion of this report for a more detailed explanation. The grading point of 66.44 will be the benchmark for improving this ISO ratings to **73.00 (Class 3)**, **83.00 (Class 2)**, or **93.00 (Class 1)**. The suggestions which follow apply only to the areas within the city limits afforded fire hydrant protection:

### **General**

1. An excellent map exists which demonstrates the streets and fire hydrants within the city limits of the City of Hutto. Making sure each fire hydrant (public and private) available to the fire department serving the City of Hutto is plotted on this map is critical to improving the ISO Public Protection Classification of your community. This suggestion is an **absolute**.
2. A second map must be developed that demonstrates the built-upon and non built-upon area with the desired graded boundary served by the Hutto Fire Department. This map must also demonstrate the areas within the city limits of the City of Hutto that cannot be built upon (flood plain, golf course, lake, etc.). This map should be on a single page (not a set of sectional maps). This suggestion is an **absolute**.

## **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. Any area (regardless of the water supply available) outside 5-road miles of a fire station housing an engine company is considered not protected (ISO PPC 10).

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.

The Hutto Fire Department is required by the ISO rating document to maintain 3 engine companies, 1 ladder truck company, and 1 ladder/service (rescue) truck company in-service, available to respond to structural alarms of fire, for areas afforded fire hydrant protection, within City of Hutto deployed from 3 fire stations. A reserve engine and a reserve ladder truck are also required.

The following suggestions are offered for your consideration:

1. For improved first due response distances, consideration should be given to the erection of 2 additional fire stations: The suggestions are listed in their priority order and will maximize the ISO rating for the City of Hutto.
  - a. A second fire station should be erected in the vicinity of S.H. 130 and F.M. 685. This fire station should house the second engine company presently deployed from existing fire station #1 and a ladder truck company. Providing this fire station, apparatus, and staffing will **add 12.37 points** to the grading point total which develops the ISO PPC for the City of Hutto.
  - b. A third fire station should be erected in the vicinity of C.R. 137 and F.M. 1660 housing an engine company and a ladder/service (rescue) truck company. Providing this fire station, apparatus, and staffing will add **8.04 points** to the grading point total which develops the ISO PPC for the City of Hutto.
2. Provide the Hutto Fire Department with a fully equipped elevating platform or aerial ladder truck company. The list of required equipment is within the body of this report. If just the apparatus were provided (without the additional staffing) **6.21 points** would be added to the grading point total. If 3 additional firefighters were provided on-duty 24/7 an additional **3.96 points** would be added to the grading point total. Therefore a total of

**Fire Suppression Rating Study for the City of Hutto**

**10.17 points** would be gained if the apparatus and staffing were provided. This ladder truck company should be housed at proposed fire station #2 located at S.H. 130 and F.M. 685. Please note that these 10.17 points are part of the 12.37 points gained in suggestion 1a of the fire department section of this report. The 10.17 points are not additional points. This suggestion is presented only to demonstrate the significant impact on a community's ISO rating when a required ladder truck company is placed in-service.

3. Provide the Hutto Fire Department with a fully equipped third engine company. The list of required equipment is presented within the body of this report. This engine should be housed at proposed fire station #3 located in the vicinity of C.R. 137 and F.M. 1660. This third engine company is worth **4.43** of the 8.04 points listed under suggestion 1b of the fire department section of this report.
4. Provide the Hutto Fire Department with a ladder/service (rescue) truck company. This ladder/service (rescue) truck company should be housed at proposed fire station #3 located in the vicinity of C.R. 137 and F.M. 1660. This proposed ladder/service (rescue) truck company is worth **2.04** of the 8.04 points listed under suggestion 1b of the fire department section of this report.
5. The following deployment of apparatus would maximize the ISO PPC for the City of Hutto:
  - a. Existing fire station #1 – Engine company.
  - b. Proposed fire station #2 (S.H. 130 and F.M. 685) – Engine company and a ladder truck company.
  - c. Proposed fire station #3 (C.R. 137 and F.M. 1660) – Engine company and a ladder/service (rescue) truck company.
6. This report will not suggest providing a reserve engine. However, a recent technical decision has been adopted by ISO that allows communities to share reserve apparatus. There is not a distance restriction on this sharing arrangement. If a community with a reserve engine would enter into a sharing agreement with the Hutto Fire Department whereas the Hutto Fire Department could utilize a reserve engine if needed, full credit would be granted by ISO. If this sharing arrangement was documented **0.94 points** would be added to the grading point total which develops the ISO PPC for the City of Hutto.

**Fire Suppression Rating Study for the City of Hutto**

7. This report will not suggest providing a reserve ladder truck. However, a recent technical decision has been adopted by ISO that allows communities to share reserve apparatus. There is not a distance restriction on this sharing arrangement. If a community with a reserve ladder truck would enter into a sharing agreement with the Hutto Fire Department whereas the Hutto Fire Department could utilize a reserve ladder truck if needed, full credit would be granted by ISO. If this sharing arrangement was documented **1.40 points** would be added to the grading point total for the City of Hutto.
8. The Hutto Fire Department has access to a fully ISO compliant training facility in the Cities of Cedar Park and Pflugerville.

To obtain ISO credit this facility must be utilized. As a minimum, 8 drills of 3-hour duration should be accomplished for each firefighter (both paid and volunteer) on an annual basis. These drills must be at the training facility or suitable offsite 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. If this was accomplished the grading point total would be improved by **4.11 points**. At present 1 of the required 8-training field drills are performed. Attendance at this drill averages approximately 50%.

9. The Hutto Fire Department could receive additional credits allotted to their grading point via the Texas Addendum by allowing a percentage of their firefighters to attend the annual weeklong Fireman's Training School. Based on paid or volunteer members of the Hutto Fire Department attending the weeklong session of Fireman's Training School 3.26 additional grading points are available to the City of Hutto via the Texas Addendum. Attendance at Fireman's Training School could be a very important tool in improving the ISO Rating for the City of Hutto. Each paid or volunteer member of the Hutto Fire Department attending the spring or summer session of Fireman's Training School as a student or instructor will **add approximately 0.12 points** to the grading point total. In addition volunteer members of the Hutto Fire Department that receive at least the basic volunteer certification (167-hours) will also receive the additional **0.12 points**. This credit is available within the body of The Texas Addendum *not* the Fire Suppression Rating Schedule.
10. Properly preplan all commercial structures within the boundaries of the City of Hutto and update them semi-annually. Providing this level of preplanning would **add 1.84 points** to the grading point total. At present the commercial structures within the city limits of the City of Hutto are not preplanned.

**Fire Suppression Rating Study for the City of Hutto**

11. The Hutto Fire Department is to be commended for providing the engine in-service with at least 1000-feet of 5-inch hose. This suggestion is an absolute. Without this hose attaining an ISO rating of 3 or better would not be possible.
12. The following equipment is required for each engine, ladder truck, and ladder/service (rescue) truck. The equipment that is the most heavily weighted within the ISO Rating Document is denoted by an asterisk.
  - b. Engines in-service and reserve:
    1. 1000-feet of 5-inch hose (reserve engines require only 800-feet of 2, 2.5 or 3-inch hose in lieu of the 1000-feet of 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.

**Fire Suppression Rating Study for the City of Hutto**

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 truck – in-service and reserve:

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)\*.
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-foot roof ladder (or second 16-foot roof ladder)\*.
22. 1, 10-foot collapsible (attic) ladder.

c. Ladder/Service (Rescue) Truck:

1. Large spray nozzle (500-gpm minimum - may be carried on engine)\*.
2. 6 self-contained breathing apparatus (minimum of 30-minute capacity)\*.
3. 6 spare cylinders (minimum capacity of 30-minutes).
4. 10, 12 x 18-foot salvage covers.
5. Electric generator (minimum of 2.5-kw)\*.

***Fire Suppression Rating Study for the City of Hutto***

6. 3 portable flood lights.
7. 1 smoke ejector or positive ventilation fan\*.
8. 1 oxy-acetylene cutting unit (a thermal imaging camera, plasma cutting unit or chain saw with a carbide tip will substitute)\*.
9. 1 power saw\*.
10. 4 hand lights (flashlights are not creditable).
11. A hose hoist or hose roller.
12. 6 pike poles (2 @ 6-feet, 2 @ 8-feet, 2 @ 12-feet).
13. Mounted Radio\*.
14. Portable radio\*.
15. 1, 14-foot extension ladder.
16. 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. At present both in-service engines provided the Hutto Fire Department is fully equipped. This suggestion is provided in order to make sure the apparatus are fully equipped when an ISO survey commences.

13. The single most deficient item within the entire rating process for the City of Hutto is the lack of firefighters responding to structural alarms of fire. The ISO Rating Document requires that 6 firefighters per company be on-duty with each existing engine and ladder truck. A ladder/service truck (rescue vehicle) requires 3 on-duty firefighters for full credit. 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 company, the ability to utilize the apparatus effectively is seriously impaired.

I would deem this report incomplete unless I point out that no fire department in Texas maintains 6 firefighters per company on-duty (paid staffing) with each of the first due apparatus. However, many communities strive to maintain a minimum of 4 firefighters, on-duty with each of the existing engine and ladder truck companies and 2 firefighters on-duty with each of the existing ladder/service trucks.

For a volunteer fire department the maximum credit than can be attained is the equivalent of 4 career firefighters on duty. The volunteer equivalent of 4 career firefighters is 12 volunteers responding to structural alarms of fire with each engine or ladder truck and 6 volunteers responding with each ladder/service (rescue) truck. For the fire department serving the City of Hutto to meet this requirement an average of 24 volunteers should respond to all structural alarms of fire. This level of volunteer response normally is associated with a volunteer roster of approximately 60 firefighters. It is unrealistic to believe that the Hutto Fire Department could

## ***Fire Suppression Rating Study for the City of Hutto***

attract this level of volunteer participation based on their present population served by the Hutto Fire Department. Therefore, improvement in staffing levels should be developed via paid firefighters.

An alternative method to improve staffing credits within the ISO rating document is to develop duty crews. The duty crew is a group of volunteers that are on-duty at a specified fire station during certain hours of the day. A duty crewmember receives the identical credit as a paid firefighter. The hours a duty crewmember is on-duty at the fire station is prorated. For example 6 duty crewmembers on-duty 28 hours per-week is the equivalent of 1 paid firefighter on-duty at all times. ISO will require extensive documentation demonstrating the hours that a duty crewmember is on-duty at the fire station.

A second method to improve the level of fire department staffing is increasing volunteer response to first alarm structural fires. This normally requires increasing the base of volunteers in order that more volunteer firefighters are available to respond. Most likely this is not a viable option for the fire department serving the City of Hutto.

A third method to improve fire department staffing levels is the provision of additional paid firefighters on duty 24/7. These additional paid firefighters could perform maintenance duties, prepare the preplans, and assist with the Fire Marshal's building inspections as available.

Each paid firefighter or duty-crew member on-duty 24/7 would **add 1.32 points** to the grading point total.

Each additional volunteer firefighter captured on the incident reports as responding to structural alarms of fire would **add 0.44 points** to the grading point total.

Please note that there exists a possible 15 points available for staffing. the City of Hutto received only 6.45 of these 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 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

**Fire Suppression Rating Study for the City of Hutto**

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 will **add 1.50 points** to the grading point total.

- 2. Properly list the emergency and business number for the fire department in the business white pages or government pages of the primary phone directory under the title "City of Hutto or Hutto Fire Department" and in the white pages of the primary phone directory under the title of "Fire" or "Fire Department". If these listings were provided **0.20 points** would be added to the grading point total.
- 3. Test the emergency power weekly at the Hutto Fire Station. The test should be under a load for a minimum duration of 1-hour. If this level of testing was performed **0.25 points** would be added to 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 3-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. Hydrants attached to water mains less than 4-inches in diameter are not credited within ISO's Rating Document. 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. Improving arterial looping, distribution system gridirons, and hydrant distribution will help improve the water supply item of the grading (35 points are assigned to this grading item). There exist a possible **4.67 available points** within this grading item. This is the most heavily weighted item within the development of the grading point total. The results based on a flow-testing program throughout the city limits of the City of Hutto, which is afforded fire hydrant protection, will be the single most critical item within the entire grading process for the City of Hutto. A quantitative method does not exist to analyze prospective improvements

***Fire Suppression Rating Study for the City of Hutto***

in this aspect of the grading until such improvements are implemented; therefore, no additional point total will be shown.

2. Fire hydrants should be inspected semi-annually with proper records maintained throughout the city limits of the City of Hutto. Each fire hydrant should be pressure tested semi-annually (a pressure test is **not** a flow test) as part of the inspection process. If the suggested level of inspection and maintenance were provided **0.47 points** would be added to the grading point total.

## **Fire Safety Control**

The consistent, systematic application of fire safety control regulations combined with a good public education program in fire prevention can be an important factor in reducing the overall incidence of fire and the consequent fire losses. Successful execution of such programs necessitates that a sufficient number of properly trained personnel be provided. A nationally recognized body of model fire prevention, building and safety codes represent the combined knowledge of many experts in this field and, when adopted with little or no modifications, afford a community the opportunity for reasonable control of hazardous materials and building construction.

The following suggestions are offered for your consideration:

1. The City of Hutto should adopt at least the 2009 edition of the International Fire Code and enforce it throughout the city limits of the City of Hutto. Providing the suggested International Fire Code and enforcing it throughout the City of Hutto is critical to improving the ISO rating for the City of Hutto. Approximately 2.00 grading points would be lost if this code is not adopted by ordinance and enforced throughout the city limits of the City of Hutto.
2. At present the required number of school exit drills cannot be documented as being performed each month school is in session for each school within the city limits of the City of Hutto. Fire exit drills must be documented as occurring monthly over the last 3 school years for each school within the city limits of the City of Hutto. If these exit drill reports were available for review by ISO **0.92 points** would be added to the grading point total.

## **Summary of Suggested Improvements**

When the suggested improvements, which are referred to as absolutes, and the additional suggestions, which are within the budget constraints of the City of Hutto, are implemented a future ISO survey should be requested to establish an ISO PPC 3.

## **Plan of Action**

**Action Plan # 1: Request an ISO survey and improve the ISO rating for the areas afforded fire hydrant protection presently rated an ISO PPC 4 within 1-year to an ISO PPC 3: Improving the ISO PPC for these areas would reduce both the homeowners and the commercial property owners annual insurance premium. The actual savings would be based on how much improvement was attained. Approximate savings are demonstrated within the executive summary of this report.**

1. Implement the suggested improvements that require very little capital expenditures such as:
  - a. Memorandum of Understanding for the use of a reserve ladder truck – add 1.40 points.
  - b. Memorandum of Understanding for the use of a reserve engine company – add 0.94 points.
  - c. Complete the preplanning program for all commercial businesses – add 1.84 points.
  - d. Utilize a neighboring training facility and perform 8,drills of at least 3-hour duration, per year at the training facility or suitable offsite location for each member (both paid and volunteer) within the Hutto Fire Department - add 4.11 points. This grading item may be prorated; therefore any level of additional training field evolutions by the Hutto Fire Department will improve the ISO grading point total which develops the ISO PPC.
  - e. Provide a photocopy of the school fire exit drill reports to ISO – add 0.92 points.

If suggestions a thru e were implemented 9.21 points will be added to the grading point total of 66.44. This would place the City of Hutto comfortably above the threshold of 73.00 grading points required to guarantee an ISO PPC 3.

2. Request a survey from ISO. Once a Field Representative is assigned to the City of Hutto the city 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 would save City Officials a considerable amount of time in filling out this packet. In addition the ISO Field

***Fire Suppression Rating Study for the City of Hutto***

Representative will have the extensive amount of required support data properly formatted to maximize the City of Hutto's ISO rating.

3. Set a mutually convenient time for the City of Hutto and the ISO Field Representative to complete the ISO rate survey for the City of Hutto. The information transfer would proceed effortlessly if I assisted the City of Hutto throughout the survey process. This will save your City Officials, Fire Chief, 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: Improve (lower) the ISO PPC for all areas afforded fire hydrant protection within the City of Hutto to an ISO PPC 2 within 3 years: This would further reduce the cost of commercial property and homeowner's insurance. The actual savings would be based on how much improvement was attained. Approximate savings are demonstrated within the executive summary of this report.**

1. Complete the suggested improvements that are economically feasible within the budget constraints of the City of Hutto. These would include: Erecting fire stations, providing additional apparatus, and improved staffing levels for existing apparatus.
2. Request a survey from ISO. Once a Field Representative is assigned to the City of Hutto the city 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 would save City Officials a considerable amount of time in filling out this packet. In addition the ISO Field Representative will have the extensive amount of required support data properly formatted to maximize the City of Hutto's ISO rating.
3. Set a mutually convenient time for the City of Hutto and the ISO Field Representative to complete the ISO rating survey for the City of Hutto. The information transfer would proceed effortlessly if I assisted the City of Hutto throughout the survey process. This will save your City Officials, Fire Chief, 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**

Implement Action Plan #1 and establish an improved ISO PPC 3 for the areas afforded fire hydrant protection within the City of Hutto.

When the new ISO rating of 3 becomes effective accomplish as many improvements as possible that will have a significant impact on the emergency response and the ISO rating for the City of Hutto (Action Plan #2). When these suggestions are implemented, request a future ISO survey to further improve the ISO rating for all areas afforded fire hydrant protection within the City of Hutto to an ISO PPC 2

Without the excellent cooperation given me by Fire Chief Scott Kerwood and his staff the accuracy of this report and its timely completion would be severely compromised.

I appreciate the opportunity afforded me by the City of Hutto and I very much look forward to assisting the City of Hutto in the future.

Sincerely,

W. Michael Pietsch, P.E.  
Civil Engineer

WMP/spp

Grading Summary Sheet

CITY OF HUTTO

**Classification 4 – 66.44**

I.	Receiving & Handling Fire Alarms:		<b><u>Total 8.05, Maximum = 10</u></b>
a.	Item 414	- 1.80	2
b.	Item 422	- 3.00	3
c.	Item 432	- 3.25	5
II.	Fire Department		<b><u>Total 25.28, Maximum = 50</u></b>
a.	Item 513	- 6.67	10
b.	Item 523	- 0.33	1
c.	Item 532	- 4.29	5
d.	Item 549	- 0.27	5
e.	Item 553	- 0.02	1
f.	Item 561	- 0.96	4
g.	Item 571	- 6.45	15
h.	Item 581	- 3.96 + 2.33 (CTT)	9
III.	Water Supply		<b><u>Total 34.86, Maximum = 40</u></b>
a.	Item 616	- 30.33	35
b.	Item 621	- 2.00	2
c.	Item 631	- 2.53	3
IV.	Divergence*	-7.33	
V.	Addendum	<u>Total 5.58</u>	<b>Maximum = 6.50</b>
<b><u>City of Hutto's Total:</u></b>			<b><u>66.44</u></b>
			<b><u>Maximum = 106.50</u></b>

CITY OF HUTTO GRADING SUMMARY

**Fire Suppression Rating Study for the City of Hutto**

VI. <b><u>Total:</u></b>		<b><u>Maximum Credit:</u></b>
Fire Alarm	8.05	10.00
Fire Department	25.28	50.00
Water Supply	34.86	40.00
Divergence*	-7.33	
Addendum Credit	<u>5.58</u>	<u>6.50</u>
<b>City of Hutto's Total:</b>	<b>66.44</b>	<b>106.50</b>

**Class 4**

<b><u>Credit</u></b>	<b><u>Relative Classification</u></b>
90.00 - 100.00	1
80.00 - 89.99	2
70.00 - 79.99	3
<b>60.00- 69.99</b>	<b>4</b>
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.

**CITY OF HUTTO GRADING SUMMARY**

Page 2

# **Improving Williamson County ESD #3's ISO Public Protection Classification**

**(Areas Afforded Fire Hydrant Protection)**





*Assisting Communities  
With Their ISO Rating*

**Mike Pietsch, P.E. Consulting Services, Inc.**

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**A Report From**

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

**To**

**WILLIAMSON COUNTY ESD #3**

**Improving  
Williamson County ESD #3's  
ISO Public Protection Classification  
(Areas Afforded Fire Hydrant Protection)**

**February 1, 2012**

***Submitted by:***

***W. Michael Pietsch, P.E.  
Civil Engineer***

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A Report From

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

To

WILLIAMSON COUNTY ESD #3

Improving  
Williamson County ESD #3's  
ISO Public Protection Classification  
(Areas Afforded Fire Hydrant Protection)

### **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 while 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 will inventory 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 also reviews 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 in the community to determine the rate of flow provided by the distribution system. Last, fire hydrant distribution is analyzed by counting the fire hydrants within a 1,000-foot hose lay distance from each needed fire flow (targeted structures).



## **Texas Addendum**

Unique to the State of Texas is a document titled the Texas Addendum (sometimes called the Texas Exception). This document analyzes the effectiveness of the Fire Marshal and Building Code Offices and assigns additional credit for compressed air foam systems on in-service engines. A second section of this document assigns credit to communities that allowed a certain percentage of their firefighters to attend Fireman's Training School and volunteer firefighters that have obtained at least the basic firefighter certification.

Mathematically, this section could add an additional 11.39 points to a grading point total. Normally 4 to 7 additional grading points are achieved via the Texas Addendum.

## **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 questions are answered and the support data is properly formatted the Field Representative will return to his office and complete the grading. When the grading is complete he submits it for review. After the review is complete the grading is then submitted to the community for their review. If the community feels all grading items were analyzed fairly the grading is sent to the State Fire Marshal's Office for their approval.

***Fire Suppression Rating Study for Williamson County ESD #3***

Once the State Fire Marshal's Office approves the grading the community is notified via a letter to the District Manager or Mayor of their new rating. This entire process normally takes around 1 year.

## **Explanation of Study**

This report will analyze the ISO PPC (Public Protection Classification) for Williamson County ESD #3 utilizing the Hutto Fire Department which serves Williamson County ESD #3 and then develop a grading scenario that should result if an ISO survey was requested. Based on the grading scenario developed by this report a list of suggested improvements will be demonstrated, which if implemented will assist Williamson County ESD #3 in improving the ISO PPC for all areas within the boundary of Williamson County ESD #3 afforded fire hydrant protection.

Normally a set of reports for an area served by a single fire department are not redundant within the suggested improvements section. However, since different groups could possibly consider the various reports (a total of 2 were submitted to the community – 1 for the City of Hutto and 1 for Williamson County ESD #3) each report will have the entire set of suggested improvements.

Areas void of fire hydrant protection (structures outside a 1000-foot hose lay distance of a creditable fire hydrant) are not considered within this report. Hopefully after an ISO evaluation for areas afforded fire hydrant protection a study will be funded addressing areas void of fire hydrant protection.

This scenario will require that the Hutto Fire Department have in-service: 4 engine companies, 1 ladder truck company, and 1 ladder/service (rescue) truck company. These apparatus should be available to respond to all reported structure fires from 4 fire stations to optimize the grading point total that develops the ISO PPC for areas afforded fire hydrant protection.

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.

The Offices of the Fire Marshal and Chief Building Official will be reviewed based on the Texas Addendum. The Texas Addendum is a separate rating document developed by the Texas Department of Insurance and interpreted by the Texas State Fire Marshal. The Texas Addendum is not an ISO document.

At the conclusion of this scenario a list of suggested improvements will be presented which, if implemented, will improve the ISO Public Protection Classification for Williamson County ESD #3.

## **Executive Summary**

Based on information obtained during my recent survey for Williamson County ESD #3 the Hutto Fire Department will be required by the ISO Rating Document to have in-service, available to respond to all reported structural alarms of fire, a minimum of 4 engine companies, 1 ladder truck company, and 1 ladder/service (rescue) truck deployed from 4 fire stations. At present the Hutto Fire Department responds only 2 engine companies to all first alarm structure fires. The 2 engine companies are deployed from only 1 fire station.

Tankers will not be addressed within the body of this report. Tankers do not receive a significant amount of ISO rate credit for class 8 or better if the area has a creditable water system with fire hydrant protection. Tankers are an integral part of an alternative water supply evaluation for areas outside a 1000-foot hose lay distance of a creditable fire hydrant. Hopefully after a successful ISO evaluation for the areas afforded fire hydrant protection a companion study will be funded which considers areas void of fire hydrant protection as defined by the ISO rating document.

The Hutto Fire Department will be required to have a reserve engine and a reserve ladder truck (even though a ladder truck is presently not provided) unless an agreement for reserve apparatus is available. Due to the fact that ISO's rating document allows a memorandum of understanding between fire departments for reserve apparatus this will report will not suggest the purchase of additional apparatus to serve as reserve unless replacement apparatus is funded. If replacement apparatus is provided it would be beneficial within the ISO Rating Document to retain the phased out apparatus as reserve.

Areas of significant deficiency within the *Fire Department* section are: Insufficient staffing for the in-service apparatus (by far the most significant deficiency within the entire process that develops the ISO grading point total for your community), a ladder truck company is required but not provided, a third engine company is required but not provided, a ladder/service (rescue) truck company is required but not provided, 3 additional fire stations are required, the training program does not meet all of the requirements within the ISO rating document, and reserve apparatus are required but not provided.

The *Water Supply* section demonstrates a good level of compliance with the ISO rating document. Water supply, where fire hydrants are available for fire protection, is sufficient throughout most of Williamson County ESD #3 based on the fire demand. 1 item that demonstrates a mild deficiency is the lack of a complete fire hydrant inspection program.

**Fire Suppression Rating Study for Williamson County ESD #3**

*Fire Service Communications* demonstrated 1 significant area of deficiency and 2 deficiencies of far less importance. The significant area of deficiency is that monitoring for integrity status is not provided for the primary dispatch method. The second deficiency (far less significant) is that telephone directory listings are not complete based on the ISO rating document and NFPA 1221. The third deficiency of far less significance is the fact the emergency power for the existing fire station is not tested weekly under a load for 1-hour.

*Fire Safety Control* demonstrated only 1 significant area of deficiency when considering the fact a building code cannot be adopted by ordinance and enforce throughout the county. The only significant deficiency is the fact that a photocopy of the fire exit drills are not on file; available for ISO.

At present, Williamson County ESD #3 is assigned an ISO PPC of 4. This rating was established on July 19, 2005. The grading scenario presented within this report demonstrates that the ISO rating will remain an ISO PPC 4 with the existing fire defense infrastructure for the areas afforded fire hydrant protection within Williamson County ESD #3.

If an ISO PPC of 3 were attained for the areas presently assigned an ISO PPC 4 the commercial property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **9 per cent** (effect of lowering the PPC from a 4 to a 3) and the residential property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **3 per cent** (effect of lowering the PPC from a 4 to a 3).

If a sufficient number of the suggested improvements were implemented in order that an ISO PPC of 2 were attained the commercial property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **11 per cent** (effect of lowering the PPC from a 4 to a 2) and the residential property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **10 per cent** (effect of lowering the PPC from a 4 to a 2).

As pointed out in the above paragraphs an ISO PPC of 3 is critical to the commercial property owners and an ISO PPC of 2 is critical to the homeowners.

If a sufficient number of the suggested improvements were implemented in order that an ISO PPC of 1 were attained the commercial property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **13 per cent** (effect of lowering the PPC from a 4 to a 1) and the residential property owners within 5 road-miles of a fire station and 1000 feet of a fire hydrant would save a possible **11 per cent** (effect of lowering the PPC from a 4 to a 1).

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Even though a Class 1 does not receive an appreciable reduction in insurance premiums over an ISO PPC of 2 it has been shown to be an extremely valuable economic development tool.

As an example of the effect of an improved ISO PPC: If a homeowner's premium is \$1,000 per year and the ISO PPC improves from a 4 to a 2 resulting in a 10% reduction in the ISO PPC the 10% reduction applies to the entire premium in Texas (not just the fire portion as it does in other States). Therefore, the homeowner would see the entire \$100 reduction in annual premium if all endorsements (perils and property value) remained the same. This information is generated and updated by the Texas Department of Insurance and published by The Texas State Fire Marshal's Office; not ISO. Whereas \$100 per year may not seem like a significant amount of money; consider each home in Williamson County ESD #3 afforded fire hydrant protection and extrapolate \$100 per year over the 20-year life span of an ISO PPC and that amount of money is very significant to the citizens of your community.

*Williamson County ESD #3 has presently been assigned an ISO rating of 4 for areas within a 1000-foot hose lay distance of a fire hydrant and 5 road miles of a fire station deploying at least an engine company. If this rating of 4 improves to a 2 it is most likely that Williamson County ESD #3 will be edited at ISO's Home Office in New Jersey (much more severe edit) not ISO's Regional Office in Austin. I know this as fact; I edited these ratings for over 11 years. It has been my experience that any grading point total that develops an ISO PPC must move well into the new class in order to guarantee that the rating remains in that class after the review is complete.*

*I would not feel comfortable submitting a grading point total less than 73.00 to New Jersey if the mission of Williamson County ESD #3 is to achieve a Public Protection Classification of 3. The grading point total would need to exceed 83.00 for an ISO PPC of 2 or 93.00 for an ISO PPC 1.*

## **Analysis of the Report**

This report will demonstrate a grading point total which develops an ISO rating that should result if an ISO Public Protection Survey was requested for the areas within Williamson County ESD #3 afforded fire hydrant protection.

Each of the suggestions presented within this report is prioritized by its importance and tempered by its cost. The suggested improvements within this report relate only to a fire insurance classification for Williamson County ESD #3. These suggestions are not for property loss prevention or life safety purposes and no life safety or property loss prevention recommendations are implied or made.



## **Grading Scenario**

The Basic Fire Flow will be 3500-gpm. Based on the existing fire defense infrastructure of Williamson County ESD #3 the grading point total for the areas afforded fire hydrant protection is 62.01 (ISO PPC 4). Please see the grading summary at the conclusion of this report for a more detailed explanation. The grading point of 62.01 will be the benchmark for improving this ISO rating to **73.00 (Class 3), 83.00 (Class 2), or 93.00 (Class 1)**. The suggestions which follow apply only to the areas within the district limits afforded fire hydrant protection:

### **General**

1. An excellent map exists which demonstrates the streets and fire hydrants within the district limits of Williamson County ESD #3. Making sure each fire hydrant (public and private) available to the fire department serving Williamson County ESD #3 is plotted on this map is critical to improving the ISO Public Protection Classification of your community. This suggestion is an **absolute**.
2. A second map must be developed that demonstrates the built-upon and non built-upon area with the desired graded boundary served by the Hutto Fire Department. This map must also demonstrate the areas within the district limits of Williamson County ESD #3 that cannot be built upon (flood plain, golf course, lake, etc.). This map should be on a single page (not a set of sectional maps). This suggestion is an **absolute**.

## **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. Any area (regardless of the water supply available) outside 5-road miles of a fire station housing an engine company is considered not protected (ISO PPC 10).

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.

The Hutto Fire Department, which provides the initial fire response into Williamson County ESD # 3, is required by the ISO rating document to maintain 4 engine companies, 1 ladder truck company, and 1 ladder/service (rescue) truck company in-service, available to respond to structural alarms of fire, for areas afforded fire hydrant protection, within Williamson County ESD #3 deployed from 4 fire stations. A reserve engine and a reserve ladder truck are also required.

The following suggestions are offered for your consideration:

1. For improved first due response distances, consideration should be given to the erection of 3 additional fire stations: The suggestions are listed in their priority order and will maximize the ISO rating for Williamson County ESD #3.
  - a. A second fire station should be erected in the vicinity of S.H. 130 and F.M. 685. This fire station should house the second engine company presently deployed from existing fire station #1 and a ladder truck company. Providing this fire station, apparatus, and staffing will **add 12.37 points** to the grading point total which develops the ISO PPC for Williamson County ESD #3.
  - b. A third fire station should be erected in the vicinity of C.R. 137 and F.M. 1660 housing an engine company and a ladder/service (rescue) truck company. Providing this fire station, apparatus, and staffing will add **8.04 points** to the grading point total which develops the ISO PPC for Williamson County ESD #3.
  - c. A fourth Station should be erected in the vicinity of one-half way between Rio Grande Ave. and C.R. 100 along F.M. 1660. Providing this fire station, apparatus, and staffing will **add 4.91**

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**points** to the grading point total which develops the ISO PPC for Williamson County ESD #3.

2. Provide the Hutto Fire Department with a fully equipped elevating platform or aerial ladder truck company. The list of required equipment is presented within the body of this report. If just the apparatus were provided (without the additional staffing) **6.21 points** would be added to the grading point total. If 3 additional firefighters were provided on-duty 24/7 an additional **3.96 points** would be added to the grading point total. Therefore a total of **10.17 points** would be gained if the apparatus and staffing were provided. This ladder truck company should be housed at the proposed second fire station located at S.H. 130 and F.M. 685. Please note that these 10.17 points are part of the 12.37 points gained in suggestion 1a of the fire department section of this report. The 10.17 points are not additional points. This suggestion is presented only to demonstrate the significant impact on a community's ISO rating when a required ladder truck company is placed in-service.
3. Provide the Hutto Fire Department with a fully equipped third engine company. The list of required equipment is presented within the body of this report. This engine should be housed at proposed fire station #3 located in the vicinity of C.R. 137 and F.M. 1660. This third engine company is worth **4.43** of the 8.04 points listed under suggestion 1b of the fire department section of this report.
4. Provide the Hutto Fire Department with a fully equipped fourth engine company. The list of required equipment is presented within the body of this report. This engine should be housed at proposed fire station #4 located along F.M. 1660 one-half way between C.R. 100 and Rio Grande Ave. This fourth engine company is worth **3.52** of the 4.91 points listed under suggestion 1c of the fire department section of this report.
5. Provide the Hutto Fire Department with a ladder/service (rescue) truck company. This ladder/service (rescue) truck company should be housed at proposed fire station #3 located in the vicinity of C.R. 137 and F.M. 1660. This proposed ladder/service (rescue) truck company is worth **2.04** of the 8.04 points listed under suggestion 1b of the fire department section of this report.
6. The following deployment of apparatus would maximize the ISO PPC for Williamson County ESD #3
  - a. Existing fire station #1 – Engine company.

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- b. Proposed fire station #2 (S.H. 130 and F.M. 685) – Engine company and a ladder truck company.
  - c. Proposed fire station #3 (C.R. 137 and F.M. 1660) – Engine company and a ladder/service (rescue) truck company.
  - d. Proposed fire station #4 (along F.M. 1660 one-half way between Rio Grande Ave. and C.R. 100) – Engine company.
7. This report will not suggest providing a reserve engine. However, a recent technical decision has been adopted by ISO that allows communities to share reserve apparatus. There is not a distance restriction on this sharing arrangement. If a community with a reserve engine would enter into a sharing agreement with the Hutto Fire Department whereas the Hutto Fire Department could utilize a reserve engine if needed, full credit would be granted by ISO. If this sharing arrangement was documented **0.94 points** would be added to the grading point total which develops the ISO PPC for Williamson County ESD #3.
8. This report will not suggest providing a reserve ladder truck. However, a recent technical decision has been adopted by ISO that allows communities to share reserve apparatus. There is not a distance restriction on this sharing arrangement. If a community with a reserve ladder truck would enter into a sharing agreement with the Hutto Fire Department whereas the Hutto Fire Department could utilize a reserve ladder truck if needed, full credit would be granted by ISO. If this sharing arrangement was documented **1.40 points** would be added to the grading point total for Williamson County ESD #3.
9. The Hutto Fire Department has access to a fully ISO compliant training facility in the Cities of Cedar Park and Pflugerville.

To obtain ISO credit this facility must be utilized. As a minimum, 8 drills of 3-hour duration should be accomplished for each firefighter (both paid and volunteer) on an annual basis. These drills must be at the training facility or suitable offsite 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. If this was accomplished the grading point total would be improved by **4.11 points**. At present 1 of the required 8-training field drills are performed. Attendance at this drill averages approximately 50%.

10. The Hutto Fire Department could receive additional credits allotted to their grading point via the Texas Addendum by allowing a percentage of their firefighters to attend the annual weeklong Fireman's Training School.

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Based on paid or volunteer members of the Hutto Fire Department attending the weeklong session of Fireman's Training School 3.26 additional grading points are available to Williamson County ESD #3 via the Texas Addendum. Attendance at Fireman's Training School could be a very important tool in improving the ISO Rating for Williamson County ESD #3. Each paid or volunteer member of the Hutto Fire Department attending the spring or summer session of Fireman's Training School as a student or instructor will **add approximately 0.12 points** to the grading point total. In addition volunteer members of the Hutto Fire Department that receive at least the basic volunteer certification (167-hours) will also receive the additional **0.12 points**. This credit is available within the body of The Texas Addendum *not* the Fire Suppression Rating Schedule.

11. Properly preplan all commercial structures within the boundaries of Williamson County ESD #3 and update them semi-annually. Providing this level of preplanning would **add 1.84 points** to the grading point total. At present the commercial structures within the district limits of Williamson County ESD #3 are not preplanned.
12. The Hutto Fire Department is to be commended for providing the engine in-service with 1000-feet of 5-inch hose. This suggestion is an absolute. Without this hose attaining an ISO rating of 3 or better for Williamson County ESD #3 would not be possible.
13. The following equipment is required for each engine, ladder truck, and ladder/service (rescue) truck. The equipment that is the most heavily weighted within the ISO Rating Document is denoted by an asterisk.
  - b. Engines in-service and reserve:
    1. 1000-feet of 5-inch hose (reserve engines require only 800-feet of 2, 2.5 or 3-inch hose in lieu of the 1000-feet of 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\*.

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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 truck – in-service and reserve:

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 capaDistrict)\*.
4. 6 spare cylinders (minimum capaDistrict 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.

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- 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-foot roof ladder (or second 16-foot roof ladder)\*.
- 22. 1, 10-foot collapsible (attic) ladder.

c. Ladder/Service (Rescue) Truck:

- 1. Large spray nozzle (500-gpm minimum - may be carried on engine)\*.
- 2. 6 self-contained breathing apparatus (minimum of 30-minute capacity)\*.
- 3. 6 spare cylinders (minimum capacity of 30-minutes).
- 4. 10, 12 x 18-foot salvage covers.
- 5. Electric generator (minimum of 2.5-kw)\*.
- 6. 3 portable flood lights.
- 7. 1 smoke ejector or positive ventilation fan\*.
- 8. 1 oxy-acetylene cutting unit (a thermal imaging camera, plasma cutting unit or chain saw with a carbide tip will substitute)\*.
- 9. 1 power saw\*.
- 10. 4 hand lights (flashlights are not creditable).
- 11. A hose hoist or hose roller.
- 12. 6 pike poles (2 @ 6-feet, 2 @ 8-feet, 2 @ 12-feet).
- 13. Mounted Radio\*.
- 14. Portable radio\*.
- 15. 1, 14-foot extension ladder.
- 16. 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. At present both in-service engines provided the Hutto Fire Department is fully equipped. This suggestion is provided in order to make sure the apparatus are fully equipped when an ISO survey commences.

- 14. The single most deficient item within the entire rating process for Williamson County ESD #3 is the lack of firefighters responding to structural alarms of fire. The ISO rating document requires that 6 firefighters per company be on-duty with each existing engine and ladder truck. A ladder/service truck (rescue vehicle) requires 3 on-duty

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firefighters for full credit. 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 company, the ability to utilize the apparatus effectively is seriously impaired.

I would deem this report incomplete unless I point out that no fire department in Texas maintains 6 firefighters per company on-duty (paid staffing) with each of the first due apparatus. However, many communities strive to maintain a minimum of 4 firefighters, on-duty with each of the existing engine and ladder truck companies and 2 firefighters on-duty with each of the existing ladder/service trucks.

For a volunteer fire department the maximum credit than can be attained is the equivalent of 4 career firefighters on duty. The volunteer equivalent of 4 career firefighters is 12 volunteers responding to structural alarms of fire with each engine or ladder truck and 6 volunteers responding with each ladder/service (rescue) truck. For the fire department serving Williamson County ESD #3 to meet this requirement an average of 24 volunteers should respond to all structural alarms of fire. This level of volunteer response normally is associated with a volunteer roster of approximately 60 firefighters. It is unrealistic to believe that the Hutto Fire Department could attract this level of volunteer participation based on their present population served by the Hutto Fire Department. Therefore, improvement in staffing levels should be developed via paid firefighters.

An alternative method to improve staffing credits within the ISO rating document is to develop duty crews. The duty crew is a group of volunteers that are on-duty at a specified fire station during certain hours of the day. A duty crewmember receives the identical credit as a paid firefighter. The hours a duty crewmember is on-duty at the fire station is prorated. For example 6 duty crewmembers on-duty 28 hours per-week is the equivalent of 1 paid firefighter on-duty at all times. ISO will require documentation demonstrating the hours that a duty crewmember is on-duty at the fire station.

A second method to improve the level of fire department staffing is increasing volunteer response to first alarm structural fires. This normally requires increasing the base of volunteers in order that more volunteer firefighters are available to respond. Most likely this is not a viable option for the fire department serving Williamson County ESD #3.

A third method to improve fire department staffing levels is the provision of additional paid firefighters on duty 24/7. These additional paid firefighters could perform maintenance duties, prepare the preplans, and assist with the Fire Marshal's building inspections as available.



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Each paid firefighter or duty-crew member on-duty 24/7 would **add 1.32 points** to the grading point total.

Each additional volunteer firefighter captured on the incident reports as responding to structural alarms of fire would **add 0.44 points** to the grading point total.

Please note that there exists a possible 15 points available for staffing. Williamson County ESD #3 received only 6.48 of these 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 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

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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 will **add 1.50 points** to the grading point total.

- 2. Properly list the emergency and business number for the fire department in the business white pages or government pages of the primary phone directory under the title "City of Hutto or Hutto Fire Department" and in the white pages of the primary phone directory under the title of "Fire" or "Fire Department". If these listings were provided **0.20 points** would be added to the grading point total.
- 3. Test the emergency power weekly at the Hutto Fire Station. The test should be under a load for a minimum duration of 1-hour. If this level of testing was performed **0.25 points** would be added to 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 3-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. Hydrants attached to water mains less than 4-inches in diameter are not credited within ISO's Rating Document. 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. Improving arterial looping, distribution system gridirons, and hydrant distribution will help improve the water supply item of the grading (35 points are assigned to this grading item). There exist a possible **6.22 available points** within this grading item. This is the most heavily weighted item within the development of the grading point total. The results based on a flow-testing program throughout the district limits of Williamson County ESD #3, which is afforded fire hydrant protection, will be the single most critical item within the entire grading process for Williamson County ESD #3. A quantitative method does not exist to analyze prospective improvements in this aspect of the grading until such

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improvements are implemented; therefore, no additional point total will be shown.

2. Fire hydrants should be inspected semi-annually with proper records maintained throughout the district limits of Williamson County ESD #3. Each fire hydrant should be pressure tested semi-annually (a pressure test is **not** a flow test) as part of the inspection process. If the suggested level of inspection and maintenance were provided **0.47 points** would be added to the grading point total.

## **Fire Safety Control**

The consistent, systematic application of fire safety control regulations combined with a good public education program in fire prevention can be an important factor in reducing the overall incidence of fire and the consequent fire losses. Successful execution of such programs necessitates that a sufficient number of properly trained personnel be provided. A nationally recognized body of model fire prevention, building and safety codes represent the combined knowledge of many experts in this field and, when adopted with little or no modifications, afford a community the opportunity for reasonable control of hazardous materials and building construction.

The additional credits available to communities in Texas via the Texas Addendum Rating Document are critical to improving the ISO rating for all communities throughout Texas. No other State in America has this addendum which measures fire safety control regulations and their enforcement. Without the rate credits available within the Texas Addendum approximately 64% of the communities in Texas would regress (increase) 1 ISO class.

Adopting and enforcing the International Body of Codes wherever possible is essential for any community (ESD or City) which is seriously trying to improve (lower) the ISO PPC for their community in order to reduce the cost of insurance for their citizens.

The following suggestions are offered for your consideration:

1. Williamson County ESD #3 should adopt at least the 2009 edition of the International Fire Code and enforce it throughout the district limits of Williamson County ESD #3. Providing the suggested International Fire Code and enforcing it throughout Williamson County ESD #3 is critical to improving the ISO rating for Williamson County ESD #3. Approximately 2.00 grading points would be lost if this code is not adopted by ordinance and enforced throughout the city limits of Williamson County ESD #3.
2. At present the required number of school exit drills cannot be documented as being performed each month school is in session for each school within the district limits of Williamson County ESD #3. Fire exit drills must be documented as occurring monthly over the last 3 school years for each school within the district limits of Williamson County ESD #3. If these fire exit drill reports were available for review by ISO **0.92 points** would be added to the grading point total.

## **Summary of Suggested Improvements**

When the suggested improvements, which are referred to as absolutes, and the additional suggestions, which are within the budget constraints of Williamson County ESD #3, are implemented a future ISO survey should be requested to establish an ISO PPC 3.

## **Plan of Action**

**Action Plan # 1: Request an ISO survey and improve the ISO rating for the areas afforded fire hydrant protection presently rated an ISO PPC 4 within 1 – year to an ISO PPC 3: Improving the ISO PPC for these areas would reduce both the homeowners and the commercial property owners annual insurance premium. The actual savings would be based on how much improvement was attained. Approximate savings are demonstrated within the executive summary of this report.**

1. Implement the suggested improvements that require very little capital expenditures such as:
  - a. Memorandum of Understanding for the use of a reserve ladder truck – add 1.40 points.
  - b. Memorandum of Understanding for the use of a reserve engine company – add 0.94 points.
  - c. Complete the preplanning program for all commercial businesses – add 1.84 points.
  - d. Utilize a neighboring training facility and perform 8 drills of at least 3-hour duration, per year at the training facility or suitable offsite location for each member (both paid and volunteer) within the Hutto Fire Department - add 4.11 points. This grading item may be prorated; therefore any level of additional training field evolutions by the Hutto Fire Department will improve the ISO grading point total which develops the ISO PPC.
  - e. Provide a photocopy of the school fire exit drill reports to ISO – add 0.92 points.

If suggestions a thru e were implemented 9.21 points will be added to the grading point total of 62.01. This would place Williamson County ESD #3 near the threshold of 73.00 grading points required to guarantee an ISO PPC 3. Most likely a score of 71.22 will remain above 70.00 upon review by ISO. This would improve (lower) the ISO PPC for Williamson County ESD #3 from a 4 to a 3.

2. Request a survey from ISO. Once a Field Representative is assigned to Williamson County ESD #3 the district 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 would save

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***Fire Suppression Rating Study for Williamson County ESD #3***

District Officials a considerable amount of time in filling out this packet. In addition the ISO Field Representative will have the extensive amount of required support data properly formatted to maximize Williamson County ESD #3's ISO rating.

3. Set a mutually convenient time for Williamson County ESD #3 and the ISO Field Representative to complete the ISO rate survey for Williamson County ESD #3. The information transfer would proceed effortlessly if I assisted Williamson County ESD #3 throughout the survey process. This will save your District Officials, Fire Chief, 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: Improve (lower) the ISO PPC for all areas afforded fire hydrant protection within Williamson County ESD #3 to an ISO PPC 2 within 3 years: This would further reduce the cost of commercial property and homeowner's insurance. The actual savings would be based on how much improvement was attained. Approximate savings are demonstrated within the executive summary of this report.**

1. Complete the suggested improvements that are economically feasible within the budget constraints of Williamson County ESD #3 which require significant capital expenditures. These would include: Erecting fire stations, providing additional apparatus, and improved staffing levels for existing and proposed apparatus.
2. Request a survey from ISO. Once a Field Representative is assigned to Williamson County ESD #3 the district 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 would save District Officials a considerable amount of time in filling out this packet. In addition the ISO Field Representative will have the extensive amount of required support data properly formatted to maximize Williamson County ESD #3's ISO rating.
3. Set a mutually convenient time for Williamson County ESD #3 and the ISO Field Representative to complete the ISO rating survey for Williamson County ESD #3. The information transfer would proceed effortlessly if I assisted Williamson County ESD #3 throughout the survey process. This will save your District Officials, Fire Chief, 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**

Implement Action Plan #1 and establish an improved ISO PPC 3 for the areas afforded fire hydrant protection within Williamson County ESD #3.

When the new ISO rating of 3 becomes effective accomplish as many improvements as possible that will have a significant impact on the emergency response and the ISO rating for Williamson County ESD #3 (Action Plan #2). When these suggestions are implemented, request a future ISO survey to further improve the ISO rating for all areas afforded fire hydrant protection within Williamson County ESD #3 to an ISO PPC 2. The goal for Williamson County ESD #3 should be to achieve an ISO PPC 2.

I appreciate the opportunity afforded me by Williamson County ESD #3 and look forward to working with your district in the future.

Without the excellent cooperation provided by Fire Chief Scott Kerwood and his staff the accuracy of this report and its timely completion would be severely compromised.

I very much look forward to assisting Williamson County ESD #3 in the future.

Sincerely,

W. Michael Pietsch, P.E.  
Civil Engineer

WMP/spp

Grading Summary Sheet

WILLIAMSON COUNTY ESD #3

**Classification 4 – 62.01**

I.	Receiving & Handling Fire Alarms:		<b><u>Total 8.05, Maximum = 10</u></b>
a.	Item 414	- 1.80	2
b.	Item 422	- 3.00	3
c.	Item 432	- 3.25	5
II.	Fire Department		<b><u>Total 23.73, Maximum = 50</u></b>
a.	Item 513	- 5.00	10
b.	Item 523	- 0.25	1
c.	Item 532	- 4.29	5
d.	Item 549	- 0.27	5
e.	Item 553	- 0.02	1
f.	Item 561	- 1.13	4
g.	Item 571	- 6.48	15
h.	Item 581	- 3.96 + 2.33 (CTT)	9
III.	Water Supply		<b><u>Total 33.31, Maximum = 40</u></b>
a.	Item 616	- 28.78	35
b.	Item 621	- 2.00	2
c.	Item 631	- 2.53	3
IV.	Divergence*	-7.16	
V.	Addendum	<u>Total 4.08</u>	<b>Maximum = 6.50</b>
<b><u>Williamson Co. ESD #3's Total: 62.01</u></b>			<b><u>Maximum = 106.50</u></b>

WILLIAMSON COUNTY ESD #3 GRADING SUMMARY

**Fire Suppression Rating Study for Williamson County ESD #3**

VI.	<b><u>Total:</u></b>		<b><u>Maximum Credit:</u></b>
	Fire Alarm	8.05	10.00
	Fire Department	23.73	50.00
	Water Supply	33.31	40.00
	Divergence*	-7.16	
	Addendum Credit	<u>4.08</u>	<u>6.50</u>
	<b>Williamson Co. ESD #3's Total:</b>	<b>62.01</b>	<b>106.50</b>

**Class 4**

<b><u>Credit</u></b>	<b><u>Relative Classification</u></b>
90.00 - 100.00	1
80.00 - 89.99	2
70.00 - 79.99	3
<b>60.00- 69.99</b>	<b>4</b>
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.

**WILLIAMSON COUNTY ESD #3 GRADING SUMMARY**



**National Average  
Recommended Human  
Resources Budget**

# HUTTO FIRE RESCUE

## National Average Recommended Human Resources Budget\*

<b>Recommended Fire Department Human Resources Budget by National Averages (Inside Hutto City Limits)</b>	
Current Population - 18,514	
Recommended Firefighters per National Average [1.71 per 1000]	32
Recommended Budget by National Average Per Capita [\$147.86]	\$2,737,481
Recommended Budget by National Average Per Firefighter [\$65,934]	\$2,109,888
<b>Average Recommended Personnel Budget</b>	<b>\$2,423,685</b>

<b>Recommended Fire Department Human Resources Budget by National Averages (Outside Hutto City Limits)</b>	
Current Population - 20,486	
Recommended Firefighters per National Average [1.71 per 1000]	36
Recommended Budget by National Average Per Capita [\$147.86]	\$3,029,060
Recommended Budget by National Average Per Firefighter [\$65,934]	\$2,373,634
<b>Average Recommended Personnel Budget</b>	<b>\$2,701,347</b>

<b>Total Recommended Human Resources Budget by National Averages (Inside and Outside Hutto City Limits)</b>	
Current Population - 39,000	
Recommended Firefighters per National Average [1.71 per 1000]	68
Recommended Budget by National Average Per Capita [\$147.86]	\$5,766,540
Recommended Budget by National Average Per Firefighter [\$65,934]	\$4,483,512
<b>Average Recommended Personnel Budget</b>	<b>\$5,125,026</b>

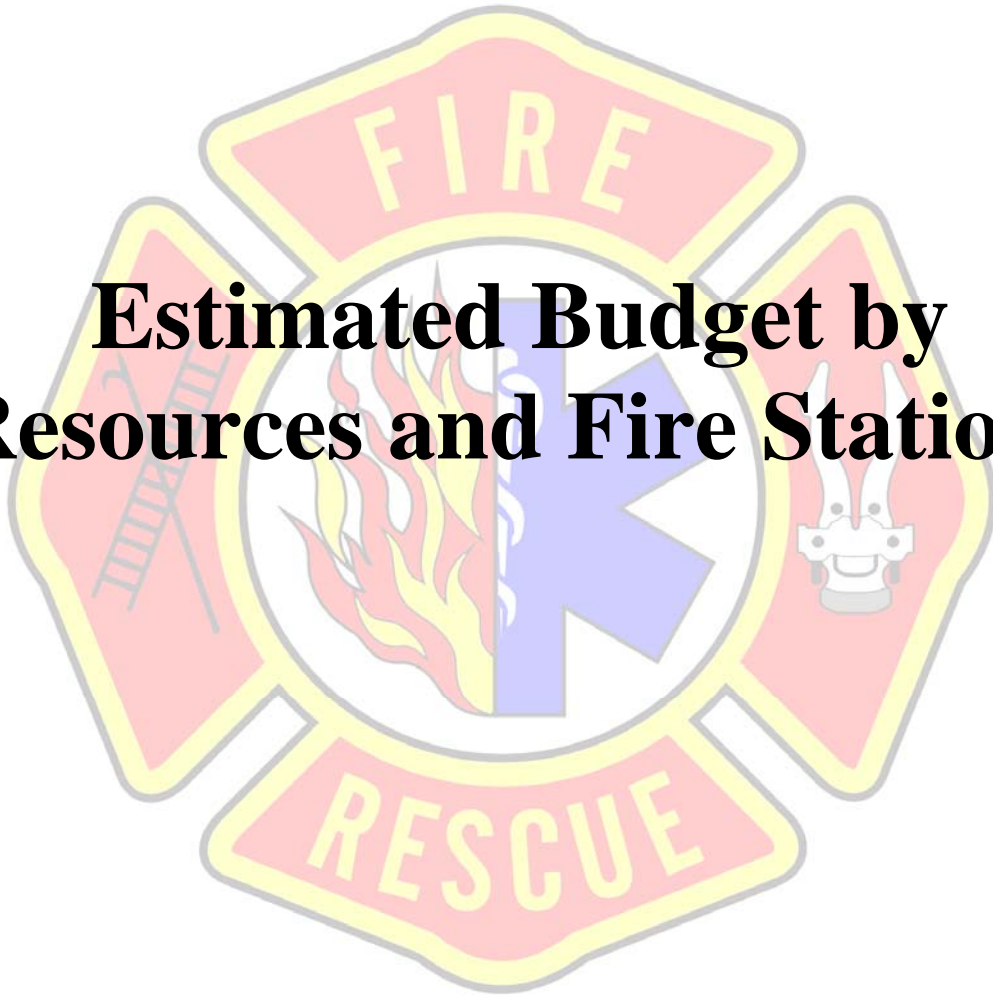
Current Per Capita Budget

National Average: \$147.86

WCESD #3: \$45.16

\* International City/County Management Association "The Municipal Year Book - 2011"

# **Estimated Budget by Resources and Fire Stations**





# **HUTTO FIRE RESCUE**

## **Estimated Budget**

### ***One (1) Fire Station with Full-Time Staffing***

**Personnel:** \$2,367,684 / yr. [see Exhibit 1]

**Apparatus:** \$0 (Fire Station #1)

**Equipment:** \$0 (Fire Station #1)

**Faculty:** \$0 (Fire Station #1) [Construction]

**Utilities:** \$34,500 / yr. (Fire Station #1)

#### **Fire Station #1 Apparatus**

Engine 1

Engine 2

**EXHIBIT 1**  
**HUTTO FIRE RESCUE**

**One (1) Fire Station Minimum Staffing**

---

<b>Box 1</b>	<b>Total Hours Per Year</b>	
	Total Hours in a Year	365 days X 24 hours per day = <b>8,760</b> hours per year

---

<b>Box2</b>	<b>Total Firefighters Hours Worked Per Year</b>	
	Firefighters work (see Attachment 1)	<b>3,003</b> on duty hours
	Off Duty Suppression Hours (see Attachment 2)	minus <b>262.11</b> off duty hours
	Equals	<b>2,740.89</b> hours per firefighter

---

<b>Box 3</b>	<b>Calculation For Personnel Factor For Staffing</b>	
	Total Hours Per Year	<b>8,760.00</b> hours per year
	Total Firefighters Hours Worked Per Year	divide <b>2,740.89</b> hours per firefighter
	Equals	<b>3.20</b> personnel factor

---

<b>Box 4</b>	<b>Proposed Fire Department Staffing</b>			
	2 Engine	4 Firefighters	<b>3.20</b> personnel factor	<b>25.57</b> Suppression Personnel
			Rounded Up	<b>26.00</b> Suppression Personnel

---

<b>Box 5</b>	<b>Current Fire Department Staffing</b>			
	<i>Day Personnel</i>		<i>Suppression Personnel</i>	Total Staffing
	Chief	1	Firefighter	9
	<b>Total</b>	<b>1</b>	<b>Total</b>	<b>9</b>
				Day 1
				Suppression 9
				<b>10</b>

---

<b>Box 6</b>	<b>Fire Department Staffing Change</b>			
	<i>Day Personnel</i>		<i>Suppression Personnel</i>	<b>New Total Staffing</b> (3-Shifts x 1-stations)
	Chief	1	Lieutenant	3
	Assist Chief	1	Firefighter	23
	<b>Total</b>	<b>2</b>	<b>Total</b>	<b>26</b>
				Day 2
				Suppression 26
				<b>28</b>

---

<b>Box 7</b>	<b>Estimated Cost for Additional Staffing</b>				
		New Total Staffing	28	\$47,628.00 Av. Base	<b>Additional Personnel Cost</b>
		<u>Current Total Staffing</u>	<u>10</u>	<u>1.4</u> w/benefit	
		Difference	<b>18</b>	X <b>\$66,679.20</b>	<b>= \$1,200,225.60</b>

---

<b>Box 8</b>	<b>Estimated Cost for New Total Staffing</b>			
		Current Staffing Costs		\$1,167,459.00
		<u>Estimated Additional Staffing Costs</u>		<u>\$1,200,225.60</u>
		<b>Total Staffing</b>		<b>\$2,367,684.60</b>

**ESTIMATED GRAND TOTAL = \$2,367,684 / YR.**

# **HUTTO FIRE RESCUE**

## **Estimated Budget**

### ***Two (2) Fire Station with Full-Time Staffing***

<b>Personnel:</b>	\$2,834,435 / yr.	[see Exhibit 2]
<b>Apparatus:</b>	\$0	(Fire Station #1)
	\$772,500	(Fire Station #2) [See Attachment 3]
<b>Equipment:</b>	\$0	(Fire Station #1)
	\$500,000	(Fire Station #2)
<b>Faculty:</b>	\$0	(Fire Station #1) [Construction]
	\$3.5 M - \$8.5 M	(Fire Station #2) [Construction]
<b>Utilities:</b>	\$34,500 / yr.	(Fire Station #1)
	\$34,500 / yr.	(Fire Station #2)

#### **Fire Station #1 Apparatus**

Engine 1

#### **Fire Station #2 Apparatus**

Engine 2

Ladder 2

## EXHIBIT 2 HUTTO FIRE RESCUE

### Two (2) Fire Station Minimum Staffing

<b>Box 1</b>	<b>Total Hours Per Year</b>	
	Total Hours in a Year	365 days X 24 hours per day = <b>8,760</b> hours per year

<b>Box 2</b>	<b>Total Firefighters Hours Worked Per Year</b>	
	Firefighters work (see Attachment 1)	<b>3,003.00</b> on duty hours
	Off Duty Suppression Hours (see Attachment 2)	minus 262.11 off duty hours
	Equals	<b>2,740.89</b> hours per firefighter

<b>Box 3</b>	<b>Calculation For Personnel Factor For Staffing</b>	
	Total Hours Per Year	<b>8,760.00</b> hours per year
	Total Firefighters Hours Worked Per Year	divide <b>2,740.89</b> hours per firefighter
	Equals	<b>3.20</b> personnel factor

<b>Box 4</b>	<b>Proposed Fire Department Staffing</b>			
	2 Engine	4 Firefighters	<b>3.20</b> personnel factor	<b>25.57</b> Suppression personnel
	1 Ladder	4 Firefighters	<b>3.20</b> personnel factor	<b>12.78</b> Suppression personnel
				<b>38.35</b> Suppression personnel
			Rounded Up	<b>39.00</b> Suppression personnel

<b>Box 5</b>	<b>Current Fire Department Staffing</b>			
	<i>Day Personnel</i>	<i>Suppression Personnel</i>		Total Staffing
	Chief 1	Firefighter 9		
	<b>Total 1</b>	<b>Total 9</b>		
				Day 1
				Suppression 9
				<b>10</b>

<b>Box 6</b>	<b>Fire Department Staffing Change</b>			
	<i>Day Personnel</i>	<i>Suppression Personnel</i>		<b>New Total Staffing</b> (3-Shifts x 2-stations)
	Chief 1	Lieutenant 6		
	Assist Chief 1	Firefighter 33		
	<b>Total 2</b>	<b>Total 39</b>		
				Day 2
				Suppression 33
				<b>Total 35</b>

<b>Box 7</b>	<b>Estimated Cost for Additional Staffing</b>			
	New Total Staffing	35	\$47,628.00 Av. Base	<b>Additional Personnel Cost</b>
	<u>Current Total Staffing</u>	<u>10</u>	<u>1.4</u> w/benefit	
	Difference	<b>25</b>	X <b>\$66,679.20</b>	<b>= \$1,666,980.00</b>

<b>Box 8</b>	<b>Estimated Cost for New Total Staffing</b>			
	Current Staffing Costs			\$1,167,459.00
	<u>Estimated Additional Staffing Costs</u>			<u>\$1,666,980.00</u>
	<b>Total Staffing</b>			<b>\$2,834,439.00</b>

**ESTIMATED GRAND TOTAL = \$2,834,439 / YR.**

# HUTTO FIRE RESCUE

## Estimated Budget

### *Three (3) Fire Stations with Full-Time Staffing*

<b>Personnel:</b>	\$5,168,211 / yr.	[see Exhibit 3]
<b>Apparatus:</b>	\$0	(Fire Station #1)
	\$772,500	(Fire Station #2) [See Attachment 3]
	\$636,839	(Fire Station #3) [See Attachment 3]
<b>Equipment:</b>	\$0	(Fire Station #1)
	\$500,000	(Fire Station #2)
	\$500,000	(Fire Station #3)
<b>Faculty:</b>	\$0.00	(Fire Station #1) [Construction]
	\$3.5 M - \$8.5 M	(Fire Station #2) [Construction]
	\$3.5 M - \$8.5 M	(Fire Station #3) [Construction]
<b>Utilities x 1:</b>	\$34,500 / yr.	(Fire Station #1)
	\$34,500 / yr.	(Fire Station #2)
	\$34,500 / yr.	(Fire Station #3)

#### Fire Station #1 Apparatus

Engine 1

#### Fire Station #2 Apparatus

Engine 2

Ladder 2

#### Fire Station #3 Apparatus

Engine 3

Rescue 3

## EXHIBIT 3 HUTTO FIRE RESCUE

### Three (3) Fire Station Minimum Staffing

<b>Box 1</b>	<b>Total Hours Per Year</b>		
	Total Hours in a Year	365 days X 24 hours per day =	<b>8,760</b> hours per year

<b>Box 2</b>	<b>Total Firefighters Hours Worked Per Year</b>		
	Firefighters work (see Attachment 1)		<b>3003</b> on duty hours
	Off Duty Suppression Hours (see Attachment 2)	minus	<u>262.11</u> off duty hours
	Equals		<b>2740.89</b> hours per firefighter

<b>Box 3</b>	<b>Calculation For Personnel Factor For Staffing</b>		
	Total Hours Per Year		<b>8760</b> hours per year
	Total Firefighters Hours Worked Per Year	divide	<u>2740.89</u> hours per firefighter
	Equals		<b>3.20</b> personnel factor

<b>Box 4</b>	<b>Proposed Fire Department Staffing</b>			
	3 Engine	4 Firefighters	<b>3.20</b> personnel factor	<b>38.35</b> Suppression personnel
	1 Ladder	4 Firefighters	<b>3.20</b> personnel factor	<b>12.78</b> Suppression personnel
	1 Rescue	4 Firefighters	<b>3.20</b> personnel factor	<b>12.78</b> Suppression personnel
	1 Command	1 Chief	<b>3.20</b> personnel factor	<u>3.20</u> Suppression personnel
				<b>67.12</b> Suppression personnel
			Rounded Up	<b>68.00</b> Suppression personnel

<b>Box 5</b>	<b>Current Fire Department Staffing</b>			
	<i>Day Personnel</i>		<i>Suppression Personnel</i>	<i>Total Staffing</i>
	Chief	1	Lieutenant	3
			Firefighter	6
	<b>Total</b>	<b>1</b>	<b>Total</b>	<b>9</b>
				Day
				Suppression
				<b>10</b>

<b>Box 6</b>	<b>Fire Department Staffing Change</b>			
	<i>Day Personnel</i>		<i>Suppression Personnel</i>	<b>New Total Staffing</b> (3-Shifts x 3-stations)
	Chief	1	Battalion Chief	3
	Assist Chief	1	Lieutenant	9
			Firefighter	56
	<b>Total</b>	<b>2</b>	<b>Total</b>	<b>68</b>
				Day
				Suppression
				<b>70</b>

<b>Box 7</b>	<b>Estimated Cost for Additional Staffing</b>				
		New Total Staffing	70	\$47,628.00 Av. Base	<b>Additional Personnel Cost</b>
		<u>Current Total Staffing</u>	<u>10</u>	<u>1.4</u> w/benefit	
		Difference	<b>60</b>	X <b>\$66,679.20</b> =	<b>\$4,000,752.00</b>

<b>Box 8</b>	<b>Estimated Cost for New Total Staffing</b>			
		Current Staffing Costs		\$1,167,459.00
		<u>Estimated Additional Staffing Costs</u>		<u>\$4,000,752.00</u>
		<b>Total Staffing</b>		<b>\$5,168,211.00</b>

**ESTIMATED GRAND TOTAL = \$5,168,211 / YR.**

# HUTTO FIRE RESCUE

## Estimated Budget

### *Four (4) Fire Stations with Full-Time Staffing*

<b>Personnel:</b>	\$5,968,361 / yr.	[see Exhibit 4]
<b>Apparatus:</b>	\$0	(Fire Station #1)
	\$772,500	(Fire Station #2) [See Attachment 3]
	\$636,839	(Fire Station #3) [See Attachment 3]
	\$502,939	(Fire Station #4) [See Attachment 3]
<b>Equipment:</b>	\$0	(Fire Station #1)
	\$500,000	(Fire Station #2)
	\$500,000	(Fire Station #3)
	\$500,000	(Fire Station #4)
<b>Faculty:</b>	\$0.00	(Fire Station #1) [Construction]
	\$3.5 M - \$8.5 M	(Fire Station #2) [Construction]
	\$3.5 M - \$8.5 M	(Fire Station #3) [Construction]
	\$3.5 M - \$8.5 M	(Fire Station #4) [Construction]
<b>Utilities x 1:</b>	\$34,500 / yr.	(Fire Station #1)
	\$34,500 / yr.	(Fire Station #2)
	\$34,500 / yr.	(Fire Station #3)
	\$34,500 / yr.	(Fire Station #4)

#### Fire Station #1 Apparatus

Engine 1

#### Fire Station #2 Apparatus

Engine 2

Ladder 2

#### Fire Station #3 Apparatus

Engine 3

Rescue 3

#### Fire Station #4 Apparatus

Engine 4

# EXHIBIT 4 HUTTO FIRE RESCUE

## Four (4) Fire Station Minimum Staffing

<b>Box 1</b>	<b>Total Hours Per Year</b>		
	Total Hours in a Year	365 days X 24 hours per day =	<b>8,760</b> hours per year

<b>Box 2</b>	<b>Total Firefighters Hours Worked Per Year</b>		
	Firefighters work (see Attachment 1)		<b>3003</b> on duty hours
	Off Duty Suppression Hours (see Attachment 2)	minus	<u>262.11</u> off duty hours
	Equals		<b>2740.89</b> hours per firefighter

<b>Box 3</b>	<b>Calculation For Personnel Factor For Staffing</b>		
	Total Hours Per Year		<b>8760</b> hours per year
	Total Firefighters Hours Worked Per Year	divide	<u>2740.89</u> hours per firefighter
	Equals		<b>3.20</b> personnel factor

<b>Box 4</b>	<b>Proposed Fire Department Staffing</b>		
	4 Engine	4 Firefighters	<b>3.20</b> personnel factor
	1 Ladder	4 Firefighters	<b>3.20</b> personnel factor
	1 Rescue	4 Firefighters	<b>3.20</b> personnel factor
	1 Command	1 Chief	<b>3.20</b> personnel factor
			<b>51.14</b> Suppression personnel
			<b>12.78</b> Suppression personnel
			<b>12.78</b> Suppression personnel
			<u><b>3.20</b></u> Suppression personnel
			<b>79.90</b> Suppression personnel
		Rounded Up	<b>80.00</b> Suppression personnel

<b>Box 5</b>	<b>Current Fire Department Staffing</b>		
	<i>Day Personnel</i>	<i>Suppression Personnel</i>	<i>Total Staffing</i>
	Chief 1	Lieutenant 3 Firefighter 6	
	<b>Total 1</b>	<b>Total 9</b>	
			Day 1 Suppression <u>9</u> <b>10</b>

<b>Box 6</b>	<b>Fire Department Staffing Change</b>		
	<i>Day Personnel</i>	<i>Suppression Personnel</i>	<i>New Total Staffing (3-Shifts x 3-stations)</i>
	Chief 1	Battalion Chief 3	
	Assist Chief 1	Lieutenant 12 Firefighter 65	
	<b>Total 2</b>	<b>Total 80</b>	
			Day 2 Suppression <u>80</u> <b>Total 82</b>

<b>Box 7</b>	<b>Estimated Cost for Additional Staffing</b>		
	New Total Staffing	82	\$47,628.00 Av. Base
	<u>Current Total Staffing</u>	<u>10</u>	<u>1.4</u> w/benefit
	Difference	<b>72</b>	<b>X \$66,679.20 = \$4,800,902.40</b>

<b>Box 8</b>	<b>Estimated Cost for New Total Staffing</b>		
	Current Staffing Costs		\$1,167,459.00
	<u>Estimated Additional Staffing Costs</u>		<u>\$4,800,902.00</u>
	<b>Total Staffing</b>		<b>\$5,968,361.00</b>

**ESTIMATED GRAND TOTAL = \$5,968,361 / YR.**



## ATTACHMENT 1

### PAID STAFF SHIFT FORMULA WITH FLSA OVERTIME

1.  $365 \text{ days / year} \times 24 \text{ hours / day} = 8760 \text{ hours / year}$
2.  $8760 \text{ hours / year} \div 3 \text{ shifts} = 2920 \text{ hours / year / shift}$
3.  $2920 \text{ hours / year / shift} \div 26 \text{ cycles [14 day] / year} = 112.31 \text{ hours / cycle}$
4.  $112.31 \text{ hours / cycle} - 106 \text{ FLSA Hours / cycle} = 6.31 \text{ hours @ } 1 \frac{1}{2} \text{ times}$
5.  $\frac{1}{2} \text{ time} = 3.16 \text{ hours / cycle} \times 26 \text{ cycles / year} = 82.16 \text{ hours / year} = 83 \text{ hours / year}$
6.  $2920 \text{ hours} + 83 \text{ hours} = 3003 \text{ hours / year / shift}$
7. **3003 hours / year / shift**

Average 112 hours / cycle [14 days]; Average 56 hours / 7 days

Regular overtime (non-FLSA) for non regular shift activities

## ATTACHMENT 2

### FY2010-2011 Off Duty Hours

Rank	School	Jury Duty	Injury	Emergency	Holidays	Family	Military	Vacation	Sick	Total
1 LIEUTENANT	0	0	0	0	168	0	0	211.5	24	403.5
2 LIEUTENANT	0	0	0	0	141	0	0	150	116	407
3 LIEUTENANT	0	0	0	0	168	0	0	138	0	306
4 FIREFIGHTER	0	0	0	0	168	0	0	123.5	0	291.5
5 FIREFIGHTER	0	0	0	0	48	0	0	0	0	48
6 FIREFIGHTER	0	0	0	0	168	0	0	144	0	312
7 FIREFIGHTER	0	0	0	0	168	0	0	36	0	204
8 FIREFIGHTER	0	0	0	0	120	0	0	0	72	192
9 FIREFIGHTER*	0	0	0	0	168	0	0	0	27	195
<b>AVERAGE OFF-DUTY HOURS</b>	0.00	0.00	0.00	0.00	146.33	0.00	0.00	89.22	26.56	262.11

\* - Only through June

**ATTACHMENT 3**

**HUTTO FIRE RESCUE  
FIRE APPARATUS REPLACEMENT SCHEDULE**

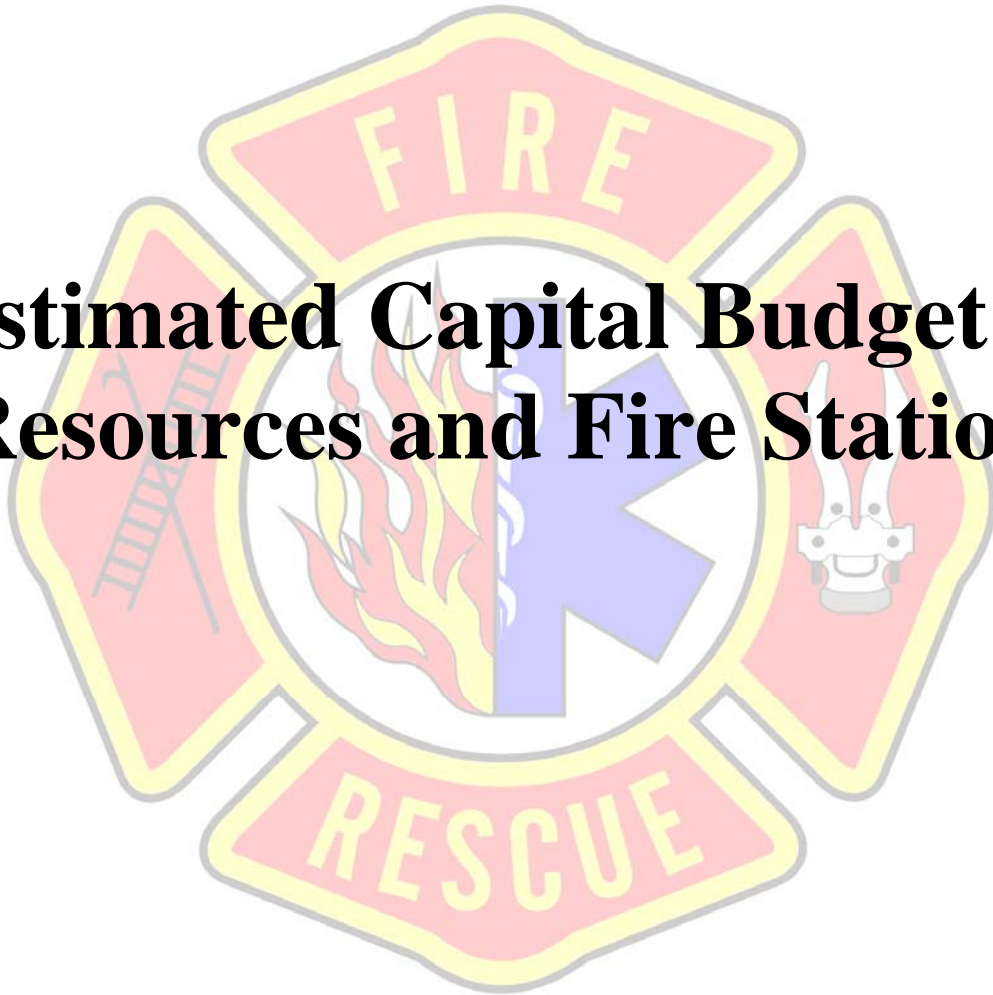
UNIT	YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Engine 1	2007																	\$881,906				
Engine 2	2002												\$696,184									
Tanker 1	2010																				\$330,518	
Brush 1	1999				\$93,974															\$146,409		
Brush 2	1994	\$86,000															\$133,985					
Command 1	2010										\$67,195										\$90,305	
Command 2	2001	\$50,000										\$69,211										\$93,013
Squad 1	2001											\$202,535										
Engine	New							\$566,061														
Ladder	New					\$1,007,937																

Vehicle costs used as baselines are: Engine = \$488,290; Ladder = \$750,000; Tanker = \$183,000; Brush Apparatus = \$86,000; Command Apparatus = \$50,000; Squad Apparatus = \$130,000 (all with a 3% increase annually).

Vehicle replacement times are: Engine = 20 years; Ladder = 20 years; Tanker = 20 years; Brush Apparatus = 15 years; Command Apparatus = 10 years; Squad Apparatus = 20 years

**20-YEAR CAPITAL IMPROVEMENT PLAN**

# **Estimated Capital Budget by Resources and Fire Stations**



**HUTTO FIRE RESCUE  
CAPITAL REPLACEMENT SCHEDULE  
(DOES NOT INCLUDE FIRE APPARATUS)**

ITEM	YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<b>Fire Station</b>	New					\$3,500,000						\$4,057,459										
<b>Bunker Gear (Coat/Pant)</b>	Annual	\$10,300	\$10,609	\$10,927	\$11,255	\$11,592	\$11,940	\$12,298	\$12,667	\$13,047	\$13,439	\$13,886	\$14,303	\$14,732	\$15,174	\$15,629	\$16,098	\$16,581	\$17,078	\$17,590	\$18,118	
<b>SCBA</b>	2007												\$193,187									
<b>Computers</b>	Annual	\$1,133	\$1,166	\$1,202	\$1,238	\$1,275	\$1,313	\$1,352	\$1,435	\$1,478	\$1,522	\$1,568	\$1,615	\$1,663	\$1,713	\$1,765	\$1,817	\$1,872	\$1,928	\$1,986	\$2,046	\$2,107
<b>Pagers</b>	N/A	NOT APPLICABLE																				
<b>LDH</b>	N/A	REPLACED AS NEEDED																				
<b>Radios</b>	2008								\$129,471										\$174,003			
Equipment costs used as baselines are: SCBA [total fleet] = \$124,000; Radios [total fleet] = \$96,341; Bunker Gear = \$10,000 [8 sets per year]; Computers = \$1,100 (all with a 3% increase annually)																						
Equipment replacement times are: SCBA = 15 years; Radios = 10 years; Bunker Gear (Coat/Pant) = 10 years (8 sets per year); Computers = 5 years (1 per year)																						

**20-YEAR CAPITAL IMPROVEMENT PLAN**

**HUTTO FIRE RESCUE  
CAPITAL REPLACEMENT SCHEDULE  
(DOES NOT INCLUDE FIRE APPARATUS)**

Capital Item	Year Acquired	Cost	Replace FY	Replace Goal (Years)	Years Service @ Replace Time	Projected Cost	Spec. Date	Bid Date	Order Date	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY	FY
										11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Fire Station #2	New	\$3,500,000	2015	50	N/A	\$3,500,000	7/1/2014	10/1/2014	1/2/2015																				
Fire Station #3	New	\$3,500,000	2021	50	N/A	\$4,057,459	7/1/2020	10/1/2020	1/2/2021																				
Radios	2008	\$96,341	2018*	10	10	\$129,471*	7/1/2017*	10/1/2017*	1/2/2018*																				
SCBA	2007	\$124,000	2022	15	15	\$193,187	7/1/2021	10/1/2021	1/2/2022																				
Bunker Gear	Annual	\$10,000	Annual*	10	10	\$10,300*	7/1/2011*	8/1/2011*	11/1/2011*																				
Computers	Annual	\$1,100	Annual*	5	5	\$1,133*	7/1/2011*	8/1/2011*	11/1/2011*																				
Pagers	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																				
LDH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																				

Equipment costs used as baselines are: SCBA [total fleet] = \$124,000; Radios [total fleet] = \$96,341; Bunker Gear = \$10,000 [8 sets per year]; Computers = \$1,100 (all with a 3% increase annually)

Equipment replacement times are: SCBA = 15 years; Radios = 10 years; Bunker Gear (Coat/Pant) = 10 years (8 sets per year); Computers = 5 years (1 per year)

\* = Multiple year replacements. Month and date remain the same. Only the year changes.

**20-YEAR CAPITAL IMPROVEMENT PLAN**

## HUTTO FIRE RESCUE FIRE APPARATUS REPLACEMENT SCHEDULE

UNIT	YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Engine 1	2007																	\$881,906				
Engine 2	2002												\$696,184									
Tanker 1	2010																				\$330,518	
Brush 1	1999				\$93,974															\$146,409		
Brush 2	1994	\$86,000															\$133,985					
Command 1	2010										\$67,195										\$90,305	
Command 2	2001	\$50,000										\$69,211										\$93,013
Squad 1	2001											\$202,535										
Engine	New							\$566,061														
Ladder	New					\$1,007,937																

Vehicle costs used as baselines are: Engine = \$488,290; Ladder = \$750,000; Tanker = \$183,000; Brush Apparatus = \$86,000; Command Apparatus = \$50,000; Squad Apparatus = \$130,000 (all with a 3% increase annually).

Vehicle replacement times are: Engine = 20 years; Ladder = 20 years; Tanker = 20 years; Brush Apparatus = 15 years; Command Apparatus = 10 years; Squad Apparatus = 20 years

### 20-YEAR CAPITAL IMPROVEMENT PLAN

## HUTTO FIRE RESCUE FIRE APPARATUS REPLACEMENT SCHEDULE

Apparatus	Year Acquired	Cost	Replace FY	Replace Goal (Years)	Years Service @ Replace Time	Projected Cost	Spec. Date	Bid Date	Order Date	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31	FY 31/32
Brush 2	1994	\$86,000	2011*	15	17	\$86,000*	7/1/2011*	10/1/2011*	11/1/2011*																					
Command 2	2001	\$50,000	2011*	10	10	\$50,000*	7/1/2011*	10/1/2011*	11/1/2011*																					
Brush 1	1999	\$86,000	2014*	15	15	\$93,974*	7/1/2013*	10/1/2013*	1/1/2014*																					
Ladder	New	\$750,000	2015	20	N/A	\$1,007,937	7/1/2013	10/1/2013	1/2/2014																					
Engine	New	\$488,290	2017	20	N/A	\$566,061	7/2/2016	10/1/2016	1/2/2017																					
Command 1	2010	\$50,000	2020*	10	10	\$67,195*	7/1/2019*	10/1/2019*	1/2/2020*																					
Squad 1	2001	\$50,000	2021	20	20	\$202,535	7/1/2020	10/1/2020	1/2/2021																					
Engine 2	2002	\$488,290	2022	20	20	\$696,184	7/1/2021	10/1/2021	1/2/2022																					
Engine 1	2007	\$488,290	2027	20	20	\$881,906	7/1/2026	10/1/2026	1/2/2027																					
Tanker 1	2010	\$183,000	2030	20	20	\$330,528	7/1/2029	10/1/2029	1/2/2030																					

Vehicle costs used as baselines are: Engine = \$488,290; Ladder = \$750,000; Tanker = \$183,000; Brush Apparatus = \$86,000; Command Apparatus = \$50,000; Squad Apparatus = \$130,000 (all with a 3% increase annually).

Vehicle replacement times are: Engine = 20 years; Ladder = 20 years; Tanker = 20 years; Brush Apparatus = 15 years; Command Apparatus = 10 years; Squad Apparatus = 20 years

\* = Multiple year replacements. Month and date remain the same. Only the year changes.

## 20-YEAR CAPITAL IMPROVEMENT PLAN