

Insurance Rates

Fire Department Budget Reduction Impact on Insurance Rates

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## CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: \_\_\_\_\_

## Abstract

The problem was ACFR did not know the financial impact closing a fire station had to its citizens. The purpose was to identify the financial impact to residential insurance rates if a fire engine was removed from service. The descriptive research method was utilized to answer research questions to determine the effect on insurance rates, how fire station location impacted ISO ratings, and how insurance underwriters used ISO protection class ratings. A literature review, personal interviews, and a survey were utilized. The results supported the hypothesis that insurance premiums would increase if a fire station were closed due to budget reductions. Recommendations included identifying an alternate funding source for the ACFR and educating the public on the impact closing a fire station had on their insurance premiums. ACFR should attempt to pass a fire assessment fee again in the future to secure a reliable funding source.

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## INTRODUCTION

The Alachua County Fire Rescue (ACFR) Department has been providing fire services since 1985. Since that time, ACFR has relied on the municipal service taxing unit (MSTU) method for collecting necessary funds to provide fire suppression services to the unincorporated area of Alachua County. The MSTU funding source is derived from property taxes that fluctuate with property values on an annual basis as property values change. In January 2008 the Florida save-our-homes law changed allowing an additional \$25,000, bringing the total non-taxable exemption to \$50,000 and portability from the existing home to a new home (Ballotpedia, n.d.). The impact of that law change continued to impact ACFR as of the date of this research. The result was less MSTU taxes because less of the property value was calculated into the taxes to fund local government.

A result of less MSTU tax generated was the reduction in the ACFR operating budget along with the entire Alachua County government budget. The problem is the ACFR does not know the financial impact to its citizens as it relates to insurance rates if a fire engine were removed from service as a result of budget reductions. This information could prove to be valuable for policy makers as they consider how to best represent their constituents. It could also be valuable to the department director when faced with needing to articulate the budgetary

needs of the department. The purpose is to identify the financial impact to the affected portion of the community as a result of a fire engine being removed from service. This research looked into the financial impact specifically related to homeowner's insurance premiums. The descriptive research method was used to determine if there would be a measurable increase in insurance premiums.

The research questions used to discover the impact to homeowner's insurance premiums were:

1. How does fire station location impact ISO ratings?
2. How do insurance underwriters use ISO protection class ratings?
3. What is the impact to insurance rates in an affected area if a fire station were closed?

The compiled data will be used to make recommendations to policy makers to give them enough information to make informed decisions pertaining to the ACFR budget.

#### BACKGROUND AND SIGNIFICANCE

Alachua County is a diverse area located in North Central Florida almost midway between the Gulf of Mexico and the Atlantic Ocean. The county encompasses approximately 965 square miles with urban and rural regions. Eight different municipalities exist within the county. Each municipality contracts with the Alachua County Fire Rescue (ACFR) to provide

or receive aid through automatic aid agreements for fire and rescue services.

ACFR began as a private ambulance company that provided emergency medical service (EMS) to the citizens of Alachua County. The City of Gainesville, the largest municipality within Alachua County, provided fire and rescue service to the county prior to 1985. ACFR provides several services to the citizens and visitors of Alachua County including: fire prevention, fire suppression and EMS, fire investigations, enhanced 911, and emergency management. ACFR employs approximately 250 personnel in operations and administration.

ACFR was going through the process of changing from an MSTU funding source to a fire assessment fee source in 2009. The need for the new funding source was based on the continual reduction in available MSTU funds as a result of state legislative action to reduce taxes. A fire assessment fee based on size and use of a structure would have provided a stable funding source for ACFR. As a part of this process, there were community meetings and several commission meetings. The final Board of County Commissioners meeting was held in June 2010. At that meeting there were approximately 62 citizens registered to make citizen comments, 60 of which spoke in opposition of the fire assessment fee. Almost all of the opposition comments centered on complaints that their taxes would be increasing anywhere from

\$200 to \$400 annually. Closing a fire station was discussed during informal budget planning meetings within ACFR as a result of the decreased budget. The two stations that were statistically determined to be most expendable were Fire Station 17 in Jonesville and Fire Station 25 in Grove Park. ACFR did not have any information to contend that there would be any negative financial impact to the citizen if a fire station were closed as a result in the budget reduction process. The total department adopted budget has been reduced for the past two budget cycles by a total of \$800,936 (Alachua, 2011). The 2008-2009 budget did not decrease because the budget process is approved 12 months in advance. Additionally, two municipalities decided to contract with ACFR for services instead of providing the services themselves. This resulted in an increase in the ACFR operating budget however the funding source was by contract with the two municipalities.

Table 1:

Total adopted ACDPS budget		
Fiscal Year	Budget	Change
2007-2008	\$25,111,888	
2008-2009	\$25,395,869	+\$283,981
2009-2010	\$24,931,242	-\$464,627
2010-2011	\$24,594,933	-\$336,309

If implemented, the fire assessment fee would have generated approximately \$7.4 million that would have directly offset the MSTU tax by the same amount because that is the

amount of the overall ACFR budget funded by the MSTU tax. This would have maintained the budget at the FY2009/2010 level instead of a reduction of \$336,309 (Alachua, 2011). This research paper relates to the Executive Officer Program, Executive Leadership class because developing budget strategies is an executive level function (United, 2007). This research is related to the United States Fire Administration objectives because with this information ACFR would have a better chance of successfully implementing a fire assessment fee or another similar secure and stable funding source in the future. ACFR had the potential of removing a fire engine from service during the FY10-11 budget cycle if the operating budget continued to be reduced. Last year the ACFR public education program was eliminated as a result of the budget reduction. The public education program would have remained whole if the fire assessment fee had passed. The ACFR Office of Public Education saw over 20,000 people ranging from five years to over 90 years of age during FY2009/2010 which met the USFA operational objectives to reduce the loss of life in the 14 years and younger and the 65 years and older groups through education outreach efforts.

#### LITERATURE REVIEW

The Insurance Service Office (ISO) created the Fire Suppression Rating Schedule (FSRS), which is a manual with

criteria used to review the firefighting capabilities of communities. The FSRS measures major elements of a communities fire suppression system and assigns a numerical grade or rating called the Public Protection Classification (PPC). The PPC is assigned as a numerical value between one and ten with one being the best available fire protection (ISO, n.d.). The PPC is then used by insurance underwriters to calculate insurance premiums based on calculated risk.

The FSRS is comprised of ten percent for fire alarms, fifty percent for the fire department, and forty percent for the community water supply. The PPC considers the distribution of companies for built-upon areas of a city. The best ratings should have an engine company within 1-1/2 miles and a ladder company within 2-1/2 miles of the built upon area of the city. The mileage is calculated as road miles or as the vehicle would drive (ISO, 2010). These articles gave the author insight into how the ISO PC is determined. In many communities ISO assigns split classifications such as 5/9. All other things being constant, a PPC of 5 has a fire station within five road miles of the property and a fire hydrant within 1,000 feet of the property. A PPC of 9 applies to properties within five road miles of a fire station, but beyond 1,000 feet of a fire hydrant. A property will generally receive a PPC of 10 if it is beyond five road miles from a fire station (Granito, 2003).

Granito (2003) provided a reliable table of reference depicting the approximate change in insurance premiums as a percentage for the author to reference.

Wilmoth (2007) writes about the notion that the ISO PPC is obsolete and outdated, but the fact remains that many insurers still use the PPC. A fire chief can still go to policy makers and make valid arguments about adding a fire station or adding equipment that will have a direct monetary impact on the community by providing a better PPC grade or maintaining a PPC grade during times of growth. One limitation to the PPC system is that it does not account for hazards or responses other than fires (Wilmoth, 2007). The point Wilmoth made in the article was that there are many different ways the ISO PPC and effects can be presented and used by local government.

Over the years beginning with significant technology changes in 1980 and subsequent years there have been changes in the FSRs such as a credit is now given to properties that are within five road miles of a fire station, but are below the minimum water supply requirements (Granito 2003). The PPC grading schedule looks at those features that have a significant effect on minimizing fire damage and offers credit for them, not a debt for features that are lacking.

Three articles mentioned the top factors impacting insurance rates that include geography or available fire

protection, meaning how close the property is from the nearest fire station. The further the home is from a fire station, the higher the rate (Longcore, n.d.). Construction is another major factor because it heavily influences the extent of damage from fire. A wood frame home is much more likely to sustain significant structural damage than a concrete block home (Free, 2008). Other lesser factors influencing insurance rates include age of the home, amount of coverage, deductible, other risk factors, and credit score if the insured (Insweb, n.d.). All of these articles pointed to a few factors that affected the insurance premium calculation on of which being a major factor was proximity of the property to a fire station.

Orman (2006) provided insight into how insurance companies use ISO protection class ratings. While the trend used to be that most insurance companies used ISO to determine cost of insurance, now many use their own similar method. One more common method uses the zip code system that determines a premium based on the history of loss in that area. He found that all insurers required a property to be within five miles of a fire station.

Granito (2003) stated that the FSRS was not intended for property loss prevention or life safety purposes, rather simply to assist in the calculation of fire insurance rates. This proves that while the PPC is intended for calculating insurance

premiums, it can also be used by fire chief's to justify funding for certain resources. This is the opposite of a January 2001 survey referenced on the same page stating 92% of the fire chief's who responded reported that the PPC was used to help save lives and property. Additionally 67% responded the PPC helped save money on fire insurance and 61% responded that it helped with planning for budgeting for changes in the community fire protection. Boraks (2010) also mentioned that the fire chief used the PPC as something to strive for in order to help citizens save money on insurance rates.

Moreland (2010) commented that insurance rates would increase considerably in Washington County, KY if they were to dissolve the Washington County Fire Protection Association (WCFPA) because the WCFPA provided fire suppression service outside a few municipalities in the county. He added that in many cases they would go from a PPC 6 to a PPC 10 causing an increase of up to 50%. Granito (2003), in the rate table, claims commercial insurance rates with this significant change would increase by 34%, either way a significant amount.

Granito (2003) also states that for a PPC of 1-8 the property must be within five road miles of a fire station and be within 1,000 feet of a recognized water delivery system. A PPC 9, considered semi-protected, is limited to properties being within five miles of a fire station, but is not within 1,000

feet of a recognized water delivery system. A PPC 10, considered unprotected, is determined when the property is greater than five miles from a fire station and is beyond 1,000 feet from a recognized water supply. The insurance rates are very high in PPC 10 when it is even available.

Creswell (2010) reported that the City of North Fort Myers was closing a fire station in a broad area of the city. The fire district had an automatic aid agreement with neighboring Bayshore Fire District and because of the changes the insurance rating was reevaluated. Creswell wrote, "The agreement helped reduce the insurance rating and will save taxpayers money on their insurance premiums." The author was not able to determine if the savings were due to improved service by the Bayshore Fire District or if the rating was subsequently reduced from a PPC 10 cause by the closing of the North Fort Myers fire station.

Berger (2007) reported that in rural settings the PPC ratings were "heavily influenced" by the distance to a fire station and a fire hydrant. Further she described that while they were researching how to improve the PPC rating of the county and established mutual aid agreements with departments outside of their county to protect the outer limits, they were able to attain improved PPC rating.

The Granito (2003) Table 7.2.2 estimated percentage reductions for commercial property insurance from a PPC 10 to 9

of fifteen percent, 9 to 8 of 9 percent and 8 to 4 of five percent each single step.

#### PROCEDURES

One of the limitations for this research paper was not enough surveys were returned; six were returned out of twelve responses. Another limitation was that researcher did not obtain the original PPC rating for the homes prior to the change in the five-mile status, only the original premium and adjusted premium. The question asked was what factor had the greatest impact on insurance premiums, but this is a very complex issue with many variables having significant impact. I should have included construction type as another factor in the table. I included age of home and square footage in an attempt to make sure I was comparing fairly similar homes, but construction type should have been included because it also has an impact on premiums.

The author conducted a Google search for key phrases "closing fire station impact on ISO ratings", "insurance premiums" and "impact of taking a fire engine out of service" yielded the most results. The author searched the Learning Resource Center (LRC) at the National Fire Academy for references pertaining to this applied research paper. A search of the LRC for the key words and phrases insurance, premiums, ISO, PPC, fire insurance and community rating system was

conducted. The author began with a search for ISO ratings; then chose other key words based on key words identified in the most relevant references listed. The references obtained were reviewed for relevance to this research paper.

Interviews were conducted in March 2010 with Glen McClendon, AAA South Insurance, John Darr, Darr-Shackow Insurance, because they were managers for local insurance brokers. A telephone interview was also conducted with Tom Burgette who currently works with Gainesville (FL) Fire Rescue because he previously worked as an insurance broker with Nationwide Insurance. They were asked if and how their companies used ISO PPC ratings and which factors were more significant to their premiums. They were also asked if their companies considered water tenders for water supply in areas not serviced by fire hydrants.

On December 14, 2011 a telephone interview was conducted with Fred Brower, ISO Manager, Community Infrastructure Information. Mr. Brower was interviewed as an expert in the area of PPC grading in a video watched by the author. Mr. Brower was asked about the impact of having not having a fire station within fire road miles of an insured property in terms of the PPC grading.

A questionnaire was created and a survey was conducted with the primary purpose of identifying the annual insurance premium

difference between a home within five road miles of a fire station and a home outside of five road miles from a fire station. An additional five questions were asked including: do you use the ISO property protection rating system, where does the ISO PPC fit into your insurance premium calculation, what are the factors in your insurance premium calculation, what factors impact the residential premium rate the greatest, and what would be the impact to a policy if the closest fire station were closed and the home was no longer within five miles of a fire station. The sixth question was to provide the author with five examples of current policies and reflect the change if they were no longer within five miles of a fire station. The data points for question six included; year the home was built, square footage, current premium for homes within five miles of a fire station, and adjusted premium if the distance to a fire station factor was changed to exceed five miles. The survey was developed based on telephone interviews.

A total of eleven local insurance companies were contacted with six responding completing the survey. This accounts for a 55% return rate, which did not achieve the 95% confidence level. This author does not feel there are any ambiguous concepts needing to be defined.

The author utilized the ACFR Office of Enhanced 911 for assistance with geographic information system (GIS) data to

create a map of two potential areas of impact. ACFR's Jonesville and Grove Park fire stations had been mentioned for possible closing. The GIS data would provide specific numbers and locations of impacted properties.

#### RESULTS

John Darr, Tom Burgette, and Glen McClendon were interviewed as part of planning for the research questionnaire. All three said the ISO PPC is used, but also considered are distance to a fire station and water supply capabilities of the community and the fire department. Mr. Darr said he only has the ability to adjust the distance to a fire hydrant variable. Mr. Darr said the only variable his company could change was the distance to a fire hydrant. (Darr, personal communication, March 2011). An interview was conducted with Glen McClendon from AAA South Insurance. He said AAA South used ISO ratings and uses the distance to a fire station according to ISO (G. McClendon, personal communication, March 2011).

An interview was conducted with Gainesville Fire Rescue firefighter Tom Burgette who was recently hired and was formerly and insurance agent for Nationwide Insurance. He stated that commercial insurance rates would have more of an impact when ISO ratings changed as a result of a fire engine being removed from service. He said the ISO rating was used as a multiplier in determining commercial insurance rates. Other factors impacting

insurance rates included distance to a fire hydrant, travel distance to a fire station, and whether the fire department was paid or volunteer (T. Burgette, personal communication, March 2011).

**Research question 1: How does a fire station location impact insurance rate?**

Fred Brower stated that when the insured property is not within five road miles from a fire station the PPC is a ten regardless of whether there is an adequate water supply available (F. Brower, personal communication, December 2011). Granito (2003) states that going from a PPC 5 to a PPC 10 should see an approximate increase of 39% in insurance premiums and going from a PPC 9 to a PPC 10 should see an approximate increase of 15%.

**Research question 2: How does the insurance industry use ISO PPC ratings?**

Mr. Brower said the ISO PPC rating system is a paid service provided by ISO to the insurance industry (F. Brower, personal communication, December 2011). Survey question one resulted in six out of six responses that the insurance companies utilize the ISO PPC system. Survey question two resulted in five out of six responding the ISO PPC was the primary basis for determining the insurance premiums. Survey question 4 resulted in one

response stating the ISO PPC factor carried the most weight in determining their insurance premiums.

**Research question 3: What is the impact to insurance rates in an affected area if a fire station was closed?**

The results of the survey showed that all six respondents said their companies used ISO PPC for determining insurance premiums with five of them stating it was used as the basis for determining insurance rates. The most common factors in determining insurance rates in order are distance to a fire station, distance to a fire hydrant, ISO PPC, age of the structure, and construction type. Other factors listed in the calculation were value of the structure, the county the structure is located, location relative to the coast, wind mitigation, prior insurance premiums, and prior losses. Some respondents listed more than one factor for having the greatest impact. Fire department location was listed four times, fire hydrant location and type of construction were listed three times, age of the structure was listed twice, and once for PPC and location to the coast. All six respondents said there would be a significant increase in insurance premiums, ranging from 30% to 100%, if the closest fire station were more than five road miles from the insured structure. Three stated the possibility of the policy being dropped or not having coverage available for the structure.

Table 2 shows the results of survey question 6. The control factors considered were year the structure was built indicating the age, square footage indicating relative size. Also provided by the respondents were the current premiums on actual policies where the structures are located within five road miles of the closest fire station. Then they provided the adjusted premium when the factor indicating distance to the closest fire station was changed to reflect greater than five road miles to the structure.

Table 2:

Item	Year Built	Square Feet	Initial Premium (\$)	Adjusted Premium (\$)	Change (\$)
1	1995	1425	903	1156	253
2	1975	2489	2180	2805	625
3	2009	1900	1300	1775	475
4	1935	1100	981	1258	277
5	2000	2100	1835	2360	525
6	2001	1800	991	1595	604
7	2011	4500	2054	2816	762
8	1989	2335	2253	3618	1365
9	1959	1331	978	1464	486
10	1996	1800	1226	2096	870
11	1854	2739	4001	4995	994
12	2004	1825	2004	2149	145
13	1997	2100	2410	3121	711
14	2008	2800	1168	2105	937
15	1982	1400	1105	1416	311
16	1976	1600	1094	2120	1026
17	1861	3200	1706	2020	314
18	1983	2200	1770	2703	933
19	2000	2000	543	1099	556
20	2010	3000	318	672	354
21	2001	1500	745	980	235
22	2004	2200	910	1275	365
23	2003	1700	880	1100	220
24	2008	2100	790	1210	420
25	2007	1550	650	910	260

The average year built was 1986, average square footage was 2108, average initial premium was \$1391.80, average adjusted premium was \$1952.72, and the average percent change in premiums was an increase of 46.7% or \$560.92.

The GIS map is in Appendix A. The GIS data determined that there were 922 properties with structures in the Grove Park area currently within five road miles from the fire station that would no longer be within five road miles if the fire station were closed. 710 of those properties would see a change in their PPC increase of 24% to 39% because they would likely see an increase of more than one PPC point (Granito, 2003). That would be because they are currently located within five road miles of a fire station and have a fire hydrant within 1,000 feet. There are 1,321 properties with structures in the Jonesville area currently within five road miles of the fire station that would no longer be within five miles if the fire station were closed. 352 of those properties would see a change in their PPC increase of 24% to 39% because they would likely see an increase of more than one PPC point (Granito, 2003). That would be because they are currently located within five road miles of a fire station and have a fire hydrant within 1,000 feet.

#### DISCUSSION

Many times while researching for this paper the author found references to the relationship between proximity to a fire

station, within five road miles, and better insurance premiums. Logically, when a home is located closer to a staffed fire station, the damage resulting from a fire will be less than a home further from a fire station (Free, 2011). The fire department will be able to extinguish a fire sooner as a result of a faster response time. This research topic was chosen because valid research could not be located that presented actual dollar figures depicting a real increased cost in the form of insurance premiums to homeowner's from a fire station closing. The actual number of citizens impacted as shown by the GIS data for two actual fire station response zones was much higher than the author anticipated as well.

While automatic aid agreements could help fill any voids as was the case in the City of North Fort Myers, the areas served by the two fire stations considered by ACFR while having agreements in place would not benefit in the same way (Creswell, 2010).

Granito (2003) provided a table that indicated the percentage increase in commercial property insurance from a PPC 5 to a PPC 10 is 44%. Just changing from a PPC 9 to a PPC 10 would be an increase of 15% on commercial property insurance. In his reporting, Moreland (2010) cites concerns by the policy makers and legal representation regarding insurance rates increasing in the area protected by the Washington County Fire

Protection Association (WCFPA). The reason the WCFPA is in their current situation is because they were trying to pass a fire assessment fee similar to the one voted down in Alachua County that formed the justification for this research paper. This issue while very relevant to Alachua County is certainly not unique to this area.

Berger (2007) was relevant to this research because the two fire stations statistically recommended for closing were both in rural areas. Fire stations in rural areas tend to be spaced farther apart than those in suburban and urban areas because of density. This makes the impact to insurance rates in these areas more significant when a fire station is closed. In urban areas other fire stations are generally in close enough proximity to overlap and keep the properties within five road miles of a fire station.

It is apparent that insurance rates would increase in these two areas of Alachua County if either fire station were closed. The questionnaire validated the literature review research findings in that the ISO PPC is used in Alachua County by all of the insurance companies who responded. Also providing validation was the fact that the most common factor mentioned that would cause the greatest increase in insurance premiums is distance to a fire station.

Budget problems are not unique to Alachua County; the entire country is experiencing the same at varying levels. As a result of this research ACFR has a new tool to validate the need for a fire assessment fee to stabilize the department budget. The current MSTU funded budget is solely dependent on taxes that are directly related to property values and taxable property values. The fire assessment fee basis is a relative constant which would allow the ACFR executive officers to better and more reliably plan for the future.

The first five survey questions validated that the findings of this research are in agreement with the findings in the literature review. Survey question six that asked for actual insurance premiums and then changed them to reflect the fire station closing validated the hypothesis of this research. Insurance premiums in the affected areas would increase annually at a higher rate than the difference between the current MSTU tax rate and the proposed fire assessment fee rate. The finding that the average annual increase in insurance premiums was \$560.92 will be the most important number in this research. ACFR will have a much better chance of having the fire assessment fee passed in the future.

#### Recommendations

It would be this authors' recommendation that the fire assessment fee funding source be revisited not only because this

research supports it fiscally, it also provides the most reliable funding source for ACFR. With the results of this research, it can no longer be said that the fire assessment fee would cause too great a financial burden to citizens in the areas of the community impacted by proposed fire station closings. ACFR will need to educate the policy makers and citizens on the impact of closing a fire station beyond increased response times and decreased level of service in the impacted areas. The education effort must include the financial impact that includes increased insurance rates that will be higher than the alternate funding source proposition.

Anytime you can move from a funding source that fluctuates with so many variables such as elected official setting tax rates, property values changing with the economy, and legislative tax breaks such as in the homestead exemption case, it is a good thing for the organization. The stability in planning for the future of protecting the community that comes from establishing a stable funding source would make a big difference in the services provided to the community.

If this research were to be duplicated the author would recommend adding construction type to the survey as well as the current PPC. Future research in the area of insurance premiums and the fire service include determining the impact of a fire sprinkler system on the premiums in terms of offsetting the

increased distance to a fire station or inadequate fire suppression water supply. Other future research could also include a comparative research on losses from fire incidents compared to losses from other disasters and their impact in determining homeowner's insurance rates.

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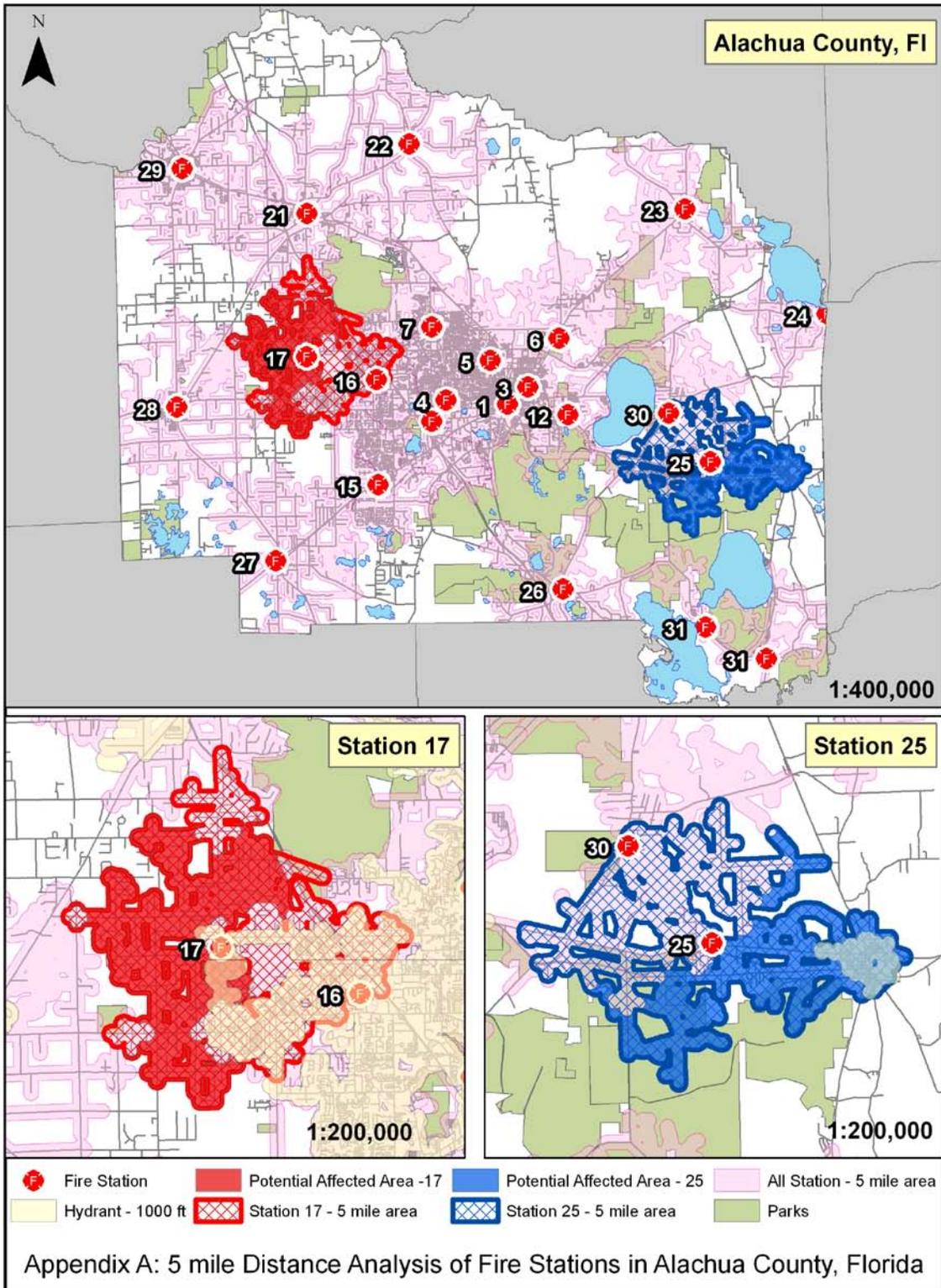
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Appendix A - GIS map of Jonesville (17) and Grove Park (25)



Appendix B - Survey

March 21, 2011

Dear Participant:

This questionnaire is for an original applied research paper as part of the Executive Fire Officer Program at the National Fire Academy. Your participation is greatly appreciated. Please answer the following questions to the best of your ability. Please email or fax your responses to me, contact information provided below.

1. Do you use the ISO Property Protection Rating system?
2. Where does the ISO PPC fit into your insurance premium calculation?
3. What are the factors in your insurance premium calculation?
4. What factors impact the residential premium rate the greatest?
5. What would be the impact to a policy if the closest fire station were closed and the home was no longer within five miles of a fire station?
6. Can you provide five examples of policies of your choosing? I do not need the specifics, only the information below including the approximate change if the home were no longer within five miles of a fire station.

	Year Built	Square Footage	Initial Premium (<5 mi.)	New Premium (>5 mi)
1.				
2.				
3.				
4.				
5.				

Sincerely,  
 Mark V. Smith  
 Branch Director/Fire Marshal  
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