

The Correlation of Fire Department Performance as to Improved Public Protection Classification Ratings

William E. Tomes

Introduction

In the May 2007 issue of *Public Policy & Practice*, my colleagues and I discussed the impact of a fire department's public protection classification on property and casualty insurance premiums. A community's public protection classification (PPC) rating is a key factor that affects the cost of homeowner's insurance and the cost of operating fire departments, particularly those trying to accomplish lower PPC ratings. PPC ratings are issued by the [Insurance Services Office, Incorporated](#) (ISO), a company that provides services pertaining to risk analysis. PPC ratings are based primarily on three factors: 1) receiving and handling alarms, 2) fire department personnel and equipment, and 3) water supply. Many different entities use ISO's products to help mitigate and assess risk, including the insurance industry. One of the services that ISO provides is the PPC, which measures community fire protection. Communities or fire districts receive a rating from one to ten based on this system, with one representing the highest quality fire protection and ten representing a system that does not meet ISO's minimum criteria. It is a common misconception to refer to an area's "ISO rating" when talking about fire protection. In actuality, the area receives a PPC rating performed by ISO. Also, a PPC rating does not reflect the risk of property owners having fires; rather, it indicates the quality of fire protection.¹

Our first study² focused on the efforts of the City of Columbia Fire Department and Richland County, South Carolina to improve the fire service in the areas of the county outside the city limits of Columbia. The city and county invested millions of dollars in the Columbia-Richland Fire Service over the past 15 years by adding stations and personnel, upgrading equipment, and improving water availability. By doing so PPC ratings in Richland County and its municipalities have improved significantly, thus saving county residents \$5.5 million dollars annually in residential property insurance premiums. Commercial and other non-residential property owners also will realize substantial decreases in property insurance rates.³

While making the investment to improve PPC ratings certainly has a financial impact on the community, do the additional and enhanced resources translate into property and lives saved? A second study, recently completed by the Institute, looks at PPC ratings from a national sample of fire departments to determine if those ratings are correlated with two common measures of fire department performance.

Fire Department Performance

"Since the 1960's... many public administrators and ISO rating engineers alike recognized that a department's fire rating is not a true measure of overall performance."⁴ This statement was true in 1983 and it is still true today. There are several challenges in

measuring fire department performance. One major factor is the declining number of fire incidents, due to stricter building code enforcement and the increased use of sprinkler systems. Since the number of fires to which fire departments respond is smaller, a fire with loss of life or significant property loss skews a department's performance results.

One measure that is sometimes used to evaluate performance is dollar loss of property and possessions. This measure is difficult to use for comparative purposes since property values vary greatly not only from one area of the country to another, but also can vary from one neighborhood to another. Even using this information to compare the performance of a single department over time is challenging since the value of property and personal items also increase over time.

A universal measure used across public safety functions is response time. Although how quickly a fire truck arrives at a scene does not directly measure the impact on life or property, response time does serve as a proxy measure for fire department performance. The relationship between response time and a fire department's success is clear; the sooner a fire truck arrives at a fire scene, the better the chance of a successful outcome.

Another measure being increasingly used as an indicator of fire department performance is "fires contained to room of origin" for residential building fires and "fires contained to structure of origin" for commercial or multi-family structures. Again, the relationship is clear—a fire contained the room or structure of origin is less likely to result in loss of life or property.

Methodology

The International City/County Management Association (ICMA) Center for Performance Measurement collects performance data from municipal and county fire departments as part of its comparative performance measurement project. Two types of measures that fire departments report are response time and fires contained to room of origin and fires contained to structure of origin. These ICMA data were selected as the dependent variables. Further, data collected by the ICMA go through an extensive "cleaning" process using several analytical techniques and are considered reliable and valid.⁵ The independent variable was the PPC rating issued by ISO.

The most recent ICMA Comparative Performance Measurement Data Reports (2003 to 2005) contained fire department performance data from more than 80 local governments. Since the number of fires a locality experiences has declined in recent years, there is a concern that fire departments with a small number of fires would have unreliable data. For example, if a department responded to two fires and contained both to the room of origin, they would report 100% success. Another department responding to two fires and containing only one to the room of origin would have only a 50% success rate. To mitigate this issue of small numbers of incidents, multiple years of data were collected by the ICMA and a mean was calculated for the variables fires contained to room of origin and fires contained to structure of origin. Similarly, mean values were calculated for the third dependent variable, response times of five minutes or less. The ICMA reports

contained performance measures from 43 local governments with two years of data (27 of which reported three years of data).

The names of those 43 local governments were sent to the ISO in order to obtain the PPC ratings. ISO issued PPC ratings on 38 of the jurisdictions. ISO does not issue ratings outside of the United States or in the State of Washington. The final data set from the 43 local governments consisted of three counties, 34 municipalities and one consolidated city/county government located in 19 different states. Populations of the jurisdictions ranged from 21,000 to 2.4 million.⁶

One methodological issue in the ICMA analysis was that nine of the jurisdictions had split ratings. Split class ratings generally occur when there are various amounts of water availability in an area.⁷ For instance Mesa, Arizona had a split rating of 2/9 and Hall County, Georgia had a rating of 4/9. Typically, a rating of “9” indicates that structures in that area are beyond 1,000 feet from a fire hydrant.⁸ Since the data analysis required a single value for that variable, split ratings were assigned mean values of the split ratings. In other words, a rating of 4/9 was assigned a rating of 6.5. In cases of split ratings, analyses also were performed using both the lower ratings and the higher ratings for the entire jurisdiction.

Results and Discussion

Significant differences were found in the ICMA analysis of PPC ratings and fires contained to room of origin. Fire departments with better PPC ratings are more successful at containing fires to the room of origin. The results were significant when using the mean values for jurisdictions with split ratings and when using the higher of the split ratings. Significant differences were found when analyzing two years worth of data (N=38). The relationship between PPC ratings and fires contained to room of origin was even stronger when analyzing three years worth of data (N=22). There also were differences in success rates in containing fires to the structure of origin and in response times of five minutes or less, but the results were not statistically significant.⁹ The following table illustrates the differences in the performance of fire departments with PPC ratings of 4 or better compared to those with ratings of 5 or higher.

Table 1.

PPC Rating	Average % of Fires Contained to Room of Origin	Average % of Fires Contained to Structure of Origin	Average % of Response Times of Five Minutes or Less
2 - 4	66%	86%	64%
5 – 9*	57%	82%	57%

* The mean value is used for jurisdictions with split ratings.

Interestingly, there was a significant relationship between the response time variable and fires contained to structure of origin. Fire departments with a higher percentage of response times of five minutes or less were more successful at containing fires to their

structures of origin. A larger data set would likely show significant relationships between PPC ratings and all of the performance variables.

The ICMA results indicate that the substantial investment a fire department makes in improving its PPC ratings does pay off in improved performance, in addition to saving property owners money on insurance premiums.

In the previous study of PPC ratings by the Institute and property insurance rates, some residents and business owners in Richland County, South Carolina realized considerable savings on insurance premiums resulting from improved PPC ratings of the Columbia-Richland Fire Service. Using the results from this study can give an indication of the impact improved PPC ratings have on fire department performance.

Let's use the City of Columbia as an example, which had a PPC rating of 2 during the three-year period from 2003 through 2005.¹⁰ Jurisdictions with PPC ratings of 2 through 4 contained fires to their room of origin 66% of the time. (Jurisdictions with PPC ratings of 2 reporting three years of data had a success rate of 68% on this measure.) There were 665 structural fires in the City of Columbia in this three-year period, with an average of approximately 222 fires per year. Columbia's fire department was successful at containing 75% of those fires to their room of origin.

Jurisdictions with PPC ratings of 5 or higher were successful at containing fires to their room of origin 57% of the time during the same period. Using Columbia's average number of 222 fires, jurisdictions with the better ratings would contain about 20 more fires to the room of origin than those jurisdictions with PPC ratings of 5 or higher. In Columbia's case, the fire department contained 40 more fires to their room of origin than the average jurisdiction with a PPC rating of 5 or higher would have with the same amount of fires.

Table 2.

Impact of Improved PPC Ratings Based on 222 Fires (the Average Annual # of Fires in Columbia, 2003-2005)	Predicted Success Rate for Containing Fires to Room of Origin PPC Rating 2-4	Predicted Success Rate for Containing Fires to Room of Origin PPC Rating 5+	Actual Columbia Performance
<i>%</i>	66%	57%	75%
<i># of Fires Contained to Room of Origin</i>	147	127	167

In a 2006 study, the United States Fire Administration found that fires contained to room of origin had an average dollar loss of \$4,764 compared to \$9,818 for fires contained to floor of origin and \$23,963 for fires contained to building of origin.¹¹ The study did not have sufficient data on average loss for fires spreading beyond the building of origin or on injuries and deaths. Even using the conservative figure of 20 additional fires being

contained to their room of origin by departments with PPC ratings of 4 or better, that improvement in performance would result in substantial savings in lost property and may save lives.

Conclusion

Analysis by the Institute of the impact of PPC ratings show that the resources invested by a fire department in infrastructure, equipment, and personnel pay off in lower insurance premiums for property owners and in improved department performance. Several of the insurance companies that use PPC ratings to determine premiums do not differentiate between ratings of 1 through 4.¹² Because of the small sample size used in the Institute's second study, departments with ratings of 2 through 4 (there were no "1" ratings in the data set) had to be grouped together for certain evaluation. So, based on the practices of several insurance companies and the results of the Institute's second study, a fire chief should feel confident that attaining a PPC rating of 4 will be beneficial to his or her community. The question the second study does not answer is whether a rating of 1, 2 or 3 is more beneficial than a rating of 4. A similar study with a larger sample size may provide the answer to that question.

About the Author

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ENDNOTES

¹ Berger, A., Bondo, M. and Tomes, W. (2007, May). The impact of improved public protection classification ratings on homeowners' insurance rates in Richland County. *Public Policy & Practice*, p. 1.

² The Institute for Public Service and Policy Research at the University of South Carolina was asked to assist the Columbia-Richland Fire Service and Richland County in evaluating the effects of changes in Public Protection Classification (PPC) ratings on property and casualty insurance rates. The evaluation of old PPC ratings and insurance costs, and an estimate of insurance savings resulting from new PPC ratings have been included in this analysis for residential and non-residential properties. See full report at <http://www.ipspr.sc.edu/publication/Final%20Report2.pdf>.

³ Op. Cit. Berger, A., Bondo, M. and Tomes, W. (May 2007), p. 7.

⁴ Coe, C. (1983, January/February). Rating fire departments: the policy issues. *Public Administration Review*, p. 76.

⁵ International City/County Management Association. (2006, November). *Comparative performance measurement: FY 2005 data report*. Washington, DC: Author, pp. 2 and 89-178.

⁶ The City of Columbia does not participate in the ICMA comparative performance measurement project and was not included in its data set. Columbia's data were collected independently from the Assistant Fire Chief, City of Columbia.

⁷ Ganglugg, C. (2000, August). *Report of rural fire protection*. Roland, AR: Rural Fire Protection Program, p. 3.

⁸ Insurance Services Office (ISO). (2003). *Fire suppression rating schedule*. Jersey City, NJ: ISO Properties, Inc., pp. 5-40.

⁹ The Spearman rank-order correlation coefficient was used to measure the relationship between the PPC ratings and performance measures since the PPC ratings were ordinal data. A significance level of .05 was used to determine importance.

¹⁰ Only data from inside the city limits were used for Columbia. At the time the 2003 through 2005 data were collected, the areas in Richland County outside of the city had split ratings and data specific to each rating area were not available.

¹¹ United States Fire Administration, National Fire Data Center. (2006, February). *Confined fire structures*. Washington, DC: Author, p. 8.

¹² Op. Cit. Berger, A., Bondo, M. and Tomes, W. (May 2007), p. 7.

The Impact of Improved Public Protection Classification Ratings on Homeowners' Insurance Rates in Richland County

Anna Berger, Mark Bondo, and William Tomes

Introduction

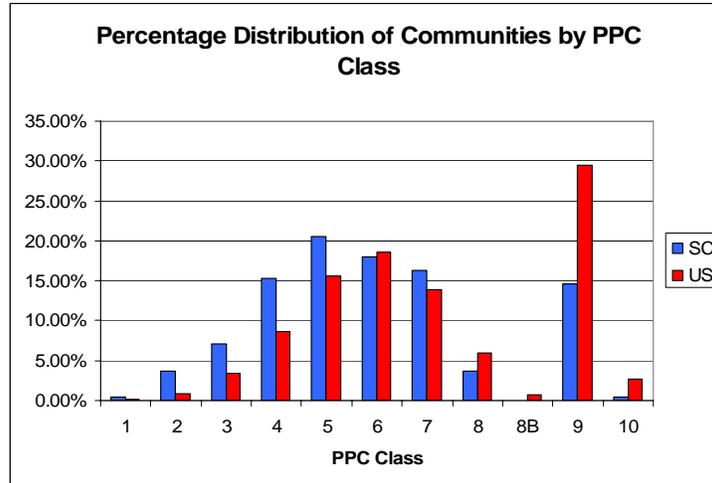
City and county decision makers, whether they are elected councils, administrators, or budget directors, probably hear about maintaining or improving a community's Insurance Services Office¹ (ISO) rating from their fire departments on a regular basis—especially around budget time. Arguments used by fire departments are the savings to residential and commercial homeowners who buy insurance against fire damage for their property, and the ability to recruit new businesses by offering lower insurance rates through improved ISO ratings. Such conversations may lead to decision makers wondering, “What is an ISO rating?” and “What sort of savings would my residents receive if we had a better rating?”

The Institute for Public Service and Policy Research (IPSPR) was asked by Richland County and the Columbia-Richland Fire Service to help answer the above questions. This article addresses what ISO is, how ISO affects insurance rates for residential and commercial residents, and shows projected insurance savings for Richland County residential property as they received changes in their Public Protection Class rating. For a detailed explanation of the methodology and the results as outlined in the final report, please visit http://www.ipspr.sc.edu/publication_ele.asp.

Background

It is a common misconception to refer to an area's “ISO Rating” when talking about fire protection. Fire departments actually receive a Public Protection Class (PPC) rating. ISO refers to the Insurance Services Office, Incorporated (ISO), a company that issues PPC ratings and provides services pertaining to risk analysis. A PPC rating does not reflect the risk of property owners having fires; rather, it indicates the quality of fire protection in an area. A community's PPC rating is a key factor that affects the cost of homeowner's insurance and the cost of operating fire departments, particularly those trying to accomplish lower PPC ratings. Many different entities use ISO's products to help mitigate and assess risk, including the insurance industry. Communities or fire districts receive a rating from one to ten based on this system, with one representing the highest quality fire protection and ten representing a system that does not meet ISO's minimum criteria.

The following chart summarizes PPC ratings across the country and throughout South Carolina, prior to Richland County receiving its new ratings. There are relatively few departments that have achieved a rating lower than four.



Source: Insurance Services Office, Incorporated.

On What Factors Are PPC Ratings Based?

PPC ratings are based primarily on three areas: receiving and handling alarms, fire department personnel and equipment, and water supply. These factors comprise the ISO’s Fire Suppression Rating Schedule. Different weights are applied to each area. The effectiveness of alarm response comprises 10% of a community’s rating. The personnel and equipment of the fire department contribute 50% of a community’s rating, while the community’s water supply system comprises 40% of a rating. The overall PPC rating reflects the total capability of the department to respond to, and meet, the fire protection demands of the community.

PPC ratings are one of the many factors that affect insurance premiums. Age of the structure, construction material, and loss history in a particular area also affect the base rate. Factors such as property value, deductible amount, multiple policies, security systems, and credit ratings affect an individual’s rates. Individual insurance companies have the option to accept the ISO classification.²

Although some companies in some states have elected not to use PPC ratings as part of their premium calculations, in South Carolina, it is still a major factor in setting property and casualty insurance rates.

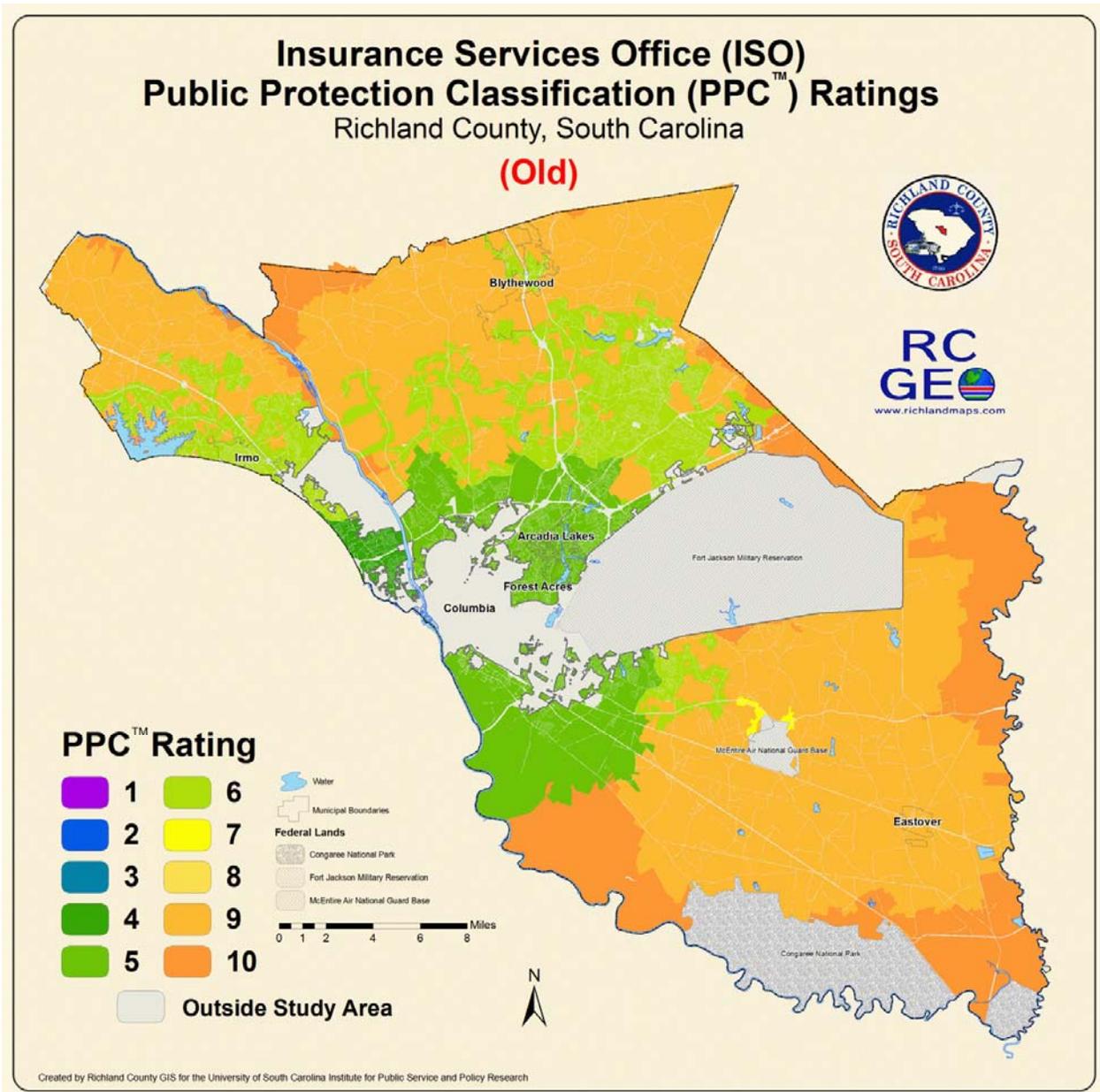
Historical Perspective of Fire Protection in Richland County

In 1990, Richland County entered into a fire service agreement with the City of Columbia Fire Department (CFD), creating the Columbia-Richland Fire Service (CRFS) to provide fire suppression services throughout the county. Over the next 16 years, there was a significant growth in population in Richland County, resulting in a subsequent growth in the fire service in terms of stations, equipment and personnel.

As a result of this growth, the CRFS believed the citizens were receiving a higher level of fire protection service than the PPC ratings reflected. In 2005, the CRFS requested that ISO conduct a new rating study of the fire service in the county. As part of this process, the IPSPR conducted an investigation of these factors that affect insurance rates. The areas included in IPSPR’s study included

were the municipalities of Arcadia Lakes, Blythewood, Eastover, Forest Acres, and the unincorporated areas of Richland County. The City of Columbia, Fort Jackson, and McEntire Air National Guard Base were not included in the study.

The original PPC ratings for Richland County were based on 11 fire district areas. Within each of these districts, the ratings were heavily influenced by a structure’s distance from a fire station and a fire hydrant. This caused split ratings in several of the areas. Split class ratings generally occur when there are various amounts of water availability in the area.³ The following image depicts the county’s PPC ratings prior to the recent ISO study.



Contributing Factors for Improved PPC Ratings

The traditional sources of water for fire departments are fire hydrants and pumper trucks. Prior to the 2006 ISO study, one of the reasons for the higher ratings in parts of Richland County was that many structures were located beyond 1,000 feet from a hydrant. Realizing the limitations of the water infrastructure in some of the rural areas, the CRFS decided to focus on other methods to meet ISO's water supply requirements. ISO considers the ability of the water supply system to deliver the needed fire flow at sample locations throughout the area as part of the water supply system requirements.⁴

The CRFS chose to employ a water shuttle system similar to ones being used in other communities to meet these requirements. A water shuttle uses predetermined water points such as dry hydrants. A dry hydrant is a static water source that is pre-piped to draw water from locations such as ponds and lakes to fill tanker trucks.

PPC Rate Changes in Richland County

The efforts of the CRFS and Richland County were successful in achieving improved PPC ratings. Due to the efforts to provide greater water supply, all of the unincorporated areas of the county received a single PPC rating of four, with the exception of two remote areas that are not within five road-miles of a fire station. These two areas maintained a rating of ten.

The new PPC ratings for the municipalities of Arcadia Lakes, Blythewood, Eastover, and Forest Acres are as follows:

- Arcadia Lakes - One
- Blythewood – Four
- Eastover – Four
- Forest Acres – Two

The unincorporated PPC ratings were effective on December 1, 2006. The ratings for the municipalities were effective on April 1, 2007. The image below displays the new PPC ratings for the county.

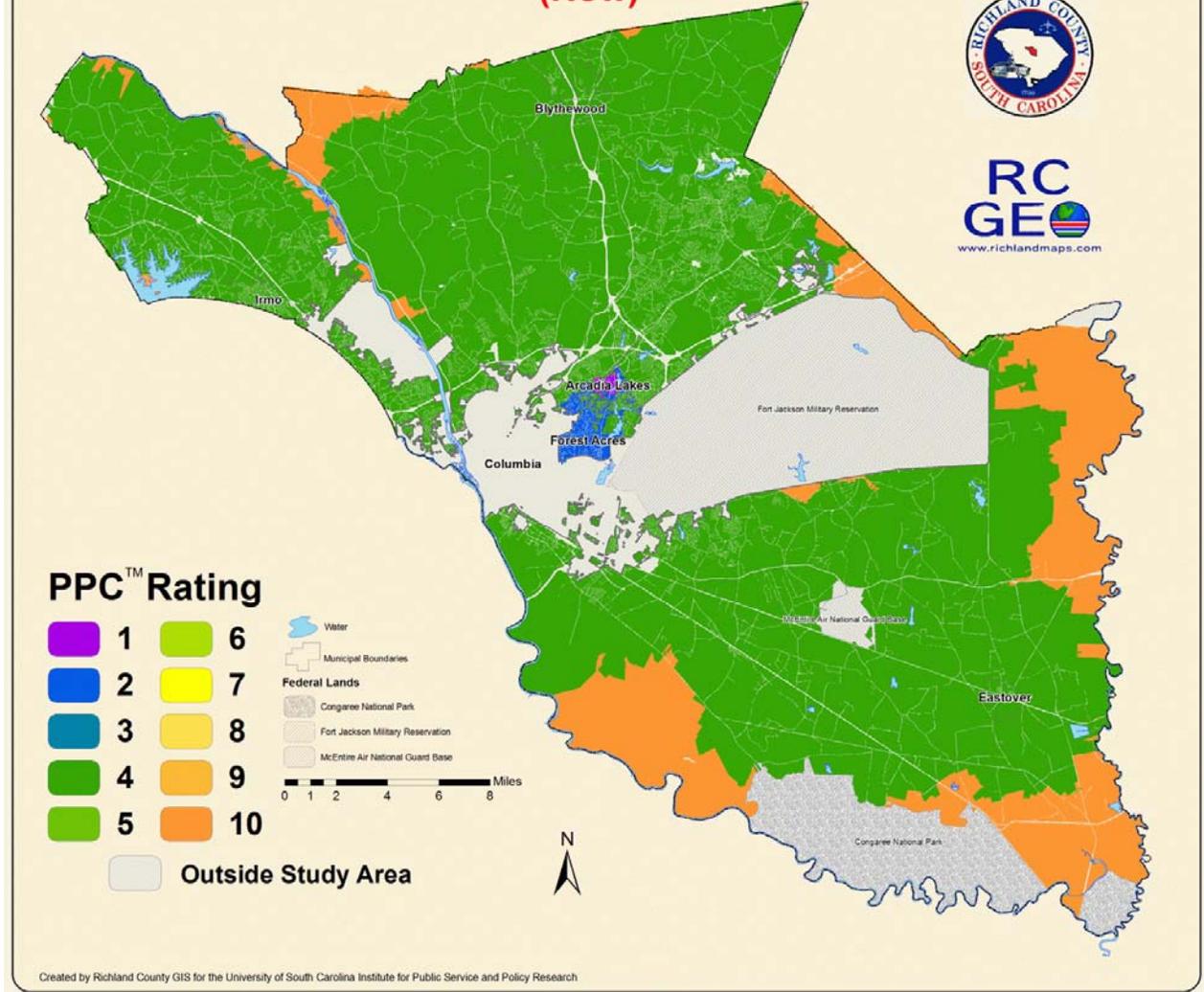
Methodology

Prior to designing a methodology for this analysis, the IPSPR conducted a literature review to determine if any studies had been conducted on the effects of PPC rate changes on insurance rates in other states. The review uncovered related studies in Arkansas, Minnesota, and several other states. The Arkansas study focused on the effect of PPC rate changes for the average rural home value across the state.⁵ The League of Minnesota Cities' report provided an overview of PPC ratings and gave examples of how insurance premiums could be affected when PPC ratings change.⁶ A *Fire-Rescue*

Insurance Services Office (ISO) Public Protection Classification (PPC™) Ratings

Richland County, South Carolina

(New)



Magazine article from January 1998 reported general insurance savings as a result of a rating reclassification in Churchill/Fallon, Nevada.⁷ The following month's issue of *Fire-Rescue Magazine* noted insurance savings in a rural department in Colorado and the City of Atlanta.⁸ Although these studies offered some information on insurance savings as a result of PPC rate changes, none presented a detailed analysis. In many of these reports, only one home value and one construction type were used to illustrate insurance savings.

One of the challenges in this type of analysis in calculating the savings homeowners realize as a result of improved PPC ratings is the complexity of the variables present in Richland County. There were multiple jurisdictions within the county, split ratings within these areas, and a wide range of home values. In order to address these variables and to provide citizens in all areas of Richland County a

valid estimate of any insurance premium savings they may realize, the IPSPR developed a methodology using Richland County's and the City of Columbia's GIS technology to identify all of the residential properties in each of the PPC rating areas. Once these properties were identified, original PPC ratings were assigned to the properties in order to calculate baseline insurance rates for a sample of residential properties within each rating area.

IPSPR staff worked with the South Carolina Department of Insurance⁹ to identify the insurance companies writing most of the residential and commercial property and casualty insurance policies in Richland County. IPSPR staff contacted these companies to request premium information for each of the residential values using the original and new PPC ratings. To ensure comparable insurance rates, IPSPR staff asked the insurance companies to make the following assumptions:

- No discounts for multiple policies or security alarms.
- A deductible of \$500. This is the typical deductible found in residential policies.

Using a random sample of residential properties in each jurisdictional area, IPSPR identified the two most common construction types in Richland County—brick veneer and vinyl siding—and asked the companies to provide rates for each. Since insurance premiums also are dependent upon the age of the home, IPSPR calculated the average age of structures around the 25th percentile, median, and 75th percentile of recorded residential building values from the random sample of properties to provide a representative cross-section of homes by age, construction type and value.

Impact Analysis of PPC Rate Changes in Richland County

The results presented below are projected savings based on the average insurance premiums of the companies that provided information for IPSPR's study. An individual homeowner's premium may vary significantly from the percentages reported below. The insurance company writing the policy, choice of deductible, claims history, credit rating, discounts applied to the policy, home construction material, age of the home, and optional coverage riders all affect the cost of the policy.

Since the PPC ratings have less effect on property and casualty insurance rates for manufactured or mobile homes, the results of this analysis do not apply to those structures. The PPC ratings will have an effect on policy holders who have renter's insurance or own condominiums, but those rates were not analyzed in IPSPR's study.

Homeowners living in an area that had been rated nine realized the largest savings on insurance premiums. The reductions in insurance premiums in these areas ranged from 8% to 49% for brick homes and 11% to 53% for homes with vinyl siding, depending on the insurance company. Some of the districts in these areas had six to nine PPC ratings. The reason for the large variance in the reductions cited above is that two insurance companies have been using a PPC rating of six for all residential properties in these areas, regardless of a property's distance from a fire hydrant. This has lessened the potential impact of the change in PPC ratings. Insurance savings to homeowners in these areas vary greatly, depending on the insurance company.

Areas	<i>Unincorporated Areas*, Blythewood*, Eastover</i>	<i>Unincorporated Areas</i>	<i>Unincorporated Areas*, Blythewood*</i>	<i>Unincorporated Areas</i>	<i>Forest Acres</i>	<i>Arcadia Lakes</i>
Previous Rating	9	7	6	5	5	5
New Rating	4	4	4	4	2	1
Range of Savings	8 – 53%	13 – 15%	8 – 12%	0 - 2%	0 – 5%	0 - 5%

*Split rating areas.

The reduction in insurance premiums in the areas with an original PPC rating of five ranged from 0% to 5%. Some insurance companies’ rates are not affected by improvements in PPC ratings below a five, so changes in PPC ratings may not result in savings for all customers. This practice of “banding” ratings was reported in several of the studies cited earlier in this report.

Financial Impact on Residential Properties

There are over 65,000 single-family or duplex properties in Richland County outside the city limits of Columbia that are impacted by the changes in PPC ratings.¹⁰ In order to estimate the total financial impact on residential property insurance rates for these properties, IPSPR staff took the average savings for each of the three sample properties in each PPC rating area (25th, median, and 75th percentile values) and multiplied those amounts by one-third the number of residential properties in that area to estimate the total savings in that area. The totals for all eight areas were summed to estimate the impact on residential premiums for the entire county. The estimate for the total financial impact on residential property insurance rates in Richland County will be \$5.5 million, once all of the PPC ratings became effective on April 1, 2007.

Non-Residential Properties

Because Richland County’s data for commercial and other non-residential properties did not provide the level of detail needed for IPSPR’s analysis, only general information on insurance rates for non-residential properties was included. In addition to construction type and age of the structure, there are several factors that impact a commercial property’s insurance rate, including business type or property use, building contents, and the use of sprinkler systems.

There are close to 10,000 commercial structures in Richland County outside the city limits of Columbia. Commercial property owners will save from 2% to 36% on property insurance, depending on their insurance company, the type of business, and their location in Richland County. As is the practice with residential property insurance, some insurance companies band the PPC ratings when setting commercial property insurance rates. One company bands PPC ratings of one through four in one band, and five and six in another.

South Carolina state government and two school districts have a number of buildings in Richland County outside the city limits of Columbia. State agencies are self-insured through the Insurance Reserve Fund.¹¹ School districts insure school properties through commercial underwriters. Although the impact of PPC rating changes will not be as great as it is on residential insurance rates, governmental entities may see reductions in their property insurance rates.

Churches in Richland County vary in size from small, rural churches to multi-million dollar churches with dining halls, gymnasiums and other activity buildings. With varying sizes and construction types, it is difficult to calculate an estimate of property insurance premium savings for churches. One of the state's leading insurers of church properties estimates that churches in areas with old PPC ratings of five and six will save an average of 16% on premiums and those in areas previously rated nine will save an average of 25% on premiums.

Conclusion

Richland County and the City of Columbia have made significant investments in the CRFS in order to improve fire service to the County's residents and businesses. Although saving lives and property is the ultimate goal of the CRFS, Richland County citizens now realize the financial benefit of reduced insurance premiums as a result of CRFS' efforts. As Richland County continues to grow, the city and county will have to make further investments in the CRFS to maintain the improved PPC ratings.

What has not been determined is if the investments made to improve the fire service in Richland County have had an impact on fire department performance. Later this year, IPSPR staff will undertake a study comparing PPC ratings and fire department performance.

Many other communities across the nation are undergoing PPC rating studies conducted by ISO. The methodology used in IPSPR's analysis can assist these communities, particularly those with split ratings, in determining the financial impact of improved PPC ratings and can give property owners a better estimate of savings on insurance premiums.

About the Authors

Anna Berger earned a B.A. in Political Science from Columbia College and a M.P.A. degree from the University of South Carolina. Since joining the Institute for Public Service and Policy Research in 1997, Ms. Berger has devoted most of her time to the South Carolina Municipal and County Benchmarking Projects. She serves as director of the South Carolina Local Government Service Delivery Forums and provides technical assistance and group facilitation for state and local governments ranging from reengineering processes to strategic planning. Ms. Berger also develops and conducts training programs specifically designed for government managers and leaders on performance measurement, benchmarking, process mapping, team building, group decision-making tools, and emotional intelligence.

Mark Bondo is a Research Associate with the Institute for Public Service and Policy Research at the University of South Carolina. He holds a Bachelor of Arts from the University of South

Carolina and a Master of Public Administration from the University of North Carolina at Chapel Hill. Prior to joining the Institute, Mr. Bondo worked for the United States Government Accountability Office in Washington, DC.

Mr. Tomes earned his B.S. from Florida State University and a Masters in Human Resources from the University of South Carolina. He worked at the Institute for Public Service and Policy Research from 1986 to 1989 before working as a human resources professional in both the Florida and South Carolina state governments for ten years. Mr. Tomes rejoined the Institute in 1998. He has conducted training programs and written book chapters and articles on various human resource topics. At the Institute, he manages the professional certification programs for the Government Finance Officers Association of South Carolina and the Institute for Departmental Management. He also directs technical assistance projects for the Institute and serves as a faculty member for the Institute's various professional development programs.

ENDNOTES

¹ ISO describes itself as “a leading source of information about risk. Products and services help customers measure, manage, and reduce risk. And we're the property/casualty insurance industry's leading supplier of statistical, actuarial, underwriting, and claims data.” Retrieved April 16, 2007 from <http://www.iso.com>.

² Insurance Services Office. (2001, July – September). *Virginia Department of Fire Programs Quarterly*, p. 20.

³ Ganglugg, C. (2000, August). *Report of rural fire protection*. Roland, AR: Rural Fire Protection Program, p. 3.

⁴ *Ibid*, pp. 32-37.

⁵ *Op. Cit.* Ganglugg, C. (2000, August). p. 4

⁶ League of Minnesota Cities. (n/d). LMCIT risk management information. St. Paul, MI: The ISO Fire Protection Rating System, p. 3.

⁷ Stevens, L. (1998, January). A tale of two ratings, (Part One). *Fire-Rescue Magazine*, p. 60.

⁸ *Ibid*.

⁹ The Department was established in 1908 and is an agency of the Governor's Cabinet. It presently has regulatory responsibility over 1,450 insurance companies and over 50,000 agents, brokers, adjusters, appraisers, and bail bondsmen. Retrieved April 16, 2007 from <https://www.doi.sc.gov/Eng/Public/Aboutscdoi/mission.aspx>.

¹⁰ Residential properties include single-family or duplex structures. Multi-family dwellings, such as apartment complexes, are considered commercial by the insurance industry.

¹¹ The Insurance Reserve Fund is an Office of the South Carolina State Budget and Control Board. The Insurance Reserve Fund functions as a governmental insurance operation with the mission to provide insurance specifically designed to meet the needs of governmental entities at the lowest possible cost. The Insurance Reserve Fund operates like an insurance company, by issuing policies, collecting premiums (based on actuarially calculated rates), and by paying claims from the accumulated premiums in accordance with the terms and conditions of the insurance policies it has issued. Retrieved April 16, 2007 from <http://www.irf.sc.gov>.