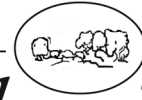




# Impact of the Uniform Construction Code in Rural Pennsylvania

*The Center for*



*Rural Pennsylvania*

*A Legislative Agency of the Pennsylvania General Assembly*



# Impact of the Uniform Construction Code in Rural Pennsylvania

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## Executive Summary

This research investigated the potential impacts of the Uniform Construction Code (UCC), which was established under the Pennsylvania Construction Code Act (Act 45 of 1999) and implemented in 2004, in rural Pennsylvania.

The research, which was conducted in 2009, also assessed, to some extent, how well the UCC has met some of the goals outlined in the act.

For many rural municipalities, the implementation of the UCC in 2004 resulted in the regulation of the design and construction of buildings for the first time. This imposed various new requirements and fees in areas where there were no preexisting building codes.

Likewise, many rural municipalities chose to take responsibility for UCC enforcement (referred to as “opt-in” municipalities), and thus assumed new regulatory responsibilities and costs.

Using a survey of municipal officials and third-party agencies, the researchers collected information regarding

UCC enforcement methods and costs among opt-in municipalities. The survey also yielded information on the prevalence of municipal amendments to the UCC, which was analyzed as one indicator of the actual degree of uniformity provided by the UCC. The research compared rural and urban municipalities regarding UCC enforcement methods, costs, and prevalence of amendments.

In addition to conducting the survey, the researchers analyzed two sources of building permit data and recent trends in the number of permits issued in rural counties.

Finally, the researchers assessed the potential impact of the UCC on homeowners’ insurance premiums as a potential cost-mitigating factor.

The study found that an overwhelming majority of rural municipalities rely on UCC-certified, third-party plan review and inspection agencies to meet their UCC enforcement responsibilities. While these municipalities have elected to administer

and enforce the UCC, they have little, if any, actual enforcement responsibilities.

Among urban municipalities, third-party code enforcement is also the most common enforcement strategy, but to a significantly lesser extent. Urban municipalities are more likely to use their own employees to meet UCC enforcement responsibilities.

The UCC also requires opt-in municipalities to have a board of appeals, to which permit applicants or holders can appeal UCC-related decisions made by the municipal code administration. Requests for variances are also heard by the board of appeals. The research found that about 10 percent of rural opt-in and 11 percent of urban opt-in municipalities have not established a board of appeals. Among the rural municipalities that have established a board of appeals, about 12 percent have not established a fee structure for charging potential petitioners or appellants. Among urban municipalities, 12 percent did not have established board of appeals fees.

Based on survey responses to seven hypothetical construction scenarios, UCC-related fees charged to permit applicants were found to be highly variable and covered a wide range. The average UCC fee among rural municipalities for a 2,500-square-foot, single-family home was \$1,081. For a “big box” store, the average UCC fee among rural municipalities was \$49,571. Average UCC fees among urban municipalities were 20 to 37 percent higher than those of rural municipalities.

A major goal of the UCC was to provide increased uniformity of code requirements across Pennsylvania. More than 20 percent of rural municipalities said they adopted an amendment to the UCC. Urban municipalities had a much higher prevalence of amendments at more than 50 percent. A county-by-county analysis documented code requirement differences in 47 of Pennsylvania’s 67 counties. On average, urban counties had greater code requirement differences than rural counties.

Several insurance industry professionals indicated that insurance companies consider building codes when determining their rates. The researchers theorized that the UCC and its associated requirements would likely reduce homeowners’ insurance premiums below what they would be were there not a modern building code in place; however, this effect appeared to be relatively small. However, the impact of the UCC on insurance premiums is likely to increase with time as the proportion of buildings in Pennsylvania built under the UCC increases, and as code official grandfathering expires.

While the overall costs and benefits of the UCC are much broader than could be addressed in the research, local and state policy makers can use the results of this research as a tool to help determine whether Pennsylvania is achieving the desired balance between the costs and benefits of the UCC.

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## Introduction

In 1999, the General Assembly passed the Pennsylvania Construction Code Act (Act 45 of 1999), with the intent of adopting a Uniform Construction Code (UCC) that would: protect life, health, property and the environment; encourage standardization and economy in construction; and provide oversight of code-enforcing entities.

Prior to the adoption of the UCC, 44 percent of Pennsylvania's 2,564 municipalities enforced a building code (Fortney and Buddenbohn, 1998). When the UCC was implemented in April 2004, 92 percent of Pennsylvania municipalities decided to enforce the UCC rather than cede control of enforcement to the state or third-party agencies. Municipalities that chose to bear the responsibility of code enforcement are considered "opt-in" municipalities, and those that did not are considered "opt-out."

The large number of municipalities opting to enforce the UCC raised questions about how enforcement responsibilities are being met. This question is especially pertinent in rural areas since municipalities with small populations are less likely than municipalities with large populations to have experience enforcing a building code prior to the UCC (Fortney and Buddenbohn, 1998).

In rural areas with no preexisting building code, the establishment of a building code resulted in increased regulation, in terms of how and when buildings are constructed, and fees that did not exist prior to the UCC.

Under the UCC, enforcement responsibilities include: reviewing and approving building plans and documents, issuing permits, conducting inspections, taking appropriate enforcement actions to achieve compliance when permit holders fail to comply, and issuing certificates of occupancy.

The legislation provided opt-in municipalities with great flexibility on how to meet these responsibilities. Allowable enforcement approaches included: hiring employees, retaining a third-party agency or multiple agencies, joint enforcement with other municipalities, or any combination of the above. Municipalities also may form intergovernmental agreements for UCC enforcement, such as forming a council of governments (COG). In this case, the designated Building Code Official (BCO) and the accompanying code office take responsibility for UCC enforcement in several municipalities. In that regard, code offices formed as a part of a COG, or other intergovernmental agreement, are similar to third-party agencies where a single office performs UCC enforcement for multiple municipalities. The flexibility allowed under the UCC in terms of the types and combinations of entities that may enforce the code created a diverse patchwork of enforcement approaches across the commonwealth.

In opt-out municipalities, it is the responsibility of the owner of one-family and two-family buildings to obtain

the services of a construction code official or third-party agency to conduct UCC plan reviews and inspections. For buildings other than one-family and two-family dwelling units (commercial buildings) in opt-out municipalities, the Department of Labor and Industry (L&I) has jurisdiction. For these buildings, the owner must obtain the plan review and inspection services of L&I.

In addition, in accordance with Section 501(c) of the Uniform Construction Code Statute, opt-in municipalities are responsible for establishing a board of appeals to hear appeals from decisions of the code administrator. A municipality could establish its own board, or share one with one or more municipalities. For opt-out municipalities, there is no way to appeal the decisions of a third-party agency regarding residential buildings. For commercial buildings in opt-out municipalities, the Industrial Board within L&I acts as a board of appeals.

Prior to this research, there was very little documentation of the mix of enforcement approaches chosen by municipalities, or the fees being charged for enforcement services. However, one survey performed by the Pennsylvania Construction Codes Academy (PCCA) provided evidence of widespread municipal use of third-party agencies to take on various code enforcement responsibilities in Pennsylvania (Buddenbohn, 2008). Another finding of the PCCA survey was the prevalence of high fees charged to those who wanted to challenge a code enforcement decision through a board of appeals. The relatively small number of respondents to the survey, and its limited scope, left questions about enforcement approach, UCC-related fees, and other impacts of the UCC. Also, the PCCA survey did not make a distinction between rural and urban municipalities. Thus, it was unknown whether significant differences existed between rural and urban municipalities in terms of UCC enforcement methods or the associated costs.

One of the main goals of the UCC was to provide uniform code requirements across the commonwealth. However, municipalities were allowed to keep pre-July 1, 1999 amendments, and to adopt by ordinance, new amendments that are more stringent than the statewide code. Section 7210.503(a-k) of Act 45, describes what types of amendments are allowable, and the process that a municipality is required to follow to legally adopt an amendment to the UCC. A municipality may propose and enact an ordinance to equal or exceed the minimum requirements of the UCC. Act 45 also specifically states that ordinances regulating temporary structures, which are not regulated by the UCC, may require compliance with the following standards: (i) flame propagation criteria of the applicable edition of NFPA No. 701, (ii) the ICC Electrical Code, and (iii) International Fire Code criteria as to the number of portable fire extinguishers. Act 45 also specifically states that mu-

municipalities may adopt ordinances to regulate alterations or repairs to residential buildings, as well as the regulation of utility and miscellaneous use structures.

To legally adopt an ordinance to amend the UCC, a municipality must follow a specific process. A municipality must hold a public hearing and provide public notice of the hearing in “a newspaper of general circulation.” The municipality must also provide notice and information regarding the proposed ordinance to L&I. The department must then review the ordinance to ensure its provisions are equal to or in excess of the requirements of the UCC. If the department determines this is not the case, the municipality must withdraw or modify the amendment. In addition, aggrieved parties may challenge an ordinance, which would prompt another review by the department to determine if the ordinance is in alignment with the following items:

“(i) certain clear and convincing local climatic, geologic, topographic or public health and safety circumstances or conditions justify the exception; (ii) the exception shall be adequate for the purpose intended and shall meet a standard of performance equal to or greater than that prescribed by the Uniform Construction Code; (iii) the exception would not diminish or threaten the health, safety and welfare of the public; and (iv) the exception would not be inconsistent with the legislative findings and purpose described in [Act 45]. The department shall take into consideration, in rendering the determination, the provision, code development process history, purpose and intent of relevant provisions of the 1999 BOCA National Building Code, Fourteenth Edition, ICC International One and Two Family Dwelling Code, 1998 Edition, or their successor codes.”

The secretary of L&I must then approve or disapprove the ordinance based on those criteria. Act 45 prescribes a specific timeline that all of the above actions must follow.

Preexisting data regarding the presence of amendments, and what those amendments govern, had never been analyzed, so the degree of uniformity that has actually been provided by the UCC was not well known. The analysis of municipal amendments presented in this report will help determine the degree to which the Uniform Construction Code is meeting those legislative goals.

The enactment of the UCC also brought on new reporting requirements for municipalities. They are required to report, on a quarterly basis, the number of residential and commercial building permits issued.

Because it is a mandatory reporting process, the researchers hypothesized that this data source would be much more reliable than the U.S. Census Bureau building permit data. To the researchers’ knowledge, the two data sets had not previously been compared or analyzed regarding completeness of the data, or recent trends in the number of permits being issued in Pennsylvania mu-

nicipalities. In addition, prior to this study, the potential relationship between the number of permits issued by a municipality and the cost of its UCC fees had never been examined.

Finally, the Pennsylvania Construction Code Act specifically cites the “protection of property” in §7210.102(b)(1) (Intent and Purpose) of the UCC statute. It was expected that the enforcement of a building code would be reflected in the determination of homeowners’ insurance premiums. This research provides qualitative information regarding the UCC’s effect on insurance premiums, and the degree to which the cost of enforcing the UCC might be mitigated.

## Goals and Objectives

This study, which was conducted in 2009, had five goals: identify the mix of enforcement approaches among Pennsylvania municipalities, assess the potential financial impact of UCC fees and board of appeals hearing fees on economic development, assess the degree of uniformity of code requirements in Pennsylvania counties, determine the relative reliability of building permit data sets and analyze recent trends, and determine the potential impact of the UCC on homeowners’ insurance premiums.

The first goal was to identify the mix of code enforcement approaches among Pennsylvania municipalities in terms of the proportions of rural “opt-in” municipalities (those that chose to take responsibility for enforcing the UCC) versus rural “opt-out” municipalities (those that chose to defer responsibility to the state or third-party agencies).

It also involved estimating the prevalence of various UCC enforcement methods used by opt-in municipalities in terms of who is performing designated Building Code Official (BCO) responsibilities, and who is performing plan reviews and inspections. The BCO is the individual responsible for managing, supervising and administering the UCC for each municipality. Each opt-in municipality is required to have an officially designated BCO.

This research also aimed to estimate and compare the proportions of rural and urban municipalities involved in a regional enforcement approach as evidenced by the sharing of a BCO, a board of appeals, and plan reviews or inspections.

The second goal was to assess the potential financial impact of UCC-related fees on economic development. This was accomplished by estimating the average and the range of UCC fees charged by Pennsylvania municipalities, COGs, and third-party agencies for seven typical construction scenarios. This research also looked to determine the likelihood that one enforcement strategy resulted in lower UCC fees than another, and whether rural municipalities are impacted differently than urban municipalities by the cost of UCC fees. Another objective was to determine whether the cost of UCC fees is related

to the number of permits issued per year in a municipality. In addition, this research attempted to estimate the impact of board of appeals fees on contractors, homeowners, or others wishing to have a complaint heard regarding a UCC-related decision.

Next, the research assessed the degree of uniformity of code requirements in rural counties. To this end, the researchers estimated the prevalence of amendments to the UCC among Pennsylvania municipalities, and compared rural and urban municipalities. Another objective was to assess the heterogeneity (or differences) of code requirements on a county-by-county basis. The research also assessed the aspects of construction that are regulated by municipal amendments to the UCC, and how common various types of amendments are.

The research also looked to determine whether building permit data that exist because of new UCC reporting requirements are more reliable than the traditional source of data. One objective was to determine whether major differences exist between the methods of data collection used by the U.S. Census Bureau and DCED.

In their assessment of the potential impact of the UCC on homeowners' insurance premiums, the researchers expected that the presence of a modern, statewide building code would play a role in insurance companies' actuarial calculations and result in lower homeowners' insurance premiums. Insurance industry professionals were interviewed to identify whether building codes are a factor in determining homeowners' insurance rates.

## Methodology

The researchers surveyed all municipal secretaries, chief clerks, and city clerks (hereafter referred to as "secretaries") listed in DCED's Municipal Statistics database (Department of Community and Economic Development, 2009). Secretaries were given the option of returning the survey via mail, fax or online.

Municipal secretaries were chosen as the survey target because of advice given by DCED's Governor's Center for Local Government Services. The Governor's Center offered that targeting secretaries would lead to the highest response rate because they often complete surveys, or can get them into the right hands within their local government.

In addition, the researchers contacted third-party agencies and BCOs responsible for UCC enforcement in municipalities to request the survey information for municipalities in their service territory. Four large, third-party agencies were contacted from the outset of the survey due to their reputation as major players in code enforcement in Pennsylvania. Five additional third-party agencies and councils of governments (COGs), who performed code enforcement in 10 or more municipalities, were contacted

directly because they were referred by responding municipalities.

The survey questionnaire was designed to identify five main pieces of information: the party responsible for BCO responsibilities (municipal employees, COG employee, third-party agency, or other); the party, or parties, responsible for UCC-related plan reviews and inspections; whether a UCC board of appeals has been established; whether municipal amendments to the UCC exist and the aspect(s) of construction those amendments regulate; and how much is being charged for all fees related to UCC enforcement, such as plan review and inspection fees. To standardize answers, the survey included seven hypothetical construction scenarios. Three scenarios were residential, including a typical single-family home, a one-room addition, and a deck. Four scenarios were commercial/industrial, including a three-unit office building, an eight-unit apartment building, a "big box" store, and a factory.

The researchers merged several preexisting databases with each other and with the survey responses to create a comprehensive project database. Most of the information in the Municipal Elections and Contact Information database (Department of Labor and Industry, 2009b) was from the period of April 9, 2004 to July 8, 2004, when each municipality was required to notify L&I on whether it was choosing the opt-in or opt-out option. This database is updated continuously to reflect municipalities that change their opt-in/opt-out status, merge with other municipalities, or are newly incorporated. The database is also updated to reflect changes in BCOs. A municipality is required to notify L&I of any such change. The other field used from the Municipal Election and Contact Information database was the presence or absence of pre-July 1999 "amendments," which are pre-UCC requirements that were allowed to be retained as long as they were equal to, or exceeded, UCC requirements. Prior to this study no information had been collected regarding what these amendments regulated, because L&I never had any review or approval authority over these types of amendments. Thus, the only preexisting information regarding whether a municipality enforces a pre-July 1, 1999 amendment (or amendments) came in the form of a self-reported "yes" or "no."

For the DCED Municipal Statistics database, each municipality is required to complete and return four forms annually, including: the Tax Information Form, the Report of Elected and Appointed Officials, the Survey of Financial Condition, and the Annual Audit and Financial Report.

For this study, researchers used the data collected on the Report of Elected and Appointed Officials form only: specifically, municipal secretary contact information.

Act 13 of 2004 requires each opt-in municipality to file a quarterly report of their residential and commercial

UCC permit activity. The reporting categories include new residential, other residential, new commercial, and other commercial. There is no guidance or instructions as to which type of permit falls into which category. There is also no vetting of the information provided to DCED. Letters are sent to those who fail to file their reports on a timely basis; however, there are no punitive actions taken if a municipality fails to report.

The Municipal Code Change Ordinances database, created and maintained by L&I, relates only to amendments to the UCC that were adopted after 2004 in accordance with Section 503 of Act 45. L&I does not attempt to track down municipalities that adopt ordinances in violation of Section 503, thus the Municipal Code Change Ordinances database contains only ordinances where municipalities have legally adopted amendments to the UCC. The only way that L&I becomes aware of amendments that are not in accordance with Section 503 is when an individual or entity files a complaint with L&I (which L&I is required to investigate), or files a lawsuit against that municipality.

The researchers used data from the Municipal Elections and Contact Information database and the Rural Municipalities/School Districts database (Center for Rural Pennsylvania, 2009) to compare UCC enforcement approaches between rural and urban municipalities. (The research used the Center for Rural Pennsylvania's definition of rural<sup>1</sup>. The researchers used the municipal definition when referring to municipalities and the county definition when referring to counties.) The number and proportions of municipalities that fall under the following four categories were determined: rural opt-in, rural opt-out, urban opt-in, and urban opt-out. All other analyses in the study included opt-in municipalities only.

Using UCC survey responses, the researchers assessed the ways municipalities are dealing with various UCC responsibilities. They assessed the proportions of municipalities whose BCO is employed by the municipal government, a council of governments (COG), a third-party agency, or other entity. Next, they analyzed plan review and inspection responsibilities by assessing the proportions of municipalities who use a single third-party agency, multiple third-party agencies, municipal employees, a combination of municipal employees and a third-party agency, COG employees, or L&I; the latter for accessibility only.

The researchers separately analyzed the data regarding residential, commercial, and accessibility plan reviews and

inspections. In addition, they assessed the prevalence of several types of intergovernmental agreements, including agreements regarding plan reviews, inspections, boards of appeals, and BCOs. They performed all of the above analyses separately for groupings that included all municipalities, rural municipalities only, and urban municipalities only.

They also asked the UCC survey respondents to indicate whether their municipality (or municipalities) had established a board of appeals. Municipalities that had established a board of appeals were then asked to list the fee that would be charged to an applicant for a residential ruling based on a review of briefs, a commercial ruling based on a review of briefs, a residential ruling based on a hearing, and a commercial ruling based on a hearing. The researchers determined the average, median and range of board of appeals fees for each type of ruling and performed T-tests to determine if there were statistically significant<sup>2</sup> differences between the average fees of rural and urban municipalities. They performed additional T-tests to determine if there were statistically significant differences between the average board of appeals fees of municipalities who had and did not have an intergovernmental agreement for a board of appeals.

The researchers determined the average, median and range of UCC fees that would be charged to permit applicants for each of the seven hypothetical building scenarios presented in the survey. In addition, they determined the average UCC fees for groupings of municipalities based on the party responsible for plan reviews and inspections. These groupings consisted of five plan review and inspection strategies, including enforcement by: municipal employees, a single third-party agency, a combination of municipal and third-party agencies, COG employees, and multiple third-party agencies. They investigated the differences between the average UCC fees of these groups to determine if one strategy might be less expensive than another. They also conducted analyses to determine whether these differences were statistically significant for each of the seven building scenarios: they performed these analyses separately for groups including all municipalities, rural municipalities, and urban municipalities. In all, they completed 210 comparisons: 10 combinations of enforcement strategy, multiplied by seven building scenarios, multiplied by three groupings including all, rural, and urban municipalities.

The researchers also investigated whether there was a

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<sup>1</sup> The Center for Rural Pennsylvania defines a municipality as rural when the population density within the municipality is less than 274 persons per square mile or the municipality's total population is less than 2,500, unless more than 50 percent of the population lives in an urbanized area, as defined by the U.S. Census Bureau. All other municipalities are considered urban. A county is rural when the number of persons per square mile within the county is less than 274. Counties that have 274 persons or more per square mile are considered urban.

<sup>2</sup> All statistical differences described in this report had a threshold significance level of  $\geq 0.05$ . A significance level of  $\geq 0.05$  means that the probability of detecting a difference that does not exist is less than or equal to 5%.



relationship between the number of permits issued annually in a municipality and the cost of UCC fees in that municipality.

The researchers then investigated the prevalence of amendments to the UCC among Pennsylvania municipalities using the UCC survey responses and L&I records. They determined the proportions of all, rural and urban municipalities with amendments adopted pre-July 1, 1999, those adopted between July 1, 1999 and April 9, 2004, and those adopted post-April 9, 2004. For pre-July 1, 1999 and post-2004 amendments, they compared the proportions of municipalities with amendments as indicated by survey responses with proportions calculated using L&I data. (No comparison was made between survey responses and L&I records for amendments adopted between July 1, 1999 and April 9, 2004 because those amendments were declared null and void by L&I.) In addition, the researchers checked each survey response regarding the presence of amendments against L&I records, and calculated the percent agreement between the two data sources.

To assess the degree of uniformity of code requirements in Pennsylvania, the researchers determined the number of code regimes (unique sets of code requirements) among survey respondents in each county in Pennsylvania. Because the number of responses per county varied, the researchers standardized the number of code regimes per county by creating a “percent heterogeneity value” for each county. Percent heterogeneity is defined as the total number of code regimes in a county divided by the total number of responding municipalities in that county. This calculation allowed for a fairer comparison between counties. Percent heterogeneity, or differences, among rural counties was compared with urban counties.

Survey respondents who indicated

that they have amendments to the UCC were also asked to categorize those amendments based on a list of options provided. The researchers tallied the various types of amendments and compared the proportions of all, rural and urban municipalities enforcing those amendments.

To determine the number of new residential permits issued in Pennsylvania from 2005 to 2008, the researchers used DCED-13 data, which were the first full years of permit data collected by DCED. According to DCED, a new residential permit is defined as any permit issued to construct or install a new (not previously occupied) residential dwelling, including site-built, industrialized (modular), and manufactured (mobile) housing. Residential dwelling units include only one- and two-family dwellings and townhouses.

The researchers compared the DCED permit numbers with U.S. Census Bureau numbers for single-family homes (estimates with imputation) in Pennsylvania. They also used Census permit data on all new privately-owned attached and detached single-family houses, including attached single-family houses known commonly as townhouses or row houses where: each unit is separated from adjoining units by a wall that extends from ground to roof, no unit is above or below another unit, and each unit has separate heating and separate utility meters (U.S. Census Bureau, 2008). With the exception that the DCED data includes manufactured (mobile) homes and the Census data does not, the two data sets are comparable in scope.

The researchers also compared the methods of data collection and the completeness of the DCED and U.S. Census permit data. The researchers relied on correspondence with DCED and a review of UCC regulations to assess the DCED-13 data collection process. To better understand the Census Bureau’s data collection pro-

cess in Pennsylvania, they collected information from the Census Bureau’s Web site (U.S. Census Bureau, 2009), and spoke to U.S. Census Bureau staff. The completeness of the data sets was assessed by determining the number of municipalities that did not report in each year from 2005 through 2008.

The researchers also evaluated the potential impact of the UCC on homeowner’s insurance premiums. All of the information gathered for this part of the report was collected via personal communications with insurance industry professionals, or the Insurance Services Office (ISO) Web site. ISO is a company that provides information, including statistical, actuarial, underwriting, and claims data, and consulting services to insurance companies nationwide. This organization was selected because the researchers were previously aware that it conducts periodic evaluations of code enforcement activities in Pennsylvania municipalities (and local governments nationwide).

The researchers interviewed ISO’s Technical Coordinator (Personal Communication 1, 2009) to collect information on how various aspects of the UCC, and local enforcement practices, impact municipal Building Code Effectiveness Grading Schedule (BCEGS®) classifications in Pennsylvania. Also, they obtained data on Pennsylvania municipal BCEGS® classifications for two time periods: one prior to the implementation of the UCC and one after. They compared the overall differences in these scores between the two time periods.

The interview with the ISO Technical Coordinator also provided information on how BCEGS® classifications might impact homeowner’s insurance premiums, and an estimate of the magnitude of that impact based on ISO advisory discounts.

To get a broader perspective on how building codes might affect homeowner’s insurance premiums, the

researchers also interviewed the executive director of the Insurance Federation of Pennsylvania, a trade association for commercial insurers of all types (Personal Communication 2, 2009). This interview provided additional background on the degree to which insurance companies typically use information on building codes to assess homeowner's insurance premiums.

## Results

### UCC Survey Response Rate

Overall, the researchers sent out 2,353 surveys. They received responses from municipal secretaries, councils of governments (COGs) and third-party agencies that perform UCC enforcement duties for multiple municipalities. Among the surveys, 589 were completed by individual municipalities. COGs and third-party agencies returned the remaining surveys, which covered 834 municipalities. The total municipalities covered by the survey was 1,423<sup>3</sup>, which comprise 60 percent of all opt-in municipalities. The rate of return was even higher (68 percent) when only rural municipalities were considered. Responses were received from municipalities 66 of Pennsylvania's 67 counties, excluding Philadelphia. Among respondents, 71 percent were rural and 29 percent were urban.

Of the 834 municipalities covered by COGs and third-party agencies, 157 municipalities were covered by COG responses, and 677 were covered by third-party agencies. Of the third-party agency responses, 469 came from three large agencies<sup>4</sup>. These three large agencies had service territories covering 26 counties throughout Pennsylvania. These counties were mainly located in south central and north central Pennsylvania.

Not all surveys were completed in their entirety. For this reason, the response rates for individual questions were somewhat lower. Questions that required respondents to calculate UCC-related fees had the lowest response rates at 44 to 49 percent. When only considering rural municipalities, the rates were higher at 52 to 57 percent.

General questions had higher response rates with between 56 and 59 percent of all municipalities responding, and 66 to 67 percent of rural municipalities responding. The overall response rate, as well as response rates for individual questions, significantly exceeded the expected rate of 30 percent. The margin of error for the data varied, but never exceeded plus-or-minus 3 percentage points for groups including all municipalities or rural municipalities only, and never exceeded plus-or-minus 5 percentage

points for groups including urban municipalities only.

The researchers also note that survey results are potentially biased toward municipalities that use large third-party agencies for code enforcement, or are members of large COGs. This is because third-party agencies and COGs were contacted directly, resulting in 59 percent of the survey responses coming from these organizations, rather than directly from municipalities. Thus, because of the method of data collection, it is possible that a higher percentage of municipalities relying on third-party agencies or COGs for code enforcement are included in the sample than if all responses came directly from municipalities. However, because of the intense effort to contact and re-contact municipalities, this effect was reduced. Conversations with BCOs who are employees of large third-party agencies indicated that their agencies are responsible for UCC enforcement in large portions of Pennsylvania. Thus, the researchers believe the survey population is representative of the population as a whole.

### Identification of Enforcement Mix

#### *Database comparison*

The process of merging municipal secretary contact information from DCED's Municipal Statistics database and L&I's Municipal Elections and Contact Information database revealed that the two databases are not entirely aligned in terms of municipalities represented. The L&I database contained 31 municipalities that were not in the DCED database. (The DCED database has 28 fewer municipalities listed than the total 2,562 municipalities in Pennsylvania.) With the 184 opt-out municipalities removed, the resulting merged database contained 2,378 municipalities.

#### *Opt-in versus opt-out*

According to the L&I database, 93 percent of all Pennsylvania municipalities opted to take responsibility for UCC enforcement and administration. The analysis showed that the proportion of rural opt-in municipalities is slightly lower than urban municipalities; 91 percent of rural municipalities are listed as opt-in, versus 96 percent of urban municipalities (Figure 1).

#### *Delegation of building code official responsibilities*

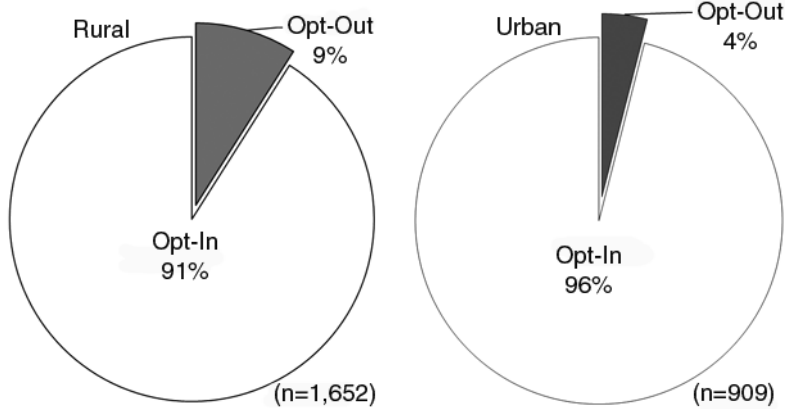
Pennsylvania municipalities are dealing with their responsibility to have a designated BCO in a variety of ways. Out of 1,414 survey responses, 60 percent indicated

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<sup>3</sup> A large portion of these results did not come directly from a municipality, but from a third-party agency or COG. For the sake of simplicity, survey results will be discussed hereafter only in terms of responding municipalities.

<sup>4</sup> According to the Department of Labor and Industry's Uniform Construction Code Web page ([http://www.portal.state.pa.us/portal/server.pt/community/uniform\\_construction\\_code/10524](http://www.portal.state.pa.us/portal/server.pt/community/uniform_construction_code/10524)) there are 175 third-party agencies certified to perform approvals of buildings and structures in Pennsylvania; however, not all of these agencies are certified to perform the full range of residential and commercial approvals.

**Figure 1. Rural and Urban Opt-In Versus Opt-Out Municipalities**



(Data source: Pennsylvania Department of Labor and Industry)

they have a BCO that is an employee of a third-party agency. The next most frequent response was that the BCO is a municipal employee (25 percent), followed by COG employee (10 percent), and “other” (6 percent). Based on comments made by survey respondents, the majority of BCOs in the “other” category were county employees.

Thirteen percent of responding rural and 53 percent of responding urban municipalities have a BCO employed by the municipality. Seventy percent of responding rural and 35 percent of responding urban municipalities have a BCO that is an employee of a third-party agency (Figure 2).

**Delegation of plan review and inspection responsibilities**

Seventy-four percent of rural municipalities and 41 percent of urban

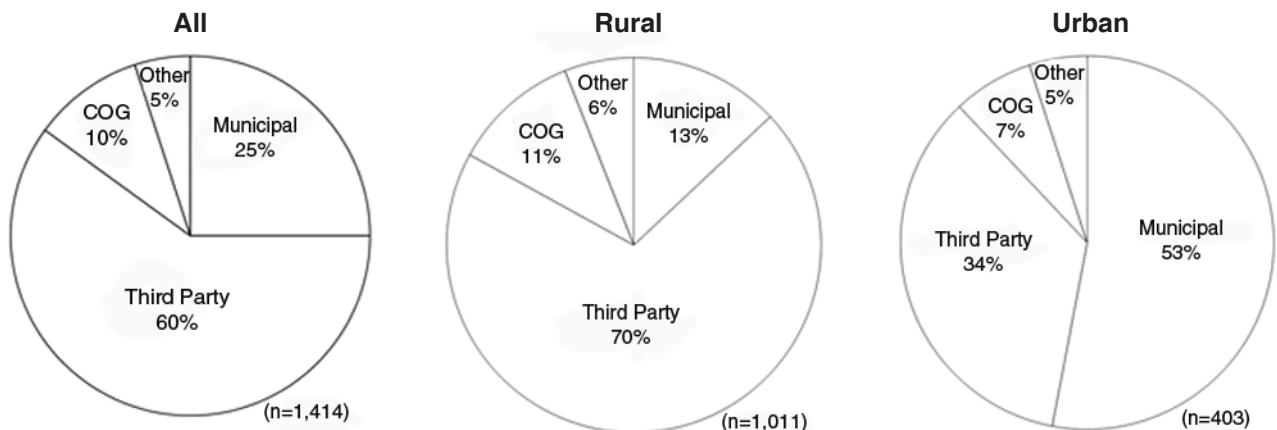
municipalities rely on third-party agencies to perform plan reviews and inspections. Only 5 percent of rural and 27 percent of urban municipalities exclusively use municipal employees for plan reviewers and inspections. A few municipalities used different strategies for plan reviews and inspections, such as municipal employees performing plan reviews and a third-party agency performing inspections. Since this was a small minority (4 percent), for the sake of simplicity, results for inspection responsibilities only are presented in this report (See Figure 3 on Page 12).

For rural municipalities, the breakdown of plan review and inspection responsibilities did not differ significantly between the three categories of plan reviews and inspections: residential, commercial, and accessibility.

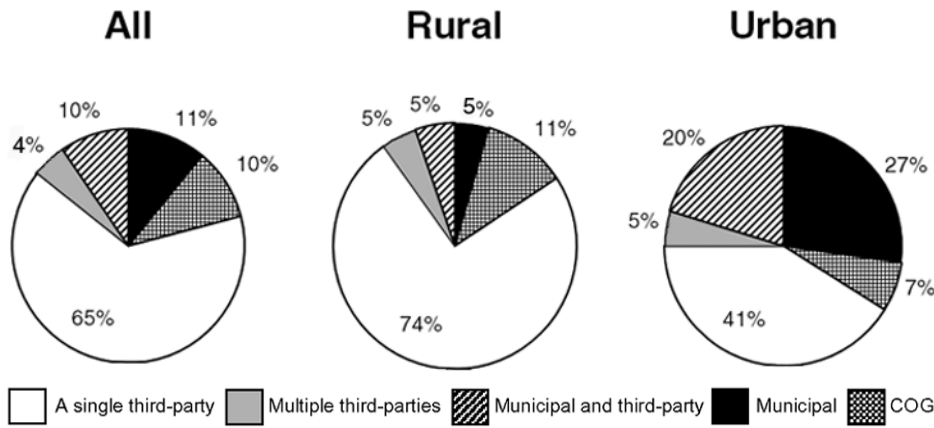
Within urban municipalities, there was a greater proportion of third-party agency enforcement for commercial and accessibility plan reviews and inspections (49 percent), than for residential enforcement (41 percent). This shift toward third-party enforcement for commercial and accessibility plan reviews and inspections in urban municipalities corresponded to a shift away from enforcement by municipal employees. Among urban municipalities, use of municipal employees for plan reviews and inspections was 15 percent for commercial, 21 percent for accessibility, and 27 percent for residential.

In addition, a small portion of municipalities indicated they rely on L&I to perform commercial and/or accessibility plan reviews and inspections. For commercial plan reviews and inspections, 2 percent of all, rural, and urban municipalities said they rely on L&I. However, this is not an enforcement option under the UCC for opt-in municipalities. Almost all of these responses came from a single COG. Respondents may have been referring to accessibility plan reviews and inspections, which were intended to be addressed separately from other commercial plan reviews and inspections in the survey. For accessibility enforcement, 4 percent of all municipalities, 3 percent of rural municipalities, and 7 percent of urban municipalities said they rely on L&I.

**Figure 2. Municipal Delegation of BCO Responsibilities**



**Figure 3. Municipal Delegation of Plan Review and Inspection Roles**



The percentage of rural municipalities that have inter-governmental agreements was higher than urban municipalities for each category of agreements except boards of appeals.

*Establishment of a board of appeals*

The UCC requires that opt-in municipalities have a board of appeals to hear appeals from decisions of the code administrator. According to survey responses, 10 percent of rural opt-in municipalities have not

established a board of appeals, and 3 percent did not respond to the survey question.

The proportion of urban opt-in municipalities with no board of appeals was about the same at 11 percent.

Of the 87 percent of rural municipalities that said they have a board of appeals, 12 percent said they had not established fees for the use of the board: 12 percent of urban municipalities also had no established fees.

*Prevalence of intergovernmental agreements*

Types of intergovernmental agreement include sharing BCOs, boards of appeals, plan review responsibilities, or inspection responsibilities. Nearly 60 percent of all municipalities claimed to have at least one type of intergovernmental agreement regarding UCC enforcement (Figure 4).

Sixty-four percent of rural municipalities said they have at least one intergovernmental agreement: among these, 43 percent have intergovernmental agreements for plan reviews and inspections, 40 percent for meeting BCO responsibilities, and 16 percent for a board of appeals.

Fifty-two percent of urban municipalities said they have at least one intergovernmental agreement: among these, 19 percent have intergovernmental agreements for plan reviews, 20 percent for inspections, 17 percent for meeting BCO responsibilities and 40 percent for boards of appeals.

*Board of appeals fees*

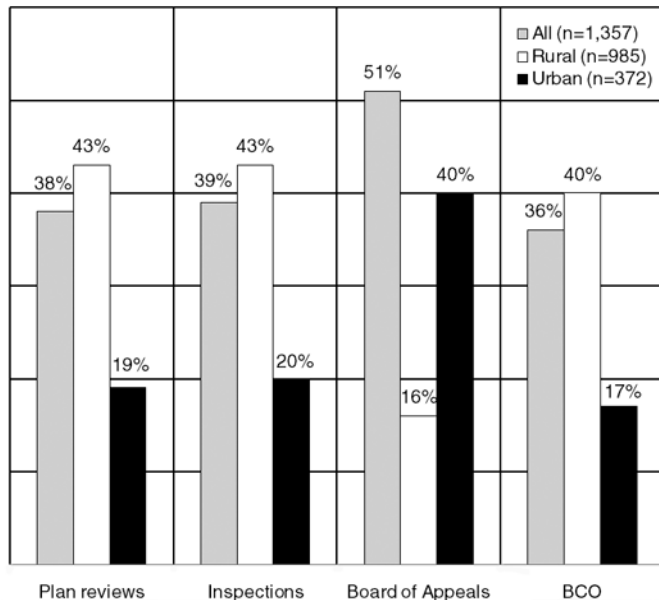
Survey respondents were asked to indicate the fee that would be charged to an applicant for a ruling based on a residential review of briefs, a residential hearing, a commercial review of briefs, and a commercial hearing. Fees for all four types of rulings were to be based on the assumption of eight hours of board of appeals time.

For a residential board of appeals ruling based on a review of briefs, the average fee was \$493. About 10 percent of municipalities indicated there is no charge for a ruling based on a review of briefs, with the majority of these responses coming from two relatively large COGs. In addition, 7 percent of the responses were from municipalities that are members of another large COG, whose response was \$2,000.

For a ruling based on a hearing, the average residential board of appeals fee in rural municipalities was \$565. The average residential hearing board of appeals fee for rural municipalities was statistically significantly higher than urban municipalities. The difference was \$63, or 13 percent.

Average board of appeals fees for commercial buildings in rural municipalities were slightly higher than residential fees with an average of \$537 for a ruling based on a review of briefs, and \$589 for a ruling based on a hearing. There was no statistically significant difference between rural and urban municipalities for commercial board of appeals hearings.

**Figure 4. Prevalence of Intergovernmental Agreements Among Pennsylvania Municipalities**



**Table 1. Board of Appeals Fees for Residential Rulings from Briefs and Hearings**

	Residential					
	Review of briefs			Hearing		
	All N=725	Rural N= 498	Urban N=227	All N=870	Rural N=647	Urban N=223
Average	\$475	\$492	\$438	\$543	\$564	\$480
Median	\$350	\$375	\$350	\$500	\$500	\$400
Min	\$0	\$0	\$0	\$0	\$0	\$0
Max	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000

**Table 2. Board of Appeals Fees for Commercial Rulings from Briefs and Hearings**

	Commercial					
	Review of briefs			Hearing		
	All N=700	Rural N=477	Urban N=223	All N=869	Rural N=647	Urban N=222
Average	\$517	\$536	\$475	\$574	\$589	\$533
Median	\$400	\$400	\$350	\$500	\$500	\$410
Min	\$0	\$0	\$0	\$0	\$0	\$0
Max	\$2,000	\$2,000	\$2,000	\$5,000	\$2,000	\$5,000

For all types of board of appeals fees, there was a wide range of fees as shown in Tables 1 and 2.

### Potential Fiscal Impact of UCC Fees

#### Cost of UCC fees

The average and range of UCC-related fees that municipalities would charge for seven hypothetical building scenarios were determined based on survey responses. (Thirteen responding municipalities had one or more of their UCC fee responses removed from the sample because they were deemed to be outside the realm of possibility, or were inconsistent with their other responses. For example, one response indicated a \$170,937 fee for the single-family-home scenario).

Table 3 shows the average, median, minimum and maximum fees for the three residential scenarios. Among rural municipalities, the average UCC fees were \$1,081 for a single-family home, \$283 for a residential addition, and \$137 for a residential deck. Among urban municipalities, the average UCC fees were \$1,476 for a single-family home, \$349 for the addition, and \$164 for the deck.

In all three residential building scenarios, the average UCC fee for urban municipalities was statistically significantly higher than the rural average. Urban averages were 37 percent, 23 percent, and 20 percent higher than the

rural averages for the single-family home, addition, and deck, respectively.

The average UCC fee estimates were also determined for the responses to the three commercial building scenarios posed in the survey. Among rural municipalities, the average UCC fees were \$6,314 for the office building, \$8,859 for the apartment building, and \$49,571 for the “big box” store. Among urban municipalities, the average UCC fees were \$8,052 for the office building, \$11,037 for the apartment building, and \$63,895 for the “big box” store (Table 4).

Like the residential scenarios, the average UCC fees for all three commercial scenarios were statistically significantly higher than the rural averages. The average UCC fees among urban municipalities were 28 percent, 25 percent, and 29 percent higher than the rural averages for the office building, apartment building, and “big box” store, respectively.

Table 5 shows the average, median, minimum and maximum for the industrial scenario.

Several survey respondents commented that it was difficult to estimate the UCC fees because they base their fees on the number of plumbing and electrical fixtures; these details were not provided in the building scenarios. This potentially contributed to the high levels of variability in the responses for the commercial building scenarios.

L&I is responsible for UCC enforcement of commercial

**Table 3. Average, Median, Minimum and Maximum Residential UCC Fees**

	Single-family home			Addition			Deck		
	All N=1,140	Rural N=859	Urban N=281	All N=1,114	Rural N=833	Urban N=281	All N=1,143	Rural N=861	Urban N=282
Average	\$1,178	\$1,081	\$1,474	\$300	\$283	\$349	\$143	\$137	\$164
Median	\$1,050	\$1,050	\$1,205	\$252	\$252	\$270	\$126	\$125	\$135
Min	\$100	\$100	\$353	\$54	\$60	\$54	\$25	\$31	\$25
Max	\$7,745	\$3,659	\$7,745	\$4,060	\$1,088	\$4,060	\$750	\$539	\$750

**Table 4. Average, Median, Minimum and Maximum Commercial UCC Fees**

	Office			Apartment			Big box		
	All N=1,036	Rural N=781	Urban N=255	All N=1,036	Rural N=781	Urban N=255	All N=1,045	Rural N=795	Urban N=250
Average	\$6,742	\$6,314	\$8,052	\$9,395	\$8,859	\$11,037	\$52,998	\$49,571	\$63,895
Med	\$6,700	\$6,300	\$6,875	\$9,120	\$9,120	\$9,120	\$49,510	\$49,025	\$53,215
Min	\$850	\$850	\$1,125	\$1,125	\$1,250	\$1,125	\$1,125	\$1,500	\$1,125
Max	\$40,000	\$35,000	\$40,000	\$55,000	\$30,686	\$55,000	\$494,504	\$368,500	\$494,504

**Table 5. Average, Median, Minimum and Maximum Industrial UCC Fees**

	Factory		
	All N=1,044	Rural N=796	Urban N=248
Average	\$39,240	\$39,943	\$36,984
Median	\$26,112	\$25,578	\$31,000
Min	\$1,050	\$1,500	\$1,050
Max	\$317,689	\$317,689	\$317,689

buildings that are built in opt-out municipalities, as well as all state-owned buildings in Pennsylvania. L&I provided the researchers with the fee amounts it would charge to perform UCC enforcement for the same three hypothetical commercial building scenarios, and the one industrial scenario, that were presented to survey respondents. For the office building, apartment building, and “big box” store, L&I fees are \$2,100, \$3,300, and \$20,100, respectively.

There was no statistically significant difference between the average UCC fees of rural and urban municipalities. The L&I fee for UCC enforcement of the industrial building scenario was \$12,500.

### Administrative fees

A significant portion of municipalities that outsource BCO, plan review and inspection duties to one or more third-party agency collects some type of fee in addition to the third-party agency’s fees. More than 100 municipalities collected this additional fee, which might be considered an “administrative fee.” (The question of municipal administrative fees was not specifically addressed in the UCC survey; instead, this information was obtained through direct contact with several third-party agencies. Thus, there could be more municipalities that charge administrative fees than was captured in this analysis.) These administrative fees were, in some cases, small flat fees in the \$15 to \$40 range. More commonly these fees were based on a percentage of the third-party agency’s fee, and ranged from 10 to 23 percent. The most common administrative fee percentage was 10 percent of the third-party agency’s fee, with 50 municipalities charging this amount. The next most common percentage was 5 percent, charged by 32 municipalities, and the third most common percentage was 23 percent, charged by 11 municipalities.

### Comparison of average UCC fees between several enforcement methods

The researchers determined the average UCC fees for groupings of municipalities based on the party that is responsible for plan reviews and inspections. These groupings included five plan review and inspection methods, including enforcement by: municipal employees, a single third-party agency, a combination of municipal employees and a third-party agency, COG employees, and multiple third-party agencies. Differences between the average UCC fees of these groups were investigated to determine if one strategy might be less expensive than another. Several statistically significant differences were found, but there was no consistent pattern across all seven building scenarios that would indicate that one strategy is less expensive than another strategy. Likewise, there was no clear pattern across the three residential building scenarios, or across the four commercial building scenarios, when assessed separately.

The only consistent trend among multiple building scenarios was that, among rural municipalities, the average UCC fee for COGs was statistically significantly higher than all of the other enforcement strategies for the three commercial building scenarios.

The researchers performed a similar analysis to determine whether statistically significant differences exist between average UCC fees of municipalities grouped by BCO employer. Again, there was no consistent pattern of differences among building scenarios or among groupings of all, rural and urban municipalities.

### Number of permits issued versus cost of UCC fees

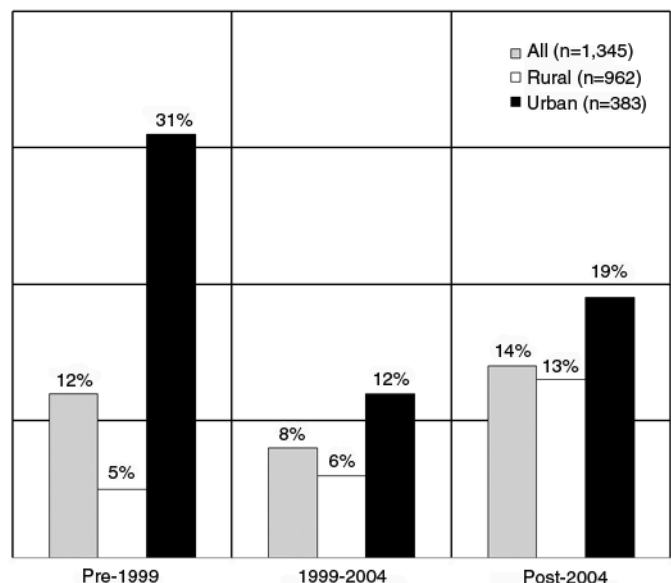
The research included an investigation of the potential influence of the number of permits issued in a municipality on the cost of UCC-related fees. The analysis found no correlation between UCC fees and the number of permits issued in general, and in terms of rural and urban municipalities separately.

## Uniformity of Code Requirements

### Prevalence of municipal amendments to the UCC

UCC survey responses indicated the presence of at least one amendment to the UCC in 21 percent of rural municipalities. In comparison, more than 50 percent of responding urban municipalities indicated the presence of at least one amendment. Twelve percent of all municipalities had a pre-July 1, 1999 amendment, including 5 percent of rural and 31 percent of urban municipalities. Survey responses indicated that 8 percent of all municipalities have an amendment that was adopted between July 1, 1999 and April 9, 2004, including 6 percent of rural and 12 percent of urban municipalities. Survey responses also indicated

Figure 5. Municipal Amendments to the UCC



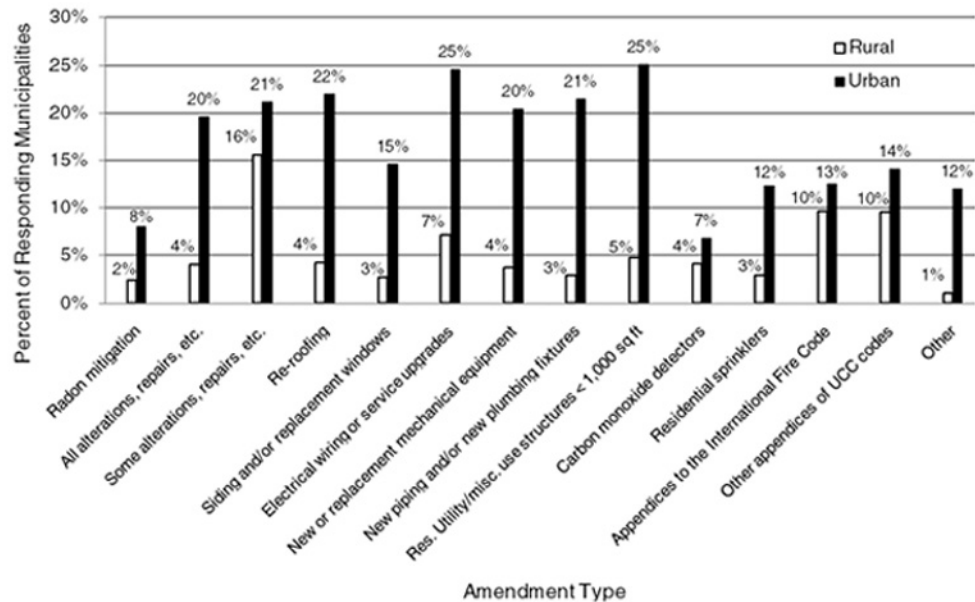
the presence of post-April 9, 2004 amendments in 14 percent of all municipalities, including 13 percent of rural and 19 percent of urban municipalities (Figure 5).

According to L&I's Municipal Elections and Contact Information database, 36 percent of opt-in municipalities enforce pre-July 1999 amendments. Also according to that database, it is less common for rural municipalities to have a pre-July 1999 amendment than it is for urban municipalities. L&I data indicate that 26 percent of rural and 54 percent of urban municipalities have a pre-July 1, 1999 amendment. This contrasts the survey responses, where 5 percent of rural municipalities and 31 percent of urban municipalities indicated they have a pre-July 1999 amendment.

On April 9, 2004 (the date of implementation of the UCC regulations), the Pennsylvania Construction Code Act repealed any municipal building code ordinances adopted after July 1, 1999. Any municipal code ordinances or provisions adopted between July 1, 1999 and April 9, 2004 were disallowed, and would have had to be reviewed and approved by L&I after April 9, 2004 (in accordance with Section 503 of the Act) to be legally adopted. Possibly in conflict with the act, 8 percent of Pennsylvania municipalities indicated they are enforcing amendments enacted during that time period. This includes 6 percent of rural municipalities and 12 percent of urban municipalities.

L&I's Municipal Code Change Ordinances database is a separate database for municipal amendments to the UCC that were adopted after April 9, 2004. According to this database, 6 percent of all municipalities have a post-April 9, 2004 amendment, including 3 percent of rural municipalities, and 10 percent of urban

**Figure 6. Proportions of Municipalities with Various Types of Amendments to the UCC**



municipalities. L&I records indicate significantly fewer post-April 9, 2004 amendments than indicated by survey respondents.

### Code Requirement Differences

The researchers calculated the percentage of code requirement differences (heterogeneity) for 66 Pennsylvania counties (Philadelphia was excluded) based on the UCC survey responses to questions regarding amendments. This percentage is defined as the total number of code regimes (unique sets of code requirements) in a county divided by the total number of responding municipalities in that county. This is used to measure code uniformity in a particular geographic area. Overall, 19 counties, all rural, had 0 percent heterogeneity, meaning that all code requirements are the same for each municipality in that county that responded to the survey.

This could mean that either there were no amendments to the UCC among responding municipalities in that county, or, if there were amendments, the amendments were the same in each municipality. Overall, there was more uniformity of code

requirements among rural municipalities than there was in urban municipalities as the average percent heterogeneity was 15 percent among rural counties and 42 percent among urban counties. In addition, 21 percent of rural counties had a heterogeneity value greater than or equal to 30 percent, while 67 percent of urban counties met or exceeded this mark.

Of the 14 categories of amendments listed in the UCC survey, the most common type of amendment among rural municipalities fell under the category, "some alterations, renovations, remodeling, and repairs to existing residential structures," which comprised 16 percent of responding rural municipalities. The next most common amendment types at 10 percent each were the adoption of appendices to the International Fire Code and other appendices of UCC codes. Urban municipalities had a higher prevalence of amendments in each of the amendment categories listed in the UCC survey (Figure 6). Ten percent of rural municipalities indicated they have adopted appendices of UCC codes. According to the L&I Municipal Code Change Ordinances database, only one rural municipality and seven urban municipi-

palties had adopted appendices to UCC codes. Urban municipalities had a higher prevalence of amendments in each of the amendment categories listed in the UCC survey. Ten percent of rural municipalities indicated they have adopted appendices of UCC codes. According to the L&I Municipal Code Change Ordinances database, only one rural municipality, and seven urban municipalities, had adopted appendices to UCC codes.

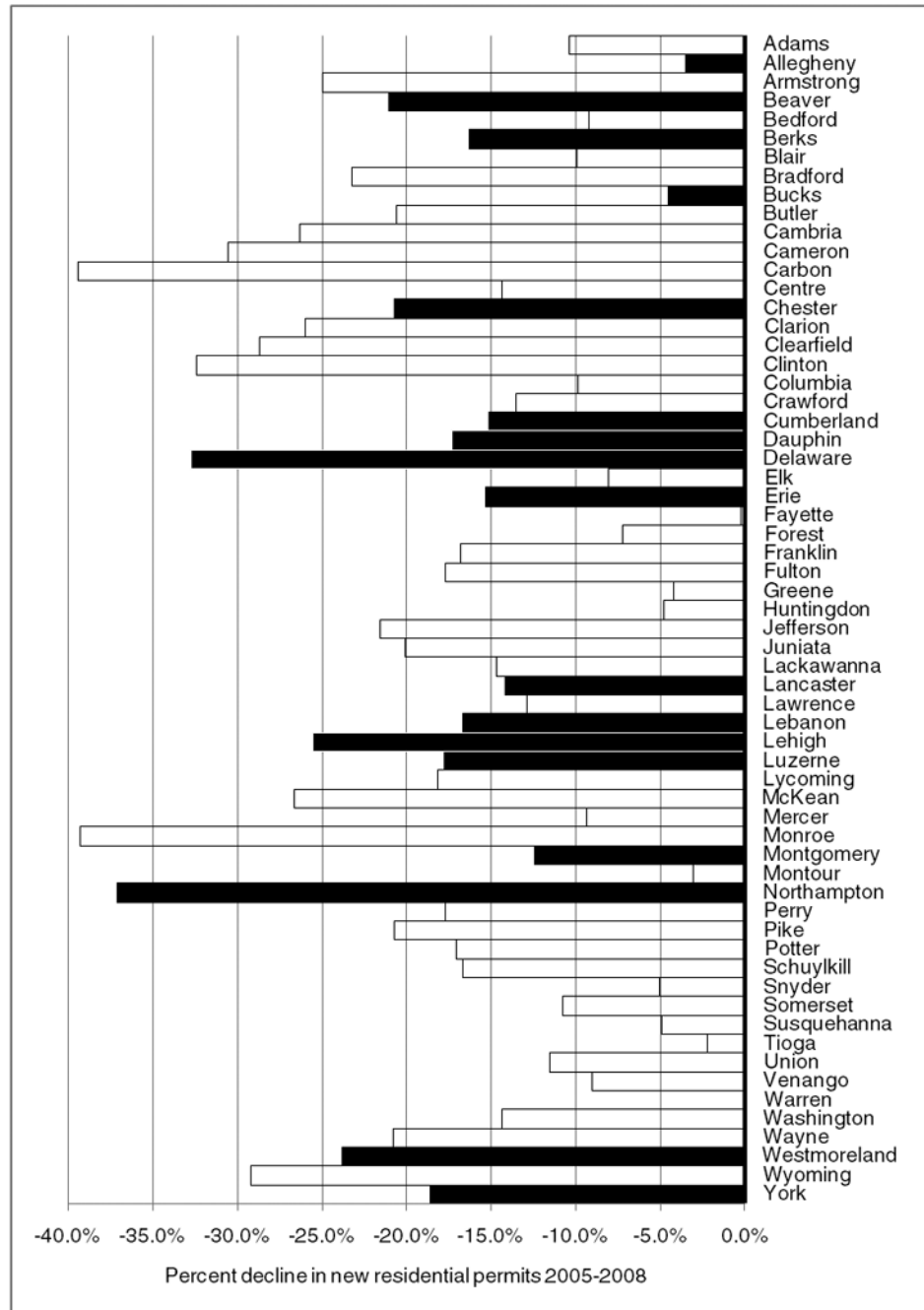
**Building Permit Data**

With the enactment of the UCC in 2004, municipalities were required to submit quarterly reports to DCED on the number of permits issued in that municipality. According to these data, all but four Pennsylvania counties experienced declines in the number of new residential permits issued between 2005 and 2008 (Figure 7). (The counties experiencing growth have relatively low levels of permit activity, so small amounts of activity can have a proportionately large effect.) Overall, the number of new residential permits issued in Pennsylvania declined from 41,087 in 2005 to 21,858 in 2008, with an average annual decline of 19 percent per year. According to the U.S. Census Bureau, the national average annual decline in permits issued over the same time period was 29 percent (U.S. Census Bureau, 2009).

Rural counties experience slightly lower rates of decline than urban counties. The county-level average annual changes in permits issued in rural municipalities was -13 percent compared to -18 percent in urban municipalities. That difference is statistically significant. Data for Philadelphia were not available.

The U.S. Census reported similar, but somewhat lower numbers. Between 2005 and 2008, U.S. Census estimates with imputations for new residential building permits were on average 9 percent lower than DCED records showed. One reason DCED numbers might be higher is because

**Figure 7. Average Annual Percent Decline in New Residential Permits Issued Between 2005 and 2008 in Pennsylvania Counties**



manufactured (mobile) housing is included in DCED data, but not in the Census data.

**Data collection processes**

The research investigated the data collection processes of DCED and the Census Bureau. As mentioned previously, municipalities are required to submit quarterly reports on the number of permits issued in their municipalities as part of their Act 13 reports.

On the other hand, the Census Bureau surveys a sample



of about half of Pennsylvania municipalities to gather monthly permit data. It requests that the remaining municipalities report their permits annually.

The research found that, in 2008, the Census began supplementing the data it collects with the data collected by DCED. It appears that the incorporation of DCED-13 permit data has resulted in a significant improvement in the completeness of the Census Bureau's single-family home permit data.

However, the research also found that, in general, there are several differences in the major categories of data collected by DCED and the Census Bureau. For example, the Census Bureau does not collect permit data for work performed on existing dwellings while DCED does. Also, the Census Bureau collects data on two-, three-, four- and five-or-more-family dwellings, while DCED groups these types of dwellings into "commercial" construction data, which also includes hotels and retail units.

## Insurance

Much of the information in this section is based on personal communications with professionals that have intimate knowledge of the insurance industry. Follow-up phone calls and emails were used to verify that the information in this section was accurate. These communications were conducted to evaluate the potential impact of the UCC on homeowners' insurance premiums.

Building codes are likely to have a positive impact on insurance rates to the extent that they heighten building requirements and yield fewer claims. Building codes commonly factor into the actuarial process used by insur-

ance companies to determine rates. However, reductions in insurance premiums resulting from building codes are not likely to be commensurate with the immediate cost of installing items required to meet various code requirements. In addition, the impact of building codes on insurance premiums varies from building to building because of project-specific details. (Personal Communication 2, 2009).

One way that insurance companies evaluate the stringency and effectiveness of building codes and building code enforcement in a particular community (municipality, or group of municipalities with the same code enforcement authority, in the case of Pennsylvania) is through the Insurance Services Office's Building Code Effectiveness Grading Schedule (BCEGS®). The Insurance Services Office (ISO) is a company that provides information, including statistical, actuarial, underwriting, and claims data, as well as consulting services to insurance companies nationwide. A significant portion of Pennsylvania insurance companies use ISO's BCEGS®, but its use is not universal, as some companies rely on their own experience to determine rates (Personal Communication 2, 2009).

Municipalities participating in BCEGS® are given a "building code effectiveness classification" based on their answers to an ISO questionnaire, and on-location interviews.

BCEGS® classifications for Pennsylvania municipalities have improved dramatically since the implementation of the UCC in 2004. According to data provided by ISO (Dorio, 2010), ISO conducted 959 BCEGS® surveys in Pennsylvania,

representing 1,246 municipalities between 1997 and 2003, which was prior to the implementation of the UCC. Of the communities surveyed, 81 percent were classified by ISO as "Class 99" – meaning they did not meet the minimum criteria to be evaluated using BCEGS®, or they declined to participate. From 2004 to 2009, ISO conducted 1,677 BCEGS surveys in Pennsylvania, representing 2,194 municipalities. Over this time period, during which all but three months were after the implementation of the UCC, the number of communities classified as "Class 99" was down to 22 percent (Dorio, 2010).

In addition to the reduction in the number of "Class 99" municipalities, there has been a general improvement in municipal BCEGS® classifications in Pennsylvania. Municipalities participating in BCEGS® evaluations, and having sufficient documentation of code enforcement practices, are classified by ISO on a scale of one to 10, with one being the best and 10 being the worst (ISO, 2010).

Pennsylvania BCEGS® classifications are likely to continue to improve over the next few years because of the expiration of code official grandfathering on April 9, 2007 for residential certifications, and April 9, 2009 for commercial certifications.<sup>5</sup> Code official training and certification requirements have a significant impact on BCEGS® classifications. Municipalities are reviewed roughly once every five years, so as municipalities that were reviewed prior to the expiration of grandfathering come up for another review, their scores should improve (all other things being equal) (Personal Communication 1, 2009).

It was beyond the scope of this research to put a dollar value on the impact of the UCC in terms of insurance premiums.

Flood-prone areas will be most affected by BCEGS classifications due to a link between ISO's BCEGS® and the Federal Emergency Management Agency's (FEMA) National Flood

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<sup>5</sup> Code official grandfathering refers to the commonwealth's previous allowance of code officials who had not met statewide certification requirements to perform plan reviews and inspections in Pennsylvania. Following the implementation of the UCC on April 9, 2004, existing code officials had three years to obtain their residential certifications, and five years to obtain commercial certifications. The UCC requires code officials to pass certification exams for the various disciplines under which they perform plan reviews and inspections, and to attend 15 hours of continuing education in each three-year period for each certification they hold – with a 45 hour maximum.

Insurance Program (NFIP) Community Rating System (CRS) (FEMA, 2009). According to FEMA, the CRS is intended to “recognize and encourage community floodplain management activities that exceed the minimum NFIP standards.” Homeowners in municipalities that are CRS participants will lose a 5 percent discount on flood insurance for every increase in BCEGS® classification. In other words, a Class 1 municipality would receive a 45 percent discount, and a Class 9 would receive a 5 percent discount (FEMA, 2009). According to FEMA, 96 percent of Pennsylvania municipalities participate in NFIP, but only 28 municipalities participate in the CRS; 10 of those are rural (FEMA, 2008a). The CRS program requires a class 6 or better to participate (Personal Communication 2, 2009). Thus, with the implementation of the UCC, and the resulting improvements in Pennsylvania BCEGS classifications, homeowners in many more municipalities could now be eligible for federal flood insurance discounts. Pennsylvania has had 14 Major Disaster Declarations since 1999 that involved flooding (FEMA, 2008b).

Overall, the UCC has improved BCEGS® classifications of Pennsylvania municipalities. This is in large part due to Pennsylvania’s adoption of the latest version of the International Code Council’s (ICC) suite of building codes (I-Codes). There are currently two aspects of the UCC (and how it is typically enforced) that result in lower BCEGS® classifications for Pennsylvania municipalities. One is the UCC’s exclusion of utility structures under 1,000 square feet, and the other is a lack of enforcement of the ICC Wildland-Urban Interface Code, which is intended to reduce the risk of damage resulting from wildfires (Personal Communication 1, 2009).

## Conclusions

### Identification of Enforcement Mix

More than 90 percent of all Pennsylvania municipalities opted to administer and enforce the UCC. However, about one in 11 rural municipalities and one in 23 urban municipalities opted out.

Survey results indicated that a significantly higher proportion of rural municipalities are choosing to outsource their UCC responsibilities as compared to urban municipalities. Thirty-five percent of urban municipalities indicated that they have a third-party BCO compared to 70 percent of rural municipalities. The difference was less pronounced in terms of inspection responsibilities, with 69 percent of urban municipalities using one third-party agency, multiple third-party agencies, or a combination of municipal and third-party agencies, compared to 84 percent of rural municipalities using those methods.

Urban municipalities indicated they use municipal employees to perform plan reviews and inspections significantly more frequently than rural municipalities,

with 47 percent of urban municipalities using municipal employees or a combination of municipal employees and third-party agencies, compared to 10 percent of rural municipalities using those strategies.

Overall, UCC enforcement by third-party agencies is the dominant strategy in Pennsylvania.

While this study did not specifically look to understand why different administration and enforcement methods are used by rural municipalities, it looks as though lower volumes of construction activity may result in poor economies of scale for staffing and funding a code office. Thus, third-party agencies, which provide services over broad expanses of rural Pennsylvania, may be better positioned to provide UCC administration and enforcement services in rural areas.

Intergovernmental agreements, in one form or another, were found to be common among responding municipalities. Around 40 percent of survey responses from rural municipalities indicated they have intergovernmental agreements regarding plan reviews, inspection, and BCO responsibilities. These types of agreements are about twice as common among rural municipalities than among urban municipalities. This trend reversed for boards of appeals, with 40 percent of urban municipalities indicating they have that type of intergovernmental agreement compared to 16 percent of rural municipalities. Further study would be required to determine why rural municipalities have a significantly lower frequency of intergovernmental agreements for board of appeals as compared to urban municipalities; whereas the frequency of all other types of intergovernmental agreement was significantly higher among rural municipalities.

### Board of Appeals

Since the UCC was implemented, a significant number of municipalities, about one in 10, still have not established a board of appeals.

In rural municipalities the average fee for a residential board of appeals ruling based on a review of briefs was about \$500, and the average fee for a residential hearing was higher at \$565. In addition, with the upper 25 percent of residential board of appeals fees ranging from \$600 to \$2,000 for a review of briefs and from \$750 to \$2,000 for a hearing, there are a substantial number of municipalities with fees well above the average.

Average board of appeals fees for commercial rulings were only slightly higher than residential fees. A significant number of municipalities also have commercial board of appeals fees that are well above the average. There was an overall lack of consistency between municipal board of appeals fees with fees spread widely above and below the average.

The average cost of filing an appeal with a board of ap-

peals in rural municipalities was \$63, or 13 percent lower than in urban municipalities. The average board of appeals fee for rural municipalities with an intergovernmental board of appeals was \$77, or 12 percent lower than rural municipalities not sharing a board. However, the opposite was true for urban municipalities where the average fee for municipalities with an intergovernmental board of appeals was 27 percent higher than those without. These conflicting results make it difficult to say whether having an intergovernmental board of appeals reduces the cost of filing an appeal.

## Potential Fiscal Impact of UCC-Related Fees

By estimating mean UCC fees charged by municipalities, third-party agencies, COGs, or other entities, this study established a baseline for determining how a municipality's fees compare to the state average, and where their fees lie in the overall range. The middle 50 percent of the data is most likely to represent the range of fees that one would expect to pay for the services provided by UCC enforcement entities for BCO, plan review, and inspection responsibilities for buildings similar to those presented in the seven building scenarios in the survey. For the residential construction scenarios, the middle 50 percent of the data for UCC fees in rural municipalities ranged from \$750 to \$1,347 for a single-family home, \$172 to \$341 for an addition, and \$89 to \$187 for a deck. For the commercial construction scenarios, the middle 50 percent of the data for UCC fees in rural municipalities ranged from \$4,231 to \$8,226 for a three-unit office building, \$6,570 to \$11,402 for an eight-unit apartment building, \$34,941 to \$62,000 for a "big box" store, and \$23,564 to \$31,621 for a factory. A range of fees is to be expected due to variations in project details, driving times, and local market characteristics. The average UCC fee for rural municipalities was significantly lower than urban municipalities. This is despite the fact that the cost of construction was specified in the building scenarios in the survey questionnaire, indicating the difference is a result of something other than differential cost of construction between rural and urban areas.

UCC fees for each of the seven building scenarios had a wide range of costs. A number of UCC fees were well above average, and some were several times the average fee. In rural municipalities, the upper 25 percent of UCC fees for a 2,500 square foot single-family home ranged from 0.50 to 1.5 percent of the cost of construction. For the office building, apartment building, and big box store scenarios in rural municipalities, the upper 25 percent of UCC fees ranged from 0.63 to 3.7 percent of the cost of construction. For a factory, the upper 25 percent of UCC fees ranged from 0.87 to 6.1 percent of the cost of con-

struction. The highest commercial and industrial UCC fees are tens of thousands of dollars above the average fee. Because survey respondents were given the same information to use to determine the hypothetical UCC fees, the wide range of responses indicates that there is a variety of ways that municipalities determine their fees.

Many municipalities that use a third-party agency to meet BCO, plan review, and inspection responsibilities charge an administrative fee in addition to the third-party agency's fee. Fees of 5 to 23 percent of the fee charged by the third-party agency were reported. While municipalities' justifications for charging these fees were not studied, potential uses include, but are not limited to, covering the costs of: record retention, storage and retrieval requirements; board of appeal expenses that cannot be passed on to those filing the appeals; providing the public with access to the adopted codes and standards and purchasing them every three years; and municipal staff time in answering questions, directing people to the correct third-party agency, distributing permit applications and in some cases, website maintenance. It is also possible that municipalities are using these fees to generate revenue for uses that are not related to the UCC.

UCC fees charged by L&I for commercial and industrial projects falling within its jurisdiction were well below the average fees charged by municipalities, COGs, and third-party agencies. This is probably not evidence that municipalities are charging fees that are greater than the cost of code enforcement, but is more likely a result of a separation of the entity performing enforcement duties and the recipient of the fees charged. Since Act 45 did not establish a segregated fund for permit fees collected by L&I, these fees go into the commonwealth's general fund, rather than to supplement the L&I budget. Thus, recovering the costs of UCC enforcement activities is not likely to be a primary concern for L&I.

There was also no evidence that would lead to the conclusion that one method for meeting BCO, plan review and inspection responsibilities results in less expensive UCC fees than another. There was no pattern across all (or most) of the seven hypothetical building scenarios regarding statistically significant differences between average UCC fees of municipalities, grouped by the party responsible for BCO, plan review and inspection responsibilities. Similarly, significant differences that were present between groups of rural municipalities did not hold up when urban municipalities were included. Thus, it is difficult to say that one enforcement strategy results in less expensive UCC fees than another. More data regarding fees charged by municipalities who use their own staff for UCC enforcement rather than a third-party agency might result in the emergence of a statistically significant difference in average UCC fees for municipal and third-party enforcement strategies.

Finally, there does not appear to be any relationship between the number of permits issued in a municipality and the cost of UCC fees.

## **Uniformity of Code Requirements**

About one-fifth of rural municipalities said they are enforcing one or more amendments to the UCC.

There was significant divergence between survey results and L&I records on the number of municipalities enforcing amendments to the UCC. This degree of divergence indicates that a significant number of municipalities may have enacted UCC amendment ordinances in violation of the procedures for doing so prescribed in Section 503 of Act 45. Alternatively, survey respondents may have been confused about which items are considered amendments, and what the actual dates of adoption were for the amendments they specified.

Survey responses indicated that 6 percent of rural municipalities and 12 percent of urban municipalities enforce amendments adopted between July 1, 1999 and April 4, 2004. This is a time period during which no ordinances are recognized by L&I. Thus, there is an apparent conflict between these municipalities' ordinances and the Pennsylvania Construction Code Act, which repealed all municipal ordinances adopted during this time period. This is also evidence that a significant number of municipalities may be enforcing amendments that were never legally adopted in accordance with Section 503 of Act 45. Alternatively, this may also be an indication of respondent confusion as described above. Further research would be necessary to determine, with certainty, the prevalence of unlawful amendments.

The fact that amendments are common indicates a lack of uniformity of code requirements across the commonwealth, which is in conflict with one of the principal objectives of Act 45. A lack of uniformity can create variable construction costs and logistical problems for builders and design professionals whose territories encompass multiple municipalities.

With nearly 30 percent of rural municipalities indicating they enforce some type of amendment to the UCC, the results of this study suggest that a builder or design professional operating in rural areas of the commonwealth is likely to experience a significant lack of uniformity of code requirements.

In terms of a lack of uniformity, rural municipalities do not appear to be impacted as severely as urban municipalities. Heterogeneity of code requirements was significantly greater among urban municipalities. This may be indicative of the far smaller proportion of rural municipalities that had building codes in effect prior to the enactment of the UCC than their urban counterparts (Fortney and Budenbohn, 1998).

The UCC itself does not regulate existing residential construction unless there is an alteration that would result in a structural change to a building. However, the most common types of municipal code changes involve changes to existing residential buildings, with more than 15 percent of rural municipalities, and 20 percent of urban municipalities, indicating that they enforce an amendment regulating some type of alteration, renovation, remodeling, or repair to existing residential structures.

Survey responses indicated that 10 percent of rural municipalities and 14 percent of urban municipalities enforce appendices to the International Fire Code, or other appendices to UCC codes.

According to the L&I Municipal Code Change Ordinances database, only one rural municipality, and seven urban municipalities, had adopted appendices to UCC code. Thus, it is suspected that at least some of these amendments were not adopted in accordance with the approval process mandated by Act 45.

Because the Census Bureau does not collect permit data on buildings that do not contain dwelling units, the DCED-13 database is the only source for commercial buildings that are not used as dwellings. In addition, the DCED-13 database is the only source for permit data related to existing construction and miscellaneous permits such as plumbing and electrical. Finally, permit data from the U.S. Census Bureau regarding apartment buildings (one unit on top of another) cannot be compared with DCED data, because these permits are considered commercial permits, and are grouped together with other types of commercial permits.

## **Impact on Insurance Premiums**

Interviews conducted for this project indicate that building codes and building code enforcement are a factor in how insurance companies determine building owner insurance rates, but their impact in most cases is relatively small. There is a grading system of building code enforcement that is commonly used by insurance companies to aid them in their actuarial process. This grading system is a program of the Insurances Services Office (ISO), and is called the Building Code Effectiveness Grading Schedule, or BCEGS®.

Data provided by ISO showed that, in general, the classifications of Pennsylvania municipalities have improved significantly in the years following the implementation of the UCC. It was also determined that ISO issues "advisory discounts" to insurance companies based on a municipality's BCEGS classification®. If taken at face value by insurance companies, these advisory discounts would result in a 1 to 3 percent discount on homeowners' insurance premiums, for homes built since the implementation of the UCC, in 78 percent of municipalities surveyed by

ISO. In addition, homeowners in municipalities that participate in the Federal Emergency Management Agency's National Flood Insurance Program and Community Rating system could receive discounts on flood insurance of up to 45 percent (FEMA, 2009).

## Policy Considerations

Unless otherwise specified, the following policy considerations are directed toward the Pennsylvania General Assembly. These considerations are not necessarily in order of priority.

### The Opt-Out Option

The General Assembly may want to consider eliminating a municipality's ability to opt-out of UCC enforcement. Opt-out municipalities, which chose not to take responsibility for UCC administration or enforcement, comprise 9 percent of rural municipalities and 4 percent of urban municipalities. The results of this study indicate that the majority of rural opt-in municipalities have chosen to outsource the bulk of those responsibilities to third-party agencies, or share responsibility through intergovernmental agreements. Since the day-to-day responsibilities of UCC administration and enforcement can be outsourced, eliminating the opt-out option is not likely to impose a financial hardship on municipalities that currently opt out.

In opt-out municipalities, there is no state or local government oversight regarding residential aspects of the UCC. Eliminating the opt-out option would mean that all municipalities would take legal responsibility for UCC enforcement, and have the ability to provide oversight of third-party agencies, contractors and building owners. This would likely help to ensure higher rates of compliance with the UCC. Also, there is no requirement for opt-out municipalities to establish a UCC board of appeals, leaving residential permit applicants with no way to appeal UCC-related decisions made by third-party agencies. In addition, there are no permit reporting requirements for opt-out municipalities, so the number of permits issued is not reported to DCED. Finally, homeowners in opt-out municipalities could have slightly higher insurance premiums as a result of the difficulties in documenting code enforcement when there are no designated building code departments. For these reasons, the General Assembly should reevaluate whether allowing municipalities to opt-out is appropriate given the relatively small burden imposed on municipalities.

### Evaluating Uniform Construction Code Fees

Local and state policymakers should use the information provided in this report regarding UCC fees to determine if the amounts charged by municipalities and other UCC

enforcing entities are acceptable. UCC fees established by municipalities (in conjunction with third-party agencies, in many cases) should be commensurate with the actual cost of UCC enforcement. The wide range of UCC fees presented in this report suggests that a significant number of municipalities are charging fees that are well below, or well above, the amount required to cover the costs of adequate code enforcement. If a municipality's UCC fees are well below average, it is likely that the revenue generated by those fees is not sufficient to fund the minimum levels of plan reviews and inspections that are required to adequately enforce the code. This may compromise the health and safety of building occupants. On the other hand, UCC fees well above average suggest that a municipality may be using these fees to generate revenue for uses other than funding UCC-related activities. High UCC fees impact the overall cost of construction, and may ultimately impact the cost of new home ownership, or influence the location of new commercial and industrial construction projects.

This research established what is believed to be an accurate estimate of the average cost of UCC fees charged by code-enforcing entities in Pennsylvania. This creates a baseline against which legislators and municipal officials can compare the UCC fees in their jurisdictions, and help them determine whether they deem those fees to be acceptable. Where UCC fees are deemed to be unacceptable, fee schedules should be evaluated along with determining the actual cost of code enforcement. If the current fee schedule is determined to result in fees that are significantly higher or lower than the cost of UCC enforcement, action should be taken to establish new fee schedules.

High administrative fees, charged by municipalities where a third-party agency is providing all UCC administration and enforcement services, may indicate that a municipality is using UCC fees for purposes unrelated to the UCC. However, a municipality may have legitimate UCC-related costs that must be covered, related to items such as simple record-keeping, record retention, storage and retrieval, taking phone calls and answering questions from potential permit applicants, and maintaining public access to code documents. Administrative fees should be evaluated along with the overall UCC fee schedule to determine if they are commensurate with the administrative services provided.

### The Right to Appeal

The legislature should consider giving L&I the authority to impose sanctions on municipalities who fail to comply with their responsibility to establish a board of appeals (until such time as a board of appeals is established).

Almost one in 10 municipalities indicated they have not established a board of appeals, as is the obligation of all opt-in municipalities under the UCC. This deprives resi-

dential and commercial permit holders and property owners of their right to challenge a UCC-related decision. The first step toward enforcing the requirement for municipalities to have a board of appeals could be to require that municipalities provide L&I with documentation of having established a board of appeals, such as a list of board members. Encouraging intergovernmental agreements for boards of appeals may help reduce the effort required to recruit and retain qualified board members for municipalities that have not yet established a board.

Also, local and state policymakers should evaluate how municipalities and COGs are determining their board of appeals fees, and whether action should be taken to create a more standardized method for determining fees. Chapter 5 of Act 45 states that board of appeals fees must only cover the actual cost for: public notice, court reporter, and administrative fees as necessary. Board of appeals fees may be a disincentive to potential applicants wishing to use the board of appeals. On the other hand, if there are no fees, or if the fees are low, it could encourage frivolous use of the board. The wide range of fees being charged as presented in this report indicate that there is a wide range of rationales behind establishing those fees. While some of the fees described in this report may be a disincentive to potential applicants wishing to use a board of appeals, applying the “actual cost” approach could result in fees higher than many municipalities have established. With some municipalities not charging a board of appeals fee, and others charging as much as \$2,000 for an eight-hour hearing, it appears that the financial burden of having a dispute heard lies anywhere from completely on the municipality (or COG) to completely on the permit holder. Policymakers, therefore, may want to evaluate these fees to determine reasonable rates for municipalities to impose on homeowners, contractors and design professionals wishing to file an appeal.

## **Making the Uniform Construction Code More Uniform**

L&I should consider requiring all municipalities to declare all amendments they are enforcing (including grandfathered amendments from prior to July 1, 1999), along with documentation of the date of enactment. This would provide information on whether municipalities are enforcing unlawful amendments. It also would allow legislators to determine whether further action is warranted to eliminate unlawful amendments.

This study found that about one in five rural municipalities enforces some type of amendment to the UCC, which are by nature more restrictive than UCC requirements. This results in increased regulation, more instances where permits are required, and additional plan reviews and inspections with their associated fees. This increases the

cost of construction for projects in these municipalities.

It also appears that there is considerable confusion over what constitutes an amendment, and how to adopt an amendment legally, as evidenced by a significant divergence between the municipal survey responses and the records kept by L&I. This also creates a lack of uniformity among municipalities, which may result in confusion for permit applicants.

So, along with the consideration for municipalities to declare all amendments, there should be an educational effort directed at municipal officials to clarify what an amendment is, what types of amendments are allowed, and how to adopt an amendment lawfully.

## **Obtaining Reliable Building Permit Data**

DCED should consider aligning their building permit data collection process with the U.S. Census Bureau’s Form C-404: Report of New Privately-Owned Residential Building or Zoning Permits Issued (U.S. Census Bureau, 2008).

New building permit requirements under the UCC have important policy ramifications for the commonwealth. A variety of policy decisions are made based on levels of construction activity in municipalities, counties, and the state as a whole. Census permit estimates are important to municipalities because they are one factor that goes into determining the Census Bureau’s population estimates for municipalities, which in turn impact the amount of federal funding available to a municipality. This study documented how the UCC requirement of municipalities to report building permit data has improved the completeness of Census permit data. Having more complete data should therefore improve the accuracy of Census population estimates. This will help to ensure that municipalities are receiving the federal funding to which they are entitled.

One drawback of the current permit data collection process is that municipalities are now being asked by two different entities to report building permit data. This has resulted in some duplication of effort by municipalities, and unintentionally created some competition between the Census Bureau and DCED in terms of obtaining reports from municipalities.

In addition, municipalities may be confused by different definitions and reporting methodologies used by the Census Bureau and DCED.

Continued, and improved, cooperation between DCED and the Census Bureau regarding collection and sharing of building permit data is recommended. If DCED and the Census Bureau were to collect permit data with similar definitions and categories, some duplication of effort could be reduced, possibly leading to higher response rates.

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