Prioritization of fire inspections for Gainesville Fire Rescue

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others

is set forth, quotation marks so indicate, and that appropriate credit is given where I have used

the language, ideas, expressions, or writings of another.

Signed: _____

Abstract

In 2012, Gainesville Fire Rescue (GFR) registered for accreditation with the Commission on Fire

Accreditation International. During the self-assessment process, it was noted that most

commercial properties were not inspected on a regular basis. The decision of which business to

inspect was largely left to the individual fire inspector, causing some properties to be inspected

more frequently than others. The problem was that the department had never formulated a

quantifiable priority matrix in determining how often each business should be inspected.

Therefore, the purpose of this project was to create a comprehensive priority matrix that

recommended how often a business should be inspected. To that end, the following research

questions were posed: (a) what federal, state, municipal or other local mandates dictate

frequency of fire inspections? (b) what factors affect GFR's ability to conduct fire inspections

annually? (c) what factors should be considered when determining a priority matrix? and (d)

how do other agencies determine priorities and frequency of fire inspections? A descriptive

research method was used to identify the various codes and ordinances associated with

frequency of inspections from local, state and federal laws. Interviews with current and former

fire inspectors were conducted to determine both current and historical factors that would

affect the department's ability to conduct annual inspections. A nationwide survey was

released to determine how other departments conduct fire inspections. The results of this

project revealed that there is insufficient staffing to conduct fire inspections of all buildings

annually and a better defined classification of risk would assist in determining which structures

should be the focus. Specific recommendations include hiring more inspectors, using fire

companies to inspect lower-risk occupancies and updating GFR's target hazard classification.

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Prioritization of fire inspections for Gainesville Fire Rescue

Gainesville Fire Rescue (GFR) has a Risk Reduction Bureau that includes state-certified

fire inspectors who conduct inspections of existing businesses within the community to ensure

fire code compliance and minimize life-safety hazards. In 2012, GFR registered for accreditation

with the Center for Public Safety Excellence, as administered by the Commission on Fire

Accreditation International (CFAI). As stated on their website, the Accreditation Program

"allows fire and emergency service agencies to compare their performance to industry best

practices" via a self-assessment process (http://www.publicsafetyexcellence.org/). During this

self-assessment, GFR noted that the quantity of annual fire inspections equated to

approximately 20% of the total number of businesses believed to be in the community. In

addition, while the fire inspectors documented each inspection and kept records in a database,

it was also noted that some businesses had never been inspected while others had been

inspected several times over the same time period (Commission on Fire Accreditation

International [CFAI], 2014, p. 29). This variability of inspection frequency increased the

likelihood of fire and life-safety hazards at certain occupancies compared to others.

The problem was that the department had never formulated a priority matrix in

determining how often each business should be inspected. Therefore, the purpose of this

project was to create a comprehensive priority matrix that recommended how often a business

should be inspected. To that end, a descriptive research method was used to ask the following

research questions: (a) what federal, state, municipal or other local mandates dictate frequency

of fire inspections? (b) what factors affect GFR's ability to conduct fire inspections annually? (c)

what factors should be considered when determining a priority matrix? and (d) how do other

agencies determine priorities and frequency of fire inspections?

Background and Significance

In ancient times, the Romans are generally credited with the first semblance of a fire

service.   These firefighting "vigils" (or "watchmen") were slaves that walked the streets of

Rome, looking for fires or civil disturbance. Concurrently, regulations for checking and

preventing fires were developed to reduce the significant number of fires that manifested

during these times ("History of Fire Fighting," n.d., para. 2). In essence, these "watchmen"

acted as both fire fighters and rudimentary fire inspectors.

Over the years, as fire departments formed worldwide, the fire service in general was

still mostly reactive: they would respond to an emergency *after* it occurred. In the United

States, it wasn't until the 18th and 19th century before citizens fully appreciated the need to be

proactive by developing codes and standards in building construction as a preventative

measure; as he has been famously quoted, "an ounce of prevention is worth a pound of cure,"

was the mantra of Ben Franklin as he organized the Union Fire Company in 1736 (PBS, n.d.).

Unfortunately, disastrous and fatal fires continued to occur during the 20th century, with each

instance prompting new fire and life-safety ordinances being passed and updated standards

being written. The fire service of the 21st century has the most modern of equipment, armed

with the latest technology and research, but continues with the tradition of focusing their

resources to suppression and response instead of prevention. Even as the number of structure

fires decrease – in large part to the measures of years past – the headlines of today continue

with major loss of life, often due to unsafe acts of the occupants (Kovalchik, 2011). To combat

this, departments need to establish comprehensive fire prevention and code enforcement

programs to ensure that life-safety codes and standards are adhered to because a well-

developed fire prevention program is a less expensive and more effective way to reduce loss of

life due to fire (*Fire Inspection and Code Enforcement*, 2009).

The City of Gainesville is the county seat of Alachua County, Florida. Home to the

University of Florida, the city encompasses 63.75 square miles and has a population of over

127,000. In addition to suppression services, Gainesville Fire Rescue provides fire protection,

prevention and public safety education to the community via the Risk Reduction Bureau ("GFR

Quick Facts," 2014). In fiscal year 2010, a Fire Assessment was instituted to offset a decline in

general fund revenue for the fire department. During implementation, a company was hired to

determine the total number of properties in the city limits. In conjunction with the county

Property Appraiser's office, it was estimated there were approximately 6,500 non-

governmental, commercial, industrial and multi-family occupancies in the jurisdiction ("Fire

Assessment Fact Sheet," 2011). In 2013, an Assistance to Firefighters Grant was awarded to

GFR, allowing the department to hire civilian employees and gather basic fire-safety building

information from every business during a 6-month time period. After the assessment was

completed, the employees found that the city had closer to 10,800 buildings and business (J.

Rice, personal communication, November 11, 2013), significantly increasing the number of

inspectable buildings within the department's jurisdiction.

With current staffing and methodology, it would be impossible to complete annual

inspections on every occupancy. In 2014, GFR conducted 996 fire inspections, representing less

than 10% of the total inspectable occupancies. Without an appropriate set of guidelines for the

fire inspectors, the potential for increased fire and life-safety hazards within the remaining inspectable occupancies will remain high.

This applied research project relates to goal #1 of the US Fire Administration's strategic plan: reduce fire and life safety risk through preparedness, prevention and mitigation ("USFA Strategic Plan," 2014, p. 1). This applied research project also relates to the Executive Fire Officer course on Executive Analysis of Community Risk Reduction, focusing on the value of community risk reduction and the process of applying risk reduction to the community ("EACRR," 2016, p. 1). By identifying a priority matrix for how often fire inspections should be conducted, based on quantifiable risk factors and/or by identifying alternative methods for conducting fire inspections, this research should reduce the life-safety risk to GFR's community.

Literature Review

The Mission Statement of Gainesville Fire Rescue, "to protect and serve through community involvement, education, prevention, and rapid intervention by professionals committed to excellence," clearly shows the department's desire to focus on fire prevention. The organizational chart provides for an Assistant Chief, the third highest-ranking officer in the department, to oversee the Risk Reduction Bureau. This division is responsible for fire investigations, public education as well as fire inspections for existing buildings and businesses (http://www.cityofgainesville.org/GainesvilleFireRescue%28GFR%29.aspx).

The department successfully received accreditation in March, 2014. As a normal part of the process, the evaluators made strategic recommendations to the department. With regards to Category V, criterion 5B: Fire Prevention / Life Safety Program, CFAI recommended that two additional inspectors be hired to reduce the current cycle of inspections. In addition, they

recommended company level familiarization (not inspections) of commercial buildings so crews

could report back any life safety violations to the Risk Reduction Bureau (CFAI, 2014, p. 11).

There is a significant lack of literature associated with frequency recommendations or

prioritization of fire inspections. A study commissioned by the National Fire Protection

Association (NFPA) in 1978, however, used a scientific approach to look at the effectiveness of

the inspection process. Focusing on all properties (except one- and two-family homes),

research was conducted to see if fire inspections resulted in fewer fires, lower fire loss and

fewer civilian casualties. The results showed that upwards of 68% of all fires were due to

carelessness, electrical/mechanical failure, or via hazards that were visible and could have been

corrected during the inspection process; the remaining fires were identified as suspicious or

naturally occurring and generally not preventable via an inspection program. When compared

to inspection practices of the time, the results clearly showed the benefit of fire inspection and

code enforcement programs (Diamantes, 2015, p. 25). Subsequently, Hall, Koss, & Schainblatt

(1979) also noted that fire departments which inspect all (or nearly all) buildings within their

jurisdiction on an annual basis tended to have lower fire rates compared to other departments.

Diamantes (2015) further noted that while national codes and standards mandate

inspections, they do not establish priorities or frequency. His recommendation was to allow

local jurisdictions discretion based on need and available resources. Of course, state and local

statutes and ordinances may have specifics outlined. The States of Florida (Fire Prevention and

Control, 2014) and North Carolina

(https://www.townofcary.org/Departments/Inspections___Permits/firecodeenforcement/Fire_

Inspections.htm), for example, each have identified five (5) different occupancies that require annual inspections. Local jurisdictions will therefore have to account for these requirements.

In the report *America Burning Recommissioned*, the commission recognized the challenges the fire service continues to have with regards to fire prevention:

The frequency and severity of fires in America do not result from a lack of knowledge of the causes, means of prevention or methods of suppression. We have a fire "problem" because our nation has failed to adequately apply and fund known loss reduction strategies. The primary responsibility for fire prevention… properly rests with the states and local governments. (Federal Emergency Management Agency [FEMA], 2002, p. 15) America today has the highest fire losses in terms of both frequency and total losses of any modern technological society. Losses from fire at the high rate experienced in America are avoidable and should be as unacceptable as losses caused by drunk driving or deaths of children accidentally killed playing with guns. (FEMA, 2002, p. 16)

The Florida Fire Marshals and Inspectors Association wrote a legislative position paper that "encouraged jurisdictions to provide local financial incentives for the installation of fire sprinklers" (*FFMIA Position Paper*, 2014, p. 1). While fire sprinklers are not directly associated with the project, it did raise the question of financial incentives for having voluntary fire inspections completed. Additional review of Florida State Statutes and Administrative code, the laws and rules associated with the state of Florida, did not locate any such provisions allowed.

A number of applied research papers published under the Executive Fire Officer program discuss fire inspection programs, but none directly address frequency or prioritization.

Ray (1998) discussed how his fire department "established a priority and frequency program,"

but does not go into specifics on what they were historically, nor if there would be a future

matrix in place. Bradley (2003), Jee (1999) and Vanlandingham (2006) each focused on the

potential and effectiveness of using fire companies to supplement fire inspectors. Ott (2001)

and Gulisano (2008) only focused on current policies for effectiveness. Stanford's (2003) title of

Mandatory Periodic Inspections certainly sounded the most promising, but he was referring to

the fact that the city of Raleigh was unable to meet the state mandates already in place. On the

other hand, most of these papers did include recommendations to include company-level

inspections to supplement regular fire inspectors to accomplish the department's mission.

This research project was negatively influenced by the lack of data and previous

research on the subject of fire inspection prioritization and frequency. Authors frequently

noted their inability to conduct annual inspections, but did not address this deficiency in their

research. That said, several authors did articulate the potential that annual inspections may

not be necessary, based on local needs; applying that to Gainesville Fire Rescue, however, may

not be prudent. For example, according to the NFPA, the total number of fires has steadily

decreased over the past several decades, but the number of structure fires remained relatively

constant in the past 15 years ("Fire Loss," 2015). In contrast, the total number of fires in the

city of Gainesville have remained constant in the past 15 years, but the specific number of

structure fires have seen an *increase* over the past several years ("SOC," 2014). These

anomalies question whether the city of Gainesville meets the stipulation that these authors'

recommended.

Procedures

Research and data collection began with a literature review at the National Fire

Academy's Learning Resource Center in July, 2015. Fire Service trade magazines, technical

articles, previous Executive Fire Officer applied research projects and various types of

professional, leadership and management literature was reviewed for information related to

fire inspections. Additional literature reviews were conducted at GFR's Training Bureau library

in October and November, 2015, again for fire inspection related material as well as fire service

practices in general. Final literature reviews occurred electronically via the internet in January,

2016.

An interview was conducted with the Assistant Chief of Risk Reduction / Fire Marshal on

November 16, 2015. This interview was related to the first three research questions (what

federal, state, municipal or other local mandates dictate frequency of fire inspections, what

factors affect GFR's ability to conduct fire inspections annually, and what factors should be

considered when determining a priority matrix?) and discussed <u>current</u> perspectives of the Risk

Reduction Bureau, organizational structure and methodology for conducting fire inspections.

Questions and answers from this interview can be found in Appendix A.

Additional questions geared towards a <u>historical</u> perspective suggested contacting

former fire inspectors who were employed by GFR during the time the department was

dissolved. One interview occurred in person (on December 7th, 2015) while the second

interview occurred over the phone (on January 6, 2016); these interviews were related to the

second and third research question. Questions and answers from these historical perspective

interviews can be found in Appendix B1 and B2.

An additional phone interview was conducted with a local insurance company on

January 12, 2016. A short discussion centered around if insurance carriers offered incentives if

a fire inspection was completed. Questions and answers from this interview can be found in

Appendix C.

A meeting was scheduled with GFR's Computer Systems Analyst on December 1, 2015,

to discuss and permit direct observation of the current Risk Reduction Bureau Database layout

and structure, as well as the behind-the-scenes formula that was used to designate hazard

classes for occupancies. Seeing what technology the inspectors are currently using related to

the second research question (what factors affect GFR's ability to conduct fire inspections?).

The hazard designation was directly related to the third research question in determining what

factors should be considered when determining a priority matrix. Appendix D provides a copy

of the code and queries needed for the project.

Finally, a national survey was released in January, 2016. Using the department's access

to www.surveymethods.com, a survey was created that asked questions specific to the fourth

research question (how do other agencies determine priorities and frequency of fire

inspections?) but was associated with all four research questions. This survey was distributed

electronically via the United States Fire Administration's TRADENET, the International

Association of Fire Chief's weekly e-digest as well as placed in the Florida Fire Chief's

Association Executive Fire Officer forum. No restrictions were placed on demographics; the

desire was to see as many different options and scenarios that the fire service is currently

conducting. The results were tabulated and organized to provide specific analytical

perspectives on department organization, limiting factors, as well as what criteria other

departments use to prioritize inspections. The survey instrument is contained in Appendix E.

Limitations

This was the author's first attempt at creating a survey. As such, additional time was

necessary to create the survey and my novice experience probably contributed to some

confusion from the respondents' perspective. For example, it was noted that several

respondents did not 100% complete the survey and in some cases, the answers provided did

not match the question asked. In addition, some answers were provided in an unexpected

format, forcing the author to make assumptions on what was said in an effort to provide

consistency for data analysis. In other cases, responses were not specific enough to be

beneficial.

Another limitation was finding and contacting former GFR employees that could provide

historical knowledge on the program. When interviewed, they provided as much information

that they could remember, but the information in question was 20-25 years old and their

memory was not always clear. Unfortunately, the author that worked to create the original

target hazard classification formula was not able to be reached.

A final limitation was the recognition that businesses open and close all the time.

Therefore, the number of occupancies will vary from year to year, potentially including the type

and therefore fire risk of the occupancy. Determining a priority matrix may have to be a fluid

process as the composition of a jurisdiction changes.

Results

Searching thru Florida State Statutes, the Florida Administrative Code, as well as

discussing requirements with GFR's Fire Marshal had identified what federal, state and local

codes and ordinances dictated fire inspections frequency (research question #1). No federal

mandates were identified during the research process. The State of Florida, pursuant to FSS

633.202, adopts the Florida Fire Prevention Code, which in turn has adopted two of the

National Fire Protection Association's (NFPA) standards: the current editions of NFPA 1, Fire

Code, and of NFPA 101, Life Safety Code. By rule, the State Fire Marshal will use the Florida

Administrative Code to provide additional guidance and directions to authorities having

jurisdiction (Fire Prevention and Control, 2014). On the local level, GFR had been inspecting

bars and nightclubs on an annual basis since the Station Nightclub Fire in Rhode Island, 2003.

Table 1 below shows the types of occupancies that have annual requirements and the

associated code or policy that requires it:

TABLE 1		
Federal, State and Local mandates for GFR fire inspections		
OCCUPANCY	*RELATED CODE*	*FREQUENCY*
Assisted Living Facility	FSS 429.17 (2)	Annual (state mandate)
Adult Family Care Homes	FAC 69A-57.007 and FAC 58A-14.0091	Annual (state mandate)
Public Schools	FAC 69A-58.004	Annual (state mandate)
Child Care Facilities	FAC 69A-41.106 (1)	Annual (state mandate)
Group Homes (disabilities)	FAC 69A-38.036 (1)(2)	Annual (state mandate)
Bar and Nightclubs	None (internal policy)	Annual (local mandate)

There are 230 businesses that meet the annual state mandate. The database only

separates bars and nightclubs that have less than 50 occupancies; all others are grouped

together with a more general business classification. It was not possible to calculate the total

number of bars and nightclubs in the jurisdiction; only 10 could be identified specifically via a

database query (W. A. Chestnut, personal communication, December 1, 2015).

The interviews with current and former GFR fire inspectors were enlightening in

determining what factors affect GFR's ability to conduct fire inspections (research question #2).

Prior to 1990, GFR's Inspection Bureau contained an Assistant Chief that acted as the Fire

Marshal, two fire investigators, one fire protection engineer that handled new construction

plans review and three fire inspectors that inspected both new and existing occupancies. In

1990, the fire department lost the entire bureau; concurrently, the building department

inspectors were cross-trained as fire inspectors. Officially the reason was budget cuts, but

former employees remember significant political pressure being placed on the commissioners

because the fire inspectors of the time tended to enforce a strict and literal interpretation of

the code (which did not allow much flexibility), while the building inspectors were generally

well-liked and considered to be more pro-business friendly in comparison (A. Valente, personal

communication, January 6, 2016). Whatever the reason, GFR did not conduct any fire

inspections for the next several years. In 1994, the bureau was reestablished with a Fire

Marshal and has slowly grown to its current allotment of one Assistant Chief (Fire Marshal), one

fire investigator and three fire inspectors. The building department is still cross-trained as fire

inspectors and the division of labor is mostly along new vs. existing construction. Consisting of

12 building inspectors, five plans examiners, four support staff and a department head, the

building department's primary function is with new construction as well as permitting for

change of occupancy (D. Starbuck, personal communication, December 7, 2015). The fire

department's only involvement with new construction is during plans review; one fire inspector

spends approximately 250 hours annually on that function. Otherwise, the three fire inspectors

handle all existing occupancy inspections while the fire investigator is tasked with handling all

complaints and fire investigations (S. Hesson, personal communication, November 16, 2015).

Currently, GFR handles all legislative mandates as required by Florida Administrative

Code, except for public schools which are inspected by the Alachua County School Board. As

noted earlier, due to the large college student population and recent national incidents, the city

has adopted an internal policy of mandating all night clubs and bars to receive annual

inspections as well (S. Hesson, personal communication, November 16, 2015). The questions

and answers to all 3 of these interviews can be found in Appendix A, B1 and B2.

A phone conversation with Karen from McGriff Williams Insurance found that insurance

carriers in the State of Florida do not provide any financial incentives to have fire inspections

completed. She indicated that she has heard of other states providing discounts and while

Florida does provide incentives for other fire-related systems, the only notable fire inspection

condition is one that is required by law already. Specifically, if the law requires an inspection to

be completed, then the insurance policy will also require proof of that inspection being done (K.

Adams, personal communication, January 12, 2016). Notes from this interview can be found in

Appendix C.

With regards to research question #3 (factors to be considered when determining a

priority matrix), NFPA 1730 specifies a minimum inspection frequency for existing occupancies:

annually for high risk, biennially for moderate risk and triennially for low risk (National Fire

Protection Association [NFPA], 2015, table 6.7). Risks are classified based on history of fire

frequency and potential for loss of life or economic loss (low, moderate or high). In addition,

high risk occupancies could be classified as such if their potential for the above factors is low or

moderate, but "the occupants have a high dependency on the built-in fire protection features

or staff to assist in evacuation during a fire" (NFPA, 2015, Chapter 3.3.3). For the accreditation

process, GFR organized each building into a similar matrix. 683 buildings were classified as

moderate while 594 fell into the *high* category. The remaining buildings were classified as *low*

("SOC," 2014, p. 54). GFR does not, however, currently use the NFPA 1730 model for frequency

determination.

Many years ago, exactly when is unknown, a former GFR employee created a formula

for determining a building's "target hazard rating." This formula looked at square footage,

occupancy classification, occupancy load (or number of employees) and occupancy hazard (see

Appendix D). A complicated set of calculations occur within the database; if the final score is 15

or above, GFR considers this to be a high hazard building, which are the primary focus of the

fire inspectors. GFR currently has 720 buildings that have a hazard rating of 15 or higher; of

those, 30 are required to be inspected annually by the state (W. A. Chestnut, personal

communication, December 1, 2015).

To identify how other agencies determine priorities and frequency of inspections

(research question #4), a nationwide survey was sent out and netted 189 responses over a

three-week period in January, 2016. Of those, two responses were not completed with

sufficient information to be usable. Demographically, as shown in figure 1 on the next page,

58% of the respondents were with career departments, 34% were combination departments,

5% were Volunteer and the remainder were Paid-on-call, Industrial or other private entities.
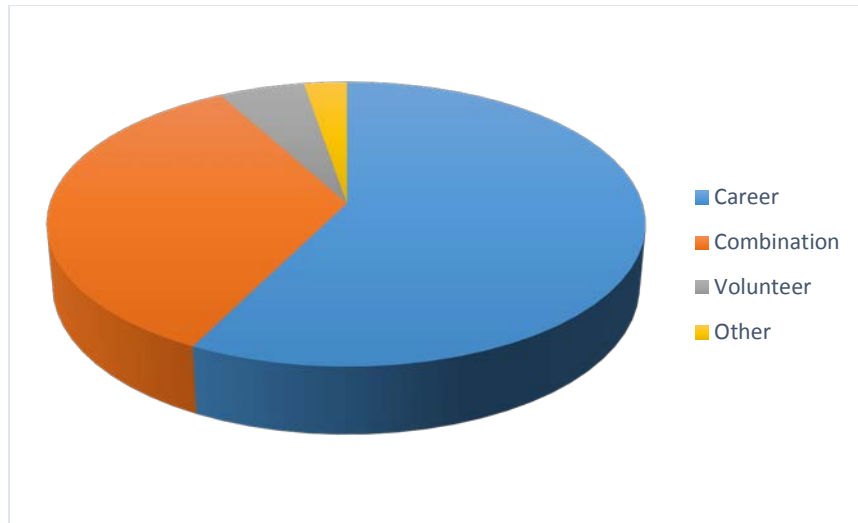
Figure 1. 2016 Nationwide survey - respondents by type of department

Figure 2 below shows a breakdown of how many departments responded based on population in their jurisdiction. The majority were between 10,000 and 100,000 citizens. One respondent indicated a population of 19.75 million; while it's possible this refers to an international city, the survey was only partially completed and several other keys pieces of data were missing. Therefore, the entire entry was discarded from the results.
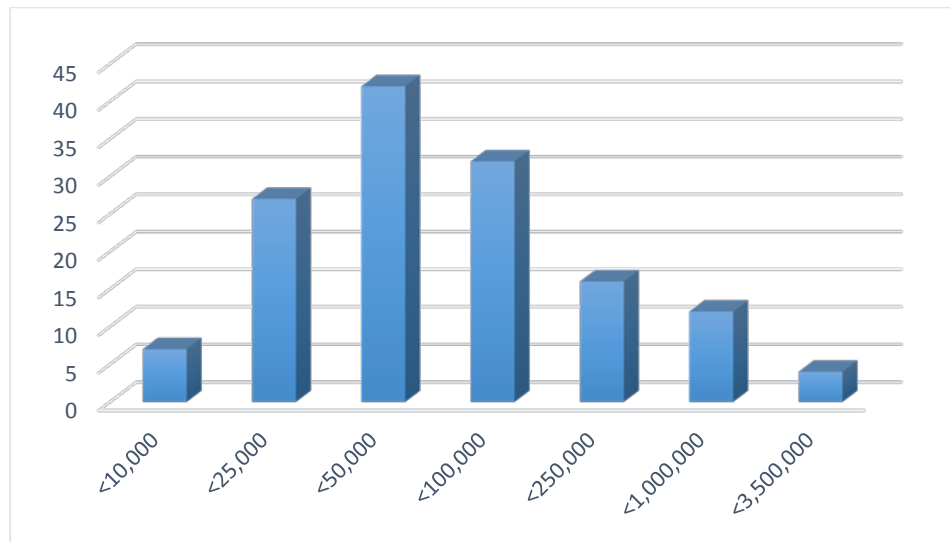

Figure 2. 2016 Nationwide survey – # of respondents by jurisdiction's population

Questions were asked about the quantity of inspectors each agency employed. The respondents were given the option of choosing full-time, part-time, company-level or any combination of the three. Figure 3 on the next page illustrates the breakdown: 145 respondents indicated they used full-time inspectors, 105 respondents indicated they used fire companies to conduct inspections and 51 respondents indicated they used part-time inspectors.
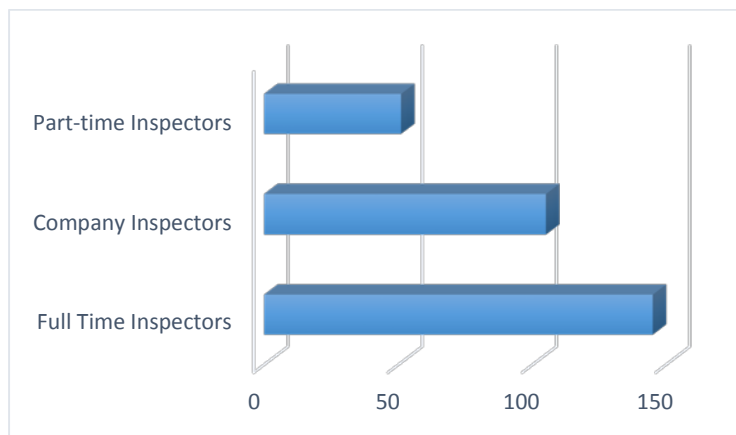
Figure 3. 2016 Nationwide survey - types of inspectors used

Figure 4 below shows a breakdown of type of inspectors by a percentage of a population grouping. The quantity of fire company inspections was relatively constant between 30-40% across all jurisdictions. Part-time fire inspectors were most frequently used in smaller departments (<25,000) while full-time fire inspectors were most likely used in larger departments (>50,000).
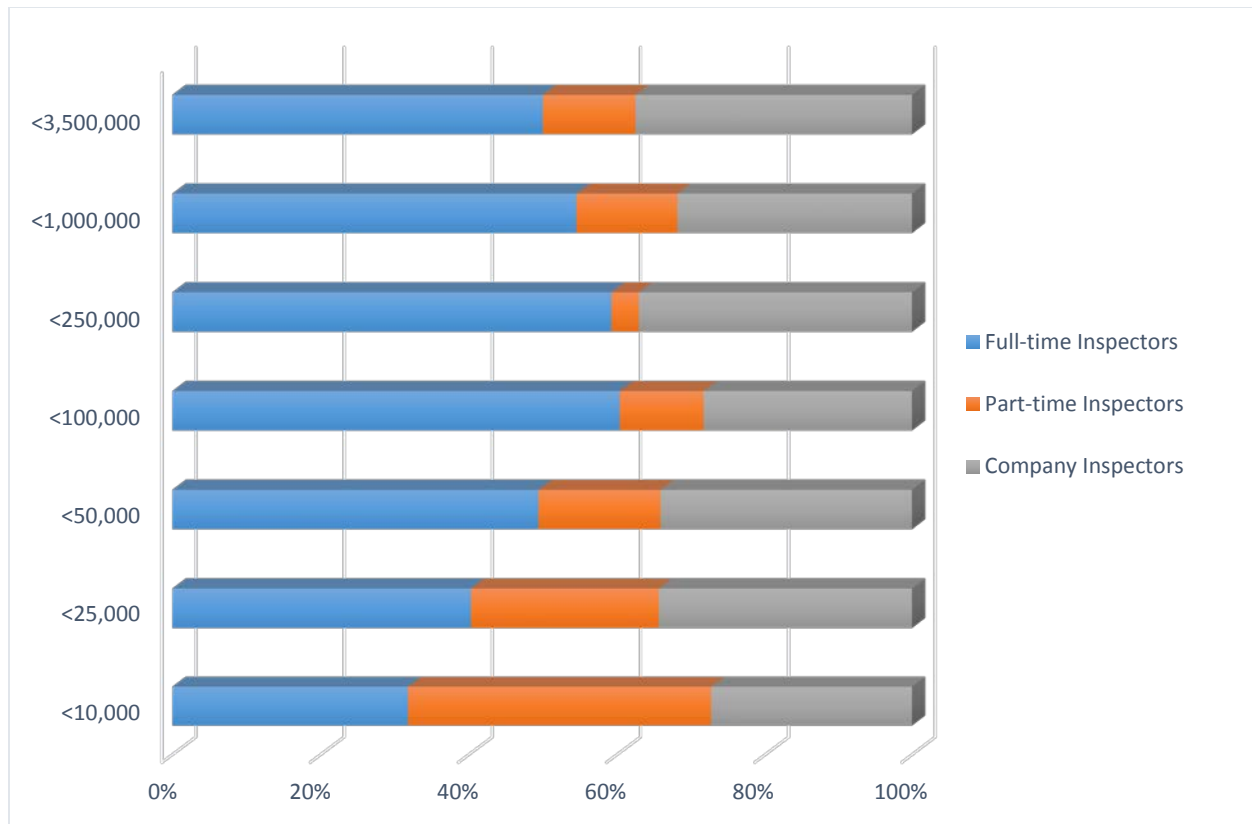
Figure 4. 2016 Nationwide survey - % of inspectors based on population

Respondents were also asked how their inspectors were employed; choices included

sworn, civilian, private, or any combination of the three. When grouped according to

department type, as shown in figure 5 on the next page, career departments employed the

highest number of full-time inspectors and highest usage of company-level inspections; career

departments also had the highest total number of inspectors. In contrast, combination

departments had the highest number of part-time inspectors. In all cases, sworn personnel

outnumbered civilian or private inspectors.
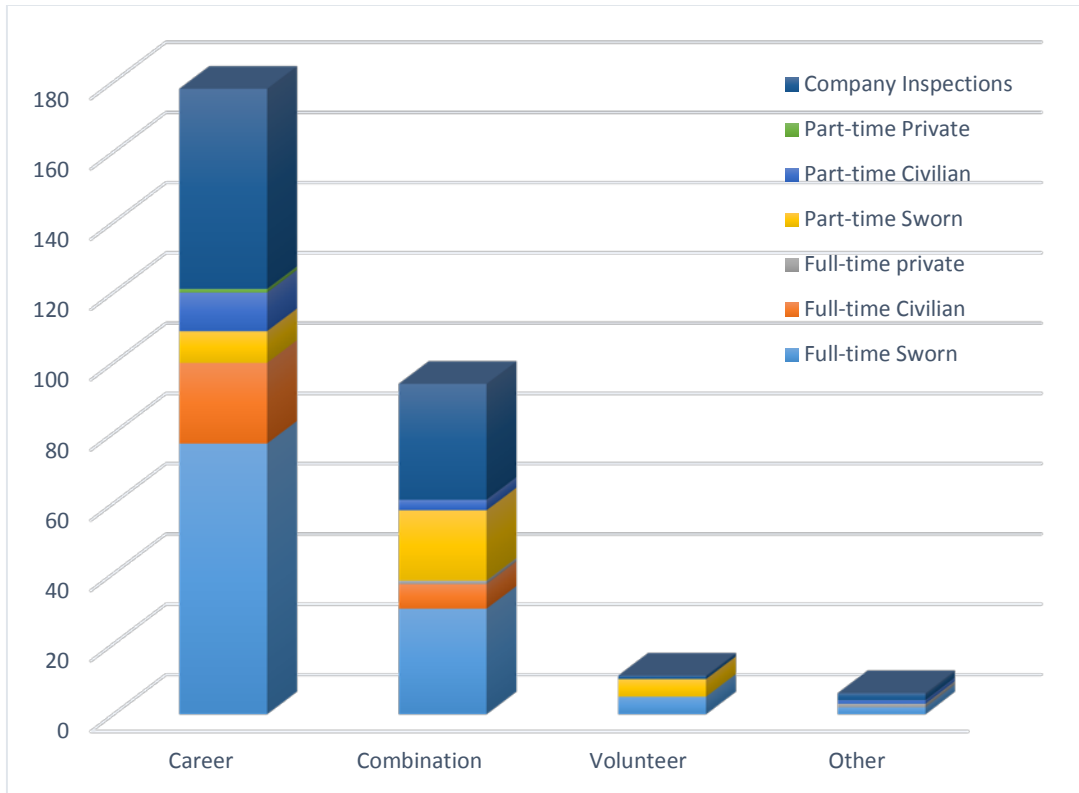
Figure 5. 2016 Nationwide survey - # of inspectors grouped by department type and employment

Respondents were then given an opportunity to quantify the number of businesses and

the number of buildings in their jurisdiction. Specific instructions were provided to assist in

articulating the two. With regards to the number of businesses, the following qualifier was

given: consider that an enclosed, indoor mall, while a single structure, may contain 150

different individual businesses; this example would add 150 to your jurisdiction's total. When

calculated, a bell-curve formed with the highest number of inspectors in jurisdictions containing

between 1,000 and 2,500 businesses. Figure 6 on the next page represents this graph.
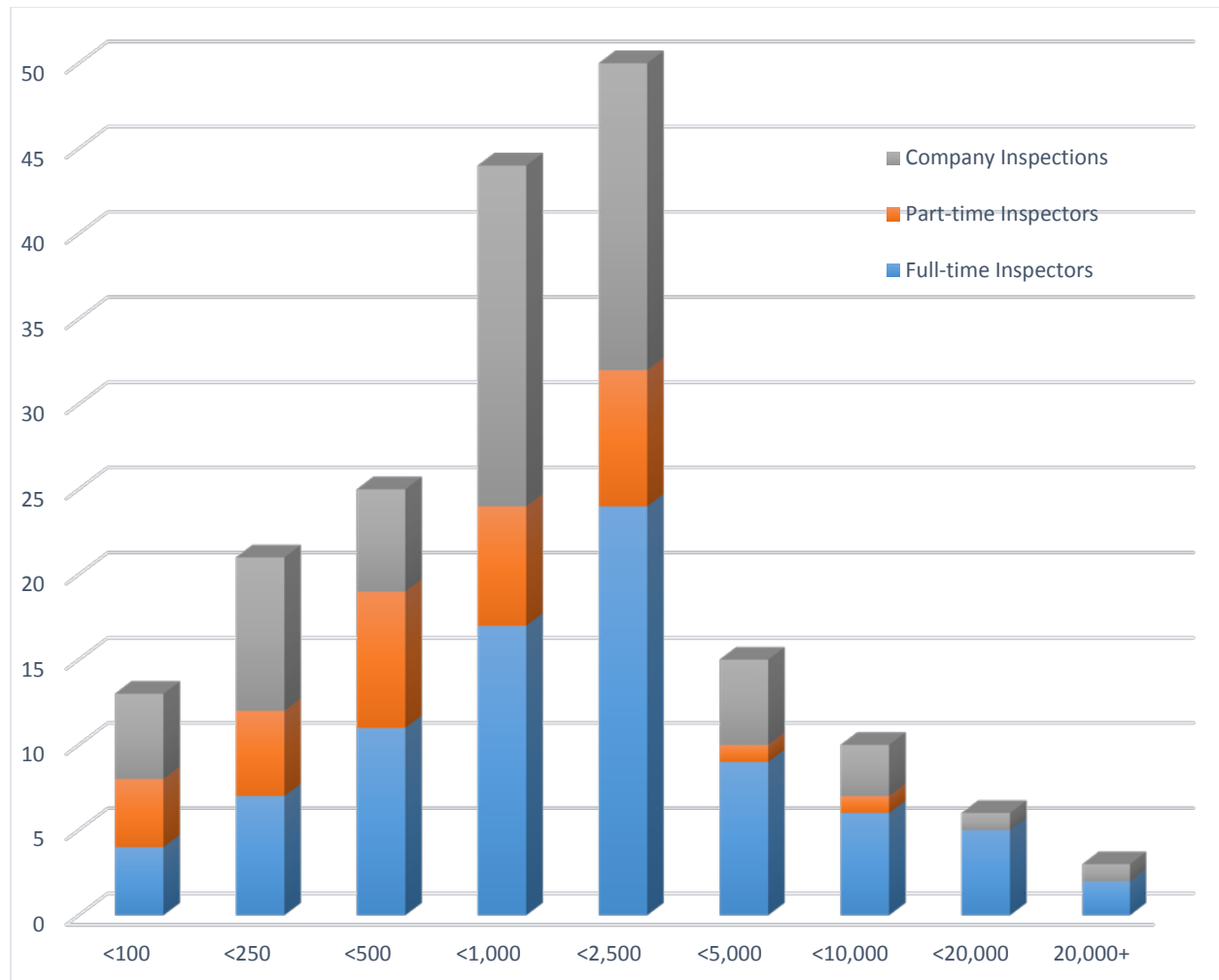
Figure 6. 2016 Nationwide survey - # of inspectors grouped by business

With regards to the number of buildings, the following qualifier was give: consider that a

high school, for example, may be considered one entity, but it has 10 different buildings /

structures that need to be inspected; this example would add 10 to your jurisdiction's total.

Again, the highest concentration of inspectors occurred in jurisdictions containing between

1,000 and 2,500 businesses. In contrast to the previous grouping, however, the bell-curve was

not as uniform and there are marked increase in the 250-500 businesses and the 20,000+

businesses ranges. Figure 7 on the next page represents this.
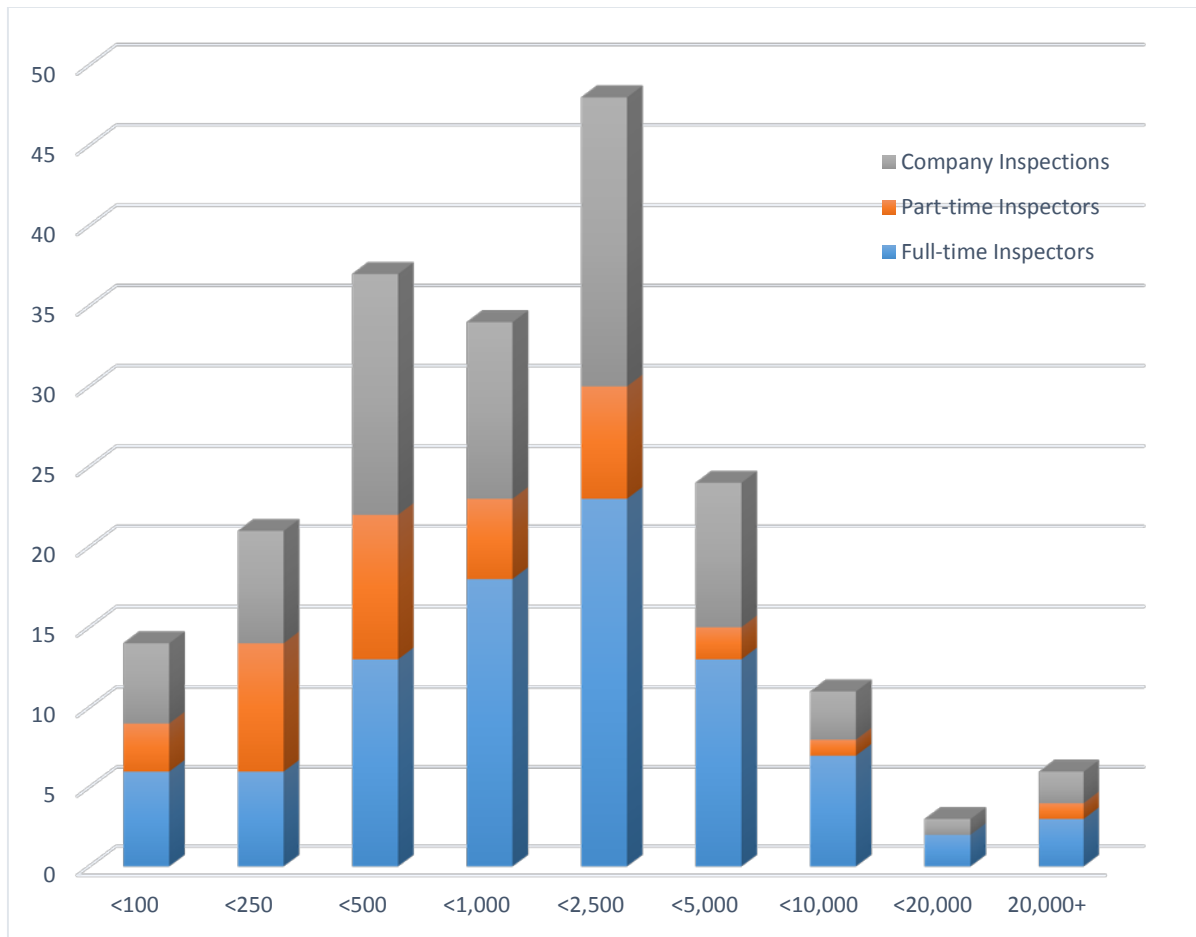
Figure 7. 2016 Nationwide survey - # of inspectors grouped by buildings

The next series of questions in the survey focused on frequency and prioritization of inspections. Respondents were first asked if they were able to complete inspections on 100% of the businesses and buildings in their jurisdiction on an annual basis. One-third of the respondents indicated they were able to complete all inspections annually, leaving two-thirds of the departments reaching less than 100% each year. Respondents were then asked what prioritization they use in determining which businesses or buildings get inspected each year. As shown in table 2 on the next page, assembly occupancies and those buildings that the department deemed "high hazard" were the most frequent priorities given.

TABLE 2	
2016 Nationwide survey - what was deemed as a priority for inspections	
PRIORITY	**% OF AGENCIES THAT CONSIDERED THIS A PRIORITY**
Assembly	28%
High Risk (not specified)	26%
New Business	20%
Educational	20%
Permit required	18%
Multi-family dwellings	18%
Complaints	17%

In an effort to determine workload, respondents were asked what types of inspections they performed. Choices included new construction / certificate of occupancy, existing construction, change of occupancy / permitting, complaints / investigations and other; respondents could choose one or more of those options. Full-time inspectors were fairly evenly split among all of the specific categories. Existing construction started to take over as the primary focus for part-time inspectors and became almost 50% of the workload of company level inspections. The breakdown is shown below in figure 8.
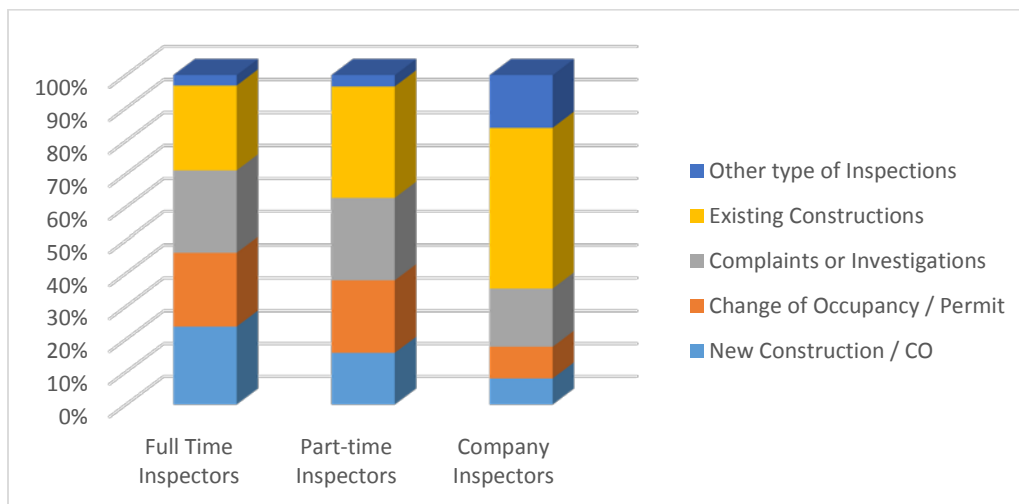
Figure 8. 2016 Nationwide survey - workload broken down by inspector

Finally, respondents were then given an opportunity to list reasons that they are unable to complete inspections on 100% of their buildings and businesses. Staffing was clearly the most cited reason, topping 50% of all choices. Departmental or political priorities and pressures were 20%, technological issues were 18% and other factors rounded out the remaining 12%. Figure 9 below represents this breakdown.
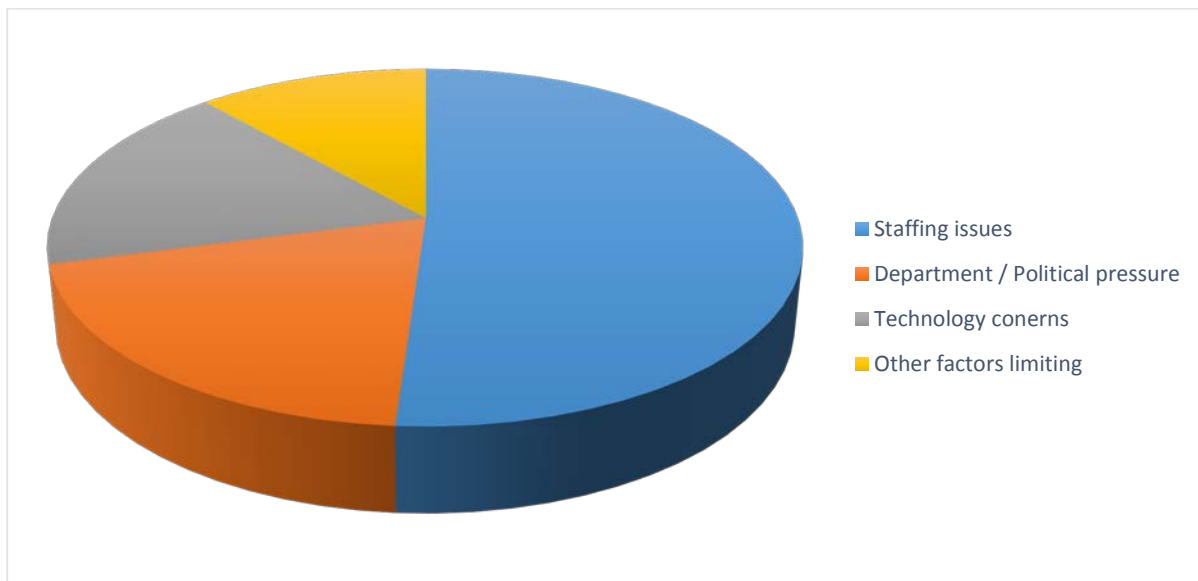
Figure 9. 2016 Nationwide survey - issues preventing annual inspections

Discussion

There are no federal mandates that affect frequency of fire inspections. The State of Florida only has five specific annual inspection requirements, allowing local jurisdictions the flexibility of identifying what, if any, other occupancies they would like to inspect and at what frequency (Fire Prevention and Control, 2014). Within our jurisdiction, those five requirements constitute 230 inspections that have to be accomplished on an annual basis. An unknown number of additional inspections are accomplished annually due to the department's local policy of inspecting nightclubs and bars, but it is at least 10 (W. A. Chestnut, personal

communication, December 1, 2015). With the department averaging less than 1000

inspections annually, those mandates account for over 25% of the annual inspections that can

be completed using our current staffing and methodology ("GFR Quick Facts," 2014).

While it's been over 20 years since the fire inspection program was disbanded, the

mindset of the current inspectors is rooted from the previous mistakes. There is a concerted

effort to be more accommodating in identifying alternative solutions as opposed to having a

hardline approach and strict interpretation of the code. The inspectors will allow extensions

and allowances to businesses to ensure compliance (without compromising safety), but work

equally hard to minimize conflict. As the Fire Marshal mentioned, while this has a positive

morale influence, it does also adversely affect productivity (S. Hesson, personal communication,

November 16, 2015).

GFR does not charge a fee if no violations are found during the initial inspection (S.

Hesson, personal communication, November 16, 2015). This seems to be a reasonable financial

incentive the city offers to encourage fire code compliance at the local level. There are,

however, no other financial incentives currently available at the State level or thru private

insurance companies (K. Adams, personal communication, January 12, 2016).

It's interesting to note the significant disparity in quantity of inspectors in the building

department compared to the fire department: 17 building inspectors and plans examiners to 3

fire inspectors (D. Starbuck, personal communication, December 7, 2015). It would seem

reasonable that more building officials are needed on the front end of development, compared

to the maintenance inspections that the fire inspectors handle, but there's not enough

evidence in this research to make a specific conclusion. Additional research would be needed to determine if this ratio is the norm for other municipalities.

GFR employs three full-time fire inspectors and one investigator. The investigator handles approximately 25-30 incidents annually, leaving the bulk of the inspections up to the fire inspectors. Our current model equates to approximately 1 inspector for every 3,583 building to be inspected. Using the data provided in the survey, the average for other departments was 1 inspector for every 1,250 buildings, which is a significant difference. To match the national average would require GFR to hire 6 additional full-time inspectors; based on my personal knowledge of the current budget climate, that would be incredibly difficult to persuade city hall. Nonetheless, with the statistics trending upward for annual structure fires ("SOC," 2014), GFR will need to identify alternative means to conduct more fire inspections. To that end, CFAI did recommend hiring two additional inspectors and those will be included as increments in the next 5-year budget cycle (S. Hesson, personal communication, November 16, 2015; see also CFAI, 2014, p. 11). If approved, this would reduce the current ratio down to 1 inspector to 2,160 buildings.

56% of the respondents indicated they used fire companies to conduct fire inspections, with the vast majorities of those companies being used on existing occupancy inspections. In addition, three separate EFO research papers recommended using fire companies to conduct fire inspections (Bradley, 2003, p. 28; Ott, 2001, p. 68; Vanlandingham, 2006, p. 20). Utilizing fire companies has the potential to increase the quantity of fire inspections annually. Additional benefits would include better building familiarization for crews and increased public

relations as we become more "citizen-centric," a current theme of the City Manager (A. Lyons, personal communication, December 1, 2015).

GFR has three shifts and nine stations; while the department has 10 companies with officers assigned to them, one is associated with the airport fire station and would be restricted to inspections on airport property ("GFR Quick Facts," 2014). If the remaining nine companies handled 2 inspections per month per shift, that would account for an additional 648 inspections, or 15% of the total occupancies. On the other hand, the costs associated with this endeavor would also have to be considered. There would need to be both initial and reoccurring training, potential equipment needs to complete field inspections, and the local International Association of Fire Fighters (IAFF) union may consider this as something that needs to be bargained for. In addition, the time commitment to complete the fire inspections would need to be weighed against call volume and other department priorities.

The State of Florida has not adopted NFPA 1730, the Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations. That said, there is a recommendation listed for frequency of inspections based upon fire and life-safety risk (NFPA, 2015, table 6.7). GFR has already classified every building based on *high*, *moderate* and *low* for accreditation purposes ("SOC," 2014, p. 54), but continues to use the target hazard classification instead for determining inspection priority. While no one currently employed is familiar enough with the intricacies of the target hazard classifications calculations to know if that is still a valuable tool to use (S. Hesson, personal communication, November 16, 2015), the fact that it has been in use for many years does not warrant a complete discarding of the database. To the contrary, it would

be reasonable to merge both sets of data; by doing so, a priority matrix becomes immediately available.

The research presented in this study has demonstrated that GFR does not employ a sufficient number of fire inspectors to complete inspections in a reasonable timeframe, let along on an annual basis. In addition, the lack of institutional knowledge of the target hazard classification history is insufficient for long-term reliability. Furthermore, the local increase in the number of structure fires, opposite of the national trend, suggests that GFR needs to be more aggressive with its fire prevention efforts.

Recommendations

Several recommendations can be made to improve GFR's fire inspections program:

1. Merge the CFAI accreditation matrix with the target hazard classification database. This will require the GFR Computer Systems Analyst and the GFR Accreditation Manager to ensure they can match each entry one-by-one. Considering the volume of entries that will need to be reviewed, this will likely be a very time-consuming process.

2. Once the merge is completed, utilize the CFAI accreditation matrix for determining initial priority, and then utilize the target hazard classification to breakdown the prioritization even further. This forms the nucleus of a new, comprehensive priority matrix. In addition, this new database should be the "starting point" for future entries, both from accreditation's perspective as well as from the Risk Reduction Bureau's perspective. This will probably require additional work on GFR's Computer Systems Analyst to complete.

3. Additional research should be conducted to determine if the target hazard classification is still a valuable tool to use, if modifications are necessary to the calculations, or if another methodology is available that would be better suited to the task.

4. Implement a fire company inspection program. This program would focus on occupancies that are classified as *low* in the CFAI matrix*;* these occupancies constitute not only the highest quantity in the system, but also the lowest risk to the citizens and therefore should be able to weather an inspection handle by companies that do not conduct inspections on a daily basis. Company Officers would still be required to receive specific training from the inspection bureau and/or become fire inspector certified. Additional benefits associated with this program would be increased building familiarization by companies as well as improved public relations as part of the "citizen-centric" focus the current City Manager is emphasizing (A. Lyons, personal communication, December 1, 2015). On the other hand, additional equipment may be needed to interface with the newly formed database and a quality assurance (QA) program may be required since companies, at least to begin with, will have minimal experience with this type of work.

5. A departmental decision would need to be made on total fire inspection cycle time; specifically, how often it should take to complete a fire inspection on every occupancy in the jurisdiction.

    a. If the NFPA 1730 model was chosen, as an example and using current data, 594 occupancies would need to be inspected annually, 683 occupancies would need to be completed every other year and the remaining 9523 occupancies would need to be completed every three years. This equates to a total of 4,110 occupancies that

would need to be inspected every year (calculated as every *high*, half of the

moderates and a third of those classified as *low*).   To accomplish this example, GFR

would need either 12 full-time inspectors, or 10 inspectors and utilize the fire

companies as previously discussed.

b. If the cycle time was spread out to three years for *moderate* and five years for *low,*

2,726 occupancies would have to be inspected annually. This example would

require 8 full-time inspectors or 6 inspectors and utilize the fire companies as

previous discussed.

c. Any occupancy designated as *high* should be inspected annually.

d. In all scenarios, occupancies designated as *high* and *moderate* should be inspected

by full-time fire inspectors.

e. There are obvious budgetary concerns with making this decision. Salaries for new

inspectors, vehicles/fleet expenses, computers, uniforms and other equipment will

be needed for each inspector, and in some cases, for the fire companies as well.

Laying the groundwork now to the City Manager so future budget conversations can

include these necessary components would be essential.

Implementing these changes will each take time. Merging of the databases will be an

arduous process, but worthwhile in the end. Getting the inspectors and accreditation manager

familiar with the new database, managing the data and being able to run the necessary reports

associated with each program will also have a learning curve. Adding inspectors and

implementing a fire company inspection program will take time and money, buy-in from the

fire crews and an overhaul to the inspection process to include training and QA. In the end,

however, these changes should reduce the fire-hazard risk and provide for a safer Gainesville

community.

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Appendix A - Interview questions with Assistant Chief of Risk Reduction

1. In the past, how were Fire Inspections conducted within the City of Gainesville?

My understanding is that the division had more inspectors and was able to accomplish many

more inspections until it was disbanded. I think that happened sometime between 1988

and 1993, but I'm not sure; I'll have to get in you contact with others that were around

at that time to tell you everything. What I was told was that there was some political

fallout that caused us to lose the entire division because we were not business-friendly.

The division was reestablished around 1994 with a single Fire Marshal (Chief Taylor).

Over the years, fire inspectors were added back because mandatory inspections were not

being accomplished. We're now at three inspectors, one investigator, in addition to the

Assistant Chief.

2. How does the division currently handle fire inspections?

Fire Inspectors handle existing occupancies only. New buildings and new permitting are handled

by the Building Department, with the exception of plans review; that is handled jointly

between the Building Department and one GFR inspectors and they look specifically for

fire department related components (access, sprinklers, water supply and the like). In

addition, our fire investigator is responsible for handling any citizen complaints as well

as primary lead for all fire investigations.

Our focus is on legislative mandates as required by the Florida Administrative Code, except for

public schools - those are handled by the Alachua County School Board. Internally, we

also conduct annual inspections on every nightclub and bar, for obvious reasons (college

student population). I think we decided to do that shortly after the fire in Rhode Island,

but we don't have a specific policy in writing. Otherwise, we use an internal database of

buildings and businesses that have an associated hazard class rating. You'll have to ask

Artie (Computer Analysist for GFR) about the specifics, but I know this rating is based on

square footage, occupancy type, occupancy load and fire protection systems. We start

our focus on those that have a rating of 15 or greater; then, inspectors will work

geographically nearby these target hazards to be most efficient with their time.

Unfortunately, the database is incomplete, even with the work from the CRA (AFG Grant

received by GFR in 2013 that allowed civilian employees to gather basic fire safety info

on every business in the community) and the GSC (government-sponsored database used

for determining fire assessment fees). We've never been able to get those two

databases merged with the FSM (fire safety management - old name for the bureau and

the name still used for the inspectors' database). If it's not in our database, it'll never

get inspected unless we get a complaint or one of our inspectors happen to come across

it. Plus, we really have looked at the target hazard calculations in while to see if that's

the best option to use - I'm not even sure anyone here knows the specifics about how it

even came into fruition to begin with…

3.   Is there a cost to conducting an inspection?

If our inspectors find no violations, we do not charge the business. There is an escalating fee

schedule, though, for every inspection and re-inspection where violations are found. We

try to minimize re-inspections by contacting the business first, to ensure that they've

corrected whatever violations we found the first round. In any case, an entry is made in

the database and every few weeks, we ask Adrienne (a staff assistant from another

division) to send a list to the city's billing department. It's outside our hands from that point forward and any money collected goes back into the General Fund (not the fire department budget).

4. Walk me thru a day-in-the-life of an inspector. How long does it take to complete an inspection? How many inspections are handled each year?

Our inspectors are organized into three different geographical areas around the city. Once they choose a business to inspect, they'll either pre-schedule or make an unannounced visit. Inspections usually take 1-2 hours, but can be longer. Very big inspections may actually use more than one inspector and take 2-3 days! That's not actually the longest part, though. Because we lost our staff assistant several years ago to budget cuts, our inspectors have to handle everything on their own. On average, our follow-up takes approximately 1.5x as long as the inspection itself. So, if the inspection takes 4 hours, the follow-up will be an additional 6 hours, meaning the entire inspection will carve out 10 hours of the inspector's day!

One of the main reasons for that is because we don't want to fall into the previous trap - we've become very business-friendly, maybe even too much. We'll give extensions and extensions to businesses, that can last months to years! Imagine the amount of time each inspector has to use to keep up with all of these businesses.

We've dropped in quantity over the years - last year we handled just shy of 1,000 inspections. Because of vacation leave, sick usage, training and other departmental needs, our ability to handle more inspections each year is falling. Three years ago we inspected almost 1,300 businesses. That's a pretty significant drop off.

5. What about the building department? Can you work with them to get more inspections
   done?

The Building Department, while cross-trained as fire inspectors, only handles new construction.

With the recent economic uptick, we've seen a spike in new construction, so they're

pretty swamped over there as well. What would be nice is if we could see and use their

database. Unfortunately, it's not very user-friendly and access is not very easy. At the

staff level, we have a great relationship, but we don't have a good "automatic"

notification process to allow each department to know when something might be

worthwhile for their attention; we have to rely on the inspector (from either department)

to call or e-mail each other - taking more time out of their day.

There was talk at one point about merging our departments, similar to what happened before,

but having enough inspectors to handle both new and existing occupancies. There's not

much interest in this, because there would have to be more cross-training and we're

already spread thin, time-wise.

6. So you talked about being more business friendly - what are the advantages and
   disadvantages of this?

From a political standpoint, it's obviously very beneficial: we get less heat from downtown.

From the business standpoint, we're more apt to find a variance or some nuance that

will accommodate. Of course, we won't turn a blind eye and they still have to meet the

code; the difference is now we're more likely to find an alternative that will equally

suffice. But as I said earlier, we'll give multiple extensions without batting an eye to

make that alternative a reality. If they have a plan in place, that's good enough. The

only exception is if there is an imminent life-safety hazard. Then we'll shut the business down. But that's pretty rare.

Another advantage to this is that there is a greater job satisfaction among the inspectors because they're not going 10 rounds with a business owner every day. On the other hand, there are disadvantages. This allowance for alternative interpretations decreases productivity. Increased meetings with the business or the Fire Marshal to discuss the grey areas, additional follow-ups, research, site-visits… it all adds up. And we're talking both internal (staff-to-staff) and external (staff-to-business) … I would venture to say this increases inspection times by at least 10%.

7.   What are some items that could improve the Bureau?

Staffing is the most obvious one. But that creates additional issues: office space (we already don't have enough), additional fleet expenses, uniforms, computers, etc… During the Accreditation self-assessment, they (CFAI) recommended that we add two additional fire inspectors. We've asked for them, but that's in the next 5-year budget cycle (2017-2021).

The database is probably the next biggest thing. We need to be able to cross-reference the GSC with the CRA with the Building Department with the FSM. Easier said than done, I understand, but that would make us so much more efficient.

Getting the Staff Assistant added back in would be great; it's been over 10 years and that position is sorely missed. They could handle the low-level questions from citizens, payroll and leave request, and the like. We have so little documentation for variances and meeting minutes - all of which could be tracked with a Staff Assistant.

We recently purchased new Microsoft Surface 4 Pro tablets; this has definitely helped out as

> *they inspectors are able to document and complete the inspection electronically, have*

> *the business owner sign on the tablet and receive an e-mail copy immediately.*

> *Eliminates duplication of efforts, because we used to have to hand write the inspection*

> *and then return to the office to input into the FSM. Now it's all done remotely.*

It's interesting - right now we have only one access to the NFPA code. So while we can remotely

> *match violations to the code, if one inspector is logged in, no one else has access. We*

> *usually get around this by downloading a local copy, but if you forget to update…*

Appendix B1 - Interview questions with Building Fire Inspector

1. What was the fire inspection division like when you worked at GFR?

Actually, I got hired after the dissolve took place. I was one of the first building inspectors to get

fire inspector certified as well. We were all taking turns getting certified and finding

niches since this wasn't our primary focus. We still only handled new construction, but

now we were looking at everything, including fire department related items.

2. Did you know why the fire inspection bureau was dissolved?

Officially, budget cuts, but there were lots of rumors. For example, I heard a story where an

inspector found a closet that was just long enough to step in, but most of us would

consider it something that you would simply reach in to grab things. The fire inspector

made the business change the width of the door to meet the "walk-in" requirement

instead. Needless to say, things like that wouldn't go over very well.

3. Anything else you can add?

I can get you in contact with someone that was with the fire department before they were

dissolved. He actually worked for the building department afterwards, but he's in

private practice now.

4. Any suggestions on what could be done to prioritize fire inspections or something that

    would get GFR closer to inspecting 100% of the businesses annually?

Not really. I would imagine having more inspectors would help, but that's about it.

5. How many staff members does the building department have?

John is the Chief Building Official. We have 4 support staff that handle permitting and

coordination, five plans examiners and 12 inspectors split among different disciplines.

Appendix B2 - Interview questions with former Fire Protection Engineer

1. What was the fire inspection division like when you worked at GFR?

I was the Fire Protection Engineer for Gainesville Fire Department when the entire division was

let go. At the time, we had an Assistant Chief that was the Fire Marshal, three fire

inspectors, a fire protection engineer, two fire investigators and a public education

specialist. I'm sure we didn't inspect every building each year, nor do I remember if we

had guidance on what to inspect. We did handle all new and existing inspections,

though the building department did handle some things (fire walls, for example). All of

the protection systems were handled by the fire department, though.

2. What caused the division to be discontinued?

Bad public perception. They said it was budget cuts, officially, but everyone knew the real

reason. The fire inspectors were known to take a strict, literal interpretation of the

codes and enforce them with no leeway. That ruffled lots of feathers. And at the time,

several prominent business owners were also either friends with commissioners or

actually on the board. There were lots of complaints being brought to the commission

and one day they just decided enough was enough. The budget was cut from the fire

department, inspectors were let go and the building department folks were crossed-

trained.

I got lucky - somehow I slipped thru the cracks and was picked up by the building department.

There was a focus of being "business friendly" and trying to work with the citizens. Even

though we charged for inspections (and the fire department did not), our approach was

successful. At least until they realized that they needed someone to handle the existing

occupancy inspections. We didn't have time for that, so in 1994 they hired a Fire

Marshal to handle the legislative required inspections.

3. Any suggestions on what could be done to prioritize fire inspections or something that

would get GFR closer to inspecting 100% of the businesses annually?

Focus on sprinkler systems, the fire pump and the alarm panel. Sure, the other items are in the

code, but a working sprinkler system makes all the difference in the world. It can keep the fire in

check, if not actually extinguish the fire. And if that's handled, then all other needs become

secondary. In systems that have sprinklers, failures occurred because of the fire pump - either a

backflow preventer valve was turned off or it was in manual mode instead of automatic. And of

course if the alarm panel is not working correctly, not allowing a signal to get thru, that could

cause a failure of the system as well. Focus on those three things and you can get a lot more

inspections done. For that matter, have company-level inspections handle this and let the

inspectors focus on the larger target hazards, annual legislative mandates and whatnot. The

crews do not have to be inspector certified and it gives them an opportunity to get out in the

public, learn about the buildings, FDC locations, fire pump rooms, etc. Start with the assembly

occupancies since those have the highest life concerns and work your way from there.

Appendix C - Interview question with McGriff Williams Insurance agent

1. I came across a position paper online that suggested providing financial incentives for

   installation of fire sprinklers; while my research paper is associated with fire inspections, I

   made me wonder if there were any financial incentives in the State of Florida to have fire

   inspections done.

Many policies will offer discounts if the building is protected by fire sprinklers, but no insurance

   carrier in Florida that I'm familiar with offers incentives if a fire inspection is completed.

   I have heard that other states may provide premium benefits, but not in Florida.

Some policies require that a fire inspection be completed annually, but it's not an option and

   they are usually required by law anyway - child day care facilities is one that I can think

   of off the top of my head - and they are required to show proof of that when they renew

   their policy.

Another benefit that is provided in Florida is if a business is protected by a centrally-monitor fire

   alarm system. We don't usually recommend these, however, because the language is so

   restrictive that the cost benefit doesn't outweigh the risks. Basically, if the system failed

   for any reason, then the insurance company would not be liable for any recuperation

   expenses. That's a pretty significant gamble for a $15/month savings.

Appendix D - Analysis of Risk Reduction Database

It was noted that the database had been renamed to the Risk Reduction Bureau Database, compared to the Fire Safety Management (FSM) that the Fire Marshal referred to.

1. How are the target hazard classifications calculated?

Public Function CalcTargetHazard()

Dim OccLimit As Integer, Exposure As Single, SqftHaz As Integer, ExposureHaz As Integer, OccHaz As Integer, OccClass As Integer

'If IsNull(Forms![Input Master]!RRBTab![Occ Load or # of Employees]) Then

If IsNull(Forms![Input Master]![Occ Load or # of Employees]) Then

  'Select Case Forms![Input Master]![Occupancy Classification].Column(1)

  Select Case Forms![Input Master]![Occupancy Classification].Column(1)

    Case 2 'Storage

      Exposure = Forms![Input Master]![TotalSqft] / 300

    Case 3 'indus

      Exposure = Forms![Input Master]![TotalSqft] / 100

    Case 4 'Busin

      Exposure = Forms![Input Master]![TotalSqft] / 100

    Case 5 'Merch

      Exposure = Forms![Input Master]![TotalSqft] / 30

    Case 6 'Dete

      Exposure = Forms![Input Master]![TotalSqft] / 120

    Case 7 'health

      Exposure = Forms![Input Master]![TotalSqft] / 100

    Case 8 'Res

      Exposure = Forms![Input Master]![TotalSqft] / 200

    Case 9 'Educ

      Exposure = Forms![Input Master]![TotalSqft] / 20

    Case 10 'Assembly

```
            Exposure = Forms![Input Master]![Occ Load or # of Employees]

        Case Else

            Exposure = 0

    End Select

    '

Else  ' there is a number in Occ Load

    'Exposure = Forms![Input Master]!RRBTab.Pages(0)![Occ Load or # of Employees]

    Exposure = Forms![Input Master]![Occ Load or # of Employees]

End If

'

Select Case Exposure

    Case 0

        ExposureHaz = 0

    Case Is < 10

        ExposureHaz = 1

    Case Is < 26

        ExposureHaz = 2

    Case Is < 101

         ExposureHaz = 3

    Case Is < 250

        ExposureHaz = 4

    Case Else   ' > 250

        ExposureHaz = 5

End Select

'

If ExposureHaz = 0 Then

    SqftHaz = 0
```

```
Else

    If Forms![Input Master]![TotalSqft] < 20000 Then

        SqftHaz = 1

    ElseIf Forms![Input Master]![TotalSqft] < 50000 Then

        SqftHaz = 2

    Else '>50000

        SqftHaz = 3

    End If

End If

'

If IsNull(Forms![Input Master]![OccHazard].Column(1)) Then

    OccHaz = 0

Else

    OccHaz = CInt(Forms![Input Master]![OccHazard].Column(1))

End If

'

If IsNull(Forms![Input Master]![Occupancy Classification].Column(1)) Then

    OccClass = 0

Else

    OccClass = CInt(Forms![Input Master]![Occupancy Classification].Column(1))

End If

'

If IsNull(Forms![Input Master]![Occupancy Classification].Column(1)) Then OccClass = 0

CalcTargetHazard = OccHaz + OccClass + SqftHaz + ExposureHaz

End Function
```

2. How many entries in the database have a target hazard rating of 15 or above? How many of

    the legislative mandates are in the database and what target hazards do they have? How

    many bars and nightclubs?

Artie (Computer Systems Analyst for GFR) ran several database queries:

- *There are 720 total entries that have a target hazard rating of 15 or more.*

- *There are 154 daycare facilities, 68 family/group homes and 8 assisted living facilities.*

  GFR does not conduct public school inspections (handled by the Alachua County School

  Board). Of these 230 state-mandated inspections, only 30 have a target hazard of 15 or

  more.

- *Only 10 entries are listed in the database for bars and nightclubs. Personal knowledge*

  recognized that there are far more than only 10 inside the city limits. Further discussions

  with Artie and Steve suggested that the inspectors may use a classification that inter-

  mixes with the general business code. An accurate count is not available at this time.

  That said, all 10 listed had a target hazard of 15 or more.

Appendix E - Survey Instrument

Unless noted in italics, the questions were all formatted as multiple choice. Question #1

allowed only a singular response; all other multiple choice questions allowed one or more

choices to be selected by the respondent. If the respondent chose "Other," they were always

provided a box requiring them to fill in additional details. Questions #3, #7 and #12 each had

logic associated with it; if the answer chosen was no, the survey would skip the related

questions and move on. Therefore, if answered "no," question #3 would skip to #7, question #7

would skip to #12 and question #12 would skip to #15.

1. Please choose the type of department you represent:

    a. Career

    b. Volunteer

    c. Combination

    d. Private

    e. Other. *Fill in the blank.*

2. What is the population of your jurisdiction? *Fill in the blank.*

3. Does your department have full-time fire inspectors? *Yes / No.*

4. How many full-time inspectors do you have? *Fill in the blank.*

5. How are your full-time inspectors employed?

    a. Sworn

    b. Civilian

    c. Private / Third-party

    d. Other. *Fill in the blank.*

6. What type of inspections do your full-time inspectors conduct?

    a. New construction

    b. Existing construction

    c. Change of occupancy

    d. Complaints and/or investigations

    e. Other. *Fill in the blank.*

7. Does your department have part-time fire inspectors? *Yes / No.*

8. How many part-time inspectors do you have? *Fill in the blank.*

9. ow are your part-time inspectors employed?

    a. Sworn

    b. Civilian

    c. Private / Third-party

    d. Other. *Fill in the blank.*

10. On average, how many hours a week do part-time inspectors work? *Fill in the blank.*

11. What type of inspections do your part-time inspectors conduct?

    a. New construction

    b. Existing construction

    c. Change of occupancy

    d. Complaints and/or investigations

        i. Other. *Fill in the blank.*

12. Does your department use firefighters to conduct company-level fire inspections? *Yes / No.*

13. How many fire companies conduct company-level fire inspections? *Fill in the blank.*

14. What type of inspections do your fire companies conduct?

    a. New construction

    b. Existing construction

    c. Change of occupancy

    d. Complaints and/or investigations

    e. Other. *Fill in the blank.*

15. On average, how many fire inspections is your department able to handle annually? *Fill in the blank.*

16. How many total structures can be inspected in your jurisdiction? Consider that a high school, for example, may be considered one entity, but it has 10 different buildings / structures that need to be inspected. This example would add 10 to your jurisdiction's total. *Fill in the blank.*

17. How many business entities are located in your jurisdiction? Consider that an enclosed, indoor mall, while a single structure, may contain 150 different individual businesses. This example would add 150 to your jurisdiction's total. *Fill in the blank.*

18. Is your department able to inspect every business and building annually? *Yes / No*

19. Outside of legislative mandates (federal, state or local), what priorities does your department use to accomplish fire inspections? *Fill in the blank.*

20. What factors do you believe are limiting your ability to conduct annual fire inspections for every business in your jurisdiction?

    a. Staffing

    b. Technology

    c.   Department / Political priorities

    d.   Other. *Fill in the blank*

21. If you would like to receive an e-mail containing the results of this survey, please complete

    the following information:

    a.   First Name

    b.   Last Name

    c.   Work Phone

    d.   E-mail Address