

# Commercial Building Fire Inspections: Opportunities to Improve Impact and Lower Costs

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September 2000



Office of the City Auditor  
Portland, Oregon





CITY OF  
**PORTLAND, OREGON**

OFFICE OF THE CITY AUDITOR  
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September 28, 2000

TO: Vera Katz, Mayor  
Jim Francesconi, Commissioner  
Charlie Hales, Commissioner  
Dan Saltzman, Commissioner  
Erik Sten, Commissioner  
Robert Wall, Fire Chief

SUBJECT: Audit of the Commercial Building Fire Inspection Program

Attached is Report #271, our audit of the Commercial Building Fire Inspection program in the Bureau of Fire, Rescue and Emergency Services. The audit was included in my annual Audit Schedule published in February of 2000.

We have reviewed draft reports with staff from the Fire Bureau, and they are in general agreement with the report's recommendations. Written responses from Fire Chief Robert Wall, and from Commissioner in Charge Jim Francesconi, are included at the back of the report.

In accordance with City Charter Section 2-505, I am requesting that the Bureau prepare a detailed status report in six months, reporting the steps taken to address the audit recommendations. The status reports should also be distributed to the Audit Services Division and the Commissioner in Charge of the Bureau of Fire, Rescue and Emergency Services.

We appreciate the cooperation and assistance we received from staff in the Bureau and the Commissioner's Office in conducting the audit and preparing the report.

  
GARY BLACKMER  
City Auditor

Audit Team: Richard Tracy  
David Dean  
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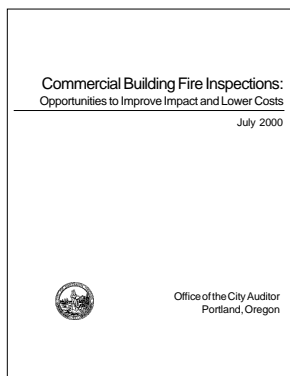
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September 2000

A Report by the Audit Services Division  
Report #271

Office of the City Auditor  
Portland, Oregon



## **Production/Design**

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*Desktop Publishing:* Robert Cowan

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# Summary

In 1998 the Portland City Council authorized the Bureau of Fire, Rescue, and Emergency Services to implement an enhanced commercial fire inspection program. The purpose of the program was to reduce the number and severity of fires in commercial buildings, thereby enhancing the public's health, safety, and welfare. To implement the program, the Council authorized yearly inspections of commercial buildings and assessment of an inspection fee to fund additional staff needed to conduct more frequent inspections. In FY1999-00, the Enhanced Fire Prevention program had a cost of over \$3.3 million, a staff of 38.5 FTE, and collected nearly \$1.2 million in inspection fees.

**Program impact is not yet evident**

Our review of the implementation status of the program shows that the Bureau has increased the number of building inspections by threefold – from nearly 6,500 in FY1997-98 to over 21,000 in FY1999-00. However, for several reasons, we are unable to determine if the program is meeting its goals of preventing fires, and reducing loss of life and property. The program is in the early stages of implementation and improvements in fire safety may not yet be evident. Additionally, reductions in the number of fires in commercial and residential units were on a down-

ward trend before the new program was implemented. Finally, the effectiveness of fire inspections is inherently hard to measure and the Bureau has not developed sufficient data to allow objective analysis of the impact of the program over time.

**Risk-based  
inspection approach  
may reduce  
effectiveness**

In addition, while the Bureau has clearly increased the number of commercial inspections and violations corrected, the Bureau does not plan to conduct annual inspections of all commercial buildings as initially proposed. The program has shifted emphasis to a “risk-based” inspection approach that will inspect only some of the commercial buildings each year. This change in program emphasis was caused by the business communities’ resistance to the cost and frequency of building inspections. While the risk-based approach may be an appropriate response to reductions in fee support, it may not achieve the lower fire rates that research has shown to be correlated with annual inspections.

Moreover, we have concerns about the methods used to develop the risk-based inspection program. While the Bureau evaluated risk based on building type and the presence of sprinklers, the Bureau did not conduct a systematic identification of high risk buildings in accordance with recommended practices and procedures. In addition, the Bureau did not systematically collect and assess data to help ensure the program addresses the greatest risks and implements the most effective prevention approaches. Moreover, the Bureau has not conducted an adequate analysis of the inspection workload, staffing needs, and revenue projections to ensure it performs sufficient inspections annually to support a stable level of staff resources.

**Program costs appear high and cost recovery less than expected**

We also determined that Portland's prevention program appears more costly than other cities and building inspection fees fall far short of recovering actual costs. Although it proved difficult to compare Portland's inspection budget to other cities, it appears that Portland spends nearly twice the average on prevention activities. In addition, inspection fees recover only 36 percent of the full costs of the program, instead of the 50 percent initially planned. Several factors may cause Portland's costs to be higher than others. For example, while most other cities employ the available time of station-based fire firefighters to perform building inspections, Portland employs a large staff of full-time fire inspectors.

**Proposals for change**

We believe there may be several opportunities to improve the effectiveness of the Enhanced Fire Prevention program while also lowering costs and developing better data for management and future evaluation of the program. The Bureau and Council should consider the following steps:

- Use the available time of station-based firefighters to conduct commercial fire inspections;
- Place less reliance on full-time dedicated fire inspection personnel;
- Develop a more systematic and scientific analysis of fire risk to ensure prevention resources are directed to activities that will have the biggest impact on saving lives and property;
- Work toward annual inspections of all commercial properties by geographic area; and

- Develop better management information on fire trends, causes of fires, and inspection activities to help management decisions and to permit future assessment of the effectiveness of the program.

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# Chapter 1 Introduction

This report presents the results of our audit of the City of Portland's Enhanced Fire Prevention program, housed in the Bureau of Fire, Rescue, and Emergency Services. The City Auditor approved the audit and included it in the Audit Services Division's 2000 audit schedule. We conducted the audit in accordance with generally accepted government auditing standards and limited our review to those areas specified in the objectives, scope, and methodology section of this report.

**Background** The City of Portland has provided fire inspection services since 1915. Over the years, however, the frequency of inspections has varied widely based on resources allocated for prevention activities. In February 1998, the Fire Bureau requested approval of a fee-based program to provide additional fire-code enforcement inspections. In its justification for an expanded program, the Bureau explained it was mandated to perform inspections of all of Portland's commercial and multi-family residential structures of three or more units. The Bureau estimated the total number of these occupancies was about 32,000. While the number of inspectable occupancies was large, the Bureau explained it was only able to inspect about 15 or 20 percent of these annually, due to a lack of resources.

In its proposal for an expanded program, the Bureau cited a study sponsored by the National Science Foundation showing lower fire rates in cities that annually inspected all or nearly all public buildings. The study recommended that fire agencies take steps to provide regular, annual fire-code inspections of all inspectable properties. We discuss this report in more detail in Chapter 3.

To fund an expanded fire-code inspection program, the Bureau advocated a fee-based program with revenue levels pegged to fully support an enhanced level of service. The Bureau proposed a fee system, arguing that "the primary benefactor of this service is the commercial establishment by keeping its employees and customers safe and preventing property damage."

**1998 Revisions To  
City Fire Regulations**

In July 1998, Portland City Council amended fire regulations in the City Code and created a new Commercial Building Inspection Program in Chapter 31.90. The revised regulations recognized that fire prevention is a major responsibility of the Fire Bureau. Further, the new regulations acknowledged enforcement of fire regulations as one method to reduce the number of fires. City Council found that this purpose can best be served through a building inspection program. With the revised fire regulations, City Council authorized the Bureau to conduct yearly inspections of all occupancies, except single-family and two-family homes.

Under the revised regulations, the Bureau was authorized to assess inspection fees to pay for the additional staff needed to conduct more frequent fire inspections of City businesses. City Council's goals for the new Enhanced Fire

Prevention (EFP) program were to reduce deaths, injuries, and property losses from fires, thus enhancing the public's health, safety, and welfare. The Bureau's objective for EFP was to "reduce the number and severity of commercial fires by inspecting all occupancies at least once each year," and to reduce fire risks in commercial buildings. The Bureau started the new program in August 1998.

**Organization,  
Spending, and  
Staffing**

The fire-code inspection program is housed in the Bureau's Prevention Division. As shown in Table 1, the Division's expenditures increased by 1 percent over the last six years, while staffing increased 6 percent during this period. In addition to commercial building inspections, the Prevention Division also carries out fire investigations, public education, and reviews of fire alarms and sprinkler systems, among other duties. We have included more detailed information about the Bureau's costs to provide fire-code inspections in Chapter 4.

**Table 1 Prevention Division Spending & Staffing  
Fiscal Years 1994-95 through 1999-00**  
*(in constant FY1999-00 dollars)*

<b>Fiscal Year</b>	<b>Actual Expenditures</b>	<b>Authorized Positions</b>
1994-95	\$5,099,740	62
1995-96	\$5,247,521	60
1996-97	\$4,683,145	58
1997-98	\$4,117,151	48
1998-99	\$5,291,021	66
1999-00	\$5,137,132	66
6-Year Change	+1%	+6%

SOURCE: City of Portland adopted budgets and IBIS

**Objectives, Scope,  
and Methodology**

The objective of our audit was to provide a status report on the Fire Bureau's revised fire-code inspection program, after its first two years of implementation. Accordingly, the research in this report centered around the following questions:

- What have been the primary accomplishments of the Enhanced Fire Prevention program?
- Are the Bureau's methods for fire-code enforcement consistent with recommended practices?
- What is the cost of providing fire-code inspections in Portland and how does that compare to other cities?
- What opportunities exist to improve the effectiveness and efficiency of the program?

In addressing these questions, we reviewed pertinent sections from the Portland City Code and Charter, relevant City policies, and State Statutes. We researched fire code inspection and fire prevention methods, as described in professional literature. To gain an understanding of Portland's program, we interviewed managers and staff from the Prevention Division and accompanied inspectors working in the field. We reviewed budget and accounting documents, annual and statistical reports, strategic plans, and organizational charts for the Bureau. We gathered data from six comparison cities: Charlotte, Cincinnati, Denver, Kansas City, Sacramento, and Seattle. We also developed cost-of-service data; interviewed the author of a previous Urban Institute study of fire inspections; and met with City Commissioner's staff and a representative of the firefighters' union. Finally, we interviewed representatives of business owners and property managers subject to fire-code inspections.



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## Chapter 2 Program Impact is Not Yet Evident

The number of inspections in commercial buildings has increased by 224 percent since the implementation of the Bureau's Enhanced Fire Prevention program. Over the past 24 months the Bureau identified over 68,000 violations in commercial buildings and over 58,000 deficiencies were corrected during this period. In addition, the Bureau built a nearly complete database of commercial occupancy addresses for future inspections.

However, for a variety of reasons, we cannot yet conclude that the Enhanced Fire Prevention program is reducing fire rates in commercial buildings. The program is in the early stages of implementation and fires were declining before the program was implemented. In addition, the cause and effect relationship between inspections and the reduction in fires is not easy to measure and verify. Taking these limitations into consideration, we believe that the Bureau needs to improve the collection and analysis of specific data on fires and inspections in order to objectively analyze whether or not inspections are having an impact on Portland fire rates.

**Number of inspections has more than tripled**

Our review of the implementation status of EFP indicates that the Bureau has more than tripled its number of inspections since the program started. As shown in Table 2,

the Bureau reports that it has increased its number of inspections from 6,477 in FY1997-98 to 21,015 in FY1999-00. As a result, the number of re-inspections required also increased from 3,084 in FY1997-998 to 11,642 in FY1999-00. By increasing the number of inspections performed the Bureau was able to identify 140 percent more code violations in the second year of EFP than in the year prior to the program. In addition, 79 percent of the violations detected by the Bureau in the second year of EFP were corrected and the Bureau plans to correct all violations in future years.

**Table 2 Five-Year History  
Commercial Building Inspections in Portland  
(FY1995-96 to FY1999-00)**

	FY95-96	FY96-97	FY97-98	Since EFP Started	
				FY98-99	FY99-00
Total Inspections	6,605	6,820	6,477	17,279	21,015
Total Re-Inspections	3,765	4,624	3,084	8,294	11,642
Violations detected	13,871	17,163	16,128	30,196	38,731
Violations corrected	14,306	18,522	16,240	28,219	30,725

SOURCE: Portland Bureau of Fire, Rescue and Emergency Services

Our review found that the Bureau's inspection database prior to November 1997 was unreliable, therefore the data provided for that time period is an estimate. Although we could not verify the number of inspections performed prior to EFP, the Bureau is conducting more inspections since EFP began but the exact increase is unclear. The inspection database underwent a systems conversion in November 1997 and the Bureau corrected most of its database problems at that time.

The Bureau also reports that in August 2000 nearly all commercial occupancies in Portland were inspected at least once since EFP began in August 1998. The Bureau conducted the inspections by dividing the City into districts and assigning inspectors to each district to perform block-by-block inspections. By doing so, the Bureau was able to update its existing occupancy database that was largely inaccurate under the previous code enforcement program. Maintaining a current and reliable database on commercial occupancies is important because the Bureau cannot schedule an inspection without current and accurate information about the occupancy.

**Program impact  
on fire rates  
is unclear**

The goal of the new EFP program is to reduce the number and severity of commercial fires, thus enhancing the public's health and safety. Although the program has significantly increased the number of commercial building inspections, we cannot yet determine if the program is meeting its goals.

There are several factors that limit what conclusions can be made about the impact of EFP. First, the EFP program is in the early stages of implementation and improvements to fire safety may not yet be evident. EFP has been in effect for two years and in order to make any assertions about the impact of inspections on fire rates, additional years of fire data are needed.

Second, structural fires in both commercial and residential structures were on a downward trend before EFP was implemented. As shown in Table 3, fires in commercial structures declined by 33 percent between FY1989-90 and FY1997-98, but increased by 5 percent after implementa-

tion of EFP. Residential structures, while not subject to inspections also show a similar pattern over the past 10 years. Also, over the past ten years, 77 percent of fire deaths and 66 percent of fire injuries occurred in residential occupancies that are not subject to fire inspections. Whereas only 6 percent of the fire deaths and 13 percent of the fire injuries occurred in commercial occupancies over the past 10 years. Therefore, it is difficult to determine whether or not fire inspections are reducing fire deaths and

**Table 3 10-Year Fire Trend Report for Portland**

	FY 1989-90	FY 1990-91	FY 1991-92	FY 1992-93	FY 1993-94	FY 1994-95	FY 1995-96	FY 1996-97	FY 1997-98	FY 1998-99	FY 1999-00 *
<b>Number of Civilian Deaths:</b>											
Commercial (Inspectable)	0	0	1	3	1	0	0	0	0	0	1
Multi-Family (Inspectable except indiv. units)	2	4	0	1	2	1	0	3	2	1	0
Residential (Non-Inspectable)	5	10	8	6	11	4	7	8	6	3	5
<b>TOTAL</b>	<b>7</b>	<b>14</b>	<b>9</b>	<b>10</b>	<b>14</b>	<b>5</b>	<b>7</b>	<b>11</b>	<b>8</b>	<b>4</b>	<b>6</b>
<b>Number of Civilian Injuries:</b>											
Commercial (Inspectable)	9	15	7	19	10	5	13	7	13	8	13
Multi-Family (Inspectable except indiv. units)	17	20	13	18	29	27	17	13	15	13	13
Residential (Non-Inspectable)	45	72	53	80	79	52	53	53	37	43	43
<b>TOTAL</b>	<b>71</b>	<b>107</b>	<b>73</b>	<b>117</b>	<b>118</b>	<b>84</b>	<b>83</b>	<b>73</b>	<b>65</b>	<b>64</b>	<b>69</b>
<b>Total Property Loss (from all structure fires)</b>											
Structure (in millions, in constant 1999 \$)	\$15.4	\$15.9	\$24.5	\$13.8	\$18.8	\$13.0	\$15.8	\$20.2	\$15.2	\$16.8	\$39.7
<b>Commercial Structure Fires</b>	<b>412</b>	<b>347</b>	<b>377</b>	<b>363</b>	<b>394</b>	<b>343</b>	<b>383</b>	<b>307</b>	<b>276</b>	<b>271</b>	<b>289</b>
<b>Multi-Family Structure Fires</b>	<b>223</b>	<b>245</b>	<b>213</b>	<b>187</b>	<b>231</b>	<b>242</b>	<b>221</b>	<b>225</b>	<b>158</b>	<b>165</b>	<b>170</b>
<b>Residential Structure Fires</b>	<b>653</b>	<b>684</b>	<b>540</b>	<b>616</b>	<b>539</b>	<b>574</b>	<b>564</b>	<b>466</b>	<b>443</b>	<b>486</b>	<b>489</b>
<b>TOTAL</b>	<b>1,288</b>	<b>1,276</b>	<b>1,130</b>	<b>1,166</b>	<b>1,164</b>	<b>1,159</b>	<b>1,168</b>	<b>998</b>	<b>877</b>	<b>922</b>	<b>948</b>

Inspectable: Commercial occupancies on public and private property as well as all other types of ownership.

Multi-Family: Residential structures with three or more units. Common areas are inspectable and individual units are non-inspectable. Data does not specify if a death, injury or fire occurred in a common area or in an individual unit.

Non-Inspectable: One and two-family residential structures.

\*Property loss and structure fires for FY1999-00 is an annualized estimate based on seven months of available data.

SOURCE: Portland Bureau of Fire, Rescue and Emergency Services

injuries in commercial occupancies when the baseline rate for such tragedies is already so low. Property loss is also a difficult indicator to correlate with program efforts. For example, the average annual property loss from structure fires from FY1989-90 to FY1997-98 was \$16,949,312, whereas the two-year average since EFP started is \$28,240,552. The two year average was significantly inflated by a single fire in FY1999-00 that caused over \$13 million in property damage.

Finally, it is difficult to isolate the effect of inspections on fires and fire losses from other factors that influence the number and severity of fires. According to professional literature and interviews with fire prevention officials, fires and fire loss can be affected by public education, enforcement of rules, engineering and building construction methods. According to the Assistant Vice President of Fire Analysis and Research at the National Fire Protection Association:

"As to reasons for the declines in fire losses over the past quarter century, we can't say with confidence just what did and didn't cause those declines, but we believe they represent incremental progress in a great many areas of fire safety, from safer products to wider use of better public education methods to better fire department prevention and firefighting methods to more use of built-in fire protection systems, with special focus on home smoke alarms, which seem to be clearly the centerpiece of the accomplishments of this most recent period."

According to the U.S. Fire Academy, it is difficult to make a simple conclusion for why fire loss rates are down in the United States, however, there are several indepen-

dent explanations, e.g. sprinklers, improved building codes, better heating systems, improved construction quality, and better engineering.

**Bureau needs to identify and collect better fire data**

While it is inherently difficult to measure the impact of inspections on fire rates, better data on inspections and fires would help the Bureau and City Council more objectively analyze the success of the EFP program. Since EFP is still relatively new, the Bureau has an opportunity to re-examine and improve the type and format of inspection and fire data currently being collected.

In order to more clearly tie the result of inspections to fires and fire loss, the Bureau should consider collecting and analyzing data in the following ways.

- Categorize occupancies as either inspectable (all commercial occupancies and common areas in multi-family structures) or non-inspectable (one- or two-family residences and the individual units in multi-family structures).
- When fires occur, document whether or not the occupancy was inspectable, and if inspectable, the date of the last inspection performed. This statistic will provide information about whether or not the frequency of inspections is affecting fire rates. If fire rates and losses in more frequently inspected occupancies are lower than those with only periodic inspections it may support the value of inspections.
- Review all structural fires each year and determine what the top causes of fire are for

each occupancy class (e.g. manufacturing, residential, etc.), and determine whether or not an inspection could have prevented the fire from occurring. For example, if the data shows that an inspection could not have prevented most fires, then management may consider employing other prevention efforts to reduce the risk of fire. This may include shifting resources to increase fire safety awareness in non-inspectable occupancies, such as one- or two-family residences. Management could also use this data to examine inspection methods, and what was reviewed during the inspection to determine whether or not the inspector is identifying the violations that are directly related to preventing the top causes of fire in each occupancy class.

- Closely track what type and how often each type of occupancy is inspected and analyze the fire trends to evaluate whether or not the frequency of inspection appears to be influencing fire rates for that type of occupancy.

Our interviews with Bureau managers indicate that they are interested in improving their fire and inspection data systems. Bureau managers are aware of the limitations of their existing database and have expressed the need to implement better management information systems.





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## Chapter 3 Plans for Less Frequent Inspections May Reduce Effectiveness

While our review shows that the Bureau has clearly increased the number of inspections that it performs each year, we found the Bureau will not conduct annual inspections of all commercial buildings as initially proposed. The Bureau has shifted its emphasis for the fire-code inspection program to a risk-based approach that will result in inspections of only some of Portland's commercial buildings each year. This change in the program's emphasis was caused primarily by business community resistance, due to the increased frequency of inspections and the associated inspection fees. While the risk-based approach may be a reasonable response to reductions in fee support, it may not achieve the lower fire rates that research has shown to be correlated with annual inspections. In addition, current plans for risk-based assessment need improvement to provide more assurance that the program will be effective.

### **Research suggests effective methods for fire-code inspections**

As justification for its expanded fire inspection program, the Bureau frequently cites research conducted by the National Fire Protection Association (NFPA) with the Urban Institute during 1977 and 1978. This study looked at fire-code inspection practices to determine whether some practices worked better to produce fewer fires, lower fire

loss, and fewer civilian casualties (John R. Hall, Jr. et al., *Fire Code Inspections and Fire Prevention: What Methods Lead To Success?*, NFPA, Boston, 1980). The NFPA study was sponsored by the National Science Foundation and U.S. Fire Administration. NFPA's research shows that annual inspections, organized block-by-block to maximize completeness of coverage, can prevent fires. According to this research, cities that follow this approach have reduced major fires by half.

Researchers selected 11 cities with diverse inspection practices for in-depth analysis. The sites were chosen to represent a range of inspection frequencies. Three cities had reported basic inspection frequencies of two per year for most properties, while the other eight cities had reported basic inspection frequencies of one per year. In each of the cities, researchers identified properties that had fires and determined the number of months between the fire and the last inspection of the property prior to the fire. The study found that many cities had fewer actual inspections than reported to NFPA. Figure 1 provides a brief synopsis of NFPA's key findings and recommendations. The entire report is on file and available for review in the Audit Services Division.

**Bureau has not conducted annual inspections**

Despite increased funding for more full-time inspectors, the EFP program has not conducted annual fire-code inspections of all commercial buildings as initially proposed to the City Council. One reason for this, according to Bureau officials, is that some commercial and industrial property owners and managers objected to the cost of annual inspections. Business organizations lobbied against the program's start-up and they have continued to oppose

**Figure 1**  
**Synopsis of: Fire Code Inspections and Fire Prevention:**  
**What Methods Lead to Success?**

- ***Fire frequency rates appeared to be substantially lower in cities that annually inspected all or nearly all buildings.*** Cities where many public buildings went several years between inspections, or were not regularly inspected at all, tended to have higher fire rates. Among nine cities for which inspection frequencies could be computed, the cities that did not inspect most public buildings annually had rates of fires (of all sizes) that were a third to a half higher than cities that inspected most buildings annually. Fire rates for larger fires (with at least \$5,000 damage) were more than double in the cities that were not inspecting most buildings annually. As a result of these findings, researchers recommended that fire departments take steps to provide regular, annual fire-code inspections of all inspectable properties. The study also recommended that departments monitor their success in providing annual inspections by checking whether or not buildings where fires occurred had been inspected in the past year.
- ***Cities using firefighters for a large share of regular fire-code inspections appeared to have substantially lower fire rates than cities that used full-time fire prevention bureau inspectors exclusively.*** The probable reason for this, according to the study, was that cities using only full-time inspectors did not have enough staff to inspect all buildings every year, while cities using firefighters usually had the staff necessary to do annual inspections. Further, the cities that did not use firefighters were the same cities that did not inspect most buildings annually. In concluding that annual fire-code inspections need not require large expenditures for full-time inspectors, the researchers recommended that cities consider using firefighters for fire-code inspection because this is a relatively low-cost way to accomplish inspections.
- ***Cities that defined inspectors' duties in terms of geographic areas instead of particular buildings to be covered appeared to be more successful in inspecting all buildings.*** According to the report, an area approach provides systematic coverage for entire city blocks or streets. Thus, each inspection cycle provides an opportunity to locate buildings that were not previously inspected because the building was either unused or unnoticed. Alternatively, when inspectors' assignments were generated from a computer listing of previous years' property inspections, even with updates from records on new business openings, properties were sometimes missed. If a business was missed when it opened or when the initial property listing was made, it was likely to be missed in succeeding inspection periods. Thus, researchers recommended that fire departments assign inspections by geographic areas, and combine this with a systematic street-by-street check-off.
- ***Cities with substantially lower fire rates probably achieved them through greater success in motivation and persuasion, rather than through greater thoroughness in direct hazard removal.*** In all communities examined, fires caused by carelessness or by electrical or mechanical failure constituted 40 to 60 percent of all building fires, while fires caused by visible hazards that inspectors are likely to remove amounted to only 4 to 8 percent of all building fires. Fires in the 40 to 60 percent category would be preventable primarily through educational and motivational efforts. Thus, researchers speculated that the reason annual inspections are associated with lower fire rates is that a department that inspects more frequently has more opportunities to motivate occupants.

Source: John R. Hall, Jr. et al., *Fire Code Inspections and Fire Prevention: What Methods Lead To Success?*, NFPA, Boston, 1980

it every year since its approval. As a representative from one of these groups told us, “we think the EFP program isn’t worth the price we’re paying.” This person explained, “fire inspections aren’t the problem, we object to the fees – it’s just one more fee among many that the City levies.”

In response to this opposition, the Bureau attempted to work with the business community to develop an agreeable fee schedule. That effort was not successful and business groups ended up opposing the program when it came before City Council. This resistance also led to a legal challenge, which has since been dropped. Those opposing the EFP program tried to argue that the program’s fees were really taxes, and therefore illegal. To resolve this issue, the Bureau was required to send prior notification of inspections. However, this was an additional step that was not anticipated by the Bureau and contributed to a slow start for the program.

The Bureau also had trouble identifying all of the businesses to be inspected. As they attempted to implement the EFP program, officials discovered that the Bureau’s occupancy database was badly out-of-date. Bureau officials told us that building a computer program to bill and track inspections was a more difficult task than they expected.

Personnel matters were another obstacle to the Bureau’s successful implementation of the program. The Bureau experienced higher turnover than expected. At one point during our audit, out of 20 inspector positions, four were vacant. Of the rest, 14 were new inspectors. This turnover was the result of retirements and burn-out. Some inspectors did not like the resistance they encountered from the business community and some inspectors moved on due to

promotions. Lastly, the Bureau encountered more sick leave and long-term leave than expected during the program's start-up phase.

**A risk-based approach to fire inspections**

Instead of annual inspections of commercial buildings, the Bureau developed a "risk-based" approach to inspections. This approach requires less frequent inspections and involves classifying and inspecting occupancies according to their potential risk. According to the National Fire Protection Association,

"A fire inspection program manager must prioritize inspections so the worst problems are tackled first, and equal treatment is given to all properties within a specific class of risk. Although any number of factors can be used in determining priorities, the same set of factors must be used on a continuing basis if a prioritizing system is to be fair and impartial."

The major features of the Bureau's approach to risk based inspections include:

- Classifying all city commercial buildings in certain categories. Such as, the Bureau uses the Office of Planning and Development Review's nine Uniform Building Codes to classify all inspectable occupancies in Portland.
- Using those building codes, assigning a level of risk and determining frequency of inspections based on type of occupancy whether the occupancy is sprinklered and if it is eligible for the Fire Safety Review program. For example, unsprinklered factories are scheduled to be inspected every other year.

- Developing a five-year inspection schedule based on building class and frequency.
- Projecting how many inspections will be completed and what the estimated backlog will be for each year.
- Creating a less costly "self-inspection" option for certain occupancies.
- The Fire Safety Review program is a self-inspection program and only certain types of occupancies are eligible to participate. To qualify, occupants must be classified as a Business, Factory, Mercantile, or Residential under the Uniform Building Code. In addition, occupants must have no hazards noted during their last inspection and have a zero account balance. Eligible participants are trained to inspect and correct violations in their own occupancies. The program costs \$20 to participate. The program is designed to allow qualified low-risk occupants the opportunity to conduct their own Fire Safety Review during certain years and not be required to pay for a regular fire code inspection.

The Bureau began implementing its risk-based inspection schedule on July 1, 2000. As shown in Figure 2, the inspection schedule outlines how often different types of occupancies are subject to a fire code inspection over a five year span. How often an occupancy is inspected depends on its Uniform Building Code classification, whether or not it is sprinklered, and if the occupancy is eligible to participate in the Fire Safety Review program. The schedule outlines a plan for how many occupancies are due to be inspected each year, the planned number of inspections to be completed, and the predicted backlog.

**Figure 2 Enhanced Fire Prevention Inspection Schedule**

occu-pancies	Uniform Building Code			1st year FY98-99	2nd year FY99-00	3rd year FY00-01	4th year FY01-02	5th year FY02-03
1,453	A			1,453	1,453	1,453	1,453	1,453
9,327	B (except Office)	Unsprinklered		8,394		8,394		8,394
		Unsprinklered	Fire Safety Review	933		933	933	
2,257		Sprinklered		1,806			1,806	
		Sprinklered	Fire Safety Review	451			451	451
5,663	B (Office)	Unsprinklered			5,097		5,097	
		Unsprinklered	Fire Safety Review		566		566	566
2,254		Sprinklered			1,803			1,803
		Sprinklered	Fire Safety Review		451			451
635	E			635	635	635	635	635
15	F	Unsprinklered		9		9		9
		Unsprinklered	Fire Safety Review	1		1	1	
		Sprinklered		4			4	
		Sprinklered	Fire Safety Review	1			1	1
895	H			895	895	895	895	895
124	I			124	124	124	124	124
31	M	Unsprinklered		23		23		23
		Unsprinklered	Fire Safety Review	3		3	3	
		Sprinklered		4			4	
		Sprinklered	Fire Safety Review	1			1	1
6,401	R	Unsprinklered		5,532		5,532		5,532
		Unsprinklered	Fire Safety Review	615		615	615	
		Sprinklered		203			203	
		Sprinklered	Fire Safety Review	51			51	
2,701	S			2,701	2,701	2,701	2,701	2,701
31,756		On-Site Code Inspections		23,839	13,725	19,766	14,474	22,588
		Fire Safety Review		0	0	1,552	1,070	451
		Completed/Projected		14,197	17,137	18,590	18,590	18,590
		Cumulative Backlog		9,642	6,230	7,406	3,290	7,288

	Physical Inspection by Code Enforcement Officer
	Fire Safety Review (self inspection)
	No Inspection

A	Assembly
B	Business
E	Education
F	Factory
H	Hazardous
I	Institution
M	Mercantile
R	Residential
S	Storage

A, E, H, I, and S occupancies are inspected annually.

B, F, M, and R occupancies are inspected every 2nd year,

except B, F, M, and R occupancies which are fully\* sprinklered skip to every 3rd year,

except B, F, M, and R occupancies which have good records may request to participate in a "Fire Safety Review Program" which occupants may conduct for themselves and skip another year.

\*sprinklered to current standards.

\*\*not a "self-inspection" program for liability reasons. The Fire Safety Review Program is being developed.

Eligible occupancies will be notified.

Assumptions: 10% of unsprinklered and 20% of sprinklered occupancies will choose to participate in the Fire Safety Review program.

Source: Portland Bureau of Fire, Rescue and Emergency Services

**Potential problems  
with risk-based  
inspections**

The risk-based approach to building inspections may be an appropriate and reasonable response to the lack of resources to conduct annual inspections. In theory, limited resources should be directed to the most important places. However, we believe the Bureau needs to do additional planning to provide more assurance that the revised approach is implemented effectively and efficiently. Specifically, we found the following areas for improvement:

- The Bureau lacks a process for periodically updating the number and type of occupancies to be inspected. Consequently, the inventory of commercial occupancies will become outdated and inaccurate as businesses change location, go out of business, and new businesses emerge. Managers, therefore, cannot be sure that all occupancies needing an inspection will receive one.
- The Bureau did not conduct a systematic risk assessment of the City's commercial buildings. For example, the International City Managers Association provides fire risk analysis models for the purposes of defining what the fire situation is in a specific region. The National Fire Protection Association also provides assessment guidelines for building risk. These guidelines outline some of the factors that influence the assessment of risk, e.g. type of occupancy, new construction vs. existing properties, etc. In addition, the U.S. Fire Academy offers classes that teach managers how to use their limited resources to establish the most effective fire prevention and inspection program possible. Instead, the schedule is based largely on Bureau officials' opinion and their own personal



experience with fire in the City of Portland. While experienced judgement should be a factor in the assessment, a more rigorous method would provide more assurance that occupancies received an appropriate level and frequency of inspection.

- The Bureau did not use professional guidelines to decide how often an occupancy will be inspected or the qualifying criteria for the Fire Safety Review (self-inspection) program. The Bureau did not perform assessments of fire frequency, age of buildings, or type of construction to help determine which buildings need inspections. The Bureau used the Uniform Building Code classifications and whether or not an occupancy is sprinklered to determine the frequency and nature of inspections. The criteria used to determine which occupancies qualify for the Fire Safety Review program (self-inspection) may result in inappropriately excluding some occupancies from inspections.
- The schedule does not include an estimate of how many inspections will require re-inspections. This could result in underestimating the amount of time, staff and additional resources needed to complete the re-inspections.
- The Bureau did not conduct a complete analysis of the inspection schedule to determine what the workload and staffing variation will be from year to year. For example, starting in FY2000-01, the Bureau plans on performing approximately 18,500 inspections a year, however the expected cumulative backlog increases

from 3,290 in the fourth year to 7,288 in the fifth year. The Bureau has not factored in what the additional staffing requirements will be in order to prevent the cumulative backlog from increasing year after year.

- The Bureau has not estimated the expenditures and revenues for each year under the new inspection schedule. If the number of inspections and re-inspections vary from year to year then the costs and fees will fluctuate from year to year.
- During the development of the inspection schedule, a cumulative backlog of inspections was identified. This management approach concerns us because the Bureau set up an inspection schedule that puts them behind schedule before the program even started.
- The Bureau uses the Uniform Building Code to classify occupancies for inspection purposes but uses the Uniform Fire Code to classify occupancies where fires occur. If occupancies are classified in different ways, analyzing the connection between inspections and fires is more difficult.

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## Chapter 4 Cost Recovery Less Than Expected, Full Costs Appear High

The implementation of the EFP program increased overall inspection costs by 68 percent over the last six years. Although new fee revenues helped offset these new costs, fee revenues supported only 36 percent of the program's costs in FY1999-00. Compared to other cities, Portland spends significantly more than average on prevention efforts. One factor driving Portland's higher costs is the use of dedicated inspectors rather than station-based firefighters to conduct commercial building inspections.

### **Fee revenues recover less than expected**

We analyzed Bureau records to determine the full cost of providing fire-code inspections in Portland's commercial buildings. As shown in Table 4, we estimated that the yearly inflation-adjusted cost for inspections increased from about \$2.0 million in FY1994-95 to over \$3.3 million in FY1999-00, a 68 percent increase over six years. Our analysis showed that the cost for the fire inspection program was generally stable or declining until FY1998-99, when the Bureau began implementing the new EFP program. That year, inspection costs increased by nearly \$1.5 million. Because fees were part of the new program, however, the Bureau was able to recoup nearly \$890,000 from inspected businesses. During the program's second year of operations in FY1999-00, costs stabilized and revenue increased to about \$1.2 million.

Revenue from commercial building inspection fees accounted for about 26 percent of total program costs in FY1998-99 and about 36 percent in FY1999-00. This recovery rate is lower than initially expected by the Bureau and City Council.

**Table 4 Summary of Inspection Program Costs  
Fiscal Years 1994-95 through 1999-00**  
*(in constant FY1999-00 dollars)*

Fiscal Year	Inspection Costs *	Fee Revenues	Net Cost of the Inspection Program
1994-95	\$1,987,732	0	\$1,987,732
1995-96	\$2,304,407	0	\$2,304,407
1996-97	\$2,175,806	0	\$2,175,806
1997-98	\$1,905,341	0	\$1,905,341
1998-99	\$3,391,415	\$889,205	\$2,502,210
1999-00	\$3,345,203	\$1,197,176	\$2,148,027

\* Costs include direct expenses for inspection personnel and indirect expenses for administrative overhead, general management, and clerical support.

Source: Audit Services Division's analysis of Fire Bureau records

In requesting approval for the new program, the Bureau stated in its budget request package that "revenue levels are pegged to fully support the enhanced level of service" and "overall the code inspection program will become about 50 percent fee supported."

Additionally, ordinance #172483, passed in July 1998, established a fee schedule for the EFP program and directed the Bureau to keep detailed records of the cost of providing each inspection. The ordinance also stated that "fee levels are set by occupancy to reflect, to the extent

possible, the actual cost of providing this special service," although Council exempted schools and non-profit hospitals from the required fees. Revenue amounts did not meet expectations in part because the Bureau did not complete as many inspections as quickly as they thought they could. The Bureau wanted to get to all business occupancies for an inspection within 18 months after the start of the EFP program. Instead, it took the Bureau about two years to complete the first cycle of inspections. One reason for this, was that the Bureau's database was out-of-date and needed to be updated.

**Portland spends more on fire prevention than other similar sized cities**

To provide a basis for comparing costs for fire-code inspections in Portland, we contacted six other similar sized cities. Because these cities did not track fire-code inspection costs as a separate item in their budgets, we were unable to make a direct cost comparison. We did, however, obtain information to compare overall fire prevention budgets for five of these cities. We found that Portland spends more on fire prevention than any of these other cities. As shown in Table 5, with pension costs included, Portland's 1999 prevention budget was \$16 per capita, compared to an average of \$6. One reason for Portland's high cost is due to the pay-as-you-go Fire and Police Disability and Retirement system established by City Charter. Other cities use a less costly pre-funding approach for pension and disability services. However, even excluding pension costs, Portland's prevention budget was still higher than average. Excluding pensions, Portland's per capita budget was \$11, compared to an average of \$5.

The Bureau's reliance on full-time inspectors to conduct all fire-code inspections is one factor driving Portland's costs. Many cities use suppression company personnel, in combination with full-time inspectors, to perform a significant share of inspections. This approach alleviates the need for large appropriations for full-time inspectors by taking advantage of firefighters' available time between emergency calls. Charlotte was the only other city among those we contacted that did not use firefighters to perform at least some inspections. Four cities reported that companies performed between 70 and 95 percent of all inspections performed.

**Table 5 Fire Prevention budgets in Portland and six other cities, 1999**

	Service area population	Fire Prevention budget per capita		Structure fires/ 1,000 residents
		with pensions	without pensions	
Charlotte	521,478	\$2	\$2	1.6
Cincinnati	336,400	n/a	n/a	4.0
Denver	501,700	\$6	\$5	1.5
Kansas City	443,400	\$2	\$2	5.2
<b>Portland</b>	<b>509,610</b>	<b>\$16</b>	<b>\$11</b>	<b>1.6</b>
Sacramento	435,200	\$5	\$4	2.7
Seattle	539,700	\$8	\$7	1.0
<b>AVERAGE</b>	<b>469,641</b>	<b>\$6</b>	<b>\$5</b>	<b>2.5</b>

SOURCE: Auditor's Office survey of six cities and Fire Bureau records

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Other likely reasons that Portland's prevention costs are higher than other comparable cities include:

- *Portland has more staff assigned to prevention than most other cities.* The average number of prevention staff in the other six cities that we contacted was 34; Portland has 66.
- *Some other cities use civilian inspectors to reduce costs.* For example, Sacramento uses civilian inspectors making in the range of \$31,000 to \$41,000 per year; Charlotte also reported using civilians making in the range of \$36,000 to \$47,000 annually.
- *The mix of prevention services varies from city to city.* For example, Charlotte's prevention staff excludes fire investigators, which are included in Portland's prevention staff. Charlotte's budget for fire investigators was about \$375,000 annually. In another case, Sacramento reported having no public education staff and plans review is performed by their City's building department.
- *Two cities reported conducting fewer inspections than Portland; two other cities weren't tracking how many inspections were done.* Both Kansas City and Sacramento reported doing 10,000 to 12,000 inspections per year. Our analysis showed about 21,000 in Portland. On the other hand, Charlotte and Denver reported doing more inspections than Portland.

**Existing Bureau financial systems are not set-up to capture all direct and indirect costs**

During the course of our work, we noted that the Bureau lacks strong procedures to track the cost of providing fire-code inspections. While we were able to estimate these costs using information from a variety of sources, the Bureau needs to improve its ability to produce cost information. Such information is necessary for making informed decisions and for determining fees for the EFP program.

We found a number of factors that hinder the Bureau's ability to accurately determine its full cost to carry out fire-code inspections. The Bureau does not have a systematic method for allocating all direct and indirect costs associated with its fire-code inspection program to determine the full cost of this program. While the Bureau has previously analyzed its costs to provide fire-code inspections, we found this was last done in March 1998 and the Bureau's former method did not include all costs.

The Bureau's organizational structure includes full-time inspectors and supervisors in the Prevention Division, but some other part-time inspectors are budgeted in the Emergency Operations Division. To improve productivity, the Bureau assigns some inspection responsibilities to non-inspection personnel in the Prevention Division. While this has contributed to productivity for the inspection program, it also makes determining costs difficult because the Bureau has not established a time-recording system to track hours devoted to inspections. Currently, the structure of the Bureau's accounting system does not allow program managers to easily determine or monitor costs of providing inspections. Also, because pension costs for most firefighters and inspectors are not included in the Bureau's budget, the Bureau has not included these costs in its past cost-of-service estimates.



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# Chapter 5 Commercial Building Inspections: Proposals to Improve Impact and Lower Costs

We believe there are several opportunities to improve the effectiveness of the commercial building inspection program, while also lowering program costs and developing better information for management and future evaluation. The Bureau and the Council should consider the following actions:

1. ***Continue to explore the feasibility of using station-based firefighters to conduct commercial fire inspections.***

Using firefighters assigned to fire stations to conduct commercial building inspections offers the greatest potential for increasing the number of buildings inspected and lowering the overall costs of the program. There are currently 27 fire stations distributed throughout the city staffed by over 154 firefighters (154 per shift x 3 shifts = 462 total firefighters) comprising 37 companies that are potentially available to conduct inspections when not busy performing other duties. If each company was able to average one inspection each business day, an additional 9,620 inspections could be performed without additional personnel cost. If two inspections could be completed,

over 19,000 could be performed annually, exceeding current plans for the number of inspections to be performed by full-time inspection staff each year.

A key factor in determining the degree to which station-based firefighter can conduct fire inspections is to identify how much "free" or available time firefighters have from other duties to conduct building inspections. Firefighters work a 24-hour shift and then are off duty for 48 hours before their next shift, averaging 53 hours per work week each year. In addition to the principal duties of responding to fire, medical, and other emergency calls, firefighters also spend time on a variety of other activities including station and equipment maintenance, training, and preparation for and clean-up after incidents.

While we believe that the reported time spent responding to emergency incidents is generally very reliable because total incident time (from notification of an emergency to the time of station return) is recorded in the 911 Computer Aided Dispatch system, the time reporting system for "other duties" may not be sufficiently reliable to reach definitive conclusions regarding the amount of time firefighters have available to conduct building inspections. This is based on our limited review and conversations with bureau representatives. Additional study of the amount of time spent performing duties other than emergency incident response, should provide more assurance about the amount of time available to conduct building inspections.

The use of station-based firefighters to conduct fire inspections is one topic of discussion in the current contract negotiations between the City of Portland and the Portland firefighters' labor union.

**2. *Place less reliance on full-time dedicated inspection personnel.***

In coordination with the move to company inspections the Bureau should have an opportunity to reduce the size of the staff assigned to full-time inspection duties. The prevention program has a current staff of 24 inspectors that are supervised by four senior inspectors. Average annual cost for salary and benefits for inspectors approaches \$76,000. If company inspectors are able to conduct even a part of the planned work of current inspection staff, fewer inspectors and supervisors would be needed. Our discussion with other cities indicates that company personnel frequently perform a significant portion of fire-code inspections. Four of the six cities we contacted rely on firefighters for between 70 and 95 percent of all inspections performed. Only Charlotte is like Portland, and does not use firefighters for inspections; Kansas City firefighters contributed only 10 percent of their city's total.

Assuming that each fire company could conduct one to two inspections each business day, we estimate that the program would require 13 to 27 fewer full-time inspectors for a total projected cost savings of between

\$1.6 million to \$3.1 million. Moreover, because the personnel and equipment cost of station personnel are already fully funded, it is possible that the program could rely less on inspection fees for support.

The Bureau should address several considerations before downsizing the prevention staff. First, the Bureau may wish to retain a core group of inspection specialists to coordinate and oversee the inspection program and to advise and train company inspectors. This group could also assist with more complex inspections and high-risk occupancies. Second, the Bureau may wish to retain in the inspection program some capacity for placement of disabled firefighters that can no longer perform firefighting duties.

The ability to use the skills and experience of trained firefighters for inspections is a cost-efficient alternative to paying disability benefits. There are currently five inspectors and two senior inspectors that cannot return to regular firefighting duties.

**3. *Work toward annual inspections of all commercial properties by geographic area.***

If the Bureau is able to increase the capacity to conduct inspections with the addition of the available time of station-based firefighters, the Bureau should plan to accomplish as many inspections as possible on an annual basis. According a national research study by the National Fire Protection Association, fire frequency rates appear to be substantially lower in cities that annually inspected all or nearly all buildings. The

Bureau currently plans to inspect approximately 58 percent of the commercial occupancies annually through the risk-based inspection approach. However, with the additional capacity of company based inspections, the Bureau may have the ability to reach nearly every one of 32,000 commercial occupancies each year. With increased inspection frequency the Bureau will have a greatly likelihood of maintaining an update inventory of commercial occupancies and better geographic coverage of the City. In addition, the City would have a greater potential to lower fire rates because more frequent inspections provide more opportunities to educate and motivate buildings tenants.

Company inspections should also help the Bureau improve Community-Fire Bureau partnerships, a Bureau program that intends to improve the citizen commitment and understanding of safety issues related to fire, medical, and other emergencies.

**4. *Develop a more systematic analysis of fire risk and improved workload analysis so that prevention resources are directed to activities that will have the biggest impact on reducing fires and fire loss.***

Fire Inspection Management Guidelines developed by the National Fire Protection Association and the Fire Marshals Association of North America recommends a systematic approach to fire inspections that includes setting clear priorities based on an evaluation of risk factors, determining time requirements for conducting various types of inspections, developing a list of

inspection activities to ensure various occupancies are thoroughly inspected and, estimating staffing needs to accomplish the target number of inspections in a given time period. While the Bureau has addressed some of these steps, we believe more rigorous planning and analysis is needed to more completely analyze and categorize inspection priorities, inspection frequencies and methods. In addition, more thought is needed to determine how many inspections can be conducted each year based on estimated time available and average inspection times.

**5. *Improve internal management information on fire trends, causes of fires, and inspection efforts to help management decisions and permit future assessment of program effectiveness.***

We recommend that the Bureau identify the types of information they will need in five to ten years, to determine whether inspections are influencing fire rates. Following are some suggestions of the types of data the Bureau should collect, analyze, and report:

1. Estimated number of
  - a. Inspectable\* occupancies
  - b. Non-Inspectable\*\* occupancies
2. Number of EFP inspections categorized by type (track other types of inspections separately)
  - a. Regular (R)
  - b. Special -Special Owner (SO)

- c. Special -Building Permit related (SB)
  - d. Special -Complaint (SC)
  - e. Special -Company Referral (SR)
  - f. Special (S)
  - g. Inspection Survey (IS)
3. Number and percent of scheduled inspections completed each year
  4. Re-inspections
    - a. Types of inspections that require a re-inspection
    - b. Categorize re-inspections by occupancy type
  5. Violations
    - a. Calculate average violations per type of inspection
    - b. Identify most common violations in each occupancy class
    - c. Analyze all inspectable\* fire incidents annually and determine whether an inspection (identifying violations) could have prevented the fire
  6. Abatements
    - a. Percent of violations corrected in each fiscal year
  7. Structural fires that occurred in
    - a. Inspectable\* occupancies
    - b. Non-Inspectable\*\* occupancies

8. Analyze all inspectable\* fire incidents annually and document number of months since last inspected to determine whether frequency of inspection effects fire rates
9. Analyze all inspectable\* fire incidents annually and identify what the top five causes of fire are in each occupancy class and determine if an inspection could have prevented the causes of fire
10. Document on the fire incident report whether the structure fire was in an inspectable\* occupancy
11. Fire Safety Review program
  - a. Number of participants
  - b. Analyze all inspectable\* fire incidents annually and document how many participates were enrolled in the Fire Safety Review program

\* Inspectable occupancies include all commercial and public occupancies and common areas in multi-family structures.

\*\* Non-Inspectable occupancies include 1 or 2 family residences and individual units within a multi-family structure.



# Responses to the Audit Report

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CITY OF  
**PORTLAND, OREGON**  
OFFICE OF PUBLIC UTILITIES

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September 22, 2000

To: Gary Blackmer, City Auditor

From: Jim Francesconi, Commissioner

RE: Commercial Building Fire Inspection Audit

Thank you for allowing me to comment on the final draft of your Performance Audit of the Fire Bureau's Commercial Building Fire Inspection Program. As you know, I believe audits are a useful management tool to help improve the quality of services that we deliver to the public. Given that this a new program for the bureau, it was particularly helpful to have an outside, independent entity examine the program and make recommendations on how it might be improved. I had also asked the Fire Marshal to form a Prevention Advisory Committee (PAC) comprised of key stakeholders and business people who could work cooperatively with the bureau to successfully implement the program.

Overall, we agree with the conclusions in your report. I would like to make some brief comments on the major recommendations found in Chapter 5 of the audit.

- We believe that your first three recommendations are all related and hinge on our ability to be able to use station based firefighters to conduct commercial fire inspections. As you know, this is a topic of discussion between the City and the Portland Firefighters' Association. I believe that the Enhanced Fire Prevention Program would be more effective, more efficient and our city would be safer if we were able to use station-based firefighters to conduct these inspections.
- We agree that the bureau needs to adopt a more systematic inspection cycle. The Prevention Advisory Committee has discussed this issue and they are forwarding some specific recommendations to City Council on how this might be achieved.
- We also agree that better internal management systems need to be developed on fire trends, the causes of fires and inspection efforts. Your specific suggestions on the types of data that the bureau should collect, analyze and record was very helpful.

In closing, we would like to recognize the contribution of Dick Tracy, David Dean and Kathleen Taylor to this audit. Over the next year, I will be working with bureau management, the Prevention Advisory Committee and labor to implement these recommendations and improve public safety in our City.





CITY OF

# PORTLAND, OREGON

BUREAU OF FIRE, RESCUE & EMERGENCY SERVICES

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September 22, 2000

TO: City Auditor Gary Blackmer, B131/R140

FR: Chief Robert Wall, Bureau of Fire, Rescue & Emergency Services

RE: Auditor's Report on Enhanced Fire Prevention Program

Generally, the Fire Bureau agrees with the conclusions of the Auditor's Report on the Enhanced Fire Prevention program. However, there are some differences in our own interpretation of the information and some cautionary notes we feel compelled to make.

- *Program Impact Is Not Yet Evident:* We agree with the conclusion, but emphasize that it is inherently difficult to measure the impact of prevention programs. We stated at the beginning that the program needed at least five years before an effective evaluation should be attempted because of start-up challenges and normal variances in changing building data from year to year. We intend to evaluate the program in terms of loss and risk reduction for Portland at the five-year anniversary, and will have appropriate measures developed this fiscal year.
- *Less Frequent Inspections May Reduce Effectiveness:* We agree that annual inspections may be more effective than two or three year cycles. The risk-based inspection cycle we adopted was a matter of community acceptability. We now know it does create a backlog, and has been more difficult to manage. Therefore, we have begun discussions with the community Prevention Advisory Council to adopt a more systematic inspection cycle which could solve a number of these problems, and plan to bring a related proposal forward to Council.
- *Cost Recovery Less Than Expected, Full Costs Appear High:* We agree that cost recovery has been less than expected. However, the Bureau conformed to OFA guidelines for this program because it was determined to have mixed public/private benefit. Consequently, we included only direct costs in our estimates, and not the additional indirect costs of the program referred to by the Auditor's Report.

Additionally, when cost recovery is anticipated to be low, we try to balance the bottom line by adjusting our budget expenses, so additional funds will not be needed to maintain the program.

We also agree that full costs appear to be high, but caution that comparing one jurisdiction to another can be misleading. Rarely can we be confident the same functions are equally weighted within the comparable fire department prevention budgets. As the audit report stipulates, some other fire departments account for different prevention units in other budgets. We also agree that a company inspections program is more efficient, and remain a proponent of its implementation.

- *Program Change Recommendations:* There are several of the recommendations that have already been initiated. For example:
  - Station based inspections are already a part of the Bureau's management strategy.
  - A more systematic inspection cycle will be part of the recommendations taken to the Prevention Advisory Council, and is intended to be brought forward to the City Council.
  - A better information management system is desired, and we have taken a number of steps to improve it. Specifically, we have committed our resources to the development of annual (or more often when necessary) summaries of the data in the categories suggested by the Auditor. Much of the information currently exists but has not been summarized in this fashion.

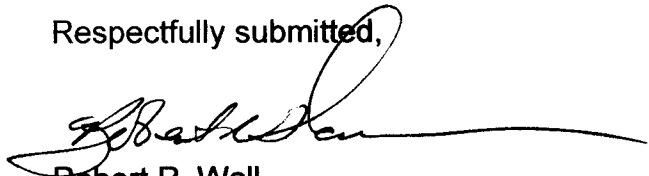
Finally, there are a number of positive aspects to the Enhanced Fire Prevention program, and our prevention efforts in general that should be illuminated. Specifically:

- The Fire Prevention Division expenses have only increased 1% since 1994-95. This is true *only* because we implemented EFP in 1998-99. Failing to implement EFP would have resulted in a reduction in the prevention budget and inspection productivity. Clearly, reductions that yield a less safe community is the wrong direction to pursue.
- Our own data shows that Portland has experienced an overall fire loss reduction of 62% from 1986 through 1998, compared to a statewide reduction of 52% and national reductions of 45%. While prevention efforts are working nationally, we are pleased to be able to report more substantial advances for Portland. We believe it pays special dividends to fund good prevention.

- Costs for code enforcement activities have risen 68% since the beginning of EFP when indirect costs are included. However, productivity has increased by about 224% during that same period. Though prevention is not science based, we maintain that risks are reduced when inspections are increased because more hazards are identified and abated. Prevention is people based, not science based, because of the dependence on changed behaviors Vs changed statistics or the financial bottom line.
- For the first time in our institutional history, we have been able to inspect every commercial occupancy in Portland. We have found some buildings that had not been a part of our previous database, and had never been inspected. Others had not been inspected for eight to ten years. Risk reduction may be difficult to quantify, but our common sense approach suggests that fewer hazards will produce a safer community.

We continue to welcome close scrutiny of our prevention efforts and the recommendations contained in the Auditor's Report. Quality assessments help us to stay focused on improvements. It is our common dedication to continuous improvement that will keep Portland moving toward even more favorable fire loss and risk statistics in the future.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Robert R. Wall', with a long horizontal flourish extending to the right.

Robert R. Wall  
Fire Chief







THIS REPORT IS INTENDED TO PROMOTE  
BEST POSSIBLE MANAGEMENT OF PUBLIC RESOURCES

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