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Fire Incidence in the Town of Greifensee

Sponsored by:
Greifensee Fire Brigade

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Abstract

The town of Greifensee has a better than average fire safety record for towns in its area. Feuerwehr Greifensee commissioned WPI to investigate the reasons for the town's excellent safety record. The project team used archived fire records, census data, and interviews to verify the record and determine the socioeconomic factors and fire prevention efforts that affect Greifensee's fire record. The research demonstrates that while socioeconomic factors do not affect fire, Greifensee's fire prevention efforts make it a safer community.

Executive Summary

Fires cause enormous amounts of damage. A report by the National Fire Data Center ("NFDC") states that, in 1996, Switzerland had 5.5 deaths per million citizens attributed to fire (NFDC, 1998, pp. 28-29). The village of Greifensee, located in the canton of Zürich, has not experienced any residential fires in the past six to seven years. This is unusual because anecdotal data suggests that a town of Greifensee's population size should expect to have at least three to four residential fires per year. While it is entirely possible that this phenomenon could be a statistcal artifact, it is also equally possible that there may exist a reason as to why Greifensee seems safer than the average Swiss town. It is important to note that the Swiss define a residential fire as one that involves the physical structure of the residence. In this sense, a small fire in a kitchen or wastebasket, or a burning appliance does not count as a residential fire.

Researchers have published many statistics showing when and where residential fires occur. From these statistics it is clear that residential fires make up the largest proportion of building fires in both countries. This is to be expected, as houses are the most common building types. We determined and compared the most common causes of residential fires. These causes included natural phenomena, human carelessness, mechanical and electrical malfunctions, arson and some socioeconomic factors.

From our initial research, we formed a hypothesis. The two major factors that lower fire rates in Greifensee are:

1) Cultural/socioeconomic differences between Greifensee and the seven neighboring towns in the Uster Fire District.
2) Fire prevention efforts in each of the towns.

We employed various research methods with the goal of supporting or refuting our hypothesis. This included researching the archival fire incidence data and socioeconomic

differences for the neighboring towns in the Uster Fire District: Egg, Fällanden, Maur, Mönchaltorf, Schwerzenbach, Uster and Volketswil. Moreover, we investigated the various fire prevention efforts within the town of Greifensee and other towns, by interviewing primary school teachers, reviewing the fire education curriculum and interviewing the five fire brigade commanders from the neighboring towns.

The first data to which we had access were the reports kept by the Greifensee fire brigade. These records, which cover 1984 to the present, allowed us to verify some of the anecdotal data Herr Rigling provided. We used interviews with other fire commanders to compare Greifensee's residential fires to those of the surrounding towns. Gebäudeversicherung des Kantons Zürich ("GVZ") provided the best records covering the last seven years for the towns that compose the Uster fire district. These records contained information pertaining to the types of fires each community experiences and the total damages for each type of fire.

In a study completed by Philip Schaenman of TriData Corp., it was determined that certain socioeconomic variables contributed to the amount of fire incidence. These variables include age distribution, foreign population, unemployment rate, income distribution and family structure (NFDC, 1997, p. 3). We obtained the neighboring towns' relevant socioeconomic data from Statistisches Amt des Kanton Zürich. From this information we were able to compute a mean age, the percentage of foreigners in residence, the unemployment rate, mean income level and percentage of single parent households for Greifensee and the seven neighboring towns.

Through the use of interviews and additional research, we obtained information regarding the fire prevention efforts of Greifensee and the seven neighboring towns. From the interviews with the fire brigade commanders, we collected information regarding the average response times of their fire brigades, the organization of their fire brigade and their

efforts to educate the community. The interviews with the primary school teachers and the review of the fire education curriculum provided us with information pertaining to what is being taught, as well as, how it is being taught. The interview with the local chimney sweep, Herr Walliser, provided us with a look into how they are trained, what they look for and information regarding the types of heating systems for each town.

We performed linear regression tests to determine what, if any, relationship exists between each variable and the occurrence of fires. Only two socioeconomic variables showed any potential relationship: percentage of foreign population and unemployment rate. However, when a confidence interval was calculated, it showed that they are not accurate predictors of fire incidence. This statistical analysis led us to the conclusion that, other than total population, socioeconomic differences between the towns in the Uster fire district do not affect fire incidence.

Fire brigade involvement in fire safety education, however, appears to play a role in the incidence of accidental fires. The town in which the local brigade is very involved has the lowest rate of accidental fires per person, whereas the one in which the brigade takes no role in education sees many more accidental fires. Towns with limited involvement all showed about the same mid-range number of accidental fires.

Finally, Swiss cultural attitudes help lower fire incidence relative to other countries. The Swiss, as a general rule, are very careful and precise in everything they do, and that outlook carries over into fire safety.

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Authorship notice:

All authors are jointly responsible for the content of this report.

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Introduction

Fires cause enormous amounts of damage. A report by the National Fire Data Center ("NFDC") states that, in 1996, Switzerland had 5.5 deaths per million citizens attributed to fire (NFDC, 1998, pp. 28-29). The cantonal insurance agency for Kanton Zürich, Gebäudeversicherung des Kantons Zürich ("GVZ"), reports that canton Zürich alone suffered 31 million francs (~18 million USD) in fire damages in 1999 with a ten-year mean of 36 million (~21.7 million USD) (GVZ, 2001a). Clearly fires put an enormous drain on societies, siphoning away resources better spent elsewhere.

The town of Greifensee, a suburb of Zürich, has experienced no residential fires in the last six to seven years, according to its fire brigade. Anecdotal data from similar towns in Switzerland suggests that this is unusual and that Greifensee's volunteer fire brigade should expect to respond to three or four residential fires per year. While it is possible that this is only a coincidence, there may also be specific reasons why Greifensee is, or at least appears to be, safer than the average Swiss village. It is important to note that the Swiss define a residential fire as one that involves structural members of the residence—a small fire in a kitchen, or a burning appliance or wastepaper basket does not count.

The Greifensee fire brigade asked WPI to research the cause of this phenomenon. Knowing the cause of the low fire incidence is important to them for a number of reasons. First, knowing the causes may allow the Greifensee fire brigade to predict future fire incidence, allowing them to plan ahead when determining budgets for equipment and training. It is also their hope that other towns can use the results of the study to lower their own fire rates, saving both money and, more importantly, lives, as most fire fatalities occur in house fires.

As expected, preliminary research suggested that there are several potential explanations for Greifensee's good safety record. This research indicated that the human

factors along with fire prevention efforts play more of a role than the amount of possible fire hazards or building codes, both of which appear to be fairly consistent throughout Switzerland. In an interview, WPI Fire Protection Engineering Professor David Lucht stated that there is generally a very strong negative correlation between the frequency of fire inspections and the frequency of fires. Other research indicated that human factors are more often the causes of fires than problems with the heating or wiring of a home, as noted in the literature review later in this document.

Many people will be interested in the results of this project. Most Swiss cantons require that all homeowners purchase fire insurance, and the providers of this insurance could very well find the data in this report to be invaluable (GVZ, 2001a). If Greifensee's safety record can be duplicated, then homeowners and insurers throughout Switzerland could save some substantial amounts of money. In some cantons these insurance companies are privately owned, but in most, the government owns them. Thus it will not only be private companies that should be interested in the findings of this project, but the Swiss government as well.

The cantonal government also helps fund the volunteer fire brigades that are present in every town in Kanton Zürich. These fire brigades may discover that the findings of this project could help them immensely. It is very possible that the key to why Greifensee has so few fires lies within the fire brigade in Greifensee. If there is something that this fire brigade does to help lower the rate of fires, then other fire brigades would certainly be interested in knowing about this, so that they could use it to lower fire rates in their own towns.

Individuals are very often the cause of fires and should therefore also be interested in the findings. The Swiss government funds fire education programs, which may be able to help many citizens to reduce their risk of fire, given the results of this project. This project may reveal something that the people of Greifensee are doing to lower fire incidences and

fire education programs would be a very good way to spread this knowledge to the Swiss public.

Interest in this project, however, should not be restricted to Switzerland. The fire incidence in Greifensee is not just lower than those of other Swiss towns of similar size, but lower than almost any modern town of that size in the world. It is possible that circumstances or actions that prevent fires in Greifensee could be used to prevent fires in the United States or in many other nations. Fire protection engineers, the U.S. Fire Administration or the NFPA, and others responsible for fire prevention in the United States may be able to use the results of this project to help reduce fire rates in the Untied States and throughout the world.

An IQP is an Interactive Qualifying Project. It is the second of the three major projects that are part of the WPI Plan and its goal is to relate science and technology. It was first proposed in 1972 in the Zwiebel Report as a way to show students the social implications of what they do as professionals working in science and technology. There are many ways in which this project relates society to technology. The social implications of fires are clear: they cause great losses, in both lives and in money. It is technology, however, that may prevent many fires or limit fire damage. The goal of this project is to discover technologies that prevent fires in Greifensee. Technology in this sense covers a broad range of possible causes, from the way buildings are being built to the use of fire education programs. The results of this project could also have important social implications and may save many lives in the future.

Literature Review

I. Introduction

The goal of this project is to discover why there has been such a low incidence of residential fires in the small Swiss town of Greifensee, when other Swiss towns of similar size experience many more. Before beginning the project, background research was needed to get a better perspective on this problem, find out what relevant research others have already done and, finally, to help us develop a research plan of our own.

Unfortunately, few people have done previous research and little is published on why fires do not occur. There is, however, a great deal of research that has been done on fires that have occurred in the past. One can find many statistics on when and where fires have occurred and on the most common causes of these fires. Another relevant topic that researchers have investigated extensively is the prevention of fires. By learning about residential fires in the past and what experts are doing to prevent these fires in the future, it is our hope that the factors that may lead to a very low incidence of fire will become clear.

Researchers have published many statistics showing when and where residential fires have occurred. A large portion of these statistics discusses fires that have taken place in the United States. Some similar statistics exist for fires that occurred in Switzerland, but relatively few in comparison. This is most likely due to the relative size of the countries. Clearly one will find more fire research in a large country than in a small one. We looked at both sets of statistics and performed a comparative analysis. This allowed us to see the types of buildings that were involved, where these buildings were located and when the fires took place.

The most common causes of residential fires were then determined and compared. These causes included natural phenomena, human carelessness, mechanical and electrical malfunctions, arson and some socioeconomic factors.

Much effort goes into preventing residential fires and almost every modern country in the world has its own ideas on the best way to do this. Fire and building codes include many regulations designed to prevent fires. We looked at and compared the codes of the United States and Switzerland. The population's awareness of fire hazards and their ability to deal with them also has a lot to do with preventing fires. We, therefore, researched data on this subject as well. Switzerland's main defense against fire, however, is its volunteer fire brigades, which are present in every Swiss town. How these brigades function, their responsibilities and their effectiveness were also researched and analyzed.

II. United States

There are very good records of fires that have taken place in the United States. Records for building fires in 1992 show that 74% of them took place in residences (Karter, 1992, p. 1) and that, according to the National Fire Data Center ("NFDC"), in 1996 this figure dropped slightly to 72% (NFDC, 1998, p. 43). These data show that residential fires are the most common type in the United States.

Rates of residential fire incidence can vary greatly from location to location. The National Fire Data Center (1998) publishes an annual report of fire data in the US and it notes that within the country, there are great variances. It attributes the differences to the following factors: climate, poverty, education and the age/racial makeup of the population (NFDC, 1999, p. 49). Karter notes in his report that the poor and the elderly especially need assistance in the area of fire safety (Karter, 1993, pp. 11, 30).

Many studies have found that there are close links between socioeconomic factors in a community and that community's fire rates. The NFDC published a report on the effect socioeconomic factors have on fire incidence. It cites a study by Schaenman, Hall, Schainblatt, Schwartz and Karter which states three socioeconomic conditions most strongly

affect fire rates: parental presence—the percentage of minors who live with both parents, poverty—the percentage of people in the area under the poverty line and under-education—the percentage of people aged 25 years and higher who have less than 8 years of schooling. The study cited three other variables that influenced fire rates to a lesser extent: race, home ownership and crowding in housing (NFDC, 1997, p. 3). As one might expect, increased education, home ownership, parental presence and income were all associated with decreased fire rates (NFDC, 1997, p. 4). Another study by Karter and Donner (1978) included in the NFDC report illustrated that one could track these socioeconomic variables with the demographic history of the city. As the middle- and upper-income residents moved out to the suburbs, the concentration of higher-risk populations in urban centers increased (NFDC, 1997, p. 6).

The socioeconomics report also notes a report by Gunther from 1981 that looked at fire statistics by cause in Toledo, OH. He found that fires started by arson, smoking, cooking and children occurred more frequently in poor populations and that fires were more frequently caused by humans than by mechanical failures/malfunctions. Other categories of fire origin—heating, wiring and appliances—did not increase with poverty, but rather tended to stay constant. He found a slight negative correlation between poverty and heat source-related fires, as the poorer populations tend to live in apartments in which the heating system is professionally maintained. All together, though, this indicates that these latter factors are more functions of mechanical failure than socioeconomic factors (NFDC, 1997, pp. 6-7).

The NFDC sought to apply these findings to various levels of the population: the neighborhood, the household and the individual (NFDC, 1997, p. 11). Insofar as neighborhoods are concerned, the NFDC considers three factors to be key. First, the number of vacant/abandoned buildings is important for a number of reasons. Their lack of supervision allows fires that might otherwise be a small matter to extinguish, to grow out of

control. Homeless persons who use vacant buildings for shelter frequently light fires for light and warmth. The fact that a significant number of homeless people may be ill or intoxicated increases the risk that the fire will spread. Secondly, neighborhood decline often becomes a self-reinforcing cycle. As buildings are abandoned, property values fall. This may discourage those responsible for maintaining the electrical and heating systems of the still-used buildings. This can also lead to the third factor, arson. In extreme circumstances, property owners in declining neighborhoods may decide the best way to make money on a depreciating investment is to collect on the fire insurance (NFDC, 1997, p. 12). In urban areas, arson was indicated in 21% of all fires. In these places, arson and cooking tie for the leading cause of fire (NFDC, 1997, p. 12).

Within individual households, three factors describe the elevated fire risk in lower-income areas. Most important is the quality of the housing. The poor tend to live in older and less well-maintained housing. Decrepit heating systems can encourage to residents to use space heaters, a potential risk if the user is not careful with the location of the device. Moreover, the decaying heating system in a building can itself pose a fire risk. Similarly, older buildings in poor neighborhoods will have old, out-of-code wiring and appliances, which increase fire risk from electrical shorts and other malfunctions. Lastly, the furnishings of the dwellings are likely to be old and thus more prone to inflammation (NFDC, 1997, pp. 13-15).

Poor families have a much more difficult time making rent than the middle- or upper-classes, so housing affordability is an issue for them. With such a high proportion of income going to rent, poor families will skimp on other items. They will buy cheaper, often used, less-safe appliances and furnishings. It is also common for such families to have utilities shut off due to lack of payment. The NFDC reported that when the gas companies shut off the heat, families may turn to riskier electric space heaters (NFDC, 1997, pp. 17-18).

Socially, the structure of the household affects the risk of fire in poor neighborhoods. Single parent families generally have lower incomes, making them more likely to live in poverty-stricken areas. In addition, the presence of only one parent means that children in single-parent families are left home alone more frequently and a major cause of fires is unsupervised children playing with fire. Households consisting of elderly people are more at risk. Because they generally do not work, they are more likely to live below the poverty line. Further, as people age, their mental and physical abilities become impaired, increasing the chance of an accident (NFDC, 1997, pp. 18-20).

Lastly, the NFDC report on socioeconomics looks at the factors on an individual level. Cigarette smoking is more common with lower-income people and that puts them at a greater risk for fires started by careless smoking. Alcoholism and drug abuse rates also track closely with fire incidents. It is clear that a person who is not in control of his or her faculties is much more likely to make a mistake that leads to a fire. Education and income are very closely related, so it is not exactly clear whether education is a factor on its own, but the study suggests that lower literacy rates among the poor may lead to an inability to read and understand product warning labels (NFDC, 1997, pp. 22-23). Further, poorly educated individuals may not fully understand the risk of fire and the need to take preventative action (Atallah, 1971, p. 65). Poor areas tend to have low numbers of residents who actually own their dwelling and fires occur more frequently where the residents are not the owners. According to the NFDC, a Munson and Oats study states that this may be because owners, since they have a substantial investment in the property, are more likely to notice problems immediately and take care of the dwelling. Renters, on the other hand, may wait for the landlord to take care of any needed repairs (NFDC, 1997, p. 23). The last individual factor relates to pathology. This has not been studied extensively, but work done by Fahy cited by the NFDC has yielded evidence that the increased rate of arson is related to the elevated

levels of stress and frustration that come from living in depressed communities (NFDC, 1997, pp. 24).

Fires caused by natural occurrences are not the most common type of fire but still account for about five percent of all fires. The greatest natural cause of fires is lightning. Although there are no means to predict lighting strikes, some buildings are at a higher risk than others. Houses that are situated at high elevations or on hilltops or hillsides are at a much greater risk than those that are not. The same goes for houses isolated from other houses or buildings. Houses with tall towers or chimneys are also at high risk. To help prevent fires caused by lightning strikes, contractors can install lightning-conductor systems in high-risk buildings. These systems require a metal rod that extends from the top of the house directly into the ground and works to dissipate the shock directly into the ground (Stollard & Abrahams, 1995, p. 26).

A second natural cause of fires is earthquakes. Fires caused by earthquakes occur due to the damage done to gas and electricity supplies. Underground gas lines can rupture, causing explosions. Broken electrical lines may come into contact with trees or other flammable objects.

A natural cause that people tend to forget is forest fire. Although not as common as other causes, they have the ability to spread quickly and cause extensive damage in some climates. Houses that are next to or surrounded by woodlands are obviously at the greatest risk in this case.

The most common cause of ignition, as well as the toughest to design against, is human carelessness (Stollard & Abrahams, 1995, p. 26). Most careless fires originate in the kitchen. People not attending to what they are cooking mainly cause these. Cooking fires account for about twenty percent of the fires and cooking is the leading cause of fires in the US (NFDC, 1999, p. 58). Whether the fire ignites from grease or an open flame, the person

who forgot to watch his or her food or to shut off the burner caused the fire.

Another cause of fire due to carelessness is smoking. Fires in this category are not limited to those caused by smoking alone, but also those ignited by smoking materials such as matches. Smoking fires occur because a person will simply throw a cigarette butt away or toss a match into the trash without making certain it is extinguished. For this reason, smoking is among the greatest causes of deaths from fires. Smoking fires also originate when people are smoking late at night and they fall asleep while smoking. These fires are not as common—about five percent, but do occur more often with older people (NFDC, 1999, p. 58).

Children playing with matches cause an appreciable amount of residential fires. This cause accounted for four percent of all US fires in 1996 (NFDC, 1999, p. 58). Although fire education is taught to children at early ages in school, they are still not truly aware of the damage and devastation that fire can cause. It is common knowledge that fire amazes children, while their sense of danger is underdeveloped. When they play with matches, they are not aware that where they deposit the used match may lead to a fire. They do not make sure that the match is extinguished before disposing of it, which in turn creates a great risk of a fire. If a fire does occur, their first instinct is to run rather than to try to put it out. Although children are not aware of what could happen, incorporating more fire education in the elementary schools could reduce the careless match fires committed by children.

Technological failure is possibly the broadest area of fire causes. These causes range from faulty wiring to kitchen appliance failure to heating sources. In 1996, faulty electrical heating equipment accounted for about nineteen percent of fires, which is the second leading cause in the US. In the past 10 years the number of US fires that started from space heaters has decreased by about fifty percent (NFDC, 1999, pp. 60 & 77). Space and electrical heaters cause fires due to faulty wiring that ignite a fuel source--a wall, carpeting, furniture, etc. The

largest number of technology-related fires, however, is from cooking devices and most of these cases were caused by electrical appliances (Consumer Product Safety Commission, 1996, p. 3).

Another form of technological failure comes from electrical distribution. One aspect of electrical distribution is faulty wiring. This faulty wiring can be found anywhere in a house, but one specific area that seems to be a magnet for fire incidences is the living/family room. In this room one typically finds many electrical devices that are being powered from one or maybe two outlets. This load may be too much for the outlet and may cause it to overload and possibly cause a fire. When houses are built they must meet minimum codes. These codes, however, may not take into consideration that different rooms will have different electric loads.

Building and fire codes cover every building constructed in this country. Since all buildings are not the same, one set of codes cannot always apply to every situation. Public buildings and public places will have more extensive building and fire requirements than private residences. These stringent building codes also apply to hotels, motels and apartments because these locations are public gathering places and a fire in such a place will do far more damage than one in a dwelling (NFDC, 1987-1996, p. 90). Homes, which make up the majority of buildings in the United States, have strict building codes, but they are not as strict as the codes used in the construction of public buildings (Atallah, 1971, p. 66).

III. Switzerland

Most Swiss cantonal governments require fire insurance for all residences, and in nineteen of twenty-six cantons, the government owns the insurance companies. Because of this, there are very good records of fire incidence (Fontana, Favre, Fetz, 1999, p. 137). Of the 39,104 fires reported to the Gebäudeversicherung Kanton Berne ("GVB"), the public

insurance company in Kanton Berne, from 1986 to 1995, 24,962 took place in residences (Fontana, Favre, Fetz, 1999, pp. 140-141). This is a significant 64% of all fires reported. GVZ records show that of the 2152 fires reported in 1999, 1687, or 78%, took place in residences (GVZ, 2001a). Based on the records of these two large cantons, one can conclude that residential fires are by far the most common type in Switzerland.

In 1999, the GVZ reported 2152 cases of fire in the canton of Zürich. There were two main causes of fire: Accidental fires that spread from an intentionally started fire, such as in a fireplace, caused 453 or 21.05% of all reported cases of fire. The second main cause of fire was electricity, claiming 452 or 21.00% of all reported cases. These two causes produced almost identical numbers of cases and accounted for 42% of all fires in the canton of Zürich, but the remaining 58% included furnaces, lightning and arson (GVZ, 2001a).

Switzerland is one of the safest countries in the world in terms of fire safety. Philip Schaenman attributes this to the fact that the Swiss are, in general, very careful. This careful behavior carries over into their attitudes towards fire (Schaenman, 2001). Fires that are reported to either the cantonal insurance companies or the fire brigade are investigated thoroughly. If a fire is found to be caused by carelessness, it is a civil offense punishable by a fine of approximately $50. This does not prevent the individual from collecting insurance money. Rather, the intent is to show that society does not approve of such negligence (Schaenman, 2001).

Another factor that Mr. Schaenman noted that makes Switzerland so safe is its wealth. The Swiss are among the wealthiest people in the world (2001). As noted above, fires tend to occur more frequently in poorer areas. With so few such areas, there are far fewer fires in Switzerland.

Public fire education is also a large part of Switzerland's fire prevention efforts. These programs focus mostly on educating children under the age of 12. As part of their

curriculum primary school teachers are required to teach many aspects of fire safety (Rigling, 2001). There are also some efforts to educate secondary school students. For example, the education system of canton Bern requires females to take four weeks of home economics, in which home fire safety is taught (Schaenman, 1983, p. 22). Younger children generally receive their fire education in the home. Society expects that the parents will take responsibility for their children. The Swiss Fire Insurance Association has programs to help educate parents to this end. They acknowledge that children have a natural curiosity for fire and they encourage parents to allow experimentation with fire under close supervision (Schaenman, 1983, p. 22). For adults, the government uses the media to send messages about fire safety. For example, a seven second spot on the dangers of smoking in bed was aired 140 times across the country in a year (Schaenman, 1983, p. 22).

Although fire education is Switzerland's first line of defense, they rely more on cantonal fire codes and product safety. The building codes are quite strict. Part of the Swiss mentality is to construct buildings that will last centuries. A Swiss fire protection consultant said, "You in the US buy houses like we buy a suit," (Schaenman, 1983, p. 24). In Swiss cities, wood construction is not permitted, forcing the use of more fire-resistant materials, like stone and reinforced concrete. Electrical work also has stringent standards. Only licensed electricians may perform electrical work and all wiring in a building must be in conduits.

Enforcement of fire codes falls to both the local fire brigades and the cantonal insurance companies. Each canton has fire police who are responsible for reviewing all building plans—new construction or renovations. They follow up these reviews with inspections by a local representative (Schaenman, 1983, p. 23). Fire engineers will often volunteer their time and expertise to small localities for questions regarding the safety of a building plan. The Swiss keep their codes simple. They supply a few examples of what is acceptable and leave it to the fire brigades to determine if an alternative is equivalent in

safety (Schaenman, 2001). As deterrence to poor construction, the cantonal insurance organization will charge higher premiums until the design flaws are remedied. The insurance company and the fire brigades often collaborate in this effort. Because of the thoroughness of reviews and inspections prior to and during construction, later inspections are not considered important.

In spite of this lack of emphasis on official inspections after the completion of construction, chimney sweeps take on the role of informal fire inspectors. The law requires that they visit residences once or twice per year, depending on the canton, at the homeowners' expense. In addition to cleaning the chimney, they also perform informal inspections and report any problems to the fire brigade. Mr. Schaenman stated that these chimney sweeps, who enjoy monopolies in their cantons, are, in effect, home fire safety specialists. It is not uncommon for homeowners to consult with them when installing a new wood stove or fireplace (Schaenman, 2001). The chimney sweeps are just one more effort to make sure that the fire codes are followed.

Within most cantons of Switzerland, a cantonal insurance agency subsidizes fire brigades. These fire brigades only attend 40% of fires reported to the insurance agencies by some estimates (Fetz, Favre, Fontana, p.150, 1999). Civilians on the scene likely dealt with the rest before they became too large. In Kanton Zürich, GVZ helps finance the materiel costs of the local fire brigades in each village. In Greifensee, the GVZ finances 70% of the fire brigade's equipment and the remaining 30% is funded by the village taxes. The contribution of the local villages varies depending on the amount the town collects in taxes (Rigling, 2001). GVZ believes that it is more cost effective to subsidize a local fire brigade than to have a high incidence of damaging fires. If the local fire brigade can stop the fire before severe damage occurs, then GVZ only has to pay a comparatively small insurance claim. If GVZ did not help to set up a local fire brigade and relied on the communal fire brigades to

help in emergency situations, the damage could be exponentially higher, thus making the insurance claim higher as well.

In addition to financing the fire brigade, GVZ also manages the daily operational aspects. These aspects include recruiting, education, organization and formation of each local fire brigade (GVZ, 2001a). All of these aspects are inter-related. For example, formation, organization and education would be useless without recruiting. This is also true for the education. Recruiting, formation and organization would be ineffective without education.

To start the process of becoming a member of the fire brigade, the GVZ begins recruiting at age 14 (GVZ, 2001a). This may seem absurd, but for a country with compulsory military service if you are between the ages 18 to 42, this does not come as a surprise. Recruits do not have to pay for any of their fire brigade education, clothing or equipment. In fact, GVZ pays for additional life insurance for each member of the fire brigade. This coverage extends throughout the ranks, from recruit to captain (GVZ, 2001a). Further, the members of the fire brigade receive a small annual stipend for their services, as well as a fee for each action to which they respond (Rigling, 2001).

The next step in the process is a rigorous education. When a civilian first applies to become a member of his or her local fire brigade, he or she goes through a five-day course in which new recruits learn the basics of firefighting, safety and medicine. After the five-day training course, new recruits receive assignments to their respective local fire brigade as probationary firefighters. During the next year these probationary firefighters undergo training within their local fire brigade. At the end of the first year, they take a one-day course designed to train them in the techniques/exercises of fire suppression. Upon completion of this course, probationary firefighters return to their local fire brigade and serve another probationary year. At the end of the second year, they undergo a similar one-day training course. Finally, after completion of all courses and probationary periods they become a full

member of their local fire brigade (GVZ, 2001a). As was stated above, the education is free to the recruit.

The last step in the managing the local fire brigade is two-fold: organization and formation. The GVZ set up the guidelines for everyday operation of the local fire brigades. These guidelines stipulate that ten firefighters must be on call at any given time. This does not mean that they have to be at the fire brigade, but they must be nearby and ready to go at a moments notice. These guidelines also specify what equipment the fire brigades must have, and that it must be properly maintained. The GVZ has even set up standard response times. They are as follows (GVZ, 2001a):

1) X + 5 min Firefighters are leaving the fire brigade house.

2) X + 10 min Firefighters should be at the scene

3) X + 15 min Additional firefighters should be arriving if needed

4) X + 30 min Support from communal fire brigade should arrive if needed.

In Greifensee, this is even more finely honed. According to Daniel Rigling, commander of the Greifensee fire brigade, they can be on the scene of a fire a minute or two after they have a crew at the firehouse. This is possible due to the small size of the town, which has the second smallest land area of any town in the canton of Zurich (Rigling, 2001).

As one can see, the GVZ has organized every aspect of the operation from financing to formation and even recruiting. GVZ has organized an efficient system to handle fires in the Canton of Zürich.

IV. Conclusions

Comparing the US statistics with those of Switzerland allows one to reach some general conclusions about the occurrences of fire. While the United States has many more fire related deaths than Switzerland, 18.7 deaths per million people, as compared to 5.5 for

Switzerland (NFDC, 1998, pp. 28-29), it is clear that residential fires make up the largest proportion of building fires in both countries. This is to be expected, as houses are the most common building types. It is significant, however, for the Greifensee problem, because it is these most common buildings that are not experiencing fires. It must also be considered, however, that the definition of a residential fire is different in the United States and in Switzerland. While a residential fire in the United States is usually considered to be any fire in a household, in Switzerland it is required that some part of the actual structure be on fire in order to be considered a residential fire (Rigling, 2001).

After looking at when and where fires are taking place, what is causing them and various measures taken to prevent them, many variables have been uncovered that may explain lower incidence of fire in Greifensee. The main causes of fire in the US are not the main causes of fire in Switzerland. The US data showed that the main causes of fire are cooking, heating and electrical distribution (NFDC, 1999, p. 58). The Swiss data showed that the main causes of fire are fires that spread from intentional fires, electricity and lightning strikes (GVZ, 2001a). Contrary to the US data, furnaces caused 6.5% of all reported fire cases in Switzerland. Combined with the large number of electrical fires, this may indicate more reliance on electrical heating equipment in Switzerland. Perhaps electrical heating equipment is safer than the other forms that predominate in the US. It also became clear that a populations' social and economic situation could have a lot to do with the number of fires in that community. The extensive US studies on the role socioeconomic factors play in fire incidence suggest solid research methods for obtaining and analyzing similar data in Switzerland. The nature of Swiss society and cultural attitudes could be such that fire risks from carelessness and poverty are minimized. Data shows that the greater the amount of money and effort put into fire protection the fewer occurrences of fire. Looking at the extensive system Switzerland has setup to fight and insure property against fires, it seems that

this might be very effective in minimizing fire incidences. Study of these factors is key in understanding the low rate of residential fires in Greifensee and in applying this knowledge to other communities to assist their prevention efforts.

Methodology

In the past, the bulk of the studies done on the subject of fire safety/prevention were completed utilizing the data that displayed why fires happen. This project, however, differs from previous studies because it involves working with the Greifensee Fire Brigade to determine and analyze the reasons why the village of Greifensee has experienced no residential fires in the past 6 to 7 years. The project focuses on why fires do not happen instead of why they do happen. From initial research conducted, we formed a hypothesis. The two major factors that lower fire rates in Greifensee are:

1) Cultural/socioeconomic differences between Greifensee and other Swiss towns
2) Fire prevention efforts in the town of Greifensee.

With the objective defined and the hypotheses created, the next task is to test the hypothesis. We employed various research methods and statistical tests with the goal of supporting or refuting our hypothesis.

The first step was to investigate fire records kept in Greifensee and the surrounding communities to verify Greifensee's exceptional fire record. The fire brigades keep detailed records of fire incidences, including when and where the fire happened, the cause of the fire, how many firefighters responded and how much time the brigade needed to extinguish the fire. Yearly summaries detail the number of fires for the given year, the causes, and the size of each incidence. The GVZ also keeps records of fires, detailing number and cost by type of fire. We compared the Greifensee records to those of the neighboring towns in the Uster fire district—Schwerzenbach, Volketswil, Uster, Mönchaltorf, Egg, Maur and Fällanden—to find whether Greifensee experiences fewer fires than average for a town of its size. This comparison also allowed us to analyze the causes of fires in Greifensee and its neighbors. Patterns in the causes of fires provide further insight as to why Greifensee is so much safer

than other towns. Finally, we used the financial data in the GVZ records to analyze the severity of fires in the towns in the study. Although Greifensee has had no structure fires in recent years, it has had smaller fires, and information on the relative damage caused by these incidents can support Greifensee's superior fire safety record as well as give more clues to the reason for this record.

After confirming that Greifensee has not experienced any residential fires in the past six to seven years, we began to test our hypotheses. The first factor we believe to contribute to the lack of fire incidence is the socioeconomic differences between Greifensee and the neighboring towns. Previous research has linked fire incidence to various socioeconomic variables such as income, education, and percentage of minors living with both parents. The specific variables we looked at are age distribution, education level, family structure, percentage of foreign population, unemployment level and income distribution. Through the Greifensee town offices we obtained census data to compare with that of other towns. This yielded insight as to which socioeconomic variables play a role in Greifensee's fire safety record. Census records from other towns were available through their town halls, Statistisches Amt des Kantons Zürich—the cantonal bureau of statistics, which is located in the city of Zürich—and the federal statistical office in Neuchatel.

The second factor suggested by our hypothesis that contributes to the lack of fire incidence is the various fire prevention efforts, such as fire education, fire brigade organization/response time and frequency of fire inspections. The Swiss exhibit many cultural characteristics that differ from other countries. One characteristic is the Swiss outlook on education. Switzerland requires that each canton add fire education to their curriculum. Fire education begins in the first grade and ends upon completion of sixth grade. Our sponsor, Daniel Rigling, provided us with the current fire education section of the curriculum that is used in the canton of Zurich. We also scheduled interviews with teachers

at the local primary school in Greifensee. From this we determined exactly what is taught and the effectiveness of this fire education program.

Because of the way the Swiss define residential fires, the response time of the fire brigade is also a consideration in the residential fire rate of a town. As Daniel Rigling stated, due to Greifensee's small land area, the Greifensee fire brigade can be on scene within five minutes of pager messages being sent to the action group on call. This could mean that small fires do not ever have enough time to become structure fires. To investigate this, we contacted other fire brigades and ask their respective commanders about their average response times.

Since fire incidence correlates closely with the frequency of fire inspections, this research will determine whether fire inspections do play a role in Greifensee's low fire incidence. Moreover, we analyzed the reporting procedures to see if a uniform reporting procedure is in use. Also key is determining whether the inspection procedures and protocols are consistent. To do this, we interviewed the fire inspector for town of Greifensee, Herr Walliser, and the chimney sweep for the region, his son, to determine what they are trained to observe when actually performing a fire inspection and how they file reports.

Finally, with completion of the archival data research and the interviews, the organization of the data becomes the task at hand. The archival data provides the relevant historical information, which includes information regarding fire incidences as well as information on socioeconomic variables. In addition to providing us with information regarding fire education, fire brigade organization/response time and fire inspection protocols, the interviews display the ideas and opinions of people native to the country of Switzerland. The final report includes:

1) Background information
2) Comprehensive analysis of any data made available

3) Statistical analysis, including computerized spreadsheets, histograms, regression analysis, and confidence interval tests.

Background research into fire incidence in the US and in Switzerland suggested that socioeconomic variables and various prevention efforts play important roles in reducing the rate of residential fires. The methods detailed above provided ample information to examine this hypothesis.

Results

I. Introduction

The data we collected falls into two categories: statistical/numerical data and interview data. Our investigation of Greifensee's fire incidence and comparison of it with that of the rest of the Uster district required statistics concerning the number and types of fires, as well as the damages done by these fires. Analysis of the role socioeconomic variables play in the fire rates of the communities in question also required numerical information. In addition to the fire incidence data mentioned above, we employed census data, which we could use in the calculation of regression lines. The degree of correlation in these regressions and the confidence interval of the regression show the extent to which a given socioeconomic variable affects the number of fires a community experiences. The data regarding prevention efforts, however, is largely non-numerical. It comes largely from interviews with those individuals responsible for fire safety: teachers, fire brigade commanders and inspectors.

II. Fire Incidence

As expected, the Swiss keep detailed records of fire incidence. Each fire brigade has a log of all calls for the past ten to twenty years, listing such information as the type of incident, which members responded, how long they remained on-scene and any noteworthy details about the incident. The GVZ also keeps records of fire incidence. They have yearly summaries of fires in each town by type, including the monetary damages done. This allows not only a comparison of fire rates between towns, but also a comparison of the severity of the fires.

The first data available were the reports kept by the Greifensee fire brigade. These records, which cover 1984 to the present, allowed us to verify the anecdotal data Herr Rigling

provided. We looked over the years 1994-2000 and noted any calls that were tagged as "fires." These incidents included car fires, false alarms at the local Mettler-Toledo facility and small fires extinguished without the need for the fire brigade to respond. With these records compiled, we began eliminating non-residential fires: all the incidents that happened at the local Mettler-Toledo plant, car fires, fires that started in grass or haystacks, etc. This left a small number of fires that occurred in homes—a total of fourteen over the seven years examined. Many of these were appliance fires or kitchen fires, along with a few waste fires—fires in garbage cans and the like. The number of fires by type can be seen below:

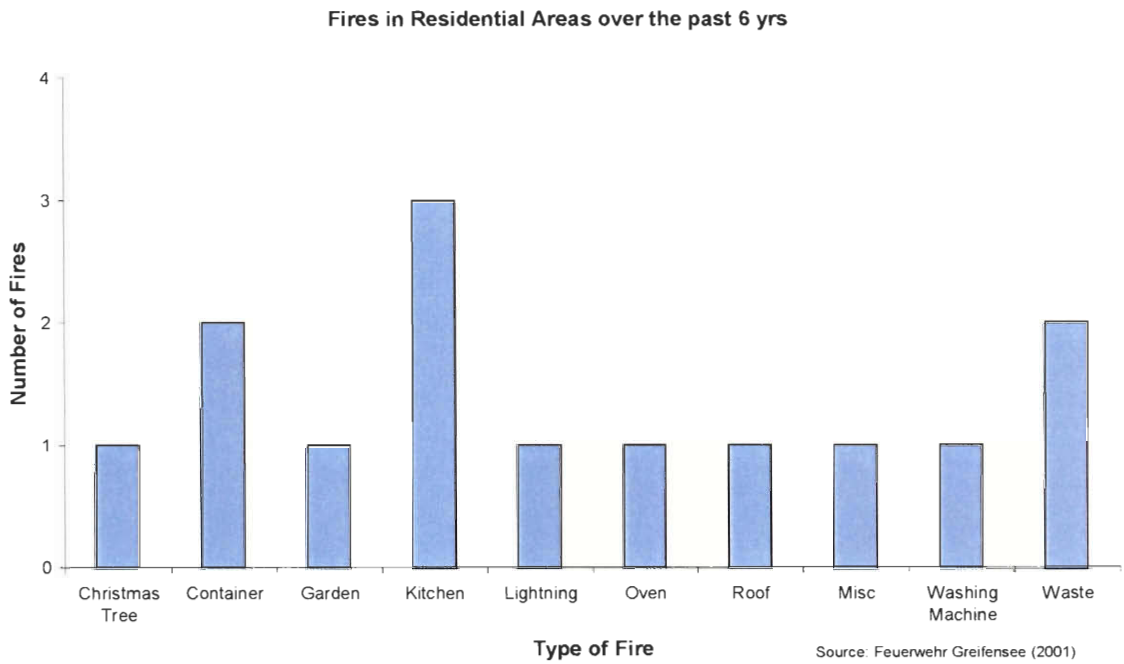

Figure 1 - Types of Fires in Greifensee, 1994-2000

By the definition of residential fire used by the Swiss—a fire that involves structural elements of the home—the only one of these fires that qualifies is the Christmas tree fire that occurred in 1994.

Although the fire brigades of all the towns in the study keep similar records, compiling the fire data contained therein was not feasible considering the time allotted to this study. As an alternative we interviewed several of the fire brigade commanders in the district: Rudi

Grob of Mönchaltorf, Heinz Petrig of Volketswil, Hans Lehman of Schwerzenbach, Guido Mathiuet of Uster (head of both the district and city fire brigade), and Ruedi Maurer of Fällanden. They provided the following information about the number of residential fires they get on average in their towns:

Table 1 - Residential Fires in the District of Uster

	Residential Fires per Year	Population (2000)[1]
Mönchaltorf	1 per year, 6 or 7 due to arson in 1996	3192
Schwerzenbach	1 every 3-5 years, 1 in the last 10	4099
Fällanden	2 in the last 10 years	6412
Volketswil	1 per year	13519
Uster	2-3 per year	27747
Greifensee	1 in 7 years	5108

[1] *Source: Statistisches Amt des Kantons Zurich (2000a)*

Gebäudeversicherung des Kantons Zürich provided the best information by which to compare general fire incidence between towns. We obtained records covering the last seven years for the towns that compose the Uster fire district. By year and town, the fire incidence data is as follows:

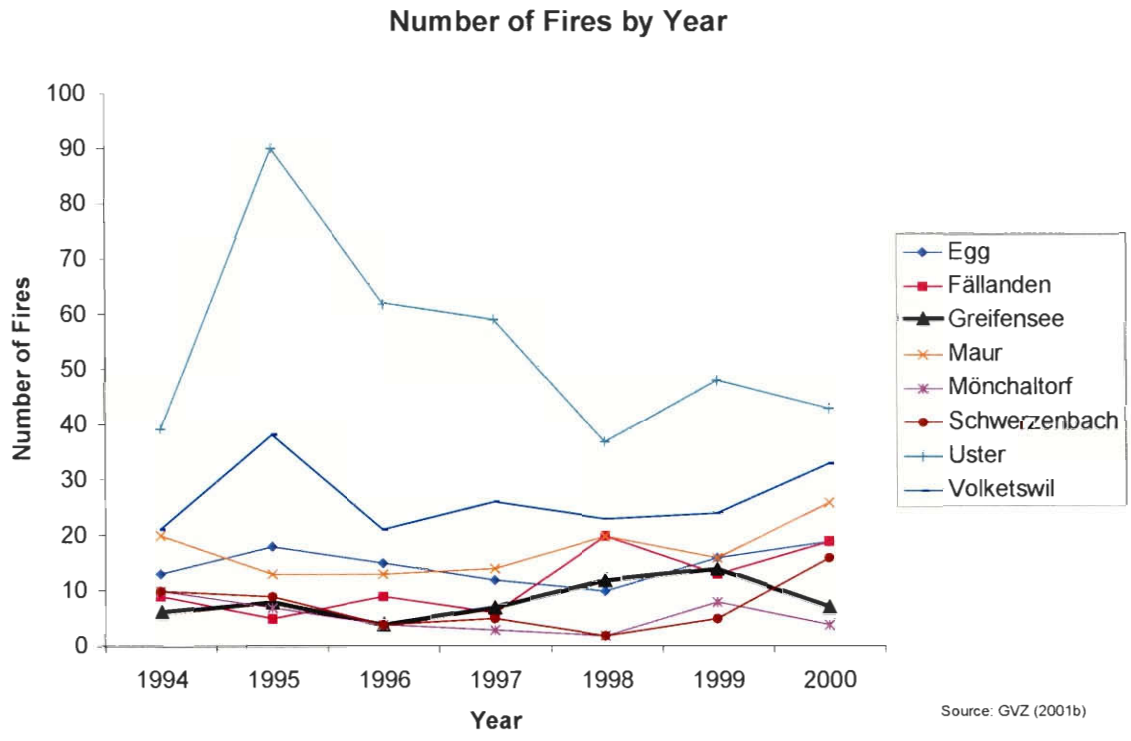

Figure 2 - Number of Fires by Year in the District of Uster

A more useful presentation of the data comes by taking the seven-year mean of the number of

fires for each town and normalizing the set by dividing by the population of each town. This can be seen below:

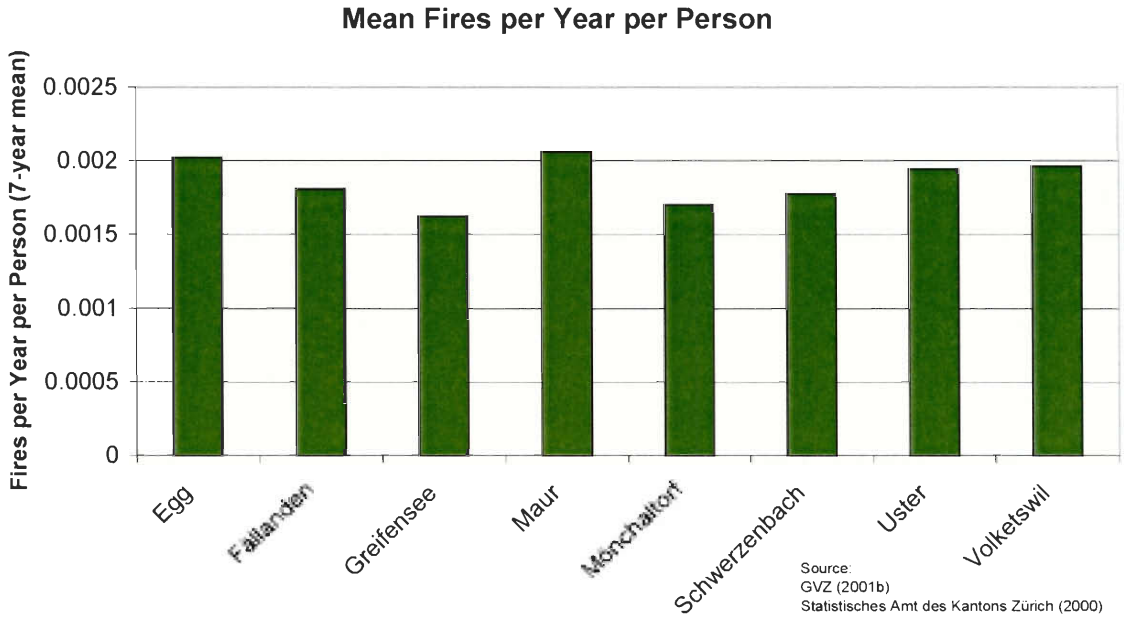

Figure 3 - Mean Fires per Year per Person

From this chart, it can be seen that Greifensee has the fewest average fires per person of the eight communities, with 1.6 fires per year per thousand people. This is close to Mönchaltorf, the next lowest, which has 1.7 fires per year per thousand people. All the values, however, fall within an interval of 0.5 fires per year per thousand people.

The GVZ records also contain information pertaining to the types of fires each community experiences. The major types are heating system fires, accidental fires (those fires started from fireplaces, discarded matches, candles, and other fires that have a purpose), spontaneous combustion, explosions, electrical fires, lightning, arson, other known causes, and unknown causes. For the purpose of comparison, we calculated the percent of total fires each of these individual types constituted for both Greifensee and the Uster fire district as a whole.

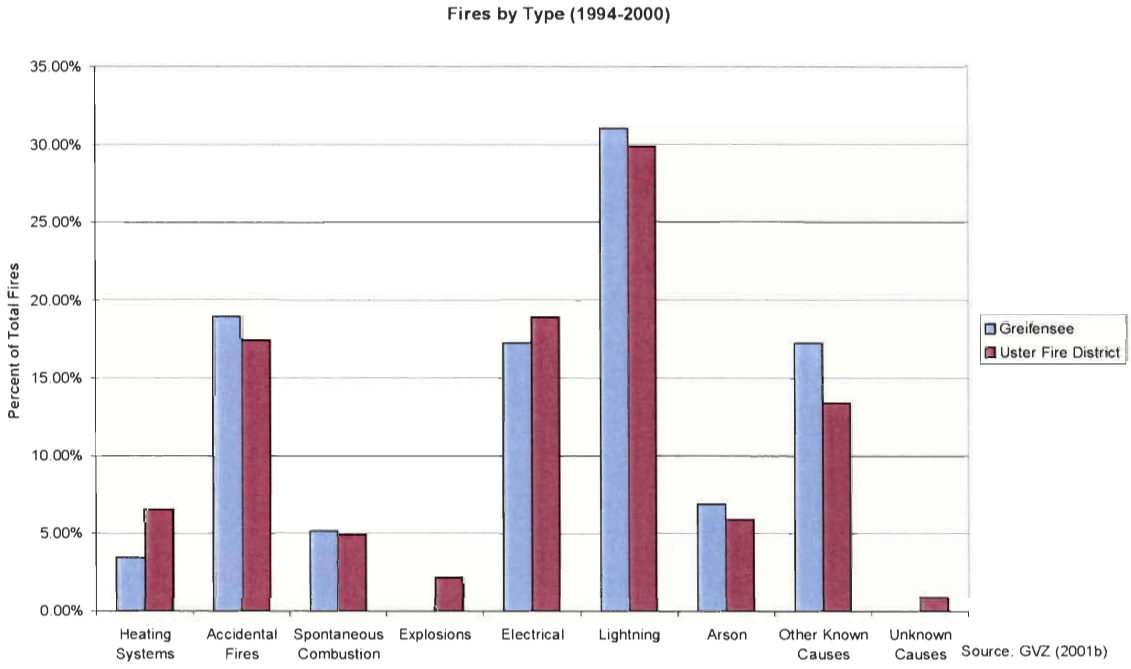

Figure 4 - Fires by Type - Greifensee and Uster

With little variance, the town of Greifensee experiences the same sorts of fires as the surrounding communities.

To gauge the severity of the fires that occur in Greifensee, we again employed the statistics provided by GVZ. We took the sum of fire damages for each town and divided by the total number of fires, thus obtaining a mean value of damages per fire:

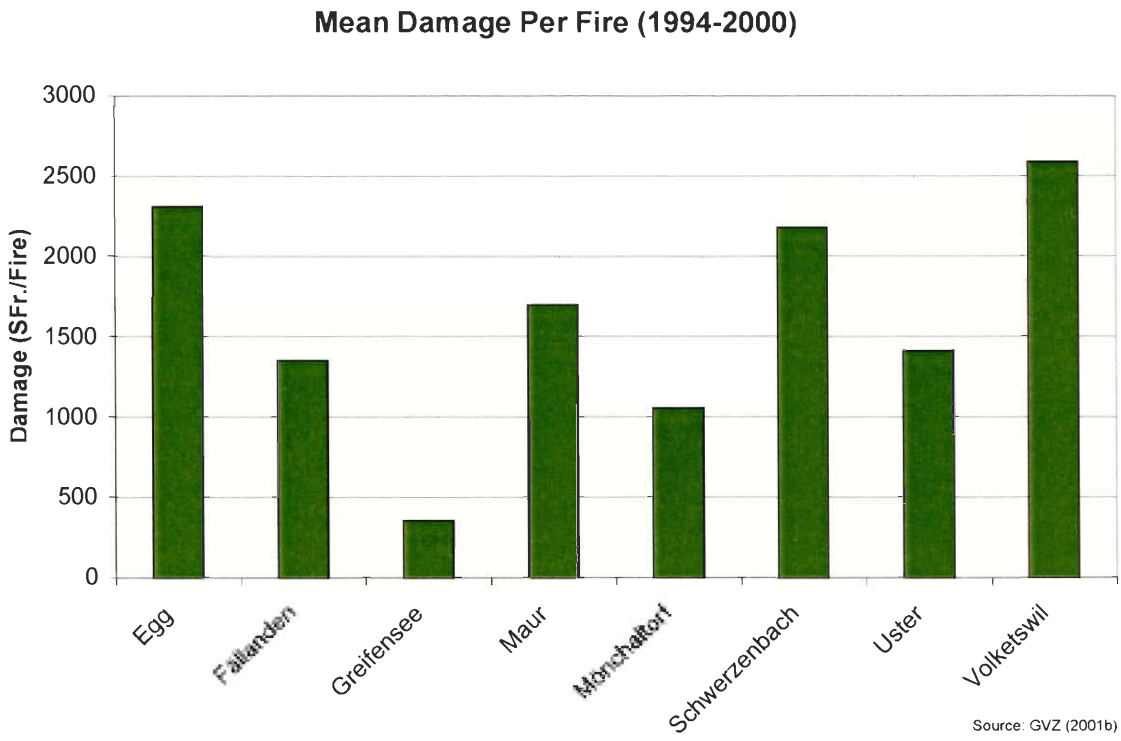

Figure 5 - Monetary Damages per Fire

Note that Greifensee has, by a factor of three, the lowest damages per fire of any community in the district at SFr 358/fire. The next closest is Mönchaltorf with SFr 1054/fire.

We also used the damage data to compare Greifensee to the other towns by type of fire. To do this, we found the sum of damages for Greifensee and for the entire Uster district. This number we divided into the damages for each type of fire, giving a mean percentage of damages by type.

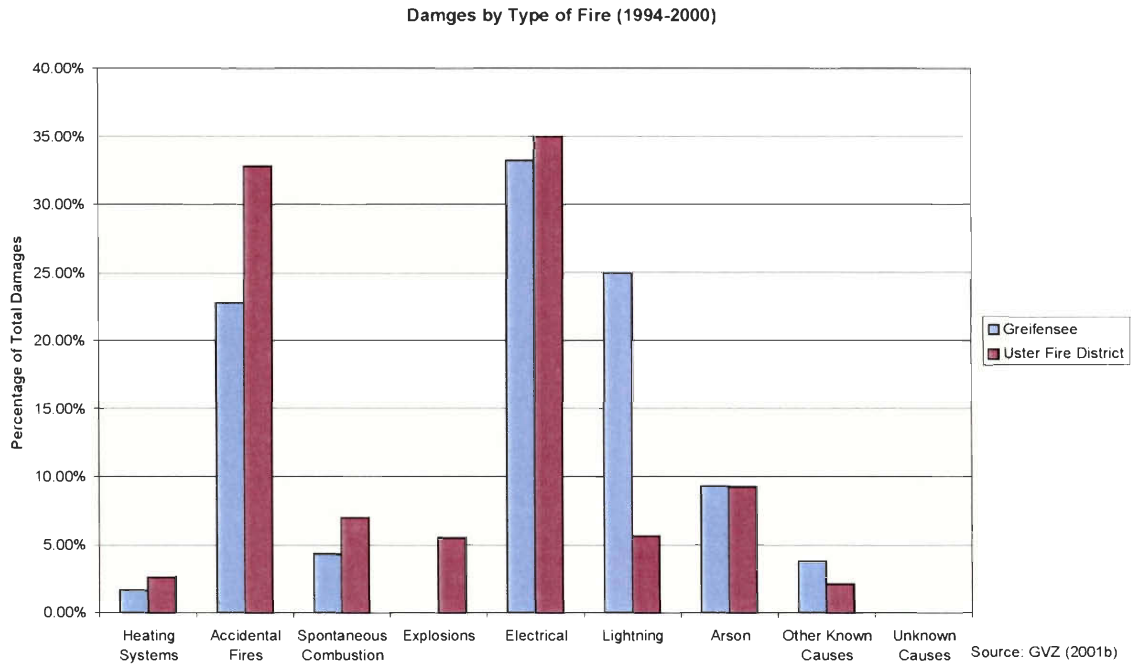

Figure 6 - Monetary Damages by Type of Fire – Greifensee and Uster

For most types of fires, Greifensee has similar relative damages for each type of fire. The exception is lightning, which accounts for nearly twenty percent more of Greifensee's fire damages than the mean for the district. There is also a gap in accidental fires—less of Greifensee's total damages come from accidental damages than the district as a whole: twenty-three percent as opposed to thirty-three percent.

III. Socioeconomics

In a study completed by Philip Schaenman of Tri-Data inc., it was determined that certain socioeconomic variables contributed to the amount of fire incidence. These variables include age distribution, education level, foreign population, unemployment rate, income distribution and family structure. (NFDC, 1997, p. 3). In order to test the relationship of each socioeconomic variable with occurrence of fire incidence, the variables were first operationalized. This involved, among other things, classifying the variables as nominal, ordinal, or interval. In this case, each of the socioeconomic variables was classified as

interval. From this we were able to perform several statistical linear regression tests to determine the relationship each variable had with the occurrence of fire incidence.

The first socioeconomic variable we analyzed was age distribution. To obtain this information we contacted Greifensee's town hall, the cantonal statistics bureau and the federal statistics bureau. From this we compiled the raw data into an Excel workbook. Within the workbook, we divided the data by town and the age of each town's population. The age-population information was divided into four-year intervals beginning at age 2 and ending at age 78. We then calculated a weighted mean age of each town. The mean age of all the towns ranged between 28.9 and 31.9 years old.

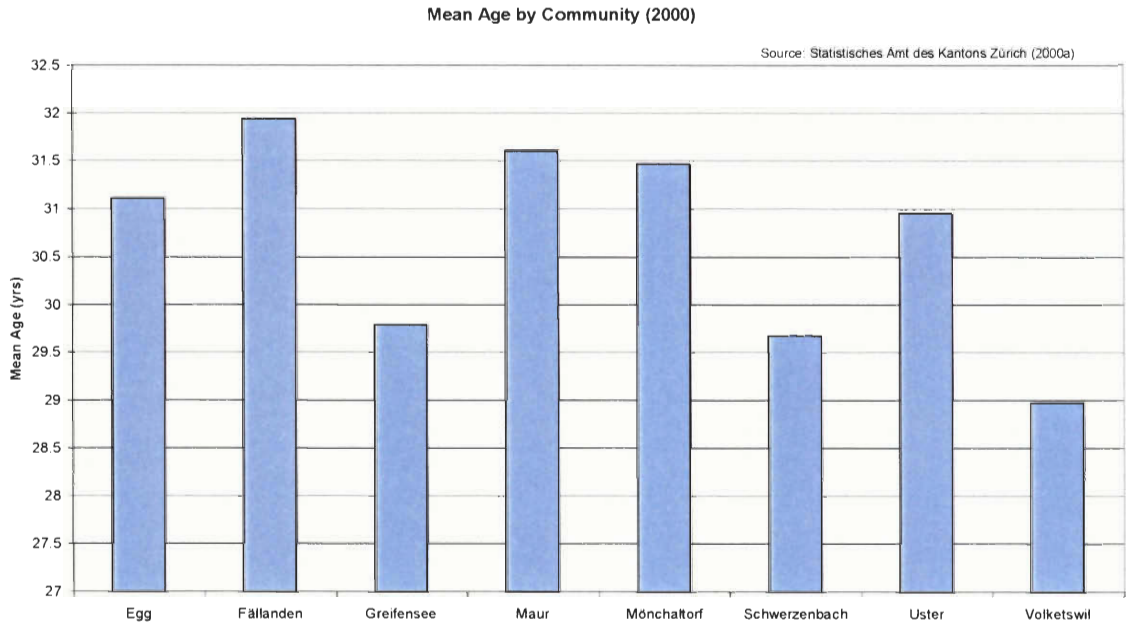

Figure 7 - Mean Age by Community (2000)

The second socioeconomic variable we analyzed was the number of foreigners living in each of the towns. As with the other socioeconomic variables, we obtained information on this variable from the town hall of Greifensee, the cantonal bureau of statistics and the federal bureau of statistics. We divided the raw information by town. To get the percentage of foreign population in each town, we took each town's foreign population and divided it by the overall town population. The neighboring towns all had varying percentages of foreigners in

residence, ranging from 8.80% in Mönchaltorf to 21.43% in Uster.

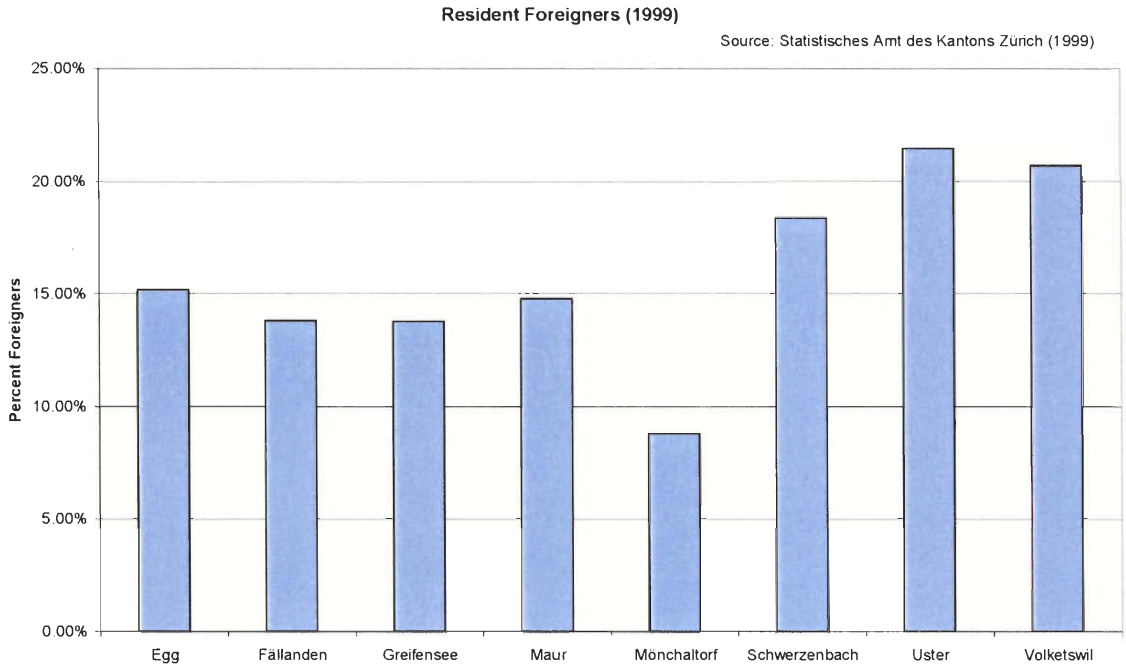

Figure 8 - Resident Foreigners by Community (1999)

The third socioeconomic variable analyzed was the unemployment rate in Greifensee and the neighboring towns. Similar to the previous variables, we received data containing the unemployment information from the Greifensee city hall, the cantonal statistics bureau and the federal bureau of statistics. We took this raw data and organized it according to each specific town. After organizing the data we were able to find a seven-year mean for unemployment rates. These rates ranged from 2.0% in Fällanden to 4.43% in Uster.

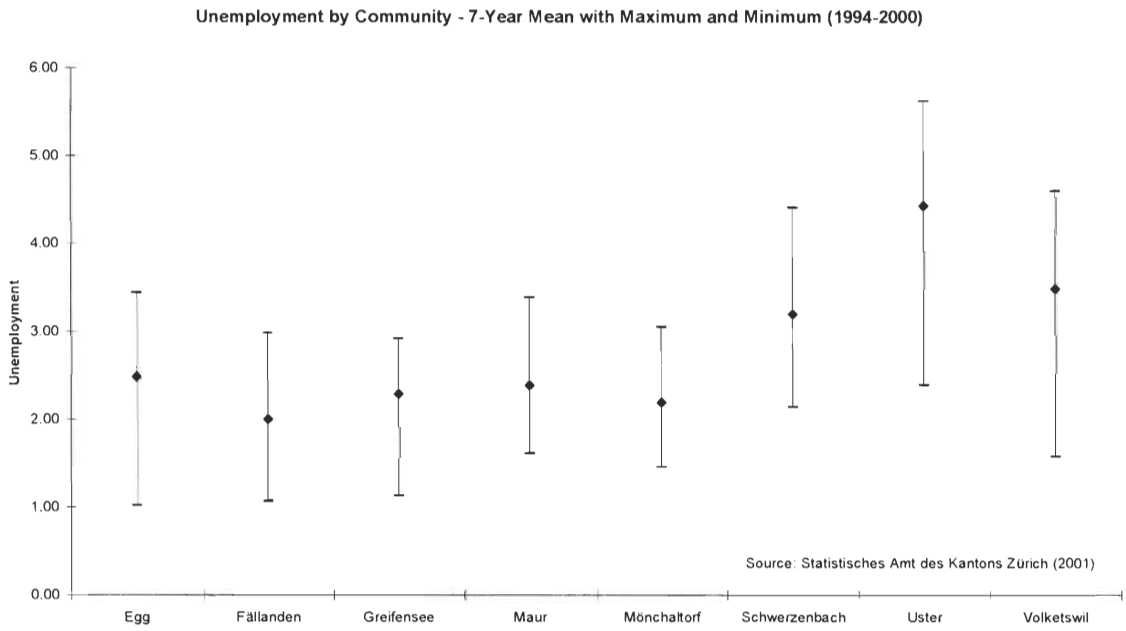

Figure 9 - Unemployment by Community (1994-2000)

The only data available at a municipality level for income was the tax base per resident for each community over the last several years. We processed these data by taking a six-year mean covering the years 1994 to 1999, which is the most recent year for which these data were available. The values range from 1772 SFr per resident in Mönchaltorf to 3333 SFr per resident in Maur. Greifensee has a tax base of 1994 SFr per resident, which puts it in the lower end of towns in the district:

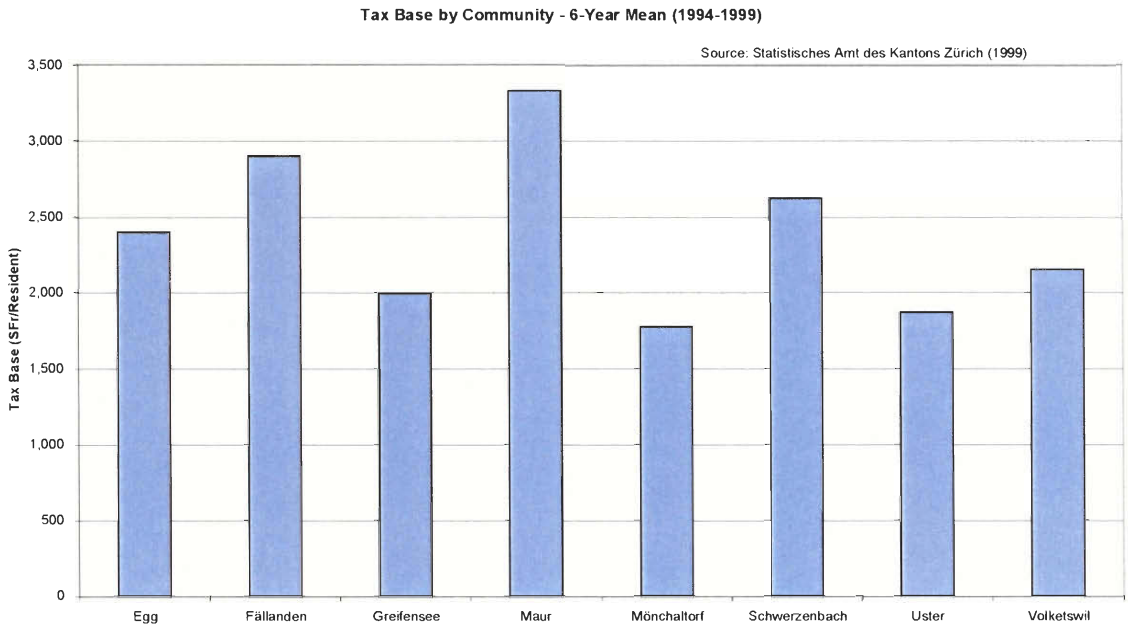

Figure 10 - Tax Base by Community (1994-1999)

The final socioeconomic variable analyzed was the family structure of Greifensee and the neighboring towns. More specifically, we researched the number of single parent households within each town. We obtained this information through the use of census data located in Greifensee's town hall, the cantonal statistics bureau and the federal statistics bureau. From the statistics we were able to gather information regarding the total number of households, single parent families, totals of families with children and totals of families without children for each community. To get the single parent percentage, we took the total number of single parent families within each respective town and divided by the number of households in the town. The percentage of single parent households ranged from 4.88% in Schwerzenbach to 7.88% in Fällanden.

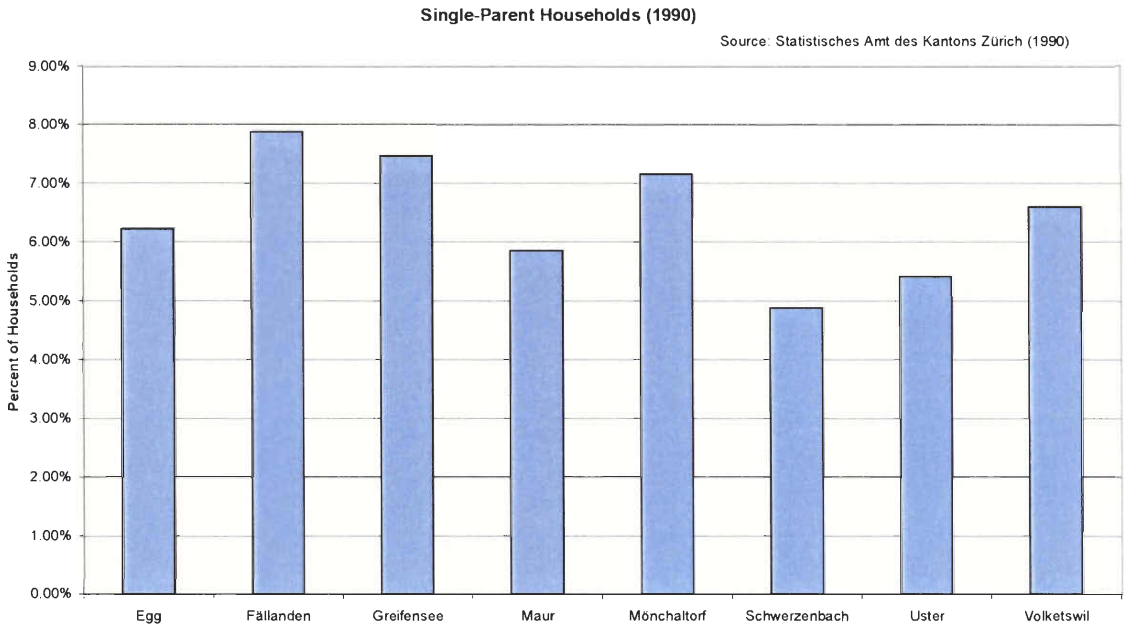

Figure 11 - Percentage of Single-Parent Households by Community (1990)

IV. Prevention Efforts

In order to determine what effect fire education might have on fire incidence in Greifensee interviews were set up with those responsible for providing the education, and any supporting documentation was reviewed. Preliminary research in Greifensee revealed that most of the fire education took place within the primary schools. This led us to set up interviews with at least one primary school teacher of each grade. We also discussed fire education with our sponsor, Herr Rigling, who, in addition to being the Greifensee fire brigade commander, is also a sixth grade teacher. Along with providing us with some general knowledge, he provided the primary school curriculum, which contained information on how the teachers should introduce fire education in the classroom.

Looking at the curriculum it was seen that fire education is not a subject that is taught on its own, but instead, it is integrated into various other topics, which in some way relate to fire education.

Talking to the primary school teachers also gave insight into fire education's place in

the classroom. It was found that rather than trying to isolate children from fire, they are confronted with it, and taught of its dangers. In the first grade the children help to build a fire outside the school. In doing this they not only learn how to start a fire, but how to prevent one. The teachers interviewed felt that the current curriculum was an effective method of teaching fire safety. They said they felt the children enjoyed the lessons, and were able to get a lot out them.

The local fire brigade also has a role in teaching fire education to primary school students. Herr Rigling explained that once a year the fire brigade visits the school to teach fire safety, talk about the fire brigade, and show the students the various types of equipment they use. He felt that this was also an effective method for teaching fire education in schools.

The towns in which we interviewed commanders had varying involvement with fire education. Schwerzenbach works often with the kindergarten, but they only work infrequently with the primary school students. Similarly, Volketswil has spotty contact with the school. Teachers occasionally bring their students to the brigade house for a half-day in which the students learn how to extinguish small fires and dial 118 to report a fire. Uster's brigade is also somewhat engaged in fire education. Several classes visit the brigade house each year, and some of the officers visit the local YMCA and handicapped-persons' group home. Mönchaltorf's commander stated that the brigade was very involved in education. They do demonstrations and distribute fire blankets at schools, civic groups and town events. Fällanden has done nothing in terms of education until this year—they plan to do some demonstrations for the town in mid-May.

As suggested by both WPI Professor David Lucht and Philip Schaenman of TriData Corp., one of the key factors in preventing fires is the frequency of fire inspections. To this end, we interviewed Herr Bruno Walliser, the chimney sweep responsible for the town of

Greifensee and several other nearby communities. He also doubles as the fire police official for most of the towns in his area, including Greifensee.

The first thing Mr. Walliser noted was that the GVZ determines the frequency of his visits to a home, and that it depends on the type of heating system in place: once per year for gas, as it burns very cleanly and leaves little residue; twice per year for oil burners and three times per year for wood-burning systems because they leave the most creosote in the effluent stack. He further mentioned that for homes with either electrical heat or heat pump systems, the GVZ did not require any visits by the chimney sweep, as there was no chimney to clean. He said that there was wide variation from town to town, but that in Greifensee, he had to visit approximately 90% of homes for cleaning. In addition, Greifensee has gas lines installed three years ago, so the number of homes with gas heat has been increasing.

While a chimney sweep is on-site to clean a heating system, he notes any problems or violations. These violations include things like flammables left near the burner/boiler for the heating apparatus, mopeds left in stairways (trapped gas fumes pose an explosion risk), stored wood in underground garages, and blocked exits. If the problem is not something that can be immediately remedied, the chimney sweep records it in a notebook that must be signed by both the chimney sweep and the local fire police. Herr Walliser mentioned that the fact that he is the fire police for most of the towns in which he cleans chimneys, the reporting procedure is greatly simplified. The residents have thirty days to fix the problem before the matter is handed over to town officials and could result in the arrest of the resident. According to Herr Walliser, the problem virtually never goes that far.

Herr Walliser suggested a few factors that might lead to a better record of fire safety in Greifensee. Since farmhouses typically have wood-fired heating, they are inherently more at risk of chimney fires. Similarly, farmhouses are frequently constructed of wood, making them more susceptible to structure fires. Greifensee, however, has very few farmhouses.

Moreover, most of the residences in Greifensee are apartment houses or condominiums. Herr Walliser noted that, unlike single-family homes, they seldom have fireplaces. Also unique to Greifensee is its Rietpark neighborhood. This development of townhouses receives its heating from a plant next to Mettler-Toledo. This plant burns wood and the evolved heat from the combustion is piped to Rietpark to heat the homes.

The ability of a fire brigade to respond to a fire depends on two major factors: the number of members available to respond to a call in a timely fashion and the degree of scatter in the population. We obtained information on these factors by interviewing the commanders of several fire brigades in the district of Uster.

In contrast with Greifensee, a town that has very little industry and thus many people who work elsewhere, the other towns in which we conducted interviews all have substantial industry, and many of the people who live there also work there. By town, the data on daytime availability of alarm group members is as follows:

Table 2 - Fire Brigade Membership Availability

	Members	
	On Call	Available
Mönchaltorf	25	20-22
Schwerzenbach	30	25-30
Fällanden	27	20
Volketswil	39	39
Uster	25	15-18
Greifensee	13-15	18

The towns of Fällanden, Mönchaltorf, Uster, and Volketswil all have significant portions of their populations outside of the town center. In Fällanden, there is no extra equipment stored in outlying areas. The other three towns all have hoses and some other material on hand in the more remote areas. Schwertzenbach alone has an entirely centralized population like Greifensee. Each fire brigade commander gave his best estimate of the brigade's response time to fires in the central part of town and to the more outlying locations, where applicable:

Table 3 - Fire Brigade Response Time

	Response Time (min.)	
	Central	Outlying
Mönchaltorf	6	10 (15 w/ old engine)
Schwerzenbach	5-6	N/A
Fällanden	3	12
Volketswil	5-7	6-8
Uster	4-5	7-8
Greifensee	3-5	N/A

Mönchaltorf is deserves some special attention. Last year the brigade replaced its fire engine, which, according to the commander, improved their response time considerably. In Schwerzenbach the fire brigade has a slightly different response scheme than in other towns. The officers keep their gear in their personal vehicles so they can respond directly to the site of the fire—Herr Lehman claims that officers can be on scene in two to three minutes, approximately three minutes faster than the fire engine carrying the first fire fighters.

Analysis

I. Introduction

Raw data taken from the fire incidence reports provided by Greifensee and GVZ demonstrate that Greifensee has not, in fact, had any structure fires in recent years. Further analysis of these records yields more information about the relative safety of Greifensee as compared to its neighbors in terms of the numbers, types, and severity of fires. We use the census data discussed in the previous chapter, in combination with the fire data, to do a statistical regression analysis to determine any relationships between socioeconomic variables and fire incidence. Lastly, excerpts from interviews with fire protection experts in the region suggest additional reasons for Greifensee's excellent safety record.

II. Fire Incidence

The first goal in analyzing the fire incidence data that was collected was simply to verify that Greifensee has had no residential fires. The second goal in analyzing these data was to see specifically how many fires of each type, occur in the surrounding towns. This allowed us to see which fires could be affected by the socioeconomic variables suggested in our hypothesis, and thus, which could be used for statistical analysis involving these variables. Finally, in analyzing these data we were able to see the severity of these fires through the amount of damage caused, which can tell more about a town's fire safety than just the number of fires.

By looking at the fire reports of the Greifensee fire brigade we verified part of the anecdotal data presented in the problem statement: While there were some fires in the town of Greifensee over the past seven years, only the Christmas tree fire in 1994 was residential fire by the Swiss definition. Interviews with the brigade commanders of five of the surrounding communities, however, revealed that other towns do not experience three to four

such fires per year. Mönchaltorf and Volketswil both generally see one structure fire in a year. Schwerzenbach's commander stated they usually see one fire every three to five years but that, as in Greifensee, they have not had one in a number of years. Ruedi Maurer said Fällanden generally will have two fires in ten years—he has been on the brigade for 16 years and only responded to three in all. Schwerzenbach and Fällanden are most like Greifensee in population size, and Schwerzenbach has nearly the same area as Greifensee, perhaps explaining the similar fire incidence. Although it does not appear that Greifensee has fewer residential fires than its neighbors, all of the towns examined have very low incidence of fires.

The GVZ statistics also allowed for a simple comparison of general fire incidence between the communities—that is, fires of all types, not just residential fires. In comparing the number of fires experienced per year per person, we found that while the numbers are very close for all the communities, the town of Greifensee had the fewest fires per year per person, if only by a small margin.

According to the same GVZ data, Greifensee has essentially the same types of fires as other towns; none of the causes differed between Greifensee and the district as a whole by more than 4%. Interestingly, though, Greifensee had fewer fires of each type per person in all but one category:

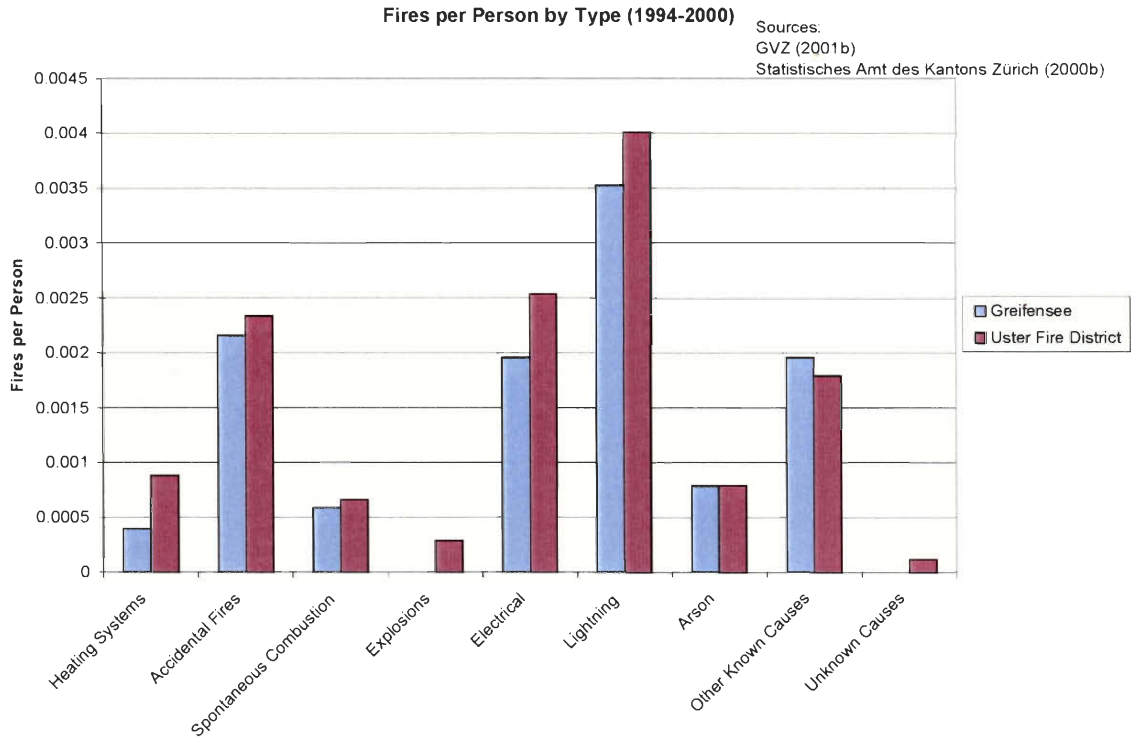

Figure 12 - Fires per Person by Type - Greifensee and Uster

That the fires by type per person is less for Greifensee than for the Uster district as a whole is in keeping with the fact that Greifensee has the fewest fires per year per person. The categories in which we see the most difference are heating system fires, electrical fires, and lightning strikes. While the number of lighting strikes can only be affected by lightning rods, the other two types could be affected by fire prevention efforts such as rapid response, inspections, and education.

Finally, the GVZ reports included the amount of damage (in Swiss Francs) that the fires caused for each community. These values allowed us to simply compare the average amount of damage done per fire in each community. A comparison of the severity of fires between towns showed that Greifensee had the least costly fires by a factor of three. As a check to see if this low damage value was due to low property values, we looked at the property values in each town. Below is a graph of the insured value per building for each town in the study. Greifensee has the highest property value with SFr. 1,372,537 per building.

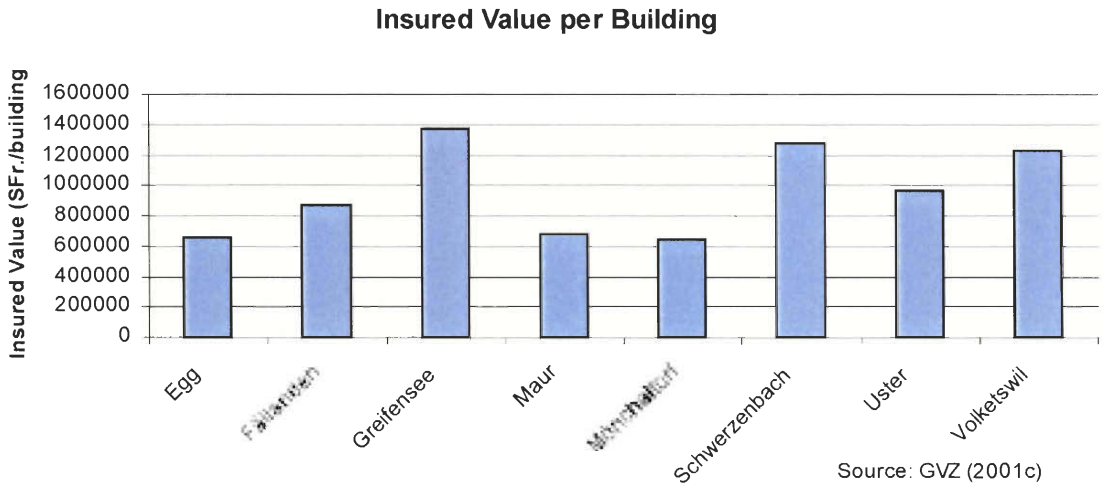

Figure 13 - Insured Value per Building

Even though it has the highest property value, Greifensee's mean damage per fire is by far the lowest in the district. It is clear that when Greifensee does have fires, they are rapidly extinguished before growing too large. This could be in part due to the response time of the fire brigade, discussed below.

A breakdown of damages caused by type of fire shows significant variance in two categories: lightning and accidental fires. Lightning is responsible for 20% more of Greifensee's damages than is the average for the district. However, since lightning is an event largely beyond the control of either the fire brigade or the residents, there may not be much that can be done to attenuate this. Accidental fires, on the other hand, are accountable for 10% less of damages in Greifensee. This could show that quick action on the part of the individuals on scene and the fire brigade plays a part in eliminating the problem before the fire causes significant damage.

III. Socioeconomics

Of the socioeconomic variables inspected, only two exhibited any correlation with fire incidence—unemployment and foreigner population. The others—age, income and family

structure—showed no relationship with fire incidence in the towns of the Uster fire district.

We performed a single linear regression to determine if a relationship exists between average age and the number of fire incidences. One of the categories included in calculating the mean number of fire incidence was lightning. We removed this category from the calculation because it has to do with nature and is not affected by socioeconomic variables. The results are as follows:

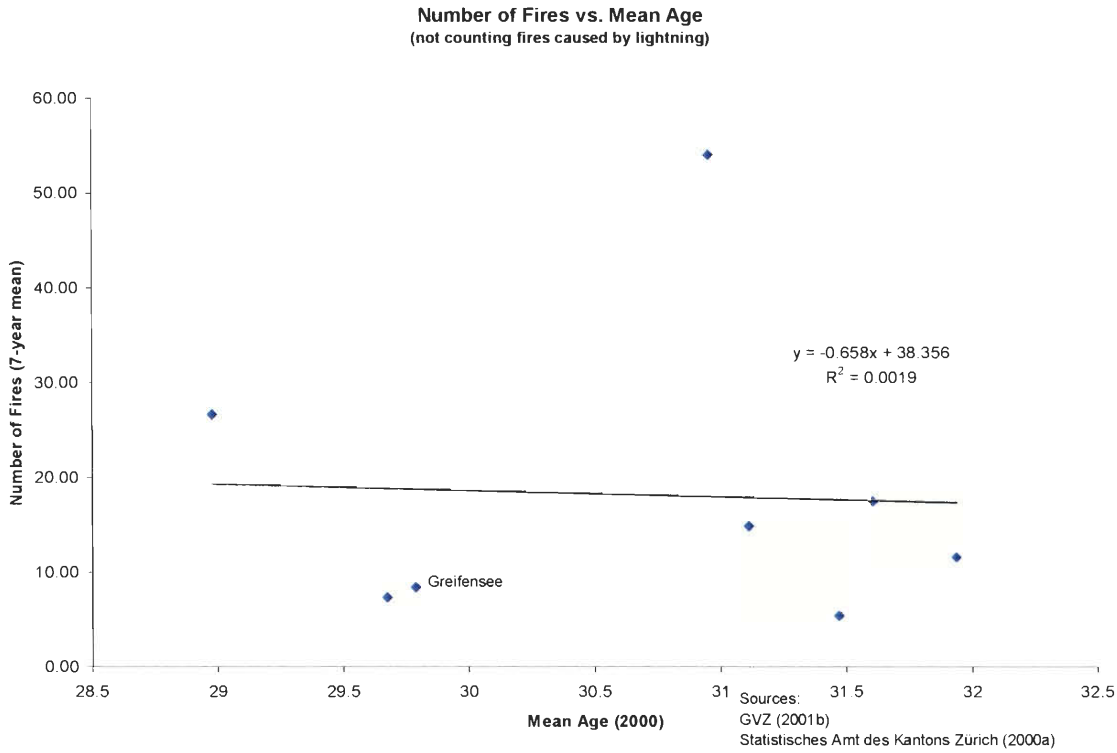

Figure 14 - Regression Analysis - Mean Age and Fire Incidence

The resulting regression line indicates that no relationship exists between mean age and the seven-year mean of fire incidence. These findings were supported by the R^2 value of 0.0039, displaying a poor fit.

The most likely reason for the lack of correlation between age and fire incidence is the age distribution of the towns. We conducted the analysis using the mean age of the town as the regressor with fire incidence. However, the towns in the sample all have average ages

in a small interval: 28.9 years to 31.9 years. Moreover, an inspection of the age distribution of the communities reveals that they have similar percentages of each age group:

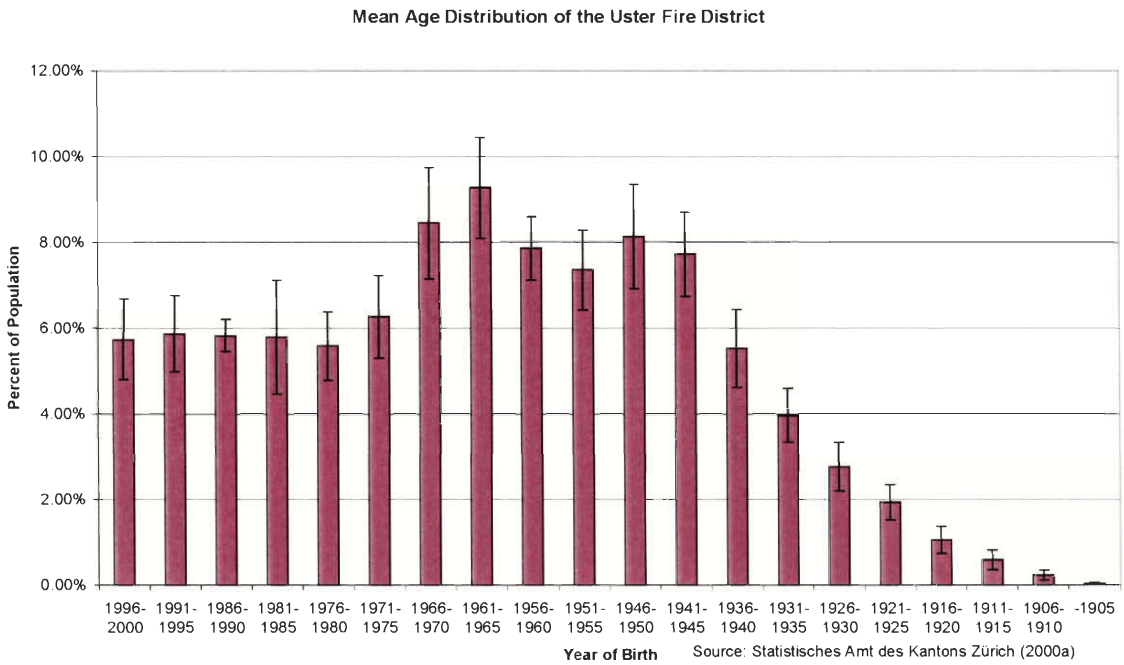

Figure 15 - Mean Age Distribution in the District of Uster

The error bars, showing plus or minus one standard deviation for each age bracket, show that the age distributions are fairly consistent between towns. Clearly towns with such similar populations in terms of age will not exhibit any noticeable variations in the number of fires they experience as a result of a large population of children or elderly individuals.

We used the data on foreign population as the regressor in a single linear regression against the seven-year mean of fire incidence. The results are as follows:

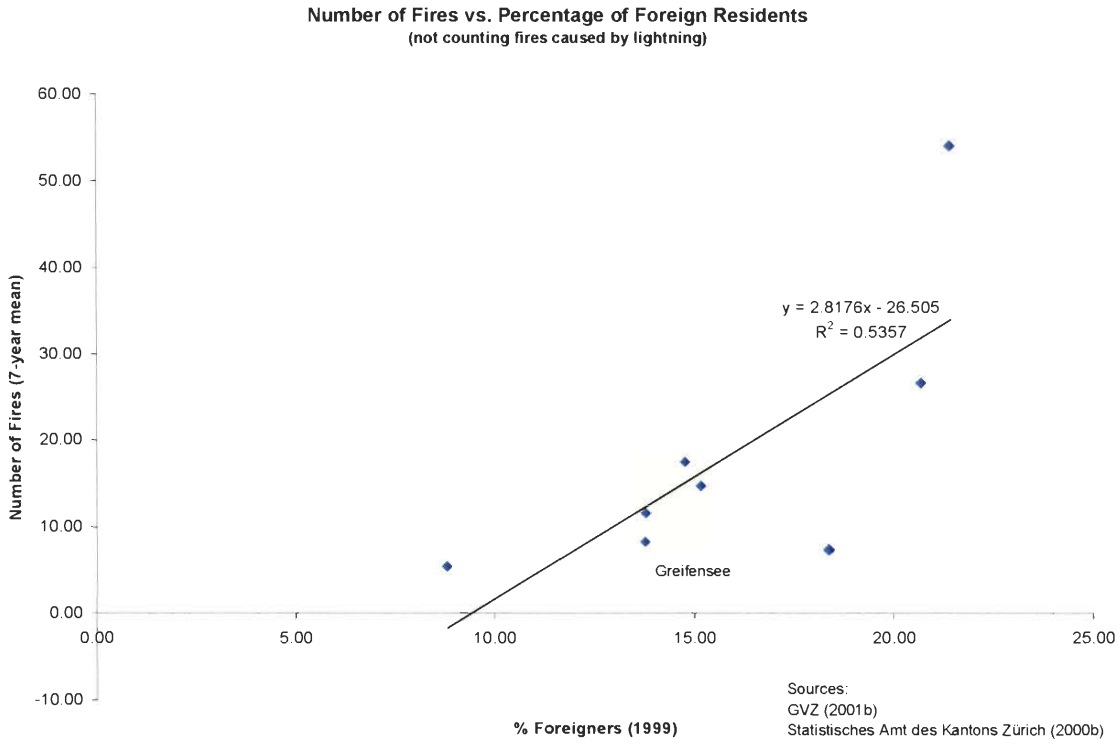

Figure 16 - Regression Analysis - Percentage of Foreign Residents and Fire Incidence

The resulting regression line indicates that there possibly exists a relationship between percentage of foreigners and the seven-year mean of fire incidence. These findings are supported by the R^2 value of 0.568, displaying a potential fit.

To confirm these findings we calculated a 95% confidence interval for the foreign populations of Uster and Greifensee. The resulting confidence intervals for Uster and Greifensee were (16.07, 51.69) and (0.79, 23.86), respectively. These intervals suggest some relationship between the variable and fire rate, but are too large to serve as a basis for future predictions. The fire rate may not depend on the percent of foreign population at all. Instead, both may vary with a third variable. A regression of fire incidence versus population exhibits a very strong correlation:

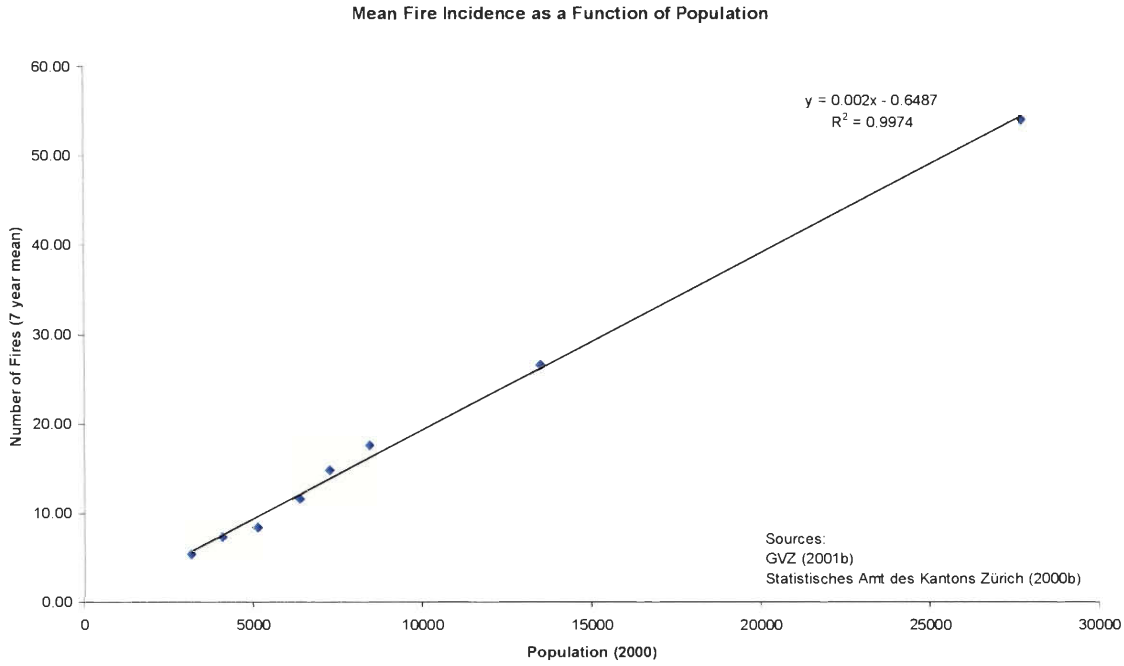

Figure 17 - Regression Analysis - Population and Fire Incidence

The R^2 value of 0.9974 suggests that fire tracks very closely with population, even over the wide population interval of this data set. As a further check, we included the whole of canton Zurich in the data set:

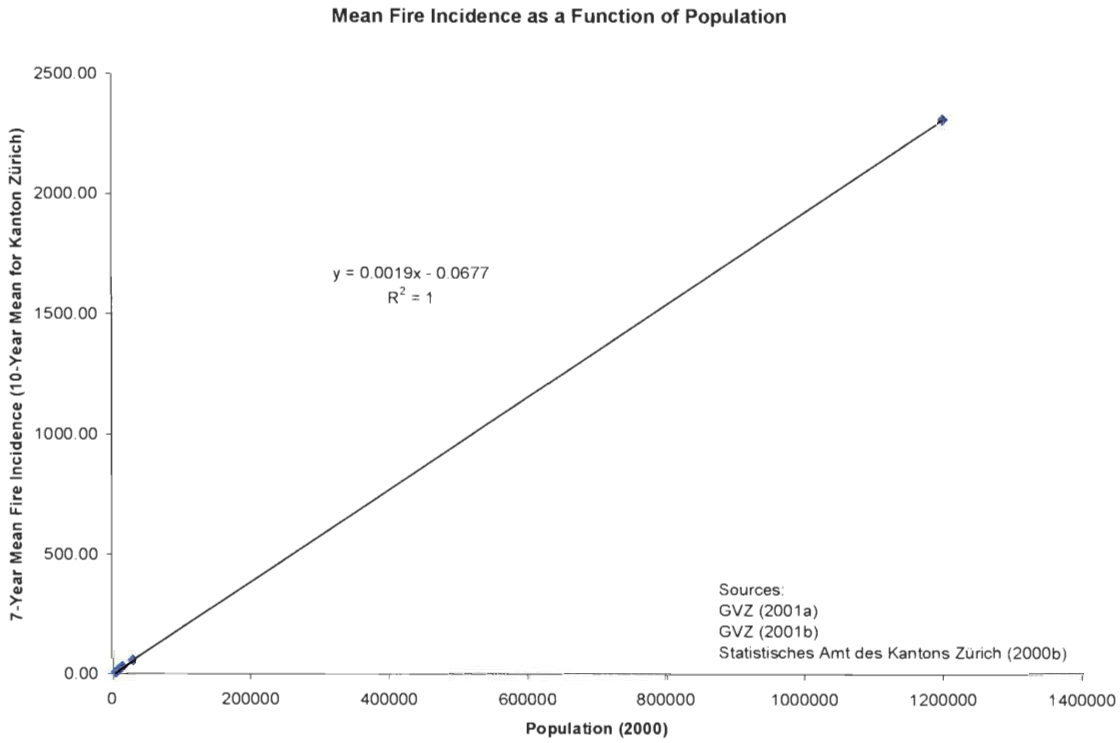

Figure 18 - Regression Analysis - Population and Fire Incidence (including Kanton Zürich)

The correlation remains very strong, and the slope of the regression lines differ by only 0.1 fires per year per thousand residents. This indicates that the data collected for the Uster district holds as a general rule for a wide range of populations. We also investigated the relationship between foreigner population and population:

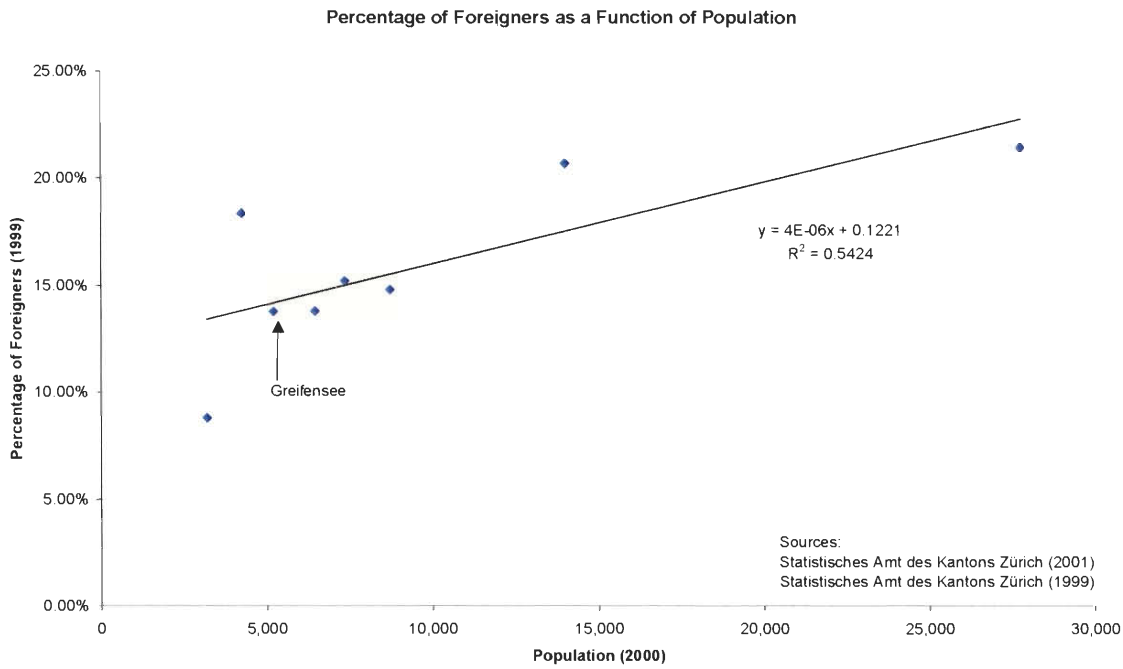

Figure 19 - Regression Analysis - Percentage of Foreign Residents and Population

As can be seen by the 0.5424 R^2 value, the percentage of foreigners tracks as well with population as fire incidence tracks with percentage of foreigners. This tends to indicate that the apparent correlation between fire rate and foreign population is only due to the relationship both variables have with total population.

We used the seven-year mean unemployment rates as the regressor in a single linear regression against the seven-year mean fire incidence. The results were as follows:

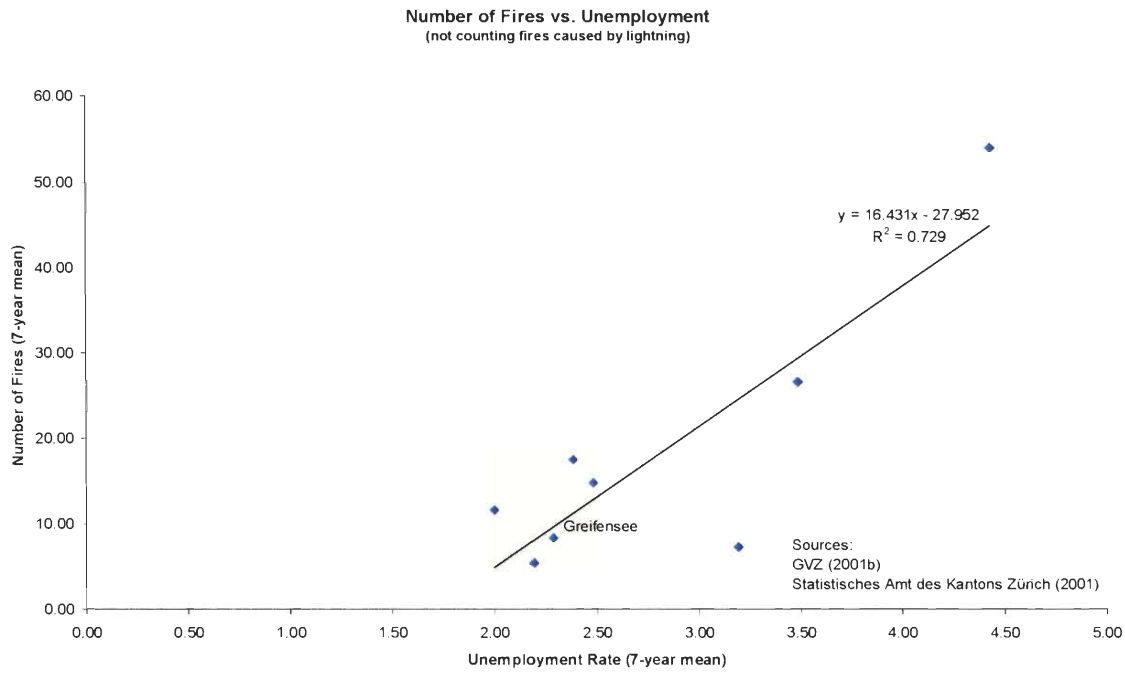

Figure 20 - Regression Analysis - Unemployment Rate and Fire Incidence

The resulting regression line indicates that there is a good relationship between unemployment rate and fire incidence. These findings are supported by the R^2 value of 0.7172, displaying a good fit.

As with foreign population, to confirm these findings we calculated a 95% confidence interval for the seven-year mean unemployment rate of Uster and Greifensee. The resulting confidence intervals for Uster and Greifensee were (26.86, 62.81) and (0.36, 18.99), respectively. These intervals suggest some relationship between the variable and fire rate, but are too large to serve as a basis for future predictions. We also checked this variable for a relationship with population:

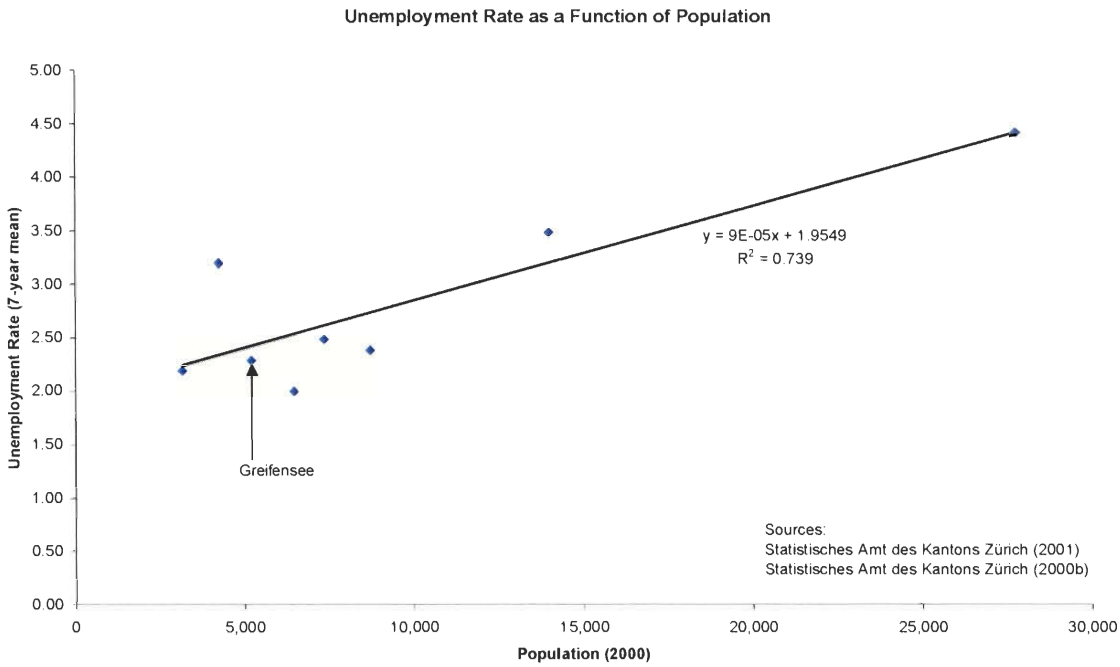

Figure 21 - Regression Analysis - Unemployment Rate and Population

Once again, one can see that this regression has a very similar fit as the regression relating the fire rate with unemployment—$R^2 = 0.739$ versus $R^2 = 0.7172$. It would appear that the relationship between fire incidence and unemployment is only through population.

To evaluate the effect income has on fire incidence, we plotted the seven-year mean fire incidence versus the six-year mean tax base of each community. To this scatter plot, we fit a regression line, which can be seen here:

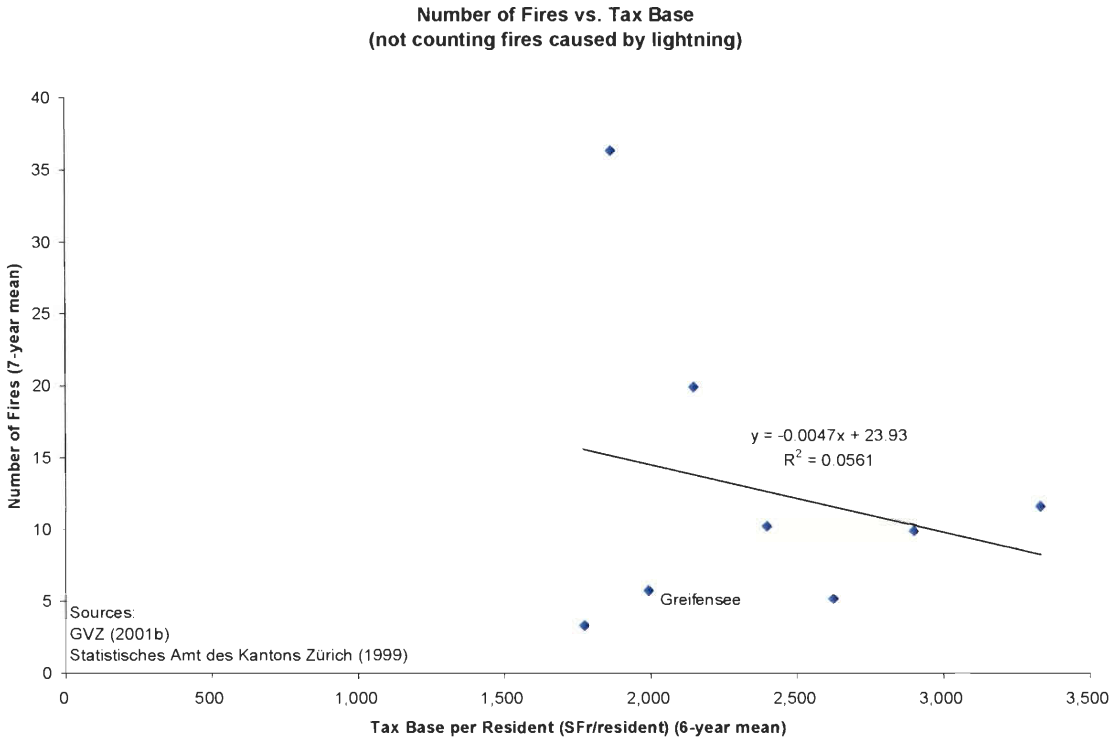

Figure 22 - Regression Analysis - Tax Base and Fire Incidence

The line fit the data set with an R^2 value 0.0561, which suggests that there is no relationship between tax base and the fire rates of towns in the Uster fire district. A better test for the relationship between income and fire incidence would come from data detailing the number of residents per income bracket. One could use such information to calculate a mean income for each community. This may yield a better correlation, as tax base is based on taxable income, and under Swiss law, the very wealthy and business owners can claim many deductions, thus lowering the tax base for a town with many higher income residents. The statistical bureau of the canton of Zürich, however, does not record this information.

A single linear regression was performed, using the percentages of single parent households as the regressor against the seven-year mean of fire incidence. The results were as follows:

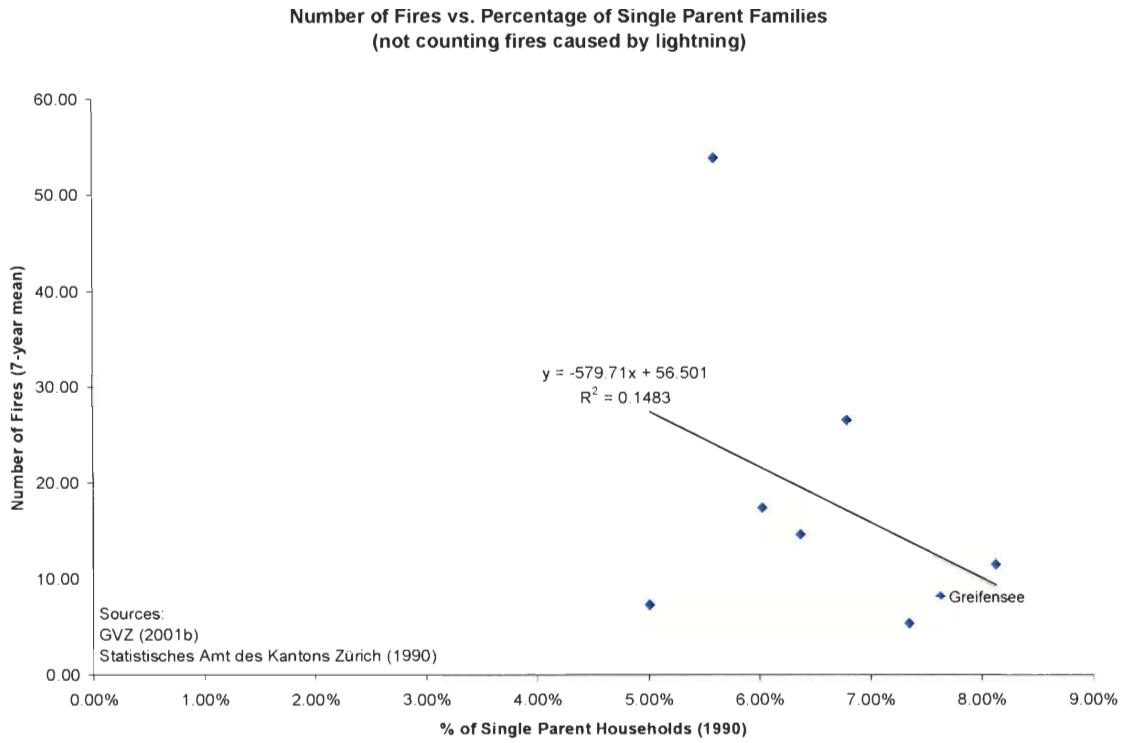

Figure 23 - Regression Analysis - Percentage of Single-Parent Households and Fire Incidence

The resulting regression line indicates that no relationship exists between percentage of single parent households and fire incidence. The R^2 value of 0.1191 supports these findings, displaying a poor fit.

Part of this lack of correlation may be due to the small variation in single parent families—4.88% to 7.88%, giving only an interval of 3%. More likely, however, is that the percentage of households with one parent is not the best measure for this analysis. The actual risk factor here is the number of children living in these households and the amount of time during which they are unsupervised. It would then be more accurate to view a statistic like the percentage of children in each community who live in single parent homes. The Swiss government, unfortunately, does not record these statistics on any smaller scale than on a cantonal level.

IV. Prevention Efforts

Fire education in the town of Greifensee was evaluated both by looking at how it is integrated into the primary school curriculum as well as by interviewing the teachers. Since the curriculum is the same for the whole canton of Zurich, it is unlikely that what Greifensee's teachers are doing in the classroom is having any real effect on the fire incidence within the town relative to other towns. There is, however, one unique aspect to how fire education is taught in the town. Since the fire brigade commander, Daniel Rigling, is also a primary school teacher fire education does have a higher priority in Greifensee than in most towns. Once a year the fire brigade comes to visit the children in school to teach them about the fire brigade and fire safety in general.

The effectiveness of the education efforts of other fire brigades can be seen in a plot of accidental fires per person:

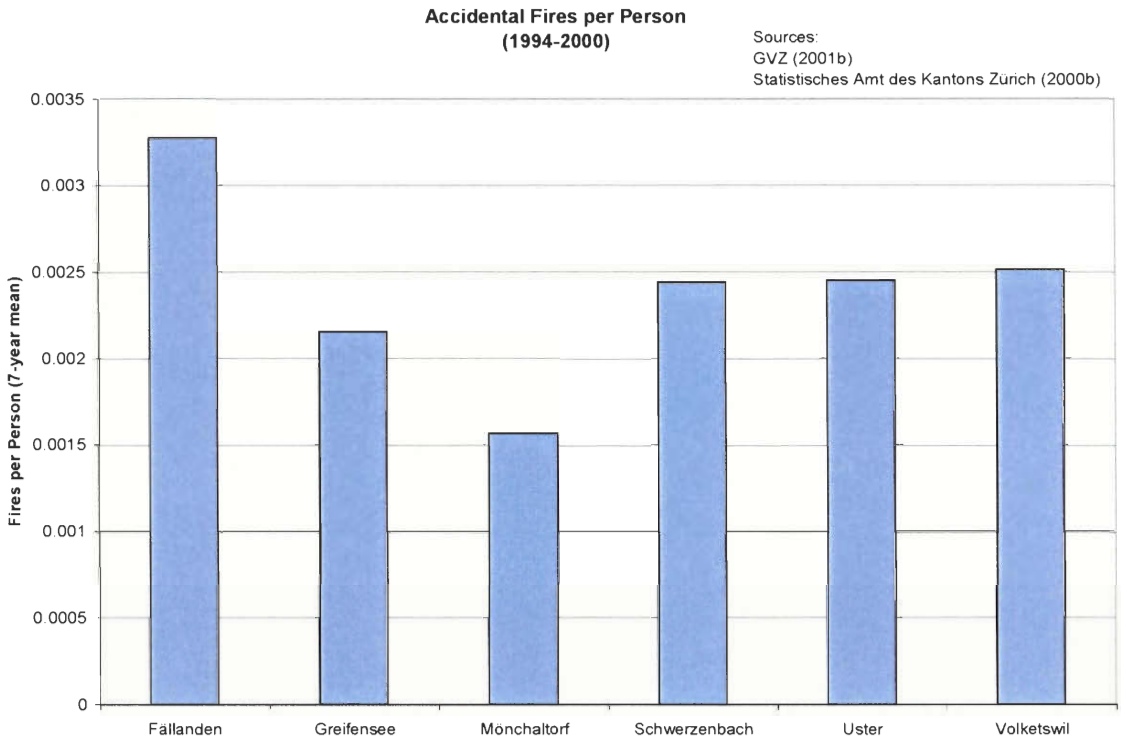

Figure 24 - Accidental Fires per Person

Schwerzenbach, Volketswil, and Uster—all fire brigades with intermittent contact with their respective primary schools—all show similar rates of accidental fires per person. In

Mönchaltorf, where the fire brigade is very involved with the school, there is a very low incidence of accidental fires—the lowest of the towns in which we conducted interviews. On the other end of the spectrum, Fällanden's brigade has done nothing in the area of fire safety education, and they have the highest rate of accidental fires.

While Herr Walliser did not feel that there were significant differences in Greifensee's population that could lead to a reduced number of structure fires in the town, he did suggests a few key differences that help explain Greifensee's superior fire safety record. He noted that farmhouses have an increased risk of fire because of their wood construction and their wood-fired heating systems. Greifensee has very few such homes, which means the town is less likely to have structure fires. There are also many more apartment buildings in Greifensee; Herr Rigling said approximately 80% of the town's population lives in such buildings. Herr Walliser said that apartment buildings tend to be more fire safe than single-family homes because they are less likely to have fireplaces.

Most interesting of Herr Walliser's observations is the mention of the heating system in Rietpark. That the off-site heating system makes the neighborhood safer, thus lowering the number of heating system fires in Greifensee is supported by data supplied by GVZ:

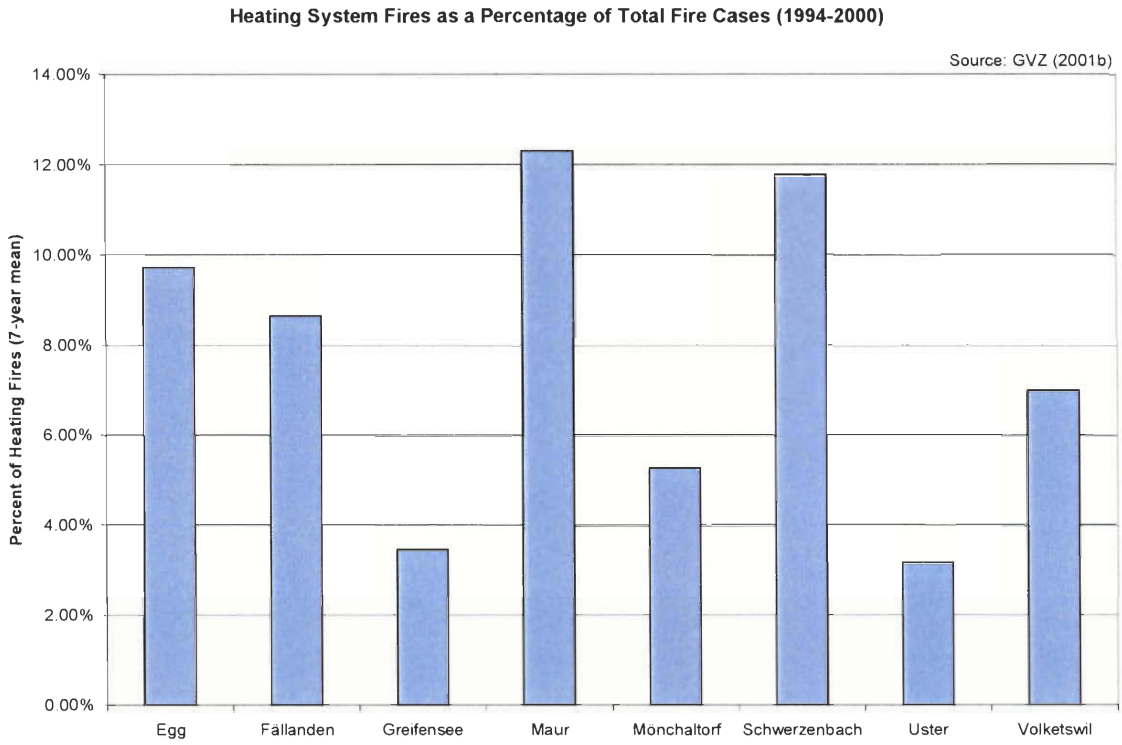

Figure 25 - Heating System Fires

Greifensee ties with Uster for the lowest percentage of total fires caused by heating systems. In fact, over the seven-year period in question, Greifensee has only had two such fires, the same as Mönchaltorf, a town of two thousand fewer residents. As noted earlier in the chapter, Greifensee has fewer heating system fires per person than the district as a whole. By town, we see that Greifensee has, in fact, fewer heating system fires than any town in the district:

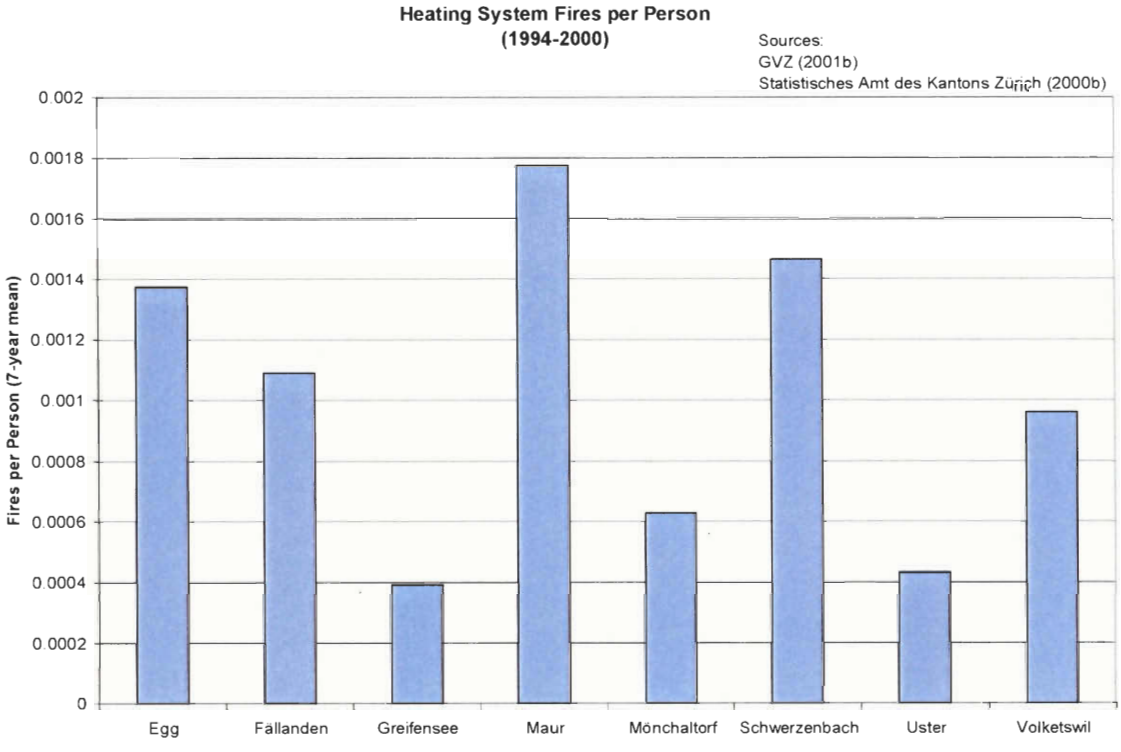

Figure 26 - Heating System Fires per Person

These statistics are further supported by the damages caused by heating system fires:

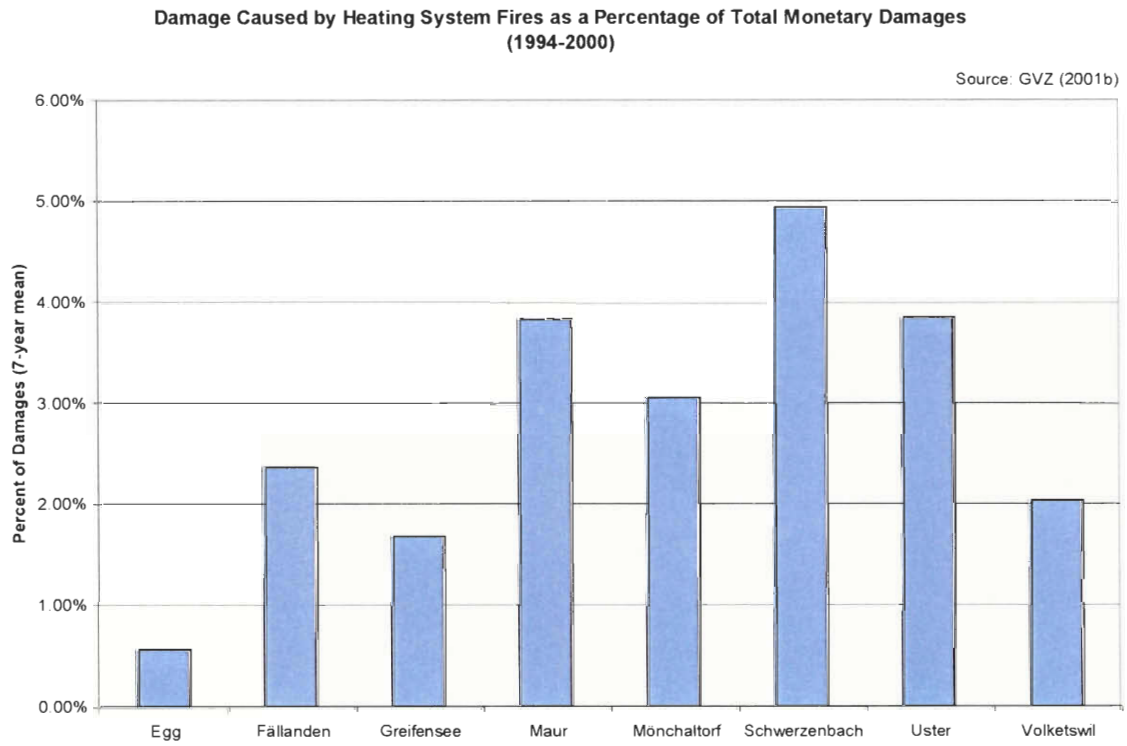

Figure 27 - Monetary Damages done by Heating System Fires

Greifensee is second only to Egg in terms of having the least percentage of damages caused

by heating system fires.

While rapid response on the part of the fire brigade obviously does not prevent fires, it can significantly attenuate the damage inflicted. The interviews we conducted showed that Greifensee has a very low response time as compared to surrounding towns due to its compact size and centralized population. As previously noted, Greifensee also has the lowest damage per fire by far.

Conclusions and Recommendations

I. Introduction

We are able to draw many conclusions from the analysis of the data. Some of these conclusions are based on analysis of statistical data, whereas others were drawn from qualitative data, such as interviews with fire brigade commanders, teachers and the chimney sweep for Greifensee. From these conclusions we are able to make several recommendations for further research and methods by which a town can improve fire safety.

II. Conclusions

The first conclusion we drew was that the socioeconomic characteristics of the towns does not affect fire incidence in the Uster fire district. We developed this conclusion from the statistical analysis of the census data we collected. A simple linear regression of each variable showed that only two of the five variables displayed a potential fit. A 95% confidence interval test of the two variables revealed, however, that they were not accurate predictors of fire incidence. This statistical analysis led us to the conclusion that, other than total population, there are no significant socioeconomic differences between the towns in the Uster fire district.

The second conclusion we drew follows from the first: each person in the canton of Zurich represents approximately the same fire risk. The simple linear regression of fire data and population showed a very strong correlation. The addition of an extreme data point—that of the entire canton of Zürich—yielded an R^2 value of 1. This is likely because the town data points looked like one single point. More noteworthy is the fact that it did not change the slope of the regression equation appreciably—the slope changed by only one-tenth of one fire per thousand people. The conclusion is further supported by our first conclusion; if the

populations are all socioeconomically similar, they will each have the same number of fires per year per person.

Fire brigade involvement in fire safety education appears to play a large role in the incidence of accidental fires. Those towns in which the local brigade is very involved have the lowest rate of accidental fires per person, whereas those in which the brigade does nothing see many more accidental fires. Towns that only had a moderate involvement all showed about the same moderate rate of residential fires.

The third conclusion we drew is that Greifensee has fewer buildings considered more susceptible to fires, such as single-family homes and farmhouses. Fireplaces are commonly found in single-family homes and farmhouses, while apartments seldom have wood burning heating systems. A large majority of housing in Greifensee is apartments, which contributes to the lack of heating system fires. Moreover, Greifensee has the large townhouse neighborhood, Rietpark, which does not burn any fuel for heat. Such a housing development will not experience any heating system fires.

The research conducted here in Switzerland has reinforced the conclusions drawn from the initial background research. Switzerland is by far a more fire-safe country than the United States, and the reasons for this disparity are numerous. Building methods are very important to this end. Switzerland has building codes that are very strict and very clear—rules prohibiting wood construction in cities and requiring electrical work to be done by licensed electricians are key. Reinforcing this are the laws regarding chimney sweeps; since heating systems are regularly inspected and maintained, they are far less likely to malfunction and cause a fire. Finally, Swiss cultural attitudes help lower fire incidence relative to other countries. The Swiss, as a general rule, are very careful and precise in everything they do, and that outlook carries over into fire safety.

III. Recommendations

Further research is possible into comparative fire analysis in Greifensee:

- The statistical analysis of socioeconomic variables in fire safety would be more certain if we had access to the census data taken in 2000. This information, however, was not published in time for this study.
- Some of the census data available was not the best measure of the factor we wished to test. Number of children in single-parent households would be a far better measure of relative fire risk than simply the number of single-family homes. Similarly, income distribution data would be a better measure of the relative wealth of a community's residence than the tax base per person.
- Additionally, a larger sampling of communities in Kanton Zurich would help to verify the conclusions reached in our analysis. Another difficulty in conducting this research came from the nature of the records kept by the fire brigades. The handwriting and decentralized storage of the records made any analysis impossible to complete in the time allotted to the study. Standardized computer records would at once be easier to access and easier to sort and analyze.

The conclusions of this project also lead to several recommendations for the improvement of fire safety:

- In order to reduce the number of accidental fires started by children, fire brigades should take an active role in the fire safety education of children in the community.
- Less reliance on wood-fired heating will lead to fewer heating system fires. Construction of homes with oil- or gas-fired heating systems—or better yet, heat pump systems that do not rely on any combustion—are far safer. These systems need to be regularly inspected and cleaned for continued safe operation.

- Building materials are also important. Homes should be built from stone, brick, stucco, or concrete to be more fire resistant. To ensure safe electrical work, all wiring should be done by licensed professionals and be in conduits. As a general recommendation, the fire codes in place should be clear and simple to make certain there are no loopholes.
- In order to maximize response time and thus lessen damage done by fires, fire brigades should be organized such that most of the members in the action groups work in town.

Appendix A – GVZ Schadenstatistik des Bezirks Uster – 1994-2000

Translation Key:

Feuerungsanlagen	-	Heating System
Bestimungmässiges Feuer	-	Accidental Fire
Selbstentzündungen	-	Spontaneous Combustion
Explosionen	-	Explosions
Elektrizität	-	Electrical Fire
Blitzschläge	-	Lightning
Brandstiftungen	-	Arson
Andere Bekannte Ursachen	-	Other Known Causes
Unbekannte Ursachen	-	Unknown Cause

GEMEINDE: Egg

JAHR: 1994 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	15.3	700	1.2	0.000
2 BESTIMMUNGSM.FEUER	2	15.3	32 400	55.7	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	1	7.6	13 600	23.4	0.000
5 ELEKTRIZITAET	3	23.0	7 409	12.7	0.000
6 BLITZSCHLAEGE	2	15.3	1 903	3.2	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	3	23.0	2 100	3.6	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	13	100.0	58 112	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Fällanden

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	1	11.1	166	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	4	44.4	18 600	7.3	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	4	44.4	234 360	92.5	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	9	100.0	253 126	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Greifensee

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	2	33.3	17 000	71.4	0.000
3 SELBSTENTZUENDUNGEN	1	16.6	2 700	11.3	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	33.3	2 900	12.1	0.000
6 BLITZSCHLAEGE	1	16.6	1 200	5.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	6	100.0	23 800	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Maur

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	3	15.0	2 300	3.7	0.000
2 BESTIMMUNGSM.FEUER	3	15.0	25 500	41.8	0.000
3 SELBSTENTZUENDUNGEN	1	5.0	1 800	2.9	0.000
4 EXPLOSIONEN	1	5.0	1 400	2.2	0.000
5 ELEKTRIZITAET	4	20.0	11 000	18.0	0.000
6 BLITZSCHLAEGE	6	30.0	10 652	17.4	0.000
7 BRANDSTIFTUNGEN	1	5.0	7 500	12.3	0.000
8 ANDERE BEKANNTE URSACHEN	1	5.0	800	1.3	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	20	100.0	60 952	100.0	0.000
DAVON BAUZEITVERS	1		2 500		

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GEMEINDE: Mönchaltorf

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	10.0	290	2.7	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	10.0	1 600	15.1	0.000
6 BLITZSCHLAEGE	6	60.0	8 050	76.0	0.000
7 BRANDSTIFTUNGEN	1	10.0	344	3.2	0.000
8 ANDERE BEKANNTE URSACHEN	1	10.0	300	2.8	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	10	100.0	10 584	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Schwerzenbach

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	2	20.0	68 400	37.9	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	4	40.0	97 630	54.2	0.000
6 BLITZSCHLAEGE	2	20.0	13 399	7.4	0.000
7 BRANDSTIFTUNGEN	1	10.0	600	0.3	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	1	10.0	0	0.0	0.000
GESAMTTOTAL	10	100.0	180 029	100.0	0.000
DAVON BAUZEITVERS	1		600		

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GEMEINDE: Uster

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	10	25.6	14 633	5.1	0.000
3 SELBSTENTZUENDUNGEN	1	2.5	3 100	1.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	11	28.2	139 802	48.9	0.000
6 BLITZSCHLAEGE	7	17.9	15 390	5.3	0.000
7 BRANDSTIFTUNGEN	4	10.2	106 400	37.2	0.000
8 ANDERE BEKANNTE URSACHEN	5	12.8	5 800	2.0	0.000
9 UNBEKANNTE URSACHEN	1	2.5	310	0.1	0.000
GESAMTTOTAL	39	100.0	285 435	100.0	0.001
DAVON BAUZEITVERS	2		3 200		

GEMEINDE: Volketswil

JAHR: 1 9 9 4 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR		ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1	FEUERUNGSANLAGEN	2	9.5	16 100	13.0	0.000
2	BESTIMMUNGSM.FEUER	4	19.0	7 750	6.2	0.000
3	SELBSTENTZUENDUNGEN	2	9.5	700	0.5	0.000
4	EXPLOSIONEN	0	0.0	0	0.0	0.000
5	ELEKTRIZITAET	6	28.5	73 484	59.4	0.000
6	BLITZSCHLAEGE	4	19.0	1 979	1.6	0.000
7	BRANDSTIFTUNGEN	1	4.7	23 000	18.6	0.000
8	ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9	UNBEKANNTE URSACHEN	2	9.5	589	0.4	0.000
GESAMTTOTAL		21	100.0	123 602	100.0	0.000
	DAVON BAUZEITVERS	0		0		

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GEMEINDE: Egg

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	5.5	400	0.3	0.000
2 BESTIMMUNGSM.FEUER	3	16.6	2 575	2.1	0.000
3 SELBSTENTZUENDUNGEN	2	11.1	107 448	89.8	0.000
4 EXPLOSIONEN	2	11.1	1 794	1.5	0.000
5 ELEKTRIZITAET	2	11.1	926	0.7	0.000
6 BLITZSCHLAEGE	6	33.3	6 419	5.3	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	5.5	0	0.0	0.000
9 UNBEKANNTE URSACHEN	1	5.5	0	0.0	0.000
GESAMTTOTAL	18	100.0	119 562	100.0	0.000
DAVON BAUZEITVERS	2		107 000		

GEMEINDE: Fällanden

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	2	40.0	3 200	46.3	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	0	0.0	0	0.0	0.000
6 BLITZSCHLAEGE	1	20.0	1 900	27.5	0.000
7 BRANDSTIFTUNGEN	1	20.0	200	2.8	0.000
8 ANDERE BEKANNTE URSACHEN	1	20.0	1 600	23.1	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	5	100.0	6 900	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Greifensee

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	12.5	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	3	37.5	1 850	8.5	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	25.0	3 300	15.2	0.000
6 BLITZSCHLAEGE	1	12.5	9 500	43.8	0.000
7 BRANDSTIFTUNGEN	1	12.5	7 000	32.3	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	8	100.0	21 650	100.0	0.000
DAVON BAUZEITVERS	2		1 200		

GEMEINDE: Maur

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	15.3	3 600	0.7	0.000
2 BESTIMMUNGSM.FEUER	1	7.6	3 200	0.6	0.000
3 SELBSTENTZUENDUNGEN	2	15.3	3 200	0.6	0.000
4 EXPLOSIONEN	1	7.6	2 600	0.5	0.000
5 ELEKTRIZITAET	2	15.3	460 500	94.2	0.001
6 BLITZSCHLAEGE	4	30.7	14 000	2.8	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	7.6	1 300	0.2	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	13	100.0	488 400	100.0	0.001
DAVON BAUZEITVERS	1		1 000		

GEMEINDE: Mönchaltorf

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	14.2	1 000	6.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	14.2	11 200	67.8	0.000
6 BLITZSCHLAEGE	4	57.1	3 900	23.6	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	14.2	400	2.4	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	7	100.0	16 500	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Schwerzenbach

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	22.2	13 000	21.2	0.000
2 BESTIMMUNGSM.FEUER	2	22.2	26 700	43.7	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	11.1	19 000	31.1	0.000
6 BLITZSCHLAEGE	3	33.3	1 511	2.4	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	11.1	840	1.3	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	9	100.0	61 051	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Uster

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	3	3.3	5 000	3.3	0.000
2 BESTIMMUNGSM.FEUER	10	11.1	15 350	10.1	0.000
3 SELBSTENTZUENDUNGEN	3	3.3	11 925	7.8	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	7	7.7	8 177	5.4	0.000
6 BLITZSCHLAEGE	58	64.4	89 349	59.1	0.000
7 BRANDSTIFTUNGEN	2	2.2	14 700	9.7	0.000
8 ANDERE BEKANNTE URSACHEN	7	7.7	6 550	4.3	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	90	100.0	151 051	100.0	0.000
DAVON BAUZEITVERS	3		1 300		

GEMEINDE: Volketswil

JAHR: 1995 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	3	7.8	27 500	12.5	0.000
2 BESTIMMUNGSM.FEUER	5	13.1	45 100	20.5	0.000
3 SELBSTENTZUENDUNGEN	4	10.5	39 100	17.8	0.000
4 EXPLOSIONEN	1	2.6	1 500	0.6	0.000
5 ELEKTRIZITAET	11	28.9	97 060	44.1	0.000
6 BLITZSCHLAEGE	9	23.6	4 312	1.9	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	5	13.1	5 037	2.2	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	38	100.0	219 609	100.0	0.000
DAVON BAUZEITVERS	6		59 200		

GEMEINDE: Egg

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	6.6	2 700	3.1	0.000
2 BESTIMMUNGSM.FEUER	3	20.0	28 700	33.2	0.000
3 SELBSTENTZUENDUNGEN	1	6.6	800	0.9	0.000
4 EXPLOSIONEN	1	6.6	2 600	3.0	0.000
5 ELEKTRIZITAET	1	6.6	46 000	53.2	0.000
6 BLITZSCHLAEGE	4	26.6	3 735	4.3	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	3	20.0	1 857	2.1	0.000
9 UNBEKANNTE URSACHEN	1	6.6	0	0.0	0.000
GESAMTTOTAL	15	100.0	86 392	100.0	0.000
DAVON BAUZEITVERS	1		27 000		

GEMEINDE: Fällanden

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	2	22.2	27 000	69.4	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	4	44.4	9 600	24.6	0.000
6 BLITZSCHLAEGE	1	11.1	1 400	3.5	0.000
7 BRANDSTIFTUNGEN	1	11.1	900	2.3	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	1	11.1	0	0.0	0.000
GESAMTTOTAL	9	100.0	38 900	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Greifensee

JAHR: 1 9 9 6 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	0	0.0	0	0.0	0.000
6 BLITZSCHLAEGE	1	25.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	1	25.0	1 000	41.6	0.000
8 ANDERE BEKANNTE URSACHEN	2	50.0	1 400	58.3	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	4	100.0	2 400	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Maur

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	7.6	1 200	0.4	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	4	30.7	132 800	47.2	0.000
6 BLITZSCHLAEGE	3	23.0	5 643	2.0	0.000
7 BRANDSTIFTUNGEN	1	7.6	120 000	42.7	0.000
8 ANDERE BEKANNTE URSACHEN	4	30.7	21 150	7.5	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	13	100.0	280 793	100.0	0.001
DAVON BAUZEITVERS	0		0		

GEMEINDE: Mönchaltorf

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	25.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	25.0	750	32.6	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	2	50.0	1 550	67.3	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	4	100.0	2 300	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Schwerzenbach

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	25.0	16 000	89.3	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	25.0	800	4.4	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	2	50.0	1 100	6.1	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	4	100.0	17 900	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Uster

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	14	22.5	48 373	3.1	0.000
3 SELBSTENTZUENDUNGEN	2	3.2	1 086 800	70.3	0.003
4 EXPLOSIONEN	3	4.8	2 020	0.1	0.000
5 ELEKTRIZITAET	7	11.2	31 686	2.0	0.000
6 BLITZSCHLAEGE	17	27.4	27 566	1.7	0.000
7 BRANDSTIFTUNGEN	9	14.5	338 900	21.9	0.001
8 ANDERE BEKANNTE URSACHEN	10	16.1	8 923	0.5	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	62	100.0	1 544 268	100.0	0.005
DAVON BAUZEITVERS	3		1 118 000		

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GEMEINDE: Volketswil

JAHR: 1996 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	4	19.0	14 300	13.6	0.000
2 BESTIMMUNGSM.FEUER	1	4.7	8 700	8.3	0.000
3 SELBSTENTZUENDUNGEN	2	9.5	12 300	11.7	0.000
4 EXPLOSIONEN	1	4.7	930	0.8	0.000
5 ELEKTRIZITAET	4	19.0	49 020	46.9	0.000
6 BLITZSCHLAEGE	1	4.7	1 728	1.6	0.000
7 BRANDSTIFTUNGEN	4	19.0	11 300	10.8	0.000
8 ANDERE BEKANNTE URSACHEN	4	19.0	6 200	5.9	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	21	100.0	104 478	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Egg

JAHR: 1 9 9 7 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	16.6	1 800	6.5	0.000
2 BESTIMMUNGSM.FEUER	2	16.6	1 000	3.6	0.000
3 SELBSTENTZUENDUNGEN	1	8.3	1 800	6.5	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	16.6	11 780	43.0	0.000
6 BLITZSCHLAEGE	2	16.6	7 200	26.3	0.000
7 BRANDSTIFTUNGEN	1	8.3	2 000	7.3	0.000
8 ANDERE BEKANNTE URSACHEN	2	16.6	1 770	6.4	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	12	100.0	27 350	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Fällanden

JAHR: 1 9 9 7 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	2	33.3	3 000	9.3	0.000
3 SELBSTENTZUENDUNGEN	1	16.6	25 000	77.6	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	33.3	950	2.9	0.000
6 BLITZSCHLAEGE	1	16.6	3 238	10.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	6	100.0	32 188	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Greifensee

JAHR: 1997 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	3	42.8	4 400	34.6	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	14.2	5 000	39.3	0.000
6 BLITZSCHLAEGE	2	28.5	2 300	18.1	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	14.2	1 000	7.8	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	7	100.0	12 700	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Maur

JAHR: 1997 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	7.1	250	1.1	0.000
2 BESTIMMUNGSM.FEUER	1	7.1	900	4.2	0.000
3 SELBSTENTZUENDUNGEN	1	7.1	3 000	14.1	0.000
4 EXPLOSIONEN	1	7.1	0	0.0	0.000
5 ELEKTRIZITAET	6	42.8	11 900	56.3	0.000
6 BLITZSCHLAEGE	4	28.5	5 086	24.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	14	100.0	21 136	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Mönchaltorf

JAHR: 1997 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	33.3	6 100	52.9	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	1	33.3	3 700	32.1	0.000
8 ANDERE BEKANNTE URSACHEN	1	33.3	1 720	14.9	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	3	100.0	11 520	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Schwerzenbach

JAHR: 1 9 9 7 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	20.0	3 300	0.8	0.000
2 BESTIMMUNGSM.FEUER	3	60.0	369 835	99.1	0.001
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	0	0.0	0	0.0	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	20.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	5	100.0	373 135	100.0	0.001
DAVON BAUZEITVERS	0		0		

GEMEINDE: Uster

JAHR: 1 9 9 7 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	1.6	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	6	10.1	4 692	0.9	0.000
3 SELBSTENTZUENDUNGEN	2	3.3	283 500	56.7	0.000
4 EXPLOSIONEN	3	5.0	46 000	9.2	0.000
5 ELEKTRIZITAET	7	11.8	84 500	16.9	0.000
6 BLITZSCHLAEGE	23	38.9	67 626	13.5	0.000
7 BRANDSTIFTUNGEN	5	8.4	5 500	1.1	0.000
8 ANDERE BEKANNTE URSACHEN	11	18.6	6 417	1.2	0.000
9 UNBEKANNTE URSACHEN	1	1.6	1 000	0.2	0.000
GESAMTTOTAL	59	100.0	499 235	100.0	0.001
DAVON BAUZEITVERS	5		11 275		

GEMEINDE: Volketswil

JAHR: 1 9 9 7 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	7.6	18 500	8.6	0.000
2 BESTIMMUNGSM.FEUER	5	19.2	63 900	29.8	0.000
3 SELBSTENTZUENDUNGEN	3	11.5	5 600	2.6	0.000
4 EXPLOSIONEN	1	3.8	43 000	20.0	0.000
5 ELEKTRIZITAET	1	3.8	57 000	26.5	0.000
6 BLITZSCHLAEGE	9	34.6	15 349	7.1	0.000
7 BRANDSTIFTUNGEN	3	11.5	9 746	4.5	0.000
8 ANDERE BEKANNTE URSACHEN	2	7.6	1 300	0.6	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	26	100.0	214 395	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Egg

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	10.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	2	20.0	1 190 200	98.7	0.004
3 SELBSTENTZUENDUNGEN	1	10.0	10 000	0.8	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	20.0	3 900	0.3	0.000
6 BLITZSCHLAEGE	1	10.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	3	30.0	571	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	10	100.0	1 204 671	100.0	0.004
DAVON BAUZEITVERS	0		0		

GEMEINDE: Fällanden

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	4	20.0	7 200	2.6	0.000
2 BESTIMMUNGSM.FEUER	5	25.0	11 381	4.1	0.000
3 SELBSTENTZUENDUNGEN	3	15.0	7 400	2.6	0.000
4 EXPLOSIONEN	1	5.0	0	0.0	0.000
5 ELEKTRIZITAET	2	10.0	2 583	0.9	0.000
6 BLITZSCHLAEGE	2	10.0	3 700	1.3	0.000
7 BRANDSTIFTUNGEN	2	10.0	242 000	87.9	0.000
8 ANDERE BEKANNTE URSACHEN	1	5.0	900	0.3	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	20	100.0	275 164	100.0	0.000
DAVON BAUZEITVERS	2		350		

GEMEINDE: Greifensee

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	8.3	600	1.7	0.000
3 SELBSTENTZUENDUNGEN	1	8.3	2 500	7.1	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	3	25.0	20 600	59.0	0.000
6 BLITZSCHLAEGE	7	58.3	11 165	32.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	12	100.0	34 865	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Maur

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	5	25.0	33 300	27.0	0.000
2 BESTIMMUNGSM.FEUER	1	5.0	1 500	1.2	0.000
3 SELBSTENTZUENDUNGEN	2	10.0	1 730	1.4	0.000
4 EXPLOSIONEN	1	5.0	50 000	40.6	0.000
5 ELEKTRIZITAET	2	10.0	33 500	27.2	0.000
6 BLITZSCHLAEGE	6	30.0	2 000	1.6	0.000
7 BRANDSTIFTUNGEN	1	5.0	300	0.2	0.000
8 ANDERE BEKANNTE URSACHEN	2	10.0	600	0.4	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	20	100.0	122 930	100.0	0.000
DAVON BAUZEITVERS	1		1 500		

GEMEINDE: Mönchaltorf

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	50.0	82 000	98.9	0.000
6 BLITZSCHLAEGE	1	50.0	900	1.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	2	100.0	82 900	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Schwerzenbach

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	50.0	1 500	65.2	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	50.0	800	34.7	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	2	100.0	2 300	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Uster

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	3	8.1	3 350	0.4	0.000
2 BESTIMMUNGSM.FEUER	8	21.6	501 400	68.7	0.001
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	13	35.1	218 126	29.9	0.000
6 BLITZSCHLAEGE	4	10.8	2 243	0.3	0.000
7 BRANDSTIFTUNGEN	1	2.7	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	8	21.6	3 900	0.5	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	37	100.0	729 019	100.0	0.002
DAVON BAUZEITVERS	0		0		

GEMEINDE: Volketswil

JAHR: 1998 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	4.3	900	0.0	0.000
2 BESTIMMUNGSM.FEUER	5	21.7	12 300	0.7	0.000
3 SELBSTENTZUENDUNGEN	1	4.3	1 000	0.0	0.000
4 EXPLOSIONEN	1	4.3	10 400	0.6	0.000
5 ELEKTRIZITAET	8	34.7	1 600 650	97.8	0.005
6 BLITZSCHLAEGE	3	13.0	8 126	0.4	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	4	17.3	3 120	0.1	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	23	100.0	1 636 496	100.0	0.005
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Egg

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	12.5	5 000	24.2	0.000
2 BESTIMMUNGSM.FEUER	1	6.2	1 000	4.8	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	1	6.2	1 800	8.7	0.000
5 ELEKTRIZITAET	2	12.5	4 000	19.3	0.000
6 BLITZSCHLAEGE	7	43.7	6 804	32.9	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	3	18.7	2 023	9.8	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	16	100.0	20 627	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Fällanden

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	7.6	634	2.2	0.000
2 BESTIMMUNGSM.FEUER	6	46.1	4 207	15.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	3	23.0	21 900	78.0	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	1	7.6	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	2	15.3	1 300	4.6	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	13	100.0	28 041	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Greifensee

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	7.1	2 400	9.0	0.000
2 BESTIMMUNGSM.FEUER	2	14.2	8 700	32.9	0.000
3 SELBSTENTZUENDUNGEN	1	7.1	1 000	3.7	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	0	0.0	0	0.0	0.000
6 BLITZSCHLAEGE	3	21.4	5 000	18.9	0.000
7 BRANDSTIFTUNGEN	1	7.1	5 400	20.4	0.000
8 ANDERE BEKANNTE URSACHEN	6	42.8	3 900	14.7	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	14	100.0	26 400	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Maur

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	12.5	3 400	1.9	0.000
2 BESTIMMUNGSM.FEUER	3	18.7	43 000	24.9	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	7	43.7	121 398	70.4	0.000
6 BLITZSCHLAEGE	2	12.5	3 800	2.2	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	2	12.5	700	0.4	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	16	100.0	172 298	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Mönchaltorf

JAHR: 1 9 9 9 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	12.5	8 200	26.6	0.000
2 BESTIMMUNGSM.FEUER	2	25.0	1 600	5.1	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	25.0	5 229	16.9	0.000
6 BLITZSCHLAEGE	2	25.0	8 495	27.5	0.000
7 BRANDSTIFTUNGEN	1	12.5	7 300	23.6	0.000
8 ANDERE BEKANNTE URSACHEN	0	0.0	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	8	100.0	30 824	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Schwerzenbach

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	40.0	11 250	59.6	0.000
2 BESTIMMUNGSM.FEUER	1	20.0	2 800	14.8	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	1	20.0	3 300	17.5	0.000
6 BLITZSCHLAEGE	0	0.0	0	0.0	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	20.0	1 500	7.9	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	5	100.0	18 850	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Uster

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	3	6.2	8 300	5.8	0.000
2 BESTIMMUNGSM.FEUER	10	20.8	52 500	36.9	0.000
3 SELBSTENTZUENDUNGEN	4	8.3	10 300	7.2	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	8	16.6	32 500	22.8	0.000
6 BLITZSCHLAEGE	8	16.6	8 171	5.7	0.000
7 BRANDSTIFTUNGEN	5	10.4	15 200	10.6	0.000
8 ANDERE BEKANNTE URSACHEN	10	20.8	15 121	10.6	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	48	100.0	142 092	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Volketswil

JAHR: 1999 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	5	20.8	353 000	45.5	0.001
3 SELBSTENTZUENDUNGEN	1	4.1	61 000	7.8	0.000
4 EXPLOSIONEN	1	4.1	337 000	43.4	0.001
5 ELEKTRIZITAET	5	20.8	9 987	1.2	0.000
6 BLITZSCHLAEGE	9	37.5	6 996	0.9	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	3	12.5	7 700	0.9	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	24	100.0	775 683	100.0	0.002
DAVON BAUZEITVERS	1		0		

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GEMEINDE: Egg

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	5.2	1 000	0.6	0.000
2 BESTIMMUNGSM.FEUER	3	15.7	24 400	16.1	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	1	5.2	49 000	32.3	0.000
5 ELEKTRIZITAET	3	15.7	53 700	35.5	0.000
6 BLITZSCHLAEGE	10	52.6	23 156	15.3	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	5.2	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	19	100.0	151 256	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Fällanden

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	10.5	9 300	7.1	0.000
2 BESTIMMUNGSM.FEUER	4	21.0	29 700	22.8	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	4	21.0	78 786	60.6	0.000
6 BLITZSCHLAEGE	7	36.8	12 223	9.4	0.000
7 BRANDSTIFTUNGEN	1	5.2	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	5.2	0	0.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	19	100.0	130 009	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Greifensee

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	0	0.0	0	0.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	28.5	15 700	66.5	0.000
6 BLITZSCHLAEGE	3	42.8	6 507	27.5	0.000
7 BRANDSTIFTUNGEN	1	14.2	900	3.8	0.000
8 ANDERE BEKANNTE URSACHEN	1	14.2	500	2.1	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	7	100.0	23 607	100.0	0.000
DAVON BAUZEITVERS	0		0		

GEMEINDE: Maur

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	7.6	1 900	0.6	0.000
2 BESTIMMUNGSM.FEUER	2	7.6	15 300	5.0	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	2	7.6	2 700	0.8	0.000
6 BLITZSCHLAEGE	16	61.5	69 362	22.9	0.000
7 BRANDSTIFTUNGEN	1	3.8	212 000	69.9	0.000
8 ANDERE BEKANNTE URSACHEN	3	11.5	1 600	0.5	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	26	100.0	302 862	100.0	0.001
DAVON BAUZEITVERS	0		0		

GEMEINDE: Mönchaltorf

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	0	0.0	0	0.0	0.000
2 BESTIMMUNGSM.FEUER	1	25.0	122 000	96.9	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	0	0.0	0	0.0	0.000
6 BLITZSCHLAEGE	2	50.0	1 904	1.5	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	1	25.0	1 900	1.5	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	4	100.0	125 804	100.0	0.000
DAVON BAUZEITVERS	1		122 000		

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GEMEINDE: Schwerzenbach

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	6.2	10 000	7.9	0.000
2 BESTIMMUNGSM.FEUER	2	12.5	28 000	22.3	0.000
3 SELBSTENTZUENDUNGEN	0	0.0	0	0.0	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	0	0.0	0	0.0	0.000
6 BLITZSCHLAEGE	10	62.5	84 728	67.7	0.000
7 BRANDSTIFTUNGEN	0	0.0	0	0.0	0.000
8 ANDERE BEKANNTE URSACHEN	3	18.7	2 300	1.8	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	16	100.0	125 028	100.0	0.000
DAVON BAUZEITVERS	0		0		

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GEMEINDE: Uster

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	2	4.6	67 800	17.5	0.000
2 BESTIMMUNGSM.FEUER	10	23.2	69 780	18.0	0.000
3 SELBSTENTZUENDUNGEN	3	6.9	51 200	13.2	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	13	30.2	47 750	12.3	0.000
6 BLITZSCHLAEGE	7	16.2	17 376	4.4	0.000
7 BRANDSTIFTUNGEN	2	4.6	36 300	9.3	0.000
8 ANDERE BEKANNTE URSACHEN	6	13.9	96 950	25.0	0.000
9 UNBEKANNTE URSACHEN	0	0.0	0	0.0	0.000
GESAMTTOTAL	43	100.0	387 156	100.0	0.001
DAVON BAUZEITVERS	1		40 000		

GEMEINDE: Volketswil

JAHR: 2000 TEUFAK: 840

SCHADENURSACHEN-HAUPTGR	ANZAHL FAELLE	IN %	SCHADENSUMME	IN %	SCHADEN IN 0/00 DER VERS-SUMME
1 FEUERUNGSANLAGEN	1	3.0	3 300	1.1	0.000
2 BESTIMMUNGSM.FEUER	9	27.2	194 220	66.8	0.000
3 SELBSTENTZUENDUNGEN	1	3.0	4 000	1.3	0.000
4 EXPLOSIONEN	0	0.0	0	0.0	0.000
5 ELEKTRIZITAET	5	15.1	48 285	16.6	0.000
6 BLITZSCHLAEGE	12	36.3	7 516	2.5	0.000
7 BRANDSTIFTUNGEN	1	3.0	1 700	0.5	0.000
8 ANDERE BEKANNTE URSACHEN	3	9.0	31 300	10.7	0.000
9 UNBEKANNTE URSACHEN	1	3.0	0	0.0	0.000
GESAMTTOTAL	33	100.0	290 321	100.0	0.000
DAVON BAUZEITVERS	2		36 000		

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Appendix C – References

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