

Running head: PREVENTING DROWNING INCIDENTS

Preventing Drowning Incidents on Lake Lanier in Forsyth County,

GA

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Certification Statement

I hereby certify that this paper constitutes my own product, that where language of other is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions or writings of another.

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Abstract

Several drowning incidents have occurred on Lake Lanier in Forsyth County and this is an issue Forsyth County public safety has had to respond to every year. Drowning incidents have continued without being proactively addressed by the county or by Forsyth County Fire Department (FCFD). The purpose of this research was to find the similarities in these drowning incidents and how FCFD can best prevent them. Descriptive research determined where the incidents have occurred, when the incidents occurred and which demographic groups were most affected. Additionally the procedures of other agencies and what they have been doing to address the drowning issue on their areas of the lake were also researched. The research help define what prevention strategies should be implemented to reduce the number of drowning incidents on the lake in Forsyth County. The data for this project included conducting personal interviews with officers of other agencies with jurisdiction on Lake Lanier. In addition, data was analyzed from all drowning incidents on Lake Lanier from January 1, 2006 through December 31, 2009 in Forsyth County. The results indicated a need for a countywide water safety program and more staffing on and around the lake at peak times. Recommendations were made to the FCFD

Administration to implement a countywide water safety program; stage the water rescue team at the park with the highest occurrence of incidents; and staff the dive boat and two personnel watercraft on the weekends and holidays during the peak season of Lake Lanier.

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Preventing Drowning Incidents on Lake Lanier in
Forsyth County, GA

Individuals have always enjoyed lakes for recreational use. Boating, fishing or swimming on a beautiful summer day with family and friends are some of the activities people enjoy to do on lakes. Nestled in the foothills of the Blue Ridge Mountains lies Lake Sidney Lanier (Lake Lanier), one of America's favorite recreation lakes. Lake Lanier is well known for its recreational opportunities with over 690 miles of shoreline and over 100 small islands (United States Army Corps of Engineers, 2010). Forsyth County sits on the western shore of Lake Lanier and contains 30% of the lake in the county (Lake Lanier, 2010). Unfortunately, lake recreation has a high risk of drowning incidents and Lake Lanier is not immune. The problem is Forsyth County has had drowning incidents happen on Lake Lanier.

The purpose of this research was to identify if there were any similarities in these drowning incidents and determine which programs might be implemented to reduce drowning incidents on Lake Lanier in Forsyth County, GA. Descriptive research was conducted to answer the following questions: (a) what areas of the lake have had a majority of the drowning incidents in Forsyth County and when?

(b) What have been the demographic similarities, if any, of the victims? (c) What have other fire-rescue agencies on Lake Lanier done to reduce or prevent drowning incidents in their jurisdictions? (d) What actions or programs may be employed to reduce the number of drowning incidents on Lake Lanier in Forsyth County, GA?

Background and Significance

Forsyth County is a northeastern suburb of metro Atlanta. The county is 240 square miles with 174,520 residents (United States Census Bureau, 2009). Forsyth County was ranked sixth in growth rate in the United States with a one year 6.3 % increase in population (Tharpe and Pickel, 2009). Forsyth County's current population is expected to grow from 174,520 to over 200,000 during the next 5 years (United States Census Bureau, 2009). The majority of Forsyth County's western border is Lake Lanier.

In 1946, Congress authorized the construction of Buford Dam as part of the nation's overall development of waterways (United States Army Corps of Engineers, 2010). Congress passed river and harbor legislation to develop the nation's rivers systems for national defense, flood control, power production, navigation and water supplies (United States Army Corps of Engineers, 2010). This legislation, that built Buford Dam on

the Chattahoochee River, resulted in Lake Lanier.

According to the United States Army Corps of Engineers (2010), over 7.5 million people a year choose to visit Lake Lanier. According to United States Army Corps of Engineers (2010), they operate 46 park areas that include picnicking, campgrounds, boat launching ramps, swimming areas, group picnic shelters and hiking trails. The lake also includes areas that are operated by city and counties as well as marinas.

According to the United States Army Corps of Engineers (2010), Lake Lanier has had 30 drowning incidents from January 1, 2006 through December 31, 2009 (Appendix A). Thirteen of these drowning incidents occurred in Forsyth County (Forsyth County Firehouse Software 7.3, 2010). The lake's peak season starts just before Memorial Day and continues until Labor Day. During the season the county population swells with over 500,000 visitors (United States Army Corps of Engineers, 2010). The increased population of visitors leads to increased risk on the lake. The large amount of visitors causes heavy boat traffic and increased number of visitors to the parks. FCFD responds to all drowning incidents in Forsyth County and commands the dive operations to rescue or recover.

FCFD has 152 employees and operates out of 12 stations and a department headquarters (Forsyth County Fire Department,

2009). The FCFD provides fire protection, fire prevention, rescue, and advanced and basic life support. In addition, FCFD operates a Special Operations Division that provides the following services: Water Rescue Team, technical rescue, wild land, honor guard and a Hazardous Materials Team (Forsyth County Fire Department, 2009).

One of the major issues with the record increase in population growth has been the increased call volume for FDFC. The number of calls has steadily increased each year; however, the number of calls leveled last year. This may have been due to the slowing of the economy last year. According to FCFD (2009), the department responded to 9816 calls in the year 2006, 10,513 in 2007, 11,075 in 2008 and 10,934 in 2009 (Appendix B). This is a nine percent increase in calls over the last four years. While FCFD has seen a continuing increase in call volume, the department has been required to reduce the operating budget. According to Forsyth County Fire Department (2009), the budget was reduced by 8.3% from \$16,231,385 in 2008 to \$13,569,351 in 2009. These reductions coupled with the increased call volume have caused a negative impact on the FCFD in all areas. The special operations division was heavily impacted by these reductions. The Water Rescue Team's budget was reduced from a high of \$100,000 in 2007 to \$7500 in 2009

(Lieutenant Mark Davis, personal communication, August 22, 2010).

A county wide hiring freeze coupled with staff losses has placed FCFD, citizens and visitors in a dangerous position (Appendix C). Multiple budget reductions and future economic uncertainty caused FDFC to prohibit the use of overtime for staffing shortfalls. This has affected the ability to staff the dive boat or personal watercraft during peak time. This has slowed the response time to a drowning incident on the lake. The effect has been no rescue attempts only recoveries. FCFD has responded to and commanded all recovery operations of drowning victims in Forsyth County. FCFD does not have a water risk reduction program to address drowning or lake drowning.

The fire service has taken the lead in the United States as the responder all hazards. Progressive departments have accepted this trend and have taken the initiative to address risk reduction. They have implemented prevention programs to address an overall community risk reduction program including water safety. FCFD needs to include water safety in its risk reduction programs and put more resources on the lake during peak times to reduce the number of drowning incidents.

The research for this Applied Research Project (ARP) corresponded with the focus of the Executive Analysis of

Community Risk Reduction (EACRR) course offered through the United States Fire Administration (USFA) at the National Fire Academy (NFA). The focus of the course was to enhance the skills needed by an Executive Fire Officer (EFO) to implement and lead community risk reduction initiatives (United States Fire Administration, 2008). FCFD was in need of a community risk reduction initiative focused on drowning. The purpose of this research was to reduce the number of drowning incidents on Lake Lanier in Forsyth County, which met the intent of the class of community risk reduction.

This research directly met two of the USFA operational objectives. The first objective was the development of a comprehensive, risk-reduction plan led by the fire service. The second objective was, with the implementation of the risk-reduction plan, a decrease of 25% in drowning incidents in Lake Lanier in Forsyth County, GA.

Literature Review

Fire Departments across the United States have had more required of them than just fighting fires. As first responders to fires, public safety and medical emergencies, disasters and terrorist acts the fire service has become the lead agency in most areas to respond. One type of service the fire service has been delegated in many jurisdictions is the response to drowning

incidents. When it occurs in open water, it is usually a recovery of a body. These recoveries can take hours and some time days. Departments around the country have started to address water safety in their risk-reduction programs to reduce the number of drowning incidents.

The Center for Disease Control and Prevention (CDC) has the most research and information on drowning. In 2007, there were 3,443 fatal unintentional drowning incidents in the United States, averaging ten deaths per day (Centers for Disease Control and Prevention, 2008). According to the CDC, drowning is the sixth leading cause of unintentional death in the United States. According to Quan & Cumming (2003), over 70% of all drowning incidents occur in open water; i.e., rivers, lakes and oceans.

There is a significant amount of research conducted on drowning in the United States. While some of the drowning research has focused on where drowning incidents have occurred others have investigated the demographic factors of drowning, such as race, gender, age, and socio-economic status, as it applies to the number of occurrences. Results have indicated various reasons why instances of drowning occur in each of these categories.

An important variable was the age of victims and the contributing factors of different age groups. According to Quan & Cumming (2003), drowning deaths are the second leading cause of all injury and death in children aged 1-14 years old, while 90% of the victims who drown in open water were between the ages of 15-35 years. According to Brenner, Trumble, Smith, Kessler, and Overpeck (2001) 63% of older children drown in open bodies of water. Children younger than 5 and adults 65 years and older experience most of their drowning incidents in bathtubs (Quan & Cumming, 2003).

According to CDC (2008), males are nearly four times more likely to drown than women. Research by Howland, Hingson, Mangione, Bell, and Bak (1995) states men presented a higher risk than women because they had a higher exposure to water, their ability to swim was not as proficient, they exhibited higher risk-taking behaviors and had a higher use of alcohol around water.

Minorities have a higher rate of fatal drowning across all ages. African Americans are 1.3 times more likely to drown than whites (Centers for Disease Control and Prevention, 2008). According to the CDC if minority's participation in water-related activities the drowning rate (per exposure) might even be higher than reported. Multiple studies have indicated that

many factors that contribute to the increased drowning incidents in the minority demographic. A high percentage of minorities are classified in the low socio-economic demographic. Homes in the low socio-economic classification have less exposure to pools. There is less value put on learning how to swim in lower socio-economic classes (World Health Organization, 2004). The costs of swim lessons are also a contributing factor in lower income citizens learning how to swim. Lower socio-economic families are more likely to have a higher child to adult ratio of supervision. Multiple swimmers for one adult supervisor contributed to 11% of the drowning incidents investigated (Quan & Cumming , 2003).

Many organizations, including the CDC regularly respond to the effectiveness of lifeguards in preventing drowning incidents. According to the CDC (2001) there is a one in 18 million chance of drowning in an area patrolled by a lifeguard. Having a lifeguard on duty also deters behavior that puts swimmers at risk for drowning, such as horseplay or venturing into rough or deep water, like police presence can deter crime (Centers for Disease Control and Prevention, 2001). Lifeguards are so effective in preventing drowning incidents that when lifeguards were eliminated from the American Beach, FL's budget, 5 people drown and 20 others nearly drown in one day.

Lifeguards were reinstated and there has not been a drowning in eight years, at the time of the CDC report (Centers for Disease Control and Prevention, 2001).

A review of previous ARPs on the subject of drowning prevention was conducted and research in those ARPs had come to similar conclusions. Awareness of the issue and an intervention was needed in most jurisdictions researching the problem. An example of this is in the ARP by S. Knight titled *Sink or Swim: Is St. Petersburg Fire & Rescue Doing All They Can to Prevent Drowning?* (2009). The APR's research discovered a need for the department to increase media attention about the drowning problem (Knight, 2009). The ARP also suggested the need for the department to intervene in the schools, through educational programs, to reduce the number of drowning incidents (Knight, 2009). There are organizations that provide resources or assistance to fire departments related specifically to these type of programs.

The National Fire Protection Association (NFPA) is known throughout the fire service for setting fire codes to be adopted and complied with. The NFPA is also active in fire prevention and public education for the general public. One of the public education initiatives is *Risk Watch*. *Risk Watch* is the first comprehensive injury prevention program available for use in

schools (National Fire Protection Association, 2010).

NFPA collaborated with a panel of respected safety and injury prevention experts to produce *Risk Watch*. *Risk watch* gives children and their families the skills and knowledge they need to create safer homes and communities (National Fire Protection Association, 2010). *Risk Watch* is a school-based curriculum that links teachers with community safety experts and parents. The curriculum is divided into four age-appropriate teaching modules Pre-K/Kindergarten, Grade 1, Grade 2 and Grade 3, each of which addresses the topics like fire and burn prevention, firearms injury prevention, bike safety and water safety (National Fire Protection Association, 2010).

According to National Fire Protection Association (2010), childhood drowning incidents happen in a matter of seconds. Drowning incidents typically occur when a child is left unattended. In 2005, 810 children ages 14 and under drowned (National Fire Protection Association, 2010). An estimated 2,780 children were treated in emergency rooms after near drowning in 2007. Severe and permanent brain damage affects as many as 20 percent of near-drowning victims (National Fire Protection Association, 2010). According to National Fire Protection Association (2010) *Risk Watch* has several water safety basics: Make sure pools and spas are enclosed on four

sides with a fence at least 5 feet high with self-closing and latching gates. Drains in pools and spas should have anti-entrapment drain covers. Learn infant and child CPR and always have a phone near the pool for emergency use. Children should always swim under the supervision of a grown-up. Every child over the age of three should have swimming lessons. An adult within arm's reach should always supervise children using air-filled swimming aids. A U.S. Coast Guard approved lifejacket should be worn for water sports such as tubing, skiing or jet skiing. Air-filled aids such as inner tubes, water wings and inflatable rafts are not substitutes for approved lifejackets

According to the National Fire Protection Association (2010), it is important for children to learn and practice water safety rules. Here are some helpful water safety rules for children: Children should swim only if a lifeguard or a grown-up gives permission. Teach children to obey the posted rules. Encourage children to: check with the lifeguard to find out how deep the water is; always swim with a buddy; never jump or dive unless the lifeguard or a grown-up says it is okay to do so; don't eat candy or chew gum when swimming; never swim at night; get out of the water right away if you hear thunder or see lightning; and when on a boat, everyone needs a seat and his or her own U.S. Coastguard approved lifejacket.

Another organization is *Safe Kids USA*, which is a network of organizations, like fire departments, working to prevent childhood injury, the leading cause of death and disability for children (Safe Kids USA, 2009). *Safe Kids USA* organizations educate families, provide safety devices and advocate for better laws to help keep children safe (Safe Kids USA, 2009). There are more than 600 organizations in all 50 states. *Safe Kids USA* members teach families about child injury risks and prevention; conduct research on leading injury risks; evaluate solutions for injury risks; work to improve child safety laws and regulations; provide lifesaving devices such as life jackets (Safe Kids USA, 2009). Several jurisdictions on Lake Lanier use *Safe Kids USA* as their coalition partner for risk reduction including drowning prevention.

There are many organizations with information and free supplies to assist and support FCFD with a drowning prevention program for Lake Lanier. The research provides the groups that are most at risk and available resources to help reduce the number of incidents. According to the CDC (2001) a lifeguard program could make a significant impact on the number of drowning incidents in Lake Lanier's public swim areas.

This literature helps us gain an understanding of ways to help prevent open water drownings. Studies indicated that some

differences in drowning could be identified with age, sex, and race. Studies also indicated that prevention would work if implemented and could have an effect on the amount of drowning incidents that occur. Past literature gave a good base for further research on the viability of open water drowning prevention.

Procedures

The research for this project was conducted using the descriptive method. The information collected would provide the ability to design and implement drowning prevention programs. The researcher attended a safety meeting being held by the United States Army Corps of Engineers with members from all agencies with jurisdiction on the Lake Lanier. A list of all the agencies' resources and their state of readiness was distributed to all attending the meeting (Appendix D).

In order to answer the question of where and when the incidents occur, the data from incident reports was examined. Statistical data was obtained from the FDFC incident reporting system to record the number of drowning incidents from January 1, 2006 through December 31, 2009. This proved more difficult than first realized. Different units or officers have imputed incidents differently. Drowning incidents had different report codes entered depending on the officer in charge. Different

types of rescue apparatus were used for similar drowning incidents. Incident narratives were non-existent on some reports or just lacking and incomplete (Appendix E). This made the data unreliable and the need for another source of data. Statistical data was then obtained from The United States Army Corps of Engineers. This data was very in-depth and included every possible piece of information on every fatality that has happened on the lake since it's opening. The data from the years 2006 through 2009 were extracted (Appendix F).

The question about demographics was answered by personally interviewing the Forsyth County Coroner and from data from The United States Army Corps of Engineers. Forsyth County Coroner Lauren McDonald III (personal communication, June 28, 2010) was interviewed to gather demographic information on the victims of the drowning incidents (Appendix G). Mr. McDonald had great insight on the issue but data from his office was not very useful because it was not categorized. The United States Army Corps of Engineers data was more complete; and was also used to produce the demographic information of the victims.

Mrs. Carolyn Roberts with Hall County Fire and Emergency Services (personal communication, July 18, 2010) (Appendix H), Chief Schaffer of Gwinnett County Emergency Services, (personal communication, July 22, 2010) (Appendix I) and Water Safety

Coordinator Pamela Shelton with The United States Army Corps of Engineers (personal communication, June 26, 2010)(Appendix G) were all interviewed. They were interviewed to determine the programs their agencies implemented and if success factors were recorded. They were also asked if there were any future prevention programs that would address water safety on Lake Lanier.

The data from the drowning incidents was analyzed to find similarities in order to research which programs FCFD could implement. Interviews with FCFD Public Safety Training Officer Andrea Noble (personal communication, August 20, 2010)(Appendix K) and Lieutenant Mark Davis (personal communication, August 22, 2010) (Appendix L) with the Water Rescue Team were then conducted. The data of where the drowning incidents were occurring and when was presented to the Water Rescue Team. Their input on what programs could be implemented by FCFD to reduce the number of drowning incidents.

Some potential limitations to this APR was the variation across the reports in completeness and level of detail provided. For some important factors there was very little to no information (e.g., water and weather conditions) or individual factors (e.g., sleep, diet, use of medications). This ARP also had to utilize data extracted from a non-traditional data source

such as narrative reports. Future research should focus on validation of this data, evaluation of which cases are and are not reported, and confirmation of the behavioral associations identified in this ARP. A cohort design linking self reported behaviors to subsequent drowning incidents would be useful. In spite of limitations, the results from this work point to several potential intervention opportunities as well as the need for more data.

Results

Through the culmination of in-depth descriptive research, this researcher was able to answer all research questions. According to the United States Army Corps of Engineers (2010), database for Lanier Fatalities, a total of 30 drowning incidents occurred on Lake Lanier. Thirteen of these incidents occurred on areas of the lake in Forsyth County (Forsyth County Firehouse Software 7.3, 2010). Of these 85% of the incidents in Forsyth County happened during the peak season of Memorial Day through Labor Day (United States Corps of Engineers, 2010). The lure of the water during the hot months makes Lake Lanier the destination of many Atlanta and North Georgia residents. A vast majority of the 7.3 million visitors to the lake occur during the summer.

The lake is visited year round, but the weekends and

holidays during the peak season incur the most traffic. Drowning incidents occur 62% on weekends and holidays (United States Army Corps of Engineers, 2010).

Lake Lanier has had drowning incidents that occur in boating situations and out on open water, however most drowning incidents in Forsyth County have occurred in the public parks on the lake. West Bank Park, located on the southern shore of Lake Lanier in Forsyth County, was the main location of the drowning incidents in the county. Six out the total 13 drowning incidents happened in this park (United States Army Corps of Engineers, 2010).

Forsyth County's location on the southern banks on the lake has made it the closest lake destination of the minority population. The Hispanic population that has migrated to Atlanta makes up the majority of the minority population using Lake Lanier in Forsyth County (United States Army Corps of Engineers, 2010). West Bank Park has the largest and main public access in Forsyth County. The park includes beaches and swim areas. These swim areas are some of the only places in Atlanta for a majority of these immigrants to have water recreation. This is a contributing factor to the large number of drowning incidents at this park. Minorities were the victims in 69% of the drowning incidents on the lake in Forsyth County (United

States Army Corps of Engineers, 2010). Five out of the six drowning incidents in West Bank Park were minority victims (United States Army Corps of Engineers, 2010). Hispanics made up the largest demographic group affected in these drowning incidents.

The drowning incidents on Lake Lanier exceed the national average of the majority of the victims being male. Every drowning on Lake Lanier in Forsyth County was a male (United States Army Corps of Engineers, 2010). All of the factors discussed before in the research of national trends contribute to this. Alcohol use, risk taking and over confidence in the ability to swim were factors in the drowning incidents in Forsyth County (P. Shelton, personal communication, June 26, 2010).

The demographic variable of age was also consistent with national trends. Nine of the 13 drowning victims on the lake in Forsyth County were between the ages of 15-35 years. These incidents corresponded with the national trend of risk taking, over confidence in swim ability and not using lifejackets. Multiple jurisdictions on Lake Lanier have implemented programs to reduce the number incidents.

According to Pamela Shelton, Water Safety Coordinator with the United States Army Corps of Engineers (personal

communication, June 26, 2010), they have implemented some programs that have been successful on Lake Lanier but could use more assistance from Forsyth County. The United States Army Corps of Engineers has teamed with Hall County and Gwinnett County and has implemented the Safe Kids Program. This includes water safety literature in English and Spanish being handed out at parks and free lifejackets available at all swim areas. This has reduced the number of drowning incidents in the swim areas but incidents still are occurring in other areas of the parks. If FCFD would stage the Water Rescue Team at West Bank Park in a similar manner as Gwinnett County at East Bank Park, it could reduce the number of drowning incidents in the park. In addition, Forsyth County may increase the chances of a rescue if the water vessels were staffed in the water with divers and emergency personnel ready to respond to calls for help similar to those of Hall County (P. Shelton, personal communication, June 26, 2010). Gwinnett County Emergency Services, which has a small amount of Lake Lanier in its jurisdiction, are also being proactive in drowning prevention on the lake. Gwinnett County places their Water Rescue Team at East Bank Park, which is the busiest park in their county, on major weekends and holidays in the peak season (Chief Schaffer, personal communication, July 18, 2010). The placement of their Water Rescue Team in the park

places rescuers near the water giving them the ability to intervene if they see dangerous behavior before an incident happens. It also expedites the time it would take to respond to a drowning in the park. Gwinnett County Emergency Services also have been proactive with an overall drowning prevention program with their use of the *Safe Kids USA* program, which includes is water safety education (C. Schaffer, personal communication, June 18, 2010). According to Chief Schaffer (personal Communication, June 18, 2010) Gwinnett County Emergency Services pursued and received five free billboards from marketing companies to address water safety. These billboards were placed around the county including the main corridors traveled to the Lake Lanier.

According to Mrs. Carolyn Roberts with the Hall County Fire and Emergency Service's Fire Marshall's Office (personal communication, July 19, 2010) they do not teach water safety in Hall County. They do have a Safety Camp in which the Georgia Department of Natural Resources teaches water safety. They do staff a dive boat on all peak weekends with two divers and an EMT but do not have any other prevention programs for Lake Lanier.

FCFD does not have water safety program (A. Noble, personal communication, August 20, 2010). The public safety officers do

anticipate implementation of a countywide prevention program next year. According to Lieutenant Mark Davis (personal communication, August 22, 2010), FCFD does not budget for staffing of the dive boat or two personal watercrafts. This has led to the team only being able to respond and recover, not rescue. The Water Rescue Team has discussed with FDFC administration the possibility of staging the team at West Bank Park on busy holidays. This was supported by the team, but to date has not been approved by FCFD administration.

Discussion

A review of the literature and the research support the need for Forsyth County to create and implement a drowning prevention program. Fire departments must be proactive in meeting the challenges of reducing risk in their communities. The vast majority of responses to drowning incidents do not result in a positive outcome.

The statistical data supported the fact that a majority of the drowning incidents are happening in West Bank Park. Even though the United States Army Corps of Engineers operates West Bank, FCFD and the Forsyth County Sheriff's Office (FCSO) respond to all incidents in the park. The data also indicates that the majority of the incidents happen on the weekend and during the peak season.

Drowning incidents on Lake Lanier in Forsyth County have all been male victims. The reasons why males are more likely to be victims includes over confidence in swim ability, riskier behavior and alcohol use. Research has shown that males are more susceptible to drowning in open water due to their increased participation in open water activities. Therefore, when more males are participating there is a higher likelihood of drowning overall.

The ages of the victims were aligned with the national average, as most of the victims were within the 15-35 years of age. Adults typically place small children in the recommended life preservers but neglect themselves and teenagers. The availability of free life jackets at the parks and marinas may also have an effect on the fact Forsyth County has had no drowning victims under 15 years of age. Based on research the 35 years old and older age group did have four drowning incidents but are not a risk taking group compared to the 15-35 year old age group. Most are cautious and are careful when on the water. The limited amount of exposure to the lake by the elderly has an effect on the low number of incidents in this age group.

A large majority of the use of the parks is by the Hispanic population. This demographic group consists mostly of males in the 15-35 age group. The large number of minority drowning

incidents on Lake Lanier in Forsyth County is consistent with national trends. The Hispanic immigrant population is the majority of all drowning incident victims in Forsyth County on Lake Lanier. This is due to the fact that lake parks are their main, if not only, source of outdoor water recreation. They less frequently have access to pools. They also have little to no swim lessons available in their community, and the costs of available lessons make them prohibitive.

Many organizations are able to assist any department in developing and implementing a drowning prevention program. NFPA's *Risk Watch* is a program that provides a lot of resources for departments. *Safe Kids USA* is another organization that team with agencies for safety issues including water. *Safe Kids USA* is used by the other agencies on Lake Lanier and should be considered by FCFD.

The statistical data of the effectiveness of a lifeguard program provided by the CDC clearly supports the need for Forsyth County and the United States Army Corps of Engineers to implement a lifeguard program for West Bank Park. According to Water Safety Coordinator Pamela Shelton with The United States Army Corps of Engineers (personal communication, June 26, 2010), actual lifeguard towers would not be permissible due to the liability of an empty tower when not staffed by FCFD. The

staging of personal at West Bank Park and lifeguards patrolling on foot would not only be acceptable but beneficial.

Information was gathered and analyzed the data to develop recommendations for a drowning incident reduction plan for Lake Lanier in Forsyth County, GA. Other jurisdictions on the lake would be advised of these findings for possible concurrent programs that might utilize a sharing of resources to reduce the cost of program implementation.

Recommendations

Based on the literature review, original research and data analysis, the following recommendations would save lives and reduce the number of drowning incidents on Lake Lanier in Forsyth County. The research investigated where the drowning incidents have occurred, to whom, when and why. The results that most incidents happen in one location and involve certain demographic variables have given FCFD the information to make a substantial impact on reducing the number drowning incidents.

The first recommendation would be for FDFC prevention training officers to implement a risk reduction program including water safety. This would include teaching water safety to the children in the county schools. The *Safe Kids USA* program would be the best selection of programs due its use by Gwinnett County, Hall County, and the United States Army Corps

of Engineers. This would include the same information that is currently taught to Gwinnett and Hall County students as well as the sharing of resources; i.e., free life jackets. The FCFD Prevention Training Officers would also visit West Bank Park during holidays and other heavily trafficked weekends. During these visits they could hand out literature, free life preservers, and bring awareness to drowning dangers while visitors were in the park. Public Service Announcements (PSAs) should be included with commercials and billboards on water safety. FCFD could work with Gwinnett County to include the same PSAs, this would disseminate the same information and produce a cost savings for both counties.

A focused effort on reducing drowning incidents in West Bank Park would be the second recommendation. Making areas of the park off-limits to swimming and a lifeguard program on weekends and holidays at the swim areas would instantly reduce the number of drowning incidents in the park.

Eliminating the drowning incidents in West Bank Park on weekends and holidays during the peak season would be an instant reduction of 46% in the county. This would include the Water Rescue Station to be staged at West Bank Park on holidays and high traffic weekends. Members of the team could patrol the park to watch for distressed swimmers or swimmers that may be

putting themselves in dangerous situations. Staging safety personnel at West Bank Park would also reduce the response time to incidents on other areas of Lake Lanier, thereby increasing the likelihood of a rescue. This would also give other agencies on the lake the ability to pick up divers from West Bank and transport by water to any incident on the Lake Lanier. Addressing the drowning incidents at West Bank Park alone would have the county meeting an USFA objective of a 25% reduction in loss of life. That is a significant benefit considering it does not include any of the other reduction initiatives.

A third recommendation would be staffing the dive boat and two personal watercraft. Hall County has had rescues instead of just recoveries, unlike FCFD, due the fact they have a dive boat staffed with 2 divers and an EMT on all weekends during the peak season. This allows them to be able to respond to incidents fast and rescue someone in enough time to resuscitate. FCFD responding to incidents from the fire station, launching the boat and then placing divers in the water has been too time consuming. This has lead to FCFD having no rescues in the last 4 years, only recoveries. FCFD needs to budget the cost of overtime to staff the vessels on the lake like Hall County. The extra cost would be minimal in comparison to the direct cost of recovery operations and indirect cost a drowning has on the

community. The loss of life and dangers associated with diving in zero visibility water can be prevented by FCFD implementing these recommendations.

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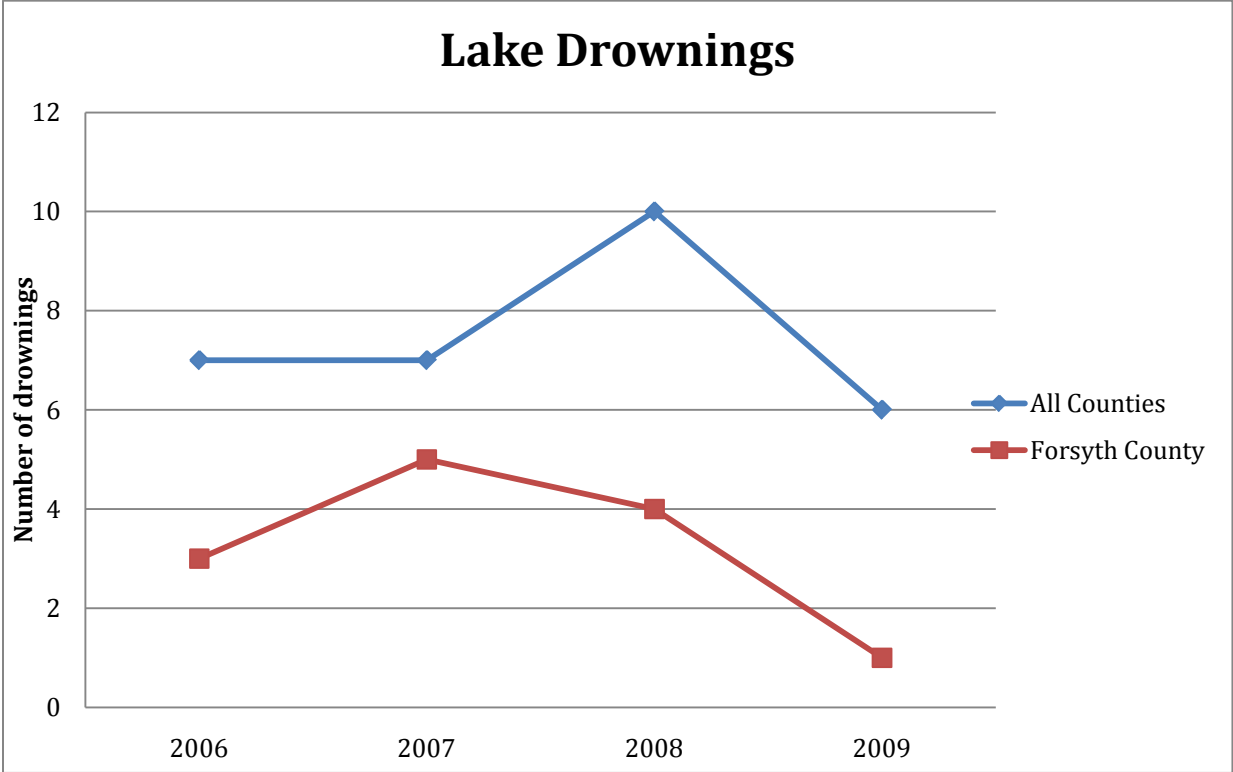
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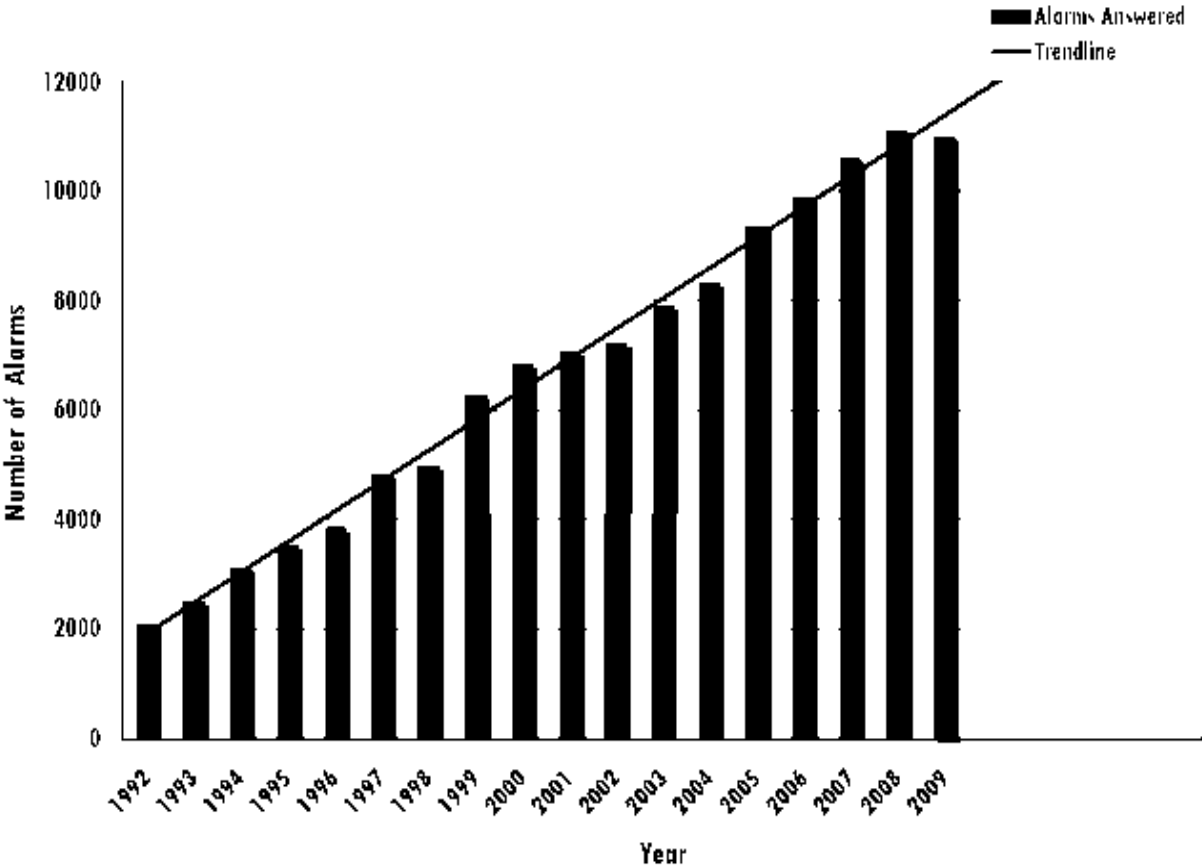
Drowning [Brochure]. Geneva: Author.

Appendix A



Appendix B

Alarms Answered by FCFD by Year



Appendix C

2009 State of the County Address Delivered by Chairman Charles Laughinghouse May 21, 2009

Good afternoon and welcome to the State of the Community event for Forsyth County. Thank you for being here today.

I stand before you today to present the annual State of the County address, and just as I've had the pleasure of doing in years past, provide information on the progress and successes within our county.

However, we must also take a moment to address the challenges that have faced us over the past year. We have certainly been impacted by economic uncertainties and have experienced fiscal challenges unlike before. Sales tax collections have dropped substantially. Development and building have slowed. And in 2008, the county did not experience growth in revenues for the first time in years.

These changes led to implementation of a hiring freeze for a majority of county departments and across-the-board budget cuts by all county departments and agencies. In December, the board adopted an \$84.1 million county budget for 2009 - a reduction of \$18.9 million from the 2008 adopted budget.

While instituting cost-saving measures and reducing costs, our focus was, and remains today, the continuation of quality services for citizens. As a county government, we will continue to make every effort to not only maintain but improve the level of service our residents expect and deserve.

While considering these economic challenges, let us not overlook the fact that Forsyth County has and continues to weather the storm far better than many others. We have faired well in light of the conditions, and I expect we will continue to do so.

We continue to have a superior parks and recreation system. We continue to offer top-notch public safety services. We continue to make progress in addressing traffic and transportation issues. And we continue to do all of this while maintaining tax rates among the lowest in the metro Atlanta area.

I would now like to highlight a few of the great successes the county has experienced over the past year.

Our parks and recreation system continues to flourish. The first three phases of the Big Creek Greenway multi-use trail are expected to open this August. When all five phases are complete, the trail will stretch approximately 15 miles from McGinnis Ferry Road in the southern part of the county to the Sawnee Mountain Preserve in the northern part of the county.

The preservation of Sawnee Mountain recently garnered a Georgia County Excellence Award from the Association County Commissioners of Georgia and Georgia Trend magazine. Forsyth County was one of only eight recipients of this recognition statewide.

And the over 1,700 acres of county park land continues to grow, thanks to the voter-approved \$100 million Parks, Recreation and Green Space bond. We are appreciative of the support of this bond and know it will mean great things for our community for generations to come.

Public safety remains a priority in Forsyth County. Earlier this year, the county's 12 new outdoor severe weather sirens went in service. These sirens are strategically located throughout the county to alert those who are outdoors that the county has been placed under a tornado warning.

The Fire Department, Senior Services Department and Kroger Pharmacy joined forces last year to launch the Vial of Life program. This program is available free of charge to all residents, but is particularly targeted toward senior citizens. The program allows residents to make vital medical background information readily available for first responders. Citizens can pick up these vials at Forsyth County Senior Services facilities, any staffed Forsyth County Fire Station or any Forsyth County Kroger Pharmacy. They then complete the medical background information sheet and place the sheet in the vial, which is then placed in the refrigerator door. An alert sticker is provided for placement on or near the front door, so first responders know the Vial of Life program is in place in the home.

The county also continues its focus on service. Last year we began accepting three additional items at our recycling centers - used cooking oil, books and plastic bags. And the county recycled over 800,000 more pounds of materials in 2008 than in 2007. The Dial-A-Ride program increased its annual trips provided in 2008 by nearly 3,000. And over 46,000 meals were provided in 2008 to home-bound seniors through the Senior Services' Meals on Wheels program.

Transportation projects remain a focus for Forsyth County. The new Market Place Boulevard Extension is complete, providing motorists an alternative to Georgia 400 and State Route 9 when traveling north-south. Construction of Ronald Reagan Boulevard from McGinnis Ferry Road to McFarland Boulevard is in progress, with completion slated for this fall.

A number of transportation-related projects included in SPLOST VI are underway and some are already completed. Finished are three intersection improvement projects throughout the county, as well as traffic safety improvements on McGinnis Ferry Road. Sixty-three miles of county roads have been resurfaced thanks to SPLOST VI funds.

Road reclamation projects are scheduled for this summer on both Holtzclaw Road and Howard Road. And also this year we plan to resurface approximately 50 more miles of roads and complete a sidewalk project along James Burgess Road.

Assuring there is an adequate water supply to meet the future needs of our citizens is a top priority. The county conducted a water resource study to help determine our available water supply opportunities. Our staff and consultants recognize that we would be foolhardy to place all our faith in Lake Lanier. In addition to the possibility of obtaining more water from the city of Cumming as they upgraded their water intake, the county is exploring and evaluating additional, potential water sources such as wells, small reservoirs and a possible withdrawal from the Chattahoochee River.

The county completed its first raw water storage project in 2008. The new 20-million gallon open tank provides emergency storage and allows for increased flexibility in operation of the county's Water Treatment Plant. We also continue to be aggressive in our pursuit of additional discharge permits, to ensure future wastewater needs can be met.

And we recognize the importance of quality economic development in our community. The county needs to attract additional quality commercial activities to locate here to help offset the recent decline in residential properties. And we need to focus our efforts on attracting commercial properties such as restaurants, upscale retail and class-A office and commercial. Developments such as the new Avenue Forsyth. To this end, a development agreement between Forsyth County and Taubman was signed to begin the process of bringing an upscale regional mall to southern Forsyth County.

At this time I would like to share with you a brief video highlighting some of the projects we've talked about today, and a few others. (video shown)

On behalf of the Board of Commissioners and the entire Forsyth County government staff, thank you for allowing us the opportunity to serve you.

Appendix D

Lake Lanier Watercraft Resources		
Type of Resource	Radio Number	Notes
Army Corps of Engineers		
Boat	Corps Boat	*usually only one out at a time
Boat	Corps Boat	
Boat	Corps Boat	
Department of Natural Resources		
Patrol Boat	DNR 151 - Sgt Brown	*DNR has 5 patrol boats—they will be called by the Ranger's badge number
Patrol Boat	DNR 153 - Cpl Vickery	
Patrol Boat	DNR 154 - RFC Isom	
Patrol Boat	DNR 157 - M. Stephens	
Patrol Boat	DNR 158 - Sgt Burgamy	
Patrol Boat	DNR 165 - Cpl Roberson	
Patrol Boat	DNR 171 - RGC Crump	
Patrol Boat	DNR 231 - Cpl Sanders	
Forsyth County		
Patrol Boat	Forsyth S.O. Marine 1	- Full time Patrol Boat Memorial-Labor Days, 11a-9p
Patrol Boat	Forsyth S.O. Marine 2	- FCSO Marine Patrol On-Call 24/7, 365 days a year
Waverunner	Forsyth S.O. Marine 3	
Waverunner	Forsyth S.O. Marine 4	
Pontoon Boat	Forsyth Fire Boat 3	Currently in the water at Port Royal Marina off 300. Equipped with depth finder, GPS, backboards @diz life jackets, Stokes basket and some side scan sonar equipment. Manned according to staffing levels on holidays only. Usually 3 personnel assigned to Sta 9. Response time from sta to boat less than 10. Response time to far end of lake @45 after personnel on boat.
Jet Ski	Forsyth Fire PWC1	Currently housed at Sta 15. Ability to respond to both river and lake emergencies. Pulls a rescue sled that can carry an additional 6 personnel to safety if needed. Usually staffed with 3 personnel and on holidays patrols the lake on a staffing based status. Response time to actually in the water is usually 10-15.
Jet Ski	Forsyth Fire PWC2	Currently housed at Sta 15. Ability to respond to both river and lake emergencies. Pulls a rescue sled that can carry an additional 6 personnel to safety if needed. Usually staffed with 3 personnel and on holidays patrols the lake on a staffing based status. Response time to actually in the water is usually 10-15.
Service Truck	Forsyth Fire Rescue 15	Currently housed at Sta 15. Carries all of the personal gear for all divers and swiftwater rescue personnel. All non-assigned personnel are required to keep their gear at Sta 15. Usually staffed with personnel. Unit also carries a portable SCUBA cylinder filling station for extended dive calls.
Hall County		
Patrol Boat	Hall S.O. Marine 21	In the event of a multi-jurisdictional incident add Hall to the first part of the call sign for the Hall County resources.
Pontoon Boat	Hall S.O. Dive 1	
Jet Ski	Hall S.O. Marine 22	
Jet Ski	Hall S.O. Marine 23	
Rescue Boat	Hall Fire MR1	
Gwinnett County		
Boat	Swiftwater 14	Personnel - A minimum of 5 Swiftwater Technicians. Usually there are 8 on duty per shift at Station 14 located in Buford, GA. Additionally Station 26 (minimum 3 people) on Suwanee Dam Rd and Station 4 (minimum 8 people) located in Peachtree Corners are trained to the SRT Operations Level and equipped with personal protective equipment (PFDs, SRT helmets, etc) Boats / PWC - Our primary watercraft is a 6 person tunnel hull Yamaha G3. When the boat is launched in the water its radio designation is Boat 1. The 2 Jet Skis are designated as Boat 3 and Boat 4, but normally if Boat 1 is in-service, the jet skis will not be utilized. We have 1 additional Zodiac boat (Boat 2) as a back up. For the most part, the only radio designation that other departments need to be concerned with is "Gwinnett Swiftwater 14".
Boat	Boat 1	
Jet Ski	Boat 3	
Jet Ski	Boat 4	
Zodiac Boat	Boat 2	
Use Forsyth County "County 4" or Hall County "Event 4" for Lake Lanier calls		

Appendix E

Drowning Incident Report

A FDID <u>05801</u> State <u>GA</u> Incident Date <u>07/04/2008</u> Station <u>015</u> Incident Number <u>08-0005599</u> Exposure <u>000</u>		<input type="checkbox"/> Delete <input type="checkbox"/> Change <input type="checkbox"/> No Activity	NFIRS -1 Basic
B Location* <input type="checkbox"/> Check this box to indicate that the address for this incident is provided on the Wildland Fire Module in Section 8 "Alternative Location Specification". See only for Wildland fires. Census Tract _____-_____ <input checked="" type="checkbox"/> Street address <u>295</u> <u>LANIER BEACH SOUTH</u> <u>RD</u> <input type="checkbox"/> Intersection Number/POI/post Prefix Street or Highway Street Type Suffix <input type="checkbox"/> In front of _____ <input type="checkbox"/> Rear of <u>Cumming</u> <u>GA</u> <u>30040</u> <input type="checkbox"/> Adjacent to Apt./Suite/Room City State Zip Code <input type="checkbox"/> Directions _____ Cross street or directions, as applicable			
C Incident Type * <u>342</u> Search for person in water Incident Type		E1 Date & Times Midnight is 0000 Check boxes if dates are the same as Alarm ALARM always required Date: Alarm * <u>07/04/2008</u> <u>14:29:00</u> ARRIVAL required, unless canceled or did not arrive <input checked="" type="checkbox"/> Arrival * <u>07/04/2008</u> <u>14:36:00</u> CONTROLLED Optional, except for wildland fires <input type="checkbox"/> Controlled _____ LAST UNIT CLEARED, required except for wildland fires <input checked="" type="checkbox"/> Last Unit Cleared <u>07/04/2008</u> <u>16:13:00</u>	
D Aid Given or Received* 1 <input type="checkbox"/> Mutual aid received 2 <input type="checkbox"/> Automatic aid recv. 3 <input type="checkbox"/> Mutual aid given 4 <input type="checkbox"/> Automatic aid given 5 <input type="checkbox"/> Other aid given N <input checked="" type="checkbox"/> None Their FDID _____ Their State _____ Their Incident Number _____		E2 Shift & Alarms Local Option Shift or Alarm District <u>A</u> _____ E3 Special Studies Local Option Special Study ID# _____ Special Study Value _____	
F Actions Taken * <u>24</u> Recover body Primary Action Taken (1) Additional Action Taken (2) Additional Action Taken (3)		G1 Resources * <input checked="" type="checkbox"/> Check this box and skip this section if an Apparatus or Personnel form is used. Apparatus _____ Personnel _____ Suppression _____ EMS _____ Other <u>0004</u> <u>0007</u> <input type="checkbox"/> Check box if resource counts include aid received resources.	
G2 Estimated Dollar Losses & Values LOSSES: Required for all fires if known. Optional for non fires. None Property \$ _____, _____, _____ Contents \$ _____, _____, _____ PRE-INCIDENT VALUE: Optional Property \$ _____, _____, _____ Contents \$ _____, _____, _____			
Completed Modules <input type="checkbox"/> Fire-2 <input type="checkbox"/> Structure-3 <input type="checkbox"/> Civil Fire Cas.-4 <input type="checkbox"/> Fire Serv. Cas.-5 <input type="checkbox"/> EMS-6 <input type="checkbox"/> HazMat-7 <input type="checkbox"/> Wildland Fire-8 <input checked="" type="checkbox"/> Apparatus-9 <input checked="" type="checkbox"/> Personnel-10 <input type="checkbox"/> Arson-11		H1* Casualties None Deaths Injuries Fire _____ Service _____ Civilian _____ H2 Detector Required for Confined Fires. 1 <input type="checkbox"/> Detector alerted occupants 2 <input type="checkbox"/> Detector did not alert them 3 <input type="checkbox"/> Unknown	
H3 Hazardous Materials Release N <input type="checkbox"/> None 1 <input type="checkbox"/> Natural Gas: slow leak, no evacuation or HazMat actions 2 <input type="checkbox"/> Propane gas: <1 lb. tank (as in home BBQ grill) 3 <input type="checkbox"/> Gasoline: vehicle fuel tank or portable container 4 <input type="checkbox"/> Kerosene: fuel burning equipment or portable storage 5 <input type="checkbox"/> Diesel fuel/fuel oil: vehicle fuel tank or portable 6 <input type="checkbox"/> Household solvents: home/office spill, cleanup only 7 <input type="checkbox"/> Motor oil: from engine or portable container 8 <input type="checkbox"/> Paint: from paint cans totaling < 25 gallons 0 <input type="checkbox"/> Other: Special HazMat actions required or spill > 25gal., please complete the HazMat form		I Mixed Use Property NN <input type="checkbox"/> Not Mixed 10 <input type="checkbox"/> Assembly use 20 <input type="checkbox"/> Education use 33 <input type="checkbox"/> Medical use 40 <input type="checkbox"/> Residential use 51 <input type="checkbox"/> Row of stores 53 <input type="checkbox"/> Enclosed mall 58 <input type="checkbox"/> Bus. & Residential 59 <input type="checkbox"/> Office use 60 <input type="checkbox"/> Industrial use 63 <input type="checkbox"/> Military use 65 <input type="checkbox"/> Farm use 00 <input type="checkbox"/> Other mixed use	
J Property Use* Structures 131 <input type="checkbox"/> Church, place of worship 161 <input type="checkbox"/> Restaurant or cafeteria 162 <input type="checkbox"/> Bar/Tavern or nightclub 213 <input type="checkbox"/> Elementary school or kindergarten 215 <input type="checkbox"/> High school or junior high 241 <input type="checkbox"/> College, adult education 311 <input type="checkbox"/> Care facility for the aged 331 <input type="checkbox"/> Hospital 341 <input type="checkbox"/> Clinic, clinic type infirmary 342 <input type="checkbox"/> Doctor/dentist office 361 <input type="checkbox"/> Prison or jail, not juvenile 419 <input type="checkbox"/> 1-or 2-family dwelling 429 <input type="checkbox"/> Multi-family dwelling 439 <input type="checkbox"/> Rooming/boarding house 449 <input type="checkbox"/> Commercial hotel or motel 459 <input type="checkbox"/> Residential, board and care 464 <input type="checkbox"/> Dormitory/barracks 519 <input type="checkbox"/> Food and beverage sales 539 <input type="checkbox"/> Household goods, sales, repairs 579 <input type="checkbox"/> Motor vehicle/boat sales/repair 571 <input type="checkbox"/> Gas or service station 599 <input type="checkbox"/> Business office 615 <input type="checkbox"/> Electric generating plant 629 <input type="checkbox"/> Laboratory/science lab 700 <input type="checkbox"/> Manufacturing plant 819 <input type="checkbox"/> Livestock/poultry storage (barn) 882 <input type="checkbox"/> Non-residential parking garage 891 <input type="checkbox"/> Warehouse 936 <input type="checkbox"/> Vacant lot 938 <input type="checkbox"/> Graded/care for plot of land 946 <input type="checkbox"/> Lake, river, stream 951 <input type="checkbox"/> Railroad right of way 960 <input type="checkbox"/> Other street 961 <input type="checkbox"/> Highway/divided highway 962 <input type="checkbox"/> Residential street/driveway 981 <input type="checkbox"/> Construction site 984 <input type="checkbox"/> Industrial plant yard Lookup and enter a Property Use code only if you have NOT checked a Property Use box: Property Use <u>937</u> <u>Beach</u>			

K1 Person/Entity Involved		Business name (if applicable)		Area Code		Phone Number	
Local Option							
<input type="checkbox"/> Check this box if same address as incident location. Then skip the three duplicate address lines.	Mr., Ms., Mrs. First Name		MI		Last Name		Suffix
	Number	Prefix	Street or Highway			Street Type	Suffix
	Post Office Box		Apt./Suite/Room		City		
	State		Zip Code				
	<input type="checkbox"/> More people involved? Check this box and attach Supplemental Forms (NFIRS-15) as necessary						
K2 Owner		Business name (if applicable)		Area Code		Phone Number	
Local Option							
<input type="checkbox"/> Check this box if same address as incident location. Then skip the three duplicate address lines.	Mr., Ms., Mrs. First Name		MI		Last Name		Suffix
	Number	Prefix	Street or Highway			Street Type	Suffix
	Post Office Box		Apt./Suite/Room		City		
	State		Zip Code				
L Remarks							
Local Option							
E-15 & Dive 15 responded to a person missing in the water. S.O on scene advised possible drowning. Dive 15 set up command and set up dive operations. Divers entered the water and started search patterns from info gathered from friends of the missing person. Dive team recovered the body in 8-10 feet of water 40 feet off shore line. Scene turned over to S.O & Coroner. E-15 , Dive 15 10-8.							
L Authorization							
Officer in charge ID		Signature		Position or rank		Assignment	
055		Davis, Mark B		LT		07 04 2008	
Month		Day		Year			
Check Box if same as Officer Member making report ID in charge.							
Officer in charge ID		Signature		Position or rank		Assignment	
055		Davis, Mark B		LT		07 04 2008	
Month		Day		Year			

05801 FDID *	GA State *	MM 7	DD 4	YYYY 2008	015 Station	08-0005599 Incident Number *	000 Exposure *	Complete Narrative
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Narrative:

E-15 & Dive 15 responded to a person missing in the water. S.O on scene advised possible drowning. Dive 15 set up command and set up dive operations. Divers entered the water and started search patterns from info gathered from friends of the missing person. Dive team recovered the body in 8-10 feet of water 40 feet off shore line. Scene turned over to S.O & Coroner. E-15 , Dive 15 10-8.

05801 <small>RPTD *</small>	GA <small>State *</small>	MM 7	DD 4	YYYY 2008	015 <small>Station</small>	08-0005599 <small>Incident Number *</small>	000 <small>Exposure *</small>	Responding Personnel		
Staff ID\Staff Name	Unit	Activity	Position	Rank	PayScl	Hrs	HrsPd	Pts		
055 Davis, Mark B		ALARM New Alarm Call		LT		1.73	1.73	0.00		
1043 Cook, James Clayton		ALARM New Alarm Call		FF		1.73	1.73	0.00		
1171 Capps, Jonathan Howard		ALARM New Alarm Call		FF/EMT		1.73	1.73	0.00		
1180 Jenkins, Jarrett Glenn		ALARM New Alarm Call		FF/EMT		1.73	1.73	0.00		
196 Anderson, Patrick Doss		ALARM New Alarm Call		FF/EMT		1.73	1.73	0.00		
2001 Hildebrand, James Kenneth		ALARM New Alarm Call		BTC		1.73	1.73	0.00		
715 Buice, Zachary J		ALARM New Alarm Call		LT		1.73	1.73	0.00		
Total Participants: 7						Total Personnel Hours: 12.11				

An 'X' next to the unit denotes driver.
rsrc

05801 07/04/2008 08-0005599

<input type="text" value="05801"/> <small>RPTD</small>	<input type="text" value="GA"/> <small>State</small>	<input type="text" value="7"/> <small>Incident Date</small>	<input type="text" value="4"/> <small>Incident Date</small>	<input type="text" value="2008"/> <small>Incident Date</small>	<input type="text" value="015"/> <small>Station</small>	<input type="text" value="08-0005599"/> <small>Incident Number</small>	<input type="text" value="000"/> <small>Exposure</small>	<input type="text" value=""/> <small>Responding Units/Personnel</small>
---	---	--	--	---	--	---	---	--

Unit	Notify Time	Enroute Time	Arrival Time	Cleared Time
BC1 Battalion Chief	14:29:00	14:29:00	14:36:00	16:13:00

Staff ID\Staff Name	Activity	Rank	Position	Role
---------------------	----------	------	----------	------

DV15 Dive 15	14:29:00	14:29:00	14:36:00	16:13:00
--------------	----------	----------	----------	----------

Staff ID\Staff Name	Activity	Rank	Position	Role
---------------------	----------	------	----------	------

E15 ENGINE 15, VID 00550	14:29:00	14:29:00	14:36:00	16:13:00
--------------------------	----------	----------	----------	----------

Staff ID\Staff Name	Activity	Rank	Position	Role
---------------------	----------	------	----------	------

TRK 1 TRUCK 1	14:29:00	14:29:00	14:36:00	16:13:00
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Staff ID\Staff Name	Activity	Rank	Position	Role
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Appendix F

2006-2009 Lake Lanier Fatality Report

DATE	SEX	AGE	RECOVERY	PARK	COUNTY	TIME	RACE	ALCOHOL INVOLVED?	INSIDE PUA?	FEE AREA?	INSIDE SWIM AREA?	CODE
1/31/2006	M	43	YES	Sardis Creek	HALL	22:41	WHITE	NO	TRUE	FALSE	FALSE	Drowning
3/8/2006	M	27	YES	Chestate e Rd	HALL	13:00	WHITE	UNKNOWN	FALSE	FALSE	FALSE	Homicide
3/17/2006	M	17	YES		HALL	23:45	BLACK	YES	FALSE	FALSE	FALSE	Drowning
6/1/2006	F	51	YES	West Bank	FORSYTH	17:00	HISPANIC	UNKNOWN	FALSE	FALSE	TRUE	Drowning
6/4/2006	M	25	YES	West Bank	FORSYTH	17:00	HISPANIC	UNKNOWN	TRUE	TRUE	FALSE	Drowning
7/8/2006	M	38	NO	Holiday Marina	HALL	20:45	WHITE	UNKNOWN	FALSE	FALSE	FALSE	Suicide
7/23/2006	F	18	YES	Clark's Bridge	HALL	21:00	ASIAN	UNKNOWN	FALSE	FALSE	FALSE	Suicide
7/24/2006	M	15	YES	Lake	FORSYTH	17:00	WHITE	NO	FALSE	FALSE	FALSE	Drowning
9/2/2006	M	19	YES	Lake Lanier Islands	HALL	18:45	WHITE	YES	FALSE	FALSE	FALSE	Drowning
9/8/2006	M	54	YES	Shoal Creek Campground	HALL	9:10	WHITE	UNKNOWN	TRUE	TRUE	FALSE	Drowning /Auto Accident
9/9/2006	M	49	YES	Old Federal Campground	HALL	21:44	BLACK	UNKNOWN	FALSE	FALSE	FALSE	Suicide
10/26/2006	M	38	YES		FORSYTH	15:00	WHITE	UNKNOWN	FALSE	FALSE	TRUE	Drowning
4/19/2007	M	66	YES	Six Mile Creek	FORSYTH	15:30	WHITE	UNKNOWN	FALSE	TRUE	FALSE	Drowning
5/12/2007	M	21	YES	Old Federal Day Use	HALL	19:50	HISPANIC	UNKNOWN	TRUE	FALSE	FALSE	Lightning
5/13/2007	M	22	YES	Clark's Bridge	HALL	17:06	HISPANIC	UNKNOWN	FALSE	FALSE	FALSE	Lightning
5/27/2007	M	23	YES	Little Ridge	FORSYTH	16:30	HISPANIC	UNKNOWN	TRUE	TRUE	FALSE	Drowning
5/28/2007	M	39	YES	Holiday Marina	HALL	17:00	ASIAN	YES	FALSE	FALSE	FALSE	Drowning
6/10/2007	M	30	YES	Holiday Marina	Hall	19:00	ASIAN	YES	FALSE	FALSE	FALSE	Homicide
6/27/2007	M	54	YES	Johnson Creek	HALL	19:00	WHITE	UNKNOWN	FALSE	FALSE	FALSE	Drowning
6/28/2007	M	19	YES	West Bank	FORSYTH	17:40	ASIAN	UNKNOWN	TRUE	TRUE	FALSE	Drowning
7/4/2007	M	26	YES	Buford Dam Park	GWINNETT	16:05	HISPANIC	YES	TRUE	TRUE	FALSE	Suicide
8/17/2007	M	21	YES	Van Pugh South	HALL	15:00	WHITE	NO	TRUE	TRUE	TRUE	Drowning
8/24/2007	M	23	YES	West Bank	FORSYTH	8:00	WHITE	UNKNOWN	TRUE	TRUE	FALSE	Drowning

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9/25/2007	F	39	YES	Van Pugh Middle	HALL	15:00	ASIAN	NO	TRUE	FALSE	FALSE	Suicide
10/7/2007	M	17	YES	West Bank	FORSYTH	13:55	HISPANIC	NO	TRUE	TRUE	FALSE	Drowning
5/4/2008	M	46	YES	Aqualand Marina	HALL	18:00	BLACK	UNKNOWN	FALSE	FALSE	FALSE	Drowning
5/20/2008	M	22	YES	Van Pugh North	HALL	15:30	HISPANIC	UNKNOWN	TRUE	TRUE	FALSE	Drowning
7/2/2008	m	45	YES	Holiday Marina	HALL	12:45	WHITE	UNKNOWN	TRUE	FALSE	FALSE	Drowning
7/4/2008	m	17	YES	Little Ridge	FORSYTH	14:30	HISPANIC	NO	TRUE	FALSE	FALSE	Drowning
7/5/2008	m	22	YES	Lan Mar Marina	FORSYTH	22:30	ASIAN	NO	TRUE	FALSE	FALSE	Drowning
7/5/2008	m	22	YES	Lan Mar Marina	FORSYTH	22:30	ASIAN	NO	TRUE	FALSE	FALSE	Drowning
7/5/2008	m	14	YES	Bells Mill	HALL	18:42	HISPANIC	UNKNOWN	FALSE	FALSE	FALSE	Drowning
7/12/2008	m	49	YES	Lake	HALL	12:20	WHITE	YES	FALSE	FALSE	FALSE	Drowning
8/10/2008	m	18	YES	Old Federal Campground	HALL	16:30	ASIAN	NO	TRUE	TRUE	FALSE	Drowning / Boat Accident
8/20/2008	m	30	YES	West Bank	FORSYTH	11:40	HISPANIC	UNKNOWN	TRUE	TRUE	FALSE	Drowning / Boat Accident
6/15/2009	M	29	YES	Bells Mill	HALL	17:30	WHITE	UNKNOWN	FALSE	FALSE	FALSE	drowning
7/4/2009	M	11	YES	Holiday Marina	HALL	10:00	WHITE	NO	TRUE	FALSE	FALSE	Drowning
7/5/2009	F	23	YES	Van Pugh Middle	HALL	16:00	ASIAN	UNKNOWN	FALSE	FALSE	FALSE	Drowning
7/11/2009	M	43	YES	Gwinnett Park	GWINNETT	10:00		NO	FALSE	FALSE	FALSE	Drowning
7/18/2009	F	4	YES	Lower Overlook	GWINNETT	14:00	OTHER	NO	FALSE	FALSE	FALSE	Drowning
8/1/2009	M	71	YES	Sawnee Campground	FORSYTH	14:10	WHITE	UNKNOWN	TRUE	TRUE	FALSE	Drowning

Appendix G

Interview with Forsyth County Coroner Lauren McDonald III in
person on June 28, 2010

What are the demographics of the victims of the drowning deaths
in Forsyth County on Lake Lanier?

How many of the victims were county residents?

What do you feel FCFD could do to reduce the number of drowning
incidents on Lake Lanier in Forsyth County?

Appendix H

Interview with Mrs. Carolyn Roberts of Hall County Emergency

Services by phone on July 19, 2010

Does Hall County have a Water Safety Program?

Does Hall County patrol any of the parks?

When is the dive boat staffed?

Does Hall County have any future programs planned?

Appendix I

Interview with Assistant Chief Schaffer, Fire Marshall with Gwinnett Fire and Emergency Services on July 22, 2010 by phone.

Does Gwinnett County Fire and Emergency Services have a Water Safety Program?

Does Gwinnett have Lake Lanier specific programs?

Have you seen any success with these programs?

What if any or your future plans with water safety and Lake Lanier?

Would Gwinnett be interested in sharing resources and/or an automatic aid agreement with FCFD on Lake Lanier?

Appendix J

Interview with Water Safety Coordinator Pamela Shelton with the United States Army Corps of Engineers in person on June 26, 2010

Why do you think is the main cause of the lake drowning incidents in Forsyth County?

What can FCFD do to reduce the number of drowning incidents in Forsyth County?

Are there any grants available for FCFD to help reduce the number of drowning incidents in Forsyth County?

Does the United States Army Corps of Engineers allow for outside agencies to patrol federal parks?

What would be your opinion of a lifeguard program in West Bank Park?

Does the United States Army Corps of Engineers have any future prevention programs planned?

Appendix K

Interview with Public Safety Training Officer Andrea Noble in
person on August 20, 2010

Does FCFD have a water safety program?

Are there any future plans for a water safety program?

Appendix L

Interview with Water Rescue Team Lieutenant Mark Davis in person
on August 22, 2010

What do you feel FCFD needs to do to address the number of
drowning incidents on Lake Lanier in Forsyth County?

What is your opinion of staging the team at West Bank Park on
busy weekends and holidays?