

Incident Response

Historical Perspective

1984 - 2013



Lincoln Fire & Rescue

June 2014



History

When Nebraska became a state in 1867, a new state capitol was needed. The original territorial capitol was in Omaha, on the eastern part of the state. Omaha was a growing city along the Missouri river and was the headquarters of the newly formed Union Pacific Railroad. With much debate, the capitol was moved to Lincoln, a more centralized location within the state. Lincoln began to grow rapidly, both in population and size. Contributing to this growth was the development of five separate railroads passing through the city and, over the years, these rail companies brought in thousands of immigrants. With the rapid growth, the city recognized a need for fire protection.

The first of Lincoln's Fire Companies originally banded together February 9th, 1872. They numbered between 40 to 50 men and boasted one "Steamer" (Chapin #1), two hose carts, and paraphernalia to outfit a bucket brigade.

On June 4, 1877, the membership rose to 69 men, continuing to increase until finally it became necessary to divide the force into two divisions, termed respectively, No. 1 and No. 2, with specially appointed Captains. On August 28, 1875, the City purchases the first two horses to pull the steamer.

A citizen's petition was finally presented to the City Council in December, 1885, calling for the establishment of a full-time paid Fire Department. The Council quickly voted to establish one full-time, paid company to co-exist with the two volunteer companies. On January 4th, 1886, Mayor H. C. Burr organized the Lincoln Fire Department.

Today

Today that department is known as Lincoln Fire & Rescue. The department is an all-hazards organization that provides a myriad of public safety response and resources. In addition to fire response, the organization responds to medical emergencies, technical rescues, hazardous materials emergencies, and other emergency responses. Non-emergency activities include calls for public assistance, check welfares, public education, and fire prevention.

The department responded to a total of 21,995 calls for service in 2013 including: 1,983 fire calls; 17,358 emergency medical service (EMS) calls; 718 hazardous materials calls, and 1,748 miscellaneous calls. The department has managed the steady population growth of the area; it is serviced by a minimum staff of 78 with 90 uniformed personnel on a daily basis working out of 14 fire stations.

A Historical Perspective

In an effort to determine how the organization response activity has changed in terms of actual responses, we have compiled this data. Due to the fact that the methodology of incident records creation and preservation has changed over the years, assembling this data was somewhat challenging. The level of data analysis is much more in depth today than it was in the past. Through research into historical records and the current electronic records management system, we have compiled this report to represent how the organization service demands have evolved in terms of response activities. This study is the most accurate attempt possible at representing this data to the reader.

Observations

In review of the data collected several unexpected trends are apparent, as well as those that were anticipated. The city has added nearly 29 square miles and 85,026 citizens to our community.

The ratio of firefighter to citizen served has steadily increased from 1 firefighter for each 784 citizens in 1984, to 1 firefighter for every 1053 citizens in 2013. The ratio of firefighter per square mile has steadily decreased from .37 firefighter for each square mile in 1984, to .27 firefighter per square mile in 2013. Both of these comparisons indicate how efficiently LF&R provides service. While the total budget has increased due to inflation the actual cost per incident has remained relatively unchanged. In 1984 the cost per incident was \$1,042, while in 2013 the cost was \$1,103, without adjustment for inflation.

Total incidents have grown from 7,987 in 1984 to 21,995 in 2013, an increase of 14,008. This equates to an average increase of 466 incidents annually, or almost 3 times more calls in 2013 than in 1984. The role of EMS in the LF&R array of services has grown from 52% of total calls in 1984 to 76% of total calls in 2013. Fire incidents (those that caused damage to life or property) have increased by approximate 150% since 1984, with a greater rate of fires per 1,000 residents in 2013 than in 1984. Response to hazardous materials incidents has become a routine occurrence with 718 incidents of this type in 2013; however, it was a category of incident types that were not even separated from other call types in 1984.

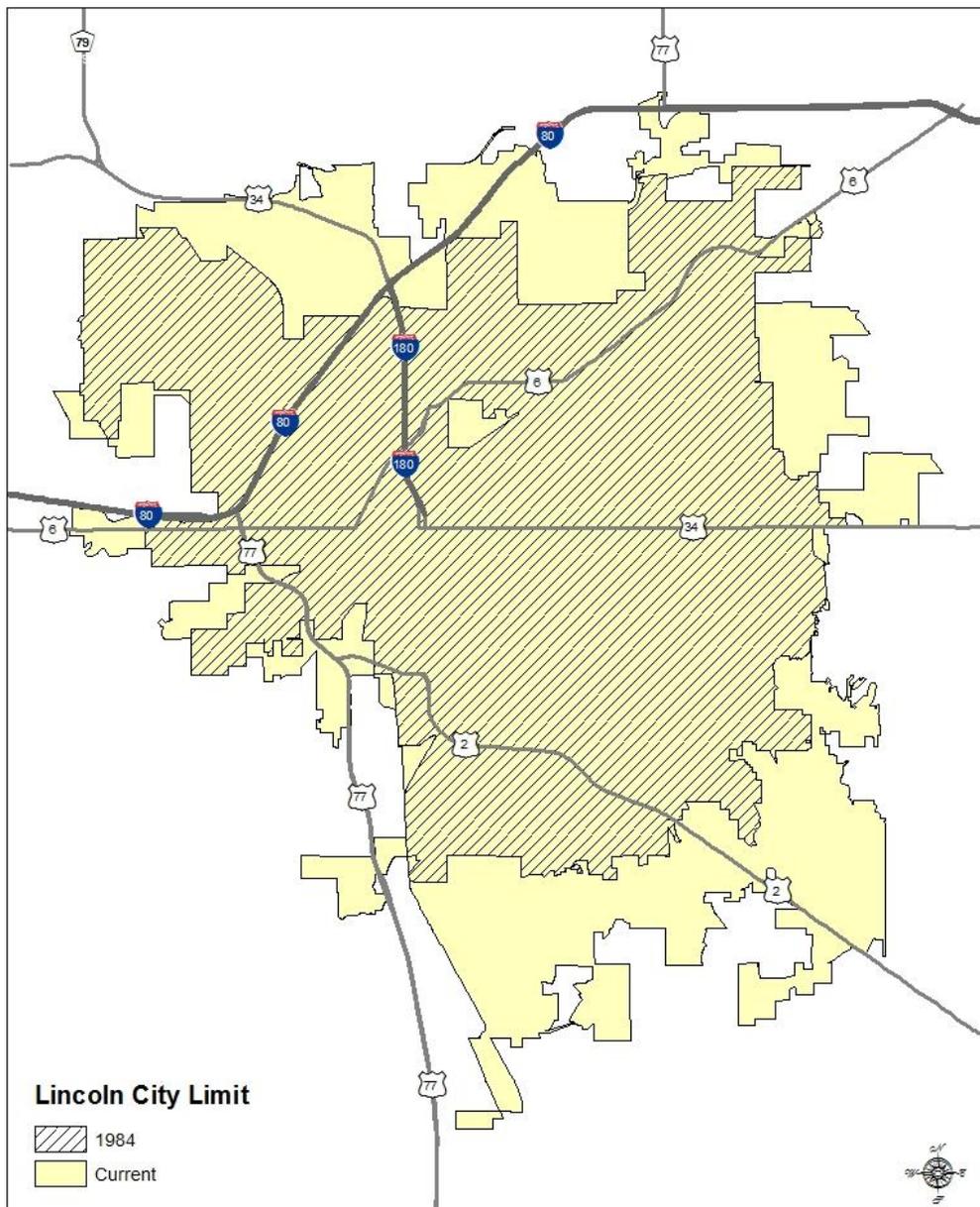
While some citizens in our community believe that fire incidents have decreased, the fact is ***fire incidents have steadily increased since 1984***. It's interesting to note that the fire incident rate of increase parallels the increase in population.

The value of this study is that city policy and decision makers and LF&R managers now have historical empirical data to make decisions regarding LF&R and the services the department provides. This data will assure that LF&R is properly prepared to respond to incidents now and in the future.



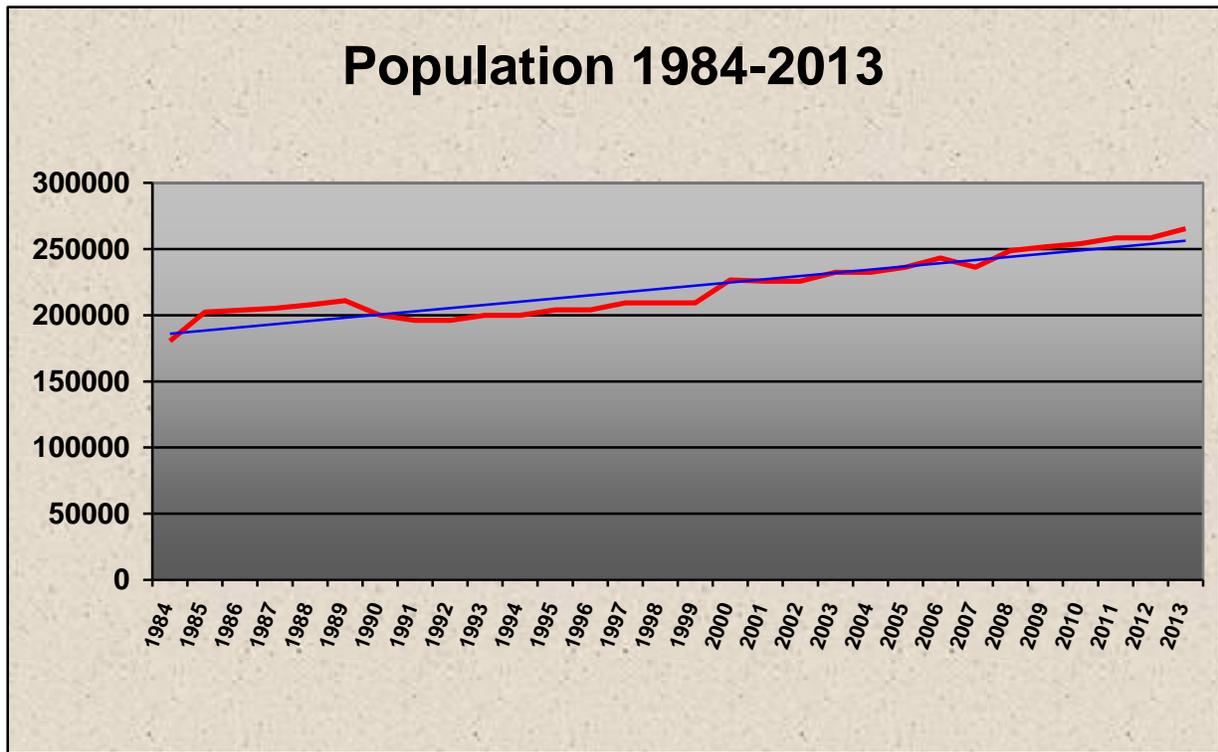
Geography¹ and Population

Lincoln is a steadily growing city. In 1984 the City of Lincoln encompassed approximately 60.42 square miles. In 2013, the City of Lincoln measured approximately 93.94 square miles. The City of Lincoln has grown 33.52 square miles in that time period. This is an area larger than the City of Grand Island, NE which covers 28.55 square miles.



¹ LF&R Geographical Information Systems

City of Lincoln Population²

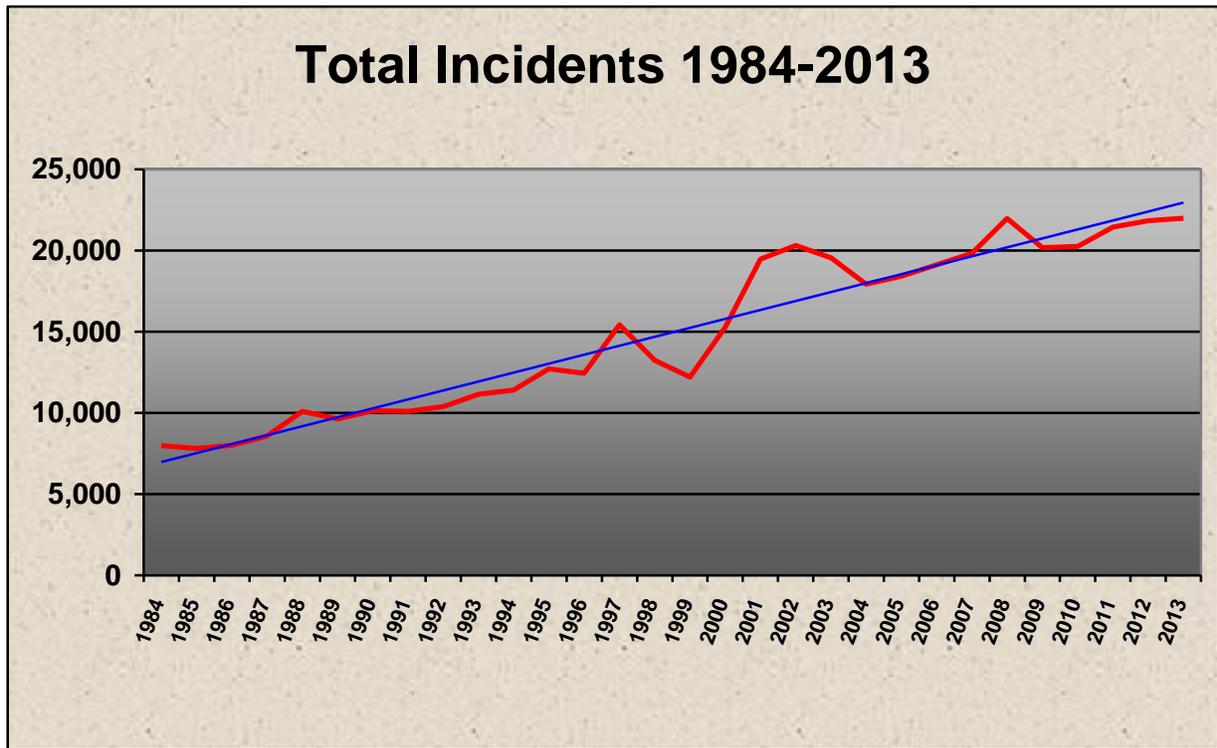


The population of the City of Lincoln as well as Lancaster County has increased dramatically yet steadily over the last 30 years. In 1984 the population of the City of Lincoln was 180,378 compared to 265,404 in 2013. That is an increase of 85,026 persons or 47%.



² Data Source: US Census Bureau/LF&R Annual Reports

Overall LF&R Activity³

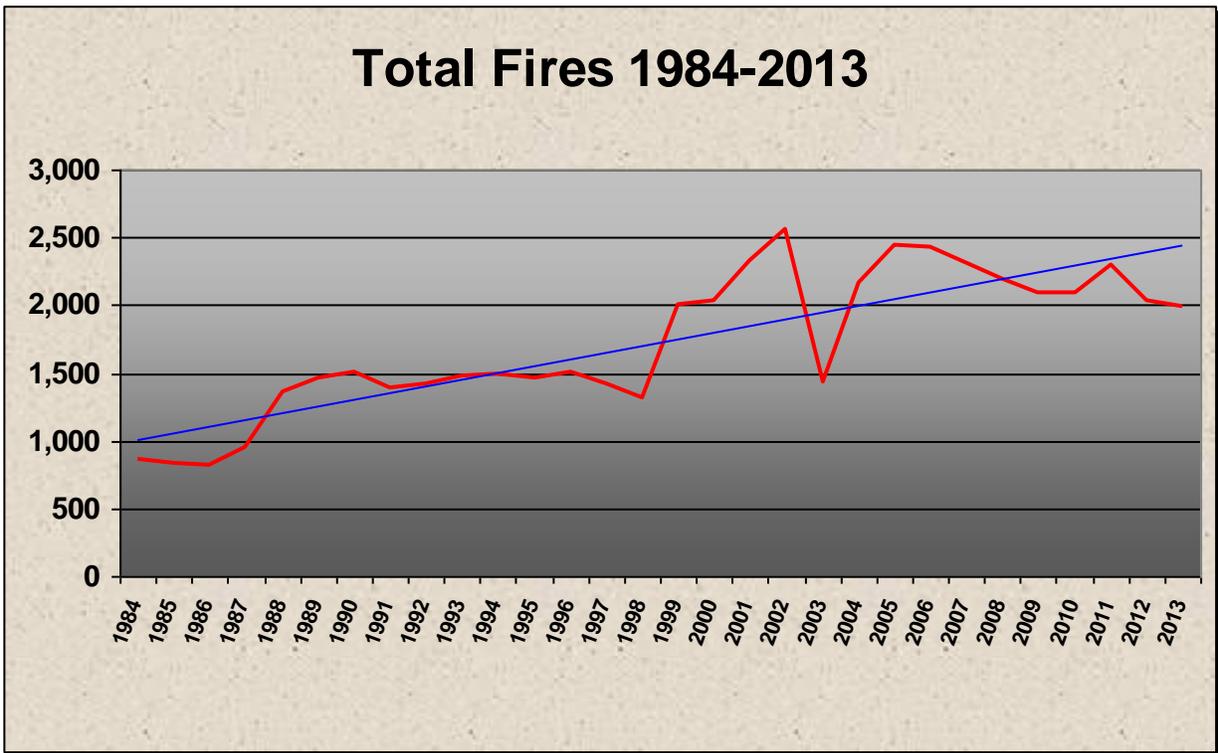


Upon review of the overall incident activity, one can see the gradual yet steady increase in organizational response activity since 1984. It is important to note that the organization assumed the role of emergency medical and non-emergency medical transport in 2001, thus the significant increase in activity is represented. LF&R eliminated the non-emergency transport services, with a private provider assuming this type of service in 2004. You will note that the rate of increase in activity returns to near normal as indicated by the blue trend line.



³ Data Source: LF&R MIS 1290 Annual Reports 2000-2013/ LF&R Annual Reports 1984-2013

LF&R Fire Response Activity⁴

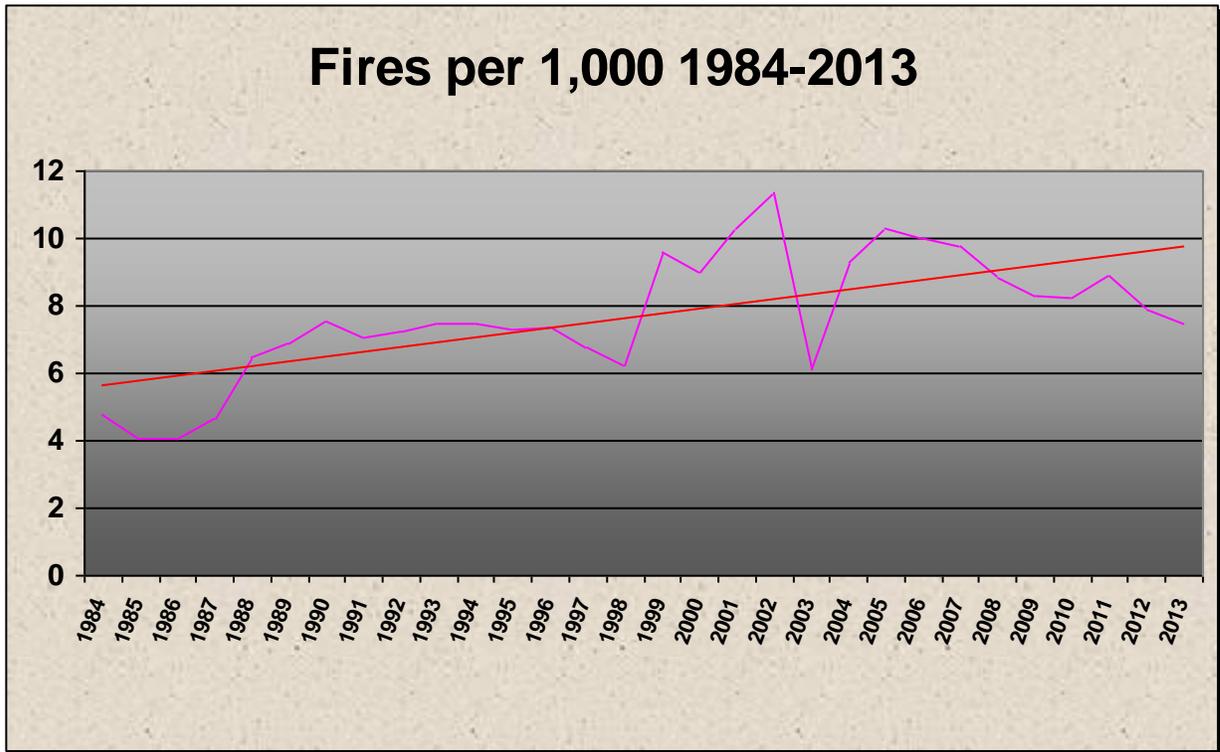


Determining the number of total fire incidents from the available records is difficult due to changes in the National Fire Incident Reporting System (NFIRS) made over the last 30 years by the United States Fire Administration as well as changes in LF&R's Fire Records Management System (RMS) mandated by the federal and state reporting requirements. The above data reflects an approximate 150% increase in the number of fire incidents since 1984 as indicated by the blue trend line. This trend parallels the increase in population.



⁴ Data Source: LF&R MIS/ LF&R Annual Reports 1984-2013

Fires per 1,000 Residents⁵

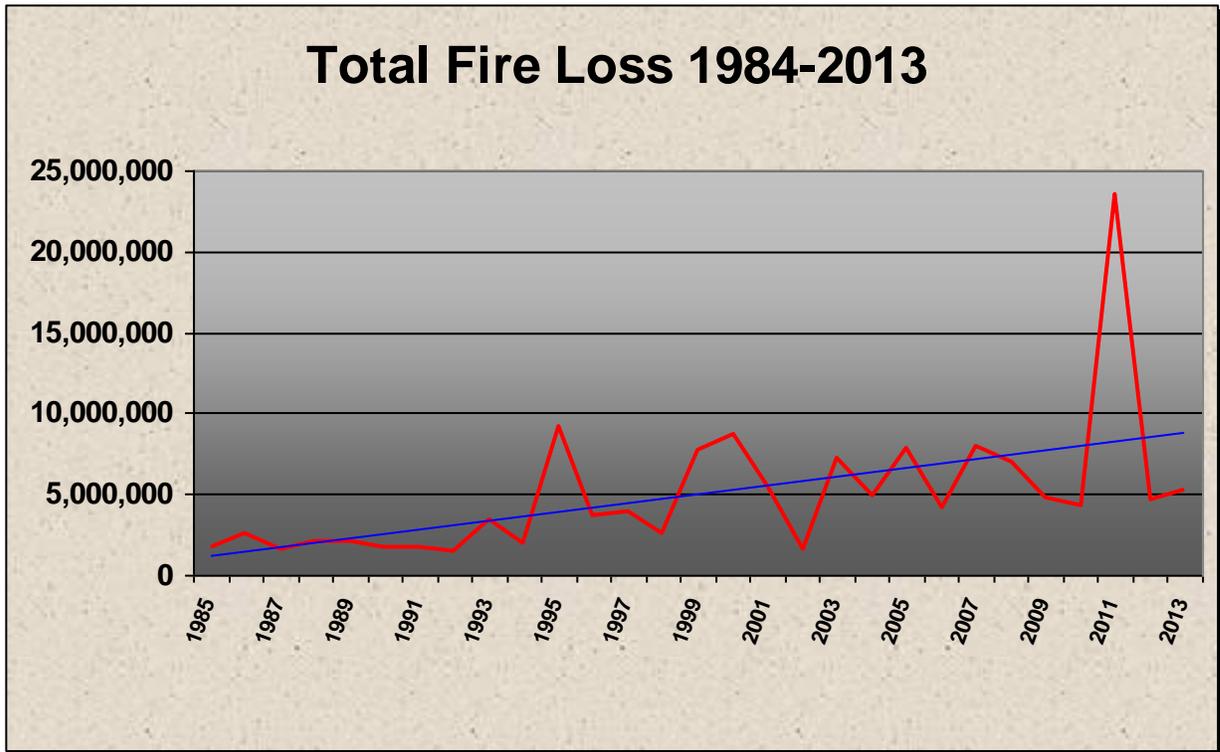


In order to determine how past fire incident frequency compares to current frequency, the above graph depicts the number of fires per 1,000 citizens. With the trend line in red, we can deduce that the City of Lincoln is experiencing a greater rate of fires per 1,000 residents in 2013 than in 1984.



⁵ Data Source: LF&R MIS/ LF&R Annual Reports 1984-2013

Total Fire Loss 1984- 2013⁶

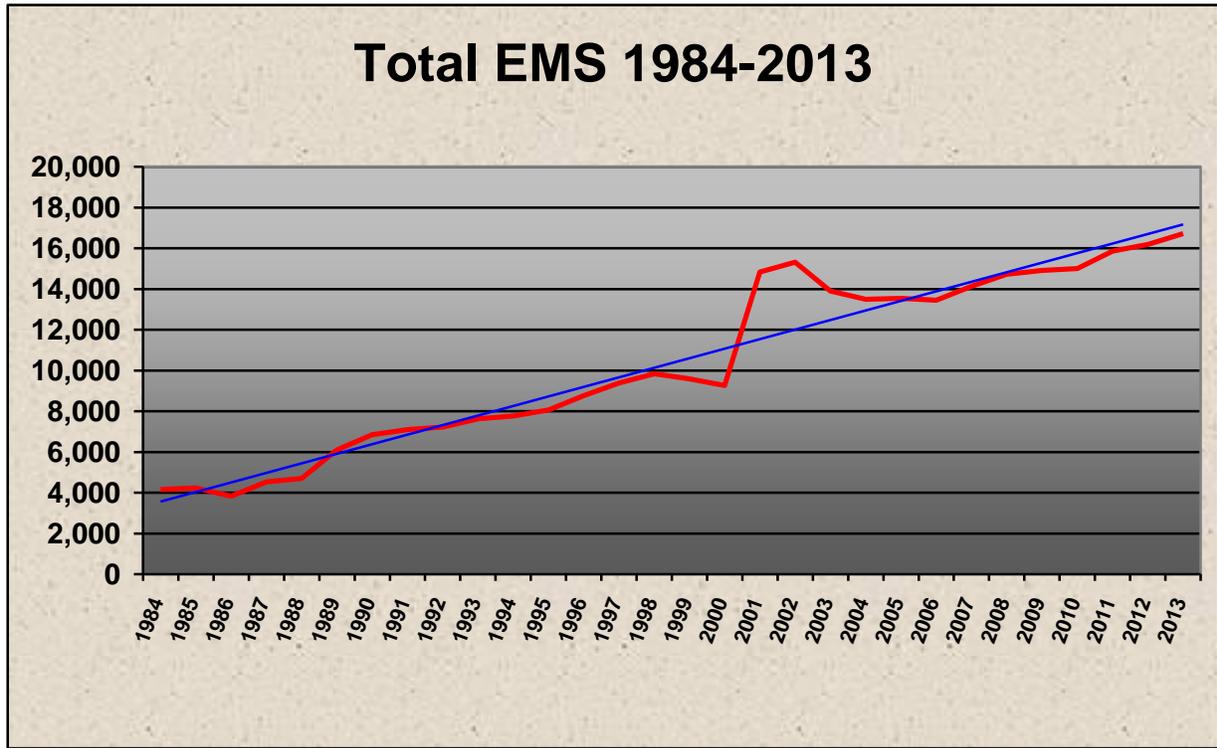


Another indicator of fire risk is monetary loss due to fire. The above graph represents the total cost of property loss caused by fire each year. Note that total loss is the sum of both structural and contents loss. In May of 2011 the City of Lincoln suffered one of its most costly fires in our history when the Lincoln Public Schools administration building burned. The 81,000 square foot building at 5901 O Street was deemed a total loss. Later investigation determined the cause of the fire to be arson. The suspect was arrested and convicted for intentionally setting the blaze.



⁶ Data Source: LF&R MIS/ LF&R Annual Reports 1984-2013

LF&R Emergency Medical Service (EMS) Response Activity⁷

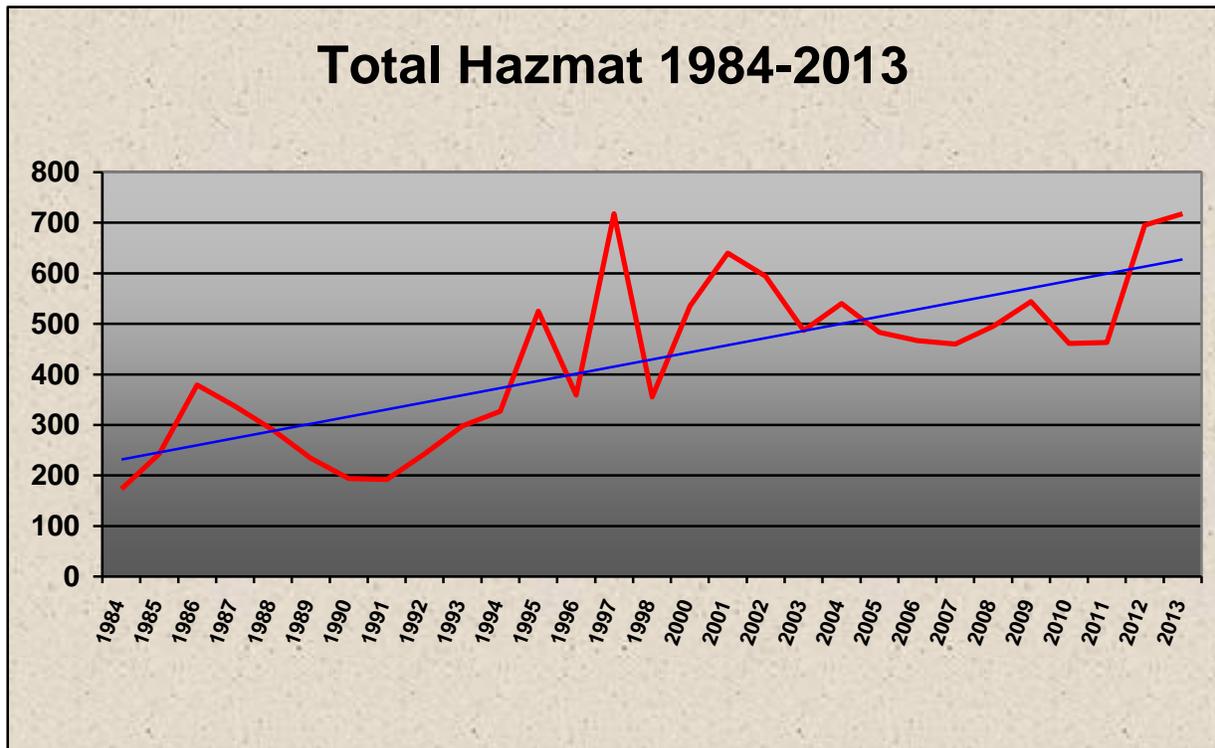


LF&R EMS response dates back to the 1940's, when it became involved in emergency medical incident response. The chart titled Total EMS 1984-2013 represents tremendous growth in terms of emergency medical incidents. This is due to several factors, one of which is the aging population of our community. The spike in 2001 incidents was caused when LF&R assumed responsibility for all ambulance transportation including both emergency and non-emergency services for the City of Lincoln and surrounding jurisdictions. This spike was caused by the addition of non-emergency ambulance transports. LF&R discontinued non-emergent services which were assumed by a private provider in 2004, thus the slight decrease in 2004.



⁷ Data Source: LF&R MIS/ LF&R Annual Reports 1984-2013

LF&R Hazardous Materials (Hazmat) Response Activity⁸

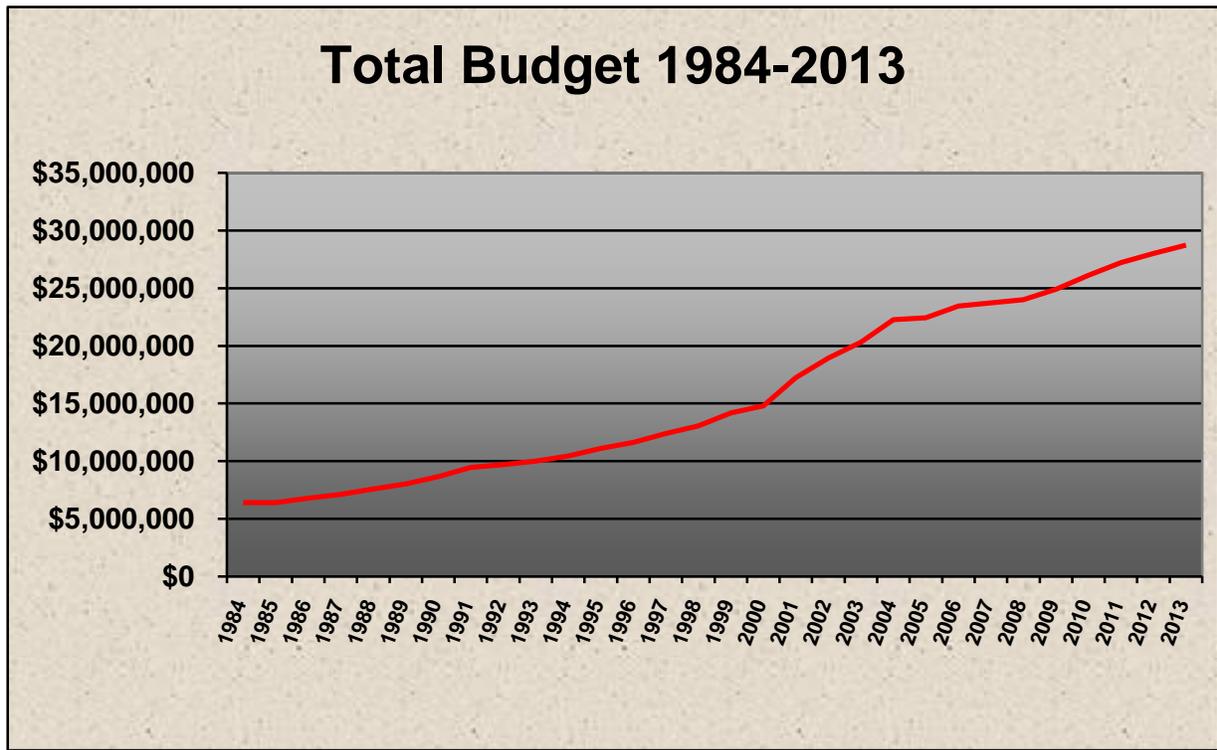


The City of Lincoln includes a major interstate corridor with Interstate 80 and a major rail line and switch yard, causing the risk of hazardous materials incidents to be relatively high compared to other cities. There has been a gradual increase in these incidents in the late 1990's followed by a gradual decrease. This may be due to public education, increased Occupational Safety and Health Association (OSHA) and Department of Transportation (DOT) guidelines and enforcement. Other factors include less obvious influences such as climate. Recent droughts have caused an increase in hazardous materials incidents where underground natural gas lines rupture and leak due to settlement in the soil. LF&R has noted a significant increase in these incidents due to a large project to replace aging lines.



^{8 8} Data Source: LF&R MIS/ LF&R Annual Reports 1984-2013

LF&R Total Budget⁹



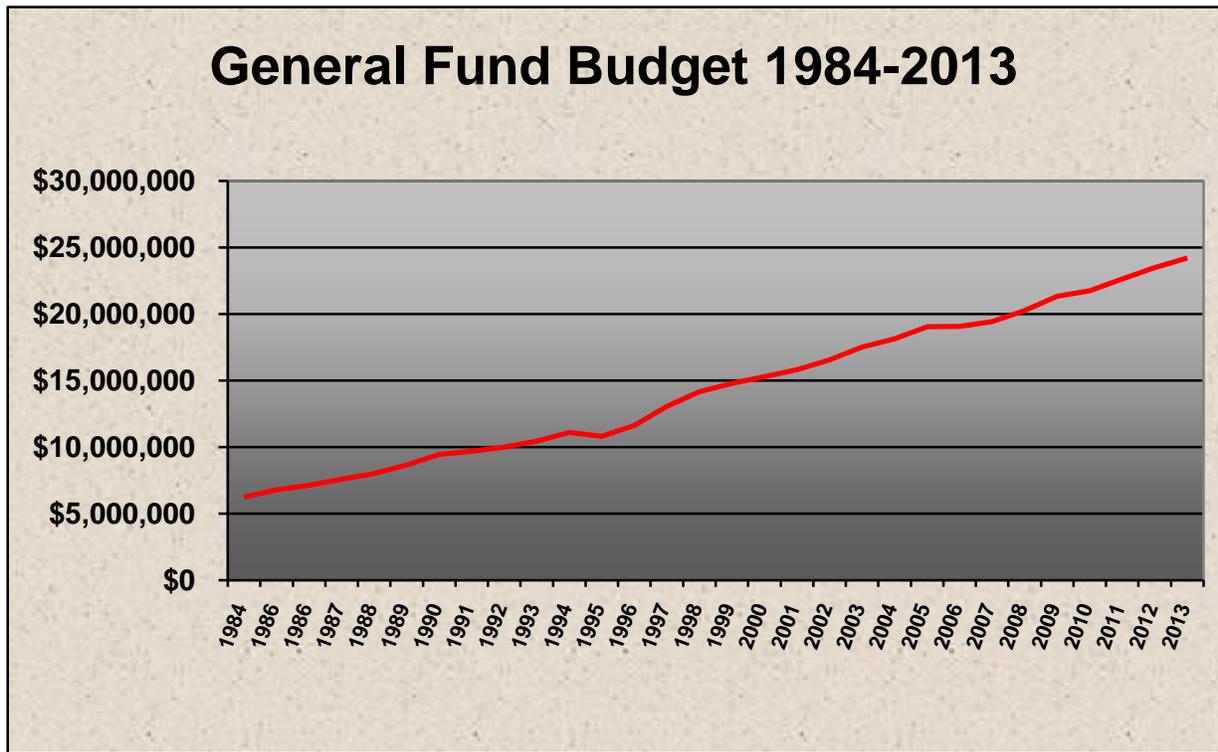
The Total Budget in the above graph shows a combination of all funding sources which comprise the Total Operating Budget. This includes not only the General Fund Budget but the EMS Transportation Budget, and the Federal Funding for the Urban Search & Rescue Program.

FIRE & RESCUE DEPARTMENT

	<u>2010-11</u> <u>Actual</u>	<u>2011-12</u> <u>Adopted</u> <u>Budget</u>	<u>2012-13</u> <u>Council's</u> <u>Budget</u>	<u>2013-14</u> <u>Council's</u> <u>Budget</u>
FUNDING SOURCE SUMMARY				
General Fund		22,625,653	23,441,805	24,161,042
Federal		1,410,064	1,003,234	1,016,989
EMS Enterprise Fund		3,980,123	4,284,057	4,797,657
Total Fire & Rescue - All Funding Sources		28,015,840	28,729,096	29,975,688
EXPENDITURE SUMMARY				
Personnel	23,798,980	24,204,608	24,431,657	24,991,049
Supplies	1,159,100	1,120,538	1,156,259	1,215,604
Serv. & Charges	2,159,588	2,191,324	2,668,021	2,813,622
Equipment	906,493	264,905	288,257	572,123
Transfers	8,245	0	0	0
Debt	175,445	234,465	184,902	383,290
Total Fire & Rescue Dep. - All Funds	28,207,851	28,015,840	28,729,096	29,975,688

⁹ Data Source: City of Lincoln Annual Approved Budget 1984-2013/LF&R Annual Reports

General Fund Budget¹⁰

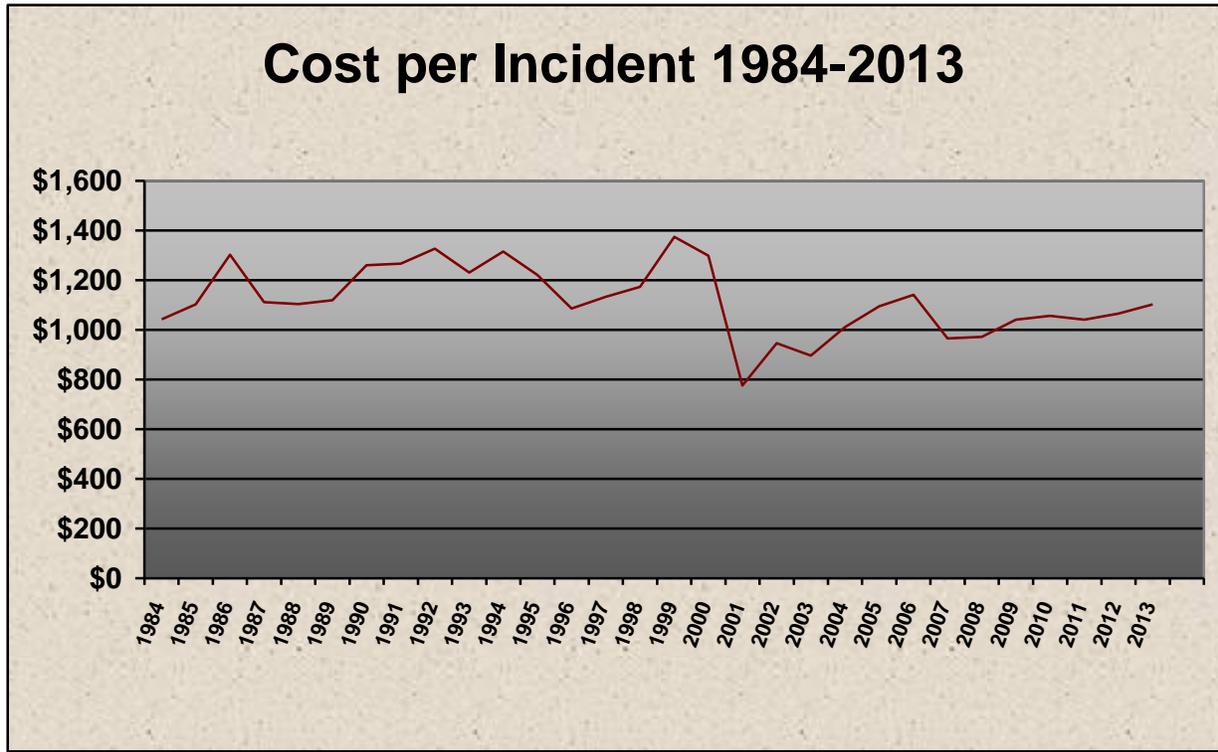


The LF&R budget is comprised of revenue from several sources including funds from the City of Lincoln general fund, user fees collected for the Ambulance transport Service enterprise fund, and federal funding to support the FEMA US&R task force program. Only general fund tax dollars were used for this comparison.



¹⁰ Data Source: City of Lincoln Annual Approved Budget 1984-2013/LF&R Annual Reports

Cost per Incident (non-inflation adjusted)¹¹

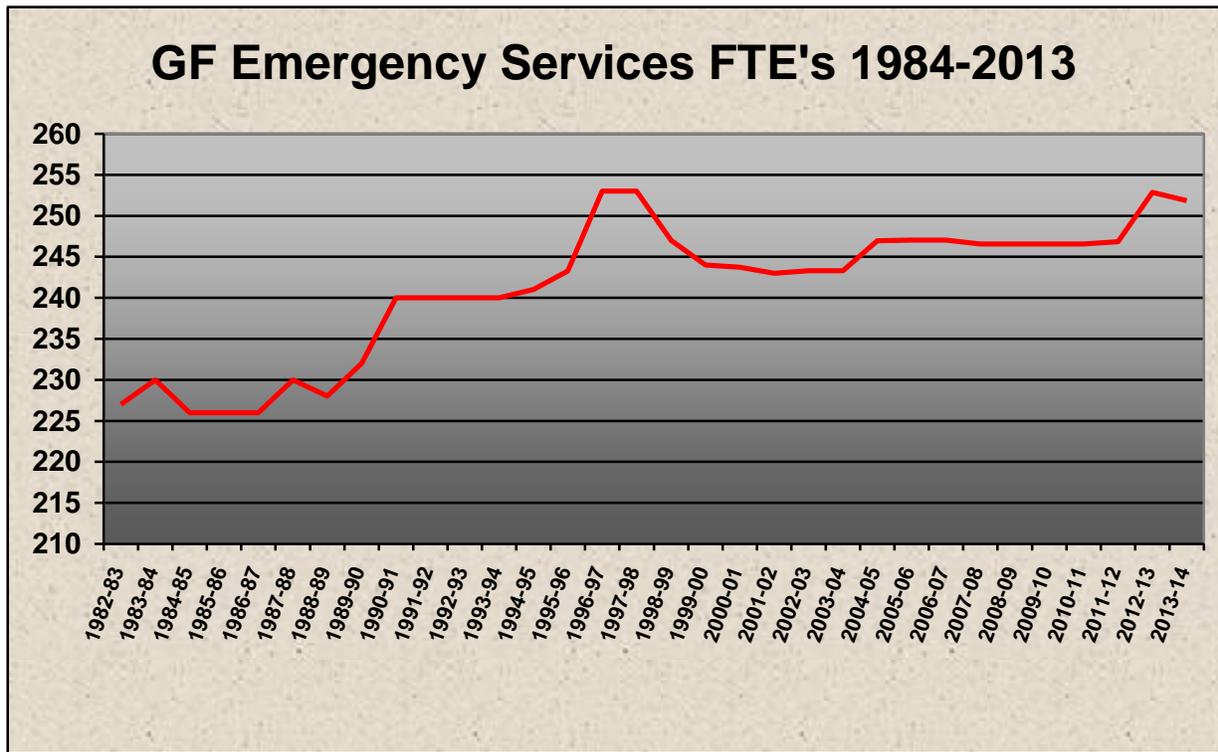


Note: Figures were calculated utilizing General Fund without computing inflation.



¹¹ Data Source: City of Lincoln Annual Approved Budget 1984-2013

General Fund (Tax Funded) Personnel¹²

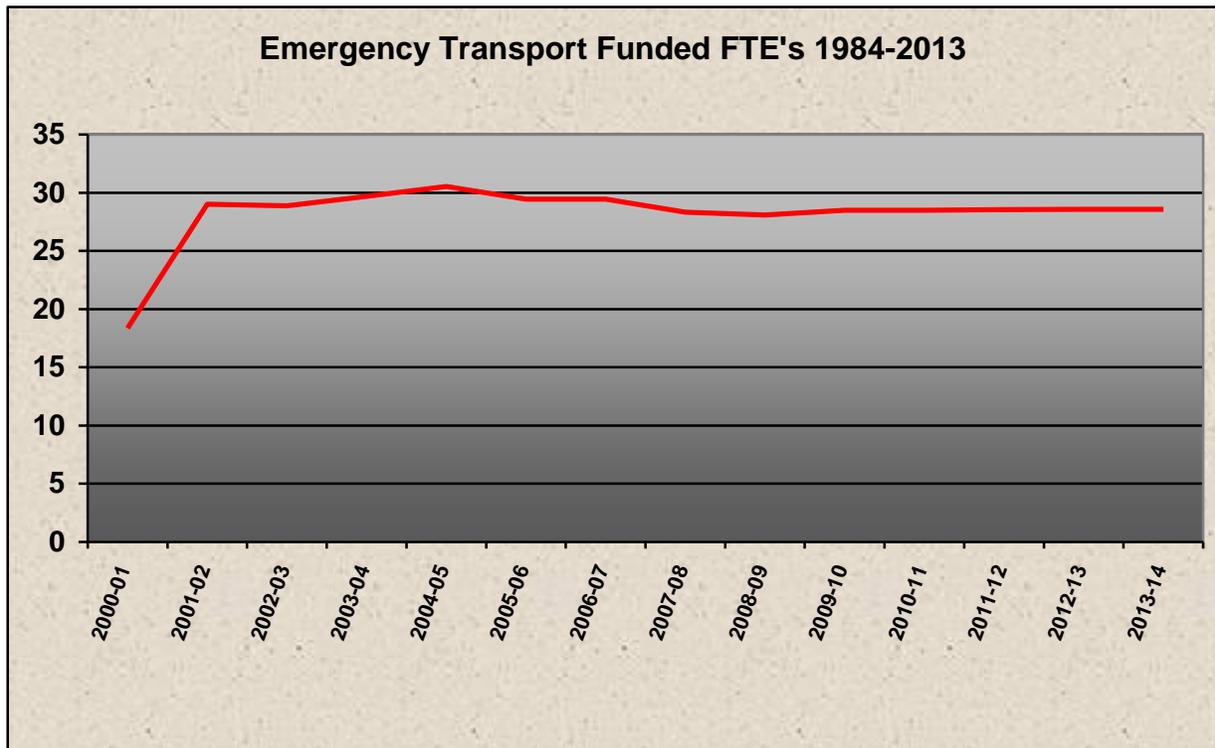


The above graph depicts the total number of full time employee's (FTE's) assigned to the Emergency Services Division which is funded through the General Fund. These employees are entirely funded through taxes.



¹² Data Source: City of Lincoln Annual Approved Budget 1984-2013; US Census Bureau/LF&R Annual Reports

Emergency Transport Budget Funded Personnel¹³

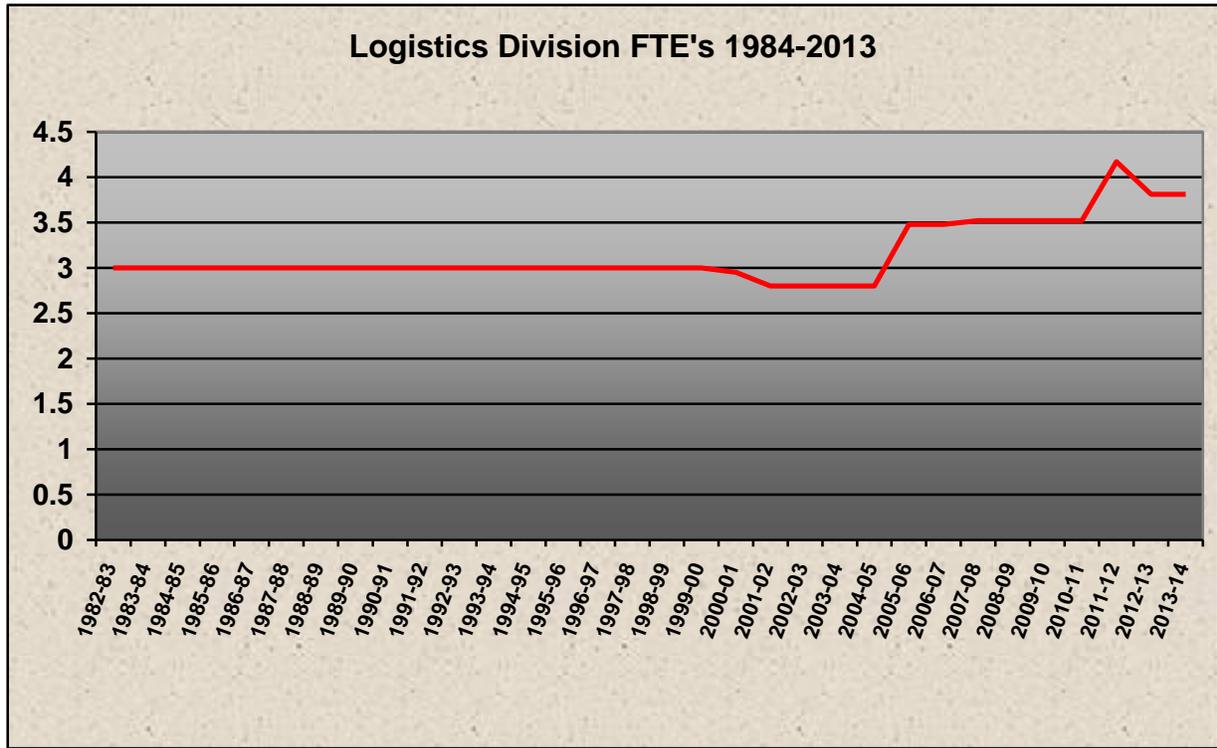


The EMS Transport Fund was created in 2001 at the time Lincoln Fire & Rescue accepted the responsibility to provide emergency medical transportation services. The ambulance operations are fully self-supported by user fees generated by ambulance transport revenue. All operational costs of the ambulance service including personnel, vehicles, equipment and supplies are paid from the ambulance fund. In addition an appropriate cost share of other related expenses are paid from the ambulance fund to reduce former tax supported costs.



¹³ Data Source: City of Lincoln Annual Approved Budget 1984-2013; US Census Bureau/LF&R Annual Reports

Logistics Division FTE's¹⁴

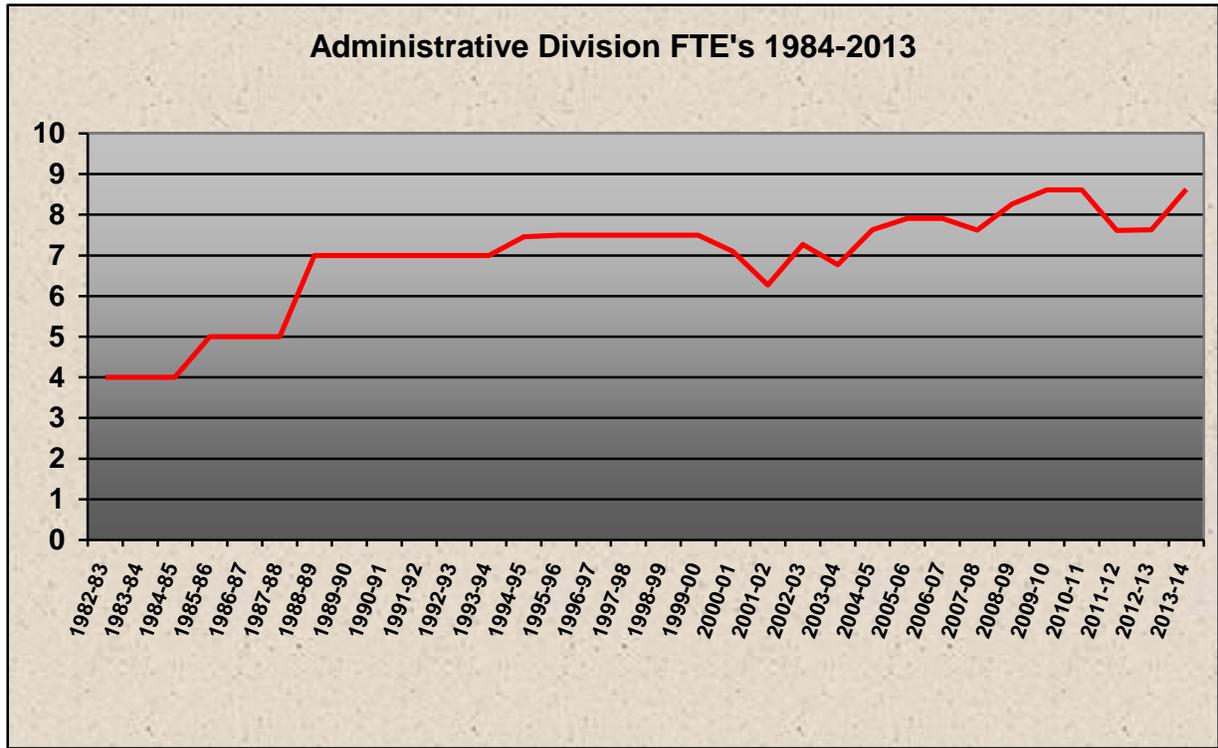


The above graph depicts the total number of Logistics Division FTE's over the last 30 years. The Logistics Division FTE's are funded through the tax supported General Fund and due to the added ambulance vehicles 1 additional FTE is paid for from the ambulance fund. The duties of the Logistics Division include maintenance of our front line and reserve apparatus fleet, management and oversight of our personal protective equipment, maintenance, repair, renovation and oversight of our facilities, and general operating supplies.



¹⁴ Data Source: City of Lincoln Annual Approved Budget 1984-2013; US Census Bureau/LF&R Annual Reports

Administrative Division FTE's¹⁵

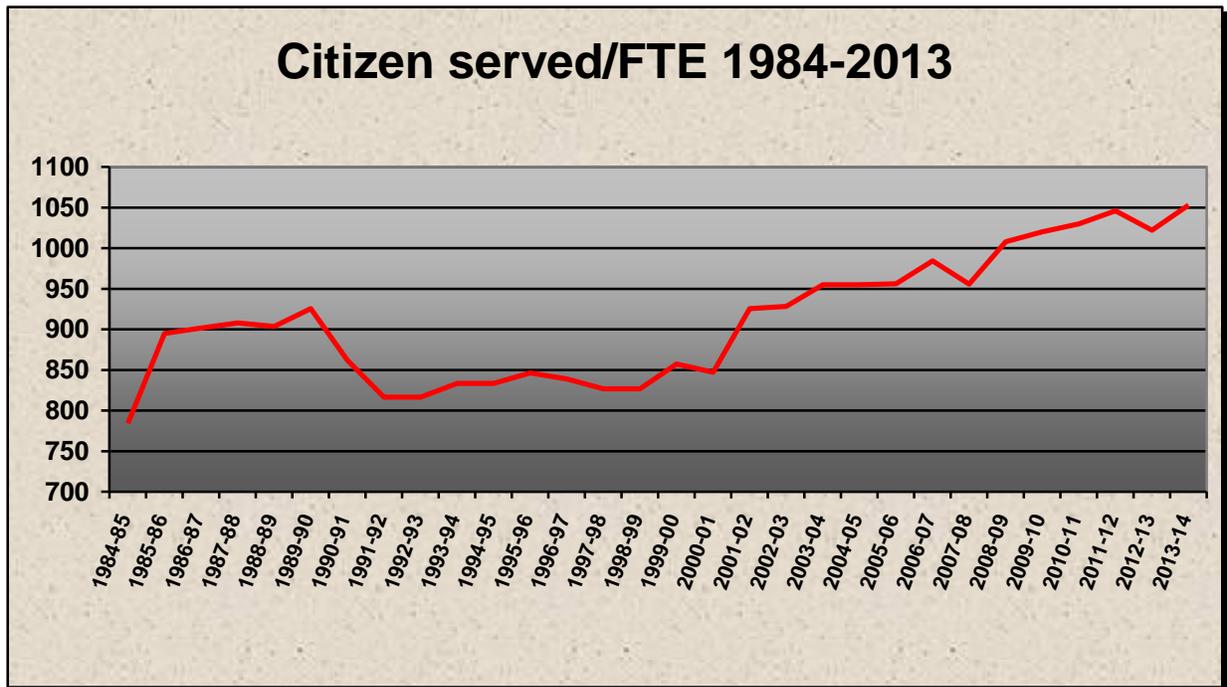


The Administrative Division includes clerical, information technology, and accounting staff that are necessary to run the organization. The Administrative Division is funded through the tax supported General Fund and ambulance fund.



¹⁵ Data Source: City of Lincoln Annual Approved Budget 1984-2013; US Census Bureau/LF&R Annual Reports

Citizens per Emergency Services FTE¹⁶



The above graph represents the number of General Fund (Tax Funded) personnel in the Emergency Response Division compared to the City of Lincoln population annually.



¹⁶ Data Source: City of Lincoln Annual Approved Budget 1984-2013; US Census Bureau/LF&R Annual Reports