

# COMMUNITY FACILITIES: FIRE PROTECTION

## 8-3

**C**ommunity fire protection risks are determined by development patterns, population density, building density, and special hazards. Acceptable fire protection risk is determined by the following factors: fire department response time; staffing and equipment availability; and building code requirements and inspections. In terms of community fire protection, residential development increases life hazards whereas commercial development increases workload.

### HIGHLIGHTS

- Fire Department facilities include a headquarters, four substations and one training (burn building) facility.
- A 5<sup>th</sup> new fire station, 5,165 square feet in size, was completed in 2002 at Bennett Road to serve the southern area of Chapel Hill. With the addition of this station, the entire Chapel Hill Urban Services Area has complete coverage.
- In general, a maximum 1½ mile response radii from each fire station is the recommended maximum distance to ensure emergency response times under five minutes.
- The average response time for all service calls has remained very stable during the period 1996-2004 at approximately 3 minutes. This falls well below the five minute target response time. In

2003-04 fiscal year, the Fire Department responded to 95 percent of emergency fire calls within five minutes.

- The number of fire department emergency responses has increased about 1 percent a year over the past eight years.
- The total value of fire loss in 2003-04 was \$2.24 million,. This is the highest loss after \$2.9 million over the 1999-2000 fiscal year.. The total value of fire loss in the preceding three years was closer to \$1.2million.
- Chapel Hill has maintained an Insurance Services Office (ISO) rating of 3 between 1995 and 2004. An ISO rating is a value from 1 to 10, based on a municipality's fire protection capabilities, to determine homeowner's insurance premiums. A rating of one is best and ten is worst. A rating of 1-4 is good, 5-8 is average, 9 is marginal, and 10 is unprotected.

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**Table 1: Chapel Hill Annual Fire Department Statistics 1995-96 to 2003-04**

| Type of Call                       | Year        |             |         |             | Avg. Annual Change |
|------------------------------------|-------------|-------------|---------|-------------|--------------------|
|                                    | 1995-96     | 2000-01     | 2002-03 | 2003-04     |                    |
| Emergency Responses                | 1,897       | 2,254       | 2,088   | 1,787       | -0.7%              |
| Non-Emerg. Responses               | 135         | 138         | 254     | 368         | 12.5%              |
| 1st Responder Responses            | 962         | 1,287       | 984     | 1,066       | 1.3%               |
| Total Responses                    | 2,994       | 3,679       | 3,326   | 3,221       | 0.9%               |
| Responses/Capita                   | 0.07        | 0.08        | 0.07    | 0.06        | -1.9%              |
| <b>Response Time</b>               |             |             |         |             |                    |
| Avg. Response Time/Call (min.)     | 3           | 3.3         | 3.3     | 3.3         | 1.2%               |
| Avg. Response Time/EMS Call (min.) | 3.2         | 2.7         | 3.2     | 3.3         | 0.4%               |
| <b>Inspections</b>                 |             |             |         |             |                    |
| Primary Commercial Inspections     | 1,235       | 1,482       | 1,308   | 1,327       | 0.9%               |
| Secondary Commercial Inspections   | 1,401       | 1,226       | 445     | 300         | -19.3%             |
| Plans Reviewed                     | 386         | 157         | 211     | 189         | -8.9%              |
| <b>Other Information</b>           |             |             |         |             |                    |
| Fire Loss                          | \$1,595,325 | \$1,298,680 |         | \$2,244,200 | 4.3%               |
| ISO Rating                         | 3           | 3           | 3       | 3           | NA                 |

Source: Chapel Hill Fire Dept., Chapel Hill Planning Dept.

ISO Rating: Insurance Services Office sets municipal fire protection ratings between 1 and 10. 1-4 is considered good.

**Table 2: Factors Related to Fire Department Level of Service 1990-91 to 2003-04**

| Factor                         | 1990-91         | 2002-03             | 2003-04                 | Av. Annual % Change 1990-2004 |
|--------------------------------|-----------------|---------------------|-------------------------|-------------------------------|
| Fire Dept. Service Calls       | 1,305           | 3,326               | 3,221                   | 6.5%                          |
| Fire Companies                 | 4               | 5                   | 5                       | 1.6%                          |
| Population                     | 38,872          | 50,540              | 51,485                  | 2.0%                          |
| Land Area (sq. mile)           | 18.3            | 21.1                | 21.1                    | 1.0%                          |
| Persons/sq. mile               | 2,124           | 2,395               | 2,440                   | 1.0%                          |
| Dwelling Units                 | 14,866          | 19,802 <sup>1</sup> | 20,225 <sup>1</sup>     | 2.2%                          |
| Dwelling Units/sq. mile        | 812             | 938                 | 959                     | 1.2%                          |
| University Student Population  | 23,852          | 26,359              | 26,878                  | 0.9%                          |
| University Buildings (sq. ft.) | 9,639,171       | 13,210,911          | 14,844,321 <sup>2</sup> | 3.1%                          |
| Tax Base                       | \$1,655,208,423 | \$4,167,181,402     | \$4,311,967,266         | 6.8%                          |

Source: Chapel Hill Planning Dept., Chapel Hill Fire Dept., UNC Office of Institutional Research, UNC Engineering Information Services

<sup>1</sup> Based on corrected count of 17,393 units for 2000 Census plus total certificates of occupation issued by the Town since 2000. <sup>2</sup> As of May 2005

**Table 3: Chapel Hill Fire Department Existing Personnel and Facilities 2005**

| Divisions            | Personnel | Facilities        | Facility Location                                    |
|----------------------|-----------|-------------------|--|
| Administrative       | 4.5       | Fire Station #1   | Martin Luther King Jr. Boulevard at N. Columbia St.  |
| Emergency Operations | 67        | Fire Station #2   | Hamilton Rd. at Prestwick Rd.                        |
| Life Safety          | 3         | Fire Station #3   | East Franklin St. at Elliot Rd.                      |
| Total Personnel      | 74.5      | Fire Station #4   | Martin Luther King Jr. Boulevard at Weaver Dairy Rd. |
|                      |           | Fire Station #5   | Bennett Rd. at US 15-501                             |
|                      |           | Training Facility | Adjacent to Station #4 (2 structures)                |

Source: Chapel Hill Fire Dept.

**Table 4: Chapel Hill Fire Department Existing Apparatus and Equipment 2005**

| Apparatus                           | Quantity | Equipment                         | Quantity   |
|-------------------------------------|----------|-----------------------------------|------------|
| Fire Engines (On-Line Status)       | 4        | Four-Wheel Drive Vehicles         | 5          |
| Aerial Fire Trucks (On-Line Status) | 1        | Van                               | 2          |
| Squad Truck (On-Line Status)        | 1        | Sedan                             | 1          |
| Fire Engines (Reserve Status)       | 3        | Supply Hose                       | 17,200 ft. |
| Command Unit                        | 1        | Attack Hose                       | 13,200 ft. |
| Specialty Truck                     | 1        | Protective Clothing               | 75         |
|                                     |          | Breathing Apparatus               | 57         |
|                                     |          | Portable Radios                   | 43         |
|                                     |          | Thermal Imaging Devices           | 5          |
|                                     |          | Automatic External Defibrillators | 6          |

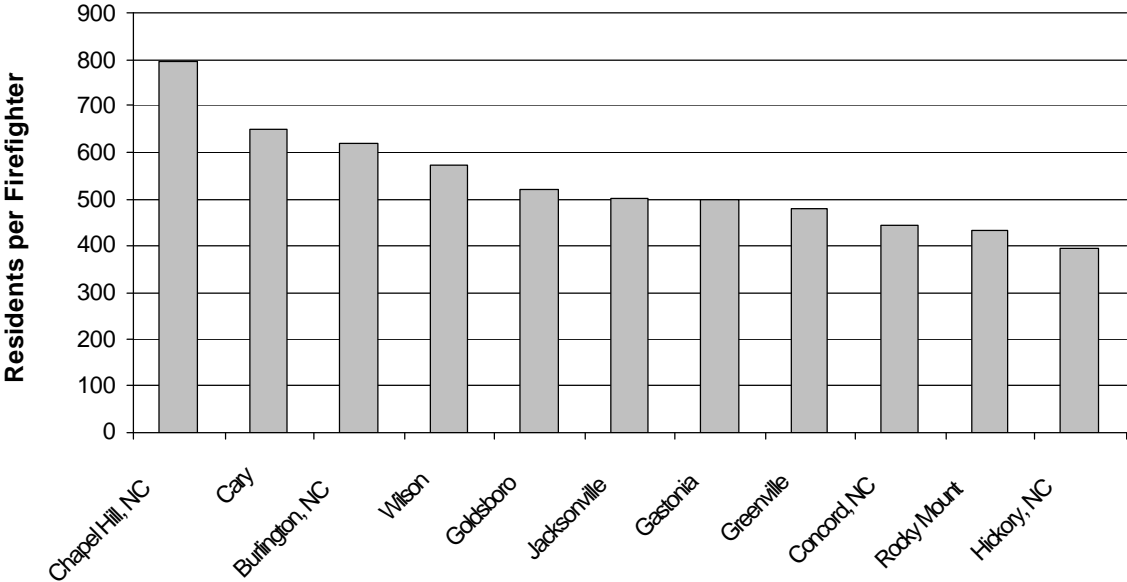
Source: Chapel Hill Fire Dept.

**Table 5: Fire Fighter Comparison in Selected Municipalities December 2004**

| City            | Population | Area (square miles) | Firefighters | Residents / Firefighter | Fire Calls | EMS Calls |
|-----------------|------------|---------------------|--------------|-------------------------|------------|-----------|
| Chapel Hill, NC | 52,440     | 21.1                | 66           | 795                     | 2,210      | 1,069     |
| Cary            | 107,973    | 48.5                | 166          | 650                     | 5,137      | 2,699     |
| Burlington, NC  | 46,332     | 23.3                | 75           | 618                     | 1,284      | 3,382     |
| Wilson          | 45,738     | 27.0                | 80           | 572                     | 250        | 2,097     |
| Goldsboro       | 39,147     | 26.0                | 75           | 522                     | 3,897      | N/A       |
| Jacksonville    | 33,580     | 18.5                | 67           | 501                     | 772        | 1,603     |
| Gastonia        | 72,000     | 48.2                | 144          | 500                     | 430        | 4,817     |
| Greenville      | 63,477     | 29.3                | 132          | 481                     | 1,536      | 1,818     |
| Concord, NC     | 61,070     | 54.5                | 138          | 443                     | 6,534      | 4,085     |
| Rocky Mount     | 56,000     | 36.0                | 129          | 434                     | 2,371      | 4,143     |
| Hickory, NC     | 42,433     | 42.5                | 108          | 393                     | 1,725      | 2,712     |

Source: Chapel Hill Fire Dept., Chapel Hill Planning Dept.

**Figure 1: Residents/ Firefighter in Selected Municipalities 2004**



**Figure 2: Fire Service Calls/ Thousand Residents in Selected Municipalities 2004**

