

Chapter 7

PUBLIC UTILITIES AND SERVICES

FIRE DEPARTMENT

BACKGROUND

Services

The Durham Fire Department provides a full range of fire protection and emergency medical services to the Town of Durham and the University of New Hampshire. The services provided by the Fire Department can best be broken down into four categories: administration, emergency medical services, fire prevention, and fire suppression.

Administration

The Fire Chief is responsible for managing the personnel, operating activities, planning, budgeting, and administration of the entire department. The Assistant Fire Chief operates under the direction of the Fire Chief to supervise and direct fire fighting, fire prevention, training, personnel, maintenance, and related activities of the department. The department has a single office manager who is responsible for greeting the public, directing inquiries, payroll, personnel and accounting records, and general office administration.

Emergency Medical Services

The Durham Fire Department provides emergency medical care in addition to fire suppression and prevention. Members of the department have advanced medical training to the levels of EMT-Intermediate and Paramedic. The EMT-Intermediate is trained to provide advanced medical

procedures such as supplying intravenous fluids and administering several medications. In addition to intermediate skills, paramedics provide the most advanced pre-hospital care available outside the emergency room. The Durham Fire Department responds to all medical emergencies in Town and on the UNH campus, and provides patient care until the ambulance arrives.

Fire Prevention

The Fire Prevention Bureau is responsible for fire and life safety inspections, fire safety education, fire investigations, and building plan review. All members of the department participate in fire prevention activities. The Bureau is staffed by one Fire Marshall who reports to the Fire Chief and a Fire Inspector who reports to the Fire Marshall. The Bureau is responsible for inspecting all buildings on the UNH campus and in the Town, with an emphasis on high life hazard buildings. The Town has adopted, and the Fire Department enforces, the 1997 Fire Prevention Code and the 1997 edition of the Life Safety Code, both published by the National Fire Protection Association. In addition, the Town has adopted a Durham Sprinkler Ordinance which is also enforced by the Fire Department. The Bureau has implemented the National Fire Protection Association's Learn Not to Burn curriculum with the Oyster River School District, which provides fire safety education to preschool and elementary school students.

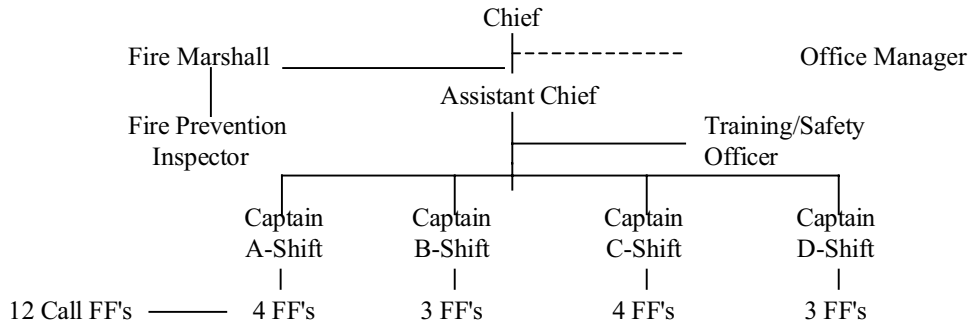
Fire Suppression

Fire suppression personnel are divided into four shifts. Each shift consists of one captain and three firefighters. The four shifts rotate, and collectively provide coverage 24 hours a day, 365 days a year. The fire captains are responsible for the safe and efficient operation of their shifts. The captains are also responsible for coordinating fire suppression efforts and other rescue or emergency medical incidents. The firefighters operate under the supervision of the fire captain, carrying out fire suppression efforts, providing patient care, and maintaining the fire station, apparatus, and equipment.

STAFFING AND TRAINING

At the time of the 1989 Master Plan, the Durham Fire Department included 21 full time personnel, one half-time position, and 18 paid/call positions. Ten years later, the Fire Department includes 24 full time personnel and 12 paid call members, as shown in the department's 2000 organizational chart (Figure 7.1).

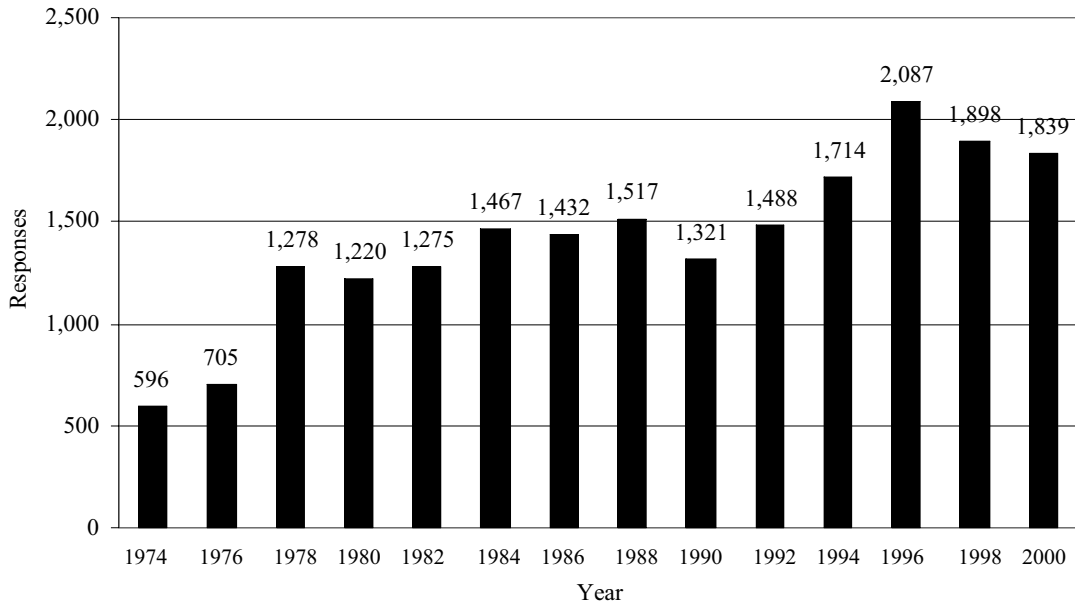
Figure 7.1. DURHAM FIRE DEPARTMENT 2000 ORGANIZATIONAL CHART



The Durham Fire Department has not seen an increase in on-duty staffing since 1974, and in that year the department was responding to less than 600 incidents a year. The incidents have been steadily increasing and now the department is responding to about 2,000 incidents a year (Table 7.1). Increased staffing is inevitable if the levels of service are to continue. A newly created position of captain (training/safety officer) was approved by the Town Council and added in 1999.

In addition to the EMT training, the Fire Department is trained and equipped to handle confined space rescues and its water rescue program has been revamped. Each of the four firefighter shifts average over 200 person hours per month of training in various fields.

**Table 7.1. FIRE DEPARTMENT RESPONSES BY YEAR
(SINCE INSTITUTING FOUR FIREFIGHTERS PER SHIFT)**



FACILITIES & EQUIPMENT

In 1985, the Fire Department moved into its current location at 51 College Road on the UNH campus. This location provides an excellent position for service to the concentrated areas of population and the areas with a relatively high call density. However, areas of the Town to the south and east have a longer response time. Table 7.2 is an inventory of the apparatus that is housed at the station.

Table 7.2. FIRE DEPARTMENT APPARATUS INVENTORY AND REPLACEMENT SCHEDULE

<u>Apparatus</u>	<u>Purchased</u>	<u>Replacement Cost***</u>	<u>Scheduled Replacement</u>
1975 Mack CF Pumper (Engine 1)	1975	\$309,000	1999
1985 Mack R686 FCS Pumper (Engine 3)	1985	\$309,000	2010
1990 E-One Hurricane Pumper (Engine 4)	1990	\$309,000	2000 Refurbish 2010 Replacement
1982 IH Heavy Rescue (Rescue 1)	1982	\$283,500	2002
1997 Ford Crown Victoria (Car 1)	1997	\$23,000	2007
1997 Chevrolet K2500 Suburban (Car 2)	1997	\$34,000	2007
1986 Ford Crown Victoria (Car 3)	1986	\$23,000	2000 (postponed from 1999)
1985 Chevrolet K2500 Pickup (Utility 1)	1985	\$73,000	2000*
1985 Chevrolet C10 Pickup (Utility 2)	1985		2000** (to be removed from fleet)
1997 E-One 110 foot Aerial (Ladder 1)	1998	\$440,000	2023
1998 Dodge Ram 3500 (Medic 1)	1998	\$34,000	2008
(Forestry 1) (Not Purchased Yet)			Purchase scheduled for 2000

*Utility 1 is presently used as the Forestry Unit. It will be placed back in service as a utility vehicle with the purchase of a new forestry truck in the year 2000.

**Utility 2 will be deleted from the fleet once Utility 1 is placed back in service as a utility vehicle with the purchase of a forestry truck in the year 2000.

*** Estimated replacement cost in 1999 dollars for new comparable equipment.

The lease with the University for the current Fire Station location is set to expire in the year 2009 and it is the University’s intent, according to its Master Plan, to use the structure for academic purposes by 2010. Depending on the University’s plans, it may be interested in having the Fire Station relocate sooner than that. Thus, planning for the new fire services facility should begin now. In 1997, the Town established an expendable trust fund for the new fire station into which it has contributed \$25,000 in both 1998 and 1999. Under the 1997 Fire Protection Services Agreement between the Town and University discussed below, the cost for the fire facility is expected to be shared by the University and Town based upon the percent usage of the Fire Department by the Town and University over the preceding five-year period, which is not to be confused with the funding formula for operations, which is discussed below.

The current Fire Station also serves as the Town’s emergency operations center. During Town-wide emergencies, the emergency operations center serves as a communications center, information clearinghouse, a place to resolve confusion and conflicts, and an authoritative source of information and decisions. Due to deficiencies in the emergency operations center, poor location near the railroad tracks, and other factors, a new location for the emergency operations center needs to be identified both on a short-term and long-term basis.

FIRE SERVICES AGREEMENT WITH UNH AND MUTUAL AID

In 1988 through 1989, the Town of Durham and UNH negotiated and entered into an agreement for transfer of the management and operation of the Fire Department to the Town of Durham. This agreement resulted in the Fire Department staff becoming Town employees. Prior to the agreement, the Durham-UNH Board of Fire Commissioners administered the Fire Department. In January of 1997, the Town and University entered into a Fire Protection Services Agreement. As part of this agreement UNH annually provides funding based on the average of the University’s usage percentage of the Fire Department over the three previous calendar years. Usage percentage is defined as the number of incidents responded for University property as compared with the total of all incidents to which the Fire Department responded. Table 7.3 displays the historical usage percentages for the Town and University.

Table 7.3. PERCENTAGE OF FIRE DEPARTMENT INCIDENTS FOR DURHAM AND UNH: 1990 – 1998

Year	UNH Incidents	UNH Percent	Town Incidents	Town Percent
1990	620	47.2%	693	52.8%
1991	714	53.3%	625	46.7%
1992	779	53.2%	684	46.8%
1993	859	52.8%	767	47.2%
1994	865	51.7%	808	48.3%
1995	1,171	56.7%	893	43.3%
1996	1,171	56.9%	887	43.1%
1997	1,101	55.8%	871	44.2%
1998	882	47.4%	980	52.6%
1999	909	49.00%	960	51.4%
Source: Durham Annual Reports				

The Town has mutual aid agreements with the surrounding jurisdictions. Communities provide mutual aid to one another via reciprocating agreements under which no fee is charged for mutual aid services. Table 7.3 does not include mutual aid calls.

TRENDS

As shown in Table 7.4, the Fire Department continues to experience a steady increase in total incidents. The greatest trend in increased incidents over the past 10 years has been in emergency medical incidents and service calls (Figure 8.2). There have also been relatively strong increases in miscellaneous, good intent, and smoke investigations incidents. The incidents experiencing the greatest decreasing trend have been malicious false alarms and unclassified calls (Figure 8.2). However, these are not strong decreasing trends. Historically, the majority of incidents continue to be from the University (see Table 7.3); with the recent exception of 1998, which is likely due to the ice storm. In addition, the majority of incidents the Fire Department has historically responded to are classified as emergency medical, an average of 518 incidents per year since 1990, and as service calls, an average of 402 incidents per year since 1990. Thus, the Fire Department's responsibilities have changed radically from being primarily a force to fight fires to a force that handles primarily medical-related calls.

**Table 7.4. NUMBER AND TYPE OF FIRE DEPARTMENT INCIDENTS:
1990 - 1998**

Incident Type	Incidents 1990	Incidents 1991	Incidents 1992	Incidents 1993	Incidents 1994	Incidents 1995	Incidents 1996	Incidents 1997	Incidents 1998	Incidents 1999
Structure Fire	27	30	32	30	32	31	36	38	14	37
Other Fires	32	41	41	34	67	41	37	36	36	30
Emergency Medical	335	320	442	495	554	611	621	603	677	567
Extrications	33	53	61	72	43	39	50	63	47	32
Spills/Leaks	40	24	28	42	42	54	44	36	38	29
Service Calls	203	269	269	419	449	624	559	521	304	401
Smoke Investigations	45	46	70	69	59	95	98	102	66	59
Malicious False Alarms	81	46	44	30	37	20	39	39	32	34
Unintentional False Alarms	116	130	85	92	87	112	146	94	132	131
Good Intent	49	45	56	56	45	68	81	107	81	79
System Malfunction	55	56	59	83	70	102	81	57	53	75
Unclassified False Calls	102	143	163	119	97	156	125	123	111	67
Miscellaneous	195	136	113	85	91	111	135	153	271	308
Mutual Aid	12	37	25	32	41	43	35	33	36	21
Total Incidents	1,325	1,376	1,488	1,658	1,714	2,107	2,087	2,005	1,898	1,870

Notes: Examples of some of the types of incidents –

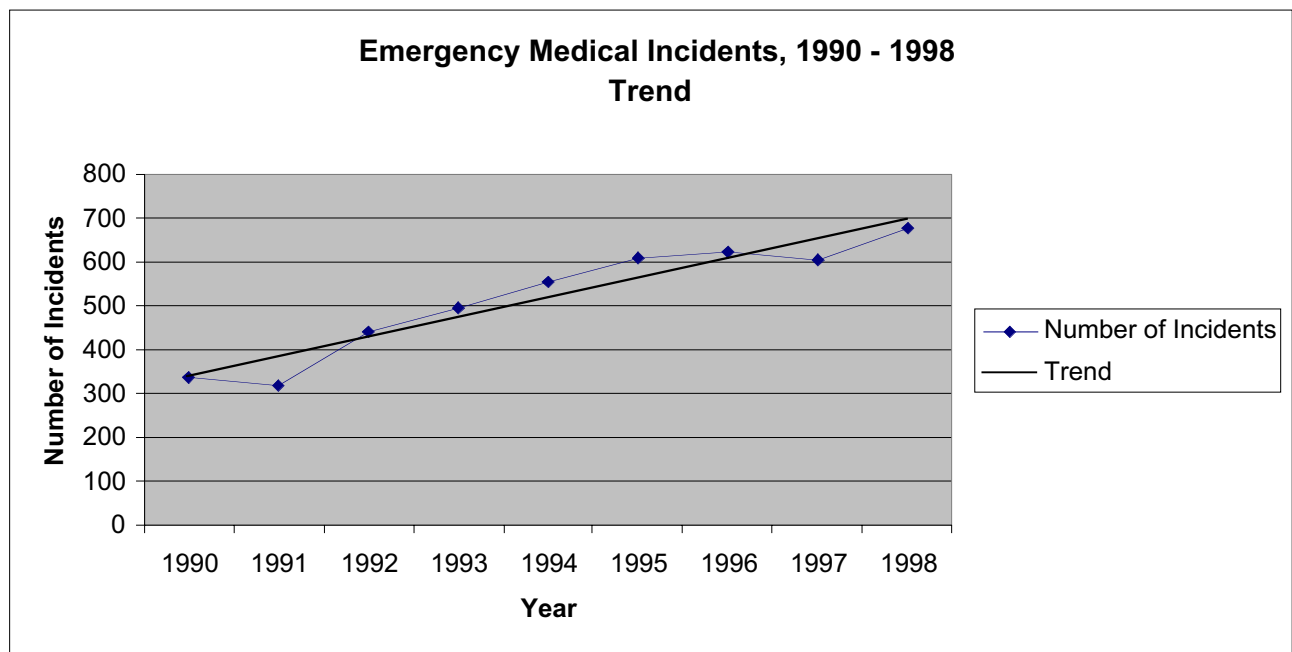
Service Calls – Checking the welfare of an elderly citizen, investigating a strange odor.

Unintentional False Alarms – Workman on a building accidentally sets off an alarm.

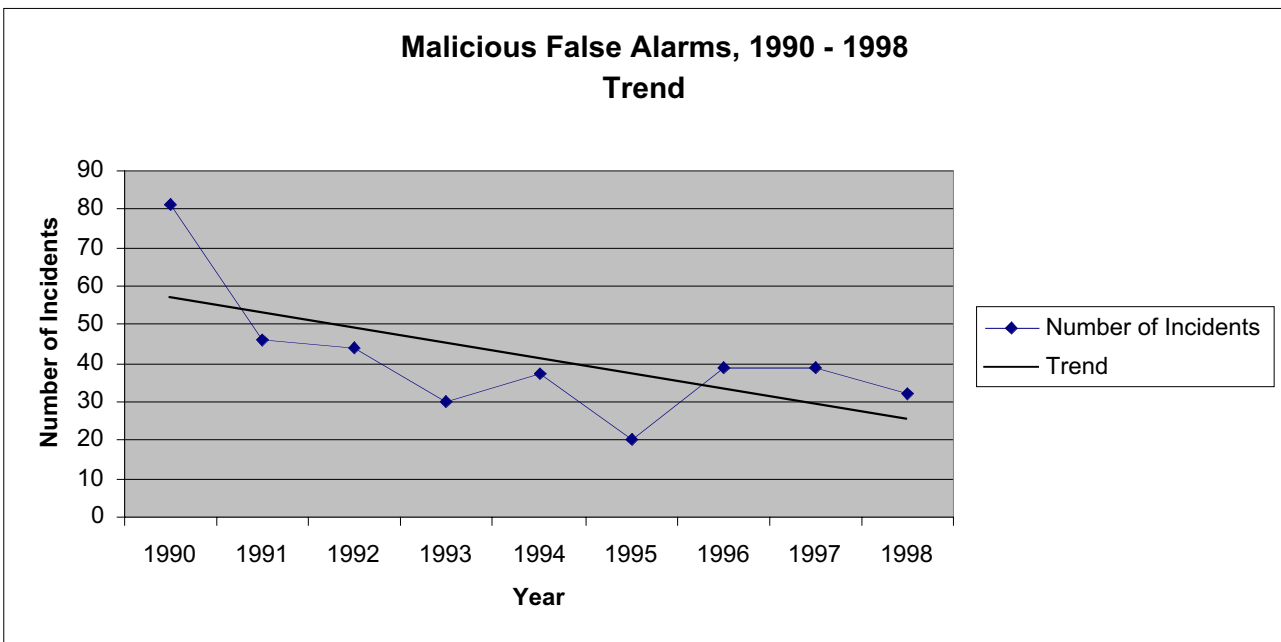
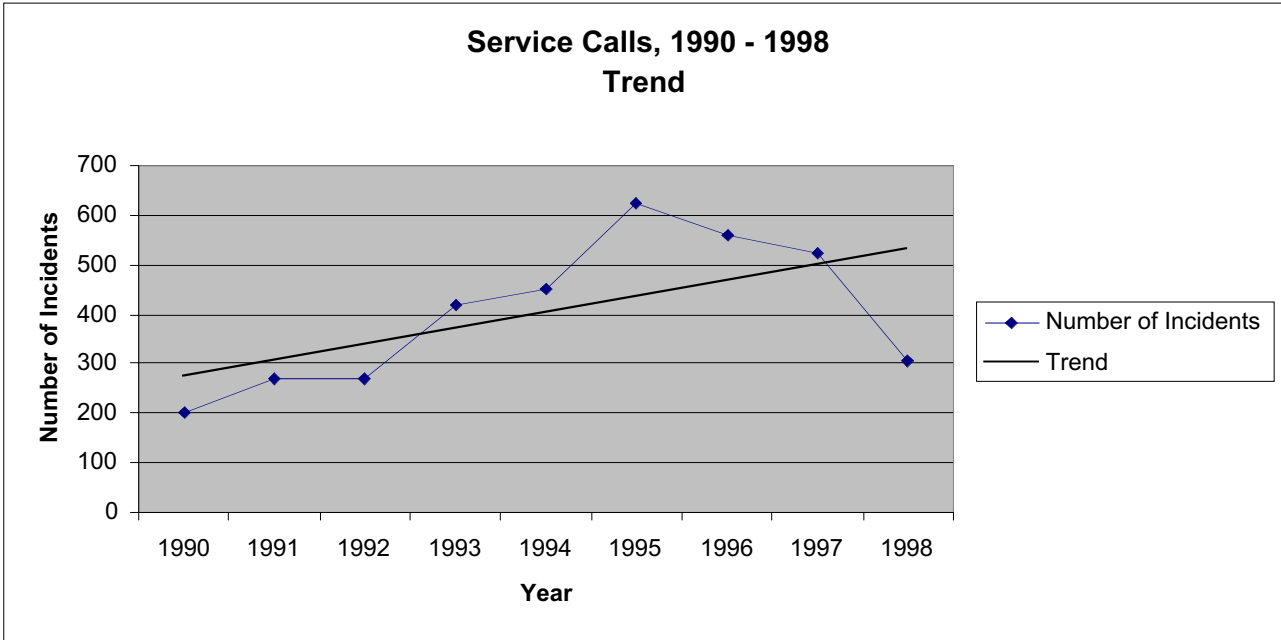
Good Intent – Boat adrift in the river, or a neighbor calls about seeing smoke.

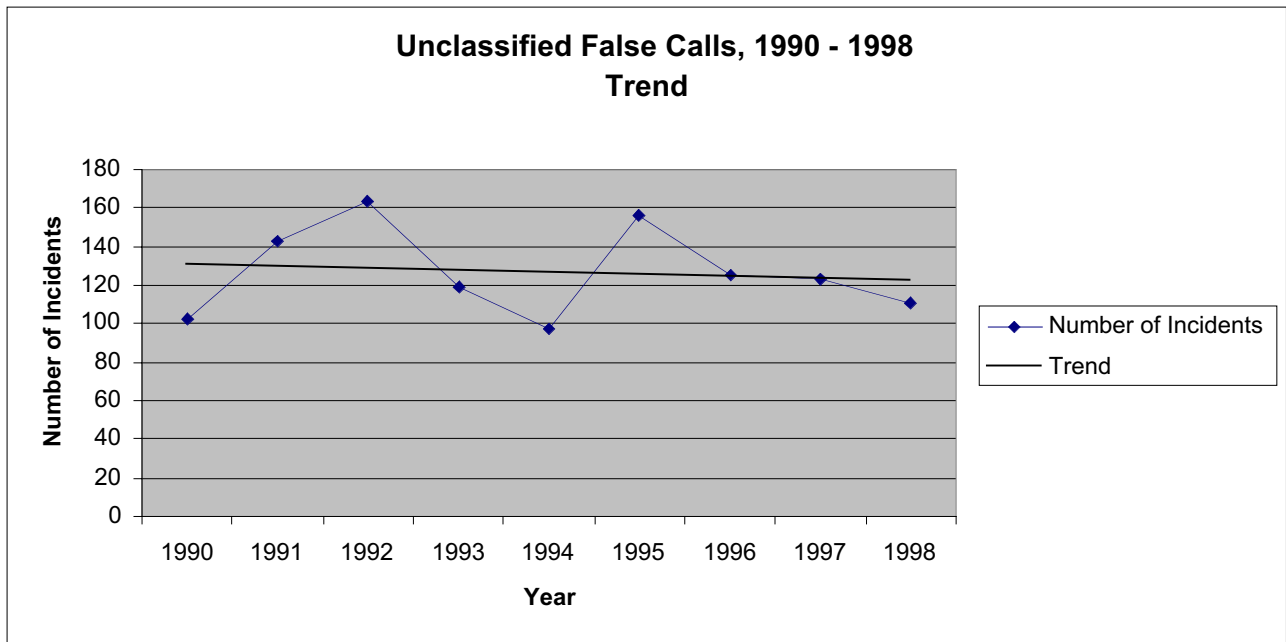
Unclassified False Calls – Fire Department accidentally mistakenly called for a burglar alarm.

Figure 7.2. FIRE DEPARTMENT INCIDENT TRENDS



(Figure 7.2 continued)





ASSETS OF THE FIRE DEPARTMENT

- The high level of fire services provided to a relatively small year round population of 6,000 people.
- Strong and dedicated organization due to participatory management and delegation of program responsibilities.

CHALLENGES FACING THE FIRE DEPARTMENT

- Overlap between emergency medical services and Durham Ambulance Corps.
- Increasing calls leaving less time for training and maintenance issues.
- Handling a 318% increase in responses since 1974 without additional staff.
- Need for an emergency response center.
- Need for new fire station and the funding to pay for the new station.

VISION

The Town of Durham will continue to have a Fire Department consisting of dedicated professionals committed to providing quality fire protection and emergency services to the community. The Fire Department will respond to expanding responsibilities and demands for service while maintaining a cost-effective service.

FIRE DEPARTMENT ISSUES, GOALS, AND RECOMMENDATIONS

ISSUE #1:

Fire Services Agreement and Funding for Fire Services

The current Fire Services Agreement and associated funding formula have been in place since January of 1997 and will continue annually until either the University or Town terminates the agreement. There is no provision within the agreement to periodically review the funding formula for fire services. There is a perception, by some, that the current formula may still weigh in favor of the University due to the number of University student related calls that occur off campus.

GOAL:

Ensure that the Fire Services Funding Formula is fair to all parties and accurately attributes calls to the appropriate party.

RECOMMENDATIONS:

1. Review how calls are categorized between a Town incident versus a UNH incident and determine if the formula should and can objectively, accurately, and consistently recognize a UNH student call off campus as a UNH incident.
2. Periodically conduct an audit of the apportionment of incidents to UNH and the Town to ensure that the apportionment is fair to both the Town and University.
3. On a regular basis, possibly every three years, the Town and University should jointly review the Fire Services Funding Formula to ensure it is fair to all parties and accurately attributes calls to the appropriate party.

ISSUE #2:

Firefighter Staffing and Equipment

The Fire Department states that the current firefighter shift staffing of four firefighters per shift is not adequate for the Fire Department to achieve its mission. The demands placed upon the Fire Department have increased, as seen by the 318% increase in responses since 1974, while the number of on-duty firefighters has remained constant. In addition to the demands of additional responses, the Fire Department has had to expand its capabilities to respond to the needs of a modern society, including training in hazardous materials response, technical rescues, and natural disasters. On top of the demands facing the department, there are fire safety standards that require rapid intervention teams (RITs), which are teams stationed outside the fire ready to rescue firefighters when they are placed in harm's way. Current shifts of four firefighters make having an RIT virtually impossible due to all the other responsibilities required of the personnel at the emergency scene. In addition, National Fire Protection Association (NFPA) Standards for Fire Department Occupation Safety and Health requires a minimum of four firefighters on scene before interior operations can be initiated. Firefighters must work in pairs and there must be at least two firefighters on the outside ready to initiate a rescue of the firefighters on the inside. In addition to maintaining adequate staffing, the equipment used by the department should be replaced as it becomes worn out or outdated.

On a scale of 1 to 10 (1 being the most favorable rating), Durham's fire services are currently rated by the Insurance Services Organization as a 4 for areas serviced by Town water and as a 9 for areas outside Town water. A rating of 4 for the water service area is very good, with only a few New Hampshire communities achieving a better rating of 3. A 9 rating is poor and must be improved. The biggest issue to resolve to improve the 9 rating is to make water more available to the rural areas of Town.

GOAL #1:

Improve upon the Town's rating of 4/9 by the Insurance Services Organization.

RECOMMENDATIONS:

1. The Fire Department should prepare a risk assessment for all areas of the community in regard to fire/life safety issues. Types of risks that should be identified include, but are not limited to, areas where there is a lack of water supply, properties that are hard to reach, and high life risk properties. For each risk identified needs should be identified and a plan prepared to address these needs. This assessment will also likely identify how the Town can improve its insurance rating.
2. Plan for and provide additional fire emergency water sources and measures to ensure that new fire emergency water sources are created as part of any new development and as required in other areas in order to improve upon the Town's fire suppression capabilities.
3. Develop a strategic plan for the Fire Department that looks to the short and long term needs of the department and community, with respect to fire and rescue services.

GOAL #2:

Increase firefighter staffing to meet minimum NFPA and RIT firefighter safety standards, so the Fire Department can safely achieve its mission, and improve the Town's insurance rating.

RECOMMENDATION:

Prior to increasing the staffing level and reorganizing the Fire Department, conduct an independent operational study of the Department that takes into account the unique needs of the community, including the University. The operational study should include an evaluation of fire service trends, space needs for all emergency services, equipment purchases, the use of equipment, staffing levels, the Department's organization, and a fiscal and operational analysis of the issue of combining fire services with ambulance services. Funding for this study should come from both the Town and University and both should ensure that the recommendations are implemented.

- Priority: Short term, 2 to 6 years

GOAL #3:

Provide equipment and apparatus that meets the needs of the community and ensure that is in top operational condition.

RECOMMENDATION:

Fund the replacement of equipment and apparatus through the Town’s Capital Improvements Program (CIP). Replace the apparatus in accordance with the schedule shown in Table 7.2.

- Cost: Varies from \$21,000 for refurbishing to \$500,000 for purchasing a ladder truck

ISSUE #3:

Future Safety Complex

The location of the future safety complex, which would include the fire station, emergency management facility, Ambulance Corps, and other emergency services, is discussed in Chapter 2 – Sense of Community and Town Facilities. The basic siting criteria for the safety complex include: a central location and proximity to UNH, minimize noise exposure to neighborhoods, good access with limited traffic, and a good distance east of the railroad tracks. In addition to planning for the location of the facility, the Town must plan for the funding of its construction. This is particularly important due to the unique relationship with the University with respect to fire services. Because the University does not have bonding authority, the Town must bond the entire cost for the facility with the University providing reimbursement. However, by doing this the Town reduces its bonding capacity for other projects it may wish to undertake. Furthermore, as the Town grows, the eventual location of a fire substation should be considered.

GOAL #1:

Ensure that the Town has adequate funding available for the new fire station so as to minimize or eliminate the need for bonding. Encourage the University to do the same.

RECOMMENDATION:

Continue to annually provide funding to the Fire Station Expendable Trust Fund. The current level of funding should be re-evaluated based upon the estimated cost for the facility and the number of years until it is expected that it will need to be on-line (estimated at 10 years). The level of funding should be established such to minimize or eliminate the need for bonding.

- Priority: Immediate, within 2 years

GOAL#2:

Evaluate and plan for the potential location of a fire substation.

RECOMMENDATION:

The Fire Department should continue to monitor its response times, locations of calls, and call density to assist in the future planning, as necessary, of a fire substation.

- Priority: Continuous

ISSUE #4:

Fire Department Medical Services versus Ambulance Corps Medical Services

The Durham Fire Department has invested in training many of its firefighters as EMTs and paramedics. The reason for this training is that on many occasions the Fire Department is first on the scene, and with this training it can provide medical services during the time it takes for the Durham Ambulance Corps to arrive, due in part to the fact that the Durham Ambulance Corps is completely made up of volunteers. With the trained firefighters, questions have arisen with respect to operating efficiencies for equipment, training, and administration since there are now two agencies, the Durham Ambulance Corps and the Fire Department, involved in emergency medical services. In addition to the medical services, the Ambulance Corps provides an essential service in the transport of the patient. In 1997 the cost to the Town of Durham for the Ambulance Corps was just under \$30,000. Thus, for the services provided, the costs are relatively low.

GOAL:

Ensure that the Town of Durham continues to retain the excellent emergency medical services provided to it, and ensure that these services are provided in an efficient and cost effective manner.

RECOMMENDATION:

As part of the independent Fire Department Operational Study recommended above, the Durham Ambulance Corps should also be assessed to evaluate whether the Corps should be a part of the Fire Department, and if not, how the Fire Department and Durham Ambulance Corps could work cooperatively with one another to minimize or eliminate any unnecessary overlap in services, equipment, training, and administration. The study should also evaluate whether it is prudent to

have a full-time call staff for the Durham Ambulance Corps so that fire equipment does not have to be sent to every medical emergency. In addition to an evaluation of the operational and safety aspects, fiscal impacts should be considered as part of the study. The contributing Towns to the Durham Ambulance Corps and the University should contribute to this portion of the study.

- Priority: Immediate, within 2 years

ISSUE #5:

Cost Saving and Life Saving Programs

The Fire Department has an active fire prevention program that ranges from classroom instruction and brochures to safety checks. These programs have proven themselves across the country as a means to save lives and property. On a separate but related issue, when emergency services are provided, fees should be charged where applicable in order to recoup the cost to the Town.

GOAL #1:

Continue to expand and broaden the fire prevention programs to reduce the potential for injury and loss of personal property. The scope of the program should reach all targeted audiences from youngsters to seniors.

RECOMMENDATIONS:

1. The Fire Department should continue to advocate reasonable built-in fire protection features in new and renovated buildings. Reasonableness should be based on common sense and cost considerations versus the benefit to life safety. Fire protection features include, for example, automatic sprinklers, fire rated partitions, and fire detection systems that detect fires earlier or keep fires small and fire damage to a minimum. Multi-audience educational and informational programs on fire prevention should continue and be expanded.
 - Priority: Continuous
2. Initiate an educational program to inform residents of when it is appropriate to dial 911 and what phone numbers should be used for non-emergency calls
 - Priority: Continuous

GOAL #2:

The Fire Department should ensure that reasonable fees are charged for services that are rendered so that the Fire Department can provide services to the community in the most cost-effective manner.

RECOMMENDATIONS:

1. Periodically reassess the fee schedule for permits issued by the Fire Department and for services billed for malicious fire alarms, hazardous materials spills, and other negligent acts, as permitted by law.

- Priority: Continuous

2. Periodically assess the types of services provided to the community and the region. Continue to be innovative in ways to cost share for services (i.e. equipment, hazardous materials response). Evaluate the idea of a county- or area-wide fire service to provide optimum protection at a reasonable cost to the public.

- Priority: Continuous

DURHAM AMBULANCE CORPS

BACKGROUND

- The Durham Ambulance Corps (DAC) was formed in 1968 in memory of Dr. George G. McGregor. It is a non-profit (IRS 501(c)(3)) organization and is registered with the State of New Hampshire as a charitable trust.
- The DAC is a volunteer organization. Over 20,000 hours of volunteer time are logged each year. There are between 40-55 volunteers. As of January 1, 1999, there is one full-time manager and several part-time employees, for a total of 60 hours of paid administrative and call coverage per week.

- The Corps provides service to Durham, Lee, Madbury, and UNH, as well as mutual aid coverage to the surrounding communities. The average percentage of calls varies each year, but for years 1992-1998 the breakdown is approximately 40% in Durham, 34% on the UNH campus, 19% in Lee, and 6% in Madbury. The remaining 1% of calls are for mutual aid.
- The Corps operates two ambulances, a 1992 Type 3 modular ambulance, and a 1996 Type 3 modular ambulance. The 1992 ambulance is scheduled for replacement in mid 2000. The Corps anticipates needing a third ambulance some time in the next five to ten years.
- The DAC provides advanced level care (Intermediate and Paramedic) and provides advanced life support (ALS) services. DAC transports patients to the four local hospitals: Wentworth-Douglass, Exeter, Portsmouth Regional, and Frisbie Memorial.
- The DAC is located in a small building near the Durham Fire Department on College Road. Both ambulances are housed there. This building is shared with a UNH repair shop.
- The DAC station has approximately 750 square feet of floor space for the two ambulances and some storage. It has approximately 193 square feet for eating and kitchen space and 63 square feet for a single bathroom. The office area and small supplies room occupy 371 square feet, while the day room occupies 234 square feet. The single unisex bunk room is 170 square feet.
- In 1985 the building was renovated as part of the adjacent Durham Fire Station construction. Additional extensive renovations occurred in 1997.

TRENDS

The volume of calls has increased over the past seven years, with an average growth rate of 5%. Anticipated increases can be attributed to: increasing overall population and growth, an overall aging population, and the impact of future elderly housing construction.

Table 7.5. NUMBER OF DURHAM AMBULANCE CORPS RESPONSES BY YEAR

Year	Number of Responses
1987	549
1988	613
1989	620
1990	685
1991	631
1992	684
1993	755
1994	767
1995	880
1996	899
1997	912
1998	966
1999	964

Membership has been fairly steady over the past several years. This is due, in part, to an informal cooperative arrangement with the UNH Department of Kinesiology's EMT training programs. A large portion of the membership is recruited from UNH students, faculty, and staff. This symbiotic relationship is enhanced by the present location of the station close to the UNH core campus. Paid staff position increases are anticipated to facilitate the increased demands on services, expanded public education, and in-house training requirements (including Federally mandated programs). Over the 30 years, there has also been a smaller percentage of members from the Durham community who have consistently supported the mission of the DAC in active EMS care functions and/or in administrative roles.

The need for a new station for both the Durham Fire Department and the DAC provides the opportunity to construct one building with two users. Examples of possible shared physical plant resources are: multipurpose room for up to 50 people (750 square feet); emergency generator and utilities; reception/waiting area/lobby; public restrooms; two conference rooms (150 square feet each); blood-borne pathogen decontamination room; laundry room; floor space for the apparatus (DAC would need approximately 1,900 square feet); exercise room; library/study room (150 square feet).

CHALLENGES FACING THE DURHAM AMBULANCE CORPS

- The DAC anticipates needing a third ambulance within the next five to ten years. There is no room for this ambulance in the current station.
- The DAC is subject to the same location issues as the Fire Department. The current location is part of the Town of Durham/UNH lease which will expire in 2009. As highlighted in the current UNH Master Plan, the location is considered prime property for expansion of the core UNH campus. Expansion of the UNH pedestrian core and exclusion of vehicular traffic on that part of College Road renders the current location undesirable.

DURHAM AMBULANCE CORPS ISSUES, GOALS, AND RECOMMENDATIONS

ISSUE:

As the population changes and ages, there will be an ever increasing demand for rapid, high quality, emergency medical care.

GOAL:

To have high quality, compassionate, advanced level, timely emergency medical care and transportation available at an affordable price for residents and their guests.

OBJECTIVE:

Encourage the towns to make available enough financial, administrative, and physical resources for the EMS mission to be carried out by the Durham Ambulance Corps, with First Responder EMS support from the Durham Fire Department.

RECOMMENDATIONS:

1. Continue with the Town of Durham and UNH planning for a new joint Fire and DAC facility on a one-acre or larger site that will be located close to the core UNH campus (see Fire Department Recommendations section). If a separate DAC is supported by the future impact study, the design should be such that there can be several shared sections, while still providing each organization with its separate area.

DAC space needs include: toilet/showers; offices; kitchen/eating area; day room; training storage room; office storage; on duty storage (gear) room; and two bunk rooms. This will need further study and agreements. Both parties should continue with the Fire Protection Agreement of January 1, 1997 by setting aside funding for a future Fire Department and DAC combined facility.

- Priority: Short term, 2 to 6 years
2. There should be consideration into formalizing an agreement among the Town, UNH, and the Durham Ambulance Corps.
 - Priority: Immediate, within 2 years
 3. Review how calls are categorized between a Town incident versus a UNH incident and determine if the formula should and can objectively, accurately, and consistently distinguish between calls that are UNH related versus Town related. This would be done to ensure that the apportionment is fair and to accurately attribute calls to the appropriate party. A end of the year review should be done to ensure that this has happened.

POLICE DEPARTMENT

BACKGROUND

At the time of the 1989 Master Plan, the Durham Police Department was located in the western wing of the Town Hall, occupying both the first and second floors. At that time the department had 15 full-time officers, 8 part-time officers, 2 secretaries, 2 school crossing guards, and 1 animal control officer. The single biggest deficiency of the Department was the lack of adequate space for the Department within Town Hall. As noted below, this problem was addressed through the acquisition of a site for a new police department facility.

The University of New Hampshire brings approximately 13,500 students to Town in addition to faculty and staff, which increases Durham's daytime population to approximately 25,000 people. The student resident population in Durham is clustered in a relatively small area in and around the downtown. In 1998, the on-campus student population was estimated to be 6,141, and the year round population of Durham was estimated to be approximately 5,000-6,000 people.

SERVICES

The Durham Police Department is a full-service law enforcement agency. Officers are responsible for law enforcement and public safety for the entire area of the Town, exclusive of property owned by the University of New Hampshire. The Police Department functions on a 24-hour basis from the department headquarters located on Dover Road.

The Department has outreach and educational programs for youth such as the Drug Abuse Resistance Education (DARE) program and the Explorer program.

STAFFING AND TRAINING

The police force, made up of a chief, 2 captains, 4 sergeants, 10 full-time officers, 2 administrative assistants, 1 parking enforcement officer and 1 animal control officer, is adequately staffed for a community of this size. The Chief of Police feels that the Department is adequately equipped and trained to address any law enforcement issues that the Town of Durham is likely to confront.

The Department has achieved Level V State accreditation by the New Hampshire Police Standards and Training Council and has also achieved national accreditation from the Commission on Accreditation for Law Enforcement Agencies (CALEA) in 1999. Accreditation is based upon 436 professional standards developed by a coalition of police managers and professional organizations.

In 1998, the members of the Durham Police Department received over 1,700 hours of specialized training. The Department's new facility provides adequate room for training.

FACILITIES & EQUIPMENT

The Durham Police Department is located in a recently renovated, dedicated facility located on Dover Road (Route 108). The 5,600 square-foot building, purchased by the Town in 1997, provides office, training, meeting, and short-term detention space. The station also includes other features such as a modern fitness/training room and a specially equipped "soft" interview room for the use of children and crime victims. The facility has been equipped with state-of-the-art security and monitoring systems and is equipped with eight computer work stations that provide ready access to law enforcement data statewide. This facility is more than

adequate for housing the current police force and allows room for expanded services in the future, if needed.

The Department is equipped with 5 marked cruisers, 3 sport-utility vehicles, 1 pick-up truck, 2 unmarked vehicles, and 2 detective/patrol captain cars. With a history of fast starts, quick stops and continuous idling, the expected life of a police vehicle is two years as a line patrol unit. Each year two vehicles must be purchased to keep the fleet viable and ready. The military surplus program has augmented the fleet and allowed significant flexibility. The “hit or miss” nature of the program does not allow the Department to depend upon a structured replacement of vehicles. In addition, the Department has bicycles that are used for a bike patrol.

RELATIONSHIP TO THE UNH POLICE DEPARTMENT

Under the terms of agreement entitled “Policy on Town of Durham - University of New Hampshire Law Enforcement & Relationships” established in 1971, and amended in 1977, the University Police Department has primary responsibility for law enforcement on all University of New Hampshire properties located within the boundaries of the Town of Durham. The authority under which the University of New Hampshire Police Department performs its duties is delegated by the Durham Town Council under the provisions of RSA 105:1.

On March 5, 1991, a report entitled “Recommendations of the Town/Gown Committee on Policing and Dispatching in Durham” was submitted to the Town Council. It concluded that there was no justification for consolidating the UNH and Durham Police Departments into one department at that time. Further, the committee opposed requesting passage of legislation which would provide the UNH Police Department with powers derived directly from State legislation. At the present time the UNH Police Department continues to derive its authority from the Town of Durham.

TRENDS & STATISTICS

A Police Department's level of performance may be measured by comparing the number of calls for police services between different communities. A call for service or incident is any activity to which an officer must respond, or put another way, anything that an officer does that takes up his/her time. Not all incidents are equal. For example, complaints of noise may take minutes while burglaries and other felonies will take hours, days, or weeks of officer time. The more calls an

individual officer handles, the less attention is devoted to their resolution. No studies are available that suggest an ideal number of calls for officers to adequately handle. However, Table 7.6 does serve as an indication that Durham’s police officers’ time is very much committed compared to other officers in the region. However, the Durham Police Department has found that the calls per officer for Durham is acceptable but nearing capacity, and it is something that should be monitored.

Table 7.6. COMPARISON OF CALLS PER POLICE OFFICER FOR VARIOUS COMMUNITIES, 1996

Community	Number of Officers	Calls for Service*	Calls per Officer
Plymouth	9	12,036	1,337
Durham	16	17,845	1,115
Stratham	8	6,887	860
Gilford	14	11,607	829
Exeter	23	18,000	782
Newmarket	12	8,589	716
Rochester	45	32,116	713
Hanover	19	13,397	705
Somersworth	19	13,373	703
Keene	46	31,658	688
Rye	8	5,081	635
Dover	44	27,870	633
Portsmouth	64	33,366	521

** Calls for service between each community is defined via a standardized reporting method*

The financial impact on the community for each call received can be found by dividing the number of calls for service by the yearly budget. Table 7.7 shows the inequity that exists in Durham compared to other communities in New Hampshire. Of the 12 other communities compared, Durham's cost per call was the lowest.

**Table 7.7. COST PER CALL FOR THE DURHAM POLICE DEPARTMENT
COMPARED WITH OTHER COMMUNITIES, 1996**

<u>Community</u>	<u>Budget</u>	<u>Cost Per Call</u>
Portsmouth	\$5,146,781	\$154.25
Dover	\$3,180,00	\$114.10
Rye	\$527,799	\$103.88
Exeter	\$1,664,000	\$92.44
Somersworth	\$1,213,944	\$90.78
Hanover	\$1,200,000	\$89.55
Keene	\$2,749,000	\$86.83
Rochester	\$2,482,651	\$77.30
Newmarket	\$648,776	\$75.54
Gilford	\$833,050	\$71.77
Stratham	\$441,600	\$64.12
Plymouth	\$685,000	\$56.91
Durham	\$905,000	\$50.71

The number of calls for service handled by the Durham Police Department has been decreasing at an annual rate of almost 1% since 1994 (see Table 7.8). Note, that Table 7.8 includes only specific types of calls for service that are traditionally reported by Police Departments, whereas Table 7.6 includes all calls for service. Due to the short time period of these reports, it is difficult to identify trends; however, of some concern is the large increase in criminal investigations and the decrease in criminal arrests. On the positive side, the increased focus in parking enforcement is shown by the increase in parking tickets and there is also a decrease in reported accidents.

Table 7.8. DURHAM POLICE DEPARTMENT CALLS FOR SERVICE BY CATEGORY, 1994 - 1998

			1994	1995	1996	1997	1998	Aver. Annual Change
Aid To Citizens			3,850	2,904	1,733	1,769	n/a*	-13.51%
Aid to Other Agencies			1,300	1,232	539	470	n/a*	-15.96%
Parking Tickets			3,402	3,241	6,222	4,256	4,776	10.10%
Escorts			118	63	224	324	n/a*	43.64%
Warnings Issued			2,516	2,859	2,691	2,787	4,143	16.17%
Summons Issued			n/a*	n/a*	1,762	1,519	1,370	
Criminal Arrests			682	731	318	337	582	-12.65%
Non-criminal Investigation			n/a*	n/a*	753	471	1,333	
Criminal Investigations			329	177	1,086	935	1,333	46.05%
Report Accidents			391	269	253	233	207	-11.76%
Total			12,588	11,476	15,581	13,101	12,164	-0.84%
			<i>Source: Durham Annual Reports</i>					
			<i>* n/a indicates that incidents in this category were not tracked for the year indicated</i>					

POLICE DEPARTMENT ISSUES, GOALS, AND RECOMMENDATIONS

ISSUE #1:

Crime in Durham

Durham's crime rate is very low for a community of comparable population, even in New Hampshire, which enjoys one of the lowest crime rates in the country. However, recent data indicates that those with less than honest intentions are visiting Durham to take advantage of a university community with relatively low incidences of criminal activity.

GOAL:

Use the uniqueness of our community, skills of the Police Department, and the formation of partnerships to keep crime in Durham at low rates. Each year target a one percent reduction in crime.

RECOMMENDATIONS:

Implement effective enforcement methods and maintain high police visibility, as well as education and prevention efforts. Employ innovative solutions that will increase the Police Department's efficiency and effectiveness.

- Develop crime prevention programs particular to neighborhoods.
- Continue forging partnerships through neighborhood forums.
- Work in partnership with UNH Police.
- Develop proactive patrols that detect suspicious activities in neighborhoods.
- Encourage officers to bring forward ideas for crime prevention programs.
- Train patrol officers to initiate and complete criminal investigations. In many communities all criminal investigations are turned over to the detectives. However, when the patrol officer is given authority to initiate and complete a criminal investigation he or she is less likely to abdicate responsibility and more likely to take a strong interest and leadership role to ensure the investigation is complete and the suspect is caught. This will then lead to higher arrest rates. For larger criminal investigations the patrol officers work with the detectives.
- Identify trends in criminal activity by crime analysis.
- Arrest and convict criminals, more effectively and efficiently, in cooperation with prosecutors and other agencies.

ISSUE #2:

Police Officer Training and Workload

The Durham Police Department responded to approximately 12,000 incidents in 1998. Within the Seacoast region, Durham police officers handle an average of 30% more incidents than their counterparts. Significant effort must be directed at not exceeding this level of officer workload.

It is critical that the skill level of the staff be fully developed. Job satisfaction through knowledge that the employees are competently trained and provided with the tools to deliver these services will also serve to retain officers.

GOAL #1:

Maintain an acceptable workload for police officers.

GOAL #2:

The concept of positive customer service must be sustained by being ingrained into the fabric of the Police Department.

RECOMMENDATIONS:

1. Increase the number of officers at a rate that will retain the current ratio of calls to officers, as shown in Table 7.6.
2. Provide high quality training for Police Department personnel and increase training opportunities for all Police Department staff.

ISSUE #3:

Relationship with the UNH Police Department

The University of New Hampshire has not included in its master plan any provisions for future needs of its Police Department. Under the UNH Master Plan, the buildings currently utilized by the UNH Police Department are slated for demolition.

The Town of Durham has an agreement with the University of New Hampshire Police Department on concurrent jurisdiction, but the agreement is over 20 years old. In addition, the University Police Department currently derives its authority from the Durham Town Council. This can create complicating issues in court cases and a management issue.

GOAL #1:

The Town of Durham has a vital interest in ensuring that public safety facilities in the Town of Durham and on the University campus are adequate for the citizens of Durham as well as the university population.

RECOMMENDATION:

It is essential that the University address the future space and service needs of its Police Department in cooperation with Town officials.

- Priority: Immediate, within 2 years

GOAL #2:

Create a clear delineation between the University Police Department and Durham Police Department and establish up-to-date and clear operational jurisdictional issues between the two departments. This arrangement needs to ensure that the best organizational structure be utilized to benefit both the Town and University, to the maximum extent possible.

RECOMMENDATIONS:

1. The Town and University should work to update the police services agreement that is presently in place so that jurisdictional issues and the source of the University Police Department’s authority are clear.

- Priority: Immediate, within 2 years

2. An independent professional study should be conducted of the Durham and University Police Departments to assess the best organizational structure for the Departments, with options ranging from making the departments completely separate, and thus deriving their authority individually, to merging the two departments into one. The study should assess the following items from the Town’s and University’s perspective for the various organizational options considered: short and long-range financial implications, operating and cost efficiencies, officer and departmental workload, management implications (including the communications center), and the location of the police department(s) and communications center. The study should be jointly paid for by the University and Town. This study should be conducted prior to the safety complex study recommended in the Fire Department section of this chapter and Chapter 2 – Sense of Community and Town Facilities. .

- Priority: Immediate, within 2 years

ISSUE #4:

Equipment Replacement

The Durham Police Department delivers services by communication on the radio, driving to the scene, and reporting the incident by using computer software. For the organization to be truly effective, it is critical that all of these components work properly. To ensure that equipment is in a state of readiness, a structured and well-conceived equipment replacement strategy is required. It is fiscally prudent to project and plan for purchases that will be required in the future while ensuring that the

Department is capable of continually delivering service to the community. It is not realistic to expect that all emergency purchases will be eliminated, even with the most detailed and comprehensive plan in place.

GOAL:

Develop a comprehensive equipment replacement program with a goal to minimize emergency purchases.

RECOMMENDATIONS:

1. Develop an inventory of all police property and equipment to include purchase date and cost.
2. Conduct Police Department-wide strategy meetings to discuss needs of all segments of the agency.
3. Work with Business Manager to develop a capital improvement plan.

ISSUE #5:

Grants and Alternative Funding Sources

Durham should apply for grant funds from the State of New Hampshire, the Federal government, and other sources, notwithstanding the difficulty of competing against other communities whose chances are greater to receive such funds due to their higher crime rates.

GOAL:

Increase the funding of the Durham Police Department through the use of grants and alternative funding sources.

RECOMMENDATIONS:

1. Investigate potential funding sources by subscription, Internet research or other resources.
2. Police Department staff/officer attend seminars that will inform Durham officials of successful grant strategies.
3. Police Department staff/officer participate in training that will assist in the development of grant applications.
4. Form partnerships with organizations that will enhance successful grant applications.

ISSUE #6:

Strategic Planning

The Durham Police Department has in place a strategic plan for the fiscal years 1998-2003 designed to ensure that the vision, mission, and objectives of the Department are achieved.

GOAL:

Ensure that the Police Department and its programs are serving the needs and desires of the community.

RECOMMENDATION:

The Police Department should regularly (potentially yearly) review and update, with assistance from the community, its strategic plan to ensure that the direction of the Department is concurrent with the desires and needs of the community.

- Priority: Immediate (within 2 years) and short term (2 to 6 years)

ISSUE #7:

Relations with the University

Currently there is no formal introduction or welcoming of new students into the Durham community. This creates a lack of information and a lack of feeling amongst the students that they have now become a part of the Durham community and the responsibility this entails.

The University and Town both need to be more cognizant of the direct and indirect effects of their policies, procedures, and programs on one another. In particular this can be seen with emergency services. Creating a clear procedure to evaluate the effects on one another is not currently in place.

GOAL:

Involve the Durham Police Department more with the activities sponsored by the University of New Hampshire and work with the Town and the Police Department when policy changes are made that will impact the community. In turn, Durham should do the same for the University.

RECOMMENDATIONS:

1. Involve the Durham Police Department in new student orientation and other student programs to both welcome the students to the community and to explain the Durham Police Department’s relationships, laws, and activities that affect the students.
 - Priority: Continuous

2. Every new policy under consideration by the University should be evaluated as to its impact on the Town, particularly those that will effect transportation and emergency services. The Town should be invited to comment and to work with the University to resolve and reduce any problems that may result from these policy changes.
 - Priority: Continuous

3. Encourage and work with the University of New Hampshire to modify its discipline procedures for actions such as disruptive and inappropriate conduct and illegal behavior/actions by UNH students in Durham. This would require the University to recognize Durham as part of the greater University community.
 - Priority: Immediate, within 2 years

DURHAM/UNH COMMUNICATIONS CENTER

BACKGROUND

- The Durham/UNH Communications Center (Dispatch) is housed in a portion of the University of New Hampshire’s Service Building on College Road.
- The Center is under the jurisdiction of the UNH Police Department. Policy input comes from representatives from the Town of Durham and UNH via the six-member Communication Center Policy Committee (CCPC).
- The Chief of UNH Police has a UNH Police Lieutenant supervising seven full-time personnel and several part-time positions (chain of command).

- Most shifts have two communications specialists on duty at a time.
- To be authorized to use the State Police Online Telecommunications System (SPOTS), a communications center must be under the direction of a law enforcement agency. This system is vital to the police agencies' information needs.
- According to the present UNH Master Plan, the Center will eventually be required to relocate. The UNH Service Building/Durham Fire Department, and the Durham Ambulance Corps station are all slated to be replaced.
- When the Communications Center is relocated, consideration should then be given to possibly housing it with a Police Department. This will improve the police department's capability to effectively and efficiently supervise the Center.
- Communications centers are the hub of all emergency communications. As such they must have restricted access, be able to be self sufficient for an extended period of time, and must be protected from various other potential hazards.

CHALLENGES FACING THE COMMUNICATIONS CENTER

- The present center lacks room for future expansion. There is no room for a third console, no room for expanded operation in the event of a large scale incident, and limited physical ability to support an emergency operations center (EOC).
- There is limited redundancy in center operations. Multiple backups are required to be able to function in the event of potential or actual catastrophic failure. Some of the radio capabilities and regular emergency and service telephone lines can be handled by their respective emergency agencies. The main alarm system (Keltron) is not backed up, and the phone lines for the center would need to be rewired and a new Keltron panel would need to be acquired in order to back up the system.
- The relocation and conversion of existing phone and alarm lines will be considerably expensive, although no exact figures have been provided to date.
- Update the capability of the Communications Center to accept a modern alarm system.

COMMUNICATIONS CENTER ISSUES, GOALS, AND RECOMMENDATIONS

ISSUE:

While dealing with emergency situations, the Communications Center must be able to carry out its day-to-day mission of receiving and relaying information for the public in order to ensure law enforcement, fire protection, and EMS services, among other things are provided. The center must be able to perform under extreme circumstances, both natural and man made.

GOAL:

The Town of Durham must work closely with the University of New Hampshire to investigate various options for the Communications Center's future. Both parties must recognize that any relocation of the Center will require a very strong financial, research, and planning commitment in order for the Center to meet the area's future needs.

RECOMMENDATION:

An extensive independent investigation should be conducted into the needs and requirements of a new Center. There are many recommendations and codes for a communications center's security, as well as its physical and operational structure. Samples of standards should be available from the International Association of Chiefs of Police, The National Fire Protection Association, and other organizations.

- Priority: Short term, 2 to 6 years

WASTEWATER

BACKGROUND

The Town of Durham has maintained wastewater collection and treatment facilities since it received the treatment plant from the University in 1964. Both the Town and University share ownership of some of the sewerage facilities, while other major trunkline interceptors and collector systems are owned separately when they serve only one entity. The Wastewater Treatment Plant is located off of Route 4 in Durham near the intersection with Route 108. All of the discharge from the areas of Town and the University served by municipal sewer comes to the Wastewater Treatment Plant for processing (see map of Existing Sewer Service Area). The treated effluent is discharged into the Oyster River, a tidal estuary.

CAPACITY

- In addition to the physical design of the Wastewater Treatment Plant determining its ability to treat effluent, the capacity of the Plant is determined by the requirements under the Federal discharge permit. Thus, if the requirements of the discharge permit are changed, then the treatment process needs to be changed to maintain capacity.
- Under the current discharge permit, the Wastewater Treatment Plant has a capacity to treat 2.5 million gallons of effluent per day.
- Currently the Wastewater Treatment Plant receives 1.3 to 1.4 million gallons of effluent per day with UNH in full session.
- By National Pollution Discharge Elimination System (NPDES) permit condition, a permittee must implement planning efforts for treatment plant expansion and upgrade when a treatment plant starts to reach 80% of capacity, or in Durham's case 2.0 million gallons per day.

WASTEWATER ISSUES

Issues relating to wastewater that are currently facing the Town of Durham and in part the University of New Hampshire are identified in three categories:

- Regulatory Compliance,
- Wastewater Improvements, and
- Administration and Financing.

Wright-Pierce Engineers is currently under contract to negotiate a new EPA discharge permit, update the wastewater treatment improvements, reduce infiltration and inflow (I/I), and plan for facility needs for the Town of Durham and UNH. These efforts will include the various master planning efforts put forward by the University of New Hampshire and Town of Durham.

The ability of the wastewater facilities to meet the current and future needs of the Town and the University of New Hampshire is determined in part by regulatory compliance through the National Pollution Discharge Elimination System (NPDES Permit). The needs of the community may include wastewater improvements and infrastructure to support economic growth and/or areas facing public health and nuisance problems. Administrative and financing responsibilities along with user cost impacts are also major concerns.

WASTEWATER ISSUES, GOALS, AND RECOMMENDATIONS

ISSUE #1:

Regulatory compliance of the Wastewater Treatment Plant is subject to change on the basis of the NPDES Permit Renewal Process. Every five years the permit renewal process is initiated by EPA and it is based on water quality criteria established for the receiving stream and the overall wastewater treatment plant performance. The result can be more stringent discharge permit limitations requiring higher levels of treatment and/or a greater dilution factor. With the regulatory emphasis on nutrient impacts of ammonia and phosphorous, toxicity impacts of heavy metals, and overall impact concerns associated with wastewater discharge to a marine estuarine environment, multiple action strategies must be planned for. This is particularly the case with the Oyster River, a tributary of the Great and Little Bay estuary. This estuary has been declared a National Estuarine Reserve, and with that designation comes a great deal of effort to improve the water quality of the estuary. This provides the Town and other estuarine communities a great deal of opportunities and potential funding to improve their land use planning and infrastructure, while at the same time elevating the requirements for discharges into the estuary. Thus, the designation of National Estuarine Reserve can act as a double edged sword.

In summary, this issue requires that multiple action strategies be advanced in order to provide the Town with a regulatory approach that is socially, environmentally, and economically defensible and to assure the Town that the best possible economic and environmental solutions for the renewal of the discharge permit are implemented.

GOAL:

Meet the NPDES permit requirements, meet the needs of the community, and provide reasonable levels of secondary treatment or higher to discharge treated effluent with a somewhat lesser dilution factor.

RECOMMENDATIONS:

1. Efforts to maximize the dilution factor include hydraulic modeling (e.g., understanding the velocity, flows, and characteristics) of the receiving stream to establish appropriate modifications to the discharge outlet, such as the addition of a multiple diffuser. This is in essence a long pipe with holes in it that would be extended out for a distance along the bottom of the Oyster River.
2. Study the possibility of relocating the actual outfall (i.e., discharge outlet) location to a point where the physical characteristics of the Oyster River would provide for a greater dilution factor.
3. As a long-range recommendation, consider and study the feasibility of a possible regional outfall relocation solution with other municipalities. The intent of such a solution would be to reach a greater dilution factor, with the costs being shared by all entities, including the State of New Hampshire and the EPA, through grant participation. The strategy is consistent with the general direction that EPA is taking regarding watershed permitting, as a more practical way to address water quality issues. Also, the avoided costs associated with higher levels of treatment must be considered.
4. The Town should be proactive in its efforts during the discharge permit renewal process. This will afford the Town the opportunity to present site specific, as well as scientific information prior to the EPA using more “general” information when setting limits on the Treatment Plant. By having the site specific scientific data available at the outset, this affords the Town the ability to anticipate the improvements or changes that will be recommended by the EPA, and provides the Town with knowledge needed to negotiate permit discharge limitations.

This has, for other communities, been shown to result in a shorter permit review time frame, a reduction in costs for improvements, and improvements that are designed specifically to protect the water quality of the receiving stream.

5. The Town should actively seek funding through the various State and Federal estuarine programs (e.g., NH Coastal Program, NH Estuaries Project, CICEET, etc.) for the improvements to the Wastewater Treatment Plant that directly affect water quality in the Great/Little Bay estuary.

ISSUE #2:

Due to the existing conditions and the likely outcome of the NPDES permit renewal process, there are and will be deficiencies in the Town, University, and shared portions of the wastewater treatment system. Improvements to the wastewater treatment facilities, pumping facilities, and collection system are needed to meet the current and future needs of the Town and the University of New Hampshire and to operate and maintain wastewater facilities in a cost-effective manner. Additional background data with documentation is needed in order to evaluate the collection system and to identify existing or long-term needs. However, it is known that the wastewater treatment system presently has excessive infiltration and inflow (I/I) in the system per current EPA standards. I/I is a condition in which water enters the treatment system through a variety of methods, such as cracks in the sewer pipes, thus needlessly increasing the amount of effluent needing to be treated. I/I is particularly acute during rain events. During storm events, the I/I levels reach a level in Durham that causes the treatment plant to exceed its capacity. This is a significant issue requiring immediate attention, particularly due to the concerns about water quality in the Great Bay estuary.

GOAL:

Identify and work toward correcting significant deficiencies in the wastewater system to ensure that the wastewater treatment system can effectively operate below 80% of its capacity over the 20-year planning horizon and that the system is maintained in a cost-effective manner.

RECOMMENDATIONS:

1. As part of the ongoing NPDES permit renewal process, the Town should evaluate the performance of the existing treatment facilities and determine the operation efficiencies and capabilities. This effort will identify the limiting process within the plant that controls and keeps the treatment plant in regulatory compliance with the NPDES permit.
2. Using the draft NPDES permit limitations, upgrade the existing treatment facilities to comply with the more stringent limitations. Implement the recommended improvements following the recommendations of the updated facilities plan.
3. In order to provide cost-effective wastewater treatment and collection, the efficiency and the sizing of the facilities should meet the twenty-year needs of the Town and the University of New Hampshire.
4. Develop a GIS-based mapping system that is consistent with the current Town-wide GIS effort to depict the existing sewerage system. Develop a hydraulic model of the system to identify and determine any system deficiencies.
5. Complete a sanitary survey to determine problematic areas in the sanitary sewer system within the Town. The results from the survey will assist the Town in determining the need for sewer system extensions, in providing documentation to support applications for funding through various State programs, and in identifying and prioritizing collection system improvements. An example of a known location for which improvements to the system are needed is a 2,300-foot section of the College Brook interceptor that extends under the UNH football field. The interceptor is undersized and is a limiting factor for the development of the Town's Office Research areas.
6. Cedar Point is an outlying area not currently served by municipal sewer, but adjacent to the City of Dover and its municipal sewer system., Cedar Point has septic problems at such a level that they need to be addressed. The Town should investigate possible regional solutions to address this area's problems. If other areas outside Durham's utility service area experience problems, the Town should assist the residents finding solutions.

7. Infiltration and inflow (I/I) require immediate attention and must be reduced. The Town should continue its efforts to identify, reduce, and/or eliminate I/I flows in both the Town and University systems. Reducing I/I will extend the capacity of the treatment plant. Funding from the various estuary programs is available and should be pursued to address this problem.

ISSUE #3:

Although the Town has made progress in curtailing the worst sources of odors (e.g., outdoor composting and primary sludge tanks), this issue requires vigilance and attention to ensure that the odor level stays at an appropriate level.

GOAL:

Control and manage the odors emitted from the Wastewater Treatment Plant so as to not reduce the property values of surrounding land.

RECOMMENDATION:

Implement odor reduction measures that include various efforts, from general housekeeping cleanup of normal source areas, process control, source elimination, scheduling at a time that is most appropriate, events that may cause odor problems and possible installation of air handling and odor control systems.

ISSUE #4:

Wastewater collection and treatment facilities are equipment dependent. Equipment and process controls require maintenance, upgrade, and replacement in order to maintain performance efficiencies.

GOAL:

Maintain the wastewater collection and treatment facilities and equipment in order to maintain performance efficiencies.

RECOMMENDATION:

Establish a ten-year capital improvements plan and a five-year comprehensive maintenance plan for the wastewater collection and treatment facilities.

ISSUE #5:

The administration and financing of wastewater facilities are always major issues. The relationship between the Town of Durham and the University of New Hampshire has worked for both the administration and financing of the wastewater facilities serving both entities. Much has changed in the way wastewater systems are operated. Cost of power and chemicals is increasing. Sludge disposal and the need to control odors are major concerns. The capital and operational costs to meet more stringent treatment levels are increasing. The transitions from Federal grants to low interest loans for wastewater collection and treatment results in greater user and taxpayer rate impacts. It is time to revisit the administrative needs of the Town and University and to take advantage of outside financing and funding opportunities to best meet the needs for the next 20 year planning period.

RECOMMENDATIONS:

1. Revisit the existing contractual agreements governing wastewater issues between the Town and the University. In addition, the Town and University should jointly fund an operational and fiscal analysis of the various options available for merging the operation, management, and control of the wastewater system under a single entity or authority. The current contract with Wright-Pierce for the discharge permit could be amended to include this study.
2. Update the Sewer Ordinance and establish necessary pre-treatment provisions. These efforts will allow the Town to require existing and future users to comply with Federal requirements.
3. Evaluate the sewer user charge system and incorporate capital improvements planning and any other operation or surcharge costs that are user specific.
4. Develop a rate structure that allows for the cost of sewer extensions to be shared or assessed to the users requesting to extend or connect to the sewer system.
5. Develop a financing strategy that will maximize the use of grants and low-interest loans for all eligible projects. The Town should look for opportunities to leverage the funds used by private developers to improve the wastewater system, as needed for their developments, to be put toward the match funding required for participation in many State and Federal wastewater programs.

WATER

BACKGROUND

Water supply and distribution is one of several municipal services that involve the Town and University in cooperative endeavors. The University processes and provides water through its own treatment and distribution systems to meet the needs of students living in on-campus housing as well as the daily needs of faculty, staff, and various facilities on its 1,000-acre campus. All water from the public system is treated under the University's license.

The Town obtains water from its Lee well, purchases needed additional treated water from the University, and distributes the combined supply to some 940 Durham households and businesses. The billing of water purchased from UNH is regulated under a water system agreement between the Town and UNH signed in December of 1991. Based on metered usage, these ratepayers must reimburse the Town semi-annually for the water purchased from the University and for the costs of operating/maintaining the Town portion of the system. While virtually all businesses located in the Town are served by the joint Town/UNH water system, approximately 50% the Town's 1,714 single-family homes are connected to the system. The other residences rely on wells located on their property; a few are served by neighborhood (privately maintained community) wells.

The water system consists of assets separately owned and operated by the University and the Town (see map of Existing Water Distribution Service Area). It is unclear who owns the water rights to the Oyster River (the major supply source for the system). UNH owns, operates and maintains the Arthur Rollins Water Treatment Plant, the Edgewood Road storage tank (1.0 million gallons), the Lamprey River pumping station, and all distribution mains located on University property. The Town owns and operates the Lee well and pumping station, the Foss Farm Road storage tank (3.0 million gallons), the Beech Hill storage tank (0.6 million gallons), and the water distribution mains which serve the Town; it holds water rights to the Lamprey River (a backup reserve to supplement the Oyster River supply). The Town and University have jointly funded studies for the Spruce Hole aquifer, an as-yet-undeveloped underground water supply; however, the property over the Spruce Hole Bog is jointly owned by the Town as per the water agreement between the Town and UNH dated December of 1991.

TRENDS

Water Demand

In 1999, the Town and University consumed about 851,000 gallons of water per day, the University providing 621,000 gallons (from its Oyster River/treatment plant supply) and the Town contributing about 230,000 gallons (pumped from its Lee well). When the University is in session, UNH consumes about 75% of total water produced; in the summer when UNH is not in session, the proportion of use is about 60% by the University and 40% by the Town. *Maximum* daily demand, including Town usage, when the University was in full operation was about 1.35 million gallons in 1999.

The University's Utility Master Plan (updated in May 1999 by Earth Tech, Inc.) projects future *average daily* water demand for the total system as follows in Table 7.10:

Table 7.10. PROJECTED FUTURE AVERAGE DAILY WATER DEMAND

Demand Component	Year 2000	Year 2005	Year 2010
Town	277,100	318,400	359,600
University	746,200	994,200	1,223,200
Total Average Daily Demand	1,023,300	1,312,600	1,582,800
Total Maximum Daily Demand	1,616,800	2,073,900	2,500,800

Available data permits projecting water usage to only about 10 years into the future, and the anticipated 30% increase in Town water demand by the year 2010 is quite modest. The projected Town demand is based on potential development, which envisions adding 351 new connections (single-family dwellings, subdivision and multiple-unit facilities approved by or before the Planning Board in 1999, as well as an expanded 1,000-pupil high school) during the next 10 years. The University's water usage is projected to grow by 64% during the coming decade as a result of new or expanded facilities on the UNH campus.

Water Supply

The ability of the water system to meet present and projected water demand is determined by the adequacy of the water supply *and* the capacity of the Rollins treatment plant to process surface water.

Combining all presently identified potential sources (Oyster River, Lee well, Lamprey River and Spruce Hole aquifer), there is a sufficient water supply available to meet currently projected Town and University water needs through the year 2010 and for some time beyond. The processing capacity of the Rollins treatment plant is, however, a major limiting factor. To assure both an adequate supply and adequate treatment capacity, the following issues need to be addressed and appropriate actions taken.

WATER ISSUES, GOALS, AND RECOMMENDATIONS

ISSUE #1:

Extensive improvements in the 1990s upgraded the processing capacity of the UNH Arthur Rollins Treatment Plant to accommodate an estimated 1.55-million-gallon *maximum* daily demand without deterioration of water quality. Based on current projections (which assume the Town will provide some 300,000-plus gallons of water per day from its Lee well), the Rollins treatment plant should be able to meet demand levels until the year 2003 when the sedimentation basin will need to be enlarged and other improvements (larger pumps, etc.) will be required to meet increasing demand for treated water.

RECOMMENDATION:

The University's ongoing treatment plant expansion/improvements merit *immediate priority (within 2 years)* attention.

ISSUE #2:

At present, ground water pumped from the Town's Lee well does not require the extensive treatment that Federal and State water-quality regulations specify for surface water drawn from the Oyster or Lamprey rivers. However, current regulations being promulgated by EPA will require treatment for radon. The changes to the regulations will increase the cost of treatment. The Lee well is estimated to be capable of producing 550,000 gallons per day, of which, by formal agreement, 10% must be held in reserve for possible use by the Town of Lee. By Town Council action, an additional 15% of the Lee well water has been earmarked for the needs of businesses occupying space in the Technology Drive office and research park and other potential economic development activities in the west area of the Town.

The Town (in 1999-2000) is gradually increasing the amount of water it pumps from the Lee well, with the intention of pumping between 300,000 and 400,000 gallons per day into the water system during the coming years. This would about equal the total daily water demand by Town users during this decade. Because this groundwater supply does not require processing at the treatment plant, it helps postpone the day when the Rollins treatment plant must be expanded. Equally important, the amount of Lee well water being fed into the total system reduces, and could eliminate for the short-term at least, the Town's water purchases from UNH. However, the Town loses its flexibility and reserves for the future in case the treatment plan reaches or gets near its capacity.

GOAL:

Increase the amount of water pumped from the Lee well to postpone the forthcoming improvements to the UNH Rollins Treatment Plant.

RECOMMENDATIONS:

1. The Town should carefully evaluate increasing the amount of Lee well water pumped into the combined system. The impact this increased pumping may or may not have, in terms of any draw-down of the Oyster River watershed, must be monitored. Increased pumping may delay the improvements to the water treatment plant, but it may also impair the future flexibility of the Town if the plant reaches capacity.
2. The amount of water pumped from the Lee well into the water system should be closely monitored and compared to the billing for water services provided by UNH to ensure that the Town is fairly charged for water usage. The Town and University should ensure that there is a policy in place in case the Town's contribution of water from the Lee well exceeds the amount of water used by the Town during a billing cycle.

ISSUE #3:

The Lamprey River has historically been used for a backup or emergency water supply. During the 1990s, it has had to be tapped for a period of several days during summer drought periods when the Oyster River supply was inadequate to meet daily demand. Draw-down of the Lamprey during drought periods is a matter of considerable concern to those who live on the waterway.

Currently, the Lamprey River water is carried via pipe to the Oyster River where it then merges with the Oyster River's flow near the Durham/Lee

town line and is then carried to the treatment plant by the Oyster River. Conveying the Lamprey water into the Oyster River, rather than directly to the treatment plant, is inefficient and wasteful of the resource.

GOAL:

Provide a direct connection of the Lamprey River into the Rollins Treatment Plant to allow environmentally responsible management of our water resources, particularly during extended dry and low flow periods, and to provide a separate backup water supply if the Oyster River should become contaminated.

RECOMMENDATION:

A joint effort by the Town and University should continue in an effort to extend the pipeline so that it will carry the Lamprey water directly to the Rollins treatment plant.

- Priority - Immediate, within 2 years

ISSUE #4:

Proposed in-stream flow regulations drafted, but yet to be adopted by the State, could significantly impact the amount of water Durham would be allowed to draw from the Lamprey River, most especially during drought periods. The instream flow regulations will control the withdrawals from selected New Hampshire Rivers, including the Lamprey River, to minimize the impact on the river's ecology during low flow periods.

GOAL:

Both the Town and the University should make necessary preparations so that the implementation of the State in-stream flow rules does not adversely affect the availability of water for the system.

RECOMMENDATION:

The University/Town water system needs to have a water conservation plan in place that aims at conserving all water resources. Such a plan will be required by the proposed in-stream flow regulations, and its existence could very well temper the impact of the proposed limitations on Lamprey River withdrawals. Responsibility for preparing such a plan was given to the Durham Conservation Commission in 1999; efforts to complete and implement the plan should continue.

- Priority - Immediate, within 2 years

ISSUE #5:

The Town and University jointly own a fourth potential water supply source, Spruce Hole. Extensive hydrological studies prepared by Dr. Ballestero of UNH in 1996 confirm that the aquifer underlying the bog, which is located along the Lee town line in the southwestern quadrant of Durham, could yield up to 400,000 gallons per day of water and is therefore a significant resource for future needs. No action has been taken to develop Spruce Hole as a water supply source. Costs of \$1.6 million or more have been estimated (in 1989) for developing and conveying water from this underground source into the existing Town/University system.

GOAL:

Develop the Spruce Hole Aquifer as the next water source for the Durham/UNH community when the demands on the water system warrant the additional water.

RECOMMENDATION:

1. Development of the Spruce Hole Aquifer resource and bringing it on-line as an integral unit of the water system merits at least a *mid-term priority (within 7 to 25 years)*, following the development of the Lamprey River piping project.
2. Ensure that the deed for the Spruce Hole property reflects the joint ownership between the Town and University.

ISSUE #6:

The fact that oversight of the assets and operations of the water system is vested in two separate entities, the University and the Town, inhibits and complicates long-range planning and policy development. The need for joint long-range water policy development and planning between the two entities is an important concern.

GOAL:

The Town and the University should create a formal mechanism to ensure that joint long-range water policies and planning are developed.

RECOMMENDATIONS:

1. The Town and the University need to formalize an oversight group for joint planning and policy making to assure maximum communication and effective coordination in the operation and development of the water system, and in the coordination of water restrictions during drought conditions. The existing Water, Waste Water, and Solid Waste Advisory Committee is a good candidate. It should be noted that interaction and day-to-day cooperation at the manager and worker level exists and is effective.
 - Priority - Immediate, within 2 years
2. The Town and the University should develop and implement policies and action plans for the protection and conservation of present and future source water watersheds (Oyster River, Lee Well, Spruce Hole, etc.), a number of which will require interaction, agreements, and joint actions with other communities.
 - Priority - Immediate, within 2 years
3. Hand-in-hand with the development and adoption of a water conservation plan, a philosophy with regard to the on-going conservation of water resources is needed. While the University has made some progress in applying water conservation principles to recent construction of buildings and facilities on its campus, Durham citizens do not know about these conservation practices. There is a widespread misperception that neither Town or University is sincerely committed to conservation approaches. Greater efforts should be made to make citizens aware of the importance of water conservation practices.
4. The ownership of the water rights for the Oyster River should be determined.
5. The Town should consider ordinances to protect source water watersheds and aquifers.
 - Priority - Immediate, within 2 years

ISSUE #7:

The Town's water users currently pay all costs of purchasing water from the University, maintaining and upgrading the Town distribution system, and underwriting the Town's share of the cost of capital improvements to the water system. Because of the small number of these ratepayers (940 in 1999), even modest increases in annual operating/capital costs have a significant impact on the user's bill and are a limiting factor in future improvement or expansion of the system. Currently there is no up to date Town plan for future extensions of Town water lines; however, Chapter 8 – Tax Stabilization makes several recommendations with regard to areas for utility extensions.

GOAL #1:

The Town should develop and adopt a policy with respect to water line extensions and a program for the maintenance of the water distribution system.

GOAL #2:

Develop a comprehensive Town Water System Ordinance.

RECOMMENDATIONS:

1. The Town should develop and adopt a water line extension policy and plan.
 - Priority – Short term, 2 to 6 years
2. Some Durham neighborhoods that now rely on wells for their water supply (e.g., Cedar Point, Woodridge and possibly other neighborhoods) face the threat of contamination of their water sources due to soil, septic, and water conditions. Residents of the Cedar Point section of Durham, for instance, have sought new water service due to threat of leach field and saltwater contamination of wells. The City of Dover has indicated willingness to consider providing such service by extending its lines across the Scammell Bridge to Cedar Point, a project Dover officials estimated (in 1997) would require capital investment of \$420,000 for water and \$661,000 for sewer. While less costly and more practical than extending lines from Durham proper, this is an extremely large expense for a single neighborhood to finance. It is also an investment that current water system ratepayers do not appear willing to underwrite. The residents of Cedar Point need the help and guidance of Town officials to explore the possibilities for alternative financing - perhaps through a "betterment district," or

through grants or loans from Federal-State clean water programs, or rural development agencies. The Town should anticipate that other neighborhoods may face similar difficulties in the future, and the Town should develop a policy and plan that provides the means to cope with such crises.

- Priority – Short term, 2 to 6 years
3. The Town needs to plan a responsible *annual* investment in the replacement of its older, deteriorating water mains and lines.
 - Priority – Short term, 2 to 6 years
 4. The Town needs a comprehensive water ordinance formally designating the Town's philosophy, practices, requirements, and procedures for future improvements, connections, and extension of its water system.
 - Priority – Immediate, within 2 years
 5. To ensure an effective and efficient water distribution system, the Town should monitor, evaluate, and plan for when and if additional water storage is needed. Additional storage may be necessary to increase pressure within the system or for emergency storage purposes. Preliminarily, the most appropriate location may be in the northeast quadrant of the water service area, based upon pressure issues identified in the 1989 Dufresne–Henry report and the current locations of the storage tanks.
 - Priority – Short term, 2 to 6 years
 6. A plan is needed for pipeline extensions that would "loop" the water distribution system. Looping the water system improves the system's hydraulics, increases fire flows, and eliminates dead-ends where water tends to stagnate. As part of the recommended water ordinance, a provision should be considered requiring developers extending the water system to provide for looping. Areas identified as needing looping of the system include Route 108 to Canney Road, Beech Hill to Madbury Road, Route 108 across Beards Creek, and Foss Farm neighborhood to Faculty neighborhood.
 - Priority – Short term, 2 to 6 years

7. Water supplies are under increasing stress in New Hampshire and throughout the country. Both Town and University should be encouraged to aggressively pursue regional approaches leading to the identification and development of water resources to serve future needs.
 - Priority – Short term, 2 to 6 years

SOLID WASTE

BACKGROUND

At the time of Durham's 1989 Master Plan, Durham was a member of the Lamprey Solid Waste Cooperative which at that time included membership from the University of New Hampshire, Durham, Lee, Madbury, and Newmarket. As part of this cooperative the Town took its solid waste to the Lamprey Regional Incinerator which was located on the campus of UNH. In 1989 the Town was just starting to explore a full-scale recycling program.

There have been dramatic changes since 1989. The Town opted out of the Lamprey Solid Waste Cooperative and the Solid Waste Division of the Public Works Department operates the Durham Landfill, which acts as a transfer center and recycling center. The facility was at one time an incinerator site, but now primarily receives recyclables and debris through both indoor and outdoor storage facilities. The landfill is in the closure process and a capping plan is in the engineering and review process at the State level.

SERVICES

The Town offers curb-side residential pickup on a weekly basis for both refuse and recyclables. The Town provides a comprehensive curbside recycling program. Figure 7.3 shows the materials accepted and not accepted as part of this program. The recyclables and refuse picked up by the Solid Waste Division is transported by the Town to Waste Management's Turnkey facility in Rochester. In 1998, the Town and University jointly purchased a roll-off truck that is used to transport recyclables and bulky waste to the receiving facility.

Figure 7.3. ITEMS ACCEPTED AND NOT ACCEPTED AS PART OF DURHAM’S CURBSIDE RECYCLING PROGRAM

CO-MINGLED RECYCLABLE CONTAINERS	
Material Accepted	Material Not Accepted
Plastic – #’s 1, 2, 3, 5, 7	Wide mouth containers, auto petroleum products, Styrofoam, film, and plastic bags
Glass – Clear, green, brown	Light bulbs, cookware, ceramics, window glass, and mirrors
Aluminum, Tin, and Steel Cans – Drink cans, empty paint cans, aerosol cans, pie plates, clean foil	Containers with any material remaining or rusty cans
FIBER RECYCLABLES	
Material Accepted	Material Not Accepted
Corrugated Cardboard – Clean, dry uncoated cardboard and paper bags	Coated, waxed, greasy, or soiled cardboard
Newspaper	Other recyclable materials in the same bag not accepted
Mixed Paper – Aseptic packaging, office paper, junk mail, magazines, cereal boxes, phone books, juice boxes, milk cartons	Other recyclable materials in the same bag not accepted
OTHER RECYCLABLE ITEMS	
Material Accepted	Material Not Accepted
Textiles – Most clothing, towels, hats, shoes, sheets, belts, drapes, curtains	Wet or soiled textiles, rugs, yarn, string, fabric scraps, or high heeled shoes
Dry Cell batteries	Lithium batteries, wet cell batteries, auto batteries

Each year the Town sponsors a curbside spring clean-up for bulky waste that includes items such as home appliances, furniture, stuffed goods, decontaminated metal items, and tires.

The Solid Waste Management Facility also accepts the following items and offers the following services:

- Oil based paint recycling,
- Leaves, brush, and stumps,
- Construction debris,
- Scrap metal recycling,
- Car battery recycling,
- Car tire recycling,
- Oil filter recycling,
- Motor oil recycling, and
- Propane tank recycling.

All of these services are provided to residents who purchase a yearly landfill permit for \$5.00, which also entitles them to two bulky waste permits.

Each year a household hazardous waste collection day is held. It is usually a cooperative effort among the adjoining communities in order to reduce costs to the Town.

Commercial recycling programs are offered; however, pick-up of commercial and multi-family refuse is the responsibility of the business.

FACILITIES & EQUIPMENT

The following equipment and capital facilities are operated by the Solid Waste Division.

Table 7.11. EQUIPMENT AND FACILITIES FOR THE SOLID WASTE DIVISION

Equipment/Facility	Year Built or Acquired	Current Condition	Extent of Use	Replacement Cost*	Target Date for Renov./Replace
International Recycler	1992	Good-Fair	Heavy	\$75,000	2000
Crane Carrier Refuse Packer	1997	Excellent	Heavy	\$127,000	2002
Crane Carrier Refuse Packer	1985	Fair	Moderate	\$127,000	2002
Bobcat Skid Steerer	1998	Excellent	Heavy	\$37,850	2008
Baler	1990	Good	Moderate	\$34,300	2010
Solid Waste Management Facility		Fair-Good	Heavy	N/A	Closure and Capping Planned for 2001
Recycling Shed	1970	Good	Heavy	N/A	Unknown

* Estimated replacement cost in 1999 dollars for new comparable equipment.

Currently, all the refuse and recyclables are brought to the Waste Management Turnkey Facility in Rochester, New Hampshire. This facility will provide capacity until the year 2010. The facility is in the process of doubling the size of its recyclable sorting and processing plant from 12,000 square feet to 24,000 square feet.

The Solid Waste Division is staffed by a single superintendent who has four full-time employees and one half-time employee.

TRENDS

There are currently approximately 1,500 curbside stops for Durham’s solid waste program, and generally for each building permit issued, a new stop is added (see Chapter 1 – Demographics, Housing, and Growth Management).

Durham’s recycling rate has increased from approximately 14% of the waste stream in 1990 to approximately 29% in 1998.

In contrast to the recycling rate, the Town has actually decreased the amount of refuse generated, even with the growth in population. In 1990 the Town generated 2,900 tons of refuse and in 1998 it generated 2,545 tons.

Recycling revenues reached a high in 1995 of \$62,800, but since that time the market for recycled goods has changed dramatically, and the Town is now receiving much less revenue for its recyclables. In 1997, the Town actually had to pay almost \$12,000 to the market to take the recyclables. Recycling, in the short term, costs more per ton than disposing of refuse in a landfill.

Table 7.12. SOLID WASTE RATES SINCE 1990

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	Average Annual Change
Tons of Recycled Materials	492	648	707	829	933	881	1,012	913	1,035	12.3%
Tons of Curbside Refuse (non-recyclables)	1,333	1,272	1,260	1,252	1,298	1,283	1,276	1,320	1,414	0.7%
Total Refuse (not including recyclables)	2,873	2,624	2,763	2,818	2,765	2,752	2,005	2,471	2,545	-1.3%
Percent of Waste Stream Recycled	14.6%	19.8%	20.4%	22.7%	25.2%	24.2%	33.5%	27.0%	28.9%	
Recycling										
Program Costs (labor, materials, admin., etc.)	\$144,874	\$181,537	\$176,516	\$165,830	\$183,310	\$186,347	\$199,315	\$211,550	\$217,936	
Revenues from Recycling Market	\$13,644	\$16,810	\$14,199	\$18,038	\$38,042	\$62,800	\$12,269	\$12,827	\$11,174	
Tip Fee Avoidance	\$27,060	\$36,940	\$40,299	\$47,253	\$51,315	\$44,050	\$46,552	\$43,258	\$50,208	
Total Cost for Recycling	\$104,170	\$127,787	\$122,018	\$100,539	\$93,953	\$79,497	\$140,494	\$155,465	\$156,554	
Total Cost per Ton for Recycling	\$211.73	\$197.20	\$172.59	\$121.28	\$100.70	\$90.23	\$138.83	\$170.28	\$151.26	
Refuse Landfilling										
Program Costs (labor, materials, admin., etc.)	\$64,731	\$61,254	\$53,929	\$52,963	\$55,091	\$58,818	\$69,181	\$64,282	\$73,182	
Tipping Fee	\$73,315	\$72,504	\$71,820	\$71,364	\$71,390	\$59,018	\$58,696	\$62,542	\$68,396	
Total Cost for Refuse Landfilling	\$138,046	\$133,758	\$125,749	\$124,327	\$126,481	\$117,836	\$127,877	\$126,824	\$141,578	
Total Cost per Ton for Refuse Landfilling	\$103.56	\$105.16	\$99.80	\$99.30	\$97.44	\$91.84	\$100.22	\$96.08	\$100.13	
Additional Cost per Ton for Recycling	\$108.17	\$92.05	\$72.78	\$21.97	\$3.26	-\$1.61	\$38.61	\$74.20	\$51.13	Average \$51.17

Solid Waste Issues, Goals, and Recommendations

ISSUE #1:

Future of the Landfill Site on Durham Point Road

The Durham Point Road landfill site is scheduled for mandatory capping in 2001. The landfill closure plan will result in the elimination of brush burning and the storage of leaf and yard waste in the location where these activities presently occur. The capping will also likely prevent the use of the areas where recyclables are presently stored and processed.

The University of New Hampshire has a similar situation in that its solid waste/recycling handling area is located where the Entrepreneurial Campus is planned.

GOAL:

Develop a plan and fund its implementation for relocating the Town's solid waste operation due to the changes necessitated by the capping of the landfill.

RECOMMENDATION:

1. Consider ceasing the use of the Durham Point Road Landfill site as a transfer station and work cooperatively with the University of New Hampshire to construct and operate a new solid waste/recyclables transfer facility at a new location. Fund a feasibility study for this project.
 - Priority: Short term, 2 to 6 years
 - Cost: \$25,000 (split between Durham/UNH)
2. Continue to monitor and participate in the regional meetings sponsored by the Strafford Regional Planning Commission to pursue the concept of regional cooperation for municipal solid waste disposal, recycling, and composting.
 - Priority: Short term, 2 to 6 years
3. Determine what solid waste / recycling activities the State will permit on future landfill cap, and design the capping of the landfill to maximize the ability to use the site for public works activities and potentially other activities, such as recreation.
 - Priority: Immediate, within 2 years
4. Identify realistic options for future brush, leaf, and yard waste disposal following the capping of the landfill, but do not eliminate the program since it will result in illegal dumping and potential fire hazards. Options to consider include on-site disposal, transfer off site, privately operated facilities, and periodic rental of a tub grinder to mulch and reuse the waste. Recycling of the waste should be the goal.
 - Priority: Immediate, within 2 years

ISSUE #2:

Ensure Continued Success of the Recycling/Solid Waste Program

The recycling program is very successful, as shown in Table 7.12. The current curbside pick-up program for solid waste and recycling was on the cutting edge when it was adopted in 1982; however, technology has changed and there are more efficient and cost-effective methods available.

GOAL #1:

Streamline and make the solid waste and recycling collection, processing, and marketing program more cost effective, with a specific goal over time of making recycling equivalent in costs per ton to landfill disposal costs.

RECOMMENDATIONS:

1. Continue to look for efficient and effective ways to gather and process recyclable materials in a cost-effective way.

- Priority: Immediate, within 2 years

2. Evaluate the spring clean-up program with an effort to reduce cost and speed up the effort. The use of a private contractor should be evaluated. Continue to encourage recycling rather than leaving items out for spring clean-up. As part of this evaluation, survey the residents as to their willingness to continue/discontinue the program with an explanation of its costs. In any evaluation to discontinue the program, consider the impacts of illegal dumping.

- Cost: Town Staff time, \$1,000 for in-house survey

GOAL #2:

Continue the trend of decreasing the amount of refuse generated and increasing the proportion of recyclables.

RECOMMENDATIONS:

1. Institute a program recognizing residents, apartments, and/or businesses for their recycling efforts, including encouraging local businesses to use more environmentally friendly packaging. Such a program could include a “recycler of the month or year.” Nominations could come from the community.

- Priority: Short term, 2 to 6 years

2. Provide education on backyard composting in a joint effort with homeowners, the Cooperative Extension, the Durham Garden Club, and the UNH Office of Sustainability.
 - Priority: Short term, 2 to 6 years
 - Cost: \$1,000 - \$5,000 for publication costs
3. Work cooperatively with local businesses, the Oyster River School District, and the UNH Office of Sustainability to establish a local food waste recycling program. This is currently being done at Kingman Farm for the UNH Campus.
 - Priority: Short term (2 to 6 years) to mid term (within 7 to 25 years)
4. Continue to offer a household hazardous waste day in conjunction with surrounding communities to save costs.
 - Priority: Continuous

GOAL #3:

The Solid Waste Division should work to:

- Reduce the long term personnel costs,
- Reduce long-term vehicle related costs,
- Reduce unit collection time,
- Increase safety for personnel, and
- Reduce the number of incidents of work related injury and personnel lost time.

RECOMMENDATIONS:

1. Evaluate how other municipalities manage and operate their refuse and recyclable programs and see if their concepts can apply to Durham.
 - Priority: Immediate, within 2 years
2. Evaluate out-sourcing the collection and disposal of refuse and recyclables to private contractors.
 - Priority: Short term, 2 to 6 years
 - Cost: In house – no cost/consultant >\$5,000

GOAL #4:

Work with the Oyster River School District to improve its recycling program.

RECOMMENDATION:

Work with the students and faculty from the schools to solicit their ideas and to use recycling as part of their educational experience.

- Priority: Continuous

GOAL #5:

Increase commercial participation in the recycling program.

RECOMMENDATION:

Provide a means for businesses to recycle mixed office paper in large quantities.

- Priority: Immediate, within 2 years

ISSUE #3:

Pay as You Throw Program

In addition to streamlining the operation, the reduction of refuse is another major method to reduce the cost of the Town's solid waste program.

GOAL:

Evaluate a PAYT program for Durham. Pay as You Throw (PAYT) or Pay per Bag programs is one way to encourage the customer base to place more emphasis on recycling and reducing solid waste. It puts the control of refuse disposal in the hands of the customer and a fee is charged based upon the amount of service used.

RECOMMENDATION:

Prepare a clear and informative proposal for a PAYT program for Durham that includes an analysis with an adequate basis. If the analysis shows a PAYT program is warranted, then place the item on the ballot as a referendum vote by the Town's residents.

- Priority: Immediate, within 2 years

