

Study of the Fire Department

BARNSTABLE FIRE DISTRICT
BARNSTABLE, MASSACHUSETTS

matrix 
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1. INTRODUCTION AND EXECUTIVE SUMMARY

The Matrix Consulting Group was retained by the Prudential Committee of the Barnstable Fire and Water District to conduct a study of the current operations of the Barnstable Fire Department and to evaluate the feasibility of consolidation with the four other fire districts in the Town of Barnstable. This project took place in the late spring and summer of 2003. In order to conduct this project, the members of the project team took the following steps:

- Interviewed all three members of the Barnstable Prudential Committee.
- Conducted interviews with the prior and current acting Fire Chief.
- Conducted small group interviews with company officers and firefighters on all four work groups of the Fire Department.
- Collected data regarding the workload, deployment, apparatus, equipment, personnel policies, etc. This included reviewing the current contract between the Districts and the local, reviewing utilization of various leave categories and so on.
- Developed a descriptive profile of the Barnstable Fire Department in which key data and information are summarized.
- Conducted a data collection survey of the other four fire districts in the Town of Barnstable. This survey (included in this report) provided information regarding staffing, deployment, station location, salaries and benefits and other factors that are critical to developing an understanding of the feasibility of consolidation.

Each of these steps was further supported by review with the Department of interim documents.

Executive Summary

This section provides a brief summary of the primary recommendations included in this report. More detailed analysis related to each recommendation is included in the

body of the report. The paragraphs, which follow, provide our key findings and recommendations:

- The Barnstable Fire Department is able to provide a basic level of first response to fire and medical calls for service in their district. This is currently provided using three on-duty personnel. Any additional response coverage requires that the Department rely on call-back and paid-on-call personnel. This is a higher level of service than is available in some parts of the Town (e.g., West Barnstable) but lower than is available in others (e.g., Hyannis, COMM).
- The current approach to staffing is too heavily reliant on the use of overtime. This is the case because current scheduled staffing is the same as the minimum staffing for the Department. The Fire District should authorize the hiring of four additional firefighters for an estimated annual cost of \$201,000. However, reduction in overtime costs will actually result in annual savings of approximately \$30,000 from making this staffing change.
- The Fire District should also move towards adding additional staffing to the Fire Department in order to bring minimum staffing up to one officer and three firefighters per shift (for a total of four). This will result in an enhanced level of service and increased ability to deal with larger incidents or multiple calls. The additional cost for these personnel will be approximately \$171,000 annually (including some overtime costs for shift coverage). The District could take the approach of adding these personnel incrementally over several years in an effort to reduce the one-time impact on tax-payers.
- The Fire District should continue to participate in the county emergency dispatch system even if the County chooses to charge participants for this service. The project team found that the cost to hire civilian dispatch staff would be approximately \$175,000 annually. This does not include the operations costs, capital costs, etc. associated with providing dispatch. Furthermore, the level of service to the Fire Department would also decline – loss of coordination with other agencies, lost ability to dedicate a dispatcher to a major incident, etc.
- The Fire Department is doing an excellent job providing training to personnel. The project team made only small recommendations for improvement in this area involving establishment of an on-shift daily training component.
- Current management systems are well-suited for the operations of the Department and command staff make good use of those systems.
- The project team does not recommend any changes to the current organizational or management structure of the Department or of its relationship with the District.

- The project team does not recommend that the District pursue consolidation of its services with any of the other districts in the Town at this time. Our calculations show that the potential for savings is slight (approximately \$34,000 with one-time savings of \$80,000) and that the operational benefits can already be met through mutual aid agreements (and consolidated dispatch).

The detailed analysis for each of these issues is presented in the following chapters of the report. The first chapter summarizes the current operations of the Fire Department.

2. SUMMARY OF THE CURRENT SITUATION

This chapter provides a narrative and statistical summary of the operations, staffing and workload of the Barnstable Fire Department. This descriptive profile has been developed by the project team following the following activities:

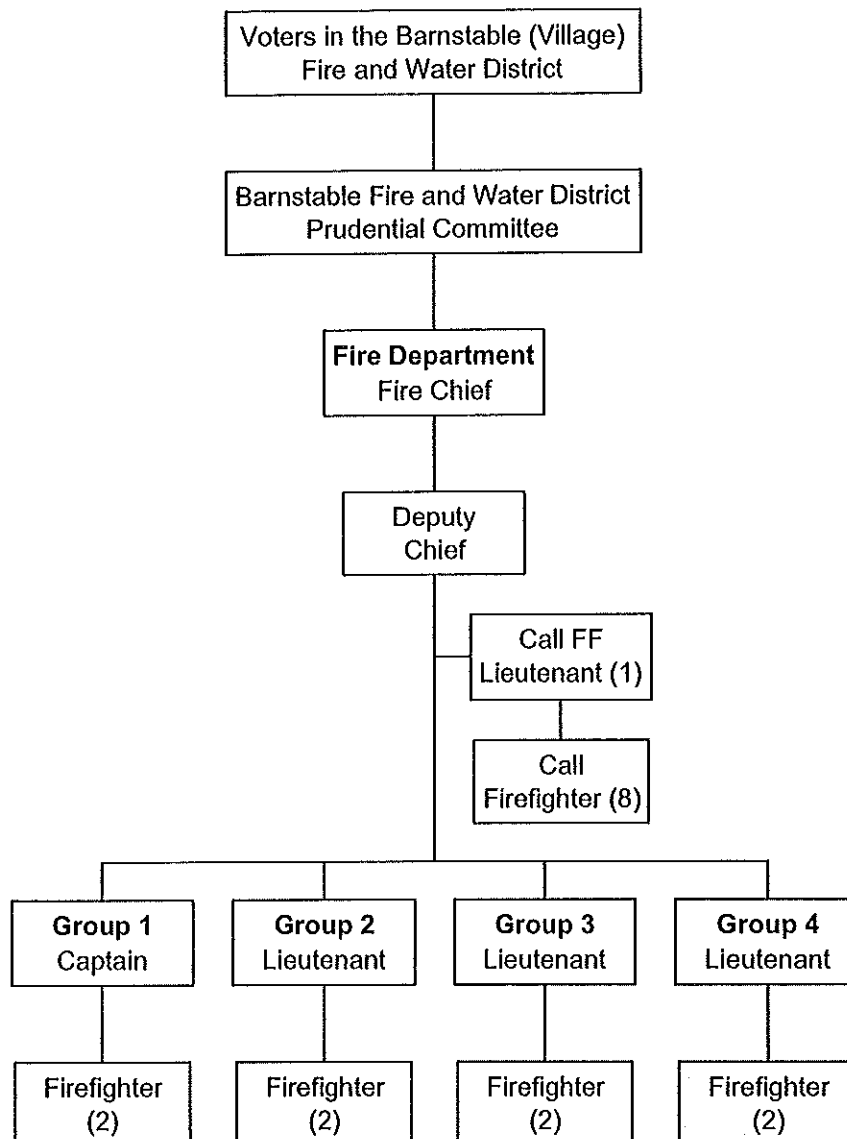
- Individual interviews with the Prudential Committee members of the District.
- One on one interviews with the Chief and the Deputy Chief.
- Small group interviews with on-duty officers and firefighters assigned to each work group.
- Collection of data describing the finances, contracts, workload and other elements of the Fire Department.

This descriptive summary is broken down into several sections that summarize staffing and deployment, workload, apparatus and station information and other information (such as finances).

1. FIRE DEPARTMENT PERSONNEL

The Barnstable Fire Department is staffed with a total complement of 14 full-time personnel and one part-time position (a civilian support position). The Fire Department is organized with a Chief and Deputy Chief supervising the line activities of the Department. The organization chart, below, provides a graphical depiction of the current organization and staffing of the Fire Department:

Organization of the Barnstable Fire Department



The Fire Department has assigned many individuals with duties that go beyond their primary responsibilities working on a shift. The exhibit, below, provides a summary of the primary and ancillary roles and responsibilities of the various positions in the Fire Department:

Summary of Primary and Ancillary Roles and Responsibilities

Position	Number	Description of Roles and Responsibilities
Fire Chief	1	<ul style="list-style-type: none"> • Department head, reports directly to the Prudential Committee of the Fire and Water District. • Establishes operational policies and procedures. • Manages daily and long term operations of the Fire Department. • Responsible for long term planning and development. • Direct supervision at major incidents within the District. • Supervises the Deputy Chief and line personnel. • Shares on-call responsibility for non-duty-hour incidents with the Deputy Chief.
Deputy Fire Chief	1	<ul style="list-style-type: none"> • Assistant department head, reports directly to the Fire Chief. Serves in the place of the Chief when the Chief is unavailable (i.e., out of the District or area). • Responsible for providing all plan review, inspections and other fire prevention / public education roles within the Department. • Assists the Chief with the develop of reports and other key issues. • Serves as the Fire Training Officer for the Department. • Responsible for safety issues in the Department, and will serve as Safety Officer on major incidents (if the Chief is present).
Fire Captain Fire Lieutenant Call Firefighter Lieutenant	1 3 1	<ul style="list-style-type: none"> • Responsible for supervision of the personnel assigned to their specific shift. • This includes ensuring that shifts are filled so that the BFD is operating at the minimum staffing level. • The Captain is also responsible for: EMS coordination, EMS training and primary responsibility for coordinating infection control (one of the Lieutenants serves as the alternate coordinator). • The Lieutenants also share a wide range of responsibilities including: building maintenance, pre-plans, hose, technical rescue, driver training, ground ladder maintenance, information technology, call firefighting coordination and public relations. • All officers have a primary responsibility for ensuring the operational capability of one of the BFD's apparatus.
Firefighter Paramedic Firefighter EMT Call Firefighter	3 5 8	<ul style="list-style-type: none"> • Personnel are responsible for typical line firefighter functions. This includes, in the BFD, fire suppression, rescue service and emergency medical service. • As with the company officer, line personnel have a wide range of ancillary duties, including: office supplies, alarm coordination, E911 coordination, physical fitness coordination, ropes and gear, driver training, reference materials, hazmat supplies, SCBA, grounds maintenance, vehicle / equipment maintenance, fire prevention, EMS supplies, hydrants and fire investigation.

The table, below, documents the current roster of the Fire Department including career and call personnel (who were not included in the preceding exhibits):

Barnstable Fire Department
Department Roster, as of June 13, 2003

Name	Rank	Date of Hire	Yrs. of Experience
Beal, Christopher	Call FF	9/2/02	0.77
Blanchard, George	Lieutenant	7/20/89	13.90
Brailey, Kevin	Call FF	7/20/00	2.89
Cecil, Robert	Firefighter	3/6/97	6.27
Coffin, Glenn	Captain	8/24/87	15.80
Crosby, Robert	Interim Chief	7/1/89	13.95
Fleming, John	Call FF	7/20/00	2.89
Fleming, William	Firefighter	8/29/92	10.78
French, Richards	Call Lieutenant	6/1/64	39.03
Garran, John	Firefighter (leave)	9/20/92	10.72
Guilford, Edward	Lieutenant	5/14/90	13.08
Iacovelli, Steve	Firefighter	7/1/89	13.95
Igoe, Janet	Clerk	2/26/02	1.29
Nemec, Barbara	Call FF	8/1/93	9.86
Nemec, Jeffrey	Call FF	5/18/00	3.07
O'Neill, Donald	Firefighter	6/3/02	1.02
Ogonowsky, Jr., Richard	Firefighter	9/10/96	6.75
Olsen, Christopher	Firefighter	7/1/89	13.95
Pfautz, Richard	Lieutenant	8/31/92	10.78
Poirier, Edward	Call FF	7/20/00	2.89
Rampino, Mark	Call FF	5/5/03	0.10
Rex, Donna	Firefighter	7/1/89	13.95
Talin, Jonathan	Firefighter	7/20/00	2.89
Tuepker, James	Call FF	7/20/00	2.89

This shows that the Department has a wide range of experience within all ranks. However, it is important to note that the majority of career personnel have more than 10 years of experience in the Fire Department (which has consequences in terms of leave accrual and utilization).

The exhibit, on the following page, provides a summary of the use of leave by person / by category for the past 12 months.

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Name	Bereavement	Comp Time	Fitness	Holiday	Line of Duty	Personal	Sick	Sick Lv Ince.	Union Leave	Vacation
Blanchard, George	24	44	0	0	0	0	0	198	10	0
Brailley, Kevin	48	0	0	0	0	0	0	0	0	316
Cecil, Robert	48	14	0	0	0	30	30	24	28	0
Coffin, Glenn	0	0	0	0	168	1128	38	360	0	106
Crosby, Robert	0	10	0	0	32.5	0	32	34	14	82
Fleming, William	0	0	0	0	0	282	66	276	0	182
Garran, John	0	0	0	0	0	0	10	0	0	301.27
Guliford, Edward	0	20	0	0	0	0	52	72	0	24
Iacovelli, Stephen	0	0	10	0	0	0	34	228.5	0	126
Jones, William	0	63.5	0	0	25	0	25.5	0	0	316
Ogonowsky, Richard	0	0	14	0	0	0	14	102	0	228.5
Olsen, Christopher	0	0	10	0	0	0	24	92	0	164
O'Neill, Donald	0	0	14	0	0	0	0	48	10	168
Plautz, Richard	48	0	0	0	0	0	24	53	0	48
Rex, Donna	0	48	0	0	0	24	14	116	34	116
Talin, Jonathan	0	0	0	0	0	0	0	10	0	188
TOTAL	168	199.5	48	225.5	1434	363.5	1613.5	86	34	2365.77

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Summary of Activity for 2001

Name	Hrs. of Activity	% of Total Hrs.	Training Hrs.	% of Total Hrs.	Other Hrs.	% of Total Hrs.	Total Hrs. on Duty
Blanchard, George	154	5.3%	51	1.8%	2,695	92.9%	2,900
Brailey, Kevin	184	53.6%	78	22.7%	80	23.3%	343
Cecil, Robert	269	8.2%	64	2.0%	2,933	89.8%	3,265
Coffin, Glenn	70	3.0%	41	1.8%	2,198	95.2%	2,308
Crosby, Robert	349	9.5%	45	1.2%	3,285	89.3%	3,680
Doherty, John	103	46.4%	69	31.1%	51	23.0%	222
Fleming, John	46	30.9%	67	45.0%	36	24.2%	149
Fleming, William	84	3.7%	18	0.8%	2,157	95.5%	2,259
Fontaine, Patrick	27	20.5%	67	50.8%	40	30.3%	132
French, Richards	179	50.3%	67	18.8%	111	31.2%	356
Garran, John	237	6.8%	56	1.6%	3,175	91.6%	3,468
Godin, Paul	173	56.7%	66	21.6%	66	21.6%	305
Guilford, Edward	231	7.0%	69	2.1%	2,985	90.9%	3,284
Iacovelli, Stephen	202	6.4%	37	1.2%	2,915	92.4%	3,154
Jones III, William	28	1.6%	53	3.0%	1,702	95.6%	1,781
Maciel, Joseph	20	16.8%	54	45.4%	45	37.8%	119
Martin, Jonathan	67	32.1%	76	36.4%	67	32.1%	209
McGrath, Stacey	5	5.1%	64	64.6%	31	31.3%	99
Miller, Katie	0	0.0%	61	67.8%	29	32.2%	90
Nemec, Brenda	108	49.8%	54	24.9%	55	25.3%	217
Nemec, Jeffrey	95	46.8%	63	31.0%	46	22.7%	203
O'Connell, Thomas	74	33.3%	64	28.8%	84	37.8%	222
Ogonowsky, Richard	159	5.1%	34	1.1%	2,952	93.9%	3,144
Olsen, Christopher	217	6.0%	62	1.7%	3,315	92.3%	3,593
Pfautz, Richard	370	10.1%	55	1.5%	3,236	88.4%	3,660
Poirier, Edward	73	39.9%	61	33.3%	51	27.9%	183
Rex, Donna	104	4.1%	59	2.3%	2,398	93.7%	2,559
Talin, Jonathan	332	30.7%	103	9.5%	646	59.8%	1,080
Tuepker, James	91	23.3%	80	20.5%	144	36.8%	391
Total	4,136	9.1%	1,792	4.0%	39,312	86.8%	45,297

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Summary of Activity for 2002

Name	Hrs. of Activity	% of Total Hrs.	Training Hrs.	% of Total Hrs.	Other Hrs.	% of Total Hrs.	Total Hrs. on Duty
Alger, Richard	50	56.2%	14	15.7%	26	29.2%	89
Beal, Christopher	5	33.3%	8	53.3%	4	26.7%	15
Blanchard, George	141	5.2%	34	1.3%	2,536	93.6%	2,710
Brailey, Kevin	281	12.0%	76	3.3%	1,978	84.7%	2,336
Cecil, Robert	176	6.4%	62	2.3%	2,494	91.3%	2,733
Coffin, Glenn	10	0.5%	4	0.2%	2,021	99.4%	2,033
Crosby, Robert	286	9.7%	62	2.1%	2,613	88.2%	2,961
Fleming, John	27	33.3%	30	37.0%	25	30.9%	81
Fleming, William	58	2.9%	14	0.7%	1,961	96.5%	2,032
Fontaine, Patrick	12	35.3%	7	20.6%	14	41.2%	34
French, Richards	147	53.1%	46	16.6%	93	33.6%	277
Garran, John	64	5.3%	19	1.6%	1,121	93.1%	1,204
Godin, Paul	17	50.0%	9	26.5%	8	23.5%	34
Guilford, Edward	241	8.0%	72	2.4%	2,705	89.6%	3,018
Iacovelli, Stephen	259	8.0%	52	1.6%	2,973	91.6%	3,244
Igoe, Janet	0	0.0%	0	0.0%	219	100.0%	219
Jones III, William	16	1.0%	15	1.0%	1,543	98.0%	1,574
McGrath, Stacey	0	0.0%	4	50.0%	4	50.0%	8
Nemec, Brenda	76	69.1%	13	11.8%	21	19.1%	110
Nemec, Jeffrey	40	40.4%	35	35.4%	23	23.2%	99
O'Connell, Thomas	6	28.6%	8	38.1%	8	38.1%	21
O'Neill, Donald	102	5.8%	45	2.5%	1,623	91.7%	1,770
Ogonowsky, R.	145	4.8%	59	1.9%	2,848	93.3%	3,052
Olsen, Christopher	157	5.2%	57	1.9%	2,835	93.0%	3,048
Pfautz, Richard	314	9.7%	57	1.8%	2,869	88.5%	3,240
Poirier, Edward	56	37.8%	56	37.8%	36	24.3%	148
Rex, Donna	122	5.0%	42	1.7%	2,297	93.3%	2,461
Talin, Jonathan	331	13.2%	83	3.3%	2,100	83.5%	2,515
Tuepker, James	117	46.1%	21	8.3%	117	46.1%	254
Total	3,335	7.7%	1,055	2.4%	38,944	90.0%	43,279

2. FIRE DEPARTMENT WORKLOAD

This section of the descriptive profile provides a summary of the workload that is handled by the Fire Department. The first exhibit, which follows, provides a summary of the number of incidents handled, per month, for the past several years:

**Incidents (All Types)
By Month and Year
2001 - 2003**

Month	2001	2002	2003 (Through 5/15)
January	78	74	62
February	70	53	71
March	65	54	65
April	62	56	73
May	71	72	34
June	79	74	n/a
July	82	99	n/a
August	103	89	n/a
September	76	56	n/a
October	81	85	n/a
November	72	62	n/a
December	73	66	n/a
Total	912	840	(annualized) 825

The volume of calls seems to have dropped from 2001 to 2002. However, this decline occurred when the Fire Department stopped tracking public assist calls using the NFIRS reporting method (but tracked the calls as an "activity" instead). It is also interesting to look at the distribution of calls for service by time of day and day of week. These are shown in the two exhibits that follow:

**Distribution of Incidents
By Hour of Day
2001 - 2003**

Time of Day	2001		2002		2003 (5/15)	
	#	%	#	%	#	%
0000-0100	18	2.0%	13	1.5%	14	1.7%
0100-0200	14	1.5%	18	2.1%	22	2.7%
0200-0300	21	2.3%	18	2.1%	5	0.7%
0300-0400	15	1.6%	8	1.0%	11	1.4%
0400-0500	13	1.4%	13	1.5%	11	1.4%
0500-0600	16	1.8%	12	1.4%	11	1.4%
0600-0700	15	1.6%	18	2.1%	19	2.4%
0700-0800	28	3.1%	23	2.7%	16	2.1%
0800-0900	65	7.1%	36	4.3%	30	3.8%
0900-1000	59	6.5%	57	6.8%	68	8.6%
1000-1100	72	7.9%	49	5.8%	62	7.9%
1100-1200	54	5.9%	47	5.6%	62	7.9%
1200-1300	56	6.1%	67	8.0%	76	9.6%
1300-1400	57	6.3%	49	5.8%	70	8.9%
1400-1500	62	6.8%	44	5.2%	35	4.5%
1500-1600	66	7.2%	68	8.1%	43	5.5%
1600-1700	40	4.4%	53	6.3%	43	5.5%
1700-1800	45	4.9%	46	5.5%	41	5.2%
1800-1900	36	3.9%	50	6.0%	51	6.5%
1900-2000	38	4.2%	34	4.0%	32	4.1%
2000-2100	36	3.9%	29	3.5%	16	2.1%
2100-2200	32	3.5%	36	4.3%	16	2.1%
2200-2300	32	3.5%	30	3.6%	16	2.1%
2300-0000	22	2.4%	22	2.6%	16	2.1%
Total	912	100.0%	840	100.0%	787	100.0%

The preceding table shows that the distribution of calls for service across the time of day is somewhat more variable than it is across the day of the week. Specifically, there is a “peak” of activity that occurs from 8AM to 8PM – representing slightly higher activity levels than occur from 8PM to 8AM. These variances are not surprising given the residential character of most of the Fire Department's response district. The exhibit, on the following page, shows the distribution of incidents by day of week.

**Distribution of Incidents
By Day of Week
2001 - 2003**

Day of Week	2001		2002		2003 (5/15)	
	Number	%	Number	%	Number	%
Sunday	109	12.0%	71	8.5%	103	13.1%
Monday	121	13.3%	116	13.8%	149	18.9%
Tuesday	148	16.2%	159	18.9%	103	13.1%
Wednesday	144	15.8%	140	16.7%	114	14.4%
Thursday	138	15.1%	128	15.2%	122	15.5%
Friday	129	14.1%	123	14.6%	100	12.7%
Saturday	123	13.5%	103	12.3%	97	12.4%
Total	912	100.0%	840	100.0%	787	100.0%

The preceding exhibit shows that the distribution of calls for service appears to remain fairly even despite the day of week. Individual years may show small "spikes" in activity for a given day. However, these are as much a function of the relatively small sample size (i.e., the number of incidents) as they are representative of any underlying trend. The table, that follows, provides a summary of the incidents handled, by type:

**Summary of Incidents Handled
By Type
2001 and 2002**

Year	2001		2002	
	Count	% of Incidents	Count	% of Incidents
Fire	41	4.5%	42	5.0%
Overpressure Rupture, Explosion, Overheat - No Fire	3	0.3%	1	0.1%
Rescue & Emergency Medical Service Incidents	547	60.0%	555	66.1%
Hazardous Conditions (No Fire)	32	3.5%	28	3.3%
Service Call	86	9.4%	30	3.6%
Good Intent Call	25	2.7%	54	6.4%
False Alarm & False Call	170	18.6%	128	15.2%
Special Incident	4	0.4%	1	0.1%
Undetermined Incident Type	4	0.4%	1	0.1%
Total	912	100%	840	100%

Note that the delivery of emergency medical services makes up more than 45% of calls for service in every year (and more than 60% of calls in 2001 and 2002). The

project team also examined the response times that the Fire Department is averaging to all calls for service over the past several years. It is also interesting to examine the impact that concurrent calls have on the Fire Department. The table, below, provides a summary of this key statistic:

**Incidence of Concurrent Calls
All Call Types by Year**

Year	2001	2002	2003 (5/15)
Total Incidents	912	840	787
Overlapping Incidents	84	67	54
% of Incidents that Overlapped	9.2%	8.0%	6.9%

The table, that follows, provides a summary of the mutual aid given and received by the Department for the past several years:

**Mutual Aid Given and Received
By Department
2001 - 2003**

Department	2001	2002	2003 (5/15)	Average
Brewster Fire Department Received	1	0	0	0.3
Brewster Fire Department Given	0	0	0	0.0
COMM Fire Department Received	2	0	0	1.5
COMM Fire Department Given	7	1	0	2.3
Dennis Fire Department Received	0	0	0	0.0
Dennis Fire Department Given	1	0	0	0.3
Hyannis Fire Department Received	43	6	8	15.8
Hyannis Fire Department Given	8	3	5	9.6
Sandwich Fire Department Received	0	0	0	0.3
Sandwich Fire Department Given	0	1	0	0.3
W. Barnstable Fire Department Received	7	8	11	7.2
W. Barnstable Fire Department Given	10	0	3	5.2
Yarmouth Fire Department Received	1	3	0	1.5
Yarmouth Fire Department Given	5	1	0	1.8
Total	80	22	27	44.0

The table, on the following page, provides a summary of the average response times:

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Year	2001			2002		
Response Time (min.)	#	%	Cum	#	%	Cum
<1	108	9.2%	9.2%	87	8.1%	8.1%
1	111	9.4%	18.6%	101	9.4%	17.4%
2	157	13.4%	32.0%	131	12.2%	29.6%
3	152	12.9%	44.9%	144	13.4%	42.9%
4	159	13.5%	58.4%	177	16.4%	59.4%
5	193	16.4%	74.8%	175	16.2%	75.6%
6	84	7.1%	82.0%	103	9.6%	85.2%
7	79	6.7%	88.7%	53	4.9%	90.1%
8	43	3.7%	92.3%	29	2.7%	92.8%
9	21	1.8%	94.1%	23	2.1%	94.9%
10	31	2.6%	96.8%	16	1.5%	96.4%
11	2	0.2%	96.9%	7	0.6%	97.0%
12	10	0.9%	97.8%	1	0.1%	97.1%
13	7	0.6%	98.4%	5	0.5%	97.6%
14	3	0.3%	98.6%	6	0.6%	98.1%
15	1	0.1%	98.7%	4	0.4%	98.5%
16	1	0.1%	98.8%	5	0.5%	99.0%
17	2	0.2%	99.0%	3	0.3%	99.3%
18	0	0.0%	99.0%	2	0.2%	99.4%
19	3	0.3%	99.2%	0	0.0%	99.4%
20	0	0.0%	99.2%	2	0.2%	99.6%
21	1	0.1%	99.3%	0	0.0%	99.6%
22	2	0.2%	99.5%	0	0.0%	99.6%
23	0	0.0%	99.5%	0	0.0%	99.6%
24	1	0.1%	99.6%	0	0.0%	99.6%
25	0	0.0%	99.6%	0	0.0%	99.6%
26	1	0.1%	99.7%	1	0.1%	99.7%
33	0	0.0%	99.7%	1	0.1%	99.8%
39	0	0.0%	99.7%	1	0.1%	99.9%
47	1	0.1%	99.7%	0	0.0%	99.9%
56	0	0.0%	99.7%	0	0.0%	99.9%
Scatter	3	0.3%	100.0%	1	0.1%	100.0%
Total	1176	100.0%		1078	100.0%	
Avg. Resp. Time (min.)	4.26			4.28		

Note that the exhibit, above, provides a summary of the response times for all units. It shows that the average response times are right around four minutes (on

average) and that 90% of responses occur in seven minutes or less. The project team also examined the ability of the Fire Department to respond personnel to incidents. This is summarized, in the exhibit below:

**Average Turnout Per Incident
By Year**

Year	2001	2002	2003 (pro-rated through 5/15)
Total Number of Incidents	912	840	787
Total Number of Responding Personnel	4420	4307	4085
Average Turnout per Incident	4.8	5.1	5.2

The Fire Department has been consistently able to place approximately five personnel on-scene per incident. Given that on-duty staffing is three personnel, these data show that off-duty and call personnel are responding to increase the response capability of the Fire Department.

3. FIRE DEPARTMENT STATION AND APPARATUS

The Barnstable Fire Department currently operates from a single station location. It is located on Route 6A (Main Street). The road address is 3249 Main Street. The facility has recently been renovated and expanded to provide for room for additional apparatus and space to more adequately house career and paid-call personnel. The table, that follows, summarizes the key information describing the various pieces of apparatus maintained by the Fire Department:

Unit	Year	Manufacturer	Pump	Tank	Ladder
E-202	1989	Pierce	1500	750	n/a
E-205	1996	Pierce	1500	750	n/a
L-206	1992	Pierce	n/a	n/a	105'
R-203	1996	Horton	n/a	n/a	n/a

4. FINANCIAL INFORMATION

The Fire Department budget is summarized, below:

Summary of FY 03 and FY 04 Budgets

	Appropriated FY03	Requested FY04
1. Vehicle Expense	\$20,824.50	\$22,424.50
2. Maintenance	\$13,568.50	\$17,819.18
3. Utilities	\$22,686.57	\$24,955.23
4. Training	\$8,000.00	\$12,000.00
5. Fire Chief Professional Exp.	\$1,650.00	\$11,650.00
6. Legal and Fire Prevention	\$5,000.00	\$5,000.00
7. Wages		
Fire Chief	\$63,897.67	\$73,814.47
Deputy Fire Chief	\$65,201.00	\$68,461.05
Part-Time Clerk	\$13,000.00	\$13,650.00
Chief, Sick Leave Buyout	\$9,124.88	\$0.00
Career Firefighters	\$556,280.85	\$584,094.89
Career F.F. Overtime	\$250,000.00	\$262,500.00
Educational Overtime	\$14,000.00	\$14,700.00
Career F.F. Holidays	\$28,192.98	\$29,602.63
Call Firefighters	\$40,000.00	\$40,000.00
E.M.T. Stipends/FF Stipends	\$24,500.00	\$24,500.00
Total Wages	\$1,064,197.38	\$1,111,323.04
8. Fire Hose and Equipment	\$27,000.00	\$30,800.00
9. E.M.S. Supplies & Assessment	\$18,720.00	\$27,093.58
10. Office Expense	\$5,400.00	\$5,400.00
Total	\$1,187,046.95	\$1,268,465.53

3. COMPARISON WITH OTHER FIRE DISTRICTS IN THE TOWN OF BARNSTABLE

This chapter provides a summary of the comparative survey developed and conducted by the Matrix Consulting Group. This was intended to gather information regarding the operations of each of the districts in the Town. There are five fire districts in the Town of Barnstable, including the Barnstable Fire Department. These include the following agencies:

- Barnstable Fire Department
- Centerville / Osterville / Marstons Mills Fire Department
- Cotuit Fire Department
- Hyannis Fire Department
- West Barnstable Fire Department

Each of these agencies is an independent fire district chartered to provide fire (and in some cases water) services to a district within the Town of Barnstable. The Town of Barnstable has no operational or policy control over the five districts. Primary areas of interest that were addressed by the survey include the following:

- Staffing and deployment (i.e., minimum staffing, company staffing, etc.)
- Wages and other costs
- Workload handled by type of call

The results of the survey are provided on the following pages.

BARNSTABLE FIRE AND WATER DISTRICT
Final Report on the Study of the Fire Department

Information		Barnstable	COMM	Cotuit
Contact Name & Information		Deputy Chief Robert Crosby (508-362-3312)	Deputy Chief Craig Whiteley (508-790-2380)	Sr. Private Pierce (508-428-2210)
Number of Full-Time Staff		14 FT personnel: Chief Deputy Chief 1 Captain 4 Lieutenants 8 Firefighters 1 PT Clerk	53 FT personnel: Chief Deputy Chief 4 Captains 8 Lieutenants 4 Sr. Privates 30 Firefighters 2 Inspectors 1 Mechanic 2 Administrative personnel	9 FT personnel: Chief 1 Captain 3 Sr. Privates 4 Firefighters
Number of Paid-Call Staff		8 paid-call staff	No paid-call staff	13 paid-call staff
Number of Stations		1	3 stations	1 station
Location of Stations (Address & Cross Streets)		3249 Main Street, Barnstable	1 – (HQ) – 1875 Rt. 28 - Centerville 2 – 999 Main Street – Osterville 3 – 270 Rt. 149 – Marstons Mills	64 High St., at the intersection of School St. & High St.
Schedule of Full-Time Staff		24-on, 24-off, 24-on, 5 days off	24-on, 24-off, 24-on, 5 days off	4 24-hr. shifts, 2 FT personnel per shift;
Number of: Engines Ladders Ambulances Other		2 Engines 1 Ladder 1 Ambulance 1 boat (17-ft. Whaler)	<div>St. 1: 2 Eng. 1 Ladder 1 Amb. 1 boat, 1 brush breaker, 1 hovercraft</div> <div>St. 2: 1 Eng. 0 Ladder 1 Amb. 2 boats (13 Ft. Whaler, 22 Ft. Whaler)</div> <div>St. 3: 1 Eng. 0 Ladder 1 Amb. 1 boat (13 Ft. Whaler), 1 brush pickup</div>	2 Engines 0 Ladder 1 Amb. 1 boat 1 brush truck 1 utility vehicle
Minimum Staffing: Per Unit Per Station Per Shift		Minimum is 3 at all times, with each 24-hr. shift scheduling and officer (C/L) and 2 firefighters	Minimum is 10 on duty overall. Station 1 has a Cptn. and 3 FF per shift; Station 2 has 2 FF and 1 Lt. per shift; Station 3 has 2 FF and 1 Lt. per shift	Minimum staffing is 2 per shift; FT's must fill missed shifts.

BARNSTABLE FIRE AND WATER DISTRICT
Final Report on the Study of the Fire Department

Information	Barnstable	COMM	Cotuit
Filling Staffing Shortages	In terms of staffing shortages, if there is notice, it is first offered informally to all members of the Department; if last-minute, will typically hold-over staff from previous shift. In terms of CFS, if staffing falls below three, paid-call staff is called in to cover at 3-person staffing level	In terms of scheduling shortages, rotations are kept by Captain, based on most recent hold-over. In terms of CFS, after one call, 7 must be kept available. If number drops below 7, calls are made to keep off-duty FF on standby.	Hold-over is very commonly used; paid-call staff appear to be used to augment CFS, rather than cover missed shifts
No. of Calls, Last 1-3 Yrs.	2000 – 659 2001 – 912 2002- 840 2003 (prorated through May 15) – 825	2002 – 3,412 total CFS; 1,087 fire-related, 2,325 medical related	2002- About 640 CFS 2003 – 261 through June 10
Copy of Budget?	FY03 Wages \$1,064,197 Other Operating Expenses \$122,850 (training, maintenance, utilities, office, etc.) Total \$1,187,047	In FY03, total budget was \$4,280,000; 85% of this was salary and wages	FY03 Salary \$739,374 Maintenance \$163,668 Medical \$7,800 Hose & Equip \$6,700 Amb. Billing \$3,300 Group Insurance \$135,700 Total \$1,056,542
Copy of Pay Plan for All Staff?		Week of June 23, new contract is expected to be finalized and immediately implemented; staff currently working without a contract, and pay plan about to be reworked	
Any Plans for Additional Stations? Where?	No new stations are planned	No new stations planned, but Station 3 will be replaced later this year with a new facility adjacent to present facility	No new stations planned; there has been approval given for an additional firefighter.

BARNSTABLE FIRE AND WATER DISTRICT
Final Report on the Study of the Fire Department

Information		Barnstable	Hyannis	West Barnstable
Contact Name & Information		Deputy Chief Robert Crosby (508-362-3312)	Dep. Chief Dean Melanson (508-775-1300)	Chief John Jenkins (508-362-3241)
Number of Full-Time Staff		14 FT personnel: Chief Deputy Chief 1 Captain 3 Lieutenants 8 Firefighters 1 PT Clerk	60 FT personnel: Chief Deputy Chief 48 Cptns/Lts./FFs 2 Inspectors 1 EMS Supervisor 1 Mechanic 6 Administrative/Day Staff	4 FT personnel: Chief 1 Lt. 2 Firefighters .5 Admin
Number of Paid-Call Staff		8 paid-call staff	No paid-call staff	About 32 paid-call staff
Number of Stations		1	1	1
Location of Stations (Address & Cross Streets)		3249 Main Street, Barnstable	95 High School Extension Rd., at the intersection of High School Extension Rd. and Steven St.	2160 Meetinghouse Way (right off of Exit 5)
Schedule of Full-Time Staff		24-on, 24-off, 24-on, 5 days off	12 FF per shift, working a 2-2-1-4 schedule	Everybody works 4 10-hr. days, 8 AM-6 PM, between Monday and Friday.
Number of: Engines Ladders Ambulances Other		2 Engines 1 Ladder 1 Ambulance 1 boat (17-ft. Whaler)	3 Engines 1 Ladders 3 Ambulances 1 Heavy Rescue (acts as 4 th ambulance) 1 Dive Truck, 1 14-ft. Whaler, 1 32-ft. boat shared with Police, 1 HazMat trailer, DeCon trailer, 5-ton wrecker	1 Engine 1 Ladder 1 Ambulance 1 Tanker (3,000 gallon capacity – there are no hydrants in West Barnstable) 1 brush truck (that acts as backup tanker); 1 pickup truck
Minimum Staffing: Per Unit Per Station Per Shift		Minimum is 3 at all times, with each 24-hr. shift scheduling an officer (C/L) and 2 firefighters	Minimum staffing is 10 at all times, including the shift officer(s); Off-duty officers fill shifts	FT staff works 4 days on, 3 days off; if a staffing shortage, pay-call FF readily available to fill slots

BARNSTABLE FIRE AND WATER DISTRICT
Final Report on the Study of the Fire Department

Information	Barnstable	Hyannis	West Barnstable
Filling Staff Shortages	In terms of staffing shortages, if there is notice, it is first offered informally to all members of the Department; if last-minute, will typically hold-over staff from previous shift. In terms of CFS, if staffing falls below three, paid-call staff is called in to cover at 3-person staffing level	For missed shifts, off-duty officer receive opportunity to fill, and this does not appear to cause any shortages; In terms of CFS, 3 FFs must be on the floor at all times; if there is a shortage, a call-back rotation is implemented.	For missed shifts or CFS, pay-call staff readily available to fill slots
No. of Calls, Last 1-3 Yrs.	2000 – 659 2001 – 912 2002- 840 2003 (prorated through May 15) – 825	2002 – 5,780 CFS; the number has slowly but steadily grown in last 5 years	2000 – About 530 2001- About 430 2002 – About 450 2003 – 247 (through June 10; pro-rates to about 560 in 2003)
Copy of Budget?	FY03 Wages Other Operating Expenses (training, maintenance, utilities, office, etc.) Total	FY03 operating budget is about \$3.3 Million	FY2003 Sal. & Wages Remaining Op. Budget Total
Copy of Pay Plan for All Staff?	\$1,064,197 \$122,850 \$1,187,047	Chief – 2X FF-EMT Dep. Chief - \$68,000-\$69,000 Cpt-EMT/Para - \$60,000 Cpt. - \$59,000 Lt. EMT/Para. - \$55,000 Lt. - \$54,000 FF-Para - \$47,000-\$50,000 FF-EMT - \$46,000-\$49,000	Lt-Para - \$51,703 Lt-EMT - \$48,196 FF – Para - \$37,856 - \$47,320 FF-EMT1 - \$37,155 - \$46,444 FF-EMT - \$35,052 - \$43,815
Any Plans for Additional Stations? Where?	No new stations are planned	No, although there is a facility needs study being done for Hyannis as a whole	No; the current station is relatively new, and replaced two old stations

4. ANALYSIS OF CURRENT OPERATIONS

This chapter is focused on analyzing the operations of the Fire Department from the perspective of deployment, staffing, response times and management systems. The sections, that follow, provide our findings and recommendations for addressing issues. The major issues addressed in this chapter include the following:

- Ability to provide sufficient response coverage in the District.
- Staffing and deployment to meet “minimum staffing” on the shift of the Fire Department
- Participation in the regional fire dispatch system.
- Evaluation of training provided in the Fire Department.
- Evaluation of management systems in the Fire Department.
- Opportunities to enhance the management of the Department through changes in the organization and structure.

The first section, which follows, provides the project team's analysis of the current response capabilities in and around the Fire District given current (and potential) staffing in and around the District.

1. THE FIRE DEPARTMENT IS ABLE TO PROVIDE INITIAL RESPONSE COVERAGE WITHIN THE DISTRICT IN TARGETED RESPONSE TIMES. COVERAGE FOR MAJOR INCIDENTS IS LACKING IN MOST AREAS OF THE DISTRICT.

The project team first examined the ability of the Fire Department to meet certain targets for deployment to various types of incidents. The response time and staffing level standards have been developed by the project team both through our extensive

work with fire service agencies around the United States and through our research of new and existing fire service standards (such as NFPA 1500, 1710 and 1720).

In order to test these various response time standards the project team utilized a fire service model entitled FLAME (Fire Location and Asset Management Environment). FLAME is a GIS-based product which enables the user to locate existing (and potential) resources – including fire stations, personnel, apparatus, water sources, etc. The project team made use of FLAME to test the ability of the system to achieve the following standards:

- Delivery of any resources in two, four and eight minutes (or less).
- Delivery of three personnel in four minutes or less.
- Delivery of four personnel in four minutes or less.
- Delivery of thirteen personnel in eight minutes or less.

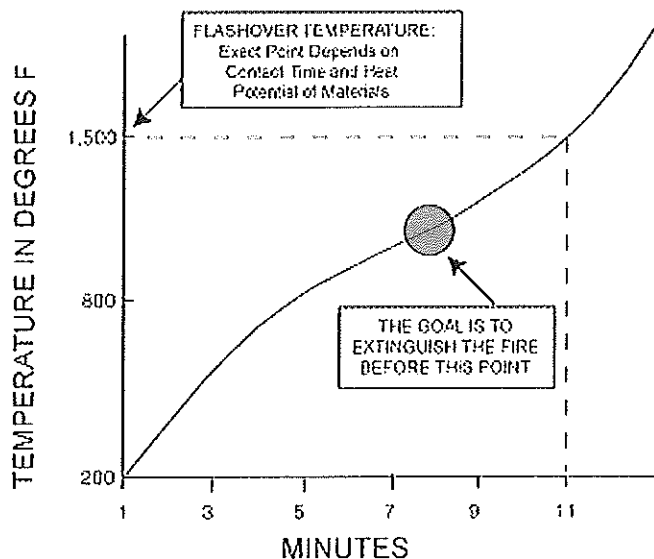
The project team developed these standards based on the following, as summarized in the table:

Standard	Description and Source
Any resources in two, four or eight minutes (or less).	<ul style="list-style-type: none">• NFPA 1710 and other sources discuss delivery of services in the time frames of four or eight minutes.• These benchmark times are related to research in survivability of cardiac arrest patients with the delivery of effective emergency medical response.• These benchmarks times are also related back to research into the behavior of fire.
Delivery of three personnel in four minutes or less.	<ul style="list-style-type: none">• Common engine company staffing target in smaller urban and suburban areas.• Also minimum staffing for initial delivery of advanced (ALS) EMS skills – such as responding to cardiac arrest.

Standard	Description and Source
Delivery of four personnel in four minutes or less.	<ul style="list-style-type: none">NFPA 1710 standard for minimal professional level initial fire response.
Delivery of thirteen personnel in eight minutes or less.	<ul style="list-style-type: none">NFPA 1710 standard for the minimum first response to a working structure fire.Also commonly assumed before NFPA 1710 to be within the range of appropriate initial full response (also defined as the number of 3-person companies to be sent to the call as between three and five depending on the type of structure in a low to medium risk community).

The charts, that follow, provide a brief description of the research behind each of the standards. The first chart shows the behavior of fire in a room:

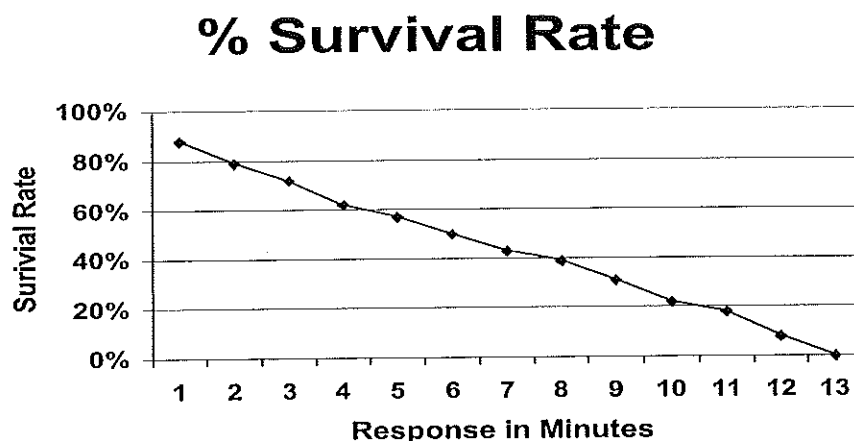
Generalized Flashover Curve



The research suggests that it is critical to interrupt the fire before it reaches the flashover point (at approximately eight minutes). The ability to safely interrupt the fire begins when the responding agency is able to place four firefighters on-scene (this enables the responders to send a two-firefighter team into the house while maintaining two outside for safety). By arriving in four minutes of travel time (which allows for an

additional minute to discover and report the fire, an additional minute to handle dispatch, another minute for firefighters to get ready and a minute at the scene to size up the fire and initiate an attack). To arrive in a longer period of time or with fewer personnel does not allow the responding agency to safely or effectively address the room and contents fire before it leaves the room.

The next chart shows the results of the research into the efficacy of delivering emergency medical services to patients in the field. The chart shows the likelihood that the patient will survive following a cardiac arrest:



Typically, the target of delivering basic life support in four minutes or less and advanced life support (ability to use drug and some more invasive interventions) in eight minutes or less is related to this research. The focus has been maintained on cardiac care given the ease with which the outcome can be evaluated (there are only two options) as compared to other types of medical emergency.

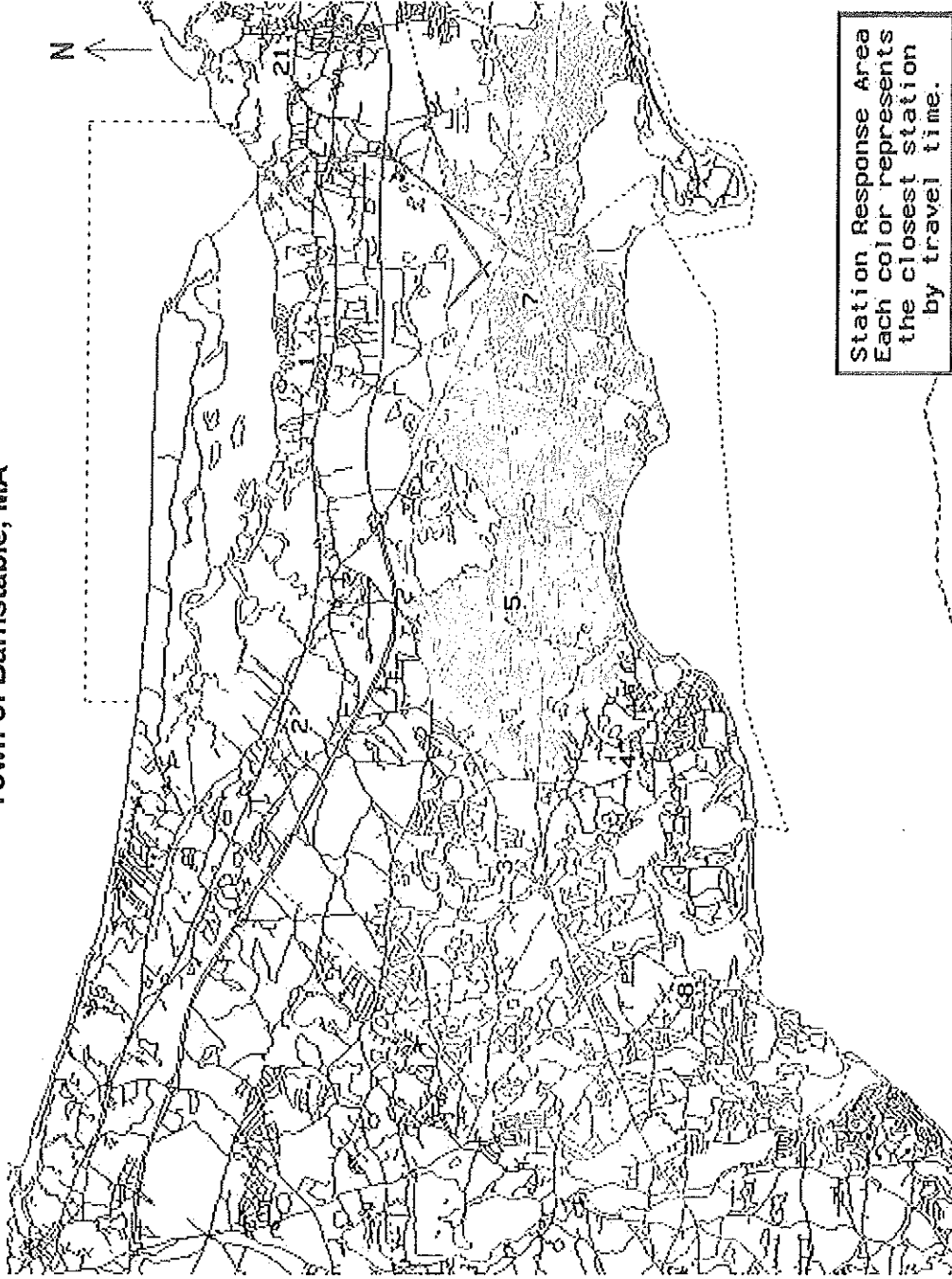
The project team placed the various fire stations, personnel and apparatus within the Town of Barnstable. This was done to show what potential level of service can be provided both with current resources in the District as well as from stations around the

District (including one of the Yarmouth stations). The map output from each of the model runs is provided on the following pages. The table, below, provides a summary of the results of these analyses:

Standard	Results of the Analysis
General response areas	<ul style="list-style-type: none">The coverage area that is handled by the Barnstable Fire District matches (approximately) that area which is shown to be the optimal coverage area by the FLAME model.
Delivery of three personnel in four minutes or less.	<ul style="list-style-type: none">The analysis is the same for the Fire District with the ability to place three firefighters in four minutes or less.However, the ability to do so in the Town of Barnstable declines to approximately 40% of the road miles.
Delivery of four personnel in four minutes or less.	<ul style="list-style-type: none">The analysis showing the response area for four firefighters in four minutes or less shows that none of the Fire District's roads meet the standard.In addition, the ability to meet this standard in the Town of Barnstable has declined to only 22% of the road miles.
Delivery of thirteen personnel in eight minutes or less.	<ul style="list-style-type: none">The ability to deliver 13 firefighters in eight minutes or less (the ability to deliver an initial structure fire response) shows that almost none of the Fire District meets this standard today.This analysis shows that approximately 30% of the entire Town of Barnstable meets this response time / personnel standard.

This analysis has shown that the Fire District is able to provide emergency medical services with the appropriate staffing in an appropriate amount of time. However, this analysis has also shown that the Fire District would be better able to respond to fire emergencies with at least one additional staff person on-duty (current deployment is a minimum / maximum of three personnel per shift). This analysis is provided after the maps on the following pages.

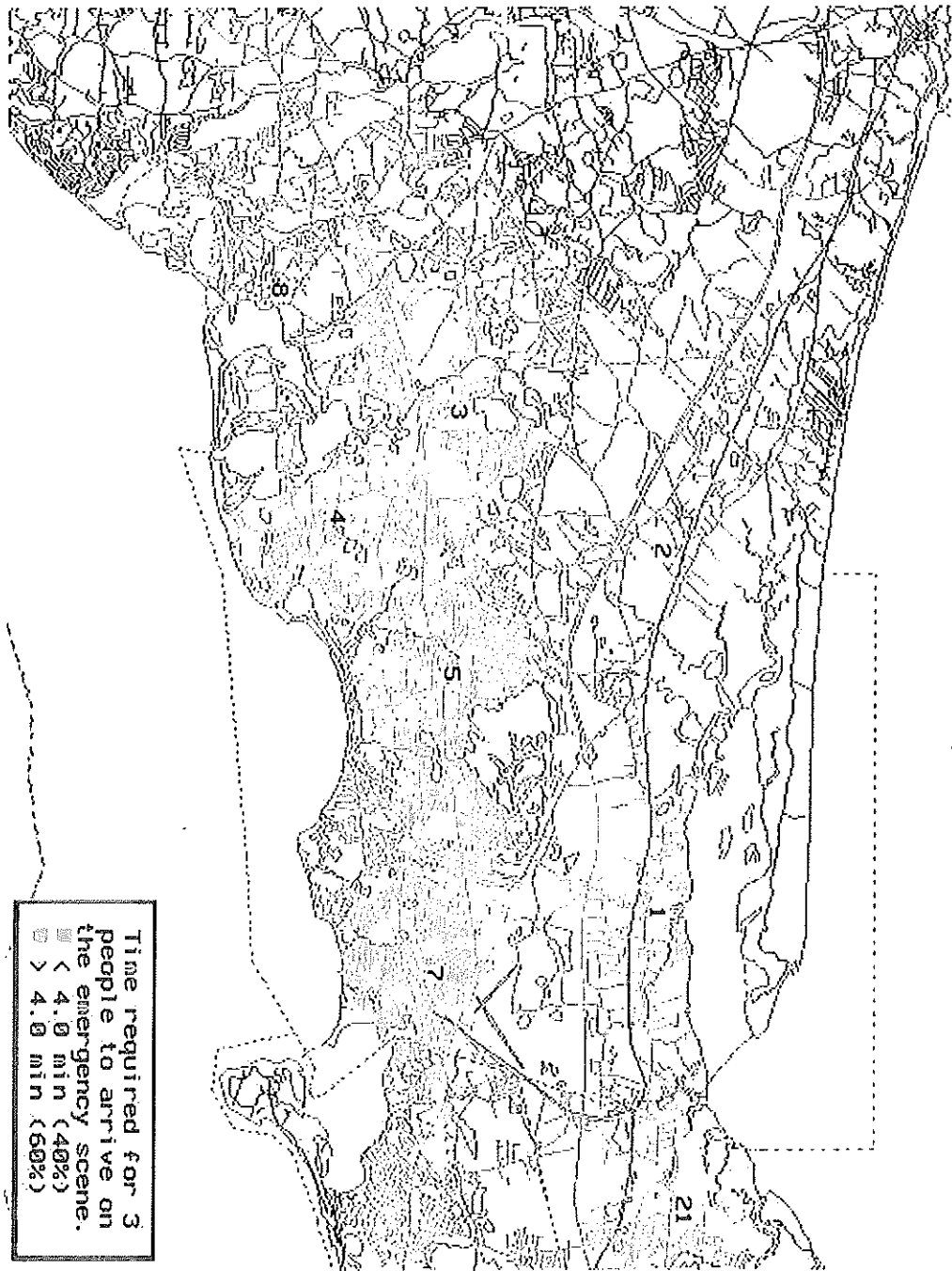
Current Optimal Station Response Areas
Town of Barnstable, MA



Current 2-4-8 Minute Theoretical Response Areas
Town of Barnstable, MA



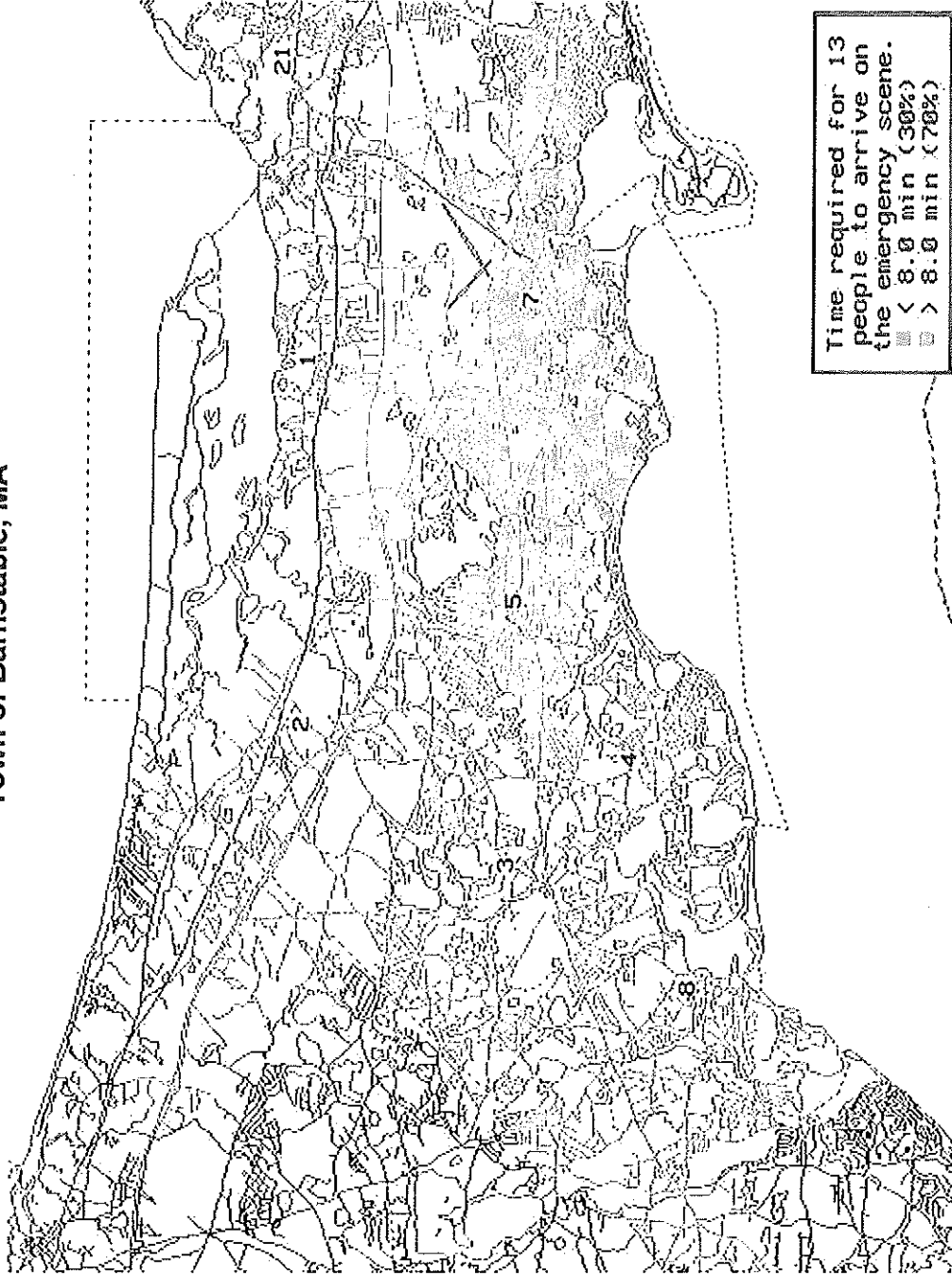
Current Theoretical Ability to Place 3 FF in 4 Minutes
Town of Barnstable, MA



Current Theoretical Ability to Place 4 FF in 4 Minutes
Town of Barnstable, MA



Current Theoretical Ability to Place 13 FF in 8 Minutes
Town of Barnstable, MA



The analyses contained in this section show that the Fire Department is currently meeting the general requirements of NFPA 1500 but that the Department is not meeting the requirements of NFPA 1710 (NFPA 1720 does not apply in the District given the “predominantly career” nature of the Department). The District should work with the other fire service agencies in the Town of Barnstable on a plan to collectively meet the goals of NFPA 1710.

2. THE STAFFING OF THE FIRE DEPARTMENT IS NOT SUFFICIENT TO PROVIDE FOR MINIMUM STAFFING OF THREE PERSONNEL. ADDITIONAL STAFF SHOULD BE ADDED TO EACH SHIFT WHICH WILL PRODUCE AN ESTIMATED \$30,000 ANNUAL SAVINGS.

Current staffing in the Fire Department provides a company officer and two firefighters per shift (if all positions are filled). When vacancies have occurred (recently) the Fire Department has filled these positions for extended periods from the ranks of the call firefighters attached to the Department. The table, below, provides a calculation of the average availability on the shifts:

Factor	Calculation
Positions per Day	3.00
Hours / Position	24.00
Gross Hours / Day	72.00
Days / Year	365.00
Gross Hours / Year	26,280.00
Scheduled Hours / Year (3 per Day)	26,280.00
Hours Lost to Vacation and Other Leaves (2002)	6,538.00
Net Availability	75.1%

This calculation shows that personnel are actually available 75% of the time for which they are scheduled. The reasons for this are detailed in a table in a previous chapter. The ramifications of this are significant when it comes to staffing the operations of the Fire Department. These are summarized, below:

- Each hour that must be covered needs to be covered one for one with overtime which is more expensive than it would be to cover it with full-time personnel.

- A position is being covered on almost every shift which will have an impact on the training, unit integrity and other factors which can impact the quality of service delivery.

Each of these factors suggest that it would be potentially more cost effective to hire additional full-time personnel with which to meet minimum staffing needs of the Fire Department. In fact, the Fire Department's overtime expenditures come 93% from non-call-back overtime – with the remainder for covering the station during incidents. The table, below, shows the calculation of the number of personnel which would be required in order to reduce the overtime expenditures used today for filling these positions (note that the use of overtime pay or compensatory time to cover shifts in the BFD results, eventually, in the same cost):

Factor	Calculation
Gross Hours Targeted / Year (3 On-Duty)	26,280.00
Net Availability	75.1%
Required "Scheduled" Hours	34,983.20
Hours Scheduled / Year / Position	2,190.00
Personnel Required to Meet Targeted Deployment	15.97
Current Personnel	12.00
Number of Additional Personnel Required	3.97

This calculation shows that the Fire Department would require an additional four personnel in order to successfully eliminate the majority of vacancy driven overtime. The table, below, provides a calculation of the potential savings:

Factor	Calculation
FY2004 Requested Overtime Budget for FF's	\$262,500.00
Proportion Required to Cover Shift Gaps	93.0%
Amount Used to Cover Shift Gaps	\$244,125.00
Estimated Annual Cost of a Firefighter w/Benefits	\$50,377.60
Number of Firefighters Required	4.00
Total Cost	\$201,510.40
Gross Variance	(\$42,614.60)
Variance Assuming 5% of Overtime is Unavoidable	(\$30,408.35)

The addition of these personnel would result in annual savings of approximately \$30,000 (and possibly more given the assumptions made by the project team regarding salary as well as the 5% of the current overtime which we estimate to be "unavoidable"). If the decision is made to add these personnel, the Board should also ensure that the minimum staffing level is maintained at three per shift (or the savings will be eliminated). The Fire District should take steps to add these personnel during the next budget year (or sooner if circumstances allow).

3. THE FIRE DISTRICT SHOULD CONSIDER ADDING ADDITIONAL PERSONNEL IN ORDER TO ENHANCE THE LEVEL OF SERVICE IN THE COMMUNITY FOR AN INCREASED ANNUAL COST OF \$171,000 PER YEAR.

The Fire District currently provides a minimum (and maximum) of three personnel per shift. The project team has discussed the benefits of running with four personnel on-duty (including enhanced fire fighting services). However, the staffing is not available to the Fire Department to make this change at this time (in fact there are only three personnel assigned to each shift currently). In order to staff the shift with a minimum of four personnel per shift, the Department would have to further increase staffing above current levels (and above those recommended above). The table, below, shows the project team's analysis regarding the staffing required:

Factor	Calculation
FY2004 Requested Overtime Budget for FF's	\$262,500.00
Proportion Required to Cover Shift Gaps	93.0%
Amount Used to Cover Shift Gaps	\$244,125.00
Estimated Annual Cost of a Firefighter w/Benefits	\$50,377.60
Number of Firefighters Required	8.00
Total Cost	\$403,020.80
Gross Variance	\$158,895.80
Variance Assuming 5% of Overtime is Unavoidable	\$171,102.05

This analysis shows that the additional annual cost would be approximately \$171,000 (assuming some overtime). This would cover the cost of the personnel plus

some “unavoidable” overtime resulting from the additional personnel. Alternative approaches to introducing new staff positions could include the following:

- Hire all four personnel in a single year.
- Spread the hiring of the personnel out over several years, as follows:
 - Year One: Hire one firefighter and assign the person to work during an 8-hour shift, Monday – Friday.
 - Year Two: Hire an extra firefighter and assign both firefighters to work rotating 12-hour shifts (3 days on, 4 days off, 4 days on , 3 days off).
 - Year Three: Hire two more firefighters and assign one to each of the four platoons on the 24-hour shifts.

While this ultimately results in the same cost (in year three and beyond) it spreads out the additional money so that any fiscal impact is covered by the projected overtime savings until mid-way through Year Two of the program. The project team recommends that the Fire District hire all four personnel during the next several years as a way to enhance service delivery in the community.

4. THE FIRE DEPARTMENT SHOULD CONTINUE TO PARTICIPATE IN THE REGIONAL DISPATCH CENTER, EVEN IF THE COUNTY BEGINS TO CHARGE FOR THE SERVICE.

The Barnstable Fire Department currently participates in a countywide emergency communications system operated by Barnstable County. This system ties together most of the fire departments on Cape Cod through a single dispatch center.

This enables an enhanced level of service to the community, including the following:

- Enhanced coordination between the various fire departments on the Cape.
- Reduced cost for the delivery of dispatch services (through the use of civilians rather than fire firefighters and through the use of few total personnel to provide dispatch services).

There has been some concern that Barnstable County might begin to charge a nominal fee for the provision of services. The project team does not believe that the Fire District should consider providing dispatch services on its own unless the cost charged by the County exceeds the cost of providing for constant civilian dispatch coverage. The project team estimates that the cost of the hiring five civilians (the number required to provide around the clock coverage) would be approximately \$175,000 annually. This cost assumes that the Barnstable Fire Department would pick up the entire cost itself. Alternatively, the District could work with the other Departments in the Town. If this were done, the project team estimates that the Town would require an additional dispatcher (for a total of two per shift) for a total annual personnel cost of \$350,000. This would require operating costs and major capital investment as well (to develop and fit out a dispatch center). As a third alternative, the District could pursue service delivery from the Town (though this may also require some capital investment).

5. THE DEPARTMENT'S APPROACH TO PROVIDING TRAINING IS GENERATING SUFFICIENT TRAINING HOURS PER PERSON.

The Fire Department tracks the activities of its personnel in several general categories, including the following:

- Activity (emergency response)
- Training
- "Other" hours (on-duty time not associated with the other categories).

These data show that majority of on-duty time is not associated with one of the two activity categories. These are summarized in the table, that follows:

Category	Hours	% of Total
Activity (Response)	4,136	9.1%
Training	1,792	4.0%
Other	39,312	86.9%
Total	45,240	100.0%

The average number of training hours per day per person is approximately 1.5 hours for full time staff. The "best practice" fire department training programs are focusing on providing at least two hours (or more) of training per person per day. In order to do this, the Fire Department would need to provide an additional 180 hours of training per person per year. The focus of this training should be on the delivery of fire services (these are the skills that are used least in a combination department that also delivers EMS). Some fire departments have created simple check-lists of skills that need to be reviewed frequently and turned them into a rotation of training to be performed. The Fire Barnstable Fire Department already used the FireHouse software package to track training. This example is intended to serve as a guide only.

EXAMPLE

DAILY IN-SERVICE TRAINING

Shift _____

Station _____

Officer _____

Present _____

Topic	Signature of Officer
Ventilation	
Salvage / Overhaul	
Building Construction	
Forcible Entry	
Fire Streams	
Firefighter Safety	
Hose Use	
Ground Ladders	
Pumping	
Fire Rescue	
S.C.B.A.	
Engine Operations	
Fire Suppression	
Fire Extinguishers	
Communications	
Sprinklers	
Streets / Hydrants	
Incident Command	

The following section provides the project team's assessment of the general management systems of the Fire Department.

6. THE MANAGEMENT SYSTEMS IN THE FIRE DEPARTMENT SUPPORT THE ABILITY TO MANAGE THE FIRE DEPARTMENT.

The Barnstable Fire Department operates with the Firehouse TM software, which, when used properly, can provide extensive management information for fire department operations. In this case, the Fire Department is making extensive use of the data entry capabilities of the software. The following are examples of the information available from the system currently in the District:

- Calls and incidents
- Response times
- Training records
- Use of overtime by reason
- Number of personnel responding to each (and the average) incident
- Use of vacation and other leave

The easy availability of such extensive information is not common in smaller fire departments. The Barnstable Fire Department is also making use of the information to manage the use of overtime and other budgetary issues. The project team made extensive use of this information in an effort to demonstrate the staffing requirements of the Fire Department and to show the impacts of various policy decisions to date. The ability of the Department to affect many management decisions is somewhat limited by the availability of resources currently. For example, overtime is tracked by the Department but cannot be managed because each shift vacancy (regardless of timing or reason) results in overtime coverage (unless a shift swap is made).

There is a “culture” in the Fire Department at every level which encourages the tracking and use of information from the Firehouse TM system. This is encouraged by the Chief and is followed through by the members of the Department staff.

Another positive step that has been taken by the Department has been the assignment of specific duties to every member of the staff. This is an excellent way to ensure that the wide range of management and administrative tasks are addressed on a regular basis. To further improve the distribution of responsibilities, the Fire Department has assigned (for most important issues) a primary and secondary responsible person. Examples of the kinds of things that have been assigned to individuals in the Department include:

- EMS Training
- Fire Training
- Vehicle Maintenance (each vehicle also has a primary who is responsible for ensuring that each vehicle is properly charged, equipped, clean, operational, etc.).
- Radio Maintenance
- Station Maintenance
- Equipment Maintenance

Each person assigned is responsible for checking, tracking, and coordinating for maintenance their assigned apparatus / equipment. This approach is an excellent way to maximize the use of existing personnel, to reduce the potential for overhead costs in the Department and to ensure that the Chief and Deputy Chief do not spend all of their time on minor administrative tasks.

7. THE CURRENT APPROACH TO ORGANIZING THE MANAGEMENT AND OVERSIGHT OF THE DEPARTMENT

The current organizational approach management and oversight of the Barnstable Fire Department relies on a Board and an appointed Fire Chief (the current position is a statutory “weak” chief in Massachusetts). There are three basic organizational formats that could be implemented in the Fire District, as summarized, below:

Model	Benefits	Issues
Current Board Approach	<ul style="list-style-type: none"> • Board has direct input into the deployment and operations of the Department, providing opportunities for enhanced control of taxpayer funds. • Elimination of board of fire engineers resulted in reduced overhead cost and streamlined the decision making / policy setting process. • The elected Board has direct input into the setting of key policies – a critical approach for maintaining fiscal and operational oversight. 	<ul style="list-style-type: none"> • Direct involvement of Board can be an issue if the Board has little background in the fire service. • Use of the Board can result in delays in the consideration and implementation of important policies and procedures – as the meeting schedule dictates the timing of decision making.
Current Board Approach With Strong Chief	<ul style="list-style-type: none"> • Decision making speed can be enhanced. • Relies on the judgment of the professional chief for key operational decisions while policy is still set by the Board. • Continues the benefits of the streamlined process (no board of fire engineers). 	<ul style="list-style-type: none"> • Board and public may be concerned about increased autonomy of the Chief (i.e., reduced oversight of day-to-day operations). • While the budget is supposed to dictate the limits on the Chief, this can still be an issue. • Potential for de-linkage of financial decision making related to both water and fire issues.
Board of Fire Engineers	<ul style="list-style-type: none"> • May be able to get an oversight board which is more focused on fire and EMS issues. 	<ul style="list-style-type: none"> • Will slow down the decision making process as all major policy decisions (particularly those with any fiscal impact) would have to be approved by both boards. • Will increase overhead cost (additional benefits for new board members) of operations.

The project team's review of the three alternatives presented in the table, above, does not suggest an overwhelming argument for making any changes in the current organization of oversight and management of the Department. We do not recommend making any change at this time.

5. FEASIBILITY OF CONSOLIDATION

A secondary focus of this project was to develop an initial assessment as to the feasibility of consolidating some or all of the five fire districts located within the Town of Barnstable. The current organization of the fire services in the Town, as noted previously in this report, is structured around five independent fire districts (each with its own service levels, service level expectations, taxing authority, taxing level and so on). The project team examined the possibility of two alternative approaches:

- Consolidating the Barnstable Fire Department with the Hyannis Fire Department.
- Consolidating all five of the fire districts in the Town into a single entity.

Many other permutations of the existing fire departments could be considered, but the project team identified the consolidation of these two as illustrative of the potential costs / savings and operational benefits / issues that would result from any such consolidation.

1. CONSOLIDATION WITH THE HYANNIS FIRE DEPARTMENT DOES NOT RESULT IN SIGNIFICANT OPERATIONAL ENHANCEMENTS OR SAVINGS.

This first analysis examines the impacts of consolidating the Barnstable Fire Department with the neighboring Hyannis Fire Department. These two agencies share common borders and work closely together on large incidents. The table, that follows, provides a brief summary of the operations and costs associated with the current situation:

Factor	Description
Stations and Apparatus	<ul style="list-style-type: none">• Each fire department operates from a single station in its response area.• The two stations share a common border in the middle of the Town that cross the Route 6 area (and in fact divides several major properties).• The Barnstable Fire Department operates two engines, an aerial and a rescue.• Hyannis operates three engines, an aerial, three ambulances and a heavy rescue (can serve as fourth ambulance).• Neither station has any current plans to build / operate from a new station in the commercial area at the center of Town.
Line Staffing	<ul style="list-style-type: none">• Barnstable FD has a staff of 12 line personnel (including company officers) working on 4 shifts with a minimum staffing of three (same as assigned).• Hyannis FD has a line staff of 48 personnel who are assigned 12 per shift. Minimum staffing is 10 per shift.
Command / Support Staffing	<ul style="list-style-type: none">• Barnstable FD has a Chief, Deputy Chief and clerical position.• Hyannis has a Chief, Deputy Chief, 2 Inspectors, 1 EMS supervisor, 1 mechanic and 6 clerical personnel.
Current Budgets	<ul style="list-style-type: none">• FY03 budget in Barnstable is \$1.2 million.• FY03 budget in Hyannis is \$3.3 million.

The project team analyzed the feasibility of consolidation and has made the following findings:

- The only opportunities for reduction of staffing would be the following:
 - One Fire Chief
 - One Clerical position
- There would be no opportunities to reduce staffing among the line positions. In fact, the project team has already identified additional staffing needs in the Barnstable Fire Department. We are unable to determine whether there are additional staffing needs in the Hyannis Fire Department.
- The Deputy Chief positions would both be required in a larger organization. One for administration and one for operations.

- Salaries and wages would be increased for the personnel associated with the Barnstable Fire District to bring them into line with the wages paid in Hyannis. This would represent an increase of approximately 8% for line personnel.
- The consolidated fire department could choose to eliminate (i.e., sell) one of the aerial pieces of apparatus.

The exhibit, that follows, provides a summary of the conservatively estimated financial impacts of making this consolidation:

Factor	Amount
<i>Current Costs</i>	
Current Personnel budget (Hyannis)	\$2,970,000
Current Operating budget (Hyannis)	330,000
Current Personnel budget (Barnstable)	1,064,000
Current Operating budget (Barnstable)	123,000
Total Current Consolidated Costs	\$4,487,000
<i>Annual (Recurring) Adjustments</i>	
Eliminate Chief *	(\$95,000)
Eliminate One Clerical Position *	(13,500)
Increase to existing Barnstable Salaries	74,320
Total Adjustments	(\$34,180)
<i>Estimated One-Time Impacts</i>	
Sale of (1) aerial fire apparatus	(\$180,000)
Legal and other professional fees	50,000
Stationary, vehicle painting, etc.	50,000
Total One-Time Impacts	(\$80,000)

The points, below, provides a summary of the financial changes that could result from making such a consolidation:

- The analysis shows that the annual financial impact would be approximately \$34,000 in savings. This is net of the position reductions (two positions) and the increase in line staffing costs.
- The analysis also shows that the one-time costs would represent a positive case flow to the consolidated fire department. This is primarily driven by the sale of the single piece of apparatus. The project team does not believe that any additional apparatus could or should be sold during a consolidation. The estimated savings are approximately \$80,000 – net of one-time legal, accounting and other transition costs.
- One issue that would be need to be addressed would be the placement of a single aerial company. The two districts would need to consider the development

of a third station (in between the two current stations) as a location for placing an aerial unit (perhaps a quint) and possibly an ambulance. This would be necessary to meet various response time standards for aerial delivery (both professional and insurance industry standards).

It is important to remember that these costs do not take into account the additional personnel costs associated with increasing the staff to four personnel on-duty in Barnstable Village. It is also important to note that some of the cost savings could be derived by developing an automatic aid agreement that addresses many of the issues covered in this chapter. This would include issues such as use of the aerial (and perhaps payment for it by an agency that does not have one), automatic response to calls for service requiring large personnel responses (this is already in place given consolidated dispatch) and fire apparatus maintenance (with a charge for service).

2. TOWN-WIDE CONSOLIDATION APPEARS TO OFFER CHALLENGES SIMILAR TO THOSE IDENTIFIED IN THE TWO-DISTRICT ALTERNATIVE.

The project team next considered the possibility of consolidating all five of the districts within the Town of Barnstable. As with the previous example, the project team's analysis is predicated on a limited understanding of the operations of the other four districts.

Factor	Description
Stations and Apparatus	<ul style="list-style-type: none">• All fire departments operate from a single station in their response areas with the exception of COMM which operates from 3.• None of the jurisdictions have significant overlaps which might allow for stations to be moved or consolidated.• Currently, the West Barnstable station is staffed by 1-2 FT personnel.

Factor	Description
Line Staffing	<ul style="list-style-type: none"> • Barnstable: 1 Captain, 3 Lieutenants and 8 Firefighters. • COMM: 4 Captains, 8 Lieutenants, 4 Sr. Privates, 30 Firefighters. • Cotuit: 1 Captain, 3 Sr. Privates and 4 Firefighters. • Hyannis: 48 Capt. / Lt. / Firefighters. • W. Barnstable: 1 Lt and 2 Firefighters
Command / Support Staffing	<ul style="list-style-type: none"> • Barnstable: 1 Chief, 1 Deputy Chief, 1 PT Clerk • COMM: 1 Chief, 1 Deputy Chief, 2 Inspectors, 1 Mechanic, 2 Clerical Staff • Cotuit: 1 Chief • Hyannis: 1 Chief, 1 Deputy Chief, 2 Inspectors, 1 EMS Supervisor, 1 Mechanic, 6 Clerical Staff • West Barnstable: 1 Chief, 1 PT Clerk
Current Budgets	<ul style="list-style-type: none"> • Barnstable: \$1.064 / \$0.122 / \$1.187 • COMM: \$3.640 / \$0.640 / \$4.280 • Cotuit: \$0.739 / \$0.317 / \$1.056 • Hyannis: \$3.300 • West Barnstable: \$0.321 / \$0.071 / \$0.392

The project team then analyzed the likely impacts of consolidation within this alternative. Our findings are as follows:

- There would be no Chief level positions eliminated in a consolidation of these agencies, given the following needs:
 - 1 Chief
 - 1 Deputy Chief (Operations)
 - 1 Deputy Chief (Administration)
 - 1 Fire Marshal
 - 4 Battalion Chiefs
 - 1 EMS Coordinator (for QA / WC)
- The Department would not eliminate any inspector positions (and would in fact likely add one or more given that these duties are handled by Deputy Chiefs in Barnstable and elsewhere).

- The Department would not eliminate any mechanic positions.
- The Department might be able to consolidate some of the clerical positions (for small savings). This could save approximately \$30,000 annually.
- A Fire Department of this size would also likely require at least one training officer to coordinate training for all of the stations. This could cost (with benefits) approximately \$65,000 annually.
- This consolidation would do nothing to address the station staffing requirements that have been addressed for Barnstable (i.e., the recommendation to enhance service levels by adding additional firefighters to the shifts).
- Furthermore, consolidations involving Cotuit and West Barnstable would force the consolidated Department to make a potentially costly public policy decision – to staff those stations at the same level as the other stations in the Town (i.e., with at least three or four people). This would require a major hiring of personnel (perhaps as many as 12 to bring West Barnstable up to three people per shift and perhaps 6-8 to bring Cotuit up to the same level). This could result in additional annual expenditures of more than \$1 million.

This analysis shows that the consolidation of all of the fire departments in the Town of Barnstable would not save the taxpayers money in the short-term. In fact, consolidation could generate significant additional costs (perhaps as high as \$1 million annually). In addition, the project team does believe that there are substantive operational enhancements to be derived from the consolidation of all five entities at this time (due to the current wide range of service levels provided by each of the five districts). A potential additional complication to any such consolidation is the status of the water systems in each of the five districts. While this area of service provision is outside the scope of the project team's work, it is clear that water issues would need to be addressed as part of any consolidation.