Casco, Naples, and Raymond, Maine

Feasibility Study of Establishing a Regional Public Safety Department

March 2012

MMA Consulting Group, Inc.
1330 Beacon Street
Brookline, Massachusetts 02446

CONTENTS

I.	EXECUTIVE SUMMARY	1
	STUDY FINDINGS	2
	STUDY RECOMMENDATIONS	5
	SURVEY OF PERSONNEL	10
	RECOMMENDATIONS AND COST REDUCTIONS	11
II.	COOPERATION AND CONSOLIDATION OPTIONS	15
III.	FIRE AND RESCUE SERVICES IN CASCO, NAPLES, AND RAYMOND	19
	POPULATION AND POPULATION DENSITY	19
	STAFFING, STATIONS, AND APPARATUS	20
	COST OF FIRE AND RESCUE SERVICES IN CASCO, NAPLES, AND RAYMOND	23
	DEMAND FOR SERVICE	24
IV.	STANDARDS, BENCHMARKS, AND RESPONSE PARAMETERS	34
	PERFORMANCE MEASURES AND GOALS	34
	EMERGENCY MEDICAL SERVICE PERFORMANCE GOALS	35
	COMPUTER MAPPING	37
	MAPPING CONCLUSIONS	56
V.	CONSOLIDATED FIRE AND RESCUE DEPARTMENT	58
	CONSOLIDATED DEPARTMENT OVERVIEW	58
	ORGANIZATION RECOMMENDATIONS	58
	ROLE OF THE FIRE CHIEF	60
	FIRE STATION CONFIGURATION	61
VI.	GOVERNING THE CONSOLIDATED FIRE AND RESCUE DEPARTMENT	65
	DEVELOPING THE INTER-MUNICIPAL AGREEMENT	65
	GOVERNANCE AND MANAGEMENT	66
VII.	ALLOCATION OF COSTS	68
VIII.	MANAGEMENT RECOMMENDATIONS	73
	ADMINISTRATIVE ACTIONS	73
	APPARATUS REPLACEMENT	74
IX.	ATTITUDE SURVEY OF FIRE AND RESCUE PERSONNEL	83
	SURVEY DESIGN	83
	COMPILATION OF SURVEY RESULTS	84
X.	IMPLEMENTATION PLAN	92
APPENDIX A	DISCUSSION OF STANDARDS AND BENCHMARKS	95
APPENDIX B	ALTERNATIVE CONSOLIDATION RECOMMENDATIONS	98
APPENDIX C	CASCO, NAPLES, AND RAYMOND EMS CALLS FOR SERVICE IN 2010	100

I. EXECUTIVE SUMMARY

This *Feasibility Study of Establishing a Regional Public Safety Department* is designed to examine the viability of consolidating the Casco, Naples, and Raymond fire and rescue services into one public safety department. In addition, the study is intended to explore other cooperative opportunities.

Our primary finding is that it is necessary and feasible for Casco, Naples, and Raymond to consolidate their fire and rescue departments into one unified department. The consolidation of resources is essential to prevent the decline and failure of the fire and rescue system.

The risk of fire and rescue system failure is relatively high in each of the individual fire or rescue departments. System failures and service declines are not dramatic, but occur slowly over a period of time and may not be noticed by the general public. A system fails as the number of volunteers decline. The decline may be attributed to many causes, such as an aging population base, job prospects in the area and commuting patterns, and the personal commitments of existing volunteers. The standards requiring greater training of personnel, increased response demands as a result of emergency medical service calls for service, the need for efficiency and cost effectiveness, and emerging industry standards have been cited as reasons for the decline in volunteer activity. In addition, volunteer chief officers have assumed increased administrative responsibilities.

Each town has developed strategies to prevent, or at least defer, system failure. Naples and Raymond have employed some full-time personnel; Raymond has used college resources; Casco, Naples, and Raymond have assigned paid volunteers to work specific shifts. A service delivery approach which links available emergency response resources is, as a practical matter, the only cost-effective approach to enable Casco, Naples, and Raymond to provide an acceptable level of fire and rescue services.

The consultants visited the towns of Casco, Naples, and Raymond, interviewed town officials and fire and rescue agency chief officers, and attended meetings of rank-and-file members of each department. Documents, budgets, policies and procedures, response data, and other information were reviewed. A continuum of service approaches was examined, including maintaining the status quo,

administrative cooperation, functional consolidation, operational consolidation, and full consolidation. There are several underlying principles to consider when determining the feasibility of consolidating fire and rescue departments.

- Safety of fire and rescue personnel
- Safety of the public
- Effectiveness of operations
- Efficiency of operations
- Sensitivity to costs

The focus of the study is the future of the fire and rescue service in the towns. Casco, Naples, and Raymond are independent jurisdictions serving a relatively large service area of approximately 120 square miles. According to the 2010 U.S. Census, the residential population of Casco, Naples, and Raymond totaled 12,050. The seasonal population is estimated to increase by 15,000 persons during the summer months.

Casco, Naples, and Raymond have 140 volunteers, part-time and full-time personnel involved in fire and rescue services; however, it appears that there are 75 to 80 active volunteers. Casco, Naples, and Raymond have a history of working together and have developed sophisticated strategies to support one another. The Casco, Naples, and Raymond Fire Departments share resources in major emergencies and have developed a system of automatic aid. While this is a sound operational practice and makes effective use of resources, a more integrated response system should be established in the long-term. Relationships among response agencies have been stressed during the last several years because of the inability of one agency to respond effectively during workday hours. The departments also participate in the Cumberland County Regional Communication Center (CCRCC).

STUDY FINDINGS

The fire and rescue systems in Casco, Naples, and Raymond have similar characteristics and provide similar services. Fire and emergency medical services are integrated into one organization in Naples and Raymond. In Casco, there are separate fire and rescue departments. The two departments share facilities and some volunteers are members of both departments. Each department has a unique history and culture; however, each department confronts service demands which place stress on existing volunteers. The service demand during the daytime, as well as seasonal service demand, places stress on the volunteer personnel and has an effect on each

department's operations. Currently, the Naples Fire and Rescue Department has an active group of volunteer, or call, personnel; volunteer personnel in Casco and Raymond are less active.

EMERGENCY RESPONSE FINDINGS

- The Casco, Naples, and Raymond fire and rescue service delivery systems are fragile.
- The fire and rescue services provided by Casco, Naples, and Raymond are similar. Apparatus and equipment resources are compatible, and each agency has trained firefighters and emergency medical response personnel.
- The initial response to major incidents in Casco, Naples, and Raymond is often a joint response from the departments, as well as other jurisdictions. The fire response from Casco is reported to be weaker, especially during workday hours, than the response from Naples and Raymond.
- The level of fire and rescue services provided by Casco, Naples, and Raymond could not be provided cost effectively without the volunteers.
- Mutual aid is an essential part of the emergency response system.
- The Cumberland County Regional Communication Center (CCRCC) is a unifying force for the fire and rescue departments.
- The fire and rescue departments have each acquired apparatus based on their individual needs. As a result, the fleet of apparatus is somewhat larger than would be required by a consolidated fire and rescue department.
- The direct geographic connection of the towns encourages cooperation. However, the relatively large area of each town, the complex road network, the terrain, and seasonal weather conditions are all factors which affect service delivery.
- The service demands in Casco, Naples, and Raymond are similar.

ORGANIZATION AND DEPLOYMENT FINDINGS

- The Casco, Naples, and Raymond Fire and Rescue Departments are independent organizations and each has an independent command structure.

- The fire and rescue departments have five stations, two in Raymond, two in Casco, and one in Naples.

- The Casco Fire Department and the Casco Rescue Department are separate organizations with some overlapping membership.

- The three towns provide a sophisticated level of EMS services, and have adopted different approaches to providing those services.

- The Naples Fire and Rescue Department and the Raymond Fire and Rescue Department deploy full-time or part-time personnel to provide 24/7 coverage. The Casco Fire Department and Rescue Department do not deploy response personnel 24/7, but rely on an on-call system. Daytime on-call personnel are paid to be available during workday hours.

- The volunteer fire and rescue personnel in Casco, Naples, and Raymond, while essential to fire and rescue operations, must continue to be augmented by part-time or full-time personnel.

- There is support for some type of consolidation throughout the ranks of the fire and rescue departments.

ADMINISTRATIVE AND MANAGEMENT FINDINGS

- The three towns have substantial fire and rescue assets. Generally, the three towns have assets of similar value. Assets include five fire stations and 23 major pieces of apparatus, as well as other utility vehicles.

- The Naples Fire and Rescue Department, the Raymond Fire and Rescue Department, and the Casco Fire Department have approximately 60 active volunteers. The Casco Rescue Department has approximately 20 active volunteers, with several members also serving as members of the Casco Fire Department. There are approximately 75 to 80 active volunteers providing fire and rescue services.

- The four departments have substantial EMS capability. The departments report collectively that there are 65 personnel trained as emergency medical technicians. There are 35 EMT-Bs, 15 EMT-Is, and 15 EMT-Ps.

- The three towns use the same EMS billing service, but contract separately for those services.

- The fire and rescue chiefs have a large number of administrative tasks to perform, but have limited time to perform those tasks.

- The departments organize training, provide for apparatus testing, purchase supplies, develop operational policies, and perform other administrative tasks independently.

- The fire and rescue departments lack a systematic method of reporting activity.

The Casco, Naples, and Raymond fire and rescue departments are relatively small departments that service a large geographic area; in a major emergency, the effectiveness of the departments is a function of the available mutual aid resources from one another, as well as from other jurisdictions. Consolidation of the fire and rescue departments offers a number of opportunities.

- An integrated response force of personnel is created. Personnel operate under the same Standard Operating Procedures/Standard Operating Guidelines (including safety standards and practices).

- A stronger command system and chain of command are established.

- A consolidated system places resources in fewer fire stations.

- A consolidated system requires less apparatus.

- An integrated training program is developed.

STUDY RECOMMENDATIONS

The primary recommendation made in this report is that the fire and rescue departments in Casco, Naples, and Raymond should be consolidated into one fire and rescue department (CNR Fire and Rescue Department). As a prelude to the consolidation of the fire and rescue departments, the Casco Rescue Department and

the Casco Fire Department should be merged into one department. Alternatively, one Fire and Rescue Chief should be appointed to oversee a combined department.

The consolidation of the departments requires the employment of one full-time Fire and Rescue Chief responsible for managing all fire and rescue operations in the three towns. Existing volunteer, part-time, and full-time personnel would become part of the new department. Ideally, most personnel should be cross-trained firefighters and emergency medical technicians, but there would be opportunities for participation by firefighters (only) and EMTs (only). The new department would be governed by the Fire and Rescue Accountability Committee.

The recommendations presented in this report are concerned with establishing new organizational relationships. The recommendations are organized into several categories.

CONSOLIDATION RECOMMENDATIONS

- The Casco, Naples, and Raymond Fire and Rescue Departments should be consolidated into one fire and rescue department.

- Casco, Naples, and Raymond should plan for the implementation of a fully consolidated fire and rescue department. Several steps must be taken, including:

  - Develop and implement a new three-town fire and rescue department governance structure as soon as possible.

  - Develop and adopt a three-party inter-municipal agreement.

  - Select one fire and rescue professional to oversee the consolidation of the three departments into one fire and rescue department.

  - Develop a method of allocating costs among the towns.

FIRE AND RESCUE DEPARTMENT GOVERNANCE RECOMMENDATIONS

- The Towns of Casco, Naples, and Raymond should negotiate an inter-municipal agreement to consolidate the fire and rescue departments. The term of the inter-municipal agreement should ideally be at least ten years.

- The Towns of Casco, Naples, and Raymond should establish a governance structure for the consolidated fire and rescue department. For purposes of this report, this governing authority is called the Fire and Rescue Department Accountability Committee.

- The Towns of Casco, Naples, and Raymond should establish a method of allocating costs for the operation of the consolidated Fire and Rescue Department. Several cost allocation models are possible. For example, a cost allocation model could be based on population and calls for service or State municipal valuation (equalized valuation).

REORGANIZATION RECOMMENDATIONS

- The consolidated fire and rescue department should have the following positions:

  - One full-time Fire and Rescue Chief
  - Three volunteer District Chiefs (or Battalion, Division, or Deputy Chiefs) to oversee each district (Casco, Naples, and Raymond Districts).
  - One volunteer District Chief to oversee emergency medical operations

- The District Chiefs should oversee stations, apparatus, and personnel in each district.

- The EMS District Chief should be a staff position and should oversee EMS training, certification of personnel, quality assurance and quality improvement, and system operations.

- The District Chiefs should be volunteers, but one or more could be full-time or part-time employees.

- The District Chiefs should be assigned ancillary duties or functions. For example:

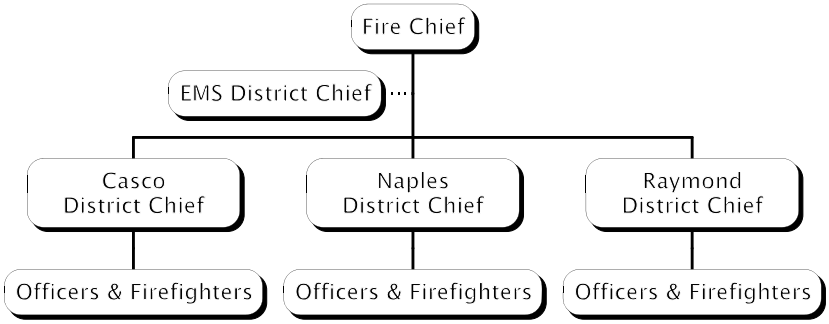
  - One District Chief should have responsibility for department-wide training, supported by a training officer in each district.

  - One District Chief should be responsible for personal protective equipment and safety, supported by a safety officer in each district.

- One District Chief should be responsible for volunteer recruitment and selection and other functions to support volunteer activities.

Exhibit 1presents the proposed structure of the department.

EXHIBIT 1
PROPOSED ORGANIZATION OF THE CASCO, NAPLES, AND RAYMOND FIRE AND RESCUE DEPARTMENT



ALTERNATIVE CONSOLIDATION RECOMMENDATIONS

- The Casco Fire Department, the Casco Rescue Department, and the Raymond Fire and Rescue Department should be consolidated into one fire and rescue department.

- The Casco and Raymond Fire and Rescue Department (CRFRD) should be organized under the direction of one fire chief and two district chiefs.

STATION LOCATION RECOMMENDATIONS

- The Fire and Rescue Department Accountability Committee should consider reducing the number of response stations from five to three stations. Alternatively, the department could operate with four stations.

- The CNR Fire and Rescue Department should have three fire and rescue stations, the Naples Fire Station and the Central Fire Stations in Casco and Raymond.

- The Town of Casco's Brown Street Station should be decommissioned. Consideration should be given to closing Raymond Fire Station #2.

DEPLOYMENT RECOMMENDATIONS

- The Casco Fire Department and the Casco Rescue Department should be consolidated. Personnel should, ideally, be cross-trained firefighters/EMTs. On-call personnel should be firefighters/EMTs.

- The three districts in the consolidated fire department should have a minimum of one full-time firefighter/EMT on duty 12 hours per day, with at least two personnel available and paid to be on-call.

- The on-all personnel should be firefighters/EMTs.

- The CNR Fire and Rescue Department should generally have all personnel cross-trained as firefighters/EMTs. The department should recognize that it is possible to have some personnel who act as only emergency medical responders and some who are only firefighters.

- The CNR Fire and Rescue Department should be structured to reflect its dependence on volunteers, but should also use other available resources, such as students, to augment response.

- The CNR Fire and Rescue Department should develop Standard Operating Guidelines (SOGS) or Standard Operating Practices (SOPs). SOGs and SOPs should initially focus on the safety of operations.

APPARATUS FLEET RECOMMENDATIONS

- The CNR Fire and Rescue Department should have a fleet composed of four ambulances, six engines, one ladder, three tankers, two medium duty rescue units, and other utility vehicles. Exhibit 2 displays the current and proposed apparatus fleet.

EXHIBIT 2
CURRENT AND PROPOSED APPARATUS FLEET
CASCO, NAPLES, AND RAYMOND FIRE DEPARTMENTS*

APPARATUS TYPE	NUMBER	PROPOSED FLEET	DECREASE
Ambulance	6	4	-2
Engine	7	6	-1
Ladder	2	1	-1
Forestry	3	3	0
Medium Rescue	1	2	+1
Tankers	5	3	-2
Total	24	19	-5

**Does not include utility vehicles and medium rescue units in Raymond.*

- The fleet should be assigned to three response stations. Each station should have the following apparatus: one ambulance, two engines, one tanker, and one forestry truck.

- The ladder truck should be assigned to one station, and two medium duty rescue vehicles should be assigned to the other two stations. It is necessary to acquire one medium rescue unit.

- The CNR Fire and Rescue Department should develop an apparatus replacement plan.

- The realignment of fire stations and the fleet of apparatus should be accomplished over a period of time.

SURVEY OF PERSONNEL

The personnel in each fire and rescue department were provided with a written survey to complete and return to the consultants. The survey covered a wide range of topics. Forty-seven surveys from the four agencies involved in the study were analyzed. Some responses are highlighted below.

- Fifty-one percent of respondents were in favor of consolidation.

- Seventy-seven percent of respondents indicated that they enjoy membership in their department.

- Ninety-six percent of respondents believe that citizens appreciate their work.

- Twenty-four percent of respondents agreed, or strongly agreed, with the statement, "My department does not need any mutual aid for night or weekend responses." However, 55 percent of respondents disagreed, or strongly disagreed, with the statement.

- Eleven percent agreed with the statement, "My department does not need to have responders stationed at the fire station on weekdays." Eighty-one percent of respondents disagreed with the statement.

- Seventy-three percent of respondents disagreed with the statement, "My department does not need to have responders stationed at the fire station on nights and weekends." Fifteen percent of respondents agreed with the statement.

- Seventy-nine percent of respondents disagreed with the statement, "My department does not need to employ, or continue to employ, a small number of career, full-time firefighters." Twelve percent of respondents agreed with the statement.

- Twenty-six percent of respondents agreed with the statement, "The Town can be adequately served by the existing personnel." However, 46 percent disagreed with the statement, and 23 percent of respondents were neutral on the statement.

RECOMMENDATIONS AND COST REDUCTIONS

It is feasible to consolidate the Casco, Naples, and Raymond Fire Departments. Initially, the consolidated fire and rescue department would not generate cost savings. Costs savings do accrue over time with a reduction in the number of apparatus (no need to replace some units) and the decommissioning of one or more fire stations. Some administrative savings occur by centralizing administrative services. The consolidation of contracting and procurement procedures should result in some cost savings. Personnel costs would increase.

Exhibit 3 lists the major recommendations in the order they are presented in this report.

EXHIBIT 3
MAJOR RECOMMENDATIONS

NUMBER	RECOMMENDATION
1	The towns of Casco, Naples, and Raymond should consolidate fire and rescue services into one Fire and Rescue Department.
2	The Town of Casco should immediately consolidate the Casco Fire Department and the Casco Rescue Department into one organization, or appoint one officer to act as Chief of both departments.
3	The consolidated CNR Fire and Rescue Department should operate with three fire stations.
4	The consolidated CNR Fire and Rescue Department should set a fire response goal designed to meet NFPA Standard 1720 and deliver six firefighters within 14 minutes to the scene of a fire.
5	The consolidated CNR Fire and Rescue Department should develop a comprehensive fire prevention program.
6	The consolidated CNR Fire and Rescue Department should be under the direction of a full-time Fire and Rescue Chief.
7	The consolidated CNR Fire and Rescue Department should be managed by the Fire and Rescue Chief, who should be assisted by three District Fire Chiefs, each overseeing a district (Casco, Naples, and Raymond), and one District Chief overseeing emergency medical services.
8	The Fire and Rescue Accountability Committee should develop the qualifications for the Fire and Rescue Chief.
9	The CNR Fire and Rescue Department should operate with three or four fire stations.
10	The CNR Fire and Rescue Department apparatus fleet should be composed of four ambulances, six engines, one ladder, three forestry trucks, and three tankers.
11	One ambulance should be assigned to each of the three primary response stations. One ambulance should be placed in reserve.
12	The CNR Fire and Rescue Department should develop an apparatus replacement plan.
13	The CNR Fire and Rescue Department should acquire one new medium-duty rescue unit.
14	A firefighter/EMT should be on-duty at the Casco Central Fire Station from 6:00 a.m. to 6:00 p.m., Monday through Friday.
15	The on-duty firefighter/EMT should be supported by two on-call personnel. The on-call personnel should be cross-trained firefighters/EMTs.
16	The Towns of Casco, Naples, and Raymond should develop an inter-municipal agreement establishing a consolidated Fire and Rescue Department.

NUMBER	RECOMMENDATION
17	The Towns of Casco, Naples, and Raymond should establish a three to six person Fire and Rescue Accountability Committee to govern the consolidated CNR Fire and Rescue Department.
18	The Towns of Casco, Naples, and Raymond should have equal decision-making authority in the management of the consolidated CNR Fire and Rescue Department.
19	The cost of the CNR Fire and Rescue Department should be distributed based on municipal valuation, residential population, and calls for service.
20	The Town of Naples should spend an additional $60,000 in order to employ the equivalent of one firefighter/EMT for 60 hours per week.
21	The Fire and Rescue Accountability Committee should review the service levels in each district to create an equitable service delivery system.
22	The administrative services required by the CNR Fire and Rescue Department should be centralized.
23	The CNR Fire and Rescue Department should be provided with 10 to 15 hours of office support weekly.
24	The CNR Fire and Rescue Department should develop a uniform pay scale.
25	The CNR Fire and Rescue Department should approve the purchase of major apparatus based on a replacement plan.
26	The CNR Fire and Rescue Department, working through the Fire and Rescue Accountability Committee, should officially adopt a multi-year apparatus and equipment replacement program.
27	The Town of Casco should strengthen its response capability.

The report is organized into several chapters. The *Executive Summary* presents the major findings and recommendations. Chapter II, *Cooperation and Consolidation Options*, discusses the purpose of the study and the concepts underlying the analysis within the report. Chapter III, *Fire and Rescue Services in the Towns of Casco, Naples, and Raymond*, provides a description of the fire departments, information on the level of activity, and the resources of the fire departments. Chapter IV, *Standards, Benchmarks, and Response Parameters,* provides an outline of some methods to measure fire and emergency medical services. Computer mapping is also contained in this chapter. Chapter V, *Consolidated Fire and Rescue Department,* discusses the consolidation of the departments and how the new department should be organized. Chapter VI, *Governing the Consolidated Fire and Rescue Department,* describes the role of the Consolidated Fire and Rescue Department Accountability Committee. Chapter VII, *Allocation of Costs,* provides an

approach to distributing fire and rescue costs among the towns. Chapter VIII, *Management Recommendations,* discusses several management recommendations and presents an apparatus replacement plan. Chapter IX, *Attitude Survey of Fire and Rescue Personnel*, presents a summary of the employees' responses to a survey instrument. Chapter X, *Implementation Plan,* provides a general outline of actions required to consolidate fire and rescue departments. Appendix A, *Discussion of Standards and Benchmarks,* describes emerging best practices and standards. Exhibit B, *Alternative Consolidation Recommendations,* describes the consolidation of Casco and Raymond emergency services as an alternative to a consolidation of Casco, Naples, and Raymond emergency services. Appendix C, *Casco, Naples, and Raymond EMS Calls for Service in 2010,* shows calls in the three towns, by month and time of day.

Several abbreviations used in this report are defined below:

ALS	Advanced Life Support
EMS	Emergency Medical Services
EMT-B	Emergency Medical Technician Basic
EMT-I	Emergency Medical Technician Intermediate
EMT-P	Emergency Medical Technician Paramedic
ISO	Insurance Services Office
NFPA	National Fire Protection Association

II. COOPERATION AND CONSOLIDATION OPTIONS

This study examines the feasibility of creating a regional public safety department for the Towns of Casco, Naples, and Raymond. The study required the consultants to develop an inventory of fire and rescue capability, review service levels, identify alternative service delivery approaches, and develop alternatives for consideration by the towns.

The nature of this study required the consultants to consider the different approaches to service delivery used by each fire department. The consultants reviewed a great deal of information and data. The officials from the fire and rescue departments were interviewed, the Cumberland County E-911 Center was visited, and equipment and apparatus were examined. Fire and rescue department officials provided information and suggested sources of data. Officials freely expressed their opinions and concerns and expressed pride in the work they performed. While there may be friendly competition among fire and rescue departments, the predominant attitude is one of mutual support and commitment to providing services. In addition, we found fire and rescue personnel (full-time, part-time, and volunteer) to be generally optimistic, and concerned about the future. There is a strong belief in the volunteer fire and rescue system among the three towns, but there is also a recognition that full-time or part-time personnel are required to support the volunteer system.

The study reviewed a range of possibilities:

- *Status Quo* - The status quo model assumes that no actions should be taken and the current system will continue to operate successfully.

  Comment: The officials and emergency responders in each town are concerned about the availability of personnel to meet response needs, particularly during workday hours.

- *Administrative Cooperation* - The administrative cooperation model assumes that the fire departments would share certain administrative tasks, such as purchasing, joint training, etc.

  Comment: The fire and rescue agencies have a tendency to work independently on administrative matters. Moreover, volunteer officers

have limited time to coordinate activities. Administrative cooperation should facilitate cooperation, but administrative cooperation does not address underlying response challenges.

- *Functional Consolidation:* The functional consolidation model assumes that fire departments would use some equipment or personnel resources on a shared basis. Fire departments would maintain their independence.

  Comment: The fire and rescue agencies have made efforts to share equipment, such as the sharing of a ladder truck between Casco and Naples. These efforts have not always been successful. The ladder sharing effort has been discontinued as a result of disagreements on the use, location, and maintenance of the ladder. Naples has since purchased a new ladder. It should be noted that Casco continues to receive ladder coverage from Naples, as a result of mutual aid agreements.

- *Operational Consolidation* - The operational consolidation model assumes that fire departments operate in an integrated manner when responding to incidents. Departments maintain their identity and independence organizationally.

  Comment: An underlying principle of operational consolidation is that there is a shared system in which all parties participate. The departments clearly cooperate on mutual aid, but there are emerging concerns about the equality of mutual aid.

- *Partial Consolidation* - The partial consolidation model assumes that departments consolidate specific functions and operate as a single entity, or department, when performing the consolidated functions.

  Comment: An example of partial consolidation is the consolidation or integration of emergency medical services. While this is possible, it is not fully practical in Casco, Naples, and Raymond.

- *Full Consolidation* - The consolidation model assumes that the three fire departments join together to form one department.

  Comment: The consolidation model offers the most appropriate approach to addressing service delivery problems, staffing needs, and cost management.

Exhibit 4 presents a summary of cooperation and consolidation models and lists advantages and disadvantages applicable to Casco, Naples, and Raymond.

EXHIBIT 4
COOPERATION AND CONSOLIDATION OPTIONS

ORGANIZATIONAL APPROACH	ADVANTAGE	DISADVANTAGE
Status Quo	None	Underlying response problems are not addressed.
Administrative Cooperation	Some improvements result, such as a joint contract for EMS billing.	Does not address underlying response concerns.
Functional Consolidation	Some improvements occur if organizations cooperate.	Does not address underlying response issues.
Operational Consolidation	Some improvements result, such as a more systematic automatic aid program. Personnel are available more rapidly.	Does address some immediate response problems, but does not address underlying problems in any one department.
Partial Consolidation	Some improvements result from the consolidation of a specific service, such as EMS.	Does not fully address the underlying response problem. Partial consolidation requires the same resources as full consolidation without the integrated command structure.
Full Consolidation	Improvements result from a unified command structure, the need for fewer response stations, and a smaller apparatus fleet. Personnel resources are used more effectively.	Some local leaders may perceive that there is a loss of local control when the departments are consolidated. Thus, a strong accountability system is required.

Several conditions have the effect of at least partially integrating fire and rescue operations in the three towns.

- The towns are part of the County-wide emergency communication system (E-911 system).
- The towns have developed an effective mutual aid system.
- There is long-history of cooperation among the towns and the fire and rescue departments.

- The departments are similar in size, and have sufficient equipment and resources.

Members of the fire and rescue departments understand the need for coordination and sharing of resources. Interviews and survey responses show that the membership of each fire and rescue department is aware of their department's strengths and service response challenges.

The creation of a consolidated fire and rescue department raises several important issues.

- The provision of fire and rescue services would not be possible without the volunteer system.

- There is a need to consider the safety of emergency responders when designing the new response system.

- The leaders of each volunteer fire and rescue department have only a limited amount of time available to implement new policies and procedures.

- The Casco Fire Department and the Casco Rescue Department are separate organizations, although the agencies share facilities and have some members in common. Not all members of the Casco Rescue Department are cross-trained firefighters/EMTs.

- The leaders of each volunteer fire and rescue department must be realistic about the ability of a department to respond to emergencies in a timely and effective manner. The road network, weather conditions, and limited personnel resources challenge the response capability of the departments.

RECOMMENDATION *1: The Towns of Casco, Naples, and Raymond should consolidate fire and rescue services into one Fire and Rescue Department.*

RECOMMENDATION *2: The Town of Casco should immediately consolidate the Casco Fire Department and the Casco Rescue Department into one organization, or appoint one officer to act as Chief of both Departments.*

III. FIRE AND RESCUE SERVICES IN CASCO, NAPLES, AND RAYMOND

This chapter is designed to provide background information on the towns of Casco, Naples, and Raymond, as well as the fire and rescue agencies. The information shows many of the similarities among the towns.

POPULATION AND POPULATION DENSITY

The population trends within each town, and the population density, have a direct effect on fire and rescue service needs. Exhibit 5 shows the population of each town in 2000 and 2010. Casco, Naples, and Raymond have had increases in population during the last 10 years. Naples has had the largest percent increase in population growth (15.4. percent) and Raymond has had the smallest increase in population growth (3.1 percent). The three towns have collectively had an increase of 8.4 percent in population, or 1,008 residents, between 2000 and 2010. The seasonal population is reported to be more than double the year-round residential population.

EXHIBIT 5
CASCO, NAPLES, AND RAYMOND POPULATION - 2000 AND 2010

TOWN	2000 POPULATION	2010 POPULATION	INCREASE	% INCREASE
Casco	3,469	3,742	273	7.3%
Naples	3,274	3,872	598	15.4%
Raymond	4,299	4,436	137	3.1%
Total	11,042	12,050	1,008	8.4%

Exhibit 6 shows the size of each town in square miles. The towns encompass almost 120 square miles, 96.0 square miles of which is land area. Exhibit 7 shows the population density of the towns. The population density ranges from approximately 120 persons per square mile to 133 persons per square mile. The aggregate population density for the three towns is approximately 125 per square mile.

EXHIBIT 6
AREA IN SQUARE MILES

	CASCO	NAPLES	RAYMOND	TOTAL
Land	31.3	31.8	33.0	96.1
Water	5.2	5.4	13.0	23.6
Total Square Miles	36.4	37.2	46.0	119.6

EXHIBIT 7
POPULATION DENSITY (LAND AREA ONLY)

CASCO POPULATION	POP. DENSITY PER SQ. MI.	NAPLES POPULATION	POP. DENSITY PER SQ. MI.	RAYMOND POPULATION	POP. DENSITY PER SQ. MI.
3,742	119.6	3,872	121.8	4,436	133.6

The 2010 U. S. Census reports that there are 8,800 housing units in Casco, Naples, and Raymond. Exhibit 8 shows data on occupied housing units and vacant housing units, which reflects the seasonal population. Sixty-two percent of housing units are occupied in Raymond and 53 percent of units are occupied in Casco and Naples.

EXHIBIT 8
CASCO, NAPLES, AND RAYMOND HOUSING UNITS (2010)

	TOTAL	PERCENT OF TOTAL	OCCUPIED HOUSING UNITS	PERCENT OCCUPIED	VACANT HOUSING UNITS	PERCENT VACANT
Casco	2,944	33.5%	1,554	53%	1,390	47%
Naples	3,004	34.1%	1,579	53%	1,425	47%
Raymond	2,852	32.4%	1,773	62%	1,079	38%
Total	8,800	100.0%	4,906	56%	3,894	44%

STAFFING, STATIONS, AND APPARATUS

STAFFING RESOURCES

Exhibit 9 shows the number of personnel in the fire and rescue departments in Casco, Naples, and Raymond; not all volunteer members are active. The Casco Fire Department reports approximately 15 to 20 active members; Naples reports

approximately 25 active members; and Raymond reports approximately 20 active members; thus, there approximately 60 to 65 active volunteer fire department personnel among the three towns. In addition, there are 22 volunteers in the Casco Rescue Department, several of whom are also members of the Casco Fire Department. There are approximately 75 to 80 total active volunteers. Volunteer fire and rescue departments must maintain an active volunteer recruitment and retention program to ensure that there is a sufficient number of trained volunteers available to support a fire and rescue system .

EXHIBIT 9
CASCO, NAPLES, AND RAYMOND FIRE AND RESCUE DEPARTMENTS

POSITION	CASCO	CASCO RESCUE*	NAPLES	RAYMOND	TOTAL STAFFING
Fire Chief	1	1	1	1	4
Assistant Fire Chief	1		1	1	3
Deputy Chief	1		2	1	4
Captain	8		1	2	11
Lieutenant	2		1	3	6
Firefighter	18		39	24	81
EMT-B		10		10	20
EMT-I		5		5	10
EMT-P		4		4	8
Jr./Probationary Firefighter	4			3	7
Fire Police	6		3	5	14
Other		2			2
	41	22	48	59	170

**Six members of the Casco Fire Department are members of the Casco Rescue Department.*

There are 35 EMT-Bs (basic), 15 EMT-Is (intermediate), and 15 EMT-Ps (paramedic) among the four emergency response departments. Exhibit 10 shows the number and skill level of personnel in each department.

EXHIBIT 10
EMERGENCY MEDICAL TECHNICIANS BY CATEGORY
CASCO RESCUE DEPARTMENT, NAPLES AND RAYMOND FIRE AND RESCUE DEPARTMENTS

POSITION	CASCO RESCUE	NAPLES	RAYMOND	TOTAL STAFFING
EMT-B	11	9	15	35
EMT-I	5	6	4	15
EMT-P	4	8	3	15
Total	20	23	22	65

STATIONS AND APPARATUS

Each fire and rescue organization has a station(s) and a fleet of apparatus. The total value of the assets used by the fire and rescue departments is estimated to exceed $12,000,000. Exhibit 11 provides an estimate of the value of buildings and apparatus.

EXHIBIT 11
ESTIMATED VALUE OF FIRE AND RESCUE DEPARTMENT ASSETS

	NAPLES	CASCO	RAYMOND*	TOTAL
Buildings	1,205,714	1,775,000	1,750,000	4,730,714
Vehicles	2,965,000	2,316,000	2,251,000	7,532,000
Other	36,000	32,000	30,000	98,000
Total	4,206,714	4,123,000	4,031,000	12,360,714

** Consultant's estimate.*

Exhibit 12 lists the type of apparatus operated by each town. The fleet includes six ambulances, seven engines, two ladders, three forestry trucks, five tankers, and seven utility and other vehicles.

EXHIBIT 12
FIRE AND RESCUE APPARATUS FLEET

TOWN	AMBULANCE	ENGINE	LADDER*	MEDIUM RESCUE	FORESTRY	TANKER	UTILITY/OTHER	TOTAL
Casco	2	3		1	1	2	2	11
Napes	2	2	2		1	1		8
Raymond	2	2			1	2	4	11
Total	6	7	2	1	3	5	6	30

**Naples and Casco have shared a ladder truck. The truck was housed in Naples. The shared ladder is 30 years old and should not be replaced. Naples has purchased a new ladder.*

COST OF FIRE AND RESCUE SERVICES IN CASCO, NAPLES, AND RAYMOND

Casco, Naples, and Raymond budgeted $1,462,981 (salaries, operations, and equipment) for fire and rescue services in 2011. The expenditures and budgets for fire and rescue services are shown in Exhibit 13.

Naples spends approximately 63 percent of its money on salaries and Raymond spends 65 percent of its money on salaries. Casco spends 54 percent on salaries. The spending pattern has remained similar for the last several years. The increase in spending for salaries in Casco from 2009 to 2010 was the result of a reorganization of the emergency medical services of the town.

EXHIBIT 13
FIRE AND RESCUE DEPARTMENT BUDGETS - 2009 TO 2011

FY 2011 BUDGET	NAPLES		CASCO		RAYMOND		TOTAL - ALL TOWNS	
Salaries	323,638	63%	201,078	54%	376,432	65%	901,148	62%
Operations	139,100	27%	127,019	34%	157,264	27%	423,383	29%
Equipment	22,000	4%	40,500	11%	30,200	5%	92,700	6%
Other	29,450	6%	2,000	1%	14,300	2%	45,750	3%
Total - Direct Costs	514,188	100%	370,597	100%	578,196	100%	1,462,981	100%
FY 2010 BUDGET	**NAPLES**		**CASCO**		**RAYMOND**		**TOTAL - ALL TOWNS**	
Salaries	340,190	66%	179,678	52%	376,432	65%	896,300	62%
Operations	135,600	26%	125,894	36%	160,264	28%	421,758	29%
Equipment	22,000	4%	40,500	12%	30,200	5%	92,700	6%
Other	18,250	4%	2,000	1%	14,300	2%	34,550	2%
Total - Direct Costs	516,040	100%	348,072	100%	581,196	100%	1,445,308	100%

FY 2009 EXPENDITURES	NAPLES		CASCO		RAYMOND (BUDGET)		TOTAL - ALL TOWNS	
Salaries	308,370	66%	151,506	34%	369,051	62%	828,927	55%
Operations	134,648	29%	155,027	35%	180,074	30%	469,749	31%
Equipment	27,275	6%	130,500	29%	30,200	5%	187,975	12%
Other		0%	7,000	2%	14,300	2%	21,300	1%
Total - Direct Costs	470,293	100%	444,033	100%	593,625	100%	1,507,951	100%

Exhibit 14 shows the per capita cost for fire and rescue services, which is established by dividing the 2011 budget by the 2010 population (most recent U.S. Census). Per capita cost provides one measure of comparison. The per capita costs for Raymond and Naples are similar. The Casco per capita cost for fire and rescue services is 30 percent less than Raymond's and 34 percent less than Naples' per capita cost.

EXHIBIT 14
FIRE AND RESCUE DEPARTMENTS
PER CAPITA COST

	2011 BUDGET	2010 POPULATION	COST PER RESIDENT
Casco	$370,597	3,742	$96
Naples	$514,188	3,872	$137
Raymond	$578,196	4,436	$130
Total	$1,462,981	12,050	$121

DEMAND FOR SERVICE

Exhibit 15 shows the number of calls for service in Casco, Naples, and Raymond for 2009 and 2010. Different sources report different numbers of responses. For example, the fire department data may not be consistent with Cumberland County data, and EMS response data may not be consistent with data reported by Maine Emergency Medical Services (Maine EMS).

EXHIBIT 15
CASCO, NAPLES, AND RAYMOND FIRE AND RESCUE DEPARTMENTS
FIRE AND RESCUE RESPONSES

TOWN	2009	2010
Casco	653	609
Naples	777	781
Raymond	698	755
Total	2,128	2,145

Exhibit 16 shows a summary of major calls for service in 2009, by major category. These data were provided by the Cumberland County Regional Communication Center. The exhibit lists several major categories: total fires, mutual aid, automobile accidents, other incidents, and EMS. The EMS calls include intercepts, assists, and EMS coverage. Some of the mutual aid calls are calls among the three towns. The total number of calls was 2,128; more than 50 percent of those calls were for emergency medical services. Exhibit 17 shows fire calls in 2009. There were 33 structure fires in Casco, Naples, and Raymond in 2009.

EXHIBIT 16
CASCO, NAPLES, AND RAYMOND FIRE AND RESCUE DEPARTMENTS
CALLS FOR SERVICE IN 2009

	CASCO FIRE & RESCUE DEPARTMENT	PERCENT OF TOTAL	NAPLES FIRE & RESCUE DEPARTMENT	PERCENT OF TOTAL	RAYMOND FIRE & RESCUE DEPARTMENT	PERCENT OF TOTAL	GRAND TOTAL	PERCENT OF TOTAL
All Fires	29	4%	29	4%	13	2%	71	3%
Mutual Aid	61	9%	108	14%	111	16%	280	13%
Automobile Accidents	62	9%	71	9%	58	8%	191	9%
Other Incidents	105	16%	171	22%	169	24%	445	21%
EMS	396	61%	398	51%	347	50%	1,141	54%
Total	653	100%	777	100%	698	100%	2,128	100%

Source: Cumberland County Regional Communication Center

EXHIBIT 17
FIRES IN 2009
CASCO, NAPLES, AND RAYMOND FIRE AND RESCUE DEPARTMENTS

	CASCO	NAPLES	RAYMOND	TOTAL
Structure Fires	17	12	4	33
Other Fires	12	17	9	38
Total	29	29	13	71

The data shown in Exhibit 18 display EMS calls reported to Maine EMS in 2010. Exhibit 19 displays EMS Calls for service, using data from the Cumberland County Regional Communication Center.

EXHIBIT 18
EMS CALLS FOR SERVICE - 2010

TOWN	CALLS	PERCENT OF TOTAL
Casco	416	34%
Naples	413	34%
Raymond	396	32%
Total	1,225	100%

Source: Maine EMS

The data shown in Exhibits 19, 20, and 21 was reported by the Cumberland County Regional Communication Center. At our request, County communication officials identified all incidents from January 1, 2010 to December 12, 2010, which were identified as fire department medical emergencies ("FI Medical Emer.") for Casco, Naples, and Raymond. Communication personnel identified 1,081 emergency medical incidents within the three towns. Data from Maine EMS and Cumberland County differ as a result of reporting methods. Exhibit 19 displays EMS calls for service reported in 2010.

EXHIBIT 19
EMS CALLS FOR SERVICE - 2010

TOWN	CALLS	PERCENT OF TOTAL
Casco	397	37%
Naples	355	33%
Raymond	329	30%
Total	1,081	100%

Exhibits 20 and 21 display emergency medical service calls within Casco, Naples, and Raymond by time of day, in one-hour increments. The average number of responses by hour is shown. The last column in Exhibit 20 indicates the percent of responses in each time period (hour). For example, during the 00:00:00 to 00:00:59 period, there were 41 total responses during a one-year period, which represented 3.8 percent of the calls received. Exhibit 21 is a line graph showing activity by time of day for Casco, Naples, and Raymond. The data indicate that Casco, Naples, and Raymond have similar patterns of demand for service.

EXHIBIT 20
EMS CALLS FOR SERVICE BY TIME OF DAY FOR 2010

TIME	CASCO	NAPLES	RAYMOND	AVERAGE	TOTAL	PERCENT OF CALLS
00:00-00:59	14	12	15	13.7	41	3.8%
01:00-01:59	16	6	10	10.7	32	3.0%
02:00-02:59	6	6	5	5.7	17	1.6%
03:00-03:59	7	4	10	7.0	21	1.9%
04:00-04:59	9	9	2	6.7	20	1.9%
05:00-05:59	7	5	7	6.3	19	1.8%
06:00-06:59	13	2	10	8.3	25	2.3%
07:00-07:59	15	7	12	11.3	34	3.1%
08:00-08:59	33	14	13	20.0	60	5.6%
09:00-09:59	26	17	26	23.0	69	6.4%
10:00-10:59	21	19	19	19.7	59	5.5%
11:00-11:59	24	19	16	19.7	59	5.5%
12:00-12:59	19	11	16	15.3	46	4.3%
13:00-13:59	19	19	18	18.7	56	5.2%
14:00-14:59	22	24	23	23.0	69	6.4%
15:00-15:59	14	33	13	20.0	60	5.6%

TIME	CASCO	NAPLES	RAYMOND	AVERAGE	TOTAL	PERCENT OF CALLS
16:00-16:59	16	25	17	19.3	58	5.4%
17:00-17:59	19	20	23	20.7	62	5.7%
18:00-18:59	18	23	10	17.0	51	4.7%
19:00-19:59	16	24	16	18.7	56	5.2%
20:00-20:59	28	18	14	20.0	60	5.6%
21:00-21:59	11	16	8	11.7	35	3.2%
22:00-22:59	14	8	12	11.3	34	3.1%
23:00-23:59	10	14	14	12.7	38	3.5%
Total	397	355	329		1,081	100%

EXHIBIT 21
EMS CALLS FOR SERVICE BY TIME OF DAY FOR 2010

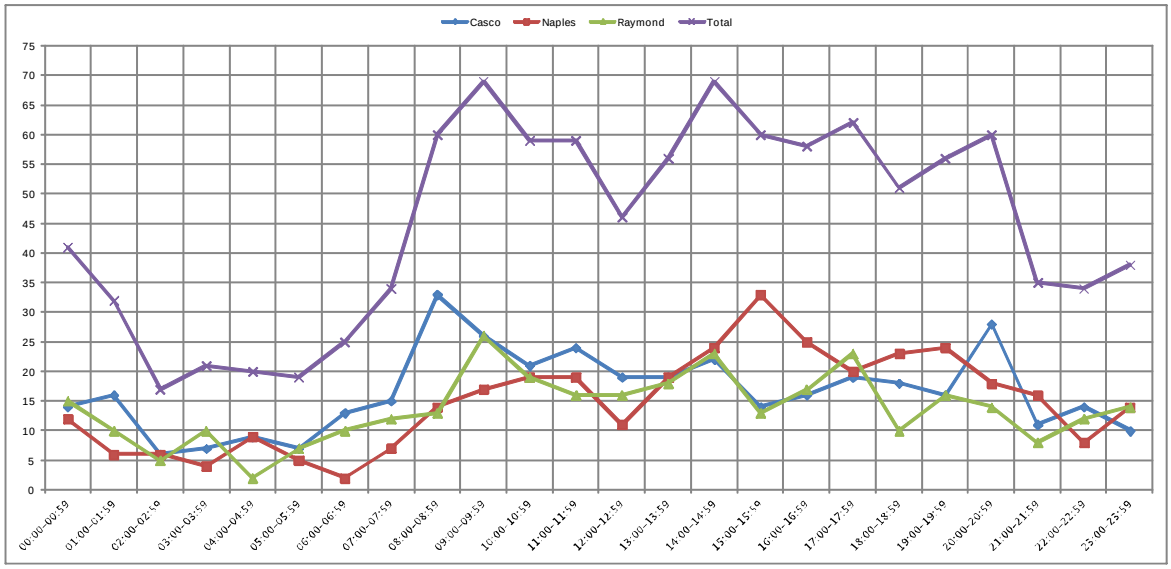


Exhibit 22 displays emergency medical service calls by day of the week. The towns received an average of three emergency medical calls for service daily. Monday and Tuesday had fewer calls for service than Wednesday, Thursday, Friday, Saturday, and Sunday.

EXHIBIT 22
CASCO, NAPLES AND RAYMOND
EMS CALLS FOR SERVICE BY DAY OF THE WEEK FOR 2010

	CASCO	NAPLES	RAYMOND	TOTAL	AVERAGE NUMBER OF CALLS PER DAY
Monday	44	52	41	137	2.63
Tuesday	36	51	48	135	2.60
Wednesday	67	53	52	172	3.31
Thursday	75	56	41	172	3.31
Friday	62	48	45	155	2.98
Saturday	56	54	51	161	3.10
Sunday	57	41	51	149	2.87
Total	397	355	329	1,081	2.96

One measure of activity which allows comparisons among emergency medical service providers is the unit hour unitization (U/HU) measure. The measure divides the available ambulance hours into the number of responses. (This assumes each response is one hour.) The resulting measure displays a ratio. This ratio allows comparison among service providers. For example, if you take one day (24 hours) and there is one unit available 24/7 and there are three calls in that time period, the ratio is 0.125 (0.13), and if there are six calls, the ratio is 0.25 for the 24-hour period. It is generally assumed that a ratio of 0.30 to 0.40 is acceptable; 0.33 is regarded as an ideal ratio. If you consider the U/HU over a one-year period, the formula would be number of responses/hours available (one unit 24/7 = 8,760 hours).

Assuming that there are 1,081 EMS responses (2010) for Casco, Naples, and Raymond in one year, the U/HU would depend on the number of ambulance hours available in the three-town EMS system. If there is only one EMS unit available 24/7, the U/HU is .04; if two units are available, the U/HU is .06; and, if one unit is available 24/7, the U/HU is .12. This information indicates that the EMS system of the three towns combined is not excessively busy. The U/HU provides only one view of the system. The U/HU may be calculated by month, time of day, or another time period.

Exhibit 23 displays the number of calls by hour of the day and the U/HU. The busiest hours in 2010 were between 9:00 and 9:59 and 14:00 and 14:59, each with 69 responses. Thus, one response was required (from one of the three towns) during either of these time periods, or 18 percent of the time.

The exhibit also indicates the U/HU for Casco, Naples, and Raymond, assuming one EMS unit 24/7, two EMS units 24/7, and three EMS units 24/7 (using data from 2010).

EXHIBIT 23
UNIT UTILIZATION BY TIME OF DAY FOR 2010
ONE, TWO, OR THREE 24/7 AMBULANCE UNITS

TIME	CASCO	NAPLES	RAYMOND	TOTAL	ONE UNIT	TWO UNITS	THREE UNITS
00:00-00:59	14	12	15	41	0.11	0.06	0.04
01:00-01:59	16	6	10	32	0.09	0.04	0.03
02:00-02:59	6	6	5	17	0.05	0.02	0.02
03:00-03:59	7	4	10	21	0.06	0.03	0.02
04:00-04:59	9	9	2	20	0.05	0.03	0.02
05:00-05:59	7	5	7	19	0.05	0.03	0.02
06:00-06:59	13	2	10	25	0.07	0.03	0.02
07:00-07:59	15	7	12	34	0.09	0.05	0.03
08:00-08:59	33	14	13	60	0.16	0.08	0.05
09:00-09:59	26	17	26	69	0.19	0.09	0.06
10:00-10:59	21	19	19	59	0.16	0.08	0.05
11:00-11:59	24	19	16	59	0.16	0.08	0.05
12:00-12:59	19	11	16	46	0.13	0.06	0.04
13:00-13:59	19	19	18	56	0.15	0.08	0.05
14:00-14:59	22	24	23	69	0.19	0.09	0.06
15:00-15:59	14	33	13	60	0.16	0.08	0.05
16:00-16:59	16	25	17	58	0.16	0.08	0.05
17:00-17:59	19	20	23	62	0.17	0.08	0.06
18:00-18:59	18	23	10	51	0.14	0.07	0.05
19:00-19:59	16	24	16	56	0.15	0.08	0.05
20:00-20:59	28	18	14	60	0.16	0.08	0.05
21:00-21:59	11	16	8	35	0.10	0.05	0.03
22:00-22:59	14	8	12	34	0.09	0.05	0.03
23:00-23:59	10	14	14	38	0.10	0.05	0.03
Total	397	355	329	1,081	0.12	0.03	0.01

A more detailed review of data for 2010 was conducted to examine the demand for EMS. EMS calls represent the majority of incidents to which fire and rescue departments respond. The data was organized by month using spreadsheets, sorted by type of call, and counted by hand to verify information. The data displayed

in Exhibits 24, 25, and 26 show emergency medical calls, and calls identified as paramedic intercepts. The data does not include calls identified as "EMS coverage." Exhibit 24 displays EMS calls for service by month for the three towns. Appendix C contains additional EMS response information, including EMS demand for service, by month and by time of day, for each town.

EXHIBIT 24
EMS CALLS BY MONTH FOR 2010

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	AVERAGE
Casco	24	29	29	19	34	39	30	43	41	32	41	35	33.0
Naples	23	33	28	35	41	52	57	61	44	19	48	31	39.3
Raymond	42	24	26	25	33	27	32	25	25	30	22	22	27.8
Total	89	86	83	79	108	118	119	129	110	81	111	88	1,201
Percent by Month	7.4%	7.2%	6.6%	6.9%	9.0%	9.8%	9.9%	10.7%	9.2%	6.7%	9.2%	7.3%	100%

The data indicate that the number of calls for EMS service increases in June, July, and August. Casco and Naples have an increase in the demand in the summer months, with Naples having the greatest increase. In addition to the calls for service identified above, Naples has a relatively large number of calls identified as "EMS Coverage" (85 calls in 2010); most of these calls occur in June, July, August, and September. Casco and Raymond had few of these calls.

Exhibit 25 presents EMS calls for service by time of day, for the months of July and August. These data do not include calls identified as "EMS Coverage." The peak EMS activity period is from 8:00 a.m. to 7:00 p.m, shown as the shaded area in the exhibit. Sixty-nine percent of calls for service occurred during this period. Over the 62-day period (July and August), there were 248 medical emergencies. Forty-eight percent of the calls were in Naples; 29 percent were in Casco; and 23 percent were in Raymond.

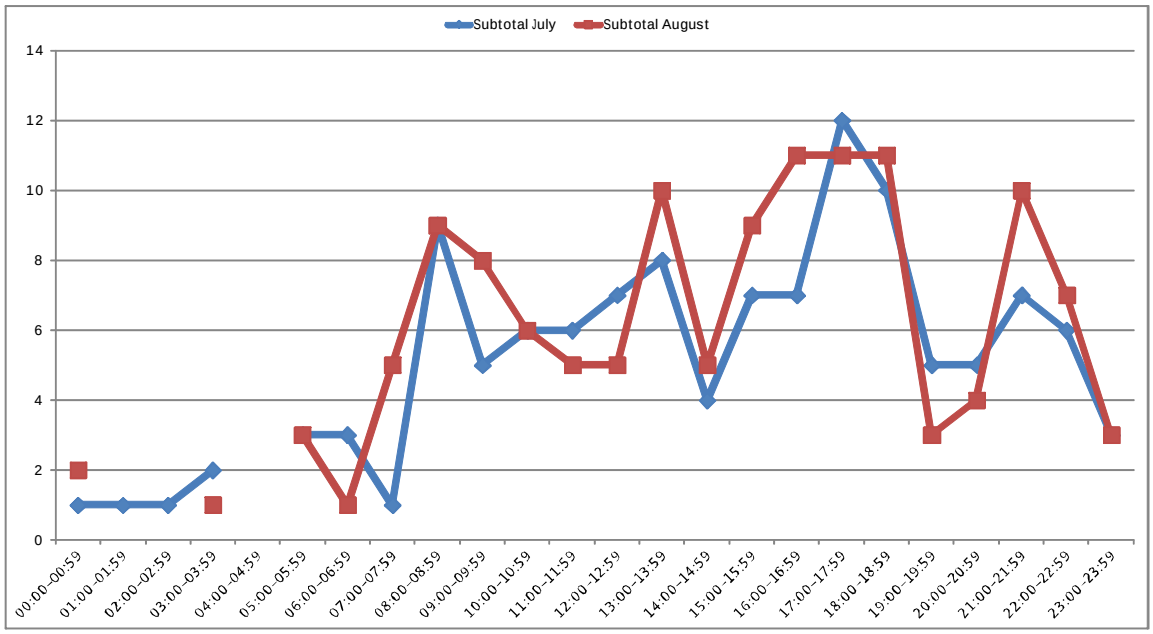
EXHIBIT 25
EMS CALLS FOR SERVICE FOR JULY AND AUGUST 2010

	JULY				AUGUST					
TIME OF DAY	CASCO	NAPLES	RAYMOND	SUBTOTAL	CASCO	NAPLES	RAYMOND	SUBTOTAL	TOTAL	PERCENT
00:00-00:59			1	1		1	1	2	3	1.2%
01:00-01:59	1			1					1	0.4%
02:00-02:59	1			1					1	0.4%
03:00-03:59			2	2	1			1	3	1.2%
04:00-04:59									0	0.0%
05:00-05:59		2	1	3	1	2		3	6	2.4%
06:00-06:59	1		2	3			1	1	4	1.6%
07:00-07:59			1	1	4		1	5	6	2.4%
08:00-08:59	2	5	2	9	4	5		9	18	7.3%
09:00-09:59	2	2	1	5	3	2	3	8	13	5.2%
10:00-10:59	1	4	1	6	2	4		6	12	4.8%
11:00-11:59	1	3	2	6	1	3	1	5	11	4.4%
12:00-12:59	3	3	1	7	2	3		5	12	4.8%
13:00-13:59	2	3	3	8	4	3	3	10	18	7.3%
14:00-14:59	1	1	2	4	3	1	1	5	9	3.6%
15:00-15:59	2	5		7		5	4	9	16	6.5%
16:00-16:59	1	5	1	7	4	5	2	11	18	7.3%
17:00-17:59	3	6	3	12	2	6	3	11	23	9.3%
18:00-18:59	2	5	3	10	2	7	2	11	21	8.5%
19:00-19:59	2	1	2	5	1	2		3	8	3.2%
20:00-20:59	3	1	1	5	3	1		4	9	3.6%
21:00-21:59		6	1	7	4	6		10	17	6.9%
22:00-22:59	2	2	2	6	2	2	3	7	13	5.2%
23:00-23:59		3		3		3		3	6	2.4%
Total Calls	30	57	32	119	43	61	25	129	248	100.0%
Average Number of Calls per Day	1.0	1.8	1.0	3.8	1.4	2.0	.8	4.2	3.9	

The data in Exhibit 25 indicate that, in July 2010, the three towns responded to approximately 3.8 calls each day; in August 2010, the three towns responded to approximately 4.2 calls each day. During 2010, the three towns averaged 3.1 calls per day. (Appendix C displays the each town's response in 2010.)

Exhibit 26 is a line chart which shows the total number of EMS call for service in the three towns by time of day for July and August 2010.

EXHIBIT 26
TOTAL NUMBER OF EMS CALLS IN CASCO, NAPLES, AND RAYMOND
JULY AND AUGUST 2010



The data indicate that the demand for service may be burdensome for an individual department, but the total demand for service is manageable with available resources. The fire and rescue departments have a relatively large number of trained personnel and the necessary equipment to meet the demand for service.

IV. STANDARDS, BENCHMARKS, AND RESPONSE PARAMETERS

PERFORMANCE MEASURES AND GOALS

Establishing performance goals for fire and emergency medical services is an individual community's responsibility. The selection of performance goals may be guided by emerging national standards and performance goals, industry best practices, the cost of providing services, and the level of risk a community is willing to accept.

NFPA STANDARD 1720

The National Fire Protection Association (NFPA) has established several benchmarks, or standards, for measuring fire and rescue response. NFPA Standard 1720 applies to predominantly volunteer (call) departments; NFPA Standard 1710 applies to career fire departments. NFPA Standard 1720 is a performance standard, concerned with both the number of personnel who respond to an incident and the time it takes to respond to an incident. The response time and staffing requirements provided in NFPA Standard 1720 also establish a time frame to begin the initial attack. NFPA 1720 states that, upon arrival of the required number of personnel at the scene of an incident, a fire department should have the capability to safely begin initial attack within two minutes, 90 percent of the time. (See NFPA Standard 1720.) NFPA Standard 1710 is applicable to a career fire department, such as the Portland Fire Department. NFPA 1710, like NFPA 1720, shows both the number of personnel who respond to an incident and the time it takes to respond to an incident. NFPA Standard 1710 presents a more rigorous time line, which assumes the immediate availability of personnel.

Exhibit 28 displays the performance standards for volunteer (call) departments. NFPA Standard 1720 states that the town should identify the minimum staffing required to ensure that a sufficient number of personnel are available to allow safe operations at an emergency scene. The exhibit presents the staffing and response time requirements from NFPA Standard 1720.

EXHIBIT 27
NFPA 1720 PERFORMANCE STANDARD
STAFFING AND RESPONSE TIME STANDARDS FOR VOLUNTEER (CALL) FIRE DEPARTMENTS

DEMAND ZONE	POPULATION PER SQ. MI.	NUMBER OF PERSONNEL	TIME IN MINUTES	PERCENT OF TIME
Urban	>1,000	15	9	90%
Suburban	500 to 1,000	10	10	90%
Rural	<500	6	14	80%
Remote	travel distance >8 miles	4	-	90%

Source: NFPA 1720

APPLICATION OF *NFPA* STANDARD *1720* TO CASCO, NAPLES, AND RAYMOND

NFPA Standard 1720 indicates that a town with a population density of less than 500 residents per square mile should be able to deliver six firefighters to the scene of a fire within 14 minutes. In a town with a population density of 500 to 1,000 persons per square mile, the fire department should be able to deliver 10 personnel within 10 minutes.

In the case of Casco, Raymond, and Naples, each town has a relatively low population density, less than 500 persons per square mile. Measuring population by land area only, Casco has a population density of approximately 120 persons per square mile, Naples has a population density of 122 persons per square mile, and Raymond has a population density of 134 persons per square mile. Collectively, the towns have a population density of 125 persons per square mile.

The objective of the Casco, Naples, and Raymond Fire and Rescue Departments should be able to deliver six personnel at the scene of an incident within 14 minutes, 80 percent of the time.

The response time and staffing standard provided in NFPA 1720 also states that, upon arrival of the required number of personnel at the scene of an incident, a fire department should have the capability to safely begin initial attack within two minutes, 90 percent of the time. (See NFPA Standard 1720.)

EMERGENCY MEDICAL SERVICE PERFORMANCE GOALS

The benchmarks, performance measures, or standards by which emergency medical performance is measured include the commonly applied Eisenberg Model and the American Heart Association's *Statement on Chain of Survival*. The commonly

accepted benchmark for the delivery of ALS to the scene of a life-threatening incident requires the delivery of ALS within eight minutes and 59 seconds. This response is measured from the receipt of a call to arrival at the scene of an incident. The following is a summary of benchmarks or standards used to measure emergency medical response. The rural nature of Casco, Naples, and Raymond makes the achievement of these benchmarks very difficult. Response distances, the road network, and the weather hamper response efforts in the towns.

EISENBERG MODEL

Survivability for a non-breathing person is a function of application of CPR, defibrillation, and advanced life support. Models exist to predict survivability. One commonly applied model is the Eisenberg model, which estimates the probability of survival based on a system's ability to deliver the critical services in a timely manner. The model predicts that one-third of all non-breathing and/or cardiac arrest patients may die immediately, and that the remaining individuals' probability of survival decreases by up to 5.5 percent for each subsequent minute; however, the decrease can be slowed by the application of various procedures (CPR, defibrillation, ACLS).

AMERICAN HEART ASSOCIATION

The American Heart Association, in its *Statement on Chain of Survival*, describes a sequence of events which must occur rapidly to allow a person to survive a sudden cardiac arrest. The chain of survival includes recognition of early warning signs, activation of the emergency medical system, basic cardiopulmonary resuscitation, defibrillation, intubation and intravenous administration of medications. Early defibrillation is identified as a critical link in the chain of survival. A sudden cardiac arrest victim who is not defibrillated within eight to 10 minutes has a very limited chance of survival.

LOCAL PERFORMANCE GOALS

Regional emergency medical services councils sometimes establish reasonable response goals, given the capability within an area. These response goals consider available personnel, the geography of an area, realistic response capability, and the local council's assessment of risks and benefits. The Casco Rescue Department, Naples Fire Department, and Raymond Fire Department are assigned to the Southern Maine EMS (EMS Region 1).

NFPA STANDARD 1710 (not applicable to volunteer departments)

NFPA 1710 is concerned with the fire and EMS response of predominantly career fire departments. This standard is not applicable to Casco, Naples, and Raymond. Part of NFPA 1710 applies to full-time fire departments that provide emergency medical services. The standard calls for a response within four minutes from a first responder (or higher level responder). The standard also calls for a response within eight minutes from an advanced life support (ALS) unit. These response time standards do not include dispatch and turnout time. These response time performance objectives should be achieved at least 90 percent of the time. NFPA Standard 1710 time lines do not include dispatch and turn-out time. One additional minute is allowed for dispatch and one minute is added for turn-out time, for a total of two minutes. (See the Appendix for an expanded discussion of performance measures and underlying fire and rescue principles, including OSHA requirements and NFPA Standards.)

COMPUTER MAPPING

The consultants conducted a computer mapping analysis of the response capability of the Casco, Naples, and Raymond fire and rescue departments to assess fire station location, and fire and EMS response capability. The computer analysis required the consultants to review maps of each jurisdiction, examine transportation networks, conduct site visits to the stations, and review data.

Response coverage provided by the five existing fire stations in Casco, Naples, and Raymond was analyzed using the consultant's computer mapping capabilities. The computer mapping model analyzes the travel distances that can be achieved by fire units leaving fire stations and responding throughout a geographic area within a given time, assuming defined average response speeds. The color-coded maps presented in this report are designed to illustrate the response from each station.

The mapping methodology consists of the following steps:

- Prepare a digitized base map representation of the street and highway network in the jurisdictions.
- Locate the fire stations to be analyzed with respect to that network.
- Assign appropriate road speeds to reflect reasonable response expectations.

- Generate a map indicating travel time from the emergency response stations in time segments to the borders of the community.

The street network is based on TIGER files from the United States Census Bureau. The resulting digitized street network was used in the computer mapping analysis to determine travel times to various points in each town from the emergency response stations. In order to do this, the longitude and latitude of the fire station locations were established and identified on the digitized street network and speed assignments were made.

The maps indicate the streets covered in two-minute increments. The development of the travel time maps required the assignment of an average travel speed to roadways. The maps presented in this report have incorporated an average speed of 22 miles per hour for roadways in each jurisdiction. The speed is based on the consultants' review of road conditions and the consultants' experience with emergency response situations. It is quite possible that at some times of the day, or year, these speeds may be exceeded, or not reached, because of weather, traffic, or other conditions. The speeds are used in the emergency response model solely for planning purposes. The objective is to provide a reasonable graphical representation of time-based response coverage from different emergency response locations within each jurisdiction. The response model is intended to be conservative.

The travel time maps only depict over-the-road travel, or running times. Two minutes for notification, dispatch, and turn-out time should be added to these times to measure response, assuming one or more staff members are on-duty and available to respond to an incident. If no personnel are available immediately, and a volunteer response is assumed, at least four minutes should be added to the estimate of total response time.

The maps provide a conservative estimate of response capability. Benchmarks and standards generally allow one minute or less for dispatching and one minute or less for turn-out time. For example, a four-minute travel time response represents only part of the response time to an incident. It is necessary to add two minutes to the travel time to establish the total response time. The maps show the current response capability of each fire department. Maps included in this report are listed in Exhibit 28.

EXHIBIT 28
LIST OF MAPS

Map 1 Existing Stations: Casco, Naples, and Raymond
Map 2 Travel Time from Casco Central Station
Map 3 Travel Time from Casco Brown Street Station
Map 4 Travel Time from Naples Station
Map 5 Travel Time from Raymond Station
Map 6 Distance from Existing Stations
Map 7 Travel Time from Stations in Casco, Naples, and Raymond
Map 8 Travel Time from Naples and Raymond Stations

Computer maps graphically show the response capability of fire and rescue departments. The maps also generate data, which allow the comparison of the current station configurations to alternative fire station configurations. These data indicate the area (square miles), and streets (miles) served by the current response system. The maps show the streets and area covered in time increments by a fire or EMS unit responding to an emergency. Travel time maps present coverage in two-minute time increments. Maps 2, 4, 5, 7, and 8 show travel time. Map 6 shows distances from each fire station.

Data displayed in the following four exhibits are derived from Maps 2, 3, 4, and 5. In addition, cumulative summaries indicate the total coverage within specific time parameters. Each of the following exhibits contains two sections. The top section displays area and street miles covered within each time segment. The bottom part of the exhibit shows cumulative response in minutes.

Note: The maps and data displayed only depict over-the-road travel, or running times. Two minutes for notification, dispatch and turn-out time should be added to these times for an estimate of total response time, if there are personnel on-duty or responding from a station. If personnel are not on-duty at a station, four minutes should be added to these travel times. The four minutes is intended to account for the time necessary for volunteers to travel to a station prior to responding.

There are no data associated with Map 1, *Existing Stations in Casco, Naples, and Raymond,* since it is a base map for the towns of Casco, Naples, and Raymond. The map shows each town and the location of each fire station.

Exhibit 29, *Travel Time from the Casco Central Station,* presents the travel time data associated with Map 2 and displays the coverage provided with a response from the Casco Central Station. The exhibit shows that a fire company, or an EMS unit, responding from the Casco Central Station is able to cover 55.9 percent of the area of the town, and 46.1 percent of street miles within eight minutes travel time, or ten minutes total response time (assuming personnel are responding directly from the station). The response capability from the Brown Street Station is shown on Map 3. The map is designed to review the viability of using the Brown Street Station as a centralized EMS response facility. The map indicates that more than one EMS station is required to provide services to the three-town area.

Exhibit 30, *Travel Time from the Naples Station*, presents the travel time data associated with Map 4 and displays the coverage provided with a response from the Naples Fire Station. Approximately 67.4 percent of the area of the town, and 63.4 percent of street miles, are covered by a response from the station within eight minutes travel time.

Exhibit 31, *Travel Time from the Raymond Station*, presents the travel time data associated with Map 5. The map displays the coverage provided with a response from the Raymond Central Station and indicates that approximately 44.6 percent of the area of the town, and 44.1 percent of street miles are covered within eight minutes travel time. Raymond units responding from the station require a significant amount of time to reach the northern, less populated, region of the town.

Map 6, *Distance from Existing Stations,* shows the coverage from each fire station in one-mile segments. The map is intended to provide an overview of the distances that need to be traveled.

Maps 7 and 8 show a theoretical response plan using a three-station response model (central stations in Casco, Naples, and Raymond) and a two-station response model (central stations in Naples and Raymond). These maps show travel time from two to 10 minutes. The white areas on the maps show response time of more than 10 minutes.

Exhibit 32 presents the travel time data associated with Map 7. The map displays the coverage provided assuming a response from the three central fire stations. The map assumes that the towns are one service area. The data associated with this map indicate that a response from all three stations enables the departments to cover approximately 67 percent of the area and 60 percent of the road miles in all three towns within eight minutes travel time; within 10 minutes travel time, approximately 87 percent of the area and 76 percent of road miles are covered by a fire or EMS unit responding from the stations. A three-station response system provides acceptable coverage within eight to 10 minutes. Response is weakest in the northern part of Raymond.

Exhibit 33 presents the travel time data associated with Map 8. Map 8 is similar to Map 7, but displays the coverage provided assuming a response from the Naples and Raymond central fire stations. The map assumes that the towns are one service area. The data associated with this map indicate that a response from two stations simultaneously will enable fire or EMS units to cover approximately 48 percent of the area and 48 percent of the road miles in the three towns within eight minutes travel time; within 10 minutes travel time, approximately 68 percent of the area and 61 percent of road miles are covered by a fire or EMS unit responding from the two stations. The two-station response approach provides relatively slow and limited coverage to Casco and parts of Raymond.

EXHIBIT 29
TRAVEL TIME FROM CASCO CENTRAL STATION
AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	0.35	1.1%	2.43	2.1%
2 to less than 4	2.35	7.5%	9.60	8.3%
4 to less than 6	6.37	20.4%	23.94	20.6%
6 to less than 8	8.38	26.9%	17.55	15.1%
8 to less than 10	5.07	16.3%	13.56	11.7%
10 to less than 12	8.67	27.8%	48.97	42.2%
12 or more	31.19	100.0%	116.05	100.0%

AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	0.35	1.1%	2.43	2.1%
Less than 4	2.70	8.7%	12.03	10.4%
Less than 6	9.07	29.1%	35.97	31.0%
Less than 8	17.45	55.9%	53.52	46.1%
Less than 10	22.52	72.2%	67.08	57.8%
Less than 12	8.67	27.8%	48.97	42.2%
12 or more	31.19	100.0%	116.05	100.0%

EXHIBIT 30
TRAVEL TIME FROM NAPLES STATION
AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	1.55	4.9%	11.80	8.1%
Less than 4	5.23	16.5%	21.61	14.8%
Less than 6	7.53	23.7%	28.89	19.8%
Less than 8	7.08	22.3%	30.39	20.8%
Less than 10	7.70	24.3%	28.81	19.7%
Less than 12	2.66	8.4%	24.63	16.9%
12 or more	31.75	100.0%	146.13	100.0%

AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	1.55	4.9%	11.80	8.1%
Less than 4	6.78	21.4%	33.41	22.9%
Less than 6	14.31	45.1%	62.30	42.6%
Less than 8	21.39	67.4%	92.69	63.4%
Less than 10	29.09	91.6%	121.50	83.1%
Less than 12	2.66	8.4%	24.63	16.9%
12 or more	31.75	100.0%	146.13	100.0%

EXHIBIT 31
TRAVEL TIME FROM RAYMOND CENTRAL STATION
AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	1.79	5.4%	10.88	7.6%
Less than 4	4.45	13.4%	22.81	15.9%
Less than 6	4.25	12.8%	13.49	9.4%
Less than 8	4.33	13.0%	16.03	11.2%
Less than 10	4.03	12.1%	9.11	6.3%
Less than 12	14.35	43.2%	71.15	49.6%
12 or more	33.20	100.0%	143.47	100.0%

AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	1.79	5.4%	10.88	7.6%
Less than 4	6.24	18.8%	33.69	23.5%
Less than 6	10.49	31.6%	47.18	32.9%
Less than 8	14.82	44.6%	63.21	44.1%
Less than 10	18.85	56.8%	72.32	50.4%
Less than 12	14.35	43.2%	71.15	49.6%
12 or more	33.20	100.0%	143.47	100.0%

EXHIBIT 32
TRAVEL TIME FROM STATIONS IN CASCO, NAPLES, AND RAYMOND
AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	3.69	3.8%	25.11	6.2%
2 to less than 4	12.55	13.1%	58.5	14.4%
4 to less than 6	21.65	22.5%	80.56	19.9%
6 to less than 8	26.18	27.2%	80.21	19.8%
8 to less than 10	19.33	20.1%	62.34	15.4%
10 or more	12.74	13.3%	98.93	24.4%

AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT (CUMULATIVE COVERAGE)

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	3.69	3.8%	25.11	6.2%
2 to less than 4	16.24	16.9%	83.61	20.6%
4 to less than 6	37.89	39.4%	164.17	40.5%
6 to less than 8	64.07	66.6%	244.38	60.2%
8 to less than 10	83.40	86.7%	306.72	75.6%
10 or more	12.74	13.3%	98.93	24.4%

EXHIBIT 33
TRAVEL TIME FROM NAPLES AND RAYMOND STATIONS
AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT

MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	3.35	3.5%	22.67	5.6%
2 to less than 4	10.19	10.6%	48.80	12.0%
4 to less than 6	14.73	15.3%	56.67	14.0%
6 to less than 8	17.84	18.6%	64.52	15.9%
8 to less than 10	18.82	19.6%	53.96	13.3%
10 or more	31.21	32.5%	159.03	39.2%

AREA AND STREET MILES COVERED WITHIN EACH TIME SEGMENT (CUMULATIVE COVERAGE)

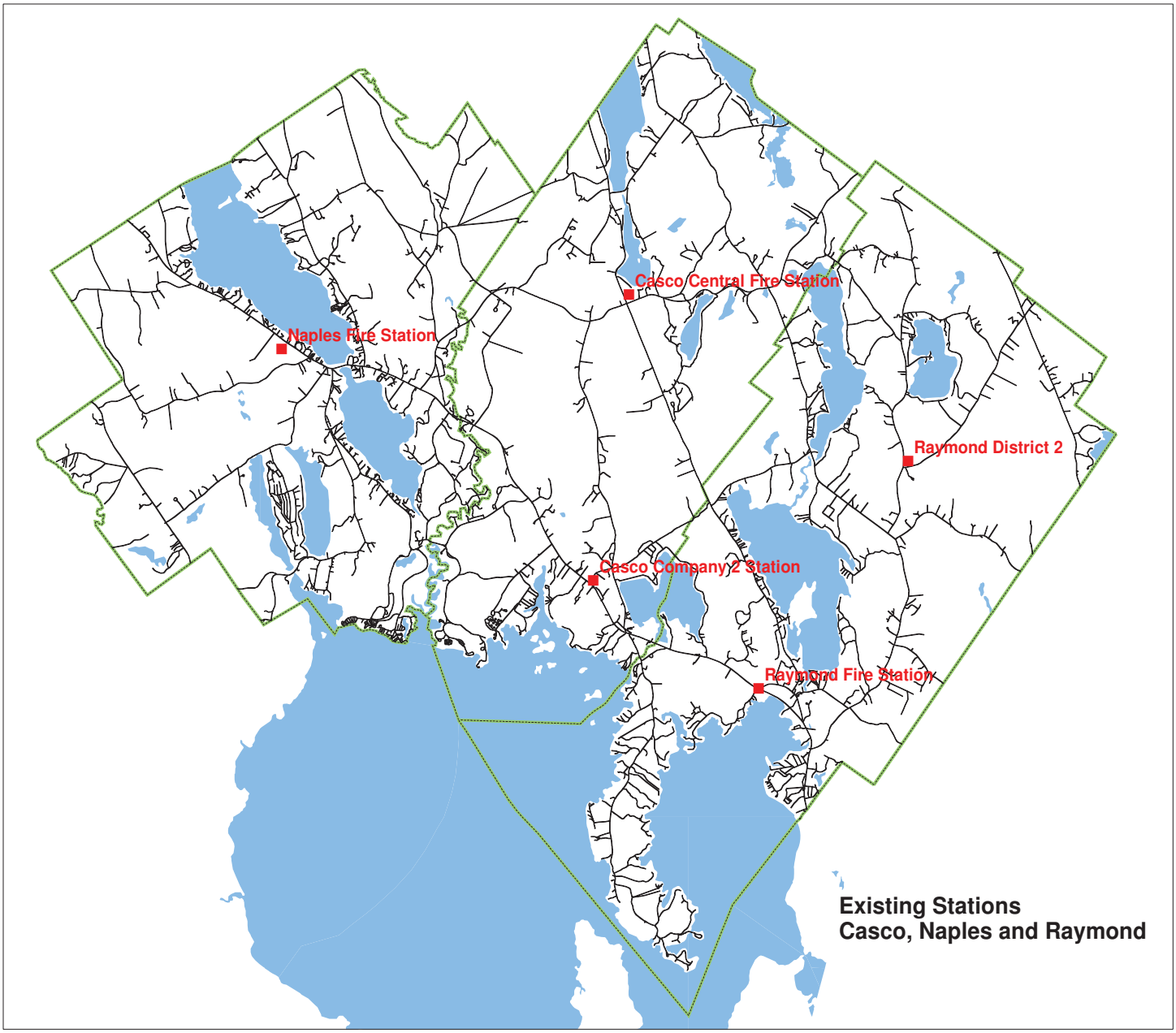
MINUTES	AREA (SQ. MILES)	PERCENT	STREET MILES	PERCENT
Less than 2	3.35	3.5%	22.67	5.6%
2 to less than 4	13.54	14.1%	71.47	17.6%
4 to less than 6	28.27	29.4%	128.14	31.6%
6 to less than 8	46.11	48.0%	192.66	47.5%
8 to less than 10	64.93	67.5%	246.62	60.8%
10 or more	31.21	32.5%	159.03	39.2%

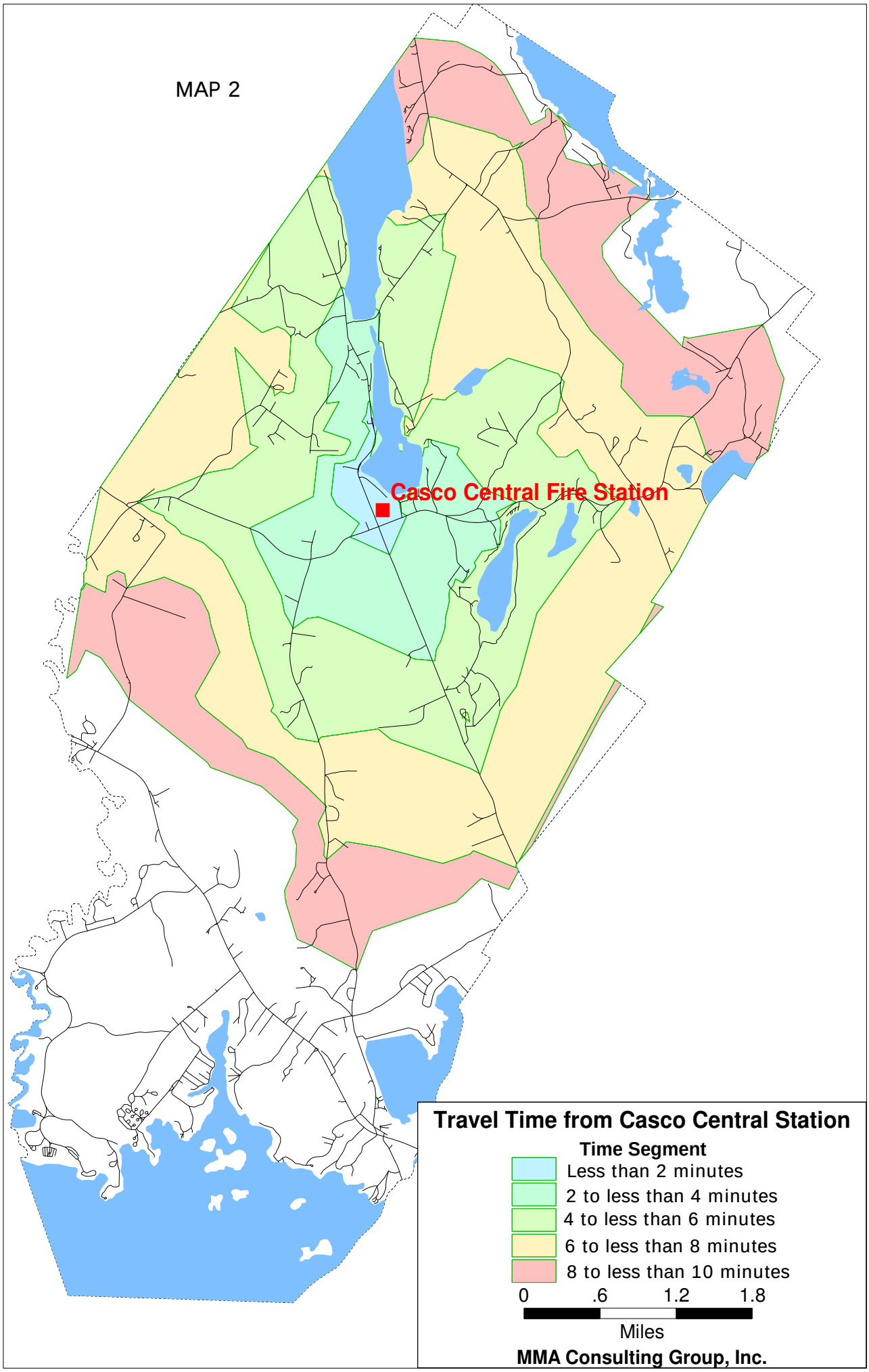
Exhibit 34 summarizes data associated with a three-station response system and a two-station response system. The three-station response system provides relatively strong response coverage; 60.2 percent of road miles are covered within eight minutes. The two-station response system covers 47.5 percent of road miles within eight minutes.

EXHIBIT 34
THREE-STATION RESPONSE AND TWO-STATION RESPONSE COMPARISON
AREA AND STREET MILES COVERED WITHIN EIGHT MINUTES AND TEN MINUTES

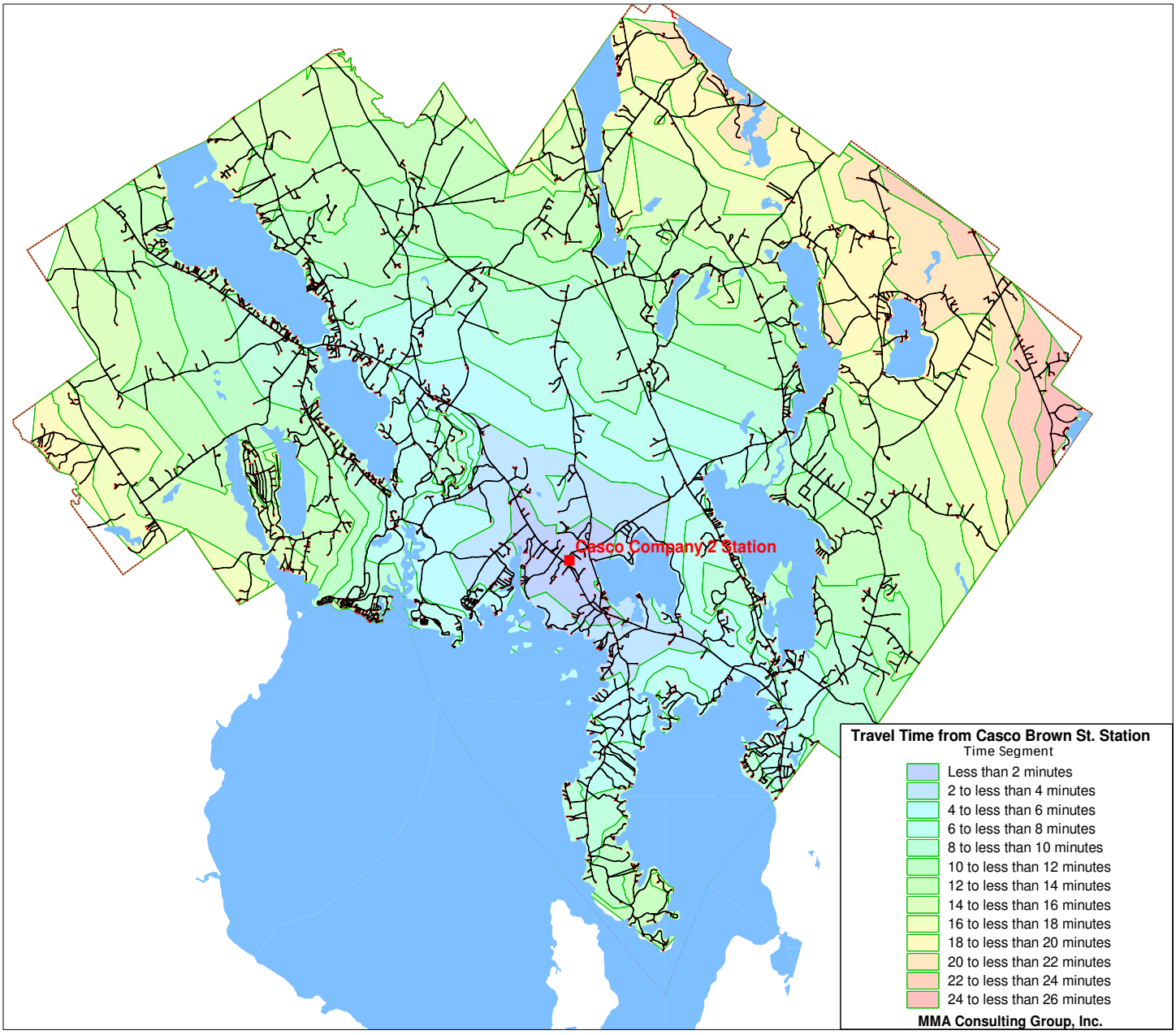
	WITHIN EIGHT MINUTES		WITHIN TEN MINUTES		
	THREE-STATION RESPONSE	TWO-STATION RESPONSE	THREE-STATION RESPONSE	TWO-STATION RESPONSE	TOTAL
Street Miles Covered	244.38	192.66	306.72	246.62	405.65
Percent of Street Miles Covered	60.2 %	47.5 %	75.6%	60.8%	
Area (Square Miles) Covered	64.07	46.11	83.40	64.93	96.14
Percent of Area Covered	66.6%	48.0 %	86.7 %	67.5%	

MAP 1

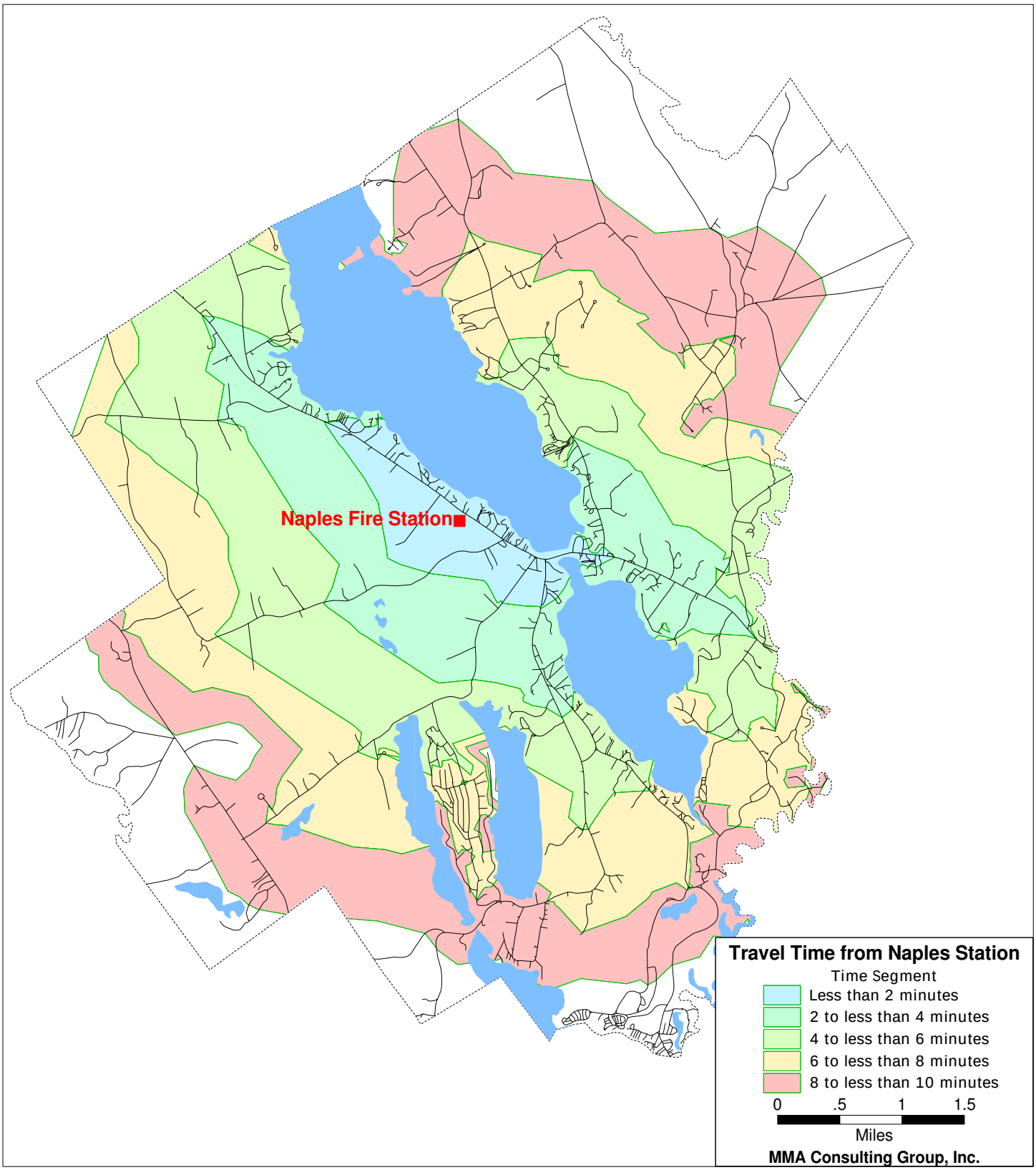

Casco Central Fire Station
Naples Fire Station
Raymond District 2
Casco Company 2 Station
Raymond Fire Station
Existing Stations
Casco, Naples and Raymond


MAP 2
Casco Central Fire Station
Travel Time from Casco Central Station
Time Segment
Less than 2 minutes
2 to less than 4 minutes
4 to less than 6 minutes
6 to less than 8 minutes
8 to less than 10 minutes
0
.6
1.2
1.8
Miles
MMA Consulting Group, Inc.

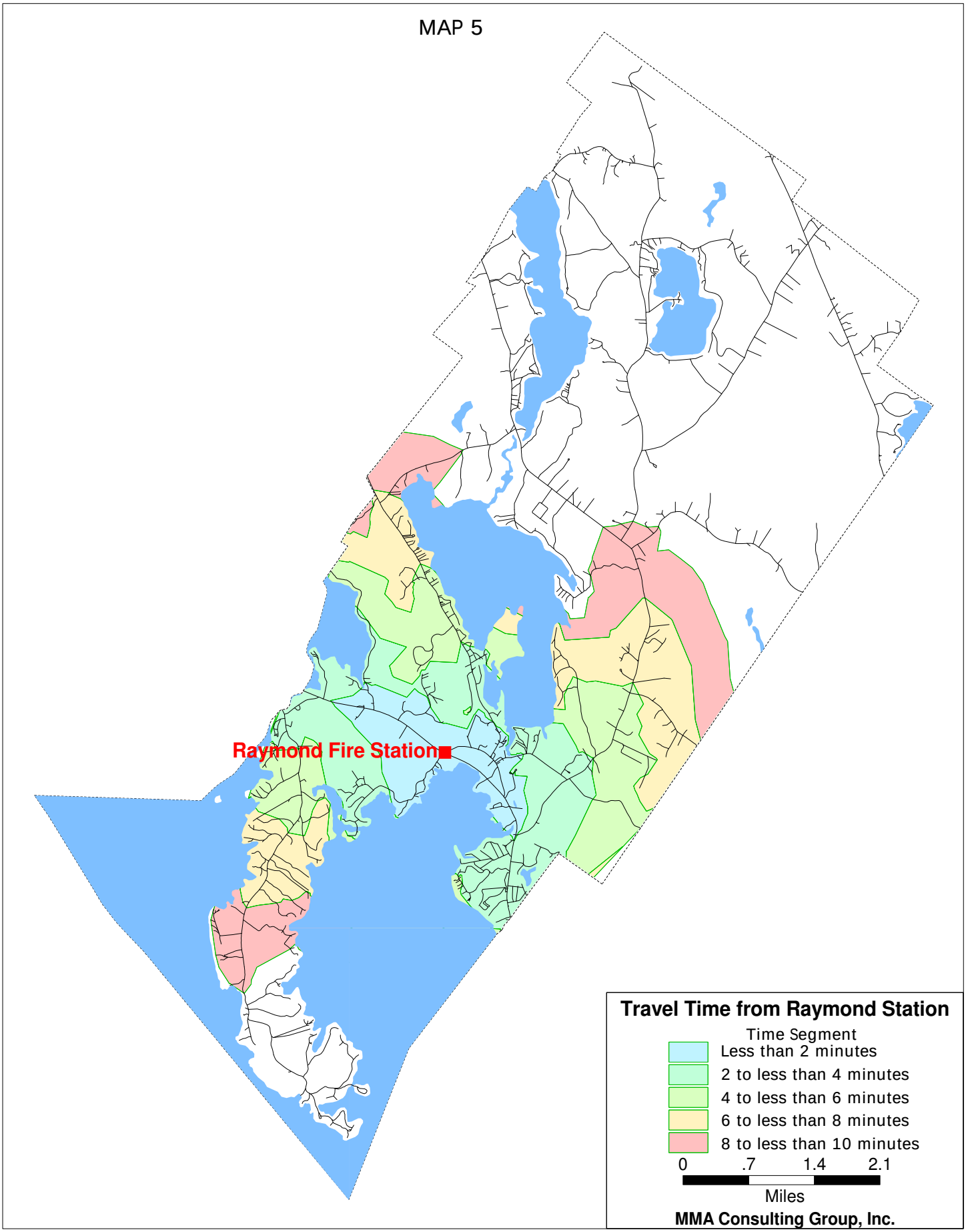
MAP 3


Casco Company 2 Station
Travel Time from Casco Brown St. Station
Time Segment
Less than 2 minutes
2 to less than 4 minutes
4 to less than 6 minutes
6 to less than 8 minutes
8 to less than 10 minutes
10 to less than 12 minutes
12 to less than 14 minutes
14 to less than 16 minutes
16 to less than 18 minutes
18 to less than 20 minutes
20 to less than 22 minutes
22 to less than 24 minutes
24 to less than 26 minutes
MMA Consulting Group, Inc.

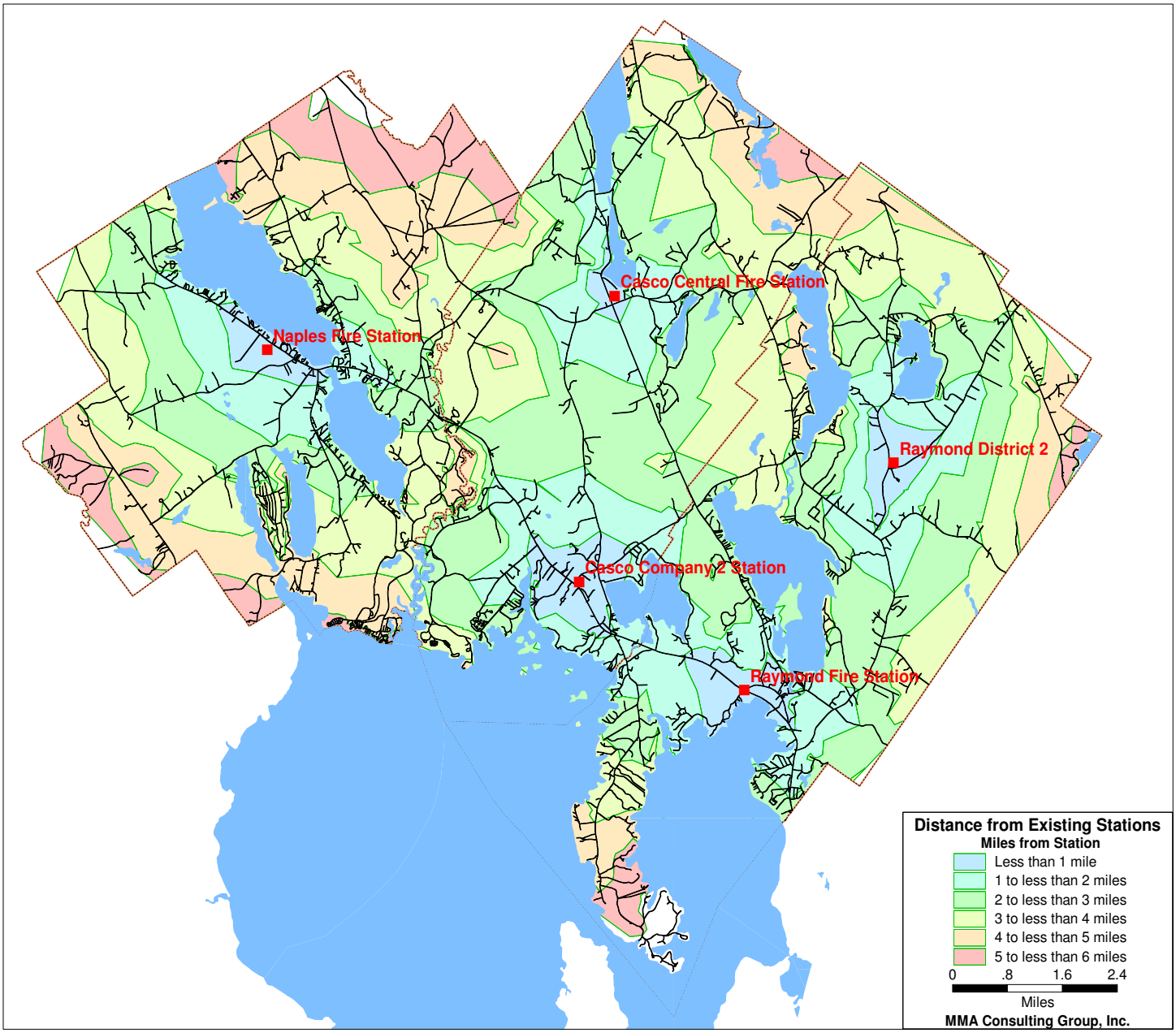
MAP 4


Naples Fire Station
Travel Time from Naples Station
Time Segment
Less than 2 minutes
2 to less than 4 minutes
4 to less than 6 minutes
6 to less than 8 minutes
8 to less than 10 minutes
0
.5
1
1.5
Miles
MMA Consulting Group, Inc.

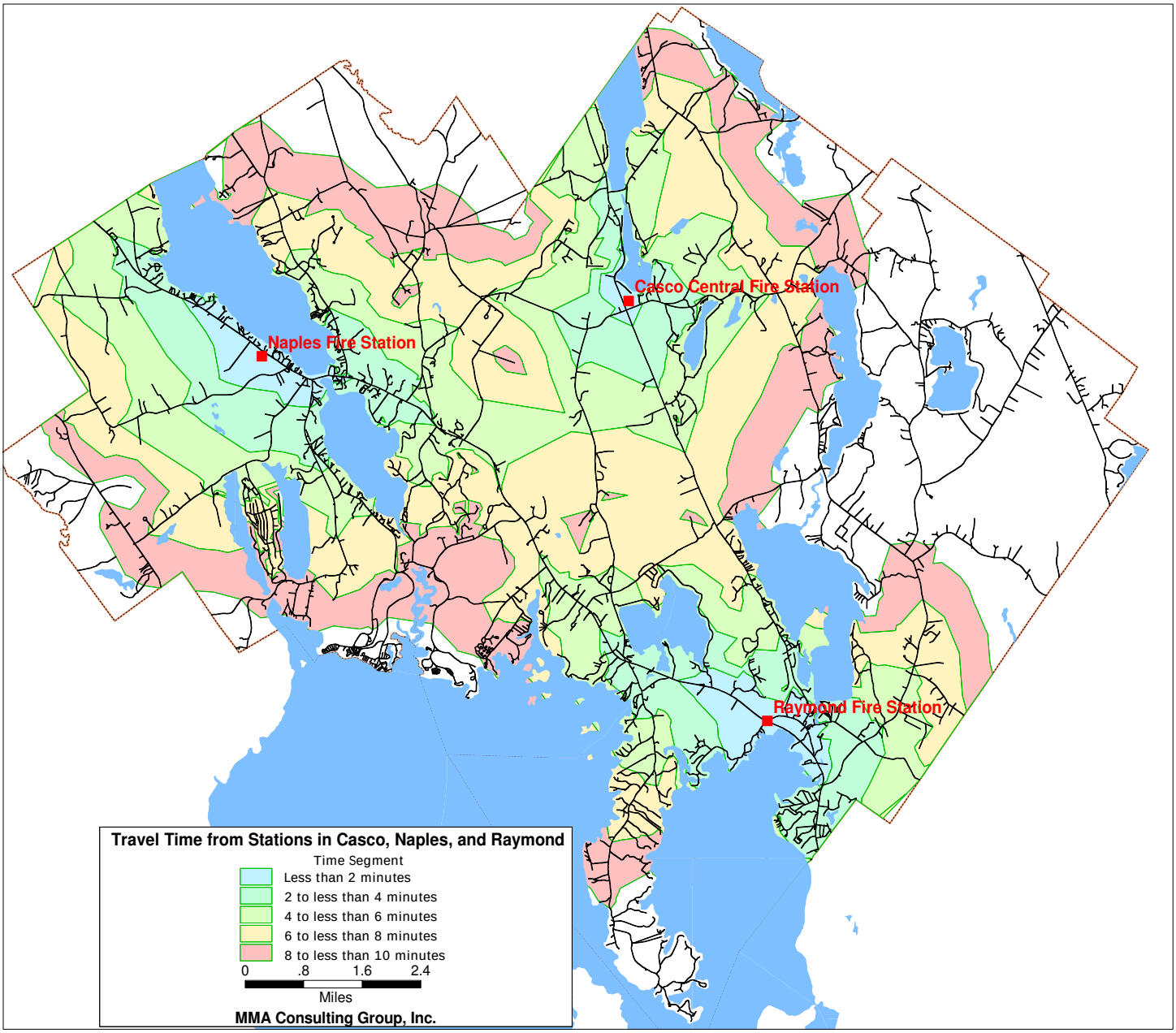
MAP 5


Raymond Fire Station
Travel Time from Raymond Station
Time Segment
Less than 2 minutes
2 to less than 4 minutes
4 to less than 6 minutes
6 to less than 8 minutes
8 to less than 10 minutes
0
.7
1.4
2.1
Miles
MMA Consulting Group, Inc.

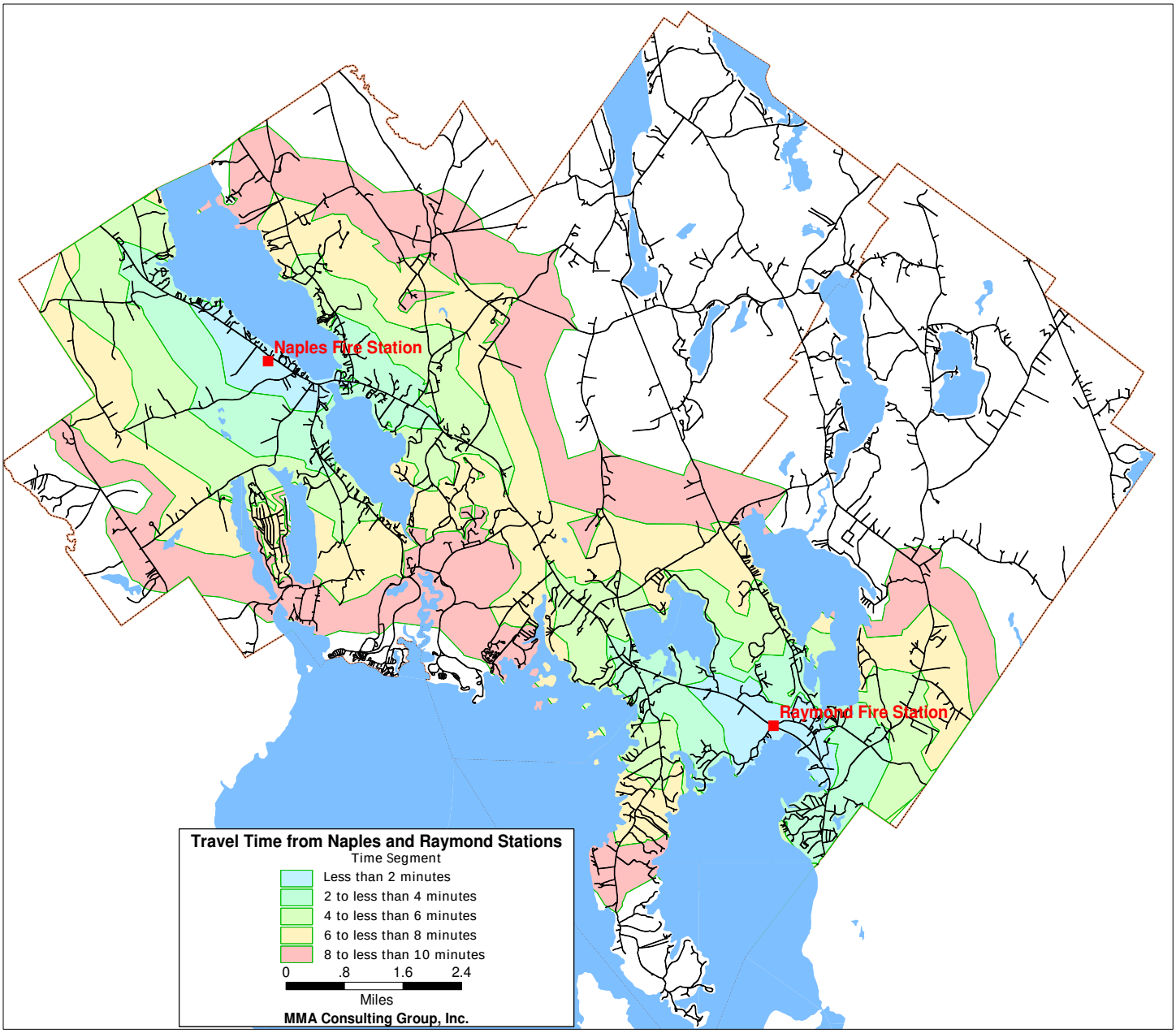
MAP 6


Casco Central Fire Station
Naples Fire Station
Raymond District 2
Casco Company 2 Station
Raymond Fire Station
Distance from Existing Stations
Miles from Station
Less than 1 mile
1 to less than 2 miles
2 to less than 3 miles
3 to less than 4 miles
4 to less than 5 miles
5 to less than 6 miles
0
.8
1.6
2.4
Miles
MMA Consulting Group, Inc.

MAP 7


Casco Central Fire Station
Naples Fire Station
Raymond Fire Station
Travel Time from Stations in Casco, Naples, and Raymond
Time Segment
Less than 2 minutes
2 to less than 4 minutes
4 to less than 6 minutes
6 to less than 8 minutes
8 to less than 10 minutes
0 .8 1.6 2.4
Miles
MMA Consulting Group, Inc.

MAP 8


Naples Fire Station
Raymond Fire Station
Travel Time from Naples and Raymond Stations
Time Segment
Less than 2 minutes
2 to less than 4 minutes
4 to less than 6 minutes
6 to less than 8 minutes
8 to less than 10 minutes
0 .8 1.6 2.4
Miles
MMA Consulting Group, Inc.

MAPPING CONCLUSIONS

Several findings and conclusions are suggested by the computer mapping.

- The road network and travel distances make response throughout each town difficult.

- The Naples and Raymond fire and rescue departments, while having fire suppression capability, are structured to deliver emergency medical services. The Casco Rescue Department, using an on-call system, is structured to provide timely emergency medical services.

- The towns of Casco, Naples, and Raymond would not receive effective EMS service if a response came from one centrally located EMS station. The towns of Casco, Naples, and Raymond would not receive effective EMS service if a response came from two response stations (Naples and Raymond fire stations).

- Parts of the Town of Raymond are difficult to serve effectively.

- The reduction in the number of response stations, if supported by increased response capability, is a viable option to consider.

- The consolidation of the fire and rescue agencies may provide an opportunity to reduce the number of fire stations in the area.

- The fire and rescue departments collectively have the capability to meet NFPA Standard 1720 and deliver six firefighters within 14 minutes to the scene of a fire.

- The long response runs for the three fire departments indicate that it is very difficult to arrive at certain fire emergencies in a timely manner, with sufficient personnel. This suggests that the fire prevention program should be expanded.

The distances between fire stations in Casco, Naples, and Raymond are shown in Exhibit 35. The distances and travel times between stations are shown; travel time assumes travel at the speed limit.

EXHIBIT 35
DISTANCES BETWEEN FIRE STATIONS

FIRE STATIONS	DISTANCE IN MILES	TRAVEL TIME IN MINUTES
Casco Fire Station, 637 Meadow Road, to South Casco Fire Station, 20 Brown Avenue	4.9	9
Casco Central Station, 637 Meadow Road, to Naples Fire Station, 1100 Roosevelt Trail	6.4	10
Naples Fire Station, 1100 Roosevelt Trail, to South Casco Fire Station, 20 Brown Avenue	6.2	9
Raymond Central Station, 1443 Roosevelt Trail, to South Casco Fire Station, 20 Brown Avenue	3.1	5
Raymond Central Station, 1443 Roosevelt Trail, to Casco Fire Station, 637 Meadow Road	7.0	12

The mapping also suggests that it is possible for Casco and Raymond to consolidate their departments.

RECOMMENDATION *3: The consolidated CNR Fire and Rescue Department should operate with three fire stations.*

RECOMMENDATION *4: The consolidated CNR Fire and Rescue Department should set a fire response goal designed to meet NFPA Standard 1720 and deliver six firefighters within 14 minutes to the scene of a fire.*

RECOMMENDATION *5: The consolidated CNR Fire and Rescue Department should develop a comprehensive fire prevention program.*

V. CONSOLIDATED FIRE AND RESCUE DEPARTMENT

CONSOLIDATED DEPARTMENT OVERVIEW

The integration of existing volunteers and part-time and full-time personnel into the Casco, Naples, and Raymond Fire and Rescue Department (CNR Fire and Rescue Department) is essential to effective implementation of the consolidated fire department. Several important issues should be considered during the consolidation process.

- *Cross Trained Personnel* - Department personnel should be cross-trained firefighters and emergency medical technicians, but there would be opportunities for participation by firefighters (only) and EMTs (only).

- *Fire and Rescue Accountability Committee* - The new fire and rescue department would be governed by the Fire and Rescue Accountability *Committee* composed of representatives from each town.

- *Full-time Fire Chief* - The employment of a full-time Fire and Rescue Chief is required. There is a clear need for a stronger management structure to oversee all fire and rescue operations.

ORGANIZATION RECOMMENDATIONS

The Fire and Rescue Chief should manage the department through four District (or Division or Battalion) Chiefs. Three of the District Chiefs would be operational chiefs; one chief would be a staff chief for emergency medical services.

The three District Chiefs with operational responsibility would oversee the three districts based on town boundary lines. District response areas may require adjustment in the future. There should be a Casco District Chief, a Naples District Chief, and a Raymond District Chief. These chiefs would be responsible for the personnel, apparatus, and stations within each district.

The EMS Chief would be a staff position. The EMS Chief would be responsible for the oversight of emergency medical services, quality assurance and quality improvement, certification of personnel, and incident review. The EMS Chief should be considered a working chief and would respond to incidents or supervise major incidents.

District Chiefs should also be assigned ancillary duties or functions, such as:

- One District Chief should have responsibility for department-wide training, supported by a training officer in each district.

- One District Chief should be responsible for personal protective equipment and safety, supported by a safety officer in each district.

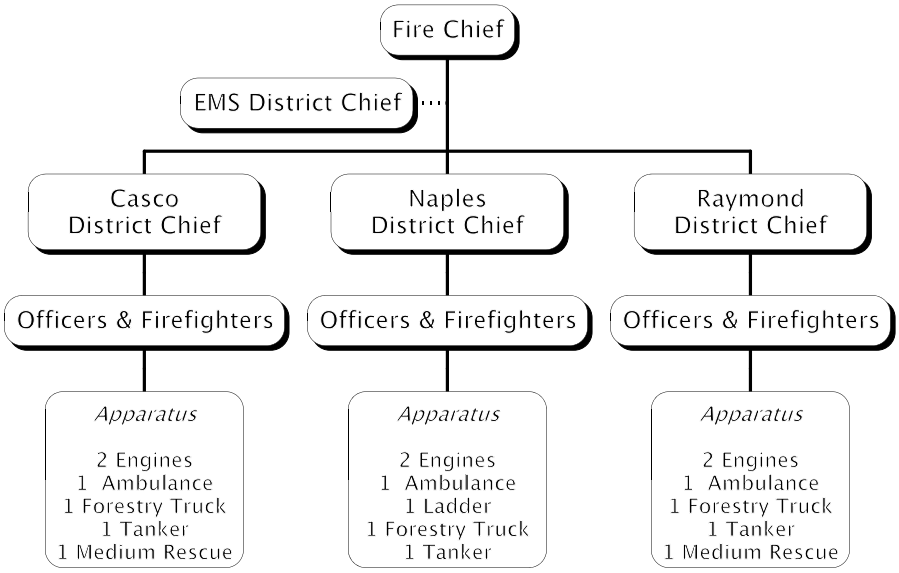
- One District Chief should be responsible for volunteer recruitment and selection and other functions to support volunteer activities.

RECOMMENDATION *6: The consolidated CNR Fire and Rescue Department should be under the direction of a full-time Fire and Rescue Chief.*

RECOMMENDATION *7: The consolidated CNR Fire and Rescue Department should be managed by the Fire and Rescue Chief, who should be assisted by three District Fire Chiefs, each overseeing a district (Casco, Naples or Raymond), and one District Chief overseeing emergency medical services.*

Exhibit 36 presents the proposed organization of a consolidated fire and rescue department.

EXHIBIT 36
PROPOSED ORGANIZATION OF THE CASCO, NAPLES, AND RAYMOND FIRE DEPARTMENTS



The appropriate number of company officers in each district should be determined over several years. The department should establish a uniform rank structure compatible with responsibilities.

ROLE OF THE FIRE CHIEF

The full-time Chief should oversee administration, planning and coordination, and fire and rescue services. The Chief should have strong interpersonal skills and experience working with a volunteer organization. Exhibit 37 provides a summary of desirable qualifications for the full-time Chief.

EXHIBIT 37
QUALIFICATIONS FOR THE FIRE AND RESCUE CHIEF

Experience	Extensive experience in fire, rescue and emergency medical services Five or more years of supervisory experience (company officer) Five or more years of command experience (chief officer) Experience as a volunteer Experience performing administrative tasks Experience managing volunteer personnel and resources Experience as an incident commander and manager of emergency incidents

Education & Training	Extensive fire and rescue training Management and leadership training Incident management training Graduate of appropriate management and executive programs
Knowledge	Modern fire and rescue practices and philosophies Firefighter safety practices and procedures Strategic planning Business management practices Volunteer recruitment and retention programs and practices
Abilities	Ability to manage fire and emergency incidents Ability to communicate effectively and clearly, orally and in writing Ability to work with elected and appointed officials Ability to prepare and manage operating and capital budgets Ability to lead and supervise employees and volunteers Ability to be diplomatic and consider competing views and philosophies

The Fire and Rescue Accountability Committee should be responsible for the oversight of the consolidated fire department. The Committee should develop the qualifications for the new full-time Chief. The Committee should also determine the process by which the new Chief will be selected.

> RECOMMENDATION *8: The Fire and Rescue Accountability Committee should develop the qualifications for the Fire and Rescue Chief.*

FIRE STATION CONFIGURATION

The current locations of fire stations were selected to reflect the individual needs of each fire and rescue department. A consolidation of the departments provides an opportunity to consider reducing the number of fire stations and consolidating resources for more effective response. Assuming a limited number of full-time, part-time, and volunteer personnel, centralization of resources offers the opportunity for a safer response. Analysis suggests that the consolidated department should operate with three or four stations. It is suggested that a three-station consolidated model may be most appropriate, given available resources. Under the four-station alternative, the Brown Street Fire Station in Casco would be decommissioned. Under a three fire station configuration, the Brown Street Fire Station and Raymond Station #2 should be closed. Raymond Station #2 could remain open if the CNR Fire and Rescue Department determines that there is sufficient demand for service and that there are volunteers in the area to support station activities.

RECOMMENDATION 9: The CNR Fire and Rescue Department should operate with three or four fire stations.

The consolidation of the fire and rescue departments requires the development of an apparatus deployment plan. Currently, each fire and rescue department acquires assets to meet the individual needs of the department. Less apparatus is required under the consolidated fire and rescue department.

The CNR Fire and Rescue Department should have a fleet composed of four ambulances, six engines, one ladder, two medium duty rescue units, three tankers, and other utility vehicles. Exhibit 38 displays the current and proposed apparatus fleet.

EXHIBIT 38
CURRENT AND PROPOSED APPARATUS FLEET
CASCO, NAPLES, AND RAYMOND FIRE DEPARTMENTS*

APPARATUS TYPE	CURRENT FLEET NUMBER OF UNITS	PROPOSED FLEET NUMBER OF UNITS	INCREASE/DECREASE
Ambulance	6	4	-2
Engine	7	6	-1
Ladder	2	1	-1
Forestry	3	3	0
Medium Duty Rescue	1	2	+1
Tanker	5	3	-2
Total	24	19	-5

**Does not include six utility vehicles.*

Assuming that a three fire station configuration is adopted, the fleet should be deployed so that one ambulance, two engines, one tanker, and one forestry truck are located at each station. The ladder truck should be assigned to one station, and a medium rescue truck should be assigned to the other two stations. Each medium rescue unit should be designed for appropriate specialities to ensure the development of needed skills in the department. There should be one reserve ambulance.

The proposed consolidation reduces the fleet by five major apparatus, including the older ladder once shared by Naples and Casco. One new medium rescue unit should be acquired.

RECOMMENDATION *10: The CNR Fire and Rescue Department apparatus fleet should be composed of four ambulances, six engines, one ladder, three forestry trucks, and three tankers.*

RECOMMENDATION *11: One ambulance should be assigned to each of the three primary response stations. One ambulance should be placed in reserve.*

RECOMMENDATION *12: The CNR Fire and Rescue Department should develop an apparatus replacement plan.*

RECOMMENDATION *13: The CNR Fire and Rescue Department should acquire one new medium-duty rescue unit.*

The actual deployment of units should be a function of the department's decision-making process. Exhibit 39 shows one possible apparatus location plan.

EXHIBIT 39
PROPOSED APPARATUS LOCATION PLAN

	CASCO	NAPLES	RAYMOND
Engine	2	2	2
Ladder		1	
Forestry	1	1	1
Tanker	1	1	1
Medium Rescue	1		1
Ambulance*	1	1	1
Total Units	6	6	6

**A reserve ambulance should be assigned to an appropriate station.*

There is an immediate need to strengthen fire and emergency medical response from the Casco area. There should be one full-time (or equivalent) firefighter/EMT on-duty in Casco from 6:00 a.m. to 6:00 p.m. (or 7:00 a.m. to 7:00

p.m.) on weekdays. The staffing recommendation requires the town to pay for 60 hours of firefighter/EMT time. It is recommended that one full-time firefighter/EMT be employed. In addition, part-time personnel should be used to fill any gap in the full-time staffing coverage. The full-time firefighter/EMT should be supported by two part-time on-call personnel, similar to the current practice. This coverage provides some immediate response capability. The on-call personnel should be cross-trained firefighters/EMTs.

> RECOMMENDATION *14: A firefighter/EMT should be on-duty at the Casco Central Fire Station from 6:00 a.m. to 6:00 p.m., Monday through Friday.*

> RECOMMENDATION *15: The on-duty firefighter/EMT should be supported by two on-call personnel. The on-call personnel should be cross-trained firefighters/EMTs.*

VI. GOVERNING THE CONSOLIDATED FIRE AND RESCUE DEPARTMENT

The are several key items to consider in the consolidation process:

- Develop an inter-municipal agreement.
- Define the governance model.
- Develop a cost allocation plan.

A consolidated fire and rescue department should be an integrated part of the current government structure. The consolidated department should be directly accountable to each town through a Fire and Rescue Department Accountability Committee. It is not necessary to create an independent fire district.

DEVELOPING THE INTER-MUNICIPAL AGREEMENT

The development of the inter-municipal agreement requires careful thought and planning. The towns should establish a deadline of six months for development of a comprehensive inter-municipal agreement. The term of the agreement should ideally be at least ten years.

The inter-municipal agreement should be flexible. The creation of an inter-municipal agreement requires the three towns to:

- Develop a governance model which provides for accountability and effective oversight.
- Prepare a clear description of the services required by the towns.
- Establish a method of allocating costs.
- Agree on the length of the term of the inter-municipal agreement.
- Agree on the method of terminating the agreement.
- Develop an implementation timetable.
- Develop a clear understanding of the scope of authority of the Fire Chief of the CNR Fire and Rescue Department.

- Develop a budget process and establish a financial reporting system.

- Clarify insurance and indemnification issues.

- Agree on a method of expanding the consolidated fire department to include other towns.

Once the principles of the agreement are established, the participating towns should employ a legal counsel to draft the specific language of the inter-municipal agreement. The language of the agreement and the principles upon which the agreement is based should be widely circulated.

RECOMMENDATION 16: The towns of Casco, Naples, and Raymond should develop an inter-municipal agreement establishing a consolidated Fire and Rescue Department.

GOVERNANCE AND MANAGEMENT

The CNR Fire and Rescue Department requires a governance structure which ensures accountability. The Department should be able to demonstrate to elected officials and residents that services are delivered in a cost-effective manner. There are many approaches by which the governing body could be established. The number of members of a governing body and the methods by which decisions are made may be designed to meet the needs of the towns. For example, the governing body could be composed of representatives from each town, with each representative having equal decision-making authority on major policy matters. Alternatively, the representatives from each town could have a proportional decision-making authority equal to the share of the budget it provides. Another approach would be to establish a governing committee with a two-tiered decision-making approach. On major issues (e.g., budget adoption), a proportionate vote may be appropriate, but for most issues requiring committee action, equal decision-making authority may be appropriate.

We recommend that the CNR Fire and Rescue Department be governed by a three to six member Fire and Rescue Department Accountability Committee. It is our view that the Town Manager from each town should serve on the Committee. The appointing authority, or a representative of the appointing authority of each town, should serve on the Committee.

The Fire and Rescue Department Accountability Committee should operate using a consensus framework; however, it is necessary to provide a dispute resolution process.

RECOMMENDATION *17: The Towns of Casco, Naples, and Raymond should establish a three to six person Fire and Rescue Accountability Committee to govern the consolidated CNR Fire and Rescue Department.*

RECOMMENDATION *18: The Towns of Casco, Naples, and Raymond should have equal decision-making authority in the management of the consolidated CNR Fire and Rescue Department.*

VII. ALLOCATION OF COSTS

The development of a consolidated fire and rescue department requires the allocation of costs. There are a number of cost allocation models to consider. The common factors used in cost allocation models include: population; activity measures (number of calls for service); and wealth measures (municipal valuation). In addition, it is necessary to assign a percent value to each allocation factor. Exhibit 40 shows several cost allocation models.

EXHIBIT 40
COST ALLOCATION EXAMPLES

COST ALLOCATION EXAMPLE 1		COST ALLOCATION EXAMPLE 2		COST ALLOCATION EXAMPLE 3	
ALLOCATION ITEM	PERCENT DISTRIBUTION	ALLOCATION ITEM	PERCENT DISTRIBUTION	ALLOCATION ITEM	PERCENT DISTRIBUTION
2011 Population	33⅓%	2011 Population	50%	2011 Population	100%
Municipal Valuation	33⅓%	Municipal Valuation	50%		
Calls for Service*	33⅓%				
Total	100%		100%		100%

**Calls for service vary from year to year. If calls for service are used as an allocation measure, it is appropriate to use a three-year rolling average which is adjusted annually.*

Under the cost allocation example, three factors are used: population, which represents the potential for incidents; municipal valuation, which represents the wealth of a community, or ability to pay; and calls for service, which represents the actual service demand.

Exhibit 41 provides a summary of the budgets of the Casco, Naples, and Raymond fire and rescue departments. The budgets include salaries, operations, and equipment. The budgets do not include insurance and indirect overhead costs.

EXHIBIT 41
CASCO, NAPLES, AND RAYMOND - 2011 BUDGETS

	NAPLES		CASCO		RAYMOND		TOTAL - ALL TOWNS	
Salaries	323,638	63%	201,078	54%	376,432	65%	901,148	62%
Operations	139,100	27%	127,019	34%	157,264	27%	423,383	29%
Equipment	22,000	4%	40,500	11%	30,200	5%	92,700	6%
Other	29,450	6%	2,000	1%	14,300	2%	45,750	3%
Total - Direct Costs	514,188	100%	370,597	100%	578,196	100%	1,462,981	100%

For purposes of illustration, Exhibit 42 shows an allocation of costs using the total 2011 budget for each department; costs are distributed by population, municipal valuation, and calls for service. There is no significant population variation among the jurisdictions. Raymond's population represents 37 percent of the three-town population, while Casco and Naples represent 31 and 32 percent, respectively. Seasonal population is not included. Calls for service data were provided by the Cumberland County Regional Communication Center. The municipal valuation of each town was provided by the State of Maine (Maine Revenue Services).

EXHIBIT 42
COST ALLOCATION ASSUMPTIONS

	2010 POPULATION	% OF TOTAL POPULATION	2009 CALLS FOR SERVICE	% OF TOTAL CALLS FOR SERVICE	MUNICIPAL VALUATION	PERCENT OF VALUATION
Casco	3,742	31%	653	31%	644,700,000	26.8%
Naples	3,872	32%	777	37%	790,450,000	30.3%
Raymond	4,436	37%	698	33%	1,026,000,000	42.9%
Total	12,050	100%	2,128	100%	2,348,858,005	100%

Sources: U.S. Census (population), State of Maine (municipal valuation, total real and personal 2009), Cumberland County (calls for service).

The total budget is allocated based on resident population, municipal valuation, and calls for service. Each allocation factor is weighted equally.

ALLOCATION ITEM	PERCENT DISTRIBUTION
Municipal Valuation	33⅓%
Calls for Service	33⅓%
Resident Population	33⅓%

Exhibit 43 allocates the 2011 total budget of $1,462,981 among the three towns, based on population, calls for service, and municipal valuation. Exhibit 37 shows the amount each town would pay using the proposed cost allocation formula. Naples would pay $31,746 less and Raymond would pay $29,782 less. Casco would pay $61,527 more. It should be noted that this illustration does not incorporate any budget changes.

EXHIBIT 43
ALLOCATION OF COSTS - CONSOLIDATED FIRE AND RESCUE DEPARTMENT
(CASCO, NAPLES, AND RAYMOND)

	2009 MUNICIPAL VALUATION	PERCENT ALLOCATION	AMOUNT ALLOCATED
Casco	641,857,807	26.8%	130,750
Naples	726,082,500	30.3%	147,907
Raymond	980,917,698	42.9%	209,002
	2,348,858,005	100.0%	487,660
	2010 RESIDENT POPULATION		
Casco	3,742	31.1%	151,662
Naples	3,872	32.1%	156,539
Raymond	4,436	36.8%	179,459
	12,050	100.0%	487,660
	CALLS FOR SERVICE		
Casco	653	30.7%	149,712
Naples	777	36.5%	177,996
Raymond	698	32.8%	159,953
	2,128	100.0%	487,660

EXHIBIT 44
ALLOCATION OF THE CURRENT BUDGET AMONG THREE TOWNS

	PROPOSED ALLOCATION	FY 2011 BUDGET	PROPOSED ALLOCATION	DIFFERENCE + OR -
Casco	487,660	370,597	432,124	61,527
Naples	487,660	514,188	482,442	-31,746
Raymond	487,660	578,196	548,414	-29,782
Total	1,462,981	1,462,981	1,462,981	

Exhibit 45 shows the proposed allocation of costs, assuming that the 2011 budget is increased by $150,000 to $1,612,981. The increase is required to implement the consolidated department, including the salary and benefits of a full-time Fire and Rescue Chief and additional firefighter/EMT coverage in Casco.

EXHIBIT 45
ALLOCATION OF THE CURRENT BUDGET PLUS NEW COSTS

TOWN	PROPOSED ALLOCATION	BUDGET INCREASE
Casco	476,430	105,833
Naples	531,907	17,719
Raymond	604,643	26,447
Total*	1,612,981	

**The total budget assumes one firefighter/EMT on duty for 60 hours per week (6:00 a.m. to 6:00 p.m., Monday through Friday) in Casco. (See recommendation # 14.) Filling one position for 60 hours a week, at $16.50 per hour, would cost Casco $51,678 ($16.50 x 60 hours = $990 per week x 52.2 weeks = $51,678). The budget includes $60,000 for these costs. The salary of the Fire Chief is estimated to be approximately $70,000, plus approximately 30 percent for benefits and other costs.*

The increase in personnel in Casco improves response in the Town of Casco and will contribute to fire and EMS support for the region. The employment of personnel to fill these hours will make the service level, at least for EMS purposes, more similar to the services in Naples and Raymond.

RECOMMENDATION *19: The cost of the CNR Fire and Rescue Department should be distributed based on municipal valuation, resident population, and calls for service.*

RECOMMENDATION *20: The Town of Naples should spend an additional $60,000 in order to employ the equivalent of one firefighter/EMT for 60 hours per week.*

A consolidated department will have an effect on the level of service in each town. Response capability in Casco should be increased. The response capability in Naples should remain the same, but be enhanced by viable response from Casco. Raymond may have a slight reduction in services initially, which will be partially offset by stronger support from Casco.

The allocation of costs highlights the need for the towns to make decisions with respect to the allocation of personnel resources as the department is established. It will be necessary for the governing authority of the consolidated department and fire and rescue personnel to clearly define the level of service in each district of the department.

> RECOMMENDATION *21: The Fire and Rescue Accountability Committee should review the service levels in each district to create an equitable service delivery system.*

VIII. MANAGEMENT RECOMMENDATIONS

ADMINISTRATIVE ACTIONS

The creation of the CNR Fire and Rescue Department will require changes in administrative practices. Currently, each fire and rescue department is responsible for managing its own finances, contracts, and other administrative services. Since administrative functions must be consolidated, it is recommended that one town assume responsibility for the administrative activities, such as payroll processing, contract administration, accounts payable, accounts receivable, and other administrative functions. The cost of providing administrative support should be included in the cost allocation formula.

The CNR Fire and Rescue Department also requires administrative support to ensure coordination and communication among fire districts. The CNR Fire and Rescue Department should ideally budget for 10 to 15 hours of office support services weekly.

RECOMMENDATION *22: The administrative services required by the CNR Fire and Rescue Department should be centralized.*

RECOMMENDATION *23: The CNR Fire and Rescue Department should be provided with 10 to 15 hours of office support weekly.*

Each fire and rescue agency compensates volunteers and on-call personnel in a different manner. The following exhibit shows methods of compensation.

EXHIBIT 46
METHODS OF COMPENSATION

CASCO	NAPLES	RAYMOND
Annual Stipends: Chief - $6,500 Assistant Chief - $4,000 Deputy Chief - $3,750 Captain - $2,000 Lieutenant - $1,500	*Annual Stipends:* Chief - $7,500 Deputy Chief - $1,500 Captain - $750 Lieutenant - $500	Chief receives $5.00 per hour and a $50 vehicle allowance per month.
Per Diem Firefighter: SCBA certified - $25 per call Truck certified - $20 per call Pump certified - $20 per call Fire/Police - $20 per call	*Per Diem Firefighter*: Days on-call - Personnel are paid on an hourly basis, based on certifications; a paramedic receives $16.50 per hour; an EMT receives $12.00 per hour; and a firefighter receives $11.00 per hour.	*Per Diem Firefighter:* Days on-call - Personnel are paid at the rate of $2.50 per hour and if a call occurs, the rate increases to $11.00 to $18.00 per hour.
Training: $15 per month for members	*Off-duty Firefighters:* Off-duty personnel required to respond to a call are paid $15 per call.	Live-in students provide 24 hours of coverage per week at no cost, as part of the live-in program. Once 24 hours of work are accomplished, students may be assigned to work shifts.
Rescue Department: Days on-call - Personnel are paid $50 per day to be available during the day (two persons are assigned to be on-call). Rescue officers do not receive stipends.		

As the departments are consolidated, it will be necessary to develop a uniform pay scale. Stipends, hourly rates, and on-call payments should be uniform.

> RECOMMENDATION *24: The CNR Fire and Rescue Department should develop a uniform pay scale.*

APPARATUS REPLACEMENT

The consolidation of the fire and rescue department should enable the department to adjust the fleet of apparatus. An apparatus replacement plan should:

- Consider the specific needs of the CNR Department.
- Consider the cost of replacement of specific apparatus.

- Ensure that modern technology and appropriate safety features are provided in replacement units.

- Consider the use and condition of vehicles and apparatus.

There are several classes of vehicles in the fleets of the fire and rescue departments, including pumpers, aerials, brush trucks, tankers, light rescues, heavy rescues, and utility vehicles. The principle purpose of the replacement plan is to replace apparatus systematically. For example, the goal of the pumper replacement program is to use an apparatus in different ways at various stages in the pumper's useful life. Ideally, the useful life of a pumper should not exceed 30 years. The useful life of a pumper is shown below.

EXHIBIT 47
REPLACEMENT GOALS FOR PUMPERS

TYPE OF DUTY	STAGES OF PUMPER USEFUL LIFE	COMMENT
Active service	Stage 1 (15 years)	At this stage, the apparatus is used as a front-line response unit.
Active service-second due response	Stage 2 (15 years)	At this stage, the apparatus is placed into service when the primary vehicle has responded to an incident. This unit is used by personnel to assist during multiple calls or major emergencies.
Non-active reserve service	Stage 3 (reserve unit)	A reserve vehicle is placed into active service only if multiple vehicles are out of service due to mechanical problems and may be placed into service at major incidents. The reserve vehicle is not well stocked with equipment and must receive equipment before being placed into active duty.

Generally, an aerial apparatus should have a useful life of approximately 25 to 30 years. Ideally, an aerial unit should be considered for replacement after 25 years of service, depending on its condition. A tanker should have a useful life 25 years, and a medium rescue unit should have a useful life of 20 years.

The useful life of an ambulance is a function of several factors, such as age, milage, and conditions of use. In Casco, Naples, and Raymond there are approximately 1,200 EMS calls annually, which is not excessive usage. However, the units are required to travel relatively long distances and in varying weather

conditions. It is recommended that ambulances be replaced after 10 to 12 years of service.

In summary, the CNR Fire and Rescue Department should consider the following apparatus replacement guidelines:

EXHIBIT 48
APPARATUS REPLACEMENT GUIDELINES

TYPE OF APPARATUS	REPLACEMENT CYCLE IN YEARS
Pumper	30
Ambulance	10-12
Aerial	30
Tanker	20
Brush/Forestry	25
Medium Rescue	20

The fire companies have several support vehicles for various functions, including emergency response. The National Association of Fleet Managers (NAFM) recommends replacement of cars, vans, and trucks in accordance with the following general schedule.

EXHIBIT 49
NAFM REPLACEMENT STANDARDS

VEHICLE TYPE	NAFM AGE STANDARD	NAFM MILEAGE STANDARD
Sedan	5.5 years	88,000 miles
Van	7.5 years	88,000 miles
Pick-up Truck	7.5 years	92,000 miles

The fire companies should develop detailed records on each vehicle to identify the operational use and cost of operating a unit, including repair costs. This information will support the implementation of a formal replacement plan.

RECOMMENDATION 25: The CNR Fire and Rescue Department should approve the purchase of major apparatus based on a replacement plan.

RECOMMENDATION 26: The CNR Fire and Rescue Department, working through the Fire and Rescue Accountability Committee, should officially adopt a multi-year apparatus and equipment replacement program.

The apparatus operated by each fire and rescue department are displayed in Exhibit 50. The exhibit lists each major apparatus and shows the year of acquisition, current vehicle identification number, type of apparatus, manufacturer, town which owns the apparatus, and anticipated useful life. Exhibit 51 displays the current fleet, by type of unit.

EXHIBIT 50
APPARATUS FLEET BY DEPARTMENT

YEAR ACQUIRED	VEHICLE ID	TYPE OF VEHICLE	MANUFACTURER	TOWN	USEFUL LIFE EXPECTANCY (YEARS)
CASCO					
2001	Unit 1	Ambulance	Ford	Casco	10-12
2008	Unit 2	Ambulance	Ford	Casco	10-12
2000	Engine 12	Engine	Spartan	Casco	25-30
1998	Squad 3	MD Rescue	Freightliner	Casco	20
1989	Tanker 6	Water Tender	Ford	Casco	25
1990	Engine 4	Engine	International	Casco	25-30
2009	Engine 14	Engine	Spartan	Casco	25-30
1992	Forestry 1	Wildland Unit	GMC	Casco	25
1984	Reel 1	Utility	Chevrolet	Casco	15
1979	Tanker 7	Water Tender	Ford	Casco	25
2006	Utility 10	Engine	GMC	Casco	25-30
NAPLES					
1997	Unit 7	Ambulance	Ford	Naples	10-12
2008	Unit 8	Ambulance	Chevrolet	Naples	10-12
1992	Engine 3	Engine	International	Naples	25-30
2003	Tanker 1	Water Tender	Kenworth	Naples	25
1995	Engine 4	Engine	International	Naples	25-30
1992	Forestry 1	Wildland Unit	Chevrolet	Naples	25
2008	Ladder 9	Aerial	Pierce	Naples	30
1979	Ladder 1	Aerial	American LaFrance	Naples	30
RAYMOND					
2004	Engine 1	Engine	E-One Typhoon	Raymond	25-30
1990	Engine 2	Engine	GMC Top Kick	Raymond	25-30
1997	Tanker 1	Water Tender	International	Raymond	25
1989	Tanker 2	Water Tender	Freightliner FL 120	Raymond	25
2004	Rescue 1	Ambulance	Braun	Raymond	10-12
2001	Rescue 2	Ambulance	Ford F450	Raymond	10-12
1978	Forestry 1	Wildland Unit	Ford F600	Raymond	25
2003	Service Truck 2	Utility	Ford Pick-up	Raymond	15
1986	Utility 5	Utility	GMC 3500	Raymond	15
2003	Utility 7	Utility	Ford F550	Raymond	15
2000	Unit 10	Utility	Ford Expedition	Raymond	15
Unknown	Marine 1	Boat	Ambar Model 28	Raymond	15
Unknown	Marine 2	Boat	Unknown	Raymond	15

EXHIBIT 51
APPARATUS FLEET BY TYPE OF APPARATUS

YEAR ACQUIRED	VEHICLE ID	TYPE OF VEHICLE	MANUFACTURER	TOWN	USEFUL LIFE EXPECTANCY (YEARS)
1979	Ladder 1	Aerial	American LaFrance	Naples	30
2008	Ladder 9	Aerial	Pierce	Naples	30
1997	Unit 7	Ambulance	Ford	Naples	10-12
2001	Rescue 2	Ambulance	Ford F450	Raymond	10-12
2001	Unit 1	Ambulance	Ford	Casco	10-12
2004	Rescue 1	Ambulance	Braun	Raymond	10-12
2008	Unit 2	Ambulance	Ford	Casco	10-12
2008	Unit 8	Ambulance	Chevrolet	Naples	10-12
Unknown	Marine 1	Boat	Ambar Model 28	Raymond	15
Unknown	Marine 2	Boat	Unknown	Raymond	15
	Engine 2	Engine	GMC Top Kick	Raymond	25-30
1990	Engine 4	Engine	International	Casco	25-30
1992	Engine 3	Engine	International	Naples	25-30
1995	Engine 4	Engine	International	Naples	25-30
2000	Engine 12	Engine	Spartan	Casco	25-30
2004	Engine 1	Engine	E-One Typhoon	Raymond	25-30
2006	Utility 10	Engine	GMC	Casco	25-30
2009	Engine 14	Engine	Spartan	Casco	25-30
1998	Squad 3	MD Rescue	Freightliner	Casco	20
1984	Reel 1	Utility	Chevrolet	Casco	15
1986	Utility 5	Utility	GMC 3500	Raymond	15
2000	Unit 10	Utility	Ford Expedition	Raymond	15
2003	Service Truck 2	Utility	Ford Pick-up	Raymond	15
2003	Utility 7	Utility	Ford F550	Raymond	15
1979	Tanker 7	Water Tender	Ford	Casco	25
1989	Tanker 2	Water Tender	Freightliner FL 120	Raymond	25
1989	Tanker 6	Water Tender	Ford	Casco	25
1997	Tanker 1	Water Tender	International	Raymond	25
2003	Tanker 1	Water Tender	Kenworth	Naples	25
1978	Forestry 1	Wildland Unit	Ford F600	Raymond	25
1992	Forestry 1	Wildland Unit	GMC	Casco	25
1992	Forestry 1	Wildland Unit	Chevrolet	Naples	25

The CNR Fire and Rescue Department should establish a reserve fund to which an annual contribution is made to provide for a systematic apparatus replacement program. Exhibit 52 shows an estimated annual expenditure, based on the proposed replacement plan. (See Exhibit 46.) The exhibit also shows an annual contribution of $265,000. The exhibit displays the estimated contribution and costs, in today's dollars, for the next 11 years.

EXHIBIT 52
APPARATUS FLEET REPLACEMENT
ANNUAL EXPENDITURE AND CONTRIBUTION

	ANNUAL EXPENDITURE	ANNUAL CONTRIBUTION	ANNUAL BALANCE
2012	250,000	265,000	15,000
2013	225,000	265,000	55,000
2014	225,000	265,000	95000
2015	225,000	265,000	135,000
2016	400,000	265,000	-
2017	175,000	265,000	90,000
2018	300,000	265,000	55,000
2019	225,000	265,000	95,000
2020	350,000	265,000	10,000
2021	225,000	265,000	50,000
2022	225,000	265,000	90,000

Exhibit 53 presents the apparatus replacement plan. Apparatus is organized by type. The town to which a unit is assigned is also shown. The proposed new unit is a medium rescue vehicle. The cost of replacement is shown in today's dollars.

EXHIBIT 53

APPARATUS REPLACEMENT PLAN

YEAR	VEHICLE ID	TOWN	USEFUL LIFE	ANTICIPATED REPLACEMENT DATE	ESTIMATED REPLACEMENT COST	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aerial																
1979	Ladder 1	N	30	2009	800,000	No Replacement Recommended										
2008	Ladder 9	N	30	2038	800,000											
Ambulance																
1997	Unit 7	N	12	2009	175,000	No Replacement Recommended										
2001	Rescue 2	R	12	2013	175,000		175,000									
2001	Unit 1	C	12	2013	175,000				175,000							
2004	Rescue 1	R	12	2016	175,000						175,000					
2008	Unit 2	C	12	2020	175,000								175,000			
2008	Unit 8	N	12	2020	175,000										175,000	
Boat																
	Marine 1	R	15													
	Marine 2	R	15													
Engine																
1990	Engine 2	R	25	2015	350,000	No Replacement Recommended										
1990	Engine 4	C	25	2015	350,000	No Replacement Recommended										
1992	Engine 3	N	25	2017	350,000					350,000						
1995	Engine 4	N	25	2020	350,000									350,000		
2000	Engine 12	C	25	2025	350,000											
2004	Engine 1	R	25	2029	350,000											
2006	Utility 10	C	25	2031	350,000											
2009	Engine 14	C	25	2034	350,000											
Medium Duty Rescue																
1998	Squad 3	C	20	2018	250,000							250,000				
New	Proposed	R	20		250,000	250,000										
Utility Vehicle																
1984	Reel 1	C	15	1999	50,000	No Replacement Recommended										
1986	Utility 5	R	15	2001	50,000	No Replacement Recommended										
2000	Unit 10	R	15	2015	50,000				50,000							
2003	Service Truck 2	R	15	2018	50,000							50,000				
2003	Utility 7	R	15	2018	50,000										50,000	

Water Tender																
1979	Tanker 7	C	25	2004	225,000	No Replacement Recommended										
1989	Tanker 2	R	25	2014	225,000	No Replacement Recommended										
1989	Tanker 6	C	25	2014	225,000			225,000								
1997	Tanker 1	R	25	2022	225,000											225,000
2003	Tanker 1	N	25	2028	225,000											
Wildland Vehicle																
1978	Forestry 1	R	25	2003	50,000		50,000									
1992	Forestry 1	C	25	2017	50,000					50,000						
1992	Forestry 1	N	25	2017	50,000								50,000			

IX. ATTITUDE SURVEY OF FIRE AND RESCUE PERSONNEL

The purpose of the survey of members of the Casco, Naples, and Raymond fire departments and the Casco Rescue Department is to gather opinions from emergency response personnel. The information provides a measure of emergency medical services and ideas about improving or enhancing fire and rescue services. In order to determine what members of each department think about their situation, each fire department and the rescue department were provided with a survey to distribute to members. The survey instruments for the Casco, Naples, and Raymond Fire Departments were the same. The Casco Rescue Department survey instrument, while similar to the fire and rescue survey, asks several different questions in order to capture differences between the Casco Rescue Department and other departments. The results of the survey are summarized in the exhibits below.

SURVEY DESIGN

The survey instruments provided to the fire and rescue departments follow the same general framework. The survey is composed of several groups of questions. Sections I to IV asked respondents to evaluate each item using a five-point scale. A total of 49 responses were received; 11 responses were received from the Casco Rescue Squad; 13 responses were received from the Casco Fire Department; nine responses were received from the Naples Fire Department; and 16 responses were received from the Raymond Fire Department. Two surveys were not usable for tabulation purposes.

Sections V to XIII of the fire and rescue survey is organized as follows. Section V asked how many years each person has been a member of a department and whether they are currently an officer. Section VI asked respondents about their future plans and Section VII asked if the fire and rescue departments should be consolidated. Section VIII seeks narrative comments concerning the type of equipment that could be shared. Section IX asked how to improve recruitment and retention of personnel. Section X questioned responders about the most serious issues facing a department. Sections XI and XII asked what respondents like most and least about their department. Section XIII solicited additional comments. The Casco Rescue Department survey contains one additional section (Section VII), which asked respondents if the Casco Fire Department and Rescue Department should be consolidated into one department.

COMPILATION OF SURVEY RESULTS

The following exhibits provide a compilation of the surveys received. Every effort was made to be accurate in compiling survey results; in some instances, individual questions were not answered, two answers were given for a question, a response was not legible, or other factors resulted in not considering a specific answer. These occurrences were relatively few and did not affect overall results. The Casco, Naples, and Raymond Fire Department surveys were the same and included 61 items in Sections I to IV of the survey. The Casco Rescue Squad survey instrument was designed to reflect the fact that not all personnel are cross-trained firefighters. Sections I to IV of the survey included 46 items. Forty-six items were designed to be common on both survey instruments, to allow for comparison. Exhibit 47 shows a compilation of survey questions which are common between the rescue squad survey and the fire department surveys. The column on the far left indicates the survey item number. The first item number is from the survey instrument provided to the Casco Fire Department, the Naples Fire and Rescue Department, and the Raymond Fire and Rescue Department; the second number is the comparable item responded to by the Casco Rescue Department.

EXHIBIT 54
COMPILATION OF SURVEY RESULTS
CASCO FIRE DEPARTMENT, CASCO RESCUE DEPARTMENT, NAPLES FIRE AND RESCUE DEPARTMENT, AND RAYMOND FIRE AND RESCUE DEPARTMENT

I. Please indicate the response that best describes your opinion on each of the following statements.

		Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
1/1	I receive adequate direction and support from superior officers.	10	16	6	11	4
		21%	34%	13%	23%	9%
2/2	I receive adequate training.	5	13	10	15	4
		11%	28%	21%	32%	9%
3/3	The department tries hard to encourage long tenure among its personnel.	12	10	15	5	2
		26%	21%	32%	11%	4%
4/4	I can usually count on my supervisor to assist me.	10	13	9	10	3
		21%	28%	19%	21%	6%
5/5	I feel like a member of a team, not just an individual member.	11	16	9	8	2
		23%	34%	19%	17%	4%
6/6	Discipline in the fire department is handled in a fair and consistent manner.	4	9	10	11	9
		9%	19%	21%	23%	19%

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
7/7	We have a good working relationship with other town departments.	12	14	13	2	3
		26%	30%	28%	4%	6%
8/8	The citizens of the town seem to appreciate the work of our department on their behalf.	20	25	1	0	0
		43%	53%	2%	0%	0%
9/9	We have a good working relationship with other fire departments in the area.	7	18	14	3	3
		15%	38%	30%	6%	6%
11/11	The fire department (Rescue Squad) is a very progressive agency.	10	10	13	6	6
		21%	21%	28%	13%	13%
12/12	Good performance is recognized and rewarded in the fire department.	4	13	7	13	5
		9%	28%	15%	28%	11%
13/13	The fire department has clear standards of performance.	6	16	11	11	3
		13%	34%	23%	23%	6%
14/14	Safety is emphasized and enforced by fire officers.	10	18	11	5	2
		21%	38%	23%	11%	4%
15/15	I enjoy my membership in the fire (rescue squad) department.	20	16	7	3	0
		43%	34%	15%	6%	0%

The responses to these initial questions provide some insight into how personnel feel about their departments.

- Seventy-seven percent of respondents indicated that they enjoy membership in the their department.
- Ninety-six percent of respondents believe that citizens appreciate their work.
- Fifty-five percent of respondents feel they receive adequate direction from superior officers.
- Thirty-nine percent of respondents feel that they receive adequate training, but 41 percent feel that they do not receive adequate training.
- Forty-seven percent of respondents believe that their department encourages long-term tenure, but 15 percent disagree.
- Fifty-nine percent of respondents feel that safety is emphasized and enforced, 15 percent disagree, and 23 percent are neutral on the matter.

- Fifty-three percent of respondents feel that they have a good working relationship with surrounding departments.

II. Please rate your department on each item listed below.

		Excellent	*Very Good*	*Good*	*Fair*	*Poor*
16/24	Incident command	9	12	14	8	3
		19%	26%	30%	17%	6%
18/16	Customer service attitude	8	20	15	1	2
		17%	43%	32%	2%	4%
23/17	Ability to get out quickly	8	15	9	7	7
		17%	32%	19%	15%	15%
26/23	Dispatch and emergency communications	8	15	14	6	3
		17%	32%	30%	13%	6%
28/22	Natural disaster response	3	11	12	9	1
		6%	23%	26%	19%	2%
29/18	Multiple casualty incidents	3	15	10	7	3
		6%	32%	21%	15%	6%

These six items ask respondents to evaluate several service delivery matters.

- Sixty percent of respondents indicated that customer service attitude was excellent to very good.

- Forty-nine percent of respondents rated their department as excellent or very good on the "ability to get out quickly." Thirty percent said their department was only fair or poor in its "ability to get out quickly."

- Forty-nine percent of respondents evaluated emergency communications/ dispatch services as excellent to very good.

III. Please indicate your opinion about each issue listed below.

		Very Satisfied	*Satisfied*	*Neutral*	*Dissatisfied*	*Very Dissatisfied*
34/25	Town support	9	25	8	3	1
		19%	53%	17%	6%	2%
35/26	Equipment	18	21	4	4	0
		38%	45%	9%	9%	0%
36/27	Vehicle types	23	17	3	3	0
		49%	36%	6%	6%	0%
37/28	Vehicle maintenance	12	16	7	7	3
		26%	34%	15%	15%	6%
38/29	Rules and regulations	7	19	10	8	3
		15%	40%	21%	17%	6%
39/30	Discipline	4	14	8	12	6
		9%	30%	17%	26%	13%
40/31	Internal communications	4	12	10	10	10
		9%	26%	21%	21%	21%
41/32	Provisions for health and safety	11	16	14	3	1
		23%	34%	30%	6%	2%
42/33	Staff support services	8	14	9	6	8
		17%	30%	19%	13%	17%
43/34	Encouragement to make runs	13	10	11	7	6
		28%	21%	23%	15%	13%
45/36	Physical facilities	10	17	8	8	1
		21%	36%	17%	17%	2%
46/37	Drills	4	15	7	14	6
		9%	32%	15%	30%	13%

		Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
48/38	Safety at incidents	11	12	15	5	2
		23%	26%	32%	11%	4%
49/39	Promotional procedures	4	11	11	5	12
		9%	23%	23%	11%	26%
50/40	Standard Operating Guidelines	10	17	11	6	3
		21%	36%	23%	13%	6%
51/41	Supervision and management	7	19	5	10	6
		15%	40%	11%	21%	13%
52/43	Training opportunities	7	18	4	12	4
		15%	38%	9%	26%	9%
53/43	Encouragement to attend training	15	11	6	10	5
		32%	23%	13%	21%	11%

The 18 items in Section III asked respondents to indicate if they were very satisfied, satisfied, dissatisfied, or very dissatisfied with a particular element of the department. The following summarizes some of the responses.

- Town support (72 percent very satisfied or satisfied)
- Equipment (83 percent very satisfied or satisfied)
- Vehicle types (85 percent very satisfied or satisfied)
- Vehicle maintenance (60 percent very satisfied or satisfied)
- Rules and regulations (55 percent very satisfied or satisfied)
- Health and safety (57 percent very satisfied or satisfied)
- Encouragement to make runs (49 percent very satisfied or satisfied, but 26 percent dissatisfied or very dissatisfied)
- Physical facilities (57 percent very satisfied or satisfied)
- Safety at incidents (49 percent very satisfied or satisfied)

- Training opportunities (53 percent very satisfied or satisfied)
- Encouragement to attend training (55 percent very satisfied or satisfied, but 32 percent dissatisfied or very dissatisfied)

IV. Please indicate the response that best describes your opinion on each of the following statements, which have all been mentioned to the consultants during interviews.

		Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
54/45	My department can always respond with a pumper and four firefighters within five minutes of the page. (My department can always respond within five minutes of the notification of a call.)	4	11	6	13	13
		9%	23%	13%	28%	28%
55/46	My department does not need any mutual aid for weekday responses.	5	5	5	13	17
		11%	11%	11%	28%	36%
56/47	My department does not need any mutual aid for night and weekend responses.	6	5	10	16	10
		13%	11%	21%	34%	21%
57/48	My department does not need to have responders stationed at the fire station on weekdays.	4	1	4	10	28
		9%	2%	9%	21%	60%
58/49	My department does not need to have responders stationed at the fire station on nights and weekends.	4	3	6	14	20
		9%	6%	13%	30%	43%
59/50	My department does not need to employ, or continue to employ, a small number of career, full-time firefighters.	3	3	1	9	28
		6%	6%	2%	19%	60%
60/51	The existing mutual aid system is satisfactory and necessary.	5	24	8	2	9
		11%	51%	17%	4%	19%
61/52	The town can be adequately served by the existing personnel.	4	9	11	11	11
		9%	19%	23%	23%	23%

The eight items above asked respondents to agree or disagree with a series of statements. These statements are concerned with the response capability of their department. The response to these items indicate that personnel are aware of response difficulties.

- Twenty-four percent of respondents agreed or strongly agreed with the statement, "My department does not need any mutual aid for night or weekend responses." However, 55 percent of respondents disagreed or strongly disagreed with the statement.

- Eleven percent agreed with the statement, "My department does not need to have responders stationed at the fire station on weekdays." Eighty-one percent of respondents disagreed with the statement.

- Seventy-three percent of respondents disagreed with the statement, "My department does not need to have responders stationed at the fire station on nights and weekends." Fifteen percent of respondents agreed with the statement.

- Seventy-nine percent of respondents disagreed with the statement, "My department does not need to employ, or continue to employ, a small number of career, full-time firefighters." Twelve percent of respondents agreed with the statement.

- Twenty-six percent of respondents agreed with the statement, "The Town can be adequately served by the existing personnel." However, 46 percent disagreed with the statement, and 23 percent of respondents were neutral on the statement.

There were 47 surveys which could be analyzed. The survey respondents were a relatively experienced group of personnel. Exhibit 55 shows the years of experience of the responding personnel.

EXHIBIT 55
EXPERIENCE OF SURVEY RESPONDENTS

YEARS OF EXPERIENCE	CASCO FIRE DEPARTMENT	CASCO RESCUE DEPARTMENT*	NAPLES FIRE DEPARTMENT	RAYMOND FIRE DEPARTMENT	TOTAL
Less than 1	0	1		1	2
1 - 3	5	5		4	14
4 - 6	1	0		4	5
7 - 12	1	1	2	5	9
13 - 20	1	3	3	1	8
More than 20	5		3		8
	13	10	8	15	46

** One survey did not contain an answer.*

In each of the surveys, the members were asked the question: "Do you think the Casco, Naples, and Raymond Fire and Rescue Departments should be merged into one department?" Twenty-four members said "yes;" 20 members said "no;" three respondents did not answer the question. Fifty-one percent of respondents were supportive of consolidation; 43 percent of the respondents were against consolidation; and six percent did not answer the item.

EXHIBIT 56
"DO YOU THINK THE CASCO, NAPLES, AND RAYMOND FIRE AND RESCUE DEPARTMENTS SHOULD BE MERGED INTO ONE DEPARTMENT?

	YES	NO	NA	TOTAL
Raymond	8	5	2	15
Naples	4	4		8
Casco Fire	7	5	1	13
Casco Rescue	5	6		11
Total	24	20	3	47

X. IMPLEMENTATION PLAN

Implementing the consolidated fire and rescue department will require a detailed planning process. The time line for implementation of a consolidation process is hard to define. However, the Town of Casco should take two actions to address their immediate response needs. These actions are consistent with a consolidated fire and rescue department organization.

The following issues should be addressed by Casco:

- *Daytime support* - Fill 60 hours of emergency response time from 6:00 a.m. to 6:00 p.m., Monday through Friday.

- *Firefighter/EMT* - The 60 hours of time should be filled by a firefighter/EMT.

- *On-call system* - The current on-call system should be continued and is needed to support the emergency response system.

- *On-call personnel* - The on-call personnel should ideally be firefighters/ EMTs.

- *Fire and rescue functions* - The Fire Department and the Rescue Department should be consolidated into one organization. With the pending retirement of the Fire Chief, one person should be appointed as the Chief of both organizations. The new Chief should understand that the appointment as Chief is subject to any changes resulting from consolidation.

Casco may have difficulty ensuring that a sufficient number of on-call personnel are cross-trained as firefighters/EMTs. Once the departments are consolidated, appropriately trained personnel should be provided by other districts in the new system. It is also important to recognize the need for volunteer emergency medical responders, even if they are not, or cannot be, cross-trained as firefighters. The consolidated fire and rescue department should be able to benefit from these personnel who are not cross-trained firefighters. However, whenever possible, current EMTs should be cross-trained.

RECOMMENDATION *27: The Town of Casco should strengthen its response capability.*

Collectively, the three towns should undertake the following actions to create the basic framework for the consolidated fire and rescue department.

- *Develop a budget.* The budget should include monies for the position of full-time Fire Chief and additional support personnel in Casco.

- *Develop the inter-municipal agreement.* The basic inter-municipal agreement should be developed.

- *Review and agree on a cost distribution approach.* The allocation of costs is often the most critical element of the inter-municipal agreement.

One of the most important decisions that has to be made is the development of the governance system and the creation of the Fire and Rescue Accountability Committee. It is recommended that the Committee be composed of the three Town Managers. While this may not be feasible, the Committee should be relatively small and meet periodically to review progress, finances, and problems.

As the consolidated fire and rescue system is established, it may be necessary to share some of Raymond's resources with other divisions in the department to ensure that the consolidated department is operational.

It will be necessary for both Raymond and Casco to consider the impact of decommissioning a fire station. The views of local elected officials and citizens may make the closing of these stations difficult.

Assuming that towns agree to the implementation of the consolidated department immediately, the process should begin within the next several months. Below is an outline of a possible timetable for implementing the new fire and rescue organization.

EXHIBIT 57
PROPOSED TIMETABLE FOR IMPLEMENTATION OF THE CONSOLIDATED FIRE DEPARTMENT

TASK	TIMETABLE
Initial Decision-Making	
Agree to a consolidation Develop an inter-municipal agreement Establish the governance structure	Months 1 to 3
Develop a consolidated budget Include new costs for Fire Chief Include additional resources for Casco Include any reductions form the apparatus replacement plan	Months 1 to 3
Establish the cost allocation system Evaluate alternatives Apply a cost distribution formula to the proposed budget	Month 3
Develop a plan for implementing consolidation Include a date to begin the operation of the department Require development of SOPs and SOGs Requires discussion of communication protocols	Month 4 to 7
Develop a plan for selecting a Fire and Rescue Chief Confer with fire and rescue personnel Conduct outreach and recruitment	
Select the Fire and Rescue Chief	Month 10 to 11
Start-up Operational and Administrative Decision-Making	
Organize the command and response structure Define the command structure and reporting relationships Prepare and distribute a memorandum to all personnel Train personnel on changes in operational policies Implement the new chain of command District Chiefs assume new functions	Months 12 to 14
Implement new administrative systems Integrate financial management practices Integrate record-keeping procedures	Months 12 to 15
Integrate training programs	Months 14 to 15

APPENDIX A

DISCUSSION OF STANDARDS AND BENCHMARKS

This Appendix describes the emerging standards and benchmarks used to design fire or emergency medical service systems, and expands on the concepts described in the text of this report. Meeting benchmarks and standards is difficult for many volunteer fire and rescue departments. One approach toward making progress in achieving standards is to maximize the available resources of Casco, Naples, and Raymond. The emerging standards, or benchmarks, which affect crew size, firefighter safety, and fire and EMS response times are listed below.

OSHA requirements for a minimum of four equipped personnel to be present before entry in a structure fire incident.

OSHA requirements for a rapid intervention team (RIT) to be present for safety reasons at working structure fires.

OSHA and NFPA requirements for a qualified incident commander and a qualified safety officer to be present at working incidents.

NFPA 1720 and industry standards to be followed by volunteer (call) fire departments. These standards are described in Chapter IV of this report.

NFPA 1710 and industry standards to have a minimum of 15 firefighters, including an incident commander, present for a low-hazard structure fire, with at least two pumpers and a ladder truck, or similar vehicle.

Emergency medical service response time benchmarks, which are suggested in NFPA 1710, the *American Heart Association Statement on Chain of Survival,* and the Eisenberg Model, which discuss the survivability for a non-breathing person and the application of CPR, defibrillation, and advanced life support.

DEVELOPING RESPONSE CAPABILITY OBJECTIVES

Response capability objectives should consider both rapid response and, in the case of fire emergencies, a sufficient number of firefighters to attack the fire. Response objectives must also accommodate variations in fire danger. It is important

to consider subsequent responses occurring after the initial response and the possibility of simultaneous emergency events, such as fire, rescue, hazmat and EMS incidents, occurring during or after the initial incident. A number of measures and standards are considered by fire and rescue agencies when developing response capability objectives.

STANDARDS AND FACTORS USED TO DEVELOP RESPONSE CAPABILITY OBJECTIVES

Containment of a Fire/Flashover	NFPA Standard 1710
Geographic Characteristics of the Town	NFPA Standard 1720
Sequence of Emergency Response	Distribution of Capacity (fire station location)
"Two In, Two Out" OSHA Safety Rule	AMA EMS Response Considerations and Standards
ISO Measures/Standards	AHA Standards for Cardiac Response

Containment. In structure fire instances, there are several important factors to consider. First is the behavior of fire within a confined space. The risks associated with this can vary across a town or region. In closely developed, built-up areas, it is imperative to consistently contain a fire within the compartment of origin (that area separated from the remainder of the structure by construction). This means that the fire department must interrupt the growth of fire before a condition called flashover occurs. At flashover, there is a rapid transition in fire behavior from localized burning of fuel, to involvement of all the combustibles in the enclosure. At that time, the fire typically expands in six different directions: vertically through the ceiling, horizontally through the four walls, and even through openings in the floor. By then, all barriers to fire growth beyond the original compartment are under attack by extremely hot flame, smoke and gasses. These elements expand at approximately 50 times their volume per minute. At flashover, the probability of death or serious injury to occupants of the structure is significant. Obviously, life safety within the structure is a basic concern and, when nearby properties are involved, the control of flashover becomes even more paramount as additional lives and property are jeopardized.

Comprehensive testing by the United States Institute of Standards and Technology has generally established that a fire within a typically furnished room will evolve into flashover within four to ten minutes of the event of open flame. At that time, temperatures at ceiling level will reach 1,500 degrees. United States fire

department planning generally assumes approximately an eight-minute period before flashover.

Under these circumstances, and where lives and properties are in danger, in order to accomplish timely interruption of fire growth, contain the fire within the compartment of origin, and locate and remove threatened persons, rapid and effective response is essential. Fire companies must receive notification of the fire, don appropriate safety gear, mount the apparatus, travel to the scene of the fire, accomplish sufficient firefighting tasks to inhibit fire growth, and rescue occupants within approximately eight minutes of the event of flame. The tasks to be accomplished at the scene by the initial arriving units include search, rescue, ventilation, ladder placement, hose line deployment and other actions, all requiring immediate and simultaneous execution.

Local Characteristics. When designing response time and response capability objectives, it is important to consider fire risks, how they vary by neighborhood, and the level of service needed. Risks are greatest in wood-frame and non-resistant residential dwelling units, which are normally without automatic detection and reporting systems or suppression systems. In newer construction (particularly commercial, industrial, and institutional structures), where buildings may be required to have automatic detection and suppression systems, the fire risk can be less. The latter usually have suppression systems which reduce the unmeasured time between the start of a fire and when the fire is detected and reported, and automatically retard fire development. It is important to recognize the significance of automatic suppression systems. Data from NFPA show the effectiveness of sprinklers in residential occupancy structure fires.

APPENDIX B

ALTERNATIVE CONSOLIDATION RECOMMENDATIONS

There has been opposition to the consolidation of the Casco, Naples, and Raymond fire and rescue agencies into one department. Part of the opposition is generated from the Naples Fire and Rescue Department, since the department is a vibrant organization with an adequate complement of volunteers and a reasonable response system. However, the current situation will not necessarily continue in the future. Volunteer fire and rescue departments change as members age and their family and work situations change. Thus, the strength and effectiveness of a department will change over time. As we have suggested earlier in this report, a decline in capability is not easily recognized by the public.

The most effective approach to protect against decline is to consolidate fire and rescue agencies and resources in Casco, Naples, and Raymond. If the Town of Naples determines that it does not wish to consolidate its fire and rescue department with Casco and Raymond, the Towns of Casco and Raymond should consolidate their fire and rescue agencies into a new Casco and Raymond Fire and Rescue Department.

Many of the same organizational recommendations and governance recommendations are applicable to both the three-town consolidation model and the two-town consolidation model. However, some variations in organization and governance are required.

The Casco Fire Department, the Casco Rescue Department, and the Raymond Fire and Rescue Department should be consolidated into one fire and rescue department. The Casco and Raymond Fire and Rescue Department (CRFRD) should have one fire chief and two district chiefs.

The CRFRD should deploy apparatus, develop new apparatus replacement plans, and close one or more fire and rescue stations. The Department should also consider the delivery of emergency medical services from the Brown Street Fire Station location.

ALTERNATIVE RECOMMENDATION *1: The Casco Fire Department, the Casco Rescue Department, and Raymond Fire and Rescue Department should be consolidated into one fire and rescue department.*

ALTERNATIVE RECOMMENDATION *2: The Casco and Raymond Fire and Rescue Department should consolidate fire stations.*

ALTERNATIVE RECOMMENDATION *3: The Casco and Raymond Fire and Rescue Department should redeploy apparatus and consider deploying EMS services from the Brown Street Station.*

APPENDIX C

CASCO, NAPLES, AND RAYMOND EMS CALLS FOR SERVICE IN 2010

The data shown in Exhibits C-1, C-2, C-3, and C-4 expands on the information provided in Exhibits 24, 25, and 26 (included in the text of this report). The information contained in this Appendix was generated from a review of data provided by Cumberland County. Twelve months of data were examined.

The review of data required organizing data by month using spreadsheets, sorting data by type of call, and making hand counts of data to verify information. The data in this Appendix includes emergency calls and paramedic intercepts, but does not include calls identified as "EMS coverage." Exhibits C-1, C-2, and C-3 show EMS calls for service by time of day for each month in 2010. Exhibit C-4 shows the average number of EMS calls received per day for each month in 2010.

EXHIBIT C-1
TOWN OF CASCO EMERGENCY MEDICAL CALLS FOR SERVICE BY TIME OF DAY - 2010

TIME	JAN	FEB	MARCH	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL	TOTAL NUMBER OF CALLS	PERCENT OF CALLS
00:00-00:59	1	1	2	1	1	3			1	1	1	1	13	1.1	3.3%
01:00-01:59		1	2	2	3	1	1		2	1	2	2	17	1.4	4.3%
02:00-02:59						2	1		4				7	0.6	1.8%
03:00-03:59	1	1		1	2	1		1		1			8	0.7	2.0%
04:00-04:59	1	1	1						1	1	2	1	8	0.7	2.0%
05:00-05:59				1		1		1	1	1	1	1	7	0.6	1.8%
06:00-06:59		1	1			2	1		2	1	4		12	1.0	3.0%
07:00-07:59	1	1	1	1	1			4	1			3	13	1.1	3.3%
08:00-08:59		6	4	1	3	2	2	4	2	2	5	3	34	2.8	8.6%
09:00-09:59	2	1	3	1	2	1	2	3	3	2	4	2	26	2.2	6.6%
10:00-10:59	3	1	1	1	1	3	1	2		5		4	22	1.8	5.6%
11:00-11:59	2	2	1	1	1	1	1	1	3		4	4	21	1.8	5.3%
12:00-12:59	4	1				1	3	2	1	1	3	2	18	1.5	4.5%
13:00-13:59	1	2		2	1	3	2	4			3	1	19	1.6	4.8%
14:00-14:59	2	2	2		3	1	1	3	4		1	1	20	1.7	5.1%
15:00-15:59			1	2	1	4	2		1	3	1	1	16	1.3	4.0%
16:00-16:59		2		1	1	2	1	4	1	1		1	14	1.2	3.5%
17:00-17:59	2	1	4		1	1	3	2	3	1	2	2	22	1.8	5.6%
18:00-18:59	1	2	1		1	1	2	2	3	1	1	2	17	1.4	4.3%
19:00-19:59			1	1	2	1	2	1	1	3	1	3	16	1.3	4.0%
20:00-20:59	3	2	1	1	6	1	3	3	1	5	2	1	29	2.4	7.3%
21:00-21:59			1	2	1	2		4	2	1			13	1.1	3.3%
22:00-22:59			1		1	3	2	2	1	1	2		13	1.1	3.3%
23:00-23:59		1	1		2	2			3		2		11	0.9	2.8%
Total	24	29	29	19	34	39	30	43	41	32	41	35	396	33.0	100.0%
Average Calls per Day	0.8	1.0	0.9	0.6	1.1	1.3	1.0	1.4	1.4	1.0	1.4	1.1	1.0	1.0	
Percent of Calls by Month	6.1%	7.3%	7.3%	4.8%	8.6%	9.8%	7.6%	10.9%	10.4%	8.1%	10.4%	8.8%	100%		

EXHIBIT C-2
TOWN OF NAPLES EMERGENCY MEDICAL CALLS FOR SERVICE BY TIME OF DAY - 2010

TIME	JAN	FEB	MARCH	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL	TOTAL NUMBER OF CALLS	PERCENT OF CALLS
00:00-00:59	1	4	1	1	1	4		1	2	1	1		17	1.4	3.6%
01:00-01:59	1		1		2	2						1	7	0.6	1.5%
02:00-02:59	2			1					1		1		5	0.4	1.1%
03:00-03:59	2	1	1	1									5	0.4	1.1%
04:00-04:59	2	1		3		3					2	1	12	1.0	2.5%
05:00-05:59					1	2	2	2	2		1	1	11	0.9	2.3%
06:00-06:59					1	2							3	0.3	0.6%
07:00-07:59	1	2	1		2				1	1			8	0.7	1.7%
08:00-08:59		4	2	1	2		5	5					19	1.6	4.0%
09:00-09:59	1			1	5		2	2	1	1	3	3	19	1.6	4.0%
10:00-10:59	1		1	1	3	2	4	4	3	2	2	2	25	2.1	5.3%
11:00-11:59	1	3	1	3		1	3	3	2	1	3	1	22	1.8	4.7%
12:00-12:59	1	2		1	1	2	3	3	1	2	1	1	18	1.5	3.8%
13:00-13:59	1	1	1	1	6	2	3	3	2	2	2	2	26	2.2	5.5%
14:00-14:59	2	2		4	3	6	1	1	2	2	3	2	28	2.3	5.9%
15:00-15:59	2	3	3	5	2	4	5	5	5	2	6	5	47	3.9	10.0%
16:00-16:59		2	7		3	4	5	5	3		4	2	35	2.9	7.4%
17:00-17:59	1	1	1	1	3	6	6	6	3		1		29	2.4	6.1%
18:00-18:59			4	2	1		5	7	3	1	5	2	30	2.5	6.4%
19:00-19:59		2	1	3	3	4	1	2	5		3	3	27	2.3	5.7%
20:00-20:59	2	1		4	2	1	1	1	4		3	2	21	1.8	4.4%
21:00-21:59	1	2	1	2		3	6	6		3	2	1	27	2.3	5.7%
22:00-22:59		1				2	2	2	1		2	1	11	0.9	2.3%
23:00-23:59	1	1	2			2	3	3	3	1	3	1	20	1.7	4.2%
Total	23	33	28	35	41	52	57	61	44	19	48	31	472	39.3	100%
Average Calls Per Day	0.7	1.2	0.9	1.2	1.3	1.7	1.8	2.0	1.4	0.6	1.6	1.0	1.3	1.3	
Percent of Calls by Month	4.7%	6.7%	5.7%	7.1%	8.4%	10.6%	11.6%	12.4%	9.0%	3.9%	9.8%	6.3%	96%		

EXHIBIT C-3
TOWN OF RAYMOND EMERGENCY MEDICAL CALLS FOR SERVICE BY TIME OF DAY - 2010

TIME	JAN	FEB	MARCH	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL	TOTAL NUMBER OF CALLS	PERCENT OF CALLS
00:00-00:59	6				1	2	1	1	1	1	2		15	1.3	4.5%
01:00-01:59	2		1	1		1			1	1	1		8	0.7	2.4%
02:00-02:59		1	1						1	2		1	6	0.5	1.8%
03:00-03:59	1	1	1	3	1		2		1		1		11	0.9	3.3%
04:00-04:59						1				1			2	0.2	0.6%
05:00-05:59	3				1		1		1			1	7	0.6	2.1%
06:00-06:59	1		2		1		2	1	1		1	2	11	0.9	3.3%
07:00-07:59	2	1	1	3	3		1	1					12	1.0	3.6%
08:00-08:59	1		3	1		1	2		2		2	1	13	1.1	3.9%
09:00-09:59	2	2	2	3	3	4	1	3	1	3	1	1	26	2.2	7.8%
10:00-10:59	2	2	2	3	2	2	1		2	2	1	2	21	1.8	6.3%
11:00-11:59	1		3		3		2	1	3	1	1		15	1.3	4.5%
12:00-12:59	1	1	1		5	2	1		1	2	1	1	16	1.3	4.8%
13:00-13:59	4	1				1	3	3		2	2	3	19	1.6	5.7%
14:00-14:59	5	1	1		4	3	2	1	1	2	1	3	24	2.0	7.2%
15:00-15:59		2						4	1	2	2	2	13	1.1	3.9%
16:00-16:59	4	2	1	3	1		1	2	1	1	1		17	1.4	5.1%
17:00-17:59		2				2	3	3	4	3	3	2	22	1.8	6.6%
18:00-18:59	2	1			1	1	3	2		1		1	12	1.0	3.6%
19:00-19:59	1	2	2	1	2	1	2			2	1		14	1.2	4.2%
20:00-20:59	1	1	2	1	3	1	1		1	2	1	1	15	1.3	4.5%
21:00-21:59			2	1	1	1	1		2				8	0.7	2.4%
22:00-22:59		1	1	2		2	2	3		1			12	1.0	3.6%
23:00-23:59	3	3		3	1	2				1		1	14	1.2	4.2%
Total	42	24	26	25	33	27	32	25	25	30	22	22	333	27.8	100%
Average Calls Per Day	1.4	0.9	0.8	0.8	1.1	0.9	1.0	0.8	0.8	1.0	0.7	0.7	0.8	0.8	
Percent of Calls by Month	12.6%	7.2%	7.8%	7.5%	9.9%	8.1%	9.6%	7.5%	7.5%	9.0%	6.6%	6.6%	100%		

EXHIBIT C-4
NUMBER OF EMS CALLS PER DAY - 2010

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	AVERAGE PER MONTH
Casco	0.8	1.0	0.9	0.6	1.1	1.3	1.0	1.4	1.4	1.0	1.4	1.1	1.1
Naples	0.7	1.2	0.9	1.2	1.3	1.7	1.8	2.0	1.4	0.6	1.6	1.0	1.3
Raymond	1.4	0.9	0.8	0.8	1.1	0.9	1.0	0.8	0.8	1.0	0.7	0.7	0.9
Total per Month	2.9	3.1	2.7	2.6	3.5	3.9	3.8	4.2	3.6	2.6	3.7	2.8	3.3