

Fire and Fire Rescue Services Improvement Study for the Pinellas County Charter Review Commission

Final Report

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Pinellas County



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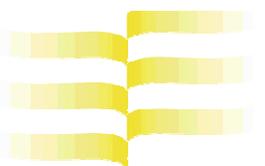
MGT 
OF AMERICA, INC.

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1.0 INTRODUCTION AND BACKGROUND

1.0 INTRODUCTION AND BACKGROUND

In April 2005, MGT presented a work plan and schedule to the Pinellas County Charter Review Commission to review fire services operations and update the Building/Zoning and Planning & Code Enforcement in the 1992 study. The scope of the project was modified in the April meetings and MGT provided the final work plan to the Charter Review Commission on May 23, 2005, which was subsequently approved by the Pinellas County Board of County Commissioners on June 7, 2005. The final version comprised a detailed study of fire suppression and rescue services and an update study of Building/Zoning and Code Enforcement activities. The decision to focus on these two study elements has a long history. In 1992, an earlier Charter Review Commission selected MGT to study the possible advantages of consolidating city and county operations in seven functional activities:

- Law Enforcement;
- Water and Sewer;
- Fire Services;
- General Administration Services;
- Building, Zoning, Planning, and Code Enforcement;
- Library Services; and
- Emergency Medical Services.

The report was submitted on February 13, 1992. While the 1992 Charter Review Commission took no action as a result of the study, numerous recommendations set forth in the report were implemented during the intervening years. Also, later Charter Review Commissions revisited several issues addressing the 1992 Report and, using County resources, updated the fire services study element.

The current Charter Review Commission began a discussion of revisiting some of the 1992 study's functional areas in early 2005. Initially, three areas were selected for update studies—Police, Fire, and Building/Zoning and Code Enforcement—while new studies were to be done in the Water Sewer and Library Services areas. The Charter

Review Commission approved this agreement and the Pinellas County Board of Commissioners approved the funding. Then, in subsequent meetings, the Charter Review Commission rethought its plan and revised the scope for several reasons:

- The Pinellas County Fire Chiefs' Association expressed concerns regarding the 1992 study and suggested parameters for the 2005 study.
- Charter Review Commission members doubted the usefulness of studying several areas where significant improvement had already been made, or the original 1992 study had not indicated a need for major change.

Therefore, the Charter Review Commission Chairman sought MGT to determine the scope and costs of (1) a comprehensive study of fire services operations that would take into account both the Fire Chiefs' Association's suggestions and a separate set of suggestions provided by the County Administrator's Office; and (2) an update study of the Building/Zoning and Code Enforcement area. The Charter Review Commission reviewed the proposed scope and costs and expressed concerns regarding the funding, which exceeded the expenditure level approved by the Pinellas County Board of County Commissioners. MGT prepared a revised proposal that focused on some of the more critical areas of fire services but was within the approved budget. This proposal was accepted.

This document is limited to the fire services study. The Building/Zoning and Code Enforcement study is presented in a separate document. Certain areas of study suggested by the Fire Chiefs' Association did not include the final work plan established for MGT. However, the County Administrator indicated that the County would provide information on the following:

- Water Supply for Fire Protection;
- Public Fire and Life Safety Education;
- Fire Investigation; and
- Community Relations/Public Information.

Also, the County Administrator agreed to provide information regarding traffic and transportation and a report outlining ad valorem rates, actual funding, etc.

The Fire Services Study was to provide findings and recommendations that would present potential areas of improvement in the current fire services. The Charter Review Commission directed the fire study to detail and thoroughly research several key areas.

Those areas included:

- Fire and Fire Rescue Response,
- Fire and Fire Rescue Training,
- Code Enforcement and Fire Prevention,
- Specialized Response Teams, and
- Ambulance (EMS) Services.

The consultant team was composed of MGT staff from across the country. The primary project staff was from MGT's Tallahassee Office. Additional staff resources were drawn from MGT's Washington State and Texas offices. In addition, the services of POMAX, Inc., an international consulting firm specializing in public safety, were utilized to assist in the analysis of the County's computer aided dispatch and records management system.

1.1 Project Methodology

The project was organized in three phases. The first phase, project initiation, planning, and on-site work, contained the following tasks:

- Initiate Project;
- Develop Preliminary Functional Profiles;
- Summarize Input;
- Conduct Interviews and Collect Information;
- Evaluate Organization, Operations, and Costs;
- Develop Commendations, Findings, and Recommendations.

The data collection and on-site work consumed the majority of the time and effort devoted to the project. Data and information were received from a variety of sources including the fire chiefs or an appropriate representative from each of the fire

departments and fire districts, Pinellas County EMS/Fire Administration, County 911 dispatch, other fire and EMS departments, and research studies. Several fire chiefs included key staff in their interviews. In addition, interviews were conducted with numerous Pinellas County EMS/Fire Administration and County 911 dispatch personnel. Also, interviews were conducted with emergency services representatives in numerous cities throughout the country. On-site observations were conducted at the Pinellas County 911 Dispatch Center and the dispatch center in Thurston County, Washington. The Pinellas County 911 Dispatch Center also provided extensive data regarding fire services operations.¹ Also, the consultant team visited the Sunstar Dispatch Center (operated by Paramedics Plus). Sunstar is the trade name for Pinellas County's all-paramedic ambulance and emergency response service, and is the sole ambulance provider for Pinellas County.

The consultant team also utilized the Internet databases on fire and medical research to obtain reports on current research findings. These research reports addressed several of the study's key issues including first responders approaches, Basic Life Support (BLS), Advanced Life Support (ALS), dispatch techniques and protocols, on-demand resource allocation, and medical service delivery levels and techniques. The consultant team reinforced this academic research with direct observations—listening to dispatch staffs as they received 911 calls or monitored operations in process and observed the actual delivery of services by the fire and ambulance personnel in both Pinellas County and other locations.

The second phase was the preparation of the draft report, followed by phase three, which was the preparation and issuance of the final report. The final phase, Phase

¹ Pinellas County 911 Dispatch Center provided five years worth of computer aided dispatch information in electronic format.

III, also included presentations of findings and recommendations to the Charter Review Commission.

The data and information referenced above were obtained using a variety of methods. Interviews with fire chiefs and county staff were a primary source of information for the study. In addition to the interviews, all of the computer aided dispatch (CAD) data for five years was obtained from the Pinellas County 911 dispatch center. The CAD information was analyzed by MGT staff and checked against summary reports provided by the Pinellas County 911 Dispatch Center. Data definitions were provided by Pinellas County EMS/Fire Administration staff.

Throughout the project, periodic updates were provided to Mr. Alan Bomstein, Charter Review Commission Chairman and Mr. Kurt Spitzer, Charter Review Commission Project Manager. In addition, status presentations were made to the Charter Review Commission at several meetings during the project.

1.2 Pinellas County Demographics

Pinellas County is on the western side of Florida on the Gulf Coast, west of Tampa Bay. The county contains 280 square miles and is the second smallest county in Florida. While the county's geographic area is small, its population is substantial. The 2003 U.S. Census population estimate was 926,146, an increase of 4,651 from the 2000 Census population of 921,495. By 2030, the population is projected to grow to 987,771, a 7.2 percent increase. See Exhibit 1-1 below.

**EXHIBIT 1-1
PINELLAS COUNTY POPULATION PROJECTIONS
2000 – 2030**

Year	Population
2000 [^]	921,495
2005	945,266
2010	960,843
2015	971,809
2020	979,049
2025	984,132
2030	987,771

[^] Permanent Population Count per 2000 Census, revised 5-2003
Source: Pinellas County Population Projections 2000-2030 Pinellas.pdf.

Pinellas County is the most densely populated county in Florida. In 2000, the county recorded 3,292 persons per square mile, compared to 1,007 for Duval County, 1,158 for Miami-Dade County, 1,185 for Seminole County, and 1,347 for Brevard County (Source: U.S. Census Bureau, American Fact Finder, 2000 Census). The most densely populated areas of the county are along the coastal areas, particularly along the southern coast.

Within the county, the largest city is St. Petersburg with a 2000 U.S. Census population of 248,232, followed by Clearwater (108,787) and Largo (69,371). The population in the unincorporated areas of the county totals 136,761.

Other population information (2000 Census) includes:

- Persons per household for Pinellas County – 2.2 compared to 2.5 for all of Florida;
- Median household income – \$37,111 versus \$39,871 for Florida;
- Individuals below the poverty level – 10.0% versus 13.1% for Florida;
- Median age – 43.0 versus 39.1 for Florida;
- Disability status (population 21 to 64 years) – 22.6% versus 12.1% for Florida;

- Of the total Florida nursing home population of 88,828, 10.2% (9,059) reside in Pinellas County (Miami-Dade County is the only county with a higher population in nursing homes).

1.3 Pinellas County Fire Services

Pinellas County has 20 fire departments and 63 fire stations:

- 15 city fire departments;
- 4 fire districts; and
- 1 airport fire department.

One of the city departments, Belleair Bluffs, is currently administered by the Largo Fire Department. These 20 fire departments have a staffing level of approximately 1,350. Line fire personnel generally work a 24-hour shift followed by 48 hours off. Administrators and supervisors generally work a regular work week. However, significant events and incidences, such as hurricanes and large fires, can and do alter the work schedule by increasing the number of personnel on duty. Exhibit 1-2 below lists the fire service delivery organizations throughout Pinellas County.

Four fire districts operate under the authority of a local fire board. Although fire districts are considered primarily unincorporated rural areas, three of the districts are or have primarily urban-type areas. Only East Lake still has significant rural areas and in a few years, that may change due to rapidly growing developments and incorporation. The city fire departments are a mixture of large and small departments. The largest, St. Petersburg, accounts for about 50 percent of the fire services under city management with 13 stations, while several coastal cities have one or two stations and minimal equipment. These very small departments are reliant on the Pinellas County Automatic Aid Agreement in the event of a major fire. Based on our discussions with Fire Chiefs and County personnel involved in Fire/EMS administration, this agreement has worked well ensuring timely responses to 911 calls.

**EXHIBIT 1-2
PINELLAS COUNTY SERVICE DELIVERY ORGANIZATION**

PINELLAS COUNTY FIRE DEPARTMENTS AND DISTRICTS	
Fire Departments	Stations
Belleair Bluffs *	1
Clearwater *	8
Dunedin *	3
Gulfport	1
Largo *	6
Madeira Beach	1
Oldsmar	1
Pinellas Park *	4
Safety Harbor *	2
South Pasadena *	1
St. Petersburg *	13
St. Pete Beach	2
Seminole *	4
Tarpon Springs *	2
Treasure Island	1
Fire Districts	Stations
East Lake	3
Lealman	2
Palm Harbor	4
Pinellas Suncoast	3
Airport	Stations
Crash Fire Rescue	1

* Fire departments providing fire service to unincorporated areas
Source: Pinellas County EMS/Fire Administration

Several of the city fire departments provide fire service to unincorporated areas. These are noted by an asterisk in Exhibit 1-2. Agreements have been established between the County and these cities to provide fire and fire rescue services to their assigned unincorporated areas. Several of the unincorporated areas are significant in square mileage and population, and constitute major elements of these various cities' fire and fire rescue responsibilities. In Pinellas County, there are 13 areas that are covered by these 10-year performance-based agreements.

Note that there are significant differences between the departments shown in Exhibit 1-2. The St. Petersburg Airport Fire Department, for example, is the only County

Fire Department. However, its nature and responsibilities are governed by the Federal Aviation Administration, and it only participates in a very limited way in local fire services. The Clearwater, St. Petersburg, and Largo Fire Departments are the largest departments in the county. The Seminole Fire Department receives more funding from Pinellas County for providing fire services in its assigned unincorporated areas than it receives from the City of Seminole for city fire protection.

Exhibit 1-3 displays the fire departments/districts and the cities they serve. In the case of fire districts, only Lealman and Pinellas Suncoast have contracts with cities. East Lake and Palm Harbor only provide service in unincorporated areas of Pinellas County.

**EXHIBIT 1-3
FIRE DEPARTMENT/DISTRICTS AND CITIES SERVED**

Fire Department	Cities Served
Belleair Bluffs	Belleair (Fire only) Belleair Bluffs (Fire only)
Clearwater	Clearwater
Dunedin	Dunedin
Gulfport	Gulfport
Largo	Largo Belleair (EMS only) Belleair Bluffs (EMS only)
Lealman *	Kenneth City
Madeira Beach	Madeira Beach
Oldsmar	Oldsmar
Pinellas Park	Pinellas Park
Pinellas Suncoast **	Belleair Beach Belleair Shore Indian Rocks Indian Shores North Redington Beach

EXHIBIT 1-3 (Continued)
FIRE DEPARTMENT/DISTRICTS AND CITIES SERVED

Fire Department	Cities Served
Pinellas Suncoast ** (continued)	Redington Beach (EMS only) Redington Shores (EMS only)
Safety Harbor	Safety Harbor
Seminole	Seminole Redington Beach (Fire only) Redington Shores (Fire only)
South Pasadena	South Pasadena
St. Pete Beach	St. Pete Beach
St. Petersburg	St. Petersburg
Tarpon Springs	Tarpon Springs
Treasure Island	Treasure Island

* Lealman is a fire district but is under contract with Kenneth City to provide fire and EMS services

** Pinellas Suncoast is a fire district that contracts services to several cities

Source: Pinellas County EMS/Fire Administration.

1.4 Pinellas County Fire and Emergency Medical Services Funding

Financing Fire and EMS services is provided by cities, independent fire districts, and the County. Exhibit 1-4 below displays the expenditures anticipated for fiscal year 2004-05.

EXHIBIT 1-4
FIRE/EMS SERVICES
BUDGETED EXPENDITURES FOR FISCAL YEAR 2004-05

EXPENDITURE CATEGORY	DOLLAR AMOUNT, IN MILLIONS
City / Fire District	\$90.6
Unincorporated Dependent County Fire Services	14.5
EMS First Responder, County Funded	27.6
County EMS/Fire Administration	8.3
Sunstar Ambulance Contract	22.4
911 Emergency Communications	13.7
TOTAL	\$177.1

Source: Pinellas County EMS/Fire Administration, FY 2004/05, updated 2/24/2005.

City funding for fire departments comes from the cities' general funds, which are composed of a variety of sources including sales and ad valorem taxes, franchise fees (or public services fees, user fees, etc.). EMS funding comes exclusively from ad valorem taxes or some funds are provided through EMS user fees. This funding is used to establish the fire and fire rescue services within the jurisdictions.

Four independent fire districts have been created by special acts of the Legislature to provide fire and fire rescue services to larger unincorporated areas in Pinellas County that are urban in nature. These areas are: East Lake, Pinellas Suncoast, Palm Harbor and Lealman. Each district has a publicly elected board. Tax assessment and collection services are provided by the county through a contract with each fire district. The planned expenditures for the city fire departments and the independent fire districts total \$90.6 million for 2004-05.

The County also has other unincorporated areas that need fire and fire rescue services. The County contracts with several fire departments to provide the fire and fire rescue services to these areas. For 2004-05, this amount was \$14.4 million. These services are funded through a county-collected ad valorem tax applied to the tax payers in the unincorporated areas. Contractually, the fire departments providing these services to the unincorporated areas are held to certain performance requirements established through contracts with the County to ensure service quality.

In 1980, Pinellas County passed an initiative to create a special taxing district to levy ad valorem taxes to fund emergency medical services throughout Pinellas County. Through an Emergency Medical Services, ALS First Responder Agreement established in 1997, the County contracts with fire departments to provide emergency medical services. These 10-year contracts are set to expire in 2007. The contracts provide for a single-tier all Advanced Life Support (ALS) Emergency Medical System with a first responder component. The funding associated with the contracts is individually

negotiated with each fire department or district providing the ALS response. The formulas used to determine the contract amounts vary between the fire departments and districts and are the subject of significant debate. For example, in the most recent year St. Petersburg receive 32.5% of the funding, while the cities of Clearwater, Largo and Seminole combined received 26.3%. For 2004-05, these contracts are estimated to be \$27.6 million.

As part of the Emergency Medical Services, ALS First Responder Agreement, the County was authorized to include an ambulance transport component in the EMS system. The County created Sunstar ambulance (a Pinellas County trade name) and contracts with a private ambulance company to provide emergency and non-emergency transport services. The current contractor is Paramedics Plus. The ambulance service and its medical dispatch system are totally funded through fees collected from payer sources such as Medicare, Medicaid, private insurance and private payers. The current Sunstar ambulance contract with the private ambulance company is \$22.4 million.

The County's EMS/Fire Administration is responsible for collecting the ambulance transport user fees. In addition, this agency provides medical supplies to Sunstar and the fire departments. The funding to cover these two activities comes from the user fees. The County also funds several staff positions in this agency. The total estimated expenditures for the EMS/Fire Administration for 2004-05 are \$8.3 million.

Dispatch and communication services for all fire and EMS first responders are provided by a single 911 dispatch center operated by Pinellas County. The center's technology allows linkage to all police and fire agencies, and is the primary public safety answering point for the county. Medical calls are coordinated with the Sunstar dispatch system. The Pinellas County 911 Dispatch Center's estimated expenditures for 2004-05 are \$13.7 million. For the calendar year 2004, the total number of responses was 152,882.

1.5 Pinellas County Emergency Responses

As a key element of performing this engagement, the consultant team obtained five years of 911 dispatch data. The years included calendar years 2000 through 2004. The data document the type of activities responded to by Pinellas County fire and fire rescue services. The yearly volumes by code designator are shown in Exhibit 1-5 below. While there are many response codes, the County collapsed them into two primary codes, medical and fire. The number of responses in calendar year 2004 was 152,882. In that year, the number of medical coded responses was 125,966. This amounts to 82.4% of the total responses.

**EXHIBIT 1-5
PINELLAS COUNTY EMERGENCY RESPONSES
2000 THROUGH 2004**

CODE DESCRIPTION	FIRE/MEDICAL INDICATOR	CY 2000	CY 2001	CY 2002	CY 2003	CY 2004
AIR TRANSPORT INCIDENT	M	403	369	330	235	259
ALERT ONE	F	9	5	3		3
ALERT THREE	F	6	10	5	12	3
ALERT TWO	F	37	37	36	32	30
AUTO CRASH	M	15,553	15,090	14,696	14,468	15,851
AUTOMATIC FIRE ALARM	F	7,910	7,759	7,864	7,145	7,253
BRIDGE ALERT	M		21	63	35	55
BRUSH FIRE	F	194	163	112	80	83
CODE B	F	75	141	79	20	71
CODE H	F	18	16	14	4	13
DTST				170		
EXTRICATION	M	45	63	71	41	80
FIRE ALARM-STORM/DISASTER MODE	F	55	48	1		719
HAZARDOUS MATERIALS	F	12	8	10	8	8
HAZMAT INVEST	F		540	134	78	44
HOSPITAL LANDING ZONE	F	58	64	104	123	108
HOT PIT REFUEL	F	49	40	18	11	7
MEDICAL	M	101,649	101,128	100,053	102,443	108,566
MOVEUP - COVERAGE	F	1,546	1,155	1,046	1,097	842
NON-EMERGENCY EVACUATION	F	34	2	3		284
PUB ASST CALL DISP	F	88	105	113	20	108
PUBLIC ASSIST CALL COMM CENTER	F	10	31	9	13	32
SINGLE ENGINE	F	8,309	8,251	7,373	7,601	9,064
SPECIAL	F	484	583	493	665	1,264
STAR1 SWAT CALL	M	1	9	10	4	7
STORM STRUCTURE DAMAGE-NO INJ	F	59	54	2	1	266
STRUCTURE RESPONSE	F	4,172	3,978	4,042	3,178	3,447
SWAT ALERT	M	3	5	15	5	6
SWAT CALLOUT	M	23	46	59	44	62

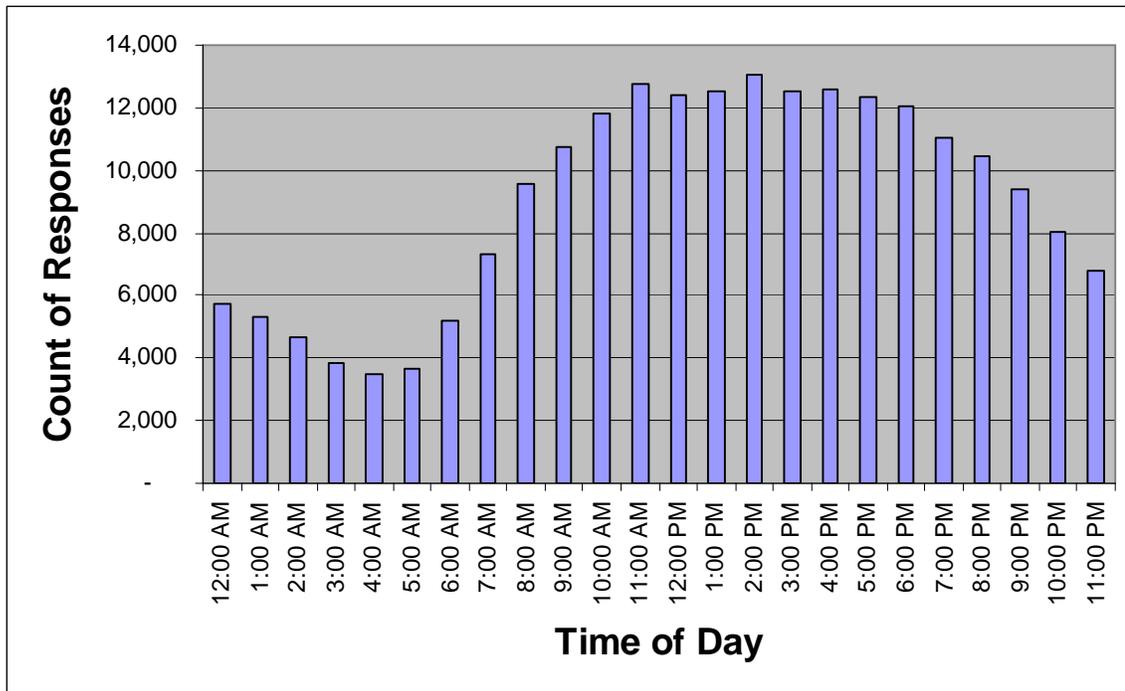
**EXHIBIT 1-5 (Continued)
PINELLAS COUNTY EMERGENCY RESPONSES
2000 THROUGH 2004**

CODE DESCRIPTION	FIRE/MEDICAL INDICATOR	CY 2000	CY 2001	CY 2002	CY 2003	CY 2004
TECHNICAL RESCUE	M	11	5	11	12	5
TRANSFORMER/POLE FIRE	F	124	58			771
TRAUMA ALERT	M	902	838	809	712	802
TREE FIRE	F	61	32			505
UNCONFIRMED STRUCTURE FIRE	F				776	698
WATER RESCUE	M	209	205	194	230	247
WIRES DOWN	F	274	173	40		1,319
Total		142,383	141,032	137,982	139,093	152,882
CATEGORIES		2000	2001	2002	2003	2004
AUTO CRASH		15,553	15,090	14,696	14,468	15,851
AUTOMATIC FIRE ALARM		7,910	7,759	7,864	7,145	7,253
MEDICAL		101,649	101,128	100,053	102,443	108,566
MOVEUP - COVERAGE		1,546	1,155	1,046	1,097	842
SINGLE ENGINE		8,309	8,251	7,373	7,601	9,064
STRUCTURE RESPONSE		4,172	3,978	4,042	3,178	3,447
ALL OTHER RESPONSES		3,244	3,671	2,908	3,161	7,859
TOTAL		142,383	141,032	137,982	139,093	152,882

Exhibit 1-6, below, displays the total responses by hour for calendar year 2004.

As one would anticipate, the vast majority of calls (75%) occurred between 8:00 AM and 10:00 PM. The peak number of responses, more than 12,000 per hour, occurred between 11:00 AM and 6:00 PM. The total responses by hour individually displayed for each station are included in Appendix F.

**EXHIBIT 1-6
TOTAL RESPONSES BY HOUR FOR CALENDAR YEAR 2004**



Source: Pinellas County 911 Dispatch Data: Analyzed by MGT of America, Inc.

1.6 Mutual Aid Analysis – Pinellas County

Mutual aid between fire departments in Pinellas County operates very well. In fact, it is often referred to as “automatic aid” because the closest unit to the incident is dispatched, regardless of in which jurisdiction the incident occurs. In analyzing the mutual aid responses by fire department, it is apparent that several jurisdictions receive substantially more aid than they give, and several fire departments send to other jurisdictions substantially more than they receive.

The results of an analysis of mutual aid are displayed in Exhibit 1-7. For 2004, the fire departments of Clearwater, Largo, and St Petersburg each responded more than 1,000 times to incidents in other jurisdictions. On the other hand, Dunedin, Lealman, and Safety Harbor each had more than 500 responses from other fire departments responding to incidents in their jurisdiction.

EXHIBIT 1-7
MUTUAL AID ANALYSIS FOR PINELLAS COUNTY

STATION	St. Petersburg	Crash Fire Rescue	Gulfport	Lealman	South Pasadena	St Pete Beach	Treasure Island	Madeira Beach	Pinellas Suncoast	Seminole	Pinellas Park	Largo	Belleair Bluffs	Clear-water	Safety Harbor	Oldsmar	East Lake	Dunedin	Palm Harbor	Tarpon Springs	Unknown	Total	
St. Petersburg	44,105		277	926	320	80	28	3	2	24	145	15		24	10	3		6	4	7	3	45,982	
Crash Fire Rescue	1									1	252			5									259
Gulfport	897		1,776	2	21	5	5	1	2	2	1					1							2,713
Lealman	1,452		1	7,399	3	1		3	1	145	492	4							1				9,502
South Pasadena	519		288	1	1,750	60	21	1	1	1								1					2,643
St Pete Beach	96		8		152	2,012	97	1	2	2	1												2,371
Treasure Island	98		2		2	101	976	134	5														1,318
Madeira Beach	8			2	1	3	89	1,055	179	253	2	2											1,594
Pinellas Suncoast				1		2	7	165	2,568	273	3	521		24				2	1				3,567
Seminole	69		1	116		2	14	214	204	9,154	148	671		18	4	4	1	4	7	3			10,634
Pinellas Park	555			523		4	2	3	5	73	11,399	134		50	6	1		3	4	4	3		12,769
Largo	34			1		3	1	6	145	375	448	17,986		997	3	2	2	7	4	3			20,017
Belleair Bluffs									25	1				82									1,028
Clearwater	8			2		1		1	83	3	49	767		23,225	424	59	15	384	68	11			25,100
Safety Harbor	7									1	4	3		1,054	2,185	255	44	23	255	8			3,839
Oldsmar				1							2	1		18	151	1,537	30	2	13	3	1		1,759
East Lake														16	74	169	2,284	5	190	102	47		2,887
Dunedin	1					1						6		1,229	21	15	4	6,063	225	31			7,596
Palm Harbor	18		1	1		1		2	1	1	8	14		174	63	108	123	308	7,073	294	9		8,199
Tarpon Springs	2													2	2		51	1	264	3,789	2		4,113

Responses by Dept	47,870	-	2,354	8,975	2,249	2,276	1,240	1,589	3,223	10,309	12,954	21,044	-	26,918	2,943	2,154	2,554	6,809	8,109	4,255	65	167,890	
Events Occurring in Area	45,982	259	2,713	9,502	2,643	2,371	1,318	1,594	3,567	10,634	12,769	20,017	1,028	25,100	3,839	1,759	2,887	7,596	8,199	4,113			
FD going to other Areas	3,765		578	1,576	499	264	264	534	3,019	1,155	1,555	3,058		3,693	758	617	270	746	1,036	466			23,853
FDs coming into Area	1,877		937	2,103	893	359	342	539	3,363	1,480	1,370	2,031		1,875	1,654	222	603	1,533	1,126	324			22,631
Difference	1,888	-	(359)	(527)	(394)	(95)	(78)	(5)	(344)	(325)	185	1,027	-	1,818	(896)	395	(333)	(787)	(90)	142			

Source: Pinellas County EMS/Fire Administration and MGT Analysis

2.0 COMMENDATIONS, FINDINGS, AND RECOMMENDATIONS

2.0 COMMENDATIONS, FINDINGS, AND RECOMMENDATIONS

As the consultant team interviewed the fire chiefs and many other involved personnel in Pinellas County, reviewed procedures documents, examined CAD records, reviewed reports available on the Internet, and talked with individuals involved in similar issues across the nation, both the accomplishments and improvement needs of the Pinellas County fire and fire rescue services became apparent. However, while the purpose of this report is to address the improvement issues and needs, there are many aspects of the Pinellas County system that are very effective and warrant retention if the new managerial and operational system recommended by this report is implemented. Also, the consultant team finds that commendations are a critical element that is frequently overlooked in many reports. So, prior to proceeding with improvement recommendations the team would like to address some of the high points of the current system.

2.1 Commendations

2.1.1 Firefighting

Both fire chiefs and the County's EMS/Fire Administration personnel have noted that there are fewer than 500 fires a year now requiring suppression activity. This is a remarkable achievement and illustrates the success of improved fire codes, public education, and timely arrival. There is a culture of disciplined aggressiveness in the firefighter that is a key asset in a moment of critical need.

COMMENDATION:

Pinellas County firefighting organizations should be commended for the reduction in the number of fires in the county.

2.1.2 Inter-Departmental Cooperation

There have been significant efforts to create a "single" fire entity while retaining very high degrees of autonomy. Numerous cooperative committees exist to address training,

code enforcement, equipment, and many other issues. The Automatic Aid Agreement has created a spirit of common purpose. The Fire Chiefs Association has sought to unify a multi-headed, multi-agenda group to address common issues and encourage cooperativeness. While there are differing opinions within the various fire agencies, they have made efforts to minimize their areas of contention and focus on the critical aspects of their responsibilities.

COMMENDATION:

Pinellas County fire departments should be commended for working closely together to form a highly effective interdepartmental operational agreement and adhering to the requirements of that agreement.

2.1.3 Code Enforcement and Fire Prevention

One of the activities included in the scope of work for the Pinellas County Fire and Fire Rescue analysis was to evaluate the fire services' ability to staff and conduct annual code compliance inspections for commercial and industrial properties. In addition, the scope indicated the need to evaluate the capability of fire service organizations to conduct planned examinations of site development, buildings, and internal systems; and finally to assess the fire code compliance and quality assurance programs within the County's fire service organizations.

Code compliance for new and existing facilities is conducted by the fire departments in the county within their respective jurisdictions. This requirement is mandated by the Florida Fire Prevention Code. Depending on the size of the department and workload, fire departments will almost always have a fire marshal and fire inspector. Larger departments may have deputy fire marshals, multiple fire inspectors, and fire educators that focus on fire prevention education.

Interviews with fire chiefs throughout the county and a follow-on survey confirmed that code enforcement and fire prevention are being expertly conducted by the fire

departments. In fact, one of the reasons for fewer and fewer fires in the county may be the direct result of quality code enforcement and fire prevention activities. Fire marshals and fire inspectors work closely with city and county building departments to ensure that information and construction drawings are being shared as efficiently and effectively as possible. The process seems to be working well.

COMMENDATION:

The Fire Departments of Pinellas County should be commended for the expert work they are doing in the areas of Code Enforcement and Fire Prevention.

2.1.4 Fire and Fire Rescue Training

Included in the scope of work for the Pinellas County Fire and Fire Rescue analysis was a requirement to evaluate fire suppression and fire rescue continuing medical and in-service training programs to determine if they are being provided with the goal of procedure standardization for all Pinellas County agencies. In addition, the scope sought recommendations to improve the in-service training programs to garner additional points for ISO evaluations.

The fire departments in Pinellas County operate under Standard Operating Procedures (SOPs) developed by the Pinellas County Operations Chiefs, under the direction of the Pinellas County Fire Chiefs Association. The original document was developed in 1992, but has been updated many times as changes in procedures are warranted or required. The intent of the SOPs is to provide the fire departments in the county with guidelines by which to function during emergency situations. Since the SOPs are considered guidelines and somewhat open to interpretation, training is necessary to ensure consistency in their application (of the SOPs).

From interviews with fire chiefs and county officials, the study team determined that the training provided to firefighters and EMS staff is excellent. The training for EMTs and paramedics is highly centralized and is provided through St. Petersburg College. The

College develops the curriculum and schedules the training throughout the year. All medical personnel receive the same training so there are no gaps in the expertise and skills of the medical staff.

The fire training provided to firemen is also of very high quality. The training is scheduled in such a way as to highlight recent changes to the SOPs. After the SOP changes are addressed, the training focuses on all aspects of the SOPs, ensuring they are adequately covered during the training cycle. With the addition of a new live fire facility, firemen are allowed to train in a realistic but controlled environment. The county built the live fire facility, and the facility is operationally funded by user fees. St. Petersburg College is also involved in the training aspects associated with the new live fire training facility and the curriculum development for fire training.

The North County Fire Departments, particularly their training officers, work closely together to coordinate training opportunities, both live and classroom. In fact, every other month, the North County Fire Departments conduct joint training. At times, an outside training opportunity is brought in by one of the departments and the other departments are asked to attend the training session.

The fire departments of other parts of the county also periodically conduct joint training activities. However, these training opportunities have not been as formal or coordinated as the training being conducted in the North County.

COMMENDATION:

The EMS training being conducted in Pinellas County is excellent and the county, EMTs and paramedics, and fire departments should be commended for establishing and maintaining a high quality program.

COMMENDATION:

The training provided to firemen in Pinellas County as a whole is more than adequate. The training opportunities provided in the North County are exceptional.

2.1.5 Flexible Deployment Ambulance Service

Currently Pinellas County emergency and non-emergency transport services are provided through Sunstar Emergency Medical Services. Sunstar has a performance-based contract with a private provider, currently Paramedics Plus. All ambulances are Advanced Life Support (ALS) systems with at least one paramedic and one EMT in each ambulance.

Cost to the cities and county for ambulance service is zero. User fees pay for the entire cost. Patients transported by ambulance are billed for the transport by the county. County billing service costs are also covered by the user fees. The ambulance service is a fully self-sustaining operation.

Sunstar dispatches for the past five years are displayed in Exhibit 2-1.

**EXHIBIT 2-1
SUNSTAR AMBULANCE DISPATCHES**

Sunstar Services	2000	2001	2002	2003	2004
Emergency Calls	105,471	105,163	102,755	104,346	111,507
Non-Emergency Calls	28,875	29,739	27,261	27,734	28,214
Total Calls	134,346	134,902	130,016	132,080	139,721
Transports	106,767	107,122	105,651	106,138	110,680

Source: Pinellas County EMS/Fire Administration.

Sunstar ambulances do not respond from fixed stations. Rather, the ambulance pre-emergency response locations constantly change based on historical demand. Sunstar operates using an “on-demand” model, meaning the number of ambulances deployed at any one time is determined by the number of ambulances currently available compared to the historical demand for ambulance services at that given time. For instance, the most

ambulances are deployed when the historical demand is highest, which is usually late afternoon. During the night, when demand is generally light, the number of ambulances is reduced. The ability to meet the response times also figures into the number of available ambulances deployed. Higher traffic volumes during certain times, such as rush hours, mean a potentially longer response time for ambulances. So, during these times, more ambulances are made available. If the number of available ambulances drops due to an unanticipated large number of responses, the system has the ability to quickly bring on-line additional units in order to meet the demand. The available ambulances and response times are constantly monitored by the Sunstar Computer Aided Dispatch (CAD) system and adjustments are made by Sunstar Dispatch as needed.

COMMENDATION:

The Sunstar Ambulance Service provides excellent response and transport services for the citizens of Pinellas County.

2.2 Findings and Recommendations

In this 2005 Fire and Fire Rescue study, the Charter Review Commission, using advice from the Fire Chiefs Association and Pinellas County Administration, decided to research the fire services in greater depth. Based on this research, the study team has identified major improvement areas. As with the 1992 study, this new study sought to identify if system consolidation and differing methodologies would provide an equally effective, but more efficient, fire and emergency medical services system.

This section of the report addresses these topic areas:

- Single Fire District for Pinellas County,
- Priority or Tiered Response System,
- Pre-Hospital Medical Emergencies, and
- Other Fire and Emergency Medical Services Issues.

2.2.1 Single Fire District for Pinellas County

In 1992 an earlier Charter Review Commission contracted with MGT to conduct a study to identify the possible advantages associated with consolidating city and county operations in seven functional activities. One of those functional areas was fire services. Several major issues regarding fire services were addressed during the 1992 consultant's study. The major issues were: consolidation of fire stations, creation of a single fire district for the entire county, and the joint purchasing of equipment.

The original 1992 study recommended the creation of a single fire district for Pinellas County. The 1992 study recommended the closing of 7 fire stations. Since then, three of the stations were closed. In addition, three additional stations have been relocated and four new stations constructed. In all cases, the closure, relocation, or new construction was the decision of a local jurisdiction. Although nearby fire stations may have been included in any analysis of new fire stations, the relationship of the service needs of the county, as an entity, to planned facilities was used rarely, if at all.

In 1998, Pinellas County staff revised the Government Efficiency Report for Pinellas County, Florida that was originally prepared for the county in 1992 by MGT. The revision simply updated the findings from the previous report in order to present a more accurate picture of Fire Protection Services in 1998. The revised 1998 study indicated the total cost savings realized by establishing a single fire district "might be expected to exceed \$11 million annually".¹ It should be noted that the revision, although completed by county staff, did not necessarily represent the opinions of the Pinellas County EMS/Fire Administration staff.

¹ Second Revision to the MGT [of] America, Government Efficiency Report for Pinellas County, Florida, Revised for the American Assemblies Consortium, 1998, page 6.28.

Current Analysis

In the previous studies, the issue of a single fire district for Pinellas County was discussed and recommended. The chief advantage of such a recommendation was to establish the responsibility for effective implementation of a countywide fire services plan. As stated in the previous studies, the development of a countywide fire services plan would create efficiencies that would lead to reductions in administrative and operational overhead; elimination of some equipment, land, and buildings; consolidation, elimination, and relocation of fire stations; and, potentially substantial savings of funds spent on fire and EMS services in Pinellas County. To date, the recommendation to establish a single fire district for Pinellas County has not been implemented, but it remains a distinct possibility when put in the context of improved efficiencies for fire and EMS support in the county.

From a functional standpoint, fire and EMS services in the county currently operate much like a single fire service. Dispatch for all 20 fire departments and districts is centrally handled by the County's 911 Dispatch Center, located in the County office buildings in Clearwater. The concept of "automatic aid" allows for fire and EMS response to occur based on the closest unit, regardless of whether or not the incident is in the responding unit's area of responsibility. According to the fire chiefs, automatic aid has led to average fire department/district response time of less than five minutes in most cases, exceeding the national guidelines for response as well as the Pinellas County contract for EMS response.

By all accounts, the fire and EMS system for Pinellas County is highly effective. An extraordinary level of service is being provided to the citizens of the County. However, this extraordinary level of service requires a significant amount of resources. The fire departments and districts expend approximately \$154.7 million per year in order to

provide fire and EMS services to the citizens of Pinellas County. (See Exhibit 2-2 below.) In addition to this amount, the County has a contract with a private ambulance service to provide Advanced Life Support (ALS) and transport services to Pinellas County.² The current contract with Sunstar for ambulance and transport services is for \$22.4 million.

**EXHIBIT 2-2
OVERVIEW OF FIRE/EMS EXPENDITURES
FY 2004-05**

ACTIVITY	Dollars (in millions)
City Fire Departments/Fire Districts	\$ 90.6
Unincorporated Dependent County Fire Services	14.5
EMS First Responder, County Funded	27.6
County EMS/Fire Administration	8.3
911 Emergency Communications	13.7
SUBTOTAL	\$ 154.7
Sunstar Contract	22.4
TOTAL FIRE, EMS, AND AMBULANCE SERVICES	\$ 177.1

Source: Pinellas County EMS/Fire Administration, FY 2004/05, updated 2/24/2005.

Dispatch data obtained from the Pinellas County Computer Aided Dispatch (CAD) system were analyzed to review activity at fire stations throughout the county. The analysis is instructive in helping to determine how efficient stations were regarding the usage of resources.

Exhibit 2-3, below, shows a one-month sample of the number and type of responses made by fire departments. The exhibit includes the number of responses by type and the percentage of type of response for December 2004. As noted in the exhibit, the two categories with the largest number of incidents are medical (71.5%) and auto crashes (11.2%), both of which are categorized as medical-related incidents. The

² Pinellas County owns the trade name of *Sunstar EMS*. The county ambulance service is often referred to as Sunstar although that is not the name of the contracting agent. The contract for the ambulance service is currently provided by Paramedics Plus, an organization of the East Texas Medical Center Regional Healthcare System.

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medical-related incidents account for 83 percent of the total incidents in this sample month. Of course, it is understood that some auto crashes do require more than just medical personnel. Also, Exhibit 2-3 indicates there were 12,337 incidents in the month which had 42,885 responses (vehicles responding to the incidents). That means on average 3.5 vehicles responded to each incident. The sample data show that on average there are more than 3 vehicles on most fire incidents and between 2 and 3 on medical runs.

**EXHIBIT 2-3
FIRE DEPARTMENT RESPONSES
DECEMBER 2004**

TYPE OF RESPONSE	M= MEDICAL F= FIRE RELATED	NUMBER INCIDENTS	PERCENT OF INCIDENTS
AIR TRANSPORT INCIDENT	F	20	0.2%
ALERT TWO	F	3	0.0%
AUTO CRASH	M	1,382	11.2%
AUTOMATIC FIRE ALARM	F	690	5.6%
BRIDGE ALERT	M	5	0.0%
BRUSH FIRE	F	3	0.0%
EXTRICATION	M	11	0.1%
FIRE ALARM-STORM/DISASTER MODE	F	3	0.0%
HAZMAT	F	1	0.0%
HOSPITAL LANDING ZONE	F	2	0.0%
MEDICAL	M	8,816	71.5%
MOVEUP-COVERAGE	F	72	0.6%
PUB ASST CALL DISP	F	10	0.1%
PUBLIC ASSIST CALL COMM CENTER	F	4	0.0%
SINGLE ENGINE	F	724	5.9%
SPECIAL	F	67	0.5%
STRUCTURE RESPONSE	F	339	2.7%
SWAT CALLOUT	M	10	0.1%

**EXHIBIT 2-3 (Continued)
FIRE DEPARTMENT RESPONSES
DECEMBER 2004**

TYPE OF RESPONSE	M= MEDICAL F= FIRE RELATED	NUMBER INCIDENTS	PERCENT OF INCIDENTS
TRANSFORMER/POLE FIRE	F	10	0.1%
TRAUMA ALERT	M	67	0.5%
TREE FIRE	F	5	0.0%
UNCONFIRMED STRUCTURE FIRE	F	76	0.6%
WATER RESCUE	F	6	0.0%
WIRES DOWN	F	10	0.1%
Total number incidents		12,337	100%
Total number of responses (vehicles)		42,885	
Average number of vehicles per incident			3.5

Source: Pinellas County 911 Dispatch Data: Analyzed by MGT of America, Inc.

Exhibit 2-4, below, shows the total incidents by station for the calendar year 2004. There are 63 stations in the County. The percent of both medical- and fire-related incidents is consistent with the sample month of December and that about 82 percent of all incidents responded to by fire departments are medical-related. It also shows that the total number of incidents in December (12,337) is close to the monthly average of 12,740 for 2004. There were a total of 152,882 incidents in 2004, of which 125,966 (82.4%) were medical-related and 26,916 (17.6%) were fire-related. For 2004, there were more than 522,000 responses or runs by fire department or ambulance (Sunstar) vehicles in 2004.

**EXHIBIT 2-4
CALENDAR YEAR 2004
MEDICAL AND FIRE INCIDENTS BY STATION**

JURISDICTION	STATION	MEDICAL	FIRE	TOTALS
ST. PETERSBURG	1	3,496	888	4,384
ST. PETERSBURG	2	483	215	698
ST. PETERSBURG	3	5,342	871	6,213
ST. PETERSBURG	4	4,055	750	4,805
ST. PETERSBURG	5	3,068	502	3,570
ST. PETERSBURG	6	3,393	691	4,084
ST. PETERSBURG	7	3,563	608	4,171
ST. PETERSBURG	8	3,068	631	3,699
ST. PETERSBURG	9	3,425	829	4,254
ST. PETERSBURG	10	2,456	533	2,989
ST. PETERSBURG	11	2,532	467	2,999
ST. PETERSBURG	12	675	241	916
ST. PETERSBURG	13	2,373	635	3,008
GULFPORT	17	1,721	342	2,063
LEALMAN	18	4,039	648	4,687
LEALMAN	19	2,843	486	3,329
PASADENA	20	1,445	311	1,756
ST. PETE BEACH	22	542	174	716
ST. PETE BEACH	23	1,047	268	1,315
TREASURE ISLAND	24	794	185	979
MADEIRA BEACH	25	835	282	1,117
MADEIRA BEACH	26	61	35	96
PINELLAS SUNCOAST	26	437	175	612
PINELLAS SUNCOAST	27	1,042	479	1,521
PINELLAS SUNCOAST	28	377	102	479
SEMINOLE	29	2,914	576	3,490
SEMINOLE	30	2,534	513	3,047
SEMINOLE	31	813	187	1,000
SEMINOLE	32	1,691	269	1,960
PINELLAS PARK	33	3,899	685	4,584

**EXHIBIT 2-4 (Continued)
CALENDAR YEAR 2004
MEDICAL AND FIRE INCIDENTS BY STATION**

JURISDICTION	STATION	MEDICAL	FIRE	TOTALS
PINELLAS PARK	34	3,435	688	4,123
PINELLAS PARK	35	787	241	1,028
PINELLAS PARK	36	1,541	511	2,052
LARGO	37	1,290	459	1,749
LARGO	38	2,216	335	2,551
LARGO	39	3,191	651	3,842
LARGO	40	1,655	370	2,025
LARGO	41	4,829	744	5,573
LARGO	42	3,107	448	3,555
BELLEAIR BLUFFS *	43			
CLEARWATER	44	511	242	753
CLEARWATER	45	3,350	781	4,131
CLEARWATER	46	1,103	378	1,481
CLEARWATER	47	3,074	647	3,721
CLEARWATER	48	3,718	649	4,367
CLEARWATER	49	4,227	813	5,040
CLEARWATER	50	2,376	422	2,798
CLEARWATER	51	1,755	409	2,164
SAFETY HARBOR	52	849	275	1,124
SAFETY HARBOR	53	808	179	987
OLDSMAR/SAFETY HARBOR	54	1,323	312	1,635
EAST LAKE	56	668	172	840
EAST LAKE	57	663	181	844
EAST LAKE	58	440	173	613
DUNEDIN	60	2,554	572	3,126
DUNEDIN	61	1,164	372	1,536
DUNEDIN	62	1,174	257	1,431

**EXHIBIT 2-4 (Continued)
CALENDAR YEAR 2004
MEDICAL AND FIRE INCIDENTS BY STATION**

JURISDICTION	STATION	MEDICAL	FIRE	TOTALS
PALM HARBOR	65	3,309	517	3,826
PALM HARBOR	66	975	268	1,243
PALM HARBOR	67	1,359	271	1,630
PALM HARBOR	68	415	177	592
TARPON SPRINGS	69	2,440	548	2,988
TARPON SPRINGS	70	643	183	826
UNIDENTIFIED	--	27	47	146
TOTAL	63	125,966	26,916	152,882
Percent of Total		82.4%	17.6%	100.0%

Source: Pinellas County 911 Dispatch Data: Analyzed by MGT of America, Inc.

* Belleair Bluff's data are included with other stations – Belleair Bluffs had 1,028 incidents in its area of operations determined by using Fire Department ID not Area Chief Data.

The extraordinary level of service also includes a substantial duplication of response. Every call to 911 dispatch requesting medical assistance or the possible need for medical assistance will result in at least one piece (and many times, more than one piece) of fire apparatus responding, along with an ambulance. As stated above, for calendar year 2004, Pinellas County recorded a total of 152,882 incidents requiring a fire/EMS response or action. Of that number, 147,330 incidents were responded to by one or more of the following apparatuses: engine, truck, squad, rescue, pumper, or water vehicle. Of the 147,330 incidents, 21,786 were classified as fire calls and 125,544 were classified as medical calls. The following analysis is based on the six apparatus response mentioned above. See Exhibit 2-5 below.

**EXHIBIT 2-5
PINELLAS COUNTY INCIDENTS REQUIRING FIRE/EMS RESPONSE
CALENDAR YEAR 2004**

CATEGORY	COUNTS	
Total Number of Incidences		152,882
Incidences with at least one of the following apparatuses responding: engine, truck, squad, rescue, pumper, water		147,330
<u>Fire Incidences</u>	<u>21,786</u>	
Single Apparatus Response	10,945	
Multiple Apparatus Response	10,841	
<u>Medical Incidences</u>	<u>125,544</u>	
Single Apparatus Response	95,308	
Multiple Apparatus Response	30,236	
Single Apparatus Response, regardless of Incident Type	106,253	
Multiple Apparatus Response, regardless of Incident Type	41,077	

Source: Pinellas County 911 Dispatch Data: Analyzed by MGT of America, Inc.

The prior exhibits dealt with the number of incidents. A better measure of activity is the time involved with incidents. The time involved is based on the amount of time vehicles that respond to incidents are involved with the incidents, from the time of dispatch to when they are once again available for other activity. Exhibit 2-5 shows fire station activity in terms of the combined number of hours each apparatus from that station was responding to incidents. The apparatuses used for this analysis are emergency response equipment only—engines, pumpers, rescue vehicles—and does not include supervisor vehicles.

As indicated in Exhibit 2-6, 82 percent of the incidents were medical related; however, only 69 percent of apparatus operating time was spent on medical-related runs. This was because there were generally fewer vehicles on medical runs (usually two to three versus more than three for fire-related incidents) and medical runs generally

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did not take as much time. Medical-related incidents averaged about 25 minutes in length per incident while fire-related incidents averaged more than 35 minutes per incident.

**EXHIBIT 2-6
ACTIVITY TIME BASED ON HOURS OF OPERATION
OF APPARATUSES ON RUNS BY STATION
CALENDAR 2004**

Station ID	Medical Run Time 24-HR Day	Fire Run Time 24-HR Day	Run Time Total 24-HR Day	Percent of Time on Medical Runs	Percent of Time on Fire Runs	Total Percent of Time On Runs/24-HR Day
1	5.43	6.58	12.01	23%	27%	50%
2	0.89	0.2	1.09	4%	1%	5%
3	6.68	2.42	9.1	28%	10%	38%
4	5.49	3.18	8.67	23%	13%	36%
5	5.12	2.63	7.75	21%	11%	32%
6	4.99	1.66	6.65	21%	7%	28%
7	6.04	1.46	7.49	25%	6%	31%
8	4.51	1.54	6.06	19%	6%	25%
9	4.45	1.86	6.32	19%	8%	26%
10	4.6	1.64	6.24	19%	7%	26%
11	4.87	1.95	6.81	20%	8%	28%
12	1.03	0.21	1.24	4%	1%	5%
13	3.11	0.79	3.89	13%	3%	16%
17	2.64	0.43	3.07	11%	2%	13%
18	4.44	1.64	6.07	19%	7%	25%
19	4.92	1.12	6.04	21%	5%	25%
20	2.11	0.76	2.87	9%	3%	12%
22	0.68	0.33	1.01	3%	1%	4%
23	1.27	0.53	1.8	5%	2%	8%
24	1.12	0.41	1.53	5%	2%	6%
25	1.06	0.56	1.62	4%	2%	7%
26	0.93	0.18	1.11	4%	1%	5%
27	1.2	0.43	1.63	5%	2%	7%
28	1.08	0.46	1.54	5%	2%	6%
29	4.48	3.03	7.51	9%	13%	31%
30	2.21	0.67	2.89	8%	03%	12%
31	1.20	0.63	1.83	6%	03%	08%
32	2.48	0.66	3.14	17%	03%	13%
33	5.33	2.56	7.89	11%	11%	33%
34	4.22	1.26	5.48	8%	05%	23%

**EXHIBIT 2-6 (Continued)
ACTIVITY TIME BASED ON HOURS OF OPERATION
OF APPARATUSES ON RUNS BY STATION
CALENDAR 2004**

Station ID	Medical Run Time 24-HR Day	Fire Run Time 24-HR Day	Run Time Total 24-HR Day	Percent of Time on Medical Runs	Percent of Time on Fire Runs	Total Percent of Time On Runs/24-HR Day
35	2.16	2.04	4.21	33%	09%	18%
36	1.87	0.76	2.63	19%	03%	11%
37	1.48	0.06	1.53	2%	0%	06%
38	3.99	1.74	5.74	3%	07%	24%
39	2.70	1.05	3.75	22%	04%	16%
40	1.80	0.77	2.57	6%	03%	11%
41	7.93	4.49	12.42	17%	19%	52%
42	4.47	1.39	5.85	23%	06%	24%
43	0.48	0.77	1.25	26%	03%	05%
44	0.75	0.41	1.17	15%	02%	05%
45	5.19	3.56	8.75	4%	15%	36%
46	1.52	0.84	2.36	6%	04%	10%
47	4.09	1.99	6.09	8%	08%	25%
48	5.48	3.12	8.60	6%	13%	36%
49	6.16	2.67	8.83	5%	11%	37%
50	3.49	0.91	4.40	4%	04%	18%
51	0.84	0.36	1.21	3%	02%	05%
52	1.48	0.59	2.07	18%	02%	09%
53	1.84	0.91	2.74	9%	04%	11%
54	1.47	0.50	1.97	9%	02%	08%
56	1.17	0.48	1.65	8%	02%	07%
57	1.06	0.42	1.48	6%	02%	06%
58	0.64	0.33	0.96	17%	01%	04%
60	4.20	1.72	5.92	11%	07%	25%
61	2.08	0.60	2.68	8%	03%	11%
62	2.14	0.77	2.92	9%	3%	12%
65	5.51	1.49	7.00	23%	6%	29%
66	1.53	0.75	2.28	6%	3%	10%
67	1.52	0.79	2.31	6%	3%	10%
68	0.91	0.70	1.61	4%	3%	07%
69	2.64	1.35	3.99	11%	6%	17%
70	1.26	0.47	1.74	5%	2%	07%
Average Operating Hours per day	2.94	1.30	4.24			
Average percentage of time on Incidents by type and total				12%	5%	18%

Source: Pinellas County 911 Dispatch Data: Analyzed by MGT of America, Inc.

Of more significant interest is the variance in the level of activity, as measured by apparatus operating hours, among the stations (See Exhibit 2-6). On average, stations' apparatuses are operating 4 hours and 15 minutes (4.25 hours) per day. Apparatuses on medical-related runs average about 3 hours per day of use, while those on fire-related operation are used on average about an hour and 18 minutes per day. The significance of Exhibit 2-6 is the wide range in activity as measured by apparatus usage. While several stations are busy more than 7 hours per day, others are busy about an hour and a half per day.

For medical-related incidents, the range of hours of apparatus operation was from less than 30 minutes per day to almost 8 hours per day. That means that one station is 16 times busier than another station and that busiest station is 2.6 times busier than half of all the stations. Eight of the 63 stations spent an hour or less on medical-related runs and 21 of the stations spent less than an hour and a half per day on medical-related runs. On the other hand, there are 12 stations that spent 5 hours or more per day on medical-related incidents.

For fire-related incidents, the 63 stations in Pinellas County spent on average 1.3 hours (1 hour and 18 minutes) per day. One station spent more than 6.5 hours per day and six stations averaged more than 3 hours per day on fire-related activities. On the other end of the activity spectrum, 12 stations averaged 30 minutes or less per day on fire-related activity. The range of activity was from less than 4 minutes per day to 6 hours and 35 minutes per day.

When looking at both medical and fire-related activity, the combined hours of apparatus operations ranged from less than one hour per day to more than 12 hours per day, with the average about 4 hours and 15 minutes per day. Two stations had apparatus activity more than 12 hours per day and 7 were active more than 8 hours per day. Nine

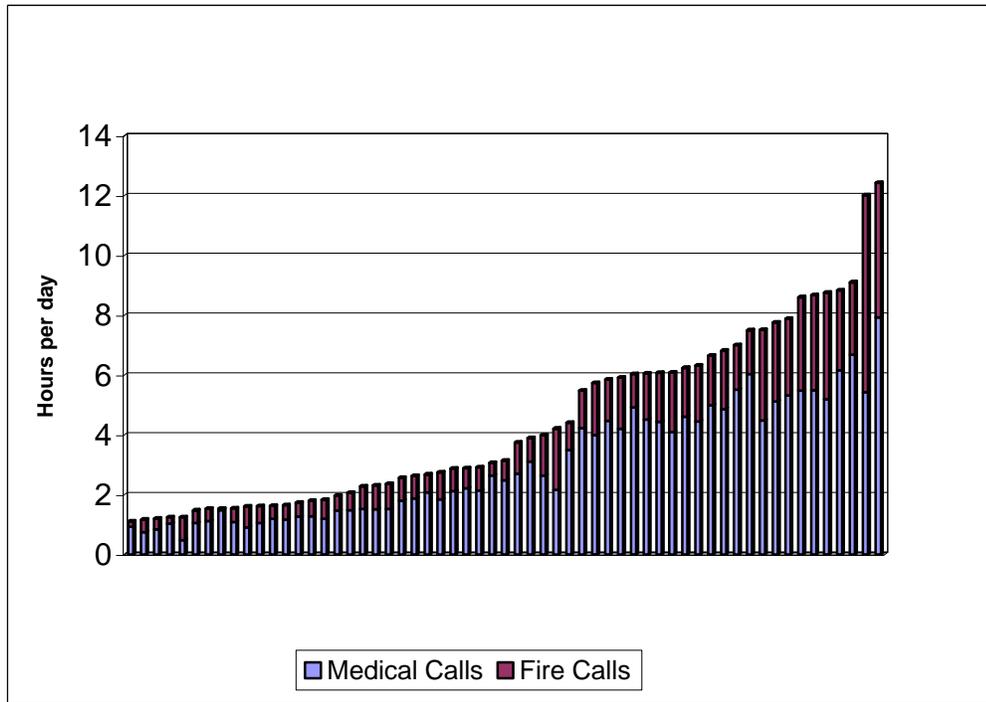
stations were active on emergency operations less than an hour and half per day and 20 stations were active less than 2 hours per day.

Apparatus activity is graphically displayed in Exhibit 2-6. The exhibit displays the combined medical- and fire-related hours of operations by station. As indicated in the exhibit, many stations are much underutilized when compared to others in the county. Twenty stations have less than 2 hours per day of activity. If those stations were consolidated into 10 stations, their combined average level of activity would be only 2.9 hours per day, which would still be less than the current average of all stations.

The twenty stations that have less than two hours of activity per day deserve an in-depth review as to their continued viability, taking into account location, service area, population, response times, etc. However, if those 20 stations with low “busy” rates could be co-located, relocated, or eliminated, resulting in 10 stations from the original 20, a savings of up to ten to fifteen millions dollars³ in fire service costs could be realized. Although hypothetical, it is reasonable to assume this level of savings, or a level close to this amount, could be realized. It should be noted that (due to their location) some stations cannot be consolidated simply because the nearest station is too far away to provide a response in accordance with national standards. However, other alternatives could be identified for location-specific stations such as reduced staffing during certain times of the day.

³ The sum of these potential savings include the priority dispatch and administrative changes.

EXHIBIT 2-7
APPARATUS HOURS PER DAY BY STATION



Source: Pinellas County 911 CAD data, CY2004.

Any analysis of these stations must view the situation from the County needs level. As indicated by the limited number of fire service changes that have occurred since the first government efficiency report for Pinellas County in 1992, any view other than at the county level would be less productive. The only way substantive changes can be made to improve the efficiency of the fire/EMS system in Pinellas County is to look at changes from the countywide level. The only way a countywide view can be successfully accomplished is if there is a single fire district. Without a single fire district, any jurisdiction *can*—and, history tells us—*will* avoid if not veto any change that might interfere with its local practices, regardless if the change would increase the effectiveness AND efficiency of the operation.

RECOMMENDATION

Pinellas County should establish a single fire district encompassing the entire county and incorporate the existing fire departments and fire districts into the new fire district.

If a single fire district was established, savings to the County could be realized by co-locating, relocating or eliminating fire stations. In addition, historical 911-CAD information could be used to identify the level of response deemed appropriate for fire stations. For example, based on the analysis of data, the deployment of vehicles and associated staffing needed at stations could be maximized with the right number of vehicles placed at the stations or identifying stations that, based on historical needs, could be either not staffed or minimally staffed for significant periods during the day, or closed all together.

Although individual fire stations are not targeted for closure in this report, the analysis above identified 20 fire stations that exhibited significant low activity. Using historical 911-CAD information, it is likely that the changes noted above could occur at some, many, or most of these stations. If the analysis indicated that three stations could be closed and eight stations either combined or operated with lower staffing, the cost savings would be approximately \$13 million, assuming smaller fire stations, those averaging two apparatus, are more likely to be co-located, relocated, or eliminated. On the high end, if the analysis indicated the closure of 8 stations and the combining of 3 stations, cost savings could be \$18 million. [Based on MGT's analysis and allocation of costs, it is assumed that fire and EMS costs can be allocated based on average cost of operations for every major piece of apparatus. Based on that assumption, each major piece of apparatus has an allocated cost of operations of approximately \$950,000 per year.]

There are additional savings that would occur with the creation of a single fire district. These include reducing the number of supervisory positions. The current fire

service structure in Pinellas County has 20 separate fire chiefs, one for each of the fire departments and fire districts. A single fire district would not eliminate the need for supervisors by any stretch, but it would allow for a much leaner organization from a supervisory standpoint than what currently exists when combining the supervisory position from all 20 jurisdictions in Pinellas County.

Depending on the organizational structure of the new single fire district, it is likely that economies of scale would reduce the number of current supervisory positions and allow for combining or collapsing many positions including those related to training, communications, public education, and possibly building inspections.

Should the County form a single fire district, one of the functions that could have more centralization would be Code Enforcement. The Code Enforcement activity could be regionalized within the county, possibly north, central, and south regions, and economies of scale achieved without losing the local knowledge of the region. Cities would have a single point of contact for code enforcement within their region. The centralization of Code Enforcement could be reasonable benefit associated with the creation of a single fire district.

Should the County form a single fire district, training is one of the functions that could be more centralized with the possibility of combining training activities rather than replicating them 20 times, one for each fire department. However, even if a single fire district is not formed, fire training should replicate the EMT and paramedic training model, which is already highly centralized and coordinated. By having centrally coordinated fire training throughout the county, all firemen would be assured of receiving not only consistent training, but would also have the increased opportunity of working together and becoming familiar with how different departments conduct operations. Although ISO ratings are not directly affected by training, the fact that fire training is standardized across

the entire county allows for transparency among firemen and between fire stations. For ISO purposes, the type and extent of training provided to fire personnel and the number of people who participated in training are the elements included in ISO reviews.

In determining potential savings associated with reductions in supervisory and/or administrative positions under a single fire district, two scenarios were developed. One scenario allowed for the reduction of 15 supervisory/administrative positions, while the other scenario reduced up to 25 supervisory/administrative positions. At an estimated savings of \$75,000 per supervisory position, the two scenarios produced savings of \$1,125,000 and \$1,875,000 respectively.

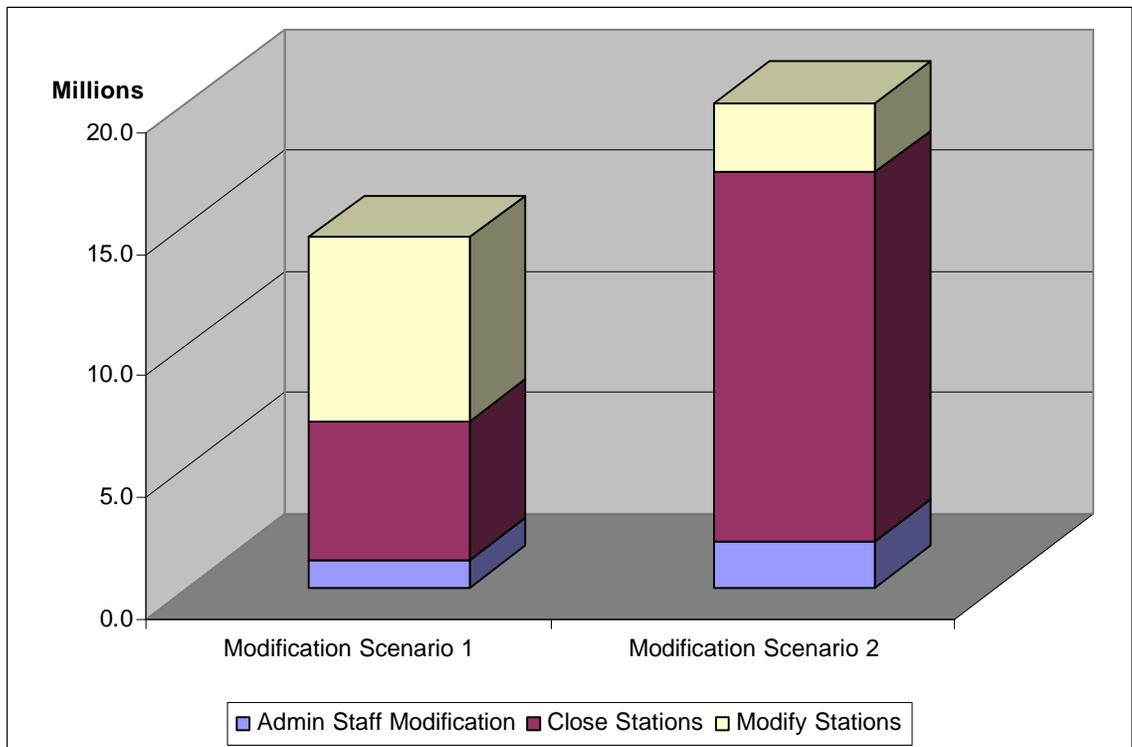
In the previous chapter, Exhibit 1-7 identifies the receiver/sender status of the fire departments of the 20 fire departments/districts in Pinellas County in supporting the mutual aid agreement. Through the mutual aid agreement, the 20 fire departments attempt to operate as a single fire district. However, individual jurisdictions control and fund their fire departments. The jurisdictions dictate, for the most part, where fire stations are located. As the display in the previous chapter indicates, three fire departments, Clearwater, Largo, and St. Petersburg, each respond to more than 3,000 incidents in other jurisdictions, 3,693; 3,058; and 3,765 respectively. Pinellas Suncoast also responds to more than 3,000 incidents in other jurisdictions, but it has more than 3,300 responses from other fire departments coming into its area of responsibility (specifically 344 more received than sent). Other large receivers include Safety Harbor, Dunedin, and Lealman, with received over sent responses of 896, 787, and 527 respectively.

The sender/receiver issue begs the question as to whether fire stations are located where they can provide the best coverage and response. The implementation of a single fire district and the analysis of the response from each fire station will allow for the proper placement of fire stations without jurisdictional issues. The result of identifying and placing

fire stations properly will improve the efficiency of the response and eliminate any issues associated with jurisdictions sending more support to nearby jurisdictions than they receive, which is in essence funding the services of another jurisdiction.

The exhibit below, Exhibit 2-8, displays the potential cost savings associated with the closure and/or combining of fire stations and the reduction in the number of supervisory and/or administrative positions under different scenarios. The exhibit highlights two Modification Scenarios. The first Modification Scenario contains the closing of 3 stations, combining of 8 stations, and the reduction of 15 supervisory personnel. Modification Scenario 2 contains the closing of 8 stations, combining of 3 stations and the reduction of 25 supervisory personnel. The potential cost savings for the Modification Scenarios are \$14.4 million and \$19.9 million, respectively.

**EXHIBIT 2-8
COST IMPROVEMENT POTENTIAL**



Source: MGT Analysis.

Mentioned previously is the contentious issue of the formula for providing emergency medical services provided under the EMS Emergency Medical Services, ALS First Responder Agreement. If a single fire district were established, the formula funding debate would cease to be an issue.

The implementation of the recommendation to establish a single fire district including the consolidation or elimination of some fire departments could impact the Insurance Service Organization's (ISO) Public Protection Classification (PPC) ratings of communities within Pinellas County.

A community's PPC depends on its: 1) fire alarm and communication system, 2) fire department capability, and 3) water supply system. To evaluate these key areas, members of the ISO staff visit the community to observe and evaluate these features. After the survey is completed, the ISO analyzes the data and calculates a PPC. The ISO is able to calculate a PPC through an analytical tool called a Fire Suppression Rating Schedule (FSRS). The FSRS incorporates national standards developed by organizations like the National Fire Protection Association and the American Water Works Association into a manual containing specific criteria. The FSRS lists a number of items that are assigned credit points. Using these points and various formulas, the ISO can calculate a total score based on a scale of 0 – 100.

In evaluating fire alarms, the ISO looks at how well the department handles dispatching fire alarms by examining their communications center, telephone service, the listing of emergency numbers in the phone book, and dispatch circuits. When evaluating the fire department, evaluators look at the equipment available, how fire stations are distributed in the area, and how and to what extent training is provided, as well as the number of people who participate in this training. The team also observes how firefighters respond to emergencies, and how they maintain and test equipment. When looking at a

community's water supply, the ISO focuses on the sufficiency of the amount of water. The team observes flow tests, reviews the condition and maintenance of fire hydrants, and fire hydrant distribution.

In the FSRS, the distribution of companies and fire stations accounts for only 4% of the rating criteria, while other fire department elements total 46%. The water supply criteria account for 40% of the total score, and fire alarm and communication system accounts for 10%. As indicated in the FSRS, the extent of the impact on the ISO rating of implementing the single fire district recommendation would depend on numerous factors. However, even though there is a small number of points associated with the distribution of companies, the effect of the recommendation is difficult to determine at this time but would probably be minimal. (See the ISO discussion contained in Appendix E.)

2.2.2 Implementing a Priority or Tiered Response System

Any 911 call made to the Pinellas County Public Safety Answering Point (PSAP) is quickly answered and the situation identified. Calls identified as fire related are managed and dispatched in the 911 Dispatch Center. Medical calls are handled differently in that the calls are rerouted to the Sunstar Communications Center (SCC) for ambulance dispatch, but based on policy a response from the fire departments/districts will also occur. The SCC dispatcher is a paramedic who gives pre-arrival instructions to and fields questions from the caller. Fire department response is managed in the 911 Dispatch Center, even though the caller has been transferred to the SCC. Notes regarding the call are entered into the SCC Computer Aided Dispatch (CAD) system and are then routed to the 911 Dispatch Center's CAD system for viewing by the fire department dispatcher. All medical calls will generate a fire department response.

As stated elsewhere in this report, in Pinellas County almost every fire department response to a medical incident involves Advanced Life Support (ALS) capability. This

means that a fire department paramedic is dispatched to every medical call, an expensive endeavor. The medical call may be downgraded from a lights and sirens emergency call, but the fire apparatus will continue to the caller's location.

There are advantages to Pinellas County's all-out system of dispatch and response. Most notable is the contention that those requesting medical assistance will receive the most advanced assistance as quickly as possible. Clearly, run volume will increase, and some will view that as an advantage due to the increased visibility for the fire departments. Increased run volume also can be justification for additional personnel and vehicles as well as showing increased productivity for the current staff. As the number and severity of fires continues to decrease, increases in the number of medical responses may be used to rationalize the existence and size of fire departments.

Other fire departments feel the increased run volume associated with an all-out response to medical responses has disadvantages for their departments. Wear and tear on equipment is apparent along with decreased equipment life. Responding "lights and sirens" to all or most incidents exposes crews and the public to the hazards associated with an emergency response. But the most important disadvantage is when response to a person with chest pain or severe trauma is impacted because the closest unit had responded to a simple sprained ankle.

PSAPs are receiving more and more what can be considered minor medical calls. Oftentimes, citizens are using 911 for routine medical advice since they do not have medical coverage or access to medical personnel. PSAPs that utilize an all-out response and do not have some type of dispatch guidelines end up dispatching EMTs and paramedics because of a cough, low-grade fever, or upset stomach.

In 1991, the American Heart Association recognized the "Chain of Survival." This concept stresses a systems approach to successful treatment of cardiac arrest by

identifying the interdependence of four essential links that are directly tied to cardiac patient survival and health status. These links include early access to the EMS system through the 911 emergency telephone number; early CPR (with instructions provided by dispatchers or trained citizens); and early defibrillation by citizens or first responders.

Within the past several years, research studies have been conducted with the focus on determining the advantages of pre-hospital advanced life support programs to patient survivability. It is important to remember that advanced life support programs throughout the nation were established based upon research from the late 1970s that was applicable to sudden out of hospital cardiac arrests. Because of that research Advanced Life Support (which usually includes endotracheal intubation, the administration of intravenous drugs, and the use of semi-automatic or manual defibrillators) was considered to be beneficial, even in the absence of supporting research, to patients with critical illnesses or injuries and, therefore, widely implemented. Even studies that examined the intervention or application of ALS protocols clearly stated that the studies did not determine the benefit to patients.⁴ We have been unable to find any published research that indicates that advanced life support provides a benefit with respect to improved mortality rates and other outcomes in cases of out of hospital sudden cardiac arrest, traumatic brain injuries, or blunt trauma. To the contrary, findings are that ALS does not provide an incremental benefit. There is some indication that ALS might be effective in the treatment of respiratory distress and chest pain patients although supporting research papers have not been published on this subject.

In a research article published in the New England Journal of Medicine, the Ontario Prehospital Advanced Life Support Study group delineated its conclusions with respect to the incremental effect upon survival rates of adding a program of advanced life support to

⁴ Wilson B, Gratton MC, Overton J, Watson WA. Unexpected ALS procedures on non-emergency ambulance calls: the value of a single tier system. Prehospital and Disaster Medicine Volume 7. No. 4. October – December 1992.

a program of rapid defibrillation. The study concluded that “The addition of advanced-life-support interventions did not improve the rate of survival after out-of-hospital cardiac arrest in a previously optimized emergency medical services system of rapid defibrillation. In order to save lives, health care planners should make cardiopulmonary resuscitation by citizens and rapid-defibrillation responses a priority for the resources of emergency-medical-services systems.”⁵

In an article by J.M. Hentry titled, *ALS Does Not Benefit Overall Trauma Patient Survival*, the Ontario Prehospital Advanced Life Support (OPALS) studied clinical trials assessing patient outcomes when treated with BLS or ALS in 17 communities that range from 20,000 to 750,000 in population. The study “suggest(s) that Advanced Life Support (ALS) interventions do not provide significant benefit in overall survival or outcomes among patients with major trauma or traumatic brain injuries.”⁶ Other research indicates that about 35 percent or less of all medical calls require an ALS response. For example, in a 1999 study of King County (Washington) responses, 142,300 calls were responded to by EMTs. Of that number, 49,800 (35%) received an ALS response. Procedures and policies appear to be the driver in this level of response since the research would indicate a much lower need for ALS response. It should be noted that in Pinellas County, 100 percent of the calls receive an ALS response

As noted earlier in this section, nearly all 911 calls currently result in the dispatch of fire equipment to medically related events. Yet this is not a common practice throughout the nation. Instead, numerous jurisdictions now rely on a technique commonly called “priority dispatch.” Fundamentally, this approach utilizes several questions to determine the difficulties associated with a medically related event.

⁵ De Maio VJ, Stiell IG, Nesbitt L, Wells GA, et al for the OPALS Study Group. *New England Journal of Medicine*; Vol. 351: 647-656 No. 7, August 12, 2004.

⁶ J.M. Hentry, *ALS Does Not Benefit Overall Trauma Patient Survival*, URL: <http://www.merginet.com/index.cfm?pg=trauma&fn=OPALSALSvalue>

Recognizing that a priority dispatch concept might be of value to the Pinellas County's fire and transport services to ensure the best utilization of personnel and equipment, the consultant team spoke with jurisdictions where this methodology has been applied for several years. The team obtained the names of key representatives for numerous jurisdictions that are currently using some form of priority dispatch. The team also reviewed the Web site for these and other entries to determine size and capabilities.

The team spoke with representatives in six jurisdictions:

- Charlotte/Mecklenburg County, North Carolina;
- Richmond, Virginia;
- Tulsa, Oklahoma;
- Oklahoma City, Oklahoma;
- Reno/Washoe County, Nevada; and
- Little Rock, Arkansas.

In each of these jurisdictions, as with Pinellas County, the system uses fire departments as "first responders" and a separate operation for transport similar to Sunstar. While there were significant differences in the specific protocol questions, overall results were very similar.

Each jurisdiction indicated that the use of priority dispatch had materially reduced the number of calls where fire and transport equipment were dispatched. The reduction was generally about one-half or 50 percent of the 911 calls. Thus, in many cases, first responders were not committed to an unnecessary event, but rather were available for those incidents where their services were of great need.

One entity, Charlotte/Mecklenburg County, estimated that only 40 percent of its 911 calls resulted in the dispatch of first responders. Moreover, it was estimated that only a third of these calls actually required first responders capabilities, thus illustrating that the protocols used were very cautious.

However, the key question the team asked of these jurisdictions was, "What is the level of complaints that occurred because people felt that the response was inadequate?"

Each agency was unaware of any such complaints. The Charlotte/Mecklenburg County representative whose priority dispatch protocols resulted in less than 40 percent of 911 calls dispatching a first responder noted that he had utilized this methodology as a manager for over 18 years in both Charlotte and Kansas City and had never heard of or received complaints.

Anecdotal evidence tends to support that first response services are simply not necessary in many cases. Many people, including members of the consulting team, have observed situations where the arrival of the number of fire engines and ambulances were clearly more than the event warranted. Obviously, the observation of most people is not a reliable basis for action, but in this instance it seems to triangulate and support the findings from many cities/counties that have determined the value of priority dispatch concepts. In conversations with Little Rock, their representative noted that the fire chief of a neighboring community had come to him seeking ways to implement the priority dispatch methodology because of the good results he had heard regarding Little Rock.

Several representatives also mentioned a growing side issue. There has been litigation in several instances where injury has occurred as a first responder was trying to reach an event in a timely manner. The key point in the litigation centered on the critical need for a first responder. While there is a critical need in some cases, the fact that dispatch exercises caution before sending a response is a useful point in litigation defense.

FINDING:

The 911 dispatchers in Pinellas County do not use any criteria to quantify the appropriate response. If the caller requests medical attention or does not know if medical attention is required, a medical response will occur.

In Pinellas County, 100 percent of medical calls receive an ALS response. To put this in context, the Pinellas County PSAP experienced 152,882 calls for service. Of that number, 82.4 percent (125,940) were classified as medical calls. That means, on average, 345 medical calls were responded to each day by a fire department in Pinellas County. In addition, in most of those cases, a Sunstar ambulance (ALS response) also responded.

The large number of medical responses conducted by the fire departments in Pinellas County not only significantly increases the wear and tear on equipment, it also exposes first responders and the public to the hazards associated with emergency response. The fuel costs associated with fire apparatuses responding to the large number of medical responses is also an issue, especially with the current high fuel prices.

Research conducted throughout the country indicates that an all-out response does not increase the survival rates of victims. The most important activity that increases survival is the speed at which first aid is given. Recognizing symptoms and being able to provide cardio-pulmonary resuscitation (CPR) within the first 4 minutes is the action that increases the chances of survival the most.

RECOMMENDATION:

The Pinellas County Public Safety Answering Point (PSAP) should implement a priority dispatch system using symptom guidelines to evaluate 911 calls and provide victims with the most appropriate response.

The Pinellas County PSAP should implement a system where the dispatchers use criteria or priority based dispatch guidelines using symptom criteria to determine which level of response is appropriate. Symptom criteria identify specific signs and symptoms or the mechanism of injury. The symptoms or mechanism of injury will dictate the type of response. Dispatchers using criteria or priority based dispatch guidelines do not interrogate the caller. Rather, it is the caller's description of the symptoms that drive the response.

In conjunction with the criteria or priority based dispatch guidelines, Pinellas County should also implement an aggressive CPR training campaign in order to increase the number of bystanders that can react to victims who have stopped breathing or whose hearts have stopped. Fire departments in the county could be a major participant in this activity. In addition, increasing the number of cardiac defibrillation units in areas where cardiac arrests are most likely to occur will increase the survival opportunities for victims of cardiac arrest.

Pinellas County dispatchers should also have the authority to cancel a call and place responding units back in service. The canceling of a fire department call would occur when certain criteria were attained, but would not occur if there was any possibility that a medical response was needed. Follow-up phone calls to the caller may be appropriate to ensure the situation was resolved.

PSAPs are receiving an increased number of minor medical-related calls. Some dispatch centers that utilize symptom criteria have included a consulting nursing service, such as a nurse practitioner, (either through contract or on staff) to handle the minor medical calls. The symptom criteria indicate when a consulting nurse could be used. The caller is asked if they want to speak with a nurse or if they desire a fire department response. It remains the caller's choice. If the caller requests the nurse, the nurse during the discussion with the caller may decide that a fire department response is warranted, in which case the nurse will initiate the response.

Implementing criteria or priority based dispatch guidelines will cause the PSAP to significantly change the duties, responsibilities, and training of the dispatchers. Dispatchers do not have to be trained as EMTs, but they will have to be trained in the use of criteria or priority based dispatch guidelines, including providing CPR instructions over the phone.

2.2.3 Response to Pre-Hospital Medical Emergencies

This section discusses several of the issues surrounding EMS response. The first section describes the pre-hospital response situation in Pinellas County. The next section discusses the latest research regarding pre-hospital response. The final section contains findings and recommendations regarding pre-hospital response in Pinellas County.

Pinellas County Pre-Hospital Emergency Response In an effort to set some parameters for the provision of pre-hospital medical care and to put overall scheme of pre-hospital emergency response into context, it is important to discuss the relationship of overall call volume to the number of life threatening calls where “seconds count”.

In relation to the millions of ambulance and EMS calls and transports that take place in the United States (and all over the world), there are relatively few incidents where seconds or minutes count. Anecdotally, it is usually accepted that less than 10% of all illness or injury responses are urgently time critical. Time critical events include sudden cardiac arrest, choking or cessation of breathing, and serious trauma.

In Pinellas County, in the 12 month period ending September 30th, 2004, based upon some 108,000 medical classified responses there were 960 cardiac arrests and 1,156 urgently time critical trauma cases. Out of hospital cardiac arrests represent .9% of pre-hospital responses, and urgently critical trauma represents just over 1% of all calls. So, taking into account other calls that could be time critical (choking, respiratory arrest, severe anaphylaxis) it would be reasonable to conclude that fewer than 5,000 (<5%) calls per year in Pinellas County are of the nature where seconds or minutes count.

This should not be construed to mean that there is not a sense of emergency in all other calls since the sooner patients can receive treatment the sooner pain can be relieved, anxiety will subside, and there will be less likelihood of exacerbated illness or injury due to well meaning but improper handling of the patient. But, from a contextual

point of view, time critical illnesses and injuries are the ones where more complex pre-hospital interventions⁷ are likely to be used – or needed.

In Pinellas County, every 911 call that requests medical assistance will result in a fire department Sunstar ambulance response. In almost all cases, the fire department apparatus responding has advanced life support (ALS) capability. The Sunstar response also has ALS capability.

The response in Pinellas County is predicated on the Emergency Medical Services, ALS First Responder Agreement, see below, established in 1997 with the cities and fire districts in the county. The response, based on the agreement, is that each of the approximately 108,000 pre-hospital medical calls in Pinellas County is responded to by at least 2 and possibly up to 4 firefighters, at least one of which is certified in Advanced Life Support as defined by the state of Florida, and at least 1 ALS ambulance paramedic. In some cases fire and ambulance supervisory personnel also respond. The product of this response model is that up to six or more responders, with outstanding qualifications, arrive at an incident, often to assist only one patient. While this response was based on Emergency Medical Services best practices when the ALS First Responder Agreement was signed, and it may seem to the lay person as being highly effective, evidence contained in recent medical research indicates that this response is very expensive, no longer considered to be effective, and is resource intensive. There are more efficient and effective response models that can be implemented at considerably less cost. In addition, if fewer than 5,000 calls per year in Pinellas County can be considered immediately life threatening, then the current response model can be seen to be a significant overuse of resources.

⁷ While it is very difficult to accomplish, we try to avoid the use terms such as Basic Life Support or Advanced Life Support since the scope of practice vary by state. As well, pre-hospital medical research usually refer to the practice being assessed in relation to other out of hospital medical interventions. Our preference, in order to more specifically support our findings and recommendations, is to, wherever possible, refer to specific interventions.

The Emergency Medical Services, ALS First Responder Agreement states:

- The Authority (Pinellas County Emergency Medical Services Authority) is a special taxing district created by Chapter 80-585 Laws of Florida (Special Act), for the purpose of providing emergency medical services throughout Pinellas County (County).
- The Authority has determined that a single-tier all Advanced Life Support (ALS) EMS system with a first responder component and a transport component is in the best interest of public safety, health and welfare.
- Pursuant to the Special Act and Chapter 54, Article III of the Pinellas County Code, Authority has contracted with various municipalities, independent special fire districts and not-for-profit corporations in the County to provide First Responder Services ... and has also contracted with a private ambulance company to provide ALS emergency and non-emergency transport services.
- The Authority wishes to enhance the current high performance Pinellas County EMS System by establishing performance based contracts for First Responder Services (as defined herein).
- The Authority wishes to continue to provide long-term direction and financial stability to the entire emergency medical services system while controlling and managing the future growth of the First Responder Services through the funding policies contained herein.
- Authority is authorized to enter into agreements for emergency medical services and the Contractor is willing and able to provide First Responder Services
- The Authority will pay a fixed price for the reasonable and customary cost of providing First Responder Services
- The Authority wishes to continue to encourage the use of the 9-1-1 telephone number for emergencies and to discourage the improper use of the 9-1-1 system and first responder resources for non-emergency calls.

The Agreement is funded by an ad valorem real property tax imposed by the Authority pursuant to Chapter 80-585, Laws of Florida, as amended. For the most recent year, \$27 million, generated by the ad valorem tax, was distributed to the cities and fire districts of Pinellas County under the Agreement. For the ensuing year, the amount to be distributed is estimated to be \$30 million.

Emergency Medical Services Research Although the Pinellas County Agreement, referenced above, focuses on ALS response, other cities and jurisdictions outside of Pinellas County focus their response based on the need as identified through a set of response criteria. Based on the criteria, the dispatch could be a basic life support (BLS) response or an ALS response, or in some cases a nurse practitioner if the situation warrants and caller agrees. The difference between BLS and ALS is that BLS relies on EMT (Emergency Medical Technicians) to deal with medical situations, while ALS relies on paramedic trained staff.

EMTs have several different levels of expertise. For example, an EMT-1 is trained to care for patients at the scene of an accident and while transporting patients by ambulance to the hospital under medical direction. This level of EMT has the emergency skills to assess a patient's condition and manage respiratory, cardiac, and trauma emergencies. The EMT-Intermediate (EMT-2 and EMT-3) has more advanced training that allows the administration of intravenous fluids, the use of manual defibrillators to give lifesaving shocks to a stopped heart, and the application of advanced airway techniques and equipment to assist patients experiencing respiratory emergencies. In Pinellas County, all EMTs are certified by the Florida Department of Health. The training requirements for emergency medical technicians are dictated by the Basic Training Course Curriculum of the United States Department of Transportation.

Paramedic trained staff members, on the other hand, provide the most extensive prehospital care. In addition to carrying out the procedures already described for EMTs, paramedics may administer drugs orally and intravenously, interpret electrocardiograms (EKGs), perform endotracheal intubations, and use monitors and other complex equipment pursuant to rules of the Florida Department of Health.

Recent research indicates that injured people or people requiring medical attention have a far better survival rate when basic life support actions are quickly taken. Basic life support (BLS) actions include ensuring a patient's airway is open, any bleeding is stopped or minimized, and the circulatory system (heart) is pumping blood. An article published in the Journal of the American Medical Association (JAMA) over 20 years ago extolled the benefits of using defibrillation in enhancing the survival rate of out-of-hospital patients in ventricular fibrillation, especially when given as soon as possible when the patient is in ventricular fibrillation.⁸

In research published in the Canadian Journal of Emergency Medicine (CJEM), Vol. 7 May 2005, stated, "To date, no evidence exists to support a survival advantage of advanced life support (ALS) measures in pre-hospital cardiac arrest. The objective of this study was to analyze survival as a function of ALS response intervals." The conclusions in the study revealed that, "The survival curve (for patients in cardiac arrest) began to plateau after 6 minutes. Patients administered to earlier had incrementally better (chances of) survival. Conclusions: Faster ALS response may increase the chances of survival despite no improvement on overall cardiac arrest survival through the addition of ALS to a system of rapid defibrillation. This association is similar to that previously identified for BLS and most likely results from quicker times to basic CPR and defibrillation."⁹ The key in this study was response time to ensure the patient's circulatory system was functioning and if it was not, then defibrillation was used. If basic life support actions including defibrillation were used within 6 minutes, regardless of who applies the actions, the patient's chance of survival substantially increases.

⁸ Mickey W. Eisenberg, MD PhD, et. al., *Treatment of Ventricular Fibrillation*, Journal of the American Medical Association, April 6, 1984, pages 1723-1726.

⁹ De Maio VJ, Stiell IG, Nesbitt L, Wells GA, for the OPALS Study Group. Department of Emergency Medicine, University of North Carolina, Chapel Hill, NC; Canadian Journal of Emergency Medicine; Vol. 7 No. 3, May 2005.

In another study referenced in an article by J.M. Hentry titled, *ALS Does Not Benefit Overall Trauma Patient Survival*, the Ontario Prehospital Advanced Life Support (OPALS) studied clinical trials assessing patient outcomes when treated with BLS or ALS in 17 communities that range from 20,000 to 750,000 in population. The OPALS studies were presented during the May 2005 annual meeting of the Society for Academic Emergency Medicine in New York City. The studies “suggest that Advanced Life Support (ALS) interventions do not provide significant benefit in overall survival or outcomes among patients with major trauma or traumatic brain injuries. The major trauma study included 2,750 patients, mean age of 46.1 years and nearly 72 percent male, with major traumatic injuries—91.4 percent blunt, 5.9 percent penetrating, 2.6 percent burn—and 25.1 percent with Glasgow Coma Scale (GCS) scores less than 8. Researchers compared outcomes of 1,276 patients treated during the Basic Life Support (BLS) phase with those of 1,474 patients treated during the ALS (endotracheal intubation, intravenous fluids and drugs as needed) phase of the study. Their (OPALS) findings revealed a shorter on scene time during the BLS phase compared with the ALS phase (a median of 15 vs. 17 minutes) but no differences in overall patient survival (82.1 percent during BLS and 81.1 percent during ALS phases) or in functional independence among discharged patients.”¹⁰

In August 2005, Dr. H.E. Wang, in conjunction with Drs. D.F. Kupas, D. Hostler, R. Cooney, D.M. Yealy, and J.R. Lave, published an article in *Critical Care Medicine* (the Official Journal of the Society of Critical Care Medicine) that focused on the need for regular clinical experience to perform endotracheal intubation in a safe manner by out-of-hospital rescuers. The study evaluated over 1.544 million patient records, and identified 11,484 endotracheal intubation (ETIs) that were performed by out-of-hospital rescuers. Rescuers were defined as paramedics, prehospital nurses, and EMS physicians. The

¹⁰ J.M. Hentry, *ALS Does Not Benefit Overall Trauma Patient Survival*, URL: <http://www.merginet.com/index.cfm?pg=trauma&fn=OPALSALSvalue>

research indicated that out of 5,245 rescuers, 67.7 percent (3,551) performed two or fewer ETIs during the evaluation year (January 1 to December 31, 2003). Of the total number of rescuers, 39.2 percent did not perform any ETIs during the evaluation year. Dr. Wang and his associates concluded that “out-of-hospital ETI, an important and difficult resuscitation intervention, is an uncommon event for most rescuers.”¹¹

Other studies conducted during the last decade also revealed that increased survival rates were predicated on when first aid and CPR was administered and not necessarily limited to who provided those services, e.g., trained medical staff, first responders, citizens with some introductory level of first aid training, or citizens being led through first aid procedures by 911 call center staff. The adage that basic and advanced life support increases survival rates remains true, but it is the speed at which at least basic life support actions occur that is the primary indicator in survivor rates regardless of whether the life support actions are provided by trained professionals or citizens.

Finding for Pre-Hospital Medical Emergencies The Pinellas County ASL First Responder Agreement was developed prior to the new research on survival rates being available, thus the Agreement is focused on an ALS response. However, since the question of response type is becoming an important issue for many municipalities around the country due to the increasing amount of research on the subject, the potential for Pinellas County to change the medical response when the current Agreement expires in 2007 is high.

RECOMMENDATION:

Pinellas County should revise its policy and procedures regarding Advanced Life Support (ALS) to incorporate the appropriate level of response based on the incident.

¹¹ Wang HE, Kupas DF, Hostler D, Cooney R, Yealy DM, Lave JR, *Procedural Experience with Out-of-Hospital Endotracheal Intubation*, Critical Care Medicine, Vol. 8, August, 2005, 1718-1721.

This recommendation closely aligns with the previous recommendation, but focuses on the Emergency Medical Services (ALS) First Responder Agreement adopted in 1997. This services agreement expires in 2007, which allows the County to negotiate a service response that is more in-line with the current research dealing with medical response. The citizens of Pinellas County passed an initiative to fund EMS services in the county. The funds raised as the result of the initiative must be used for EMS services. However, as research indicated, the funds can be put to better use by training citizens in CPR and other life saving techniques, as well as providing life saving equipment, e.g., defibrillators, in areas where they are most likely to be used.

Potential changes to the medical response provided in Pinellas County could include the following.

- County could continue to fund EMS services under an agreement similar to 1997 *Emergency Medical Services, ALS First Responder Agreement*. However, as a result of the litigation between Pinellas County and the City of St. Petersburg during the initial Agreement period, it appears that the establishment of an agreement similar to the 1997 agreement is unsure.
- County could shift EMS funds currently provided to fire departments to a contractor for first responder services. Contractor could be a private contractor or, as an entity, all or a portion of the fire departments/districts in Pinellas County.
 - Contractor services could provide first response ALS using a single paramedic in a vehicle, (possibly a car) containing the equipment needed for advanced life support actions but would not be used for patient transport. Response requirement would be for 6-minute or less response, 90 percent of the time.
 - Contractor services could provide first response BLS response using an EMT in a vehicle (possibly a car) containing the equipment needed for basic life support actions and would not be used for patient transport. Response requirement would be for a 6-minute or less response, 90 percent of the time.
- County could modify the Sunstar ambulance contract to increase the response time by increasing the number of ambulances (or some type of first response vehicle) in service at any one time.

For any of these alternatives, a competitive bidding process (request for proposal) should be utilized to obtain the best service in the most cost effective manner.

2.2.4 Other Fire and Emergency Medical Services Issues

2.2.4.1 Combined and Co-located 911 Public Safety Answering Point (PSAP)

Background. The Public Safety Answering Point (PSAP) for Pinellas County is the 911 Dispatch Center, located in the county facilities in Clearwater, Florida. Any 911 call originating in Pinellas County is routed to this facility. 911 calls are quickly answered and the situation identified. Calls identified as fire related are managed and retained in the 911 Dispatch. Law enforcement calls without the need for medical assistance are routed to the appropriate law enforcement dispatch office. Law enforcement dispatch centers are not co-located in the 911 Dispatch Center.

Calls to 911 that require medical assistance or are not specific regarding the need for medical assistance will generate a fire department response as well as an ambulance (Sunstar) response. Although 911 calls for medical assistance initially come to the PSAP, the dispatches resulting from medical calls are handled by two separate entities. The fire department response is handled within the 911 Dispatch Center with fire department first responders dispatched to the incident site. The ambulance response, however, is handled by the Sunstar Communications Center (SCC). The 911 call is actually transferred to SCC where a series of pre-arrival instructions are given and questions asked by the call taker, who is a trained paramedic. The computer aided dispatch (CAD) systems utilized by 911 Dispatch and SCC are electronically connected so dispatch information and incident notes are shared between the two systems. Although the fire response dispatcher is not speaking with the 911 caller, any notes entered into the system by the SCC dispatcher can be relayed to the fire department responders by the fire response dispatcher.

Non-medical law enforcement 911 calls are transferred to the appropriate law enforcement dispatcher. These dispatchers are located in their own facilities. Law enforcement CAD systems have limited connectivity with the PSAP. Law enforcement dispatches are not recorded or maintained in the 911 Dispatch CAD system.

FINDING:

A substantial amount of inefficiency and duplication exists by having multiple dispatch centers in the county that handle law enforcement, medical, and fire dispatches. Pinellas County made the first step of dispatch consolidation by establishing a single PSAP for the county. All 911 calls are centrally answered. However, depending on the nature of the call, the call may be routed to another dispatch center.

Having multiple dispatch centers in the county causes duplication in a number of areas. These areas of duplication include equipment, CAD systems, communications, and staffing. In many metropolitan areas, 911 dispatch houses all of the dispatches for fire, law enforcement, and medical. One CAD system is used for all dispatches. The same computer equipment is used by all dispatchers. Dispatchers are trained in multiple positions, e.g., fire, medical, and law enforcement dispatch, which allows dispatchers to rotate between positions, creating job variety as well as backup.

RECOMMENDATION:

Pinellas County should create a single emergency dispatch center that co-locates the dispatchers for all law enforcement, fire, and medical calls.

By having a combined PSAP and 911 Dispatch Center that handles all law enforcement, medical, and fire dispatch calls, the costs associated with emergency dispatch could be reduced. To implement this recommendation, Pinellas County would most likely be the entity responsible for the entire operation and would see an increase in expenditures. However, the law enforcement dispatch centers and Sunstar Communications Center would see their costs reduce. Agreements, costing arrangements, and funding would need to be determined, developed, established, and

implemented. Operations activities, such as recruitment, training, administrative systems, etc. would have to be developed so all of the added dispatchers are incorporated into Dispatch Center. In order to identify all of the areas that need to be addressed in creating a single countywide dispatcher center, a feasibility and implementation study should be conducted that identifies all of the issues associated with a dispatch consolidation and the costs and funding alternatives associated with the consolidation.

2.2.4.2 Traffic Preemption Devices on Ambulances

During discussions with fire chiefs and county staff, the issue of traffic preemption devices on ambulance transport services was discussed. Traffic preemption devices have been installed, or installation is planned, on all traffic signals in the county. The fire departments have installed the traffic signal triggering device on their vehicles and apparatus. For the most part, the cost of installation has been paid for by the cities. Maintenance of the preemption systems is also a city cost.

The question has arisen regarding the installation of triggering devices on the Sunstar ambulances. Sunstar is currently exceeding their contract response times without needing preemptive devices. However, even when responding with lights and sirens, ambulances proceeding through red-light intersections are dangerous to both civilians and the ambulances. In an analysis of Pinellas County information, as well as research in the use of ALS transport, only the rarest of cases is a lights and siren transport required.¹²

Sunstar could purchase the triggering devices, which would allow ambulances to control traffic signals. A mechanism could be developed for Sunstar to pay for the maintenance of the systems on the traffic signals. However, since Sunstar is exceeding its contract response times without the preemptive devices and lights and siren transport is needed only in the rarest of cases, it does not appear that such a system is needed.

¹² Analysis of First Response Paramedic Ride-Ins with a Single Paramedic ALS Ambulance Service: Implications for NFFPA 1710, Gunderson M., Kearns C., Lanier J., Barnard J., McPherson J., date unknown.

RECOMMENDATION:

Pinellas County and the Sunstar ambulance system should not install traffic preemption devices on ambulances at this time.

2.3 County Research on Related Issues

As part of the Charter Review Commission discussions, the County Administrator agreed to address four issues that the Commission choose to exclude from the MGT study scope. However, MGT agreed to include the research, findings, and relevant documents in the Appendices.

These issues and their respective appendix are:

Water Supply for Fire Protection	Appendix A
Community Relations/Public Information	Appendix B
Public Fire and Life Safety Education	Appendix C
Fire Investigation	Appendix D

These appendices and possibly several more will be included in the final document.

Other appendices are noted throughout the report.