

*Stillwater, Lake Elmo, Mahtomedi
Minnesota*

Feasibility Study for Shared
or
Cooperative Fire and Emergency Services

September 2011



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Stillwater, Lake Elmo, Mahtomedi Minnesota

Feasibility Study for Shared or Cooperative Fire and Emergency Services

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Table of Contents

Table of Figures	v
Executive Summary.....	1
Section I – Evaluation of Current Conditions	9
Organization Overview	9
History, Formation, and General Description	9
Governance and Lines of Authority	15
Foundational Policy Documents	16
Organizational Design	19
Mission, Vision, Strategic Planning, Goals and Objectives	21
Internal and External Communications	22
Reporting and Recordkeeping	24
Information Technology Systems	25
Finance and Budget	26
Capital Assets and Capital Improvement Programs.....	32
Facilities	32
Apparatus.....	40
Staffing and Personnel Management	62
Administration and Support Staff.....	63
Operational Staff.....	64
Current Staffing Performance.....	64
Compensation Systems.....	67
Disciplinary Processes	67
Recruitment, Application and Retention	68
Testing, Measurement and Promotions	69
Service Delivery and Performance.....	72
Demand.....	72
Performance Objectives.....	77
Distribution	77
Response Performance	82
Mutual and Automatic Aid Systems	86
Support Programs	87
Training	87
Life Safety Services.....	91
New Construction Involvement	93
Public Safety Education.....	94
Fire Investigation	95
Communications	96
Section II – Opportunities for Cooperative Effort.....	99
General Partnering Strategies	100
Autonomy	100
Functional Consolidation	100

Operational Consolidation	101
Legal Unification	101
Policy Actions	102
Options for Shared Services.....	104
Fiscal Analysis.....	104
Potentially Consolidate All Fire Departments into a Single Agency	110
Capital Replacement Efficiencies	118
Emergency Medical Services.....	118
Firefighter Relief Associations	122
A – Develop Standard Operating Guidelines	127
B – Shared Specialty Teams	129
C – Develop a Regional Fire Safety Education Coalition	131
D – Create a Unified Occupational Medicine Program.....	133
E – Create a Unified Wellness and Fitness Program.....	135
F – Develop and Adopt Common Training Standards	138
G – Create a Regional Training Manual.....	140
H – Develop an Annual Regional Training Plan.....	143
I – Develop a Regional Fire and EMS Training Facility.....	146
J – Develop Mutual Training Strategies	149
K – Purchase Uniform Emergency Apparatus	152
L – Acquire AVL and MDC or MDT Capabilities.....	155
M – Develop Uniform Pre-Incident Plans.....	159
N – Provide for Joint Staffing of Stations and Apparatus	163
O – Provide for Joint Incident Command and Operations Supervision	166
P – Purchase and Implement an Electronic Staffing Program.....	169
Findings, Recommendations and Plan of Implementation.....	171
Conclusion	182
Appendix A – Future Resource Deployment Observations	183
Appendix B – Headquarters Station Example	187
Appendix C –Suburban/Rural Station Example.....	189

Table of Figures

Figure 1: Comparison of Population and Land Area	13
Figure 2: Resource and ISO Rating Comparison.....	13
Figure 3: Full Study Area Facility Deployment and Response Areas.....	14
Figure 4: Comparison of Governance and Lines of Authority.....	15
Figure 5: Comparison of Policy Documents	17
Figure 6: Typical SOG Topics for Field Operations	18
Figure 7: Typical SOG Topics for Non-Emergency Operations.....	19
Figure 8: Comparison of Organizational Design	21
Figure 9: Comparison of Internal and External Communications Factors	23
Figure 10: Comparison of Document Control and Security Factors	25
Figure 11: Comparison of Information Technology Systems.....	26
Figure 12: Summary of Finance and Budget Components	27
Figure 13: Comparison of Annual Budget	28
Figure 14: Budget Distribution - Regional.....	29
Figure 15: Budget Allotment - Regional.....	30
Figure 16: Per Capita Cost Comparison	31
Figure 17: Example Capital Replacement Plan – Regional.....	60
Figure 18: Comparison of Select Capital Resources – Regional.....	61
Figure 19: Administrative and Support Personnel.....	63
Figure 20: Services Provided by Department	64
Figure 21: Emergency Services Operational Personnel	64
Figure 22: Average Structure Fire Staffing Performance History	66
Figure 23: Summary of Career and Volunteer Utilization.....	66
Figure 24: Summary of Compensation Systems Components.....	67
Figure 25: Summary of Disciplinary and Appeals Processes.....	68
Figure 26: Summary of Recruitment, Application and Retention Policies.....	69
Figure 27: Summary of Testing, Measurement and Promotional Processes.....	71
Figure 28: Workload by Category	72
Figure 29: Workload by Month	73
Figure 30: Workload by Day of Week	73
Figure 31: Workload by Hour of Day	74
Figure 32: Regional Service Demand Distribution	75
Figure 33: Geographic Service Demand Density.....	76
Figure 34: Travel Time Coverage.....	78
Figure 35: Distribution and Travel Time Capability Analysis.....	79
Figure 36: Five-Mile Coverage	81
Figure 37: Response Time Performance History - 2010	82
Figure 38: Two-Year Response Time Performance History	82
Figure 39: Response Performance by Hour of Day - Average.....	83
Figure 40: Response Performance by Hour of Day – 80 th Percentile.....	84
Figure 41: Response Performance by Hour of Day – 90 th Percentile.....	84
Figure 42: Summary of Formal Training Provided	88
Figure 43: Summary of Training Program Administration Components	89
Figure 44: Summary of Training Procedures, Manuals, and Protocols.....	90

Figure 45: NFPA Inspection Frequency	92
Figure 46: Summary of Inspections Programs	92
Figure 47: Summary of New Construction Involvement.....	94
Figure 48: Summary of Public Education Efforts	95
Figure 49: Summary of Fire Investigation Involvement.....	96
Figure 50: Cooperative Effort Strategies Summary	107
Figure 51: Consolidated, Modeled Baseline Cost of Fire Protection	112
Figure 52: Consolidated Cost of Fire and EMS.....	113
Figure 53: Full Deployment – Administration and Support Staffing Model, Consolidated	114
Figure 54: Administrative and Support Costs at Full Deployment, Consolidated Agency	114
Figure 55: Consolidated Comparison of Firefighters per 1,000 Population	115
Figure 56: Consolidated Comparison of Resource per 1,000 Population	116
Figure 57: Comparison of Incidents per 1,000 Population	117
Figure 58: Comparison of Fires per 1,000 Population	117
Figure 59: Minnesota EMS Regions	119
Figure 60: Comparison of Assets, Liabilities and Funding.....	122
Figure 61: Comparison of Fund Revenues	122
Figure 62: Comparison of Fund Expenditures.....	123
Figure 63: Comparison of Fund Benefits.....	123
Figure 64: Comparison of Features – MDT vs. MDC.....	157
Figure 65: Example Implementation Flowchart.....	181
Figure 66: Potential Future Station Distribution Strategy	184
Figure 67: Station Construction Cost Estimates.....	185

Executive Summary

Emergency Services Consulting International (ESCI) was engaged by the cities of Lake Elmo, Mahtomedi, and Stillwater in Minnesota to conduct a Feasibility Study for Shared or Cooperative Fire and Emergency Services for their fire departments. This report details the analysis of the data and information collected throughout the project and provides the reader with a description of each organization, an evaluation of the current conditions that exist throughout the communities involved regarding emergency services, and strategies for future service delivery using a more cooperative model. This executive summary serves as a synopsis of the information contained throughout the body of this document.

The first section of the report provides a comprehensive evaluation of each of the study organizations. Each department is discussed separately and a summary is provided that illustrates the comparison of current operations.

The Lake Elmo Fire Department (LEFD) is a direct operating department of the City of Lake Elmo, Minnesota, and provides fire protection, rescue, and emergency medical first responder services. LEFD provides emergency services to a population of 8,300. The department serves an area of 32 square miles. The department's services are provided from two facilities. The department operates with two fire engines, one aerial truck, two tender/tankers, two wildland fire units, and several other pieces of utility and specialty apparatus. There are 25 individuals involved in delivering these services to the jurisdiction.

The Mahtomedi Fire Department (MFD) is a direct operating department of the City of Mahtomedi, Minnesota, and provides fire protection and advanced life support (ALS) ambulance transport services. The department's jurisdiction encompasses all of the governmental boundaries of the community, along with additional contractual service areas including the City of Willernie and portions of the City of Grant. MFD provides emergency services to a population of 12,279. The department serves an area of approximately 30 square miles. The department's services are provided from one facility. The department operates with one fire engine, one aerial truck, one tender/tanker, one rescue truck, one wildland fire unit, and several utility and specialty apparatus. In addition, the department has one engine in reserve status. There are 40 individuals involved in delivering these services to the jurisdiction.

The Stillwater Fire Department (SFD) is a direct operating department of the City of Stillwater, Minnesota, and provides fire protection and basic life support (BLS) emergency medical first responder services. The department's jurisdiction encompasses all of the governmental boundaries of the City of Stillwater, along with additional contractual service areas in Stillwater Township, May Township, and the City of Grant. SFD provides emergency services to a population of 24,277. The department serves an area of 61 square miles. Located in Washington County, the area served by the department is experiencing moderate to rapid growth. The department's services are provided from one facility. The department operates with three fire engines, one aerial truck, one tender/tanker, one rescue truck, two wildland fire units, and several utility and specialty apparatus. There are 37 individuals involved in delivering these services to the jurisdiction.

ESCI also conducted an evaluation of financial components of each department involved in the study. In essence, the evaluation was to identify current funding mechanisms as well as budget utilization and expenditure history. Based on the information obtained from the evaluation, ESCI determined that funding for the three departments is below both the national and Minnesota averages as indicated in the following figure.

Per Capita Cost of Fire Protection	
National Average	\$104.00
Minnesota Average	\$68.61
Lake Elmo FD	\$46.56
Mahtomedi FD	\$62.50
Stillwater FD	\$45.39

The next portion of the report evaluates the current capital assets of each department including facilities and apparatus. The study region operates from four fixed facilities utilizing a total of 25 primary response apparatus plus additional specialty vehicles and equipment. Each capital asset was given a basic review for functionality, safety, suitability for current use, and adaptability for future use. The following summary provides information relative to the capital asset review.

	Functionality	Safety	Suitable for Current Use	Adaptable for Future Use
Lake Elmo FD #1	Minimal	Minimally	No	No
Lake Elmo FD #2	Adequate	Minimally	Yes	Yes
Mahtomedi FD	Minimal	Adequate	Yes	Yes
Stillwater FD	Minimal	Adequate	Yes	No

Apparatus were evaluated and ranked on a scale of Excellent, Good, Fair, Poor and Serviceable. The following illustrates the distribution of existing primary apparatus across those scores.

	Lake Elmo	Mahtomedi	Stillwater
Excellent	6	5	6
Good	6	9	4
Fair	0	0	1
Poor	0	0	0
Serviceable	0	0	0

Next, ESCI evaluated the staffing and personnel management components of each organization. The following figures summarize the administrative and emergency response personnel current in use.

	MFD	LEFD	SFD
Fire Chief	1.00	1.00	1.00
Deputy Chief	0.00	0.00	1.00
POC Assistant Chief	2.00	0.00	3.00
POC District Chief	0.00	2.00	0.00
POC Administrative Assistant	0.75	0.50	0.25
Captain	0.00	0.00	3.00
POC Captain	5.00	4.00	3.00
POC Lieutenant	0.00	0.00	3.00
Firefighter/Engineer	0.25	0.00	3.00
POC Firefighter/Engineer	31.00	4.00	8.00
POC Firefighter	0.00	14.00	12.00

ESCI also reviewed how well each department is doing at producing personnel for structure fires. The numbers indicate that all three departments must already rely significantly on mutual aid assistance to produce adequate fireground staffing when a working structure fire is occurring.

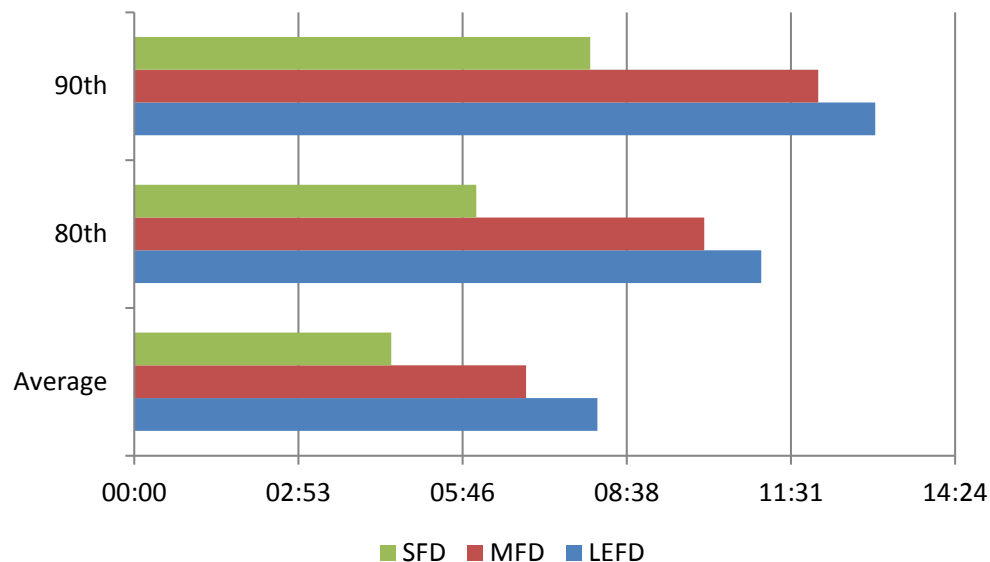
Average Staff	
LEFD	12.4
MFD	6.5
SFD	9.6
Overall Average	9.5

The remaining portions of the report's first section focus on the delivery of emergency services to the communities served by each agency. In examining service delivery, ESCI evaluated Service Demand, Distribution of Resources, Response Performance, Incident Control and Management and Mutual and Automatic Aid Systems currently in place.

Overall, service demand, or workload, is relatively brisk across the region, totaling 2,790 incidents in 2010 as compared to 2,448 incidents in 2009.

		Lake Elmo	Mahtomedi	Stillwater
2009	Fire	24	30	75
	Explosion	0	0	6
	EMS	205	508	753
	Hazmat	18	21	85
	Service Call	17	29	186
	Good Intent	24	62	168
	False Call	28	81	118
	Other	3	3	4
	2009 Total	319	734	1395
2010	Fire	14	23	61
	Explosion	2	0	3
	EMS	211	630	784
	Hazmat	32	58	114
	Service Call	19	17	182
	Good Intent	49	48	254
	False Call	33	64	178
	Weather	1	3	8
	Other	0	0	1
	2010 Total	361	843	1586

Total response time is the amount of time a resident or business wait for an apparatus to arrive at the scene of an emergency beginning when they first call 9-1-1. ESCI evaluated the response time for the study agencies for 2010 based on the average, 80th percentile, and 90th percentile measurements.



Not surprisingly, Stillwater had the shortest response times, partly due to its use of on-duty career staffing and partly because of the proximity of high workload densities to the fire station. Lake Elmo and Mahtomedi, which most frequently depend on responders coming from home or work, have longer response times.

ESCI also completed the evaluation of each department's training and fire prevention programs.

The next section of the report addresses potential opportunities for cooperative efforts between the study agencies. The previous section of the document provides an overview and baseline assessment of the emergency services delivery system within Lake Elmo, Mahtomedi, Stillwater and each department's primary response areas outside their respective municipal boundaries. This section uses that assessment of baseline conditions to develop scenarios for future service delivery utilizing the concept of shared or cooperative services.

Four basic strategies are generally available when considering consolidation of services, beginning with a do-nothing approach and ending with complete unification of the organizations into what is, essentially, a new emergency service provider: Autonomy, Functional Consolidation, Operational Consolidation and Legal Unification. Each strategy is discussed within the body of the report. In identifying potential cooperative opportunities, the project team considered the key issues now challenging each agency. Some issues represent roadblocks to integration, while others provide a unique chance for improvement. As an element of the review, affected staff and other officials provided local and internal perspective on organizational culture, community expectation, and other significant matters.

The evaluation of the feasibility of consolidating the three study agencies is presented in detail including the level of cooperation, timeline for completion, sections affected and overall objective. The following is a summary of the option. The fire departments within the study area already benefit from some collaborative programs such as mutual and automatic aid; therefore it is natural that continuing the long-term strategy of cooperation could eventually lead to the whole area forming a single fire agency. Since each department within the study area relies heavily on on-call responders for service delivery, the total budget for fire protection is comparatively low - \$2,233,570.

In calculating a model budget for a unified organization, ESCI made several initial assumptions in regard to personnel:

- Only one full-time Fire Chief would be required.
- The current part-time Administrative Assistant would be made full-time.
- The number of existing Assistant and Deputy Chiefs could be reduced to one full-time and two volunteer.
- The number of line officers could be reduced to three full-time and six volunteer (three Captains and three Lieutenants).
- The number of Firefighters/Engineers would remain the same.

The staffing plan results in the following modeled budget for a consolidated fire department. Total cost for fire and EMS services in the region during the modeled year was projected to decrease through this consolidation strategy by \$240,084.

Although total system cost is projected to decrease, this does not necessarily mean that the change in cost will be equal for all participating communities of the consolidated system. Building this model budget assumes that services currently provided by one agency will be provided to the other agencies under a consolidated system. Thus, medical physicals and training currently enjoyed by LEFD personnel would be shared by all members of the new consolidated department at a much higher cost per member.

Although the assumptions made by ESCI include the elimination of two full-time chief officer positions, ESCI believes that at least some of the savings generated from a consolidation of services should be reinvested in the department to maintain a station presence within each community. Currently, with their paid fire chiefs (and staff, in the case of Stillwater), each community has at least one person on duty during daytime hours to respond to incidents as well as be available for public events and/inquiries. Two of the current Fire Chief positions could be converted to full-time or part-time station officers or firefighter positions at a significantly reduced pay rate, but still utilized as a community resource. Doing so would ensure that current levels of service within each community could be maintained. The specific title, pay and responsibilities of the positions should be determined once the decision is made to move forward with consolidation. The addition of any such positions would decrease the overall savings realized through consolidation.

In addition to the operational consolidation of the four departments, ESCI provides 16 functional cooperative effort strategies designed to improve cooperation and efficiency across the three agencies.

These strategies include:

- A – Develop Standard Operating Guidelines
- B – Shared Specialty Teams
- C – Develop a Regional Fire Safety Education Coalition
- D – Create a Unified Occupational Medicine Program
- E – Create a Unified Wellness and Fitness Program
- F – Develop and Adopt Common Training Standards
- G – Create a Regional Training Manual
- H – Develop an Annual Regional Training Plan
- I – Develop a Regional Fire and EMS Training Facility
- J – Develop Mutual Training Strategies
- K – Purchase Uniform Emergency Apparatus
- L – Acquire AVL and MDC or MDT Capabilities
- M – Develop Uniform Pre-Incident Plans
- N – Provide for Joint Staffing of Stations and Apparatus
- O – Provide for Joint Incident Command and Operations Supervision
- P – Purchase and Implement an Electronic Staffing Program

The remainder of the report describes a recommended process for moving forward with the potential implementation of a cooperative service delivery effort. The word ‘potential’ is used here because a part of this process includes the policy decisions necessary to determine, based on the results of the study, whether there is sufficient desire among the political bodies of the organization to continue with the process or not. The implementation begins with that step.

The ESCI project team began collecting information concerning the fire and emergency services for Lake Elmo, Mahtomedi, and Stillwater in April 2011. The team members recognize that the report contains a large quantity of information and ESCI would like to thank the elected officials of each organization involved as well as the officers, employees and volunteers of the three fire departments for their tireless efforts in bringing this project to fruition. ESCI would also like to thank the various individuals and external organizations for their input, opinions, and candid conversations throughout this process. It is

ESCI's sincere hope that the information contained in this report is utilized to its fullest extent and that the emergency services provided to the citizens of Lake Elmo, Mahtomedi, and Stillwater, as well as the surrounding areas, are improved by its implementation.

Section I – Evaluation of Current Conditions

Emergency Services Consulting International (ESCI) was engaged by the Cities of Stillwater, Lake Elmo and Mahtomedi, Minnesota, to conduct an analysis of the feasibility of enhancing cooperative efforts or shared services between the three cities' fire departments. This report is the culmination of that analysis and provides a review of the critical functions within each department, as well as recommendations for improvement regardless of whether or not the three cities decide to pursue enhanced shared services or cooperative efforts. In addition to the review of each department, ESCI has provided an analysis of the feasibility of enhancing the level of cooperation and shared services between the three fire departments. The report flows from the baseline evaluation of each agency to an analysis of potential cooperative efforts or shared services.

Organization Overview

The following information provides the community baseline information for the study area fire departments, including general information about governance and structure of the organizations, size and general nature of the communities, and a general overview of available resources dedicated to the fire and EMS functions.

History, Formation, and General Description

Lake Elmo Fire Department

The Lake Elmo Fire Department (LEFD) is a direct operating department of the City of Lake Elmo and provides fire protection, rescue and emergency medical first responder services to the community. The department's jurisdiction duplicates the governmental boundaries of the community. The department began providing services in 1957.

LEFD provides emergency services to a population of 8,300.¹ The department serves an area of 32¹ square miles. Located in Washington County, the area served by the department is experiencing rapid and aggressive growth. The department's services are provided from two facilities. The department operates with two fire engines, one aerial truck, two tender/tankers, two wildland fire units, and several other pieces of utility and specialty apparatus.

¹ As provided by the department.

There are 25 individuals² involved in delivering these services to the jurisdiction. The department's primary management team includes the Chief, two District Chiefs and four Captains. A part-time administrative assistant provides additional support services. Staffing coverage for emergency response is through the use of paid-on-call responders coming from home or work. Several members are typically in the community, and available, carrying pagers to receive radio calls for emergency response.

As of the latest rating (conducted in 2001), the Insurance Services Office (ISO) gave the service area a Public Protection Classification rating of 6/9. The split rating applies the lower of the two ratings to those structures within five miles of a fire station and within 1,000 feet of a hydrant or creditable water source. All others receive the higher rating.

The department provides a variety of services, including fire suppression, emergency medical first responder, vehicle extrication, hazmat operations-level, technical rescue- surface water, public education, code enforcement and inspections. The St. Paul FD-State Chemical Assessment and Regional Response Team provides technician-level hazmat response. The Washington County Communications Center provides emergency call receipt and dispatch service.

Mahtomedi Fire Department

The Mahtomedi Fire Department (MFD) is a direct operating department of the City of Mahtomedi and provides fire protection and advanced life support (ALS) ambulance transport services to the community. The department's jurisdiction encompasses all of the governmental boundaries of the community, along with additional contractual service areas including the City of Willernie and portions of the City of Grant. The department began providing services in 1933.

MFD provides emergency services to a population of 12,279.³ The department serves an area of approximately 30 square miles. Located in Washington County, the area served by the department is experiencing light to moderate growth. The department's services are provided from one facility. The department operates with one fire engine, one aerial truck, one tender/tanker, one rescue truck, one wildland fire unit and several utility and specialty apparatus. In addition, the department has one engine in reserve status.

² Number current at time of field research.

³ U.S. Census Bureau population data.

There are 40 individuals⁴ involved in delivering these services to the jurisdiction. The department's primary management team includes the Chief and two Assistant Chiefs. There are no additional support staff. Staffing coverage for emergency response is through the use of paid on-duty firefighters during the daytime, with additional responses by on-call personnel. For immediate response, at least two personnel are available on weekdays while nights and weekends are handled by on call personnel.

As of the latest rating (conducted in 2002), the ISO gave the service area a Public Protection Classification rating of 5/10. The split rating applies the lower of the two ratings to those structures within five miles of a fire station and within 1,000 feet of a hydrant or creditable water source. All others receive the higher rating.

The department provides a variety of services, including fire suppression, emergency medical ambulance transport-ALS, vehicle extrication, hazmat operations-level, technical rescue- surface water, technical rescue- ice water, technical rescue- below surface dive, public education, code enforcement and inspections. The St. Paul FD-State Chemical Assessment and Regional Response Team provides technician-level hazmat response. The Washington County Sheriff's Office (WCSO) provides emergency call receipt and dispatch service.

Stillwater Fire Department

The Stillwater Fire Department (SFD) is a direct operating department of the City of Stillwater and provides fire protection and basic life support (BLS) emergency medical first responder services to the community. The department's jurisdiction encompasses all of the governmental boundaries of the City of Stillwater, along with additional contractual service areas in Stillwater Township, May Township, and the City of Grant. The department began providing services in 1872.

SFD provides emergency services to a population of 24,277.⁵ The department serves an area of 61 square miles. Located in Washington County, the area served by the department is experiencing moderate to rapid growth. The department's services are provided from one facility. The department operates with three fire engines, one aerial truck, one tender/tanker, one rescue truck, two wildland fire units and several utility and specialty apparatus.

⁴ Number current at time of field research.

⁵ U.S. Census Bureau population data.

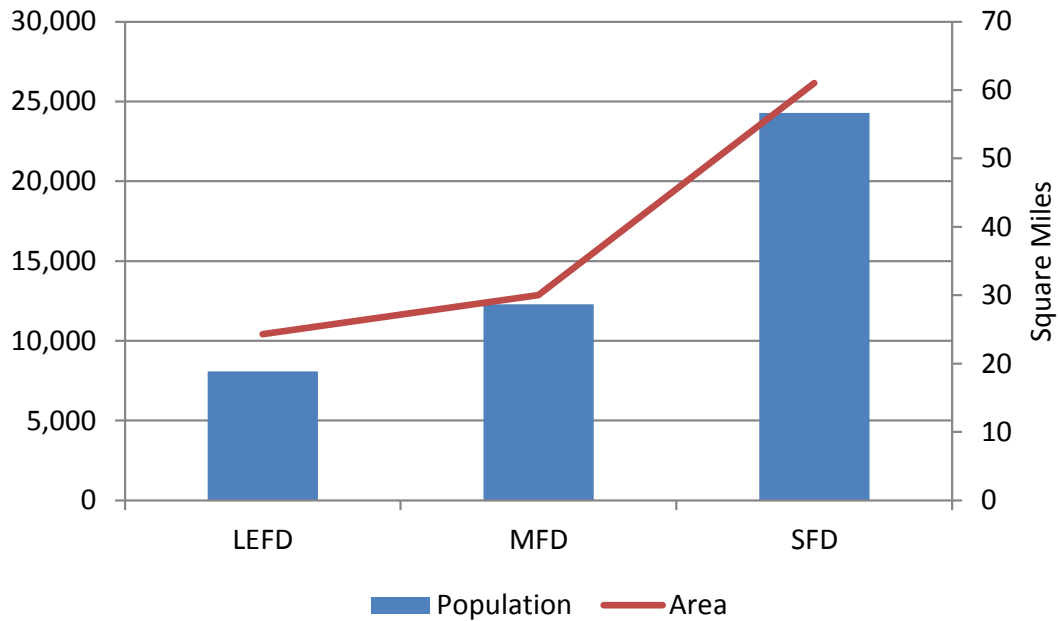
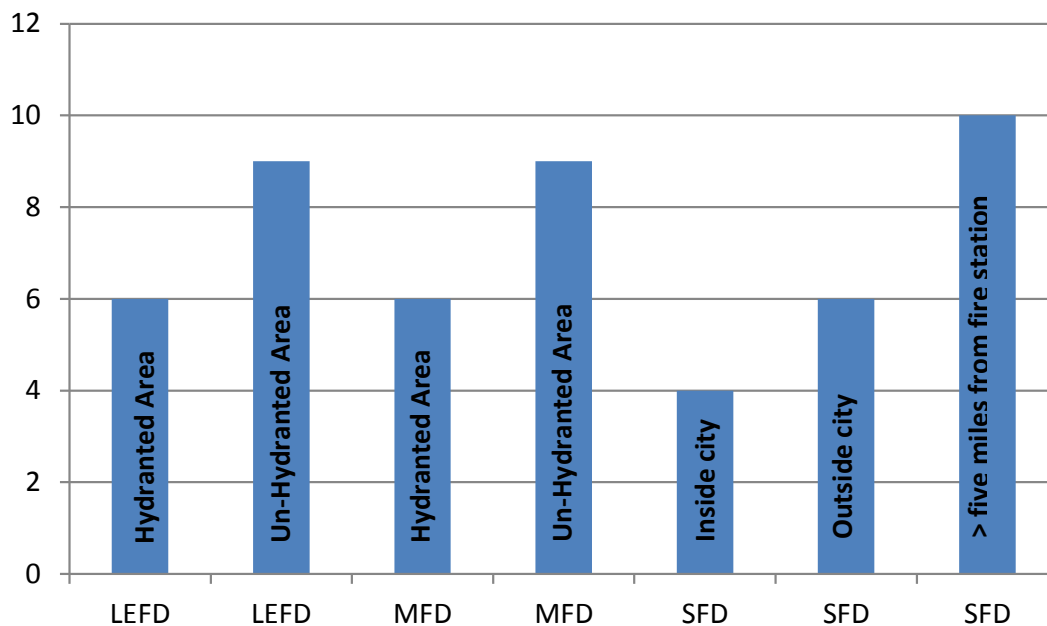
There are 37 individuals⁶ involved in delivering these services to the jurisdiction. The department's primary management team includes the Chief, Deputy Chief, and three Assistant Chiefs. A part-time secretary provides additional support services. Staffing coverage for emergency response is through the use of paid on-duty firefighters, with additional responses by on-call personnel. For immediate response, at least two personnel are on duty at all times, with additional members carrying pagers to receive radio calls for emergency response.

As of the latest rating (conducted in 2003), ISO gave the service area a Public Protection Classification rating of 4/6/10. The split rating applies the class 4 rating to those structures within 1,000 feet of a hydrant or creditable water source. All others receive the higher rating of 6, with the exception of structures outside of five miles from the fire station, which receive a class 10.

The department provides a variety of services, including fire suppression, emergency medical first responder, BLS, vehicle extrication, hazmat operations-level, technical rescue-high-angle rope, technical rescue-surface water, technical rescue-ice water, technical rescue-below surface dive, public education, code enforcement, and inspections. The St. Paul FD-State Chemical Assessment and Regional Response Team provides technician-level hazmat response. The Washington County Communications Center provides emergency call receipt and dispatch service.

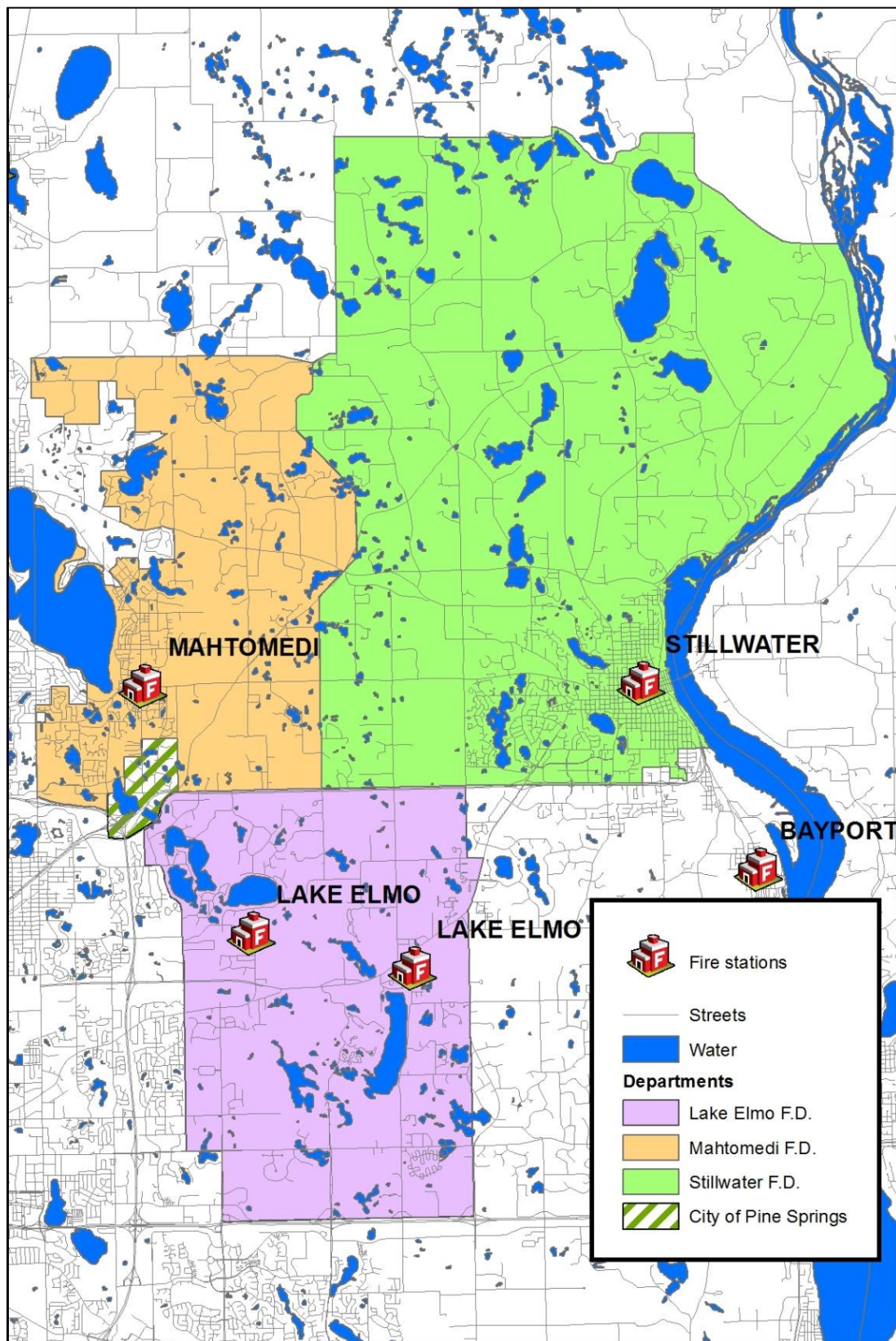
The following figures summarize the information contained in each of the individual department descriptions above.

⁶ Number current at time of field research.

Figure 1: Comparison of Population and Land Area**Figure 2: Resource and ISO Rating Comparison**

The three agencies involved in this study are geographically located in Washington County. The following figure illustrates the agencies' service areas and fire station locations.

Figure 3: Full Study Area Facility Deployment and Response Areas



Governance and Lines of Authority

It is important to understand the governance structure in which a fire department operates. This includes the documents that authorize its functioning and the ability for it to receive adequate and sustainable funding. The lines of authority differentiate the basic organizational structure under which each department functions. The following table describes the basic governance and authority of these fire departments.

Figure 4: Comparison of Governance and Lines of Authority

	Lake Elmo	Mahtomedi	Stillwater
Department Preferred Acronym:	LEFD	MFD	SFD
Governance Authority:	City of Lake Elmo	City of Mahtomedi	City of Stillwater
Name Of Governing Entity, Board or Person:	City Council	City of Mahtomedi	City Council
Governing Entity Description:	Municipal Corporation	Municipal Corporation	Municipal Corporation
Taxing Authority:	Provided the authority to levy taxes for operating a fire protection system	Provided the authority to levy taxes for operating a fire protection system	Provided the authority to levy taxes for operating a fire protection system
Form of Government:	Council-Manager	Council-Manager	Council-Manager
Title of Governing Authority or Body:	City Council	City Council	City Council
Governing Authority Number of Members:	5	5	5
How Are Governing Authority Members Appointed:	Elected	Elected	Elected
Length of Term for Governing Authority Members:	Mayor is four, council members are two	Four Year	Four Year
Title of Governing Authority Executive:	City Administrator	City Administrator	City Administrator
Agency Authorization Document:	City Charter and Ordinances	City Charter and Ordinances	City Charter and Ordinances
Fire Chief Status:	At-will employee with no personal contract	At-will employee with no personal contract	Hired employee with managers collective bargaining contract
Does the Chief Receive a Performance Evaluation?	Annually	Annually	Occasionally

Foundational Policy Documents

Organizations that operate efficiently are typically governed by clear policies that lay the foundation for effective organizational culture. These policies set the boundaries for both expected and acceptable behavior, while not discouraging creativity and self-motivation.

A comprehensive set of departmental operating rules and guidelines should contain at least two primary sections. The following format is suggested.

1. Administrative Rules – This section would contain all of the rules that personnel in the organization are required to comply with at all times. Administrative Rules, by definition, **require** certain actions or behaviors in all situations. The governing body should adopt or approve the Administrative Rules since the Chief is also subject to them. However, the Board should then delegate authority to the Chief for enforcement on department personnel. The Administrative Rules should govern **all** members of the department: paid, volunteer and civilian. Where rules and policies, by their nature, require different application or provisions for different classifications of members, these differences should be clearly indicated and explained in writing. Specifically the Administrative Rules should contain sections which address:
 - Public records access and retention
 - Contracting and purchasing authority
 - Safety and loss prevention
 - Respiratory protection program
 - Hazard communication program
 - Harassment and discrimination
 - Personnel appointment and promotion
 - Disciplinary and grievance procedures
 - Uniforms and personal appearance
 - Other personnel management issues

2. Standard Operating Guidelines (SOGs) – This section should contain “street-level” operational standards of practice for personnel of the department. SOGs are different from Administrative Rules in that variances are allowed in unique or unusual circumstances where strict application of the SOG would be less effective. The document should provide for a program of regular, systematic updating to assure it remains current, practical and relevant. SOGs should be developed, approved, and enforced under the direction of the Fire Chief.

The following table provides information related to each department’s foundational policy documents.

Figure 5: Comparison of Policy Documents

	Lake Elmo	Mahtomedi	Stillwater
Titles of Policy Documents:	Lake Elmo FD Employee Handbook	City Employee Policy Manual, MFD Policy Manual, Regions EMS Medical Protocols	City of Stillwater Personnel Manual, SFD Standard Operating Guidelines, City Charter, EMS Regulatory Board protocols, and applicable collective bargaining agreements
Quality of Administrative Policy Documents:	Well organized and complete	Reasonably well organized, but missing a few important components	Well organized and complete
Important Civil Liability and Risk Management Policies Present?	Yes	Yes	Yes
Quality of Standard Operating Policies:	Very good, up to date	Reasonably well organized, but outdated	Reasonably well organized, up to date
Adequate Operational Scene Guidance?	No	No	Yes
Are administrative policies made available to all members?	Yes, individual copies	Yes, individual copies	Yes, individual copies
Are standard operating guidelines made available to all members?	Yes, individual copies	Yes, individual copies	Yes, individual copies

The following two tables provide a listing of topics that the fire departments might wish to consider including in their Standard Operating Guidelines to enhance field operations.

Figure 6: Typical SOG Topics for Field Operations

Alarms and Response Procedures	Medical Emergencies
Alarm Response Procedures	Operational Guidelines for Medical Aid Responses
Alarm Response Areas	Operations with Ambulance Personnel
Automatic Aid	Emergency Medical Technician - Defibrillator (EMT-D)
Mutual Aid	Major Medical Incidents
Contractual Agreements	Triage
Fire Company Operations	Exposure to Infectious Diseases and Hazardous Materials
Standard Company Operations	Suspected Drug Overdose
First to Arrive Duties	Animal Bites
Returning Companies to Service	Vial of Life and Medic Alert Tags
Use of Civilians	Attempted Suicide
Fire Scene Investigations	Suspected Homicide
High Volume Smoke Removal System	DOA (Dead on Arrival)
Personal Alert Safety Devices	Suspected Child Abuse
On-Scene Equipment Inventory	Suspected Sexual Assault
Personnel Accountability System	Hospital Disaster Notification
2 IN 2 OUT	EMS Reports
Initial Fireground Operations	EMS Radio Procedures
Fluorescent Safety Vests	Drug Box Exchange Policy
Highway Incident Safety	BLS Rules and Regulations
Command Operations	ALS Rules and Regulations
General Strategic Guidelines	Electrical Emergencies
Incident Management System	Electrical Emergency Operations
Command Post Procedures	Rescue Operations
Welfare	Vehicle Rescue and Extrication
Helicopter Operations	Life Line Operations
Public Health Considerations	Rescue from Machinery
Incident Critique	Escalator Emergencies
Area Evacuation	Elevator Emergencies
Incident Command Resource Request	Cave-In and Manhole Rescues
Building Evacuation	Building Collapse
Firefighting	Rescue at Structure Fires
Metal Fires	Transportation Emergencies
Structure Fires (General)	Interstate Operations
Operations in Sprinklered Buildings	Railroad Emergencies
On-Site Auxiliary Fire Equipment	Aircraft Emergencies
High Rise Fires	Hazardous Materials Incidents
Wildland Fires	Hazardous Materials (General)
Vehicle Fires	Flammable Fuel Spill (Liquid or Gas)
Fire Stream Management	LPG Emergencies
Industrial Dumpster Fires	Fumigation Emergencies
Fire Watch Detail	Explosives and Bombs
Fires in US Mailboxes	PCBs
Thermal Image Camera	Pesticide Procedures
High Rise Pack	Radioactive Materials
Bowstring Truss Roof - Operations Procedures	Natural Gas Filled Structures - No Fire
Carbon Monoxide Hazards	Natural Gas Fed Fire - Inside Structure
	Broken Natural Gas Main - Fire
	Broken Natural Gas Main - No Fire

Figure 7: Typical SOG Topics for Non-Emergency Operations

Station Operations	Color Coding Equipment
Station Operations - General	Radio Repair Procedure
Station Maintenance	Pressure Vessel Maintenance
Station Alerting System	Hose Maintenance
Purchasing Procedures	Self-Contained Breathing Apparatus (SCBA)
National Flag/National Anthem	Preventive Maintenance - SCBA's
Equipment Loan Out	Respiratory Breathing Air Systems
Yard Maintenance	Ladder Maintenance
Emergency Power Systems	Nozzle Maintenance
Miscellaneous Station Duties	Fire Extinguishers
Personal Locker Assignments	Hydrant Maintenance
Telephone Use	Hand Tool Maintenance
Station Libraries	Power Tool Maintenance
Scheduling Use of Media Center	Chainsaw Operation and Maintenance
Energy Conservation	Circular Saw Operation and Maintenance
Apparatus Operations	Public Education
Apparatus Maintenance	General Policy
Vehicle Out of Service Procedure	Public Education Scheduling Policy
Testing Apparatus Pumps	Public Relations
Driving Emergency Vehicles	Station Tours
Warning Devices	Fire Extinguisher Demonstrations
Apparatus Operational Limits	Engine Demonstrations
Fueling Procedure	Special Activities Engine - Engine One
Reserve Apparatus	Radio Controlled Education Robots
Apparatus Snow Chains	Fire Prevention
Apparatus Movement to Training Center	Fire Company Fire Prevention Inspections - General
Driver Operator - Pump Certification	Fire Prevention Inspection Guideline
Equipment Operations	Fire Investigation
Equipment Repairs	Related Codes
Equipment Out of Service	Pre-Fire Plans

Recommendation:

- The departments need to ensure that both administrative and operational policies are kept updated and written in a complete and professional format.
- The three departments need to improve the quality and content of their Standard Operating Guidelines, particularly in the area of response operations. Additional guidelines are needed to guide tactics, fire stream operations, pumping operations, ladders and ventilation, and other operational functions.

Organizational Design

A well-designed organizational structure should reflect the efficient assignment of responsibility and authority, allowing the organization to accomplish effectiveness by maximizing distribution of workload. The lines on an organizational chart simply clarify accountability, coordination and supervision.

Thorough job descriptions should provide the details of each position and ensure that each individual's specific role is clear and centered on the overall mission of the organization.

The organizational structure of the department should demonstrate a clear unity of command, in which each individual member reports to only one supervisor (within the context of any given position) and is aware to whom he or she is responsible for supervision and accountability. This method of organization encourages structured and consistent lines of communication and prevents positions, tasks, and assignments from being overlooked. The overall goals and objectives of the organization can be more effectively passed down through the rank and file members in a consistent fashion.

The organizational structure should be charted with clear, designated operating divisions that permit the core functions of the organization to be the primary focus of specific supervisors and assigned members. While some task-level activities may carry over from division to division, the primary focus of leadership, management, and budgeting within the division should be clarified by the division's key function within the mission statement. Those individuals supervising or operating within a specific division must be positively clear as to the role of the division and its goals and objectives.

The department should have sufficiently analyzed its mission and functions such that a resulting set of specific agency programs have been established. Organized, structured programs permit better assignment of resources, division of workload, development of future planning, and analysis of service delivery. Those departments that have clarified their programs with titles, assigned leadership, resources, budget appropriations, performance objectives and accountability are among the most successful.

The following table provides information related to these departments' basic organizational design.

Figure 8: Comparison of Organizational Design

	Lake Elmo	Mahtomedi	Stillwater
Does This Department Have Clear Unity of Command?	Yes	Yes	Yes
Is This Department Organized With Clear Operating Divisions?	Yes	Yes, but limited due to the small size of the organization with members often filling multiple roles	Yes
Are There Specific Programs With Designated Individuals In Charge Of Each?	Yes	The organization is small and programs are limited primarily to core services	Yes
Individuals That Report Directly To The Chief:	Two Safety Officers and two District Chiefs	Two Assistant Chiefs, Fire Marshal, five Captains	Deputy Chief, three Assistant Chiefs, part-time secretary
Chief's Span of Control:	4	8	5
Chief's Disciplinary Authority	Written reprimand and recommendation for further discipline	Limited suspension from duty pending authorization	Suspension from duty and recommendation for termination
Quality of Job Descriptions:	Complete, thorough and up-to-date	Complete, thorough and up-to-date	Incomplete, with only key duties listed
Does This Agency Have Collective Bargaining?	No	No	Yes
Positions Covered:			All positions below Chief, civilian personnel, Chief is included in managers CBA

Recommendation:

- Mahtomedi FD should review its organizational structure to ensure the fire chief does not exceed a reasonable span of control, typically considered to be between three and seven.

Mission, Vision, Strategic Planning, Goals and Objectives

The process of strategic planning involves clarifying an organization's mission, articulating its vision for the future, and specifying the values within which it will conduct itself. A departmental strategic plan, when developed, should include an organizational mission statement, vision, and values. Service delivery goals should be developed and objectives defined for accomplishment of the goals. Critical tasks and timelines for accomplishment should also be produced. This effort is clearly important to the future of any fire and emergency services system.

It is extremely important that there be a clear understanding of critical issues facing the departments. Without such an understanding, department leadership cannot be prepared to face these issues. In addition, the enunciation of critical issues to employees and members increases their awareness of the organization's priorities and assists them in becoming focused on solutions. None of the departments in this study have conducted a formal strategic planning process.

Recommendation:

- The departments should conduct formal strategic planning to clarify organizational vision, articulate organizational values, and provide specific goals and objectives for a three to five-year focus period.

Internal and External Communications

Quality communications is an achievable goal for any organization but one that always seems to be most elusive. However, it is extremely important. Regularly scheduled meetings permit management personnel to openly exchange ideas on a consistent basis, share issues and concerns, apply creative teambuilding and problem-solving, and improve the overall flow of communications. Distributed minutes or summaries of regular staff meetings encourages internal communications and permits members to share ideas on issues involving departmental issues, enhancing a feeling of empowerment among personnel. Written, formal memorandums ensure that all members receive critical data in an organized and consistent fashion. This process also provides a critical written record of internal communications that are important to organizational efficiency. Employee and community newsletters can foster improved relations with internal and external stakeholders.

To their credit, there are established communication processes within each of these departments that provide opportunities for department personnel to be heard and be involved, and for information to be exchanged with the public. The following table provides information related to each agency's internal and external communications efforts.

Figure 9: Comparison of Internal and External Communications Factors

	Lake Elmo	Mahtomedi	Stillwater
Does this agency conduct regularly scheduled staff meetings for key management personnel?	Yes- monthly	Yes- weekly	Yes- monthly
Are minutes of the staff meetings taken and made available to the members?	Yes	Yes	Yes
Are written memos (print or electronic) used for the regular dissemination of agency information?	Yes	Only occasionally	Yes
Is there a standardized process for distribution that ensures all members receive memos and information?	Yes	No	Yes
Is there a means of verifying receipt of critical policies or information?	Yes- signature required	No formal system	Yes- signature required
Are there any forums for members to exchange information with top management?	Yes- monthly member meetings	Yes- station meetings with management	Yes- station meetings with management
Does the agency or its parent community publish a regular employee newsletter?	No	Yes- agency newsletter	No
Are the bulletin boards in the organization controlled and organized under the responsibility of a specific assigned individual/group?	Yes	Yes	Yes
Is email distribution of information available to all members of the organization and used regularly?	Yes- agency email addresses issued	Yes- agency email addresses issued	Yes- agency email addresses issued
Do all members have a formal location for hard-copy information, forms, policies?	Yes- individual member mailboxes	Yes- individual member mailboxes	Yes- individual member mailboxes
Do key personnel have availability of voicemail?	Voicemail only available through cell phones	No regular voicemail used	Yes- key officers have voicemail
Does the community publish a regular newsletter to the general public?	Yes- issued by mail	Yes- issued by mail	Yes- issued in utility invoice
Does the department have an active website?	Yes- includes basic agency information only	Yes- includes basic agency information only	Yes- includes basic agency information only
Has the agency or community ever conducted a formal survey of the public opinion regarding services, priorities, budgets, etc?	No	No	Yes

	Lake Elmo	Mahtomedi	Stillwater
Does this agency have a formal, written complaint-handling policy in place?	Not in writing	Not in writing	No
Has any form of Citizen's Advisory Group ever been formed to assist this agency in regard to planning, budgeting, policy development, etc.?	No	No	No

Recommendation:

- Mahtomedi FD should develop a formal system for verifying receipt of critical documents, memos or policies.
- Lake Elmo FD and Mahtomedi FD should develop a formal, written policy for how complaints from the public will be processed and handled.

Reporting and Recordkeeping

A variety of uses are made of written records and their integrity must be protected. These fire departments also have a significant investment in facilities, apparatus, equipment and other items, along with its financial assets. Protecting these records and assets is very important. For ambulance service providers, the Health Insurance Portability and Accountability Act (HIPAA) includes regulations that require all individually identifiable health care information be protected to ensure privacy and confidentiality when stored, maintained, or transmitted.

The following table summarizes information related to document control and other security issues for these departments.

Figure 10: Comparison of Document Control and Security Factors

	Lake Elmo	Mahtomedi	Stillwater
Are all hard-copy files secured by locked storage cabinets or room passage locks?	Yes	Yes	Yes
Are the buildings consistently secured when unoccupied?	Buildings not consistently locked	Yes- firm policy rigidly followed	Yes- firm policy rigidly followed
Is public access limited and controlled when buildings are occupied?	Buildings are open to public access	Public access secured to limited areas	Public access secured to limited areas
Are locks or codes changed occasionally to prevent orphan keys and improve security?	Locks changed in last 3 to 5 years	Locks change only when security threat identified	Locks change only when security threat identified
Do any of the buildings owned by the agency have security alarms or systems?	No security systems	No security systems	No security systems
Do any of this agency's buildings have monitored fire alarm systems?	No monitored fire alarm systems	No monitored fire alarm systems	Yes- sprinklered buildings only
Is any cash accepted on premises of the agency?	No cash accepted	No cash accepted	Yes- deposited daily
Is petty cash still used in the agency?	Yes- access strictly controlled	No petty cash used	No petty cash used
Are any general use credit cards issued to personnel?	No general use cards	No general use cards	No general use cards

Recommendation:

- Lake Elmo FD should improve security for the buildings. When used by the public without FD presence, access to non-public areas should be managed.

Information Technology Systems

Records management is a critical function to any organization. Effective performance measurement can only be accomplished when records are effectively collected, stored and analyzed. This section provides an overview of these agencies' records management and information technology systems.

Figure 11: Comparison of Information Technology Systems

	Lake Elmo	Mahtomedi	Stillwater
Type of computer network or system?	PCs networked to community/ municipal server	PCs networked to agency server	PCs networked to community/ municipal server
Do servers have redundancy?	Yes	Unsure	Partially
Are computer files backed up regularly?	Yes- backed up off-site	Yes- backed up on site only	Yes- backed up off-site
Are all computer stations protected by password access that is regularly and automatically initiated?	Yes- timeout with inactivity	Yes- timeout with inactivity	Yes- timeout with inactivity
Does the network have complete and updated firewall and virus protection?	Yes	Yes	Yes
What department records have been fully computerized?	Incident reports Basic personnel Training Maintenance Finance	Incident reports Basic personnel Training Maintenance Finance Inspections	Incident reports Basic personnel Training Maintenance Finance Inspections

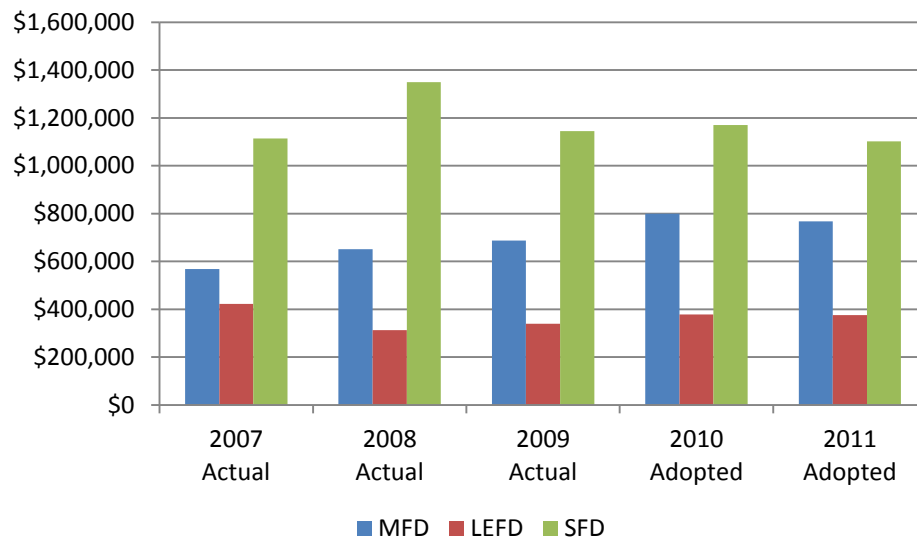
Finance and Budget

Without adequate funding, no emergency services organization can survive or provide the level of service the community expects and deserves. Adequate funding can come from a variety of sources including property taxes, special purpose levies, fund-raising, donations, or fees for service. Regardless of the source of revenue, it is imperative that departments have sufficient funding to carry out their primary mission. This section provides an overview of each agency's financial and budgeting components.

Figure 12: Summary of Finance and Budget Components

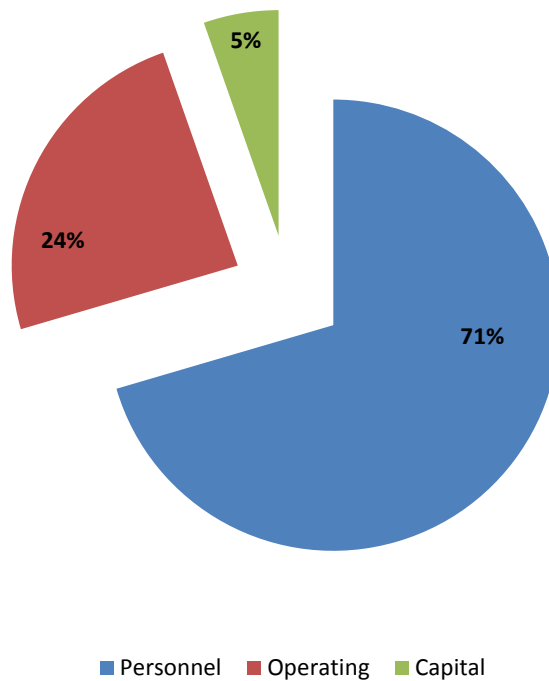
	Lake Elmo	Mahtomedi	Stillwater
Assessed Value	\$1,201,213,400	\$1,028,133,100	\$3,752,531,100
Valuation method	Tax Capacity	Tax Capacity	Tax Capacity
Total Fire Protection Budget	\$375,704	\$767,378	\$1,101,825
Revenue Sources			
General Fund	Primary	Primary	Primary
Special Purpose Levy	No	No	No
Enterprise Fund	No	No	No
Operating Levy	No	No	No
Fund-Raising	No	No	No
Grants/Donations	Occasional	No	Occasional
Other		Ambulance. Expertee Billing.	Municipal contracts
Tax Levy Mixed with General Fund	Yes	Yes	Yes
Fire Tax Rate	No	No	No
Overall Tax Rate	\$21.8600	\$31.3857	\$52.5940
Budget Cycle	Calendar	Calendar	Calendar
Budget Period	Annual	Annual	Annual
Basis of Accounting	Modified Accrual	Modified Accrual	Modified Accrual
Service Fees Utilized	Yes	Ambulance	Limited
EMS Response Fee	No	No	No
EMS Transport Fee	No	Yes	No
Inspections	Yes	No	Yes
Other	Permits	No	No
Contracts		\$390,194	\$323,320
Debt	Equipment Certificate - 12/1/15 payoff	No	No
Municipal contracts	No	Yes	Yes
PO Authority	Chief	Chief signs invoices	Chief

Although the table above provides an overview of the similarities and differences between financial components of each agency, the following figure provides an illustration of how each department's budget has compared over the last five years.

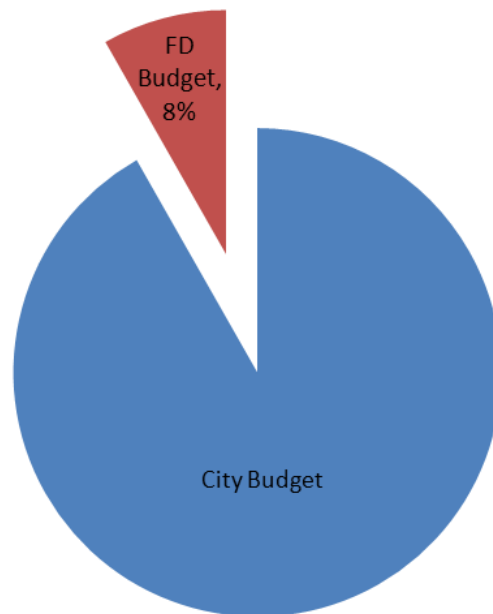
Figure 13: Comparison of Annual Budget

As can be seen from the figure above, SFD has consistently maintained the highest annual budget of the three agencies. This would be expected from a department that employs career personnel. Conversely, LEFD has historically had the smallest budget since they are a predominately volunteer department.

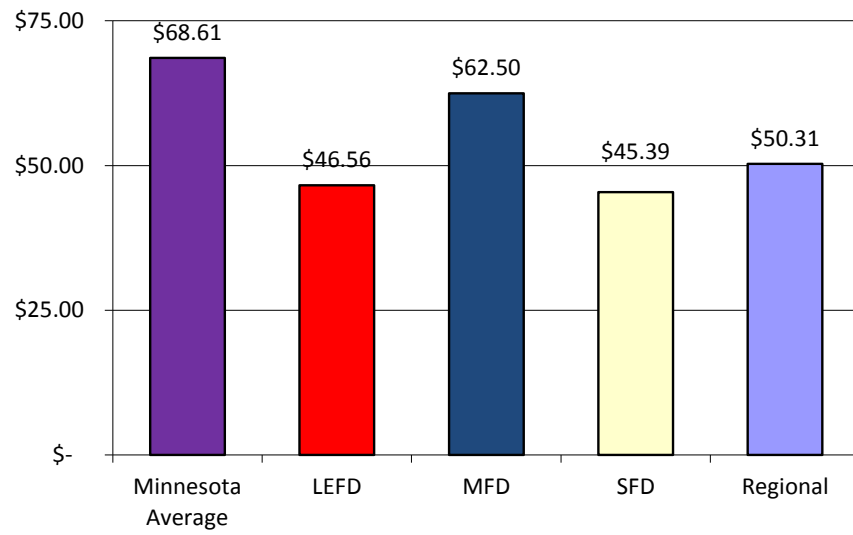
In evaluating the system as a whole, over 71 percent of the total emergency services funding is dedicated to personnel expenditures as is illustrated in the following figure.

Figure 14: Budget Distribution - Regional

For departments that rely on career or other paid types of personnel to serve as the primary means of providing emergency response, personnel costs will comprise a majority of the budget. Since SFD utilizes career personnel, as does MFD for its EMS function, budget distribution is heavier toward personnel. When the overall budget for emergency services is compared to the total budgets for the cities involved in this study, fire protection and EMS calculates to only 8 percent of the total as illustrated in the following figure.

Figure 15: Budget Allotment - Regional

Based on information provided by the U.S. Census Bureau, the national per capita cost of fire protection is estimated to be \$104. By comparison, the State of Minnesota has a calculated average per capita cost of fire protection of \$68.61. The three departments' per capita cost of fire protection is presented in the following figure. Each department has a per capita cost below the Minnesota average and significantly less than the national average. Regionally, the cost per capita calculates to \$50.31, less than half the national per capita cost of fire protection.

Figure 16: Per Capita Cost Comparison

Capital Assets and Capital Improvement Programs

In order for any emergency services system to be effective, physical resources must be sufficient to handle the current and expected workload and be adequately distributed throughout the primary response area so as to affect the quickest response possible to the greatest number of incidents. Additionally, the apparatus or vehicles used in service delivery must be reliable and sufficient in number to accommodate the anticipated workload. This section of the report will evaluate the facilities and apparatus currently in use by the three departments. Distribution of those resources throughout the response area will be analyzed in the next section of this report.

Facilities

Inadequate facilities for housing personnel and apparatus detract from an organization's mission. Limited space can significantly impact the available options for resource assignment, hinder the ability to maintain a well-trained workforce, and may affect member and employee morale. The primary functions that take place within the station should provide adequate and efficient space for all functions. Some examples include:

- Housing and cleaning of apparatus and equipment
- Administrative office duties where necessary
- Personnel training
- Residential living that is gender compatible for on-duty members when necessary
- Operations that include enough room for community groups and parking

While this list may seem elementary, the lack of dedicated space compromises the ability of the facility to support these functions, and can detract from its primary purpose. ESCI did not conduct an in-depth review of the stations in the study area but did note locations, access to the community, and general size and condition.

Stillwater Fire Station	
Address of facility:	216 N 4th Street
Year facility was initially constructed:	1965
Number of major additions or renovations:	1
Year of major addition/renovation:	1996
Construction and Condition	
Building square feet:	18,700
Apparatus Bays:	
<i>Back-in single unit</i>	1
<i>Back-in used with stacked parking</i>	4
Building height:	One story
Construction type:	TYPE III-A--Protected Combustible (one-hour rating)
Outside finish:	Brick veneer
Unusual construction features present:	None
Overall construction condition:	Worn paint or finishes
Does structure appear to be ADA compliant?	Yes
Building code issues evident:	None
Roof type:	Flat- membrane Flat- composition
Roof age:	Over 10 years
Roof condition:	Small isolated leaks evident or reported
Type of heating system:	Forced air- fuel oil Steam/boiler- natural gas
Heating system age:	1 to 10 years
Air conditioning:	Central air- living and administrative areas only
Building Design	
Overall size of facility adequate for current use?	No
Apparatus exit:	Exit to traffic flow safe and unimpeded
Building and property blend well with neighborhood?	Yes
Building and property adaptable if future expansion needed?	Site expansion limited, building not adaptable
Adequate staff and visitor parking?	Parking is adequate
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly?	Yes
Adequate fire extinguishers (not on apparatus)?	Yes
Cooking equipment central shutdown?	No
Automatic fire sprinklers present?	Entire building
Fire sprinkler system type:	Wet
Alarm systems present:	Sprinkler water flow Monitored smoke/heat alarms
Are all flammable and combustible liquids stored in approved cabinet?	Yes
All pressure cylinders stored properly?	Yes
SCBA compressor system present?	Yes
Air sample certification present and visible?	Yes

Backup generator present?	Yes, with auto transfer switch
Environmental Issues	
Apparatus exhaust removal?	Forced air through structure auto activation
Underground storage tanks present?	No
Apparatus floor drain oil separators in place?	Oil separator in use
Staff Features	
Adequate space for working in on or around apparatus?	Space around apparatus cramped and movement is limited
Apparatus room accommodates working on small equipment, hose, tools, etc.?	Marginally adequate space
Personnel can move quickly and easily to apparatus for response?	Yes
Adequate space for cooking and eating?	Yes
Adequate space for local company training drills?	Yes
Are compromises necessary for two-gender staffing?	No
Two-gender compromises:	
Adequate space for personal hygiene?	Yes
Adequate space for sleeping?	Yes
Adequate space for storage?	No
Additional operational compromises made by staff or crew to compensate for facility inadequacies:	
Facility features: Separate watch room/station office Administrative/support offices Communications/dispatch Day room/lounge Kitchen Classroom for >10 Training library Individual dormitories Shower/locker room(s) Dedicated exercise/workout area Turnout gear extraction washer SCBA filling station	

Lake Elmo Fire Station One	
Address of facility:	3510 Laverne Avenue
Year facility was initially constructed:	1957
Year of major addition/renovation:	1980
Construction and Condition	
Building square feet:	Unknown
Apparatus Bays:	
<i>Back-in single unit</i>	3
<i>Back-in used with stacked parking</i>	1
Building height:	One story
Construction type:	TYPE II-A--Protected Non-Combustible
Outside finish:	Masonry block
Unusual construction features present:	None
Overall construction condition:	Worn paint or finishes
Does structure appear to be ADA compliant?	No
Building code issues evident:	Yes no one-hour separation bays to offices
Roof type:	Flat- membrane
Roof age:	Over 20 years
Roof condition:	Small isolated leaks evident or reported
Type of heating system:	Forced air- natural gas Steam/boiler- natural gas
Heating system age:	Over 20 years
Air conditioning:	Window AC unit- living and administrative areas only
Building Design	
Overall size of facility adequate for current use?	No
Apparatus exit:	Exit to traffic flow safe and unimpeded
Building and property blend well with neighborhood?	Yes
Building and property adaptable if future expansion needed?	No
Adequate staff and visitor parking?	Parking is adequate
Additional design comments:	Several revisions made by occupants
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly?	Yes
Adequate fire extinguishers (not on apparatus)?	Yes
Cooking equipment central shutdown?	No
Automatic fire sprinklers present?	None
Alarm systems present:	No alarm systems present
Is commercial cooking equipment present?	Yes
Proper hood, duct and grease filters in place?	No
Fixed fire extinguishing system in hood properly inspected?	Fixed extinguishing system not present
Are all flammable and combustible liquids stored in approved cabinet?	Yes
All pressure cylinders stored properly?	Yes
SCBA compressor system present?	Yes
Air sample certification present and visible?	Yes

Backup generator present?	No generator present
Environmental Issues	
Apparatus exhaust removal?	No exhaust removal effort in place
Underground storage tanks present?	No
Apparatus floor drain oil separators in place?	Oil separator in use
Staff Features	
Adequate space for working in, on or around apparatus?	Space around apparatus cramped and movement is limited Apparatus parking is impeded due to inadequate space
Apparatus room accommodates working on small equipment, hose, tools, etc.?	Space is small and limited
Personnel can move quickly and easily to apparatus for response?	Compromised, turnout gear is cramped between equipment
Adequate space for cooking and eating?	Compromised, any eating occurs in classroom
Adequate space for local company training and drills?	Yes
Are compromises necessary for two-gender staffing?	No
Adequate space for personal hygiene?	No
Adequate space for sleeping?	Not intended for sleep accommodation
Adequate space for storage?	No
Identify any additional operational compromises made by staff or crew to compensate for facility inadequacies:	Classroom doubles as dayroom/lounge, dining room.
Facility features:	Separate watch room/station office Administrative/support offices Kitchen Classroom for >10 Turnout gear extraction washer SCBA filling station

Lake Elmo Fire Department Station Two	
Address of facility:	4259 Jamaica
Year facility was initially constructed:	unknown
Construction and Condition	
Building square feet:	unknown
Apparatus Bays:	
<i>Back-in, single unit</i>	3
<i>Back-in, used with stacked parking</i>	1
Building height:	One story
Construction type:	TYPE II-B--Unprotected Non-Combustible
Outside finish:	Masonry block
Overall construction condition:	Worn paint or finishes
Does structure appear to be ADA compliant?	Yes
Building code issues evident:	Yes no one-hour separation bays to living areas
Roof type:	Flat- membrane
Roof age:	Original to building
Roof condition:	No known problems
Type of heating system:	Radiant- natural gas
Heating system age:	Original to building
Air conditioning:	Window AC unit- living areas only
Building Design	
Overall size of facility adequate for current use?	Yes
Apparatus exit:	Convolutd apparatus exit extends response time
Building and property blend well with neighborhood?	Yes
Building and property adaptable if future expansion needed?	Yes
Adequate staff and visitor parking?	Parking is adequate
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly?	Yes
Adequate fire extinguishers (not on apparatus)?	Yes
Cooking equipment central shutdown?	No cooking equipment present
Automatic fire sprinklers present?	None
Alarm systems present:	No alarm systems present
Is commercial cooking equipment present?	No
Are all flammable and combustible liquids stored in approved cabinet?	None present
Location of improperly stored flammables/combustibles?	
All pressure cylinders stored properly?	Yes
SCBA compressor system present?	No
Backup generator present?	No generator present
Environmental Issues	
Apparatus exhaust removal?	No exhaust removal effort in place
Underground storage tanks present?	No
Apparatus floor drain oil separators in place?	Oil separator in use

Staff Features	
Adequate space for working in, on or around apparatus?	Space around apparatus is adequate
Apparatus room accommodates working on small equipment, hose, tools, etc.?	Space is small and limited
Personnel can move quickly and easily to apparatus for response?	Yes
Adequate space for cooking and eating?	No
Adequate space for local company training drills?	Yes
Are compromises necessary for two-gender staffing?	No
Two-gender compromises:	
Adequate space for personal hygiene?	No
Adequate space for sleeping?	Not intended for sleep accommodation
Adequate space for storage?	No
Identify any additional operational compromises made by staff or crew to compensate for facility inadequacies:	Not capable of on-site residency
Facility features:	Separate watch room/station office Day room/lounge Turnout gear extraction washer

Mahtomedi Fire Station	
Address of facility:	800 Stillwater Road
Year facility was initially constructed:	1981
Construction and Condition	
Building square feet:	7700
Apparatus Bays:	
<i>Drive-through capable, but used with stacked parking</i>	3
Building height:	Two story
Construction type:	TYPE I-B--Fire Resistive Non-Combustible
Outside finish:	Masonry block
Unusual construction features present:	None
Overall construction condition:	Good condition
Does structure appear to be ADA compliant?	No
Building code issues evident:	No one-hour separation bays to living areas
Roof type:	Flat- membrane
Roof age:	Original to building
Roof condition:	Significant leaking evident or reported
Type of heating system:	Radiant- natural gas Steam/boiler- natural gas
Heating system age:	Original to building
Air conditioning:	Central air- living and administrative areas only
Any other known maintenance or disrepair issues?	Crack in rear wall
Building Design	
Overall size of facility adequate for current use?	No
Apparatus exit:	Signalization would be helpful, but not present
Building and property blend well with neighborhood?	Yes
Building and property adaptable if future expansion needed?	Yes
Adequate staff and visitor parking?	Parking is adequate
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly?	Yes
Adequate fire extinguishers (not on apparatus)?	Yes
Cooking equipment central shutdown?	No
Automatic fire sprinklers present?	None
Alarm systems present:	Local smoke detection only
Is commercial cooking equipment present?	No
Are all flammable and combustible liquids stored in approved cabinet?	Yes
All pressure cylinders stored properly?	Yes
SCBA compressor system present?	Yes
Air sample certification present and visible?	Yes
Backup generator present?	Yes with manual transfer switch

Environmental Issues	
Apparatus exhaust removal?	Forced air through structure auto activation
Underground storage tanks present?	No
Apparatus floor drain oil separators in place?	Oil separator in use
Staff Features	
Adequate space for working in, on or around apparatus?	Space around apparatus cramped and movement is limited Limited space for working at rear of apparatus
Apparatus room accommodates working on small equipment hose, tools, etc.?	Space is small and limited
Personnel can move quickly and easily to apparatus for response?	No
Adequate space for cooking and eating?	Compromised dayroom doubles for dining
Adequate space for local company training drills?	Yes
Are compromises necessary for two-gender staffing?	No
Two-gender compromises:	
Adequate space for personal hygiene?	Yes
Adequate space for sleeping?	Not intended for sleep accommodation
Adequate space for storage?	No
Facility features:	Separate watch room/station office Administrative/support offices Day room/lounge Kitchen Classroom for >10 Training library Turnout gear extraction washer SCBA filling station

Apparatus

In totality, the departments maintain a fleet of 37 response and specialty service vehicles. Most of the current emergency vehicles fall within what is considered to be an acceptable life span, with an average age calculated at 15.0 years. The following figures summarize currently existing fire and emergency medical response apparatus, as well as the equipment capacities and condition.

Lake Elmo**Engine 3173**

Manufacturer	General Fire Equipment
Year of Manufacture	1990
Mileage	54,898
Hours	3,032
Pumping Capacity	1,250 gpm (gallons per minute)
Tank Capacity	500 gallons
Seating Capacity	5
Number of SCBA	5
Surface Rust Present	Light
Structural Rust and Corrosion	Light
Apparent Fluid Leaks	Light
Overall Appearance and Condition Rating	Good

Aerial 3175

Does this unit also respond as a standard engine (quint use)	Also responds as a standard engine company
Manufacturer	General Fire Equipment
Year of Manufacture	1980
Mileage	41,211
Hours	471
Pumping Capacity	1,000 gpm
Type of Elevating Aerial Device	Articulating Elevated Nozzle w/ Limited Ladder (Squirt)
Elevating Device Style	Rear Mount
Height Of Device At Full Elevation	50
Tank Capacity	500 gallons
Seating Capacity	5
Number of SCBA	5
Equipment	large diameter hose generator BLS medical gear
Surface Rust	Light
Structural Rust and Corrosion	Moderate
Apparent Fluid Leaks	Light
Overall Appearance and Condition Rating	Good

Tanker 3176

Does this unit also respond as a standard engine?	Tanker use only
Manufacturer	Luverne Fire Equipment
Year of Manufacture	1987
Mileage	18,948
Hours	1,518
Pumping Capacity	500 gpm
Tank Capacity	1,600 gallons
Seating Capacity	2
Number of SCBA	2
Equipment	portable dump tank
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Brush 3178

Type of Unit	Wildland Unit
Manufacturer	Ford/General Fire Equipment
Year of Manufacture	2001
Mileage	21,738
Pumping capacity	100-250 gpm
Tank Capacity	150 gallons
Seating Capacity	5
Number of SCBA	1
Equipment	None
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Ranger 1

Manufacturer	Polaris
Year of Manufacture	2009
Mileage	170
Pumping Capacity	100-250 gpm
Tank Capacity	100 gallons
Seating Capacity	2
Number of SCBA	0
Equipment	BLS medical gear class A foam
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

CV1

Manufacturer	Chevrolet
Year of Manufacture	2008
Mileage	39,931
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	5
Number of SCBA	1
Equipment	BLS medical gear automatic external defibrillator incident command board multi-point communications capabilities
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Engine 3183

Manufacturer	General Fire Equipment
Year of Manufacture	1997
Mileage	30,105
Hours	1952
Pumping Capacity	1,250 gpm
Tank Capacity	750 gallons
Seating Capacity	5
Number of SCBA	5
Equipment	large diameter hose BLS medical gear automatic external defibrillator thermal imaging camera class A foam injected
Surface Rust Present	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Tanker 3186

Does this unit also respond as a standard engine	Pumper tanker also responds as engine
Manufacturer	Rosenbauer International WY
Year of Manufacture	2007
Mileage	1,165
Hours	806
Pumping capacity	1,500 gpm
Tank Capacity	2,750 gallons
Seating Capacity	5
Number of SCBA	5
Equipment	large diameter hose generator articulating flood light power rescue tool BLS medical gear automatic external defibrillator portable dump tank class A foam injection
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	Light
Overall Appearance and Condition Rating	Excellent

Rescue 3187

General Rescue Class	Light Rescue
Manufacturer	Ford/Local
Year of Manufacture	1994
Mileage	21,656
Equipped for	5
Number of SCBA	0
Equipment	water rescue gear BLS medical gear cold water suits
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Boat 1

Manufacturer	Mercury
Year of Manufacture	2007
Mileage	0
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	4
Number of SCBA	0
Equipment	Water rescue gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Brush 3188

Manufacturer	Ford/Custom
Year of Manufacture	2004
Mileage	5,463
Pumping Capacity	100-250 gpm
Tank Capacity	200 gallons
Seating Capacity	2
Number of SCBA	1
Equipment	class A foam
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

CV2

Type of Unit	Command Vehicle
Manufacturer	Chevrolet
Year of Manufacture	2007
Mileage	27,000
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	5
Number of SCBA	1
Equipment	BLS medical gear automatic external defibrillator incident command board multi-point communications capabilities
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Mahtomedi**Engine 5106**

No Photo Available

Manufacturer	General Fire Equipment
Year of Manufacture	1996
Mileage	24,161
Hours	2,159
Pumping Capacity	1,750 gpm
Tank Capacity	750 gallons
Seating Capacity	5
Number of SCBA	6
Equipment	large diameter hose generator power rescue tool BLS medical gear automatic external defibrillator thermal imaging camera compressed air foam system
Surface Rust Present	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Reserve Engine 5108R

No Photo Available

Unit Status	Reserve Status not fully equipped
Manufacturer	General Fire Equipment
Year of Manufacture	1982
Mileage	20,000
Hours	2,000
Pumping Capacity	1,250 gpm
Tank Capacity	1,000 gallons
Seating Capacity	5
Number of SCBA	0
Equipment	large diameter hose
Surface Rust Present	Light
Structural Rust and Corrosion	Light
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Ladder 5108

No Photo Available

Does this unit also respond as a standard engine (quint use)?	Also responds as a standard engine company
Manufacturer	Rosenbauer International WY
Year of Manufacture	2007
Mileage	5253
Hours	442
Pumping Capacity	2000
Type of Elevating Aerial Device	Straight Ladder
Elevating Device Style	Rear Mount
Height Of Device At Full Elevation	100
Tank Capacity	500
Seating Capacity	6
Number of SCBA	6
Equipment	large diameter hose generator BLS medical gear automatic external defibrillator thermal imaging camera compressed air foam system
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Tanker 5105

Available No Photo

Does this unit also respond as a standard engine?	Pumper tanker also responds as engine
Manufacturer	Luverne Fire Equipment
Year of Manufacture	1987
Mileage	21,363
Hours	2,109
Pumping Capacity	1,250 gpm
Tank Capacity	1,500 gallons
Seating Capacity	5
Number of SCBA	5
Equipment	large diameter hose generator BLS medical gear automatic external defibrillator portable dump tank
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Ambulance 850

No Photo Available

Manufacturer	Road Rescue Inc.
Year of Manufacture	2009
Mileage	6,578
Equipped for	ALS
Crew Seating Capacity	2
Number of SCBA	1
Equipment	ALS medical gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Ambulance 851

No Photo Available

Manufacturer	Road Rescue Inc.
Year of Manufacture	2003
Mileage	49,837
Equipped for	ALS
Crew Seating Capacity	2
Number of SCBA	1
Equipment	ALS medical gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Rescue 5107

No Photo Available

General Rescue Class	Medium Rescue
Manufacturer	Road Rescue
Year of Manufacture	1991
Mileage	13,961
Equipped for	5
Number of SCBA	5
Equipment	generator power rescue tool rope rescue gear water rescue gear diving gear BLS medical gear automatic external defibrillator cascade scba fill station
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Dive Trailer

No Photo Available

Manufacturer	Haulmark
Year of Manufacture	2005
Equipment	multi-point communications capabilities dive gear support gear bathroom
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Zodiak Boat

No Photo Available

Manufacturer	Zodiak Marine
Year of Manufacture	2002
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	3
Number of SCBA	0
Equipment	Water rescue gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Brush 5109

No Photo Available

Manufacturer	Ford/Local
Year of Manufacture	2007
Mileage	8,800
Pumping Capacity	100-250 gpm
Tank Capacity	220 gallons
Seating Capacity	5
Number of SCBA	0
Equipment	BLS medical gear automatic external defibrillator flammable liquid foam (AFFF style) class A foam compressed air foam system
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Command 5104

No Photo Available

Type of Unit	Command Vehicle
Manufacturer	Chevrolet
Year of Manufacture	2009
Mileage	28,000
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	5
Number of SCBA	0
Equipment	BLS medical gear automatic external defibrillator incident command board multi-point communications capabilities
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Brush 5110

No Photo Available

Manufacturer	Chevrolet/ Local
Year of Manufacture	2001
Mileage	45,000
Pumping Capacity	100-250 gpm
Tank Capacity	250 gallons
Seating Capacity	4
Number of SCBA	0
Equipment	BLS medical gear automatic external defibrillator class A foam
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Boat 2

No Photo Available

Manufacturer	Boston Whaler
Year of Manufacture	1982
Pumping Capacity	300 gpm
Tank Capacity	No tank
Seating Capacity	4
Number of SCBA	0
Equipment	Water rescue gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

HazMat Trailer

No Photo Available

Manufacturer	Haulmark
Year of Manufacture	2004
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	No riding
Number of SCBA	0
Equipment	Hazardous material and operational response support equipment and supplies
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Stillwater**Engine 6107**

Manufacturer	Alexis Fire Equipment IL
Year of Manufacture	2005
Mileage	55,279
Hours	5,999
Pumping Capacity	250 gpm
Tank Capacity	250 gallons
Seating Capacity	4
Number of SCBA	3
Equipment	generator power rescue tool rope rescue gear water rescue gear BLS medical gear automatic external defibrillator thermal imaging camera compressed air foam system
Surface Rust Present	Light
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Engine 6108

Manufacturer	Pierce Mfg. WS
Year of Manufacture	1996
Mileage	93,103
Hours	8,615
Pumping Capacity	1,750 gpm
Tank Capacity	500 gallons
Seating Capacity	6
Number of SCBA	5
Equipment	large diameter hose generator power rescue tool rope rescue gear water rescue gear BLS medical gear automatic external defibrillator thermal imaging camera class A foam injected
Surface Rust Present	Moderate
Structural Rust and Corrosion	Moderate
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Fair

Engine 6109

Manufacturer	General Safety-Rosenbauer
Year of Manufacture	2011
Mileage	3,100
Hours	171
Pumping Capacity	1,250 gpm
Tank Capacity	750 gallons
Seating Capacity	5
Number of SCBA	5
Equipment	large diameter hose generator BLS medical gear class A foam/eductor class B foam/eductor
Surface Rust Present	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Ladder 6112

Does this unit also respond as a standard engine (quint use)?	Responds as aerial/truck company only
Manufacturer	Pierce Mfg. WS
Year of Manufacture	2002
Mileage	8,937
Hours	1,122
Pumping Capacity	1,750 gpm
Type of Elevating Aerial Device	Straight Ladder
Elevating Device Style	Rear Mount
Height Of Device At Full Elevation	105
Tank Capacity	500 gallons
Seating Capacity	6
Number of SCBA	5
Equipment	large diameter hose generator BLS medical gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Tanker 6106

Does this unit also respond as a standard engine?	Tanker use only
Manufacturer	Custom Fire Apparatus Inc WI
Year of Manufacture	1989
Mileage	19,918
Hours	
Pumping Capacity	300 gpm
Tank Capacity	1,500 gallons
Seating Capacity	2
Number of SCBA	2
Equipment	portable dump tank
Surface Rust	Light
Structural Rust and Corrosion	Light
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Rescue 6105

General Rescue Class	Medium Rescue
Manufacturer	Custom Fire Apparatus Inc WI
Year of Manufacture	1989
Mileage	14,289
Equipped for	7
Number of SCBA	4
Equipment	generator power rescue tool rope rescue gear water rescue gear diving gear BLS medical gear air cascade system ice rescue gear
Surface Rust	Light
Structural Rust and Corrosion	Light
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Brush 6110

Manufacturer	Ford
Year of Manufacture	2006
Mileage	6,655
Pumping Capacity	100-250 gpm
Tank Capacity	150 gallons
Seating Capacity	2
Number of SCBA	0
Equipment:	class A foam
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Brush 6111

Manufacturer	Ford
Year of Manufacture	2006
Mileage	6,024
Pumping Capacity	100-250 gpm
Tank Capacity	150 gallons
Seating Capacity	2
Number of SCBA	0
Equipment	class A foam
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Unit 6115

Type of Unit	Crew Transport
Manufacturer	Chevrolet
Year of Manufacture	1993
Mileage	56,457
Pumping Capacity	No pump
Tank Capacity	No tank
Seating Capacity	5
Number of SCBA	0
Equipment	BLS medical gear automatic external defibrillator incident command board
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Boat

Manufacturer	Rescue One
Year of Manufacture	2008
Pumping capacity	No pump
Tank Capacity	No tank
Seating Capacity	4
Number of SCBA	0
Equipment	Water rescue gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Command Post

Manufacturer	Thor Manufacturing
Year of Manufacture	2006
Equipment	generator incident command board multi-point communications capabilities video surveillance/recording
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Recommendations:

- Each municipality should adopt a long-range capital replacement plan that considers necessary replacement of critical apparatus and equipment.
- The cities should consider developing a joint capital replacement plan for all fire apparatus.

Fire apparatus are typically very unique and expensive pieces of equipment, often customized to operate efficiently in a narrowly defined mission. A pumper may be designed such that the compartments fit specific equipment and tools, with virtually every space on the truck designated in advance for functionality. This same vehicle, with its specialized design, cannot be expected to function in a completely different capacity, such as a hazardous materials unit or a rescue squad. For this reason, fire apparatus is very expensive and offers little flexibility in use and reassignment. As a result, communities across the country have sought to achieve the longest life span possible for these vehicles.

Unfortunately, no mechanical piece of equipment can be expected to last forever. As a vehicle ages, repairs tend to become more frequent, parts more difficult to obtain, and downtime for repair increases. Given the emergency mission that is so critical to the community, this factor of downtime is one of the most frequently identified reasons for apparatus replacement.

Because of the large expense of fire apparatus, most communities have efforts in place to plan ahead for the cost of replacement. To properly do so, communities often turn to the long-accepted practice of establishing a life cycle for the apparatus that result in a replacement date being anticipated well in advance. Many communities then set aside incremental funds during the life of the vehicle so replacement dollars are ready when needed.

The City of Mahtomedi maintains a rolling five-year capital replacement plan but the only item pertaining to the fire department is the replacement of the fire station budgeted for 2010 through a general obligation capital improvement bond in the amount of \$5,500,000.

The City of Stillwater maintains a rolling five-year capital replacement plan. The following items have been identified for the fire department within Stillwater's plan.

- Minitor IV Pagers
- Turnout Gear

- Engine Replacement
- Computer Replacement
- Respirator Fit Testing Equipment
- GPS Units

Neither the City of Lake Elmo nor the City of Mahtomedi maintains a capital improvement plan that includes fire department equipment.

In total, the three departments have a combined 25 heavy response apparatus:

- 8 Engines
- 3 Tanker/Tenders
- 3 Aerial Ladders
- 6 Brush/Wildland
- 2 Ambulances
- 3 Rescues

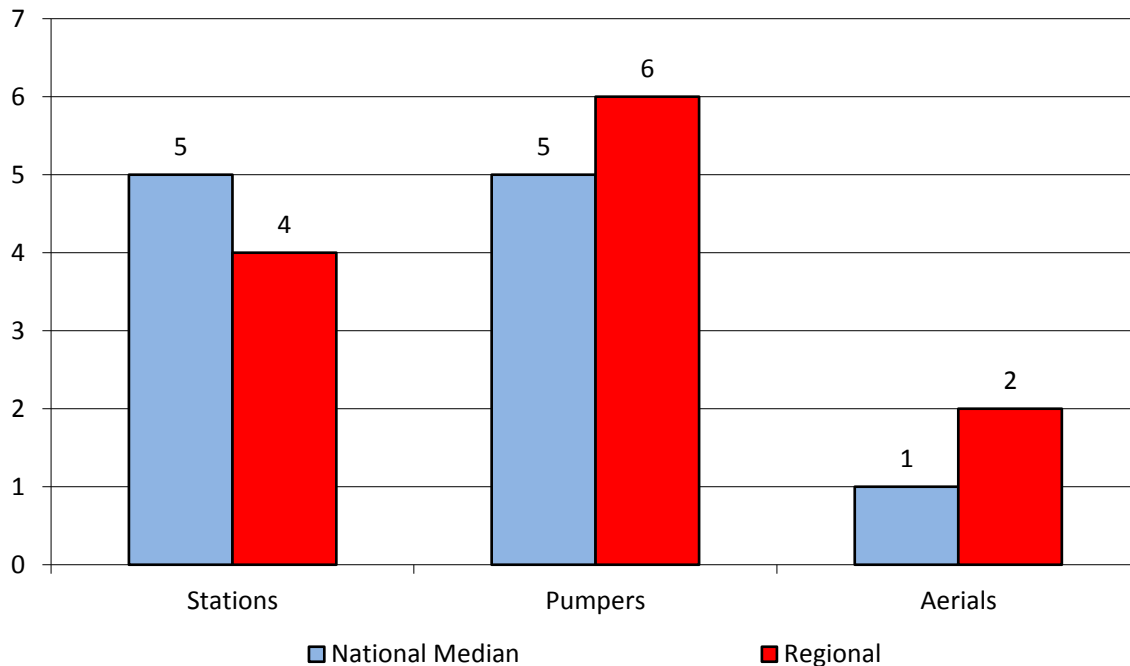
The following is an example capital improvement plan based on current levels of primary apparatus. It does not include light response vehicles such as command cars, boats, or other utility vehicles. If the region were to enter into a cooperative program of vehicle replacement and follow the schedule below, a current need of \$7,528,667 would exist due to a lack of historical capital replacement planning. Looking forward, to fully fund this plan would require an annual capital fund contribution of \$417,000. It should be emphasized, however, that this replacement schedule is based on existing apparatus and does not represent any possible reductions in the total apparatus fleet as a result of any consolidation or shared services.

Figure 17: Example Capital Replacement Plan – Regional

Unit	Year	Replacement Cost	Annual Fund Contributions	Current Cash Requirements	Current Age	Life Expectancy	Replacement Year
Engine 3173	1990	\$600,000	NA	\$600,000	21	15	OVERDUE
Aerial 3175	1980	\$1,200,000	NA	\$1,200,000	31	20	OVERDUE
Tanker 176	1987	\$350,000	NA	\$350,000	24	15	OVERDUE
Brush 3178	2001	\$80,000	\$5,333	\$53,333	10	15	2016
Engine 3183	1997	\$600,000	\$40,000	\$560,000	14	15	2012
Engine 3186	2007	\$600,000	\$40,000	\$160,000	4	15	2022
Rescue 3187	1994	\$95,000	NA	\$95,000	17	10	OVERDUE
Brush 3188	2004	\$80,000	\$5,333	\$37,333	7	15	2019
Engine 5106	1996	\$600,000	\$40,000	\$600,000	15	15	OVERDUE
Engine 5108R	1982	\$600,000	NA	\$600,000	29	15	OVERDUE
Ladder 5108	2007	\$1,200,000	\$60,000	\$240,000	4	20	2027
Tanker 5105	1987	\$350,000	NA	\$350,000	24	15	OVERDUE
Ambulance 850	2009	\$125,000	\$12,500	\$25,000	2	10	2019
Ambulance 851	2003	\$125,000	\$12,500	\$100,000	8	10	2013
Rescue 5107	1991	\$350,000	NA	\$350,000	20	15	OVERDUE
Brush 5109	2007	\$80,000	\$5,333	\$21,333	4	15	2022
Brush 5110	2001	\$80,000	\$5,333	\$53,333	10	15	2016
Engine 6107	2005	\$600,000	\$40,000	\$240,000	6	15	2020
Engine 6108	1996	\$600,000	\$40,000	\$600,000	15	15	OVERDUE
Engine 6109	2011	\$600,000	\$40,000	\$--	0	15	2026
Ladder 6112	2002	\$1,200,000	\$60,000	\$540,000	9	20	2022
Tanker 6106	1989	\$350,000	NA	\$350,000	22	15	OVERDUE
Rescue 6105	1989	\$350,000	NA	\$350,000	22	15	OVERDUE
Brush 6110	2006	\$80,000	\$5,333	\$26,667	5	15	2021
Brush 6111	2006	\$80,000	\$5,333	\$26,667	5	15	2021
TOTALS			\$ 417,000	\$7,528,667			

When compared to the national median rates of resources per 1,000 population as provided by the U.S. Fire Administration, the region is heavy on both pumpers/engines and aerial apparatus but is below the national median in total number of stations.

Figure 18: Comparison of Select Capital Resources – Regional



These national median rates are based on population and do not, however, consider geography or specific service demand. Thus, any final decisions on the number of apparatus and deployment of specific apparatus types can take place during the implementation phases of any shared services endeavor. It is possible that at least some apparatus redundancy may exist in this independent system and that additional savings in capital replacement funding in a consolidated system could be experienced beyond the annual operating savings shown. For instance, each department participating in this study maintains a number of apparatus that are specialty in nature, such as boats, ATVs, utility vehicles and specialty equipment trailers, etc. In a consolidation implementation process, these apparatus should be examined and compared for redundancies.

Staffing and Personnel Management

In simplest terms, staffing is defined “as to supply with a staff or with workers.”⁷ In broader terms, it involves the decisions and activities connected with selecting and training individuals for specific job functions and charging them with job responsibilities. These individuals provide the staff for an organization.

Before delving into a discussion of staffing and personnel management a clarification is provided. The terms "human resource management" and "human resources" (HR) have largely replaced the term "personnel management" as a description of the processes involved in managing people in organizations.⁸ However, the terms are frequently used interchangeably when describing the recruitment and retention of a workforce, regardless of whether that workforce is career, other paid, or volunteer.

Human resource management (HRM) is based on the assumption that workers and members of organizations are individuals with varying goals, desires, needs, and wants. As such, the workforce should never be thought of as an inanimate business resource. Because people represent the very foundation of any successful organization, HRM should take a positive view of workers, assuming that all wish to contribute productively; and that the main obstacles to any endeavor result from a lack of knowledge, insufficient training, or process failure.

Careful attention must be paid to managing the workforce to achieve maximum productivity for the organization and maximum satisfaction for the individual. A safe working environment, fair treatment, and recognition for a job well done are key components to job satisfaction.

It is important that the organization’s members know to whom they should go when they have a problem, question, or issue related to their relationship to the organization. In large organizations, a human resource department typically handles this function. Staff within such a department addresses questions, issues, and tasks related to appointment, benefits, performance, discipline, promotion, or

⁷ Merriam-Webster Online Dictionary, 2010.

⁸ Armstrong, Michael (2006). *A Handbook of Human Resource Management Practice* (10th edition), London: Kogan.

termination of employees. These duties are often combined with other responsibilities in smaller organizations.

Administration and Support Staff

The primary responsibility of a department's administration and support staff is to ensure that the organization's operational entities have the abilities and means to fulfill its mission at an emergency incident. Efficient and effective administration and support are critical to the department's success. Without adequate oversight, planning, documentation, training, and maintenance program the operational capabilities of the department will suffer, and may fail operational testing. Administration and support require appropriate resources to function effectively.

Analyzing the ratio of administration and support positions to the total departmental positions facilitates an understanding of the relative number of resources committed to this function. The appropriate balance of administration and support positions to the operational component is critical to the department's ability to fulfill its mission and responsibilities. Although no formal studies have been conducted to identify the optimum personnel mix, it has been ESCI's experience that the typical ratio of administrative and support staff to total personnel in career departments fall within the 10 to 15 percent range.

Figure 19: Administrative and Support Personnel

	MFD	LEFD	SFD
Fire Chief	1.00	1.00	1.00
Deputy Chief	0.00	0.00	1.00
POC Assistant Chief	2.00	0.00	3.00
POC District Chief	0.00	2.00	0.00
POC Administrative Assistant	0.75	0.5	0.25
Total Admin and Support	3.75	3.50	5.25
% Admin and Support	9.4%	13.4%	14.1%

Based on the above calculation, although MFD is slightly below the expected range, all three departments are very close or within the typical ratio of administrative and support staff to total personnel.

Operational Staff

It takes an adequate and well trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved. The following list summarizes the services that are provided by each agency.

Figure 20: Services Provided by Department

	Lake Elmo	Mahtomedi	Stillwater
Fire Suppression	Yes	Yes	Yes
EMS First Response	BLS	ALS	BLS
EMS Transport	No	ALS	No
Extrication	Yes	Yes	Yes
Technical Rescue	Surface Water	Surface Water, Ice, Dive	High Angle, Low Angle, Surface Water, Ice, Dive
Fire Prevention Inspections	Yes	Yes	Yes
Public Education	Yes	Yes	Yes
Hazardous Materials	Operations	Operations	Operations

The following provides a summary of the total operational personnel available to each agency.

Figure 21: Emergency Services Operational Personnel

	MFD	LEFD	SFD
Captain	0.00	0.00	3.00
POC Captain	5.00	4.00	3.00
POC Lieutenant	0.00	0.00	3.00
Firefighter/Engineer	0.25	0.00	3.00
POC Firefighter/Engineer	31.00	4.00	8.00
POC Firefighter	0.00	14.00	12.00
Total Operations	36.25	22.00	32.00

Current Staffing Performance

In most communities around the country, the number of fire calls has declined over the past decade. Yet as the frequency of fires diminishes, in part due to stricter fire codes and safety education, the workload of fire departments has risen sharply — medical calls, hazardous materials calls, and every sort of household emergency are now addressed by fire departments. Therefore, as the frequency of fires has diminished, the need for a ready group of firefighters has increased.

Although modern codes tend to make fires in newer structures more infrequent, today's energy-efficient construction (designed to hold heat during the winter) also tends to confine the heat of a hostile fire. In addition, research has shown that modern furnishings generally burn hotter (due to synthetics), and roofs collapse sooner because prefabricated roof trusses separate easily after a very short exposure to flame. In the 1970s, scientists at the National Institute of Standards and Technology found that after a fire broke out, building occupants had about 17 minutes to escape before being overcome by heat and smoke. Today, that estimate is three minutes.⁹ The necessity of firefighters arriving on the scene of a fire in the shortest span of time is more critical now than ever.

ESCI is providing analysis of incident staffing performance in two ways. Initially, the report will provide a glimpse of how well the department is doing at producing its own manpower for incidents within its primary service area. ESCI believes this data is important and can be an indicator for the individual department as to the effectiveness of its staffing efforts.

ESCI also recognizes that for all but the smallest, low-risk incidents, fire departments are typically acting together in providing fire protection through a coordinated regional response of mutual and automatic aid. This is particularly true for structure fires and other high-risk incidents where staffing needs are high. ESCI believes that this data is equally important and can be an indicator of the level of success the department is achieving in providing adequate staffing to meet the needs of the higher-risk incidents.

Of significance to the staffing objective of this study is that *NFPA 1710* establishes that a response company consists of four personnel. The standard does not *require* that all four be on the same vehicle, but does expect that the four will operate as a single functioning unit once on scene. The *NFPA 1710* response time standard also requires that all four personnel be on scene within the recommended response time guidelines.

There is another reason the arrival of four personnel is critical for structure fires. As mentioned earlier, OSHA regulations require that before personnel can enter a building to extinguish a fire, at least two personnel must be on scene and assigned to conduct search and rescue in case the fire attack crew

⁹ National Institute of Standards and Technology, *Performance of Home Smoke Alarms, Analysis of the Response of Several Available Technologies in Residential Fire Settings*, Bukowski, Richard, et al.

becomes trapped. This is referred to as the two-in, two-out rule.¹⁰ There are, however, some exceptions to this regulation. If it is *known* that victims are trapped inside the building, a rescue attempt can be performed without additional personnel ready to intervene outside the structure. The following figure illustrates, on average, how many personnel responded to working structure fires within the region over the past three years.

Figure 22: Average Structure Fire Staffing Performance History

Average Staff	
LEFD	12.4
MFD	6.5
SFD	9.6
Overall Average	9.5

It's obvious that none of the department within the region can operate within a vacuum, that is, they rely on mutual and automatic aid for all but the most minor incidents. To each department's credit also, a robust volunteer program is in place that supplement career staffing. The following figure summarizes how career and volunteer personnel are utilized within the system.

Figure 23: Summary of Career and Volunteer Utilization

	Lake Elmo Fire Department	Mahtomedi Fire Department	Stillwater Fire Department
PT Firefighters	No	No	No
PT Medical Only	No	No	No
Volunteer/POC Firefighters	24		26
Volunteer/POC Medical Only	No	No	No
Inspectors	Not Required	5	Not Required
Career Personnel	Yes	Yes	Yes
Career Workweek	40	40	56
Work Schedule	8	8	24
Beginning of Duty Shift	N/A	N/A	700
Career Call-Back Requirement	N/A	N/A	No
Career Residency Requirement	No	No	15 Minutes from Station
Volunteer Personnel	Yes	Yes	Yes
Volunteer Schedule	Shifted	Shifted 11p-6a	Not Required but offered
Volunteer Residency Requirement	5.5 minutes to either station	7 minutes to station	10 Miles from Station
Volunteers Assigned by	Station	Station	Station
Volunteer Notification	Voice, Texting, I Am Responding	Voice, Texting	Voice, Paging, Texting

¹⁰ 29 CFR 1910.134(g)(4).

Compensation Systems

In order for a department to recruit and retain quality personnel, compensation and benefits (as well as overall working conditions) must be in line or in excess to those of surrounding organizations. Volunteer organizations have an especially difficult time in recruiting and retaining personnel due to the fact that, in the current economy, personnel are looking for positions that will help support their standards of living rather than strictly volunteer roles. To combat this, many volunteer organizations have implemented programs to compensate their members in a variety of ways. The following figure summarizes the compensation systems components utilized within the region.

Figure 24: Summary of Compensation Systems Components

	Lake Elmo Fire Department	Mahtomedi Fire Department	Stillwater Fire Department
Retirement	No	No	No
Other Benefits	VFBA Death and Disability Program	VFBA Death and Disability Program	VFBA Death and Disability Program
Relief Association	\$3,100 per year of service	\$3,100 per year of service	\$5,000 per year of service
Volunteer LOSAP	No	No	No
Medical Insurance	No	No	No
Dental Insurance	No	No	No
Vision Insurance	No	No	No
CISD	State	State	State
EAP	City	City	City
Association Memberships Paid	Numerous	MN State Fire Chief's Association, MN Firefighters Association	MN State Fire Department Association, State Fire Chief's Association, NFPA
Volunteer Compensation	Officers get monthly stipend. All members receive pay per call, per drill and an end-of-year incentive	Annual stipend. Fire - Hourly. EMS - Per call and by level of credential.	All work paid on hourly basis, same rate for training or call responses

Disciplinary Processes

Maintaining discipline in a public safety organization is a crucial component of a well-run department. Members must be allowed latitude to perform using wisdom and judgment, but must also be held accountable for actions, whether good or less agreeable. It is important to establish a method by which employees are encouraged to exhibit behavior that reflects a high moral standard and creates and maintains a safe and healthy working environment. Disciplinary policies that focus on coaching, counseling, and behavioral modification instead of punishment have been shown to produce positive

results. The following figure summarizes the disciplinary and appeals processes in use by the organizations.

Figure 25: Summary of Disciplinary and Appeals Processes

	Lake Elmo Fire Department	Mahtomedi Fire Department	Stillwater Fire Department
Clear Disciplinary Policy	LEFD Employee Handbook	City policy	CBA
Appeals Process	Yes	City policy	CBA

Recruitment, Application and Retention

Personnel recruitment is a key function of all emergency service agencies. The community places a tremendous amount of faith in fire and EMS personnel, trusting them to provide the highest level of service when the public is most vulnerable. As such, the process used to select personnel should be very comprehensive.

The Americans with Disabilities Act (ADA) prohibits discrimination against individuals with physical disabilities but permits employers to establish reasonable physical standards required to perform the primary functions of any job safely and effectively. History has shown that the most effective method of avoiding ADA litigation is through reasonable and consistent application of job-relevant pre-employment physical ability testing.

Experience within the fire service industry has shown that relaxing the requirements for entry-level positions is not the answer for recruiting any employee. Instead, most departments have had greatest success in activities that encourage qualified applicants to apply. This process often involves targeted advertising and promotional campaigns aimed at demonstrating the salary and benefits, as well as the personal satisfaction, of a career in the fire service. Existing employees can be encouraged to participate in any such campaign and professional assistance from a human resource department is advisable. The following figure summarizes the recruitment, application, and retention efforts and policies across the region.

Figure 26: Summary of Recruitment, Application and Retention Policies

	Lake Elmo Fire Department	Mahtomedi Fire Department	Stillwater Fire Department
Physical Standards at Hire	Washington County Chiefs	No	Yes, NFPA based
Aptitude Test at Hire	No	No	Yes, IO Solutions
Medical Exam at Hire	Yes	Yes	Yes
NFPA 1582 Compliant	Yes, paid by city through contract provider	Yes, paid by city through contract provider	Yes, paid by city through contract provider
Other hiring requirements	Psych test and background check through WCSO	Background, state BCA.	Psych test and background investigation through private firm
Civil Service	No	No	No
Hire from POC ranks	Not currently an issue but definitely in the future	Not currently an issue but definitely in the future	Open hiring

Testing, Measurement and Promotions

Once on staff, personnel should be evaluated periodically to ensure their continued ability to perform job duties safely and efficiently. Technical and manipulative skills should be assessed on a regular basis. This provides documentation about a person's ability to perform responsibilities and provides valuable input into the training and education development process.

It is important to maintain such programs whenever possible; it has long been known that members sincerely wish to be a contributing part of any organization. This basic desire to succeed is best encouraged through feedback that allows each member to know what he/she is doing well and what skills may need improvement. Honest and effective feedback encourages members to reinforce mastered skills and abilities and to work harder to improve the areas where performance may fall short.

Regular evaluation and feedback for personnel is critical to behavior modification and improvement. No formal performance evaluation system is currently in place for all employees of the fire department.

Technical and manipulative skills should be evaluated regularly. This provides documentation about a person's ability to perform their responsibilities and provides valuable input into the training and education development process. No formal competency evaluation of fire skills of employees with emergency response job duties is conducted.

Incumbent uniformed career fire department personnel who are assigned hazardous materials duties are required to participate in and pass a medical physical assessment on a yearly basis. Annual medical physical examinations are not required for other department employees with emergency response job duties.

Annual medical physical examinations should be considered for fire department personnel at all ranks and job assignments. Examinations should follow *NFPA 1582*. Baseline values for all firefighters should be established at time of hire that include: titer level, vision, spirometry, audiometry, hepatitis B and C, and tetanus.

A stress test is used to determine the amount of stress that a heart can manage before developing either an abnormal rhythm or evidence of ischemia (inadequate blood flow to the heart muscle). The test provides information about how the heart responds to exertion. It usually involves walking on a treadmill or pedaling a stationary bike at increasing levels of difficulty, while an electrocardiogram, heart rate, and blood pressure are monitored. The test helps to determine if there is adequate blood flow to the heart during increasing levels of activity and the likelihood of having a coronary event or the need for further evaluation.

Medical physical assessments should involve periodic stress tests of incumbent employees every two to five years, based on age and risk factors. We recommend that a stress test be performed at the time of hire to determine if a candidate has an underlying heart defect or disease that would put them at risk while performing the duties of a firefighter. The leading cause of death for firefighters is heart attack (44 percent). Death from trauma, including internal and head injuries, is the second leading cause of death (27 percent). Asphyxia and burns account for 20 percent of firefighter fatalities.¹¹ The following figure summarizes the organizations' testing, measurement and promotional processes.

¹¹ The United States Fire Administration (USFA), *The USFA Firefighter Fatality Retrospective Study: 1990-2000*, October 2002.

Figure 27: Summary of Testing, Measurement and Promotional Processes

	Lake Elmo Fire Department	Mahtomedi Fire Department	Stillwater Fire Department
Periodic Competency Testing	EMS Only	No	No, currently developing
Periodic Performance Evaluations	In development	After first six months. Annually thereafter.	Inconsistent
Promotional Testing	Application and review with minimum requirements.	No. Application and interview process.	Yes
Period Medical Exams	Yes. Age based.	Yes.	Yes
NFPA 1582 Compliant	Yes, paid by city through contract provider	Yes, paid by city through contract provider	Yes, paid by city through contract provider

Service Delivery and Performance

The delivery of fire suppression, emergency medical and rescue services is no more effective than the sum of its parts. It requires efficient notification of an emergency, rapid response from well-located facilities in appropriate apparatus, and sufficient staffing following a well-practiced plan of action. This section evaluates these various components and provides observations of the elements that make up the delivery of the most critical core services provided by the three fire departments.

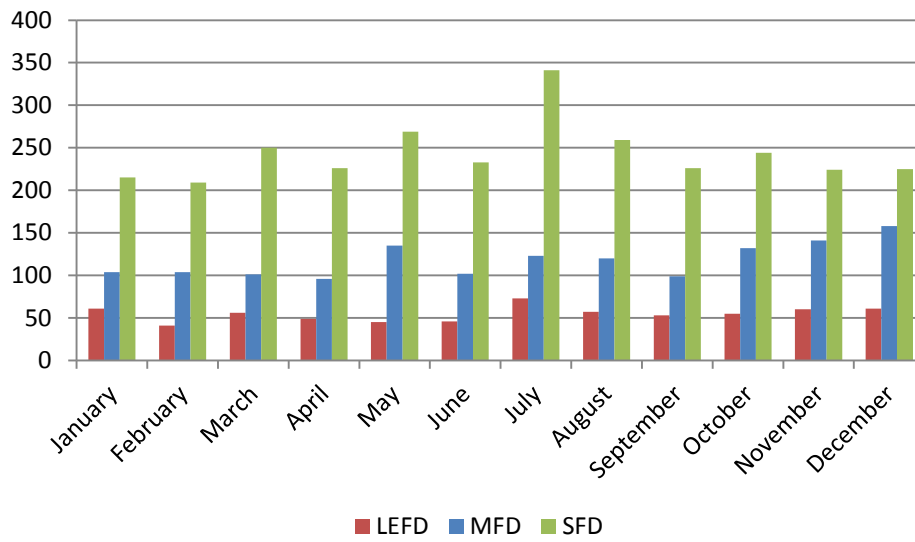
Demand

Each department provided ESCI with National Fire Incident Record System (NFIRS) incident records for calendar years 2009 and 2010. The following figure illustrates the overall volume of service demand over the data period provided.

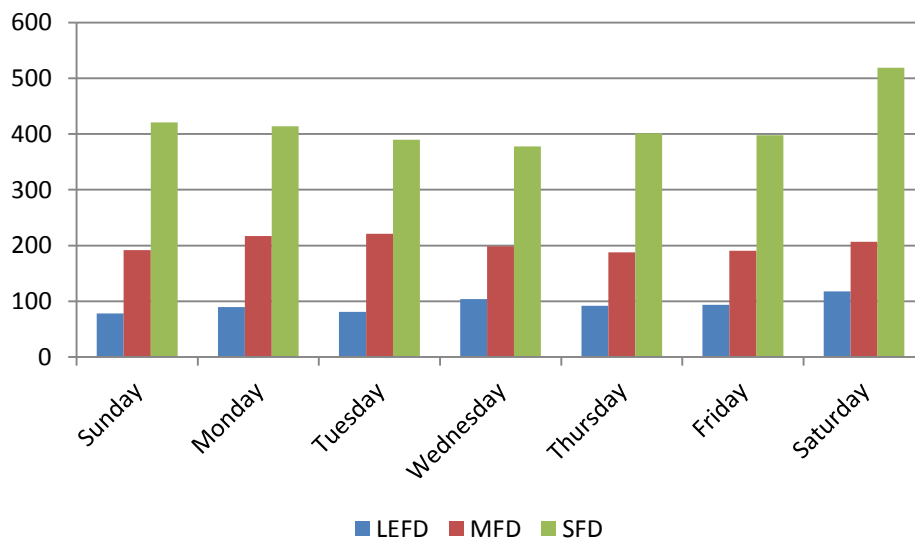
Figure 28: Workload by Category

		Lake Elmo	Mahtomedi	Stillwater
2009	Fire	24	30	75
	Explosion	0	0	6
	EMS	205	508	753
	Hazmat	18	21	85
	Service Call	17	29	186
	Good Intent	24	62	168
	False Call	28	81	118
	Other	3	3	4
	2009 Total	319	734	1395
2010	Fire	14	23	61
	Explosion	2	0	3
	EMS	211	630	784
	Hazmat	32	58	114
	Service Call	19	17	182
	Good Intent	49	48	254
	False Call	33	64	178
	Weather	1	3	8
	Other	0	0	1
	2010 Total	361	843	1586

A review of incidents by time of occurrence also reveals when the greatest response demand is occurring. The following charts show how activity and demand changes for each agency based on various measures of time. ESCI began by breaking down yearly workload into monthly increments.

Figure 29: Workload by Month

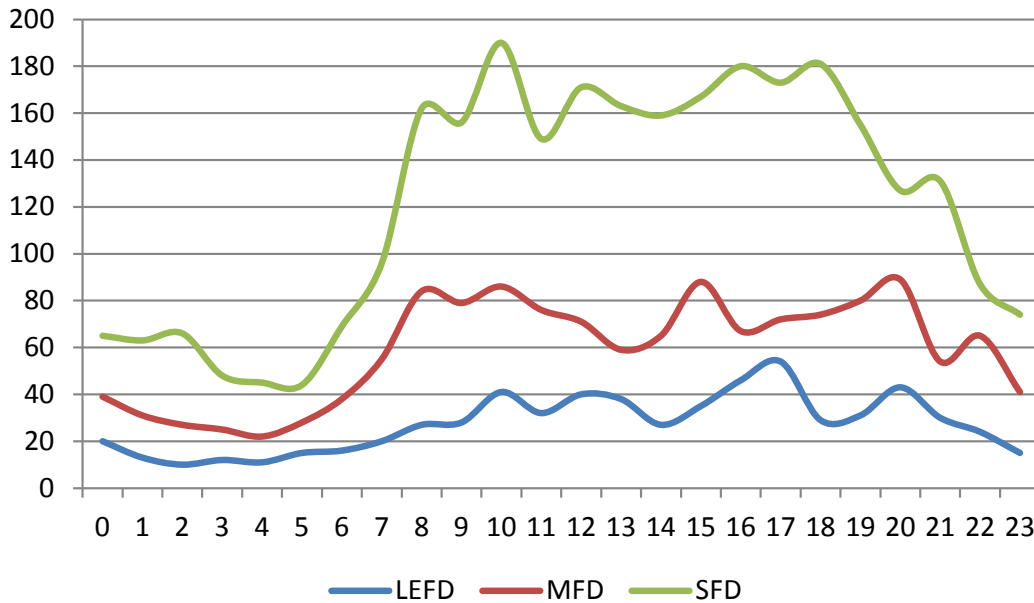
The figure indicates that in all three departments, workload is slightly higher during the spring and summer months, except for Mahtomedi that also has a higher volume during the early winter months. In further analysis, workload is examined by day of the week, showing a slight increase in volume on weekends for SFD and LEFD but higher demand for MFD on Mondays and Tuesdays.

Figure 30: Workload by Day of Week

The final analysis of historical workload concludes with examination of service demand by hour of day. Understanding when peak activity occurs begins the process of reviewing deployment strategies and

needs assessment. This figure represents an aggregate of the data period evaluated rather than any one single year of incidents to show an overall trend of hourly workload.

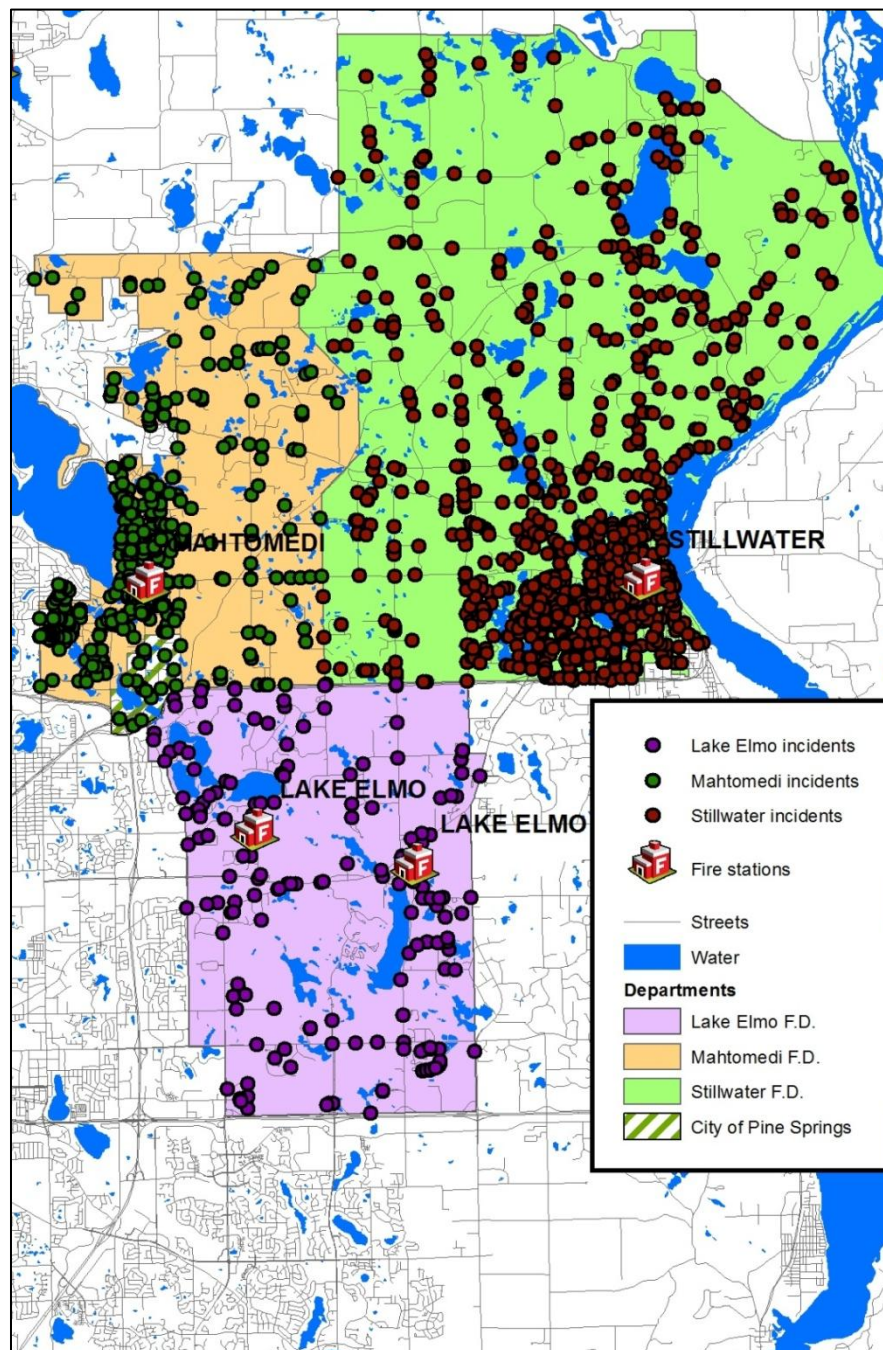
Figure 31: Workload by Hour of Day



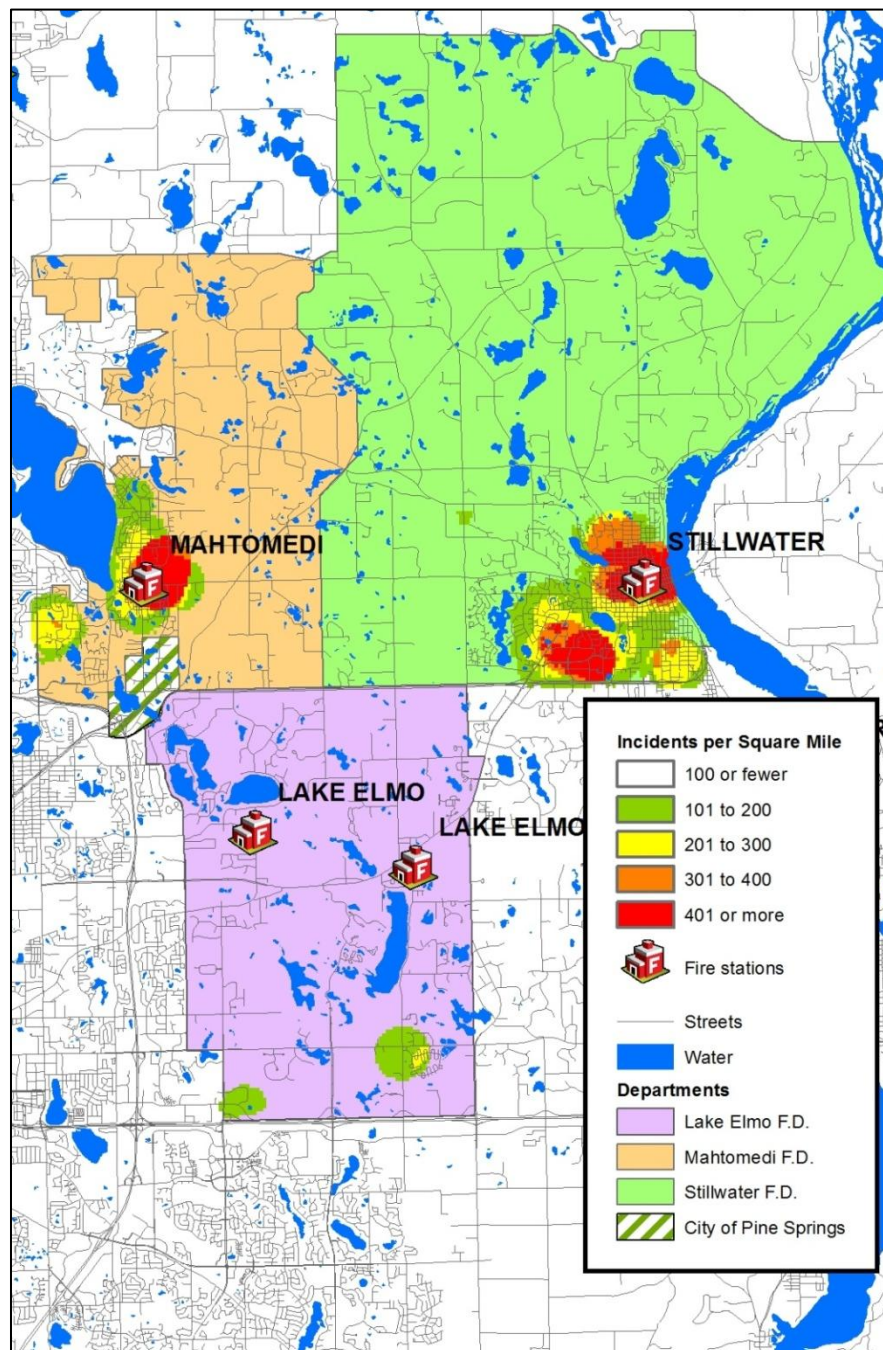
Activity for emergency incidents generally begins to increase between the hours of 6:00 a.m. and 7:00 a.m., reaching peak volume during the midday hours before gradually declining into the evening. Peak activity times can be reflected in response time performance in certain cases. The impact of response time on the outcome of emergency incidents has been exhaustively studied, both in the laboratory and in historical data, with a predictable correlation between the two. Though seemingly intuitive, it is still useful to review how longer response times can have a negative effect on the ability to suppress fires, particularly in structures, or to successfully intervene in a life-threatening medical emergency. Response time performance is examined in a separate section of this report.

In addition to the temporal analysis of the current service demand, it is useful to examine geographic distribution of service demand. This analysis will allow for assessing the location of stations in comparison to the actual service demand within the area. The following map indicates the distribution of emergency incidents responded to during the period January 2009 through December 2010.

Figure 32: Regional Service Demand Distribution



Although presenting the incidents in this fashion allows the reader to see how incidents are spread throughout the region, there is the possibility that an individual dot may represent multiple incidents. Therefore, ESCI compiles the information from the figure above into the following service demand density map.

Figure 33: Geographic Service Demand Density

The figure indicates the highest volume for calls exists in the downtown portion of Stillwater where dense development is prevalent, as well as in the central area of Mahtomedi. Service demand density for Lake Elmo is well below that experienced in the other two cities.

Performance Objectives

The ultimate goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective action to minimize the impacts of the emergency. This need applies to fires, medical emergencies, and any other emergency situation to which the fire department responds.

Emergency service agencies should have clearly defined response performance objectives established to allow evaluation of capability and service delivery. An organization's performance objectives should clearly state both the current and desired emergency service capabilities in very measurable terms. For emergency response, performance objectives should define response performance using both time and resource criteria. For example:

1. Provide for the arrival of adequate resources to initiate basic emergency medical services at the scene of any medical emergency within "X" minutes following dispatch, 90 percent of the time.
2. Provide for the arrival of adequate resources to initiate interior fire suppression operations at the scene of any fire within "X" minutes following dispatch, 90 percent of the time.

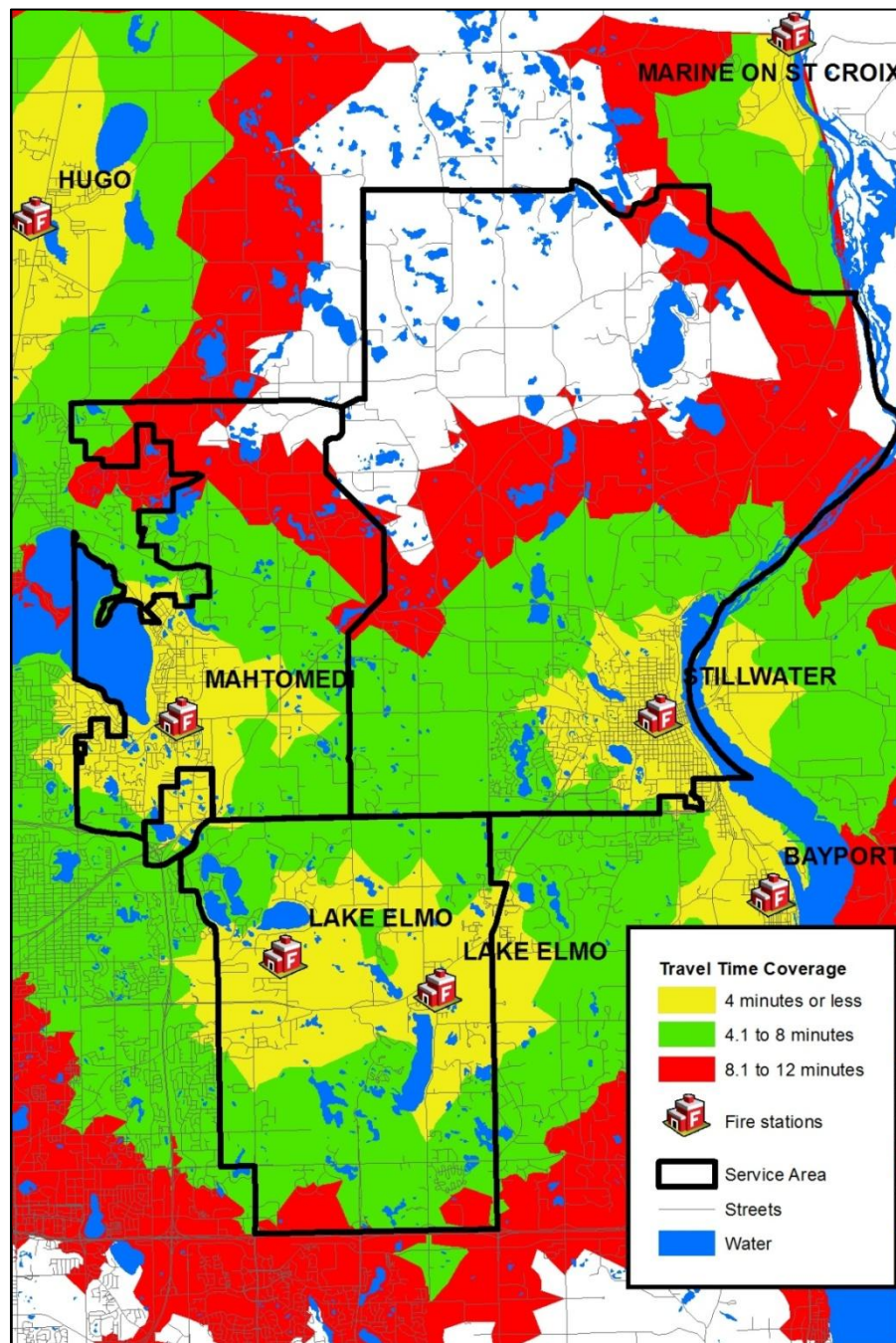
With specific performance criteria a fire department can develop deployment methodologies to achieve desired levels of performance, and can quickly identify when conditions in the environment degrade performance.

None of the three study agencies have formal performance objectives. For purposes of service delivery performance analysis, ESCI strongly recommends that each agency adopt formal performance objectives by which various response and service delivery performance points can be measured. In the absence of formal performance objectives, ESCI will provide general analysis of actual system performance, but will not have an objective against which to measure this performance.

Distribution

Across the region, the three agencies operate from four facilities although only three are staffed with duty personnel (LEFD Station 1, SFD, MFD). There exists a certain extent of the jurisdiction that can be reached within a certain travel time from the stations regardless of staffing patterns. The following map illustrates the 4, 8, and 12-minute travel model from each existing station location.

Figure 34: Travel Time Coverage



Based on this travel model, when compared to the previous figure illustrating service demand density, a majority of service demand is within the four minute travel model and only those incidents to the extreme north of Stillwater would experience travel times greater than eight minutes. In fact, some of the extreme northern portions of the SFD response area are outside the 12-minute travel model.

The following table indicates the percentage of service demand within the primary response areas that fall within various periods of travel time from the fire stations, without neighboring mutual aid stations. The right hand column indicates the total percentage of demand falling within that travel time period from any of the stations.

Figure 35: Distribution and Travel Time Capability Analysis

Within Minutes	LEFD	MFD	SFD
4:00	40%	84%	60%
8:00	96%	95%	89%
12:00	100%	97%	96%

According to the table, the departments can physically cover only 65.1 percent of the service demand within four minutes of travel time. However, the departments can cover over 91 percent of the service demand within eight minutes of travel time. At the 12-minute travel model, the departments can cover 97 percent of the historic service demand.

The national peer standards, *NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*¹² and *NFPA 1720 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer or Combination Fire Departments* includes a performance objective of 240 seconds or less travel time for the arrival of the first arriving engine company.¹³ The travel time models produced by ESCI indicate that existing station deployment would be capable of producing a travel time performance of less than 90 percent; below the *NFPA 1720* standard for volunteer and combination fire departments. Actual performance may be different from modeled performance, and the department's overall response time performance will be discussed in a later section of this report.

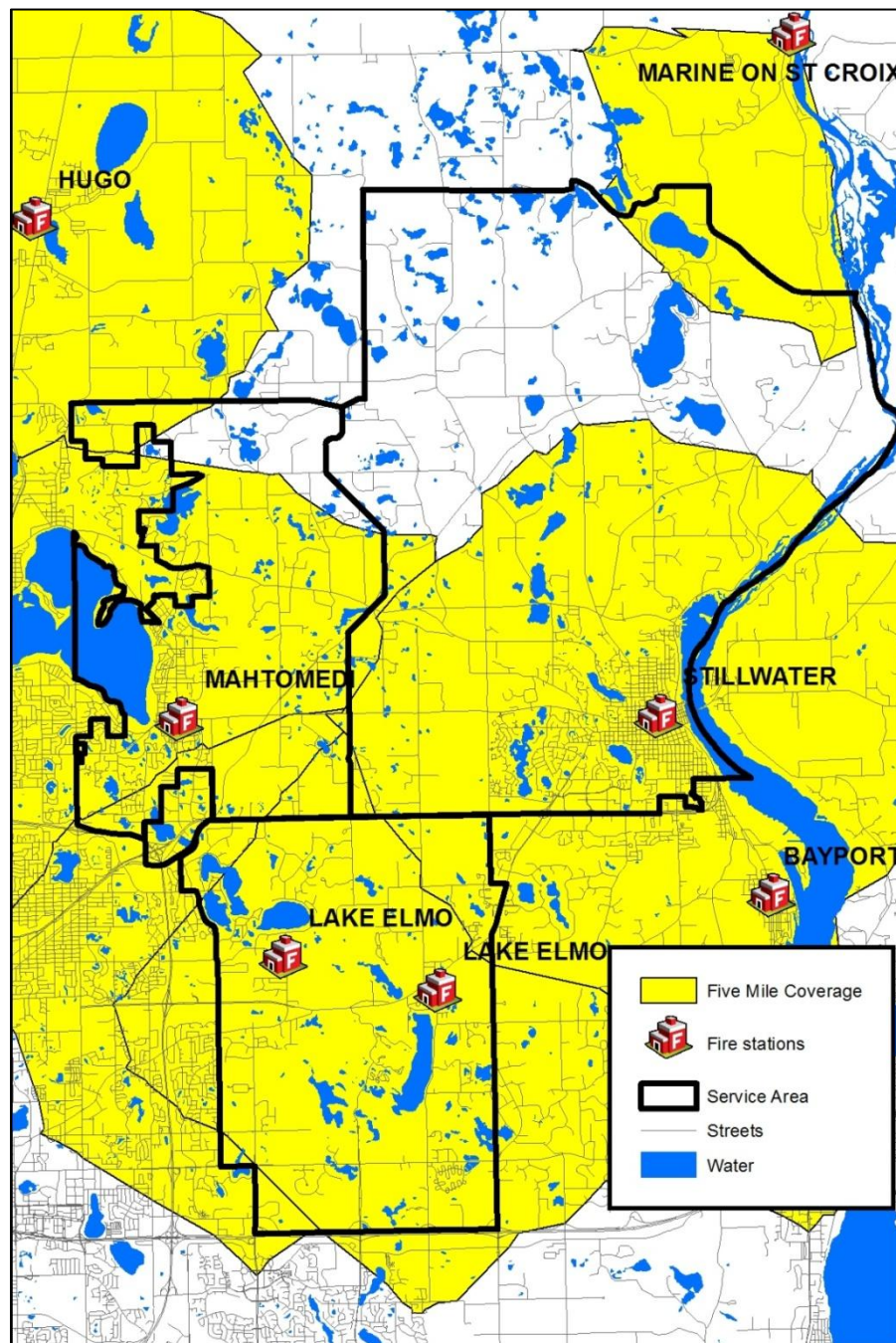
Another factor to consider when evaluating distribution of resources is the impact of that distribution on the Insurance Services Offices (ISO) rating for the area. ISO rates fire departments based on several

¹² *NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* (National Fire Protection Association 2010.)

¹³ *NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer and Combination Fire Departments.* (National Fire Protection Association 2010.)

criteria and then applies a code that many property and casualty insurance carriers utilize to set homeowners insurance rates. As discussed previously, the three study agencies have varying ISO ratings based on where property is located in relation to the nearest fire station. Those areas outside of five road miles from a fire station are considered to be 'unprotected.' Those property owners may find it difficult to obtain insurance coverage for their property and, if they do, it can be quite expensive. The following figure illustrates the five mile distance from each of the study fire stations.

Figure 36: Five-Mile Coverage

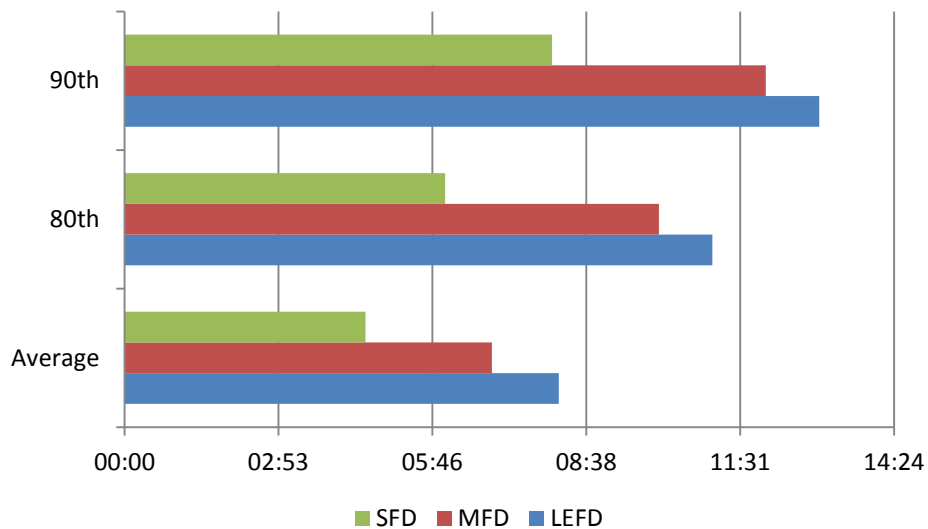


Only the areas to the extreme north of Stillwater and Mahtomedi are outside the five-mile travel coverage. Portions of SFD's northern response area can be reached by Marine on St. Croix. Discussions should take place between SFD and MSCFD to arrange for automatic aid for this area.

Response Performance

Total response time is the amount of time a resident or business waits for an apparatus to arrive at the scene of an emergency beginning when they first call 9-1-1. The following charts illustrate the response time for the study agencies for 2010 based on the average, 80th percentile, and 90th percentile measurements.¹⁴

Figure 37: Response Time Performance History - 2010



The table below displays the actual performance for each agency over the 2009-2010 period.

Figure 38: Two-Year Response Time Performance History

Year	Average	80 th	90 th
LEFD 2009	08:01	11:00	13:00
LEFD 2010	08:07	11:00	13:00
MFD 2009	06:41	10:00	12:00
MFD 2010	06:52	10:00	12:00
SFD 2009	06:14	06:00	08:00
SFD 2010	04:30	06:00	08:00
Average	06:30	09:00	11:00

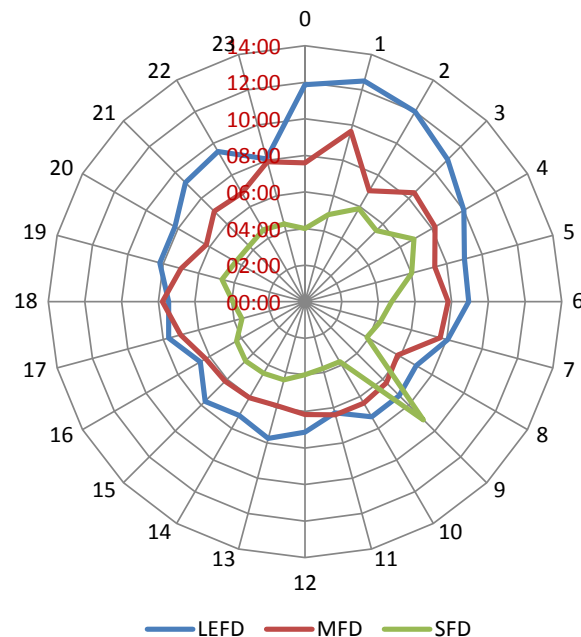
Region-wide, the average response time to emergency incidents calculated to be 6:30 (6 minutes 30 seconds), with a 90th percentile response performance of 11:00, and 9:00 when measured at the 80th percentile. *NFPA 1720* recommends that volunteer and combination departments establish response

¹⁴ Mutual aid calls, non-emergent calls, and interfacility transfers were removed from response time analyses as they were found.

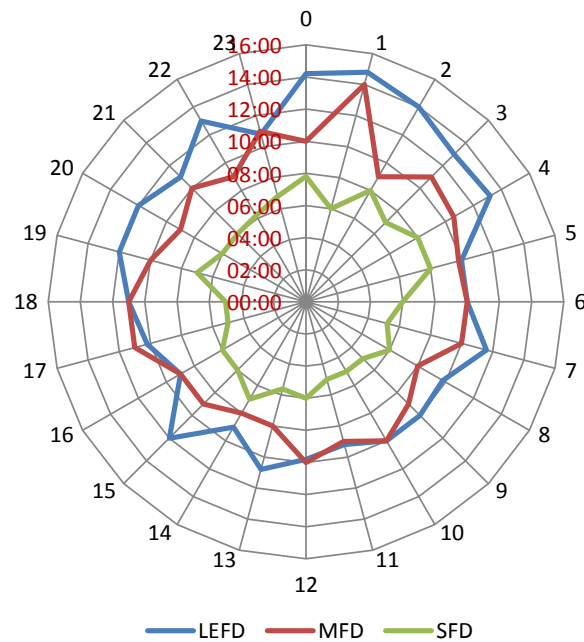
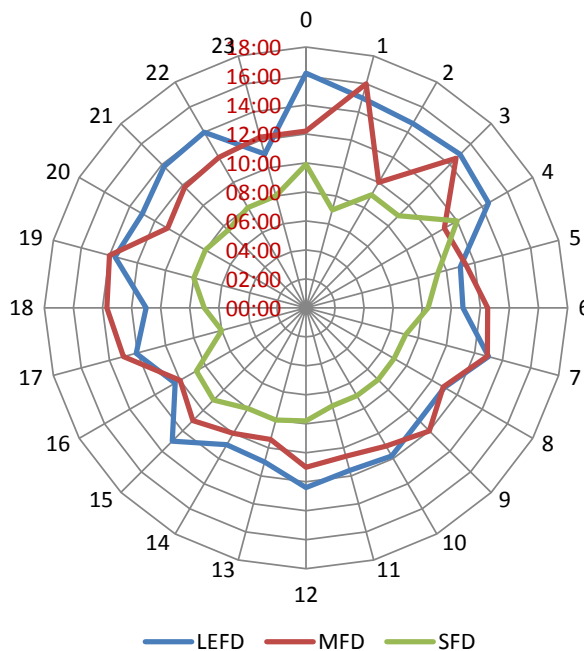
performance standards that achieve response times of 9:00 at the 90th percentile in urban areas, 10:00 at the 80th percentile in suburban areas, and 14:00 at the 80th percentile in rural areas. Although a specific population density analysis by geographic area was not available, it is expected that much of the service area of the three departments would fall into the suburban density category (with exceptions for contracts with May Township and Grant City). Improved response times for the areas served by Lake Elmo and Mahtomedi would be necessary to achieve the performance standards of *NFPA 1720*.

Response times can vary by time of day in reflection of service demand workload, traffic congestion, weather, and distance to the call from the station, to name but a few. The following chart illustrates how the average response time performance varies by the hour of day.

Figure 39: Response Performance by Hour of Day - Average



The following figures illustrate the same information as above but measured at the 80th and 90th percentile.

Figure 40: Response Performance by Hour of Day – 80th Percentile**Figure 41: Response Performance by Hour of Day – 90th Percentile**

Response times are consistently higher during the overnight hours. One element of the overall response time performance that personnel can control is the turnout time interval, particularly for career departments. Turnout time represents the period between the radio dispatch of a call and the time the unit actually leaves the building or location where it is staged, and begins travel to the incident. It can

include activities such as moving to the apparatus, donning gear and equipment, verifying travel routes and maps, and buckling safety harnesses.

ESCI could not measure the turnout time performance of the study departments since no computer aided dispatch (CAD) data was available. Without specific CAD data, it was also unclear as to whether the dispatch time in the NFIRS records represented the true time the fire department was notified of the call, or the time when the dispatch center picked up the call. Therefore, ESCI could not determine whether call processing time was included in the overall fire department response time analysis, nor could ESCI measure the turnout time performance of the departments.

This is a critical loss for overall department performance analysis. Earlier in this report, the distribution analysis indicated that only 91.7 percent of incidents were within eight minutes of travel time from a fire station. From the response time analysis, the actual response time performance to 90 percent of calls is 11 minutes. This is a difference between the modeled travel time and the actual full response time of two minutes.

The *NFPA 1710 Standard* calls for turnout time to be 80 seconds or less for fire and special operations response and 60 seconds or less for EMS response.¹⁵ It is unlikely that turnout time alone could be responsible for this difference. It is important for the department to determine why its actual 90th percentile response time performance is as high as it is. However, without the specific timestamps for unit responding, it is impossible to determine the turnout time performance and its impact on overall response time.

Nationally, the highest percentage (16 percent) of structure fires had a response time in the 4-minute range. The percent of structure fires with response times of three minutes and five minutes were not far behind at 15 percent and 14 percent, respectively. Overall, 61 percent of structure fires in 2001 and 2002 had a response time of less than six minutes. However, the analysis contained in this report indicates that station distribution and travel time should not be a significant factor. Overall unit workload and resource drawdown also should not be a response time factor. The department and its dispatch center should be held accountable for more detailed and precise response time performance

¹⁵ *NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.* (National Fire Protection Association 2010.)

measurement, with a focus on call processing time, turnout time analysis and determination of methods to improve response time.

Mutual and Automatic Aid Systems

There are numerous mutual aid agreements, both formal and informal, in place between fire, police, and emergency medical agencies in Washington County and surrounding areas. Mutual aid is typically employed on an “as needed” basis where units are called for and specified one by one through an Incident Commander. There are some conditions under which the departments have agreed to automatic aid, or “dual response”, wherein units from more than one department are dispatched into specified geographic areas on certain types of calls.

Unlike the mutual aid box alarm systems (MABAS) found in many other states, the system in Washington County does not provide for pre-designated mutual aid responses to a variety of call types based on incident severity, and the existing mutual aid system is not fully programmed or coordinated through the regional communications center.

According to interviews, multi-agency training is sporadic. For the most effective mutual and automatic aid programs, as well as maximum credit in the ISO Fire Protection Rating system, multi-agency drills should be scheduled regularly. Ideally, these should occur at least once per quarter and be recorded as multi-agency training in all agency records. In addition to the ISO credit, these trainings will naturally lead to enhanced working relationships, more regional thinking, and perhaps cooperative planning, policy, and procedural development.

From a formal standpoint, all three departments regularly interact with the local police agencies. Interviews indicated that these relationships are effective and efficient with no problems or issues cited by either fire or police officials. In many cases, police agencies are even responding to fire or EMS calls and assisting with traffic and other needs, underscoring the quality of the relationships between fire and police.

Support Programs

Training

Providing quality and safe fire and emergency services requires a well-trained response force. Training and education of department personnel are critical functions for any agency. In the past, officers in the fire service were raised with a “Management by Objectives” foundation. This type of system was based upon quality, quantity, and costs as the elements. Officers used to plan, measure, control, time, and execute training outcomes.

Today’s fire service consists of creating, promoting, and delivering training to members; but many training programs fall short and members become less interested. Training officers should capitalize on a training program that will effectively overcome personal and organizational blocks to achieve results. Without a quality, comprehensive training program, emergency outcomes are compromised and department personnel are at risk.

Because the fire service is constantly changing, training cannot be limited to new recruits. Seasoned firefighters can benefit from training by learning new methods and procedures. In addition to training firefighters in the skills and knowledge needed in today’s fire departments, training officers and instructors need to establish educational opportunities for more advanced procedures and new technical subjects.

General Training Competencies

In order to ensure quality training is provided, it should be based on established standards of good practice. There are numerous sources available for training standards. Training materials published by the International Fire Service Training Association (IFSTA) or similar texts should be the foundation for a department’s training library. Some additional materials and standards of the National Fire Protection Association (NFPA) should also be employed. These references are considered industry standards. Emergency medical training and continuing education should be based on local medical direction and Minnesota EMS Regulatory Board. An adequate supply of appropriate training manuals should also be maintained at each station. The following figure summarizes the general training competencies across the region

Figure 42: Summary of Formal Training Provided

	Lake Elmo	Mahtomedi	Stillwater
Formal Training Provided on			
Incident Command	Yes	Yes	Yes
Accountability	Yes	Yes	Yes
Safety	Yes	Yes	Yes
Structural Firefighting	Yes	Yes	Yes
Wildland Firefighting	Yes	Yes	Yes
EMS Skills	Yes	Yes	Yes
Hazmat	Yes	Yes	Yes
Awareness	Yes	Yes	Yes
Operations	Yes	Yes	Yes
Technician	No	No	No
Vehicle Extrication	Yes	Yes	Yes
Defensive Driving	Yes	Yes	Yes
Technical Rescue	Yes	Yes	Yes
Public Education	Yes	Yes	Yes
Fire Prevention	Yes	Yes	Yes
Standard Manual Utilized	Determined by college	IFSTA	IFSTA, NFPA 1001, 1002, 1005. Jones and Bartlett

Recommendations:

- Each department should ensure that its training programs are covering the most critical topics and that mandatory refresher training is provided where appropriate.
- In the absence of a consolidated or coordinated training program, each department should consider adopting a common training standard and allow individuals from other departments to attend rotating in-house training opportunities.

Program Administration, Schedule, and Facilities

For training to be fully effective, appropriate facilities and resources are essential. Hands-on skills training is dependent on training props or sites at which crews can conduct company operations and tactical evolutions. In addition, a good classroom environment with sufficient audio-visual equipment and teaching materials is essential if the delivery of didactic classes is going to be effective. Quality hands-on training occurs when simulations closely mimic real life emergencies. The following figure summarizes the training programs within each agency.

Figure 43: Summary of Training Program Administration Components

	Lake Elmo	Mahtomedi	Stillwater
Training Program Director Appointed	POC Captain	Shared among the Captains	POC Assistant Chief
Number of Certified Instructors	0	2	3
Formal Instructional Techniques	Part of officer training program	1	6 or so. Part of the officer training program
Training Goals and Objectives Identified	In development	Yes. Annual plan	Yes. Annual plan.
Software and Data Support for Training	Image Trend	Image Trend	Image Trend
Training Facilities			
Formal Classrooms	Yes	Yes	Yes
Sufficient AV Equipment	Yes	Yes	Yes
Main Training Library	Several spaces	Yes	Informal
Drill Ground Area	No	No	No
Props	No	In development	Fire extinguisher, repelling, patient drags, confined space
Tower	St. Paul	No	White Bear
Other	No	No	No
Training Program Priority/Funding	High priority and adequately funded. Fire Safety Account at state reimburses training expenditures.	Fire training is high while EMS training is a lower priority. Funding is considered adequate.	High priority and adequately funded. Fire Safety Account at state reimburses training expenditures.
Training Equipment Inventoried	No	No	Informally
Check-Out System in Place	No	No	Yes, but informally. Honor system.

Maplewood Fire Department has been awarded a grant to construct a regional training center. Two Washington County fire chiefs have been appointed to sit on the steering committee to coordinate the Joint Powers Agreement that will be used to operate the facility. All three study agencies have expressed their intent to participate in the JPA and utilize the facility once constructed.

Recommendations:

- MFD should assign the responsibility of training to a single individual.
- LEFD should attempt to obtain certified instructor status for at least one individual within the department.
- The three departments should inventory and share any training props that are available and implement an equipment check-out and tracking system to allow use of training props throughout the region.

Training Procedures, Manuals, and Protocols

The manner in which new firefighters are trained in their first months and years of membership lays the foundation for the development of their skills and knowledge base for their entire service time. A good entry level training plan is essential to assure that new recruits get a good and safe start. The following figure is a summary of training procedures, manual, and systems within each agency.

Figure 44: Summary of Training Procedures, Manuals, and Protocols

	Lake Elmo	Mahtomedi	Stillwater
Training Night/Days	2, 3 and 4 Monday night plus next Tuesday. 2 hours each. Quarterly EMS training is 3 hours each.	Every Monday. 3 hours each.	1, 2, and 3 Tuesday night plus the following Saturday. 2 hours each plus 3 hours for dive drills.
Lesson Plans Utilized	Yes	Yes	Inconsistently used but increased since 1/2011.
Annual Hours of Training Presented		135	153
Average Hours of Training per Member	80.3	77.0	62.7
Night Drills Held	Three times monthly	Every Monday	Three times monthly
Multi-Agency Drills Held	Occasionally	Sporadic	Average 3 per year. Dive team involves 5 departments. Technical rescue team involves 3 departments.
Regional Disaster Drills Held	Occasionally	Occasionally	Washington County EM. Once a year usually.
NFA Attendance Last Year	0	1	4
Total NFA Attendance	1	3	5
Minimum Annual Requirement	67% of drills annually plus quarterly SCBA, fit, EMS, RTK.	In development	24 hours annually, 72 hours every three years
Post Incident Analysis Completed	Informal and lessons learned incorporated into drills	Informal and lessons learned incorporated into drills	Informal and lessons learned incorporated into drills
Safety Officer Used for Training	Yes	Yes	Yes
Recruit Training			
Basic Safety	No	No	No
Basic Firefighting	Interior	Yes	No
Firefighter I	To leave probation	Interior	Interior
Certified Academy Program	ConEd at Century College and certified through state	ConEd at Century College and certified through state	ConEd at local community colleges
Hazmat	Operations	Operations	Operations

Minimum Training for Each Position	Yes	Yes	Yes
	Yes, through Washington County Fire Chief's Association.	Yes, through Washington County Fire Chief's Association.	Yes, through Washington County Fire Chief's Association.
Consistent Officer Training	Conducted by local community colleges.	Conducted by local community colleges.	Conducted by local community colleges.
Individual Training Files Maintained	Yes. Image Trend.	Yes. Image Trend.	Yes. Image Trend.

Recommendations:

- Each department should increase its participation in multi-agency drills through a coordinated training schedule.
- A standard minimum annual training requirement and minimum training for entry level personnel should be developed between the departments.

Life Safety Services

Aggressive risk management programs, through active fire prevention efforts, are a fire department's best opportunity to minimize the losses and human trauma associated with fire. A fire department should actively promote fire resistive construction, built-in early warning and fire suppression systems, and an educated public trained to minimize their risk to fire.

The fire prevention effort in each of these departments is not a formal departmental division and consists primarily of the fire chief and a few other personnel who assist in fire inspections, public education and other prevention efforts. This section of the report summarizes each department's efforts in this area.

The State of Minnesota Fire Code references the 2007 Edition of the International Fire Code (IFC). This model code, with some state amendments, was adopted under authority of the Minnesota State Legislature.

The importance of effective code enforcement cannot be overemphasized. The International Fire Code, while containing many regulations for new construction, is primarily a maintenance code. This means that the code is intended to set standards for maintaining a building's fire and life safety features, such as exits, detection and suppression systems, compartmentation, and smoke removal systems. It also

ensures that the building is kept free from hazards and conditions that might lead to the ignition of a fire or increase fire spread.

The nationally *recommended* frequency of commercial fire safety inspections varies by the type of business. Generally they are classified by degree of hazard. The table below describes the various hazard classes and the National Fire Protection Association's optimum recommended frequency for fire safety inspections.

Figure 45: NFPA Inspection Frequency

Hazard Classification	Example Facilities	Recommended Inspection Frequency
Low	Apartment common areas, small stores and offices, medical offices, storage of other than flammable or hazardous materials.	Annual
Moderate	Gas stations, large (>12,000 square feet) stores and offices, restaurants, schools, hospitals, manufacturing (moderate hazardous materials use), industrial (moderate hazardous materials use), auto repair shops, storage of large quantities of combustible or flammable material.	Semi-annual
High	Nursing homes, large quantity users of hazardous materials, industrial facilities with high process hazards, bulk flammable liquid storage facilities, a facility classified as an "extremely hazardous substance" facility by federal regulations	Quarterly

While the above charted inspection frequency may be very difficult for any department to maintain, it does serve to point out the accepted national practice of classifying occupancies by hazard (risk) and adjusting inspection frequency accordingly. This practice is also demonstrated in national model fire codes, where frequency of inspection is often dictated by risk.

The following table summarizes the information relative to these agencies' fire inspection programs.

Figure 46: Summary of Inspections Programs

	Lake Elmo	Mahtomedi	Stillwater
What types of occupancies are inspected by the fire department	None	Liquor establishments, commercial/industrial occupancies not inspected by state	Liquor establishments, underground storage tanks, commercial/industrial occupancies not inspected by state
What is the frequency of inspections	N/A	Annually	Every other year

Is there a formal system for issuing violation citations	No	No	No
How many personnel are devoted to the inspection program	Chief only as ancillary duty on new construction only	0.5 FTE Inspector	Six full-time personnel perform inspections as ancillary duty

Recommendations:

- Establish a database of existing commercial and public occupancies in each district that are not inspected by the State Fire Marshal and categorize each by the appropriate risk level.
- Establish a target frequency for inspections of all commercial occupancies by risk category.
- Establish a file for each business and include all records of fire safety inspection activity.

New Construction Involvement

For new construction, the State Fire Marshal performs formal plan review of fire protection and alarm systems, along with its standard building plan reviews. The following table summarizes information related to these individual departments' involvement in reviewing new commercial and industrial construction in their respective communities.

Figure 47: Summary of New Construction Involvement

	Lake Elmo	Mahtomedi	Stillwater
Has a fire code been formally adopted	International Fire Code adopted by state, local adoption by reference	International Fire Code adopted by state, local adoption by reference in Mahtomedi but not Willernie	International Fire Code adopted by state, local adoption by reference
Additional local amendments	None	None	As allowed by state
Additional sprinkler requirements	None	None	NFPA 1306 applied at new or existing renovations
What is the department's involvement in new construction	Limited	Limited	Formal involvement
Who performs plan review on new commercial construction	State	State and White Bear Lake Building Department (under contract)	State does building plan and sprinkler reviews, SFD does alarms, hood systems reviews
Is a fire department signature required prior to certificate of occupancy for commercial facilities	Yes, but inconsistently applied	None	Yes
Does the department have a key-vault entry program in place	Yes, new construction	Yes, voluntary compliance	Yes, voluntary compliance

Public Safety Education

Fire safety education is the greatest opportunity to influence human behavior that often results in hostile fire. It is an area that should be emphasized by an active fire prevention program. Each of these departments has public education effort in place, but emphasis varies in accordance with available resources.

Figure 48: Summary of Public Education Efforts

	Lake Elmo	Mahtomedi	Stillwater
Does the department have a public education officer or program manager	Yes- a POC captain	Yes	Yes
What topics are covered in the public education program	Use of 9-1-1 Exit drills Smoke alarms CPR classes with Rotary Club	Use of 9-1-1 Exit drills Smoke alarms Extinguisher use Elderly care and safety BP checks	Use of 9-1-1 Exit drills Smoke alarms Extinguisher use Elderly care and safety BP checks
Are safety publications available to the public	Yes	Yes	Yes
Is multi-lingual information needed or provided	Not needed yet	Not needed yet	Not needed yet
Is there a wildland-urban interface education effort	Yes	Yes	Yes

Fire Investigation

The investigation of fires, explosions, and related emergencies is an integral part of providing life and fire safety to a community. The “fire problem” in a community is addressed by a “cycle” of resources provided by the authority having jurisdiction. These resources include **public education** so the citizen is aware of hazards, how to prevent them, and what to do should they occur; **engineering/code enforcement** so fire and life safety is an inherent part of the community infrastructure and where there is a violation compliance is achieved; **fire suppression** so that when there is a failure in the education, engineering/code enforcement part of the cycle the emergency can be resolved; and **fire investigation** where the incident is documented, the cause determined accidental or intentional and steps taken so it will not happen again.

The results of fire investigations suggest public education needs and results, the need for code modifications and changes, fire department training, resources and deployment, and identification of the community’s “fire problem.” The following table summarizes the fire investigation efforts within each department.

Figure 49: Summary of Fire Investigation Involvement

	Lake Elmo	Mahtomedi	Stillwater
What level of fire investigation is conducted by this department	Initial scene control Origin and cause determination	Initial scene control Origin and cause determination	Initial scene control Origin and cause determination
Who performs arson investigation and follow up	State Fire Marshal Local law enforcement LEFD assists	State Fire Marshal Local law enforcement	State Fire Marshal SFD assists Local law enforcement
Who is responsible for fire investigations	Chief	Chief	Chief and Deputy Chief
Is a local or regional investigation team available	No formal team	No formal team	No formal team
Are personnel properly trained in arson crime scene control	Yes	Yes	Yes
Is there an evidence collection and storage system in place	No, rely on PD	No, rely on PD	No, rely on PD
Do investigations follow NFPA 921	Not fully implemented	Not fully implemented	Not fully implemented
Is there a juvenile fire setter counseling program available	State Fire Marshal	State Fire Marshal	County Youth Services

Communications

All three of the fire departments are provided communications and dispatch services through the Washington County 9-1-1 Communications Center (WCCC), a branch of the Washington County Sheriff's Department. The dispatch center is the primary Public Safety Answering Point for all public safety agencies in Washington County.

The dispatch center is managed under the sheriff's department command structure without formal representation from the fire department. A civilian Communication Center Manager is assigned the responsibility for the center, and there are six other supervisory positions within the center's staffing structure. The WCCC maintains between four and five personnel on duty, depending on workload, with one being a supervisor at all times. The center uses a dedicated call-taker that receives incoming calls and supplies critical information to the Telecommunicators while maintaining contact with the caller. Specific Telecommunicators are assigned to both the fire and EMS functions.

The center's training team consists of one of the supervisors who acts as the training coordinator, and four certified training officers. Initially, dispatchers receive over 12 weeks of classroom and console training, along with CPR certification, emergency medical dispatch (EMD) certification and law

enforcement records security certifications. This is followed by working alongside a field training officer until released for full duty. Subsequent training includes bi-annual recertification, annual security training and around 16 hours of workshops or seminars per Telecommunicator.

The center handled 69,000 9-1-1 calls in 2010, or a daily average of 189 calls. An additional 143,000 administrative or other incoming calls were handled. There are eight incoming 9-1-1 telephone trunk lines. The center's system is compliant with Phase Two cellular location identification.

Formal call answering time standards have not been adopted. *NFPA 1221*, Section 6.4.2 (*Installation, Maintenance, and Use of Emergency Services Communications Systems*) section 6.4.3 specifies that, "Ninety-five percent of emergency dispatching shall be completed within 60 seconds." These or similar standards should be considered for formal adoption and performance monitoring should be conducted regularly with reports provided to the fire chief. If these standards are adopted, the center should begin reviewing call processing time at the 90th percentile, in addition to call answering or "pick-up" time.

Quality assurance is being conducted by the communications supervisors, mostly through direct observation and random EMD reviews.

Computer-aided dispatch software is available to the fire dispatcher. Call processing and dispatch is handled quickly, with automated processes that take place in order to identify the correct unit or stations to dispatch. The CAD system was created by a former sheriff's department employee and is a table-based system running on an AS400 hardware platform. The system relies on tables of street and resource information maintained that are reported to be out of date. A workaround to provide incident georeference is provided by using GeoComm, a software that plots call location using the automatic number and automatic location identifiers (ANI-ALI) on incoming 9-1-1 calls. CAD is currently programmed to provide only identification of the fire jurisdiction with no initial or back-up alarm recommendations. A new fully-programmed CAD system from Tiburon™ is anticipated for installation in February of 2012.

Dispatch takes place by *general department announcement*, with no programmed assignment of specific apparatus quantities and types. Apparatus availability for the department is not tracked automatically by the CAD system and back-up assignments are not currently determined with assistance from the CAD

software down to the apparatus level. Notification of personnel within the fire stations takes place by encoded station radios. Field personnel are notified by pocket-sized tone-encoded radio receivers.

Dispatchers are fully certified in the Emergency Medical Dispatch system and provide pre-arrival instructions to bystanders at medical incidents. Dispatchers are required to maintain EMD certification.

The County's radio system operates on a trunked 800 MHz radio system with sixteen channels from fourteen towers. Despite having nearly 1,400 radios on the system, users indicate system queuing is extremely rare.

The dispatch center has adequate contingency plans for system failure. Back-up power is in place with spare consoles available. However, no redundant dispatch site is available in the event this center needed to be evacuated. The facility uses high-security electronic key locks and is equipped with hardened glass windows.

Section II – Opportunities for Cooperative Effort

The previous section of this document provides an overview and baseline assessment of the emergency services delivery system within the cities of Lake Elmo, Mahtomedi and Stillwater and each department's primary response areas outside their respective municipal boundaries. This section uses that assessment of baseline conditions to develop scenarios for future service delivery utilizing the concept of shared or cooperative services.

During the past three decades, fire protection in America has undergone a process of remarkable transformation. Change began in the early 1970s, roughly corresponding with the publication of the *America Burning* report by the National Commission on Fire Prevention and Control (published 1973). About that time, fire departments across the nation began to assume a greater role in the protection of citizens from more hazards — quickly expanding from fire suppression to greater emphasis on fire prevention, emergency medical service, ambulance transport, hazardous materials, specialized rescue, and natural disaster. The process of change continues today, although some authorities feel not in the spirit of the 1973 report.

While many of the goals of the *America Burning* report and the subsequent *Fire Prevention and Control Act of 1974* have not materialized, the responsibilities of community fire departments continue to increase. Urban and suburban expansion have reached unprecedented levels across America, yet laws that limit the funding of public services increasingly restrict emergency services in those same communities. Nearly all such tax limit laws trace their roots to California's Proposition 13 (passed by voters in 1978; also referred to as the California tax revolt).

Well before the release of *America Burning* and the California tax revolt, private sector businesses recognized the benefit of merger and collaboration as a means to increase efficiency. For years, critics have advised government to “reinvent itself” and to administer programs more “like a business.” Many elected policymakers of counties, cities, and fire departments list personal business acumen as an asset that they bring to the office. An increasing number of fire chiefs and policymakers accept the moral imperative to maximize the efficiency and effectiveness of emergency service resources through a process of strategic cooperation.

Consequently, what was once relatively uncommon in the fire protection industry has become more widespread as fire department leaders react to internal forces promoting maximization of resources due to external drivers (i.e., expanding scope of service, increased populations, rapid economic growth, and limited capital). More and more, local fire organizations join in partnership with other jurisdictions to eliminate service duplication and to focus resources on providing essential services. Such strategic alliances between fire protection agencies began in areas experiencing rapid economic development, primarily surrounding western cities like Los Angeles, Denver, Seattle, Salt Lake City, and Portland. Now, as the economic development that so characterized metropolitan centers during the last two decades spreads, and external forces act to limit the ability of the once outlying suburban and rural communities to unilaterally react to the change, the strategic partnership of emergency service organizations becomes an alternative more frequently considered by policymakers.

General Partnering Strategies

Four basic strategies are generally available when considering consolidation of services, beginning with a do-nothing approach and ending with complete unification of the organizations into what is, essentially, a new emergency service provider. A description of the four methodologies is found below:

Autonomy

The departments can decide to continue as separate organizations by not taking advantage of any further partnering opportunities. Autonomy provides each governing board with the most organizational control because, under this strategy, the agencies continue to make decisions considering only unilateral issues. The strategy represents a perpetuation of the status quo, and it is useful as a means by which to measure the other strategies.

Functional Consolidation

Public entities usually have broad authority under law to enter intergovernmental agreements (IGAs) for the purpose of cost and service efficiency. Minnesota is no different in this regard. The laws of the State of Minnesota address the issue, allowing intergovernmental contracts for any lawfully authorized function, service, or facility.

Under the applicable statutes, governmental entities may elect to cooperate or contract for any lawful purpose. IGAs allow individual organizations to share resources, improve service, and save money at the

program level. Most commonly, fire departments enter partnering agreements for programs such as firefighter training, fire prevention, closest force response, and administrative/support services.

In many cases, functional unification is sufficient to accomplish the cooperative goals of the agencies without considering operational agreements or mergers. It is common in the industry to functionally join such activities as purchasing, firefighter training, fire prevention, public education, apparatus maintenance, and command standby. The keys to success of a functional unification strategy lie in a trusting relationship between partner agencies, the completeness of the agreement that sets up the program, and a cooperative approach to the management of the program.

Operational Consolidation

This strategy joins two or more entities, in their entirety, through the execution of an intergovernmental agreement (IGA). The resulting organization features a single organizational structure and chain of command. Depending on the form of the agreement(s) establishing the organization, members may remain with the original agency, transfer to one of the other agencies, or transfer to an entirely new entity.

Legal Unification

Under certain circumstances in law, fire departments can join into a single entity. This formal approach unites not only the programs, but also the organizations themselves. State laws addressing political subdivisions usually detail a process for legal unification.

Typically, state laws draw a distinction between words like *annexation*, *merger*, and *consolidation* when speaking of legal unification. Organizationally, however, the outcome of any such legal process results in one unified organization. The major differences between the legal strategies relate to governance and taxation issues. In many states, some process of *inclusion* exists that essentially involves the annexation of one entity to another, preserving the governing board and taxing authority of the surviving agency. A legal merger, on the other hand, usually entails the complete dissolution of two or more agencies with the concurrent formation of a single new entity (and board) in place of the former.

In identifying potential cooperative opportunities, the project team considered the key issues now challenging each agency. Some issues represent roadblocks to integration, while others provide a unique chance for improvement. As an element of the review, affected staff and other officials provided

local and internal perspective on organizational culture, community expectation, and other significant matters.

The section identifies 17 collaborative opportunities – detailing them in a directory. Each listing includes an alphabetical designation, a title, a summary description, and a discussion including guidance and financial considerations. A table is provided that summarizes the 17 opportunities. Of the 17 strategies, 16 represent the functional unification of a specific program or task.

To evaluate the *Opportunities for Cooperative Effort* effectively, a basic understanding of the methods for collaboration available to the agencies is necessary. The information provided here should be considered for what it is: a primer regarding the legal aspects of collaborating public agencies. At the point where policymakers have decided to pursue any of the cooperative efforts, the advice of legal counsel should be sought in order to ensure that the appropriate procedures are followed.

Policy Actions

A number of policy options exist for integrating the fire and emergency services of Lake Elmo, Mahtomedi and Stillwater. These options include the following:

Creation of a Fire District

Although not specifically outlined in Minnesota General Statutes, the creation of a special fire district has been accomplished in Minnesota recently by the Cloquet Area Fire District (CAFD). The City of Cloquet and the City of Perch Lake approached legislators about the equality and sustainability of funding for EMS throughout the area around Cloquet. This led to the creation of the district under a special law from the 2009 legislative session. This created an additional taxing authority that was allowed to levy taxes based strictly on property values in order to fund the system more equitably.

Creation of a fire district essentially absolves the member municipalities of the authority and responsibility of providing fire and emergency medical services and transfers that authority and responsibility to the new entity. Implementing an action such as this should be done so after careful consideration of the pros and cons of such a decision and how it will affect the general public, particularly in regards to taxation and service delivery.

Intergovernmental Agreement

2010 Minnesota General Statutes 471.59 permits local governmental units to enter into agreements with other units of government through the Joint Exercise of Powers. The purpose of the legislation was to make the most efficient use of their powers by enabling them to cooperate on a basis of mutual advantage in the provision of services and use of facilities in a manner pursuant to forms of local governmental organization that will work best with geographic, economic, population, and other factors influencing the needs and development of local communities.

JPA's (Joint Power Agreement – sometimes referred to as intergovernmental agreement) allow jurisdictions to pool resources without usurping local authority. A joint power agreement can be viewed as a fractional consolidation of services or functions between two or more jurisdictions. JPA's may involve a wholly separate organization being established to provide a service on behalf of the participants. This concept has been used successfully in several counties in Florida to improve fire and emergency protection.

The use of a JPA or Intergovernmental Agreement has been shown, in many instances, to improve service. Short of a complete consolidation of two, three, or all fire and emergency providers, a JPA provides the best opportunity for service improvement and increased efficiencies.

Shared Services

Historically, while fire departments have been managed and operated quite independent of one another, they have shared services. Shared services may include: personnel, apparatus, equipment, and expertise. Opportunities of cooperation include a joint training manual, standard operating guidelines, joint purchasing, and a partnership for sharing training equipment and facilities.

The concept of shared resources is the most basic level of cooperation that can, to a large extent, improve efficiencies of the study fire and EMS providers. Short of creating a single service provider or developing a JPA, ESCI believes that collaboration offers the best prospect for the existing fire and EMS departments.

Options for Shared Services

The following paragraphs provide a summary of all potential shared services strategies available within the study region. Although every attempt has been made to identify all of the areas of potential, intimate knowledge of the current system may allow for other areas to be explored outside the parameters of this report. It is important to point out that some study agencies are already working to implement select concepts. Regardless of the existing level of implementation, ESCI provides detailed information on all strategies to provide the reader with a complete picture of full cooperative potential.

Fiscal Analysis

The process to convert the financial records of each agency to a model budget requires certain conventions and assumptions. First, the annual budgets of fire departments are reformatted. We categorize the line item accounts of each into three major classifications: personnel services, materials and services, and capital outlay. The classifications are further sub-divided to permit the tracking of program cost (such as fringe benefits, maintenance, and volunteer firefighters). All jobs are identified and indexed to compensation paid during the baseline year. Each position is extrapolated to the model budget based on the costs associated with the job (salary and benefits) for a full year and expressed in FTEs.

We identify all revenue, not considering the source in producing the estimated general operating fiscal requirements of each jurisdiction. We consider that the resultant sum fairly estimates the amount of support that each agency requires to sustain the current level of fire and emergency medical services, regardless of the source of the jurisdiction's tax revenues.

We do not intend that the ESCI model budget exactly mimic each agency's current or future budget. Instead, the modeling process provides a stable base by which to measure and compare the effects of the partnering strategies. Generally, we use a set of standard conventions when combining the modeled budgets of individual agencies for analysis. Depending on local situations, we may apply other special protocols to our calculation of the financial impact of restructuring. Regular and special conventions observed in this study are:

- **Jobs:** To facilitate the analysis, we assume that in consolidating all the agencies under a JPA, all positions are preserved, but not necessarily converted to exactly the same jobs in the new organization.

- Job Classifications: Differences exist between the job classifications and structure of the departments. Although we combine the fire departments and carry out financial analysis of a consolidation based on the existing organizations, we note that in the long term the agencies may need to restructure their administrative and support sections to better suit the new character of the department.
- Staffing: The model assumes that the existing staffing of all stations continues, with an equivalent number of FTE positions.
- Membership: The number of volunteer personnel in a consolidation scenario within the model will generally equal the sum of the current rosters of the combining agencies. In our experience it is prudent to budget in this manner; however, any change as significant as consolidation usually results in at least a temporary loss of some volunteer positions. Frequently, we find that some individuals (paid, volunteer, or on-call personnel) maintain membership in more than one organization. When the agencies merge, the multiple memberships result in a net loss to membership of the unified department.
- Compensation: Some job classifications within a separate agency may have more than one level of compensation assigned. If we are not able to identify the actual salary that is paid in such cases, we usually weight our compensation estimate to about 100 percent of the high-end of the salary scale to allow for a tendency (over time) for a group of workers to reach maximum wage. In this case, for some departments/districts, we were able to use the payroll report to identify existing salaries; consequently, the model makes compensation assumptions that are very close to the actual amounts paid by that agency. When merging organizations, we assume that the highest salary paid to similar classifications prevails.¹⁶
- Created Positions: In most circumstances, the salary costs for the jobs of any unified agency are calculated on the highest compensation level of current (or similar) positions. We may assign an assumed compensation to new positions created for the purposes of analysis. Occasionally, some employees or groups are compensated at a rate much higher than comparable positions in the other agencies. In these cases, we usually assume that pay for the higher position is “red circled,” essentially holding the current employee at that level until normal increases in other classifications close the gap. When compensation levels appear to be very much higher than comparable positions, we may assign (what we consider to be) a normally expected rate of compensation to avoid adversely weighting the model.
- Volunteer/Reservist cost: For those fire departments with volunteers, the costs associated with volunteers are identified within the model, and a per-person charge is calculated. When combining agencies, volunteer membership cost is estimated based on the highest per-member cost of the involved agencies times the total number of volunteer members in the action.

¹⁶ Specifically, if each agency has the same job classification (e.g. captain) but those positions are paid different salaries, we assume that the compensation of that job in the merged department will be paid at the highest former rate.

- Governing board expense: Departments usually maintain line item accounts associated with governance expenses (mileage, per diem, reimbursement, elections, insurance, and meetings). When departments are combined, such duplicated expenses are eliminated creating direct savings. Governing body expenses are not factored out of modeled budgets when an alliance is considered.
- Budgetary line items: We use the model budget as a template in the process of generating a merged budget for the partnering strategies. Budgetary modifiers are assigned to line items depending on the factors that are likely to change that allocation in a consolidation. Each modifier adjusts the corresponding line item in proportion to the overall impact on the departments. For example, the allocations of certain line items are largely dependent on the number of employees of the department; consequently, a modifier for those line items will adjust the corresponding line items of the merged budget in proportion to the change in the number of employees. The ESCI budget model includes modifiers for career administrative staff, career operational staff, volunteer members, career operational staff plus volunteer members, career administrative staff plus career operational staff, total personnel, stations, offices, engines, medic units, ladder trucks, vehicles, emergencies, assessed value, and population.
- Capital equipment and facilities: Financial analysis assumes the existing facilities and apparatus are maintained after consolidation but may be altered in accordance with the budget modifiers relating to equipment and facilities. For some strategies, an elimination of duplicate facilities, apparatus, and equipment will be discussed. These are identified individually.
- Revenue: When a partnering strategy involves unification of departments through a merger, consolidation, or a new organization (such as joining two or all agencies), the non-tax revenues of the departments are combined. In some instances, however, agreed upon terms (JPA, contract) dictate how revenue is collected and distributed.

Figure 50: Cooperative Effort Strategies Summary

Partnering Strategy	Objective(s)	Level of Cooperation	Timeline Short, Middle, Long Term	Section	Affected Agencies
Potentially Consolidate All Fire Departments into a Single Agency - Feasible	Consolidate fire and EMS entities in a single operational governmental unit under the provisions of an Intergovernmental Agreement.	Operational	Long Term	Administration	All Agencies
Partnering Strategy	Objective(s)	Level of Cooperation	Timeline Short, Middle, Long Term	Section	Affected Agencies
A – Develop Standard Operating Guidelines	Provide guidelines for operation during emergencies, emergent and non-emergent incidents.	Functional	Short Term	Emergency Operations	All Agencies
B – Shared Specialty Teams	Provide specialty teams in the region by allocating and distributing resources to achieve minimum cost and maximum operational benefit.	Functional	Middle Term	Emergency Operations	All Agencies
C – Develop a Regional Fire Safety Education Coalition	Provide for the cost effective, regional dissemination of public fire safety education.	Functional	Middle Term	Fire Prevention	All Agencies
D – Create a Unified Occupational Medicine Program	Provide a fire-service related occupational and health program.	Functional	Middle Term	Administration	All Agencies
E – Create a Unified Wellness and Fitness Program	Provide a wellness and fitness program that promotes the improved health and well-being of personnel in all divisions, at all ranks. Increase fitness levels and decrease injuries. Reduce frequency and number of sick/sick injury incidents. Reduce the number of days used for sick/sick injury leave.	Functional	Middle Term	Administration	All Agencies

Partnering Strategy	Objective(s)	Level of Cooperation	Timeline Short, Middle, Long Term	Section	Affected Agencies
F – Develop and Adopt Common Training Standards	Adopt uniform training guidelines. Adopt uniform certification standards.	Functional	Short Term	Training	All Agencies
G – Create a Regional Training Manual	Provide consistent, standardized training procedures.	Functional	Short Term	Training	All Agencies
H – Develop an Annual Regional Training Plan	Provide standardized and consistent training. Provide a well-trained emergency workforce. Provide long-term vision and direction for training delivery.	Functional	Short Term	Training	All Agencies
I – Develop a Regional Fire and EMS Training Facility	Provide training facilities readily available to all fire departments. To develop and maintain the knowledge and skills of all emergency services personnel.	Functional	Middle Term	Training	All Agencies
J – Develop Mutual Training Strategies	Provide purpose and direction for training program management and delivery. Combine strengths and resources to: Overcome current training obstacles and deficiencies, Provide a comprehensive, and regionally integrated training structure, Develop a mutually beneficial training program, and Train and certify a cadre of knowledgeable and skilled emergency responders.	Functional	Short to Middle Term	Training	All Agencies
K – Purchase Uniform Emergency Apparatus	Create a single set of emergency apparatus specifications. Provide single-source uniform emergency apparatus for all regional fire agencies.	Functional	Long Term	Emergency Operations	All Agencies

Partnering Strategy	Objective(s)	Level of Cooperation	Timeline Short, Middle, Long Term	Section	Affected Agencies
L – Acquire AVL and MDC or MDT Capabilities	Provide AVL (Automatic Vehicle Locator) information transmitted to dispatch for use during emergency and non-emergency incidents. Provide standardized MDC/MDT (Mobile Data Computer or Mobile Data Terminal) in emergency apparatus.	Functional	Middle Term	Emergency Operations	All Agencies
M – Develop Uniform Pre-Incident Plans	Provide a system of shared operational plans for use during emergencies and non-emergent incidents.	Functional	Short Term	Emergency Operations	All Agencies
N – Provide for Joint Staffing of Stations and Apparatus	Provide for distribution of facilities and deployment of personnel consistent with a regional standard of cover. Provide consistent fire and emergency services within areas efficiently before, during, and after development.	Functional	Short Term	Emergency Operations	All Agencies
O – Provide for Joint Incident Command and Operations Supervision	Provide for IC (Incident Command) supervision of emergency operations. Provide for supervision of on-duty personnel during routine operations.	Functional	Short Term	EMS and Emergency Operations	All Agencies
P – Purchase and Implement an Electronic Staffing Program	Provide a uniform electronic system that combines telephone callback, personnel scheduling, and includes payroll and administrative features.	Functional	Short Term	Administration and Emergency Operations	All Agencies

Potentially Consolidate All Fire Departments into a Single Agency

The basic intent of this project was to evaluate the potential feasibility of the consolidation of Lake Elmo, Mahtomedi, and Stillwater fire departments into a single operational agency. This section presents that feasibility evaluation and identifies that, although potential savings are projected to be minimal, consolidation is feasible. Whether or not to proceed with the process of further evaluating this potential rests with the policy makers within each community.

Level of Cooperation

- Operational

Timeline for Completion

- Long Term

Section

- Administration

Affected Stakeholders

- All Agencies

Objective

- Consolidate fire and EMS entities into a single operational unit, either through the establishment of a new special fire district or under the provisions of an extensive intergovernmental agreement.
- Provide increased fire and emergency service efficiency in the areas served by the Lake Elmo, Mahtomedi and Stillwater fire departments.

Summary

The three study fire departments already benefit from some collaborative programs such as mutual and automatic aid, therefore it is natural that continuing the long-term strategy of cooperation should eventually lead to the whole area forming a single fire agency. If the fire departments continue this progression by implementing even some of the partnering strategies found in this study, taking the next logical step seems inevitable. A cost analysis of this strategy at full deployment shows an annual cost decrease of approximately \$8,154 (based on current fiscal year dollars).

Discussion and Financial Analysis

The present system of providing emergency services by the different agencies throughout the region has limited continuity. Instances were reported of emergency apparatus responding through neighboring jurisdictions that had emergency units available and no single fire department has the resources to independently handle the current or projected workload.

This unification strategy expands on the current efforts and places operation of the departments under a single governance. In the existing situation, the governing body of each department prepares and adopts separate budgets, labor agreements (where needed), and policies. What is lacking is a partnership that provides ownership versus a tenant-and-proprietor relationship.

The *Evaluation of Current Conditions* section presented earlier includes recommendations for each of the fire departments individually and, in some cases, in concert with one another. Deciding which recommendations to enact is the responsibility of the governing bodies of the departments. If the various departments' management and operational structures are merged, planning and executing change becomes more efficient and effective.

ESCI believes that efficiencies may be found with the consolidation of the administrative functions. Combining all administrative functions of the departments can be accomplished by creating a single fire/EMS budget and apportioning cost in accordance with a predetermined formula. In ESCI's experience with other such partnerships, it has been noted that organizational pairings resulting in one operational structure seem to be more successful over the long term. Partnerships in which an administrative team must oversee more than one working structure tend to be split by factionalism due to different contracts, cultures, rules, and processes. Frequently, employees and members of such organizations describe their workplace environment as "dysfunctional" and in "we versus them" terms. For these reasons, ESCI recommends that if this strategy is preferred, the departments consider moving beyond the existing system of independent fire department management teams. ESCI recommends a complete consolidation of all fire and EMS functions.

To fix the parameters of analysis, ESCI assumes that an operational consolidation of the departments will result in a single organization administered by one fire chief and governed by a single oversight authority; in this case, the City of Stillwater. The administrative and operational makeup of the

organization includes the equivalent number of full-time and part-time employees as the combined departments. It should be understood that this is where ESCI chose to lay the foundation. The end result of any consolidation and how the management and oversight of such a single agency develops will be determined through a lengthy process of negotiation and compromise.

Cost is always a key factor when deciding to enact organizational partnerships. To that end, ESCI created a model budget for the fire departments designed to fairly represent the monetary policies of each agency equally, to neutralize the normal differences usually found in unilateral fiscal practices, and to account for any financial peculiarities (such as budgetary back loading). The table below details the modeled baseline 2011 operational budgets of the fire departments.

Figure 51: Consolidated, Modeled Baseline Cost of Fire Protection

Budget Category	Lake Elmo	Mahtomedi	Stillwater
Personnel Services	\$215,179	\$454,401	\$900,929
Materials & Services	\$160,525	\$228,844	\$152,897
Capital Outlay	\$0	\$72,496	\$47,699
Total Operating Budget	\$375,704.00	\$755,741.00	\$1,101,525.00

In calculating a model budget for a unified organization, ESCI made several initial assumptions in regards to personnel:

- Only one full-time Fire Chief would be required.
- The current part-time Administrative Assistant would be made full-time.
- The number of existing Assistant and Deputy chiefs could be reduced to one full-time and two volunteer.
- The number of line officers could be reduced to three full-time and six volunteer (three Captains and three Lieutenants).
- The number of Firefighters/Engineers would remain the same.

The ratio of administrative and support personnel to total personnel would be approximately 12.56 percent.

The staffing plan results in the following modeled budget for a consolidated fire department. Total cost for fire and EMS services in the region during the modeled year was projected to decrease through this consolidation strategy by \$240,084 as indicated in the following table.

Figure 52: Consolidated Cost of Fire and EMS

Budget Category	Combined Current	Consolidated	Change
Personnel Services	\$1,570,509	\$1,095,281	(\$475,228)
Materials & Services	\$542,866	\$778,010	\$235,144
Capital Outlay	\$120,195	\$120,195	\$0
Total Budget	\$2,233,570.00	\$1,993,486.00	(\$240,084.00)

The model budget presented above was created using a system developed by ESCI whereby each individual agency's budget was separated into individual lines and groups so that a fair comparison of expenditures could be made between each agency. Thus, the personnel services line contains information pertaining to paid full and/or part time personnel and all expenses for volunteer/paid-on-call/reserve operational personnel are listed within the materials and services line. This explains why there is such a significant decrease in the personnel services line and an increase in the materials and services line.

Although total system cost is projected to decrease, this does not necessarily mean that the change in cost will be equal for all participating communities of the consolidated system. In addition, the major factor that influenced the small difference in the model budget was the large amount of training and medical physical funding allocated for volunteer personnel by LEFD that would presumably be extended to all members of the consolidated department. Building this model budget assumes that services currently provided by one agency will be provided to the other agencies under a consolidated system. Thus, medical physicals and additional training currently enjoyed by LEFD personnel would be shared by all members of the new consolidated department, resulting in a higher cost per volunteer/paid-on-call member.

Although the assumptions made by ESCI include the elimination of two full-time chief officer positions, ESCI believes that at least some of the savings generated from a consolidation of services should be reinvested in the department to maintain a station presence within each community. Currently, with their paid fire chiefs (and staff, in the case of Stillwater), each community has at least one person on duty during daytime hours to respond to incidents as well as be available for public events and/inquiries. Two of the current Fire Chief positions could be converted to full-time or part-time station officers or firefighter positions at a significantly reduced pay rate, but still utilized as a community resource. Doing so would ensure that current levels of service within each community could be maintained. The specific

title, pay and responsibilities of the positions should be determined once the decision is made to move forward with consolidation. The addition of any such positions would decrease the overall savings realized through consolidation.

Analysis of specific cost changes for any existing tax entity will be dependent upon the method that is selected to fund the new consolidated system. Once a determination is made as to what revenue source or combination of sources are to be used in funding the consolidated system, specific comparisons can be developed to demonstrate the individual cost impact to participating communities. As noted above, however, overall system cost is projected to decrease.

Future Staffing – Administration and Support

The projection for administrative and support positions needed in the future may be different for a consolidated agency. The next table includes a projection of the distribution of personnel in administrative and support services at full deployment if the departments were consolidated as a single agency.

Figure 53: Full Deployment – Administration and Support Staffing Model, Consolidated

Position	Number
Fire Chief	1.00
Deputy Chief	1.00
Admin Asst.	1.00
Total	3.00

Administrative and support services staffing at full deployment under a single consolidated agency would decrease by only 1.75 FTEs. The annual recurring cost—as well as the comparable cost of an independent system and the annual potential cost avoidance of a consolidated system—is shown in the following figure.

Figure 54: Administrative and Support Costs at Full Deployment, Consolidated Agency

Consolidated Agency	\$209,229
Independent Agencies	\$346,524
Potential Annual Cost Avoidance	\$137,295

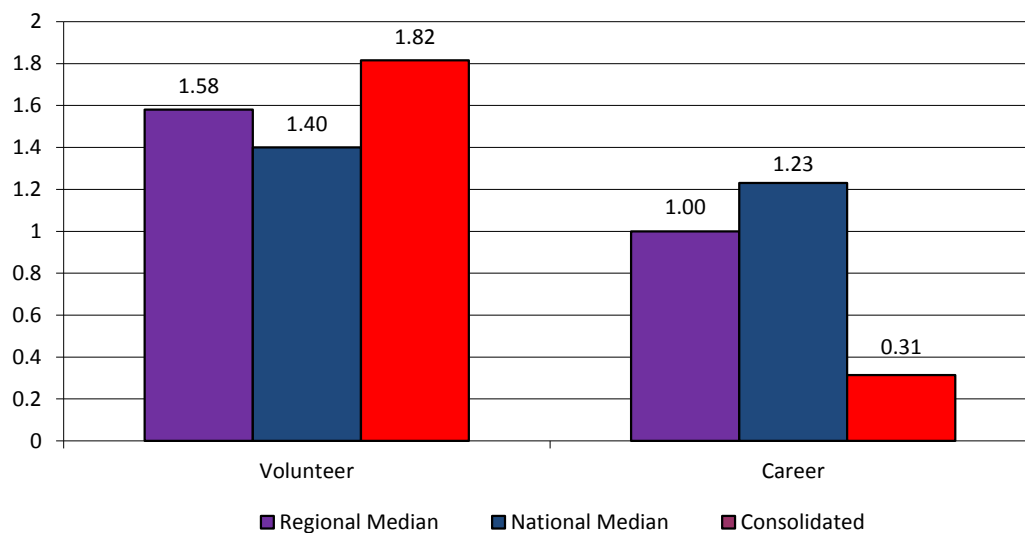
Benchmarks

A study jointly conducted by NFPA and the Federal Emergency Management Agency (FEMA) examined the emergency workload, capital resources, and the numbers of firefighters (career and volunteer) in

communities across the United States. In addition, a previous NFPA study provides other information about U.S. fire department staffing and resources.¹⁷ ESCI uses data from the two related studies to develop a series of comparative benchmarks for fire protection organizations. It should be emphasized, however, that the benchmarks used in this section *do not* represent standards of service. The measurements are intended only as references to assist policymakers in comparing the organizations with others in a similar demographic or region. Some benchmarks use a regional point of reference (i.e., Midwest United States) while others compare the departments with a national sample.

The figure below shows that a consolidated department would have fewer career firefighters per 1,000 residents than the median of other Midwestern fire departments serving a similar population base but slightly higher number of volunteer personnel for those same comparison areas. ESCI believes that the need for volunteers will continue long into the foreseeable future.

Figure 55: Consolidated Comparison of Firefighters per 1,000 Population

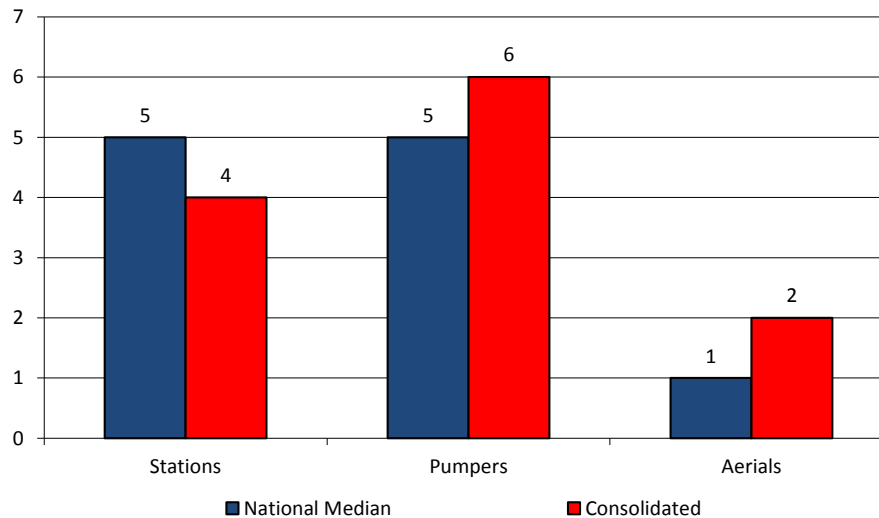


Regardless of the raw number of personnel available to a fire department, what matters most is the actual number of emergency responders the agency is able to produce at an emergency scene. This almost always relates to the actual number of emergency responders available for immediate deployment. The following figure provides an overview of a consolidated comparison of fire

¹⁷ FEMA/NFPA, "A Needs Assessment of the U.S. Fire Service", FA-240/December. NFPA, "U.S. Fire Department Profile through 2001", December 2002. The study divides the U.S. into Northeast, North Central, South, and Western regions. Fire departments within each of the four regions are categorized by service area population.

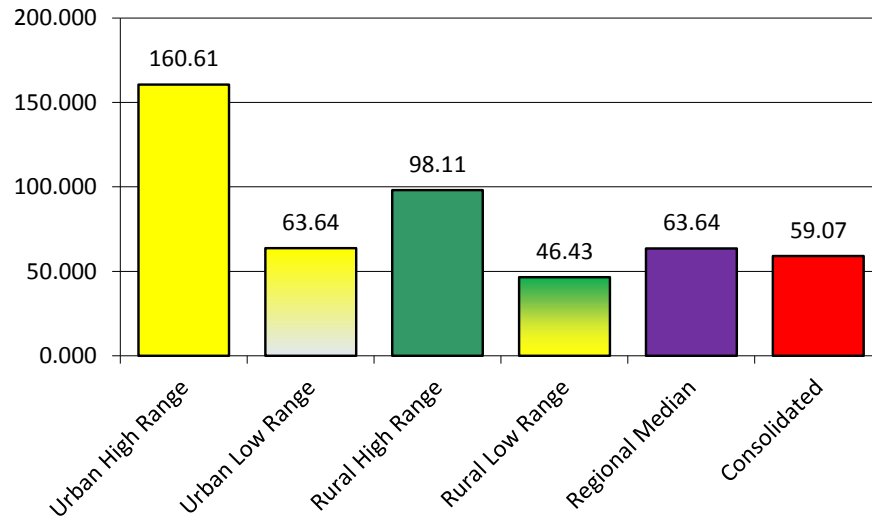
suppression resources and compares these with the median rate of resource allocation in other communities of similar size within the Midwest United States.

Figure 56: Consolidated Comparison of Resource per 1,000 Population

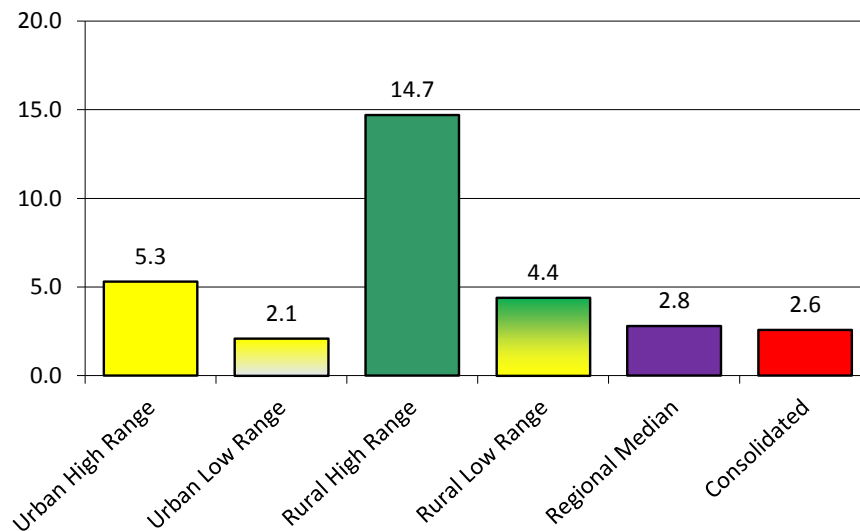


The chart above illustrates the extent that geography plays in determining the resources that are necessary to protect the service area with a consolidated fire department. The department would maintain slightly fewer stations, more pumps, and only one more aerial as the median of other Midwestern fire departments serving similar populations. The number of engines has already been addressed in the recommended capital replacement program as has the number of aerial apparatus. More discussion will follow in the area of shared services outside consolidation in regards to strategic placement of aerial apparatus.

The following figure compares the response workload of a consolidated department to the median workload of other similar Midwest region fire departments and shows the national range for incidents in urban communities with a population similar to that served by the combined departments.

Figure 57: Comparison of Incidents per 1,000 Population

As illustrated above, the emergency workload of the consolidated fire department is significantly lower than the urban high range of other similar-sized communities but only slightly lower than the regional median of incidents per 1,000 population. The difference is attributable to the consolidated department's service area demography and active involvement in providing ALS transport services through MFD. The consolidated fire department could expect a fire incidence rate that is in line with the median of other Midwestern fire departments serving similar populations.

Figure 58: Comparison of Fires per 1,000 Population

Capital Replacement Efficiencies

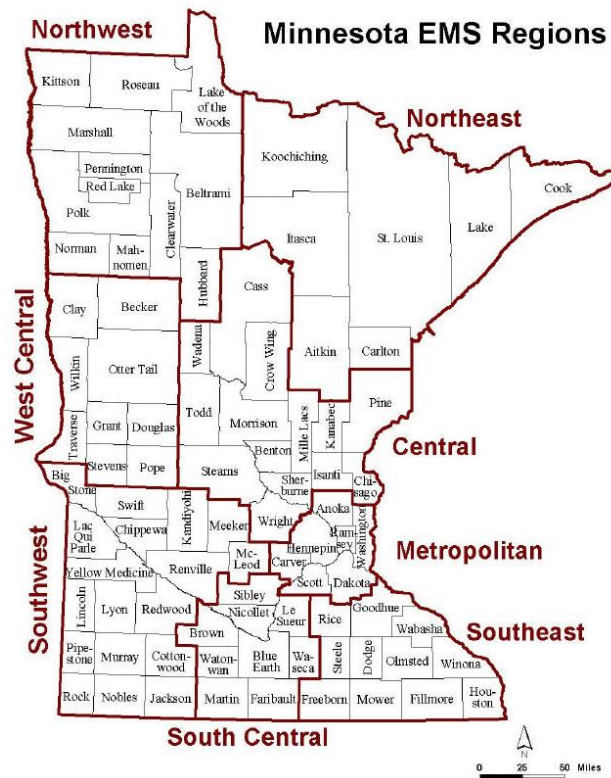
Under a regional plan, where apparatus is shared among the three agencies, it is possible that some units would be considered redundant and would not need to be replaced. The ability to share reserve apparatus resources is also likely. This could reduce the previously presented apparatus replacement plan deficit. Further, annual capital replacement fund contributions would be reduced based on less apparatus needing replacement. The remaining apparatus would be distributed based on risk and available space.

Some impact from any reduction of resources can be anticipated. With the departments operating independently, each department operates certain units that provide unique functions on certain types of incidents, such as an aerial truck or heavy rescue truck. Reducing the number of these units in a consolidated department would keep the functions provided by those units available throughout the region, but could increase the response time of the unit into those areas where a similar unit was eliminated. In other words, if a heavy rescue truck that is currently located in a particular city's station is eliminated, even though a heavy rescue is still available in another station it will take longer to get to the calls in that original station's area. Any decisions related to reducing redundancy should be considered with this factor in mind.

Emergency Medical Services

One major area of concern with this potential consolidation is that of emergency medical services (EMS). Transport EMS is currently only provided by Mahtomedi and not by Lake Elmo or Stillwater. The regulation of EMS within the State of Minnesota lies with the Emergency Medical Services Regulatory board. This agency assigns specific Primary Service Areas (PSA) to providers throughout the state. Currently, MFD is the only one of the three departments that has an assigned PSA and, consequently, provides transport EMS to that area. The remainder of the study region is covered by Lakeview Hospital EMS. In essence, while the services that are delivered throughout the region are similar, they are being delivered by agencies other than those directly affected by this study. The State of Minnesota is divided into eight EMS regions as illustrated in the following figure.

Figure 59: Minnesota EMS Regions



The study region is located within the Metro EMS region, which is covered by a total of 24 ground transport agencies including those that serve the study region specifically.

Given that multiple agencies are providing EMS services to the study area, several options exist to address the issue should the fire departments move forward with consolidation. The following paragraphs discuss each potential strategy while admitting that a combination of strategies may be necessary, at least in the short term, to accomplish the goals of the communities involved.

Option 1 – Expand the MFD PSA to include the response areas of Lake Elmo and Stillwater.

This option would require that MFD petition the Emergency Medical Services Regulatory Board (EMSRB) to expand their PSA based on a change in their primary fire response boundaries. Instructions provided by the EMSRB state that, “A licensed ambulance service(s) requesting a change in PSA must submit a written application to the Board, on a form provided by the Board. The contents of the application must comply with the requirements of the PSA statute.”¹⁸

¹⁸ http://156.98.156.25/docs/Primary_Service_Area_Changes_Factsheet-161.pdf. Accessed 14 August 2011.

In this scenario, it is unlikely that Lakeview Hospital EMS would relinquish the Stillwater and Lake Elmo portions of their PSA due to the potential loss of ambulance transport revenue from those areas. Guidance provided by the EMSRB suggests that local jurisdictions begin discussion early on with potentially affected providers should an agency determine the need to change or expand their service areas. Obtaining agreement from the current providers or at least a negotiated settlement should have better results than a contested and/or opposed PSA expansion.

This option would also create the need for the consolidated department to expand the services delivered by the new composite agency. Currently, MFD operates one ambulance from its primary base of operations (MFD) but ambulance services are not provided from SFD or either of the LEFD stations. In order to provide a service that is comparable to that currently being delivered, additional ambulances would be necessary within the new consolidated area.

One method to determine the necessary number of ambulances within a given area is to evaluate utilization of resources. Utilization is a mathematical method to allow managers to determine how busy (or how available) operational units are during a given time. Utilization is determined by dividing the total incidents by the total number of hours available during a given period. In this case, ESCI assumes that a unit would be available 24 hours per day for a total availability of 8,760 hours in a year. MFD responded to 630 EMS incidents during 2010, which translates to a unit hour utilization (UHU) of 0.07 ($630/8,760$). The higher the UHU, the busier a unit is considered to be. Most fire-based EMS systems agree that a UHU above 0.30 to 0.35 leads to employee burnout and decreased quality. SFD and LEFD responded to a combined 955 EMS incidents during 2010. Assuming that each of these incidents resulting in a transport, the calculated UHU for one additional unit would equal 0.11, well below the threshold.

In addition to the assumed workload calculations noted above, adding an ambulance to the current system would not come without costs. ESCI uses a factor of 1.25 when calculating full-time equivalents. Thus, to staff one ambulance 24 hours a day seven days a week based on a 24/48 work schedule, a total of 7.5 positions would need to be budgeted. Based on the current rate of pay established by MFD for EMS personnel, the total new personnel cost would equal \$488,226 if new personnel were hired specifically for the delivery of EMS to the Stillwater and Lake Elmo response areas. Alternatives such as the use of current or part-time personnel could be used to reduce this cost. In addition, based on the

average collection for MFD of \$423 per incident, the revenue potential for the SFD and LEFD incidents calculates to \$404,624, nearly offsetting the cost of additional personnel.

Option 2 – Allow current service providers that cover Lake Elmo and Stillwater to continue their services to those areas.

This option would require little in the way of modification since, in essence, nothing would change in regard to service provider. Currently, LEFD and SFD do not contract with the agencies that provide transport EMS to their response areas. Rather, those agencies are assigned response areas by the EMSRB. This would not change under this option. The newly created consolidated agency would continue to receive EMS transport services from multiple providers.

The difference would be, now that the area is consolidated, how the costs of providing a service to one area and not the rest are allocated to the various communities? Currently, Mahtomedi levies a tax on the residents of Mahtomedi. That tax is used to support all general fund departments, including the fire department, which provides EMS transport services to the community. In Lake Elmo and Stillwater, those communities levy a tax that is used to support all general fund departments including their respective fire departments and first responder components but not the EMS transport providers.

Under a combined agency where one component is providing EMS transport and the other two are providing EMS first response, the perception could be that the service is inequitable as compared to cost of service. When, and if, the agencies are combined into a single consolidated agency, the assumption is that the consolidated agency would be funded by one of a variety of methods including property valuation, service demand, population, area, or a combination of these factors. If services were to continue as are currently provided, a method to equitably distribute costs would be required.

Option 3 – Discontinue the provision of EMS within MFD and petition the EMSRB to expand the PSAs of the providers currently serving Stillwater and Lake Elmo.

This option would require that the EMSRB reassign the PSA currently served by MFD to another provider. This would also result in a loss of revenue from transport user fees in the amount of \$266,925 based on the 2011 budget projections.

Firefighter Relief Associations

One issue that could be a major factor in the decision to enter into a shared services or other cooperative services agreement between the fire departments concerns each agency's Fire Relief Association. A 2011 report issued by the Minnesota Office of the State Auditor found that 717 relief associations were in existence in Minnesota during 2009.¹⁹ Those 717 relief associations held nearly \$403 million in net assets, which represents accrued benefits for 20,812 firefighters statewide. During 2009, relief association received \$15.4 million in fire state aid and received \$7.8 million in municipal contributions. During that same year, \$30.8 million in service pensions was paid out by 444 different relief associations.

Lake Elmo, Mahtomedi and Stillwater each have individual fire relief associations that benefit their volunteer members. Each of the three study agencies participate in a lump sum plan, which means that, at the appropriate time, eligible members receive a one-time payment from the association based on set criteria. Assets from each fund were transferred to the State Board of Investment in 2010 and liabilities were transferred to the plan in 2009. The following figure illustrates the differences in each relief association's net assets, accrued liabilities and funding ratios.

Figure 60: Comparison of Assets, Liabilities and Funding

	Net Assets	Accrued Liabilities	Funding Ratio
Lake Elmo FRA	\$920,405	\$851,569	108%
Mahtomedi FRA	\$1,216,926	\$1,318,637	92%
Stillwater FRA	\$2,567,344	\$2,501,818	103%

The following figure compares each association's revenues during 2009.

Figure 61: Comparison of Fund Revenues

	State Aid	Supplemental Benefit Reimb.	Municipal Contributions	Investment Earnings	Other	Total 2009 Revenue
Lake Elmo FRA	\$34,527	\$0	\$0	\$155,240	\$0	\$189,767.00
Mahtomedi FRA	\$49,071	\$0	\$8,000	\$259,618	\$0	\$316,689.00
Stillwater FRA	\$100,150	\$720	\$0	\$410,084	\$0	\$510,954.00

Expenditures from each fund were also varied as illustrated in the following figure.

¹⁹ Financial and Investment Report of Volunteer Fire Relief Associations. March 2011.

Figure 62: Comparison of Fund Expenditures

	Administration	Service Pensions	Other
Lake Elmo FRA	\$10,679	\$0	\$0
Mahtomedi FRA	\$0	\$0	\$0
Stillwater FRA	\$6,895	\$343,827	\$0

Aside from the fiscal differences between the three plans, the qualifying criteria between the three agencies are identical. Each agency requires a minimum retirement age of 50 years old; a minimum active service of 10 years; and a minimum active membership of 10 years. Benefits offered under each plan, however differ as illustrated in the figure below.

Figure 63: Comparison of Fund Benefits²⁰

	Annual Benefit	Long-Term Disability	Short-Term Disability	Survivor Benefit
Lake Elmo FRA	\$3,100	\$3,100	None	\$3,100
Mahtomedi FRA	\$4,300	\$4,300	None	\$4,300
Stillwater FRA	\$5,000	\$5,000	None	\$5,000

In determining what impact a shared or cooperative serve model would have on the relief associations, ESCI evaluated the current liabilities of each fund and applied to highest level of benefit to assess future fiscal implications. Based on the auditor's report, the three agencies currently have 93 active members and 25 deferred members. At an assumed \$5,000 per year of service payment, the total liability would current calculate to approximately \$5,900,000 compared to a current asset value of all three funds of \$4,704,675 for a net difference of \$1,195,325, or a funding ratio of 79.7 percent. The median funding ratio of all Minnesota lump sum plans in 2009 was 98.0 percent.

If the decision is made to move forward with the consolidation of the three study agencies, a decision will need to be made at the elected official level as to how to handle the consolidation of the respective relief associations. The current \$1,900 difference between the lowest and highest benefit levels creates a significant deficit as described above. Efforts to reduce the deficit could include reducing the annual benefit to a lower level, such as an average of the three current benefits. An annual benefit of \$4,000 would bring the deficit to nearly zero.

²⁰ Long-Term Disability and Survivor Benefits are calculated on a per year of service basis.

Policy Action

A number of policy options exist for integrating the fire and emergency services of the fire departments. Some of the following options might be deemed inappropriate in this situation by the local elected officials who are much more in touch with local political will and culture, but these options are worthy of discussing for future opportunities. The options include the following:

- Form a consolidated fire department through intergovernmental agreements only, and the establishment of a Joint Powers Agreement (JPA). This would leave all existing funding and governance mechanisms in place and require extensive negotiation of intergovernmental agreements for the formation, governance, and operation of a regional fire and EMS department. Equitable funding would be negotiated through the JPA. This policy option would only functionally merge the fire protection system of the cities, requiring local action and proper notification for reversal.
- Form a consolidated fire department through the creation of a special fire service district. This would transfer the authority and responsibility of fire protection from the three existing cities to a newly created board to oversee the district creating a new unit of government and a new taxing authority. Funding would, in all likelihood, come solely from ad valorem taxation and, although a commensurate reduction in the individual cities' tax rates may result, the total tax passed onto the citizens may be higher than current rates.

Critical Issues

Organizational consolidations and mergers fail for many reasons. Sometimes law prohibits the idea at the outset. Other times the proposal may be doomed by the unfavorable outcome of a public election, or the reality of finance. These issues aside however, four major pitfalls can cause even the most feasible consolidation to go wrong. We think of these pitfalls as the "Four Horsemen" of failed partnerships. Specifically, the four are command, communication, control, and culture.

- Command: Undertaking any partnership as complex as a consolidation absolutely requires effective leadership be demonstrated consistently at all levels. Policymakers and administrators must guide their respective agencies, yet (at the same time) they must cooperate with partner organizations. Differing leadership styles may cause repressed friction at best and open conflict at worst. Problems with sharing control and making decisions sends the wrong message to the members of the organization, which can lead to an unraveling of even the best proposal.
- Communication: Silence or limited information from leaders about potential or upcoming partnerships breeds fear, mistrust, and misinformation among affected persons. The leadership of collaborating organizations must agree to communicate actively with all affected groups. Everyone must be provided the same information at the same time. Most importantly, leaders

must demonstrate two-way communication skills by carefully listening to (and acting on) the concerns of all constituents.

- **Control:** Frequently, the consolidation process is compared to a marriage. As the saying goes, “Marriage is when two people become as one; the trouble starts when they try to decide which one.”²¹ As in marriage, consolidation often fails because of organizational or personal ego issues. The tenets of leadership require that someone be in charge; but in the interest of greater good, some of those in leadership positions must agree to yield power. Some who are used to operating in a position of control may have trouble adjusting to new roles that require more collaboration. Personal sacrifice in the interest of community good may not always win out.
- **Culture:** Two schools of thought exist regarding organizational culture. The first camp views culture as implicit in social life, naturally emerging as individuals transform themselves into social groups (tribes, organizations, communities, and nations). The second camp offers that culture is comprised of distinct observable forms (language, use of symbols, customs, methods of problem solving, and design of work settings) that people create and use to confront the broader social environment. This second view is most widely used in the evaluation and management of organizational culture, but the first is no less important when considering bringing two discrete organizations into a closer relationship.
- The general characteristics of a fire department encourage the creation of a culture unique to that organization. The paramilitary structure, the reliance on teamwork, and the hazards of the work builds strong bonds between the members who tend to share group behaviors, assumptions, beliefs, and values. Bringing multiple groups together with cultures formed through different experiences always results in a change to both organizational cultures. If the partnership is successful, no one culture will overcome the other – instead, a new culture will evolve from the two. If the organizational cultures are incompatible – well, frankly, the partnership will often fail.
- Leaders must be aware of organizational culture and its role in the wellness of the agency’s heart and soul. Early recognition by leadership of the importance of culture to the success of a partnership can help to overcome differences and build on strengths.

Guidance

- **Consult with service partners.** The city councils of each city should begin a dialog with each other and with service partners and neighboring fire agencies regarding the proposed consolidation. Establish which agencies are likely to actively participate in reaching the goal.
- **Consult with legal counsel.** The individual city councils should consult with legal counsel regarding the statutory options and requirements for consolidation.
- **Joint Adoption of a Regional Fire and EMS Vision.** Each city council should formally adopt a Regional Fire and EMS Vision to set the course for any future cooperative service or consolidation.

²¹ Source unknown.

- Organize the Steering Committee. Representatives from each city council should form a joint fire and EMS planning committee to formulate and report on all elements of a consolidation plan. Establish leadership roles of the chair and other committee members. Create meeting guidelines and elect leadership. Set meeting dates and times. Review and adopt the work plan. Meetings are ongoing, as is the review and revision of the work plan. The Committee performs as a clearinghouse for all information concerning the effort so that service partners speak with a unified voice.
- Name the consolidated department. As an element of the work plan, the Steering Committee should establish a suitable name for the consolidated fire department. The name should reflect the identity of the whole protected area.

A – Develop Standard Operating Guidelines

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Emergency Operations

Affected Stakeholders

- All Agencies

Objective

- Provide guidelines for operation during emergencies, emergent, and non-emergent incidents.

Summary

Standard operating guidelines are used at the operations level of the fire department. They are analogous to a playbook, providing direction yet allowing for individualized company officer adjustments to situations. Currently each fire agency in this study is responsible for developing a unique set of standard operating guidelines for their organization.

Discussion

Standard operating guidelines will improve on-scene safety, efficiency, and effectiveness of personnel. With personnel from all agencies trained in using the same procedures, they can approach an incident with an understanding that everyone will proceed in a similar fashion. This will greatly reduce or eliminate the confusion that can lead to delays in the delivery of service.

Guidance

- Keep the guidelines in electronic format for ease of updating.
- Give initial and recurring education to personnel in their use.
- Provide for continual use of the standard operating guidelines during routine incidents and at each training session.
- Provide for a periodic appraisal of the guidelines to maintain currency with changes in tactics, strategy, and equipment.

- Consciously keep guidelines non-specific to allow for adaptation to particular incidents by the supervisor.

Fiscal Considerations

- The elimination of duplicated staff effort in the creation and updating of standard operating guidelines will reduce soft costs.
- Instructional time optimized during multi-agency training sessions by excluding time devoted to adapting to differing procedures.

B – Shared Specialty Teams

Level of Cooperation

- Functional

Timeline for Completion

- Middle Term

Section

- Emergency Operations

Affected Stakeholders

- All Agencies

Objective

- Provide specialty teams in the region by allocating and distributing resources to achieve minimum cost and maximum operational benefit.

Summary

Specialty teams are group(s) made up of individuals having areas of expertise and specialized equipment in roles outside the level of training considered as normal for fire suppression personnel. Public expectation has increasingly focused on fire departments as the logical source to staff, equip, train, certify, and maintain specialty teams. A specialty team may concentrate on one or more disciplines. Examples of specialty teams include:

- Hazardous materials
- Technical rescue
- Confined space/trench rescue
- Swift water rescue
- Dive team
- ICS overhead
- Rehabilitation
- Heavy rescue
- Ladder company²²
- Honor guard

²² The deployment of ladder companies is considered an essential component of a suppression response; in this instance ESCI considers the sharing of this resource to be a fiscally prudent use of resources.

A determination as to the type, level, and number of specialty teams should be based on a strategic plan for the entire study area.

Discussion

The ability of every fire department to be fully equipped for every conceivable incident with all personnel trained and certified to the highest level is impractical, but the reality is that any fire department will occasionally encounter unique incidents that require specialized equipment and personnel. Specialty teams based only in one fire department commonly respond to fewer requests for service, which results in greater cost per incident.

While the cost effectiveness of shared specialty teams is important, keeping skill and interest levels of personnel high is essential. Personnel who train less and who use skills infrequently are arguably at greater risk when working under dangerous conditions. Shared specialty teams are more effectively able to maintain high skill, knowledge, and ability because such teams typically train and respond to emergencies more frequently.

Guidance

- Determine the need for specialized teams for the entire region.
- Establish a single set of standard operating guidelines. It is very important that all departments operate by the same procedures when using shared resources.

Fiscal Considerations

- The elimination of duplicated effort in equipping, training, and staffing may reduce overall program costs.

C – Develop a Regional Fire Safety Education Coalition

Level of Cooperation

- Functional

Timeline for Completion

- Middle Term

Section

- Fire Prevention

Affected Stakeholders

- All Agencies

Objective

- Provide for the cost effective, regional dissemination of public fire and life safety education.

Summary

Preventing fires is known to be far more cost effective than extinguishing them. One widely recognized and very successful method of preventing fires is through a multi-faceted public fire and life safety education program. The public fire safety education programs currently offered by the separate fire departments vary from well planned to non-existent.

Discussion

Successful public education programs use a range of communication methods, many of which cannot be limited to a specific geopolitical boundary. Television and radio, for instance, are regional media that over-arch jurisdictional limits delivering information to citizens in a wide variety of communities. For fire safety campaigns to be most effective each must be designed to target a specific audience and each must be crafted for the means of delivery.

Creation of a regional public education coalition will help to standardize fire safety messages across the region and work to reach more of the target audience. This, in turn, will allow for reduced cost to each agency through sharing, while improving the quality of programs in those communities with few or no public education resources. Costs can also be reduced through quantity purchasing of handouts and other public education materials. Increased training can be made available to the public education staff, engine company crews, and others to enhance the quality of the fire prevention effort in those communities now lacking such programs.

Guidance

- Formalize the creation of the coalition through a written agreement.
- Involve others from outside the area and from non-traditional groups (insurance industry, educators, state fire marshal and local media).
- Create standardized messages that can be used across the county.
- Learn from others. Model the coalition after other successful regional public fire safety education programs.

Fiscal Considerations

- The elimination of duplicated staff effort in the creation and distribution of public fire safety education messages reduces soft costs.
- Cost savings can be achieved through group purchasing of materials and other media.
- Departments currently without a presence in public education efforts would see a cost increase.

D – Create a Unified Occupational Medicine Program

Level of Cooperation

- Functional

Timeline for Completion

- Middle Term

Section

- Administration

Affected Stakeholders

- All Agencies

Objective

- Provide a fire-service related occupational and health program.

Summary

A single method and source for providing occupational and health services may provide savings through economies of scale. *NFPA 1500, Standard on Fire Department Occupational Safety and Health Programs*, provides the minimum requirements for a fire-service related occupational safety and health program. Along with *NFPA 1500*, *NFPA 1582, the Standard on Comprehensive Occupational Medicine Programs for Fire Departments*, and related documents, provide guidance for the creation of occupational health programs and for establishing medical requirements for current and future firefighters.

Discussion

There is a need for all fire departments to have access to a group of professionals with expertise in the occupational medicine field. Occupational medicine is dedicated to promoting and protecting the health of workers through preventive services, clinical care, research, and educational programs. One aspect of a program is keeping up to date with health and safety regulations, standards, and current practices. Occupational medicine specialists review current practices to see if the agencies meet new regulations, make modifications if needed, and assist the departments in adopting any changes.

The importance of employee health and welfare, and the potential liability associated with the lack of such programs necessitates that fire departments establish close professional relationships with

occupational medicine specialists to assure that emergency workers are protected by the most up-to-date occupational health and safety programs possible.

Occupational safety and health programs (sometimes referred to as Industrial Medicine) vary in depth, form, and delivery. A fire department may employ a physician full time, contract with a provider organization, or conduct part of a program in-house while contracting for the remaining services. Any number of providers throughout the region could provide these services to the departments.

The legal requirements for a fire department occupational safety and health program have been established. How a fire department administers and supports the program determines the success and the resultant benefit. An additional advantage of using a local occupational safety and health provider is the ability to quickly evaluate and treat non-threatening injuries suffered by employees.

Guidance

- Determine required and desired specifications for an occupational safety and health program.
- Create a single personnel policy for occupational safety and health.
- Develop an RFP for soliciting vendors to supply occupational safety and health services.
- Conduct baseline testing for firefighters without previous audio and lung function baseline records.

Fiscal Considerations

- Occupational medicine programs are often menu driven. Items selected for inclusion in the program determine the final cost. Additional financial factors involve whether the fire departments elect to exceed mandated requirements, perform some of the occupational medicine functions internally, or consolidate the occupational medicine program with interrelated programs. Interrelated programs that share functions include wellness, infectious disease, FIT testing, EMS, and hazardous materials.

E – Create a Unified Wellness and Fitness Program

Level of Cooperation

- Functional

Timeline for Completion

- Middle Term

Section

- Administration

Affected Stakeholders

- All Agencies

Objective

- Provide a wellness and fitness program that promotes the improved health and well-being of personnel at all ranks.
- Increase fitness levels and decrease injuries.
- Reduce frequency and number of sick/injury incidents.
- Reduce the number of days used for sick/injury leave.

Summary

Wellness and fitness programs have proven beneficial to employers and employees alike. Onsite visits by licensed wellness experts are part of an all-inclusive program. Services offered under a comprehensive wellness program may include:

- Wellness screening
- Health coaching
- Wellness and fitness educational materials
- Support groups
- Presentations
- Fitness evaluations
- Newsletters
- Nutritional information
- Health risk assessment
- Fitness training

Discussion

The benefits of wellness and fitness programs have, in some instances, been quantified anecdotally without specific documentation. Documented individual incidents and case studies over a longer period of time have now yielded conclusive data as to their benefits. Two case studies are used here to illustrate this point.

First, during an annual visit for his medical and fitness evaluation, a battalion chief with the Indianapolis, Indiana fire department was found to have an abnormal heart rhythm. He had considered himself to be in excellent condition, competing in track and field events since 1996. He was immediately removed from duty and sent to a cardiologist for a heart catheterization. He was diagnosed with severe blockages in four coronary arteries. Within two days of his medical evaluation, he underwent quadruple bypass surgery. His cardiologist told him he wouldn't have lived another two weeks without intervention. Remarkably, the battalion chief returned to work and was back exercising within six weeks of surgery.

The second example involves a mid-sized fire department employing both career and volunteer personnel. The department was in need of a fitness/wellness program and subsequently contracted with Oregon Health Sciences University to provide an evidence-based program custom tailored for its diverse group of firefighters. The primary goals of the program were to "increase fitness levels and decrease injuries." Results of the study spanning seven years conducted by OHSU Health Management Services included these findings:

- Greater than 30 percent increase in the number of participants.
- A decrease in average total cholesterol.
- A decrease in average LDL cholesterol from 130 to 120.
- Participants with BP in the high normal range or above dropped from 18.3 percent to 8.5 percent.
- Participants with moderate or high coronary risk dropped from 61.7 percent to 35.4 percent.
- Participants with an overall wellness score of good or excellent increased from 41.7 percent to 58.5 percent.
- Annual number of days lost (workers compensation days) dropped from a high of nearly 300 days to below 50 days. During the study period, the fire department increased the number of career personnel two-fold.

Guidance

- Determine the components of a wellness and fitness program that would best benefit all departments.
- Involve a broad cross section of employees in the development process.
- Investigate multiple programs and providers for best fit.
- Coordinate activities with established fitness and safety committees.
- Train in-house peer fitness trainer/coaches.
- Incorporate wellness and fitness services as an element of recruit academies.
- Include volunteers, staff, and support personnel in wellness and fitness services.
- Provide initial and recurring wellness education to personnel.
- Provide a newsletter (paper or virtual) for all personnel.
- Incorporate wellness in training sessions.
- Provide for a periodic appraisal of the wellness and fitness program.

Fiscal Considerations

- The cost per employee of a wellness and fitness program can vary widely. An annual per employee cost may range from as low as \$25 to as high as \$100 depending on many factors, such as:
 - Frequency of employee contact
 - Range of services desired
 - Equipment need
 - Inclusion of ancillary offerings (newsletter, peer fitness coach training)
- The soft costs associated with on-duty time required for wellness and fitness instruction needs to be addressed before carrying out a plan.
- Potential cost savings may result from:
 - Reduced work related injury leave days
 - Reduced sick leave usage
 - Reduction in medical benefits used
 - Improvement in employee fitness and morale

F – Develop and Adopt Common Training Standards

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Training

Affected Stakeholders

- All Agencies

Objective

- Adopt uniform training guidelines.
- Adopt uniform certification standards.

Summary

Training standards provide the benchmark for training. They define and specify the quantity and quality of training for achieving levels of competency and certification. Certain standards are mandated by governing or regulating agencies such as OSHA (Occupational Safety and Health Administration). Others are considered industry standards developed by organizations like the National Fire Protection Association (NFPA). Occasionally, locally developed standards are adopted to address circumstances unique to that area. Private vendor standards and certifications are often applicable to specialized training.

Training records should consist of:

- Daily training records
- Company training records
- Individual training records
- An inventory of equipment assigned to the training department
- A complete reference library

Discussion

By collectively adopting a set of training standards (IFSTA, for example), fire departments are foundationally prepared to provide uniformity throughout the training delivery system and would

improve inter-agency compatibility. It would further simplify development of a regional training manual, annual training plan, and data entry and retrieval of computerized training records. Adoption will provide for uniformly trained and certified responders and will assure increased emergency scene compatibility, efficiency, effectiveness, personnel confidence, and safety.

Guidance

- Establish a work group including at least one training representative from each department.
 - Identify mandated training standards affecting all departments.
 - Assess all standards used by the departments, including rationale for their use.
 - Consider any unique local issues.
 - Develop a process for the adoption of training standards.
 - Adopt training standards to which all departments will adhere.
 - Provide for continuous review and updating of training standards.
- Educate personnel on the purpose and application of the standards.
- Provide for continual use of training standards throughout the training delivery system.
- Maintain standards in a readily available format.
- Provide for frequent evaluation and updating of training standards.
- Address and resolve personnel certification issues (address through reciprocity) created by new standards and certifications.

Fiscal Considerations

- A reduction in duplicated staff effort (reduces soft costs) and training staff to develop similar but separate programs based on the same or differing standards.
- A potential for reduced specialized training costs through a larger pool of personnel.
- Responders trained to the same standard provide a more cohesive workforce, increasing efficiencies.

G – Create a Regional Training Manual

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Training

Affected Stakeholders

- All Agencies

Objective

- Provide consistent, standardized training procedures.

Summary

Fire department instructors use manuals based on national, state, and local standards as a resource to develop lesson plans for classroom and field training. Training sessions provide students with the knowledge, skills, and abilities to perform in emergency and non-emergency situations.

Discussion

Each fire department unilaterally selects training materials from a variety of options. Not surprisingly, training and performance varies across the region. The creation and use of a standard training manual will provide for more consistent training, better on-scene coordination, and improved firefighter safety.

As the firefighters of each department are trained in the same procedures, each can respond to an emergency with the confidence that all responders are prepared to work effectively as a team. This will improve the willingness of firefighters from different departments to work together as a coordinated emergency workforce. Standardized training procedures improve on-scene safety, efficiency, and effectiveness.

Care should be exercised to prevent the development process from taking too long. To expedite progress, ESCI recommend adopting material from existing model training manuals, hose evolutions, and standard operating guidelines.

Model fire department training material is readily available through non-profit organizations and private companies. Sources for commercially available training material include the Fire Department Training Network (FDTN), Thomson DelMar, and Oklahoma State University. The International Fire Service Training Association (through Oklahoma State University) and Fire Protection Publications (FPP) have been longstanding producers of training manuals, course curricula, and audiovisual aids for fire departments.

NFPA recommended practices and standards can also assist with the development of the training manual. Relevant standards include:

- *NFPA 1401, Recommended Practice for Fire Service Training Reports and Records*
- *NFPA 1403, Standard on Live Fire Training Evolutions*
- *NFPA 1404, Standard for Fire Service Respiratory Protection Training*
- *NFPA 1410, Standard on Training for Initial Emergency Scene Operations*
- *NFPA 1451, Standard for a Fire Service Vehicle Operations Training Program*

The need for training of personnel with specialized duties should be included in the regional training manual. Assistance is available through the BFST Fire Standards Section.

Guidance

- Establish and maintain a user group that meets regularly.
- Include at least one training representative from each department.
- Develop and adopt a single training manual.
- Place the training manual in electronic format for easier updating and to allow access by firefighters.
- Provide for coordinated training of all agencies.
- Provide for regularly scheduled multi-agency drills.
- Provide for a regular evaluation and review of the training manual for applicability to pertinent laws, industry standards, and regional standard operating guidelines.
- Seek out existing procedures for use in development of the training manual.

Fiscal Considerations

- The elimination of duplicated staff effort (reduces soft costs) in the selection, development, and updating of separate training manuals.
- Instructional time is likely impacted during multi-agency training sessions by reducing or eliminating the time devoted to adaptive or remedial training.

- An emergency workforce trained under a cooperative system is more efficient and effective in reducing property damage and loss during emergency incidents.
- A workforce trained to operate under universal standards will experience fewer emergency scene injuries.

H – Develop an Annual Regional Training Plan

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Training

Affected Stakeholders

- All Agencies

Objectives

- Provide standardized and consistent training.
- Provide a well-trained emergency workforce.
- Provide long-term vision and direction for training delivery.

Summary

The 2007 version of NFPA 1500 states, "The fire department shall provide training and education for all department members commensurate with the duties and functions that they are expected to perform."²³ Two fire departments in this study address annual planning for fire and EMS training. A formalized training plan provides the guidance for meeting training requirements. The plan and subsequent training is used to ensure that firefighters are competent, certified, and possess the ability to safely deal with emergencies. Training priorities are established by evaluating responder competencies to training mandates, requirements, desired training, and with the emergency services being delivered. Contemporary training delivery often revolves around performance or outcome-based training.

An annual training plan should reflect priorities by identifying the training that will occur. Training topics, general subject matter, required resources, responsible party, tentative schedule, and instructors are all covered in the plan. Rationale for why certain topics were chosen (or not chosen) is also included in the plan.

²³ National Fire Protection Association Standard 1500 *Standard for Fire Department Occupational Safety and Health Programs*, Training and Education, 2007 Edition.

Discussion

To efficiently plan the direction of a training program, complex factors must be considered, including: training mandates, department type, personnel career development, unanticipated need, priorities, and finite training time. Successfully charting a course through such issues can be a daunting and overwhelming task for the lone training officer.

Currently, each fire department individually deals with the same or similar fire training responsibilities and issues — inefficiencies exist as a result. A single training plan is an opportunity to combine intellectual resources to exploit the strengths and assets of each department for mutual benefit.

“Efficient training systems are those that identify what they do well and take advantage of the opportunities provided by other systems to supplement their efforts. Inefficient systems are those that try to be all things to all people, and in doing so, squander resources.”²⁴

Determining the level of training that will be supported is crucial. Develop the annual training plan accordingly and deliver the training that directly supports those levels. For example, training could be directed at supporting certifications of Firefighter I, Fire Officer I, and Apparatus and Pump Operator. A pool of instructors who are experts in that subject can be developed from those with the interest, qualifications, and expertise.

Developing and carrying through with a well-conceived and coordinated training plan can improve on-scene safety, efficiency, and effectiveness of personnel. With personnel from all agencies trained from the same plan, an emergency incident may be attacked with an expectation as to the level of training and skill set of the responders. The training plan will also assist in the planning and tracking of employee development and certifications.

Guidance

- Provide a coordinated training plan including:
 - All agencies.
 - Plan regular use of training facilities by all departments.
 - Schedule regular single agency manipulative single and multi-company drills.
 - Schedule regular multi-agency, multi-company manipulative drills.

²⁴ Department of Homeland Security, FEMA, U.S. Fire Administration, *The Future of Fire Service Training and Education Professional Status: Part Two – Training and Education*, page 1.

- Establish and maintain a training committee that meets regularly. Include at least one training representative from each department:
 - Develop an annual training plan.
 - Publish, distribute, and implement the plan.
 - Provide an orientation for personnel of each department regarding the plan's purpose and contents.
 - Publish monthly training schedules based on the plan.
- Place the annual plan and monthly schedules in electronic format for distribution and ease of updating.
- Provide for periodic reviews and adjustments to the plan.
- Direct all curricula towards risk management.
- Include all hazards in the training plan rather than solely fire-related incidents. The fire service's response and mitigation missions have expanded greatly over the years and now include all disasters, natural and manmade.

Fiscal Considerations

- An elimination or reduction in duplicated staff effort (reduced soft costs) in the creation and updating of multiple training plans.
- Instructional time is increased during multi-agency training sessions with personnel trained to selected certification levels.
- A reduction in costs through coordination of shared training resources and equipment.

I – Develop a Regional Fire and EMS Training Facility

Since the writing of this report, Maplewood Fire Department has been awarded a grant to construct a regional training center. Two Washington County fire chiefs have been appointed to sit on the steering committee to coordinate the Joint Powers Agreement that will be used to operate the facility. All three study agencies have expressed their intent to participate in the JPA and utilize the facility once constructed.

Level of Cooperation

- Functional

Timeline for Completion

- Middle term

Section

- Training

Affected Stakeholders

- All agencies

Objective

- Provide training facilities readily available to all fire departments.
- To develop and maintain the knowledge and skills of emergency services personnel.

Summary

Classroom instruction is an essential component of preparing emergency responders with knowledge and skills. A training facility or drill ground is a second indispensable element. Training facilities provide the controlled and safe environment used to simulate emergencies to develop and test the skill sets of emergency workers. Training involves both individual and group manipulative skills development in the operation of firefighting equipment, and fire apparatus.

NFPA 1402: *Guide to Building Fire Service Training Centers*, is a standard that addresses the design and construction of facilities for fire training.²⁵ The document covers the features that should be considered when planning a fire training facility.

²⁵ National Fire Protection Association, Standard 1402 *Guide to Building Fire Service Training Centers*, 2002 Edition

Discussion

Proficient emergency responders have confidence in their own abilities in handling the emergencies they encounter. Best practices suggest that emergency workers have regular access to training grounds for repetitive drills and to develop new skills. Training is identified as a vital part of a fire department's safety and accident prevention program. An effective and continuous training program results in safer, more efficient, and effective emergency operations.

It is financially unrealistic to expect that every fire department will build and maintain an independent training facility. Constructing a regional training facility to comply with industry standards concerning classrooms, practice grounds, training tower, live-fire building, and training props is fiscally prudent. In addition, the on-going cost of operating and maintaining a training facility further advances the case for joint ownership.

Critical Issues

- Any property that is a potential site for a training center should have an environmental assessment performed.
- Conduct a needs assessment before design and construction of a training center.
- Consider community and environmental impact of training grounds and training props when determining locations. Pay particular attention to access and egress routes.
- Select an architect, engineer, and vendor familiar with fire department training centers for oversight of the project. A number of companies have extensive knowledge and expertise in developing complete fire training facilities. Manufacturers of fire training facilities also offer lease packages for financing.

Guidance

- Establish a user group that meets regularly to include at least one training representative from each fire department.
- Stress the importance that any site selected be spacious enough to provide adequate classroom and training props to simulate different emergency scenarios.
- Any new fire training center should be constructed in a manner sensitive to the environment. Provide an adequate buffer between the training grounds and neighborhoods or businesses.
- Assure easy/safe access and egress routes.
- If possible, select a site easily served by existing utilities including electric, water, gas, and sewer.
- Provide a borderless plan for maintaining adequate emergency response coverage for crews attending training.
- Provide for regular scheduled use of the facilities.
- Secure adequate support for facility and grounds maintenance, and improvements.
- Provide adequate training resources and equipment beyond those carried by on-duty apparatus.

- Live fire training is a crucial element when developing plans for fire training facilities.
- Establish policies and procedures for safe and effective use of the facilities.
- Consider jointly insuring against accident and liability.

Fiscal Considerations

- Visit fire regional training centers for ideas.
- Anticipate an increase in fuel consumption and vehicle maintenance caused by travel to and from the training facilities.
- The cost of new construction of facilities.
- The shared costs for the use, support, and maintenance of facilities.

J – Develop Mutual Training Strategies

Level of Cooperation

- Functional

Timeline for Completion

- Short to Middle Term

Section

- Training

Affected Stakeholders

- All Agencies

Objective

- Provide purpose and direction for training program management and delivery.
- Combine strengths and resources to:
 - Overcome current training obstacles and deficiencies,
 - Provide a comprehensive, and regionally integrated training structure,
 - Develop a mutually beneficial training program, and
 - Train and certify a cadre of knowledgeable and skilled emergency responders.

Summary

Agreements between public agencies to functionally consolidate certain programs are becoming increasingly common. Such cooperative initiatives are a means to mutually increase efficiency through reduction or elimination of duplication; something not usually achievable by a single entity. ESCI believes that a mutual training strategy among the fire departments will accomplish that. The three study agencies current coordinate training to at least some degree and ESCI believes this cooperation should be expanded and enhanced to maximize the efficiencies of interdepartmental training.

Discussion

Certain individuals are assigned responsibility (through job description or by special assignment) for development and delivery of their department's training program. Each fire department's training program is carried out, in large part, independently, with varying levels of program development, content, and quality. All persons responsible for firefighter training appear to work towards providing comprehensive programs; but, not surprisingly, success is inconsistent. All fire departments experience similar limitations that restrict outcomes.

The geographical proximity of the departments to one another, the resources, and the available expertise provide an opportunity for training collaboration. Sharing such resources is considered a fiscally responsible way to reach the full potential of all training programs. Development of a strategic plan for firefighter training is a crucial first step.

A strategic plan for training evaluates current training levels and determines future training goals and objectives. The process includes identifying the existing type and level of emergency services, followed by an audit of the certification and skills of emergency workers. Strategies are created to develop curriculum, obtain resources, and produce a training schedule. Each department adopts the training standards and certification levels for the job classifications supported by the agency. A mutual strategic plan for training provides consistency to the program for all fire departments. All emergency responders are subsequently trained to the certification levels established by the plan and all emergency workers possess the specified skills.

As part of the regional training strategy, a system of competency-based training and skills evaluation is recommended for all suppression and EMS personnel. Competency-based training helps to establish the achievement and retention of skills for specific jobs. The term “skill” is defined in Merriam-Webster as “A learned power of doing something competently: a developed aptitude or ability.” ESCI recommends that mutual training strategies include the semi-annual evaluation of individual and company proficiency. Results of the evaluations may then be used to adjust the regional training strategy over the long term.

Critical Issues

- The variations between current programs used by the fire departments may initially require personnel to receive additional training.
- Continued involvement by those assigned to advance a regional training manual, should be involved with development of the mutual training strategies.
- Each fire department should produce a statement attesting to their commitment of developing mutual training strategies.

Guidance

- Establish a work group to evaluate and develop common training strategies:
 - Identify goals and establish objectives.

- Set benchmarks.
- Evaluate the following training sections found in "Partnering Strategies":
 - Video conferencing.
 - Annual training plan.
 - Regional training manual.
 - Training facilities.
 - Centralized training.
 - Training standards.
 - Record keeping.
- Provide for flexibility and openness to apply existing strategies in new and different ways and for new strategies.
- Provide for a periodic appraisal of strategy use, relevancy, effectiveness, and compatibility with current need.
- Keep strategies in electronic format for ease of updating.

Fiscal Considerations

- No significant financial considerations.

K – Purchase Uniform Emergency Apparatus

Level of Cooperation

- Functional

Timeline for Completion

- Long Term

Section

- Emergency Operations

Affected Stakeholders

- All Agencies

Objective

- Create a single set of emergency apparatus specifications.
- Provide single-source uniform emergency apparatus for all fire agencies.

Summary

The study fire departments use and maintain a variety of emergency apparatus types. Among the common types of apparatus (such as pumpers), each department uses equipment of different makes, models, and configurations. A standard specification and procurement process for each apparatus type would result in lower cost, faster production, and training efficiencies.

Procurement of uniform fire apparatus can translate into lower purchase prices; reduction in parts warehousing; and less money, time, and effort spent training drivers and maintenance personnel. Other benefits include greater interoperability, a potential for reducing driver training, and greater confidence and skill level among operators.

Discussion

The apparatus fleet of the individual fire departments is diverse. Fire apparatus are categorized by function, including pumpers, aerial devices, water tenders/tankers, wildland units, rescue units, and ambulances. While there is an identifiable need for vehicles from each category in more than one configuration, acquiring and maintaining standard apparatus creates desirable efficiencies. Dissimilar apparatus tends to increase purchase cost, requires additional initial and recurrent training, and results in the need to warehouse a larger parts supply.

The cash price of a pumper frequently exceeds \$600,000; the cost of an aerial unit may easily exceed twice that amount. The reasons for such prices are due to the specialized nature of fire apparatus. However, customization, add-ons, and options tend to make each fire apparatus a “one of a kind” vehicle. The costs to equip, maintain, repair, train operators and mechanics, and to warehouse parts only adds to the overall expenditure.

Fire apparatus useful service life varies generally depending on the rate of use, the environment, operating conditions, and the frequency and level of preventive maintenance. A fire pumper with average to heavy use can reasonably be expected to have a ten to fifteen year service life. With light to very light use, service life can reach 20 years; very heavy use may reduce service life to as few as ten years. Aerial devices are often operated less frequently and have a useful life of between 15 and 20 years.

Factors influencing fire apparatus service life include technology and economics. At a given time the cost to operate and maintain a fire apparatus passes the economics of rehabilitation, refurbishment, or replacement.

A trend is developing within the fire apparatus manufacturing industry. Several manufacturers now offer a line of stock fire apparatus built on custom chassis in addition to a more traditional line of fully custom units. The cost savings of purchasing a stock unit is often 20 percent or more when compared to a custom unit.

Some fire departments use the option of lease purchasing to fill emergency apparatus need. Some of the benefits associated with leasing are:

- Leasing may provide a cost advantage over conventional financing by transferring tax incentives (accelerated depreciation) associated with the equipment ownership from the Lessor (the owner) to the Lessee (the user) in the form of lower lease payments.
- Leasing can provide one hundred percent financing, conserving cash.
- Leasing can provide a close matching of the lease term and payments to the revenue available to the fire department.

Safety should always be the main consideration when purchasing and operating emergency fire apparatus. When developing emergency fire apparatus specifications and operational procedures, NFPA

and other industry standards should be used. Additional guidance on fire apparatus safety devices, response, and training can be found in the *Emergency Vehicle Safety Initiative*.²⁶

Guidance

- Determine the replacement interval and projected life expectancy of each apparatus.
- Examine the merits of extending the useful service life of apparatus through rehabilitation and refurbishment.
- Consider the option of purchasing all categories of fire apparatus from a sole source.
- Develop an emergency apparatus prescribed load list for use by all agencies.
- Mark apparatus in a standard format with striping, decals, and department name following NFPA standards and recommendations from the Emergency Vehicle Safety Initiative.²⁷
- Develop mobile apparatus repair and service response unit(s).
- Develop central facilities for maintenance and repairs for all emergency apparatus.
- Create Standard Operating Guidelines for the operation, maintenance, and recordkeeping of apparatus. A resource for obtaining sample documents may be found at the National Fire Service Library website.
- Outfit reserve apparatus with the same complement of equipment as frontline units.

Fiscal Considerations

- Time and effort savings by preparing fewer bid specifications.
- The prospect for conducting fewer bid processes.
- Investigate the letting of apparatus bids for periods longer than one year.
- Cost savings in acquiring emergency fire apparatus.
- Consider the purchase of stock versus custom apparatus.
- Consider leasing versus outright purchase of emergency apparatus.

²⁶ Department of Homeland Security, FEMA, U.S. Fire Administration, Emergency Vehicle Safety Initiative.FA-272, August 2004, pages iii, iv.

²⁷ Western Fire Chiefs Association, National Fire Service Library, www.wfca.com.

L – Acquire AVL and MDC or MDT Capabilities

Level of Cooperation

- Functional

Timeline for Completion

- Middle Term

Section

- Emergency Operations

Affected Stakeholders

- All Agencies

Objective

- Provide AVL (Automatic Vehicle Locator) information transmitted to dispatch for use during emergency and non-emergency incidents.
- Provide standardized MDC/MDT (Mobile Data Computer or Mobile Data Terminal) in emergency apparatus.

Summary

Automatic Vehicle Location (AVL) provides real-time location information for apparatus. An AVL system consists of a GPS receiver on the apparatus, a communications link between the unit and a dispatch center, and pc-based tracking software for dispatch. The communication system is usually based on a network similar to those used by cellular phone systems.

Mobile Data Terminals (MDT) permit communication between dispatchers and fire apparatus without reliance on voice radio. A digital display on the vehicular MDT shows short messages. Dedicated keys and a touch screen permit an officer to quickly issue commands and status reports. MDTs also function as the communication link between the AVL, and CAD software.

Like MDTs, Mobile Data Computers (MDC) permit instantaneous communication between dispatchers and fire apparatus without the need for voice radios. MDCs can also be used for messaging, electronic dispatching, and vehicle monitoring. The units are available with GPS capability. The major difference between an MDT and an MDC is that the latter includes all of the hardware and software abilities of a traditional laptop computer. MDTs, on the other hand, merely function as a link to a larger computer server usually located in the dispatch center.

Discussion

AVL – The Global Positioning System (GPS) provides the backbone for AVL. GPS is funded by and controlled by the U. S. Department of Defense (DOD). While there are many thousands of civil users of GPS worldwide, the system was designed for and is operated by the U. S. military. GPS provides specially coded satellite signals that can be processed in a GPS receiver, enabling the receiving unit to compute position, velocity, and time. Four GPS satellite signals are used to compute positions in three dimensions and the time offset in the receiver clock.²⁸

GPS provides the location of a vehicle with accuracies of about 25 to 30 feet. A geographic location is logged into the vehicle's GPS unit and transmitted along with the unit identification to dispatch. Information displayed may include time, unit speed, and heading. The frequency of updating vehicle information can be set for any variable of seconds or minutes.

If cellular coverage is inadequate, an alternative satellite communications network may be available for certain areas. The communication satellite receives location information from the AVL's satellite transmitter and forwards it to the dispatch center. The dispatch software shows vehicle locations in relation to streets and intersections. Most AVL systems have a feature for two-way mobile messaging that allows e-mail messaging to and from the apparatus over a wireless internet link.

Additional options and features that can be added to AVL include:

- Display vehicle position, speed, heading
- Display dispatch addresses and routing suggestions
- Provide visible and audible alerts to crews
- Replay vehicle activity with user defined date and time
- Create unit reports
- Display vehicle status

Benefits of AVL include:

- Display precise location and status of emergency apparatus
- Enhance the ability of commanders to control emergency resources
- Increases apparatus operator safety

²⁸ Peter H. Dana, The Geographer's Craft Project, Department of Geography, The University of Colorado at Boulder

- Ability to locate and dispatch the nearest emergency response unit
- Reduces response times
- Uses current investment in GIS data
- Increase in number of units dispatchers can manage appropriately
- Tracking report documentation

MDC/MDT – Mobile Data Computers and Mobile Data Terminals are computerized devices used to communicate between emergency vehicles and dispatch. MDTs feature a screen on which to view information and a keyboard or keypad for entering information; the terminal may be connected to various peripheral devices. With MDC/MDTs, fire and EMS agencies are more likely to work with up-to-date information. The devices are used during emergency response to locate addresses, anticipate what will be encountered on-scene, receive updated call information, for record keeping, and to gather data used to show trends and patterns.²⁹

Prior to electronic media, most information was gathered by officers in the field and was subsequently transmitted to others verbally, or via hand written notes and reports. Raw statistical information was usually stored as written documents, a form not well suited to analysis. Now, of course, the computer has taken over most data collection, transmission, dissemination, compilation, and storage.

One school of thought is that MDTs are better suited for fire and EMS service, yet many fire administrators argue that MDCs are superior. A list of some of the perceived attributes of each is listed in the following figure.

Figure 64: Comparison of Features – MDT vs. MDC

MDT	MDC
Longer life expectancy	Shorter life expectancy and need for frequent repairs
Brighter screen	Units not bright enough
Less likely to be stolen	May be stolen
No mobility	May be used out of vehicle as a laptop
Durability	Less durable
Difficult to upgrade	Easily upgradeable
Lower initial cost	High initial cost
Detachable keyboard	Non-detachable keyboard

²⁹ Public Safety Mobile Data Systems, www.911dispatch.com/information/mobiledata.html, October 2004

Critical Issues

- Using a cost-benefit analysis to determine which systems (AVL, MDT, and/or MDC) are financially viable for use by the fire departments. A cost-benefit analysis can be used to estimate the total capital investment represented by the purchase of the equipment, and then establishing if the expenditure is justified by the gains in dispatch, response, and incident command.
- Include in the analysis the cost to train emergency communications and fire department personnel.

Guidance

- Strongly consider the incorporation of AVL technology into a MDC/MDT system versus a standalone AVL.
- In a white paper report published in June 2005, the author lists five reasons mobile technology projects fail.³⁰ They are:
 - The complexity of the mobile deployment is underestimated.
 - Solutions are built upon flawed assumptions.
 - Business (operations, dispatch) and IT priorities are misaligned.
 - Hardware-dependent approaches are doomed to failure.
 - Losing sight of the end result during deployment of mobile solutions.
- Anticipate the useful life expectancy of the system and consider leasing or funding replacement.
- Determine time savings for automatic data entry versus manual.
- Security and access issues should be addressed prior to system design.
- Are adequate radio frequencies/channels available for MDT/MDC.
- Determine interoperability prior to system purchase.
- Exercise caution in the selection process for equipment size and the ability to mount hardware in vehicles. Concern for safety of personnel.
- Involve staff, operations, dispatch, and other key individuals in system design and development.
- Develop operational policy.

Fiscal Considerations

- Procurement costs to install equipment and software both in fire apparatus and at the dispatch center.
- Labor cost to maintain vehicular and dispatch AVL, MDC/MDT equipment, the time required to train workers on the new systems, and for any additional IT staff.
- Cost of system is highly variable dependent on selection of AVL and/or MDC/MDT, or a combined system.

³⁰ The Top 5 Reasons Why Mobile Projects Fail – And What You Can Do About It, June 2005, Adesso Systems.

M – Develop Uniform Pre-Incident Plans

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Emergency Operations

Affected Stakeholders

- All Agencies

Objective

- Provide a system of shared operational plans for use during emergencies and non-emergent incidents.

Summary

Pre-incident plans are an important part of the emergency response system to provide essential information on specific structures and processes. Through timely planning, strategy and tactics can be developed before an emergency occurs. Pre-incident planning involves evaluating protection systems, building construction, contents, and operating procedures that may impact emergency operations.

Pre-incident plans should be kept up to date. The plans should be used in company training, and should be distributed to all mutual/automatic aid partners. The standards set forth in NFPA 1620, Recommended Practices for Pre-Incident Planning, should be followed to guide in the development of a regional pre-incident planning system.

Discussion

A firefighter typically works in an alien environment of heat, darkness, confusion, and extreme danger. Often, a firefighter's first visit to a building is when he or she is summoned to an emergency at the facility; the very time that the internal environment of the structure may be at its worst. Contrary to Hollywood's portrayal of the inside of a building on fire, visibility is likely to be nearly zero due to smoke. A lack of familiarity with the layout of a structure can easily cause a firefighter to become disoriented and subsequently suffer injury.

It is important that firefighters and command staff have accurate information readily at hand to identify hazards, direct tactical operations, and understand the proper use of built in fire resistive features of some structures. This can be accomplished by touring structures, developing pre-incident plans, and conducting tactical exercises — either on-site or tabletop.

An ideal pre-incident planning system uses standard forms and protocols. Data are collected in a consistent format. Information is presented in a manner that permits commanders and emergency workers to retrieve it quickly and easily. All require the use of consistent methods for collection, verification, storage, presentation, and update of emergency plans.

The most successful programs use pre-incident planning software to assemble the data, create plan documents and “quick data” forms, and store the information for easy retrieval. Above all, no program is successful without thorough incorporation of the pre-incident plans in frequent classroom and on-site training exercises.

The evaluation phase of this process identified that completion of pre-incident plans should be given high priority. For the most part, fire departments have not embraced pre-incident planning. Pre-incident planning is limited to only a number of target hazards within individual response areas. Process and plan consistency is essentially non-existent. The plans that are completed are not typically distributed to mutual aid departments.

Operational, management, and IS/IT staff should assist in making software and formatting decisions. Goals for the identification and development of target hazard pre-incident plans should be established. The uniform pre-incident planning program should be reviewed at least annually to assure the accomplishment of goals, the improvement of the program, and the appropriate entry of new target hazards. Properties that should have pre-incident plans include those having:

- A potential for large occupant load
- Occupants that are incapable of self-rescue
- Structure size larger than 12,000 feet
- Facilities that process or store hazardous materials and/or equipment
- Buildings with built-in fire protection systems
- Wildland hazards

Pre-incident plans should be a quick and easy reference tool, for company officers and command staff. The plans should be formatted for easy adaptation to electronic media. At a minimum, a pre-incident plan should include information on, but not be limited to:

- Building construction type
- Occupant load
- Fire protection systems
- Water supply
- Exposure hazards
- Firefighter hazards
- Utility location and shutoffs
- Emergency contact information

NFPA 1620 provides excellent information on the development and use of pre-incident plans and should be used as a reference. *NFPA 1620* addresses the protection, construction, and operational features of specific occupancies to develop pre-incident plans.

Personnel should receive regular familiarization training using the completed pre-incident plans. The plans must be made available on all emergency apparatus, regardless of jurisdiction. Routine use of pre-incident plans by all responders will assure that the plans are correctly used at major emergencies.

Guidance

- Inventory current pre-incident plan hardware, software, format, and level of development of each fire department.
- Evaluate commonality between current systems of pre-incident planning.
- Consider the establishment of a steering committee to develop building criteria and data for inclusion in pre-incident plans.
- Develop a timeline for the implementation, completion, and review of pre-incident plans.

Fiscal Considerations

The cost to each fire department for developing uniform pre-incident plans will be predicated on:

- Current hardware and software assets
- Cost to upgrade or purchase hardware and software
- Number of facilities/buildings with existing pre-incident plans versus those to develop
- The pace of new development requiring pre-incident plans

- Personnel costs to gather and assemble plans
- Personnel soft costs of on-duty staff assigned pre-incident planning tasks
- Unquantifiable potential for prevention of injury or death to emergency responders and the public

Diagramming software programs designed specifically for drawing pre-fire plans starts around four hundred dollars. More advance versions with 3-D capability increases the initial software cost to seven hundred dollars. Versions that integrate with a pocket PC would add an additional three hundred dollars. This and other diagramming software programs are made to be added onto existing fire prevention/inspection programs.

N – Provide for Joint Staffing of Stations and Apparatus

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Emergency Operations

Affected Stakeholders

- All Agencies

Objectives

- Provide for distribution of facilities and deployment of personnel consistent with a regional standard of cover.
- Provide consistent fire and emergency services within areas efficiently before, during, and after development.

Summary

Practicality and external influences seldom allow fire station placement to match perfectly with a fire department's deployment strategy. Reasons include the availability of property, land use laws, roadway infrastructure, construction cost, traffic patterns, geography, and projected station workload. Given that the area protected by a fire department may change through annexation, merger, and contracted protection (intergovernmental agreement), a perfect station location today may be a poor location in the future. Because of these and other factors, it is virtually impossible to place fire stations in an ideal location and not overlap the response areas of other fire stations or departments. Jointly staffed stations and/or response units create more alternatives for fire departments studying the deployment of emergency resources.

Fire departments often know how many firefighters are needed for the best possible protection; however, departments are infrequently able to afford to staff at such levels. Sharing personnel from different agencies can help to bring staffing levels closer to the optimum.

If the study fire departments create a single training division, some provision is needed to offer response area coverage while other emergency units travel to a training center. Jointly staffing a PAU (Peak Activity Unit) with multi-agency personnel could protect vacant response areas during those times. Jointly staffing fire apparatus can also be a very practical option for providing resources from a fire station located in an area able to serve more than one jurisdiction. Last, cooperatively providing specialty apparatus used for infrequent (but often high-risk) emergencies is an effective means to distribute the cost of such apparatus over a wider financing base.

Discussion

Each of the study fire departments now rely on each other for resources during routine and non-routine emergencies. Without question, if facilities are distributed and personnel deployed regardless of jurisdictional boundaries (and consistent with a regional standard of cover) the likelihood of those resources being located where needed most increases. The crucial question is how to pay for shared resources in a manner that assures equity for all taxpayers.

The funding of jointly staffed fire stations and apparatus should be based on local law, authority, and policy. There are many examples of innovative cooperative agreements between jurisdictions that maximize the value of emergency resources. Examples of methods used to jointly staff stations and apparatus include:

- Combined personnel from different fire departments staff a station.
 - Such as – One fire department supplies a firefighter for each shift and another fire department contributes an apparatus operator/engineer and an officer. The workforce is made up each day of personnel from both fire departments.
- Personnel from different fire departments staff a station on a set schedule.
 - Such as – One fire department staffs the station on two of three shifts. The other department staffs the station on the third shift.
- Fire departments apportion responsibility for staffing and support of a station for a given number of months.
 - Such as – One fire department staffs and supports the station for a given number of months each year. During the remaining months, the other fire department provides staff and support.
- Two fire departments jointly staff a fire station with personnel from both fire departments, and operate more than one piece of emergency apparatus.
 - Such as – One fire department staffs a fire engine and the other department staffs a medic unit in the same station.

- One fire department staffs a fire station but extends first alarm response from that station to another jurisdiction. The second fire department compensates the first based on an agreed cost/benefit formula.
- Two fire departments exchange in-kind first alarm response.
 - Such as – One fire department provides first alarm response into another fire department's area in exchange for like service from that agency.

Guidance

- Training issues
 - The personnel used for joint staffing of fire stations and apparatus should be trained to provide a service level (including EMS) equal to or greater than that of the cooperating fire departments.
 - While it is preferable to use a single dispatch center when joint staffing, it is not considered essential to the success of the partnership.
- Deployment considerations
 - Deployment standards for the partnering agencies should be developed and adopted.
 - The fire departments should execute deployment plans between the agencies prior to entering joint staffing agreements.
 - Several of the joint staffing examples involve personnel from different fire departments staffing stations and apparatus together. Developing a single labor agreement will help to alleviate real or perceived issues of equity between personnel.
 - Provide for supervision of emergency operations and for oversight of on-duty personnel during routine operations.

Fiscal Considerations

- Joint staffing of stations and apparatus is foreseen only as an interim step towards a unified fire department.
- Joint staffing provides fire departments with a way to meet deployment standards when:
 - It is not economically feasible for a fire department to staff a station or fire apparatus independently.
 - Fire departments have common borders and underserved territories.
- Joint staffing provides the political entities with an emergency service exit strategy where future annexation may remove or transfer territorial responsibility.
- Marginal costs of deploying personnel in joint staffing ventures will be determined based on the agency, and on personnel costs.
- Startup costs may include additional training as well as the supplies and equipment needed to support the stations and fire response units. A portion of the cost for additional training and equipment could be immaterial, if as part of the cooperative initiatives the fire departments also adopt deployment standards, a single dispatch service, training standards, and a joint purchasing program.

O – Provide for Joint Incident Command and Operations Supervision

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- EMS and Emergency Operations

Affected Stakeholders

- All agencies

Objective

- Provide for IC (Incident Command) supervision of emergency operations.
- Provide for supervision of on-duty personnel during routine operations.

Summary

Deputy Chiefs (DCs, also referred to as battalion chiefs, incident commanders or shift supervisors) routinely have authority and responsibility for all aspects of day-to-day operations and personnel management of the fire department. DCs assume command of emergency incidents and may also be assigned for the management of various fire department programs.

Discussion

Little is currently provided in the way of oversight, supervision, and leadership to the operations personnel of the fire department with the exception of day-time administrative personnel. Most fire departments maintain a span of control of five or six stations per supervisor. Occasionally, line supervisors may oversee as many as eight fire stations. The total number of units, personnel, and emergency responses usually determines the reasonableness of the span of control. The more stations, units, and personnel under direct supervision, usually reduces their ability to conduct activities outside of incident command, and may negatively impact response times to emergencies. A point is reached where proper supervision cannot be accomplished with large spans of control. In that case, some tasks will be overlooked or work will not be completed.

A supervisor usually responds as incident commander to emergencies requiring multiple fire department units, hazardous materials incidents, or emergencies involving special circumstances. The incident

commander is responsible for all aspects of the response including the development of incident objectives and management of all incident operations. The three command-level positions directly under supervision of the incident commander are the safety officer, information officer, and liaison officer.

The role of the safety officer is to develop and recommend actions to assure the health and safety of emergency workers. The role of the information officer is to develop and release incident information to the media, incident personnel, and appropriate agencies and organizations. The role of the liaison officer is to serve as the point of contact for coordinating activities between the various agencies and groups that may be involved in an incident.

The general staff under the incident commander includes operations, planning, logistics, and finance. These responsibilities (as with those of the command staff) remain with the incident commander until such time that they may be assigned to another qualified individual.

Benchmarks

Assembling an effective response force on the scene of an emergency incident in a timely manner will often lead to a successful outcome. To assemble enough personnel to complete the tasks of extinguishing a moderate-risk structural fire may require fifteen fire suppression personnel. One of those tasks is command. A supervisor in the command role is the officer assigned to remain outside of the structure to coordinate the attack, evaluate results and redirect the attack, arrange for more resources, and monitor conditions that might jeopardize crew safety.

In lieu of complete unification between the fire departments, an agreement to share incident command staff across the region could result in efficiencies not possible individually.

Guidance

- Use standards of coverage and deployment documents to determine an appropriate level and number of incident commanders for the region.
- Create a formula for allocating the cost of a regional incident command program. Examples of factors for costing include: population, incidents, valuation, and coverage desired.
- Develop a job description for the position of shift commander/deputy chief that includes duties and responsibilities.

Fiscal Considerations

- No significant financial considerations.

P – Purchase and Implement an Electronic Staffing Program

Level of Cooperation

- Functional

Timeline for Completion

- Short Term

Section

- Administration and Emergency Operations

Affected Stakeholders

- All Agencies

Objective

- Provide a uniform electronic system that combines telephone callback, personnel scheduling, and includes payroll and administrative features.

Summary

The fire departments contact personnel for regular staffing and initiating callbacks in a variety of ways. The task of notification and filling vacancies has traditionally been done via telephone, with someone having to make personal contact to fill each opening. Many across the country have purchased software programs for handling this function.

A key feature of these systems is that through the use of a touch-tone phone or computer, employees and volunteers can access the system using a secure ID and password. Supervisors have the advantage of an automated system for personnel management.

Discussion

Selecting a single electronic staffing program is one aspect in efficient coordination of the staffing resources of the region. The scheduling of training, personnel notification, unit staffing, and administrative assignments, along with the development of many other initiatives in this report will benefit from the use of one electronic staffing program.

One staffing software program was designed to be accessible with or without a computer network, and will accept requests and make contact with staff members by telephone.³¹ The program is capable of placing outbound phone calls, or delivering messages by pager, fax, or e-mail. The software can make multiple phone calls simultaneously, and is considered a solution for emergency and other staffing recalls.

Guidance

- Involve human resources personnel, payroll, training, and labor in the development of specifications and the purchase of an electronic staffing program.
- Train key personnel in the use and maintenance of the software program.
- Network with other fire departments that have been successful in deploying an electronic staffing program.
- Create a staffing policy to accommodate management, labor, and legal requirements.
- Provide personnel with initial instruction and ongoing support. For example, one larger fire department has assigned the task of providing the instruction, support, and maintenance of the staffing program to the personnel at one station with a lower call volume.
- Make available pocket size how-to-use cards for personnel.
- Work to implement the entire staffing program at the same time. Experience has shown that fire departments implementing the system all at once realize the full potential of the system more quickly and experience fewer administrative problems overall.
- Explore options for integrating the electronic staffing program with other software programs including fire and EMS RMS, payroll, electronic logbook, and CAD.

Fiscal Considerations

- The cost of the system depends on the type of hardware requirements and software purchased.
- Annual maintenance agreement cost.
- Personnel costs for deployment of software and training.
- Reduction in management time spent on staffing.
- Potential savings in overtime costs from staffing errors.
- Accurate payroll records.

³¹ TeleStaff, PDSI, (Principal Decision Systems International).

Findings, Recommendations and Plan of Implementation

It is common for those in the fire service to tout themselves, or their department, in terms such as “a pride-driven organization that is at their best every day,” or more simply, “the best.” The true mark of quality of the best fire departments, however, is one that works continuously for measurable improvement in organizational performance. By undertaking this study of collaborative opportunities, the leadership of the cities of Lake Elmo, Mahtomedi and Stillwater, and their respective fire departments, have begun the task of organizational and system evaluation that is necessary to plan for and reach the goal of truly being the best.

This is not to say that the current fire departments are not already operating at a high level. In fact, ESCI is pleased to report all available evidence shows that the fire departments consistently provide excellent service to the citizens of the protected communities. However, in keeping with the notion of continuous improvement wherein an unending loop of performance, measurement, and evaluation leads to system enhancements that would otherwise be impossible, we offer recommendations to assist Lake Elmo, Mahtomedi and Stillwater in implementing the collaborative strategies that will best benefit the public.

The success of adopting and implementing change, improvement, or cooperative opportunities depends on many things. In our experience with dozens of functional, operational, and legal unifications, leadership is the single factor that most frequently determines success. Nearly always, a key staff, councilor, or board member champions the concept garnering the support of the various affected groups (political, labor, member, and community). In addition, good leadership fosters an organizational culture receptive to planning, calculated risk taking, and flexibility. The manner in which leaders promote a trusting relationship between all groups and aid two-way communication between them is essential.

The following list is a compilation of short and mid-term recommendation found throughout the body of this report.

- The departments need to ensure that both administrative and operational policies are kept updated and written in a complete and professional format. 19
- The three departments need to improve the quality and content of their Standard Operating Guidelines, particularly in the area of response operations. Additional guidelines are needed to guide tactics, fire stream operations, pumping operations, ladders and ventilation, and other operational functions..... 19

- Mahtomedi should review its organizational structure to ensure the fire chief does not exceed a reasonable span of control, typically considered to be between three and seven. 21
- The departments should conduct formal strategic planning to clarify organizational vision, articulate organizational values, and provide specific goals and objectives for a three to five year focus period. 22
- Mahtomedi FD should develop a formal system for verifying receipt of critical documents, memos or policies. 24
- Lake Elmo and Mahtomedi should develop a formal, written policy for how complaints from the public will be processed and handled. 24
- Lake Elmo should improve security for the buildings. When used by the public without FD presence, access to non-public areas should be managed. 25
- Each municipality should adopt a long-range capital replacement plan that considers necessary replacement of critical apparatus and equipment 58
- The cities should consider developing a joint capital replacement plan for all fire apparatus. 58
- Each department should ensure that their individual training programs are covering the most critical topics and that mandatory refresher training is provided where appropriate 88
- In the absence of a consolidated or coordinated training program, each department should consider adopting a common training standard and allow individuals from other departments to attend rotating in-house training opportunities 88
- MFD should assign the responsibility of training to a single individual 89
- LEFD should attempt to obtain certified instructor status for at least one individual within the department 89
- The three departments should inventory and share any training props that are available and implement an equipment check-out and tracking system to allow use of training props throughout the region..... 89
- Each department should increase their participation in multi-agency drills through a coordinated training schedule 91
- A standard minimum annual training requirement and minimum training for entry level personnel should be developed between the departments 91
- Establish a database of existing commercial and public occupancies in each district that are not inspected by the State Fire Marshal and categorize each by the appropriate risk level 93
- Establish a target frequency for inspections of all commercial occupancies by risk category . 93
- Establish a file for each business and include all records of fire safety inspection activity 93

The remainder of this report describes a recommended process for moving forward with the potential implementation of a cooperative service delivery effort. The word potential is used here because a part of this process includes the policy decisions necessary to determine, based on the results of the study, whether there is sufficient desire among the political bodies of the organization to continue with the process or not. The implementation begins with that step.

Conduct Vision Session(s) with Policy-makers

The initial stage of implementation begins with the most elementary decision: “Do we want to move forward or not?” It is extremely important that at this stage of the process it is clearly recognized that this is a public policy decision on the part of the governing entities involved. A decision to consider altering the way in which a critical public safety service is provided, in some cases even permanently altering the governance of those services, is clearly in the purview of the elected bodies. While senior management input should be considered, the final decision should not rest at any level lower in the organization than those who are elected to represent the customers.

For this reason, it is recommended that the elected bodies meet together for the initial discussion of the feasibility study and its projected operational and fiscal outcomes. Depending on the number of elected officials, the policy-makers can decide whether to include all elected officials or a representative group assigned to represent each governing entity. During this policy stage, involvement by additional staff should be kept to a minimum, perhaps at the senior management level and then for the sole purpose of providing technical support. It is important to limit the ability for the process to be “hijacked” at this point by strenuous arguments for or against the idea from those operations level personnel whose opinions may be influenced by turf, power, or control issues. Stakeholder input is important, but plentiful opportunity can be provided for this once the policy-makers have determined what is in the best interest of their citizens as a matter of public policy.

It is equally important that the policy-makers recognize exactly what decision is being considered in the initial vision meetings. The purpose is to weigh the strategies, operational advantages, fiscal outcomes, and potential impediments of the feasibility to determine whether to commit local resources to move the process forward. The decision is not, at this point, a final decision to “flip the switch”. The final commitment to take legal actions necessary to finalize implementation of any given strategy will come much further into the process.

This initial vision meeting can be likened to the court process known as a probable cause hearing. The purpose of such a hearing is for a judge or grand jury to determine if sufficient evidence exists to warrant an arrest and a trial. The probable cause hearing does not determine the final verdict or sentence. That occurs after the much more thorough process and deliberation of the trial. Likewise, the vision meetings are for the policy-makers to judge whether sufficient evidence exists to warrant moving

forward. The final verdict on whether to take legal or contractual actions to implement will come after weeks, months, or even years of additional detailed planning work involving stakeholders, operations staff, legal counsel, finance personnel, and others. As this actual implementation planning work moves forward, there may be several points at which new information or undefeatable obstacles arise that cause one community or the other to decide not to finalize and implement the plan.

The term “vision session” is used here because the policy-makers will be determining their joint decision on a future vision toward which the additional work of implementation will be directed. In many cases, several legal, operational, or functional strategies are presented as being feasible in the study. These may involve various options for governance, finance, and organizational structure. Which one or ones should the entities pursue, if any? This will become the joint vision of the policy-makers.

One of the best methods for initiating this vision process is to begin with policy-makers sharing an open discussion of critical issues. Each entity’s representative can present a short description of those critical issues, service gaps, or service redundancies that might be concerning them relative to their provision of public safety services. As each entity takes its turn presenting these issues, a picture typically emerges of those shared critical issues that two or more of the entities have in common. This assists in focusing the discussion on which of the feasible options from the study best address those critical common issues and how.

As the discussion focuses on those feasible options with the greatest opportunity to positively impact shared critical issues, the discussion can expand to the strengths and weakness of the strategies relative to the conditions, financial abilities, and cultural attitudes of the communities involved. There should be a concerted effort to remain at a policy level without becoming overly embroiled in operational discussions of implementation details. Those will be addressed once a common vision has been established for a future strategy that is in the best interest of all the communities involved.

This is also the time that communities may make the decision to opt out of further involvement. This may occur for a number of reasons. There may be legitimate concern that an individual community does not truly share an adequate number of common critical issues with the other communities. There may also be a legitimate concern that the feasible strategies do not do enough to benefit a given community and would leave it with too many remaining critical issues. And, of course, there is always the possibility

that a given community will not feel that the projected financial outcome is within their ability or provides a cost-benefit that is better than their current situation. Any such decisions by one or more communities should not be considered a discouraging factor, for that is the very purpose of the vision sessions. In many cases, other remaining entities continue moving forward with a shared vision for cooperative service delivery even after one or more communities determine not to.

The goal of the vision session(s) is to develop a decision by the policy-makers on whether to continue with the next steps and, if so, what direction those steps should take. The vision should be sufficiently decisive as to be actionable by senior appointed officials and staff. While there will be many, many details to work out in the implementation process, the vision should clearly articulate the intention of the agreeing policy bodies on the desired outcome from the specified cooperative service strategy or strategies. Once this occurs, the real work begins.

After setting the joint vision, this policy-maker group should meet together at set intervals or as needed to hear the progress of the Joint Implementation Committee and its Working Groups and refine direction when necessary. The appropriate interval will depend on the situation and the complexity and length of the process itself, but often a quarterly meeting is sufficient.

Establish a Joint Implementation Committee

The next step in the process is to establish a Joint Implementation Committee that will be given the overall responsibility with leadership and management of the planning and implementation process. This will be the “nuts and bolts” group that works through the details, overcomes the challenges, reacts to new information, and makes many of the actual decisions on the implementation plan. This group should have much wider representation from stakeholders both inside and outside of the individual organizations involved. Membership in the Joint Implementation Committee may include senior management personnel and, where appropriate, labor representatives. The following is an example of a Joint Implementation Committee:

- City/District Manager (or equivalent) from each community
- Fire Chief from each community
- Finance Director from each community
- Labor Representative from each bargaining group involved
- Volunteer Representatives from each volunteer organization involved

- Community Representative from each community (Chamber of Commerce or similar)

The Joint Implementation Committee should select a chair or co-chairs to function as organizers and facilitators for the committee meetings. In addition, their first order of business should be to determine the rules and procedures of this committee. This should include such items as:

- How often does this group meet (monthly is typical)?
- How are absences handled (assigned alternates are recommended)?
- How does communication (occasionally secure) within this committee take place?
- How will meetings be conducted? Are there “rules of conduct” for the meetings?
- Under what circumstances will the meetings be opened to attendance by non-members?
- How will the group pursue consensus? When voting is necessary and how will that occur?

Develop an Implementation Strategic Plan

Once the ground rules have been set, the Joint Implementation Committee should schedule a strategic planning process. Consideration should be given to having this strategic planning process directed by neutral outside professionals trained in strategic planning facilitation. The strategic planning process should be held in a neutral setting away from the daily activities and noise of the usual office environment. It need not be an expensive retreat, but it should be organized in a way to focus energy and attention exclusively to the planning process for its duration. The purpose of the initial strategic planning session should be as follows:

- To further articulate and refine the joint vision set by the policy bodies.
- To identify critical issues that will be met as the implementation process unfolds.
- To identify potential impediments to implementation from:
 - Organizational culture
 - Availability of data and information
 - Lack of sufficient staff to carry through implementation processes
 - Outside influences and time demands
- To set the specific goals and objectives of the implementation process and the timelines for accomplishment.
- To establish the necessary Implementation Working Groups.

This process should result in the preparation of an implementation planning document that can be shared with the policy body, stakeholders, and others who will be involved in or affected by the implementation process. The document should provide the joint vision, describe the cooperative service

strategy or strategies being pursued, the desired outcome, the goals that must be met in order for implementation to be achieved and the individual objectives, tasks, and timelines for accomplishment. When fully and adequately prepared, this document will serve as the master “road map” for the process and will help guide the next steps of developing working groups and assigning responsibilities.

Establish Implementation Working Groups

As part of the implementation strategic planning process, various Implementation Working Groups should be established that will be charged with responsibility for performing the necessary detailed work involved in analyzing, weighing, and deciding on specific processes. Membership for these Implementation Working Groups should be roughly identified as part of that process as well.

The number and titles of the working groups will vary depending on the type and complexity of the strategies begin pursued. However, the following list provides some typical working groups used in most consolidation processes and a description of some of their primary assigned functions and responsibilities.

Governance Working Group

This group will be assigned to examine and evaluate various governance options for the cooperative service effort. A recommendation and process steps will be provided back to the Joint Implementation Committee and the Policy-Maker Group. Once approved, this working group is typically assigned the task of shepherding the governance establishment through to completion. The membership of this group typically involves one or more elected officials and senior city/district and agency management.

Finance Working Group

This group will be assigned to review the financial projections contained in the feasibility study and complete any refinements or updating necessary. The group will look at all possible funding mechanisms and will work in partnership with the Governance Working Group to determine impact on local revenue sources and options. Where revenue is to be determined by formula rather than a property tax rate, such as in a contractual cooperative venture, this group will evaluate various formula components and model the outcomes, resulting in recommendations for a final funding methodology and cost distribution formula. The membership of this group typically involves senior financial managers and staff analysts, and may also include representatives from the agencies’ administrative staffs.

Legal Working Group

Working in partnership with the Governance Working Group, this group will identify study all of the legal aspects of the selected strategy and will identify steps to ensure the process meets all legal obligations of process and law. Where necessary, this group will oversee the preparation and presentation of policy actions such as ordinances, joint resolutions, dissolutions, and enabling legislation. The group will also be responsible for working with other elected bodies, such as State Legislatures, when necessary to accomplish establishment of local selected governance. The membership of this group typically involves legal counsel from the various entities involved and may also include senior city/district management staff.

Operations Working Group

This group will be responsible for an extensive amount work and may need to establish multiple sub-groups to accommodate its workload. The group will work out all of the details of necessary operational changes required by the strategy. This involves detailed analysis of assets, processes, procedures, service delivery methods, deployment, and operational staffing. Detailed integration plans, steps, and timelines will be developed. The group will coordinate closely with the Support Services and Logistics Working Group. The membership of this group typically involves senior agency management, mid-level officers, training staff, and labor representatives. This list often expands with the complexity of the services being provided by the agencies.

Support Services and Logistics Working Group

This group will be responsible for any required blending of capital assets, disposition of surplus, upgrades necessary to accommodate operational changes, and the preparation for ongoing administration and logistics of the cooperative effort. The membership of this group typically involves mid-level agency management, administrative, and support staffs. Where involved, support divisions such as Maintenance, Fire Prevention, and others may also be represented.

Labor Working Group

This group will have the responsibility, where necessary, for blending the workforces involved. This often includes the analysis of differences between collective bargaining agreements, shifts schedules, policies, and working conditions. The process also includes work toward developing a consensus among

the various bargaining units on any unified agreement that would be proposed for the future. Often, once the future vision is articulated by the policy-makers, labor representatives are willing to step up and work together as a team to identify challenges presented by differing labor agreements and offer potential consensus solutions. The membership of this group typically involves labor representatives from each bargaining unit, senior agency management and, as needed, legal counsel.

Communications Working Group

Perhaps one of the most important, this group will be charged with developing an internal and external communication policy and procedure to ensure consistent, reliable, and timely distribution of information related to the cooperative effort. The group will develop public information releases to the media and will select one or more spokespersons to represent the communities in their communication with the public on this particular process. The importance of speaking with a common voice and theme, both internally and externally, cannot be overemphasized. Fear of change can be a strong force in motivating a group of people to oppose that which they do not clearly understand. A well informed workforce and public will reduce conflict. The membership of the group typically involves public information officers and senior city or agency management.

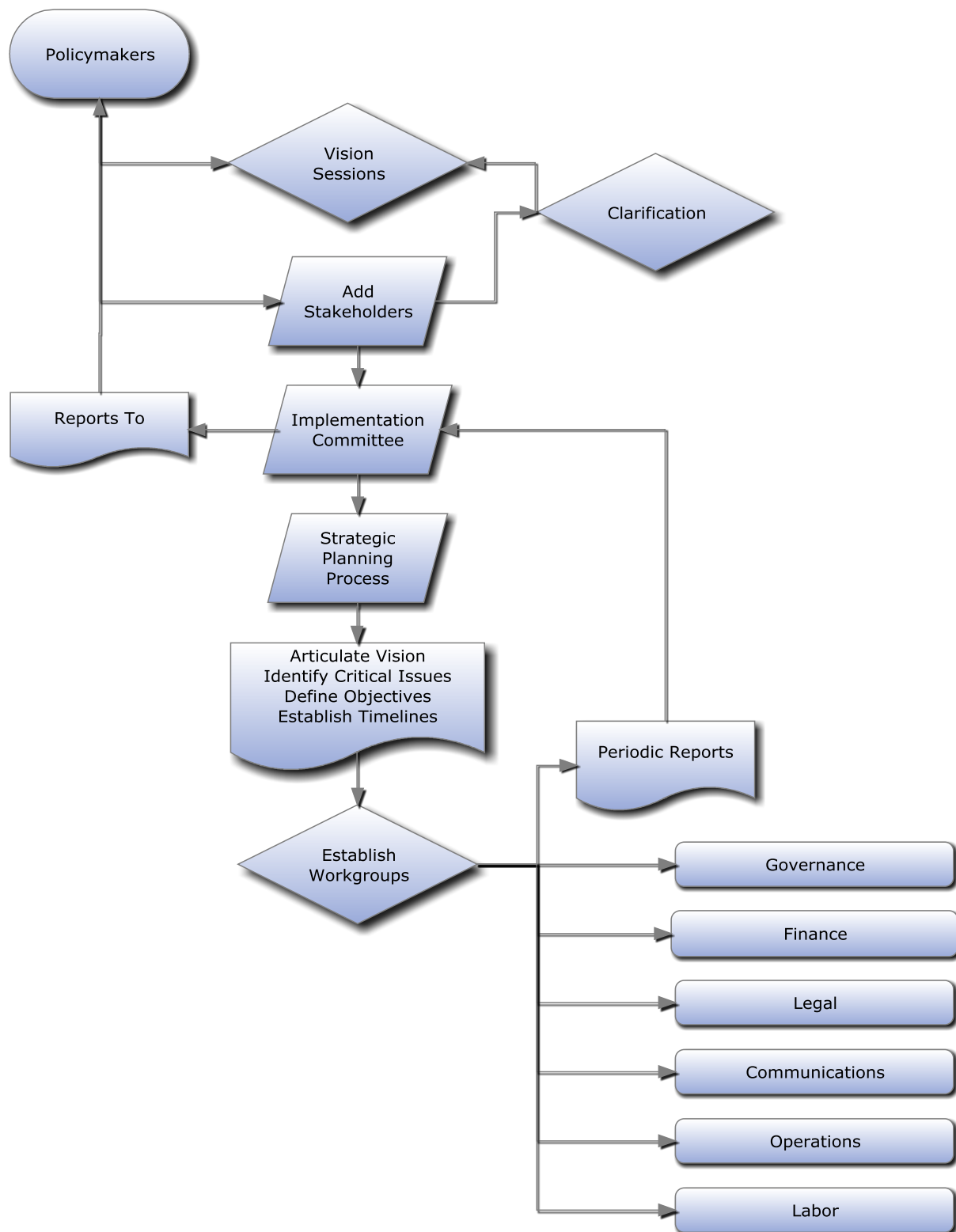
Meet, Identify, Challenge, Refine, and Overcome

Once the working groups are established, meeting, and completing their various responsibilities and assignments, it will be important to maintain organized communication up and down the chain. The working group chairs should report regularly to the Joint Implementation Committee. When new challenges, issues, impediments, or opportunities are identified by the working groups, this needs to be communicated to the Joint Implementation Committee so that the information can be coordinated with findings and processes of the other working groups. Where necessary, the Joint Implementation Committee and a working group chairperson can meet with the policy-makers to discuss significant issues that may precipitate a refinement of the original joint vision.

The process is continual as the objectives of the strategic plan are accomplished one by one. When sufficient objectives have been met, the Joint Implementation Committee can declare various goals as having been fully met until the point comes when the actual implementation approval needs to be sought from the policy bodies. This formal “flipping of the switch” will mark the point at which

implementation ends and integration of the agencies begins. The following flowchart is provided as an example of how the implementation of this process should work.

Figure 65: Example Implementation Flowchart



As an additional guideline, the implementation process and flowchart provided above have been broken down into a potential timeline for implementation. This is provided only as an example as implementation for any specific agency will be highly variable and depend on a number of factors including willingness of stakeholders to proceed, fiscal resources, timing, etc.

Conclusion

The ESCI project team began collecting information concerning the fire and emergency services for Lake Elmo, Mahtomedi and Stillwater in April 2011. The team members recognize that the report contains a large quantity of information and ESCI would like to thank the elected officials of each organization involved as well as the officers, employees and volunteers of the three fire departments for their tireless efforts in bringing this project to fruition. ESCI would also like to thank the various individuals and external organizations for their input, opinions, and candid conversations throughout this process. It is ESCI's sincere hope that the information contained in this report is utilized to its fullest extent and that the emergency services provided to the citizens of Lake Elmo, Mahtomedi and Stillwater, as well as the surrounding areas, are improved by its implementation.

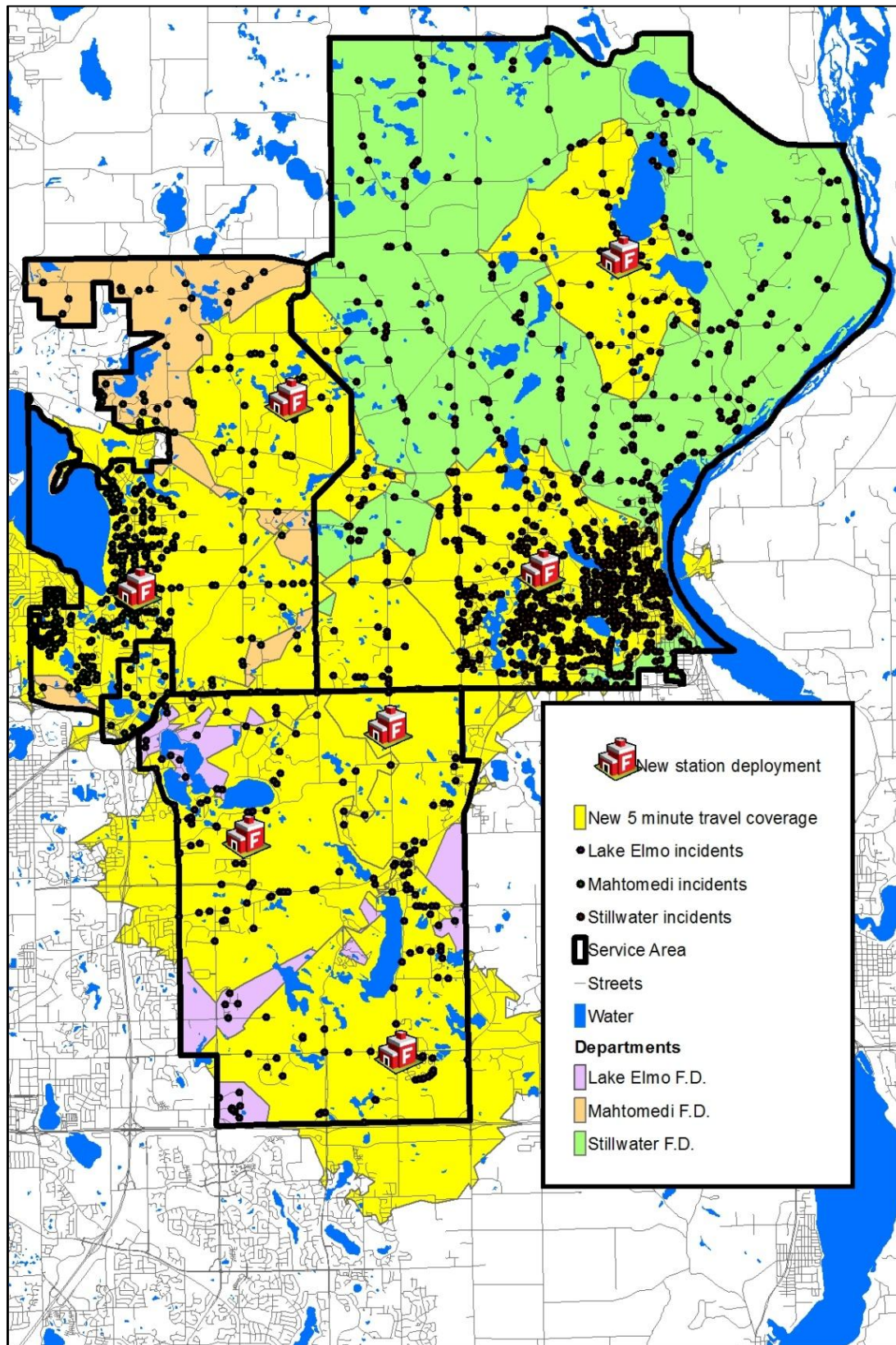
Appendix A – Future Resource Deployment Observations

A review of the current deployment of the stations in the three-department region indicates less than ideal distribution of stations if attempting to achieve the performance standards found in NFPA 1720. SFD's single station leaves a significant concentration of service demand in the western portion of the city and Stillwater Township beyond a six to seven minute travel distance. The city has previously conducted a fire station location study, resulting in similar observations, and that analysis will not be repeated here. Even if the SFD station were relocated to the mid or western portion of Stillwater City in order to improve response to that service demand concentration, it ESCI's analysis indicates that it is unlikely to provide significant response benefit to northern portions of the LEFD's area or Bayport.

LEFD's current east-west station configuration is not consistent with its current concentrations of service demand. Analysis indicates areas of higher-density service demand in the southern portion of their response area. This distant service demand is sufficiently large that, even with two fire stations, only about 40 percent of their overall workload is within the four-minute travel time of a fire station. LEFD is would benefit from a more north-south distribution of resources. However, the lakes make rapid east-west access challenging. An ideal distribution would include three stations, one in the northern section of the city and two covering the east and west sides of the lake areas. The northern most station in this configuration could also benefit Grant City in the region between the SFD and MFD coverage. While this would require relocation of one LEFD station and construction of an additional station, the department should consider a future plan to realign the stations consistent with areas of greatest service demand.

Both SFD and MFD have long travel times into Grant City and the northern most contract areas of their districts. Some of this geography also falls outside a five mile travel distance as required by ISO to achieve a protected class insurance rating (under Class 10). In the previous fire station location study conducted for the City of Stillwater by ESCI, the report discusses the potential impact of a rural fire station in the northern contract areas. Again, while this information will not be fully repeated here, the potential positive impacts of such an effort remain. The same situation is true for Mahtomedi, which has portions of its northernmost territory more than five miles from its fire station. An additional rural station would benefit that area as well. The following figure illustrates the ideal deployment of first-due resources developed by ESCI for the three-department region. This deployment uses the proposed relocation property for the Stillwater station currently being considered by the City.

Figure 66: Potential Future Station Distribution Strategy



An analysis of current service demand coverage was conducted for this proposed deployment plan. The analysis indicated that 85 percent of all incidents in the three-department region would be within a five-minute travel time of a fire station under this strategy.

The summary of the potential deployment improvements discussed above include:

- A relocation of the SFD fire station in mid to western Stillwater City.
- An additional station for LEFD in the northern portion of that City, with potential positive impact for Grant City and northwestern Bayport.
- Realignment of eastern Lake Elmo station further to the south, while remaining southeast of the lakes.
- Additional stations in the northern portions of both the MFD and SFD response areas. It may be possible to achieve close to 100 percent five-mile coverage for that entire area.

ESCI believes that all of these listed deployment improvements could be achieved more effectively and efficiently through a cooperative effort or shared service approach. In each case listed, there are cross-jurisdictional benefits and impacts. Thus, the analysis of potential future deployment improvements supports the feasibility of a shared service solution involving consolidated incident response operations.

Based on the recommendations noted above, ESCI has obtained cost estimates for the various types of facilities that would fulfill the recommendations. The information below is extracted from previous studies with regard to station construction costs and adjusted for the metropolitan Minneapolis/St. Paul area

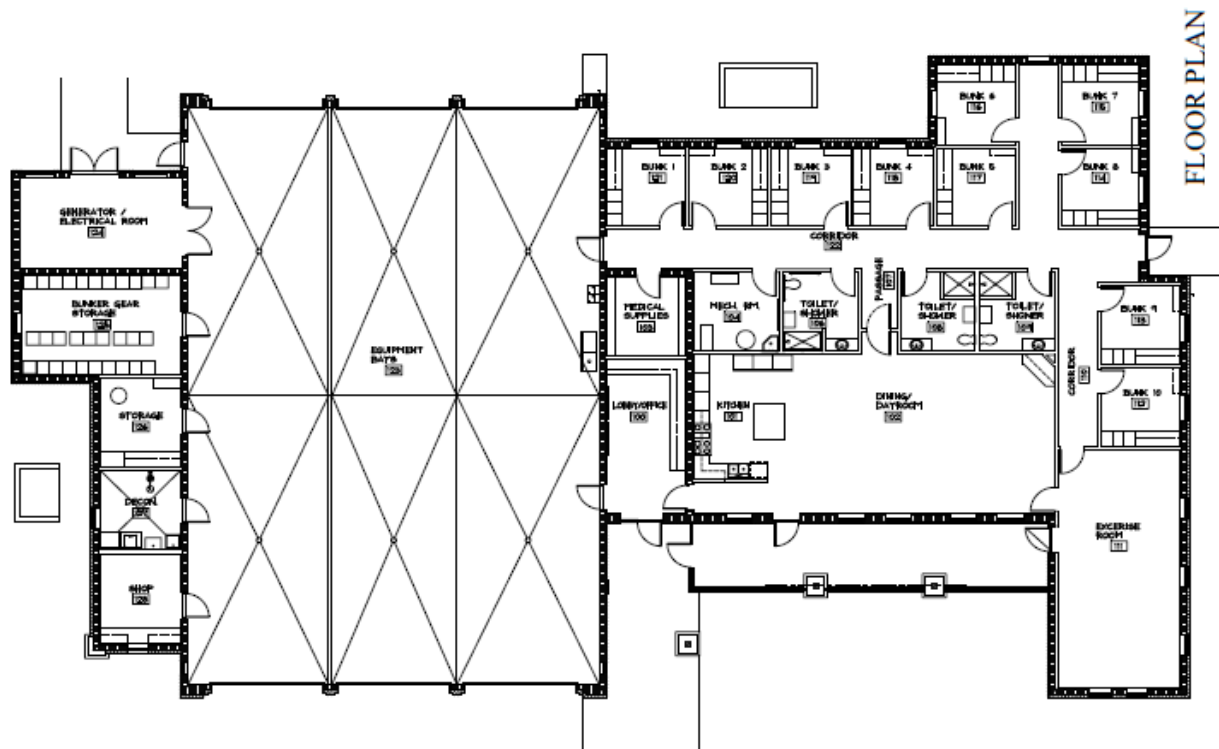
Figure 67: Station Construction Cost Estimates

Station	Building Costs	Non-Building		Total Estimate
		Costs	Land Costs	
Stillwater Rural Station	\$3,500,000	\$173,908	\$180,000	\$3,853,908.00
Mahtomedi Rural Station	\$3,500,000	\$173,908	\$180,000	\$3,853,908.00
Stillwater West Station	\$4,500,000	\$173,908	\$300,000	\$4,973,908.00
LEFD North Station	\$3,500,000	\$233,144	\$180,000	\$3,913,144.00
LEFD South Station	\$3,500,000	\$173,908	\$180,000	\$3,853,908.00
Total	\$18,500,000.00	\$928,776.00	\$1,020,000.00	\$20,448,776.00

It is important to note that the preceding section describes ideal deployment scenarios based on standard fire service master planning principles and practices. The recommendations shown represent ideal future deployment goals and are not intended to represent a current action that is necessary in

order to achieve gains in efficiency or effectiveness of fire departments through a shared services effort. Instead, they are provided in order to promote forward thinking and consideration of future regional improvements that could be undertaken in a regional, shared approach. The decision to enact deployment improvements is a public policy decision elected officials will make based on the needs and expectations of their constituency. What is important is that the elected bodies of these three communities have open discussions about future system performance expectations as part of any shared services implementation process.

Appendix B – Headquarters Station Example



Appendix C –Suburban/Rural Station Example





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