Feasibility Study for Shared or Cooperative Fire and Emergency Services

Carlton Fire Department
Wrenshall Fire Department
Esko Fire Department

August 2011
Carlton Fire Department
Esko Fire Department
Wrenshall Fire Department
Minnesota

Feasibility Study for Shared or Cooperative
Fire and Emergency Services

Spring/Summer 2011

Prepared By:
Phil Kouwe
Kent Greene
Joe Parrott

Emergency Services Consulting International
Table of Contents

Table of Figures .......................................................................................................................... iii
Acknowledgements ....................................................................................................................... v
Executive Summary ...................................................................................................................... 6
Section I – Evaluation of Current Conditions .............................................................................. 11
  Organization Overview ................................................................................................................ 11
    General Description, Service Area, Population and Demographics ...................................... 11
    Governance and Lines of Authority ....................................................................................... 16
    Finance and Budget ............................................................................................................... 17
  Capital Assets and Capital Improvement Programs ................................................................. 29
    Facilities .................................................................................................................................. 29
    Apparatus ................................................................................................................................ 33
    Capital Improvement Programs .............................................................................................. 42
  Staffing and Personnel Management ......................................................................................... 48
    Administrative and Support Staff ............................................................................................ 48
    Operational Staff ..................................................................................................................... 50
    Incident Staffing Performance ................................................................................................. 52
    Human Resources Policies and Handbooks ............................................................................. 53
    Application, Recruitment and Retention .................................................................................. 55
    Testing, Measurement and Promotional Processes ................................................................. 56
  Resource Deployment and Service Delivery .............................................................................. 58
    Demand .................................................................................................................................... 58
    Distribution ............................................................................................................................. 61
    Incident Response Performance ............................................................................................. 65
  Support Programs ....................................................................................................................... 68
    Training Programs ................................................................................................................... 68
    Life Safety Services .................................................................................................................. 70
Section II – Opportunities for Cooperative Efforts ...................................................................... 73
  General Partnering Strategies ................................................................................................... 73
    Autonomy ................................................................................................................................. 73
    Functional Consolidation ......................................................................................................... 73
    Operational Consolidation ........................................................................................................ 74
    Legal Unification ..................................................................................................................... 75
    Analysis of Partnering Strategies ............................................................................................ 76
  Feasible Options for Shared Fire Protection Services ................................................................. 78
    A – Shared Specialty Teams and Equipment ............................................................................ 79
    B – Purchase Uniform Emergency Apparatus ......................................................................... 81
    C – Develop Uniform Pre-incident Plans ................................................................................. 84
    D – Develop Standard Operating Guidelines ......................................................................... 87
    E – Create a Unified Occupational Medicine Program .......................................................... 89
    F – Develop and Adopt Common Training Standards ............................................................. 91
    G – Develop a Regional Annual Training Plan ....................................................................... 93
Carlton FD – Wrenshall FD – Esko FD  
Feasibility Study for Shared or Cooperative Fire and Emergency Services

H – Implement a Computerized Training Records Management System ............................................. 96

Resource Deployment Options .................................................................................................................. 98
# Table of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Overall Service Delivery Area</td>
<td>15</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Five-Year Budget History - Carlton</td>
<td>18</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Ambulance Budget Distribution - Carlton</td>
<td>19</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Fire Budget Distribution - Carlton</td>
<td>19</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Comparison of Per Capita Expenditures - Carlton</td>
<td>20</td>
</tr>
<tr>
<td>Figure 6</td>
<td>2011 Revenue by Source - Carlton</td>
<td>21</td>
</tr>
<tr>
<td>Figure 7</td>
<td>2011 District Funding by Contract</td>
<td>21</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Five-Year Budget History - Esko</td>
<td>22</td>
</tr>
<tr>
<td>Figure 9</td>
<td>2011 Budget Distribution - Esko</td>
<td>23</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Per Capita Cost Comparison - Esko</td>
<td>23</td>
</tr>
<tr>
<td>Figure 11</td>
<td>2011 Revenue by Source - Esko</td>
<td>24</td>
</tr>
<tr>
<td>Figure 12</td>
<td>Five-Year Budget History - Wrenshall</td>
<td>25</td>
</tr>
<tr>
<td>Figure 13</td>
<td>2011 Budget Distribution - Wrenshall</td>
<td>26</td>
</tr>
<tr>
<td>Figure 14</td>
<td>Per Capita Cost Comparison - Wrenshall</td>
<td>26</td>
</tr>
<tr>
<td>Figure 15</td>
<td>2011 Revenue by Source - Wrenshall</td>
<td>27</td>
</tr>
<tr>
<td>Figure 16</td>
<td>Consolidated Per Capita Cost</td>
<td>28</td>
</tr>
<tr>
<td>Figure 17</td>
<td>Economic Theory of Vehicle Replacement</td>
<td>44</td>
</tr>
<tr>
<td>Figure 18</td>
<td>Average Apparatus per Department by Type</td>
<td>45</td>
</tr>
<tr>
<td>Figure 19</td>
<td>Estimated Life Expectancy (Active Service)</td>
<td>45</td>
</tr>
<tr>
<td>Figure 20</td>
<td>Estimated Life Expectancy (Reserve Service)</td>
<td>45</td>
</tr>
<tr>
<td>Figure 21</td>
<td>Estimated Total Service Life (Rural Department)</td>
<td>46</td>
</tr>
<tr>
<td>Figure 22</td>
<td>Average Annual Call Volume</td>
<td>46</td>
</tr>
<tr>
<td>Figure 23</td>
<td>Example Capital Replacement Plan</td>
<td>47</td>
</tr>
<tr>
<td>Figure 24</td>
<td>Administrative and Support Staff - Carlton</td>
<td>49</td>
</tr>
<tr>
<td>Figure 25</td>
<td>Administrative and Support Staff - Esko</td>
<td>49</td>
</tr>
<tr>
<td>Figure 26</td>
<td>Administrative and Support Staff - Wrenshall</td>
<td>50</td>
</tr>
<tr>
<td>Figure 27</td>
<td>Critical Task Staffing Needs by Risk</td>
<td>50</td>
</tr>
<tr>
<td>Figure 28</td>
<td>Emergency Services Personnel - Carlton</td>
<td>51</td>
</tr>
<tr>
<td>Figure 29</td>
<td>Emergency Services Personnel - Esko</td>
<td>51</td>
</tr>
<tr>
<td>Figure 30</td>
<td>Emergency Services Personnel - Wrenshall</td>
<td>52</td>
</tr>
</tbody>
</table>
Carlton FD – Wrenshall FD – Esko FD
Feasibility Study for Shared or Cooperative Fire and Emergency Services

Figure 31: Average Staffing by Hour of Day ................................................................. 53
Figure 32: Overall Workload ....................................................................................... 58
Figure 33: Workload by Incident Type ........................................................................ 59
Figure 34: Workload by Month .................................................................................... 59
Figure 35: Workload by Day of Week .......................................................................... 60
Figure 36: Workload by Hour of Day .......................................................................... 61
Figure 37: General Station Distribution with Five-Mile Coverage ............................... 62
Figure 38: Incident Coverage ....................................................................................... 64
Figure 39: Additional Mutual Aid Stations ................................................................. 65
Figure 40: Incident Response Performance Comparison ............................................. 66
Figure 41: Response Performance by Hour of Day ..................................................... 67
Figure 42: Concepts of Functional Program Consolidation ....................................... 74
Acknowledgements

City of Carlton
Leola Rodd, Mayor
Adam Bailey, Councilmember
Kirk Johnson, Councilmember
LeeAnn Thiesen, Councilmember
Wesley Vork, Councilmember
Wayne Bodin, Fire Chief
Dane Johnson, 1st Assistant Chief
Derek Wolf, 2nd Assistant Chief
Officers and Member of Carlton Fire & Ambulance

Thomson Township/Esko Fire Department
Rhonda Peleski, Town Clerk
Jeff Juntunen, Fire Chief
Dale Lennartson, 1st Assistant Chief
Brent Pykkonen, 2nd Assistant Chief

City of Wrenshall
Kristy Duncan, Mayor
Gary Butala, Councilmember
Jeff Kimmes, Councilmember
John Tanner, Councilmember
Duane Ziebarth, Councilmember
Randy Wolf, Fire Chief
Pete Laveau, 1st Assistant Chief
Chris Erickson, 2nd Assistant Chief
Executive Summary

Emergency Services Consulting International (ESCI) was engaged by the City of Carlton to conduct a Feasibility Study for Shared or Cooperative Fire and Emergency Services between Carlton Fire Department, Esko Fire Department, and Wrenshall Fire Department. This document is segregated into two primary sections - Evaluation of Current Conditions and Opportunities for Cooperative Efforts - and serves as the culmination of the evaluation of each agency while providing short-, mid-, and long-range recommendations for enhanced cooperation between the organizations, with an increase in general efficiency as the objective.

Section I, the Evaluation of Current Conditions, provides the reader with a comprehensive review of Carlton, Esko and Wrenshall fire departments. The components of focus within this section include a general overview of each organization along with a detailed evaluation of finance and budget, capital assets and capital improvement programs, staffing and personnel management, resource deployment and service delivery and support programs such as training and life safety services.

The study region as a whole provides fire suppression, rescue and emergency medical services to a population of approximately 15,951 in an area covering approximately 321 square miles. The combined per capita cost of fire and emergency services calculated to $25.71, substantially below the national and Minnesota State averages of $104.00 and $68.01, respectively.

Services are delivered from three facilities - one in each jurisdiction by at least 19 primary response vehicles. Facilities were determined to be in relatively good overall condition and suitable for their current uses. Of the 19 apparatus evaluated, six rated ‘excellent’; eight rated ‘good’; and five rated ‘fair’. Those rated in ‘fair’ condition were generally utility and wildland vehicles. In regards to capital replacement planning, ESCI developed a recommended vehicle replacement schedule based on vehicle age and life expectancy. The plan indicates that if the region entered into a consolidated capital apparatus replacement plan, in order to bring the region up-to-date with the current fleet unchanged, the region would need $2,332,500 and would need to set aside $187,500 annually to fully fund the capital replacement plan.
Each department uses primarily volunteer or paid-on-call personnel to respond to emergency incidents. Carlton also staffs part-time personnel to handle Basic Life Support ambulance calls throughout the area. In total, the region contains 9.5 administrative and support personnel (Esko has a half-time secretary) and 114 total operations personnel distributed across several positions including line officers, firefighter/EMT, EMT only, fire equipment operator, etc. Although 114 personnel seems like a large number of responders, it must be remembered that not all of these personnel are available 24 hours per day. In evaluating average staffing capabilities by hour of day, it was determined that the region averages just under four personnel per incident. This number of responders is sufficient for most medical and non-life threatening incidents but is substantially below the 14 to 18 that is recommended for a moderate risk structure fire.

The delivery of fire suppression 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 study evaluated the various components and provides observations of the elements that make up the delivery of the most critical core services provided by each of the study fire agencies including demand, distribution and response performance.

Service demand is the amount of workload experienced by each agency. Demand can be evaluated in totality, segregated by incident type, or evaluated temporally; by month, day, and hour. ESCI completed analyses based on each of these. Each agency presented incident data for a two-year period from January 1, 2009 to December 31, 2010. Over that period, Esko Fire Department recorded the highest service demand responding to just over 300 incidents during the data period. Wrenshall recorded the lowest service demand with just under 150 incidents. When service demand was evaluated by incident type, EMS incidents comprised a vast majority of the total call volume, as would be expected for departments that participate in either first responder or transport EMS activities.

In temporal evaluation, Carlton Fire Department showed a significant increase in workload during the month of January as compared to the rest of year while the other departments experienced variable but relatively stable workload. The same was true for workload when evaluated by day of week. No significant trends were observed. Service demand by hour of day was as expected in that service
demand begins to rise during the mid-morning hours, remain relatively high during the day and decline into the evening. This pattern follows typical human activity and is associated with an active community.

As already noted, the departments provide service from three facilities. There exists a certain extent of the jurisdiction that can be reached within a certain travel time from the stations regardless of staffing patterns. It is important to note that less than 50 percent of the total incidents could be plotted on a map due to addressing or location inconsistencies between the incident reports and the available street data for the area. However, based on travel models and using only those incidents that were able to be plotted, the three departments can reach 61.0 percent of the primary service demand within four minutes of travel. With a continued cooperative response from the three departments, incident coverage is likely to be much higher than if the departments were to respond singularly to incidents within their primary response area.

Total response time is the amount of time a resident or business waits until an apparatus arrives at the scene of emergency beginning when they first call 9-1-1. It is made up of several elements: call processing (the time it takes a dispatcher to answer the call, process the information and dispatch the appropriate apparatus), turnout time (the time between when a call is dispatched and response units are actually en route), and overall response time (the total time between dispatch and when units arrive on the scene of the emergency). As is common for most fire departments, none of the study agencies have direct influence on call processing time; therefore, the departments measure response time from the time of dispatch to the arrival on scene. The following figure illustrates the average, 90th percentile and 80th percentile response performance to emergency incidents for each agency over the two-year data period analyzed.

<table>
<thead>
<tr>
<th>Region</th>
<th>Carlton</th>
<th>Esko</th>
<th>Wrenshall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>07:34</td>
<td>05:49</td>
<td>11:49</td>
</tr>
<tr>
<td>90th</td>
<td>13:00</td>
<td>10:00</td>
<td>20:54</td>
</tr>
<tr>
<td>80th</td>
<td>10:00</td>
<td>08:00</td>
<td>18:24</td>
</tr>
</tbody>
</table>

Region-wide, the average response time to emergency incidents calculated to be 6:45, with a 90th percentile response performance of 12:00 and 9:00 when measured at the 80th percentile. NFPA 1720 recommends that volunteer and combination departments establish response 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 is rural areas. Although the study region was not
evaluated on the basis of population density to determine those areas that would be classified as urban, suburban or rural, it would appear that a joint, concerted response by the three study agencies would achieve response performance that exceeds the NFPA recommendations.

Section II deals with Opportunities for Cooperative Efforts between the three study agencies and evaluates general partnering strategies including the potential to remain independent, implement functional or operational consolidations, or move forward with legal unification. In addition, eight functional shared services strategies are presented that are intended to increase efficiency, consistency and cooperation between the agencies while maintaining departmental independence. Those strategies include the following:

- Shared Specialty Teams and Equipment
- Purchase Uniform Emergency Apparatus
- Develop Uniform Pre-Incident Plans
- Develop Standard Operating Guidelines
- Create Unified Occupational Medicine Program
- Develop and Adopt Common Training Standards
- Develop a Regional Annual Training Plan
- Implement a Computerized Training Records Management System

Emergency Services Consulting International began collecting data and information relative to the emergency services delivery system for Carlton, Esko, and Wrenshall in April of 2011. Since that time, the data and information has been analyzed, individuals have been interviewed, and future shared services and deployment options have been evaluated. Key findings include the following:

- The system as a whole is funded at a rate of $25.72 per capita compared to the Minnesota and National averages of $68.01 and $104.00, respectively.
- The three facilities currently in use are adequate for current operations.
- Although the apparatus for the three departments is sufficient for the current mission, planning should begin now for replacement of half the fleet that has already exceeded its expected lifespan.
- Current service demand coverage is calculated to be 61 percent within four minutes of travel.
- Current response performance is calculated at 9:00 when measured at the 80th percentile.
The options presented for resource deployment and shared services, as well as the provided capital replacement plan recommendation, offers policymakers the information necessary to make informed decisions about the future of the emergency services system. ESCI understands that this document contains a great deal of technical information and it is the project team’s sincere hope that the information and recommendations will be used to enhance the delivery of emergency services throughout the region.
Section I – Evaluation of Current Conditions

Emergency Services Consulting International (ESCI) was engaged by the City of Carlton to conduct a Feasibility Study for Shared or Cooperative Fire and Emergency Services between Carlton Fire Department, Esko Fire Department, and Wrenshall Fire Department. This document serves as the culmination of the evaluation of each agency and provides short-, mid-, and long-range recommendations for enhanced cooperation between the organizations, with an increase in general efficiency as the objective.

Organization Overview

This section of the report provides a general overview of each agency involved in the study. Included in this portion of the document is a general description of the departments, their service areas and populations and demographics, as well as the organization structure, lines of authority, history and formation, guiding policy documents and an overview of each agency’s finances and budget.

General Description, Service Area, Population and Demographics

Carlton Fire and Ambulance Department

Carlton Fire and Ambulance Department (Carlton F&A) was formed under the laws of the State of Minnesota (Statute 412.221, subd. 17), and granted authority to provide fire and emergency medical services as part of their mission. Carlton F&A functions as a combination fire and ambulance association and operates as a department within the city of Carlton. The department’s jurisdiction encompasses the entire City of Carlton, and through contract, the townships of Twin Lake, Sawyer, Atkinson Township, a portion of Thomson Township, and the City of Thomson. In addition to the areas mentioned previously, as a provider of Basic Life Support (BLS) ambulance services to the area, the department also serves the City of Wrenshall, Wrenshall Township, Silver Brook Township, and Blackhoof Township through the State of Minnesota’s Ambulance Service Area (ASA) defined areas. The response area includes small city development, suburban neighborhoods, and light industrial, as well as a large portion of rural property.

The total area served by Carlton Fire & Ambulance encompasses approximately 163.4 square miles for both fire and ambulance services (67.5 for fire only), and serves a population of approximately 9,700\(^1\). The department’s services are provided from one station located within the City of Carlton. Currently,

\(^1\) Based on either 2000 or 2010 census data per jurisdiction as last reported by the U.S. Census Bureau.
the department has an Insurance Service Office (ISO) rating of Class 6 within five road miles of the Carlton fire station, and within 1,000 feet (ft.) of a public fire hydrant. A Class 9 will be applied to properties within five road miles of the Carlton fire station, but beyond 1,000 ft. of a public fire hydrant. The department has access to pressurized hydrants only within city limits.

The department maintains a fleet of vehicles including two fire engines, two medic units, one tender, one rescue ATV, one Incident Command squad vehicle, and one wildland vehicle. The department also houses a County-owned SCBA\(^2\) trailer.

There are currently 34 individuals involved in delivering services to the jurisdiction. Of the roster of employees, all are assigned to the operations division. The department has a maximum limit of 25 volunteers within the relief association, but currently utilizes a total of 34 personnel with both fire and ambulance operations combined. Up to 12 personnel are strictly assigned to medical incidents while another 18 are cross-trained in both medical and suppression skills. Although two personnel are on duty at the station 24-hours per day, the primary staffing coverage for all emergency response is provided by volunteers. Volunteers are on an on-call basis, and participate in the delivery system as their schedules permit. In addition to the Carlton volunteers, the organization has access to the County mutual aid system in which both Esko and Wrenshall fire departments are automatically dispatched on all confirmed structure fires.

**Esko Fire Department**

Esko Fire Department (EFD) protects the entirety of Thomson Township and was founded in 1949 as an entity of Thomson Township which serves as its governing body. The township is a rural community located 12 miles west of Duluth, and five miles east of Cloquet. The Jay Cooke State Park forms the town’s southern border. It covers 42.1 square miles with a population of approximately 5,000\(^3\) residents within both the Township and the City of Thomson.

The department operates from one station located in the City of Thomson. EFD enjoys an ISO protection Class 5 for those properties in its responsible area requiring a fire flow of 3,500 gpm, or less, within five miles of the fire station. The department maintains a fleet of two engines, two tenders, one brush vehicle and one rescue vehicle. The area is served by a partial hydrant system with pressures of up to

---

\(^2\) SCBA: self-contained breathing apparatus.

\(^3\) Number as provided by the fire department based on 2010 census figures.
150psi and a flow volume of 2,000 gallons per minute. The department also maintains four dry hydrants in its rural area.

EFD is volunteer fire department currently comprised of 28 active members (including four members involved in the newly created apprentice program) and the department has a membership cap of 35. EFD responds to fire, rescue, and first responder medical incidents in its response district.

**Wrenshall Fire Department**

Wrenshall Fire Department’s (WFD) response district is defined by the city boundary of Wrenshall, and those areas determined by contract with neighboring jurisdictions, including part of Wrenshall Township, Silver Brook Township, Holyoke Township, and part of Clear Creek Township. The response area is primarily rural in nature. The department is duly organized as an entity of the City of Wrenshall, Minnesota. The department is formed under the laws of the State of Minnesota, Statute 412.221, sub.17, and is granted authority to provide fire, rescue, and first responder emergency medical services as part of their mission.

Wrenshall has 17 pressurized hydrants in the city, and a number of accessible water sources across the response area. Total response area comprises approximately 1.5 square miles and a population of 399 within the City of Wrenshall and an additional 114.5 square miles and 1,251 persons within Wrenshall Township, Silver Brook Township, Holyoke Township and part of Clear Creek Township.

The Insurance Services Office has assigned a rating of Class 7 to the jurisdiction. WFD maintains a fleet of five emergency response vehicles including two engines, one tender, one brush vehicle and one rescue vehicle.

The department has 24 volunteer members (capped at 32) including 12 that are certified at the First Responder level. With these resources, WFD provides fire suppression, first-responder EMS, extrication/rescue, and limited public education. While the City of Wrenshall Ordinance #305 - *Volunteer Fire Department* delineates a fire marshal position for the department, no code administration or enforcement is done by the department. The Statutes of the State of Minnesota authorize the fire chief to administer and enforce the Minnesota Uniform Fire Code (MUFC) including fire investigation. EMS
transport services are provided by the City of Carlton for BLS services and Cloquet Area Fire District (CAFD) for Advanced Life Support (ALS) services.

The following figure illustrates each of the department’s primary response areas as well as their respective station locations.
Figure 1: Overall Service Delivery Area
Governance and Lines of Authority

Carlton Fire and Ambulance Department

The organization’s authority to provide service is gained through city charter and from the State of Minnesota. The fire chief is hired by city administration and the City Council. Authority of the fire chief is clearly defined by city policies. The fire chief, as a member of the selection committee comprised of a member of the city administration and volunteer officers, shall determine qualifications of fire fighters through interview, and shall be empowered to accept volunteers. The fire chief has full authority to expel or terminate volunteers in accordance with the by-laws.

Acceptable financial controls are in place. Unity of command is defined, and everyone reports to the fire chief through their respective officer. The operating division uses a top-down hierarchy with one division defined, that being emergency delivery. Department programs are not defined. Formal job descriptions are in the process of being developed at this time. Carlton volunteers are governed by their by-laws, Relief Association By-laws and the Standard Operating Procedures (SOPs) manual. The chief’s span of control is very manageable. Minimal planning elements are in place. An organizational vision has not been established, nor has a mission statement been adopted. Foundational administrative policies have been adopted, reviewed for consistency; and each member is provided a copy. Critical issues and challenges have been identified. An abbreviated annual report is prepared by the fire chief and presented to the Carlton City Council. Complete training records are maintained within the organization. However, exposure records are not maintained. Fire reports are maintained and submitted to the Minnesota State Fire Marshal’s Office.

Esko Fire Department

Esko Fire Department’s authority to provide service is defined by an Ordinance of the Thomson Township. The fire department, the fire chief, and other officer’s duties and responsibilities are clearly defined by ordinance, by-law, and/or standard operating guideline, as well. Policy-setting roles of the governing body and officers are appropriately documented as required by the laws of the State of Minnesota. EFD is currently in the process of combining their by-laws and standard operating guidelines. The department has regular monthly meetings to conduct operational fire department business. The fire chief presides over the meetings.
The unity of command and span of control for the organization is defined and appears appropriate. EFD uses a top-down hierarchy. Formal job descriptions are currently in the works. The chief recommends appointments and terminations to the Town Board of Supervisors (Board). A formal annual report is produced each year as required by the department’s by-laws. Operational responses and activity are documented and transmitted monthly to the Board and the State Fire Marshal.

**Wrenshall Fire Department**

The City of Wrenshall’s authority to provide service is clearly defined in municipal charter under a mayor and city council form of government. The fire department and the fire chief’s duties and responsibilities are defined by ordinance. Policy-setting roles of the governing body and officers are appropriately documented.

Pursuant to Ordinance #56, rules and regulations are promulgated “…to provide for rules of order and procedure, and such other requirements deemed necessary to properly and orderly administer and govern the WFD.” The department has regular meetings on the first Monday of each month at 1900 hours, and a quorum of five members is required. The fire chief presides over the meetings.

Operationally, the WFD is comprised of the fire chief, two assistant chiefs, four captains, 12 first responders, and ten firefighters. The fire chief, two assistant chiefs, four captains, and the secretary/treasurer are elected by the membership every two years. The city council must approve the fire chief appointment.

The unity of command and span of control for the organization is defined, and is in order. WFD uses a top-down hierarchy, but clear operating divisions do not exist. Formal job descriptions are maintained, but are currently not up-to-date. The chief has full authority over appointments and may recommend terminations to the city council. An annual report is not produced although operational responses are documented and transmitted to the State Fire Marshal. Programs, goals, and objectives are discussed annually at the January officer’s meeting. WFD has not adopted a mission statement.

**Finance and Budget**

This subsection summarizes the current finances and budget practices of each of the organizations participating in this project.
Carlton Fire & Ambulance Department

As discussed previously, Carlton Fire & Ambulance is a direct operating department of the City of Carlton, thus the city’s financial controls and policies apply to the fire department as well. The department provided budget history for the past five years including the current (2011) operating budget for both fire and ambulance operations. In addition, the city provided a copy of the latest Comprehensive Financial Audit Report (CAFR) for fiscal year ending December 31, 2010. The city uses a comprehensive basis of accounting that is other than U.S. generally accepted accounted principles. However, the CAFR indicates that current financial controls and policies provide a means to accurately represent the financial status of the city and all accounts receivable and accounts payable are reported as in conformity with the regulatory basis of accounting.

The city operates on an annual budget cycle and follows the calendar year as the accepted budget period. The following figure illustrates the department’s fire and ambulance budget history for the past five years including the 2011 approved budget.

![Five-Year Budget History - Carlton](image)

As illustrated above, the department is funded in two separate divisions, fire and ambulance. Each annual budget is individual and varies in the amount allocated to each primary element: personnel, operations, and capital. The figure below illustrates how funds are distributed across those three categories within each fund.
As can be seen in the two figures above, operation of the ambulance takes a considerable amount of personnel funding while the fire budget is dominated by operations expenditures. This is common for departments staffing primary response units with paid personnel, whether fire or ambulance in nature.

The total budget for total department operations equals $414,065 for the 2011 budget year. Considering the total population served throughout the entirety of the response area (9,700) this equates to a per capita cost of approximately $42.69. The figure below compares this to national and Minnesota averages.
Carlton Fire & Ambulance, through the City of Carlton, has one outstanding debt service obligation in the amount of $197,000 for ‘fire truck and related costs’ with a maturity date of February 1, 2017. In addition to the costs of providing service to such a large geographic area, Carlton Fire & Ambulance has several sources of revenue to help offset the cost to the taxpayers of the area. For budget year 2011, the city budgeted revenue in the following categories.
Figure 6: 2011 Revenue by Source - Carlton

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Thomson</td>
<td>$2,185.15</td>
</tr>
<tr>
<td>City of Wrenshall</td>
<td>$4,279.64</td>
</tr>
<tr>
<td>Atkinson TWP</td>
<td>$5,464.42</td>
</tr>
<tr>
<td>Blackhoof TWP</td>
<td>$11,376.33</td>
</tr>
<tr>
<td>Mahtowa TWP</td>
<td>$1,063.89</td>
</tr>
<tr>
<td>Silver Brook TWP</td>
<td>$16,004.03</td>
</tr>
<tr>
<td>Thomson TWP</td>
<td>$1,787.92</td>
</tr>
<tr>
<td>Twin Lakes TWP</td>
<td>$33,059.11</td>
</tr>
<tr>
<td>Wrenshall TWP</td>
<td>$4,927.90</td>
</tr>
<tr>
<td>Clear Creek TWP</td>
<td>$812.69</td>
</tr>
<tr>
<td>Sawyer TWP</td>
<td>$4,038.92</td>
</tr>
<tr>
<td>County Subsidy</td>
<td>$13,500.00</td>
</tr>
<tr>
<td>Ambulance Revenue</td>
<td>$206,000.00</td>
</tr>
<tr>
<td>Levied Property Tax</td>
<td>$43,955.00</td>
</tr>
<tr>
<td>Misc. Revenue</td>
<td>$1,334.61</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$267,789.61</strong></td>
</tr>
</tbody>
</table>

Although the above referenced ‘revenue’ amounts are billed to each municipality annually, there is no obligation for them to pay. In the absence of payment of the invoiced amount, residents within those areas are billed a ‘non-district’ charge for ambulance services, more than double the current ‘in-district’ amount. At the creation of the Carlton Fire District, a formula was agreed upon that would distribute the costs of fire protection and ambulance services across the City of Carlton, Twin Lakes Township, Sawyer Township, and the City of Thomson. That distribution is illustrated in the following figure.

Figure 7: 2011 District Funding by Contract

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Share</th>
<th>Total 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Carlton</td>
<td>29%</td>
<td>$43,955.00</td>
</tr>
<tr>
<td>Twin Lakes Township</td>
<td>57%</td>
<td>$86,387.00</td>
</tr>
<tr>
<td>Sawyer Township</td>
<td>10%</td>
<td>$15,160.00</td>
</tr>
<tr>
<td>City of Thomson</td>
<td>4%</td>
<td>$6,067.00</td>
</tr>
</tbody>
</table>

How this sharing of service delivery costs is structured will be examined more in depth later in this report and tied to service demand and utilization of services.

**Esko Fire Department**

Esko Fire Department operates under the financial controls and policies of Thomson Township. The Township provided the latest CAFR to be published for the year ending December 31, 2009 in which it

---

4 Although these ‘revenue’ amounts are billed to each municipality annually, there is no requirement for them to pay.
was identified that the Township operates under the accrual basis of accounting and that no professional standards disagreements were present during the audit.

The Township, thus the fire department, operates on an annual budget cycle and follows the calendar year as the accepted budget period. The following figure illustrates the department’s history for the past five years including the 2011 approved budget.

![Five-Year Budget History - Esko](image)

Since the department does not operate two separate divisions as Carlton Fire & Ambulance does, all expenditures are captured under a single fund. Budget levels have been highly variable due to equipment maintenance and repair costs during the 2008 and 2009 budget years. As discussed previously, departments that employ paid personnel will spend much more of their allocated budget on personnel and related costs. This is not the case with EFD. The figure below illustrates how the 2011 budget was distributed across the categories of personnel, operations, and capital expenditures.
As can be seen in the figure above, a very small portion of the overall budget is dedicated to personnel costs and these are attributable to officer stipends and incentive pay for volunteer members. No capital expenditures were reflected in the department’s budget for 2011.

The total budget for total department operations equals $55,000 for the 2011 budget year. Considering the total population served throughout the entirety of the response area (4,520), this equates to a per capita cost of approximately $11.10. Figure 10 compares this to national and Minnesota averages.
The Township maintains one current debt service obligation in regards to the fire department - that of fire hall renovations. The balance of the debt service at the beginning of the 2011 budget year was calculated to be $47,328 with a scheduled maturity date and last payment of December 1, 2011.

During budget year 2011, the Township reported expected revenues of $56,657 in the following categories.

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>2011 Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax Levy</td>
<td>$47,757.00</td>
</tr>
<tr>
<td>Market Value Credits</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>Insurance Dividend</td>
<td>$500.00</td>
</tr>
<tr>
<td>Refunds/Reimbursements</td>
<td>$2,800.00</td>
</tr>
<tr>
<td>Donations</td>
<td>$900.00</td>
</tr>
<tr>
<td>Sale of Equipment</td>
<td>$1,700.00</td>
</tr>
</tbody>
</table>

**Wrenshall Fire Department**

WFD is an operating department under the City of Wrenshall and, as such, adheres to all financial controls and policies set forth by the city. The city provided a copy of the latest CAFR, which was an audit of the financial records of the city for the budget period ending December 31, 2010. The city uses a modified accrual basis of accounting - a practice generally accepted in governmental accounting - and operates on an annual budget cycle corresponding to the calendar year. The following figure illustrates the department’s history for the past five years including the 2011 approved budget.
Since the department does not operate two separate divisions as Carlton Fire & Ambulance does, all expenditures are captured under a single fund. Funding for clerk and treasurer positions was added in 2007 and improvements in communications were made during 2008. The budget history indicates a large expenditure under ‘miscellaneous’ in 2009, as well as a large distribution to the Fire Relief Association in 2010. As discussed previously, departments that employ paid personnel will spend much more of their allocated budget on personnel and related costs. This is not the case with WFD. Although officers and several part-time staff receive nominal compensation, the department does not employ full-time personnel. The figure below illustrates how the 2011 budget was distributed across the categories of personnel, operations, and capital expenditures.
As can be seen in the figure above, a very small portion of the overall budget is dedicated to personnel costs. No capital expenditures were reflected in the department’s budget for 2011. The total budget for department operations equals $41,924 for the 2011 budget year. Considering the total population served throughout the entirety of the response area (1,650), this equates to a per capita cost of approximately $25.41. The figure below compares this to national and Minnesota averages.

As is obvious from the figure above, WFD’s per capita cost to provide fire protection is higher than the Minnesota average and significantly higher than either Carlton or Esko. This is due primarily to the low
population in the general service area. It is typically much more expensive to provide service, on a per capita basis, in more sparsely population areas since the cost of basic service must be spread across a much lower total population.

The City does not currently maintain any debt service obligations in regards to the fire department. During budget year 2011, the City reported expected revenues of $42,024 in the following categories.

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>2011 Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrenshall</td>
<td>$14,620</td>
</tr>
<tr>
<td>Silver Brook</td>
<td>$13,081</td>
</tr>
<tr>
<td>Wrenshall TWP</td>
<td>$5,386</td>
</tr>
<tr>
<td>Holyoke</td>
<td>$5,386</td>
</tr>
<tr>
<td>Clear Creek</td>
<td>$3,550</td>
</tr>
</tbody>
</table>

Summary Data

Given that this project’s impetus was to investigate potential cooperative efforts among the three departments, ESCI has evaluated the region as a whole in regards to the cost of providing fire and ambulance services. The figure below repeats information presented previously, but in a side-by-side comparison as well as provides a regional perspective in regards to per capita costs of the current service delivery model.
When the total cost of fire and ambulance services are combined for the three departments and compared against the national and Minnesota averages, the total per capita cost is still significantly below the two presented averages. As a matter of comparison, the Cloquet Area Fire District per capita cost is estimated to be $156.21, but this number is an approximation since a firm population cannot be determined for the district.
Capital Assets and Capital Improvement Programs

Fire departments need a balance of three basic resources to successfully carry out their emergency mission: people, equipment, and facilities. Because firefighting is an extremely physical pursuit, the adequacy of personnel resources is a primary concern. But no matter how competent or numerous the firefighters are, the department will fail to execute its mission if it lacks sufficient fire apparatus distributed in an efficient manner and housed in adequate facilities.

Each study agency has millions of dollars’ worth of capital assets. These assets are necessary to provide service and must be maintained and replaced as needed. Maintenance and replacement plans for facilities, apparatus, and other high value equipment are essential and a funding mechanism must be in place to ensure money is available to meet these costs.

Regardless of the type or size of a fire department, there are basic needs each must address—quick response time and efficient use of apparatus and equipment. Everything else depends on a particular department’s budget and needs. Fire station designs are unlike any other type of project - there are many subtle elements and specialized systems that go into a fire station. Likewise, fire apparatus are extremely specialized pieces of equipment that require extensive planning to ensure proper use of resources.

Facilities

Inadequate facilities for housing firefighters and apparatus detract from a department’s mission. Limited space can significantly impact the available options for resource assignment, hinder the ability to maintain a well-trained and fit workforce, and may affect member and employee morale. The primary functions that take place within the fire station environment should be closely examined and adequate, efficient space for all functions should be provided. Some examples include:

- Housing and cleaning of apparatus and equipment
- Administrative office duties where necessary
- Firefighter training
- Firefighter fitness
- Residential living that is gender compatible for on-duty members
- 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 reviewed the three stations in the study area.

The following evaluation and general condition assessment was conducted at the department’s facilities. However, it should be noted that this study is not a full facilities assessment as would be conducted by an engineer or architect. Such a study would be far more detailed than the review conducted for this report, and the Department should consider any recommendations of an architect or engineering study as final authority in issues of condition and need. This focus is on operational conditions, efficiency, safety, and staff and apparatus space needs.

**Carlton Fire & Ambulance Department**

<table>
<thead>
<tr>
<th>Design:</th>
<th>This building has facilities for both genders on the second level. It could house full-time staff if needed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction:</td>
<td>This is a concrete block building in good condition. It has a flat roof and features a two story living area with a large apparatus bay.</td>
</tr>
<tr>
<td>Safety:</td>
<td>There are no automatic overhead door stops present.</td>
</tr>
<tr>
<td>Environment:</td>
<td>There is no exhaust removal system in place.</td>
</tr>
<tr>
<td>Code Compliance:</td>
<td>No code issues noted.</td>
</tr>
<tr>
<td>Staff Facilities:</td>
<td>Working on apparatus would be tight, but there is room to maintain small equipment. There is a shower facility for personnel, but a very limited dayroom/watch room area on the upper level.</td>
</tr>
<tr>
<td>Efficiency:</td>
<td>This facility is being used within its intended use presently, however there is not much wiggle room for increasing future use.</td>
</tr>
</tbody>
</table>

*Carlton Fire Station*
100 4th Street

_Built in 1987, this two-story, 4,800 square foot facility consists of four apparatus bays. This building is serving its intended function well, but is pretty cramped due to the large amount of apparatus housed._

Any specific problems with this facility can be classified into the following seven categories.
**Eska Fire Department**

- **Eska Fire Department**
  13 Thomson Rd.

  *Built in 1959 and remodeled in 1985 and 1999, this relatively modern facility consists of five apparatus bays. The station presents few concerns related to maintenance, public access, staff facilities, safety, and efficiency for a volunteer organization.*

  *Any specific problems with this facility can be classified into the following seven categories.*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design:</strong></td>
<td>This station meets the five basic design considerations: multipurpose, multi-user, response to the basic responsibilities of the facility, long life with a fifty year life span, and the ability to maintain flexibility during its life. This station design was intended only to serve volunteer firefighters. Otherwise, the facility is adequately designed for its functions.</td>
</tr>
<tr>
<td><strong>Construction:</strong></td>
<td>Block construction. HVAC system is reported to be adequate for winter heating of bays. Station is very clean and well maintained.</td>
</tr>
<tr>
<td><strong>Safety:</strong></td>
<td>Building is sprinklered in the meeting room and utility room. Automatic monitored fire alarm currently being installed. Flammable and combustible liquids are stored in open storage shelving. Portable extinguishers are located throughout the fire station. Overhead doors have an air impacted reversible system. Emergency generator is a portable plug in system.</td>
</tr>
<tr>
<td><strong>Environment:</strong></td>
<td>No exhaust removal system. The station has an underground fuel oil tank, STP-3 with anodes for corrosion protection.</td>
</tr>
<tr>
<td><strong>Code Compliance:</strong></td>
<td>Facility has been fully upgraded for ADA compliance.</td>
</tr>
<tr>
<td><strong>Staff Facilities:</strong></td>
<td>Adequate storage spaces. Kitchen and meeting room is efficient for training and fire department meetings. Plenty of room to maneuver around vehicles.</td>
</tr>
<tr>
<td><strong>Efficiency:</strong></td>
<td>Relatively efficient building. Good space utilization. Could use more office space for officers. No other concerns noted.</td>
</tr>
</tbody>
</table>
## Wrenshall Fire Department

![Wrenshall Fire Department](image)

**Wrenshall Fire Department**  
400 Alcohool Rd.

*Built in 1986, this one-story pole building, 5,200 square foot facility consists of three apparatus bays. The station presents few concerns related to maintenance, public access, staff facilities, safety, and efficiency for a volunteer organization.*

*Any specific problems with this facility can be classified into the following seven categories.*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design:</td>
<td>This station design was intended only to serve volunteer firefighters.</td>
</tr>
<tr>
<td>Construction:</td>
<td>Metal pole building design.</td>
</tr>
<tr>
<td>Safety:</td>
<td>No local or monitored alarm systems. Small, cramped apparatus bays present significant backing hazards. Outdated fire extinguishers. No onsite generator.</td>
</tr>
<tr>
<td>Environment:</td>
<td>No exhaust removal system. No underground storage tanks</td>
</tr>
<tr>
<td>Code Compliance:</td>
<td>Facility is ADA compliant.</td>
</tr>
<tr>
<td>Staff Facilities:</td>
<td>Adequate kitchen and meeting room, limited storage. Bays are extremely small, with little working area around trucks.</td>
</tr>
<tr>
<td>Efficiency:</td>
<td>Movement from staff areas to apparatus is hampered. Relatively efficient building. Could use more office space for officers.</td>
</tr>
</tbody>
</table>
## Apparatus

### Carlton Fire & Ambulance Department

**Engine 602**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Rosenbauer International WY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>1996</td>
</tr>
<tr>
<td>Mileage</td>
<td>25987</td>
</tr>
<tr>
<td>Hours</td>
<td>1627</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>850</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>6</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>5</td>
</tr>
</tbody>
</table>

### Equipment

- large diameter hose
- generator
- power rescue tool
- BLS medical gear
- automatic external defibrillator
- thermal imaging camera
- class B foam/eductor
- F-500 extinguishing agent injection system

### Condition

- **Surface Rust Present**: None
- **Structural Rust and Corrosion**: None
- **Apparent Fluid Leaks**: None
- **Overall Appearance and Condition Rating**: Good
### Ladder 610

<table>
<thead>
<tr>
<th>Does this unit also respond as a standard engine (quint use)?</th>
<th>also responds as a standard engine company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Emergency One, FL</td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>2010</td>
</tr>
<tr>
<td>Mileage</td>
<td>2677</td>
</tr>
<tr>
<td>Hours</td>
<td>149</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1500</td>
</tr>
<tr>
<td>Type of Elevating Aerial Device</td>
<td>Straight Ladder</td>
</tr>
<tr>
<td>Elevating Device Style</td>
<td>Rear Mount</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>460</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>6</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>5</td>
</tr>
</tbody>
</table>

**Equipment**
- large diameter hose
- generator
- rope rescue gear
- BLS medical gear
- F-500 extinguishing agent injection system

**Surface Rust**
- None

**Structural Rust and Corrosion**
- None

**Apparent Fluid Leaks**
- None

**Overall Appearance and Condition Rating**
- Excellent

### Tender 612

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>General Fire Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2002</td>
</tr>
<tr>
<td>Mileage</td>
<td>7692</td>
</tr>
<tr>
<td>Hours</td>
<td>578</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>3000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>2</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

**Equipment**
- portable dump tank
- Three- direction dump capability

**Surface Rust**
- None

**Structural Rust and Corrosion**
- None

**Apparent Fluid Leaks**
- None

**Overall Appearance and Condition Rating**
- Good
## Ambulance 601

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Life Line Emergency Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2008</td>
</tr>
<tr>
<td>Mileage</td>
<td>26890</td>
</tr>
<tr>
<td>Equipped for BLS</td>
<td></td>
</tr>
<tr>
<td>Crew Seating Capacity</td>
<td>2</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equipment</th>
<th>BLS medical gear Cold water suits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Rust</td>
<td>None</td>
</tr>
<tr>
<td>Structural Rust and Corrosion</td>
<td>None</td>
</tr>
<tr>
<td>Apparent Fluid Leaks</td>
<td>None</td>
</tr>
<tr>
<td>Overall Appearance and Condition Rating</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

## Ambulance 609

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Life Line Emergency Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2001</td>
</tr>
<tr>
<td>Mileage</td>
<td>64833</td>
</tr>
<tr>
<td>Equipped for BLS</td>
<td></td>
</tr>
<tr>
<td>Crew Seating Capacity</td>
<td>2</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equipment</th>
<th>BLS medical gear Cold water suits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Rust</td>
<td>Light</td>
</tr>
<tr>
<td>Structural Rust and Corrosion</td>
<td>None</td>
</tr>
<tr>
<td>Apparent Fluid Leaks</td>
<td>None</td>
</tr>
<tr>
<td>Overall Appearance and Condition Rating</td>
<td>Good</td>
</tr>
</tbody>
</table>
### Utility 616

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Self-assembled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>1994</td>
</tr>
<tr>
<td>Mileage</td>
<td>39755</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>100-250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>250</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>4</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

- **Equipment**: class A foam
- **Surface Rust**: Light
- **Structural Rust and Corrosion**: Light
- **Apparent Fluid Leaks**: None
- **Overall Appearance and Condition Rating**: Good

### Rescue 1

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>ATV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Polaris</td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>2008</td>
</tr>
<tr>
<td>Mileage</td>
<td>0</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>no pump</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>no tank</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>3</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>0</td>
</tr>
</tbody>
</table>

- **Equipment**: BLS medical gear
- **Surface Rust**: None
- **Structural Rust and Corrosion**: None
- **Apparent Fluid Leaks**: None
- **Overall Appearance and Condition Rating**: Good
### Esko Fire Department

#### Engine 707

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>General Fire Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>1985</td>
</tr>
<tr>
<td>Mileage</td>
<td>17762</td>
</tr>
<tr>
<td>Hours</td>
<td>1007</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>1000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>5</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>4</td>
</tr>
</tbody>
</table>

**Equipment**
- large diameter hose
- generator
- power rescue tool
- BLS medical gear
- class A foam injected
- class B foam/eductor

**Surface Rust Present**
- Light

**Structural Rust and Corrosion**
- Light

**Apparent Fluid Leaks**
- None

**Overall Appearance and Condition Rating**
- Good

#### Engine 711

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>General Fire Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2001</td>
</tr>
<tr>
<td>Mileage</td>
<td>10434</td>
</tr>
<tr>
<td>Hours</td>
<td>733</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>1000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>5</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>4</td>
</tr>
</tbody>
</table>

**Equipment**
- large diameter hose
- generator
- 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**
- Excellent
### Tanker 705

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Engle Tank Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2006</td>
</tr>
<tr>
<td>Mileage</td>
<td>2107</td>
</tr>
<tr>
<td>Hours</td>
<td>225</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>350</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>3000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>2</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

**Equipment**: portable dump tank

- **Surface Rust**: None
- **Structural Rust and Corrosion**: None
- **Apparent Fluid Leaks**: None
- **Overall Appearance and Condition Rating**: Excellent

### Tanker 703

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Engle Tank Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>1992</td>
</tr>
<tr>
<td>Mileage</td>
<td>6782</td>
</tr>
<tr>
<td>Hours</td>
<td>0</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>350</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>2000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>2</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>none</td>
</tr>
</tbody>
</table>

**Equipment**: portable dump tank

- **Surface Rust**: Light
- **Structural Rust and Corrosion**: None
- **Apparent Fluid Leaks**: None
- **Overall Appearance and Condition Rating**: Good
### Rescue 708

<table>
<thead>
<tr>
<th></th>
<th>General Rescue Class</th>
<th>Medium Rescue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Crysteel Equipment</td>
<td></td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>1986</td>
<td></td>
</tr>
<tr>
<td>Mileage</td>
<td>12508</td>
<td></td>
</tr>
<tr>
<td>Equipped for</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Equipment**

- Generator
- Rope rescue gear
- BLS medical gear
- Automatic external defibrillator
- Airbags

**Surface Rust**

Moderate

**Structural Rust and Corrosion**

Moderate

**Apparent Fluid Leaks**

None

**Overall Appearance and Condition Rating**

Fair

### Brush 706

<table>
<thead>
<tr>
<th></th>
<th>Wildland Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Conway Fire</td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>1990</td>
</tr>
<tr>
<td>Mileage</td>
<td>16469</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>100-250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>200</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>4</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>0</td>
</tr>
</tbody>
</table>

**Equipment**

- BLS medical gear
- Automatic external defibrillator

**Surface Rust**

Light

**Structural Rust and Corrosion**

Light

**Apparent Fluid Leaks**

None

**Overall Appearance and Condition Rating**

Fair
Utility 710

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>Crew Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Chevrolet</td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>1988</td>
</tr>
<tr>
<td>Mileage</td>
<td>96184</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>no pump</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>no tank</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>6</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>0</td>
</tr>
</tbody>
</table>

**Equipment**
- bladder bags

**Surface Rust**
- Light

**Structural Rust and Corrosion**
- Light

**Apparent Fluid Leaks**
- None

**Overall Appearance and Condition Rating**
- Fair

---

**Wrenshall Fire Department**

**Engine 653**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Emergency One FL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2009</td>
</tr>
<tr>
<td>Mileage</td>
<td>3657</td>
</tr>
<tr>
<td>Hours</td>
<td>177</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>1000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>5</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>7</td>
</tr>
</tbody>
</table>

**Equipment**
- large diameter hose
- generator
- BLS medical gear
- automatic external defibrillator
- thermal imaging camera
- F-500 flotsam injection system

**Surface Rust Present**
- None

**Structural Rust and Corrosion**
- None

**Apparent Fluid Leaks**
- None

**Overall Appearance and Condition Rating**
- Excellent
### Engine 650

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>General Fire Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>1993</td>
</tr>
<tr>
<td>Mileage</td>
<td>22000</td>
</tr>
<tr>
<td>Hours</td>
<td>0</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>1000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>5</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Equipment
- Large diameter hose
- Generator
- Power rescue tool
- Class B foam/eductor

#### Surface Rust Present
- Light

#### Structural Rust and Corrosion
- None

#### Apparent Fluid Leaks
- None

#### Overall Appearance and Condition Rating
- Good

### Tanker 651

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Central States Fire Apparatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of Manufacture</td>
<td>2007</td>
</tr>
<tr>
<td>Mileage</td>
<td>4667</td>
</tr>
<tr>
<td>Hours</td>
<td>236</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>1250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>3000</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>2</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Equipment
- Large diameter hose
- Portable dump tank
- Portable float pump

#### Surface Rust
- None

#### Structural Rust and Corrosion
- None

#### Apparent Fluid Leaks
- None

#### Overall Appearance and Condition Rating
- Excellent
### Unit 652

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>Wildland Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Minnesota DNR/Chevrolet</td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>1986</td>
</tr>
<tr>
<td>Mileage</td>
<td>22500</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>100-250</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>300</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>3</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>0</td>
</tr>
</tbody>
</table>

**Equipment**
- Skid pump
- 4WD bladder H2O bags

**Surface Rust**
- Light

**Structural Rust and Corrosion**
- Light

**Apparent Fluid Leaks**
- None

**Overall Appearance and Condition Rating**
- Fair

### Unit 654

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>Utility Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>Ford</td>
</tr>
<tr>
<td>Year of Manufacture</td>
<td>1993</td>
</tr>
<tr>
<td>Mileage</td>
<td>98700</td>
</tr>
<tr>
<td>Pumping Capacity</td>
<td>no pump</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>no tank</td>
</tr>
<tr>
<td>Seating Capacity</td>
<td>6</td>
</tr>
<tr>
<td>Number of SCBA</td>
<td>2</td>
</tr>
</tbody>
</table>

**Equipment**
- BLS medical gear
- Automatic external defibrillator

**Surface Rust**
- Moderate

**Structural Rust and Corrosion**
- Light

**Apparent Fluid Leaks**
- Light

**Overall Appearance and Condition Rating**
- Fair

### Capital Improvement Programs

Fire apparatus are typically very unique and expensive pieces of equipment, often very 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 life cycle decision is influenced by many factors:

- Actual hours of use of any specific piece of equipment can vary significantly in comparison to other similar apparatus even within the same fire department. Attempts to shuffle like apparatus among busy and slower fire stations to more evenly distribute hours of use have proven difficult. Frequent changes in apparatus create familiarity and training challenges. In addition, certain response areas may have equipment and tool requirements that are not in common with others.

- Actual hours of use, even if evenly distributed, do not necessarily equate to intensity of use. As an example, a pumper making mostly emergency medical responses will not age as rapidly as a pumper with a high volume of working fire incidents that require intense use of the pump or hydraulics. Likewise, road mileage can also be a poor indicator of deterioration and wear.

- Technology, which is increasingly a factor in fire equipment, becomes outdated even if the apparatus wear is not as significant. In some departments, crews at different fire stations deal with widely different technology on their pumpers based simply on age of the equipment. Like steam engines and modern electric locomotives, these differences can be significant, affecting everything from safety and lighting systems to automated digital pump pressure controls to injection foam generation.

NFPA 1901, Standard for Automotive Fire Apparatus is a nationally recognized industry standard for the design, maintenance, and operation of fire suppression apparatus. The issue of replacement cycles for various types of apparatus has been discussed in the committee that develops the standard for many years. In developing its latest edition, the committee calls for a life cycle of 12 years in front-line service and five years in reserve status for engines, and 15 years in front-line service and five years in reserve status for ladder trucks.

This does not mean that a fire engine cannot be effective as a front-line pumper beyond 12 years. Small fire departments with only a hundred or so calls per year often get up to 25 years of front line service.
from a pumper, though the technology is admittedly not up-to-date. Likewise, busy downtown city fire stations in some urban communities move their engines out of front-line status in as little as eight years. The reality is that it may be best to establish a life cycle that would be used in the development of replacement funding for various types of apparatus, while applying a different method for actually determining the replacement date in real life in an effort to achieve greater cost efficiency where possible.

A conceptual model that may be used when a replacement cycle is considered is the Economic Theory of Vehicle Replacement. The theory states that, as a vehicle ages, the cost of capital diminishes and its operating cost increases. The combination of these two costs produces a total cost curve. The model suggests the optimal time to replace any piece of apparatus is when the operating cost begins to exceed the capital costs. This optimal time may not be a fixed point but rather a range over time. The flat spot at the bottom of the total curve in the following figure represents the replacement window.

Adjusting the replacement cycle to this window allows for an apparatus to be replaced at optimal savings to the department. If the department does not routinely replace equipment in a timely manner, the overall reduction in replacement spending can result in a quick increase of maintenance and repair
expenditures. Officials who assume that deferring replacement purchases is a good tactic for balancing
the budget need to understand that two events may occur:

- Costs are transferred from the capital budget to the operating budget
- Such deferral may increase overall fleet costs

Regardless of its net effect on current apparatus costs, the deferral of replacement purchases
unquestionably increases future replacement spending needs.

In a recent White Paper produced by the Fire Apparatus Manufacturer’s Association, the authors
surveyed 1,200 fire chiefs from across the country in regard to apparatus condition and usage in an
attempt to identify optimum usage and replacement criteria. Of those who responded to the survey, 30
percent were career organizations and 82 percent were serving populations less than 50,000. Of the
total, 25 percent identified themselves as urban while 46 percent identified themselves as suburban and
48 percent identified themselves as rural. For purposes of comparison, the suburban statistics were
used here. The information in the figures below is an excerpt from that report, specifically focusing on
career departments.\(^5\)

<table>
<thead>
<tr>
<th>Figure 18: Average Apparatus per Department by Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparatus Type</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Pumper/Engine</td>
</tr>
<tr>
<td>Aerial</td>
</tr>
<tr>
<td>Rescue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure 19: Estimated Life Expectancy (Active Service)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparatus Type</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Pumper/Engine</td>
</tr>
<tr>
<td>Aerial</td>
</tr>
<tr>
<td>Rescue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure 20: Estimated Life Expectancy (Reserve Service)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparatus Type</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Pumper/Engine</td>
</tr>
<tr>
<td>Aerial</td>
</tr>
<tr>
<td>Rescue</td>
</tr>
</tbody>
</table>

The information provided is intended to illustrate national trends and is in no way presented here as a standard to equipment replacement. When considering replacement of capital equipment, organizations must bear in mind the typical vehicle usage, climate factors that may shorten life expectancy and overall maintenance issues that tend to increase as vehicles age. Fire service apparatus is expensive albeit vital to an effective and reliable emergency service delivery system.

Based on the information obtained in regards to current apparatus age and condition, ESCI developed a specific capital replacement plan that could be used to determine the amount of funding needed to be secured during each budget year in order to replace apparatus without acquiring debt. The table includes the vehicle identifier, purchase date, description, useful life, forecast replacement year, replacement cost, and reserve requirement. The plan is consolidated and includes apparatus from each of the three agencies involved in this study. Combining all the apparatus into a single replacement plan could increase efficiency and reduce redundancy across the region.
The above table indicates that if the region entered into a consolidated capital apparatus replacement plan, in order to bring the region up-to-date with the current fleet unchanged, the region would need $2,332,500 and would need to begin to set aside $187,500 annually to fully fund the capital replacement plan. However, the question must be raised as to what apparatus would be necessary in a truly cooperative system and how the required funding changes based on that model. This will be addressed within the cooperative efforts section of this document.
Staffing and Personnel Management

The effective utilization of personnel management components requires sufficient personnel resources including operational, administrative and support positions to adequately carry out the duties and responsibilities with which they are charged. This section evaluates the personnel resources in place within each of the three agencies involved in this project, and also makes recommendations to assist the departments in improving effectiveness and efficiency where necessary.

Administrative 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 programs 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.

Carlton Fire & Ambulance

Although Carlton Fire & Ambulance used to have a career Fire Chief, that is no longer the case. All administrative and support personnel are volunteer members of the department. The following figure illustrates the administrative and support functions for the department.
Statistically, the department maintains a ratio of 21.4 percent of administration and support staff to total personnel. This statistic alone can, however, be misleading since these positions also serve in operational roles and are also volunteer members of the department. No dedicated full-time staff are tasked with the administrative and support functions of the organization. Rather, the City of Carlton provides some administrative and support services in the form of legal, payroll, purchasing, etc.

**Esko Fire Department**

All administrative and support personnel are volunteer members of the department. The primary management team is comprised of the Fire Chief, one 1<sup>st</sup> Assistant Chief, and one 2<sup>nd</sup> Assistant Chief. The following figure illustrates the administrative and support functions for the department.

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Assistant Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Assistant Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>Secretary</td>
<td>1.0</td>
</tr>
<tr>
<td>Treasurer</td>
<td>1.0</td>
</tr>
<tr>
<td>Training Officer</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7.0</strong></td>
</tr>
</tbody>
</table>

Statistically, the department maintains a ratio of 12.5 percent of administration and support staff to total personnel. This statistic alone can, however, be misleading since these positions also serve in operational roles and are also volunteer members of the department. No dedicated full-time staff are tasked with the administrative and support functions of the organization. Thomson Township provides some administrative and support services through the township clerk/treasurer.

**Wrenshall Fire Department**

All administrative and support personnel are volunteer members of the department. The following figure illustrates the administrative and support functions for the department.

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Assistant Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Assistant Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>Secretary</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.5</strong></td>
</tr>
</tbody>
</table>

Statistically, the department maintains a ratio of 12.5 percent of administration and support staff to total personnel. This statistic alone can, however, be misleading since these positions also serve in operational roles and are also volunteer members of the department. No dedicated full-time staff are tasked with the administrative and support functions of the organization. Thomson Township provides some administrative and support services through the township clerk/treasurer.
Figure 26: Administrative and Support Staff - Wrenshall

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>1st Assistant Chief</td>
<td>1.0</td>
</tr>
<tr>
<td>2nd Assistant Chief</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.0</strong></td>
</tr>
</tbody>
</table>

Statistically, the department maintains a ratio of 15.3 percent of administration and support staff to total personnel. As noted previously, this statistic alone can, however, be misleading since many of these positions also serve in operational roles and are also volunteer members of the department. No dedicated full-time staff are tasked with the administrative and support functions of the organization but the City of Wrenshall provides some support services as necessary.

**Operational Staff**

The Center for Public Safety Excellence (CPSE) has a sample critical tasking analysis for the number of personnel required on scene for various levels of risk. This information is shown in the following chart.

**Figure 27: Critical Task Staffing Needs by Risk**

<table>
<thead>
<tr>
<th>Sample Critical Tasking Analysis</th>
<th>Firefighting Personnel Needed Based on Level of Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Tasks</strong></td>
<td><strong>Non-Structure Fire</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Low Risk</strong></td>
</tr>
<tr>
<td>Structure Maximum Risk</td>
<td>Structure Moderate Risk</td>
</tr>
<tr>
<td>Structure Significant Risk</td>
<td>Structure Low Risk</td>
</tr>
<tr>
<td>Structure Low Risk</td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Attack Line</td>
<td>4</td>
</tr>
<tr>
<td>Back-Up Line</td>
<td>4</td>
</tr>
<tr>
<td>Support for Hose Lines</td>
<td>4</td>
</tr>
<tr>
<td>Search and Rescue</td>
<td>4</td>
</tr>
<tr>
<td>Ventilation</td>
<td>4</td>
</tr>
<tr>
<td>Rapid Intervention Team (RIT)</td>
<td>4</td>
</tr>
<tr>
<td>Pump Operator</td>
<td>2</td>
</tr>
<tr>
<td>2nd Apparatus/Ladder Operator</td>
<td>1</td>
</tr>
<tr>
<td>Command</td>
<td>2</td>
</tr>
<tr>
<td>Safety</td>
<td>2</td>
</tr>
<tr>
<td>Salvage</td>
<td>4</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

| Structure Significant Risk       | **25**                                               |
| Structure Moderate Risk          | **18**                                               |
| Structure Low Risk               | **4**                                                |

There are some variances between the sample provided by CPSE and BFD as to what is believed to be an appropriate number of personnel for each specific incident type. It should be noted, however, that each specific incident is different and requires varying degrees of involvement and varying numbers of personnel dependent upon the situation.
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.

**Carlton Fire & Ambulance**

Carlton Fire & Ambulance uses volunteer and scheduled part-time staffing to carry out its primary emergency services functions. The following figure shows the distribution of emergency personnel by rank.

### Figure 28: Emergency Services Personnel - Carlton

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captain</td>
<td>3</td>
</tr>
<tr>
<td>Paid-on-Call EMT</td>
<td>30</td>
</tr>
<tr>
<td>Firefighter/EMT</td>
<td>22</td>
</tr>
<tr>
<td>Fire Equipment Operator</td>
<td>5</td>
</tr>
<tr>
<td>Rescue Operations Level</td>
<td>6</td>
</tr>
<tr>
<td>Advanced Fire/Arson Investigator</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>67</strong></td>
</tr>
</tbody>
</table>

The department schedules part-time EMS personnel to staff primary response units 24 hours per day to provide rapid response to incidents at the Basic Life Support level. Additional personnel are dispatched via voice pager and respond to the station to staff other required apparatus.

**Esko Fire Department**

Esko Fire Department uses strictly volunteers to carry out its primary emergency services functions. The following figure shows the distribution of emergency personnel by rank.

### Figure 29: Emergency Services Personnel - Esko

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captain</td>
<td>3</td>
</tr>
<tr>
<td>EMT/Firefighter</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

Personnel are dispatched via voice pager for all emergency incidents and respond to the station to staff the appropriate apparatus.
**Wrenshall Fire Department**

Wrenshall Fire Department uses strictly volunteers to carry out its primary emergency services functions. The following figure shows the distribution of emergency personnel by rank.

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captain</td>
<td>4</td>
</tr>
<tr>
<td>EMT/Firefighter</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
</tr>
</tbody>
</table>

Personnel are dispatched via voice pager for all emergency incidents and respond to the station to staff the appropriate apparatus.

**Incident 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, particularly those involved in the delivery of emergency medical services. Therefore, the need for a ready group of personnel has increased.

Nationally, while the number of non-fire incidents has increased, the number of volunteers available during daytime hours is declining. While it was once common for departments to rely on employees from local businesses to respond during emergencies, the practice is much less prevalent now. Today, people frequently work more than one job, family responsibilities and long commutes only compound the difficulties for volunteers, lessening the time available for training and emergency duty.

Unlike fire incidents that are typically entered into a National Fire Incident Reporting System (NFIRS) 5.0, compliant records management system and emergency medical services records (patient care reports) are much less likely to be entered into an electronic recordkeeping system. Similarly, NFIRS records track the number of personnel that are involved in a particular incident, whereas EMS incidents typically use only two to three personnel per response. The following figure illustrates how well each department is able to produce personnel by hour of day.
As can be seen in the figure above, Esko is the least likely to be able to produce sufficient staff while Carlton and Wrenshall have significantly higher average staffing levels. Although EFD’s available personnel average is stable but low, Carlton and Wrenshall are able to produce more personnel during normal business hours, from 8:00 a.m. to 8:00 p.m., in contrast to what would normally be expected in a volunteer system, which relies on personnel to leave work during daytime hours to respond to incidents. The graph also indicates that a majority of service demand is occurring during daylight hours, which is advantageous to both Carlton and Wrenshall. The overall average of all three agencies has calculated to be 3.37 personnel across the 24 hours of service demand coverage, well below the CSPE recommended levels for a moderate risk structure fire but sufficient to handle most medical incidents.

Deployment of physical resources is crucial to any emergency services function, but without sufficient quality personnel, delivery of those services cannot occur. ESCI also presents other components of an overall personnel management system that are every bit as critical to organizational success as availability of personnel. Elements to be evaluated include: Human resources policies and handbooks; application, recruitment and retention; and testing, measurement, and promotion processes.

**Human Resources Policies and Handbooks**

Successful organizations are typically governed by a set of clear policies that guide toward the agency’s vision and provide a foundation for a productive organizational culture. Effective policies establish
behavioral standards and limits without discouraging creativity and self-motivation. Policy and procedure manuals should be reviewed and revised periodically.

Rules, regulations, and codes are the policy-level direction provided by a governing body, such as a city council. Administrative rules are the responsibility of the organization’s highest-level administrators; in this case, the deputy city manager and the fire chief. They provide instruction and direction for compliance with the organization’s policies and provide guidance and instruction to all employees.

**Carlton Fire & Ambulance**

Carlton Fire & Ambulance operates from one set of personnel policies plus separate job descriptions and action plans for each officer’s position as well as paid-on-call staff. Personnel policies contained with the joint Carlton Fire & Ambulance/City of Carlton Personnel Policy, have been reviewed by the City Attorney and adopted by the Carlton City Council. The policy manual covers topics including, but not limited to, hiring procedures, compensation, records, discipline, grievances, sexual harassment, and alcohol and drug policies. The manual is well laid out and is updated as necessary.

Officer and paid-on-call position descriptions are also maintained by the department. Each document contains specific information regarding minimum requirements, duties and responsibilities, and supervisory roles and responsibilities. No specific job descriptions exist for volunteer personnel but consideration should be given to creating those documents to supplement existing position descriptions.

**Esko Fire Department**

EFD maintains a single policy manual referred to as Standard Operating Procedures and Standard Operating Guidelines. The manual is a mix of personnel and operational policies and procedures. The manual does contain policies regarding disciplinary actions, sexual harassment and other personnel related components, but the operational guidelines are scattered throughout the document.

The only job descriptions maintained by the department are found in a separate document entitled ‘Responsibilities.’ The only personnel formally identified are the Chief and Safety Officer but a description and list of responsibilities of the department’s safety committee and general membership is also included.
Wrenshall Fire Department

WFD operates from one set of Standard Operating Guidelines that contains a combination of both operational and administrative policies and procedures. The manual contains policies pertaining to alcohol and drug use, disciplinary policies, physical and medical requirements and rules of conduct. The manual is segregated with personnel policies occurring first, followed by operational guidelines.

Although the SOG manual contains a policy regarding incident command and what each position’s responsibilities are on emergency scenes, no formal job descriptions exist for department officers or general members.

Application, Recruitment 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 compensation and benefits, as well as the personal satisfaction, of a career in the fire service, whether career or volunteer. Existing employees can be encouraged to participate in any such campaign and professional assistance from a human resource department is advisable.

Carlton Fire & Ambulance

For new members, Carlton Fire & Ambulance requires that personnel live within six minutes of the station but does not apply this requirement to paid part-time personnel since they are scheduled rather
than respond based on incident specific dispatches. Services provided have been discussed previously in this document and personnel are allowed to join the organization as either medical or suppression personnel or both depending on their area of interest.

The department does not offer pre-employment physical agility tests or minimum aptitude testing prior to employment/membership but does require a pre-employment medical examination provided by a department contracted physician.

**Esko Fire Department**
The department has implemented a program to test the physical agility of all new personnel prior to granting membership but does not conduct any type of aptitude testing. Medical examinations are required, but are at the prospective member’s expense and do not follow specific criteria such as NFPA 1582 recommendations.

**Wrenshall Fire Department**
WFD requires that new or prospective members live within 10 minutes of the fire station in order to ensure a quick response to emergency incidents. Routine responsibilities are assigned based on specific title within the organization and special duties are assigned based on position. Membership involvement is ensured through the organization of several committees including membership and equipment committees.

WFD does conduct physical agility testing of prospective members but does not require minimal aptitude testing. Pre-employment medical examinations are required and are conducted by a department-contracted physician.

**Testing, Measurement and Promotional Processes**
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.

**Carlton Fire & Ambulance**
Carlton Fire & Ambulance does not conduct pre-promotional testing. Promotions are based on a vote of the membership.

The department does conduct periodic medical examinations of all personnel at the department’s expense. For those 20 to 29 years of age, examinations are conducted every three years. For those 30 to 39 years of age, examinations are conducted every two years and for those 40 years of age and older, examinations are conducted annually.

**Esko Fire Department**
EFD does not routinely conduct member competency testing to ensure continued ability to perform essential functions other than through regular observation during training drills. No periodic performance evaluations are conducted nor is promotional testing performed, rather, promotions are based on a vote by the general membership or appointment by the fire chief. The department does offer medical examinations every two years to department members.

**Wrenshall Fire Department**
WFD does not have a program in place to test current members of competency in essential skills and does not conduct periodic performance evaluations. No promotional testing is conducted as promotions are based on nominations received from the membership. No medical examinations are required or conducted voluntarily except for annual respirator fit-testing as required by OSHA. In addition annual apparatus driver operator testing is completed for all members qualified to drive apparatus.
Resource Deployment and Service Delivery

The delivery of fire suppression 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 of the study evaluates these various components and provides observations of the elements that make up the delivery of the most critical core services provided by each of the study fire agencies.

Demand

Each agency provided incident data records from calls occurring between January 1, 2009, and December 31, 2010. The following figure illustrates the total workload for each agency during the data period evaluated.

![Figure 32: Overall Workload](image)

The incident types noted above are segregated further in the following figure illustrating how workload is distributed across the various incident types. The following figure details the volume of each type of incident recorded by each agency.
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 the region based on various measures of time. ESCI began by breaking down yearly workload into monthly increments.
With the exception of the January time period, Carlton’s overall workload has been relatively stable throughout the data period analyzed. Likewise, Wrenshall’s service demand has been moderately variable but within the expected range. Esko’s service demand, however, has proven to be highly variable with a lull during the late winter months and peaks in both early and late summer. In further analysis, workload is examined by day of the week.

![Figure 35: Workload by Day of Week](image)

As shown in the figure above, workload by day of week does not show any irregularities and is relatively stable across all time periods. 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.
The workload of Wrenshall FD is such that no specific trend can be determined. With Carlton and Esko, however, service demand activity follows national trends beginning to increase between 6:00 a.m. and 7:00 a.m., peaking around mid-day, and then declining into the evening, with the lowest points of activity during the overnight hours. This corresponds to typical human activity and is expected in organizations participating in emergency medical services activities and serving populations in urban and/or suburban environments.

**Distribution**

Carlton, Esko, and Wrenshall Fire Departments operate from three facilities distributed throughout the individual response areas. The following figure illustrates how primary response facilities are distributed throughout the area as well as each station’s five-mile coverage area.
Figure 37: General Station Distribution with Five-Mile Coverage
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 figure indicates the overall service demand within the departments’ primary response areas that fall within various periods of travel time from the fire stations. It is important to note that less than 50 percent of the total incidents could be plotted on the map, due to addressing or location inconsistencies between the incident reports and the available street data for the area. This adversely affects the visual analysis since, for instance, only eleven of Wrenshall’s incidents were able to be plotted on the map.
Based on the travel models and using only those incidents that were able to be plotted to the map, the three departments can reach 61.0 percent of the primary service demand within four minutes of travel.
Again, however, the statistical validity of this analysis is questionable, at best, given the low percentage of incident plotting that could be done accurately. With a continued cooperative response from the three departments, incident coverage is likely to be much higher than if the departments were to respond singularly to incidents within their primary response area.

In addition to the three stations involved in this study, there are other fire stations in the immediate region that can provide mutual or automatic aid and bring additional apparatus and manpower to bear on incidents in these jurisdictions. The Cloquet Area Fire District has stations in the cities of Cloquet and Scanlon and in Perch Lake Township.

**Figure 39: Additional Mutual Aid Stations**

---

**Incident Response Performance**

Total response time is the amount of time a resident or business waited until an apparatus arrived at the scene of emergency beginning when they first called the designated emergency number, often 9-1-1. It is made up of several elements which were discussed earlier. As is common for most fire departments, none of the study agencies have direct influence on call processing time; therefore, the departments measure response time from the time of dispatch to the arrival on scene. The following figure illustrates...
the average, 90\textsuperscript{th} percentile and 80\textsuperscript{th} percentile response performance to emergency incidents for each agency over the two-year data period analyzed.

**Figure 40: Incident Response Performance Comparison**

<table>
<thead>
<tr>
<th></th>
<th>Carlton</th>
<th>Esko</th>
<th>Wrenshall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>07:34</td>
<td>05:49</td>
<td>11:49</td>
</tr>
<tr>
<td>90th</td>
<td>13:00</td>
<td>10:00</td>
<td>20:54</td>
</tr>
<tr>
<td>80th</td>
<td>10:00</td>
<td>08:00</td>
<td>18:24</td>
</tr>
</tbody>
</table>

Region-wide, the average response time to emergency incidents calculated to be 6:45, with a 90\textsuperscript{th} percentile response performance of 12:00 and 9:00 when measured at the 80\textsuperscript{th} percentile. NFPA 1720 recommends that volunteer and combination departments establish response performance standards that achieve response times of 9:00 at the 90\textsuperscript{th} percentile in urban areas, 10:00 at the 80\textsuperscript{th} percentile in suburban areas, and 14:00 at the 80\textsuperscript{th} percentile is rural areas. Although the study region was not evaluated on the basis of population density to determine those areas that would be classified as urban, suburban or rural, it would appear that a joint, concerted response by the three study agencies would achieve response performance that exceeds the NFPA recommendations.

The following figure analyzes how well the departments are performing based on response by hour of day measured at the 80\textsuperscript{th} percentile.
When measured at the 80\textsuperscript{th} percentile, the overall response performance by the three departments varies by hour of day with longer responses recorded during the overnight hours. This is typical in volunteer and combination emergency services organizations as personnel must be awakened before preparing to respond to incidents. Even so, the overall performance of the study region exceeds NFPA recommendations by 54 seconds.
Support Programs

Providing safe and quality fire and emergency services requires a well-trained workforce. Training and education of department personnel are critical functions for Carlton, Esko and Wrenshall. Without quality, comprehensive training programs, emergency outcomes are compromised and departmental personnel are at risk. “One of the most important jobs in any department is the thorough training of personnel. The personnel have the right to demand good training and the department has the obligation to provide it.”

Training Programs

Because the fire service is constantly changing, training cannot be limited to new recruits only. Seasoned firefighters benefit from training by learning new methods and procedures. In addition to training firefighters in the skills and knowledge needed in today’s field of firefighting, rescue, EMS, and specialty teams, training officers and instructors need to establish training for more advanced procedures and new technical subjects. 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.

The International Fire Service Training Association (IFSTA) states that regardless of the particular system used, an effective training program will include:

- The continuous training of all levels of personnel in the department
- A master outline or plan
- A system for evaluating the scope, depth and effectiveness of the program
- Revising the program, as required, to include advances in equipment, products and techniques

This report section will evaluate the training program of each agency involved in this study and provide general recommendations to improve each program where necessary.

Carlton Fire & Ambulance

Carlton Fire & Ambulance requires that all new suppression personnel obtain Firefighter I and II certification within four years of being granted membership as well as Emergency Medical Technician certification within two years of membership. During the period prior to obtaining these credentials,

---

however, there is no minimum set of training objectives required before personnel are allowed to respond to incident scenes. No formal officer training is consistently provided and no formal skills evaluation is provided for suppression personnel. EMT personnel are required to pass skills evaluations periodically as required by the state.

The department has a dedicated Training Officer to oversee the administration of the training program. Four personnel are certified EMS instructors but the department has no certified fire instructors. Rather, the general officers conduct all training sessions using formal lesson plans routinely.

The training plan is scheduled and posted six months in advance to ensure that all personnel are sufficiently made aware of upcoming training opportunities. Departmental trainings are held based on the following schedule.

- 1st Tuesday of each month – Medical training
- 2nd and 3rd Tuesday of each month – Specific fire training
- 4th Tuesday of each month – Business meeting
- 1st Wednesday of each month – Technical rescue training
- 2nd, 3rd, and 4th Wednesday of each month – Fire equipment operator and apparatus training

During calendar year 2010, the department offered 260.5 hours of training including 75.25 hours of medical training; 84 hours of fire training; 56.25 hours of apparatus operator training; and 45 hours of technical rescue training. Of the courses offered, the member accumulated 1,726 hours for an average of 75 hours per member based on training records supplied to ESCI for review.

**Esko Fire Department**

Esko Fire Department requires that new personnel obtain Firefighter I and First Responder certification within two years of membership. Although no minimum requirements have been established for response to fire suppression incidents, members must have gained First Responder certification prior to responding to medical incidents. If personnel do respond to suppression incidents before reaching the Firefighter I certification, their helmets are affixed with a red triangle to identify them as exterior support personnel only. There is no formal officer training provided within the department and no formal skills evaluation is provided for suppression personnel. First Responder personnel are required to pass skills evaluations periodically as required by the state.
The department has a dedicated Training Coordinator to oversee the administration of the training program. The department has a total of three certified fire instructors, including the Fire Chief. Lesson plans are used for all training sessions and a safety officer is appointed for all manipulative sessions.

The training plan follows a six month schedule and the program is funded through reimbursement from the state fire marshal’s office. Department trainings are held each Monday night with the first Monday of each month consisting of the departmental business meeting. No training data was provided by EFD for review or evaluation.

**Wrenshall Fire Department**

WFD requires that new member obtain Firefighter I certification within one year of membership and requires that personnel attend 10 hours of safety training prior to being allowed to respond to incident scenes. No formal officer training is provided and no formal skills evaluation is provided for personnel. Those personnel that carry First Responder certification must pass skills evaluations periodically as required by the state.

The 1st Assistant Chief oversees the training program as well as serving as the department’s safety officer but no certified instructors are currently members of the department. Lesson plans are not routinely used for regular training sessions and no formal training schedule is maintained. The 1st Monday of each month serves as the departments regular business meeting with drills and training offered on Tuesday nights.

During calendar year 2010, WFD personnel accumulated 1,041 hours of training for an average of 40 hours per member.

**Life Safety Services**

When evaluating fire prevention programs, it is important to review the legal obligations to which fire departments are held accountable. Those responsibilities may be specified in various sections of Municipal Codes, the laws of each state, *National Fire Protection Association Codes*, *Uniform Building Codes*, *National Fire Codes*, and *Uniform Electrical and Plumbing Codes*. The laws, ordinances, and codes establish the authority and responsibility of the fire department in all types of situations and circumstances. The references usually provide for the promulgation of regulations governing hazardous
conditions, fire, and explosion. Fire prevention activities can include the broad classification of the following:

Fire Code Enforcement

- Proposed construction and plan review
- New construction inspections
- Existing structure/occupancy inspections
- Special risk inspections
- Internal protection systems design review
- Storage and handling of hazardous materials

Fire Safety Education

- Public education
- Specialized education
- Juvenile fire setter counseling
- Public information

Fire Investigation

- Fire cause and origin determination
- Fire death investigation
- Arson investigation and prosecution

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 International Association of Fire Chiefs has defined proactive fire service as, “…embracing new, proven technology and built-in protection, like automatic fire sprinkler and early detection systems, combined with aggressive code enforcement and strong public education programs.”

While response will always be a key fire service function, there should also be a focus on prevention of emergencies; the emphasis on prevention is fast growing. Preventing fires and injury is the most effective means of preventing harm. In the future, public education and prevention will be of equal importance to fire suppression in the fire service’s role to the community.
Carlton FD – Wrenshall FD – Esko FD
Feasibility Study for Shared or Cooperative Fire and Emergency Services

**Carlton Fire & Ambulance**
Currently, code enforcement is not performed by the organization. The department is not involved in new construction. The fire department is not required to sign off before a certification of occupancy is issued. A key-box entry system is in place within six buildings in the area. The organization does not perform any business inspections. The volunteers do minimal public education at the local schools. Fire origin and cause is conducted by the fire chief and advanced fire/arson investigation training is conducted in-house. Final determination of arson is made by the State Fire Marshal’s Office.

**Esko Fire Department**
EFD provides station tours and public fire education programs during Fire Prevention Week to local schools. The department also participates with the local Lions Club during their summer *Esko Fun Day*.

**Wrenshall Fire Department**
Wrenshall Fire Department does not participate in code administration or enforcement. While the department’s governing documents address a fire marshal for the organization, the City of Wrenshall handles its code responsibilities through a part-time building inspector. This individual is currently the building official for the city of Cloquet.

Typically, the State Fire Marshal’s Office is notified of suspicious incidents.

WFD presents the *Little Wrens* fire safety program annually during Fire Prevention Week for pre-school children. The *Is Your House Safe* community, adult education program is sponsored by the department although considered unsuccessful.
Section II – Opportunities for Cooperative Efforts

The previous sections surveyed the fire protection and emergency service systems of the three study agencies. ESCI addressed each agency individually, making observations and recommendations based on an analysis of service, personnel, and equipment. This section will investigate the potential for emergency service improvements in the area based on the possible unification of the three agencies with one or more fire protection and emergency medical services components.

General Partnering Strategies

Four basic strategies are available, beginning with a do-nothing approach and ending with complete unification of the fire departments 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 (council) with the most organizational control because under this strategy the agencies continue to make fire protection decisions considering only unilateral issues. The strategy represents a perpetuation of the status quo. 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 agreement (IGA) for the purpose of cost and service efficiency. 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 unit 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.

In the course of its analysis, ESCI identified and discussed a number of possible regional partnerships. Each of the regional recommendations represents an opportunity for functional unification. Such programs usually carry the advantage of being low-cost and low-risk improvement strategies. Often, the programs serve as a foundation on which agencies build the experience and trust necessary to implement more complete unification strategies. ESCI has listed the more common types of partnering strategies below with a short explanation of each.

<table>
<thead>
<tr>
<th>Program</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative and Support Services</td>
<td>Seamless administrative and support services provided area-wide through an Intergovernmental Agreement. Operational functions of the fire departments remain separate. Often used as an interim program before implementation of operational and legal unification.</td>
</tr>
<tr>
<td>Operating Standards</td>
<td>Common operational standards developed and adopted across the area. Promotes the efficiency of mutual/automatic aid operations</td>
</tr>
<tr>
<td>Closest Unit Response</td>
<td>Uniform response of the closest emergency apparatus regardless of jurisdiction. Provides quickest aid to citizens.</td>
</tr>
<tr>
<td>Duty Officer</td>
<td>Responsibility for response to structural and incidents requiring multiple units with supervision shared by chief officers on a rotating schedule. Increases efficiencies with current personnel staffing.</td>
</tr>
<tr>
<td>Firefighter Training</td>
<td>Regional training program for career personnel. Provides for consistent training of personnel to the fire departments.</td>
</tr>
<tr>
<td>Fire Prevention</td>
<td>A region wide (or larger area) fire prevention program pools all existing resources. Provides uniform message across a wider area.</td>
</tr>
<tr>
<td>Specifications and Purchasing</td>
<td>Assures fire apparatus and equipment interoperability and compatibility between the fire departments. Increases fireground effectiveness and efficiencies.</td>
</tr>
<tr>
<td>Joint Fire Stations</td>
<td>Allows for the placement of fire stations in locations based on service demand and risk. Spreads the cost of capital construction projects across a greater base and provides for improved emergency response efficiencies.</td>
</tr>
<tr>
<td>Specialty Apparatus and Equipment</td>
<td>Broadens the expense of apparatus and equipment with high cost and lower frequency use across multiple fire departments. Will lower acquisition and operational costs to the communities.</td>
</tr>
</tbody>
</table>

**Operational Consolidation**

This strategy joins two or more entities, in their entirety, through the execution of an IGA. The resulting fire department features a single organizational structure and chain of command. Depending on the form of the agreement(s) establishing the organization, employees may remain with the original
The unique feature of an operational consolidation is that existing governing boards are preserved. The management **team** of an operational unified program reports to each political body, usually through a joint oversight board established expressly for the purpose. The political entities prepare and adopt separate budgets and retain responsibility for overall policy and taxation. The unified department is funded by ILA, usually through the melding of individual budgets or by the apportionment of cost in accordance with a predetermined formula.

Like program consolidations, operational consolidations are sometimes considered as an intermediate step leading to a full merger. The main advantage of the strategy offers governing boards the ability to negotiate and monitor desirable outcomes for the management of a particular service. This gives a higher level of comfort in going forward with the decision to unify fire service across a geographical region.

A disadvantage of operational consolidation is inherent administrative inflexibility due to the political complexity of the arrangement. An administrative team, who in this case must answer to three political bodies, might become bogged down by critical issues and limited in an ability to respond to change due to contractual requirements. Consequently, conflicting policy directives may sometimes be troublesome in an operationally consolidated agency.

Much depends on the founding political relationship, the contractual agreement, and the skills of management to assure the success of a long-term functional consolidation. Even so, many IGAs are in effect throughout the nation, successfully centralizing the administrative, support, and operational services of fire departments.

**Legal Unification**

Under certain circumstances in law, fire departments can join into a single entity. This formal approach unites not only programs but also fire department 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 agency. 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 public agencies with the concurrent formation of a single new entity (and board) in place of the former. The key feature of both forms of legal unification (merger and inclusion) is a single tax rate applied to the whole of the resulting jurisdiction. Both processes typically require an affirmative vote of the residents.

**Analysis of Partnering Strategies**

ESCI usually makes no distinction between unification, consolidation, or merger, tending to use each term interchangeably. The reader should note that when referring to the union of programs or agencies, the operative words are *functional* and *legal*.

Governing boards should pursue the process of joining fire departments only after concluding that unification is cost-effective and is likely to provide better and/or more efficient service to the public. Each agency’s legal counsel should research the particular statutory steps necessary to implement a particular unification strategy. The different processes are not commonly difficult to accomplish, but because the transfer of public assets and liabilities may be involved, the procedure itself can be relatively precise. It is important, therefore, that the agencies have the benefit of competent legal advice throughout the process.

The decision to choose one unification strategy over another is a matter of local policy. Most often, officials choose a preferred course for analytical reasons; however, in certain cases politics or law may rule. For example, many states provide no basis in law for the legal unification of the fire departments of two cities, unless the jurisdictions act to merge the entire city governments. The common recourse in that case is to join the fire departments in accordance with an intergovernmental agreement or contract law.

Most states actively support cooperation between governments as a matter of policy in the interest of furthering the economy and efficiencies of local government. Generally, functional and operational
strategies are always available as options, whereas the legal unification of fire departments is dependent on circumstance.
Feasible Options for Shared Fire Protection Services

Considering the foregoing, it is safe to say that the emergency service agencies may choose to execute one or more strategies in order to put a regional fire protection program into operation. This report examines organizational options allowing departments to maintain their individual identities while benefiting from a certain level of joint services. ESCI intends for each option to serve as a tool for policy makers to compare present conditions with the financial and operational outcome of the options. Each of the following options for shared services is discussed in detail including level of cooperation, timeline for completion, section affected, affected stakeholders, options objectives, option summary, discussion, guidance and fiscal considerations.

- Shared Specialty Teams and Equipment
- Purchase Uniform Emergency Apparatus
- Develop Uniform Pre-Incident Plans
- Develop Standard Operating Guidelines
- Create a Unified Occupational Medicine Program
- Develop and Adopt Common Training Standards
- Develop a Regional Annual Training Plan
- Implement a Computerized Training Records Management System
A – Shared Specialty Teams and Equipment

Level of Cooperation
- Functional

Timeline for Completion
- Mid-Term

Section
- Operations

Affected Stakeholders
- All Agencies

Objective
- Provide specialty teams across 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 in roles outside the level of training considered as normal for fire suppression and emergency medical 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/heavy rescue
- Confined space/trench rescue
- Swift water and/or dive rescue
- Rehabilitation
- Ladder company

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

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

For example, under a shared specialty team strategy a decision could be made to train and certify all firefighting personnel to hazardous materials operations level and to subsequently contract for technician level services from a shared source as is currently the case. Similarly, a decision could be made to provide aerial apparatus through a regional partnership.

Guidance

- Determine the need for specialized teams for the entire region.
- Establish a single set of standard operating guidelines.

Fiscal Considerations

The elimination of duplicated effort in equipping, training, and staffing may reduce overall program costs.
B – Purchase Uniform Emergency Apparatus

*Level of Cooperation*
- Functional

*Timeline for Completion*
- Long Term

*Section*
- Operations

*Affected Stakeholders*
- All Agencies

*Objective*
- Create a single set of emergency apparatus specifications.
- Provide single-source uniform emergency apparatus for each agency.

*Summary*
The three study 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 and operational 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 three departments is diverse. Fire apparatus are categorized by function, including pumpers, aerial devices, water tenders, 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*.⁸

**Guidance**

- Review available data on current apparatus including: age, mileage, operating hours, maintenance costs, cumulative down time, and annual test results.
- 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*.⁹
- Contract with central facilities for maintenance and repairs for all emergency apparatus.
- Create Standard Operating Guidelines for the operation, maintenance, and recordkeeping of apparatus.
- Outfit reserve apparatus with the same compliment 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.

---

C – 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.

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 officers. 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
D – 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 (SOGs) are used at the operations level of the fire departments. They are analogous to a playbook, providing direction yet allowing for individualized company officer adjustments to situations. Currently, each fire department is responsible for developing a unique set of standard operating guidelines for their organization.

Discussion
Coordinated development of SOGs will improve on-scene safety, efficiency, and effectiveness of personnel, particularly when personnel from multiple departments are operating on the same incident scene. 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 SOGs in electronic format for ease of updating
- Give initial and recurring education to personnel in their use
- Provide for continual use of the SOGs 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 officers
Fiscal Considerations

- The elimination of duplicated staff effort in the creation and updating of SOGs will reduce soft costs
- Instructional time optimized during multi-agency training sessions by excluding time devoted to adapting to differing procedures
**E – Create a Unified Occupational Medicine Program**

**Level of Cooperation**
- Functional

**Timeline for Completion**
- Mid-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*, the 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 a program part in-house while contracting for the remaining services.

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 policy for occupational safety and health.
- Develop an RFP for soliciting vendors to supply occupational safety and health services.
- Conduct baseline testing for firefighters.

**Fiscal Considerations**
- Occupational medicine programs are often menu driven. Items selected for inclusion in the program determines 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.
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 and to 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

The adoption of common training standards would 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 emergency scene safety.

**Guidance**

- Establish a work group including at least one training representative from each fire department.
  - Identify mandated training standards affecting all departments
  - Assess all other standards used by the departments, including rationale for their use
  - Consider any unique local issues
  - Develop a process for the adoption of common training standards
  - Adopt training standards to which all fire 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 – Develop a Regional Annual 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.”

Although each department in this study utilizes some type of formalized training plan, either written or assumed, 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. Rational for why certain topics were chosen (or not chosen) is also included in the plan.

---

Discussion
Planning is essential to a successful training division, functioning much like the rudder of a ship. 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.”

Determining the training level 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 that 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
  - Regular use of training facilities by all departments

---

Carlton FD – Wrenshall FD – Esko FD
Feasibility Study for Shared or Cooperative Fire and Emergency Services

- Regular single agency manipulative single and multi-company drills
- Regular multi-agency, multi-company manipulative drills

- 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
H – Implement a Computerized Training Records Management System

Level of Cooperation
- Functional

Timeline for Completion
- Mid-Term

Section
- Training

Affected Stakeholders
- All Agencies

Objective
- Provide a fully integrated comprehensive training records management system (RMS).

Summary
Computerized RMS provides for ease of data entry, retention, and accessibility. RMS are designed to provide comprehensive information regarding an individual, company, station, shift, and department training status. All RMS are designed to query records and generate a variety of user-defined reports.

Each of the study fire departments unilaterally selected RMS for their departments, resulting in a diversity of products. Although each department attempts to make good use of their system’s capabilities, no agency takes full advantage of RMS capabilities. NFPA 1401, Recommended Practice for Fire Service Training Reports and Records, provides standards for record keeping systems.

Discussion
An assortment of factors including a lack of support, the time to become proficient with the software, and software limitations frustrate and prevent users from fully using RMS. The use of a standard RMS in the region would rectify the ineffectiveness that presently exists.

With a regional RMS, one administrative staff person would work collectively with all users to instruct, maintain, and troubleshoot the system. The ability to use the system to its maximum potential and to retain and generate meaningful reports is improved. An environment is created for system users to share knowledge, experience, and assist one another in problem resolution.
Future enterprises may benefit from a single RMS including recruit training, career development, in-service, officer, and specialized training programs. An RMS for training will aid department officers in budget planning, training delivery, and with resource and risk management.

**Guidance**

- Establish a work group including at least one representative from each department.
  - Identify system requirements and needs of involved departments.
  - Evaluate the RMS used by each department, including justification for their use.
  - Evaluate other available RMS systems.
  - Select an RMS that most adequately satisfies mutual requirements, needs, and budget.
- Each department should share in the cost of an individual to administer and manage the training RMS. Including:
  - Training RMS management.
  - Oversight of hardware and software installation.
  - Providing for the initial and ongoing RMS training for end users.

- Determine server requirements for training RMS.
- Use existing or establish an Intranet or Internet network.
- Provide for RMS maintenance and troubleshooting services.
- Acquire technical assistance for RMS programming.
- Provide for a periodic appraisal of the RMS.

**Fiscal Considerations**

- A reduction in duplicated effort (reduces soft costs) in acquiring, learning, and maintaining, individual systems
- Economies of scale in the collective purchase, use, and maintenance of a single RMS
- Cost to purchase, administer, maintain, or modify existing network
- Personnel costs associated with RMS committee, training, and implementation
Resource Deployment Options

As with many volunteer-based response systems, the fire stations in Carlton, Esko, and Wrenshall were initially located on the basis of population density. While this can frequently result in the station being located in an area of high service demand, there is another, perhaps more critical, reason for this location. In rural areas using volunteer on-call responders, locating a station in areas of higher population density can ensure that an adequate number of volunteers can be recruited close enough to the fire station to ensure a reasonably consistent turnout of apparatus when a call is dispatched. Locating a station in a desolate or remote area with only a handful of nearby residents and businesses creates a significant risk that the station will not be able to initiate an actual apparatus response when dispatched because there may not be enough trained, active members close enough to the station.

However, another factor to consider is the fire station distribution relative to its impact on the Community Fire Protection Rating (CFPR) issued by the Insurance Service Office (ISO). This rating is one of the determining factors in the overall cost of property insurance. As discussed earlier in this report, the rating system uses a scale from 1 to 10, with Class 1 being the best rating, and scoring uses a complex matrix involving factors related to the fire department, the available water supply for firefighting, and the dispatching and communications program. Class 10 is considered to be a “unprotected” class and is automatically applied to properties that are more than five road miles from a fire station.

The map in Figure 36 illustrates the areas that are currently within five road miles of a fire station in the Carlton, Esko, Wrenshall study area. As is illustrated in the figure, significant portions of this overall area would be a Class 10 “Unprotected Class” due to their distance from a fire station, particularly in the southern portion of Wrenshall’s response area and the western portion of Carlton’s. The communities involved in this study may wish to give consideration to additional facilities that would expand the number of insured properties that would fall into an improved CFPR and, thus, enjoy decreased insurance costs.

The decision as to whether this would be a financially worthwhile endeavor would involve additional analysis of insurable property value densities to determine whether there are clusters of property values that are significant enough to make the addition of a fire station a wise long-term investment. In other words, if the cumulative property values that would be protected by a new fire station are sufficiently
low that the insurance cost savings from the reduced CFPR were only, say, $10,000 per year, while the fire station would cost $30,000 per year to operate, the cost-savings benefit would not encourage such a project.

Even if that were the case, and a financial trade-off were not created by reduced insurance costs, there is one other factor that the communities may wish to consider. In emergency service deployment, there is a concept known as “maximum wait” that is sometimes given consideration in rural service areas. In such communities, policymakers will sometimes set a maximum time period that an individual will have to wait for an emergency responder to arrive. In these cases, even if a lower number of stations will meet the national response time standards, additional stations will be added to ensure all geographic areas can be reached within the maximum wait time.

The reason for this is the conceptual difference between covering incidents and covering geography. The national standards focus on covering incidents, calling for 80 percent of all incidents in a rural area to achieve a response time objective of 14 minutes. The standards do not set any maximum wait time for the remaining 20 percent of incidents. This concept focuses resources on the greatest impact by covering highest incident density. Setting a maximum wait time adds an element of geographic consideration that, basically, suggests that regardless of the achievement of the 80th percentile performance, the remaining 20 percent of citizens will not wait any longer than a given time period for a responder to arrive. That maximum wait time may be 18 minutes, 20 minutes or even 25 minutes.

Adopting this maximum wait philosophy would eventually lead the communities in this study to consider additional fire station facilities. This might mean, for instance, one additional facility in the southern response area and one in the western response area. However, as stated earlier, the communities involved in any such capital project would need to be absolutely certain that a sufficient number of volunteers could be recruited and retained in proximity to any proposed station to make that station operationally viable. This would need to occur prior to initiating such a project. If it was determined that adequate volunteer staffing resources would not be available, the project would be ill-advised because the communities are unlikely to be able to afford a fully paid staffing methodology.

After a review of the staffing analysis portion of this study, ESCI also determined that none of the three departments can consistently ensure adequate manpower on a 24-hour basis for anything other than
low risk incidents. It will remain critical that the departments continue to do everything they can to maintain and enhance their mutual aid and dual response systems. Typically, it is only through the use of manpower from multiple departments that an adequate crew can be assembled to initiate a safe and effective fire attack. Thus, the effectiveness of the multi-station response should not be left to chance. Common training programs, similar apparatus, and regionalized operating procedures are among the best means of accomplishing this.

Conclusion

Emergency Services Consulting International began collecting data and information relative to the emergency services delivery system for Carlton, Esko, and Wrenshall in April of 2011. Since that time, the data and information has been analyzed, individuals have been interviewed, and future shared services and deployment options have been evaluated. Key findings include the following:

- The system as a whole is funded at a rate of $25.72 per capita compared to the Minnesota and National averages of $68.01 and $104.00 respectively.
- The three facilities currently in use are adequate for current operations.
- Although the apparatus for the three departments is sufficient for the current mission, planning should begin now for replacement of half the fleet that has already exceeded its expected lifespan.
- Current service demand coverage is calculated to be 61 percent within four minutes of travel.
- Current response performance is calculated at 9:00 when measured at the 80th percentile

The options presented for resource deployment and shared services, as well as the provided capital replacement plan recommendation, offers policymakers the information necessary to make informed decisions about the future of the emergency services system. ESCI understands that this document contains a great deal of technical information and it is the project team’s sincere hope that the information and recommendations will be used to enhance the delivery of emergency services throughout the region.