Crow Wing County Shared Services Study

June 15

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FINAL REPORT - Analysis of current service delivery and development of a master plan for fire/rescue services in Crow Wing County, Minnesota.

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I. The Study

Crow Wing County Fire Chiefs Association is a formal organization of the 13 individual fire departments serving the county and some neighboring areas. The participating jurisdictions include:

1. Brainerd
2. Crosby
3. Cross Lake
4. Cuyuna
5. Deerwood
6. Emily
7. Fifty Lakes
8. Garrison
9. Ideal
10. Ironton
11. Mission
12. Nisswa
13. Pequot Lakes

On January 20, 2015 representatives from the participating departments met with the Fire and Emergency Services consultant to discuss the expectations of the group for the shared services study. On January 21 and 22 the team toured all county fire stations, assessed fire apparatus, and met with department representatives.

The Crow Wing County Fire Chiefs Association received a shared services grant from the Minnesota State Fire Marshal’s Office. The purpose of this shared services study is to provide ways to increase efficiency, effectiveness, and/or cost saving methods through voluntary and cooperative shared services. The report also includes possible alternatives for the departments to share fire and rescue services. The study considered the following eight objectives:

1) Moving from mutual aid to automatic aid;
2) How to effectively handle increased emergency call volume;
3) Geographic area concerns;
4) Resource deployment and location;
5) Staffing availability;
6) Shared services to include the possibility of a District, Joint Powers Alliance, etc.;
7) Funding possibilities;
8) Crow Wing County Fire dispatching.
II. Background

Crow Wing County
Crow Wing County, Minnesota is a county located in the U.S. state of Minnesota. The estimated population is 71,224. Its county seat is Brainerd. The county was formed in 1857 and organized in 1870. Crow Wing County was established on May 23, 1857 and organized March 3, 1870. It is named for the Crow Wing River, which is itself named for an island in the river which is shaped like the wing of a crow. According to the U.S. Census Bureau, the county has a total area of 1,157 square miles (3,000 km²), of which 999 square miles (2,590 km²) is land and 157 square miles (410 km²) (14%) is water.

Twenty years or more before the county was outlined and named, a trading post was established on the east side of the Mississippi River opposite the mouth of the Crow Wing River. In 1837 there was again a station of the fur traders facing the northern mouth of the Crow Wing River. A few years later it became the center of Indian trading and had the general supply store for the area. By 1866 the village contained about 600 whites and Chippewa’s. The part of Crow Wing County west of the Mississippi was annexed from Cass County by an act of the Legislature on February 18, 1887, doubling its former area.

Brainerd Township was founded in 1870 when the Northern Pacific survey determined that the crossing of the Mississippi should be there. It became a city on November 19, 1881. The name was chosen in honor of the wife of J. Gregory Smith, the first president of the Northern Pacific Railroad Company. Mrs. Brainerd Smith was the author of novels, books of travel and other works.

The Northern Pacific Railroad ran its first train to Brainerd, a special train, on March 11, 1871 and its regular passenger service began the next September. The first passenger train from the Twin Cities, by way of Sauk Rapids, came November 1, 1877. Crow Wing, the former trading post, was soon superseded by Brainerd.

As of the census of 2000, there were 55,099 people, 22,250 households, and 15,174 families residing in the county. The population density was 55 people per square mile (21/km²). There were 33,483 housing units at an average density of 34 per square mile (13/km²). The racial makeup of the county was 97.64% White, 0.31% Black or African American, 0.78% Native American, 0.28% Asian, 0.01% Pacific Islander, 0.20% from other races, and 0.20% from two or more races. 0.69% of the population was Hispanic or Latino of any race. 32.5% were of German, 16.4% Norwegian, 9.4% Swedish, 6.2% Irish and 5.2% American ancestry.

There were 22,250 households out of which 30.20% had children under the age of 18 living with them, 56.70% were married couples living together, 8.00% had a female householder with no husband present, and 31.80% were non-families. 26.40% of all households were made up of individuals and 11.70% had someone living alone who was 65 years of age or older. The average household size was 2.43 and the average family size was 2.93. In the county the population was spread out with 24.80% under the age of 18, 8.10% from 18 to 24, 25.60% from 25 to 44, 24.40% from 45 to 64, and 17.10% who were 65 years of age or older. The median age was 39 years. For every 100 females there were 96.80 males. For every 100 females age 18 and over, there were 94.50 males. The median income for a
household in the county was $37,589, and the median income for a family was $44,847. Males had a median income of $33,838 versus $22,896 for females. The per capita income for the county was $19,174. About 6.50% of families and 9.80% of the population were below the poverty line, including 11.40% of those under age 18 and 9.90% of those ages 65 or over.

Crow Wing County Fire Departments

Crow Wing County fire departments protect people, property and environment in an area that covers over 1200 square miles (bigger than the state of Rhode Island); much of the area is heavily forested wildland that is subject to periodic wildfire hazards. Virtually all of the inhabited areas are considered rural/urban interface areas. Six major federal/state highways traverse the entire area along with heavily used county highways. A main railroad line goes into Canada carrying a wide variety of goods and hazardous materials.

Population Served: Combined service area population is more than 71,000 permanent residents, increasing to nearly 300,000 in population during the summer based on seasonal homes/cabins and tourism.

Stations: Member fire departments operate out of 19 stations employing approximately 310 volunteer, career and paid on call firefighters. Nine of the 13 member departments also operate Emergency Medical Services (EMS) at the first responder level.

Diverse Staff: Crow Wing firefighters come from all walks of life and represent a true cross-section of the population. They are people who care about their neighbors and their communities. Many members are also cross-trained in Emergency Medical Services, Wilderness Search and Rescue, Hazmat specialties, Confined Space Operations, Vehicle Extrication and Wildland Firefighting.

Diverse Communities: The municipalities and townships served range in population from 387 to over 35,000 people. The estimated market value also varies from 37 million to over 1 billion dollars. Each community is unique and diverse from its neighbor making emergency service responses as challenging as the larger populated areas of the country. For example, some residents are non-English speakers.

The following chart is a synopsis of the information from the Crow Wing County Fire Departments for 2014. Most data is from onsite interviews, SFM reports, and websites.
Crow Wing County fire services ran 1761 emergency calls in 2014. These calls included 831 fire related calls and 930 EMS calls. However 4 jurisdictions do not provide first responder EMS services. These 1761 annual calls equates to an average of 5 calls per day in the county. Which if we assume that the average call takes 1.5 hours to complete means fire/rescue services are on calls about 7.5 hours per day.

There are about 310 firefighters operating 98 apparatus from 19 stations. The 19 fire stations are strategically located throughout the county. Stations, staffing, and response will be analyzed later in this report. County apparatus includes 33 engines; 3 aerials; 25 tenders; 14 rescues; and 16 brush and wildland apparatus for a total of 98 apparatus in the county. In 2014 the total budgets for fire/rescue services in Crow Wing County was $2,601,000. This equates to a per citizen cost for fire/rescue services of $36.48.

**Brainerd** – Brainerd FD covers the largest population in the county (35,000) and an area of 300 square miles. The department also contracts with several outside areas including the City of Baxter. BFD Operates from 2 stations including #1 at 23 Laurel Street and #2 at 1301 Mill Avenue. BFD has a staff of 40 personnel including 7 career positions; 5 equipment operators, a fire chief, and an administrative assistant. This equates to 1.14 firefighters per thousand citizens served. BFD has 13 apparatus including 4 engines; 2 ladders; 4 tenders; 2 rescues; and a brush truck. In 2014 BFD ran 508 calls including 92 fires and 86 EMS/rescue calls. In 2013 BFD ran 95 fires and 810 EMS/rescue calls. The total 2014 budget was $1,250,000 which equates to a cost per citizen served of $35.71. BFD provides full fire service operations including suppression, prevention, and special operations.

BFD sees its strengths as suppression, extrication, safe accountable operations and fire prevention.

BFD sees areas for improvement as need for 3 personnel on duty, budget, and spread of resources.
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**Crosby** – CFD covers a population of 6000 and an area of 108 square miles. CFD operates from 1 station located at 11 1st St NW, with a staff of 27 personnel. This equates to .6 firefighters per thousand citizens served. CFD has 9 apparatus including 4 engines; 2 tenders; 1 rescue; and 2 brush trucks. In 2014 CFD ran 61 total calls including 9 EMS/rescues calls. The total 2014 budget was $108,000 which equates to a cost per citizen served of $18.00 without capital. CFD responds to fire and extrication calls including 52 fire and 9 EMS calls in 2014.

CFD sees its strengths as communications, leadership, and response time to scene.

CFD sees it needs as training, grants, and a box alarm system for significant calls.

**Crosslake** – Crosslake FD has a service area of 40 square miles and serves a population of 3000 citizens from one station located at 37028 County Road 66. CFD has a roster of 21 active members including a fire chief; assistant chief; and 4 captains. This equates to.7 firefighters per thousand citizens served. Fire and EMS calls are both all call incidents except at night when a duty crew is utilized. CFD has 7 apparatus including; 2 engines, 2 tenders, 2 rescues, and 1 brush/wildland unit. The department responded to 241 calls for service including 189 EMS calls. The 2014 budget was $180,000 which equates to a per citizen served cost of $60, however this budget and the per capita includes capital expenditures.

CFD sees its strengths as good response to calls, young staff, and having all personnel fully certified.

CFD would like to improve by adding more personnel, improving recruitment and retention, radio communications, and enhancing the prevention functions.

**Cuyana** – Cuyana FD has a service area of 13 square miles and a served population of 800 citizens from a station located at 24849 Minnesota Avenue. The 24 member CFD roster includes; fire chief, assistant chief, captain, and a training/safety officer. CFD has 2 engines, 1 tender, 1 rescue, and 1 brush/wildland unit. The department responded to 4 calls for service in 2014 all fire related. The reported budget in 2014 was $43,000 for a cost per citizen served of $53.75.

CFD sees its strengths as having staff who want to be part of the fire service and part of CFD.

The retirement system with 10 year vesting at 60% and 20 years at 100%

CFD would like to improve response by using a box alarm system and believes that a county wide department or system will occur in the next 10 years.

**Deerwood** – Deerwood FD has a service area of 70 square miles and a served population of 3000 citizens from a station located at 23786 Serpent Rd. The DFD 30 member roster included fire chief, assistant chief, 4 captains, and 4 lieutenants. DFD has 3 engines, 1 tender, 1 rescue, and 1 brush/wildland unit. The department responded to 152 calls in 2014 including 118 EMS calls. The reported budget in 2014 was $100,000 which calculates to a cost per citizen served of $33.33.
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DFD sees their strengths as the dedicated volunteers and the time commitment they make to fire service. They believe they have good equipment and that the station addition has helped response and morale.

DFD sees the need for a second station, a ladder available in the area, improved retirement system, and a long range strategic plan as areas for improvement.

Emily – Emily FD has a service area of 108 square miles and an estimated population of 1,300 citizens from a station located at 20837 County Road 1. The EFD roster has 18 personnel including Fire chief, assistant chief, 2 captains, 2 lieutenants, and training officer. The EFD has 2 engines, 1 tender, and 2 brush/wildland units. The department responded to 14 calls in 2014 including 5 EMS calls. The reported budget for 2014 was $51,683 which calculates to a cost per citizen served of $39.76.

EFD sees their strengths as being good at fire suppression and trunk or treat program.

EFD would like better communications, and an enhanced public education program, as well as auto aid, regional training, and response by closest unit.

Fifty Lakes – Fifty Lakes FD has a service area of 36 square miles and an estimated population served of 400 citizens from a station located at 40308 Co Road 3. 50 Lakes FD roster has 14 personnel including fire chief, assistant chief, training officer, 7 firefighters and 4 medical first responders. 50 Lakes FD has 1 engine, 1 tender, 1 rescue, and 1 brush/wildland unit. 50 Lakes FD responded to 35 calls in 2014 including 30 EMS calls. The reported 2014 budget was $20,000 which calculates to a cost per citizen served of $50.

50 LFD sees its strengths as its ability to move water, wildland firefighting, and the annual pig roast.

50LFD wants to improve membership and training, as well as assessing boundaries from the study.

Garrison – Garrison FD has a service area of 118 square miles and an estimated population served of 3,500 citizens served from a station located at 27174 Central Street. GFD roster has 22 personnel including fire chief, assistant chief. GFD has 2 engines, 3 tenders, 1 rescue, and 1 brush/wildland unit. GFD responded to 162 calls for service in 2014 including 104 EMS calls. The reported budget for 2014 was $ 185,000 which calculates to a cost per citizen served of $52.86.

GFD sees its strengths as its EMS responses, and good fire responses

GFD would like to enhance public education and structural fire capabilities.

Ideal Township – Ideal Township FD has a service area of 72 square miles and an estimated population served of 2,000 citizens from 2 stations. Fire Station #1 is located adjacent to the town hall at the corner of County Road 16 and Butternut Point Road. Fire Station #2 is located on the north side of Whitefish Lake, at the corner of County Road 1 and Taray Road. Station #1 has 21 personnel assigned and Station
#2 has 5 personnel assigned. The IFD roster has 26 personnel including 3 fire chiefs, 2 captains, safety officer, chief engineer, fire inspector, and medical director. IFD has 2 engines, 1 ladder, 2 tenders, 1 rescue, and 2 brush/wildland units. Ideal Township FD responded to 108 calls in 2014 including 70 EMS calls. The reported budget for 2014 was $135,000 which equates to a cost per citizen served of $67.50. IFD has many water and recreation related calls as well as wildland interface issues with over 50 homes of 10,000 square feet or more near wooded areas.

IFD sees its strengths as senior members, equipment, and its community outreach including community events.

IFD sees areas for improvement as the main station, a long term outlook, and the struggle of not being a town, the department needs new recruits but the demographics mean few people are available to volunteer.

Ironton – Ironton FD has a service area of 15 square miles and an estimated population served of 700 citizens operating from a station located at 309 3rd St. The IFD roster has 16 personnel including fire chief, deputy chief, 2 assistant chiefs. Apparatus includes 2 engines, 1 tender, 1 rescue, and 1 brush/wildland unit. In 2014 IFD responded to 7 calls for service, none were EMS calls. The reported budget for 2014 was $27,000 which equates to a cost per citizen served of $38.57.

IFD sees its strengths as dedication of members and its ability to work as one organization.

Mission - Mission FD has a service area of 92 square miles and an estimated population of 5,000 citizens served from 2 stations located at 29474 County Road 3 and . Station #1 has 8 personnel assigned and Station #2 has 6 personnel assigned. The MFD roster has 14 members including fire chief, assistant chief, 2 captains, and 2 lieutenants. Apparatus includes 2 engines, 2 tenders, 1 rescue, and 2 brush/wildland units. In 2014 MFD responded to 113 calls for service including 86 EMS calls. The reported budget 2014 was $190,000 which equates to a cost per citizen served of $38.00.

MFD sees its strengths as its use of technology, aggressive firefighters, and use EMS only members in department.

MFD would like to improve membership and upgrade equipment.

Nisswa – Nisswa FD has a service area of 75 square miles and an estimated population of 5,000 citizens served 3 stations; station #1 is located at 25636 Main Street, Nisswa; station #2 is located at 25522 County Road 4, Nisswa; and Station #3 is located at 8583 Interlachen Road Lake Shore, MN. The roster has 26 personnel including a fire chief, assistant chief, and 3 captains. Apparatus includes 4 engines, 2 tenders, 1 rescue, and 1 brush/wildland unit. In 2014 NFD responded to 294 calls for service including 233 EMS calls. The reported budget in 2014 was $190,000 which equates to a cost per citizen served of $37.97.

NFD sees its strengths as young energetic and open minded personnel, a strong community commitment, and high priority of training, string public education program and use of social media.
NFD would like to enhance policies and procedures, SOG’s, rules and regulations, human resources, and automatic aid.

**Pequot Lakes** – PLFD has a service area of 146 square miles and an estimated population served of 6,500 citizens for 2 stations; station #1 is located at 4638 County Road 11 and station #2 is located at 8361 County Road 11. Department roster is 30 personnel including a fire chief, 2 assistant chiefs, 3 captains, and a safety officer. Apparatus includes 3 engines, 3 tenders, 1 rescue, 1 brush/wildland unit. In 2014 PLFD responded to 62 calls for service including 5 EMS calls. The reported budget for 2014 was $180,000 for a cost per citizen served of $27.69.

PLFD sees its strengths as response times, good team of personnel, large area to the west, and good public education.

PLFD would like to enhance its multi-year plan, and get more grant assistance.
III. General Findings
A study of this nature is designed to organize and represent a snapshot in time; workplace cultures vary and change all the time. In some instances by reporting this information we are memorializing what is already known, but not being addressed. In other cases the reporting of this information can stimulate ideas and action. We include this information for the purposes of the later choice.

Operations
Crow Wing County Fire Chiefs Association is an organization of fire departments in Crow Wing, Minnesota the current 13 member departments cover an area of over 1,200 square miles in the county and some adjoining townships. The departments respond to 831 fire calls and 930 EMS calls in 2014 based upon State Fire Marshall’s Office data. EMS is the largest part of most member departments’ calls for those which provide first responder EMS services. The most widely recognized standard used in response time analysis for volunteer fire departments is outlined in National Fire Protection Association (NFPA) Chapter 1720: Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.

National Fire Protection Association (NFPA) 1720
NFPA 1720 was updated in 2004 and addresses benchmarks to be used by volunteer organizations in the delivery of their services, including specific recommendations regarding staffing and response times.

Table 1: NFPA 1720 - Staffing and Response Time Standards

<table>
<thead>
<tr>
<th>Demand Zone</th>
<th>Demographics</th>
<th>Staffing/Response Times</th>
<th>Percentage of Calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Risks</td>
<td>Authority Having Jurisdiction (AHJ)</td>
<td>AHJ</td>
<td>90</td>
</tr>
<tr>
<td>Urban</td>
<td>&gt;1000 people/mi</td>
<td>15/9</td>
<td>90</td>
</tr>
<tr>
<td>Suburban</td>
<td>500-1000 people/mi</td>
<td>10/10</td>
<td>80</td>
</tr>
<tr>
<td>Rural</td>
<td>&lt;500 people/mi</td>
<td>6/14</td>
<td>80</td>
</tr>
<tr>
<td>Remote</td>
<td>Travel distance ≥8 mi.</td>
<td>4</td>
<td>90</td>
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</table>

Crow Wing County fire services cover about 1200 square miles of land area and a population of 71,000. This creates a jurisdictional population density of 59.2 people per square mile. Summer population is 300,000 with density of 250 people per square mile. This population density puts Crow Wing County in the “rural” demand zone classification and recommends an initial response of 6 personnel responding to fire calls within 14 minutes, 80% of the time. Some areas are also considered remote which NFPA 1720 recommends at least 4 firefighters 90% of the time, but has no response time requirement. The City of Brainerd and City of Baxter would be considered urban response zones with populations of over 1000 people per square mile and needing a response of 15 personnel within 9 minutes, 90% of the time.

The National Fire Protection Handbook also makes staffing and initial response complement recommendations for structural fire calls based on the number of firefighters arriving on the scene.
depending upon the risk of occupancy (low, medium, and high-hazard occupancy). The NFPA staffing recommendations by the type of hazard areas:

**High-Hazard Occupancies** (schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings, and other high-risk or large fire potential occupancies): *at least 4 pumpers, 2 ladder trucks (or combination apparatus with equivalent capabilities), 2 chief officers, and other specialized apparatus as may be needed to cope with the combustible involved; not fewer than 23 firefighters and 2 chief officers.*

**Medium-Hazard Occupancies** (apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces): *at least 3 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), 1 chief officer, and other specialized apparatus as may be needed or available; not fewer than 16 firefighters and 1 chief officer.*

**Low-Hazard Occupancies** (one-, two-, or three-family dwellings and scattered small businesses and industrial occupancies): *at least 2 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), 1 chief officer, and other specialized apparatus are recommended to be available; not fewer than 12 firefighters and 1 chief officer.*

The recommendations and guidelines outlined in the Chapter 1720 and the *NFPA Handbook* should be considered, but are not necessarily the final word as the NFPA guidelines do not address how fire departments will also be able to comply with the OSHA-mandated “Two-in/Two-out” rule (discussed below). Also, the NFPA guidelines do not address OSHA’s requirement that a rapid intervention team (RIT) be on-scene at a working fire.

**Occupational Safety and Health Administration (OSHA) Regulations**

Additional mandated requirements for staffing are related to OSHA’s regulations for firefighter safety. To protect the safety of firefighters, the United States Department of Labor and OSHA have enacted 29CFR1910.134, known as the two-in/two-out rule that requires four personnel on scene at all structure fires before initial interior attack begins.

**OSHA** - Firefighting is a dangerous and physical labor-intensive profession. Although technologically the tools and equipment used by firefighters have changed dramatically over the years, the basic goals have remained almost unchanged: to preserve life and protect property by successfully extinguishing fires—and not get hurt in the process. To accomplish this, firefighters must be able to quickly and efficiently gain access to a fire and apply an extinguishing agent (typically water, but foam and other agents are gaining in popularity). This requires emergency responders to operate in dangerous environments where they are at high risk for serious injury or death.

To protect the health, safety, and welfare of firefighters, the federal government enacted regulations to ensure that firefighters operate safely in and around structure fires. Enacted by the Department of Labor and the Occupational Safety and Health Administration (OSHA), 29 CFR 1910.134, also known as “Two-in/Two-out,” mandates that there must be a minimum of four personnel on the scene of a structural fire before personnel can initiate interior operations. Two firefighters must remain on the
exterior of the structure, properly equipped with full turnout gear and self-contained breathing apparatus (SCBA) to act as a Rapid Intervention Team (RIT) in the event the firefighters operating inside the structure become incapacitated or trapped. Although OSHA allows one RIT member to have an additional role such as incident commander or safety officer, as long as rescue activities can be performed without jeopardizing the safety of other firefighters, a pump operator cannot make up part of the RIT unless the apparatus utilizes a positive water source, which allows the pump to be unstaffed for a period.

Insurance Services Office (ISO)

Insurance Services Office (ISO) community fire protection ratings have been a benchmark for jurisdictions for decades. The system measures the effectiveness and efficiency of three key parts of community fire protection; fire department, water distribution, and alarm notification system. However there are two key limitations of this benchmark. First is that the evaluation is only used by some insurance companies, with several large insurers doing their own risk assessment by individual occupancy. Second is the fact that residential insurance rates for participating insurers are banded for class #2 through class #8 communities. This means that the premium for insurance to homeowners is the same for these communities. The only occupancy type which has separate rates for each class number (#) is commercial occupancies where the needed fire flow is below 3500 gpm for suppression. The bottom line is that ISO ratings are a good benchmark for suppression activities of a community but do not evaluate the key areas of prevention, code enforcement, and planning and zoning which are the proactive functions of community fire defense planning.

Standard Operating Guidelines (SOG)

Each department in Crow Wing County indicates that they have SOG’s for operations. The question is how these individual procedures work with other department’s SOG’s since incompatibility can be dangerous on the emergency scene. This issue should be a key area of investigation in the near future as well as creating a single master SOG for all departments to use during joint response.

The Departments have the personnel resources to meet NFPA #1720 and response capabilities for all hazard occupancies. All hazard occupancies would require additional outside equipment resources on the initial assignment.

Crow Wing County fire services will need a full set of response policies (box alarms) which provide 1st through 7th alarm assignments for all fires and related emergencies. These SOG’s should include mutual aid departments to provide adequate equipment and personnel to handle any anticipated incident. These SOG’s should be in alignment with the NFPA standards cited above. An example of a complete box alarm or response policy for a Minnesota department is included in Appendix A of this report to assist.

Demand and Deployment

This section discusses current call volume and coverage offered by the fire departments in Crow Wing County. As discussed in the previous chapters, there are many factors that should be considered when determining the appropriate number of stations, including demand for services, population, density of
demand and population, size of the jurisdiction, and desired response times. This chapter applies these factors to the current and future situation of Crow Wing County.

Methodology

Before any analysis took place, project team members gathered and reviewed information related to properly locating fire stations, including:

Current apparatus deployment

Current and projected demand and workload

Actual incident data were gathered from Minnesota State Fire Marshal’s Office (SFMO). Data included addresses for geocoding and type of incident. Geographic information system (GIS) files used for the analysis were obtained from the Minnesota Department of Transportation and Crow Wing County departments.

Incident Trend Type

The SFMO provided call data from January 2010 to December 2014. During this time, departments in Crow Wing County responded to 8740 incidents. Figure 1 shows the call volume by incident type (EMS, fire, other call for service) over the last five years in the Crow Wing County. The percentage of EMS calls increased steadily over the first four years as Brainerd and Nisswa added EMS first responder service. This service was later discontinued by Brainerd in 2014.
Being the largest population center in Crow Wing County, Brainerd also has the highest emergency call volume in the county. Figure 2 shows call volume by type for each department in Crow Wing County from 2010 through 2014. Most departments had a majority of their call volume comprised of EMS calls. Brainerd had almost as many “Other” (service calls, false alarms, good intent, etc) as they did EMS calls over the same time period.
Figure 3 and Table 1 break call volumes down by year for each service. Most departments have seen their call volume remain relatively stable. Deerwood and Nisswa have both had rather large increases in their volume due to adding EMS first response. Brainerd volume has returned to 2011 levels when they did not offer EMS first responder service.
Figure 3: Call Volume for Crow Wing County Fire Departments by Year, CY10-CY14

Table 1: Call Volume for Crow Wing County Fire Departments by Year, CY10-CY14

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</table>

**Station Location Analysis**

This section provides a look at station and call locations for Crow Wing County. The primary objective is to determine what areas, if any, are in need of additional resources and how resources can be distributed to serve the county more efficiently. Maps are included to show theoretical response reaches based upon the current station and apparatus locations. These theoretical response reaches are based on the length of road segments and speed limit attributes contained in road centerline data from the Minnesota Department of Transportation GIS Department. TIGER road centerline data was combined with county provided data to ensure adequate coverage of roads and information such as speed limits and one-way routes.

Figure 4 shows an overview of Crow Wing County and the location of the fire departments that serve it.
Figure 5 shows what areas can theoretically reached within 5 and 10 minutes of travel from the nearest station. Since these coverage areas are built upon the GIS road network, errors in the data such as missing or unconnected roads may impact the creation of the coverage area. Most of the populated areas in Crow Wing can be reached with travel times of 10 to 15 minutes. However, data with greater detail would allow officials to view the impact that dispatch and turnout times have on overall response time and geographic coverage. Figures 7 – 19 at the end of the chapter show detailed coverage areas.
with 5, 10, 12, and 15 minutes of travel as well as a border delineating 5 miles from the nearest fire station for each Crow Wing County department.

**Figure 5: 5 and 10 Minute Theoretical Coverage Area, Crow Wing County**

Knowing where the calls are occurring is also an important factor in determining if stations are adequately placed for response. Each call listed in the data given by the SFMO contained an addressed. These calls were geocoded or placed on the map by matching them road information obtained from MnDOT. Unfortunately, due to data differences; like colloquial road names, outdated or poorly classified information, less than half (3,939 of 8,740) of the calls could be geocoded. As expected, a
density map created from these calls shows the highest activity occurred in the Brainerd area. Figure 6 shows the density of emergency incidents per square mile.

Figure 6: Crow Wing County Calls per Square Mile, CY10-CY14
Figure 7: Theoretical Coverage Area for Brainerd FD
Figure 8: Theoretical Coverage Area for Crosby FD
Figure 9: Theoretical Coverage Area for Crosslake FD
Figure 10: Theoretical Coverage Area for Cuyuna FD
Figure 11: Theoretical Coverage Area for Deerwood FD
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Figure 12: Theoretical Coverage Area for Emily FD
Figure 13: Theoretical Coverage Area for Fifty Lakes FD
Figure 14: Theoretical Coverage Area for Garrison FD
Figure 15: Theoretical Coverage Area for Ideal FD
Figure 16: Theoretical Coverage Area for Ironton FD
Figure 17: Theoretical Coverage Area for Mission FD
Figure 18: Theoretical Coverage Area for Nisswa FD
Training
Most county departments train once each month and have additional training whenever possible. Each department establishes its own schedule and the topics to be covered in these training sessions. Some shared training occurs between member departments when a training session is of interest to multiple departments (who respond together routinely).
Organization and Management
Individual fire departments in the area maintain autonomy but have realized the advantages to solving problems which cross jurisdictional boundaries or which present risks which exceed individual resources. To that end, Crow Wing County Fire Chiefs association is now being used to tackle issues of staffing, training, communications, and equipment, to name a few.

Crow Wing County Fire Chiefs Association is structured in a traditional way with a president, vice president, etc. and meets regularly to discuss issues of mutual concern and to allow members to network as needed.

Finance
Individual department budgets range from $22,000 to $1,250,000 annually and Capital Improvement Plan (CIP) programs go from nonexistent to an annually adjusted project. Cost per citizen served ranges from $10 to $68. This cost per citizen is below the National average of $104 for volunteer and combination departments.
Crow Wing County Fire Chiefs Association operates without dues. The organization is now evaluating the possibility of expanding to help individual departments with major purchases and seeking grants to improve service delivery.

Apparatus and Facilities
Apparatus
Individual member department’s equipment ranges from 1 engine, 1 water tender, and 1 wildland truck to 13 pieces of fire and EMS apparatus. There are 91 pieces of apparatus and major equipment listed in department information. Condition of this apparatus and equipment is from adequate to excellent with most being in good to excellent condition, even if over 25 years old. Maintenance is mostly done by staff with outside companies used for pump testing, aerial testing, ladder testing, and hose testing in some member departments.

Replacement Scoring System
Many U.S. fire departments use a scoring system developed by the American Public Works Association (APWA) Fleet Service Committee for assessing fire apparatus for replacement, or a scoring system similar to it. The scoring system entails considering a combination of variables that include age, mileage, maintenance costs, and operating conditions. A replacement score is calculated for each vehicle based on the sum of its scores for age, usage, and condition. The data for these calculations are usually obtained from computerized vehicle maintenance records and work orders, but can also be obtained otherwise.

The age of the vehicle is scored by assigning one point for each month from the date on which it was purchased. The usage score assigns one point for each 1,000 miles traveled or 3.5 points for each 100 hours of use, whichever is higher. The condition of the vehicle is scored on a scale of zero to four (with zero being the best and four the worst) for each of five aspects: body, interior, functionality,
maintenance/repair cost, and mission. These values are summed with the points assigned for age and
mileage to obtain the overall vehicle score. If the overall score exceeds the point limit established for
the respective vehicle category, the vehicle is recommended for replacement.

Table 4-1: Maximum Vehicle Points Before Disposal/Replacement is Recommended:

<table>
<thead>
<tr>
<th>APWA System</th>
<th>Maximum Vehicle Points</th>
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<tr>
<td>Vehicle Category</td>
<td></td>
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<tr>
<td>Sedans, station wagons, and jeeps</td>
<td>162</td>
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<tr>
<td>Light-duty trucks</td>
<td>196</td>
</tr>
<tr>
<td>Medium- to heavy-duty trucks (including ambulances)</td>
<td>220</td>
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<tr>
<td>Fire apparatus</td>
<td>225</td>
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</tbody>
</table>

Vehicle Scores

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<tr>
<th>Unit</th>
<th>#1</th>
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<th>#4</th>
<th>#5</th>
<th>#6</th>
<th>#7</th>
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<tbody>
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<td>When Built</td>
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<td>Current Mileage</td>
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<tr>
<td>Body Condition</td>
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<td>Interior Condition</td>
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<tr>
<td>Maintenance &amp; Repair</td>
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<td>Mission</td>
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<tr>
<td>Total Score</td>
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</tbody>
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The critical component in any service-life-assessment system is the absolute requirement that a vehicle
must be able to safely and reliably perform in a manner consistent with the vehicle’s design purpose,
regardless of mileage or hours of use. Elected officials and organizational leaders must remember that
fire service vehicles are subject to much more demanding operational conditions than other vehicles in a
jurisdiction’s fleet. Rapid acceleration and deceleration, hard turns, quick stops, and other extreme
demands are placed on fire apparatus on a regular basis. Additionally, fire apparatus are almost always
fully-loaded with equipment. The water carried on a pumper can easily weigh several tons (over 12 tons
in the case of a pumper-tanker), and aerial ladders may weigh more than 40 tons. Public works type
trucks are not always at their maximum load, which reduces wear and tear on suspension, brake, and
driveline systems.

Facilities

There are 19 stations and these stations range in condition from new, up to date buildings to century old
facilities which were originally built for horse drawn apparatus. Station condition also ranges from up to
date and code compliant to undersized, structurally unsound, and non-code compliant.
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The location of these stations was based upon needs at the time the structures were constructed, but may not be optimum for today’s needs. This includes facilities which are within 2 to 3 miles of another jurisdiction’s station, and areas where population growth or recreational activities have caused increased risks.

Fire Prevention
Fire prevention in Crow Wing County fire departments is very basic with most departments limiting efforts to tours and demonstrations during fire prevention week annually. Inspections, code enforcement, and investigation are not part of most individual departments, except in Brainerd, due to lack of personnel and funding for these support services.

Area Risks
Risks in the area are both natural and man-made. Natural risks include wildlands and lakes as well as seasonal issues such as snow, flooding, spring and fall seasonal issues, and severe storms.

Man-made: High demands are placed on the Crow Wing County Fire Departments with the protection of six major state highways and 613 miles of county highways. Infrastructure includes Burlington Northern Railroad, Brainerd International Raceway, North Central Speedway, Grand Casino and Hotel, Mille Lacs Band of Ojibwe Reservation, Brainerd Lakes Regional Airport, EMS Helicopters, State Patrol, Department of Natural Resources, Crow Wing County Government Center, EOC, Law Enforcement, Dispatch Center and Jail, twenty public schools serving nearly 10,000 students, Central Lakes College, over 100 resorts, multiple water treatment facilities, hydro-electric dam, paper mill facilities with numerous confined spaces and hazardous chemicals, civic center and hockey arena, two regional hospitals, multiple family care clinics, a VA clinic, multiple nursing homes, assisted living facilities, bulk fuel, propane and LP storage facilities.

An additional risk for the area is simply the remoteness of structures due to the makeup of the land. Dense forests and woodland lakes make it difficult to conduct fire and rescue services.

Volunteer Recruitment and Retention
Recruitment – Recruiting citizens to become volunteer fire/rescue responders can be a daunting task if not approached in a systematic manner. This systematic approach begins with identifying the most likely demographic groups where potential volunteers may be included. This will be an important discussion for the Crow Wing County Fire Chiefs and we encourage you to begin this conversation immediately. Across the country there are three emerging groups of volunteer firefighters: mothers that stay at home; college students; and empty nesters. Motivating citizens to join a fire department is one of the largest challenges facing volunteer fire service throughout the country. It is important to find out how many of the current volunteers will stay active and for how long. The future viability of a volunteer force is at stake, and should be the focus of future recruitment efforts. This will mean looking for future members in citizen groups either under-represented or not represented in the current department roster.
A very successful volunteer recruitment program in Virginia is recruiting over 300 new members annually. Their program begins using a page on the jurisdiction website, a Facebook account, and a toll free phone number. All contacts are immediately contacted by a volunteer recruiter from the fire/rescue department (within 24 hours). An appointment is set up and each candidate gets a briefing on the potential job, a scheduled ride along is set up, and an application is filled out. The key is to keep candidate interest high, and identify how best to use the talents of new member so they stay motivated and involved. Crow Wing County can certainly use this coordinated system to increase the volunteer cadre.

**Retention** – While people join volunteer fire-rescue departments for many reasons, retention issues boil down to two distinct reasons: problems that arise in one’s life and factors relating to the individual fire department or the fire service itself. To retain new and current members, volunteer departments must display four essential characteristics that address these two root problems with volunteer retention:

- The program must meet the individual’s needs
- The program must provide its membership with reward and recognition
- The program must provide adequate supervision and leadership
- The program must challenge its members

Any recruitment or retention programs that are to be considered must take into account the four aforementioned characteristics that must be present in a quality fire-rescue program.

There are numerous professional organizations that have developed model programs that can be used in this recruitment and retention effort. There is no reason to “reinvent the wheel” if tried and proven programs exist to assist volunteer fire-rescue organizations with these matters. The National Volunteer Fire Council at [www.nvfc.org](http://www.nvfc.org) and the Fireman’s Association of the State of New York (FASNY) at [www.fasny.com](http://www.fasny.com) (close neighbors) both have quality programs and provide assistance that can help this program get started. From the Pennsylvania General Assembly, the Legislative Budget and Finance Committee developed an excellent report titled, *The Feasibility of Regionalizing Pennsylvania’s Volunteer Fire Companies*. This report also provides some ideas and guidance pertaining to the recruitment and retention problems within the volunteer fire service in Pennsylvania.

Assistance can also be obtained through the Federal Emergency Management Association (FEMA) and the U.S. Fire Administration (USFA) at [www.usfa.fema.gov](http://www.usfa.fema.gov). Both of these organizations have published numerous free reports on Recruitment and Retention among the Volunteer Fire Service. One such resource publication, *Recruitment and Retention in the Volunteer Fire Service: Problems and Solutions Final Report December 1998* outlines numerous programs and resources that have been tried and have proven successful throughout the nation. There is also a similar report titled: *Emergency Medical Services (EMS) Recruitment and Retention Manual* written in 1995 for FEMA and the USFA that deals with these specific problems in the EMS community.
Volunteer Incentives and Recognition – Incentive and recognition programs are very important for fire and rescue volunteers. Given the enormous time demands, training demands, and personal risks, it is easy for volunteers to burn out and quit after only a few years of service. Incentives and recognition programs are essential components to maintaining a strong cadre of experienced volunteers and to prevent a revolving door situation. For the equivalent loaded salary cost of one career firefighter, a great deal of recognition, incentive, and recruiting programs for volunteers can be implemented.

Many local governments across the nation have strengthened their incentive programs for volunteer firefighters. The cost of incentives is small and economically justifiable if they help recruit and retain volunteers and forestall hiring more career employees. Volunteers in the fire and rescue service today are the first line defenders for any type of emergency or disaster.

Station Live-in Programs – One of the strongest incentive programs for volunteers, particularly younger volunteers, is the station live-in program. Individual volunteer departments can establish minimum standards for members to live at the station. Usually, volunteers must sign up for two to four duty nights per week to qualify. Live-in programs are an excellent incentive as well as a recruitment and retention tool. They not only promote participation, but they guarantee that volunteers will be at the station and ready to answer emergency calls without having to respond from home to the station. The major drawback to the live-in programs is that they are only an incentive for single volunteers since there is generally no housing available for married volunteers. Also, the sleeping areas are not very suitable for permanent residency (e.g., in most cases they are open bunkrooms instead of individual dorm rooms).

Recognition – Volunteers generally want to be appreciated and receive some form of recognition for their service to the community. Some are willing to work quietly for years and obtain satisfaction just from doing the job, helping people in need, and the camaraderie in the department. However, information obtained from surveys taken by former volunteers (as well as self-perception of the volunteers) from across the country indicates that a little recognition goes a long way. Although most volunteers never mention the desire for recognition, it is almost always well received when given and usually deleterious when withheld.

Health Insurance – The jurisdictions could provide health insurance for volunteers who meet certain minimum requirements. This type of incentive program is currently being used in Sedona, Arizona.

Cable Television and Utility Bills – Volunteers could be given free cable television, and/or exempted from some local utility bills. This is done in Sitka, Alaska and Lacey, Washington.

Tuition Assistance – Volunteers could be offered tuition assistance after a certain period of service, similar to tuition assistance offered to municipal employees in some jurisdictions. Some national EMS organizations make scholarships available to enhance local efforts.

Retirement Salary Plan – Many jurisdictions around the country have set up retirement plans for volunteer firefighters. Most of these plans are based on years of service and set up through the state legislature. This is an excellent program for rewarding volunteer firefighters who put in years of service.
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to their community. A good resource to provide additional information on such programs is the Volunteer Fire Insurance Service, VFIS, located on the web at www.vfis.com/vfis/vfis_losap.htm.

Requirements of a Recruitment and Retention Program – No matter which program is selected, it is imperative that this recruitment, retention and educational effort be a well thought out, on-going, combined effort with the support and backing of all involved parties. This is not a localized or short-term concern but a long-term local and national issue that can’t be solved in a vacuum or without great deal of work. It will take the total commitment, effort and dedication of a wide range of professional, political and civic leaders to make this program a reality. Outside of the box thinking and creative program development is vital to maintaining a healthy volunteer fire-rescue program for the County.

The result of such a program failing is the need to provide this service through a paid or a subscription delivery system. Both of these alternatives will be much more costly for taxpayers than the time and efforts that will be involved in helping maintain a quality well-staffed volunteer fire-rescue system that is currently in place. It is estimated that for a municipality to transition to just one 4-person paid Fire Department, with 24-hour coverage, it would cost approximately $1.5 million dollars a year. This increase would naturally increase the tax levy and have to be sustained for the foreseeable future. Crow Wing County is typical of many small municipalities in the way they provide fire-rescue services. Volunteers are becoming scarcer for all organizations as society continues to evolve into a very busy community. There is little time or effort put forth in the development of an overall regional recruitment and retention program. It is incumbent on the Crow Wing County Fire Chiefs, to take the lead, with their fire-rescue responders to plan out an appropriate strategy as to how to continue to make this fire-rescue system a solvent and viable response system. Coordination and cooperation amongst all involved parties is the only way this system can be stabilized.
IV. Study Questions and Issues from RFP

There are eight key questions in the grant application which are the foundation for this study.

1. Moving from mutual aid to automatic aid;

Using automatic aid is one way to address the staffing issues that are basically a county wide problem for Crow Wing County fire services. However this is a much more complex undertaking than simply initiating a “box alarm system” county wide. There are several other issues to be resolved before such a system can be effective and efficient:

   A. Training and firefighter competencies need to be uniform in all county departments. This means everyone should have a minimum level of certifications for fire and EMS operations.

   B. There is a need for centralized communications including standardized frequencies, preplanned alarm system for dispatchers, and a funding stream for E911 staffing and needed equipment.

   C. Moving toward standardization in key equipment such as SCBAs, hose, and even vehicle layout.

2. How to effectively handle increased emergency call volume;

Less fire and more EMS call volume is what is occurring in nearly all jurisdictions nationwide. This creates two distinct problems for fire departments.

   First is the need for any full service department to see EMS as their primary function in the community. Departments must have sufficient personnel certified as medical first responders to deal with the demand and see that the call volume does not result in firefighter burnout.

   Second is to see that all firefighters get sufficient training and hands on experience in fire suppression, hazmat, and special operations to be safe and efficient during emergency incidents. Use of county wide and regional training will be more needed to fulfill this gap.

3. Geographic area concerns;

Crow Wing County is very unique in that by sheer size of over 1200 square miles, the 13 fire departments would have to cover 100 square miles each to protect the county in a balanced manner. However this cannot be done because topography and issues such as the many lakes, bogs, and heavy timbered areas create hazards and impediments to linear response protocols.

As part of this study a detailed demand and deployment analysis will show not only where the majority of calls are originating but which station(s) can get there the quickest. The intent of this process is to set the foundations of the using closest units first for emergency response.
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4. Resource deployment and location;

The demand and deployment analysis focused on what types of call are occurring in which areas to help with better resource deployment. Additionally, it analyzed the response polygons from each station for coverage gaps and overlaps based upon the NFPA guidelines and ISO benchmarks.

5. Staffing availability;

Daytime and especially weekday daytime staffing shortfalls are a national issue for small fire departments across America. There are some ways to find people who can be available for these times.

1. During recruitment planning looking for stay at home moms, empty nesters, and college students, as well as people who work second or odd shifting schedules, should be a primary focus of a volunteer marketing campaign.

2. Refocusing on the local fire hall being a center of community activity. This means that a daycare for volunteers with kids, a fitness center in the station for citizens, and even planning family activity times are all ways to attract people to serve their community through fire service participation.

6. Shared services to include the possibility of a District, Joint Powers Alliance, etc.

Forming a fire protection district or some type single over seeing authority for Crow Wing fire services is a distinct possibility in the future. The biggest advantage is the ability to fund county fire services consistently and have authority to see that services are delivered effectively to all citizens. Many of these districts in the nation have individual departments which retain their identity but are under the county umbrella. Such organizational structures can be a win-win for all departments but more importantly for the citizens of Crow Wing County.

7. Funding possibilities;

Standardization of annual fire services fees is the norm in many jurisdictions across the nation. This can be as simple as using a single formula to calculate the fee per township, city, or village. It can also be a county wide fire services fee at the county level that is then distributed to the individual departments again using a single formula.

It is logical to start with the single formula fee per township, city, or village. The county wide system would need a county fire protection district with taxing powers and this is not only much more complex but is politically a very significant challenge. There are fire protection districts in Minnesota that work and districts that have failed. The key here is to start simple and build rather than jumping in before you know how deep the water is or how many sharks are in the water.
8. Crow Wing County Fire dispatching.

Crow Wing County Sheriff’s Office is the PSAP (Public Safety Answering Point) for all E911 calls in the county. This means all county 911 calls are directed by carriers to this CWCSO department. Once initial information is collected the caller is handed off to Brainerd Fire Department or handled by CWCSO.

The current call handling process is not only inefficient but has the potential for serious complications with the handoff of a critical EMS patient or trapped citizen during a fire. For these reasons this should be a highest priority issue for resolution.

Data shows that in 2014 there were about 2000 fire and EMS calls in Crow Wing County for county fire services. This calculates to 5.5 calls per day and does not include hang-up, kids playing on phone, etc. If we assume a call will average about 1.5 hours from call initiation to units back in service, this means fire/rescue services are in-service on emergency calls 8.25 hours per day. There is clearly a need for 24/7/365 county wide dispatching in Crow Wing County.
V. Action Plan for Crow Wing County Fire Services

To begin moving forward after this study is finalized it is imperative that an action plan be developed to see that everyone is focused on the same tasks in the same order. An action plan is a process used to organize agreed goals, objectives, and tasks into a structure which can be followed by Crow Wing fire/rescue services to achieve desired outcomes regarding shared services. To organize this plan the goals will be separated into the 8 areas from the original proposal.

1. **Automatic aid** – Joint responding to emergency calls is not just an enhancement but a necessity for safe, effective, and efficient service delivery. Automatic aid allows each jurisdiction to plan enough resources to mitigate any anticipated call. But to set up this system there are several prerequisites.

   A. all resources including personnel and equipment from each agency must be cataloged and the listing must be updated at least annually.

   B. training levels and certifications must be consistent across the participating departments.

   C. basic response such as crew size on responding units must be consistent.

   D. signed agreements need to be completed for interagency response

   With these requirements fulfilled there will need to be a team or committee to coordinate the construction of the actual “box alarm system” pages for each jurisdiction. Again this interjurisdictional document should be reviewed and updated annually.

2. **Increased call volume** – with calls for service increasing, especially EMS calls there are higher demands on volunteers time. Such demands will lead to stress for personnel and their families. Crow Wing County fire departments must find ways to handle the calls and keep staff from simply resigning from overload.

   There are several potential ways to keep morale up and get the job done.

   A. Be sure the department roster is full and that when possible there is a waiting list of candidates. This is attainable with a coordinated recruitment program using marketing strategies to get motivated new firefighters.

   B. Consider developing a cadre of EMS first responders. They could be firefighter/first responders or first responders only. This might necessitate adding to department size but would put staff where the need exists. It is also likely some first responders will be bitten by the firefighting bug and become dual role personnel.

   C. Develop a duty crew of 2 personnel for EMS and service calls. They could even be assigned a small vehicle for direct response during their assigned duty tour. The
program could start with daytime weekday duty and be expanded as needed to handle the needs.

3. Geographic issues – Crow Wing County has 417 lakes, numerous swamps, and large forested areas. This means that the closest fire department may not be the quickest to respond and that current response boundaries may need to be reevaluated. The deployment and staffing section of this report has analyzed not only current response capabilities but also how by modifying response assignments can improve service delivery.

Based upon this analysis and departmental capabilities, Crow Wing County fire services should develop a new set of first due areas and multi alarm standards. This program should include 1st through 5th alarm assignments and situational specific alarm type breakouts.

4. Deployment – The location of stations and the apparatus in those stations is critical to optimum service delivery. The deployment and demand section of this report has presented the data concerning where calls originate and what types of calls are happening in specific areas. The response capabilities from each station is also included.

A. Using this information Crow Wing County fire services can develop a short and long range plan for where to locate stations and what apparatus and equipment are located at individual stations.

B. It would also be prudent to consider how to protect an underserved area of high risk and/or high call volume. Specifically the area of Baxter along and west of #371 which is experiencing rapid commercial growth and has multiple large occupancy structures which need very rapid fire response.

5. Staffing – Having sufficient staff to respond to calls for service is essential for Crow Wing County fire services. While some departments have sufficient staff to handle an EMS call, other departments cannot muster enough personnel on a daily basis to meet demand. Fire calls can also present staffing issues when OSHA and NFPA standards are used as a baseline.

A. County fire services should set a baseline for call staffing on specific calls there will likely be areas where automatic multijurisdictional response will have to be used, at current departmental staffing levels.

B. Recruitment and retention enhancement will likely bring more staffing to most if not all county departments. However as call frequency increases this staffing shortfall will again be an issue. This will force the use of a duty crew concept for some jurisdictions. The exact point at which use of a duty crew is needed is a department by department decision, but for the good of the order it is essential that county response standards are met.

C. A separate issue is when does Crow Wing County need a county fire services director or coordinator? Currently there are about 1700 calls for service; 13 separate training
curriculums; 13 separate records management systems; and no single point of contact for outside agencies and citizens to use to get questions answered. This need is something that county fire services should begin to look at and plan for.

6. **Multi-jurisdictional structure** – Shared services and joint responding can be attained with the current organizational structure of Crow Wing County fire services, but there should be formal signed agreements that allow closest unit response, multi-jurisdictional response, minimum unit staffing on auto and mutual aid calls, joint training, recruitment, and establishment of the Crow Wing County Fire Chiefs Association as a 501-c-3 organization.

   Once the system is up to speed and functioning, discussion can begin for future consideration of joint powers agreements, establishment of a fire protection district, and possibly a county fire/rescue department. Such a paradigm change is probably not in the near future but 10 to 20 years away. However discussion and planning should be ongoing.

7. **Enhancing funding** – With the current structure enhancing funding is an individual department and governing body decision. This can be good or bad depending upon the current funding vs. service needs of the departments. Planning for a single funding mechanism is not very likely or effective unless there is a single jurisdictional authority.

   Improving some parts of the funding for individual departments could include county fire dispatching fee; county fire equipment fund; and possibly a fire prevention and administration fee. These types of county level funding would require county commission buy in and likely a referendum or vote. But if the fund were set at $500K annually the cost per citizen is $7. The exact way to set the annual fee should be spread among general population and county businesses has to be fair and equitable.

8. **Fire/rescue dispatching** – Currently all 911 calls in Crow Wing County are received by Crow Wing County Sheriff’s Office, Public Safety Answering Point (PSAP). From there the call for fire/rescue services are handed off to BFD or handled by CWCSO. This system is not only antiquated but potentially dangerous for firefighters and citizens.

   It is logical that CWCSO dispatch become the communications system for all fire/rescue agencies in the county. There will need to be several key operating procedures put in place before this can happen.

   A. There will likely need to be staffing increases at dispatch to have someone available 24/7 for fire/rescue channels monitoring and communications. This would require 4 telecommunicators at an annual cost of $200,000 plus computer software enhancements for fire service dispatching and records management.

   B. A formal fire/rescue communications committee should be established to provide interaction and feedback between CWCSO and County fire services. This user group would meet regularly with designated CWCSO representatives for discussion and to handle grievances.
C. There must be standardization equipment, response processes, and responding unit staffing, designations numbers, etc. simply put there will need to be only one way to run this railroad.

Master Plan
There is a need to develop a long range plan for all emergency services in Crow Wing County. This is clearly a priority. Using Crow Wing County Fire Chiefs Association, other key stakeholders, and the local administrations as the working committee, the team should set a plan for the next 2, 5, and 10 years. The long range plan must have sufficient detail to build the structure, operations, and financial foundations for this service and to set a clear course for the foreseeable future.

A strategic process should be used to develop the long range plan for emergency services in the community. All potential stakeholders must be identified and included in this process and all input should be well structured to avoid allegations of favoritism or exclusion.

Figure 1: Crow Wing County Master Plan Process
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**Step #1** – Identify the future mission and vision for County emergency services. This is the who, what, when, where, why, and how of the process. It is imperative that this process be consensual between the participating stakeholders.

**Step #2** – Prioritize the critical issues or recommendations that are identified from the organizational analysis process of this study to develop direction for the plan.

**Step #4** – Establish broad brush goals to achieve your desired outcomes. These goals will be general statements of the outcomes needed to achieve and maintain the mission and vision of the Master Plan.

**Step #5** – Set objectives and activities under each goal area to achieve the desired results. This should include specific steps and timelines for these steps, as well as overall timelines for the objectives.

**Step #6** – Feedback and re-evaluation of the plan is essential to the overall success of the process. This must be done routinely during the entire implementation cycle of the plan and at least annually thereafter.

**Prioritizing Recommendations**

There are several recommendations and an action plan in this report. Not all of these are equal in importance. To assist the County fire services with the assessment process, we developed a method to evaluate each recommendation using similar criteria:

1. What is the overall value of the recommendation to the jurisdiction? Does it improve the level of fire or emergency medical service provided to the citizens?

2. What is the overall value of the recommendation to Crow Wing fire services as an organization? Does it contribute to firefighter safety, employee welfare, or morale?

3. What is the overall level of difficulty to implement the recommendation? Can the recommendation be implemented quickly or does it require a long or difficult planning process?

4. What is the overall cost to implement the recommendation? Is the cost a one-time expenditure or does it require repeated funding?

**Criteria Defined**

A general definition for each criterion follows.

**Value of Recommendation to the Community**: Recommendations with very high value to the community would be those with the potential to significantly improve service delivery such as adding a new service or improving an existing one. An example may be a recommendation that has the potential to significantly reduce loss or response time. A value judgment score of five means the recommendation has very high potential to improve community safety and emergency service delivery. Conversely, a judgment value of 0 means the recommendation will have no impact on community safety.
**Value of Recommendation to the emergency services:** Recommendations with a very high value to the emergency services are those that improve daily operations, improve efficiency and effectiveness, or change the organizational culture and management in a positive way. These can also be recommendations that are perceived by firefighters and EMTs as improving their quality of work life or that improve their safety and health. A value judgment score of five means the recommendation has the highest potential to improve the organization; a score of zero means the recommendation will have no impact on the Department.

**Level of Difficulty to Implement:** Recommendations with a high level of difficulty to implement are those that have long planning cycles, require significant changes to infrastructure, changes to codes or labor agreements, or require major policy changes. Recommendations with a judgment value score of zero means the recommendation has an extreme level of difficulty to implement; a score of five means there is no difficulty.

**Cost of Implementation:** Recommendations with high implementation costs are those requiring significant capital outlays like new fire stations, land purchases, or large recurring costs such as additional personnel. A recommendation that requires only a minor change in policy, for example, would likely have a low cost of implementation. Recommendations with a judgment value score of five means that it has no implementation cost; a score of zero means that it has an extremely high cost to implement.

**Scoring** – For each recommendation a value judgment was made using the four evaluation criteria above and a numerical score was assigned. The score ranges are shown in Table 2.

### Table 2: Criteria Scoring Range

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Low Score (Poorest)</th>
<th>High Score (Best)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value to the Community</td>
<td>No Value = 0</td>
<td>Extreme Value = 5</td>
</tr>
<tr>
<td>Value to the Organization</td>
<td>No Value = 0</td>
<td>Extreme Value = 5</td>
</tr>
<tr>
<td>Level of Difficulty to Implement</td>
<td>Extreme Difficulty = 0</td>
<td>No Difficulty = 5</td>
</tr>
<tr>
<td>Cost of Implementation</td>
<td>Extreme Cost = 0</td>
<td>No Cost = 5</td>
</tr>
</tbody>
</table>

For example, a recommendation with the highest possible value to emergency services and to the community would have a combined score of 10 for benchmarks 1 and 2. If the same recommendation had the lowest “level of difficulty to implement”, and it also had little (or no) cost to implement, its total score would be 20 points. Such a recommendation would be considered to be a high priority because it could be implemented easily and economically; it would also be of significant value to the community and to the emergency services.
Crow Wing County Shared Services Study

The composite score values can be interpreted as follows:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest Priority</td>
<td>0 to 4</td>
</tr>
<tr>
<td>Low Priority</td>
<td>5 to 8</td>
</tr>
<tr>
<td>Moderate Priority</td>
<td>9 to 12</td>
</tr>
<tr>
<td>High Priority</td>
<td>13 to 16</td>
</tr>
<tr>
<td>Highest Priority</td>
<td>17 to 20</td>
</tr>
</tbody>
</table>
VI. Proposed 3 Year Plan for Crow Wing County Fire/Rescue

The final part of this study is to develop a 3 year strategic plan for Crow Wing County Fire Chiefs to use as a template for future master planning of county fire/rescue services. This 3 year plan is intended to be a broad brush introduction to the detailed master plan which will be the final product of Crow Wing County Fire/Rescue services working as a team to develop the individual goals and objectives for their future. It is essential that the final product be a consensual plan created from all stakeholders working together.

This study has provided several recommendations, several detailed analyzes, and comparison of Crow Wing County fire/rescue services to national benchmarks. The study is in essence a cookbook of fire/rescue service recipes. The recipes you choose to use and the exact ingredients you add are in fact up to your members. Whether you choose to make dessert before the main course is a decision for your leadership, hopefully with stakeholder input.

Whichever options are chosen, one thing is certain: the process will have its share of supporters and non-supporters who will have a great effect on the outcome of the decisions. The leaders must always keep the mission of all fire/rescue services at the sharp point of this endeavor. That mission is simply to save lives and protect property, and to do what is right for Mrs. Smith.

Crow Wing County 3 Year Strategic Plan

**First 6 months:**
- Update and refine resources lists for each department
- Update and rewrite all mutual and auto aid agreements
- Begin recruitment and retention marketing program county wide

**First year:**
- Start building the box alarms for each department by call type
- Using response polygons from study update first due areas for multi department responses
- Begin dispatching for calls using your county box alarm system
Crow Wing County Shared Services Study

Second year: Open discussion with CWCSO dispatch for a dedicated Fire/rescue person in the PSAP

Update county wide training levels for veteran and new firefighters

Evaluate a county wide funding source for dispatch, CIP, fire prevention, firefighter training

Third year: Look at establishing an EMS cadre in county fire/rescue

Evaluate future station locations and equipment by need

Establish a user group for 911 from county fire/rescue services

Begin enhancing training on a county level

Long Range: Look at the need for a Crow Wing County fire/rescue coordinator

Start using an annual citizen satisfaction survey tool

Work with Minnesota Fire Marshal to enhance recruitment and retention state wide

Look at joint powers and fire protection district concepts for Crow Wing County fire/rescue services

Future Working Groups for Crow Wing County Fire Chiefs Association

1. Training and Safety

2. Communications

3. Recruitment and Retention

4. Capital – joint purchasing

5. Operations
Appendix A – Box Alarm Example (Chanhassen, MN)

### All Structure Fires - Box Alarm Assignment Grid

<table>
<thead>
<tr>
<th>Response Area</th>
<th>Station 1</th>
<th>Station 2</th>
<th>Station 3 (Planned)</th>
<th>No Hydrants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Map</strong></td>
<td>North of Lyman &amp; East of Galpin</td>
<td>West of Galpin</td>
<td>Lyman &amp; South</td>
<td>Various, mostly south of Pioneer Trail**</td>
</tr>
<tr>
<td><strong>Initial Alarm</strong></td>
<td><strong>All Call</strong>*</td>
<td><strong>Chanhassen</strong></td>
<td><strong>Chanhassen</strong></td>
<td><strong>Chanhassen</strong></td>
</tr>
<tr>
<td>Utilities</td>
<td>Ridgeview</td>
<td>Ridgeview</td>
<td>Ridgeview</td>
<td>N/A</td>
</tr>
<tr>
<td>EMS***</td>
<td>Excel/Centrepoint/MN Valley Coop</td>
<td>Ridgeview</td>
<td>Ridgeview</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Confirms Structure Fire - Request Carver County Fireground Tactical Channel & 3rd Page for Manpower**

| Stand By Engine Company @ CFD #1 | Eden Prairie | Eden Prairie | Eden Prairie | N/A |

**1st Alarm**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Excelsior</th>
<th>Excelsior</th>
<th>Chaska**</th>
<th>Tender 1</th>
<th>Victoria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Minnetonka</td>
<td>Minnetonka</td>
<td>Shapkopee**</td>
<td>Tender 2</td>
<td>Carver</td>
</tr>
<tr>
<td>Ladder</td>
<td>Eden Prairie</td>
<td>Eden Prairie</td>
<td>Eden Prairie</td>
<td>Tender 3</td>
<td>Colgate</td>
</tr>
</tbody>
</table>

**2nd Alarm**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Chaska</th>
<th>Chaska</th>
<th>Excelsior</th>
<th>Tender 5</th>
<th>Prior Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Victoria</td>
<td>Victoria</td>
<td>Victoria</td>
<td>Tender 6</td>
<td>Chaska</td>
</tr>
<tr>
<td>Ladder</td>
<td>Minnetonka</td>
<td>Minnetonka</td>
<td>Minnetonka</td>
<td>Tender 7</td>
<td>Shapkopee</td>
</tr>
</tbody>
</table>

**Mutual Aid Chiefs**

| Hopkins/Edina | Hopkins/Edina | Hopkins/Edina | Tender 8 | St Boni |

**LSU Rehab**

| Excelsior/SW Metro Bus | Excelsior/SW Metro Bus | Excelsior/SW Metro Bus | Tender 9 | Mound |

**3rd Alarm**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Edina</th>
<th>Edina</th>
<th>Edina</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Hopkins</td>
<td>Hopkins</td>
<td>Hopkins</td>
<td>N/A</td>
</tr>
<tr>
<td>Ladder</td>
<td>Chaska</td>
<td>Chaska</td>
<td>Chaska</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Mutual Aid Chiefs**

| Bloomington/SLP | Bloomington/SLP | Bloomington/SLP | N/A |

**Command Van**

| SLP | SLP | SLP | N/A |

**Air Truck**

| Bloomington | Bloomington | Bloomington | N/A |

**4th Alarm**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Carver</th>
<th>Carver</th>
<th>Carver</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Bloomington</td>
<td>Bloomington</td>
<td>Bloomington</td>
<td>N/A</td>
</tr>
<tr>
<td>Ladder</td>
<td>Shapkopee</td>
<td>Shapkopee</td>
<td>Shapkopee</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**LSU Rehab**


**5th Alarm**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Victoria</th>
<th>Victoria</th>
<th>Victoria</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Waconia</td>
<td>Waconia</td>
<td>Waconia</td>
<td>N/A</td>
</tr>
<tr>
<td>Engine</td>
<td>SLP</td>
<td>SLP</td>
<td>SLP</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**6th Alarm**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Plymouth</th>
<th>Plymouth</th>
<th>Plymouth</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Colgne</td>
<td>Colgne</td>
<td>Colgne</td>
<td>N/A</td>
</tr>
<tr>
<td>Engine</td>
<td>Richfield</td>
<td>Richfield</td>
<td>Richfield</td>
<td>Jordan</td>
</tr>
<tr>
<td>Engine</td>
<td>St Boni</td>
<td>St Boni</td>
<td>Savage</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Engine | Long Lake | Long Lake | Prior Lake | N/A |

---

**IC initiates all call via 3rd page once structure fire is confirmed.**

**For areas with no hydrants, the normal box assignments apply. Request "Pumper/Tankers from Chaska/Shapkopee in lieu of engines on the 1st Alarm.**

**Tenders (Tankers) are requested as needed in order.**

Stand by coverage beyond the call should be filled with the initial alarm once confirmed.

**EMS resource to be dedicated to reponder health & Safety.**
Appendix B: APWA System

<table>
<thead>
<tr>
<th>Vehicle Category</th>
<th>Maximum Vehicle Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sedans, station wagons, and jeeps</td>
<td>162</td>
</tr>
<tr>
<td>Light-duty trucks</td>
<td>196</td>
</tr>
<tr>
<td>Medium- to heavy-duty trucks (including ambulances)</td>
<td>220</td>
</tr>
<tr>
<td>Fire apparatus</td>
<td>225</td>
</tr>
</tbody>
</table>

**Vehicle Scores**

<table>
<thead>
<tr>
<th>Unit</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
<th>#6</th>
<th>#7</th>
<th>#8</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Built</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Mileage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functionality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance &amp; Repair</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

When built – unit gets 1 point for each month from date of manufacture
Current Mileage – unit gets 1 point for each thousand mile
Body Condition – score 1 through 5: 1(excellent), 2 (good), 3 (fair), 4 (poor), 5 (replace)
Interior Condition – score 1 through 5: 1(excellent), 2 (good), 3 (fair), 4 (poor), 5 (replace)
Functionality – score 1 through 5: 1(excellent), 2 (good), 3 (fair), 4 (poor), 5 (replace)
Maintenance & Repair – score 1 through 5: 1(excellent), 2 (good), 3 (fair), 4 (poor), 5 (replace)
Mission – score 1 through 5: 1(excellent), 2 (good), 3 (fair), 4 (poor), 5 (replace)
Total Score – add entire column