

City of Bemidji Minnesota



Feasibility Study for Shared or Cooperative Fire and Emergency Services

August 2011



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Cities of
Bemidji, Turtle River, and Wilton
and the
Townships of
Bemidji, Durrand, Eckles, Fern, Frohn, Grant Valley, Helga,
Lake Hattie, Liberty, Northern, Port Hope, Rockwood,
Schoolcraft, Turtle Lake, and Turtle River

Minnesota

Feasibility Study for Shared or Cooperative
Fire and Emergency Services

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Executive Summary

Emergency Services Consulting International (ESCI) was engaged by the City of Bemidji to provide a comprehensive evaluation of the emergency services delivered to the city as well as to the surrounding townships, and to develop a plan to assist the policy-makers in planning for the department into the future. This report serves as the results of that evaluation and provides the reader with the information obtained during field visits; analysis of information and data compared against industry best practices, local standards, and industry benchmarks; and provides recommendations regarding increased efficiency and equity within the current system.

Bemidji Fire Department is a direct operating department of the City of Bemidji and provides fire protection and basic life support (BLS) emergency medical first responder services to the community. The department's jurisdiction encompasses all or portions of several different governmental units. The response area includes urban city neighborhoods and commercial areas, as well as suburban and rural countryside of Beltrami and Hubbard Counties and is situated about 300 miles north of the Minneapolis-St. Paul metropolitan area. The department began providing services in 1898.

BFD provides emergency services to a population of approximately 35,000¹ in an area of roughly 522 square miles. The area served by the department is experiencing moderate, but steady growth. The department's services are provided from three facilities located within the jurisdiction. The department operates four fire engines, one aerial truck, one pumper-tanker and two tankers, one medium-duty rescue truck, and five specialty or utility units, operated by 48 individuals² involved in delivering services to the jurisdiction. There are no administrative or support personnel. Primary staffing coverage for emergency response is through the use of paid on-duty firefighters in the station, with additional response by on-call personnel. For immediate response, at least one paid firefighter is on duty at all times with additional members carrying pagers to receive radio calls for emergency response. Dormitory staff are also available for response but with no specific schedule or quota.

The department provides a variety of services, including fire suppression; EMS first responder (city only); technical rescue services for water, ice, high and low angle rope, confined space, trench and structural collapse; vehicle extrication; public education; and fire code enforcement. A State of Minnesota

¹ Data as presented in the 2010 Bemidji Fire Department Annual Report.

² Current number at time of field research.

Chemical Assessment and Emergency Response team out of Moorhead provides technician-level hazmat response.

Bemidji Fire Department is a standing department within the organizational structure of the City of Bemidji. As such, all funding for the fire department's operations comes from the city's general fund. The city operates under a modified accrual basis of accounting, maintains an annual operating budget, and follows a calendar year budget cycle. Budget levels have fluctuated over the past four years and have generally trended downward to the current level of just over \$800,000. During the 2011 budget year, personnel costs comprised nearly \$600,000 (72%) of the total budget with operations and approximately \$150,000 (19%), and capital expenditures comprising the remainder (9%).

The fire department accounts for 9.1 percent of the overall City budget and also produces revenue through contracts to the surrounding townships and to the Bemidji-Beltrami Airport. During 2011, revenues are expected to reach \$408,455. In other words, the department is returning 49 percent of its budget to the city by way of generating revenue. Based on the actual amount of the department's budget borne by the tax payers, the department's per capita cost equates to \$31.36 as compared to \$68.01 for the State of Minnesota and \$104.00 as a national average.

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. BFD operates from a single staffed location located in the center of Bemidji as well as two other unstaffed facilities: 5th Street SE and Bemidji-Beltrami County Airport. A general evaluation of the facilities was conducted with the following results.

Station 1 is a 10,500 square foot facility in overall good condition. The building provides adequate space of current requirements and is well-suited to current operations. Station 2 is a 2,100 square foot utility building in overall good condition but utilized primarily as vehicle storage. The building was not designed as a fire station and has no living or hygiene facilities. Station 3 located at Bemidji-Beltrami County Airport is a 3,300 square foot facility that is currently under construction. Upon completion, the station will not contain living facilities, but will provide limited hygiene facilities.

BFD maintains a fleet of 12 response vehicles. Most of the current emergency vehicles (with the exception of Engine 8, Engine 9, and Squad 3) fall within what is considered to be an acceptable life span, with an average age calculated at 9.9 years. BFD has been fortunate in being able to recognize and address the importance of providing and maintaining high quality emergency vehicles to its responders. ESCI evaluates apparatus on a five point scale from Excellent to Serviceable. BFD's apparatus were evaluated as follows.

- Excellent – 6
- Good – 5
- Fair – 0
- Poor – 1 (Engine 9)
- Serviceable – 0

The department maintains a capital replacement plan that includes replacement of all heavy response apparatus as well as service and command vehicles. Although the capital plan is maintained, no annual contribution is made to a capital fund to prepare for high cost equipment. ESCI provided an alternate capital improvement plan to address annual contributions to a capital replacement fund for just such a purpose. Annual contributions would need to be \$265,167 to meet the alternative schedule with a current need of \$3,159,333 to meet current replacement needs and to bring the fund current for upcoming replacements.

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. ESCI evaluated the personnel resources in place within BFD and also made recommendations to assist the department in improving effectiveness and efficiency where necessary.

The administrative and support component of BFD is comprised of the Fire Chief, a paid-on-call (POC) Deputy Chief, two POC Assistant Chiefs and one POC Training Officer. All administrative and support functions are handled by these positions, although the Fire Chief carries a majority of the load due to the POC nature of the other officers. It is worth noting here that both the POC Deputy Chief and POC Training Officer are also career staff functioning as Firefighters/EMTs while on shift and handling administrative duties on off-duty days. A total of five personnel are assigned to administrative and support duties within the department.

BFD uses career staffing to carry out its primary emergency services functions. All administrative, support, and response staff are career personnel. A total of 45 personnel are assigned to operations within the department including all career, paid-on-call (POC), and volunteer personnel.

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 Bemidji Fire Department. ESCI evaluated the components of service delivery including demand, distribution, and response performance (response time).

Service demand was evaluated both temporally (by year, month, day, and hour) and geographically. Overall service demand has been only slightly variable across all periods and the only major difference was a significant decline in airport standbys from 2009 to 2010. When evaluated geographically, the highest concentration of incidents is occurring within the City of Bemidji with a scattering of other incidents to the north, east, and south.

Distribution was evaluated from the perspective of how well BFD facilities are deployed in relation to the geographic service demand noted above. BFD operates three facilities within the City of Bemidji, although only Station 1 is staffed. According to the analysis, the department can physically cover 88.3 percent of the service demand within the primary response area within four minutes of travel time from the existing stations. This does, however, assume that personnel are available at each station to respond to incidents. BFD can cover 96.4 percent of its service demand within eight minutes of travel time and 98.3 percent of its service demand within 12 minutes of travel time. Since only BFD Station 1 is staffed, Station 2 is a substation, and Station 3 is located at the airport, only those incidents within the travel model of Station 1's primary response territory would fall into the plotted travel models.

Total response time is the amount of time a resident or business wait for an apparatus to arrive at the scene of an emergency beginning when they first call the designated emergency number, often 9-1-1. The most frequency recorded response time was within the fifth minute, while the average overall response time calculated to 4:47 (4 minutes 47 seconds) for 2009 and 5:06 (5 minutes 6 seconds) for 2010, with response times of 8:00 (eight minutes) for 2009 and 9:00 (nine minutes) for 2010 when measured at the 90th percentile. *NFPA 1720* recommends that incidents occurring in suburban and rural

environments be measured at the 80th percentile. Although no actual descriptor was included in the data provided to delineate which incidents occurred in specific population density areas, when measured at the 80th percentile the overall response time calculated to 6:00 (six minutes) and 7:00 (7 minutes) for 2009 and 2010 respectively.

In regard to support programs, ESCI evaluated the training and fire prevention programs within BFD. Although the operational components of the fire department such as fire suppression, rescue, and response performance are what the public see most and can most relate to, there are a number of ancillary services performed within or for the department that are also essential to the department's overall success.

Within the training program ESCI evaluated general training competencies, program administration, schedule and facilities, training staff, training procedures, manual, and protocols, and recordkeeping/clerical support services. Evaluation of this program resulted in nine recommendations that could improve the delivery of training and education within the department.

ESCI also evaluated the fire prevention program or Life Safety Services for BFD. Within this program, ESCI evaluated code enforcement and inspections activity, new construction involvement, public safety education programs, fire investigations, and statistical collection and analysis. Evaluation of this program resulted in three recommendation intended to improve the efficiency of this program.

Although the intent of this study was to provide the region with an analysis of the feasibility of modifying the current cooperative efforts, ESCI felt it prudent to evaluate the current deployment of resources should the region determine that the current model would continue.

As indicated above, the travel time footprint of the existing fire stations is sufficient to cover at least 80 percent of the service demand within the response time parameters of the national standards for suburban and rural population densities. The length of the turnout time for any individual call will obviously be a factor as to whether these response time parameters are actually met, but the analysis is sufficient to indicate that additional station distribution is not necessary for the purpose of achieving response time standards at the 80th percentile.

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 will be discussed later 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 an “unprotected” class and is automatically applied to properties that are more than five road miles from a fire station.

Significant portions of the fire department’s service area would be a Class 10 “Unprotected Class” due to their distance from a fire station. 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 cost \$30,000 per year to operate, the cost-savings benefit would not encourage such a project.

This study was not intended to be a complete fire protection master plan project, but sufficient analysis was performed in order to present the discussion above about the possible benefits to be achieved and the reasons why these communities may wish to consider additional fire stations in the future. The point of importance in this shared services feasibility analysis is to stress that any such future stations will unquestionably benefit multiple governments and communities. Thus, the most advantageous approach to any such future capital projects would be as a joint effort.

The overall intent of this project was to determine if the current governance model was equitable and sustainable and, if not, to provide alternatives for future governance of the system. The final section of this report contemplates further information related to governance and oversight of the current fire protection system and, where appropriate, provides recommendations and analysis of alternatives.

In Minnesota, there is no specific legal requirement for local government to provide fire protection. Citizens, however, have the right to petition the local governing body to provide fire protection. Based

on that petition or the internal decision to provide fire protection, local government officials may decide to provide protection by:

- Organizing a municipal fire department
- Contracting for fire protection from a neighboring community
- Forming a joint powers fire district with one or more neighboring communities
- Forming a rural fire association

At present, the City of Bemidji is the provider of fire protection services to an area covering 17 other municipalities including the Cities of Turtle River and Wilton and the Townships of Bemidji, Durrand, Eckles, Frohn, Grant Valley, Liberty, Northern, Port Hope, Turtle Lake, and Turtle River in Beltrami County and Fern, Helga, Lake Hattie, Rockwood and Schoolcraft Townships in Hubbard County. Each of these municipalities participates in the Bemidji Rural Fire Association, Inc., to which they pay a fee for fire protection. The Association then contracts with the City of Bemidji to provide that fire protection outside the city limits. The current percent share in the system funding is determined by a formula that averages the following factors:

- Percent of five-year incident average
- Percent of total population
- Percent of building value

These factors are then averaged together to determine each municipality's percent share of the total funding necessary to deliver the same level of services in place the previous year. Although the current funding methodology does distribute costs across the various communities based on a number of factors, other elements that could be used to determine cost allocation have been overlooked. While elected officials may spend significant time and effort debating the overall cost of these services, it is very unusual that the point of service price is considered. In this light, it is not surprising that local governments find it difficult to establish a fair market price for essential services when entering into partnerships.

Alternatives provided in this section include: Intergovernmental Agreement, Joint Powers, and the Creation of a Fire District. Each strategy is discussed along with alternatives to funding the system. ESCI generally advises clients to keep cost apportionment formulas fair, simple, and intuitively logical to

assure that the public accepts and supports the endeavor. The typical factors included in cost allocation formulas include:

- Area
- Assessed Value (currently in use – building value)
- Service Demand (currently in use)
- Fixed Rate
- Population (currently in use)

ESCI also evaluated several options in combining the five elements listed above in a multi-variable calculation. The table below summarizes how each element could be combined a number of factors to create an equitable funding strategy. Each method of determining the multi-variable formulas is discussed within the body of the report.

Jurisdiction	Area	Assessed Value	Service Demand	Population	Multiple Variable #1	Multiple Variable #2	Multiple Variable #3
City of Bemidji	2.51%	49.45%	78.29%	43.92%	51.1%	57.8%	55.5%
City of Turtle River	0.21%	0.26%	0.05%	0.28%	0.2%	0.2%	0.2%
City of Wilton	0.46%	0.37%	0.13%	0.76%	0.4%	0.3%	0.4%
Bemidji Township	4.94%	7.06%	4.75%	10.25%	6.7%	6.5%	7.1%
Durand Township	3.53%	0.59%	0.08%	0.49%	0.7%	0.5%	0.6%
Eckels Township	6.21%	2.39%	2.72%	3.31%	3.0%	2.9%	3.3%
Fern Township	6.99%	0.53%	0.00%	0.88%	1.1%	0.7%	1.1%
Frohn Township	7.04%	3.90%	1.45%	4.65%	3.7%	3.2%	3.4%
Grant Valley Township	6.93%	3.96%	1.84%	4.87%	3.9%	3.4%	3.7%
Helga Township	6.87%	3.43%	0.91%	4.58%	3.3%	2.8%	3.1%
Lake Hattie Township	6.66%	0.35%	0.00%	0.66%	0.9%	0.6%	0.9%
Liberty Township	7.01%	1.52%	0.93%	2.11%	2.0%	1.6%	2.0%
Northern Township	6.72%	13.08%	5.65%	12.50%	10.5%	9.7%	8.9%
Port Hope Township	6.27%	1.78%	0.96%	1.78%	2.0%	1.7%	1.9%
Rockwood Township	6.95%	1.24%	0.18%	1.41%	1.6%	1.1%	1.4%
Schoolcraft Township	6.81%	0.27%	0.00%	0.34%	0.9%	0.5%	0.8%
Turtle Lake Township	6.99%	4.81%	0.83%	3.67%	3.9%	3.2%	2.8%
Turtle River Township	6.91%	5.01%	1.22%	3.55%	4.0%	3.4%	2.9%

In addition to the funding and cost allocation information provided above, some fire departments are using an alternative method: assessment. Assessments are based on type of occupancy and size rather than valuation so the fee for individual homeowners, landowners and business owners would be fixed rather than fluctuate based on the value of their individual properties.

Although Minnesota State Law, Chapter 429.010 to 429.111 grants power to a municipality to make certain infrastructure improvements and assess the cost of those improvements through special assessments, no such authority is given within the current statute to fund fire protection and rescue services. This is not to say that the current law cannot be changed, or that the City of Bemidji and the surrounding areas could not work with legal counsel to plan a pathway to push for legislative change.

The State of Minnesota, under Section 471.59 of the Minnesota Statutes, allows municipalities to enter into joint powers agreements (JPA) with other units of government to provide services or perform projects. The governing board of a joint powers agreement typically consists of a representative of each party to the agreement. By allowing representation from each participating government entity, the board is held accountable to the communities at large for their decisions and actions.

The purpose of most JPAs is to provide a service in a more efficient manner through cost saving objectives. This, however, is not always the case, such as in Bemidji. Control and input can be the driving force behind entering into such an agreement. In determining if a JPA is the most appropriate use of funds, local jurisdictions must consider the cost of providing the service. In regard to funding, several options are available to the participating municipalities much in the same way as will be discussed in the section on intergovernmental agreements.

Currently, there is only one independent fire taxing district operating within the State of Minnesota: Cloquet Area Fire District (CAFD). CAFD was created in 2009 by Chapter 88, Article 2, Sec. 46 of the 2009 Regular Legislative Session by special law. The formation of a fire district with taxing authority is the creation of a political subdivision of the state and is governed by the State of Minnesota.

A special taxing district would transfer all operations authority to a separate entity, much like that in a Joint Powers Entity; but, unlike a JPE, the entity would be its own taxing authority. The governing board of the newly created district could consist of members from each of the previous governmental entities or a completely new board elected at-large from the area served. In most cases, a fire district with taxing authority will base its tax rate solely on property values. Based on the information available at the time of data collection, the City of Bemidji would see a dramatic decrease in their portion of system funding under this methodology while the contract municipalities would see increases between \$211.37 (City of Wilton) and \$37,726.43 (Northern Township) annually.

The ESCI project team began collecting information concerning the fire protection systems of Bemidji and the surrounding area in April 2011. The compilation of that information and the preparation of this report have required nearly three months to complete. The team members recognize that the report contains an extremely large quantity of information and ESCI would like to thank the elected and appointed officials of the City of Bemidji, the Bemidji Fire Department, and the elected and appointed officials of the other 17 municipalities receiving services from BFD for their tireless efforts in bringing this project to fruition. It is with ESCI's sincere hope that the information contained in this report is utilized to its fullest extent and that the emergency services provided to the citizens of the Bemidji area are improved by its implementation.

Shared Services Governance Options

In Minnesota, there is no specific legal requirement for local government to provide fire protection. Citizens, however, have the right to petition the local governing body to provide fire protection. Based on that petition or the internal decision to provide fire protection, local government officials may decide to provide protection by:

- Organizing a municipal fire department
- Contracting for fire protection from a neighboring community
- Forming a joint powers fire district with one or more neighboring communities
- Forming a rural fire association

At present, the City of Bemidji is the provider of fire protection services to an area covering 17 other municipalities including the Cities of Turtle River and Wilton and the Townships of Bemidji, Durrand, Eckles, Frohn, Grant Valley, Liberty, Northern, Port Hope, Turtle Lake, and Turtle River in Beltrami County and Fern, Helga, Lake Hattie, Rockwood and Schoolcraft Townships in Hubbard County. Each of these municipalities participates in the Bemidji Rural Fire Association, Inc., to which they pay a fee for fire protection. The Association then contracts with the City of Bemidji to provide that fire protection outside the city limits. The current contract (entered into on January 1, 2006) expires December 31, 2011, but is automatically renewable for two like periods of three years unless terminated or renegotiated by either party with six months prior written notification to the other party. The current contract was also amended (Amendment 1) on May 4, 2009, with the following adjustments.

- Administrative costs reduced from ten percent to five percent.
- Formula factors were modified and incorporated into the contract.
- Capital improvement contributions were reduced from \$200,000 annually to \$165,000 annually.
- Adjustments of budgeted costs to actual costs to determine subsequent year contributions as well as requiring the city to consult with the association before purchasing additional equipment or hiring additional personnel.
- Townships of Fern, Lake Hattie, and Schoolcraft were added as parties to the agreement.

Amendment 2 of the contract (dated March 21, 2011) incorporated a revised capital improvement plan and increased the Association's contribution from \$165,000 to \$180,000 annually for equipment purchases. The following figure illustrates the funding share for each participating municipality for 2011.

Figure 1: 2011 Funding Distribution

Municipality	Percent Share	Share of Funding
City of Bemidji	56.42%	\$445,309
City of Turtle River	0.18%	\$1,439
City of Wilton	0.32%	\$2,939
Bemidji Township	7.13%	\$56,313
Durand Township	0.42%	\$3,296
Eckels Township	3.11%	\$24,533
Fern township	0.44%	\$3,511
Frohn Township	3.41%	\$26,913
Grant Valley Township	3.77%	\$29,729
Helga Township	2.76%	\$21,763
Lake Hattie Township	0.26%	\$2,046
Liberty Township	1.57%	\$12,403
Northern Township	10.84%	\$85,557
Port Hope Township	1.60%	\$12,650
Rockwood Township	0.99%	\$7,802
Schoolcraft Township	0.20%	\$1,581
Turtle Lake Township	3.19%	\$25,138
Turtle River Township	3.34%	\$26,329
Total	100.00%	\$789,254

The percent share in the figure above is determined by a formula that averages the following factors:

- Percent of five-year incident average
- Percent of total population
- Percent of building value

These factors are then averaged together to determine each municipality's percent share of the total funding necessary to deliver the same level of services in place the previous year. Although the current funding methodology does distribute costs across the various communities based on a number of factors, other elements that could be used to determine cost allocation have been overlooked.

Local governments provide services based on an assumption of public interest rather than the need for profitability, as in the private sector. Consequently, the limiting market forces of supply, demand, and price are not typically found at the forefront of policy decisions concerning emergency services. While elected officials may spend significant time and effort debating the overall cost of these services, it is very unusual that the point of service price is considered. In this light, it is not surprising that local governments find it difficult to establish a fair market price for essential services when entering into partnerships.

The current contract between the City of Bemidji and the Bemidji Rural Fire Association is based on annual manipulation as variables change. This method of modification leaves the entire system in a continual state of flux in regards to fire protection funding. Also, although the current contract requires that the city 'consult' with the rural association prior to modifying staffing or purchasing equipment, there is no provision that allows the rural association to have an active part in those decisions. Likewise, there is no specific provision that requires the city to interact with the rural association on other parts of the budget that could be modified. In other words, once the funding from the rural association has been determined, there is no mechanism to ensure that the fire department's budget will not change based on city needs.

In many IGA situations, contracts are set based on a long-term agreement and contain specific requirements that must be met for continued funding. If the decision is made to continue the current contracting for fire protection to the rural areas, ESCI suggests that the city and the rural association enter into a long-term contract for service (at least five years) and that the contract be subject to renegotiation if the department's budget is modified by more than 5 percent.

Intergovernmental Agreement

Although technically, a joint powers agreement is a type of intergovernmental agreement (IGA), for the purposes of this project, IGAs are discussed outside the scope of joint powers agreements in order to identify the other alternatives available to the participating municipalities. IGAs are the most common form of cooperative arrangement in Minnesota.³

Usually, when a single local government provides services to its residents, that community bears the entire financial burden because of the presumption that everyone benefits from the service. In the case of municipalities, the full cost of the service may not be easily determined because administrative and support expenses are frequently borne by other municipal departments and not documented in the emergency services budget. It all works because individual users of the service are not charged; therefore, the real price of that service is never an issue. On the other hand, when two or more communities share in providing emergency services jointly, elected officials must assure that each community assumes only its fair *pro rata* share of the cost, thereby fulfilling an obligation to act as stewards to the best interest of their respective constituencies. Such is the case for the Bemidji area.

³ "Choices for Change: A Guide to Local Government Cooperation and Restructuring in Minnesota." University of Minnesota: Extension. http://www.extension.umn.edu/distribution/citizenship/components/6541_04.html accessed 7 June 2011.

However, while purely economic considerations may suggest that those who benefit from a service should pay in direct proportion to the level of benefit (the “benefits received” principle), social and political concerns may also enter into the price-setting process. Therefore, the task of apportioning the cost of an allied emergency services system among partner agencies will likely require a fair amount of analysis and negotiation. The process should be approached with the recognition that any agreed upon allocation formula must fit the local situation, it should serve the best interests of the partners over the long-term, and everyone (especially the public) should easily understand it. It is also essential that the process be maintained completely transparent at the governance level. ESCI generally advises clients to keep cost apportionment formulas fair, simple, and intuitively logical to assure that the public accepts and supports the endeavor. The typical factors included in cost allocation formulas include:

- Area
- Assessed Value (currently in use – building value)
- Service Demand (currently in use)
- Fixed Rate
- Population (currently in use)

What follows is a non-prioritized listing of system variables that can be used (singly or in combination) to allocate cost between allied entities. Each option is summarized by the concept, its advantages and disadvantages, and other factors that should be considered. Regardless of the option(s) chosen to share the cost of fire protection, the resulting inter-local agreement needs to address the issues of full cost versus marginal cost and should be clear about the inclusion of administrative or overhead cost. In addition, service contracts often must reconcile the exchange of in-kind services between the participating agencies.

Area

Concept:

The cost of emergency service can be apportioned based on the geographic area served relative to the whole. Apportionment founded on service area alone may work best in areas that are geographically and developmentally homogeneous.

Pro:

Service area is easily calculable from a variety of sources.

Con:

Service area does not necessarily equate to greater risk or to greater workload.

Consider:

Service area may be combined with other variables (such as assessed value and number of emergencies) to express a compound variable (such as assessed value per square mile and emergencies per square mile).

Assessed Value**Concept:**

The assessed value (AV) of municipalities is established by the local tax assessor under laws of the state. Usually, higher-valued structures and complexes carry a greater risk to the community from loss by fire; consequently, assessed value also tends to approximate the property at risk within a municipality. Emergency services agencies are charged with being sufficiently prepared to prevent loss of life and property. Therefore, the cost of contracted service may be apportioned relative to the assessed value of the jurisdictions. Typically, AV is used to apportion cost of shared service by applying the percentage of each partner's AV to the whole. Building value is currently used for this variable in the Bemidji area rather than total property valuation.

Pro:

AV is updated regularly helping to assure that adjustments for changes relative to new construction, annexation, and inflation are included. Because a third party (the assessor) establishes AV in accordance with state law, it is generally viewed as an impartial and fair measurement for cost apportionment. Although the provision of emergency medical services is not typically considered a *property-related service*, apportionment tied directly to property value has merit.

Con:

AV may not reflect the property risk associated with certain exempt property, such as schools, universities, government facilities, churches, and institutions. AV may not always represent the life risk of certain properties, such as nursing homes or places of assembly, which might dictate more significant use of resources. In addition, some large facilities may seek economic development incentives through AV exemptions or reductions. Adjustments may need to be made to AV if such large tracts of exempt property in one jurisdiction cause an imbalance in the calculation.

Consider:

Some states discount AV depending on the class of property (commercial, residential, or agricultural), which may skew the overall proportion of those properties compared to risk. As an additional consideration, assessors usually establish the AV in accord with the property tax cycle, which can lag somewhat behind the budget cycle of local agencies and the time when service contracts are reviewed or negotiated.

Service Demand**Concept:**

Service demand may be used as an expression of the workload of an emergency service provider or geographical area. Cost allocation based on emergencies would consider the total emergency response of the service area, and apportion system cost relative to the percentage of emergencies occurring in the jurisdictions.

Pro:

Easily expressed and understood. Changes in the workload over the long term tend to mirror the amount of human activity (such as commerce, transportation, and recreation) in the corresponding area.

Con:

Emergency response fluctuates from year to year depending on environmental and other factors not directly related to risk, which can cause dependent allocation to fluctuate as well. Further, the number of incidents may not be representative of actual workload; for example, one large emergency event requiring many emergency workers and lasting many hours or days versus another response lasting only minutes and resulting in no actual work. Last, emergency response is open to (intentional and/or unintentional) manipulation by selectively downgrading minor responses, by responding off the air, or by the use of mutual aid. Unintentional skewing of response is most often found in volunteer fire systems, where dispatch and radio procedures may be imprecisely followed. Further, service demand does not follow a predetermined ratio to land area. As such, the service demand per square mile ratios may produce large variations. This should be taken into consideration if this methodology is used.

Consider:

Using a rolling average of incidents over several years can help to suppress the normal tendency for the year-to-year fluctuation of emergencies. The current contract uses a five-year average. Combining the number of emergencies with the number of emergency units and/or personnel required may help to align incidents with actual workload more closely; however, doing so adds to the complexity of documentation. In a similar manner (and if accurate documentation is maintained), the communities could consider using the total time required on emergencies as an aid to establish the comparative workload represented by each jurisdictional area.

Fixed Rate**Concept:**

The use of fixed fees or rates (such as a percentage) to calculate allocation of shared cost is more common between municipalities and independent districts. Occasionally, fixed-rate contracts involve the exchange of in-kind services.

Pro:

The concept is simple and straightforward. A menu of service options and the fees corresponding to those alternatives can be developed by the contractor agency. The contracting agencies can tailor a desired level of service based on risk and community expectation by choosing from the various menu items.

Con:

Partnering communities may change (i.e. population, jobs, commerce, structures, and risk) at divergent rates causing disconnection between the rationale used to establish the fee and the benefit received. A fixed-rate contract may be difficult to coherently link to the services provided and/or received, which can lead to a lack of support by officials and the community.

Consider:

Partnering agencies need to assure that provision for rate adjustment is included in the agreement, including inflation. The agreement should address the issue of full cost versus marginal cost. The inclusion or non-inclusion of administrative and/or overhead cost also requires statement, as does the reconciliation of in-kind service exchange. The ownership and/or depreciation of capital assets should be addressed, as should rent, utilities, and liability insurance. In the case of a fixed fee, the

agreement should establish how the participation of other public agencies in the partnership would affect cost.

Population

Concept:

Payment for service can be based on the proportion of residential population to a given service area. This variable is easily determined and can be adjusted annually based on U.S. Census population estimates. It is a known fact that human activity generates service demand for emergency services providers. Areas of higher population (urban and suburban) will see higher service demand rates than areas of lower population (rural). Basing cost allocation on population places more of the cost on the areas where incidents are more likely to occur.

Pro:

Residential population is frequently used by governmental agencies to measure and evaluate programs. The U.S. Bureau of Census maintains an easily accessible database of the population and demographics of cities, counties, and states. Estimates of population are updated regularly. Laypersons intuitively equate residential population to the workload of fire departments.⁴

Con:

Residential population does not include the daily and seasonal movement of a transient population caused by commerce, industry, transport, and recreation. Depending on the local situation, the transients coming in (or going out) of an area can be very significant, which can tend to skew community risk. Residential population does not statistically link with emergency workload; rather, human activities tend to be the linchpin that connects people to requests for emergency assistance.

For example, if residential population actually determined emergency workload, emergencies would peak when population was highest within a geographic area. However, in many communities where the residential population is highest from about midnight to about 6:00 a.m. (bedroom communities), that time is exactly when the demand for emergency response is lowest. It turns out that emergency demand is highest when people are involved in the activities of daily life —

⁴ The average citizen may easily associate population to emergency workload, but no statistical link can be made between the two.

traveling, working, shopping, and recreating. Often, the persons involved in such activities do not reside in the same area.

Consider:

Some areas experience a daily or seasonal influx of people who are not counted as residential population. This transient population can be estimated by referring to traffic counts, jobs data, hotel/motel occupancy rates, and, in some cases, state or national park administrators. Residential population plus transient population is referred to as *functional population*. Where functional population is significantly different from residential population, service agreements based on population should be adjusted to account for it.

As mentioned previously, each of the funding options discussed above can be used singularly or in combination with one or more other variables. The paragraphs below evaluate the multiple-variable allocation method and provide some examples of how this methodology, which is currently in use in Bemidji, can be expanded and/or enhance.

Multiple-Variable Allocation

Frequently, even though everyone may agree on the benefit of allied emergency services, officials find it difficult to reach an accord on the cost. The differences between community demographics and/or development, along with changes that occur within the system over the long term, can cause the perception of winners and losers. This can be especially prevalent when a single variable is used to apportion cost. A service contract based on more than one allocation determinate may help solve these problems.

By apportioning the costs over more than one variable, the members of the alliance will be able to reach a long-term agreement that fits the diversity of the partnering agencies. When choosing a cost-sharing strategy for partnered fire protection, it is important to keep any apportionment formula fair, simple, and intuitively logical to assure that the public accepts and supports the endeavor.

The information provided above serves as a detail of each funding alternative presented. Given the lengthy discussion provided with each alternative, ESCI has compiled the information into a summary table illustrating how each funding alternative would be distributed among the member jurisdictions. In

In addition to the individual funding alternatives, several multiple-variable scenarios are also provided as an example of how this type of methodology can be applied and modified.

Figure 2: Summary of Alternative Funding Models

Jurisdiction	Area	Assessed Value	Service Demand	Population	Multiple Variable #1	Multiple Variable #2	Multiple Variable #3
City of Bemidji	2.51%	49.45%	78.29%	43.92%	51.1%	57.8%	55.5%
City of Turtle River	0.21%	0.26%	0.05%	0.28%	0.2%	0.2%	0.2%
City of Wilton	0.46%	0.37%	0.13%	0.76%	0.4%	0.3%	0.4%
Bemidji Township	4.94%	7.06%	4.75%	10.25%	6.7%	6.5%	7.1%
Durand Township	3.53%	0.59%	0.08%	0.49%	0.7%	0.5%	0.6%
Eckels Township	6.21%	2.39%	2.72%	3.31%	3.0%	2.9%	3.3%
Fern Township	6.99%	0.53%	0.00%	0.88%	1.1%	0.7%	1.1%
Frohn Township	7.04%	3.90%	1.45%	4.65%	3.7%	3.2%	3.4%
Grant Valley Township	6.93%	3.96%	1.84%	4.87%	3.9%	3.4%	3.7%
Helga Township	6.87%	3.43%	0.91%	4.58%	3.3%	2.8%	3.1%
Lake Hattie Township	6.66%	0.35%	0.00%	0.66%	0.9%	0.6%	0.9%
Liberty Township	7.01%	1.52%	0.93%	2.11%	2.0%	1.6%	2.0%
Northern Township	6.72%	13.08%	5.65%	12.50%	10.5%	9.7%	8.9%
Port Hope Township	6.27%	1.78%	0.96%	1.78%	2.0%	1.7%	1.9%
Rockwood Township	6.95%	1.24%	0.18%	1.41%	1.6%	1.1%	1.4%
Schoolcraft Township	6.81%	0.27%	0.00%	0.34%	0.9%	0.5%	0.8%
Turtle Lake Township	6.99%	4.81%	0.83%	3.67%	3.9%	3.2%	2.8%
Turtle River Township	6.91%	5.01%	1.22%	3.55%	4.0%	3.4%	2.9%

Figure 3: Multiple-Variable Funding Scenarios

Multiple Variable Weights	
Multiple Variable #1	
Area	10%
Assessed Value	50%
Service Demand	25%
Population	15%
	100%
Multiple Variable #2	
Area	5%
Assessed Value	40%
Service Demand	40%
Population	15%
	100%
Multiple Variable #3	
Area	10%
Assessed Value	5%
Service Demand	45%
Population	40%
	100%

In addition to the funding and cost allocation information provided above, some fire departments are using an alternative method; assessment. Assessments are based on type of occupancy and size rather than valuation so the fee for individual homeowners, landowners, and business owners would be fixed rather than fluctuate based on the value of their individual properties.

In order to use an assessment fee mechanism to fund fire and rescue services, an inventory of existing occupancies must be conducted. This inventory should include residential single-family dwellings; residential multi-family dwellings; commercial properties including retail, hotel, motel, recreational areas and other occupancy uses; industrial occupancies; agricultural properties; and vacant lands. Once the inventory is completed, historical incident records are then used to determine an incident rate for each type of property. In addition, a risk factor is typically applied based on the resources required to mitigate a fire or rescue incident for each property type.

Although not widely used in Minnesota, departments within the State of Florida have been using assessments for a number of years. Osceola County, Florida recently utilized public input to adjust their fire and rescue assessment fees based on a comprehensive methodology to determine risk and occupancy rates. The following figure is an example of assessment rates used by that organization.

Figure 4: Example Fire Assessment Rate Structure⁵

	<u>Rate</u>
Residential Property use Category	
Residential	\$184.19 per dwelling unit
Non-Residential Property Use Categories	
Commercial	\$0.3340 per square foot
Industrial/Warehouse	\$0.0958 per square foot
Institutional	\$0.3054 per square foot
Transient Occupancy	\$200.69 per room/unit/space
Land Category	
Agricultural	\$0.0231 per acre
Vacant Land	\$0.1878

⁵ http://www.osceola.org/emergencyservices/122-4881-0/program_documents.cfm. Osceola County, Florida website. Accessed July 20, 2011.

In most cases where fire assessment fees are allowed, a fire assessment study is required that quantifies and validates the fees charged. These studies are frequently performed by external organizations that do not have bias in the study area. One such study was released by the City of Cape Coral, Florida in June 2009 and is available online at:

<http://www.capecoral.net/Portals/0/docs/City%20Manager/Fire%20Assessment.pdf>

Although Minnesota State Law, Chapter 429.010 to 429.111 grants power to a municipality to make certain infrastructure improvements and assess the cost of those improvements through special assessments, no such authority is given within the current statute to fund fire protection and rescue services. This is not to say that the current law cannot be changed or that the City of Bemidji and the surrounding areas could not work with legal counsel to plan a pathway to push for legislative change.

Joint Powers

The State of Minnesota, under Section 471.59 of the Minnesota Statutes, allows municipalities to enter into joint powers agreements (JPA) with other units of government to provide services or perform projects. By definition a joint powers entity means, "... an operating entity created by two or more governmental units entering into an agreement as provided by statute for the joint exercise of governmental powers. An intergovernmental agreement will be deemed to create a joint powers entity if the agreement establishes a board with the effective power to do any of the following, regardless of whether the specific consent of the constituent governmental units may also be required:

- 1) To receive and expend funds
- 2) To enter contracts
- 3) To hire employees
- 4) To purchase or otherwise acquire and hold real or personal property
- 5) To sue or be sued⁶

The governing board of a joint powers agreement typically consists of a representative of each party to the agreement. By allowing representation from each participating government entity, the board is held accountable to the communities at large for their decisions and actions.

⁶ "Risk Management Information, Cities Across Minnesota Cooperating to Provide Services and Perform Functions, A Review of Cooperative Agreements" League of Minnesota Cities.

The purpose of most JPAs is to provide a service in a more efficient manner through cost saving objectives. This, however, is not always the case, such as in Bemidji. Control and input can be the driving force behind entering into such an agreement. In determining if a JPA is the most appropriate use of funds, local jurisdictions must consider the cost of providing the service

The primary advantage to a JPA over an intergovernmental agreement (IGA) is that each represented entity has a seat at the table and direct input into the decisions made regarding the services provided. Although an IGA can be promulgated with specific language that gives the receivers of service an opportunity for input, a JPA actually puts those receivers of service in a position of authority over the operation of the system. Rather than having a single government entity controlling the service, the board of the JPA would make the decisions regarding service delivery.

There are two types of JPAs: Joint Powers Agreements and Joint Powers Entities (JPE). A Joint Powers Agreement is an agreement entered into by two or more governmental entities to jointly deliver a service. A governing board is generally not required and the ability to make decisions regarding the service remains with the governing body of each participating entity.

A Joint Powers Entity is a separate entity created by two or more governmental bodies relinquishing control of a function to the new entity. This, in effect, creates a new and distinct governmental entity.

The JPE operates autonomously from its member units and has the ability to:

- Receive and disburse funds
- Enter into contracts
- Hire and fire employees
- Own property, equipment and vehicles

A JPA, regardless of type, must be formed in accordance with Minnesota Statute §471.59 and include the following:

- Enabling Authority
- Purpose of Agreement
- Governance Terms
- Distribution of Current Property
- Disbursement of Funds
- Method of Disbursement

- Strict Accountability of all Funds
- Report of all Receipts
- Provision for Disbursements
- Length of Agreement/Termination Provisions⁷

In regard to funding, several options are available to the participating municipalities much in the same way as was discussed in the section on intergovernmental agreements.

The current system includes participation of 18 municipalities. Development of the governing body of a newly created JPA should be one of the initial objectives of the participating entities but governance of a JPA can take many forms depending on several variables including the number of participating entities, board make-up, representation, etc. Although the final decision on what form the governing body will take rests in the policy makers within each community, ESCI was asked to provide several examples of how the governing body might look.

The Bemidji Rural Fire Association represents the Townships of Bemidji, Durand, Eckles, Frohn, Grant Valley, Liberty, Northern, Port Hope, Sugar Bush, Turtle Lake, and Turtle River and the Cities of Turtle River and Wilton in Beltrami County as well as Fern, Helga, Lake Hattie, Rockwood, and Schoolcraft Townships in Hubbard County. Rather than each individual municipality entering into an agreement with the City of Bemidji for fire protection services, the association represents them thereby creating a single contract for service. In development of the governing body of a JPA, the entities have two general options in regards to representation on the newly created board.

Option 1 would be for the municipalities to continue with the current method of representation through the rural association. This option would create a JPA board consisting of representatives from the City of Bemidji and the rural association. This structure would allow for a more compact and manageable board to oversee the operations of the JPA. A potential board makeup could include three representatives from the rural association with three members from the City of Bemidji, presumably city elected officials or members appointed by the City Council.

Option 2 would negate the need for the continuance of the rural association in that each participating municipality would be represented individually on the JPA board. Considering the number of covered

⁷ "Joint Powers: Minnesota Counties Intergovernmental Trust. Presentation to the Collaborative Governance Council." October 21, 2010. Auditor, State of Minnesota.

municipalities currently, this would create a JPA board of 18 members if each entity appointed one representative. Although this creates an unusually large oversight board, an executive board could be created within the larger oversight structure that would be charged with general operations based on input and recommendations from the general board. An example of this type of organizational structure is Isanti Fire District, Minnesota. Although this JPA serves only seven entities (City of Isanti, Townships of Athens, Bradford, Isanti, Oxford, Spencer Brook and Standford), each municipality is represented individually. An example of a JPA with a much larger board is Orange County Fire Authority (OCFA), California, which is a partnership of 22 cities and unincorporated Orange County. The OCFA board of directors consists of 24 members and has an executive committee that is charged with conducting all business of the authority, with the exception of policy issues that are the duty of the full board of directors.

An example Joint Powers Agreement from Cass Lake, Minnesota is provided in the appendix of this report.

Creation of a Fire District (District with Taxing Authority)

Currently, there is only one independent fire taxing district operating within the State of Minnesota; Cloquet Area Fire District (CAFD). CAFD was created in 2009 by Chapter 88, Article 2, Sec. 46 of the 2009 Regular Legislative Session by special law. The formation of a fire district with taxing authority is the creation of a political subdivision of the state and is governed by the State of Minnesota.

A special taxing district would transfer all operations authority to a separate entity, much like that in a Joint Powers Entity; but, unlike a JPE, the entity would be its own taxing authority. The governing board of the newly created district could consist of members from each of the previous governmental entities or a completely new board elected at-large from the area served.

In most cases, a fire district with taxing authority will base its tax rate solely on property values. Based on the information available at the time of data collection, the following figure identifies the tax capacity within each currently participating municipality.

Figure 5: Current Tax Capacity

Municipality	Total Tax Capacity
City of Bemidji	\$9,163,990.00
City of Turtle River	\$83,307.00
City of Wilton	\$117,259.00
Bemidji Township	\$2,071,672.00
Durand Township	\$212,698.00
Eckles Township	\$1,069,357.00
Fern Township	\$294,344.00
Frohn Township	\$1,442,028.00
Grant Valley Township	\$1,484,766.00
Helga Township	\$1,227,686.00
Lake Hattie Township	\$313,598.00
Liberty Township	\$524,538.00
Northern Township	\$3,996,517.00
Port Hope Township	\$623,111.00
Rockwood Township	\$578,110.00
Schoolcraft Township	\$164,484.00
Turtle Lake Township	\$1,751,541.00
Turtle River Township	\$1,437,311.00
Total	\$26,556,317.00

As discussed previously, a majority of service demand occurs in the more densely populated areas within the City of Bemidji. Expectedly, a vast majority of property valuation is also located within the city limits. Funding a system based solely on property values has several advantages such as:

- Simple determination of cost allocation
- Periodic update of valuations
- Valuations can often be tied to risk

However, this type of funding mechanism can have its disadvantages as well:

- Current land owners without improved structures would see an increase in taxes
- Not all property is taxed but must be protected, i.e. schools, government buildings and lands, non-profit organizations, etc.
- Valuation does not correlate to service demand
- Ability to use a multiple-variable formula to distribute costs is eliminated

- Only the citizens who actually own property are supporting the services. Those that rent do not pay property tax but are statistically more likely to use the service.

In addition to the variability of tax capacity in each municipality, the services received by each municipality differ, at least to some degree. BFD is a basic life support (BLS) first responder agency in addition to being a fire suppression and technical rescue provider. The department responds to all medical emergencies within the City of Bemidji but does not offer those services outside the municipal boundaries. Therefore, applying a single tax rate throughout the entire service area may be perceived as an inequity in funding compared to services provided. The figure below applies a 30 mil rate to the total tax capacity within each municipality based on information obtained during data collection.

Figure 6: Example Cost Allocation - 30 Mil Rate

	Current Share	New Share	Change	Per Capita Change	Services Provided
City of Bemidji	\$451,613	\$274,920	\$176,693.64	\$13.16	Fire, Rescue, BLS First Response
City of Turtle River	\$1,564	\$2,499	\$934.76	\$10.74	Fire, Rescue
City of Wilton	\$3,306	\$3,518	\$211.37	\$0.91	Fire, Rescue
Bemidji	\$58,020	\$62,150	\$4,129.87	\$1.32	Fire, Rescue
Durand	\$3,057	\$6,381	\$3,323.75	\$22.16	Fire, Rescue
Eckles	\$22,158	\$32,081	\$9,923.02	\$9.82	Fire, Rescue
Fern	\$3,714	\$8,830	\$5,116.26	\$18.95	Fire, Rescue
Frohn	\$26,312	\$43,261	\$16,949.07	\$11.93	Fire, Rescue
Grant Valley	\$28,057	\$44,543	\$16,485.56	\$11.08	Fire, Rescue
Helga	\$23,466	\$36,831	\$13,364.32	\$9.54	Fire, Rescue
Lake Hattie	\$2,662	\$9,408	\$6,746.43	\$33.40	Fire, Rescue
Liberty	\$12,008	\$15,736	\$3,727.91	\$5.78	Fire, Rescue
Northern	\$82,169	\$119,896	\$37,726.43	\$9.87	Fire, Rescue
Port Hope	\$11,894	\$18,693	\$6,799.52	\$12.50	Fire, Rescue
Rockwood	\$7,437	\$17,343	\$9,906.70	\$23.04	Fire, Rescue
Schoolcraft	\$1,586	\$4,935	\$3,348.07	\$32.51	Fire, Rescue
Turtle Lake	\$24,508	\$52,546	\$28,038.12	\$24.97	Fire, Rescue
Turtle River	\$25,721	\$43,119	\$17,397.98	\$16.04	Fire, Rescue
Total	\$789,254	\$796,690			

A district funded solely based on property valuation would result in a significant decrease for the City of Bemidji while all other municipalities would see an increase in their funding share ranging from an

increase in per capita costs of \$0.91 for the City of Wilton to \$33.40 for Lake Hattie Township. While true that a vast majority of the service demand is located within the City of Bemidji, distribution of cost based on valuation would result in a disproportionate allocation of cost to the client cities and townships. As discussed previously, it is possible for some organizations to rely on a fire assessment fee rather than taxation for system funding. Under the example noted above in regards to estimated sharing, this includes those properties (mainly within the City of Bemidji) that are non-taxable such as government buildings, schools, and non-profit organizations. Applying a fire assessment fee to these types of properties may help to equalize the cost distribution of the system as a whole. Although presented as an option here, legal counsel and work with the local and state legislators would be necessary to move forward with a fire assessment fee.

Another issue that is often overlooked in the evaluation of creating an independent district is that of extra-departmental costs. Extra-departmental costs are those costs that, although provided to a municipal department, are not accurately captured within the departmental budget. Services such as legal representation, accounting, payroll, human resources, and technical support are typical costs that are usually absorbed within the general municipal budget and not broken out as separate items for each department receiving those services.

The formation of a district would require that these types of services be accounted for and either become an internal process of the district or contracted out to another entity. For example, the Cloquet Area Fire District continues to contract a number of administrative services to the City of Cloquet. As the district continues to grow, those services currently provided by the city may be transitioned into internal functions.

Organization structure and oversight would be similar to the options provided in the JPA discussion previously provided.

Findings, Recommendations, and Plan of Implementation

The intent and scope of this project was to identify potential alternatives to the current governance model in use regarding fire protection services for the Bemidji area. Key findings are as follows:

- The area served by BFD consists of a combination of urban, suburban, and rural areas.
- The residents served by BFD pay less than \$37.00 per capita compared to the Minnesota and national averages of \$68.01 and \$104.00, respectively.
- The vast majority of service demand that was able to be plotted geographically occurs within the city limits of Bemidji.
- The City of Bemidji funds approximately 57.2 percent of the system.
- BFD stations are adequately distributed to cover the historical service demand.
- Although station distribution is satisfactory, stations that rely on volunteers or are otherwise unstaffed reduce the department’s ability to meet response performance measures.
- BFD Station 2 is substandard for future operations.
- Department apparatus are in overall good condition with only three needed replacements in the near future.
- BFD is achieving a 90th percentile response time of 9:00 and 80th percentile response performance of 7:00 (based on 2010 data) indicating the overall response performance is not a concern in the region.
- Airport standbys occupy a significant amount of the department’s total duty time but are offset by revenue generated.
- The department lacks appropriate clerical support.
- Minimum operational staffing levels are considered to be inadequate for safe operations.

In order to address these key findings, the following recommendations have been provided:

- The SOG manual should be expanded to include a greater collection of guidelines for actual incident actions, including special hazard incidents such as technical rescue, hazardous materials releases, etc. Several model documents are available through industry trade organizations. 42
- The city should consider the addition of a clerical position to the fire department to assist with some of the non-operational administrative duties currently assigned and distributed to POC personnel. 71
- Minimum staffing levels should be increased to two in order to provide an added layer of safety during driving and scene activities prior to the arrival of additional personnel..... 73
- Dormitory personnel should be assigned routine shifts to supplement career personnel in order to guarantee a higher number of available personnel. 74
- The department should ensure that all personnel receive mandatory minimum firefighter training as well as mandated OSHA training prior to being allowed to respond to emergency scenes that could be deemed hazardous. 90
- BFD should develop a formal training plan that outlines required and optional training opportunities for at least one year in advance..... 92

- BFD should develop and implement a training manual that each member should be required to complete before being allowed to function in a hazardous environment..... 92
- Based on availability of fiscal resources, the city should investigate the possibility of developing a regional training center that includes a tower, burn pits, and rescue props for fire department manipulative training sessions. 92
- Based on fiscal resources, the city should create a position of full-time Training Officer to have a dedicated focus on the training and education of the department and to manage the overall training program..... 92
- The department, in cooperation with city HR personnel, should develop a formal job description for the Training Officer position based on the current organizational structure as well as potential future implementation of a full-time position. 92
- BFD should develop defined goals and objectives for the training program. 95
- BFD should provide for officer development training that meets the needs of the future leaders of the department..... 95
- BFD should develop a process by which to ensure that each member of the department is attending the requisite number of training events to maintain the minimum hour required for re-credentialing. 95
- Establish a database of existing commercial and public occupancies in the district and categorize each by the appropriate risk level..... 97
- Establish a target frequency for inspections of all commercial occupancies by risk category that are not inspected by the state..... 97
- Establish a file for each business and include all records of fire safety inspection activity. 97

In addition to the recommendations provided above, analysis of future deployment and shared services governance options provides policymakers with the information necessary to move the department into the future with a long-term plan. As discussed in the previous sections, the City of Bemidji should work with the client cities and townships to enter into a long-term agreement, regardless of mechanism, that provides all parties with an appropriate level of input into the decision-making process regarding the delivery of fire protection services to the region. This can be accomplished through enhanced language in the existing intergovernmental agreement (contract) or through the development and implementation of an alternative governance model.

The issues of politics, territorialism, power, pride, and money should be set aside and the primary concern of those policymakers involved in this process should be the continued delivery of adequate emergency services to the community through a spirit of cooperation.

Conclusion

The ESCI project team began collecting information concerning the fire protection systems of Bemidji and the surrounding area in April 2011. The compilation of that information and the preparation of this

report have required nearly three months to complete. The team members recognize that the report contains an extremely large quantity of information and ESCI would like to thank the elected and appointed officials of the City of Bemidji, the Bemidji Fire Department, and the elected and appointed officials of the other 17 municipalities receiving services from BFD for their tireless efforts in bringing this project to fruition. It is with ESCI's sincere hope that the information contained in this report is utilized to its fullest extent and that the emergency services provided to the citizens of the Bemidji area are improved by its implementation.

Appendix A – Evaluation of Current Conditions

Emergency Services Consulting International (ESCI) was engaged by the City of Bemidji to provide a comprehensive evaluation of the emergency services delivered to the city as well as to the surrounding townships and to develop a plan to assist the policy-makers in planning for the department into the future. This section that details the evaluation ESCI conducted on the Bemidji Fire Department (BFD) and reports on the current conditions of the organization.

Organization Overview

The Bemidji Fire Department is a direct operating department of the City of Bemidji and provides fire protection and basic life support (BLS) emergency medical first responder services to the community. The department's jurisdiction encompasses all or portions of several different governmental units. The response area includes urban city neighborhoods and commercial areas, as well as suburban and rural countryside of Beltrami County and is situated about 300 miles north of the Minneapolis-St. Paul metropolitan area. The department began providing services in 1898.

BFD provides emergency services to a population of 35,000⁸ in an area of roughly 522 square miles. The area served by the department is experiencing moderate, but steady growth. The department's services are provided from three facilities located within the jurisdiction. The department operates four fire engines, one aerial truck, one pumper-tanker and two tankers, one medium-duty rescue truck, and five specialty or utility units. The department has no reserve units.

There are 48 individuals⁹ involved in delivering services to the jurisdiction. The department's primary management team includes a chief, deputy chief, two assistant chiefs, four captains, and two member representatives. There are no administrative or support personnel. Primary staffing coverage for emergency response is through the use of paid on-duty firefighters in the station, with additional response by on-call personnel. For immediate response, at least one paid firefighter is on duty at all times with additional members carrying pagers to receive radio calls for emergency response. Dormitory staff are also available for response but with no specific schedule or quota.

The Insurance Services Office (ISO) reviews the fire protection resources within communities and provides a Community Fire Protection Rating system from which insurance rates are often based. The

⁸ Data as presented in the 2010 Bemidji Fire Department Annual Report.

⁹ Current number at time of field research.

rating system evaluates three primary areas: the emergency communication and dispatch system, the fire department, and the community's pressurized hydrant or tanker-based water supply. The overall rating is then expressed as a number between 1 and 10, with 1 being the highest level of protection and 10 being unprotected or nearly so. As of the latest rating, ISO gave the service area a rating of Class 4/9 with additional class 10 areas. The split rating applies the lower of the two ratings to those structures within five miles of a fire station and within 1,000 feet of a hydrant or creditable water source. All others receive the higher rating and areas outside of five miles receive a Class 10.

The department provides a variety of services, including fire suppression; EMS first responder (city only); technical rescue services for water, ice, high and low angle rope, confined space, trench and structural collapse; vehicle extrication; public education; and fire code enforcement. A State of Minnesota Chemical Assessment and Emergency Response team out of Moorhead provides technician-level hazmat response.

The Beltrami County Dispatch Center provides emergency call receipt and dispatch service. Enhanced-911 telephone service, computer-aided dispatch, and a multi-channel radio system are in place.

Governance and Lines of Authority

The City of Bemidji is a municipal corporation, formed under the laws of the State of Minnesota, and is provided the authority to levy taxes for operating a fire protection system.

The municipal corporation operates under a manager-council form of governance, and the city council is provided with necessary power and authority to govern the provision of fire protection and emergency services in the designated jurisdiction. As the governmental authority, the powers of City of Bemidji include: organizing a fire protection system, appointing officers and members, purchasing land and equipment, entering into contracts, issuance of bonds, and levying of taxes.

The role and authority of the city council and the city manager are further clarified within city charter and ordinances and written policy documents describing their function and tasks. The city council maintains strictly policy-level involvement, avoiding direct management and hands-on task assignment, an arrangement established within written policy.

The fire chief is an appointed at-will employee and is not provided with a personal services contract. The city manager provides an annual formal written evaluation of the chief's services as a means of documenting performance and establishing personal objectives.

Foundational Policy

Organizations that operate efficiently are typically governed by clear policies that lay the foundation for effective organizational culture. These policies set the boundaries for both expected and acceptable behavior, while not discouraging creativity and self-motivation. A comprehensive set of departmental operating rules and guidelines should contain at least two primary sections. The following format is suggested.

1. Administrative Rules – This section would contain all of the rules that personnel in the organization are required to comply with at all times. Administrative rules, by definition, **require** certain actions or behaviors in all situations. The governing body should adopt or approve the Administrative Rules since the chief is also subject to them. However, the governing body should then delegate authority to the chief for their enforcement on department personnel. Administrative rules should govern **all** members of the department: career, part-time, volunteer, or civilian. Where rules and policies, by their nature, require different application or provisions for different classifications of members, these differences should be clearly indicated and explained in writing. Specifically the Administrative Rules should contain sections which address:
 - Public records access and retention
 - Contracting and purchasing authority
 - Safety and loss prevention
 - Respiratory protection program
 - Hazard communication program
 - Harassment and discrimination
 - Personnel appointment and promotion
 - Disciplinary and grievance procedures
 - Uniforms and personal appearance
 - Other personnel management issues
2. Standard Operating Guidelines (SOGs) – This section should contain street-level operational standards of practice for personnel of the department. SOGs are different from administrative rules in that variances are allowed in unique or unusual circumstances where strict application of the SOG would be less effective. The document should provide for a program of regular, systematic updating to assure it remains current, practical and relevant. SOGs should be developed, approved, and enforced under the direction of the fire chief.

BFD maintains three primary policy manuals: *City Employee Manual*, *BFD Standard Operating Guidelines*, and *EMS Protocols*. The manuals were given a basic review for quality and content. They are fairly well

organized, and it appears that a great deal of time went into writing the various policies and procedures in a professional and clear manner. The documentation includes the appropriate policies either required by law or focused on reducing the risk of civil liability. These include a sexual harassment policy, family medical leave, and disciplinary policy. Other policies cover routine procedures, complaint handling, orientation of new members, uniform use, etc.

The SOGs are well organized, easy to understand, and apply and reflect the current industry standards and best practices. The procedures are reported to be reasonably up to date, with a system in place to review and update the procedures on a periodic basis. The procedures do not appear to contain adequate sections on emergency scene operations and may not provide field personnel with sufficient guidance on fireground operations such as fire streams, pump operations, search procedures, evacuations, etc. The SOGs have been distributed adequately in support of their purpose. Members have access to the operational guidelines for reference during training sessions and drills and can study them at their leisure. This encourages the daily use and application of the guidelines and ensures that outdated ones are brought to the attention of management as early as possible.

Administrative policies or rules and regulations are available in the workplace or distributed individually. This practice is encouraged, since easy access to such policy is important and reinforces its applicability. A distribution system is also in place to confirm the receipt of revisions or additions to the documents.

Recommendation:

- The SOG manual should be expanded to include a greater collection of guidelines for actual incident actions, including special hazard incidents such as technical rescue, hazardous materials releases, etc. Several model documents are available through industry trade organizations.

Organizational Design

A well-designed organizational structure should reflect the efficient assignment of responsibility and authority, allowing the organization to accomplish effectiveness by maximizing distribution of workload. The lines on an organizational chart simply clarify accountability, coordination, and supervision. Thorough job descriptions should provide the details of each position and ensure that each individual's specific role is clear and centered on the overall mission of the organization.

A review of this agency's organizational chart reveals that it is organized in a typical top-down hierarchy. The organizational structure of the department demonstrates a clear unity of command, in which each

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

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

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

The fire chief directly supervises five other individuals, including the deputy chief, two assistant chiefs and the on-duty career firefighters. The chief's span of control falls within the range typically considered normal and acceptable. The fire chief has been provided with the authority to suspend from duty and recommend termination.

The department maintains a thorough and up-to-date set of job classifications and descriptions that accurately reflect the typical responsibilities and activities of the positions. The documents adequately describe the primary functions and activities, critical tasks, levels of supervision, and accountability, as well as reasonable qualifications.

The department currently maintains a collective bargaining agreement (CBA) with the seven career firefighters that clarifies the salary, benefits, and many of the working conditions under which the employees in that classification will operate.

Maintenance of History

The Bemidji Fire Department has various levels of history retention programs in place. Appropriate records of all corporate or municipal meetings are maintained in accordance with the laws of the state governing various types of public meetings and decisions involving public funds.

The department does not formally maintain a "scrapbook" or file containing items of historical significance, including pictures, newspaper articles, etc. This is a missed opportunity; as such items are helpful when updating a historical perspective of the organization and the major events in its development.

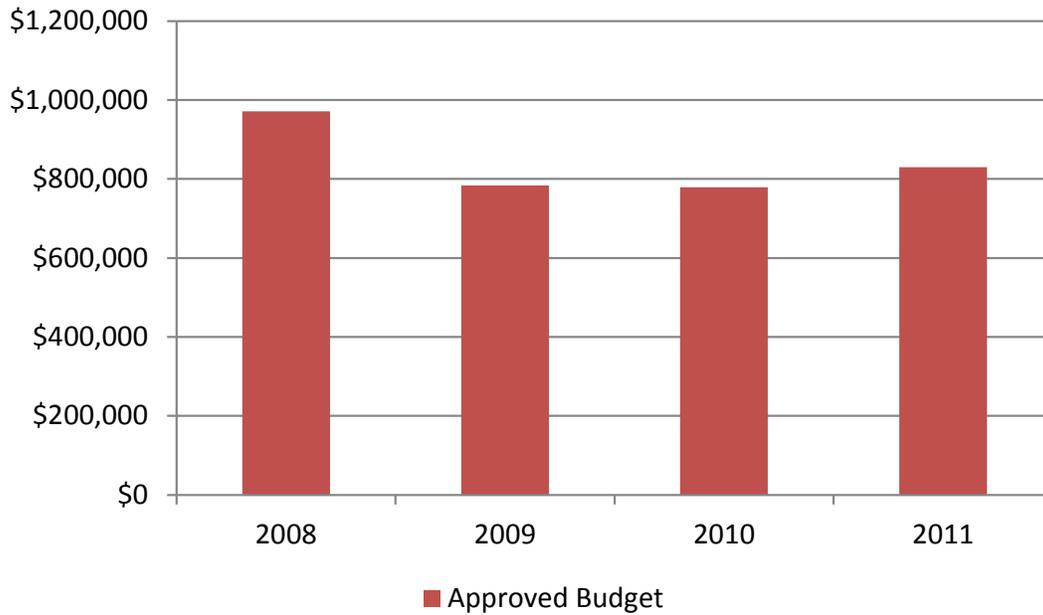
A regularly maintained historical record serves as a valuable tool for planning and decision-making. It allows quick recollection of how the department has adapted to changes in the community. It provides valuable historical data to agencies, such as the Insurance Services Office, for evaluation purposes. It also allows for permanent memory of the people who have contributed to the success of the department in its service to the community.

A well-produced annual report can serve to satisfy this need. In addition, an annual report is a wonderful communications tool to share the efforts and activities of the department with the public. The department has been producing and distributing an annual report of activities and accomplishments that provides a historical reference and measurement of its performance.

Finance and Budget

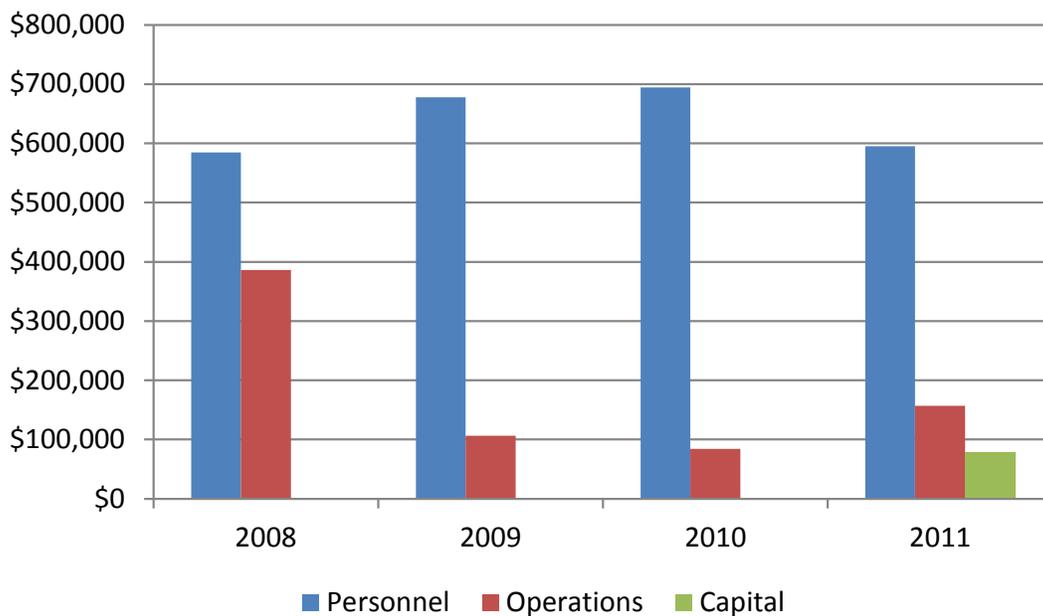
Bemidji Fire Department is a standing department within the organizational structure of the City of Bemidji. As such, all funding for the fire department's operations comes from the city's general fund. The city operates under a modified accrual basis of accounting, maintains an annual operating budget, and follows a calendar year budget cycle. The following figure illustrates how the department's budget has changed over the past four years.

Figure 7: Four-Year Budget History



The following figure analyzes how the budget is distributed across the areas of personnel, operations, and capital.

Figure 8: Historical Budget Distribution



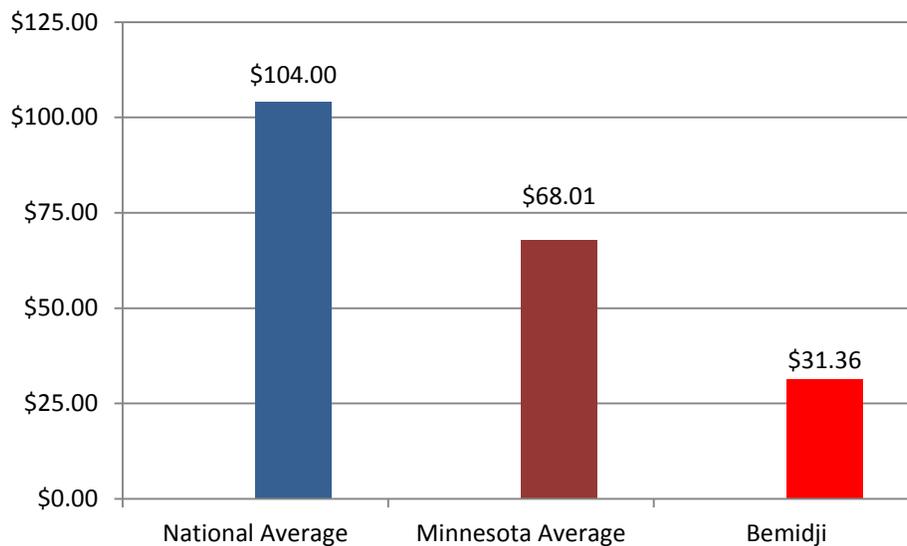
It is common for the personnel expenditures of career fire departments to comprise a majority of the departmental budget. For BFD, personnel costs comprised 72 percent of the total department budget

for 2011 with operational expenses accounting for only 19 percent. For budget year 2011, capital expenditures are estimated to account for 9 percent of the total budget. It is also useful to evaluate how the fire department impacts the overall city budget. The following figure illustrates how the total city budget for 2011 is distributed across the various departments and agencies.

Figure 9: Overall City Budget Distribution



The figure above illustrates that the fire department will consume approximately 9.1 percent of the overall city budget. The department is funded through the city's general fund, and a majority of this funding comes from ad valorem taxes generated by the city. The department also generates revenue through a contract to provide service to the surrounding 15 townships. During the 2011 budget, this contract is expected to generate \$333,455 (40.2 percent of the department's total budget). In addition, the department generates reimbursement revenue from the airport based on the number of responses for commercial aircraft operations. This is expected to generate \$75,000 during the 2011 budget year. This leaves approximately \$421,215 that is borne by tax payers within the City of Bemidji. Based on 2010 census data that indicates a total population of Bemidji of 13,431, this equates to a per capita cost for fire protection of \$31.36.

Figure 10: Comparison of Fire Spending - 2010¹⁰

The preceding figure illustrates the per capita tax cost within the City of Bemidji as compared to national and Minnesota averages. As noted previously, BFD provides service to two other cities and 15 townships surrounding Bemidji. Each serviced municipality participates in the Bemidji Rural Fire Association. This association receives funds from each represented municipality and then contracts for service with the City of Bemidji. The method to determine cost allocation is based on a funding formula that varies each year and consists of a multi-variable methodology. The variables currently used include: five-year total runs, average annual runs, percent of runs, population, percent of population, value of buildings, and percent of value of buildings. The associated percentages are then averaged to determine the cost allocation for each municipality. The following figure illustrates the percentages of the total cost of fire protection to the municipalities based on an average of each element.

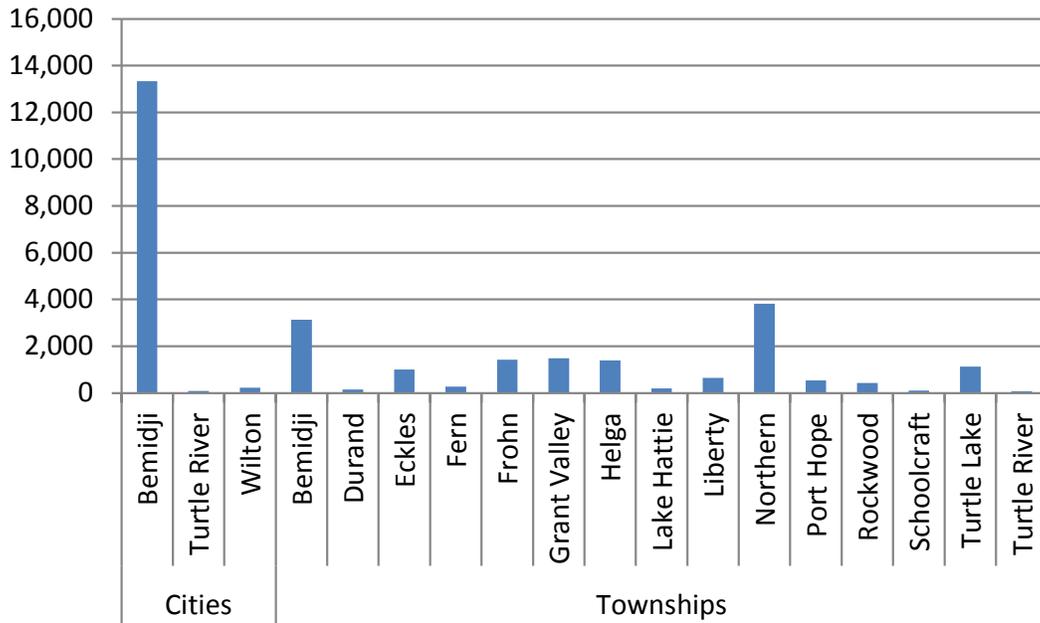
¹⁰ Source: U.S. Census Bureau Local Government Spending by Function. The local government data are from a sample of local governments and, as such, are subject to sampling variability.

Figure 11: Distribution of Fire Protection Costs - 2011

Municipality	Percentage Share
City of Bemidji	45.44%
City of Turtle River	0.29%
City of Wilton	0.79%
Townships	
Bemidji	10.60%
Durand	0.51%
Eckles	3.42%
Fern	0.91%
Frohn	4.81%
Grant Valley	5.03%
Helga	4.74%
Lake Hattie	0.68%
Liberty	2.18%
Northern	12.93%
Port Hope	1.84%
Rockwood	1.45%
Schoolcraft	0.35%
Turtle Lake	3.80%
Turtle River	0.22%
	100.00%

It should be noted that the 2011 budget distribution was determined based on the U.S. Census Bureau's 2007 population estimates for the individual municipalities. The following figure illustrates how the 2007 population of the entire service area is distributed across the various municipalities.

Figure 12: 2007 Service Area Population Distribution



The figure illustrates that the City of Bemidji has the highest population of any portion of the entire service area. When combined, however, the municipalities served outside the City of Bemidji have a combined population that exceeds that of the City: 16,129 to 13,341. The following figure takes the information from the 2011 cost allocation calculation and substitutes the 2010 population numbers for each municipality.

Figure 13: Revised Cost Allocation Calculation Based on 2010 Census

		2010 Population	% Pop	5-year Runs	Average Annual Runs	% Runs	Value	% Value	Average %
Cities	Bemidji	13,431	43.92%	3,019	603.80	78.29%	\$923,807,800	49.45%	57.22%
	Turtle River	87	0.28%	2	0.40	0.05%	\$4,825,600	0.26%	0.20%
	Wilton	233	0.76%	5	1.00	0.13%	\$6,822,600	0.37%	0.42%
Townships	Bemidji	3,134	10.25%	183	36.60	4.75%	\$131,892,100	7.06%	7.35%
	Durand	150	0.49%	3	0.60	0.08%	\$11,092,800	0.59%	0.39%
	Eckles	1,011	3.31%	105	21.00	2.72%	\$44,711,300	2.39%	2.81%
	Fern	270	0.88%	0	0.00	0.00%	\$9,879,700	0.53%	0.47%
	Frohn	1,421	4.65%	56	11.20	1.45%	\$72,903,800	3.90%	3.33%
	Grant Valley	1,488	4.87%	71	14.20	1.84%	\$73,939,400	3.96%	3.55%
	Helga	1,401	4.58%	35	7.00	0.91%	\$64,093,200	3.43%	2.97%
	Lake Hattie	202	0.66%	0	0.00	0.00%	\$6,559,500	0.35%	0.34%
	Liberty	645	2.11%	36	7.20	0.93%	\$28,427,400	1.52%	1.52%
	Northern	3,822	12.50%	218	43.60	5.65%	\$244,393,400	13.08%	10.41%
	Port Hope	544	1.78%	37	7.40	0.96%	\$33,301,000	1.78%	1.51%
	Rockwood	430	1.41%	7	1.40	0.18%	\$23,148,500	1.24%	0.94%
	Schoolcraft	103	0.34%	0	0.00	0.00%	\$4,973,400	0.27%	0.20%
	Turtle Lake	1,123	3.67%	32	6.40	0.83%	\$89,930,000	4.81%	3.11%
Turtle River	1,085	3.55%	47	9.40	1.22%	\$93,599,700	5.01%	3.26%	
	Total	30,580	100.00%	3,856	771.20	100.00%	\$1,868,301,200	100.00%	100.00%

Note: All numbers have been rounded to the nearest whole number or hundredth of a percent as appropriate.

Based on the revised calculations noted above, cost allocation should change based on the following using the current calculation method.

Figure 14: Revised Cost Allocation¹¹

Municipality	Share	Per Capita Cost
City of Bemidji	\$451,613	\$36.95
City of Turtle River	\$1,564	\$17.98
City of Wilton	\$3,306	\$14.19
Townships		
Bemidji	\$58,020	\$18.51
Durand	\$3,057	\$20.38
Eckles	\$22,158	\$21.92
Fern	\$3,714	\$13.76
Frohn	\$26,312	\$18.52
Grant Valley	\$28,057	\$18.86
Helga	\$23,466	\$16.75
Lake Hattie	\$2,662	\$13.18
Liberty	\$12,008	\$18.62
Northern	\$82,169	\$21.50
Port Hope	\$11,894	\$21.86
Rockwood	\$7,437	\$17.29
Schoolcraft	\$1,586	\$15.40
Turtle Lake	\$24,508	\$21.82
Turtle River	\$25,721	\$23.71
Total	\$789,254	

Alternatives to the current method of cost allocation were presented in the governance options section of the report.

¹¹ Based on the revised 2011 allocated budget as indicated on the 2011 Cost Allocation Calculation document provided by the City of Bemidji.

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.

Bemidji Fire Department 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 two 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 city 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.

Bemidji Fire Station One	
318 Fifth Street NW Initial Construction: 1971	
Construction and Condition	
Building square feet	10,500
Apparatus Bays:	
Back-in used with stacked parking	3
Drive-through capable used with stacked parking	1
Building height	One story
Construction type	TYPE I-A--Fire Resistive Non-Combustible
Outside finish	Masonry block. Poured concrete
Unusual construction features present	None
Overall construction condition	Good condition
Does structure appear to be ADA compliant	No
Building code issues evident	Glass separations between bays and office not rated wire glass.
Roof type	Flat, membrane
Roof age	Two years
Roof condition	No known problems

Bemidji Fire Station One	
Type of heating system	Forced air- natural gas
Heating system age	Age unknown
Air conditioning	Central air- living and administrative areas only
Building Design	
Overall size of facility adequate for current use	Yes
Apparatus exit	Exit to traffic flow safe and unimpeded
Building and property blend well with neighborhood	Yes
Building and property adaptable if future expansion needed	Yes
Adequate staff and visitor parking	Staff parking is inadequate
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly	Yes
Adequate fire extinguishers (not on apparatus)	Yes
Cooking equipment central shutdown	Yes
Automatic fire sprinklers present	None
Alarm systems present	No alarm systems present
Commercial cooking equipment present	No
All flammable and combustible liquids stored in approved cabinet	Yes
All pressure cylinders stored properly	Yes
SCBA compressor system present	Yes
Air sample certification present and visible	Yes
Backup generator present	Yes, with manual transfer switch
Environmental Issues	
Apparatus exhaust removal	Direct connect vacuum system connected
Underground storage tanks present	No
Apparatus floor drain oil separators in place	Oil separator in use
Staff Features	
Adequate space for working in, on, or around apparatus	Space around apparatus is adequate
Apparatus room accommodates working on small equipment	Adequate space
Personnel can move quickly and easily to apparatus for response	Yes
Adequate space for cooking and eating	Yes
Adequate space for local company training drills	Yes

Bemidji Fire Station One	
Compromises necessary for two-gender staffing	Yes
Two-gender compromises	Single shower facility or area
Adequate space for personal hygiene	Yes
Adequate space for sleeping	Yes
Adequate space for storage	Yes
Facility features	Separate watch room/station office Administrative/support offices Communications/dispatch Day room/lounge Kitchen Classroom for >10 Training library Individual dormitories Separate officer's dormitory Shower/locker room(s) Turnout gear extraction washer SCBA filling station

Bemidji Fire Station Two	
1912 5 th Street SE Initial Construction: 1980	
Construction and Condition	
Building square fee	2,100
Apparatus Bays:	
Back-in used with stacked parking	1
Building height	One story
Construction type	TYPE II-B--Unprotected Non-Combustible
Outside finish	Metal siding
Unusual construction features present	Single bay door shared by side-by-side apparatus parking
Overall construction condition	Good condition

Bemidji Fire Station Two	
Does structure appear to be ADA compliant	No
Roof type	Peaked, metal
Roof age	Original to building
Roof condition	No known problems
Type of heating system	Forced air- natural gas
Heating system age	Original to building
Air conditioning	No AC present
Building Design	
Overall size of facility adequate for current use	Yes
Apparatus exit	Convuluted apparatus exit extends response time
Building and property blend well with neighborhood	Yes
Building and property adaptable if future expansion needed	No
Adequate staff and visitor parking	Staff parking is inadequate
Any additional design comments	Not designed for fire station, building sits back on residential property
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly	No
Adequate fire extinguishers (not on apparatus)	No
Cooking equipment central shutdown	No cooking equipment present
Automatic fire sprinklers present	None
Alarm systems present	No alarm systems present
All flammable and combustibile liquids stored in approved cabinet	None present
All pressure cylinders stored properly	Yes
SCBA compressor system present	No
Backup generator present	No generator present
Environmental Issues	
Apparatus exhaust removal	No exhaust removal effort in place
Underground storage tanks present	No
Apparatus floor drain oil separators in place	Status of oil separator unknown
Staff Features	
Adequate space for working in, on, or around apparatus	Space around apparatus cramped and movement is limited Apparatus parking is impeded due to inadequate space
Apparatus room accommodates working on small equipment	Work must be conducted outdoors
Personnel can move quickly and easily to apparatus for response	No
Adequate space for cooking and eating	None

Bemidji Fire Station Two	
Adequate space for local company training drills	No
Adequate space for personal hygiene	No
Adequate space for sleeping	Not intended for sleep accommodation
Adequate space for storage	No

Bemidji Fire Station Three

<p>Bemidji Regional Airport</p> <p>Initial Construction: 1985 Major Additions/Renovations: 1 Year of Major Addition/Renovation: 2010</p>	
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Construction and Condition	
Building square feet	3,300
Apparatus Bays:	
Back-in single unit	2
Drive-through use single unit	1
Building height:	One story
Construction type	TYPE II-B--Unprotected Non-Combustible
Outside finish	Masonry block
Unusual construction features present	None
Overall construction condition	Good condition
Does structure appear to be ADA compliant	Yes
Building code issues evident	None
Roof type	Peaked, metal
Roof age	Original to building
Roof condition	No known problems
Type of heating system	Forced air- natural gas
Heating system age	Original to building
Air conditioning	Central air - living areas only
Building Design	
Overall size of facility adequate for current use	Yes
Apparatus exit	Exit to traffic flow safe and unimpeded

Bemidji Fire Station Three	
Building and property blend well with neighborhood	Yes
Building and property adaptable if future expansion needed	Expansion need unlikely
Adequate staff and visitor parking	Parking is adequate
Building and Grounds Safety	
Automatic door stops on overhead doors operating properly	Yes
Adequate fire extinguishers (not on apparatus)	Yes
Cooking equipment central shutdown	No cooking equipment present
Automatic fire sprinklers present	None
Alarm systems present	Local smoke detection only
All pressure cylinders stored properly	Yes
SCBA compressor system present	No
Backup generator present	Yes with auto transfer switch
Environmental Issues	
Apparatus exhaust removal	Forced air through structure, auto activation
Underground storage tanks present	No
Apparatus floor drain oil separators in place	Oil separator in use
Staff Features	
Adequate space for working in, on, or around apparatus	Space around apparatus is adequate
Apparatus room accommodates working on small equipment	Adequate space
Personnel can move quickly and easily to apparatus for response	Yes
Adequate space for cooking and eating	Compromised Not set up for housing personnel
Adequate space for local company training drills	Compromised Must use office area
Are compromises necessary for two-gender staffing	No
Adequate space for personal hygiene	Yes
Adequate space for sleeping	Not intended for sleep accommodation
Adequate space for storage	Yes
List facility features:	Separate watch room/station office Shower/locker room(s)

Apparatus

BFD maintains a fleet of 12 response vehicles. Most of the current emergency vehicles (with the exception of Engine 8, Engine 9 and Squad 3) fall within what is considered to be an acceptable life span,

with an average age calculated at 9.9 years. BFD has been fortunate in being able to recognize and address the importance of providing and maintaining high quality emergency vehicles to its responders.

The following charts summarize currently existing fire and emergency medical response apparatus, as well as the equipment capacities and condition.

Engine 1



Manufacturer	Pierce Mfg.
Year of Manufacture	2005
Mileage	17,651
Hours	1,526
Pumping Capacity	1,500 gallons per minute (gpm)
Tank Capacity	1,000 gallons
Seating Capacity	6
Number of SCBA	5

Equipment	large diameter hose generator BLS medical gear automatic external defibrillator thermal imaging camera Class A foam injected Class B foam/eductor
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Surface Rust Present	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Engine 2



Unit Status	Active Service
Manufacturer	Pierce Mfg.
Year of Manufacture	2008
Mileage	19,696
Hours	1,458
Pumping Capacity	1,500 gpm
Tank Capacity	1,000 gallons
Seating Capacity	6
Number of SCBA	5

Equipment	large diameter hose generator power rescue tool BLS medical gear automatic external defibrillator thermal imaging camera Class A foam injected Class B foam/eductor
Surface Rust Present	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Engine 8



Manufacturer	General Fire Apparatus
Year of Manufacture	1995
Mileage	38,598
Hours	3,065
Pumping Capacity	1,250 gpm
Tank Capacity	2,000 gallons
Seating Capacity	5
Number of SCBA	4

Equipment	large diameter hose generator power rescue tool BLS medical gear automatic external defibrillator Class A foam/eductor Class B foam/eductor
Surface Rust Present	Light
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Engine 9



Manufacturer	General Fire Apparatus
Year of Manufacture	1979
Mileage	40,508
Hours	N/A
Pumping Capacity	1,250 gpm
Tank Capacity	1,000 gallons
Seating Capacity	2
Number of SCBA	2

Equipment	generator drop tank portable pumps
Surface Rust Present	Heavy
Structural Rust and Corrosion	Heavy
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Poor

Ladder 4



Manufacturer	General Fire Apparatus
Year of Manufacture	1991
Mileage	13,004
Hours	1,250
Pumping Capacity	1,500 gpm
Type of Elevating Aerial Device	Articulating Elevated Nozzle w/ Limited Ladder (Squirt), rear mount
Tank Capacity	500 gallons
Seating Capacity	2
Number of SCBA	6

Does this unit also respond as a standard engine (quint use)

responds as aerial/truck company only

Equipment	large diameter hose generator rope rescue gear confined space rescue gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Tanker 11



Manufacturer	Pierce Mfg. WS
Year of Manufacture	2005
Mileage	8,150
Hours	457
Pumping Capacity	500 gpm
Tank Capacity	2,100 gallons
Seating Capacity	3
Number of SCBA	2

Does this unit also respond as a standard engine	tanker use only
Equipment	portable dump tank
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Tanker 12



Manufacturer	Pierce Mfg. WS
Year of Manufacture	2008
Mileage	3,652
Hours	184
Pumping Capacity	500 gpm
Tank Capacity	2,100 gallons
Seating Capacity	3
Number of SCBA	2

Does this unit also respond as a standard engine	tanker use only
Equipment	portable dump tank
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Squad 3



Type of Unit	Utility Truck
Manufacturer	Chevrolet
Year of Manufacture	2000
Mileage	71,343
Pumping Capacity	no pump
Tank Capacity	no tank
Seating Capacity	2
Number of SCBA	0
Equipment:	None
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Excellent

Squad 5



Type of Unit	Crew Transport
Manufacturer	Chevrolet
Year of Manufacture	2007
Mileage	43,085
Pumping Capacity	no pump
Tank Capacity	no tank
Seating Capacity	5
Number of SCBA	0
Equipment:	BLS medical gear
Surface Rust	None
Structural Rust and Corrosion	None
Apparent Fluid Leaks	None
Overall Appearance and Condition Rating	Good

Squad 6		
	Type of Unit	Medium Rescue
	Manufacturer	Self-assembled
	Year of Manufacture	2005
	Mileage	13,752
	Equipped for	5
	Number of SCBA	2
	Equipment:	water rescue gear BLS medical gear automatic external defibrillator wildland hose and pump
Surface Rust	None	
Structural Rust and Corrosion	None	
Apparent Fluid Leaks	None	
Overall Appearance and Condition Rating	Excellent	

Hover 1		
	Type of Unit	Boat
	Manufacturer	Hovertechnics
	Year of Manufacture	2000
	Mileage	0
	Pumping Capacity	no pump
	Tank Capacity	no tank
	Seating Capacity	5
Number of SCBA	0	
Equipment:	water rescue gear	
Surface Rust	None	
Structural Rust and Corrosion	None	
Apparent Fluid Leaks	Light	
Overall Appearance and Condition Rating	Good	

Crash 9

No Photo Available

Manufacturer	Oshkosh
Year of Manufacture	1998
Mileage	2,629
Pumping Capacity	1,250 gpm
Tank Capacity	1,500 gallons
Seating Capacity	3
Number of SCBA	3

Equipment:

- generator
- BLS medical gear
- flammable liquid foam (AFFF style)
- Turret foam gun

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

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 5 years in reserve status for ladder trucks.

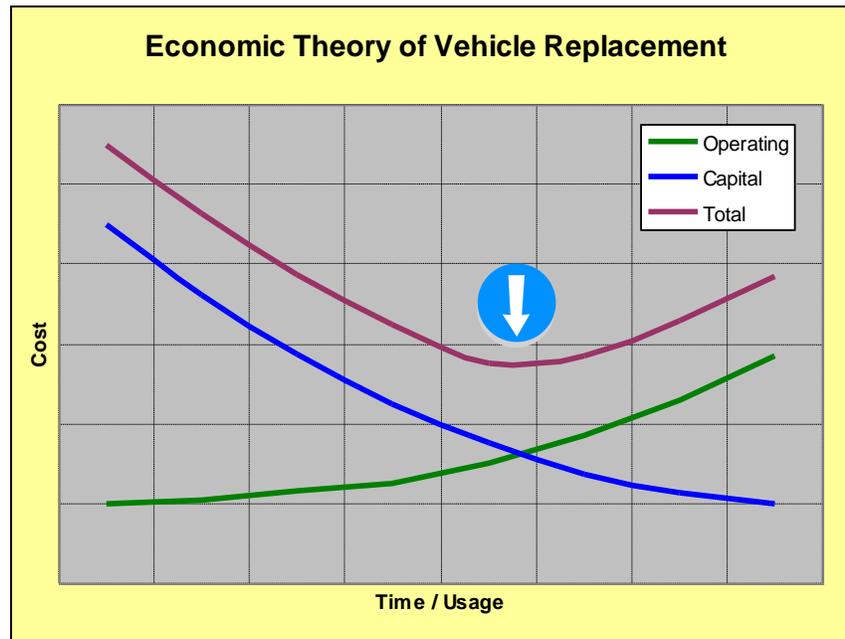
This does not mean that a fire engine cannot be effective as a front-line pumper beyond 12 years. Small, fire departments with only 100 or so calls per year often get up to 25 years of front line service from a pumper, though the technology is admittedly not up-to-date. Likewise, busy downtown city fire 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.

Figure 15: Economic Theory of Vehicle Replacement



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, 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.¹²

Figure 16: Average Apparatus per Department by Type

Apparatus Type	Average
Pumper/Engine	5.8
Aerial	1.5
Rescue	2.5

Figure 17: Estimated Life Expectancy (Active Service)

Apparatus Type	Average
Pumper/Engine	16
Aerial	19
Rescue	15

Figure 18: Estimated Life Expectancy (Reserve Service)

Apparatus Type	Average
Pumper/Engine	11
Aerial	10
Rescue	7

Figure 19: Estimated Total Service Life (Rural Department)

Apparatus Type	Average
Pumper/Engine	27
Aerial	29
Rescue	22

Figure 20: Average Annual Call Volume

Apparatus Type	Average
Pumper/Engine	780
Aerial	520
Rescue	832

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.

¹² Lackore, Roger. *Fire Apparatus Duty Cycle White Paper*, Fire Apparatus Manufacturer's Association, Technical Committee. August 10, 2004.

Fire service apparatus is expensive albeit vital to an effective and reliable emergency service delivery system. BFD's apparatus replacement schedule was instituted in 2011 and is summarized below.

Figure 21: Current Capital Replacement Plan

	2014	2016	2017	2019	2020	2025	2026	2027	2028
Service Pickup			75,000					95,000	
Chief's Vehicle		55,000							85,000
Engine	450,000				550,000		600,000		
Ladder				1,200,000					
Tanker			200,000			275,000			
Rescue						300,000			

Using the information summarized in the preceding table, ESCI developed a more 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.

Figure 22: Example Capital Replacement Plan

Unit	Year	Replacement Cost	Annual Fund Contributions	Current Cash Requirements	Current Age	Life Expectancy	Replacement Year
Engine 1	2005	\$600,000	\$40,000	\$200,000	5	15	2020
Engine 2	2008	\$600,000	\$40,000	\$80,000	2	15	2023
Engine 8	1995	\$600,000	\$40,000	\$600,000	15	15	OVERDUE
Engine 9	1979	\$600,000		\$600,000	31	15	OVERDUE
Ladder 4	1991	\$1,200,000	\$60,000	\$1,140,000	19	20	2011
Tanker 11	2005	\$275,000	\$18,333	\$91,667	5	15	2020
Tanker 12	2008	\$275,000	\$18,333	\$36,667	2	15	2023
Squad 3	2000	\$95,000	\$9,500	\$95,000	10	10	OVERDUE
Squad 5	2007	\$95,000	\$9,500	\$28,500	3	10	2017
Squad 6	2005	\$95,000	\$9,500	\$47,500	5	10	2015
Crash 9	1998	\$300,000	\$20,000	\$240,000	12	15	2013
TOTALS			\$265,167	\$3,159,333			

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 BFD. It also makes recommendations to assist the department in improving effectiveness and efficiency where necessary.

Administration and Support Personnel

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, 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.

The administrative and support component of BFD is comprised of the Fire Chief, a paid-on-call (POC) Deputy Chief, two POC Assistant Chiefs and one POC Training Officer. All administrative and support functions are handled by these positions, although the Fire Chief carries a majority of the load due to the POC nature of the other officers. It is worth noting here that both the POC Deputy Chief and POC Training Officer are also career staff functioning as Firefighters/EMTs while on shift and handling administrative duties on off-duty days. The following figure illustrates the administrative and support functions for the department.

Figure 23: Administration/Support Staffing

Position	Number
Fire Chief	1.0
Deputy Chief	1.0
Assistant Chief	2.0
Training Officer	1.0
Total	5.0

Statistically, the department maintains a ratio of 11.4 percent of administration and support staff to total personnel. Although the department's administrative and support staffing level is within the expected comparison 10.0 to 15.0 percent range that is typical for a career fire department mentioned previously, it should be understood that the POC nature of four of the administrative and support staff reduces their overall ability to assist the Fire Chief with those functions. In addition, those personnel, functioning as career firefighters are also counted in the overall operational staffing numbers noted in the following section. For clarity, the Fire Chief is the only dedicated administrative and support position. When this ratio is determined, the calculation indicates that the department is currently maintaining a ratio of 2.0 percent of administration and support staff to total personnel, well below the expected and recommended levels.

Recommendation:

- The city should consider the addition of a clerical position to the fire department to assist with some of the non-operational administrative duties currently assigned and distributed to POC personnel.

Operational Staffing

Tasks that must be performed at a fire can be broken down into two key components - life safety and fire flow. Life safety tasks are based on the number of building occupants, and their location, status, and ability to take self-preservation action. Life related tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the command officer must prioritize the tasks and complete some in chronological order, rather than concurrently. These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Back-up/rapid intervention

The Center for Public Safety Excellence (CPSE), a division of the International Association of Fire Chiefs (IAFC), 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 24: Critical Task Staffing Needs by Risk

**Sample Critical Tasking Analysis
Firefighting Personnel Needed Based on Level of Risk**

Critical Tasks	Structure Fire Maximum Risk	Structure Fire Significant Risk	Structure Fire Moderate Risk	Non-Structure Fire Low Risk
Attack Line	4	4	2	2
Back-Up Line	4	2	2	0
Support for Hose Lines	4	3	2	0
Search and Rescue	4	4	2	0
Ventilation	4	2	2	0
Rapid Intervention Team (RIT)	4	4	2	0
Pump Operator	2	1	1	1
2 nd Apparatus/Ladder Operator	1	1	1	0
Command	2	1	1	1
Safety	2	1	1	0
Salvage	4	0	0	0
Rehabilitation	2	2	2	0
Total	37	25	18	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. The following list summarizes the services that are provided by BFD.

- Fire Suppression

- EMS Advanced Life Support First Response
- EMS Advanced Life Support Transport
- Vehicle Extrication
- Fire Prevention Inspections
- Public Education
- Hazardous Materials Response (Operations Level)
- Technical Rescue including water and other special rescue disciplines

BFD uses career staffing to carry out its primary emergency services functions. All administrative, support, and response staff are career personnel. The following figure shows the distribution of emergency personnel by rank.

Figure 25: Emergency Services Personnel

Position	Number
Career Firefighter/EMT	7
POC Captain	3
Fire Equipment Operator	8
Firefighter	27
Total	45

BFD works a 24-hour schedule with a minimum department staffing of one person. Shifts are assigned according to a 28-day cycle starting at 8:00 a.m. POC firefighters respond to incidents through a voice paging system anytime additional personnel are needed. These types of incidents typically include structure fires or extended incidents.

In addition to the regular POC personnel, BFD maintains a dormitory program currently consisting of six personnel. These personnel are provided with housing at the fire station in exchange for their membership and commitment to department activities. Currently, however, there is no assigned shift schedule to ensure that these personnel will be available for incident responses.

Recommendation:

- Minimum staffing levels should be increased to two in order to provide an added layer of safety during driving and scene activities prior to the arrival of additional personnel.

Scheduling Methodology

Given that BFD's minimum staffing of one person per shift (plus the Fire Chief during business hours), it is obvious that apparatus frequently respond with less than four firefighters on board (as do many fire departments across the country). In this scenario, the time it takes for the second unit to arrive becomes very important to achieve the four-person company required to meet the "two-in, two-out" OSHA/EPA standards. BFD can meet this four-person requirement with multiple unit responses provided by POC personnel.

In departments that rely on POC members to staff units or to supplement career personnel, analysis by hour of day and by day of week is useful in determining staffing performance. During 2009 and 2010, the department was able to produce an average of 17 personnel for structure fires occurring during that period. As discussed previously, CPSE recommends that a moderate risk structure fire be staffed with 18 personnel; but this is not a hard and fast rule. In addition, these numbers do not include mutual aid responses from surrounding agencies.

Currently, BFD Station 1 is staffed with a minimum of one Firefighter/EMT 24 hours per day and is supported by the dormitory personnel. Station 2 is currently not staffed; Station 3, located at Bemidji/Beltrami Airport, is staffed with personnel from Station 1 15 minutes prior to and after any scheduled commercial flight.

Recommendation:

- Dormitory personnel should be assigned routine shifts to supplement career personnel in order to guarantee a higher number of available personnel.

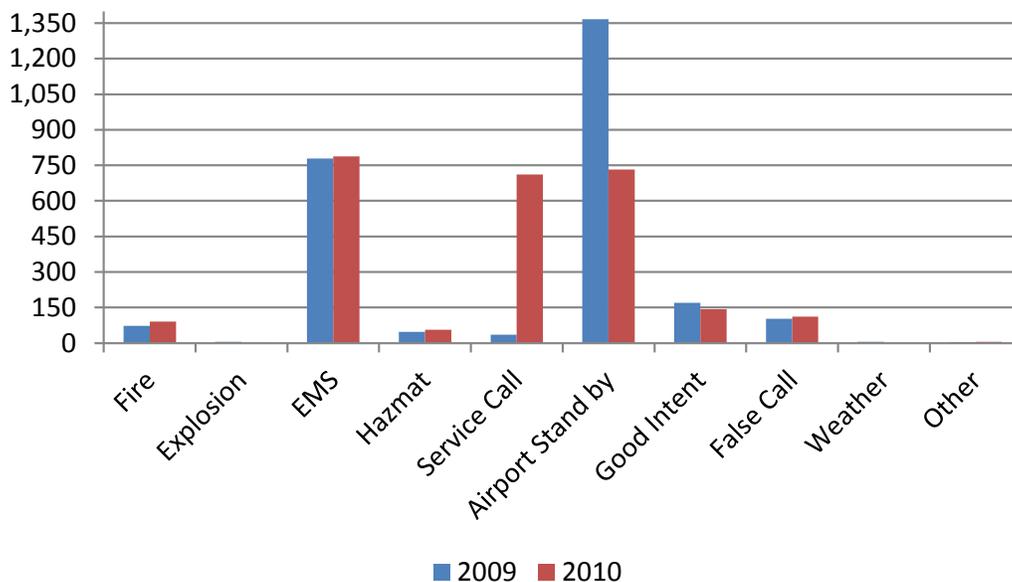
Service Delivery and Performance

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 Bemidji Fire Department.

Demand

BFD provided access to its detailed National Fire Incident Reporting System (NFIRS) records for a two-year period between January 1, 2009, and December 31, 2010. The following figure details the volume and types of incidents reported during that period.

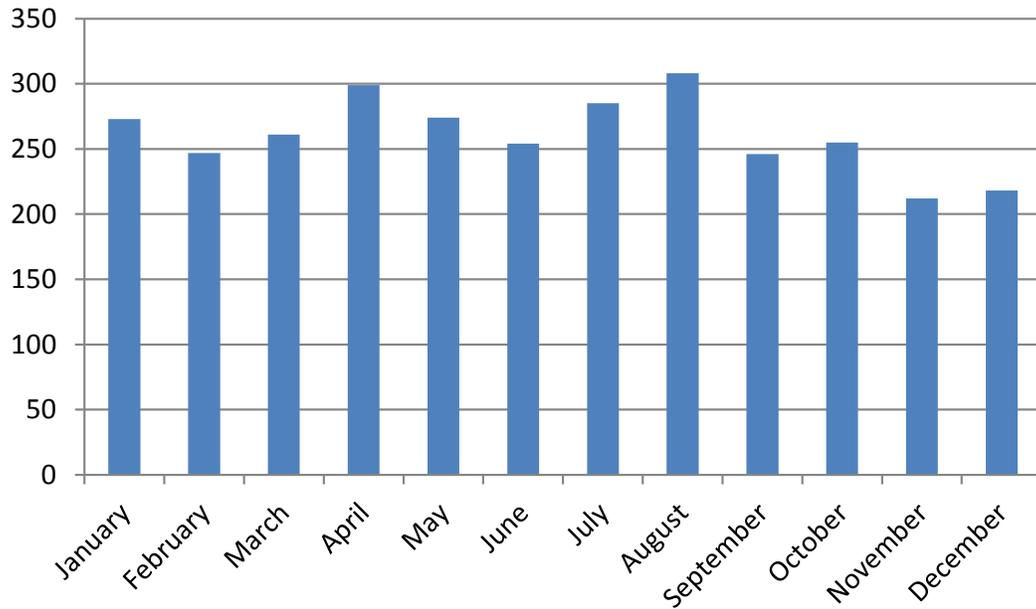
Figure 26: Service Demand History by Type



As illustrated in the preceding figure, airport standbys comprised a majority of the department’s service demand during 2009, but tapered off during 2010. During 2010, medical responses, and service calls, were very similar in frequency while structure fires increased from 73 to 90 over the two-year period and airport standbys declined from by almost half.

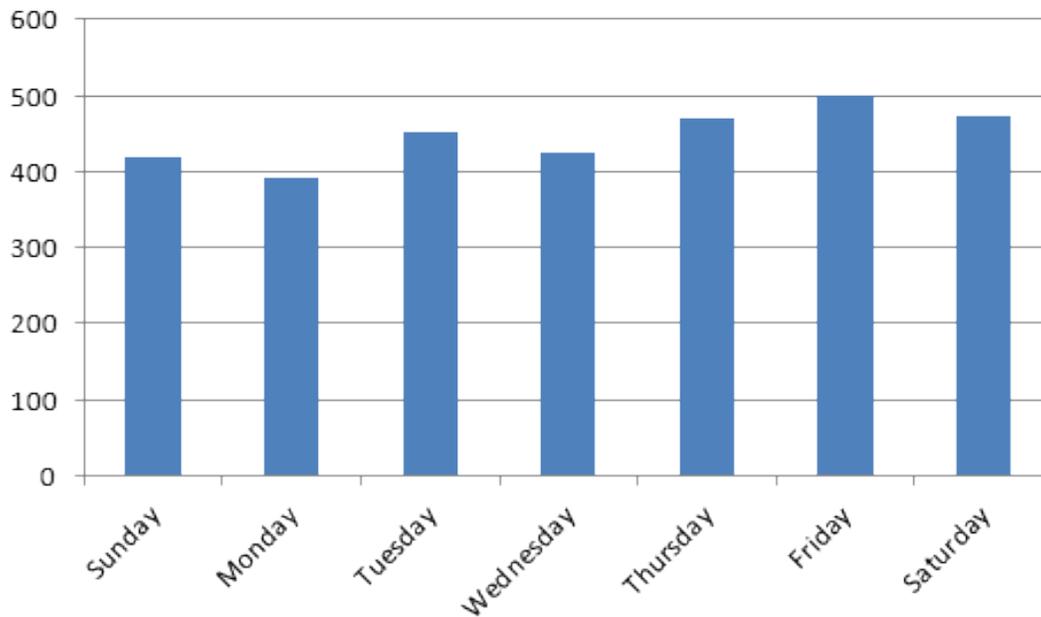
A review of incidents by time of occurrence also reveals when the greatest response demand is occurring. The following charts show how activity and demand changes for BFD based on various measures of time. ESCI began by breaking down yearly workload into monthly increments.

Figure 27: Service Demand by Month, 2009 and 2010 Combined



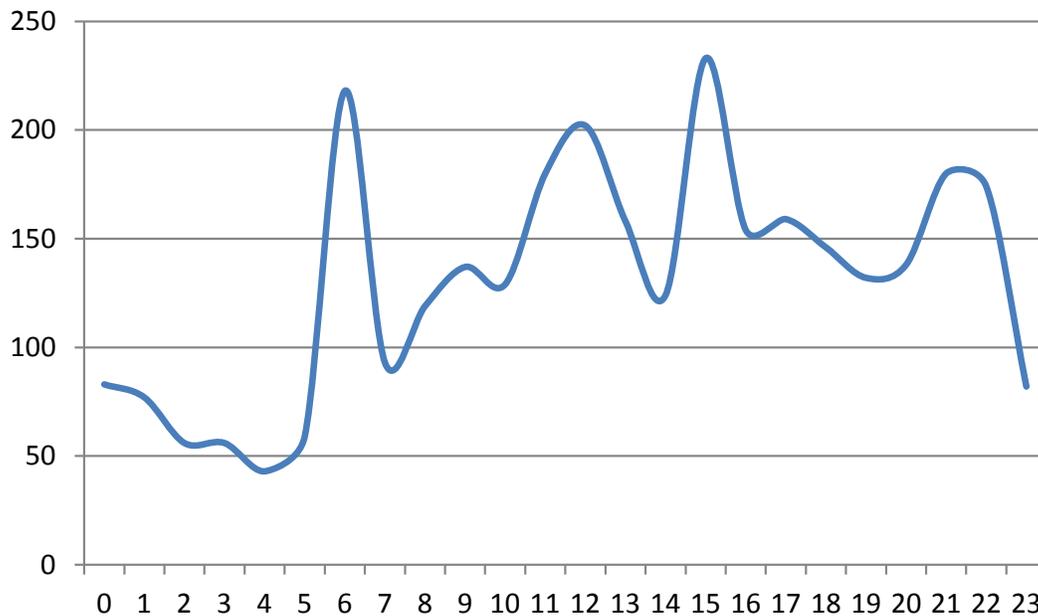
Service demand analysis by month indicates that demand is highly variable throughout the year with the busiest months being January, April, July, and August. In further analysis, workload is examined by day of the week.

Figure 28: Service Demand by Day of Week, 2009 and 2010 Combined



Service demand by day of week is relatively stable with the highest demand occurring on Thursdays, Fridays, and Saturdays. 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.

Figure 29: Service Demand by Hour of Day, 2009 and 2010 Combined¹³

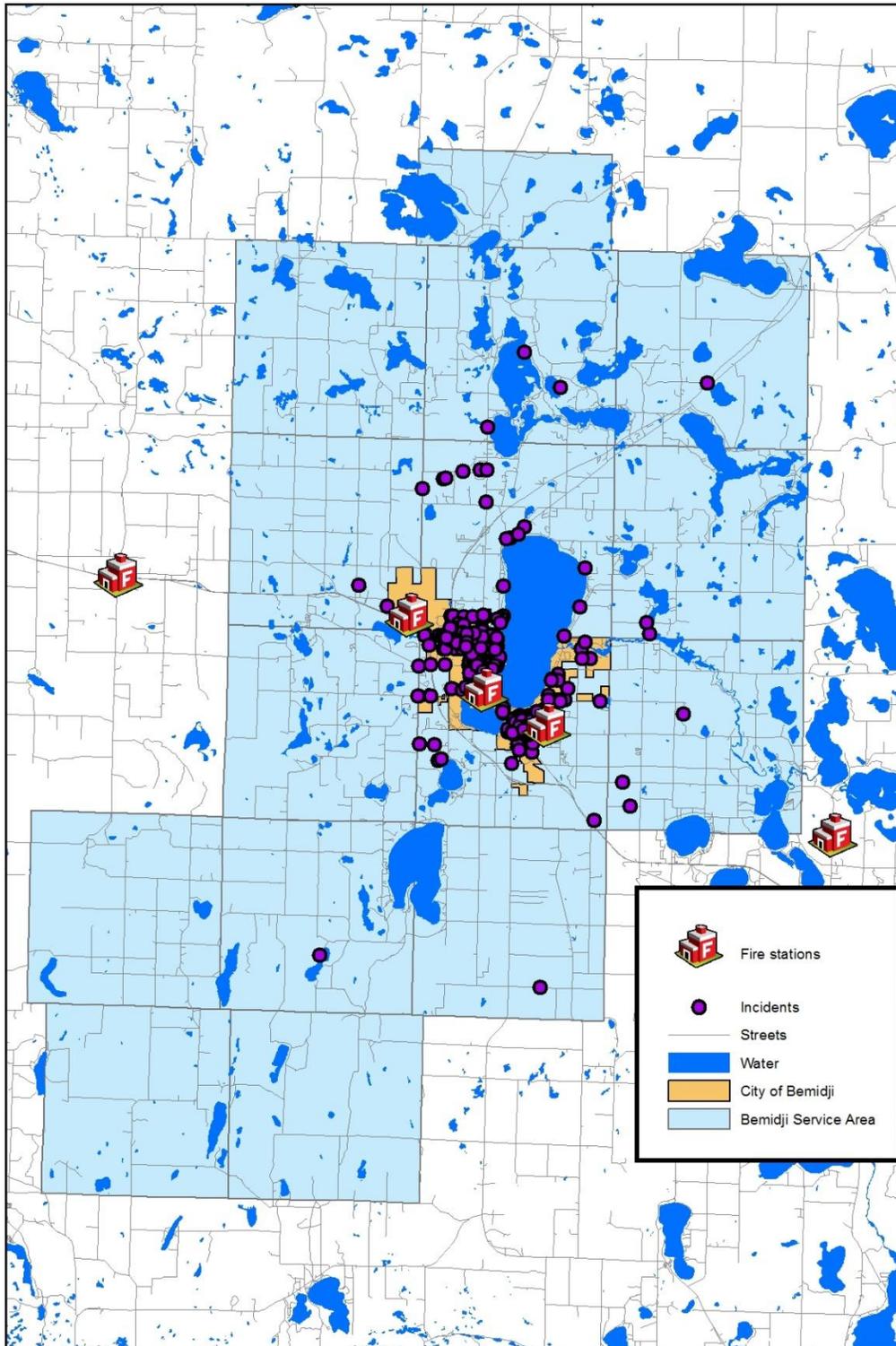


Although the hour of day analysis of BFD's service demand does not follow the typical bell curve that ESCI would have expected with demand beginning to increase mid-morning and then tapering off in the early evening hours, a generalization can be made here that the department's service demand follows the same general pattern.

In addition to the temporal analysis of the current service demand, it is useful to examine geographic distribution of service demand. This analysis will allow for assessing the location of stations in comparison to the actual service demand within the area. It should be noted here, however, that less than 50 percent of the incidents contained in the incident records supplied to ESCI were able to be geocoded. That is, less than half of the incidents were able to be mapped using typical geographic information systems (GIS) software packages. The following map indicates the distribution of emergency incidents responded to during the period 2009 and 2010 that were able to be mapped.

¹³ Service demand by hour of day does not include airport standby response.

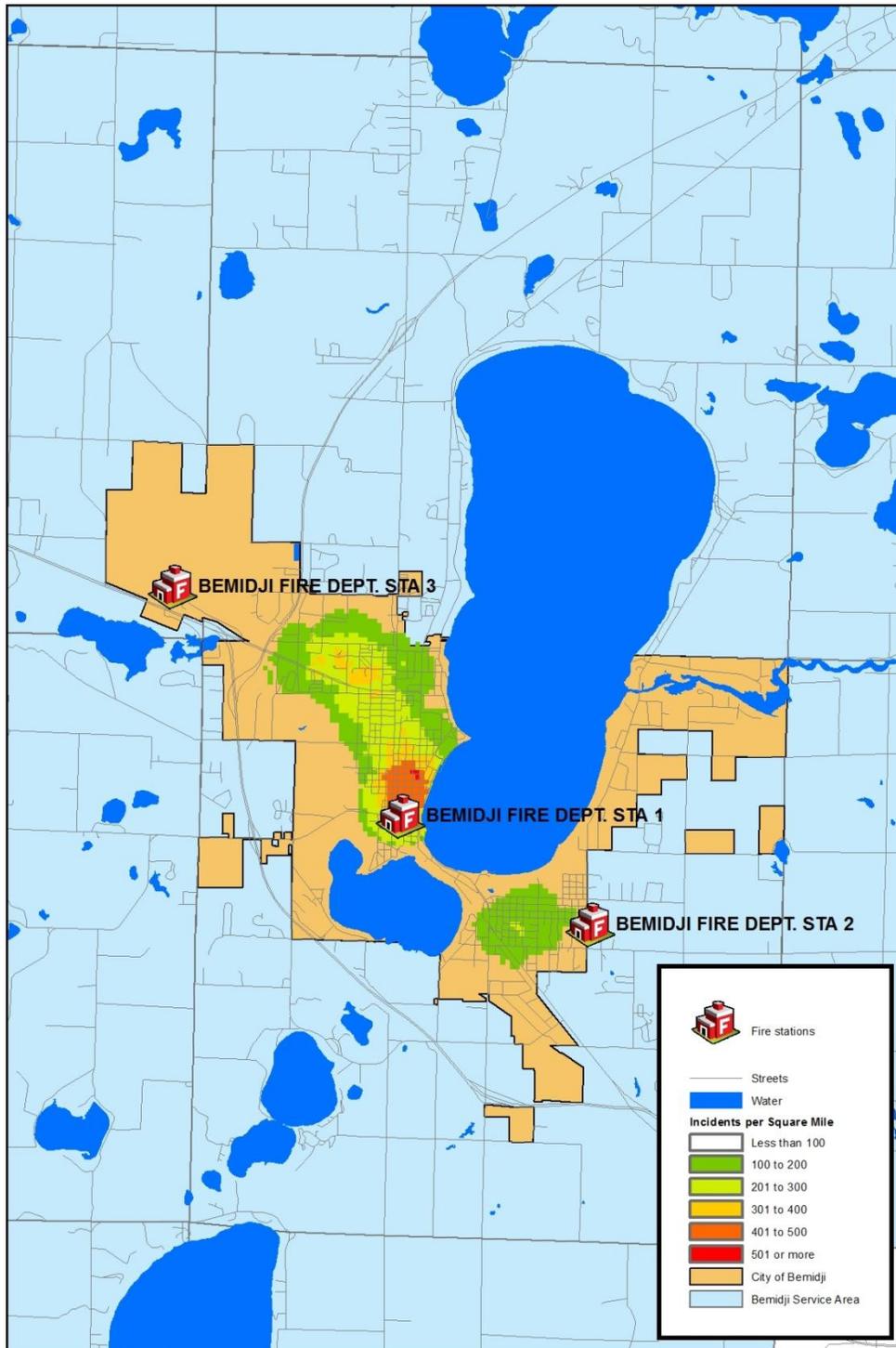
Figure 30: Geographic Service Demand



A vast majority of the department's service demand is clustered around the more populated City of Bemidji while a scattering of incidents were plotted to the north, south and east of the city in the more

rural areas. Another way to analyze geographic service demand is by demand density. This is illustrated in the following figure, which focuses on the higher service demand areas rather than the response area as a whole.

Figure 31: Service Demand Density

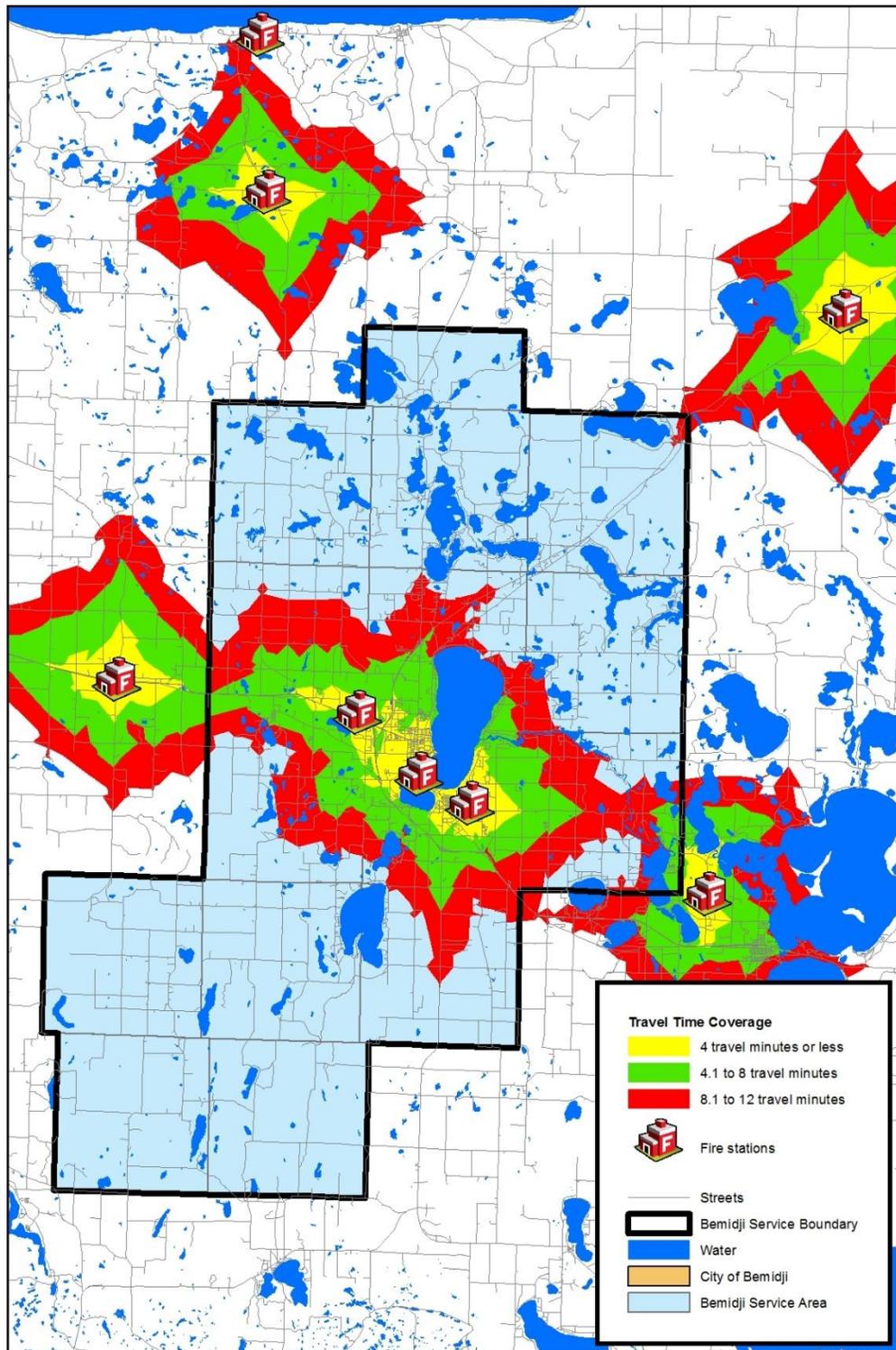


The preceding figure highlights that service demand density is greatest within the city limits of Bemidji, with less than 100 incidents per square mile outside the municipal boundary.

Distribution

BFD operates three facilities within the City of Bemidji, although only Station 1 is staffed. There exists a portion of the jurisdiction that can be reached within a certain travel time from the stations regardless of staffing patterns. The following map indicates the travel time capability within the department's primary response area.

Figure 32: Distribution and Travel Time Capability Analysis



According to the analysis, the department can physically cover 88.3 percent of the service demand within the primary response area within four minutes of travel time from the existing stations. This

does, however, assume that personnel are available at each station to respond to incidents. BFD can cover 96.4 percent of its service demand within eight minutes of travel time and 98.3 percent of its service demand within 12 minutes of travel time. Since only BFD Station 1 is staffed, Station 2 is a substation, and Station 3 is located at the airport, only those incidents within the travel model of Station 1's primary response territory would fall into the plotted travel models.

One of the national peer standards, *NFPA 1720 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer and Combination Fire Departments*¹⁴ includes performance objectives that vary based on population density. The following figure provides those national standards.

Figure 33: NFPA 1720 Response Performance Recommendations

Classification	Population Density Per Square Mile	Response Time Performance Target	Staffing Performance Target	Percentile
Urban	>1,000	9	15	90th
Suburban	500 - 999	10	10	80th
Rural	<500	14	6	80th
Remote	499 or less		4	90th

Although BFD is staffed with career personnel, a majority of the department is composed of paid-on-call (POC) staff. Thus, the department is considered a combination or 'mostly volunteer' department, which should adhere to *NFPA 1720* in establishing performance objectives.

The travel time models produced by ESCI indicate that BFD's station deployment would be capable of producing a travel time performance very close to the *NFPA 1720* standard at each level of population density. Actual performance may be different from modeled performance, and the department's overall response time performance will be discussed in a later section of this report.

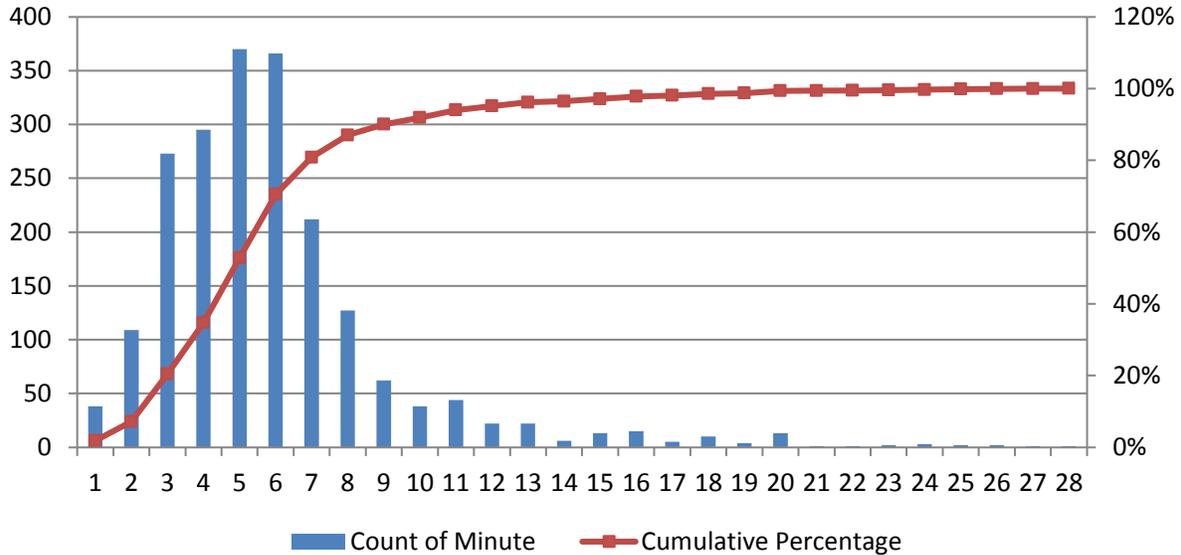
Performance

Total response time is the amount of time a resident or business wait for an apparatus to arrive at the scene of emergency beginning when they first called the designated emergency number, often 9-1-1.

¹⁴ *NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer and Combination Fire Departments.* (National Fire Protection Association 2010.)

The following charts illustrate the response time frequency for BFD over the two-year period of data provided.¹⁵

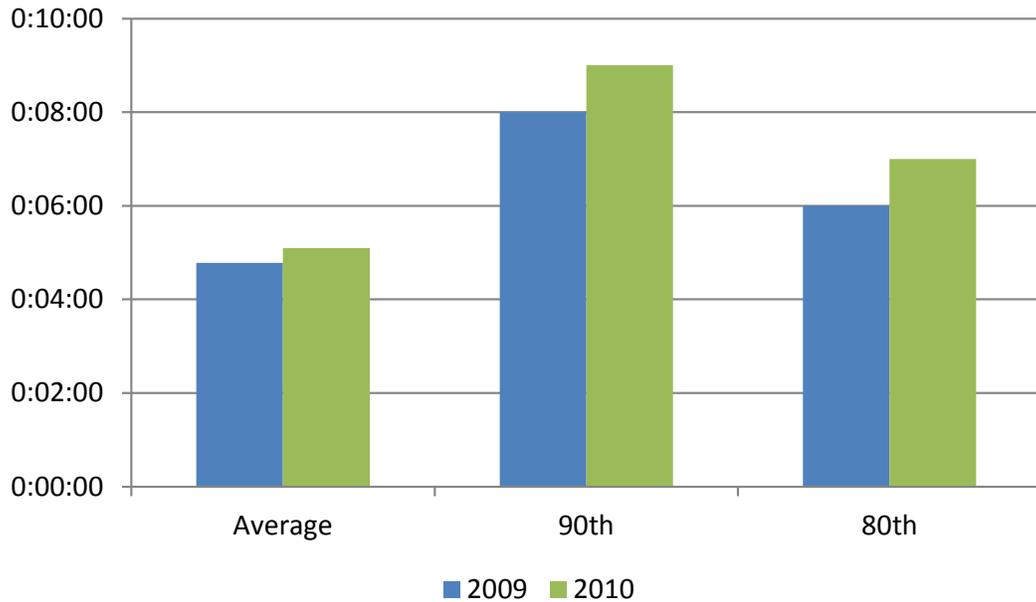
Figure 34: Historical Response Time Frequency



The most frequency recorded response time was within the fifth minute, while the average overall response time calculated to 4:47 (4 minutes 47 seconds) for 2009 and 5:06 for 2010, with response times of 8:00 for 2009 and 9:00 for 2010 when measured at the 90th percentile. *NFPA 1720* recommends that incidents occurring in suburban and rural environments be measured at the 80th percentile. Although no actual descriptor was included in the data provided to delineate which incidents occurred in specific population density areas, when measured at the 80th percentile the overall response time calculated to 6:00 and 7:00 for 2009 and 2010 respectively. This is presented graphically in the following figure.

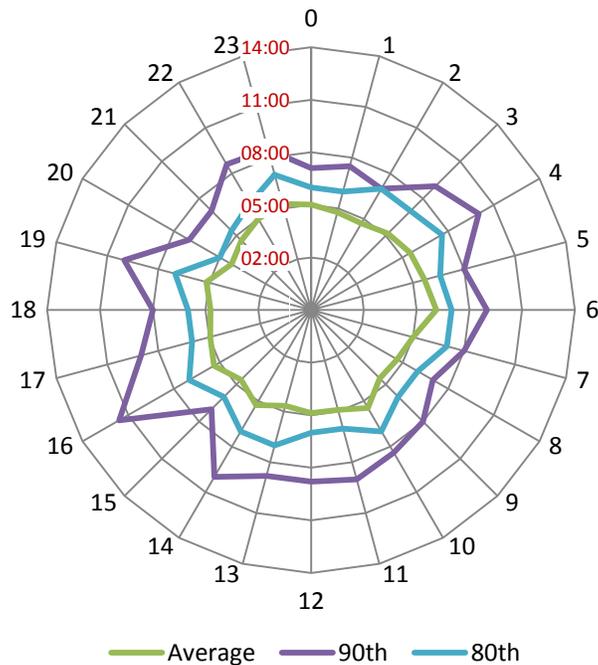
¹⁵ Mutual aid calls and non-emergent calls were removed from response time analyses as they were found.

Figure 35: Historic Response Time Performance



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

Figure 36: Response Performance by Hour of Day



One element of the overall response time performance that firefighters can control is the turnout time interval. Turnout time represents the period between the radio dispatch of a call and the time the unit actually leaves the building or location where it is staged and begins travel to the incident. It can include activities such as moving to the apparatus, donning gear and equipment, verifying travel routes and maps, and buckling safety harnesses. The incident data provided to ESCI by the department (National Fire Incident Reporting System records) does not provide specific timestamps for call answering, call processing, call dispatch, and turnout.

Due to this lack of data, ESCI could not measure the call processing time performance of the Bemidji dispatch center. Without specific CAD data, it was also unclear as to whether the dispatch time in the NFIRS records represented the true time the fire department was notified of the call or the time when the dispatch center picked up the call. Therefore, ESCI could not determine whether call processing time was included in the overall fire department response time analysis, nor could ESCI measure the turnout time performance of BFD.

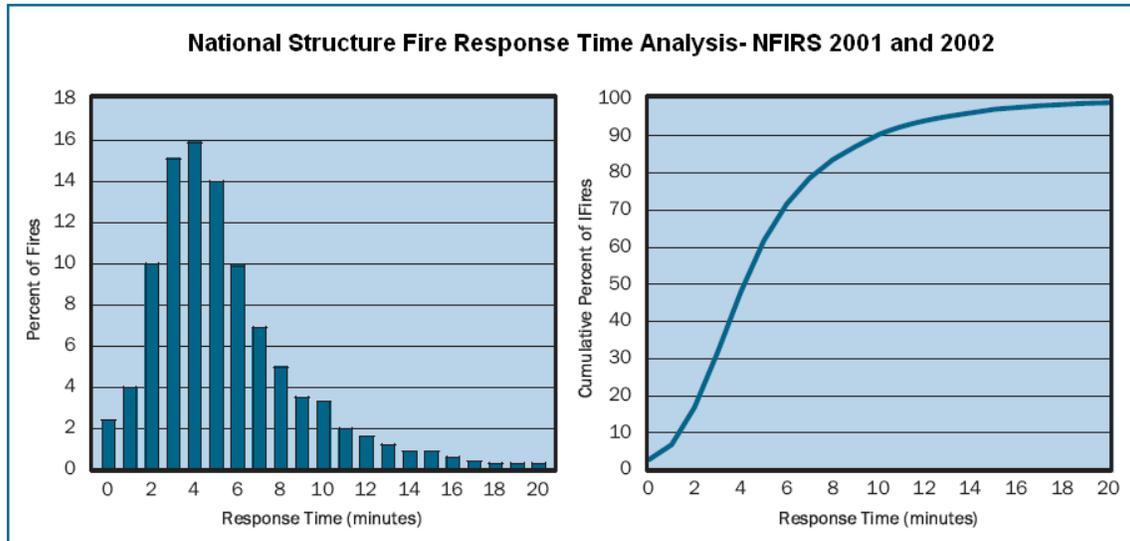
This is a critical loss for overall department performance analysis. Earlier in this report, the distribution analysis indicated that 88.3 percent of incidents were within four minutes of travel time from a fire station. From the response time analysis, the actual response time performance to 90 percent of calls was measured at nine minutes for 2010.

The *NFPA 1710 Standard* calls for turnout time to be 80 seconds or less for fire and special operations response and 60 seconds or less for EMS response.¹⁶ *NFPA 1720* allows for a longer turnout time since this standard applies to combination or mostly volunteer departments, but does not specify turnout time. Rather, the total response time is extended such that it is conceivable that the recommended turnout time should be under four minutes. It is unlikely that turnout time alone could be responsible for the difference noted. It is important for the department to determine why its actual 90th percentile response time performance is as high as it is. However, without the specific timestamps for unit responding, it is impossible to determine the turnout time performance and its impact on overall response time.

¹⁶ *NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* (National Fire Protection Association 2010.)

The following charts were excerpted from a U.S. Fire Administration (USFA) publication that illustrates how response time correlates response time to the effectiveness of fire services.

Figure 37: National Structure Fire Response Time Analysis¹⁷



"Structure Fire Response Times"- U.S. Fire Administration/ National Data Center, January 2006

Nationally, the highest percentage (16 percent) of structure fires had a response time in the four-minute range. The percent of structure fires with response times of three minutes and five minutes were not far behind at 15 percent and 14 percent, respectively. Overall, 61 percent of structure fires in 2001 and 2002 had a response time of less than six minutes. BFD's current response time performance exceeds both the national average and 90th percentile contained in this USFA study. The department and its dispatch center should be held accountable for more detailed and precise response time performance measurement, with a focus on call processing time, turnout time analysis, and determination of methods to improve response time.

Incident Management and Operations

Bemidji Fire Department uses standardized response assignments based on the type of call dispatched. These assignments are intended to provide the quantity and type of apparatus needed for the incident, as well as the correct number of staff to accomplish the critical tasks necessary to mitigate the emergency.

¹⁷ United States Fire Administration. "Structure Fire Response Times." *National Fire Data Center Topical Fire Research Series*, Volume 5 Issue 7, January 2006.

City maps are available in all department apparatus. Pressurized hydrants are identified on the maps, but no information on main sizes of hydrant flow capacity is available to the Incident Commander. No static water points have been mapped, nor have any pre-designated water shuttle plans been prepared in the event of water system failure.

The Incident Command System is used on all calls. A fireground accountability system is in place for the department, primarily implemented in alarms involving significant incidents. Thermal imaging units are available on specific apparatus.

There are numerous mutual aid agreements, both formal and informal, in place between fire, police, and emergency medical agencies in the surrounding areas. Mutual aid is typically employed only on an “as needed” basis where units are called for and specified one by one through an Incident Commander. Unlike the mutual aid box alarm systems (MABAS) found in many other states, the system in BFD does not provide for pre-designated mutual aid responses to a variety of call types based on incident severity and is not programmed or coordinated through any regional communications center. No systems for automatic aid for certain alarms have been established between fire departments.

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

Personnel from BFD are trained and equipped to provide hazardous materials response at the “Operations” level. This level permits defensive operations for purposes of containment, but does not permit aggressive forward tactical efforts focused on corrective action, clean-up, or handling of hazardous substances (with a few exceptions).¹⁸ Some limited equipment for purposes of containment and decontamination, as authorized at the Operations level, is carried on various vehicles.

BFD’s technician-level hazardous materials response has been the responsibility of the State of Minnesota Chemical Assessment Team (CAT), which responds out of Grand Rapids. Technician-level response personnel provided by the state team respond with significant resources on-board. The

¹⁸ OSHA CFR 1910.120(q)(6)(ii)

integration of these individuals into the local response system is said to be effective. When an incident occurs, the local responders typically know who is responding, how many are responding, from where and how long it will take, and what they will have available with them when they arrive. This system provides effective hazardous materials response planning and mitigation.

The fire departments in Beltrami County are trained and equipped to provide initial response to fires involving grass, brush, and wildland areas. The State Department of Forestry is the primary agency responsible for fire suppression in the areas designated as state forestry lands and the agency works directly with the local fire departments in the provision of such services. Good mutual aid systems are in place to generate necessary resources for most wildland incidents.

BFD could benefit from additional standard operating guidelines identifying specific fireground tactics to be used on wildland fire incidents, including issues related to fires on slopes, wildland water supply, emergency retreat procedures, etc. There would be many sources that could provide excellent samples of such SOG's, including DCNR or other fire departments in high-risk areas such as North Carolina, Florida, or the Western U.S.

Fire department and emergency medical services are considered "first Responders" in the national systems for homeland defense and security. Recent changes in the structure of the federal government have placed even the United States Fire Administration (USFA) under the umbrella of the Department of Homeland Security. Given this status, emergency service agencies should continue to assess their capabilities for response and integration into larger incidents involving acts of terrorism or threats to national defense.

The Bemidji Fire Department's response area is not a likely primary target for an act of terror by foreign threats. It does not contain sensitive military or government facilities, nor is it home to any high-profile institutions or enclaves of controversial immigrant societies. The area is far more likely to be a secondary, collateral damage area in the event of a significant act of international terrorism. While this may be of some comfort, it should be remembered that acts of domestic terror can also have significant and far-reaching effects on even small communities, and that acts of international terrorism can go awry, as in the case of rural Pennsylvania on September 11, 2001.

From the standpoint of the first responders, the results of an act of domestic or international terrorism will typically fall into one or more categories:

- Large fire and/or explosion accompanied by fire
- Mass Casualty Incident (MCI)
- Hazardous Substance Release
- Secondary threat (timed or triggered event following arrival of first responders)

Emergency agencies are, to some degree, trained to respond and mitigate the first three categories in this list. However, this statement is not intended to oversimplify the challenges. The resulting incident caused by an act of terror can be much larger, more complex, and more demanding than most local incidents that might fall into these same major categories. Still, BFD must rely on the same training, procedures, command structures, and strategies that are taught for such incidents. The primary key to success will be familiarity with response plans for such incidents, practice, and integration with other agencies at the regional, state, and federal level.

BFD has at least some level of planning and procedure in place for large fires, mass casualty incidents, and hazardous substance releases. Additional training on the recognition and response to incidents with likely secondary threats to first responders will continue to help prepare personnel. And, of course, BFD should continue to seek out additional, advanced training on the following areas:

- Explosions and threats
- Conflagration fire incidents
- Mass casualty incidents
- Radiation response strategies
- Large-scale quarantine, containment and decontamination
- Hazardous substance response, evacuation, containment, and decontamination
- Regional and federal incident command strategies

Support Programs

Although the operational components of the fire department such as fire suppression, rescue, and response performance are what the public see most and can most relate to, there are a number of ancillary services performed within or for the department that are also essential to the department's overall success. This section evaluates the support services of training, life safety services/fire prevention, and communications.

Training

Providing safe and quality fire and emergency services requires a well-trained workforce. Training and education of department personnel are critical functions for BFD. 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."¹⁹

General Training Competencies

In order to ensure quality training is provided, it should be based on established standards of good practice. There are numerous sources available for training standards. BFD uses training materials published by Jones and Bartlett as the foundation for its training library. Some additional materials and standards of the National Fire Protection Association (NFPA) are also employed. These references are considered industry standards.

All personnel receive 12 to 15 hours of mandatory basic safety training before being allowed to respond to incident scenes. Career personnel are required to achieve Firefighter I and II as well as Emergency Medical Technician certification within one year of hire and are required to maintain at least 24 hours of annual training to maintain credentials. POC personnel are required to obtain Firefighter I within one year of hire and are held to the same annual training requirements as career personnel.

Recommendation:

- The department should ensure that all personnel receive mandatory minimum firefighter training as well as mandated OSHA training prior to being allowed to respond to emergency scenes that could be deemed hazardous.

¹⁹ Klinoff, Robert. *Introduction to Fire Protection*, Delmar Publishers, 1997. New York, NY.

Program Administration, Schedule, and Facilities

BFD's administration expresses a commitment to providing its members with excellent training and maintains an active training program. Ongoing skills maintenance training is scheduled on a regular basis. As noted in the staffing section of this document, the Training Officer is a POC member that is also a career Firefighter/EMT. In addition to the Training Officer the department has 13 state certified fire instructors, including all career staff as well as some of the POC staff.

ESCI found that there is no established training plan in place nor are there defined training program goals and objectives that channel the program and maximize its effectiveness. While the department is delivering regular and ongoing training, the program is not structured upon the foundation of an established plan and, as a result, may not be as effective as it could be. ESCI recommends that the program be further developed by establishing a training plan, based on clear goals and objectives.

Maintenance of a departmental training manual is important as a means by which standard methodologies and techniques for performing various emergency scene tasks are recorded. The purpose of such a manual is to provide a reference via which the organization defines how certain skills and emergency scene tasks are performed in the interest of standardization and safety. BFD does not maintain a departmental training manual; ESCI recommends that one be developed.

For training to be fully effective, appropriate facilities and resources are essential. Hands-on skills training is dependent on training props or sites at which crews can conduct company operations and tactical evolutions. In addition, a good classroom environment with sufficient audio-visual equipment and teaching materials is essential if the delivery of didactic classes is going to be effective. Quality hands-on training occurs when simulations are available that closely mimics real life emergencies. Although the department maintains a sufficient training library and has formal classroom space with sufficient A/V and computer/projection equipment, no dedicated drill ground is available to the department. Rather, the department uses common areas, public areas, and government grounds for training. There is no training tower within the region for the department to utilize.

Recommendations:

- BFD should develop a formal training plan that outlines required and optional training opportunities for at least one year in advance.
- BFD should develop and implement a training manual that each member should be required to complete before being allowed to function in a hazardous environment.
- Based on availability of fiscal resources, the city should investigate the possibility of developing a regional training center that includes a tower, burn pits, and rescue props for fire department manipulative training sessions.

Training Staff

BFD has assigned one POC person (that is also a career firefighter) to function as the department's Training Officer. This position is tasked with developing and scheduling all regular training activities. In conjunction with the Training Officer, the department maintains a training committee consisting of all the departmental officers. Although the Training Officer position is listed within the department's organizational chart, no formal job description has been developed and no minimum qualifications for the position have been established. As mentioned previously, all career staff and several of the POC staff are certified fire instructors. These personnel assist the Training Officer with the delivery of the training program.

Recommendations:

- Based on fiscal resources, the city should create a position of full-time Training Officer to have a dedicated focus on the training and education of the department and to manage the overall training program.
- The department, in cooperation with city HR personnel, should develop a formal job description for the Training Officer position based on the current organizational structure as well as potential future implementation of a full-time position.

Training Procedures, Manuals, and Protocols

The manner in which new firefighters are trained in their first months and years of membership lays the foundation for the development of their skills and knowledge base for their entire service time. A good entry-level training plan is essential to assuring that new recruits get a good and safe start.

The Insurance Services Office (ISO) is the organization that establishes insurance rates based on ranking of fire department response capabilities. ISO establishes what it considers to be minimum training hours in various categories, consisting of:

- General Firefighter Training, 20 hours per month/240 hours annually
- Officer Training, 16 hours per officer per year
- Driver Training, 12 hours per driver per year

The above training hours are appropriate in regard to the number of contact hours delivered to response personnel. Contact hours, however, are not the only consideration that can and should be applied to training program planning. If it is, a firefighter may spend many hours being schooled repeatedly on the same topics and yet fail to receive adequate skills development in other, often critical, competencies simply because they are not on the recurring training list. ESCI recommends against viewing ISO-required training hours as the sole or primary criteria around which the training program is based. While ISO ratings are important, they are certainly not the only criterion by which operational and training decisions should be made.

A training program can be based on either minimum annual training hours or a competency-based approach. Doing so enables the training staff to properly develop training plans and also provides measures by which training delivery can be gauged. The following discussion is offered to further explain the approach.

Ongoing training should follow an identified plan based on demonstrated training needs. Such a plan is best developed as a result of periodic evaluation of the current skill levels of members — competency-based training.

Under a competency-based system, an evaluation of skill performance is conducted at scheduled intervals to determine if the person being evaluated can perform the tasks in accordance with pre-determined standards. Those skills that are performed well require no additional training; those skills not performed well are practiced until the standard is met.

This approach maximizes the time used for effective training. Further, it ensures that members are performing at an established level. Specialty skills can be evaluated in the same manner with further training provided as needed. Ideally, the competency-based training approach is used on an ongoing basis. For example, each quarter different skills are evaluated on an individual basis.

In order to institute a competency-based approach to training, all of the needed skills must be documented to describe the standard of performance expected. This would include all skills such as hose handling, apparatus operation, EMS procedures and protocols, use of equipment and tools, forcible entry, ventilation, tactics and strategy, and others.

The department's training program is generally focused around the targeting of on-the-job and in-service training. Structural fire suppression training, various types of rescue instruction, and EMS training is delivered on a regular basis.

The department holds night drills twice monthly in order to deliver the primary scheduled training; mutual aid drills are conducted annually with all departments with whom BFD has a mutual aid agreement. Regional disaster drills are also conducted annually and are usually held at the Bemidji/Beltrami Airport.

Regular competence testing is essential to assure not only that personnel are receiving adequate training, but also that they are able to put their knowledge and skills into practice. A program of annual skills testing will not only enable the department to verify that its personnel possess the necessary hands on capabilities, but it also provides a valuable tool for assessing the effectiveness of the organization's training program and identifying areas that need to be emphasized in the subsequent training calendar planning. Other than routine training evolutions with a roster maintained, BFD does not conduct competency-based training or maintain individual skills verification check sheets. All basic competencies are covered during a three-year training cycle, but no verification is provided for individual competency.

National standards and accepted best practices recommend that personnel actively demonstrate required skills and knowledge prior to being promoted to a more responsible position within the organization. Pre-promotional employee development training should be provided to ensure that candidates for promotion meet the minimum educational requirements for the position. Subsequently, the promotional process is used to select the most qualified individual based on a demonstration of proficiency.

Effective pre-promotion career development is beneficial not only to employees, but also to the employer. Helping employees look toward their future inspires motivation and increases performance, as well as helping to retain a high quality workforce. A comprehensive training program should include

content that prepares employees for future promotion and encourages them to better themselves and their skills.

BFD has not established a structured process by which to develop technical and leadership skills in personnel that may be considered for future promotional activities. While efforts are made to encourage employees to better themselves, no formal employee development program is in place. A pre-promotion component of the BFD training program would provide long-range benefits to the organization and is recommended.

Recommendations:

- BFD should develop defined goals and objectives for the training program.
- BFD should provide for officer development training that meets the needs of the future leaders of the department.

Recordkeeping and Clerical Support

BFD uses a simple Microsoft Excel spreadsheet to maintain training files. Reports were generated for ESCI's review that included each member's individual training hours for 2010. The total number of hours offered during 2010 was 318 with 299.5 hours attended by personnel. This equates to an average of 59.8 hours of annual training per member. In reviewing the documents submitted, the highest number of hours attended during 2010 was 184.5 and a low of 17.0 (among members that recorded a full year of training).

Recommendation:

- BFD should develop a process by which to ensure that each member of the department is attending the requisite number of training events to maintain the minimum hour required for re-credentialing.

Life Safety Services

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

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

Code Enforcement and Inspections

The State of Minnesota Fire Code references the 2007 Edition of the International Fire Code (IFC). This model code, with some state amendments, was adopted under authority of the Minnesota State Legislature. This state code, along with a handful of minor local amendments and specifications, has been adopted by reference as the local fire code for the City of Bemidji, permitting local enforcement. Enforcement in areas outside the City of Bemidji would be accomplished under state authority provided to the fire chief.

The Code, as adopted, provides the State Fire Marshal the power to authorize assistant fire marshals to enforce the code, including the local fire chief. Currently, BFD has members who have had at least some formal or coordinated code enforcement training.

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

BFD has a formal commercial and business fire inspection program in place, with inspection duties shared among the eight career staff. The intent of the program is to complete one inspection each year in all multi-family structures of eight dwelling units or more, licensed liquor establishments, and places of public assembly. The list of properties to be inspected by BFD does not currently include restaurants without liquor licensing, mercantile, industrial, storage, manufacturing, or service occupancies. The State Fire Marshal's office handles inspections of schools, daycares, group homes, health care institutions, hotels, motels, and resorts.

The nationally recommended frequency of commercial fire safety inspections varies by the type of business. Generally they are classified by degree of hazard. The table below describes the various

hazard classes and the National Fire Protection Association’s optimum recommended frequency for fire safety inspections.

Figure 38: NFPA Inspection Frequency

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

While the above charted inspection frequency may be very difficult for any department to maintain, it does serve to point out the accepted national practice of classifying occupancies by hazard (risk) and adjusting inspection frequency accordingly. This practice is also demonstrated in national model fire codes, where frequency of inspection is often dictated by risk. It is recommended that BFD adopt a similar accepted standard to establish a reduced frequency of inspections in low risk occupancies and an increased frequency for high-risk occupancies. This practice will result in improved effectiveness.

Documentation of the inspection process is also very important. Maintaining a record on each business provides an historical record of hazards found and abatement action taken and helps to identify trends. It is also a very valuable record of fire safety efforts taken by the department that is typically reviewed following a fire.

Recommendations:

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

New Construction Involvement

The Bemidji Fire Department has had some limited involvement in the review of new construction projects within the jurisdiction. The state performs formal plan review; BFD then performs a site review for local jurisdiction approval. A signed approval from BFD is required prior to issuance of a certificate of occupancy so that BFD can conduct a final review of fire protection system operations prior to opening a commercial occupancy.

Flow tests of private hydrants and built-in protection systems are not currently required by the BFD. The department does not conduct local inspection of underground storage tank installations or removals. A mandatory key-box entry program is currently in place for structures with sprinkler and alarm systems.

Public Safety Education

The BFD has initiated various public education efforts. Department personnel participate in safety education programs and public events to provide fire and life safety information to the community. Information is regularly provided on smoke alarm use, home and business exit drills, and general fire safety. The department makes use of a smoke house trailer and also teaches CPR classes.

Publications are available and distributed at the station and local events. Currently, a need for multi-lingual publications is not present, but demographics are monitored to determine when or if this may be necessary.

Fire safety education is the greatest opportunity to influence human behavior that often results in hostile fire. It is an area that should be emphasized by an active fire prevention program. The most receptive audience to the fire safety message is children.

There are also very good programs designed to address the growing emergency medical incident rate. These programs, such as NFPA's Risk Watch, teach children how to avoid common injuries due to accidents. These should also be considered as part of the total prevention program for the BFD.

Fire Investigation

The investigation of fires, explosions, and related emergencies is an integral part of providing life and fire safety to a community.

The "fire problem" in a community is addressed by a "cycle" of resources provided by the authority having jurisdiction. These resources include public education so the citizen is aware of hazards, how to

prevent them, and what to do should they occur; engineering/code enforcement so fire and life safety is an inherent part of the community infrastructure and where there is a violation compliance is achieved; fire suppression so that when there is a failure in the education or engineering/code enforcement part of the cycle the emergency can be resolved; and fire investigation where the incident is documented, the cause determined accidental or intentional, and steps taken so it will not happen again. The results of fire investigations suggest public education needs and results, the need for code modifications and changes, fire department training, resources and deployment, and identification of the community's "fire problem."

BFD currently performs initial fire origin and cause determination for most fires and is typically assisted by a State Fire Marshal where injury, fatality, or heavy dollar loss is involved. The internal BFD investigators also work with the police department, sheriff's department and state fire marshal's office when arson is suspected. There is no formal regional fire investigation team.

Statistical Collection and Analysis

BFD records emergency incident information into a computerized records management system compliant with the National Fire Incident Reporting System (NFIRS) and approved by the State Fire Marshal's NFRIS coordination office. This system keeps most information considered important to management analysis.

Communications

The Bemidji Fire Department is provided communications and dispatch services through the Beltrami County Dispatch Center (BCDC), a branch of the Beltrami County Sheriff's Department. The dispatch center is the primary Public Safety Answering Point for the all agencies in Beltrami County with the exception of the Red Lake Reservation.

The dispatch center is managed under the sheriff's department command structure without formal representation from the fire department. A civilian Communication Supervisor is assigned the responsibility for the center, but there are no other supervisory positions within the center's staffing structure. The BCDC maintains between two and three personnel on duty, depending on workload. The center uses cross-trained call-taker/telecommunicators.

The center handles an average of two incoming 9-1-1 calls each hour, or a daily average of 48 calls. There are four incoming 9-1-1 telephone trunk lines. The center's system is compliant with Phase Two

cellular location identification and a local provider supplies voice-over-internet protocol (VOIP) incoming capability.

Formal call answering time standards have been adopted and quality assurance is being conducted by the communications supervisor, mostly through direct observation.

Computer-aided dispatch (CAD) software is available to the fire dispatcher. Call processing and dispatch is handled quickly, with automated processes that take place in order to identify the correct unit or stations to dispatch. The CAD system is manufactured by Sentinel™ and is a geo-based system running on a Windows™-based SQL server. The system relies on geographic information maintained and updated by the county geographical information system (GIS) department. CAD is currently programmed with back-up alarm recommendations, depending on call type.

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

Dispatch of apparatus within the fire stations takes place by encoded station radios and station printers, with a phone line as a back-up system. Field personnel are notified by pocket-sized tone-encoded radio receivers. The CAD system includes an interface for direct and automated creation of text messaging.

Dispatchers are not fully certified in the Emergency Medical Dispatch system, but Powerphone™ EMD cards are used to provide pre-arrival instructions to bystanders at medical incidents. Dispatchers are required to maintain First Responder EMS certification.

The County's radio system operates on a conventional VHF radio system from five tower sites with the use of "voting" repeaters.

The dispatch center has adequate contingency plans for system failure. Back-up power is in place and spare consoles are available. A back-up transmitter and a marginally-functional redundant dispatch site are available. The facility uses high-security electronic key locks and is equipped with hardened glass windows.

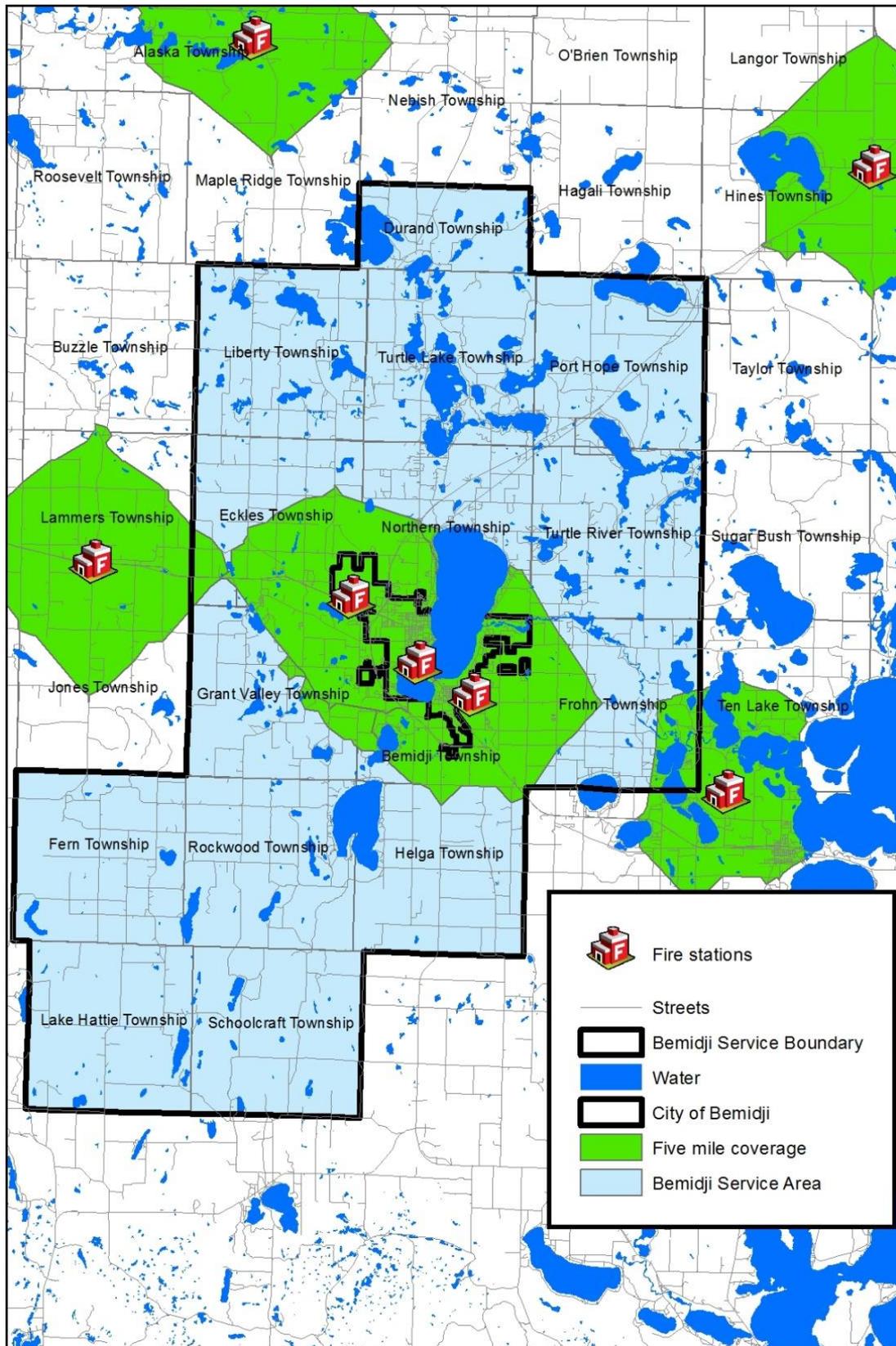
Future Facility and Deployment Considerations

A review of the deployment analysis for Bemidji Fire Department contained earlier in this report indicates that the travel time footprint of the existing fire stations is sufficient to cover at least 80 percent of the service demand within the response time parameters of the national standards for suburban and rural population densities. The length of the turnout time for any individual call will obviously be a factor as to whether these response time parameters are actually met, but the analysis is sufficient to indicate that additional station distribution is not necessary for the purpose of achieving response time standards at the 80th percentile.

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 following map illustrates in green the areas that are currently within five road miles of a Bemidji fire station. The five-mile coverage of neighboring fire stations is also shown.

Figure 39: Five-Mile Coverage Area of Existing Fire Stations



Significant portions of the fire department's service area would be a Class 10 "Unprotected Class" due to their distance from a fire station. 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 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 northern response area, perhaps in Turtle Lake Township, and one in the southern response area, perhaps Rockwood Township.

This study was not intended to be a complete fire protection master plan project, but sufficient analysis was performed in order to present the discussion above about the possible benefits to be achieved and the reasons why these communities may wish to consider additional fire stations in the future. The point of importance in this shared services feasibility analysis is to stress that any such future stations will unquestionably benefit multiple governments and communities. Thus, the most advantageous approach to any such future capital projects would be as a joint effort.

Such capital projects, when approached jointly, can distribute the financial burden in accordance with the benefits to be derived. Joint capital projects encourage shared and coordinated planning and best use of resources. However, capital projects are also frequently undertaken through the use of long-term financing instruments that do not support the concept of short-term contractual service arrangements. In fact, such short-term relationships only discourage long-range planning and capital project commitment. In order to encourage long-term planning for potential future service delivery improvements, while discouraging the redundancy and overlap that disjointed planning produces, the communities in this study should seek to solidify their long-term service sharing relationship.

Appendix B – Cloquet Area Fire and Ambulance Special Taxing District

Sec. 46. CLOQUET AREA FIRE AND AMBULANCE SPECIAL TAXING DISTRICT.

Subdivision 1. Agreement. The city of Cloquet and Perch Lake Township, by resolution of each of their governing bodies, may establish the Cloquet Area Fire and Ambulance Taxing District for the purpose of providing fire and ambulance services throughout the district. In this section, "municipality" means home rule charter and statutory cities, towns, and Indian tribes. The district may exercise all the powers relating to fire and ambulance services of the municipalities that receive fire and ambulance services from the district. Any other municipality that is contiguous to a municipality that is a member of the district may join the district with the agreement of the municipalities that comprise the district at the time of its application to join.

Subd. 2. Board. The Cloquet Area Fire and Ambulance Taxing District Board is governed by a board made up initially of one or more elected officials of the governing body of each participating municipality in the proportions set out in the establishing resolution, subject to change as provided in the district's charter, if any, or in the district's bylaws. Each municipality's representatives serve at the pleasure of that municipality's governing body.

Subd. 3. Tax. The district board may impose a property tax on taxable property in the district. This tax shall be imposed at a rate that does not exceed 0.2835 percent of taxable market value for taxes payable in 2010. The board shall annually determine the separate amounts of the levy that are attributable to the cost of providing fire services and the cost of providing ambulance services. Costs for the provision of ambulance services shall be levied against taxable property within the area of the district that receive the services. Costs for the provision of fire services shall be levied against taxable property within the area of the district that receive the services. When an additional municipality becomes a member of the district, the additional cost of providing ambulance and fire services to that municipality will be determined by the board and added to the maximum levy amount. Each county auditor of a county that contains a municipality subject to the tax under this section must collect the tax and pay it to the Fire and Ambulance Special Taxing District. The district may also impose other fees or charges as allowed by law for the provision of fire and ambulance services.

Subd. 4. Public indebtedness. The district may incur debt in the manner provided for a municipality by Minnesota Statutes, chapter 475, when necessary to accomplish its duties.

Subd. 5. Withdrawal. Notice of intent to withdraw from participation in the district may be given only in the month of January, with a minimum of twelve months notice of intent to withdraw. Withdrawal becomes effective for taxes levied in the year when the notice is given. The district and its members may develop and agree upon continuing obligations after withdrawal of a municipality.

EFFECTIVE DATE. This section is effective in Cloquet and Perch Lake Township the day after compliance with Minnesota Statutes, section 645.021, subdivision 3, by the governing body of each.

Appendix C – Cass Lake Fire Joint Powers Agreement

JOINT POWERS AGREEMENT

THIS AGREEMENT made and entered into this ____ day of _____, _____, by and between the Leech Lake Band of Ojibwe Indians acting through the Leech Lake Reservation Tribal Committee, hereinafter referred to as "Band," the City of Cass Lake, Minnesota, hereinafter referred to as "City," the County of Cass on behalf of part of Unorganized Township Five*, hereinafter referred to as "County," and Towns of Pike Bay, Wilkinson Ottertail Peninsula, Farden, Ten Lakes, and Brook Lake, all in Cass, Beltrami or Hubbard Counties, Minnesota, pursuant to the provisions of Minnesota Statute Section 471.59.

WITNESSETH:

WHEREAS, The parties hereto are each authorized by law to provide fire protection service to their residents, and

WHEREAS, The parties hereto have determined that such power may best be exercised jointly, and

WHEREAS, The parties hereto desire to reach an agreement for joint operation, ownership, and control of said fire department, and

WHEREAS, M.S.A. 471.59 authorizes two or more governmental units by agreement of their governing bodies jointly or cooperatively to exercise any power common to the contracting parties to provide for a joint board representing the parties to the agreement, and

WHEREAS, The parties presently own that firefighting equipment listed in attached "Exhibit A," and

**Includes all of Twp 145N Rge 30W, 145N-29W, and all of 146N-29W within Cass County (Sections 19, 29, 30, 31, 32, 33, 34 and 35 south of the Mississippi River); and Sections 3, 4, 5, 6, 7, 8, 9, 18, 19 20 and 30 of 143N-30W)*

WHEREAS, The City of Cass Lake owns a fire hall, located at 213 Cedar Avenue, Cass Lake, known as the Cass Lake Fire Station, and

WHEREAS, fire protection has been provided by the City of Cass Lake through the Cass Lake Volunteer Fire Department which includes an efficient staff of firemen including a Fire Chief and assistants who have served on a voluntary basis;

WHEREAS, After conference and study the respective governing boards of the parties to this Agreement have found and hereby find it to be necessary and advisable to continue to use presently owned buildings and equipment and to jointly purchase firefighting equipment in the future for use in preventing and extinguishing fires in the areas designated.

NOW THEREFORE, It is hereby agreed that the purpose of this contract is to provide for such use and future joint purchase of equipment, and for its use in the areas encompassed in each of the governmental units named above.

This Agreement has been authorized by the Band, County, City and Town Boards. The Ordinance of the City of Cass Lake previously adopted and approved, establishing the Cass Lake Volunteer Fire Department shall remain in full force and effect as shall the Cass Lake Fire Department Relief Association. In event of termination of this Contract, any benefit due members of the Cass Lake Fire Department Relief Association will be in order with the Cass Lake Fire Department Relief Association By-Laws and State law.

ARTICLE I.

Purchase of Equipment

The parties shall contribute to the purchase price of future equipment on a percentage basis in accordance with the formulas set forth in Article V of this Agreement.

ARTICLE II.

Ownership of Any Joint Equipment

The parties shall acquire an undivided interest as part owner in any jointly purchased equipment in the proportion that each has actually contributed to the cost.

ARTICLE III.

Purchase

The parties shall agree upon specifications for the future joint purchase of equipment. When required by state law the City Clerk, Town Clerks, County Auditor and Band Secretary jointly shall issue a call for sealed bids to be prepared and published at the expense proportionately of the parties in the official newspapers of each governing body. Said call shall refer to the specifications and to this contract as basic data binding on each bidder. The right to reject any or all bids shall be reserved. In any event all contracts and purchases shall conform to the applicable state law of all governmental units.

At the time and place of opening bids by the City Clerk, the Town Clerks, the County Auditor and Band Secretary and the Joint Powers Board members, all those present shall, as one group, discuss the bids, and shall then report back to their individual governmental units to vote separately on the acceptance of bids. The parties shall not be bound unless a bid or bids are accepted, by all parties. **If** deemed necessary specifications may be amended and re-advertisement for bids made and the same procedure again followed

The sellers of such joint equipment shall duplicate bills of sale revealing the interest of the parties so that each has a signed copy.

ARTICLE IV.

Maintenance and Control

Apparatus. The jointly purchased equipment and the jointly owned equipment shall be stored and maintained at the Cass Lake Fire Station, Cass Lake, Minnesota, or such other location as approved by the Joint Powers Board. The control of the equipment shall be retained by the parties except as provided under Article VI. The cost of storage, maintenance, replacement of minor equipment, and insurance, shall be from an operating fund to be maintained as a separate fund hereinafter referred to as the "Joint Operating Fire Fund."

Workers Compensation Insurance for the firemen shall be paid from the "Joint Operating Fire Fund" and each governmental unit shall contribute to the cost of said insurance on a percentage basis in accordance with the formulas set forth in Article V.

Cass Lake Fire Station and Equipment. By execution of this agreement, the City of Cass Lake agrees that the Joint Powers Board shall have a leasehold interest, for the life of this agreement, in the City-owned Fire Hall and equipment currently owned by the City. As consideration, the Joint Powers Board shall be responsible for all maintenance costs for both the building and the equipment.

ARTICLE V.

Joint Operating Fire Fund

The parties agree that annually, prior to the commencement of each calendar year of this contract, they shall mutually approve a budget of operating expenses (including the Cass Lake Fire Department Relief Association) and capital expenditures for the ensuing calendar year as may be recommended by the Joint Powers Board.

The parties shall deposit in advance quarterly contributions with the duly appointed Clerk of the Joint Powers Board who shall maintain a special fund to be known as the "Joint Operating Fire Fund." Quarterly contributions to the Joint Operating Fire Fund shall be in accordance with the following definitions and formula:

Definitions:

S = Cost of fire protection for one year to be charged to the Band

G = Cost of fire protection for one year to be charged to each of the other parties

C = Amount budgeted for operation and a capital expenditure budget for the current fiscal period including monies contributed to the relief association but excluding the 2 percent state aid

U = Percent of fire department use by the recipient of the service averaged over the past three years

V = Percent of market valuation of property

P = Percent of population in recipient's jurisdiction

The formula for the Band, because figures for V and P are unavailable, is:

$$S = C \times U\%$$

(If figures for V or P, or both, become available, they will be factored in so that the formula for all parties is the same.)

The formula for all other parties is:

$$G = (C-S) \times ((U\% + V\% + P\%)13))$$

Funds shall be disbursed by the Clerk and countersigned by a Town Clerk/Band Secretary who shall annually be designated by the Joint Powers Board for the purpose as defined in Article IV, proportionate to percentage as contributed. The Joint Powers Board shall compensate the Clerks for their services.

The Joint Powers Board shall require a quarterly accounting of this fund from the Clerk and such accounting in report form showing a record of receipts and disbursements shall be forwarded to the parties' governing boards within 30 days following the close of the quarter.

ARTICLE VI.

Use of Equipment

The Equipment owned by the parties hereto and equipment jointly purchased shall be used within the area of said City and said Towns and elsewhere as follows:

In adjacent areas where a fire may spread to such City or Towns.

The area served by a contract with other Towns.

To assist neighboring fire departments as may be mutually agreed under a reciprocal agreement with such fire departments.

Any area adjacent to the City and the Towns with which a future contract for protection may be negotiated, providing such contract shall call for maximum legal charge based on the formulas contained herein.

It shall be the duty of the City to provide volunteers in sufficient numbers to maintain a staff of firemen to answer fire calls and to man available equipment in such a manner so as not to fall below minimum standards.

The dispatching and operation of the firefighting equipment shall be in charge of the chief of the fire department, or in his absence shall be in the hands of the assistant chief. If neither is available, the person previously appointed for this purpose shall be in charge.

ARTICLE VII.

Liability — Governmental Functions—Protective Clause

In all of the joint agreements defined in this Agreement, the parties shall be deemed to be exercising their governmental functions so that neither shall be liable to the other for any negligence of its officers, employees, firemen, or agents.

Specifically, without limiting the effect of the foregoing language in the preceding paragraph, the parties and their officers, employees and firemen shall not be liable for any of the following acts or omissions: failure to answer a call promptly or at all; for any trespass or damage to persons or property whether necessary or unnecessary in connection with going to or returning from any fire call or in serving at any fire or fire call.

ARTICLE VIII.

Tax Levy

The City Council and County Board shall annually raise by a tax levy or otherwise sufficient funds to pay all their obligations under this contract. The Town Boards shall annually recommend levies to the voters at their annual meetings to raise by tax levy or otherwise sufficient funds to pay all of their obligations under this contract. The Band shall raise sufficient funds as their own rules and regulations provide to pay all of its obligations under this contract. In case of defaults of over three (3) months in making any payment due for the Joint Operating Fire Fund. it is agreed that a penalty of an additional payment of six percent (6%) a year be paid.

ARTICLE IX.

Joint Powers Board

A Joint Powers Board is hereby created to facilitate the performance of this contract throughout its life. Such Board shall have powers specifically given in any other articles of this contract and shall have

power to make recommendations to the parties to improve cooperation and efficiency in carrying out the intent of this contract and to make recommendations for amendments and supplements to this contract.

The membership of said Board shall consist of one member from the City, one member from the County, one member from the Band, one member from each of the Towns, and an associate member from the volunteer staff of firemen. The advisory member from the volunteer staff of firemen shall be the fire chief or his appointee, who shall not be a voting member.

Said Board shall have a minimum of four (4) regular meetings each year. Unless such Board fixes a different meeting place, meetings shall be held at the City Hall in the City of Cass Lake, Minnesota.

In every calendar year prior to the month of March, the City Council and the Town Boards shall name a member to said Board, and the fire chief shall name the associate member if he is unable to serve. Such members and the associate member shall hold office from the first Tuesday in until the first Tuesday in the following year. If the parties fail to make such appointment in a timely manner, the previous incumbent shall continue in office until such successor is named. Vacancies occurring shall be filled for the unexpired term by the respective governing bodies of the parties.

Said Board may adopt rules not inconsistent with this contract for the purpose of carrying out its duties hereunder.

ARTICLE X.

Life of This contract

This contract will be in effect until dissolved by all parties, from the date of this Contract until any parties notifies the others in writing of such a request at least two (2) years in advance of the desired expiration date.

On a dissolution, the remaining property jointly acquired shall be sold for a reasonable price on competitive bids and the proceeds divided among the owners as their interest appear. The parties may be bidders at any such sale. The City shall retain ownership of the building known as the Cass Lake Fire Station.

Should an individual party to this Agreement wish to withdraw, twelve (12) months' notice, in writing, must be given to the Joint Powers Board. Any investment by a withdrawing member shall be forfeited except by a 3/4 vote of the entire Joint Powers Board and any such investment may not be withdrawn until the end of the calendar year.

IN TESTIMONY WHEREOF, the parties to this contract have hereunto set their hands this _____ day of _____, _____.



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