

10.0 Apparatus and ISO Ratings

This section of the report discusses fire apparatus and the ISO rating schedule. The maintenance of an inventory of fire apparatus within in a district is often linked to efforts to obtain favorable ratings from the ISO. Over the years, the ISO has been subject to considerable criticism by managers and fire chiefs who feel that it places undue emphasis on fire suppression capability and does not reflect community loss experience or reward preventive efforts, such as code enforcement or public fire education.

The ISO rating schedule is currently being revised. No definitive schedule has been announced, but Manitou, Inc. expects that a new version of the document will be published sometime in 2011. The changes could have significant impact on communities' efforts to invest in fire services. Our philosophy is that fire protection needs should be driven by local expectations and capabilities, and that more cost-effective strategies often exist for reducing fire losses outside of the dictates of the ISO. Therefore, ISO is a concern, but should not exert a dominating influence over local decision making.

10.1 Apparatus

The major apparatus operated by The Town of Bethlehem's five fire districts is listed in Table 10.1. There are 16 engines (pumping apparatus); three aerial ladder trucks; five heavy rescue/squad apparatus; two brush fire units; and numerous utility vehicles and staff vehicles. The fleet also includes a boat and specialty trailers for carrying foam concentrate. Foam concentrate is used in extinguishment of flammable and combustible liquids fires.

Table 10.1: Major fire apparatus owned and operated by the Town of Bethlehem fire districts

District	Unit	Type	Year	Make	Specifications
Delmar	Engine 21	Pumper	1994	Salisbury/Simon Duplex	1500 gpm 650g 100g Foam
	Engine 22	Pumper	1998	Spartan/American Eagle	1250 gpm 700g 50g Foam
	Truck 20	Aerial Ladder	2000	HME/Hammer	75 ft 1500gpm 200g
	Squad 24	Heavy Duty Squad	2008	Spartan/Marion	EMS Support, Rehab
	M25	Utility	2002	GMC	
Elmwood Park	Engine 64	Pumper/Tanker	2004	KME	2000 gpm 2500g
	Engine66	Pumper	2008	Crimson	1500gpm 750g
	Engine 67	Pumper	1967	American LaFrance	1250 gpm 500 g
	Squad 63	Heavy Duty Squad	1997	Freightliner	Mass Casualty/Rehab
	EMS 62	Utility	2009	Ford	EMS Response
	Elsmere	Engine 31	Pumper	1997	Pierce Lance
Engine 32		Pumper	1991	Pierce Lance	1750 gpm
Truck 30		Ladder Tower	1993	Pierce Lance	100 ft 1500 gpm
Squad 33		Heavy Duty Squad	1999	Pierce Saber	Haz Mat
M 39		Transport	2001	International	Bus
M 38		Utility	1994	Ford F350	Pickup
		Haz MatTrailer	1983	Riverside Trailer	
Selkirk	Engine 41	Pumper	2001	Marion/Spartan Gladiator	1500 gpm/1000g
	Engine 42	Pumper	1999	Marion	1500 gpm/1200g
	Engine 43	Tanker/Pumper	1993	Salsbury	1500 gpm/2500g
	Engine 44	Brush	1999	Chevy	
	Engine 45	Brush	2005	Chevy	250g
	Engine 47	Pumper	2009	Marion/Spartan Gladiator	1500 gpm/1000g
	Engine 48	Pumper	2003	Marion	1500 gpm/1500g
	Truck 40	Aerial Ladder	1989	LTI	75 ft 750g
	Rescue 46	Heavy Rescue	1997	Marion/Spartan Gladiator	Technical Rescue
	Rescue 4	Boat		Boston Whaler	
	Trailer 11	Foam Trailer			
	Trailer 12	Foam Trailer			
		M416	Utility	2009	Chevy
	M436	Utility			
	M425	Utility	1998	Chevy	Air Support
	M426	Utility	1998	Chevy	Fire Police

Slingerlands	Engine 11	Pumper	1994	Spartan/Marion	1500gpm 1000g 30g Foam
	Engine 12	Pumper	2000	American LaFrance/General	1500gpm 750g
	Rescue 16	Heavy Rescue	2007	American LaFrance	Technical Rescue
	M13	Utility	2004	Chevrolet	
	M18	Utility	1998	Ford F-350	

10.2 ISO Ratings

The ISO is an independent organization that serves the insurance industry with a wide range of data collection and analyses. In turn, insurance companies apply the data when setting rates for a variety of insured properties. One type of data and related information provided to insurance companies is the rating of communities based on the capabilities of a public Fire Defense System. This information rates each district's capabilities for the suppression of fires in small to average sized structure and similar properties. In doing so, the ISO maintains surveys of over 48,000 cities, towns, and similar public fire jurisdictions throughout the country. Structures requiring extreme quantities of water to suppress (fire flows in excess of 3500 gpm) are surveyed separately from a community's fire defenses. **Fire defenses** are usually defined as facilities, equipment and personnel of the fire and water departments and the receiving of emergency calls and dispatching of fire department resources to structure fires.

Generally, the ISO conducts on-site surveys of community fire defenses by applying the Fire Suppression Rating Schedule (FSRS), the organization's guidebook for evaluating the various components of fire defense capabilities. Upon completion of a survey, a community is then assigned a Public Protection Classification (PPC) rating number. The classification assigned includes a rating number from 1 through 10. Class 1 represents the best attainable class for fire defenses while a Class 10 indicates that fire defenses do not meet the minimum criteria of the schedule. Once a PPC is established, a community is then subject to a resurvey if changes have occurred in the community or its fire defenses. Examples of changes include annexation, population growth or changes in the fire or water department capabilities that could impact the overall effectiveness of the fire defense system to control fire losses.

As mentioned, the guidelines of the FSRS apply to fire protection capabilities that mitigate potential losses only due to fires within structures. Further, it is important to note that ISO does not evaluate the fire departments' capabilities related to the rescuing of civilian victims who may be trapped in burning structures. More specifically, the schedule focuses on capabilities of fire suppression forces for the initial call to structure fires and does not evaluate resource capabilities where multiple alarm fires or simultaneous calls may occur. It is important to point out that structure fire protection is only one service provided by the modern fire department. Other services provided often include fire suppression of other types of fires including wildland/brush, vehicle, and aircraft. In addition, many departments provide some level of response to emergency medical calls, motor vehicle accidents requiring the extrication of victims, and a wide variety of emergencies including hazardous material incidents.

Since 1915 the FSRS has been used as one of the primary measuring tools to determine the effectiveness of municipal fire defenses. Over the years the schedule has been revised to reflect changes in the make-up and development of our nation's communities, associated fire risks, and the technological changes in the delivery of public fire protection. The most recent and significant revision to the FSRS was in 1980. A community's investment in fire protection upgrades is a proven and reliable predictor of reducing future fire losses. Historic loss data bears out the relationship between effective fire protection as measured by a community's PPC and reduced fire losses. It is due to this relationship that insurance companies reference PPC information for marketing and underwriting purposes and to help establish fair premiums for property owners. In general, the price of fire insurance in a community with a good PPC is often much lower than a community with a poor PPC, assuming all other factors are equal.

10.2.1 Components of the Schedule

The guidelines of the FSRS evaluate fire defenses according to a uniform set of criteria, which in part incorporates its own standards and those of the National Fire Protection Association (NFPA) and the American Water Works Association (AWWA). The guidelines address the following areas:

Distribution of Engines and Ladder/Service trucks

The FSRS considers the number and adequacy of engine and ladder/service departments to cover built-upon (developed) areas of the community. The developed area should have a first-due engine within 1.5 road miles and a ladder/service company within road 2.5 miles.

Review of current engine distribution indicates a significant portion of the developed areas of the township is adequately covered by engine companies. As stated previously, the main Delmar and Elsmere fire stations significantly overlap in coverage in the northern portion of the region, which is good in terms of FSRS ratings. In contrast, the built-upon (developed) south central area of the Town of Bethlehem is beyond the 1.5 mile FSRS threshold. If this region of the Town continues to develop, it should be considered to provide an additional engine in this area.

The ISO has announced its intent to modify the criteria used in the schedule to more closely reflect consensus standards promulgated by the National Fire Protection Association. The effects of this change would be dependent on the details of how they were applied, although it may be presumed that for districts serving large areas, they may be more demanding than current requirements. ISO has not specified the precise changes, and dates for announcement of the revised schedule have come and gone. An announcement is expected at any time, however.

Needed Fire Flows

Needed fire flows are representative of insured property locations used to determine the community's specific amount of water needed for fire suppression.

Dispatching of the Fire Department

When evaluating fire department dispatch units, the FSRS evaluates telephone and related communication systems, telephone system infrastructure, dispatch center staffing and facilities. This section of the schedule is 10 percent of points a community may earn under the PPC. The points are broken into the following areas:

- Telephone service 2 points
- Number of needed dispatchers 3 points
- Dispatch circuits 5 points

Fire Department

Evaluation of fire departments overall in the FSRs ratings including personnel, apparatus, training, geographic location of fire stations. The fire department accounts for 50 percent of a PPC classification. Areas include:

- Number of Engine (Pumper) Companies 10 points
- Number of Reserve Pumpers 1 point
- Pumper Capacity 5 points
- Ladder/Service Companies 5 points
- Reserve Ladder/Service Trucks 1 point
- Distribution of Companies 4 points
- Company Staffing Levels 15 points
- Training 9 points

Water Supply

Evaluation of the water supply includes the capabilities of fire hydrants, mains, pump stations and reservoirs. Relevant components of the water system accounts for 40 percent of a classification which include:

- Pumps and Reservoir Infrastructure 35 points
- Hydrant Specifications 2 points
- Hydrant Inspection and Condition 3 points

A community’s PPC rating includes a divergence factor that considers the rating difference of the above three areas. The factor recognizes disparity between the effectiveness fire and water departments. By doing so, each of the three areas receive a sub-classification under the overall community PPC.

The PPC classification assigned to a community is based on a 100 point scale:

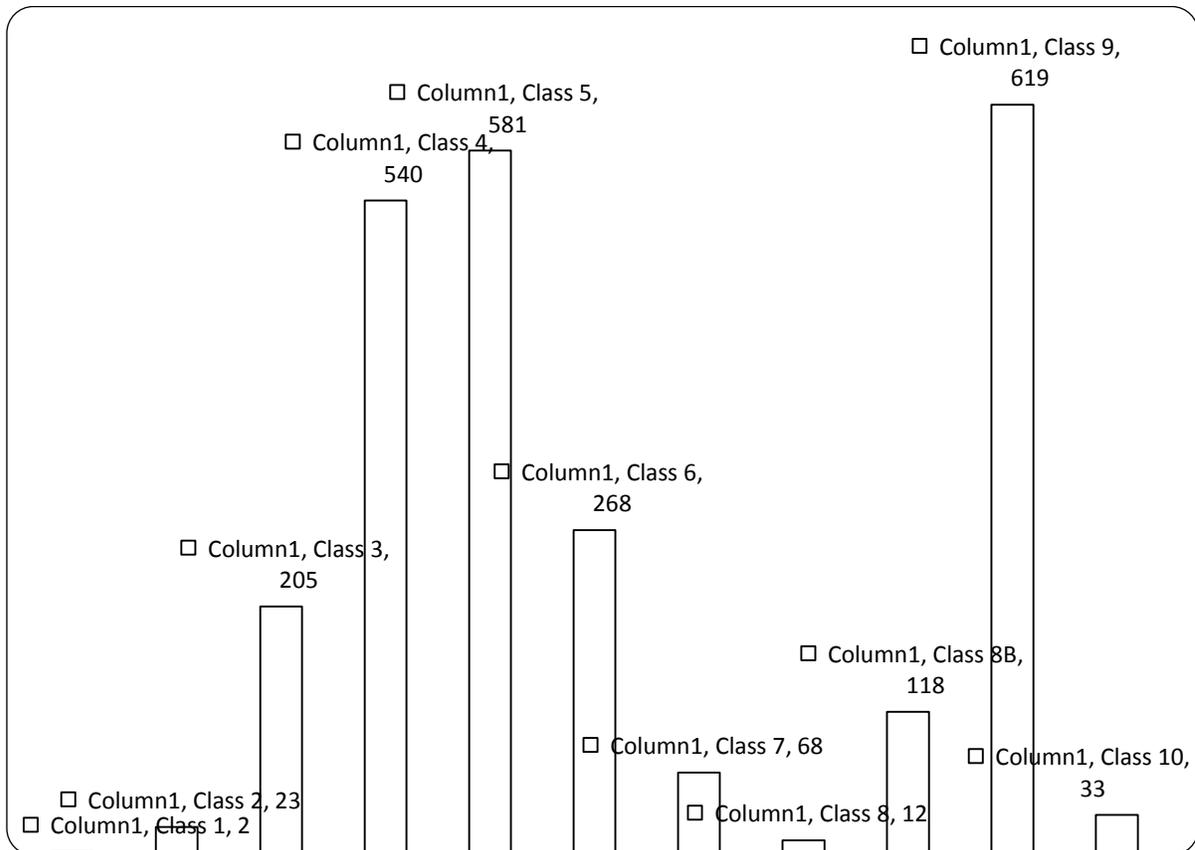
Public Protection Classification	Points
1	90.00 or more
2	80.00 to 89.00
3	70.00 to 79.00
4	60.00 to 69.00
5	50.00 to 59.00
6	40.00 to 49.00
7	30.00 to 39.00
8	20.00 to 29.00
9	10.00 to 19.00
10	0.00 to 9.99

PPC numbers can be further broken down as follows:

- **Class 1 through Class 8** represents a fire defense system that incorporates a creditable dispatch center, fire department, and water supplies.
- **Class 8B** is a special classification that recognizes a superior level of fire protection in otherwise Class 9 communities. The special rating is designed to represent a fire defense system that is superior to a Class 9 except for a lack of a water supply system capable of flowing 250 gpm for 2 hours.
- **Class 9** is a fire defense system that includes a creditable dispatch center, fire department but no creditable water supply per the FSRS.
- **Class 10** does not meet the criteria of the FSRS.

Figure 10.2 illustrates how New York State communities rate on the 1-10 PPC classification scale. This figure illustrates that the majority of fire stations in New York State have a Class 9 or Class 5 rating.

Figure 10.2: Comparison of New York communities and their Public Protection Classifications (PCC) ratings



In some communities, such as the five fire districts serving the Town of Bethlehem, a community's PPC is subject to receive a split classification. This is due to the following:

- The first class (e.g. 6 in a Class 6/9 PPC) applies to properties within five road miles of a recognized fire station and within 1,000 feet of an approved water supply system and fire hydrant or alternate water supply.
- Class 8B or Class 9 applies to properties beyond 1,000 feet of an approved water supply and hydrant but within five road miles of a recognized fire station.
- Alternate Water Supply: The first class (e.g. 6 in a Class 6/10) applies to properties with five road miles of a recognized fire station with no recognized water supply and hydrant distance requirement.
- Class 10 applies to properties over five road miles of a recognized fire station.

10.2.2 Applying the FSRS as an Integral Component to Future Planning

The FSRS is not intended to be the sole guide for fire department long range planning. However, the schedule can serve as a useful resource when developing effective and efficient public fire services. It should be remembered the schedule is intended to determine if local fire suppression forces are in place to mitigate the effects of fires within structures. However, when developing a long-range plan for fire and rescue operations, other services provided must be considered including non-structure fire responses, EMS, special operations, and hazardous material and any other services, none of which are addressed within the FSRS.

Table 10.2: Comparison of District ISO Public Protection Classifications

District	Date of Survey	District Rating (2011)	District Rating (pre-2011)	Public Protection Classification		
				Relative Sub-Rating (most recent)		
				Fire Dept.	Water Supply	Dispatch
Delmar	April 1996		4/9	5	4	3
Elsmere	Oct. 2007		4/9	4	2	2
Elmwood Park/ North Bethlehem	Aug. 1998		4/9	5	2	3
Selkirk	2011; May 1996	5/8B	4/9	6	3	4
Slingerlands	2011; Mar. 1996	4/9	4/9	4	2	4

10.2.3 ISO Findings and Recommendations

This section details the most recent ISO classification for each of the five fire districts located within the Town of Bethlehem. Where recommendations appear in this section, they are solely in the context of maximizing the ISO rating and do not necessarily reflect overall priorities for this study. Additionally, information reported here is current as of the date of the study and may not necessarily reflect current practices. The reader should refer to the appropriate chapters for current information. At the time of this report, several districts are undergoing new ratings from ISO.

Statements concerning ISO compliance are professional judgments using publicly available materials – only ISO can assign ratings.

10.2.3.1 Delmar Fire District

The Delmar Fire District was surveyed by the ISO in 1996. They had a field survey by ISO in Summer 2011, and should receive an updated ISO rating report in the coming months. The district received a total credit of 61.32 points (out of 100 possible points), giving it a rating of 4. Table 10.3 shows the credits earned by the Delmar Fire District.

Table 10.3: Delmar Fire District credits earned

FSRS Item	Credit Earned	Credit Available
513. Engine Companies	7.61	10
523. Reserve Pumpers	0.31	1
532. Pumper Capacity	5.0	5
549. Ladder Service	4.24	5
553. Reserve Lad./Service Trucks	0.00	1
561. Distribution	3.18	4
571. Personnel	5.08	15
580. Training	3.69	9
Total Credit	29.11	50

Pumpers

The number of needed front line pumpers is based on the fire district’s flow demand (see Table 10.4), response area covered, and the method of operation. The ISO requires two pumpers required. Maximum credit was awarded for the number of needed front line pumpers. Partial credit was awarded for pump and hose testing. *Recommendation:* All hose and pumps should be tested annually in accordance with NFPA 1962 and NFPA 1901.

Reserve pumpers

Partial credit was awarded for a reserve pumper. *Recommendation:* The district should secure a reserve pumper by entering into a written agreement for reserve pumper availability with an adjoining fire district.

Pumper capacity

Maximum credit was awarded for pump capacity.

Mutual-aid and automatic-aid agreements

Partial credit was awarded for all agreements. *Recommendation:* Insure mutual and automatic aid agreements with all neighboring fire districts.

Aerial ladder truck service

One (1) aerial ladder truck is needed in the district due to fire flow, multi-story structures, and method of operation. *Recommendation:* Add one aerial ladder truck.

Service type ladder truck

No service type ladder truck is needed in the district.

Reserve ladder/service trucks.

No credit was awarded for a reserve service truck. *Recommendation:* Add one reserve ladder/service truck. (See also: “Town-wide recommendations”)

Distribution of engine and ladder/service trucks

See “Distribution of Fire Companies” under “Town-wide recommendations” under this section.

Firefighting personnel

The district received 5.08 points out of 15 points possible for firefighting personnel.
Recommendation: Insure a minimum of 12 members respond to all initial dispatches to structures fires. This means the districts maintains a minimum a roster of 36 able bodied firefighters.

Fire Department Training

The district received a total of 3.69 out of 9 possible points for training. See Section 11.0 for additional detail about training.

Fire Flow

The basic fire flow needed for the district was determined to be 2500 gpm. This was determined through flow test at the following locations:

<u>Flow</u>	<u>Location</u>
7000	700 Delaware Ave.
3500	McGuffy
2500	330 Kenwood Ave.
2500	500 Kenwood Ave.
2500	700 Delaware Ave.

ISO determines the needed fire flow as the property (flow test site) with the fifth highest needed gpm. Table 10.4 illustrates Delmar Fire District’s water supply.

Table 10.4: Delmar Water Supply

FSRS Item	Credit Earned	Credit Available
616. Supply System	28.08	35
621. Hydrants	2.00	2
631. Hydrant Inspection/Condition	2.10	3
Total Credit	32.18	40

Water Pressure and Volume and Hydrant Distribution

The water pressure and volume is based the system’s ability to flow the district’s basic fire flow of 1000 gpm. Credit for hydrant distribution is based on distance from properties to the nearest hydrants up to 1,000 feet. The district received 22.34 out of 35 available points.

Recommendations: (1.) Ensure water main size provides sufficient flows and pressures up to the district’s minimum of 1000 gpm. (2.) Ensure all fire hydrants meet the design and installation credit per the guidelines of the American Water Works Association and NFPA.

Fire hydrant size, type and installation

Maximum credit for fire hydrants is 2. Full credit was awarded for hydrants. Six inch or larger branch lines with hydrant consisting of a pumper outlet with two 2.5 inch auxiliary outlets. Full credit was awarded for hydrant specifications.

Fire hydrant inspection and condition

Maximum credit for hydrant inspection is 3.0. The district received 2.4 points. *Recommendation:* Ensure the district’s water supply provider inspect all hydrants twice per year per the recommendations of Pamphlet M-17 of the American Water Works Association.

Dispatch Center

The district received 6.33 points out of 10 for the regional dispatch center receiving and processing emergency calls. Table 10.4 breaks out these earned points.

Table 10.4: Delmar Fire District Dispatch Center

FSRS Item	Credit Earned	Credit Available
414. Telephone Service	1.90	2
422. Dispatcher/Operator	1.80	3
432. Dispatch Circuits	3.50	5
Total Credit	7.20	10

Number of needed designated “fire” lines

Full credit of 25.00 points was awarded for fire lines.

Number of needed fire, business, and private alarm lines

Full credit of 25.00 points was awarded.

Progression of emergency calls to business lines

Maximum credit was awarded for progression of calls.

Emergency number on the inside front cover or the front page local directory.

Maximum credit was awarded for having the emergency number published in the front of the local directory.

Emergency number and business number listed under “Fire Department”

No credit was awarded. *Recommendation:* Ensure future editions of local telephone directory include listings of the communication center’s (fire department) emergency and business number under “FIRE DEPARTMENT” in the white pages, as well as, among offices in the government section.

Emergency number and business number listed under the name of the city

Maximum credit was awarded listing under community’s name.

Use of recording device

Maximum credit was awarded for recording device.

Number of on-duty dispatchers needed

Partial credit was awarded. *Recommendation:* Increase the number of dispatchers from an average of 3.00 to five.

Number of on-duty dispatchers awake at all times

Partial credit was awarded. *Recommendation:* Ensure all dispatchers are awake at all times.

Dispatch circuits provided

Maximum credit was awarded for type of circuits in use.

Monitory for integrity of circuits.

No credit was awarded for monitory of dispatch circuits. For maximum credit, the dispatch circuit should have an automatic system that will detect faults and failures and send visual and audible indications to dispatch supervisors or other dispatch center personnel. *Recommendation:* Ensure all fire dispatch circuits are monitored at all times per NFPA 1221.

Dispatch recording facilities at communication center

Maximum credit was awarded recording facilities.

Dispatch center emergency power supply

Maximum credit was awarded for emergency power.

10.2.3.2 North Bethlehem Fire Department (Elmwood Park Fire District)

The North Bethlehem Fire District was surveyed by the ISO in 1998. The district received a total credit of 60.15 points. Table 10.5 shows the credits earned by the Elmwood Park Fire District.

Table 10.5: North Bethlehem Fire Department

FSRS Item	Credit Earned	Credit Available
513. Engine Companies	6.70	10
523. Reserve Pumpers	.46	1
532. Pumper Capacity	5.00	5
549. Ladder Service	2.62	5
553. Reserve Ladder/ Service Trucks	0.00	1
561. Distribution	2.45	4
571. Personnel	4.84	15
580. Training	3.13	9
Total Credit	25.20	50

Number of needed front line pumpers

The number of needed front line pumpers is based on the district's flow demand (see water supply), response area covered, and the method of operation. The number of pumpers needed is one (1). Maximum credit was award for the number of needed front line pumpers.

Annual testing of pump(s) and hose

Partial credit was awarded for pump and hose testing. *Recommendation:* All hose and pumps should be tested annually in accordance with NFPA 1962 and NFPA 1901.

Mutual-aid and automatic-aid agreements

Partial credit was awarded for all agreements. *Recommendation:* Insure mutual and automatic aid agreements with all neighboring fire districts.

Reserve pumpers

Partial credit was awarded for a reserve pumper. *Recommendation:* The district should secure a reserve pumper by entering into a written agreement for reserve pumper availability with an adjoining fire district.

Pumper capacity

Maximum credit was award for pump capacity.

Aerial ladder truck service

No ladder truck is needed.

Service type ladder truck

Partial credit was awarded for a service type ladder truck. *Note:* The district should receive service truck credit due to automatic response aerial ladder truck provided by neighboring fire districts on all initial reported structures.

Reserve ladder/service trucks

No credit was awarded for a reserve service truck (See "Town-wide recommendations").

Distribution of engine and ladder/service trucks

See "Distribution of Fire Companies" under "Town-wide recommendations" under this section.

Firefighting personnel

The district received 6.59 points out of 15 points possible for firefighting personnel. *Recommendation:* Ensure a minimum of 12 members respond to all initial dispatches to structures fires. This means the districts maintains a minimum roster of 36 able bodied firefighters.

Fire department training

The district received a total of 3.13 out of 9 possible points for training. See Section 11.0 on training for further details.

Fire flow needed

The basic fire flow needed for the district was determined to be 1000 gpm. This was determined through flow test at the following locations:

<u>Flow</u>	<u>Location</u>
2250	Meadowbrook Drive
1500	McKowan Road
1000	School House Road
1000	Norfolk
1000	Krumhill

ISO determines the needed fire flow as the property (flow test site) with the fifth highest needed gpm. Table 10.6 shows the credits earned for the North Bethlehem Fire Department in the water supply category.

Table 10.6: North Bethlehem Fire Department water supply FSRs credits earned

FSRS Item	Credit Earned	Credit Available
616. Supply System	31.00	35
621. Hydrants	2.00	2
631. Hydrant Inspection/Condition	2.70	3
Total Credit	35.70	40

Water pressure, volume, and hydrant distribution

The water pressure and volume is based on the system's ability to flow the district's basic fire flow of 1000 gpm. Credit for hydrant distribution is based on distance from properties to the nearest hydrants up to 1,000 feet. The district received 31 out of 35 available points.

Recommendations: (1.) Ensure water main size provides sufficient flows and pressures up to the district's minimum of 1000 gpm. (2.) Ensure all fire hydrants meet the design and installation credit per the guidelines of the American Water Works Association and NFPA.

Fire hydrant size, type and installation

Maximum credit for fire hydrants is 2. Full credit was awarded for hydrants. Six inch or larger branch lines with hydrant consisting of a pumper outlet with two 2.5 inch auxiliary outlets. Full credit was awarded for hydrant specifications.

Fire hydrant inspection and condition

Maximum credit for hydrant inspection is 100. The district received 90 points.

Recommendation: Ensure the district's water supply provider inspects all hydrants twice per year per the recommendations of Pamphlet M-17 of the American Water Works Association.

Maximum credit for hydrant condition is 1.00. The district received full credit for hydrant condition.

Dispatch center

The district received 7.02 points out of 10 for the regional dispatch center receiving and processing emergency calls.

Table 10.7: North Bethlehem Dispatch

FSRS Item	Credit Earned	Credit Available
414. Telephone Service	1.90	2
422. Dispatcher/Operator	1.62	3
432. Dispatch Circuits	3.50	5
Total Credit	7.02	10

The following provides a detailed review of credit earned by the district's dispatch provider.

Number of needed designated "fire" lines

Maximum credit was awarded for the number of needed incoming fire lines at the dispatch center.

Number of needed fire, business, and private alarm lines

Maximum credit was awarded for incoming fire, business, and private lines.

Progression of emergency calls to business lines

Maximum credit was awarded for progression of calls.

Emergency number on the inside front cover or the front page local directory

Maximum credit was awarded for having the emergency number published in the front of the local directory.

Emergency number and business number listed under "Fire Department"

No credit was awarded. *Recommendation:* Ensure that future editions of local telephone directory include the communication center's (fire department) emergency and business number listed under FIRE DEPARTMENT in the white pages, as well as, among offices in the government sections.

Emergency number and business number listed under the name of the city

Maximum credit was awarded listing under community's name.

Use of recording device

Maximum credit was awarded for recording device.

Number of on-duty dispatchers needed

Partial credit was awarded. *Recommendation:* Increase the number of dispatchers from an average of 2.70 to five.

Number of on-duty dispatchers awake at all times

Partial credit was awarded. *Recommendation:* Ensure all dispatchers are awake at all times.

Dispatch circuits provided

Maximum credit was awarded for type of circuits in use.

Monitory for integrity of circuits

No credit was awarded for monitoring of dispatch circuits. For maximum credit, the dispatch circuit should have an automatic system that will detect faults and failures and send visual and audible indications to dispatch supervisors or other dispatch center personnel. *Recommendation:* Insure all fire dispatch circuits are monitored at all times per NFPA 1221.

Dispatch recording facilities at communication center

Maximum credit was awarded recording facilities.

Dispatch center emergency power supply

Maximum credit was awarded for emergency power.

10.2.3.3 Elsmere Fire District

The Elsmere Fire District was surveyed by the ISO in 2007. The Elsmere Fire District received a total credit of 65.64 points. These are broken down in Table 10.8.

Table 10.8: Elsmere Fire District FSRS credits earned

FSRS Item	Credit Earned	Credit Available
513. Engine Companies	8.48	10
523. Reserve Pumpers	0.54	1
532. Pumper Capacity	5.00	5
549. Ladder Service	4.56	5
553. Reserve Lad./Service Trucks	0.44	1
561. Distribution	2.47	4
571. Personnel	6.59	15
580. Training	2.79	9
Total Credit	30.87	50

Number of needed front line pumpers

The number of needed front line pumpers is based on the district's flow demand (see water supply), response area covered, and the method of operation. The number of pumpers needed is three (3). Maximum credit was award for the number of needed front line pumpers.

Annual testing of pump(s) and hose

Partial credit was awarded for pump and hose testing. *Recommendation:* All hose and pumps should be tested annually in accordance with NFPA 1962 and NFPA 1901.

Mutual-aid and automatic-aid agreements

Partial credit was awarded for all agreements. *Recommendation:* Ensure mutual and automatic aid agreements with all neighboring fire districts.

Reserve pumpers

Partial credit was awarded for a reserve pumper. *Recommendation:* The district should secure a reserve pumper by entering into a written agreement for reserve pumper availability with an adjoining fire district.

Pumper capacity

Maximum credit was award for pump capacity.

Aerial ladder truck service

No ladder truck is needed.

Service type ladder truck

Maximum credit was awarded for a service type ladder truck. *Note:* The Elsmere Fire District has in service an aerial ladder truck, which received credit as a service type ladder truck.

Reserve ladder/service trucks

No credit was awarded for a reserve service truck. (See “Town-wide recommendations”)

Distribution of engine and ladder/service trucks

See “Distribution of Fire Companies” under “Town-wide Recommendations” under this section.

Firefighting personnel

The district received 4.84 points out of 15 points possible for firefighting personnel. *Recommendation:* Ensure a minimum of 12 members respond to all initial dispatches to structures fires. This means the districts maintains a minimum a roster of 36 able bodied firefighters.

Fire department training

The district received a total of 2.79 out of 9 possible points for training. See Section 11.0 on training for further details.

Fire flow needed

The basic fire flow needed for the district was determined to be 2250 gpm. This was determined through flow test at the following locations:

<u>Flow</u>	<u>Location</u>
3500	37 Rte. 9w & Elsmere Ave.
3000	40 Hamilton Lane & Elsmere Ave.
2500	385 Rte. 9w & Elsmere Ave.
2500	Hannay Ln. & Elsmere Ave.
2250	154 Delaware Ave. & Elsmere Ave.

ISO determines the needed fire flow as the property (flow test site) with the fifth highest needed gpm.

Table 10.9 shows how the Elsmere Fire District scored for in the water supply category.

Table 10.9: Elsmere Fire District water supply FSRS credits earned

FSRS Item	Credit Earned	Credit Available
616. Supply System	28.08	35
621. Hydrants	2.00	2
631. Hydrant Inspection/Condition	2.10	3
Total Credit	32.18	40

Water Pressure and Volume and Hydrant Distribution

The water pressure and volume is based on the system's ability to flow the district's basic fire flow of 1000 gpm. Credit for hydrant distribution is based on distance from properties to the nearest hydrants up to 1,000 feet. The district received 32.8 out of 35 available points.

Recommendations: (1.) Ensure water main size provides sufficient flows and pressures up to the district's minimum of 1000 gpm. (2.) Ensure all fire hydrants meet the design and installation credit per the guidelines of the American Water Works Association and NFPA.

Fire hydrant size, type and installation

Maximum credit for fire hydrants is 2. Full credit was awarded for hydrants. Six inch or larger branch lines with hydrant consisting of a pumper outlet with two 2.5 inch auxiliary outlets. Full credit was awarded for hydrant specifications.

Fire hydrant inspection and condition

Maximum credit for hydrant inspection is 100. The district received 70 points. *Recommendation:* Insure the district's water supply provider inspects all hydrants twice per year per the recommendations of Pamphlet M-17 of the American Water Works Association. Maximum credit for hydrant condition is 1.00. The District received full credit for hydrant condition.

Dispatch center

The district received 6.33 points out of 10 for the regional dispatch center receiving and processing emergency calls.

Table 10.10 Elsmere Fire District dispatch center credits earned

FSRS Item	Credit Earned	Credit Available
414. Telephone Service	1.28	2
422. Dispatcher/Operator	1.80	3
432. Dispatch Circuits	3.25	5
Total Credit	6.33	10

The following provides a detailed review of credit earned by the district’s dispatch provider.

Number of needed designated “fire” lines

Total credit for fire lines was 12.50 out of 25 available points. For maximum credit, there should be two incoming telephone lines reserved for receiving notification of fires.

Number of needed fire, business, and private alarm lines

Total credit for fire lines was 16.67 out of 25 available points. For maximum credit there should be sufficient lines for incoming fire, business, and private lines.

Progression of emergency calls to business lines

Total credit for progression of lines was 0.00 out of a possible 10 points. For maximum credit for fire lines all fire lines should roll over to business lines.

Emergency number on the inside front cover or the front page local directory

Maximum credit was awarded.

Emergency number and business number listed under “Fire Department”

No credit was awarded. *Recommendation:* Ensure that future editions of local telephone directory include the communication center’s (fire department) emergency and business number listed under FIRE DEPARTMENT in the white pages, as well as, among offices in the government section.

Emergency number and business number listed under the name of the city

Maximum credit was awarded listing under community’s name.

Use of recording device

Maximum credit was awarded for recording device.

Number of on-duty dispatchers needed

Partial credit was awarded. *Recommendation:* Increase the number of dispatchers from an average of 3.00 to five.

Number of on-duty dispatchers awake at all times

Partial credit was awarded. *Recommendation:* Ensure all dispatchers are awake at all times.

Dispatch circuits provided

Maximum credit was awarded for type of circuits in use.

Monitory for integrity of circuits

No credit was awarded for monitory of dispatch circuits. For maximum credit, the dispatch circuit should have an automatic system that will detect faults and failures and send visual and audible indications to dispatch supervisors or other dispatch center personnel. *Recommendation:* Insure all fire dispatch circuits are monitored at all times per NFPA 1221.

Dispatch recording facilities at communication center

Maximum credit was awarded recording facilities.

Dispatch center emergency power supply

Partial credit was awarded for emergency power. *Recommendation:* Ensure the providing dispatch center has in place an emergency power back up per NFPA 1221.

10.2.3.4 Selkirk Fire Department

The Selkirk Fire Department was surveyed in June of 2011 by the ISO. The department received a total credit of 54.24 points. These credits are itemized in Table 10.11. The Department's rating declined from a 4/9 to a 5/8B. The 8B is a rating that applies to areas with no water supplies, but reflects good suppression capabilities in these areas.

In the case of Selkirk, in addition to deficiencies in staffing, the fire department experienced deficiencies due to a large geographic area not being adequacy covered by engine companies. The current survey suggest the fire department needs a minimum of six engine companies for distribution; a major increase from the previous surveys. This may be due to a revised method ISO currently has in place for determining the number of needed engine companies due to to distribution. It is recommended the department consult with ISO for further clarification.

Table 10.11 Selkirk Fire Department FSRS credits earned

FSRS Item	Earned	Credit Available
513. Engine Companies	8.66	10
523. Reserve Pumpers	0.71	1
532. Pumper Capacity	5.00	5
549. Ladder Service	2.32	5
553. Reserve Lad./Service Trucks	0.25	1
561. Distribution	1.32	4
571. Personnel	2.31	15
580. Training	2.18	9
Total Credit	22.75	50

Number of needed front line pumpers

The number of needed front line pumpers is based on the district's flow demand (see water supply), response area covered, and the method of operation. The number of pumpers needed is six (6). Partial credit of 8.66 out of 10 was awarded due to the following:

- 3 front line pumpers needed to support a Basic Fire Flow of 3,000.
- 6 pumpers needed to provide fire service to areas with a reasonable population of properties without a responding station within 1 ½ miles.
- 3 front line pumpers based on the department's method of operation to provide a minimum of two (2) pumpers responding to all initial response to reported structure fires.

Note: In certain cases credit may be awarded where automatic pumper response (under the provisions of "Automatic Aid") is provided by neighboring fire departments serving the Town. There exists such a system throughout the Town with all departments participating. In order to receive maximum credit in this category further discussion by department administrators with ISO representatives should be considered immediately to insure the current automatic aid agreement was applied as an integral part of the survey for the distribution of pumpers.

Annual testing of pump(s) and hose

Pump and hose test should be conducted on all pumper apparatus per NFPA 1911 and NFPA 1962 respectively. Credit earned was not indicated within the ISO report.

Mutual-aid and automatic-aid agreements

Credit for sharing of resources with neighboring fire departments including the dispatching of fire apparatus pumper on all initial responses to structure fires are considered by ISO. Credit earned was not indicated within the ISO report.

Reserve pumpers

Partial credit of 0.71 of 1.0 was awarded for a reserve pumper. **Recommendation:** At the time of the survey the department received partial credit for one reserve pumper. Reserve pumpers anticipated for credit should meet all the criteria of a front line pumper including pump capacity and equipment carried. If no reserve pumper is in service the department should secure a reserve pumper by entering into a written agreement for reserve pumper availability with an adjoining fire district.

Pumper capacity

Pump capacity is based on the "rated" capacity of the apparatus pump per the specification of the apparatus at the time of delivery. ISO will only provide a maximum of 80 percent of the pumps rated capacity if no annual pump tests are conducted. Maximum credit of 5.0 was awarded for pumper capacity.

Aerial ladder truck service.

One ladder truck is needed due to fire flow and/or the number of multi-story structures within areas of the District where 5 or more buildings of 3 or more stories in height exist. Partial credit of 0.5 was awarded for aerial ladder truck service.

Service type ladder truck.

Two service type ladder trucks are needed to serve the remaining areas of the District. Credit was given for 2 service companies. Credit of 2.32 of 5.0 was awarded for aerial ladder and service trucks. *Recommendation:* Insure aerial ladder and service type trucks are equipped with minimum equipment per the FSRS and are distributed so that no area of the District is further than 2.5 miles from a ladder or service truck.

Reserve ladder/service trucks.

Credit of 0.25 of 1.0 was awarded for reserve aerial ladder/service trucks. (See town-wide recommendations). *Recommendation:* If no reserve aerial ladder truck is in service the department should secure a reserve pumper or entering into a written agreement for reserve aerial ladder truck availability with an adjoining fire department.

Distribution of engine and ladder/service trucks.

See “Distribution of Fire Companies” under “Town-wide Recommendations” under this section.

Firefighting personnel

The department is staffed by an all-volunteer system. ISO will give credit of 3 volunteers for each full time position needed. Based on a 2-pumper and 1 ladder/service truck response to structure fires, the department needs to insure there are available a minimum of 36 volunteer members at all times. A credit of 2.31 of 15.0 was awarded for personnel. This is due to an average of 22.21 volunteers currently responding on alarms to structure fires. *Recommendation:* Insure a minimum of 12 members respond to all initial dispatches to structures fires. This means the department maintains a minimum roster of 36 able bodied firefighters.

Fire Department Training

The department received a total of 2.18 out of 9 possible points for training. See Section 11.0 for further details. Deficiencies were in the areas of:

	Credit	Credit Available
Half-day company drills	0.27	0.40
Half-day multiple company drills	0.27	0.40
Night drills	0.13	0.20
Monthly individual training	3.41	25
Officer	9.00	15
Driver/Operator	0.33	2
Hazardous Materials	0.86	1
Recruit training	1.98	5
Pre-fire planning	0.00	15

Fire Flow Needed.

The basic fire flow needed for the district was determined to be 3000 gpm. No information was available of specific flow locations or calculations. ISO determines the needed fire flow as the property (flow test site) with the fifth highest needed gpm.

Table 10.12. Selkirk Fire Department water supply system credits earned

FSRS Item	Earned	Credit Available
616. Supply System	27.48	35
621. Hydrants	2.00	2
631. Hydrant Inspection/Condition	2.10	3
Total Credit	31.58	40

Water Pressure and Volume and Hydrant Distribution.

The water pressure and volume is based on the system’s ability to flow the district’s basic fire flow of 1000 gpm. Credit for hydrant distribution is based on distance from properties to the nearest hydrants up to 1,000 feet. The district received 27.48 out of 35 available points.

Recommendation: Insure water main size provides sufficient flows and pressures up to the district’s minimum of 1000 gpm. *Recommendation:* Insure all fire hydrants meet the design and installation credit per the guidelines of the American Water Works Association and NFPA.

Fire hydrant size, type and installation.

Maximum credit for fire hydrants is 2.00. Full credit was awarded for hydrants. Six inch or larger branch lines with hydrant consisting of a pumper outlet with two 2.5 inch auxiliary outlets. Full credit was awarded for hydrant specifications.

Fire hydrant inspection and condition.

Full credit of 2.00 was awarded for hydrant inspections. *Recommendation:* Insure the district’s water supply provide(s) inspection of all hydrants twice per year per the recommendations of Pamphlet M-17 of the American Water Works Association.

Dispatch Center

The department received 7.00 points out of 10 of the regional dispatch center receives and processing emergency calls. Table 10.13 illustrates the credits that the Selkirk Fire Department earned with regards to the dispatch center.

Table 12.13: Selkirk Dispatch Credit

FSRS Item	Earned	Credit Available
414. Telephone Service	1.70	2
422. Dispatcher/Operator	1.65	3
432. Dispatch Circuits	3.25	5
Total Credit	6.60	10

The following provides a detailed review of credit earned by the district's dispatch provider.

Number of needed designated "fire" lines.

For maximum credit, there should be 2 incoming telephone lines reserved for receiving notification of fires. Maximum credit of 25.00 was awarded.

Number of needed fire, business, and private alarm lines.

For maximum credit there should be sufficient lines for incoming fire, business, and private lines. Maximum credit of 25.00 was awarded.

Progression of emergency calls to business lines.

For maximum credit for fire lines all fire lines should roll over to business lines. Maximum credit of 10.00 was awarded.

Emergency number on the inside front cover or the front page local directory.

Maximum credit of 10.00 was awarded.

Emergency number and business number listed under "Fire Department."

Maximum credit of 5.0 was awarded. *Recommendation:* Insure the fire department's emergency number and business number is listed under FIRE DEPARTMENT in the white pages and government sections.

Emergency number and business number listed under the name of the city.

0.0 credit of 5.0 was awarded.

Use of recording device.

Maximum credit of 20.0 was awarded.

Number of on-duty dispatchers needed.

Partial credit of 44.00 of 80.00 was awarded. *Recommendation:* Increase the number of dispatchers from an average of 2.75 to 5. Dispatchers should be awake at all times.

Number of on-duty dispatchers awake at all times.

Partial credit of 11.00 of 20.00 was awarded.

Dispatch circuits provided.

Maximum credit of 40.00 was awarded.

Monitory for integrity of circuits.

No credit was awarded out of 30.00. *Recommendation:* Insure all fire dispatch circuits are monitored at all times per NFPA 1221.

Dispatch recording facilities at communication center.

Maximum credit of 10.00 was awarded.

Dispatch center emergency power supply.

Partial credit of 15.00 of 20.00 was awarded. *Recommendation:* Insure the providing dispatch center has in place an emergency power back up per NFPA 1221.

10.2.3.5 Slingerlands Fire Department

The Slingerlands Fire Department was most recently surveyed in 2011 by the ISO. Their previous survey was in 1996. The department received a total credit of 54.24 points, a decrease from their 1996 rating of 66.43 points.

These current credits are outlined in Table 10.14.

Table 10.14 Slingerlands Fire Department credits earned

FSRS Item	Credit Earned	Credit Available
513. Engine Companies	9.37	10
523. Reserve Pumpers	0.46	1
532. Pumper Capacity	5.00	5
549. Ladder Service	3.92	5
553. Reserve Lad./Service Trucks	0.35	1
561. Distribution	3.14	4
571. Personnel	5.57	15
580. Training	2.71	9
Total Credit	30.52	50

Number of needed front line pumpers.

The number of needed front line pumpers is based on the district’s flow demand (see water supply), response area covered, and the method of operation. The number of pumpers needed is two (2).

Partial credit Of 9.37 out of 10 was awarded due to the following:

- 2 pumpers to support a Basic Fire Flow of 2250.
- 1 pumper needed to provide fire service to areas with a reasonable population of properties without a responding station within 1 ½ miles.
- 2 front line pumpers based on the department’s method of operation to provide a minimum of two (2) pumpers responding to all initial response to reported structure fires.

Annual testing of pump(s) and hose

Pump and hose test should be conducted on all pumper apparatus per NFPA 1911 and NFPA 1962 respectively. Credit earned was not indicated within the ISO report. *Recommendation:* All hose and pumps should be tested annually in accordance with NFPA 1962 and NFPA 1911.

Mutual-aid and automatic-aid agreements

Credit for sharing of resources with neighboring department including the dispatching of fire apparatus pumper on all initial responses to structure fires are considered by ISO. Credit earned was not indicated within the ISO report. *Recommendation:* Insure all mutual and automatic aid agreements with neighboring fire departments are documented and presented to ISO representatives during the time of future surveys in order to receive maximum credit.

Reserve pumpers

Partial credit of 0.46 of 1.0 was awarded for a reserve pumper. *Recommendation:* At the time of the survey the department received partial credit for one reserve pumper. Reserve pumpers anticipated for credit should meet all the criteria of a front line pumper including pump capacity and equipment carried. If no reserve pumper is in service the department should secure a reserve pumper by entering into a written agreement for reserve pumper availability with an adjoining fire district.

Pumper capacity

Pump capacity is based on the “rated” capacity of the apparatus pump per the specification of the apparatus at the time of delivery. ISO will only provide a maximum of 80 percent of the pumps rated capacity if no annual pump tests are conducted. Maximum credit of 5.0 was awarded for pumper capacity.

Aerial ladder truck service

No aerial ladder truck is needed due the fire flow and/or the number of multi-story structures within areas of the district is 5 or more buildings of 3 or more stories in height exist. No aerial ladder truck is in service.

Service type ladder truck

1 service type ladder trucks is needed to serve the district. Credit was given for 1 service truck. Credit of 3.92 of 5.0 was awarded for a service truck. *Recommendation:* Insure the service truck is equipped with minimum equipment per the FSRs.

Reserve ladder/service trucks

Credit of 0.35 of 1.0 was awarded for a reserve service truck. *Recommendation:* If no reserve service truck is in service the department should secure an apparatus to serve in this capacity.

Distribution of engine and ladder/service trucks.

See “Distribution of Fire Companies” under “Town-wide Recommendations” under this section.

Firefighting personnel

The department is staffed by an all-volunteer system. ISO will give credit of 3 volunteers for each full time position needed. Based on a 2-pumper and 1 ladder/service truck response to structure fires, the department needs to insure there are available a minimum of 36 volunteer members at all times. A credit of 5.57 of 15.0 was awarded for personnel. This is due to an average of 16.71 volunteers currently responding on alarms to structure fires. *Recommendation:* Insure a minimum of 12 members respond to all initial dispatches to structures fires. This means the department maintain a minimum roster of 36 able bodied firefighters.

Fire Department Training

The department received a total of 2.18 out of 9 possible points for training. Deficiencies were in the areas of:

	Credit	Credit Available
Multi-media training aids	1.00	2
Half-day company drills	0.28	0.40
Half-day multiple company drills	0.28	0.40
Night drills	0.14	0.20
Monthly individual training	6.60	25
Officer	7.50	15
Driver/operator	1.00	2
New driver	1.05	2
Hazardous Materials	0.48	1
Recruit training	1.79	5
Pre-fire planning	0.25	15

Fire Flow Needed.

The basic fire flow needed for the district was determined to be 3000 gpm. No information was available of specific flow locations or calculations. ISO determines the needed fire flow as the property (flow test site) with the fifth highest needed gpm.

Table 10.15 Slingerlands Fire Department water supply credits earned

FSRS Item	Credit Earned	Credit Available
616. Supply System	30.54	35
621. Hydrants	2.00	2
631. Hydrant Inspection/Condition	2.10	3
Total Credit	34.64	40

Water Pressure and Volume and Hydrant Distribution.

The water pressure and volume is based the system's ability to flow the district's basic fire flow of 1000 gpm. Credit for hydrant distribution is based on distance from properties to the nearest hydrants up to 1,000 feet. The district received 30.54 out of 35 available points.

Recommendation: Insure water main size provides sufficient flows and pressures up to the district's minimum of 1000 gpm. *Recommendation:* Insure all fire hydrants meet the design and installation credit per the guidelines of the American Water Works Association and NFPA.

Fire hydrant size, type and installation.

Maximum credit for fire hydrants is 2.00. Full credit was awarded for hydrants. Six inch or larger branch lines with hydrant consisting of a pumper outlet with two 2.5 inch auxiliary outlets. A credit of 2.10 of 3.00 was awarded for hydrant specifications.

Fire hydrant inspection and condition. Full credit of 2.00 was awarded for hydrant inspections. *Recommendation:* Insure the district’s water supply provide(s) inspection of all hydrants twice per year per the recommendations of Pamphlet M-17 of the American Water Works Association.

Dispatch Center

The department received 6.60 points out of 10 of the regional dispatch center receives and processing emergency calls. Table 10.16 shows the credits earned for the Slingerlands Fire Department with regards to the dispatch center.

Table 10.16: Slingerlands Fire Department dispatch center credits earned

FSRS Item	Credit Earned	Credit Available
414. Telephone Service	1.70	2
422. Dispatcher/Operator	1.65	3
432. Dispatch Circuits	3.25	5
Total Credit	6.60	10

The following provides a detailed review of credit earned by the department’s dispatch provider.

Number of needed designated “fire” lines.

For maximum credit, there should be 2 incoming telephone lines reserved for receiving notification of fires. Maximum credit of 25.00 was awarded.

Number of needed fire, business, and private alarm lines.

For maximum credit there should be sufficient lines for incoming fire, business, and private lines. Maximum credit of 25.00 was awarded.

Progression of emergency calls to business lines.

For maximum credit for fire lines all fire lines should roll over to business lines. Maximum credit of 10.00 was awarded.

Emergency number on the inside front cover or the front page local directory.

Maximum credit of 10.00 was awarded.

Emergency number and business number listed under “Fire Department.”

No credit out of 5.0 was awarded. *Recommendation:* Insure the fire department’s emergency number and business number is listed under FIRE DEPARTMENT in the white pages and government sections.

Emergency number and business number listed under the name of the city.

Maximum credit of 5.0 was awarded.

Use of recording device.

Maximum credit of 20.0 was awarded.

Number of on-duty dispatchers needed.

Partial credit of 44.00 of 80.00 was awarded. *Recommendation:* Increase the number of dispatchers from an average of 2.75 to 5. Dispatchers should be awake at all times.

Number of on-duty dispatchers awake at all times.

Partial credit of 11.00 of 20.00 was awarded.

Dispatch circuits provided.

Maximum credit of 40.00 was awarded.

Monitory for integrity of circuits.

No credit was awarded out of 30.00. *Recommendation:* Insure all fire dispatch circuits are monitored at all times per NFPA 1221.

Dispatch recording facilities at communication center.

Maximum credit of 10.00 was awarded.

Dispatch center emergency power supply.

Partial credit of 15.00 of 20.00 was awarded. *Recommendation:* Insure the providing dispatch center has in place an emergency power back up per NFPA 1221.