Town of Manheim

New York

Feasibility Study

for Development of a

Joint Fire District

Fall/Winter 2015/2016

Emergency Services
Consulting International

Acknowledgements

ESCI would like to thank the following individuals for their continued assistance throughout this process. The amount of data and information collected and supplied to the project team made it possible to complete this project within the shortened timeframe.

Town of Manheim

John Haughton, Township Supervisor

Marie Gressler, Township Clerk

Town of Oppenheim

Cynthia M. Breh, Township Supervisor

Gloria Brys, Township Clerk

Village of Dolgeville

Bruce T. Lyon, Mayor

Tammy L. Chmielewski, Village Clerk

Dolgeville Fire Department

David Jaquay, Fire Chief

ESCI, in cooperation with the participating municipalities, also held two public input meetings at the Dolgeville Fire Department for the purposes of explaining the study process, describing the intent of the project, and soliciting public input as to the current state of fire services, future expectations, and concerns that may exist. The project team would like to thank all those that attended, participated and completed the input survey forms.

Table of Contents

Acknowledgements i
Table of Contents ii
Table of Figures iv
Executive Summary 1
Section I – Baseline Agency Evaluation 6
Organizational Overview 6
Governance, Lines of Authority, and Decision-Making Processes 8
Operating Budget, Funding, Fees, Taxation, and Financial Resources 8
Capital Assets 11
Facilities 11
Apparatus/Vehicles 11
Staffing and Personnel Management 13
Administrative and Support Staff 13
Operational Staff 13
Service Delivery and Performance 14
Demand 14
Distribution 18
Reliability 21
Response Performance 22
Mutual and Automatic Aid Systems 24
Public Input Results 27
Expectations 27
General Concern about the Current System 27
Positive Feedback 28
Concerns Regarding Change in Model 28
Services Not Currently Offered that perhaps should be 28
Willing to volunteer time at the department 28
Prioritization of Services 28
Section II – Future Opportunities 31
General Partnering Strategies 31
Strategy 1 – Status Quo 32
Strategy 2 – Creation of a Joint Fire District 33
Alternative Funding Methodologies 37
Area 37
Valuation 38
Service Demand 39
Fixed Rate 40
Population 40
Multiple-Variable Allocation 41
Allocation Summary 42

Findings, Recommendations, and Plan of Implementation 43

Table of Figures

Figure 1: Study Area Base Map 7
Figure 2: Additional Expenditures for Fire Department 9
Figure 3: Town of Manheim Fire Protection Contracts 9
Figure 4: Town of Manheim Fire Protection Budget 10
Figure 5: DFD Fire Station 11
Figure 6: DFD Primary Apparatus 12
Figure 7: Administrative and Support Staff Complement 13
Figure 8: Operational Staffing Complement 13
Figure 9: Overall Service Demand History 14
Figure 10: Overall Service Demand versus Emergency Incidents 15
Figure 11: Service Demand by Month (2010 - 2014) 15
Figure 12: Service Demand by Day (2010 - 2014) 16
Figure 13: Service Demand by Hour of Day (2010 - 2014) 16
Figure 14: Geographic Service Demand 17
Figure 15: Four Minute Travel Capability 19
Figure 16: Eight Minute Travel Capability 20
Figure 17: Incident Concurrency 21
Figure 18: NFPA 1720 Response Performance Recommendations 23
Figure 19: DFD Historical Response Performance 24
Figure 20: Public Meeting Attendance by Jurisdiction 27
Figure 21: Prioritization of Services 29
Figure 22: Planning Priorities 29
Figure 23: Fiscal Impact Summary 34
Figure 25: Potential Capital Replacement Items and Cost 35
Figure 26: Summary of Levy Options 35
Figure 27: Funding Allocation Summary 42
Figure 28: Multi-Variable Calculation Model 42
Figure 29: Multi-Variable Weighting Model 43
Figure 30: Comparative Fire Protection Agencies 44

Executive Summary

The Town of Manheim engaged Emergency Services Consulting International (ESCI) to evaluate the current fire protection system within the community and to evaluate the potential for the creation of a joint fire district between the Town and the portion of the Village of Dolgeville that lies within the Town of Oppenheim. This document serves as the culmination of that review and analysis.

Although the study began as a cooperative efforts feasibility study, it quickly transformed into a financial feasibility project to determine the financial impacts of the creation of a joint fire district. Although there are a number of other departments within the region, only one department, Dolgeville Fire Department (DFD), provides service to the Town of Manheim and the Village of Dolgeville. Therefore, the bulk of this project focused on the services delivered by DFD and their cooperative efforts already in place with surrounding agencies.

DFD is a single station volunteer fire department that contracts with the Town of Manheim to provide fire protection services throughout the Town. Under New York law, Towns cannot operate a 'fire department' and are thereby required to contract with a Village, City, or other entity for those services. New York law does allow for the creation of fire protection districts (FPD) as well as 'fire districts' and there are several examples of both across the state. The Town of Manheim created a FPD for the purposes of generating revenue to fund fire protection throughout the Town. Those funds are provided to the Village of Dolgeville, which operates DFD through an agreement with the Dolgeville Volunteer Fire Company.

The Village established a fire department in c. 1980 from the two original fire companies that served the Village; Dolge Hose Company No. 1 and Spofford Hose Company No. 2, which joined into the Dolgeville Volunteer Fire Company (DVFC) in 1974. DVFC still exists as a 501(c)3 non-profit corporation under NY State Law but is synonymous with DFD in that all personnel are members of both organizations. DVFC owns and maintains the single station while the Village owns all the apparatus and ancillary equipment used by the members. The portion of the station housing the apparatus is leased to the Village by the Fire Company.

The Village establishes a budget for the fire department as part of the overall Village annual budget process. From this budget, all necessary materials and supplies are provided to the fire department. Outside of the fire department budget, the Village maintains Workers' Compensation and property/liability insurance for the fire department. For FY15/16, DFD's total operating budget (as contained within the Village's overall budget) totaled $98,469. When the additional expenditures are combined with the operational costs, the total cost to provide fire protection to the community equates to $169,525. In addition to DFD, the Town of Manheim also contracts with St. Johnsville to provide fire protection services. In previous years, the Town of Manheim also contracted with the City of Little Falls and the Town of Salisbury but those contracts ceased in 2014.

At the request of the municipalities, ESCI conducted two public input meetings at the Dolgeville Fire Department station to discuss the intent of the project and to gather input from interested stakeholders. During those meetings, attendees were asked to fill out two forms from which ESCI could gather community sentiment concerning existing and future fire protection. The first form was largely 'free form'

and allowed the participant to openly provide input regarding community fire protection expectations, general concerns about the current system, feedback regarding strengths of the current organization as well as concerns about the future. In addition, participants were asked to rank several elements of fire protection services that they felt were important. Attendees were also asked to identify which area they were from within the project area. Attendees were primarily from the Town of Manheim both within and outside the Village. No attendees resided within the portion of the Village that lies within the Town of Oppenheim.

Attendees were also asked to prioritize the services that fire department either does or could provide in the future. From this exercise, it can be determined that the most important elements of the current system are response times, adequate apparatus and facilities, overall fire suppression capabilities. Based on the surveys, the community does not see a significant benefit to beginning code enforcement activities or increasing public education and community service programs. Based on the information obtained from the surveys improving response times and having adequate apparatus were the highest priorities. Surprisingly, keeping fire protection tax rates down scored relatively low in comparison to the other priorities.

While the initial sections of the report focused on the current conditions within the study area, the greater intent of the project is to evaluate the potential for creation of a joint fire district between two or more of the participating municipalities. The final report section examines the options available and provides direction where appropriate.

In any cooperative effort, there must be a central individual or group that is driving the efforts. In addition, the organizations themselves must be an active and willing participant. In the case of this project, this includes the Town of Manheim, the Town of Oppenheim (to an extent), and the Village of Dolgeville.

The municipalities involved in the project understand that the future of fire protection within the area is uncertain. Although DFD and the other area departments have been providing a sufficient level of service to the community for decades, there are concerns that the future will lead to fewer volunteers, higher costs, and a decreased level of service. Much of these concerns are due to financial constraints currently placed on the municipalities. The intent of this section is to evaluate the various options for fire protection moving forward and give policymakers the necessary information to make an informed decision.

Basically, there are two primary options for the municipalities to consider: Maintaining the status quo or creating a joint fire district. The status quo option would retain the current operational, governance, and funding mechanisms already in place. Although it was determined that the services currently being provided to the community are satisfactory within the Village, there are, of course, areas of the Town that are outside the expected travel capability of DFD and future planning should begin now to analyze if additional facilities might be necessary or reinstatement of prior agreements for automatic aid from adjacent jurisdictions may be required. As with any system of this design (non-centralized facility with outlying properties at distance from the more populated areas) there will challenges to meeting the needs of the entire Town. Primarily, there will need to be an influx of capital in order to construct a new, more centrally located facility.

With the decline in volunteerism nationwide, it is foreseeable that some level of paid staff may be necessary in the future to continue providing the current level of service. Paying for personnel to be on-duty, regardless of status, will lead to greater financial impacts to the municipalities and will stretch the already limited financial resources. Depending on the nature of the staffing model, compensation will need to be determined prior to that time.

In addition to potential staffing costs, the existing apparatus operated by DFD will eventually need to be replaced. Without proper capital replacement planning, replacement of single apparatus and having to either secure a loan or bond for the purchase could cost the municipalities upwards of $1,000,000 for a single apparatus. As of today, the average age of the primary firefighting apparatus is 23.2 years including a 24 year old primary engine and 20 year old aerial apparatus. The recommended life expectancy of an engine in primary service is 10 to 15 years so planning should begin now for the replacement of the aging fleet. The pros and cons of maintaining the status quo are provided below.

Pros

- Maintains current tax rate
- Maintains current service delivery model
- Maintains current organizational structure and governance
- Maintains current funding model

Cons

- Current funding is insufficient for continued operations
- No funding mechanism for capital replacement
- Volunteerism is declining and may not be sustainable for the long-term
- Township and Village budgets are increasingly strained to maintain fire protection funding
- Current taxation limitations will continue to limit funding

Creation of a joint fire district was determined to be feasible but will not come without certain impacts. A fire district, unlike a fire protection district, is a political subdivision of the state. Fire districts are established for the sole purpose of providing fire protection and emergency services to a designated area with the ability to tax and fund the overall system. Fire districts are dependent upon the town in which they are formed since taxes are levied and collected through the town and then passed to the district for expenditure. Fire districts also have independent elected officials (commonly called fire commissioners) that are installed to govern the operations of the district and to provide oversight of all expenditures.

Some of the same financial impacts apply to this model as to the status quo. Without proper planning, future expenditures could cripple the organization. However, the primary fiscal advantage to the creation of a joint fire district is the ability to control taxation and dedicate those funds directly to the provision of fire protection services. Although this is not significantly different than a fire protection district, the independent fire district will be able to tax independently of the Towns and Village and, therefore, plan more effectively for emergency services delivery. In order to generate sufficient income to cover this cost of operations, a tax rate of $1.41267 would be necessary. In addition to the normal operating costs, a

future capital replacement plan should be considered. This would include the future replacement of all apparatus and other high-cost equipment such as self-contained breathing apparatus (SCBA), radios, protective clothing, and other necessary equipment.

Communication is critical throughout the consolidation process. There are many issues which need to be addressed and resolved to ensure a successful consolidation. It is important to involve all the stakeholders (firefighters, residents, and elected officials) early on in the process.

The following strategies should be employed to ensure operational involvement and pros and cons of this strategy are listed.

- Keep all stakeholders informed of what is being done, who is doing it, and why
- Explain the advantages and allow for open and honest communication
- Make sure that all meetings are open to all stakeholders

Pros

- Allows for a more independent form of governance
- Allows for dedicated funds for operations and capital replacement
- Removes the burden of fire protection from the municipalities

Cons

- Adds a layer of government to the community
- Has the potential to increase overall taxation on property owners
- Limits municipal involvement in fire protection decisions

Under normal circumstances, ESCI would evaluate potential feasibility on three scenarios. Feasibility is basically positive if the same level of services can be delivered at the same or lower cost, or if an increased level of service can be delivered at the same or lower cost. Generally, options are not feasible when service level declines or cost increase. In the case of this project, to fully fund the system at the level of today's service would require an increase in the basic tax rate to support the fire service. Although the cost of the system would increase, it should be understood that the current amount of funding for DFD is well below the national and New York averages of per capita cost of fire protection; $135.00 and $162 respectively. DFD's total cost per capita including soft costs is estimated at $52.68.

In comparison to other towns across the region, the study area's overall budget for fire protection is quite low. Based on these comparative agencies, DFD's budget is substantially below the others. Even if all the insurance and other costs are added into the equation, DFD's budget would still be below four of the seven comparative agencies as detailed within the body of the report.

The provision of fire protection services to the community is a critical component of government services and should be a focus of policymakers. It should be understood, however, that the current system is not sustainable for the long-term. Volunteerism is declining and the municipalities are finding it more and

more difficult to fund all the services that the citizens deserve and expect. Based on input received during the study process and at public input meetings, the attendees' priorities were response times and adequacy of equipment. Maintaining fire tax rates ranked relatively low on the list of priorities. In the end, the creation of a joint fire district is feasible but will not be without costs to the community. In addition, policymakers will need to work with the members of the fire company to ensure that they are on board with the plan and are willing to continue to provide services under a new governance structure. The details of moving forward will be worked out at a later date but, suffice it to say that, this is the first step in evaluating a sustainable model for the future of fire protection services for the Towns and the Village.

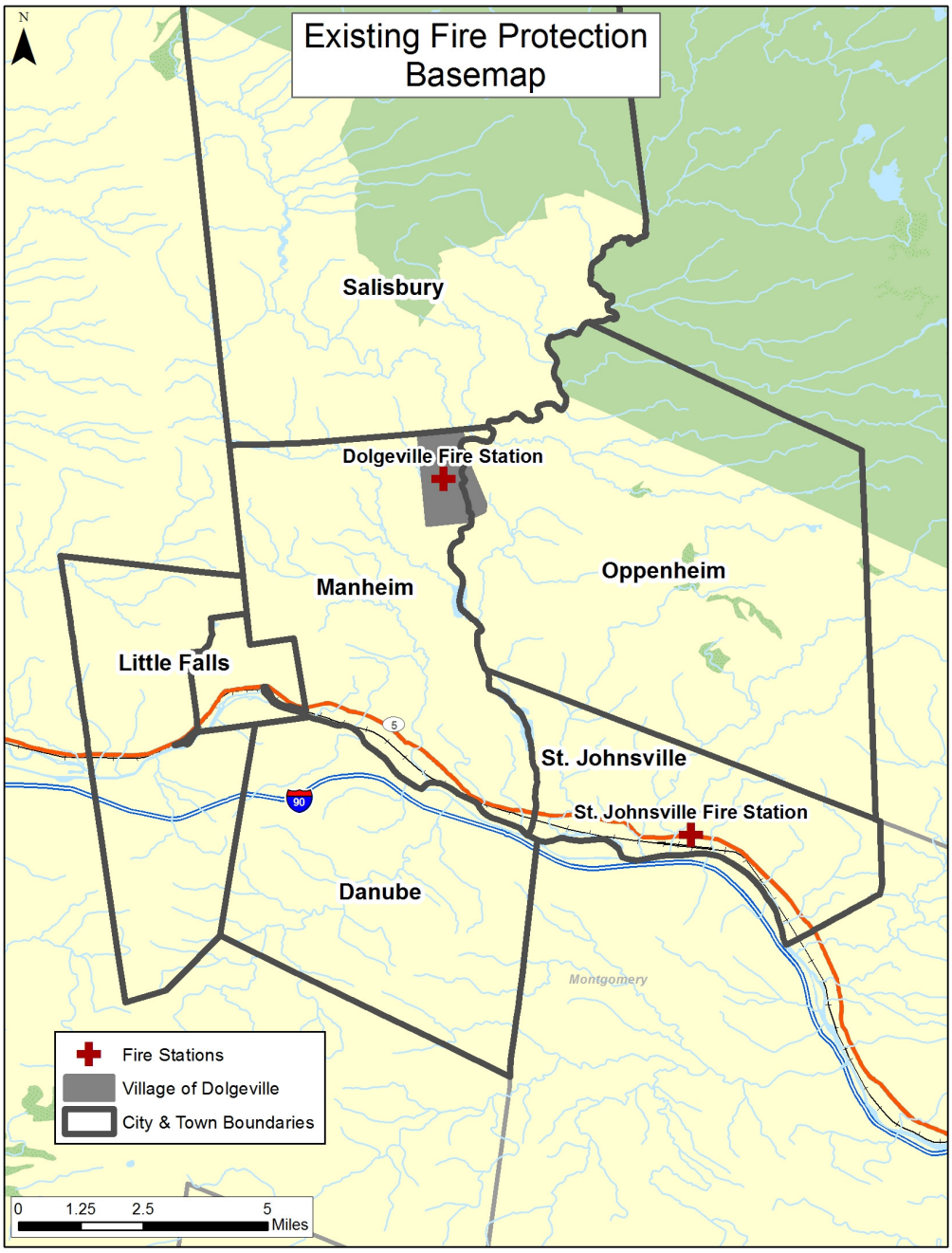
Section I – Baseline Agency Evaluation

The Town of Manheim, New York engaged Emergency Services Consulting International (ESCI) to evaluate the existing services being delivered within the Town and the Village of Dolgeville, which lies partially within the Town of Oppenheim. Although the scope of this project was written as a cooperative efforts feasibility study, in actuality, this project has evolved into a financial study on the feasibility of creating a joint fire district for the entire Town of Manheim, including the Village of Dolgeville. This report begins with a general overview of the current service delivery model and will use this information to develop future service delivery strategies that will provide policymakers with the information necessary to make an informed decision about the future of fire service within the Town of Manheim and the Village of Dolgeville.

ORGANIZATIONAL OVERVIEW

Fire protection and other ancillary services are provided to the Town of Manheim and the Village of Dolgeville by the Dolgeville Fire Department (DFD). DFD is a standing department within the overall Village organizational structure and is a general fund department; meaning funding for the department comes from the general fund of the Village. As will be discussed later in this report, some funding for the organization comes from the Town of Manheim and the Town of Oppenheim. The figure below illustrates the primary study area for this project.

Figure 1: Study Area Base Map



The Town of Manheim consists of approximately 29.7 square miles including 1.9 square miles that lies within the Village of Dolgeville. The population of the entire service area is 3,321 including 2,084 within the Village of Dolgeville. The Village of Dolgeville lies predominantly in Herkimer County with an additional section (approximately 0.2 square miles) lying within the Town of Oppenheim in Fulton County.

DFD provides a variety of services including fire suppression, vehicle extrication, operations level hazardous materials response and several disciplines of technical rescue, and public education activities.

The Town of Manheim contracts with the Village to provide service to a majority of the Town but also contracts with St. Johnsville Fire Department to provide similar services to the southeastern portion of the Town.

Governance, Lines of Authority, and Decision-Making Processes

The Town of Manheim is an independent unit of government and falls under Town Law within the State of New York. The Town has an elected Town Supervisor and four Town Council members as well as an elected Town Clerk. The Town levies a tax for the provision of fire protection services, which is then collected and paid to the Village of Dolgeville to fulfil the current contract. In addition, some funding is provided to St. Johnsville Fire Department to provide fire protection services in the extreme southeast corner of the Town. Under NY Town Law, Towns cannot operate an independent fire department but must contract with other providers for those services.

The Town of Oppenheim is also an independent unit of government under Town Law within the State of New York. The Town has an elected Town Supervisor and four Town Council members as well as an elected Town Clerk. The Town of Oppenheim also levies a tax for the provision of fire protection. That money is divided among the several entities serving the Town including Hilltop Volunteer Fire Company and Oppenheim Volunteer Fire Company. Other than DFD, these companies are not included in this feasibility study and would not be impacted by any change in how the current service delivery system governance and/or funding.

The Village of Dolgeville is an independent unit of government under Village Law within the State of New York. The Village has an elected Mayor and four Village Trustees. The Village established a fire department in c. 1980 from the two original fire companies that served the Village; Dolge Hose Company No. 1 and Spofford Hose Company No. 2, which joined into the Dolgeville Volunteer Fire Company (DVFC) in 1974. DVFC still exists as a 501(c)3 non-profit corporation under NY State Law but is synonymous with DFD in that all personnel are members of both organizations. DVFC owns and maintains the single station while the Village owns all the apparatus and ancillary equipment used by the members. The portion of the station housing the apparatus is leased to the Village by the Fire Company.

Operating Budget, Funding, Fees, Taxation, and Financial Resources

All organizations, regardless of type, size, or mission, require sufficient funding in order to continue operations at an acceptable level. This portion of the report looks at how DFD is funded and provides some comparisons for similar organizations in New York as well as across the nation. In addition, how fire protection is funded within the Town of Manheim and the Village of Dolgeville is also reviewed.

For FY15/16, DFD's total operating budget (as contained within the Village's overall budget) totaled $98,469. This total includes equipment and all contractual costs to operate the department. However, this is not the total cost to provide fire protection to the community. Other portions of the Village's budget contain expenses that can be attributed to the fire department. These include those listed in the following figure.

Figure 2: Additional Expenditures for Fire Department

Expense	FY15/16 Expenditure
Insurance on Apparatus	$16,003
Workers' Compensation Insurance	$37,353
Principal and Interest for New Apparatus	$17,700
Total	**$98,496**

Adding these figures to the department's published budget brings the total cost of fire protection to $169,525. This figure will be used later in this report to establish potential future levy rates.

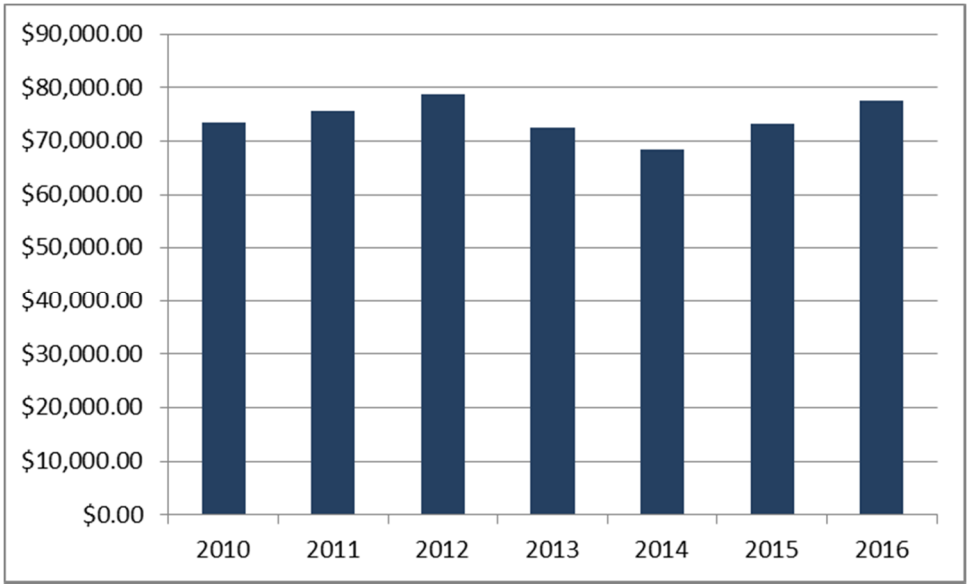
As already mentioned, the Village of Dolgeville lies within the Town of Manheim and the Town of Oppenheim. Each of the towns levies a tax to support their municipal operations, including the funding of fire protection. Since this study is focused on the Town of Manheim and the Village of Dolgeville primarily, the overall budget for the Town of Oppenheim was not reviewed. In addition to DFD, the Town of Manheim also contracts with St. Johnsville to provide fire protection services. In previous years, the Town of Manheim also contracted with the City of Little Falls and the Town of Salisbury. These contracts ended in 2014 but are summarized below.

Figure 3: Town of Manheim Fire Protection Contracts

	Dolgeville	St. Johnsville	Little Falls	Salisbury
2010	$25,151.48	$2,491.29	$35,074.00	$10,800.00
2011	$26,409.25	$2,566.03	$35,074.00	$11,556.00
2012	$27,729.50	$2,643.01	$36,074.00	$12,249.00
2013	$28,701.00	$2,722.30	$37,337.00	$3,750.00
2014	$65,625.00	$2,817.58		
2015	$70,425.00	$2,817.58		
2016	$74,682.00	$2,817.58		

Overall, the Town's level of funding for fire protection has increased 5.42 percent over the past seven years with an average increase of only 1.05 percent annually, as illustrated in the following figure.

Figure 4: Town of Manheim Fire Protection Budget



Over this same period, the valuation within the Town (including the portion of the Village of Dolgeville) increased 12.09 percent with an annual average of 1.94 percent.

A majority of Manheim's valuation ($117,506,904) lies within the Village of Dolgeville; $42,255,549 in FY15/16 or 55.1 percent of total Town valuation. The Town of Oppenheim only has $2,496,048 of valuation within the Village of Dolgeville for a combined total Village valuation of $44,751,597.

CAPITAL ASSETS

Capital assets can be a fire department's largest expense and without proper upkeep and replacement planning, facilities, and apparatus can fall into disrepair and potentially fail at a critical time. This section evaluates the capital assets of DFD and provides the basis for future recommendations for replacement or relocation as necessary.

Facilities

Fire stations play an integral role in the delivery of emergency services for a number of reasons. A station's location will dictate, to a large degree, response times to emergencies. A poorly located station can mean the difference between confining a fire to a single room and losing the structure. Fire stations also need to be designed to adequately house equipment and apparatus, as well as meet the needs of the organization and its members.

DFD's fire station is located at 20 South Helmer Avenue in Dolgeville. The station was constructed in 1991 and is owned by the Dolgeville Fire Company. The Village of Dolgeville leases the apparatus bays from the Company and also pays a portion of operational costs including electric and gas. The Company is responsible for all other expenditures including general maintenance and upkeep.

Figure 5: DFD Fire Station

Apparatus/Vehicles

Other than the emergency responders, response vehicles are the next most important resource of the emergency response system. If emergency personnel cannot arrive quickly due to unreliable transportation, or if the equipment does not function properly, then the delivery of emergency service is likely compromised. The following figure summarizes the primary response apparatus and vehicles currently used by DFD.

Figure 6: DFD Primary Apparatus

Unit	Type	Year	Make/Model	Condition	Tank	Pump
145	Engine	1991	FMC	Fair	1,000	1,250
314	Tanker	1996	Ford	Good	2,000	None
405	Quint	1992	E-One	Good	500	1,250
508	Salvage	1973	Chevrolet	Fair	N/A	N/A
500	Pickup	2015	Dodge	Excellent	N/A	N/A
530	Pickup	1985	Chevrolet	Fair	N/A	N/A

The department also recently purchased an engine that will be designated 147. The apparatus is a 2005 Pierce and is reported to be in excellent condition with a 750 gallon tank and a 1,750 gpm pump. All apparatus within the organization are owned by the Village. No formal capital replacement plan is in place and apparatus/vehicles are purchased on an as-needed basis through the use of loans.

In addition to DFD's fleet of apparatus, the surrounding departments are all party to the State Mutual Aid Agreement, which allows departments to request resources from external agencies. Within the immediate region, there are an additional nine engines, four tanker/tenders, two aerial ladders, two rescues, two brush/wildland units, and a number of other ancillary and support vehicles.

STAFFING AND PERSONNEL MANAGEMENT

Without proper levels of personnel, apparatus and stations will sit idle and may not be readily available for emergency response. This section is intended to provide the reader with a review of the system's personnel management practices as compared to industry standards and to examine the department's ability to provide sufficient staffing resources for the risks that exist throughout the community.

Administrative and Support Staff

The primary responsibility of a department's administration and support staff is to ensure that the organization's operational entities have the abilities and means to fulfill their mission at an emergency incident. Efficient and effective administration and support are critical to the department's success. Without adequate oversight, planning, documentation, and training the operational capabilities of the department may suffer and ultimately fail operational testing. The following figure summarizes the administrative and support complement within the organization.

Figure 7: Administrative and Support Staff Complement

Position	Number
Fire Company Board Members	3
Fire Chief	1
Total	**4**

Although listed here as separate, it should be understood that within most volunteer fire departments, all personnel are operational as well as administrative. There are exceptions to this, however, but for the most part, the fire chief and many of the board members will also have operational roles.

Operational Staff

It takes an adequate and well trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved.

Figure 8: Operational Staffing Complement

Position	Number
Assistant Chief	1
Firefighters/Members	34
Total	**35**

The operational members of the fire department provide fire suppression, vehicle extrication, confined space rescue, and operations-level hazardous materials response. Some personnel are designated as scene support only and do not participate in active firefighting or other operational activities. Personnel are not compensated by the Village or by the Fire Company and have no benefits such as retirement or length of service awards programs. Workers' compensation insurance is provided by the Village.

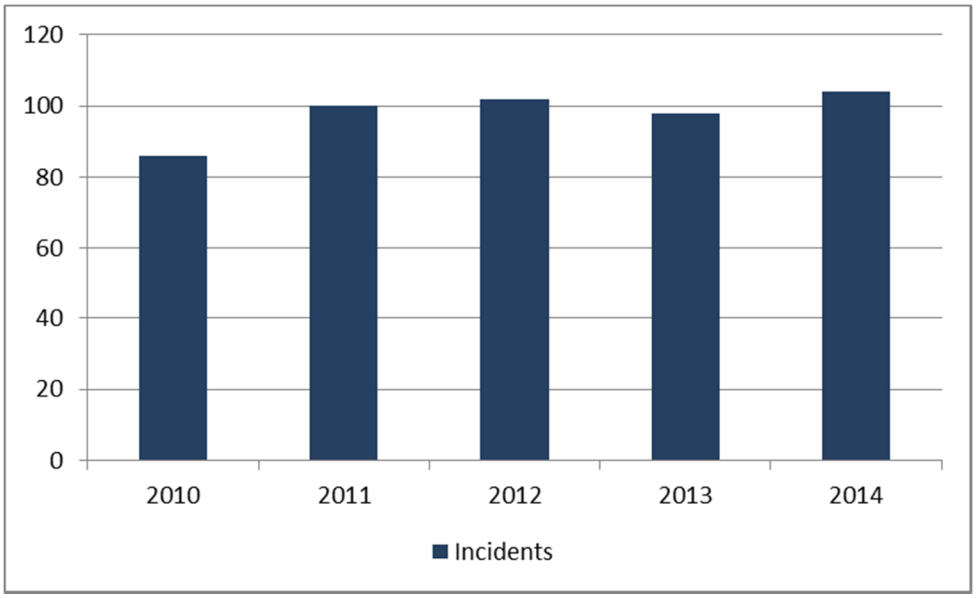
SERVICE DELIVERY AND PERFORMANCE

The most important aspect of any emergency services agency is its ability to deliver services when requested. This section of the report evaluates the current and historical service delivery elements of demand, distribution, concentration, and response performance.

Demand

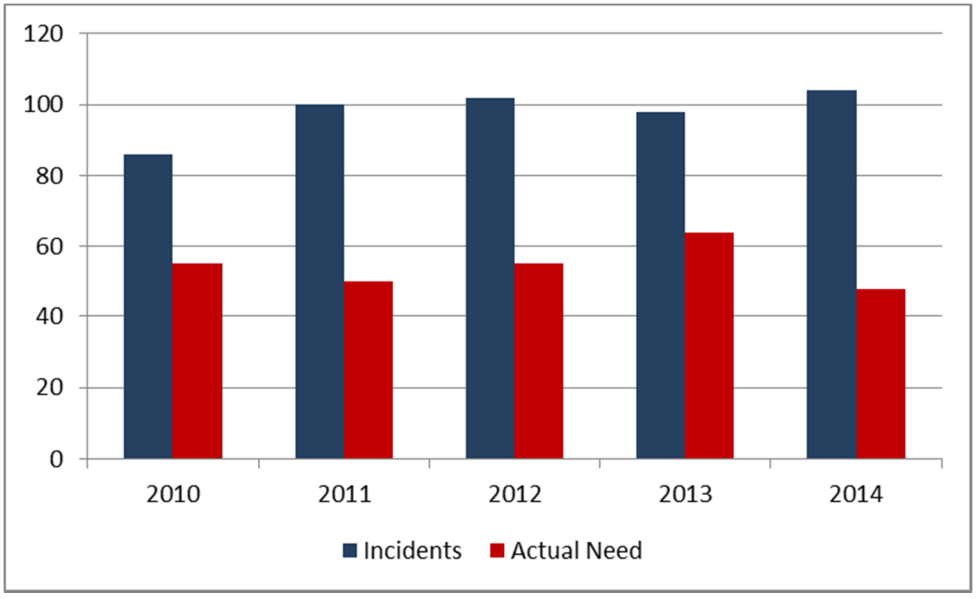
Service demand can be measured or defined in a number of ways. For the purposes of this report, service demand is considered all incidents occurring within the Town of Manheim and the Village of Dolgeville. ESCI reviewed five years of computer aided dispatch (CAD) data to analyze demand throughout the study area. After reconciliation of the data, analysis was completed based on the available data. The following figure illustrates the overall service demand within the study area over the past five years.

Figure 9: Overall Service Demand History



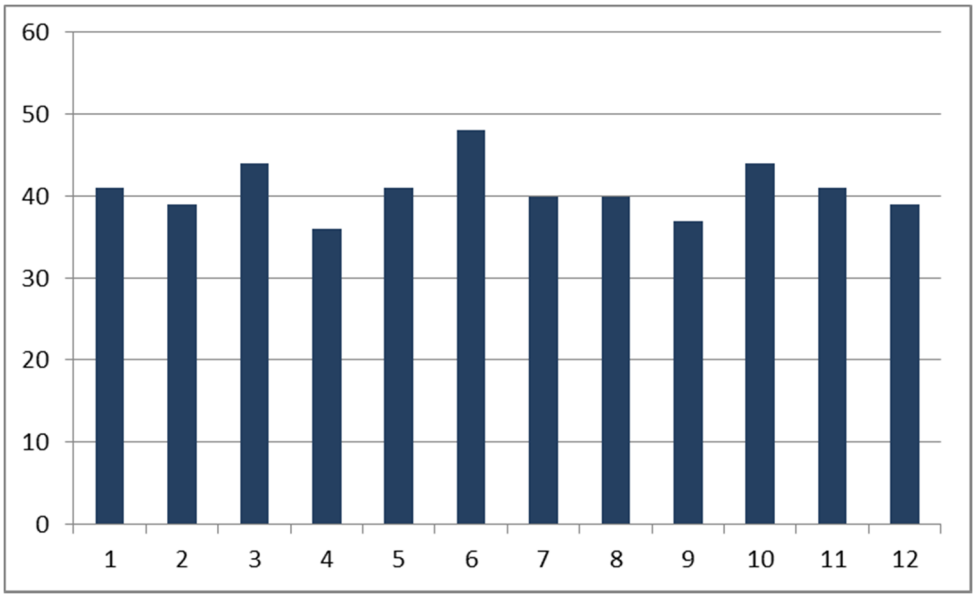
Given all the types of service demand that the fire department can be expected to respond to, many are non-emergency; service calls, public assists, flood assessments, traffic control, etc. Of the total service demand experienced by DFD over the past five years, the emergency incidents were extracted from annual reports to illustrate how much time the department actually spends on non-emergency responses. This is illustrated in the following figure.

Figure 10: Overall Service Demand versus Emergency Incidents



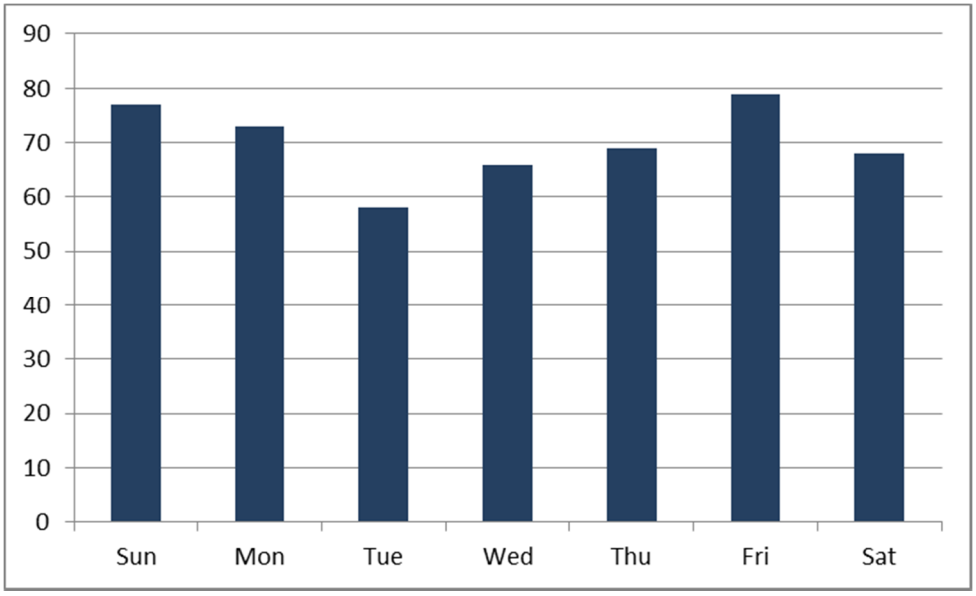
In addition to annual service demand and changes from year to year, it is also useful to evaluate when calls are occurring so resources can be better matched to when service demand is highest. This is known as temporal variation and begins with an analysis of service demand by month.

Figure 11: Service Demand by Month (2010 - 2014)



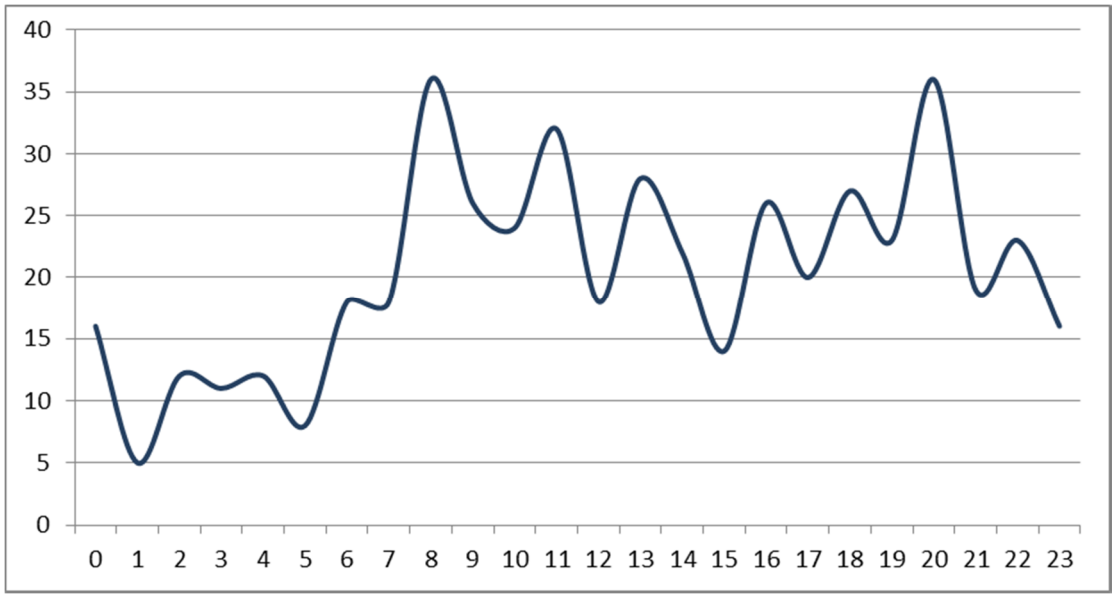
Based on this analysis, service demand is highly variable. While no real trend is visible, it is worth understanding when additional staffing may be necessary for increase call volume. The next analysis is of service demand by day of week.

Figure 12: Service Demand by Day (2010 - 2014)



As with service demand by month, there is little in the way of a trend other than that Friday is the busiest day for DFD. This could be due to holidays or long-weekends when residents are more active outdoors. The final temporal analysis is by hour of service demand by hour of day.

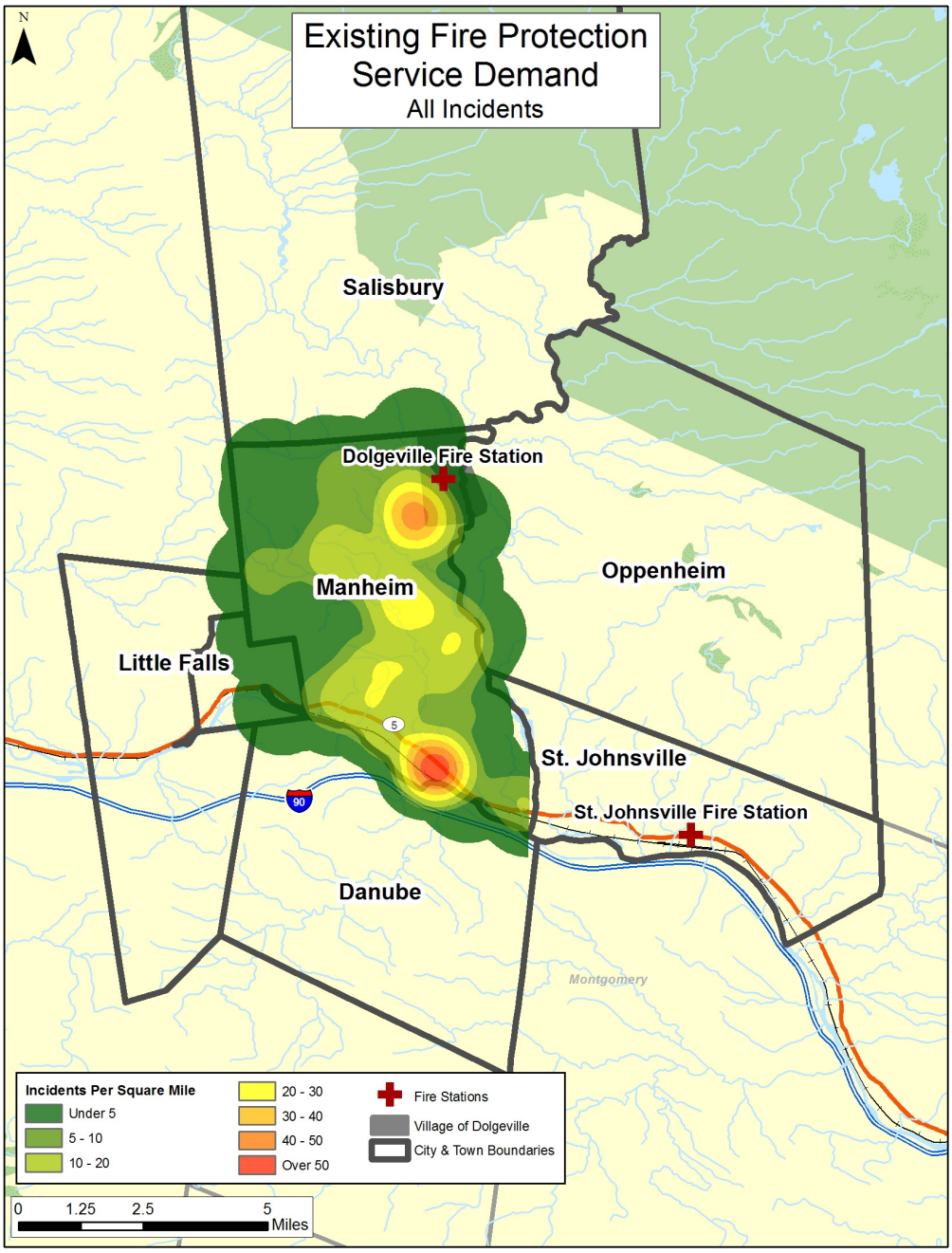
Figure 13: Service Demand by Hour of Day (2010 - 2014)



A definite pattern is noticeable in the preceding figure. As is common with most emergency services providers, service demand begins to increase in the early morning hours, peaks during the mid-afternoon hours, and then declines into the evening. This pattern closely follows general human activity, which drives a majority of emergency services demand.

The next analysis evaluates where service demand is occurring. The following figure can be read like weather radar in that the higher intensity colors represent areas of higher service demand.

Figure 14: Geographic Service Demand



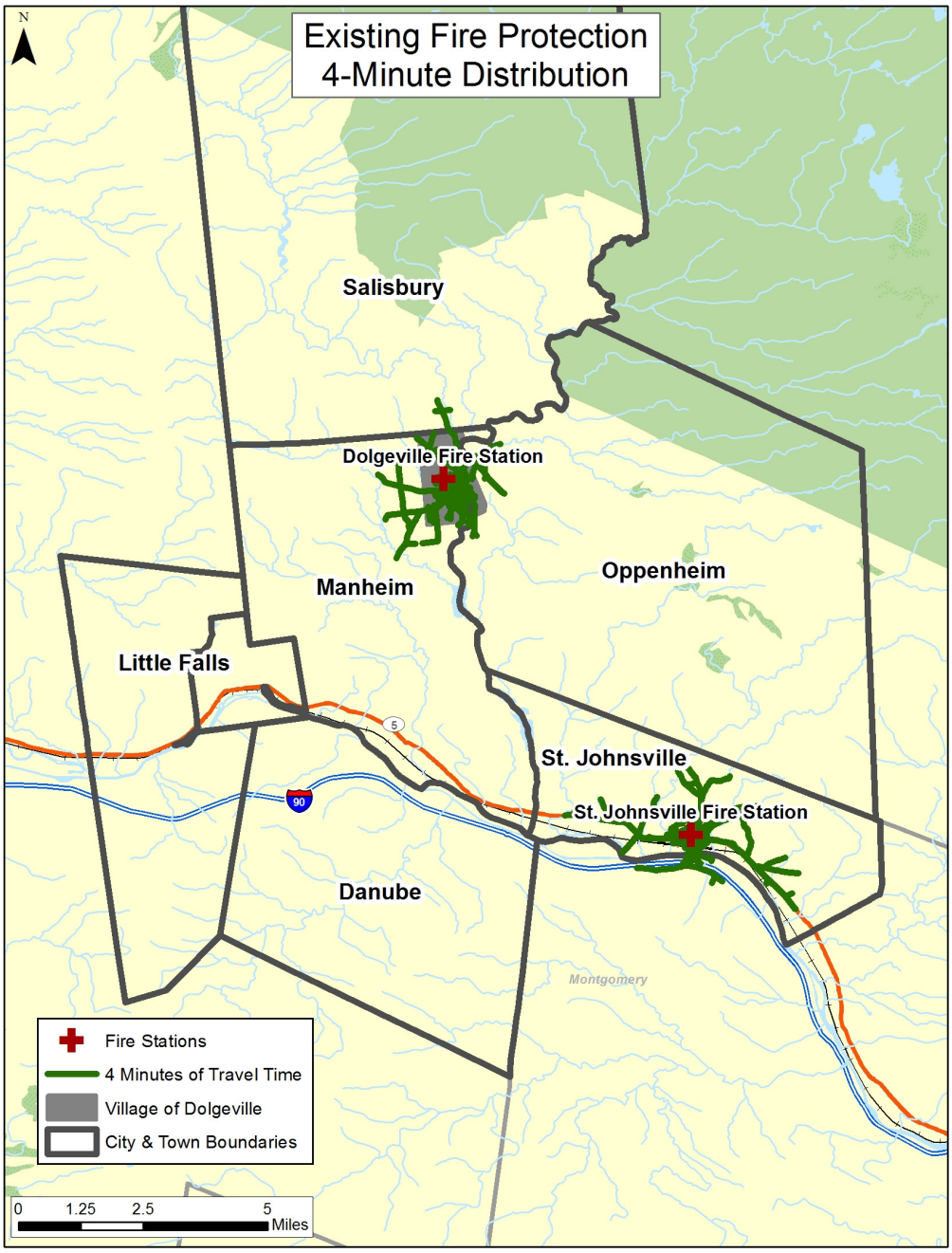
Based on the limited data provided and the usability of that data, it was difficult to determine geographic distribution of service demand. Of the data provided, approximately 35 percent of the incidents could not be geocoded and mapped. The result is a skewing of the data that includes a number of incidents along

Highway 5 and in the area of Little Falls. Anecdotally, however, a majority of DFD's service demand occurs within the Village of Dolgeville.

Distribution

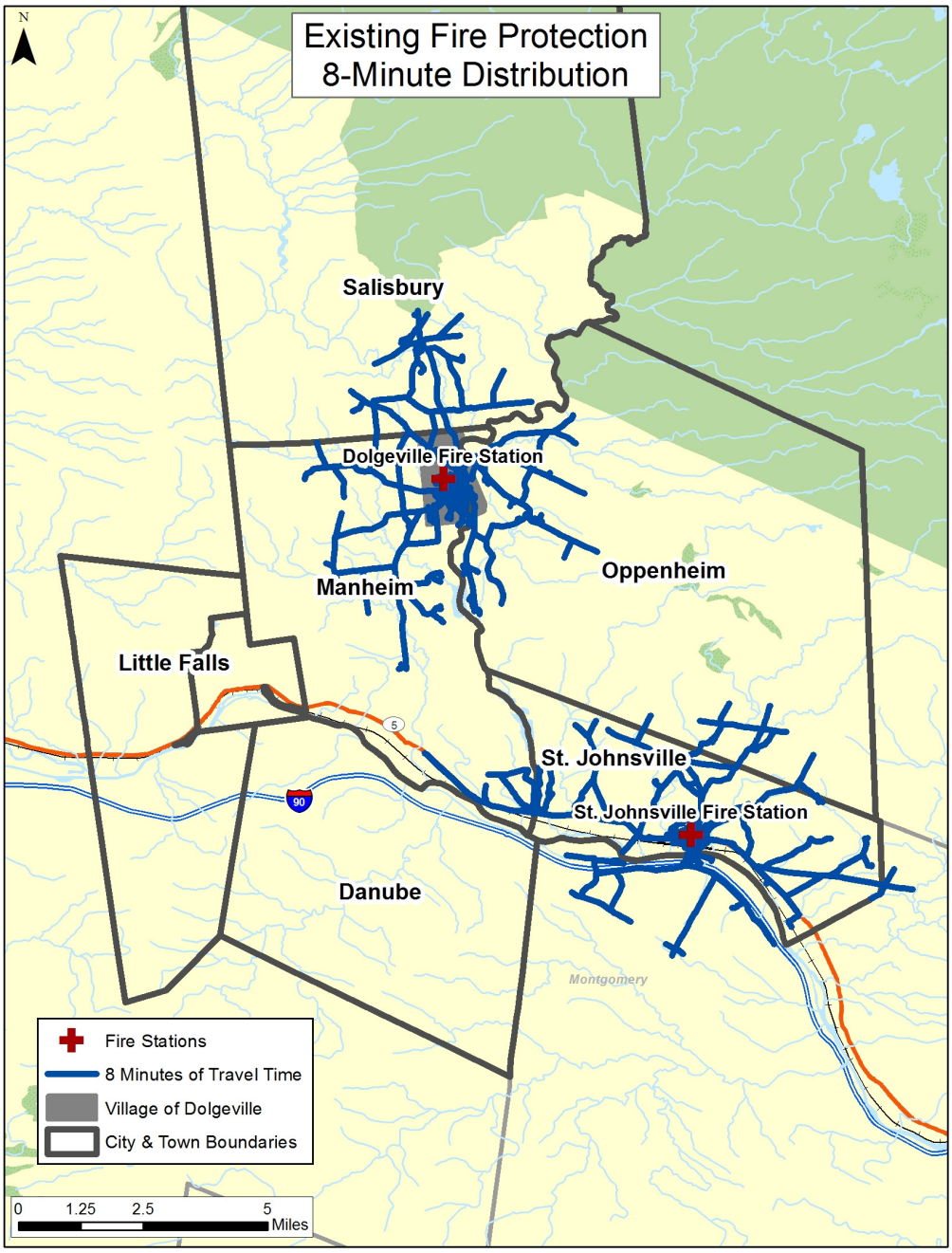
Distribution is an analysis that illustrates travel capability of specific units based on the existing roadway network. In essence, travel time is mapped using geographic information system (GIS) software and a model is created that estimates how much of a given area can be covered within a specified period of time. The figures below illustrate DFD's four and eight-minute travel capability into their primary response area within the Town of Manheim and the Village of Dolgeville.

Figure 15: Four Minute Travel Capability



Based on this travel model, the travel capability is limited to the Village and a small area around the Village borders. If the travel capability is extended to eight minutes, the coverage capability is greatly increased as illustrated in the following figure.

Figure 16: Eight Minute Travel Capability



Although the eight minute travel model increases the coverage capability of DFD, there remains a significant area to the west and south that lies outside this capability. The Town has addressed this to some point with an automatic aid agreement with SJFD to the south but reinstatement of pre-existing agreements with Little Falls and Salisbury would improve the overall coverage to the Town.

Reliability

The workload on emergency response units can also be a factor in response time performance. The busier a given unit, the less available it is for the next emergency. If a response unit is unavailable, then a unit from a more distant station must respond, increasing overall response time. A cushion of surplus response capacity above average values must be maintained due to less frequent, but very critical times, when atypical demand patterns appear in the system. Multiple medical calls, simultaneous fires, multi-casualty events, or multiple alarm fires are all examples.

One way to look at resource workload is to examine the amount of time multiple calls occur within the same time frame on the same day. ESCI examined the last six year's incidents to find the frequency that the department is handling multiple calls within any given time frame. This is important because the more calls occurring at one time; the more stretched available resources become leading to extended response times from distant responding available apparatus. The following figure illustrates DFD's historical concurrency rates.

Figure 17: Incident Concurrency

	Single	2	3	4	5
2010	97.1%	1.5%	1.5%	0.0%	0.0%
2011	87.3%	8.5%	1.4%	1.4%	1.4%
2012	92.5%	3.0%	1.5%	1.5%	1.5%
2013	86.4%	6.1%	3.0%	3.0%	1.5%
2014	90.2%	2.4%	2.4%	2.4%	2.4%

For most departments, the majority of calls occur one or two at a time. DFD is no different. However, as communities grow the propensity for concurrent calls increases. When the concurrency reaches a level to which it stretches resources to near capacity, response times begin to extend. Although multiple medical calls will cause drawdown, especially as concurrency increases, they usually occupy only one unit at a time. Concurrent fire calls, however, are of more concern as they may require multiple unit responses for each call depending upon the dispatch criteria. Typically, "other" calls that are not actual fires or medical calls have higher rates of concurrency than fires and depending on the dispatch criteria, may create periods of extensive resource drawdown.

It is important to note that an area with the highest workload will typically have the highest rate of concurrent calls and resource drawdown. This requires response units from other stations, to respond into this area. The impact on station area reliability can be affected by several factors such as:

- Out of service for mechanical reasons
- Out of service for training exercises
- Out of area on move-up deployment
- Lack of staffing
- Concurrent calls

When these factors impact the reliability of a station to respond within its prescribed territory, response time performance measures for the back-up station/apparatus can be negatively affected.

Response Performance

Perhaps the most visible and notable of emergency services to the public, response performance is the primary measure by which the public gauges overall effectiveness. Response time can be measured in a number of ways but industry standards suggest that performance be measured on a percentile rather than simply reporting the average.

Response time, however, is not simply a matter of operational response. The response time continuum begins when someone calls 9-1-1 and ends when the appropriate resources are on the scene of the incident. The response time continuum, the time between when the caller dials 9-1-1 and when assistance arrives, is comprised of several components:

- Processing Time – The amount of time between when a dispatcher answers the 9-1-1 call and resources are dispatched.
- Turnout Time – The amount of time between when units are notified of the incident and when they are en route.
- Travel Time – The amount of time the responding unit actually spends on the road to the incident.
- Response Time – A combination of turnout time and travel time and generally accepted as the most measurable element.

Before entering this discussion, however, it is important to provide a brief discussion about how the statistical information is presented, particularly in regard to average versus percentile measures.

The “average” measure is a commonly used descriptive statistic also called the mean of a data set. It is a measure to describe the central tendency, or the center of a data set. The average is the sum of all the points of data in a set divided by the total number of data points. In this measurement, each data point is counted and the value of each data point has an impact on the overall performance. Averages should be viewed with a certain amount of caution because the average measure can be skewed if an unusual data point, known as an outlier, is present within the data set. Depending on the sample size of the data set, this skewing can be either very large or very small.

As an example, assume that a particular station with a response time objective of six minutes or less had five calls on a particular day. If four of the calls had a response time of eight minutes while the other call was across the street and only a few seconds away, the average would indicate the station was achieving its performance goal. However, four of the five calls, or 80 percent, were beyond the stated response time performance objective.

The reason for computing the average is because of its common use and ease of understanding. The most important reason for not using averages for performance standards is that it does not accurately reflect the performance for the entire data set.

With the average measure, it is recognized that some data points are below the average and some are above the average. The same is true for a median measure which simply arranges the data set in order and finds the value in which 50 percent of the data points are below the median and the other half are above the median value. This is also called the 50th percentile.

When dealing with percentiles, the actual value of the individual data does not have the same impact as it did in the average. The reason for this is that the percentile is nothing more than the ranking of the data set. The 90th percentile means that 10 percent of the data is greater than the value stated and all other data is at or below this level.

Higher percentile measurements are normally used for performance objectives and performance measurement because they show that the large majority of the data set has achieved a particular level of performance. This can then be compared to the desired performance objective to determine the degree of success in achieving the goal.

For this analysis, ESCI was most interested in the ability to respond with the appropriate resources to the highest percentage of incidents. For this reason, ESCI analyzed computer aided dispatch (CAD) data and generated average and 90th percentile response performance for emergency incidents only.

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 recommends that career fire departments be en route to emergency incidents within 60 seconds for medical responses and 80 seconds for fire responses; allowing an extra 20 seconds to don protective clothing that is not required for medical incidents. *NFPA 1720 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* does not contain a recommendation on turnout time performance but does provide guidance on overall response performance. This standard applies a tiered approach to response performance using population density as the base. The figure below summarizes the recommended response performance objectives for volunteer fire departments

Figure 18: NFPA 1720 Response Performance Recommendations

Classification	Population Density Per Square Mile	Response Performance Objective	Percentile Measure
Urban	>1,000	9:00	90th
Suburban	500 – 1,000	10:00	80th
Rural	<500	14:00	80th

The following figure summarizes DFD's overall response performance over the past six years.

Figure 19: DFD Historical Response Performance

	Average	80th Percentile	Departure from NFPA 1720
2010	0:11:30	0:15:00	1:00
2011	0:11:14	0:12:48	-1:12
2012	0:13:26	0:16:00	2:00
2013	0:10:30	0:13:00	-1:00
2014	0:15:54	0:19:00	5:00

Based on the available data in comparison to the NFPA 1720 recommendations noted in Figure 17, DFD struggles some years with achieving the recommended response performance objective (2010, 2012, and 2014) while achieving it rather easily in others (2011 and 2013). This could be due to recordkeeping issues within the communications center or a wider distribution of incidents that could be impacted by weather conditions. In addition, DFD assumed responsibility of nearly the entire Town in 2014 and began responding to incidents previously responded to by Little Falls and Salisbury.

Given the large geographic are that DFD must cover and the remoteness of some properties, overall response performance is not significantly higher than expected. In addition, the relatively low incident volume results in a limited dataset from which to extract statistics. The department should work with the community to ensure that response times are in line with resident expectations.

Mutual and Automatic Aid Systems

Communities have traditionally forged limited agreements to share resources under circumstances of extreme emergencies or disasters. These agreements, known as mutual aid agreements, allow one community to request the resources of another in order to mitigate an emergency situation or disaster that threatens lives or property. There are numerous mutual aid agreements, both formal and informal, in place between fire, police, and emergency medical agencies within the study area, both with participating departments and those surrounding the study area.

However, it is important to define the level of mutual aid systems in place in this region. Mutual aid can take several forms, and this analysis of mutual aid programs will begin with a brief explanation of the various types of mutual aid systems used by the fire service in various parts of North America.

Basic Mutual Aid upon Request

This form of mutual aid is the most basic and is typically permitted under broad public laws that allow communities to share resources upon request during times of disaster or during local and regional emergencies. Often, these broad laws permit communities to make decisions quickly regarding mutual aid under specified limitations of liability. These broad laws can allow a community to tap into resources from their immediate neighbors, as well as very distant resources in communities with which they have very little day-to-day contact otherwise. Under this level of mutual aid, specific resources are typically requested by the fire department, through the appropriate chain of command, and sometimes

coordinated by local or regional emergency management personnel. Depending on the level of the request, the response can sometimes be slow and the authorization process may be cumbersome due to the exchange of official information or even elected official's approval that may be required.

Written Mutual Aid Agreements

This form of mutual aid takes the previous form one step further by formalizing written agreements between communities (typically immediate neighbors in a region) in an effort to simplify the procedures and, thus, cut response time. Usually, these written agreements include a process that takes the request and response authorization down to a lower level in the organization, such as the Fire Chief or other incident commander. By signing such agreements, communities are "pre-authorizing" the deployment of their resources under specified circumstances as spelled out in the agreement. Most often, these agreements are generally reciprocal in nature and rarely involve an exchange of money for service, though they may include methods for reimbursement of unusual expenses for long deployments.

Automatic Aid Agreements

Once again, this form of mutual aid takes the process an additional step further by spelling out certain circumstances under which one or more community's specific resources will respond automatically upon notification of a reported incident in the neighboring community. In essence, automatic aid agreements expand a community's initial first alarm response to certain types of incidents by adding resources from a nearby neighbor to that response protocol. Typically, such agreements are for specific geographic areas where the neighbor's resource can be expected to have a reasonable response time and are for only specific types of incidents. An example of such an agreement would be having a neighboring community's engine respond to all reported structure fires in an area where it would be closer than the second or third-due engine from the home community. In other cases, the agreement might cover a type of resource, such as a water tender or aerial ladder, than the home community does not possess. An example of this would be having a neighboring community's water tender respond to all reported structure fires in the areas of the home community that do not have pressurized hydrants.

Automatic aid agreements may be purely reciprocal or they may involve the exchange of money for the services provided. Purely reciprocal agreements are common, but typically are used where each community has some resource or service it can provide to the benefit of the other. These services or resources need not be identical. For instance, one community may send an engine to the other community on automatic response to structure fires, while the second community agrees to send a water tender to the first community's structure fire calls in exchange. These reciprocal agreements are sometimes made without detailed concern over quantification of the equality of the services exchanged, since they promote the effectiveness of overall services in both communities. In other cases, the written agreements spell out costs that one community can charge the other for services, typically where no reasonable reciprocation can be anticipated.

One primary purpose of automatic aid agreements is to improve the regional application of resources and staffing. Since fire protection resources are most frequently established because of the occupancy risks in a community and not necessarily a heavy workload, these resources may be idle during frequent periods

of time. While fire departments make productive use of this time through training, drills, pre-incident planning, and other functions, the fact is that these expensive resources of apparatus and staff are not heavily tied up on emergency incidents. Communities that share certain resources back and forth are, in essence, expanding the emergency response workload of those units across a larger geographic area that generally ignores jurisdictional lines. This expanded use of resources can strongly benefit both communities that might otherwise have significantly increased costs if they had to procure and establish all the same resources alone. Automatic aid can be used effectively to bolster a community's fire protection resources or to reduce unnecessary redundancy and overlap between communities.

DFD already actively participates in both automatic and mutual aid with surrounding departments. For structure fires and other involved incidents, agreements are in place for the automatic dispatch of additional resources. In addition, St. Johnsville FD has been contracted to provide primary service to the extreme southeastern corner of the town. It is evident from the large geographic area that other departments may be in a better position to serve as the primary response resource and the department should work with adjacent jurisdictions to ensure that the closest appropriate resource is being used. Without external resources, DFD will be faced with the potential of a new station in a more centralized location within the Town.

PUBLIC INPUT RESULTS

At the request of the municipalities, ESCI conducted two public input meetings at the Dolgeville Fire Department station to discuss the intent of the project and to gather input from interested stakeholders. During those meetings, attendees were asked to fill out two forms (attached to this report as an appendix) from which ESCI could gather community sentiment concerning existing and future fire protection.

The first form was largely 'free form' and allowed the participant to openly provide input regarding community fire protection expectations, general concerns about the current system, feedback regarding strengths of the current organization as well as concerns about the future. In addition, participants were asked to rank several elements of fire protection services that they felt were important. Attendees were also asked to identify which area they were from within the project area. The makeup of the total meeting attendance is provided below.

Figure 20: Public Meeting Attendance by Jurisdiction

Jurisdiction	Attendees
Town of Manheim - Outside Village	13
Village of Dolgeville - Within Town of Manheim	14
Village of Dolgeville - Within Town of Oppenheim	0
Other/No Answer Given	2

In general, many of the attendees had the same questions and concerns. Some of the more prominent responses are included below:

Expectations

- Maintain fire protection and keep taxes low
- Adequate response times from well-equipped and well trained personnel
- Improved cooperation with surrounding communities and departments
- Maintain a good ISO rating

General Concern about the Current System

- Lengthy response times to some areas
- Declining volunteerism
- Impacts of weather on responses
- Equipment maintenance and replacement
- Lack of rural water supply
- Ability to maintain costs of providing services

Positive Feedback

- Good training and adequate equipment
- Dedicated personnel (volunteers)
- Cost effective model currently in place
- Cooperation with other agencies

Concerns Regarding Change in Model

- Oversight of departmental finances
- Potential for resistance to change
- Difficult to maintain an all-volunteer department
- Potential loss of departmental identity
- Fear of increased taxes to support system
- Need for additional facilities

Services Not Currently Offered that perhaps should be

- Fire code enforcement
- EMS/Transport ambulance
- Medical first responders

Willing to volunteer time at the department

Of the 29 forms completed, 16 indicated that they would be interested in volunteering for the organization in some form.

Prioritization of Services

Attendees were asked to prioritize the services that fire department either does or could provide in the future. The results are contained in the figure below.

Figure 21: Prioritization of Services

	Average Prioritization	Median	High	Low
Response Time	9.75	10.00	10.00	7.00
Apparatus and Facilities	9.13	10.00	10.00	5.00
Fire Suppression	9.08	10.00	10.00	1.00
Training	9.00	10.00	10.00	4.00
Technical Rescue	8.42	9.00	10.00	5.00
Community Service Programs	6.63	8.00	10.00	1.00
Investigations	6.21	6.00	10.00	3.00
Fire Code Enforcement	5.92	6.50	10.00	1.00
Public Education	5.46	5.00	10.00	1.00

From this exercise, it can be determined that the most important elements of the current system are response times, adequate apparatus and facilities, overall fire suppression capabilities. Based on the surveys, the community does not see a significant benefit to beginning code enforcement activities or increasing public education and community service programs.

The second survey tool used during the public input meetings was intended to ascertain what was most important to the participant when asked to choose between two opposing elements. The primary questions were:

1. Improving the response time of the first engine to arrive at a scene
2. Keeping fire protection costs and tax rates as low as possible
3. Expanding the types of service offered by the Joint Fire District
4. Maintaining the existing response times of the first engine to arrive at a scene
5. Training and technical competence of firefighters
6. Having adequate apparatus, equipment, and facilities.

Based on the information obtained from the surveys improving response times and having adequate apparatus were the highest priorities. Surprisingly, keeping fire protection tax rates down scored relatively low in comparison to the other priorities (#2 in the previous list). The complete results are illustrated below.

Figure 22: Planning Priorities

Priority	1	2	3	4	5	6
Average	3.29	1.82	1.04	2.32	2.64	3.54
Median	3.00	1.50	0.50	2.00	3.00	3.50
High	5.00	5.00	4.00	5.00	5.00	6.00
Low	1.00	0.00	0.00	0.00	0.00	0.00

This information will be used in the remainder of this report so that community expectations can be entered into the final decision-making process.

Section II – Future Opportunities

While the preceding sections of this report focused on the current conditions within the study area, the greater intent of the project is to evaluate the potential for creation of a joint fire district between two or more of the participating municipalities. This final report section examines the options available and provides direction where appropriate.

GENERAL PARTNERING STRATEGIES

In any cooperative effort, there must be a central individual or group that is driving the efforts. In addition, the organizations themselves must be an active and willing participant. In the case of this project, this includes the Town of Manheim, the Town of Oppenheim (to an extent), and the Village of Dolgeville.

The municipalities involved in the project understand that the future of fire protection within the area is uncertain. Although DFD and the other area departments have been providing a sufficient level of service to the community for decades, there are concerns that the future will lead to fewer volunteers, higher costs, and a decreased level of service. Much of these concerns are due to financial constraints currently placed on the municipalities. The intent of this section is to evaluate the various options for fire protection moving forward and give policymakers the necessary information to make an informed decision.

There are generally three options regarding how to consolidate services or cooperate more closely across service boundaries. Operational consolidation is the pooling of resources (equipment, apparatus, personnel, etc.) through intergovernmental agreements. This can include the joint staffing of fire stations, combined training programs, joint fire prevention services, joint maintenance or the sharing of specialized resources such as hazardous materials and technical rescue equipment and personnel.

Functional consolidation takes the operational aspects of the organization one step further and combines ancillary functions such as training, fire prevention, purchasing, standard operating guidelines, etc. This allows operational personnel to focus on the delivery of services while administrative personnel are allowed to control all of the non-operational aspects of the joint organization.

Although this project began as a cooperative efforts feasibility study, the main focus of the study is to evaluate what will best serve the Town of Manheim and the Village of Dolgeville in regards to the future of fire protection services through a more sustainable governance and funding model. In essence, this project will evaluate the creation of a jurisdictional consolidation. Jurisdictional consolidation involves the dissolution of existing jurisdictions (fire protection districts) and the creation of a new entity such as a taxing fire district. This issue at hand within the study area is that the Town of Manheim already has the ability to tax for fire protection (as does the Town of Oppenheim) and these entities levy a tax on all properties within the Towns, including inside the Village of Dolgeville.

Since, under NY Town Law, the Towns are not allowed to operate a fire department (this obligation lies with the Village) there would be no ‘consolidation’ of services. Rather, the result would be a new entity with potential joint governance that is able to direct fire protection resources. The following section evaluates the various options that ESCI has identified as feasibly for the study area.

Strategy 1 – Status Quo

Although ESCI was engaged to determine the feasibility of forming a joint fire district, it has already been noted that the services currently being provided to the community are satisfactory within the Village. There are, of course, areas of the Town that are outside the expected travel capability of DFD and future planning should begin now to analyze if additional facilities might be necessary or reinstatement of prior agreements for automatic aid from adjacent jurisdictions may be required. As with any system of this design (non-centralized facility with outlying properties at distance from the more populated areas) there will challenges to meeting the needs of the entire Town. Primarily, there will need to be an influx of capital in order to construct a new, more centrally located facility.

Operational Impacts

As already determined, a majority of service demand for DFD occurs within and just adjacent to the Village of Dolgeville. Operationally, retaining the current method of governance and funding would not change the operations of the fire department. As with any volunteer fire department, the future of volunteerism is uncertain. It has been well-documented that volunteerism is on the decline nationally and DFD is no exception. There is currently a core of dedicated and active personnel that deliver services but, like most other organizations of their size and type, they cannot effectively mitigate substantial incidents on their own.

DFD relies on mutual and automatic aid from neighboring departments, particularly for large incidents such as structure fires, and this will continue regardless of the future of governance and funding. The fire company will continue to own the structure; the Village will continue to own the apparatus; and personnel will continue to be affiliated with the non-profit company. As time progresses, however, the continuing decline of volunteers may force the governing bodies to look at alternative service delivery models; specifically, part-time or on-duty personnel to ensure that a timely response is afforded to all incidents.

Fiscal Impacts

Paying for personnel to be on-duty, regardless of status, will lead to greater financial impacts to the municipalities and will stretch the already limited financial resources. Depending on the nature of the staffing model, compensation will need to be determined prior to that time.

In addition to potential staffing costs, the existing apparatus operated by DFD will eventually need to be replaced. Without proper capital replacement planning, replacement of single apparatus and having to either secure a loan or bond for the purchase could cost the municipalities upwards of $1,000,000 for a single apparatus. As of today, the average age of the primary firefighting apparatus is 23.2 years including a 24 year old primary engine and 20 year old aerial apparatus. The recommended life expectancy of an engine in primary service is 10 to 15 years so planning should begin now for the replacement of the aging fleet.

Pros

- Maintains current tax rate
- Maintains current service delivery model

- Maintains current organizational structure and governance
- Maintains current funding model

Cons

- Current funding is insufficient for continued operations
- No funding mechanism for capital replacement
- Volunteerism is declining and may not be sustainable for the long-term
- Township and Village budgets are increasingly strained to maintain fire protection funding
- Current taxation limitations will continue to limit funding

Strategy 2 – Creation of a Joint Fire District

A fire district, unlike a fire protection district, is a political subdivision of the state. Fire districts are established for the sole purpose of providing fire protection and emergency services to a designated area with the ability to tax and fund the overall system. Fire districts are dependent upon the town in which they are formed since taxes are levied and collected through the town and then passed to the district for expenditure. Fire districts also have independent elected officials (commonly called fire commissioners) that are installed to govern the operations of the district and to provide oversight of all expenditures.

Town Law §§ 185, 189-a, 189-b, 189-c give guidance regarding the creation of a joint fire district in Towns and Villages. Based on this guidance, "The town board(s) and village board(s) of trustee may establish a joint fire district when it appears to be in the public's best interest, provided that all the territory in the joint fire district is contiguous."

Operational Impacts

As with the status quo, most residents would not see a change in the way that services are delivered. Similarly, those personnel actively delivering those services would not see a substantial change in how they operate. The primary advantage of the creation of a joint fire district is governance and funding sustainability.

Fiscal Impacts

Some of the same financial impacts apply to this model as to the status quo. Without proper planning, future expenditures could cripple the organization. However, the primary fiscal advantage to the creation of a joint fire district is the ability to control taxation and dedicate those funds directly to the provision of fire protection services. Although this is not significantly different than a fire protection district, the independent fire district will be able to tax independently of the Towns and Village and, therefore, plan more effectively for emergency services delivery.

Each Town currently levies for the provision of fire protection. The Town of Manheim's fire levy rate is $1.01323 while the Town of Oppenheim levies $2.24000; each per $1,000 of taxable valuation. The total valuation within the study area (all of the Town of Manheim and all of the Village of Dolgeville, including the portion within the Town of Oppenheim) is estimated at $120,002,952. One of the biggest concerns on the part of the community involved is what the creation of a joint fire district would do to the cost of fire

protection. Understanding this concern, ESCI worked with several models in an attempt to determine what an effective tax rate would be for the new joint district.

Approximately 55 percent of the total study area valuation lies within the Village of Dolgeville. Of that total, only $2,496,048 lies within the Town of Oppenheim. As presented previously, the total cost to operate the department based on current expenditures and unallocated 'soft costs' that are currently absorbed within the Village budget is estimated at $169,525. In order to generate sufficient income to cover this cost of operations, a tax rate of $1.41267 would be necessary.

Keep in mind that this tax rate would be necessary to support the entire estimated cost of providing fire protection and the associated costs of services that are currently being provided by the Village such as insurance, workers' compensation, and other administrative expenses. If the Village continued to provide these services as they are today, then the budget for the department ($77,500 for FY2016), the associated tax rate would be estimated at $0.64581. The following figure provides a summary of the financial information contained within the preceding paragraphs.

Figure 23: Fiscal Impact Summary

	Current Fire Levy	Valuation	Revenue
Manheim	$1.01323	$117,506,904	$119,062
Oppenheim	$2.24000	$2,496,048[1]	$5,591
Total		**$120,002,952**	**$124,653**
		Needed Levy	
Nominal FD Cost	$77,500	$.64581	
Fully Funded FD	$169,525	$1.41267	

In addition to the normal operating costs, a future capital replacement plan should be considered. This would include the future replacement of all apparatus and other high-cost equipment such as self-contained breathing apparatus (SCBA), radios, protective clothing, and other necessary equipment. The following is a list of apparatus and equipment that should be included on the capital replacement plan.

[1] Village only.

Figure 24: Potential Capital Replacement Items and Cost

	Age	Replacement Cost	Replacement Year	Annual Requirement
Engine 145	24	$320,000	Overdue	$21,000
Quint 405	23	$900,000	Overdue	$45,000
Tanker 314	19	$100,000	Overdue	$6,500
Salvage 508	42	$140,000	Overdue	$14,000
Pickup 500	New	$60,000		$4,000
Pickup 530	30	$60,000	Overdue	$4,000
Turnout Gear	Variable	$2,500 per Set		$3,750
SCBA	Variable	$6,000 per Set		$9,000
Radios	Variable	$1,500 each		$2,250
		Total		**$109,500**

Based on this example capital replacement plan, the fully funded plan would require an additional $1.38275 in tax levy each year to meet the annual funding requirements. This does not include the fact that several of the apparatus are currently overdue for replacement and the age and condition of other gear and equipment is currently unknown.

Figure 25: Summary of Levy Options

	Amount	Estimated Levy Rate
Full Operational Funding	$169,525	$1.41267
Current Operational Funding	$77,500	$0.64581
Capital Replacement Funding	$98,500	$0.91248

Rather than a tax levy to support current capital needs, the more appropriate funding of this line would be in the form of a bond package or mid-term, low interest loans.

Communication is critical throughout the consolidation process. There are many issues which need to be addressed and resolved to ensure a successful consolidation. It is important to involve all the stakeholders (firefighters, residents, and elected officials) early on in the process.

The following strategies should be employed to ensure operational involvement:

- Keep all stakeholders informed of what is being done, who is doing it, and why
- Explain the advantages and allow for open and honest communication
- Make sure that all meetings are open to all stakeholders

Pros

- Allows for a more independent form of governance

- Allows for dedicated funds for operations and capital replacement
- Removes the burden of fire protection from the municipalities

Cons

- Adds a layer of government to the community
- Has the potential to increase overall taxation on property owners
- Limits municipal involvement in fire protection decisions

Alternative Funding Methodologies

Prior to discussing alternative assessments, fees, or other increases to the current revenue stream, the governing boards of the participating municipalities should clearly define the level of community emergency service in measurable terms. For example, the boards should specify the service (fire protection), the quantity (a fire pumper and four firefighters), the quality (within six minutes of dispatch), and the accuracy (80 percent of the time). Once service is defined in specific and measurable terms, the tasks of determining cost and the consideration of funding alternatives become more focused.

Potential funding alternatives can be grouped into two general categories: untapped revenues and redirected funds. Untapped revenue is represented by existing funding alternatives that are not fully used, like a tax increase or the implementation of a new tax, and by the identification of fees that do not fully recoup service cost. Redirected funds are existing revenue identified as not contributing toward the essential goals of the organization and, therefore, may be more efficiently allocated to other programs or functions.

There are essentially three methods that can be used to redirect public funding: 1) proving that money could be spent more effectively, 2) showing that a population or area is not receiving its fair share of service, and 3) changing a policy so that a program can access a funding stream that currently exists.[2] In order to redirect funding, leadership researches what funding is there, who controls the funding, what the policies are, and whether or not allocation patterns can be changed.

For the study region, this would involve altering the methodology for calculating the cost of serving the region. A formula for apportioning service cost may factor in assessed valuation, population (residents and employees), service demand, level of service, and area size. One option for leveling cost fluctuations is to employ a formula using multiple factors (e.g., population and assessed valuation).

What follows is an alphabetical listing of system variables that can be used (singly or in combination) to allocate cost between allied fire departments. 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 intergovernmental 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 similar.

[2] *Sustainable Funding for Program Strategies*, Lessons Learned from an Ambitious Community Change Effort, June 2005, Urban Health Initiative, Seattle, WA.

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 (assessed value and number of emergencies) to express a compound variable (such as assessed value per square mile and emergencies per square mile).

Valuation

Concept:

The tax capacity 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, tax capacity also tends to approximate the property at risk within a municipality. Fire departments are charged with being sufficiently prepared to prevent property loss by fire. Therefore, the cost of contracted fire protection may be apportioned relative to the assessed value of the allied jurisdictions. Typically, tax capacity is used to apportion cost of shared service by applying the percentage of each partner's tax capacity to the whole.

Pro:

Tax capacity 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 tax capacity in accordance with state law, it is generally viewed as an impartial and fair measurement for cost apportionment. Fire protection is typically considered a *property-related service* and, thus, apportionment tied directly to property value has merit.

Con:

Tax capacity may not reflect the property risk associated with certain exempt property, such as schools, hospitals, universities, government facilities, churches, and other institutions. Tax capacity 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 tax capacity exemptions or reductions. Adjustments may need to be made to tax capacity if such large tracts of exempt property in one jurisdiction cause an imbalance in the calculation. Last, tax capacity typically includes the value of land, which is not usually at risk of loss by fire. Depending on the local circumstance, however, this may not be a significant factor if the relative proportion of land value to structure value is reasonably uniform over the whole of the territory.

Consider:

Some states discount tax capacity depending on the class of property (commercial or residential), which may skew the overall proportion of those properties compared to risk. As an additional consideration, county assessors usually establish the tax capacity in accordance 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 a fire department 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 alarms 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.

Consider:

Using a rolling average of alarms over several years can help to suppress the normal tendency for the year-to-year fluctuation of emergencies. Combining the number of emergencies with the number of emergency units and/or personnel required may help to align alarms 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 agencies 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. 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.

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.

Con:

The accurate population of partially covered areas is often difficult to establish. Census tract boundaries and response area boundaries infrequently match, forcing extrapolated estimates, which can fail to take into account pockets of concentrated population inside or outside of the response

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

Consider:

The residential population of partially covered areas can sometimes be estimated by using the GIS mapping capability now maintained by most counties. By counting the residential households within the area in question, then applying demographic estimates of persons per household, it may be possible to reach a relatively accurate estimate of population within the area in question. Alternately, residential population can be estimated by using information obtainable from some public utility districts by tallying residential electrical meters within a geographic area and then multiplying by the persons per household.

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.

Multiple-Variable Allocation

Frequently, even though everyone may agree on the benefit of allied fire protection, officials find it difficult to reach an agreement on the cost and the allocation of those costs. 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 costs over multiple variables, members of an alliance have been able to reach a long-term agreement that fits the diversity of the partnering agencies. Other partnerships in other geographical areas may require a different solution involving different combinations of variables.

Allocation Summary

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 municipalities. 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 26: Funding Allocation Summary

Jurisdiction	Area	Assessed Value	Service Demand	Population
Manheim Outside Village	93.0%	63.9%	15.0%	38.4%
Manheim Inside Village	6.4%	34.0%	80.0%	58.0%
Oppenheim Inside Village	0.7%	2.1%	5.0%	3.6%
	100.0%	**100.0%**	**100.0%**	**100.0%**

Using a single element to determine cost allocation can lead to a heavily biased method of funding. As represented in the preceding figure, using area along would lead to the Town of Manheim carrying a majority of the cost. However, using service demand alone would place that burden on the portion of the Village within Manheim. For this reason, it is recommended that a blended model that includes all of the identified elements be used. An example of this method is contained within the following figure.

Figure 27: Multi-Variable Calculation Model

Jurisdiction	Multiple Variable #1	Multiple Variable #2	Multiple Variable #3
Manheim Outside Village	50.8%	42.0%	34.6%
Manheim Inside Village	46.3%	54.6%	61.5%
Oppenheim Inside Village	2.9%	3.4%	3.8%
	100.0%	**100.0%**	**100.0%**

Figure 28: Multi-Variable Weighting Model

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%

Although the weights in this model are arbitrary from ESCI's perspective, policymakers could use this model and adjust the weights based on consensus of those involved.

Findings, Recommendations, and Plan of Implementation

The body of this report provides the reader with a glimpse of how fire protection is delivered within the Town of Manheim and the Village of Dolgeville, including that portion that lies within the Town of Oppenheim. Although there are other agencies that provide services to these areas through mutual and automatic aid agreements, these agencies were not included in this study due to the fact that they would not be initially included in any change in governance or funding structure that is decided upon by the Towns and the Village.

It should be considered, however, that as time progresses and it becomes increasingly difficult for all of the departments in the study area to continue to deliver services without a firm plan for sustainable governance and funding, that these departments begin conversations with their elected officials about the viability of the current model.

As already presented, the current system, although it has some noted deficiencies in response performance to some areas of the Town, is performing at a level similar to other organizations of their size, population, and service delivery model. The question is how to provide an equal or better level of service in the future with sustainable governance and funding.

There are basically two options available to the existing governmental units: retain the current model of governance and funding, or create a joint fire district between the Towns and the Village. The status quo will continue to deliver the current level of service until such time that volunteerism declines to the point

that the current model is unable to keep up with demand. In addition, capital replacement will become a problem in the future without proper planning and funding for high cost equipment. The creation of a joint fire district that encompasses all of the Town of Manheim and all of the Village of Dolgeville could create a stable and sustainable funding stream for fire protection services. This will not be without a cost however. As already discussed, the method in which the policymakers decide to fund the system will determine the actual levy rate and, ultimately, the willingness of the public to accept a potential increase in the cost of fire protection.

Under normal circumstances, ESCI would evaluate potential feasibility on three scenarios. Feasibility is basically positive if the same level of services can be delivered at the same or lower cost, or if an increased level of service can be delivered at the same or lower cost. Generally, options are not feasible when service level declines or cost increase. In the case of this project, to fully fund the system at the level of today's service would require an increase in the basic tax rate to support the fire service. Although the cost of the system would increase, it should be understood that the current amount of funding for DFD is well below the national and New York averages of per capita cost of fire protection; $135.00 and $162 respectively. DFD's total cost per capita including soft costs is estimated at $52.68.

In comparison to other towns across the region, the study area's overall budget for fire protection is quite low. The following figure summarizes some other fire protection organizations and their associated budgets.

Figure 29: Comparative Fire Protection Agencies

Organization	Structure	Budget	Notes[3]
East Herkimer	Fire District	$120,000	WC paid by Town
Frankfort	Village	$190,000	Includes WC
Frankfort Center	FPD/Contract	$187,000	Includes WC
Mohawk/German Flatts	Village/District	$240,000	Includes WC
Ramsen	Village	$115,000	WC paid by 4 Townships
Poland	Village	$236,000	WC paid by 5 Townships
West Winfield	Village	$158,000	Percentage of WC paid by Village

Based on these comparative agencies, DFD's budget is substantially below the others. Even if all the insurance and other costs are added into the equation, DFD's budget would still be below four of the seven comparative agencies.

The provision of fire protection services to the community is a critical component of government services and should be a focus of policymakers. It should be understood, however, that the current system is not sustainable for the long-term. Volunteerism is declining and the municipalities are finding it more and more difficult to fund all the services that the citizens deserve and expect. Based on input received during the study process and at public input meetings, the attendees' priorities were response times and adequacy of equipment. Maintaining fire tax rates ranked relatively low on the list of priorities. In the end,

[3] WC – Workers' Compensation, FPD – Fire Protection District

the creation of a joint fire district is feasible but will not be without costs to the community. In addition, policymakers will need to work with the members of the fire company to ensure that they are on board with the plan and are willing to continue to provide services under a new governance structure. The details of moving forward will be worked out at a later date but, suffice it to say that, this is the first step in evaluating a sustainable model for the future of fire protection services for the Towns and the Village.