

Indianola Fire Department

Iowa

STAFFING STUDY

April 2018

ESCI Emergency Services
Consulting International

Providing Expertise and Guidance that Enhances Community Safety

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TABLE OF CONTENTS

Acknowledgements	v
Executive Summary	1
Evaluation of Current Conditions	13
Warren County.....	13
City of Indianola	15
The City of Indianola Fire Department.....	16
Organizational Overview.....	16
Governance.....	18
Organizational Design	19
Organizational Structure.....	19
History, Formation, and General Description	20
Service Area and Infrastructure	22
Financial Management and Analysis.....	24
Historical Revenue and Expense	24
Management Components	31
Foundational Management Elements	31
Planning Elements.....	33
Management Documents and Processes.....	33
Record Keeping and Documentation	35
Personnel Management.....	36
Policies, Rules & Regulations, and Guidelines	36
Job Descriptions	36
Compensation	36
Disciplinary Process.....	37
Counseling Services.....	37
Application, Recruitment, and Retention Process.....	37
Performance Reviews, Testing, Measurement, and Promotion Process.....	37
Health and Safety.....	38
Staffing	39
Career and Paid-On-Call Personnel.....	39

Responsibilities and Activity Levels of Personnel	39
Administrative and Support Staffing.....	40
Emergency Response Staffing.....	42
Staffing for Adequate Fire and Emergency Response (SAFER) Grant	48
Training Programs	49
General Training Competencies.....	49
Training Administration & Budget	50
Training Methodology.....	50
Training Facilities and Resources	51
Training Operation & Performance	51
Recordkeeping	51
Personnel Trained	52
Fire Prevention and Public Education Programs.....	53
Life Safety Services (Fire Prevention).....	53
Code Enforcement Activities.....	54
New Construction Inspection and Involvement	54
General Inspection Program	54
Fire Safety & Public Education	54
Fire Cause Determination	55
Statistical Collection and Analysis.....	56
Capital Assets and Assessment of Current Infrastructure	57
Facilities.....	58
Apparatus/Vehicles.....	62
Service Delivery and Performance	64
Demand Study.....	64
Distribution Study	69
Concentration Study	80
Reliability Study.....	81
Performance Summary	83
Future System Demand Projections	90
Population Growth Projections.....	90
Historical Populations	90

Growth Projections 92

Service Demand Projections 93

Community Risk Analysis 94

Future System Delivery Models 101

 Development of Response Standards and Targets 101

 Short and Mid-Term Strategies 105

 Short and Mid-Term Comments and Key Recommendations 105

 Recommended Long-Term Strategies 108

 Fire/EMS Staffing Challenges for the Future 108

 Organizational Development, Administrative and Support Staffing 108

 Additional Infrastructure or Facilities 109

 Training 109

 Fire Prevention and Public Education 110

 Resource Deployment Options and Financial Analysis 110

Conclusion 131

Appendix A 132

 Table of Figures 132

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EXECUTIVE SUMMARY

Emergency Services Consulting International (ESCI) was engaged by the City of Indianola Fire Department (IFD) to evaluate the service provided by the fire department. Specifically, the evaluation was to report on the level of services compared to standards and best practices. This Staffing Study will assist IFD in future planning and provision of comprehensive emergency services to the citizens of Indianola. This report is organized as an organizational staffing study that evaluates current conditions; projects future growth, development, and service demand; and provides recommendations to enhance current services, or to provide an equal level of service over the next 5 to 10 years.

ESCI thanks the City of Indianola Council members, Fire Chief, and the staff of the Indianola Fire Department for their outstanding cooperation in the preparation of this report. All involved were candid in their comments and provided a tremendous amount of essential information. The ability of the ESCI team to receive this valuable input and information was key to the development of this study.

The study begins with a review of the current service delivery provided by IFD including its programs, administration, management, service delivery performance, and financial condition. All areas are evaluated and discussed in detail, and specific recommendations are provided where applicable.

Stakeholder Interviews

ESCI conducted eleven (11) internal stakeholder interviews in an effort to gain the feedback and input of all persons involved in providing services the citizens of Indianola. Internal stakeholders were asked to participate in a facilitated exercise to complete a strengths, weaknesses, opportunities, and threats (SWOT) analysis.

Evaluation of Current Conditions

An analysis of current conditions is documented in nine survey sections, reviewing the IFD administration, governance, finance, staffing, personnel management, service delivery, planning, support programs, and capital assets. Each component of the evaluation includes an introductory explanation of the subject area and discussion of desirable outcomes and identified best practices.

Criterion used to evaluate the fire department has been developed over many years. These gauges include relevant guidelines from national accreditation criteria, National Fire Protection Association (NFPA) standards, federal and state mandates for fire and Emergency Medical Services (EMS) systems, and generally accepted best practices within the fire and EMS industry.

The evaluation of current conditions offers the department a detailed assessment of existing fire department operations and provided the ESCI project team with a snapshot in time, the basis from which the balance of the report was developed. It is important to note that the fire department has continued to make progressive changes since the initial evaluation thus some of the recommendations may already have been completed. The following reviews some of the key findings:

Organizational Overview

The City of Indianola Fire Department (IFD) was initially organized as a fire department in 1885. Today IFD is a combination career/full-time, part-time, and paid-on-call employees that provide fire and emergency medical services to 125 square miles of Warren County. The department was rated by the Insurance Service Organization (ISO) as a 4 three years ago based on the departments non-county wide coverage. IFD is governed by a Mayor-Council form of government. The Council consists of two members elected at large and one member for each of the four wards as established by the city ordinances in accordance with the Code of Iowa, Sec. 376.2. Each elected official's term will be for an overlapping four year term. The Mayor will serve a four year term as well. Members serve concurrent four year terms and are elected by their ward. The Council holds its meetings the first and third Monday of each month.

The department is led by a Fire Chief hired by the City Manager. The Fire Chief operates under an employment contract that is open in term, but may be terminated at the discretion of the City Manager. As in most fire departments across the United States, the Fire Chief has an established managerial team to support the daily operations of the department.

The City Council is responsible for setting the strategic direction of the authority through the establishment of policies and budgets. These policies are then, in turn, used by the Fire Chief to carry-out the daily operations of the authority. The chain of command for the authority is clearly delineated and representative of other fire service providers across the United States. ESCI found that the governance of the fire department is well defined and fairly standard in the way it is configured.

Management Components

IFD has established effective managerial components addressing recordkeeping and documentation as well as maintaining proper regulatory documents. This includes fire inspection, investigation, incident reports, and service records. These guiding documents are vital for success in providing services at all levels and meeting the expectations of the citizens served by IFD.

The department has effectively established processes and procedures for identifying critical issues and future challenges facing the organizations. Among these critical issues are recruitment and retention of staff members, facilities, and ongoing training and development of staff members. Outside of the ownership of its facilities, these issues are common among fire service providers across the United States.

Staffing and Personnel Management

IFD leadership has established effective human resources processes and procedures that achieve a high level of maximum productivity. These processes and procedures have been combined with a safe working environment, equitable treatment, and recognition of the department's staff members to establish IFD as a high quality provider of emergency services. Specifically, IFD has in place a policy and procedures manual that serves to guide the department and its personnel in achieving the organization's mission. This manual has been reviewed and is in the process of being released. IFD's compensation and benefits program is clearly established and formally adopted to ensure consistency among all personnel. Additionally, the disciplinary processes and procedures of the department are well established and consistent with industry best practices.

IFD operates a paid-on-call system utilizing personnel to cover specific work periods to ensure a consistent level of response from its headquarters station. The paid-on-call system functions much like a "volunteer" fire service with the exception being that personnel become paid when they "return-for-call." This system has worked well for IFD, but has not been without its challenges. Over time, the department has been required to add the necessity of covering a 24-hour shift utilizing career personnel to address an increasing difficulty of ensuring an effective response force during specific time periods. As with volunteer fire departments, the life demands (i.e. careers, family functions) of paid-on-call staff have negatively impacted their abilities to consistently respond in support of the department needs. IFD employees 11 career employees, 17 part-time employees and has an authorized paid-on-call staff level of 27 employees, but at the time of ESCI's site visit IFD had an operational force of 9 career, 17 part-time and only 18 paid-on-call employees. IFD has recently been awarded the Staffing for Adequate Fire and Emergency Response (SAFER) Grant to assist with staffing and has increased the operational staff from 6 employees to 9.

Fire and EMS Training Delivery

IFD has established a training program focused on establishing and maintaining an effective emergency response force capable of meeting the needs of the community. The general attainment and maintenance of required skills for IFD personnel is in compliance with NFPA 1001: *Standard for Firefighter Professional Qualifications* and ISO requirements. IFD utilizes the National Fire Protection Association (NFPA) job performance requirements, and International Fire Service Training Association (IFSTA) training materials as the basis for its fire suppression training practices, and national Emergency Medical Services standards are used as the baseline for medical training coursework.

IFD has made a strong commitment to training in all regards and is to be commended for the evident dedication to assuring personnel are trained to operate safely on the emergency scene. However, The department does not have dedicated training facilities and relies on movable props from the Iowa Fire Service Training Bureau. The school parking lot is used in the summer as well as the city dump and acquired structures when available. The department does have classroom facilities with computer and video aids available. Currently, IFD must rely upon space at the fire station and other publicly available locations. The usage of these spaces is limited based upon availability at the time of need. The usage of non-fire department locations (i.e. business parking lots) can have a negative impact by interfering with

the operations of the respective businesses. The usage of available public spaces does not allow for consistency in conducting training evolutions as the availability may change on a daily or hourly basis.

Many fire departments across the United States do an exceptional job of training personnel to entry-level requirements, but many fall-short in the delivery of on-going training of employees. IFD training programs have effectively addressed training at the entry-level, but must go farther in the ongoing development of its staff. In addition to ensuring personnel have the quality knowledge, skills, and abilities necessary to deliver effective and efficient emergency services, training programs have an added effect of improving employee morale.

Fire Prevention and Public Education

IFD operates an active fire and life safety program which supports industry recognized fire prevention program components and the associated elements for each. Interviews conducted during the site visit established that IFD has a healthy appreciation of fire prevention within the community it serves. The Fire Chief clearly understands the significance of having a quality program that is valid and credible if the department is truly going to serve its constituents.

Capital Assets and Assessment of Current Infrastructure

The fire station and storage buildings found in the study area vary broadly from some that are relatively new and in good condition to others that are aging and will soon be due for replacement or renovation. Some of the buildings observed are nearing or have already reached their maximum capacity in terms of room for future expansion as workload and service demand increases. The station and buildings range in age from 7 to 60 plus years. As a result, IFD has significant facility replacement costs that will need to be addressed in the near future. In long range master planning, it is important to consider future service demand growth and how the agency's fixed facilities are configured for future expansion, when needed.

ESCI evaluated the age of IFD's fleet of apparatus, finding that the units range from a high of 21 years of age, which does include the department's reserve apparatus, to a low of just one year. ESCI observed that IFD apparatus are generally well maintained and serviceable. However, the frontline apparatus fleet is aging. The average age of frontline structural fire apparatus, brush, and attack apparatus is 10.8 years of age.

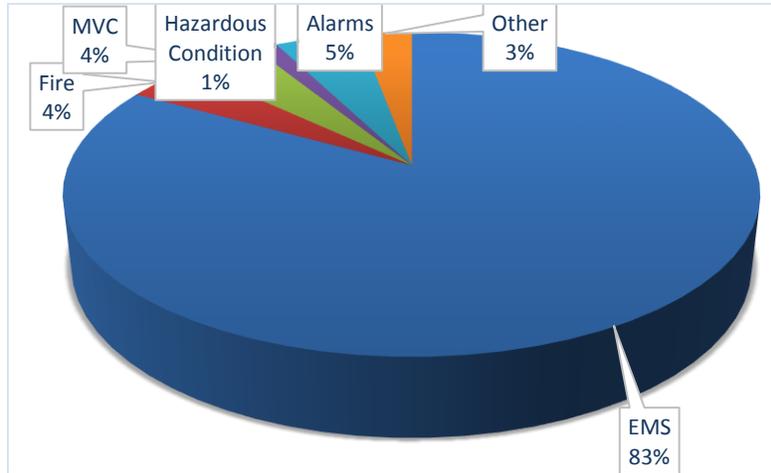
Service Delivery and Performance

Response performance criteria and actual service delivery performance is analyzed in detail, providing information with which the department can develop future deployment methodologies and identify desired levels of response performance and staffing.

Of all incidents to which the department responded emergent in 2016 to the urban demand zone, 90 percent were responded to in 10 minutes, 15 seconds or less. For the rural demand zone, 80 percent of the time was 14 minutes, 48 seconds.

Current and Future Service Demand

The current service demand was reviewed and analyzed. The types of service demand as a proportion of the total is shown in the following figure:

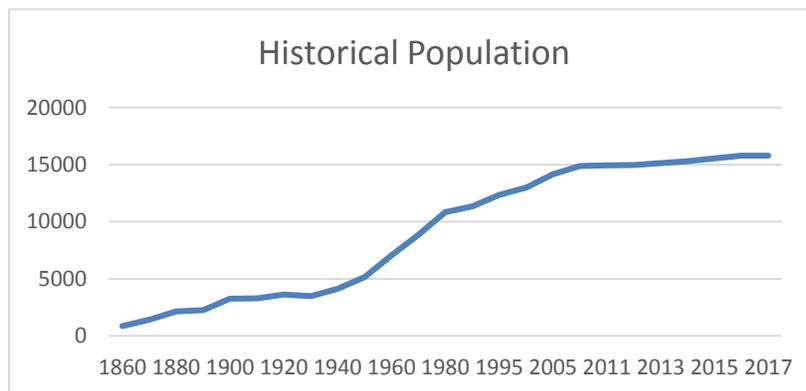


The EMS requests for service are considerably higher than the other types of calls. Emergency medical calls amounted to 83% percent of the activity of the fire department from 2014 to 2016. It is not unusual for a fire department to respond to a high percentage of EMS calls compared to the total calls. IFD provides advanced life support transport services to the community. With the anticipated growth of the community and changes with the nation’s healthcare system it can be expected for the department to experience additional impact in support of the county’s EMS service. The temporal variation was studied to determine unusual patterns or trends that may be of importance to the department’s planning.

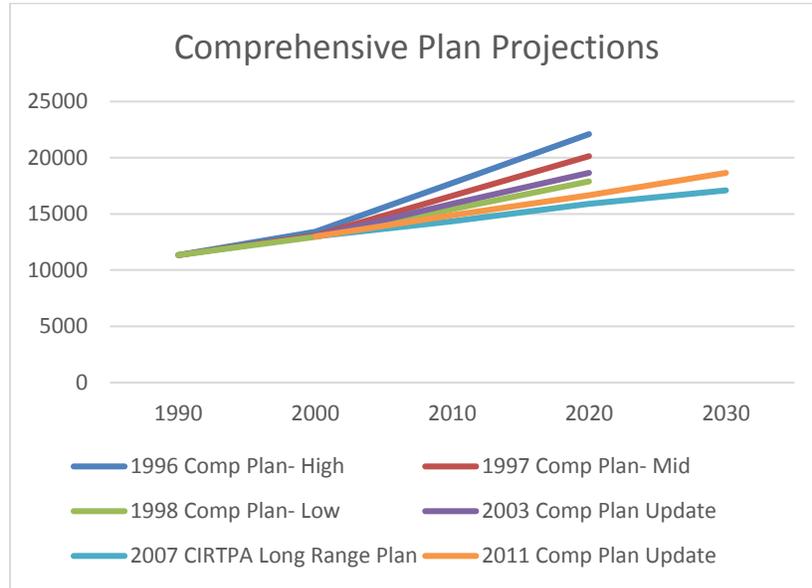
Population History and Growth Projections

ESCI researched the historical and future projections from available comprehensive growth plans and the U.S Census Bureau to develop an overview of historical population representations and future population expectations to provide decision makers with accurate estimates to aid the planning process.

Historical growth for Indianola is represented below.



Growth projections were also evaluated. Population increases from the 2010 census to 2016 represent an increase of 6.8% or 15,785 total. Several comprehensive planning documents have predicted growth for the city of Indianola with varying percentage ranges for each. A representation of those projections are detailed below.

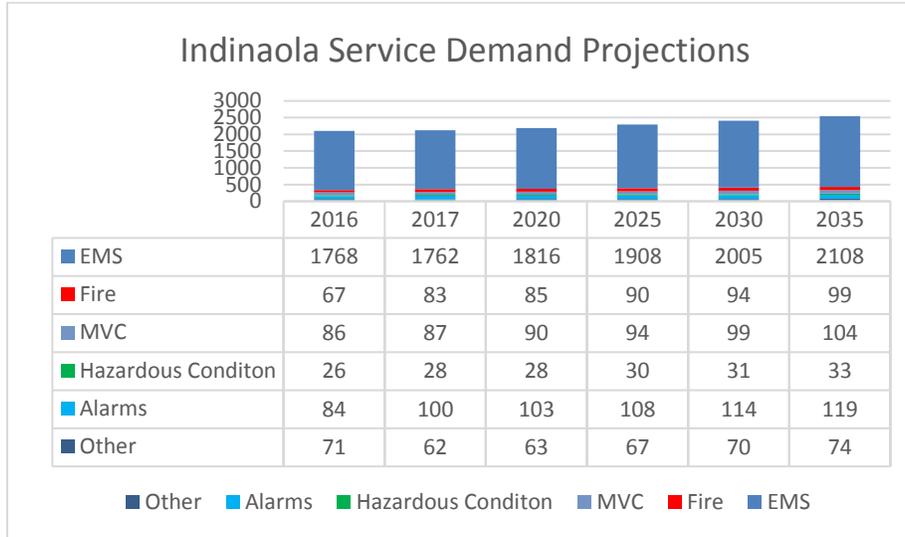


Service Demand Projections

Population growth projections, along with historical and forecast incident rates, were utilized to develop projections for future service demand. As population changes so will the service demand. To determine a historical demand ESCI considered the last three years of service demand discussed previously. In the three years (2014–2016), total service demand increased at an annual rate of .76 percent. This correlates closely with an annual population growth during that same time of roughly 1 percent on average.

Using the 1 percent per year population projection and the historical (2014–2016) average per capita rate for each type of service demand, the following figure was created and depicts the service level demand projections IFD could expect to see in the next 20 years.

Future service demand projections are outlined in the following figure.



Development of Response Standards

ESCI emphasizes the importance of establishing response performance metrics by IFD. Once implemented, these standards establish measurable goals for service delivery, which then form the foundation upon which planning for deployment of resources is based. Absent these processes, the organization is not able to determine where it needs to go, nor is it able to know when it is achieving its goals and meeting the community’s expectations. At the time of this study IFD does not report response times in a manner consistent with NFPA standards. This is not a difficult issue for IFD to correct in the fact that the Firehouse RMS® data management system is capable of producing these results with minor adjustments within the system.

In the design of an operational structure for a fire department, interested parties attempt to identify some standard or “rule” that establishes staffing levels within a fire department. However, the reality is no single staffing standard exists within the United States that mandates staffing levels of a fire department. There are however NFPA standards addressing the number of firefighters that should be on-scene to accomplish specific tasks safely and effectively. These standards are known as 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*, and 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*, and apply to either career organizations or volunteer organizations respectively. As a combination department, IFD can identify which standard it desires to follow.

Future Deployment Models and Recommendations

The analysis is followed by deployment recommendations based on current service delivery and performance coupled with projected system demands. Options for addressing future service demand needs are presented and financial modeling accompanies each option. IFD can then weigh the options presented and work to implement these options in a multitude of ways that meet the needs of the community. The report concludes with a list of key recommendations identified throughout the body of the report intended to assist IFD in planning for future service delivery to the citizens of Indianola.

Key Recommendations	Status		
	Started	50%	Complete
Standard Operating Guidelines (SOGs) are under review and the newest copy has not been released to the field for employees to adhere to. This process should be completed and the revised version released.			
Establish a formal method to maintain an organizational history accounting for the department's existence and success.			
IFD should include the addition of a values statement when posting the mission statement throughout the department.			
The continuation of training on both SOGs and Policies and Procedures should be maintained and documented.			
With the addition of some form of social media presence, the IFD external communications package will be representative of a well-balanced and effective approach to communicating with the citizens if these are utilized often. Develop and distribute social media involvement.			
Establish a guideline that directs the process of periodic review and changes of department SOGs, and review one-third of the guidelines each year recommending changes.			
IFD should strive to develop a structured Critical Incident Stress Debriefing program for its members. This program should be communicated to make each member aware of the availability of resources.			
ESCI strongly encourages the department to ensure all activities of the safety committee are in alignment with Chapter 4 of NFPA 1500.			
Establish dedicated staff member to handle fire prevention duties.			
IFD will need to develop and implement accountability mechanisms to ensure necessary training is accomplished.			

Key Recommendations	Status		
	Started	50%	Complete
Administrative staff is tasked with operational roles which can detract from the focus and ability to ensure administrative tasks are completed or at a minimum delay them. IFD should provide more administrative support or increase operational command and control.			
As staffing is increased, the addition of company officers to reduce the span of control is warranted.			
Continue to evaluate recruitment and retention program and implementation of industry “best practices” as identified.			
Establish and implement a method for tracking employee training hours.			
It is recommended that IFD further develop training efforts with its regional partners.			
Establish/Develop a suitable place to conduct training evolutions that incorporate all of the necessary and required training knowledge, skills, and abilities.			
Develop and publish an annual training report.			
IFD should further develop and implement tracking mechanisms to more effectively communicate the activities associated with its strategic fire prevention effort.			
It is recommended that IFD establish an internal training program to ensure this position is trained to the Job Performance Requirements of <i>NFPA 1035: Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications</i> .			
It is recommended that IFD revise the existing public education job description to include Job Performance Requirements identified within NFPA 1035 with clear timeframes in which the training will be completed.			

Key Recommendations	Status		
	Started	50%	Complete
Provide training in accordance with NFPA 1033, <i>Standard for Professional Qualifications for Fire Investigator</i> .			
Implement a prevention and intervention program focused at youth who are believed to be at risk for becoming involved with fire.			
Complete and implement a formal risk reduction plan that is updated annually.			
It is recommended that each IFD station and/or building have a thorough evaluation for structural integrity and regulation compliance with NFPA standards.			
ESCI encourages IFD leaders to work cooperatively with the dispatching center to ensure that accurate and complete response performance data is transferred to the department's records management software.			
ESCI recommends that IFD and the dispatch center explore the use of modern technology, such as mobile data computers or terminals (MDCs/MDTs) to improve data collection and reporting.			
Established performance standards for total response time and each component of total response time.			
Develop performance goals and a methodology for monitoring the individual components of response performance provides an opportunity to improve overall response performance.			
ESCI recommends that IFD and the dispatch center examine call processing time and develop a plan to bring the 90 th percentile call processing time to within the NFPA standard.			
Reduce turnout time performance to meet the NFPA 1720 standard.			
ESCI encourages Indianola's leaders to work to ensure that accurate and complete performance data related to call processing is obtained and analyzed.			

Key Recommendations	Status		
	Started	50%	Complete
Established performance standards for total response time and each component of total response time.			
Develop performance goals and a methodology for monitoring the individual components of response performance. This provides an opportunity to improve overall response performance.			
Monitor and report annually on the department’s compliance with meeting response time goals identified by the department.			

EVALUATION OF CURRENT CONDITIONS

Emergency Services Consulting International (ESCI) was engaged by the City of Indianola Fire Department (referred to herein as “IFD” or the “department”) to provide an agency fire department staffing study. This report serves as the culmination of the project and is configured as an agency evaluation that assesses current conditions; projects future growth, development, and service demands; and provides recommendations to enhance current services or provide an equal level of service for the future.

The beginning is the most important part of the work.

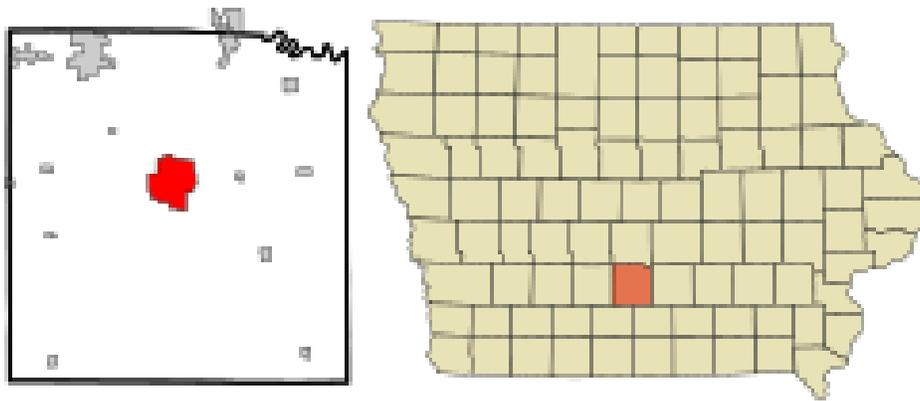
Using organizational, operational, staffing, and geographic information system (GIS) models, this phase of the study provides an evaluation of existing fire and rescue operations and recommendations for improvement in current services delivered to the community. The evaluation and analysis of data and other information is based on National Fire Protection Association (NFPA) standards, the Center for Public Safety Excellence/Commission on Fire Accreditation International (CPSE/CFAI) *Standards of Cover*, 6th edition, health and safety requirements, federal and state mandates relative to emergency services, and generally accepted best practices within the emergency services community; where applicable.

Each section in the following report provides the reader with general information about that element, as well as observations and analyses of any significant issues or conditions that are pertinent. Observations are supported by data provided by IFD collected as part of the review and interview process. Finally, specific recommendations are included to address identified issues or to take advantage of opportunities that may exist.

It is important to bear in mind that these were the current conditions at the time of the data collection and on-site visit. The agency is continuing to change and improve over the time required to write the report, therefore not every current condition remains as stated here. One significant improvement since the evaluation is the award of the Staffing for Adequate Fire and Emergency Response (SAFER) Grant. This grant award will allow for the hiring of three additional positions.

Warren County

Warren County is a rural county located in the State of Iowa, south of Des Moines, formed in 1846. The county covers an area of 573 square miles. According to the 2010 U.S. Census, Warren County had a population of 46,225 residents. Warren County is included in the Des Moines-West Des Moines, Iowa Metropolitan Statistical Area. The population has been increasing since 2010, and according to U.S. Census population estimates, the county had 48,691 residents in 2016. This resulted in a 7.5 percent growth rate during the period. The county seat is the City of Indianola.



A recent study found that segments of the population are at a higher risk of injury or death due to fire.¹

- **Risk by age:** In 2015, adults ages 50 or older had a greater relative risk of dying in fires than the general population. Those ages 85 and older had the highest risk of fire death. In addition, while lower than the relative risk of the general population, children ages 4 and younger faced an elevated risk of both injury and death in a fire when compared with older children (ages 5 to 14).
- **Risk by gender:** Males were 1.7 times more likely to die in fires than females.
- **Risk by income level:** The danger of death or injury is closely tied to household income, and children and the elderly in the poorest homes are exposed to the greater risk.
- **Risk by race:** African-Americans and American Indians/Alaska Natives were at a greater relative risk of dying in a fire than the general population.

The 2010 census for Warren County revealed that 39.2 percent of the population was in a greater risk category based on age according to the study. This category consists of persons under the age of 5 (6.4%), persons who are 50 years of age and older (9%), and persons who are 85 years or older (2%). Other vulnerable categories include persons under the age of 65 living with disability (11.3%) and people living at or below the poverty level (6.8%).^{2,3} Typically, populations within these categories have an increased likelihood of being injured or killed in fires. Additionally, populations in these categories place a high demand on emergency medical services.

¹ "Fire Risk in 2015;" U.S. Fire Administration, September 2017, Volume 18, Issue 6; Retrieved from https://www.usfa.fema.gov/downloads/pdf/statistics/v18i6.pdf?utm_source=website&utm_medium=pubsapp&utm_content=Fire Risk in 2015&utm_campaign=RID

² 2012–2016 American Community Survey 5-Year Estimates.

³ The Census Bureau "poverty" definition – Following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). For more information see: *How the Census Bureau Measures Poverty*.

The county had a total of 18,371 housing units in 2010. This number has grown to an estimated 19,550 in 2016. Housing data shows that individual ownership is fairly high at 76.8 percent of all units, and that the median value of owner-occupied housing costs was \$165,200. Of the housing units 83.1 percent were single family households, 13.2 percent were multifamily structures (2 to 10+ units), and 3.8 percent were mobile homes. Of these structures, 54.8 percent were built before 1980 and 12.7 percent were built before 1939.⁴

Typically, when there are high numbers of vulnerable citizens and older buildings constructed before current fire codes were developed, there is an increased demand on emergency services. Given these factors for housing and population, it is likely that the department has a steady call volume. However, over the next 10 years it is likely that the population of the county will continue to grow, as will the population of people over the age of 65. The county has 170 miles of paved roads, 630 miles of granular surfaced roads, and 68 miles of dirt roads that transverses the territory as well as the Spine Line of the Union Pacific Rail Service runs north-south along the northeastern edge of Warren County. Des Moines International Airport is north of the county.

City of Indianola

The county seat of Warren County is the City of Indianola. Indianola is a rural city located 18 miles south of Des Moines. The city covers an area of 11.25 square miles. According to the 2010 U.S. Census, Indianola had a population of 14,782 residents. The population has been increasing since 2010, and according to US Census population estimates, the city had 15,785 residents in 2016. This resulted in a 6.8 percent growth rate during the period.

The 2010 census for Indianola revealed that 38.1 percent of the population was in a greater risk category based on age according to the study. This category consists of persons under the age of 5 (6.6%), persons who are 50 years of age and older (31.9%), and persons who are 85 years or older (3.4%). Other vulnerable categories include persons living at or below the poverty level (13.2%).⁵ As discussed above, populations within these categories have an increased likelihood of being injured or killed in fires. Furthermore, populations in these categories place a high demand on emergency medical services.

The City of Indianola had a total of 5,893 housing units in 2010. Housing data shows that individual ownership is moderate at 65.4 percent of all units and that the median value of owner-occupied housing costs was \$151,400. Of the housing units, 71.8 percent were single family households, 25.4 percent were multifamily structures (2 to 10+ units), and 2.9 percent were mobile homes. Of these structures, 59.8 percent were built before 1980, and 13.6 percent were built before 1939.⁶

⁴ *Physical Housing Characteristics for Occupied Housing Units, 2012–2016 American Community Survey 5-Year Estimates.*

⁵ *Poverty Status in The Past 12 Months, 2012–2016 American Community Survey 5-Year Estimates.*

⁶ *Physical Housing Characteristics for Occupied Housing Units, 2012–2016 American Community Survey 5-Year Estimates.*

Consistent with the county, overall these high numbers of vulnerable citizens and older buildings constructed before current fire codes were developed creates an increased demand on emergency services. Given these factors for housing and population, it is likely that the department will continue to see a steady increase in call volume as well as a growth in the population.

The provision of fire protection and EMS is an essential service that governments must provide. However, for this service to be effective and efficient it must be staffed and organized appropriately to address emergencies as they occur in an equitable manner.

The City of Indianola Fire Department

The City of Indianola Fire Department (IFD) was initially organized as a fire department in 1885. Today IFD is a combination career/full-time, part-time, and paid-on-call department that provides fire and emergency medical services to 125 square miles of Warren County. The department was rated by the Insurance Service Organization (ISO) as a 4 three years ago based on the department's non-county wide coverage. The department has adopted the following mission and purpose, working tirelessly to accomplish it.

*As emergency responders to fires, medical emergencies,
and disasters—natural or man-made—the Indianola Fire Department
protects the lives and property of residents and visitors.*

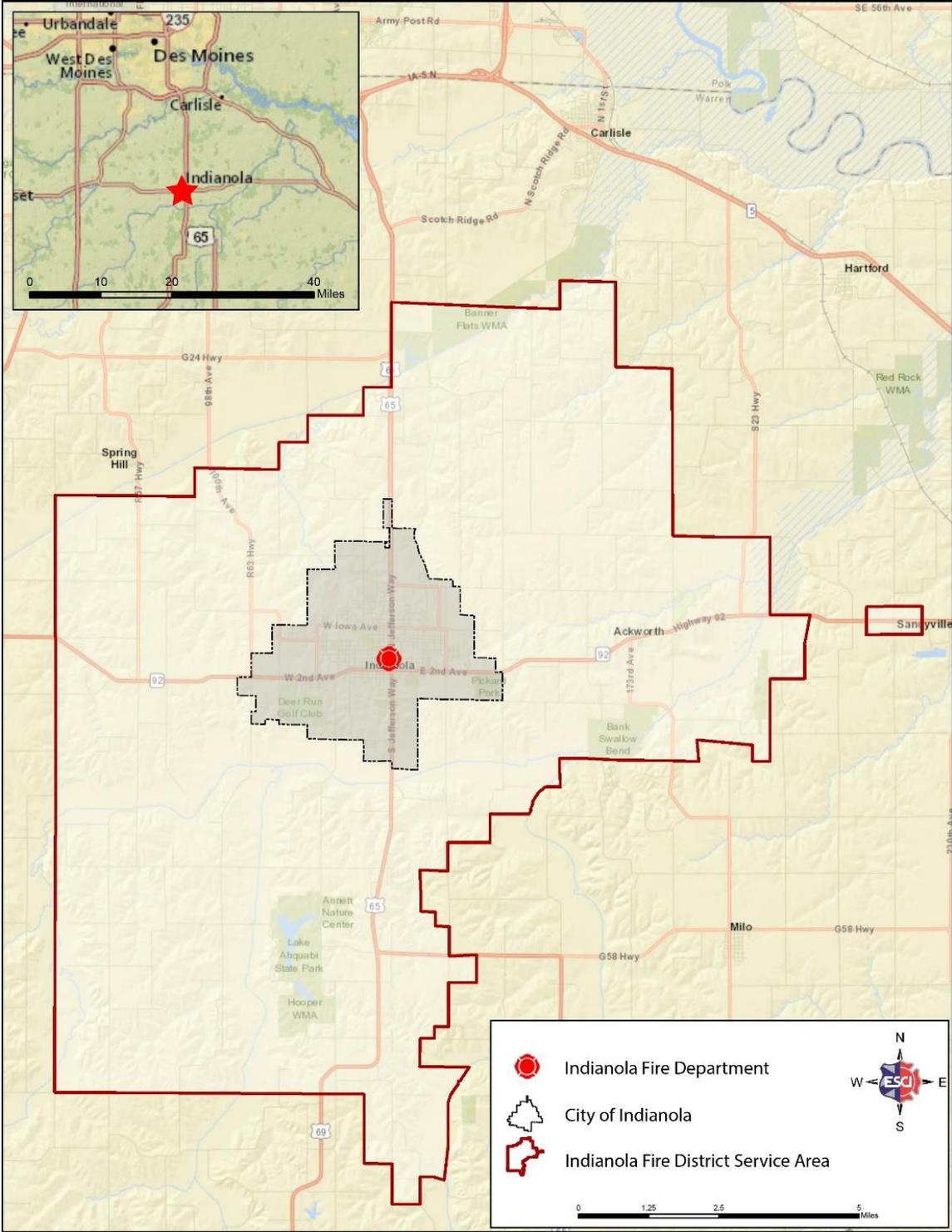
IFD operates from one headquarters fire station, a logistics warehouse building, and a shared training/storage facility. Headquarters houses the main administrative components of the department. Logistics, supplies, and storage for the department is housed in an older building.

Organizational Overview

The Organizational Overview component provides a summary of the agency's composition, discussing its configuration and the services that it provides. Data provided by administrative and management staff, as well as both internal and external stakeholders, was combined with information collected during ESCI's fieldwork to develop the following overview.

The Indianola Fire Department service area is depicted in the following figure.

Figure 1: Service Area



Governance

The very basis of any service provided by governmental or quasi-governmental agencies lies within the policies that give that agency the responsibility and authority upon which to act. In most governmental agencies, including IFD, those policies lie within the charters, ordinances, and other governing documents adopted by the agency.

IFD is governed by a Mayor-Council form of government. The Council consists of two members elected at large and one member for each of the four wards as established by the city ordinances in accordance with the Code of Iowa, Sec. 376.2. Each elected official's term will be for an overlapping four-year term. The Mayor will serve a four-year term as well. Members serve concurrent four-year terms and are elected by their ward. The Council holds its meetings the first and third Monday of each month. The minutes for these meetings are available on the city website. The council provides direction and guidance to the city manager who in turn coordinates the efforts of each department under his purview. IFD is one of those departments.

IFD is directed by a fire chief, who by agency definition is an at will employee who receives annual employee evaluations for performance review. The authority vested in the fire chief is outlined in Iowa Code 400 and 400.13. The policy and administrative roles can be found here as well. Rules and regulations are under review and there is a process for line staff to provide revisions throughout the ranks. These rules and regulations commonly referred to as Standard Operating Guidelines are under review and the newest copy has not been released to the field for employees to adhere to. This process should be completed and the revised version released. The fire chief has legal counsel available for consultation through the city attorney. The city governance is illustrated below.

Figure 2: Governance Model



Organizational Design

The structural design of an emergency services agency is vitally important to its ability to deliver service in an efficient and timely manner while providing the necessary level of safety and security to the members of the organization, whether career, paid-on-call (POC), or volunteer. During an emergency, an individual's ability to supervise multiple personnel is diminished thus industry standards recommend a span of control of four to six personnel under stressed situations. This is a recommendation carried forward from military history and has shown to be effective in emergency service situations.

In addition, employees tend to be more efficient when they know to whom they report and have a single point of contact for supervision and direction. A recent research project conducted by the Columbia University, Northwestern University, and University of Queensland, Australia, found that,

...when there are tasks that require teamwork, people get more done when there are leaders and followers. Without a clear chain of command, members often become sidetracked with grabbing power and lose track of the task at hand.⁷

The organization design of IFD mimics a paramilitary organization which is very common amongst first responder and emergency services agencies. This is a mostly career agency in addition to part-time and paid-on-call members. Job descriptions have been developed for all classifications and are maintained by human resources. It is important to set clearly defined job descriptions and then maintain a process to review and ensure they are current with operational practices. Job descriptions are discussed in detail in the Personnel Management section of the report. The chain of command is well identified in the policy manual and the hiring and firing authority rests with the fire chief, human resources director, and city manager. The organization was formed October 7, 2013, but has had a volunteer presence since 1885. There is no formal method to maintain a history and involvement of the department and is currently loosely done by the city firefighter association. It is a good idea to establish someone to maintain an organizational history accounting for the department's existence and success.

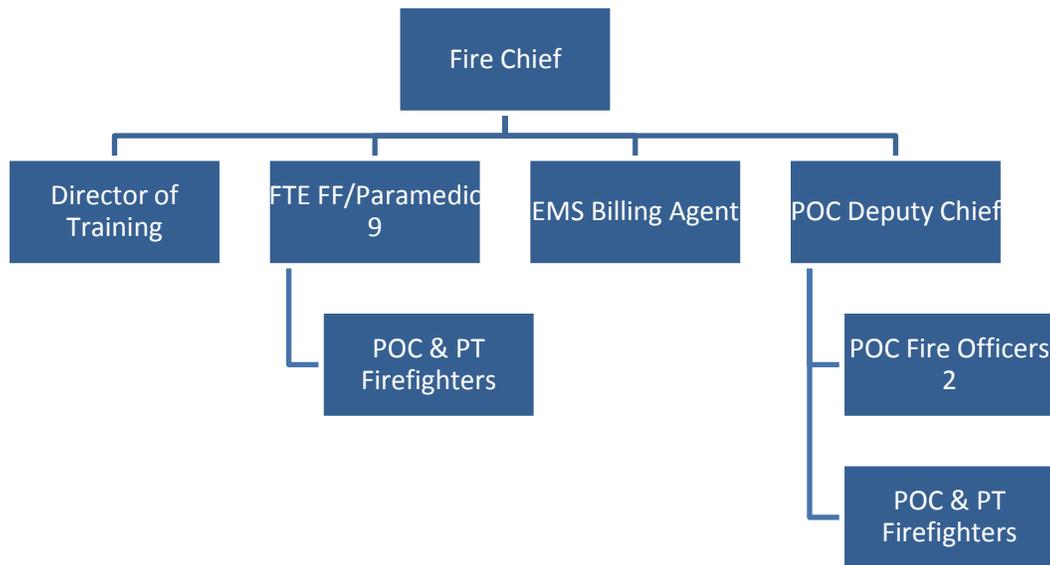
Organizational Structure

To operate effectively the structure of a fire department needs to be clearly defined in the form of an organizational chart. The chart institutionalizes the agency's hierarchy, identifies roles and, most importantly, reporting authority. It also helps to assure that communication flows appropriately, as well as limiting opportunities to circumvent the reporting structure.

IFD has a well-defined organizational chart that achieves this purpose and operates under a traditional top-down manner. Lines of authority are clear and depicted. The following figure illustrates the organizational chart for IFD.

⁷ "Why Hierarchies are Good for Productivity," Inc. September 2012, p 26.

Figure 3: IFD Organizational Chart



GOVERNANCE AND DECISION MAKING

From a governance and decision-making standpoint, the organization appears to have clear direction and ability to operate. Lines of authority and the ability to carry out decisions appears to flow appropriately. The administrative staff understands the process to accomplish their mission. The chain of command is well identified and clear on responsibilities. The span of control is currently appropriate but is approaching the need for increased officer to firefighter ratios. As staffing increases this span of control will most definitely need to be reduced.

PERSONNEL MANAGEMENT, SELECTION, AND DISCIPLINARY PRACTICES

Under the existing organizational configuration, personnel related decisions, are made at different levels. The fire chief has the ability to hire, terminate, and promote. Discipline can be issued at several levels of the organization based on the severity of the infraction. Personnel related decisions can, and often do, subject an organization to potentially extensive liability exposure. Risk is presented that can result from a hiring mistake, improperly processed disciplinary process, wrongful termination claim, and more. The access to legal counsel can reduce this liability. These subjects are discussed in detail later in this report under Personnel Management.

History, Formation, and General Description

Indianola Fire Department was founded in the spring of 1885. The city fathers saw the need to have a fire department for the citizens for the City of Indianola. In 1971, the fire department purchased an ambulance to help support the community with medical events and as a back-up to the private county ambulance service. IFD hired their first full-time fire chief in 1981, in addition to a full-time mechanic. The fire department changed from all volunteer to combination in 1998, with paid fire chief, service mechanic, and six full-time, 24/7 paramedic fire medics, two per 24-hour shift.

In 2010, the “volunteer” status changed to “paid-on-call,” meaning the volunteers are paid an hourly rate while on an emergency. IFD also began using part-time shifts during the week days from 8am to 5pm, in an effort to support the demands of the EMS system. In 2018, IFD is scheduled to add three more fire medics, one per shift, as a result of the SAFER grant. IFD currently is a combination fire rescue department that operates one fire house located in the city. The department offers advanced life support transport capabilities in addition to normal fire department operations.

Recommendations:

- Standard Operating Guidelines (SOGs) are under review and the newest copy has not been released to the field for employees to adhere to. This process should be completed and the revised version released.
- Establish a formal method to maintain an organizational history accounting for the department’s existence and success.

Service Area and Infrastructure

The size and composition of a fire department’s service area affects the type and number of personnel, fire stations, and vehicles that are needed to provide services efficiently. Sometimes complex decision need to be made regarding deployment strategies to properly position resources based on land area, geography, risk, and similar factors. The following is a summary of IFD service area and service infrastructure resources.

Figure 4: Service Area

Survey Component	Indianola Fire Department Observations
AGENCY DESCRIPTION	
Agency type (district, municipality, etc.)	City
Area in square miles	125
Headquarters location (physical address)	110 N. 1 st St., Indianola, Iowa 50125
Number of fire stations	1
Other facilities	2
Emergency vehicles (number, type)	
Engine	2 (331, 333 – 1,500 gpm)
Engine, reserve	1 (332 – 1,500 gpm)
Ladder truck	0 at time of survey
Ladder, reserve	0
EMS unit (ALS, BLS, 1 st Responder)	3 ALS units (245, 246, 247)
EMS unit, reserve	1
Command Vehicles	1 (330)

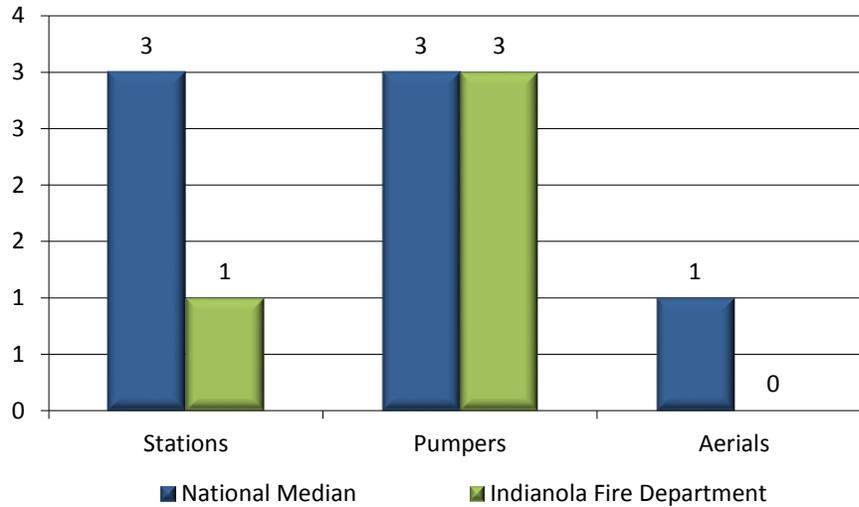
DISCUSSION

IFD has been able to deploy people and apparatus in one centrally located fire station, balancing the needs of providing effective coverage to what is a widely dispersed geographic area. Particular challenges are presented in the area with regard to response performance as a result of inclement weather and periods of high recreational traffic congestion on interstate thoroughfares. Placing, equipping, and staffing fire stations will be an ongoing challenge for IFD. The ability to assemble an effective force poses additional challenges to first responder agencies who rely on part-time and paid-on-call staff as an addition to their operational work force. With those factors in mind, a detailed assessment of current service delivery and effectiveness is provided in the Service Delivery and Performance section of this report. The department operates two pumpers. Advanced life support (ALS) transport is delivered through three ambulances.

Decisions on deployment define the response capability of the fire department. These decisions need to weigh multiple considerations including risk exposure, response times, access challenges, deployment, community expectations, personnel safety, and fire department capacity. Those decisions need to balance the financial considerations. These decisions are strategic and are in the purview of the elected officials and city manager, in consultation with the fire chief. Ultimately, these individuals are responsible to the public to provide the level of service that the citizens desire and for which they are willing to pay.

To understand how IFD compares to national medians, the following figure shows a comparison of fire stations, pumpers (engines), and aerial trucks is provided, mirrored against national median data:

Figure 5: Capital Asset Comparison



Relative to national comparators, IFD has two less fire stations, and the same number pumpers as similar sized organizations, based on population.⁸ At the time of the study, IFD did not have an aerial apparatus.

IFD’s continuing test will be that of making the most prudent staffing and facility placement decisions based on weighing multiple considerations including risk exposure, response times, access challenges, deployment, community expectations, and response capacity. Those decisions are difficult with financial constraints and service demand increases.

⁸ Benchmark data available through National Fire Protection Association (NFPA) is based on population and does not consider geographical size or population density of the particular area. Data for per capita comparisons does not delineate between volunteer or career agencies nor does it segregate EMS transport departments.

Financial Management and Analysis

Historical Revenue and Expense

Considerable financial information and background data was provided to ESCI by staff of the Indianola Fire and finance departments. This information was reviewed in detail along with the FY 2016 audited financial statements and the FY 2018 annual budget. The fire department operates as a component unit of the general city government. Its annual operations are funded within the city General Fund budget. Fire department revenue and expense are split between separate budgets; fire and ambulance services. For purposes of this study, these budgets are combined.

Major capital expenditures are funded within the city's Capital Improvement Plan budgets. The city uses a cash basis method to account for annual revenues and expenditures. While the department does have a significant, dedicated revenue stream, the bulk of its funding comes from city General Fund non-fire department specific revenues, such as property taxes. The city and its fire department operate on a July 1–June 30 fiscal year.

The Indianola Fire Department is a combination fire department staffed with both full- and part-time paid-on-call career personnel. These personnel provide traditional fire rescue and ambulance services from a strategically placed fire station. The station is located just west of I-65 and north of Iowa Highway 92. This location allows easy response times to all areas of the city.

The city manager and staff utilize financial guidelines originally adopted by the Indianola City Council on July 5, 2016. The guidelines were amended on September 18, 2017. The financial policies require the city manager to finish the fiscal year with at least 25 percent of the budgeted operating expenses in unrestricted reserves. Section 5 of the cash reserves and contingencies policy states, "Cash reserves should not be used to finance routine operating expenses, which exceed budget levels. Routine operating expenses shall be defined as reasonably anticipated, reoccurring annual expenditures. The following discussion of historical revenue and expense with respect to fire rescue and ambulance service in Indianola meets the financial guidelines set forth by City Council.

Prior to budget year FY 2017, Indianola had no formal Capital Improvement Project Fund. Beginning with budget year FY 2017, the city created a Capital Improvement Project Fund. The fund is known as the Capital Project and Vehicle & Equipment Reserve Fund (CPVERF). The City of Indianola's intent for these reserve funds is to fund equipment replacement without the need to borrow funds for vehicle and equipment acquisitions. The initial CPVERF schedule is for 5 years. Pursuant to council financial policy, the city is expected to maintain a minimum fund balance equivalent to 5 percent of the current year's budgeted expenditures by annually appropriating the necessary funds for the CPVERF. The purpose is to maintain proper funding and to absorb price volatility. The CPVERF funds capital projects that do not individually exceed \$500,000 in total project costs. These project costs do not require bond financing. The council, at its discretion, annually appropriates monies to this fund.

Revenue

The following figure shows all fire department-revenue sources so that policy-makers can assess the total impact of the fire department on the city tax base. Included are those revenue sources assigned to the department's Fire (015) and Ambulance (016) budgets for FY 2015 through FY 2016 actual, FY 2017 unaudited re-estimated, and FY 2018 as adopted. Revenues considered recurring are those generally expected to continue, on a year-to-year basis. Indianola's revenues include property taxes, ambulance fees, township fire service fees, charges for service, and miscellaneous reimbursements. Non-recurring revenues are one-time grants such as Department of Homeland Security (DHS) grants. The Staffing for Adequate Fire & Emergency Response (SAFER) Act grant is such a grant. Indianola is a recipient of a 3-year SAFER grant beginning in late FY 2018. Revenues below do not have the SAFER grant funds included in the revenue.

Figure 6: Fire Department Financial Resources, FY 2015–FY 2018

Financial Resources by Type	FY 2015 Actual	FY 2016 Actual	FY 2017 Re-Est.	FY 2018 Rec. Budget
Property Taxes	\$524,307	\$571,540	\$496,600	\$514,685
Other Income	\$93,441	\$115,617	\$88,800	\$120,727
Sub-Total Fire Resources	\$617,748	\$687,157	\$585,400	\$635,412
Property Taxes	\$275,618	\$253,763	\$447,500	\$472,875
Charges for Services	\$758,021	\$694,641	\$715,000	\$721,180
Other Income	\$46,031	\$44,677	\$56,600	\$49,669
Sub-Total Ambulance Resources	\$1,079,670	\$993,081	\$1,219,100	\$1,243,724
Total Fire and Ambulance Revenue	\$1,697,418	\$1,680,238	\$1,804,500	\$1,879,136

Property taxes allocated to the fire budget have decreased by 5.8 percent during the three-year period between FY 2015 and FY 2017. Property taxes allocated to the ambulance budget have grown by 62.4 percent. Charges for ambulance service has declined by 5.6 percent. Property taxes are increasingly bolstering ambulance services for Indianola. IFD's share of revenue is approximately 33 percent of the total fire and ambulance revenue for three of the four years. Fiscal year 2016 saw a sharp increase in fire revenue because of a greater percentage of property taxes allocated to the fire service. To maintain the status quo, general fund property taxes will subsidize more of the fire and ambulance budgets moving forward.

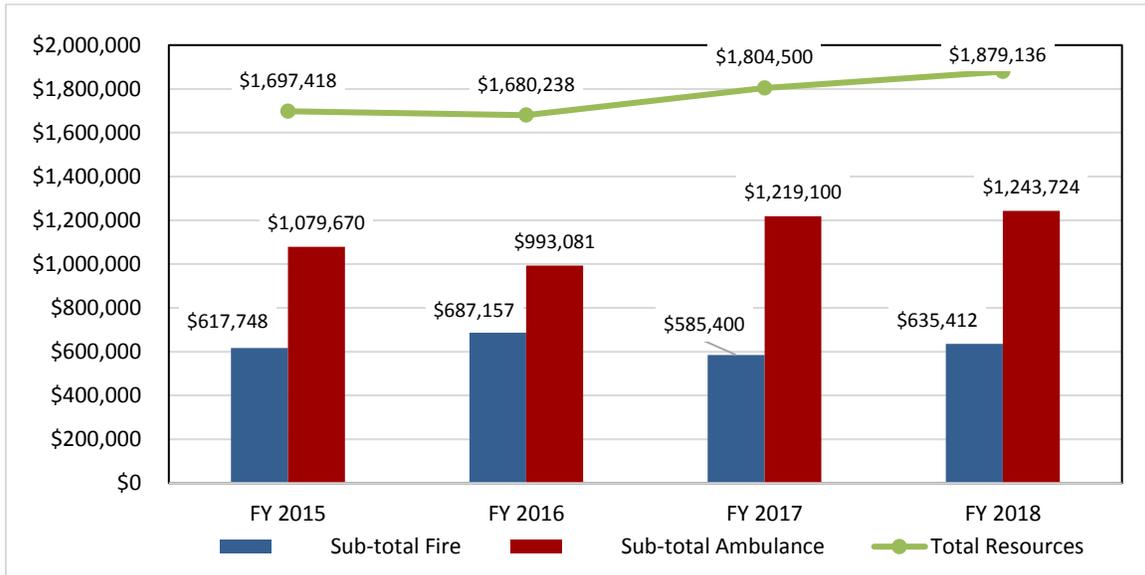
The other income includes services contracted with Indianola by surrounding communities. Approximately two-thirds of the annual contracts are allocated to the fire service. The fire service Other Income has fluctuated, increasing 23.73 percent in FY 2016, and then down 23.19 percent in FY 2017. Other Income comprises between 15 percent and 16 percent of the fire department's annual revenue.

In FY 2018, the budget includes proceeds from the sale of vehicles in the amount of \$13,000.

Indianola was awarded a three-year SAFER grant in the amount of \$420,001. The terms of the grant award require the city to contribute \$261,083 during the award period. The city's annual share of this grant is \$87,028. The city intends to use these funds to hire and train three additional full-time firefighters. The three firefighters began on February 20, 2018.

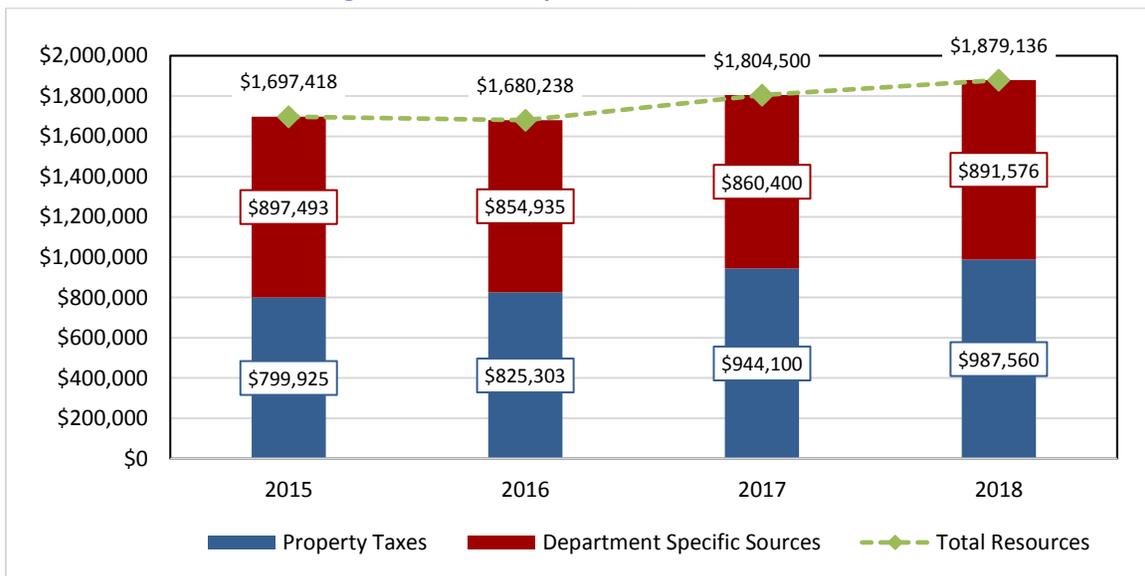
The following figure shows the trend of the fire and ambulance financial resources (as bars) for the period FY 2015–Budgeted FY 2018. Total department financial resources are shown by the line. Total resources increased were relatively flat in FY 2015–16, averaging \$1.69 million which increased to \$1.8 million in 2017, driven by an increase ambulance resources.

Figure 7: Revenues, FY 2015–FY 2018



The following figure depicts financial resources by source—general fund property taxes and department specific funds. The amount of general fund taxes allocated to the fire and ambulance department have increased each year. From FY 2015 to FY 2017, the amount of property taxes allocated has increased by just over \$144,175 or 18 percent in three years. The subsidy is expected to increase by another \$30,000 in the recommended FY 2018 budget.

Figure 8: Revenue by Source, FY 2015–FY 2017



Expense

The following figure shows all fire department expenditures so policy-makers can assess the total impact of fire department spending on the city tax base. Included are those expenditures from the fire (015) and ambulance service (016) budgets for FY 2015 through FY 2016 actual, FY 2017 re-estimated and FY 2018 as adopted. Expenditures considered recurring are those generally expected to continue, on a year-to-year basis, such as employee wages and benefits, annual departmental operating costs, minor capital items, and debt service costs.

Non-recurring expenditures are one-time costs such as replacement of department Self-Contained Breathing Apparatus (SCBA), vehicle replacement, and capital facility construction projects. The department's SCBA are mandated to be replaced during FY 2018. The department annually transfers funds for the purchase of replacement vehicles such as ambulances to the CPVERF. Ambulances and the associated equipment are tools of the department that need to be replaced on a schedule. The city's establishment of a CPVERF recognizes this reality.

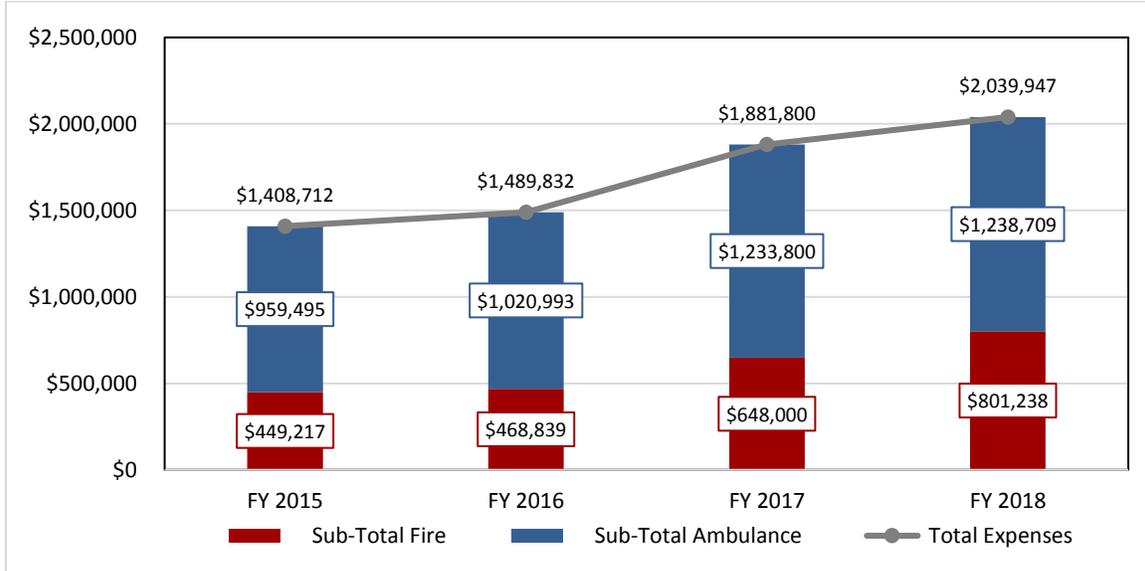
Showing the cost associated with capital projects is a budgeting best practice and provides a more accurate cost of running the department than budgeting these funds elsewhere. As a city department, the Indianola Fire Department is able to use the services of the city's human resources, Informational technology, accounting and other central services. These costs are included in other sections of the city's budget. A full cost allocation process would provide policy makers and others with the total, loaded cost of providing fire and EMS services.

Figure 9: Fire Department Expenditures, FY 2015–FY 2018

Expenditure by Type	FY 2015 Actual	FY 2016 Actual	FY 2017 Re-Est.	FY 2018 Rec. Budget
Salaries	\$194,230	\$198,070	\$204,000	\$174,382
Benefits	\$106,296	\$112,119	\$135,000	\$123,302
O&M Supplies	\$69,273	\$94,687	\$99,800	\$78,091
Other Services/Charges	\$62,333	\$51,305	\$83,200	\$123,561
Capital – I/F ER Replacement	\$17,085	\$12,658	\$126,000	\$294,449
Transfers out	\$0	\$0	\$0	\$7,453
Sub-Total Fire	\$449,217	\$468,839	\$648,000	\$801,238
Salaries	\$561,381	\$611,333	\$741,600	\$682,020
Benefits	\$221,915	\$237,641	\$268,500	\$271,946
O&M Supplies	\$73,356	\$58,883	\$113,700	\$79,621
Other Services/Charges	\$21,158	\$28,604	\$61,700	\$45,458
Capital – I/F ER Replacement	\$16,185	\$19,032	\$14,000	\$117,428
Transfers out	\$65,500	\$65,500	\$34,300	\$42,236
Sub-Total Ambulance	\$959,495	\$1,020,993	\$1,233,800	\$1,238,709
Total Expenses	\$1,408,712	\$1,489,832	\$1,881,800	\$2,039,947

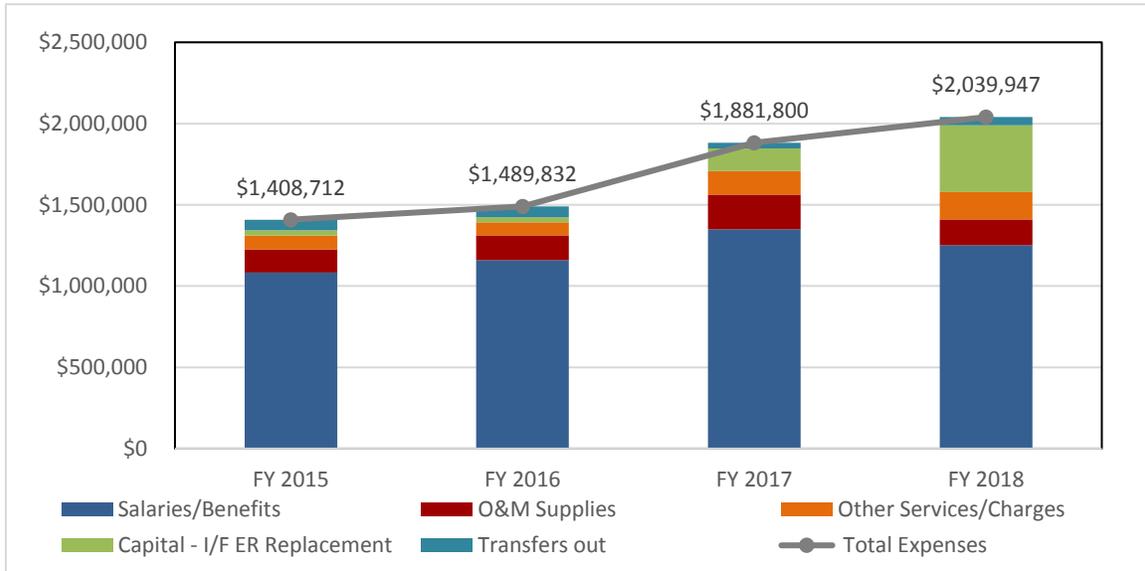
Total expense has increased from \$1,408,712 in FY 2015, to an unaudited \$1,881,800 in FY 2017, as shown graphically in the next figure. This represents an increase of \$473,008 in three years or 33.8 percent, which is an average annual increase of 11.2 percent.

Figure 10: Fire Versus Ambulance Expenditures, FY 2015–FY 2018



One driver of this annual increase has been the increase in personnel costs as shown in the following figure of total department expenses by major category. Personnel costs are examined in more detail below.

Figure 6: Fire Department Expenditures, FY 2015–FY 2018



O&M Supplies – Fire has fluctuated between \$69,273 and a high of \$99,800. Over the three-year period the O&M Supplies expense has increased by 44.1 percent. The increase between FY 2015 and FY 2016 was 36.7 percent, while the FY 2017 increased an additional 5.4 percent. O&M Supplies – Ambulance has fluctuated between a low of \$73,356 and a high of \$113,700. Over the three-year period the O&M Supplies has increased an average of 11.8 percent.

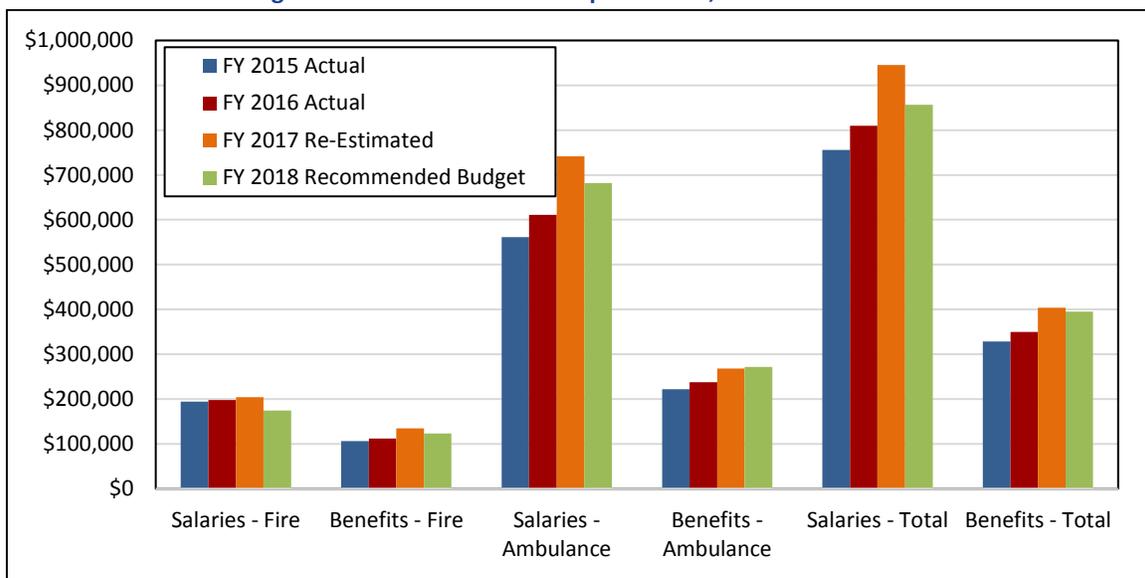
Other Services/Charges – Fire fluctuated over the three years from a low of \$51,305 to a high of \$83,200 for FY 2017. The three-year average for this category is \$65,613. Other Services/Charges – Ambulance also has grown since FY 2015, but not to the extent observed in the Fire budget.

Indianola includes its capital expenditures in its department budgets. Capital-I/F ER Replacement Fire’s budget has increased significantly in the current fiscal year. The \$294,449 includes the purchase of replacement SCBAs. The Capital-I/F ER Replacement – Ambulance includes the purchase of an ambulance and other capital equipment. As previously mentioned, the city transfers the funds from the fire and ambulance budget to the CPVERF fund for the purchase of the SCBAs and ambulance as well as any other capital projects each year.

Since the major driver for increased fire department expenditures is an increase in personnel costs, it is instructive to review historical personal services expenditures in greater detail to more accurately forecast various service level options.

The following figure shows graphically how total personnel costs, comprised of salaries or wages (for full- and part-time on-call personnel), overtime, and benefits have increased from FY 2013 actual through unaudited FY 2017, and budgeted FY 2018.

Figure 11: Personal Services Expenditures, FY 2015–FY 2018



Total wages have increased from \$755,611 in FY 2015, to \$945,600 in FY 2017, an increase of \$189,989 or 25.1 percent over three years. This represents an average annual increase of approximately 8.4 percent. The adopted budget for FY 2018 does not include the addition of three additional firefighters funded from the SAFER Grant.

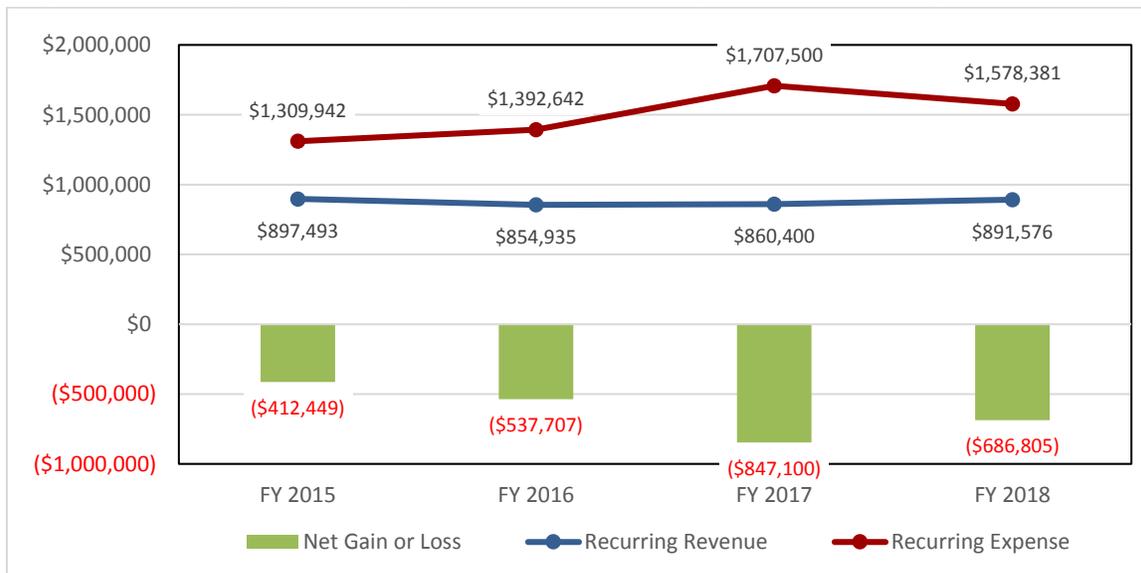
Benefits have increased from \$328,211 in FY 2015, to \$403,500 in FY 2017, an increase of \$75,289 or 22.9 percent in three years. This represents an average annual increase of approximately 7.6 percent. Benefits as a percentage of total compensation have remained basically level from 30.3 percent in FY 2015, to 29.9 percent in unaudited FY 2017.

Net Gain/(Loss)

The following figure shows the relationship between fire and ambulance specific recurring revenue and recurring expense in the General Fund Fire and Ambulance budgets for FY 2015, through unaudited FY 2017 and FY 2018. Recurring expense does not include the transfer to Capital I/F ER Replacement or transfers out of the fire and ambulance budgets. However, there should be some level of annual capital replacement that would be considered a recurring expense. Since recurring expenses (shown in red) exceed department-specific recurring revenues (shown in blue) each year, there is an operating deficit which must be offset with unrestricted GF tax and/or other revenues to fund those fire and ambulance expenses not funded by fire and ambulance specific revenues.

Operating losses, or GF subsidy, increase from FY 2015 through FY 2017. The revised 2017 budget and the adopted budget both show significantly higher losses than preceding fiscal years. These losses are in part attributable to the increased spending for personnel costs, O&M supplies, and other services and charges in FY 2017. The loss in the adopted FY 2018 budget is a result of the purchase of an ambulance and the SCBAs.

Figure 12: Recurring Department-Specific Revenue vs Total Expense and GF Subsidy, FY 2015–FY 2018



Management Components

Effective fire department management is a common challenge for fire service leaders. Today’s fire department must address management complexities that include an effective organizational structure, adequacy of response, maintenance of competencies, a qualified work force, and financial sustainability for the future.

To be effective, the management of a fire department needs to be based on several components. The initial elements have been accomplished by institutionalizing the organization’s mission, vision, and values. The department currently has a master plan and subsequent strategic plan that was completed in 2017, and is reviewed annually. This process needs to ensure that essential foundational elements such as policy and operational documents, development of internal and external communication practices, recordkeeping, and sustainable financial practices are implemented and maintained.

In the following report section, ESCI examines IFD’s current efforts to manage the organization, and identifies measures and best practices we are recommending for the future.

Foundational Management Elements

The development of baseline management components in an organization enables it to move forward in an organized and effective manner. In the absence of foundational management elements, the organization will tend to operate in a random and generally ineffective manner. The following figure reviews IFD’s baseline management components.

Figure 13: Foundational Management Elements

Survey Component	Indianola Fire Department Observations
STRATEGIC PLANNING	
Mission statement adopted?	Yes
Displayed? (Where?)	Department Website
Vision established & communicated?	Yes
Values of staff established?	No
Strategic or master plan?	Yes
Adopted by elected officials?	Yes
Published and available?	2017
Periodic review?	Annual
Agency goals & objectives established?	Yes
Date developed?	Part of the master work plan
Periodic review?	Quarterly
Code of ethics/conduct established?	City Code of Ethics
PLANNING	
Does FD have a capital facilities plan?	Currently under review
Plan period?	Next 5 years
Periodic review?	Bi-annually
Specific projects identified? (list)	Under review to demolish/rebuild or purchase/new build
Funding identified or set aside?	Not at this time

Survey Component	Indianola Fire Department Observations
Apparatus/equipment replacement plan	
Plan period?	7 years
Periodic review?	Quarterly
Specific projects identified? (list)	2018 – 333 & Ambulance; 2018 – SCBA & Masks; 2019 – SCBA Fill Station; 2020 – Ambulance & Ladder Truck; 2021 – E332; 2022 – Ambulance & Portable Radios replaced; 2023 – E331 & Tender 335; 2025 – Command Vehicle
Funding identified or set aside?	Yes

DISCUSSION

A strategic plan serves to align effort and informs all members of the following:

- The purpose of the organization (*mission*).
- Where the organization is going (*vision*).
- How the members will treat each other and their customers (*values or guiding principles*).
- How the organization will achieve the desired future state (*goals and objectives*).
- Each person’s role in accomplishing that future state (*work assignments*).
- The *timelines* and *priorities* for each component of the effort.

The strategic plan services as an implementation tool of the findings and recommendations of the master plan. An accurate analogy is that the *master plan* creates the “target,” and the *strategic plan* serves as a living document and “arrow” that is driven toward the target with annual updates and adjustments.

The mission statement tells what the department does and to a certain extent how that will be done. IFD has created a mission statement which says:

*As emergency responders to fires, medical emergencies, and disasters
natural or man-made, the Indianola Fire Department protects
the lives and property of residents and visitors.*

The mission statement is the anchor that keeps a department from drifting and it tells why the department exists. The mission is stated broadly. This allows the agency to change as methods and technologies improve but is still targeted for lives, property, and environment. It allows for the reduction of risk through prevention activities as well as emergency mitigation.

This mission statement tells both internal personnel and citizens what IFD does and desires to accomplish. The mission statement should be published and displayed at administration. The mission statement is published on the web page. It should be posted in the fire station for all employees to see. It can be printed on the reverse of IFD employee’s business cards as well.

IFD has a vision statement. IFD has not established a values statement. Both the mission statement and a vision statement are helpful to point the organization in a common direction and specify what the expectations are for all personnel. IFD should include the addition of a values statement when posting the mission statement throughout the department.

The vision statement articulates what the ultimate desire for IFD to be. It reflects the potentially lofty ambition for the department to achieve but probably not in the near future. The values statement enumerates those values that are held in common by nearly all, if not all, of the members. This is best created by group represented by a cross section of the department. It is what should oversee discipline within the organization. When a member violates the values that person can be held accountable for their actions. This can be the framework of a code of conduct.

Planning Elements

IFD utilizes a Capital Improvement Plan (CIP) that is reviewed and updated bi-annually. The plan spans seven years and currently runs from 2018 to 2024. The plan has identified specific projects including the demolishing or rebuilding of a current building or either purchasing or building a new one. The department also has an apparatus replacement plan in place. The plan period is seven years and is reviewed quarterly. The department uses a lifespan of 18 years for a front-line engine, 20 years for a ladder, and 6 years for an ambulance. This plan is reviewed annually. This is funded through available annual budgets.

Management Documents and Processes

Similarly, an organization should establish appropriate documentation, policies, procedures, and identification of internal and external issues that affect the agency. Processes must also be established to address the flow of information and communication within IFD as well as with its constituents. IFD by necessity and its mission must function in a paramilitary manner. Consistent service delivery is dependent on standardized rules, regulations, and policies that guide appropriate behavior and accountability. Personnel should be expected to read and know these, but more effective is to incorporate the SOGs and Policies and Procedures into periodic training. This will assure that everyone understands and the entire department functions in a uniform way. Without understanding and demonstrated knowledge of standardized policies, the department will operate in three different ways depending on the understanding and desire of each shift or worse, every company officer decides how to operate. When there are different ways of operating it becomes a safety issue. These guiding documents are vital for success and meeting the expectations of the citizens served by IFD. ESCI recommends the continuation of training on both SOGs and Policies and Procedures be maintained and documented.

CRITICAL ISSUES

There is a formalized process to identify critical issues within IFD. This is accomplished during their master planning or strategic planning session. IFD administration has identified staffing, training, and facilities are all critical issues faced by the department. ESCI recommends that the current process continue to periodically identify critical issues. The periodic review and update of a master plan or strategic plan by the planning team of these documents may provide a good forum for this to take place. In addition to identifying problems, there must be proposed solutions, implemented and monitored results so that the critical issues are resolved. The process of identifying and finding solutions should be a participative process between IFD administration and the employees. This results in solutions that everyone can support.

INTERNAL AND EXTERNAL COMMUNICATIONS

There are multiple channels for internal communications within IFD. IFD staff meetings are held regularly. The staff meeting minutes should be recorded for reference by employees. This is one of the best ways to ensure that proper information exchange is achieved and disseminated throughout the organization. If there is department business that is being delayed until the next meeting, or decisions are being made without vetting by the entire management staff, then ESCI recommends additional meetings be added.

In addition to frequent staff meetings, to enhance communication and information distribution to the organization, “all hands” meetings should be held at least quarterly. This can be a vital component of ensuring the IFD work force is well informed and engaged. A quarterly all hands meeting can be a forum to update the organization on IFD’s vision and the status and need for participation in accomplishing the recommendations, goals, and objectives of the master and strategic plans. It is also a good opportunity for members to ask questions directly to the administrative staff and engage on the important issues facing the department. One of the meetings should be taped and made available for viewing by members who could not attend any of the meetings.

In the same way, external communications are best handled by multiple avenues. The citizens of Indianola will gravitate to the type of media that they like and are most comfortable with. Typically, this stratifies along age groups but is not necessarily the same in all communities. IFD currently uses a community newsletter type forum quarterly in the City Magazine. There is a department website as well as the use of a citizen advisory committee. With the addition of some form of social media presence, the IFD external communications package will be representative of a well-balanced and effective approach to communicating with the citizens if these are utilized often. Facebook is a great place to share human interest stories that demonstrate what IFD does. It allows for the community to comment as well. It is also an excellent tool to field questions from the community.

Record Keeping and Documentation

In any organization, documentation of activities is of paramount concern. The documentation and security processes are well established and there only a couple of comments regarding this area. All of the required reports are maintained. Inventory of capital assets on a regular basis is occurring annually and with initial purchase. IFD produces an annual report that benchmarks compliance with established and adopted performance standards and outcomes. These standards should be locally determined or if not determined locally, in reference to nationally accepted standards. NFPA 1720 specifically requires the fire department to provide the AHJ (authority having jurisdiction) with a written report quadrennial. It states the contents of the periodic evaluations in section 4.4.2.2:

The evaluation shall be based on data relating to level of service, deployment, and the achievement of each response time objective in each demand zone within the jurisdiction of the fire department.

The specific time objectives required by the standard are: alarm handling time, turnout time, and travel times measured to the specified percentage.⁹ In this case, IFD benefits by preparing this type of report to measure their ability to meet service demands.

Recommendations:

- IFD should include the addition of a values statement when posting the mission statement throughout the department.
- The continuation of training on both SOGs and Policies and Procedures should be maintained and documented.
- Develop and distribute social media involvement.

⁹ NFPA 1720 Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Departments. 2016 Edition. Article 4.4.2 Annual Evaluation

Personnel Management

Although the delivery of emergency services to the citizens and visitors of a community is critical, the facts are that effective management and organization of an emergency services agency is just as critical to its success. The personnel that deliver those services are the backbone of the system. However, without proper administrative and support personnel to handle supervision, command, and control, operational personnel may not be able to perform satisfactorily.

It is commonly understood that an organization's greatest asset is its people. While the purchase of capital equipment can appear to be expensive when viewed as a one-time expense, the reality is personnel expenses typically account for more than 70 percent of an organization's expenses. It is important that special attention be given to managing human resources in a manner that achieves maximum productivity while ensuring a high level of job satisfaction for the individual. Consistent management practices combined with a safe working environment, equitable treatment, opportunity for input, and recognition of the work force's commitment and sacrifice are key components impacting job satisfaction.

In this section, ESCI will review and analyze the policies, procedures, job descriptions, and other personnel management related activities of IFD.

Policies, Rules & Regulations, and Guidelines

IFD finished the process of reviewing their Policy Manual which includes procedures and standard operating guidelines (SOGs). SOGs should be ordered in a way that they can be easily referenced for review. Further, it is recommended that there be a guideline that directs the process of periodic review and changes. A good way to assure this review is to have a committee of IFD members review one-third of the guidelines each year recommending changes. There should also be a process to trigger changes of a guideline that has been modified due to a new method or a technology change. During the site visit, staff advised that the newest revisions of the manual were currently under review and had not been released yet.

Job Descriptions

IFD employs several different job descriptions that are not unlike other agencies of similar size and organization. The department currently employs the positions of firefighter/EMT, firefighter/Paramedic, lieutenant, captain, battalion chief, deputy fire chief, and fire chief. Staff advised that the job descriptions were reviewed in October 2017, to ensure they were up-to-date and reflected the current roles and responsibilities expected of the employee. Job descriptions should receive periodic review and revision.

Compensation

Aside from regular compensation, IFD pays additional compensation for those employees who have met the requirements for Advance Life Support (ALS) incentive pay. This incentive pay is intended to provide enhanced compensation benefits for those who provide ALS services. Employees who are certified paramedics are awarded \$5,000 and those who are intermediate certified are awarded \$3,000.

Disciplinary Process

Under the existing organizational configuration, personnel related decisions are made at different levels. The fire chief has the ability to hire, terminate, and promote. Discipline can be issued at several levels of the organization based on the severity of the infraction. The policy is outlined in the Indianola City Personnel Handbook. Personnel related decisions can, and often do, subject an organization to potentially extensive liability exposure. Risk is presented that can result from a hiring mistake, improperly processed disciplinary process, wrongful termination claims, and more. The access to legal counsel can reduce this liability. The employees are afforded an appeal process through the established appeal process outlined in the handbook.

Counseling Services

Our nation's firefighters are faced with emotional needs that are very different and unique to their occupation. The percentage of firefighters struggling with career-related stress is very high with suicide rates climbing each year. These issues manifest themselves through higher divorce rates and addictions such as alcohol, drugs, or gambling. Frequently seen in recent studies and another major concern is Post Traumatic Stress Disorder (PTSD). As these symptoms occur, employees need a support system in place that is readily accessible from someone who is qualified and truly understands his/her circumstances.

Several programs can provide assistance. Critical Incident Stress Management, Employee Assistance Programs, and Intervention Programs, to name a few. IFD should strive to develop a structured Critical Incident Stress Debriefing program for its members. This program should be communicated to make each member aware of the availability of resources. Currently IFD offers an Employee Assistance Program and pastoral services.

Application, Recruitment, and Retention Process

IFD periodically advertises on their website, throughout the community, and sends notifications to localities and affiliations to advertise openings within the department. The application process requires the normal background, reference, and qualifications checks. There is a physical standard established for new recruits and an interview is conducted after successful knowledge testing is completed.

Performance Reviews, Testing, Measurement, and Promotion Process

IFD provides annual performance reviews annually for full-time employees that includes a comprehensive analysis of employee performance goals and objectives. The department uses periodic physical competence testing and provides periodic performance reviews of knowledge, skills, and abilities. Promotional testing is done on an as needed basis to fill open positions.

Health and Safety

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program* is the industry standard for development and administration of a fire department safety program. At the time of this report, IFD has a safety committee in place. The establishment and empowerment of a safety committee can be one of the best tools to increase the safety of firefighters. ESCI strongly encourages the department to ensure all activities of the safety committee are in alignment with Chapter 4 of NFPA 1500. To be effective, safety committees must be diverse in their representation from across the department, ensuring representation by shift, rank, function, and interest, and including representation from non-uniformed and staff members as well. IFD should ensure and evaluate the diversity of representation within the safety committee.

The committee, once established, should meet monthly and include in its mission raising awareness and modifying member behaviors that will result in a safe work environment. Additionally, the committee should review all accidents, injuries, near-miss incidents, and workplace safety suggestions. The committee should analyze the information before them and report the findings to the fire chief. As opposed to being reactionary through the development of additional rules, it is recommended that the committee should work to implement member safety education programs and encourage members' safety self-awareness. The committee should maintain regular and open meeting times and locations; minutes of the meetings should be recorded and posted for all members of the department to review. A diverse representation of command staff and labor representatives should constitute the committee, as is appropriate, and minutes are taken at the meetings. ESCI underscores the importance of maintaining a functioning safety committee.

Recommendations:

- Establish a guideline that directs the process of periodic review and changes of department SOGs and review one-third of the guidelines each year recommending changes.
- IFD should strive to develop a structured Critical Incident Stress Debriefing program for its members. This program should be communicated to make each member aware of the availability of resources.
- ESCI strongly encourages the department to ensure all activities of the safety committee are in alignment with Chapter 4 of NFPA 1500.

Staffing

An organization's greatest asset is its people. It is important that special attention be paid to managing human resources in a manner that achieves maximum productivity while ensuring a high level of job satisfaction for the individual. Consistent management practices combined with a safe working environment, equitable treatment, opportunity for input and recognition of the work force's commitment, and sacrifice are key components impacting job satisfaction.

The size and structure of an organization's staffing is dependent upon the specific needs of the organization. These needs must directly correlate to the needs of the community and a structure that works for one entity may not necessarily work for another agency. This section provides an overview of the IFD' staffing configuration and management practices.

Fire department staffing can be divided into two distinctly different groups. The first group is what the citizens typically recognize and is commonly known as the operations unit, which can be generally classified as the emergency response personnel. The second group typically works behind the scenes to provide the support needed by the operation's personnel to deliver effective emergency response and is commonly known as the administrative section. IFD is unique in that even though there are distinct administrative staff designations, they are still required to perform operationally if the need arises during a normal day.

Career and Paid-On-Call Personnel

IFD has a career emergency response (operations) staff providing 24-hour coverage. These individuals operate on a three (3) platoon system with Fair Labor Standards Act (FLSA) average workweek of 56 hours. The department has established its FLSA pay cycle at 21 days. The remaining career staff are assigned to 40-hour workweek. These work cycles are common among fire departments across the United States.

In addition to providing fire suppression services, IFD provides emergency medical response, fire investigation, fire prevention, life safety education, community risk reduction, and hazardous materials response. The department also utilizes paid-on-call personnel to augment the limited number of career personnel. These individuals provide for additional staffing levels during peak activity levels through the workweek. The usage of paid-on-call staffing allows for the department to provide service during periods when other employees are unavailable for response due to their personal career responsibilities.

Responsibilities and Activity Levels of Personnel

The leadership of IFD has established work responsibilities beyond the emergency response requirements for officer level personnel. These additional duties include vehicle maintenance and fleet management, respiratory protection compliance, and training, as examples. Other personnel have been given the opportunity to take on additional duties within the department based upon a desire to learn and grow. Beyond ensuring the department achieves compliance with performance and industry standards, these additional duties serve to prepare individuals for future promotional and advancement opportunities within the department.

Administrative and Support Staffing

One of the primary responsibilities of response team’s administration is to ensure that the operational segment of the organization has the ability and means to respond to and mitigate emergencies in a safe and efficient manner. An effective administration and support services system is critical to the success of a response agency.

Like any other part of a municipal fire department or rural agency, administration and support need appropriate resources to function properly. By analyzing the administrative and support positions within an organization we can create a common understanding of the relative resources committed to this function compared to industry best practices and similar organizations. The appropriate balance of administration and support compared to operational resources and service levels is critical to the success of the department in accomplishing its mission and responsibilities.

Typical responsibilities of the administration and support staff include planning, organizing, directing, coordinating, and evaluating the various programs within the department. This list of functions is not exhaustive, and other functions may be added. It is also important to understand these functions do not occur in a linear fashion and can more often occur concurrently. This requires the fire chief and administrative support staff to focus on many different areas at the same time.

The following figure reviews the administration and support organizational structure of IFD.

Figure 14: IFD Administrative and Support Staffing

Position Title	Number of Positions	Hours Worked per Week	Work Schedule
Paid, Full-time Administrative or Support	Individuals considered as full-time employees and who provide services mainly intended to manage, plan, or support the activities the agency and its programs.		
Fire Chief	1	40	M–F
Deputy Fire Chief	1	POC	N/A
Admin Captain	1	40	M–F

DISCUSSION

One of the primary responsibilities of a fire department’s administration is to ensure that the operational section of the organization has the ability and means to respond to and mitigate emergencies in a safe and efficient manner. An effective administration and support services system is critical to the success of any emergency services provider.

Like any other part of a municipal fire department, administration and support need appropriate resources to function properly. By analyzing the administrative and support positions within an organization we can create a common understanding of the relative resources committed to this function compared to industry best practices and similar organizations. The appropriate balance of administration and support compared to operational resources and service levels is a key factor to ensuring the department can accomplish its mission.

Typical responsibilities of the administration and support staff include planning, organizing, directing, coordinating, and evaluating the various programs within the department. This list of functions is not exhaustive and other functions may be added. It is also important to understand these functions do not occur in a linear fashion and can most often occur concurrently. This requires the fire chief and administrative support staff to focus on many different areas at the same time.

ESCI notes that currently the level of administrative and support staffing represents roughly 8 percent of the IFD total career and part-time staffing. It is our experience that typically effective administrative staffing totals for a fire department operation range from 12 to 15 percent of agency totals. After reviewing the functions and responsibilities assigned to the work group, ESCI concludes that the number of FTEs (full-time equivalents) assigned is below what is needed to appropriately accomplish the responsibilities of this division. As mentioned above these administrative positions are also tasked with operational duties in some situations. The incorrect staffing of the administrative and support functions creates a situation in which important organizational activities, at best, are delayed; but, in worst case scenarios, get completely missed. When administrative members are engaged in operational duties their administrative duties are placed on hold during the emergency.

ADMINISTRATION

The administrative function within the department is currently established with the position of fire chief, POC deputy chief, and administrative captain. IFD utilized some POC administrative positions to assist with administrative roles for the department. However, these roles are not available all of the time. Some of the typical responsibilities of the fire chief include planning, organizing, directing, and budgeting for all aspects of the department's operations. The current number of positions assigned to this activity is insufficient to meet these expectations. The daily operational needs can detract from the ability to focus on administrative needs.

FIRE PREVENTION

The fire prevention bureau for IFD does not have dedicated staff. NFPA 1730: *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* provides criteria for establishing and operating an effective fire prevention program. With no one person assigned to the function the prevention roles of the department are limited. The efforts of fire prevention are detailed in later sections of the report. Public education programs are in place and are delivered upon request by operational staff assigned extra duties of public education.

TRAINING

The National Fire Protection Association (NFPA) has provided criteria through which volunteer and combination fire departments should operate its training program. IFD has established the use of training captain to serve as the training coordinator for the department. The training captain is responsible to serve as the single point of responsibility for conducting all needs assessments relative to training, as well as program design, coordination, and evaluation. The value in this arrangement is that the training of all personnel is delivered in a consistent manner. This utilization of a single training officer is common among

departments across the United States. IFD will need to develop and implement accountability mechanisms to ensure necessary training is accomplished.

While the design and staffing of a fire department is dependent upon the specific needs of the community, the reality is that a majority of the needed training is common among all fire departments. In addition to maximizing resources through sharing training resources and opportunities, fire departments that train together tend to work better together during mutual aid incidents. This also lends itself to making the firefighters more well-rounded, as they are exposed to other lines of thinking. Finally, a regionalized, collaborative approach to training delivery, in addition to the benefits noted, can substantially reduce costs and increase efficiency of educational efforts. IFD conducts a variety of training activities with mutual aid partners. It is recommended that IFD further develop training efforts with its regional partners.

EMERGENCY MANAGEMENT

Emergency Management for IFD is accomplished in conjunction with Warren County Emergency Management. Warren County currently provides for overall management and delivery of emergency management activities. The fire chief position is responsible for emergency management activities of the department as part of “other duties” assigned. This is a typical arrangement within fire departments across the United States as the emergency management function does not specifically fall under the “fire discipline” and quite often involves other aspects of a community’s risk exposure (i.e., public works, law enforcement, economic exposure). The ESCI team interviewed Warren County’s Emergency Management Director as part to the site visit to determine the current performance of IFD in support of emergency management activities. The current emergency manager indicated a high level of confidence and satisfaction with IFD and its leadership team relative to the support and delivery of emergency management activities.

ADMINISTRATIVE SUPPORT

IFD currently operates with very little administrative support. Each of the positions assigned to administration harness some level support function for the department as well as transition to operational roles when duties arise and the system is strained. Furthermore, several operational positions are assigned administrative roles to assist with support functions. The value of administrative support cannot be overstated as these staff members free up administrative staff to concentrate on other areas of operation.

Emergency Response Staffing

It takes an adequate and properly 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.

Tasks that must be performed at a fire can be broken down into two key components—life safety and fire flow. Life safety tasks are based on the number of building occupants, and their location, status, and ability to take self-preservation action. Life safety related tasks involve search, rescue, and evacuation of victims.

The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

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

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

The first 15 minutes are the most crucial period in the suppression of a fire. The timing of this 15-minute period does not start when the firefighters arrive at the scene, but begins when the fire initially starts. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations. Critical tasks must be conducted in a timely manner in order to control a fire or to treat a patient. IFD is responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner.

Considerable ongoing local, regional, and national discussion and debate draws a strong focus and attention to the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. NFPA 1710, *Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* specifies the number of firefighters assigned to a particular response apparatus, often characterized as a “minimum of four personnel per engine company.” ESCI notes that the more critical issue is the number of firefighters that are assembled at the scene of an incident in conjunction with the scope and magnitude of the job tasks expected of them, regardless of the type or number of vehicles upon which they arrive. Setting the staffing levels is a determination that is made at the community level based on risk, capability, and citizen expectations. There is not mandated requirement that fits all situations, although NFPA 1720, *Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* has objectives to meet regarding the number required for some typical scenarios. Additionally, there is a process for IFD to conduct its own critical staffing analysis later in this report.

Some terms are used nearly interchangeably, such as the assembly of firefighters on an incident, may be called the “Initial Full Alarm Assignment,” also called an “Effective Firefighting Force” (EFF) or “Effective Response Force” (ERF). ESCI will attempt to describe the NFPA 1720 levels for this effective response.

Figure 15: NFPA 1720 Deployment Model

Demand Zones	Demographics	Min. Staff to Respond	Response Time (minutes)	Performance Objective (%)
Urban	More than 1,000 people per sq. mi.	15	9	90
Suburban	500 to 1,000 people per sq. mi.	10	10	80
Rural	Less than 500 people per sq. mi.	6	14	80
Remote	Travel distance 8 miles or more	4	Dependent upon travel distance	90
Special Risk	AHJ determined	Based on risk	AHJ determined	90

When a fire escalates beyond what can be handled by the initial assignment, or the fire has unusual characteristics such as a wind-driven fire, or has been accelerated with a highly flammable compound, additional personnel will be needed. There are also types of scenarios that may not be fires, but mass casualty incidents, explosions, tornadoes, etc., that may need additional staffing. It is difficult or impossible to staff for these worse case incidents. These require a strong mutual aid or automatic aid plan for assistance.

The following figure depicts the emergency staffing employed by IFD.

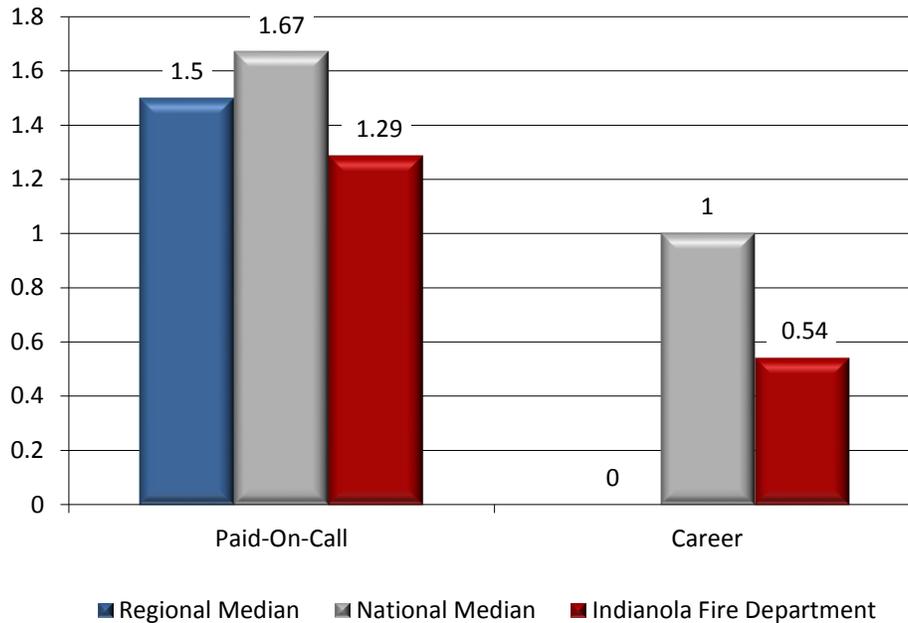
Figure 16: IFD Emergency Response Staffing

Position Title	Number of Positions	Hours Worked per Week	Work Schedule
Paid Full-time Operational			
Firefighter/EMT-P	6	56	21 Day Cycle
Firefighter/EMT-P	17	Part-time	N/A
Firefighter/EMT-P	18	POC	N/A
Lieutenant	1	POC	N/A
Captain	3	POC	N/A

DISCUSSION

A means of comparison, also used on a national basis, is that of measuring the number of firefighters on staff per 1,000 population of the service area. The following figure illustrates the current comparison of IFD staffing with both national and regional norms.

Figure 17: Firefighters per 1,000 Population Prior to SAFER Grant¹⁰



The 2016 National Fire Experience Survey indicates the median rate of paid-on-call firefighters per 1,000 population is 1.67, and regionally, the number of volunteer firefighters per 1,000 population is 1.5. Within the City of Indianola, the rate of paid-on-call firefighters per 1,000 citizens is 1.29. When comparing career firefighters, the national medial is 1 firefighter per 1,000 population and the City of Indianola rate of career firefighters per 1,000 population prior to the addition of the SAFER grant award was .54. With the addition of SAFER grant staff it has risen to .74. This comparison in and of itself does not indicate a necessary change in staffing, but it does serve as a point of reference for analysis of current operational endeavors. IFD shift operations are accomplished using a three-platoon system working 24 hours per shift rotations that yields a 56-hour work week. Daily operational control is achieved by the fire chief and administrative captain who also serve operational roles if needed. Each shift is staffed by three firefighter/paramedics or firefighter/EMTs. These individuals are responsible for all aspects of the shift operations and serves as the fire chief’s representative at significant incidents. Daily staff is augmented with two part-time employees that are on duty from 0800 hours until 1700 hours. IFD operates with five paid-on-call officers assigned to the station not necessarily on each shift. IFD does not have promoted apparatus operators who serve as the individual responsible for all aspects of maintaining and operating fire engines. This position is filled on an as needed basis depending on availability of daily staffing. Total daily staffing is limited to seven (7) career/part-time employees including the fire chief and administrative captain during the 0800 to 1700-hour time frame. After 1700 hours, staffing is reduced to three career staff. The Occupational Health and Safety Administration has established guidelines and regulations in OSHA CFR 29 1910.134(g)(4)(i) that requires two firefighters outside the hazard area while two firefighters are inside the hazard area. After day staff leaves, the IFD cannot meet this OSHA requirement without paid-on-call (POC) staff. With the

¹⁰ US Fire Department Profile – 2016, National Fire Protection Association, Fire Analysis and Research, Quincy, MA.

exception of paid-on-call responders, IFD does not have company officers. As IFD increases staffing, the need for company officers will become necessary.

Similar to a volunteer fire department, IFD’s paid-on-call structure utilizes department personnel who are not currently working a shift to respond when “paged” from their places of residence or work. Unlike a volunteer fire department, the paid-on-call employees become paid personnel when they respond, and remain paid during the time they are committed to the incident. Once the call is complete, these individuals return to their place of residence or work, and are no longer paid.

This system has worked well for IFD, but has not been without its challenges. Over time, the department has been required to add the necessity of covering a 24-hour shift utilizing paid-on-call personnel to address an increasing difficulty of ensuring an effective response during specific time periods. As with volunteer fire departments, the life demands (i.e., careers, family functions) of paid-on-call staff have negatively impacted their abilities to consistently respond in support of the department needs.

IFD has an authorized paid-on-call staff level of 27 employees, but at the time of ESCI’s site visit IFD had an operational force of 18 paid-on-call employees. The previous figure provides a graphical representation of the staffing levels of paid-on-call employees (“volunteer”) compared to national and regional levels per 1,000 population. This same figure provides an understanding of full-time equivalent (i.e., career) utilized by IFD to provide 24-hour coverage. The “career” analysis contained in this figure includes the time periods in which IFD uses its paid-on-call personnel to cover specific work periods.

One of the challenges facing IFD is the ability to recruit and retain individuals willing to commit to being a paid-on-call firefighter. While IFD has been working diligently to recruit and train individuals to bring staffing levels to a maximum level, the efforts have been unsuccessful in achieving maximum authorized operational staffing levels.

IFD Standard Operating Guidelines directs the following 1st alarm assignment for structure fires.

Figure 18: IFD Initial 1st Alarm

Initial Full Alarm Assignment – 2,000 ft² Residential Structure Fire	
1 Fire Chief	1
1 POC Deputy Chief or Captain/Administrative Captain	1
2 Engine Companies	5
POC Responders	0
Total	7

The on-duty staffing does not meet the need for a routine house fire and will not be sufficient for a strip shopping mall or an apartment building unless there is fire protection built-in to these structures. This is a type of fire that is likely within the jurisdiction and represents a higher level of risk than the typical medium-size residential dwelling. Because IFD staffs most response units with a minimum of two (2) firefighters, an initial full alarm force for this level of hazard would commit the entire on-duty staffing to one fire. Furthermore, due to the geographical size of the jurisdiction, it is not reasonable to expect or

plan on this as a means of providing coverage for such an event and still provide required services to the jurisdiction as a whole.

STAFF ALLOCATION TO VARIOUS FUNCTIONS

IFD allocates its staff to one (1) fire station based on the specific geographic requirements and service level needs of the area. The station is staffed with three (3) personnel for 24 hours and is augmented by two (2) part-time employees as well. The staff for this station is responsible for receiving the call for service and then responding the appropriate apparatus. For example, a fire call for service would require the fire engine, whereas the emergency medical call for service would require the ambulance. The station is equipped with a tanker and brush truck apparatus. If required to respond these apparatus, staff are required to move from their current apparatus assignment and relocate to the required or requested apparatus. The fire chief and administrative captain are located at the station to provide necessary command and control coverage during incidents and manage the administrative duties for the shift. This allocation of staff across the stations and units is a typical staffing model across the United States for career organizations. The minimum staffing available in the county is seven (7) during the day and three (3) 24/7.

STAFF SCHEDULING METHODOLOGY

IFD utilizes a traditional three (3) platoon system operating on a 24-hour shift rotation per position to achieve this minimum staffing of three (3). The total number of positions required per jurisdiction becomes a policy decision established based on the needs of the jurisdiction. The jurisdiction also then establishes the number of employees needed above the minimum to allow for vacancies due to vacation, sick, and other types of leave yielding an overall number of full time employees required to ensure necessary staffing according to policy is available daily. This staffing methodology is very common across the United States for firefighters to work a 24-hour period, and is proven to be effective for agencies with moderate workloads. Large agencies with heavy workloads have implemented different staffing models to avoid employee fatigue. Staffing for a 24-hour period reduces the number of crew changes that occur in a given period of time.

All personnel are trained as firefighters with most trained at a minimum of emergency medical technician (EMT) level. Most firefighters have been trained to the paramedic level. The department provides advanced life support (ALS) services.

DEPLOYMENT METHODS AND STAFFING PERFORMANCE FOR INCIDENTS

The current staffing of the emergency response division is seven (7) individuals per shift starting at 0700 hrs. It is important to note that this staffing level is only realized when all personnel are on duty. On duty numbers are regularly impacted by traditional vacation and sick leave. The number seven (7) includes the fire chief and administrative captain. Fully staffed this equates to a force barely capable of meeting the response needs of the community. Fire departments across the United States typically establish a “minimum staffing” level. This number reflects the minimum number of personnel a department will have on duty before beginning to hire overtime. IFD has established a minimum number of five (5) personnel as its minimum staffing level during the day and three (3) at night. IFD’s current staffing levels limit the

ability of the department to consistently and effectively respond with an appropriate number of personnel to mitigate large-scale incidents. The times when a station is unable to respond to calls within its assigned area is an issue of response reliability and is covered in greater detail later in this report.

RESPONSIBILITIES AND ACTIVITY LEVELS OF PERSONNEL

In every fire department, there exist a number of activities that must be accomplished that are outside of the “regular” duties of responding to emergency incidents. These typically involve general maintenance of self-contained breathing apparatus (SCBA), hose testing, air monitor calibration, EMS quality assurance, and various committees. IFD relies upon individuals who have a particular interest in these additional areas to accomplish the tasks. In addition to the benefit of completing these tasks, the additional responsibilities serve to further develop knowledge, skills, and abilities of participating individuals. These individuals learn project management, time management, and budgeting skills that prepare them for future promotional opportunities.

Staffing for Adequate Fire and Emergency Response (SAFER) Grant

IFD submitted for the SAFER grant in 2016 and was recently awarded this much needed additional funding for hiring employees. The original analysis was conducted prior to the award and implementation of the SAFER grant. Staffing sections of the study have been reevaluated to include the recent additions of staff as a result of the SAFER grant. IFD has begun the implementation of these new positions and should use those positions to supplement the recommendations of this staffing study at a minimum.

Recommendations:

- Administrative staff is tasked with operational roles which can detract from the focus and ability to ensure administrative tasks are completed or at a minimum delay them. IFD should provide more administrative support or increase operational command and control.
- The addition of company officers will be needed as staffing is increased.
- Current 2.0 staffing is inadequate to achieve NFPA 1720 standards. IFD should increase staffing to 2.0 for fire apparatus and 2.0 staffing for EMS apparatus eventually to 24/7 coverage. Refer to Future Staffing and Resource Deployment section of the report for more detail.
- Continue to evaluate recruitment and retention program and implement of industry “best practices” as identified.

Training Programs

Providing safe and effective fire and emergency services requires a well-trained workforce. Training and education of personnel are critical functions for any fire department. Without quality, comprehensive training programs, emergency outcomes are compromised and emergency personnel are at risk.

One of the most important jobs in any department is the thorough training of personnel. The personnel have the right to demand good training and the department has the obligation to provide it.¹¹

Initial training of newly hired firefighters is essential, requiring a structured recruit training and testing process. Beyond introductory training, personnel need to be actively engaged on a regular basis and tested regularly to ensure skills and knowledge are maintained. To accomplish this task, agencies must either have a sufficient number of instructors within their own organization or be able to tap those resources elsewhere. Training sessions should be formal and follow a prescribed lesson plan that meets specific objectives. In addition, a safety officer should be dedicated to all training sessions that involve manipulative exercises.

In the following pages, ESCI reviews IFD training practices, compares them to national standards and best practices, and recommends modifications, where appropriate.

General Training Competencies

For training to be fully effective, it should be based on established standards. There are a variety of sources for training standards. IFD uses the National Fire Protection Association (NFPA), International Fire Service Training Association (IFSTA), and Iowa State established Job Performance Requirements (JPRs) as the basis for its fire suppression training practices; and national Emergency Medical Services standards as the baseline for medical training coursework.

IFD employs the use of the Incident Command System and requires all employees to be trained in the National Incident Management System (NIMS). The department uses the Passport® accountability system for tracking members during emergency operations. The department is currently waiting for the approval of department wide policies and procedures. This should be completed as soon as possible. When operating in hazardous areas and situations the department employs the two-in/two-out rules outlined in NFPA standards.

Training competencies have been developed for special rescue situations, hazardous materials incidents, wildland/crop fires, and vehicle extrication. Employees are provided defensive driving training as well as training for small tools and care of power equipment. Radio and communications training follows the NIMS. Monthly training is provided to each shift in regard to EMS skills and protocol updates.

¹¹ Klinoff, Robert. *Introduction to Fire Protection*, New York, NY: Delmar Publishers, 1997.

Training Administration & Budget

To function effectively, a training program needs to be managed. Administrative program support is important, though often weakly addressed. An additional element of effective administration is the development of program guidance in the form of training planning, goals, and defined objectives. The department's training activities are directed by a captain. This is an administrative position that has operational duties in addition to training requirements. There is no clerical support for daily training needs. There is no line budget for training and an annual report is not produced. An annual training report allows the department to communicate the trainings completed and identify gaps when evaluating department needs. IFD administration and management actively supports training for all personnel. Administrative personnel look for classes that will help make the department grow and become more prepared.

Training Methodology

To be able to deliver effective training to fire and EMS personnel, some resources are necessary to arm the trainer with the tools needed to provide adequate educational content. In addition to tools, effective methodologies must be employed if delivery it to be sufficient to meet needs.

Manipulative skills are used to train employees in various topics of pumping, apparatus operations, ladders, structural firefighting tactics, extrication, and fire ground skills to name a few. Task proficiency is reviewed for department performance and establishing training goals for the future. Currently the department training captain tracks training hours for employees.

Many of the training programs are "canned programs" for implementation through the fire academy. The department does have some programs that have been developed by staff in house. Weekly night drills and several multi agency training events have been conducted with local mutual aid surrounding departments.

It is recommended IFD continue to refine its regularly scheduled training programs by implementing training drills developed using NFPA 1410: *Standard on Training for Emergency Scene Operations*. This standard can serve as the basis for delivering drills that objectively measure the performance of personnel responding to emergency incidents.

A significant component to ensuring the safety of firefighters includes conducting an effective post-incident analysis (PIA) of fire department operations. An effective PIA provides the opportunity for firefighters and officers to learn from their personal actions and experiences. In addition to improving firefighter performance, the PIA has the added value of improving firefighter safety. IFD provides for a PIA to be conducted following each major incident, but consideration should be given as to conducting them after smaller scale incidents.

Pre-fire planning and walk-throughs are used to present tactical discussions and training for companies. These walk-throughs are used to identify concerns and tactical priorities for dealing with hazards encountered. Annual disaster drills are conducted through the Emergency Operations Center.

Training Facilities and Resources

The ability to train in a realistic environment is critical to developing and maintaining skills. Many of the skills necessary to be truly effective must be taught and practiced in a controlled environment allowing for skill development and yet ensures firefighters are as safe as possible. Additionally, ISO requires the regular usage of dedicated training locations to gain maximum credit for Public Protection Classification scoring.

Currently, IFD must rely upon space at the fire station and other publicly available locations. The usage of these spaces is limited based upon availability at the time of need. The usage of non-fire department locations (i.e., business parking lots) can have a negative impact by interfering with the operations of the respective businesses. The usage of available public spaces does not allow for consistency in conducting training evolutions as the availability may change on a daily or hourly basis.

The department does not have dedicated training facilities and relies on movable props from the Iowa Fire Service Training Bureau. The school parking lot is used in the summer as well as the city dump and acquired structures when available. The department does have classroom facilities with computer and video aids available.

To effectively train in a more efficient and effective manner without negatively impacting the ability to respond to incidents within the IFD jurisdiction, it is recommended that the department evaluate the effectiveness of establishing a training facility within the center of the response jurisdiction. This evaluation should include an analysis of a strategic location to reduce travel time to and from stations and maximize the ability to quickly respond to incidents occurring within the jurisdiction.

Training Operation & Performance

The department operates with a mind on safety during operations. Safety is incorporated into all operations. Post incident analysis discussions are used to identify and highlight those aspects that can either be improved or reproduced. These discussions are geared at system and individual performance improvement as well as compare against best practices.

Recordkeeping

The department's individual training records are maintained by the administrative captain. Currently, certifications are maintained in electronic format through Emergency Reporting software. The department does not have a method for documenting daily training records. Annual training is also difficult to maintain without daily records. Many fire departments across the United States do an exceptional job of training personnel to entry-level requirements, but many fall-short in the delivery of on-going training of employees. In addition to ensuring personnel have the quality knowledge, skills, and abilities necessary to deliver effective and efficient emergency services, training programs have an added effect of improving employee morale.

Personnel Trained

IFD has made a strong commitment to training in all regards and is commended for the evident dedication assuring that department personnel are trained to operate safely on the emergency scene. The department's needs for training are an ever-difficult balance to achieve while providing emergency services with limited staff. All of IFD's efforts provide multiple avenues to ensure responders are adequately trained and prepared to handle emergencies of any kind. In its endeavors the department trained 48 people last year for a total of 676 hours; 536 hours of fire-related training and 110 hours of EMS-related training. The department also completed 30 hours of hazardous materials training. These hours while large in consideration do not meet the required hours for ISO and efforts should be made to implement systems to ensure the required training is accomplished and documented.

Recommendations:

- IFD will need to develop and implement accountability mechanisms to ensure necessary training is accomplished.
- It is recommended that IFD further develop training efforts with its regional partners.
- Establish and implement a method for tracking employee daily training hours.
- Establish/Develop a suitable place to conduct training evolutions that incorporate all of the necessary and required training knowledge, skills, and abilities.
- Develop and publish an annual training report.
- Implement pre-fire planning into training schedules of emergency response personnel to maximize ISO fire protection classification grading.
- Develop and implement a formal "training manual" to be used by IFD and its mutual aid partners to ensure consistency in emergency operations across all agencies.
- Continue to refine training schedule by incorporating NFPA 1410 drills into weekly trainings.
- Establish a dedicated training facility within the IFD jurisdiction.

Fire Prevention and Public Education Programs

In today’s fire service, the competition amongst resource allocation makes establishing priorities very difficult. Often the mission of fire prevention and public education programs becomes a combined effort between the department and their municipality. Outreach and education combined with identifying and emphasizing Community Risk Reduction (CRR) should become part of the everyday mission of the fire department.

Life Safety Services (Fire Prevention)

It is widely acknowledged that it is far more effective to prevent fires and other emergencies than it is to respond to them. The financial impact of a fire or injury goes far beyond the cost of extinguishment or treatment. The long-term impacts realized by an individual building owner through the loss of revenue is significant. However, additional fiscal impacts are felt by the community through the loss of employee salaries and associated spending. It is also not uncommon for businesses to never re-open following a fire, and the community the further suffers through the loss of tax revenue.

The fiscal impacts of injuries, while not as immediately observable, can be equally devastating. Individuals experiencing an injury lose the ability to earn an income during the recovery time and businesses lose productivity of that individual until they return to work. Beyond the fiscal impacts associated with lost work time, injured persons and families often experience significant emotional trauma.

A strong fire prevention and life safety program, based on effective application of relevant codes and ordinances, reduces loss of property, life, and the personal disruption that accompanies a catastrophic fire and accidents.

The fundamental components of an effective fire prevention program are listed in the following figure, accompanied by the elements needed to address each component:

Figure 19: Fire Prevention Components

Fire Prevention Program Components	Elements Needed to Address Program Components
Fire Code Enforcement	<ul style="list-style-type: none"> Proposed construction and plans review New construction inspections Existing structure/occupancy inspections Internal protection systems design review Storage and handling of hazardous materials
Public Fire and Life Safety Education	<ul style="list-style-type: none"> Public education Specialized education Juvenile fire setter intervention Prevention information dissemination
Fire Cause Investigation	<ul style="list-style-type: none"> Fire cause and origin determination Fire death investigation Arson investigation and prosecution

DISCUSSION

IFD assigns fire prevention as additional duties assigned in support of the previously-mentioned fire prevention program components and the associated elements for each. The fire chief serves as the fire marshal. This fact demonstrates that IFD has a healthy appreciation of fire prevention within the community it serves. The fire chief clearly understands the significance of having a quality program that is valid and credible if the department is truly going to serve its constituents. In the discussion, the program components listed in the chart above are compared to specific initiatives currently underway in the City of Indianola:

Code Enforcement Activities

IFD has adopted the International Fire Code 2012 version for code enforcement as well as adopted these codes as local ordinances and amendments. There is a current sprinkler ordinance in place. These rules and regulations are used to provide guidance and support for code enforcement activities.

New Construction Inspection and Involvement

Permitting and plans review activities are provided by the City of Indianola. IFD provides plans review for all new construction within the city relative to fire codes. Being actively involved in new construction inspection ensures the department does not experience negative operational impacts when construction occurs without consideration of the needs of emergency responders. IFD is active in the inspection of construction and proposed construction. IFD is consulted in the proposal of new construction as well as occupancy changes. IFD preforms life-safety plans review and proposed tenant improvements when necessary. There is currently no charge for inspections or reviews. IFD currently does not perform existing occupancy inspections, however does perform special risk inspections. There is also a Knox Box® entry program in place for access to occupancies after hours.

General Inspection Program

IFD does not employ a self-inspection program. Inspections are only performed on businesses with alcohol permit required renewals. These inspections are completed by the on-duty crews. These inspections are performed annually. Emergency Reporting® is the software program used for administration and record keeping. The prevention division does have the ability to issue citations through city ordinance.

Fire Safety & Public Education

The prevention of fires and other emergency incidents is one of the most critical functions of any community's service to its citizens and visitors. This activity cannot be accomplished in a haphazard approach of simply "talking to people" in the course of doing business. Delivering fire and life safety messages must be accomplished through an intentional process resulting from a strategic fire protection campaign. A comprehensive fire and life safety education program involves teaching the public methods and techniques used to minimize the occurrence of fire and other accidents. The reality is that it is more cost effective to prevent a fire or emergency than it is to respond to a fire or emergency. A well-educated and trained public becomes a force multiplier in maintaining a safe community. The following section reviews the fire and life safety activities of IFD.

A review of the current IFD fire and life safety education program identifies a significant number of associated activities. These include outreach to schools, businesses, and community groups, as well as the general community through the use of the safety house prop.

When compared to many other fire departments, the IFD fire and life safety education program is very active. IFD is encouraged to continue to deliver the current programs supporting its fire and life safety efforts. It is recommended that IFD further develop and implement tracking mechanisms to more effectively communicate the activities associated with its strategic fire prevention effort.

Currently Firefighter Soukup is responsible for public education initiatives in addition to his normal duties of emergency response. This combination of job tasks can have negative impacts as other members of the department “step in” to complete the necessary tasks. Further impacting this position is the reality that hiring individuals with experience and training in conducting fire prevention programs is difficult.

Public education job tasks are typically based around responsibility for establishing the community's overall life safety education program and facilitating the activities leading to the implementation of the plan. Examples of these activities include school-based fire prevention programs (i.e., Learn Not to Burn® (LNTB), Stop Drop and Roll). Additional activities often include fire safety programs include senior homes, fire safety in the workplace, as well as child safety seat installation programs. To effectively deliver fire and life safety prevention programs, the individuals must be properly trained.

IFD public education duties are additional tasks above emergency response. As such those are the driving factors when training and education are concerned for filling the position. However, it was noted that most training is accomplished through on-the-job training. Within the State of Iowa, there does not exist a current established certification for the position of Fire and Life Safety Educator, however this does not preclude IFD from training individuals to a nationally recognized standard. It is recommended that IFD establish an internal training program to ensure this position is trained to the Job Performance Requirements of NFPA 1035: *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications*. It is also recommended that IFD revise the existing public education job description/duties to include Job Performance Requirements identified within NFPA 1035 with clear timeframes in which the training will be completed.

Fire Cause Determination

Accurately determining the cause of a fire is an essential element of a fire prevention program. When fires are set intentionally, identification and/or prosecution of the responsible offender is critical in preventing additional fires and potential loss of life. Further, if the cause of fires is accidental, it is also of great importance because knowing and understanding *how* accidental fires start is the most effective way to identify appropriate fire prevention and public education measures to prevent a reoccurrence.

In the event of a fire, the IFD fire chief will perform an investigation or delegate the task to fire officers and full-time staff. The Iowa State Fire Marshal may also be called. No regular training is provided in accordance with NFPA 1033: *Standard for Professional Qualifications for Fire Investigator*. IFD relies on the police department to provide support when dealing with juvenile fire starters and handling investigations. At the time of this report, IFD does not have an established juvenile fire-setter program. It is recommended IFD develop and implement a prevention and intervention program focused at youth who are believed to be at risk for becoming involved with fire.

Statistical Collection and Analysis

IFD maintains computerized records for analysis and recollection. The information gathered details fire cause and location, time of day, time of week, method of alarm, as well as dispatch and response times. This information is analyzed and used for future planning. Reports of this information are produced in the annual report.

Recommendations:

- IFD should further develop and implement tracking mechanisms to more effectively communicate the activities associated with its strategic fire prevention effort.
- It is recommended that IFD establish an internal training program to ensure this position is trained to the Job Performance Requirements of NFPA 1035: *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications*.
- It is also recommended that IFD revise the existing public education job description to include Job Performance Requirements identified within NFPA 1035 with clear timeframes in which the training will be completed.
- Provide training in accordance with NFPA 1033: *Standard for Professional Qualifications for Fire Investigator*.
- Implement a prevention and intervention program focused at youth who are believed to be at risk for becoming involved with fire.
- Complete and implement a formal risk reduction plan that is updated annually.

Capital Assets and Assessment of Current Infrastructure

Regardless of an emergency service agency’s financing, if appropriate capital equipment is not available for the use by responders, it is impossible for a fire department to deliver services effectively. Two primary capital assets that are essential to the provision of emergency response are facilities and apparatus (response vehicles).

IFD maintains a balance of three basic resources that are needed to carry out its emergency mission: people, equipment, and facilities. Because firefighting and hazardous materials response is an extremely physical pursuit, the adequacy of personnel resources is a primary concern; but no matter how competent or numerous the firefighters are, the department will fail to execute its mission if it lacks sufficient response apparatus distributed in an efficient manner.

The IFD maintains one response station, one logistics warehouse, one training/storage facility, and millions of dollars-worth of capital assets. These assets are necessary to provide service and must be maintained and replaced as needed.

Figure 20: IFD Capital Assets and Capital Improvement Planning

Survey Component	Indianola Fire Department
FIRE STATIONS/STRUCTURES	
Capital Improvement Plan maintained?	Yes
Period of plan (from-to)	7 years (2018–2014)
Funding mechanism identified?	Approved annual budget
APPARATUS	
Apparatus Replacement Plan maintained?	Yes
Period of plan (from-to)	Aerial 20 year, Engine 18 years, Tender 20 year, Attacks 12 years, Ambulance 6 years
Funding mechanism identified?	Yes; current and future budget
SUPPORT EQUIPMENT	
Equipment Replacement Plan maintained?	Yes
Period of plan (from-to)	Trailers 10 years, UTV 10 years
Funding mechanism identified?	Yes, budget and grants
Purchase interval planned for by type?	Yes

DISCUSSION

Fire stations and other department fixed facilities represent very high costs for replacement and maintenance, underscoring the importance of planning for these costs. Funding for major fixed facility replacement may be obtained by financing the expense, or it may be achieved by the use of impact fees.

Funding for the replacement schedule is allocated to meet the forecast costs. Funding is derived from a combination of proper tax revenue and the department’s operating budget. Facilities and apparatus will be discussed further in detail on the following pages.

Facilities

Appropriately designed and maintained facilities are critical to a department's ability to provide services in a timely manner and with appropriate deployment of assets. ESCI observed and reviewed the fire station operated by IFD.

The fire station and storage buildings found in the study area vary broadly from some that are relatively new and in good condition to others that are aging and will soon be due for replacement. The three buildings observed are nearing or have already reached their maximum capacity in terms of room for future expansion as workload and service demand increases. The station and other two buildings range in age from 7 to 60-plus years. As a result, IFD has significant facility replacement costs that will need to be addressed in the near future. In long range master planning, it is important to consider future service demand growth and how the agency's fixed facilities are configured for future expansion, when needed.

The main station utilized for career crews were former volunteer fire station and acquired over time and out of necessity. As such it was not truly designed to house full-time firefighters and EMS personnel. This is evident in the current configurations of most of the fire stations which have very little room for crews and apparatus. Many of the buildings do not meet ADA requirements and are not in compliance with recommendations from the National Fire Protection Associations Standard for life safety initiatives. Some examples are vehicle exhaust exposure, a lack of smoke detection and sprinkler systems, portable fire extinguishers, and emergency exit and lighting. Another concern is the ability to properly decontaminate employees and their equipment in accordance with NFPA 1581, *Standard on Fire Department Infection Control Program*. Current configurations do not provide adequately for the decontamination of equipment and clothing separate from cooking, eating, and living quarters.

It is recommended that each station have a thorough evaluation for structural integrity and regulation compliance. After the service delivery and performance recommendations are reviewed, then consideration can be given to the need for newly constructed fire stations that are capable of appropriately housing the necessary staff and that meet applicable standards, as well as provide the appropriate response coverage for the service area. ESCI's evaluation is not to be considered an inspection but rather a general overview and initial impression. Further inspection and analysis is warranted.

The findings are summarized in the following pages and any areas of concern observed are identified.

Figure 21: IFD Main Station

Fire Station Name/Number:	Main Station
Address/Physical Location:	110 N. 1st Street
	
Survey Component	
Observations	
Structure	
Construction Type	Type2
Date of Construction	Original 1960s; 2 additions 70s and 80s
Seismic Protection	No
Auxiliary Power	Yes, full
Condition	Good
Special Considerations (American with Disabilities Act of 1990 [ADA], dual gender appropriate, storage, etc.)	Poor storage poor gender specific areas need of two other buildings for storage mixed use with other city departments
Square Footage	Unknown
Facilities Available	
Exercise/Workout	Small room
Kitchen/Dormitory	Kitchen OK
Lockers/Showers	Good
Training/Meeting Rooms	Good
Washer/Dryer	Good
Safety & Security	
Sprinkler & smoke detection	Partial
Security	Limited
Apparatus exhaust system	Magna grip, 4-5 years old

Figure 22: IFD Storage Building 1

Fire Station Name/Number:	Storage Building #1
Address/Physical Location:	210 N. 1st
	
Survey Component	Observations
Structure	
Construction Type	Type 5
Date of Construction	
Seismic Protection	No
Auxiliary Power	No
Condition	poor
Special Considerations (American with Disabilities Act of 1990 [ADA], dual gender appropriate, storage, etc.)	No public access Sores apparatus in reserve and specialty equipment
Square Footage	2000
Facilities Available	
Exercise/Workout	N/A
Kitchen/Dormitory	N/A
Lockers/Showers	N/A
Training/Meeting Rooms	N/A
Washer/Dryer	N/A
Safety & Security	
Sprinkler & smoke detection	No
Security	Rudimentary
Apparatus exhaust system	No

Figure 23: IFD Storage Building #2 – “Arby’s Building”

Fire Station Name/Number:	Storage Building #2 – “Arby’s Building”
Address/Physical Location:	210 N. 1st
	
Survey Component	Observations
Structure	
Construction Type	Type V
Date of Construction	2010
Seismic Protection	No
Auxiliary Power	No
Condition	Good
Special Considerations (American with Disabilities Act of 1990 [ADA], dual gender appropriate, storage, etc.)	No public access storage only
Square Footage	Unknown
Facilities Available	
Exercise/Workout	N/A
Kitchen/Dormitory	N/A
Lockers/Showers	N/A
Training/Meeting Rooms	N/A
Washer/Dryer	N/A
Safety & Security	
Sprinkler & smoke detection	No
Security	Some
Apparatus exhaust system	No

Recommendations:

- It is recommended that each IFD station and or building have a thorough evaluation for structural integrity and regulation compliance with NFPA standards.

Apparatus/Vehicles

IFD maintains a very large fleet of response vehicles that are generally older but clearly well maintained. The overall condition of the fleet was found to be good generally. An inventory of fire apparatus, configuration and condition is provided below.

Figure 24: IFD Apparatus

Apparatus Designation	Type	Year	Make and Model	Condition	Minimum Staffing	Pump Capacity	Tank Capacity
331	Engine	2002	HME/Toyne	Good	3	1500	500
332	Engine	2002	HME/Toyne	Good	3	1500	500
333	Engine	1996	Frieghtliner/Toyne	Good	3	1500	1,000
335	Tender	2002	Frieghtliner/Toyne	Good	1	Small Engine	2,000
338	Brush	2017	Ford/Heiman	Excellent	2	Small Engine	40
339	Attack	2017	Ford F550/Heiman	Excellent	3	Small Engine	40
330	Command	2014	Chevy	Excellent	1	0	0
245	ALS	2016	Ford F450/LifeLine	Excellent	2	N/A	N/A
246	ALS	2012	Ford F450/MedTec	Good	2	N/A	N/A
247	ALS	2014	Ford F450/LifeLine	Excellent	2	N/A	N/A
Spec Ops Trailer	Enclosed Trailer	2017	Enclosed 18'	Excellent	N/A	N/A	N/A
Rescue Boat	Boat	1977	Watercraft 16'	Fair	N/A	N/A	N/A

DISCUSSION

ESCI observed IFD's vehicles to be well maintained and in various ranges of poor, fair, good, and excellent condition generally. Mostly these were due to age and mileage for each vehicle. Older apparatus are well maintained. ESCI was impressed with the appearance and general condition of the department's apparatus, which is indicative of the agency's culture of pride and ownership. It appears that the maintenance performed is done well.

IFD does not employ a promoted designated apparatus operator position with overall accountability for the apparatus. Instead this position is filled as needed with available staff for the day. The designated drivers should have training on how to do daily vehicle checks routinely including brakes. This is a safety and readiness issue for the department. Including training on proper operation of the vehicles will allow drivers to detect problems earlier and can get them repaired before they result in failure.

ESCI evaluated the age of IFD's fleet of apparatus, finding that the units range from a high of 21 years of age, which does include the department's reserve apparatus, to a low of just one year. ESCI observed that IFD apparatus are generally well maintained and serviceable. However, the frontline apparatus fleet is aging. The average age of frontline structural fire apparatus, brush, and attack apparatus is 10.8 years of age.

As discussed in the Service Delivery section of this report, as a transporting EMS agency, IFD ambulances experience the highest utilization of any apparatus. The front-line ambulances range from 2 to 5 years old and planning should continue to replace these vehicles. IFD has several ambulances in reserve status.

APPARATUS REPLACEMENT PLANNING

Fire apparatus are typically unique pieces of equipment, often very customized to operate efficiently in a narrowly defined mission. A pumper may be designed such that the compartments fit specific equipment and tools, with virtually every space on the truck designated in advance for functionality. This same vehicle, with its specialized design, cannot be expected to function in a completely different capacity, such as a hazardous materials unit or a rescue squad. For this reason, fire apparatus is very expensive and offers little flexibility in use and reassignment. As a result, communities across the country have sought to achieve the longest life span possible for these vehicles.

Unfortunately, no mechanical piece of equipment can be expected to last forever. As a vehicle ages, repairs tend to become more frequent, parts more difficult to obtain, and downtime for repair increases. Given the emergency mission that is so critical to the community, this factor of downtime is one of the most frequently identified reasons for apparatus replacement.

Because of the large expense of fire apparatus, most communities find the need to plan for the cost of replacement. To properly do so, agencies often turn to the long-accepted practice of establishing a life cycle for the apparatus that results in a replacement date being anticipated well in advance. Forward thinking organizations then set aside incremental funds during the life of the vehicle, so replacement dollars are ready when needed. IFD has an established replacement plan incorporated in the CIP. It is reviewed annually. IFD has established a life span of 18 years for their frontline pumpers, 20 years for an aerial, and replaces ambulances when they reach 6 years.

Service Delivery and Performance

Service delivery is the foundation of any service-oriented organization. Without an understanding of how services are organized, deployed, and managed, efficiency and effectiveness cannot be quantified. This section of the report will analyze multiple facets of the current delivery of fire services for Indianola, including the identification of incidents by type and frequency, deployment analysis, system reliability, and a summary of performance. By understanding current performance and how the system functions, goals and objectives for future performance improvements can be established and implemented.

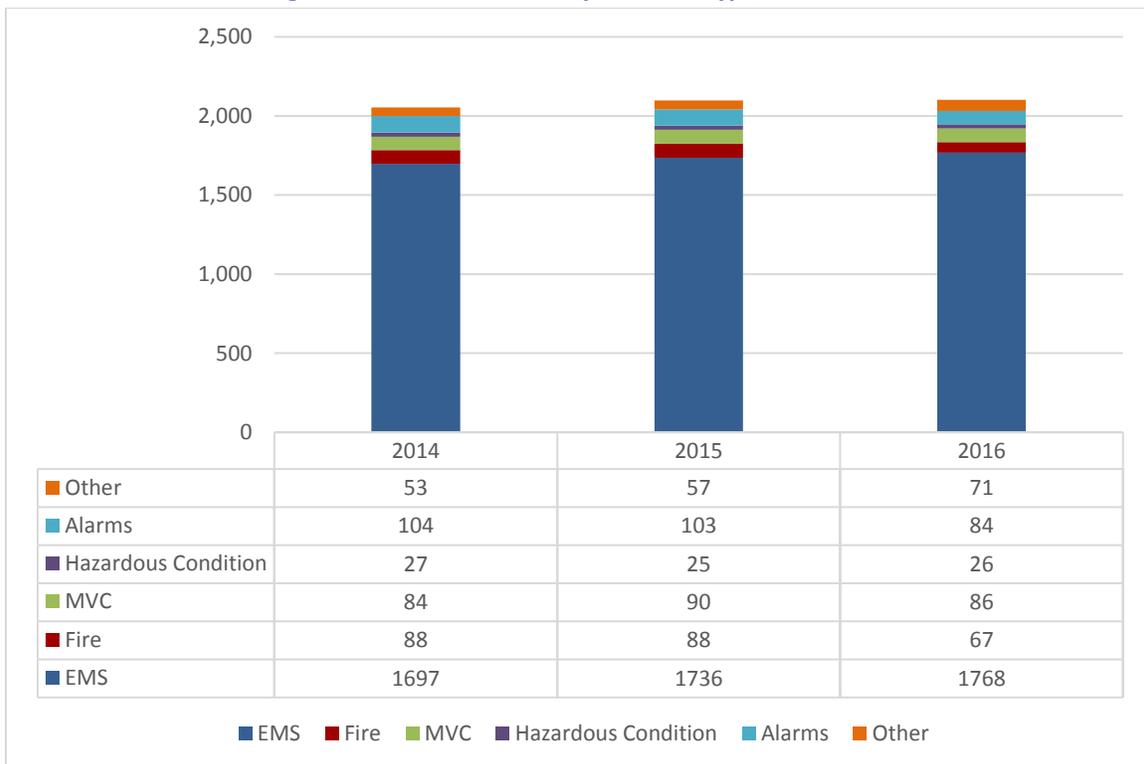
Demand Study

Incidents by Type and Frequency

The ways in which demands for service occur often follow predictable patterns over time. To identify those patterns occurring in Indianola, ESCI conducted an analysis and geographic display of current service demand by incident type and temporal variation using data obtained from the Indianola Fire Department. Incident types were selected based on the classification system established by the National Fire Incident Reporting System (NFIRS) and temporal variation, or the way service demand changes over time, were analyzed by month, day and by the hour.

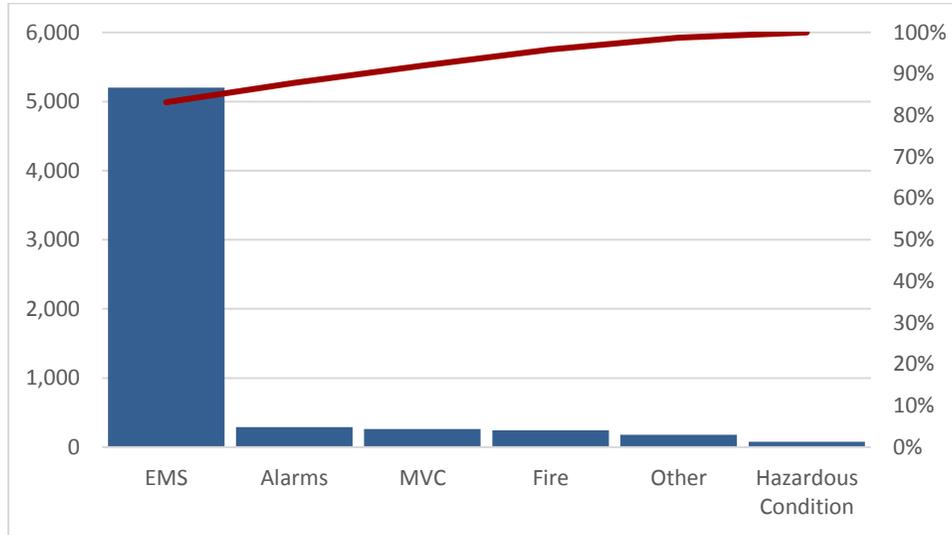
In Figure 25, a historical view of types and frequency for the years 2014, 2015, and 2016. Incidents are subdivided by NFIRS incidents types. Total Incidents increased from 2053 in 2014, to 2102 in 2016, a 2.39 percent increase. As part of this increase fire related incidents decreased from 88 to 67, a 24 percent decrease, while EMS incidents increased from 1697 to 1768 a 4.2 percent increase.

Figure 25: Service Demand by Year and Type, 2014–2016



In Figure 26 incidents were categorized by type for the study period of 2014 to 2016, to provide a global comparison of the nature of service demand in Indianola. The red line illustrates the cumulative percentage of calls and how these totals compare.

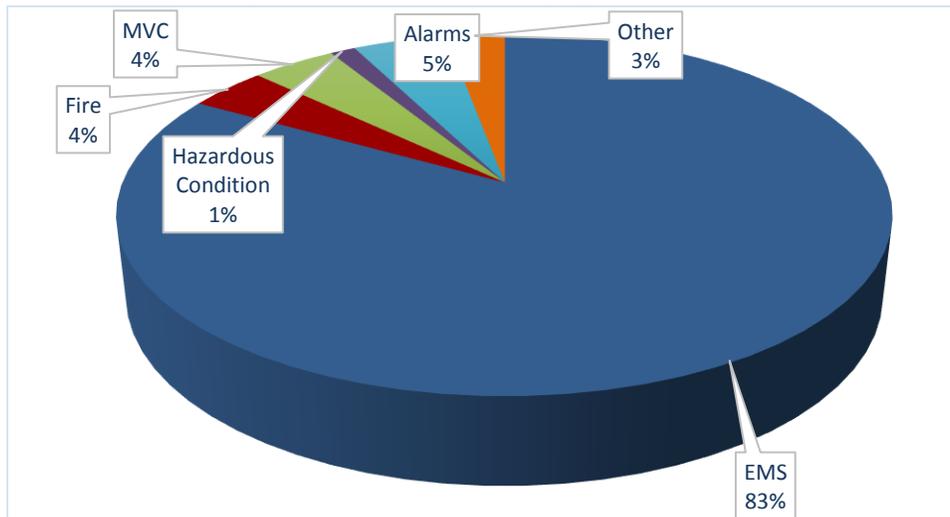
Figure 26: Service Demand by Type, 2014–2016



As illustrated above, EMS represents the greatest impact to service demand at 83 percent, followed by Alarms which accounted for 4.7 percent of incidents, and Motor Vehicle Crashes (MVC) 4.1 percent. Fire incidents contributed 3.9 percent of the total incidents, with Others at 2.9 percent, and Hazardous Conditions at 1.3 percent.

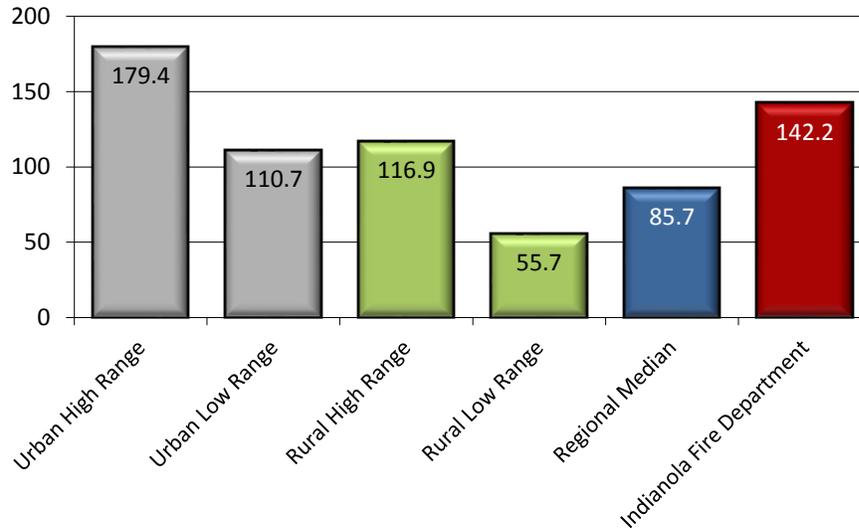
Another way to examine service demand by type is with a pie chart. Shown in Figure 27 are incidents by type with relative frequency provided for each segment. By examining the figure, it is clear that demand for EMS is a major contributor to Indianola’s overall response characteristics.

Figure 27: Service Demand by Type, 2014–2016



In Figure 28 is a comparison of the total number of incidents in Indianola as compared to other urban fire departments around the country in the midrange:

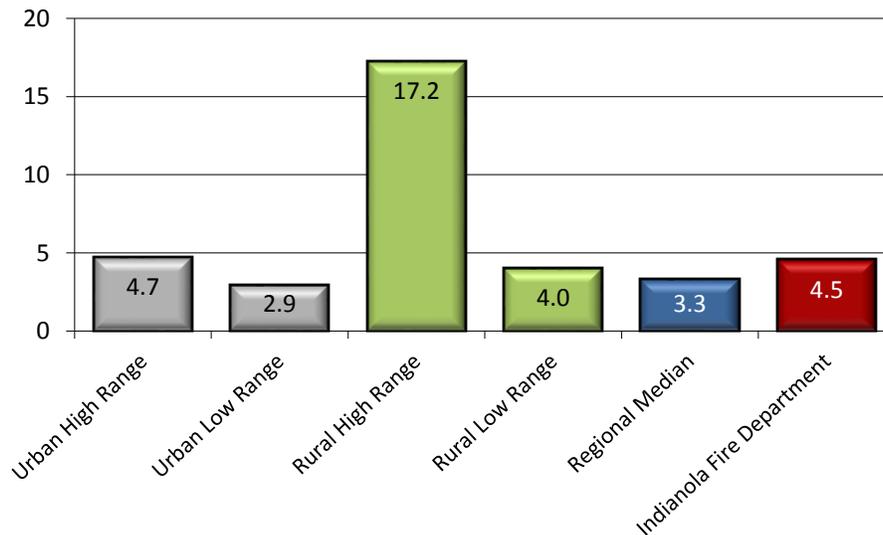
Figure 28: Incidents per 1,000 Population Comparison Based on Indianola's 2016 Data



This chart reflects NFPA's data collection from fire departments throughout the nation. Indianola has a higher than rural high-range number of calls per 1,000 population but lower than the urban high range. The regional median number of incidents per 1,000 population is 85.7 which is lower than the IFD experience.

Contrasting the number of fire incidents to national and regional comparable sized departments is shown in Figure 29:

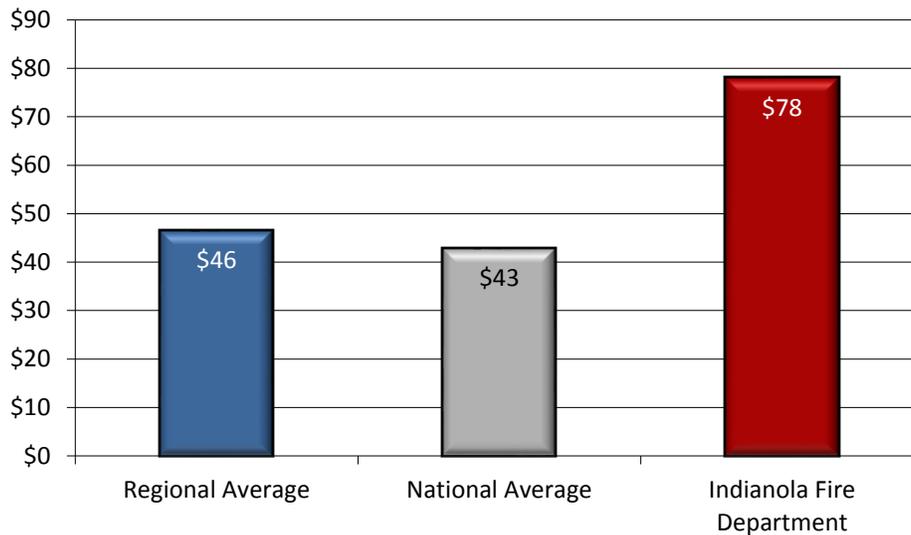
Figure 29: Fires per 1,000 Population Comparison Based on Indianola's 2016 Data



Indianola's fires per 1,000 population is just above the regional median experience at fires per 1,000 population. It is also within the range of fires for other urban and rural departments.

The next figure, Figure 30 is fire loss per capita compared with other national and regional departments:

Figure 30: Fire Loss Per Capita Comparison Based on Indianola's 2016 Experience



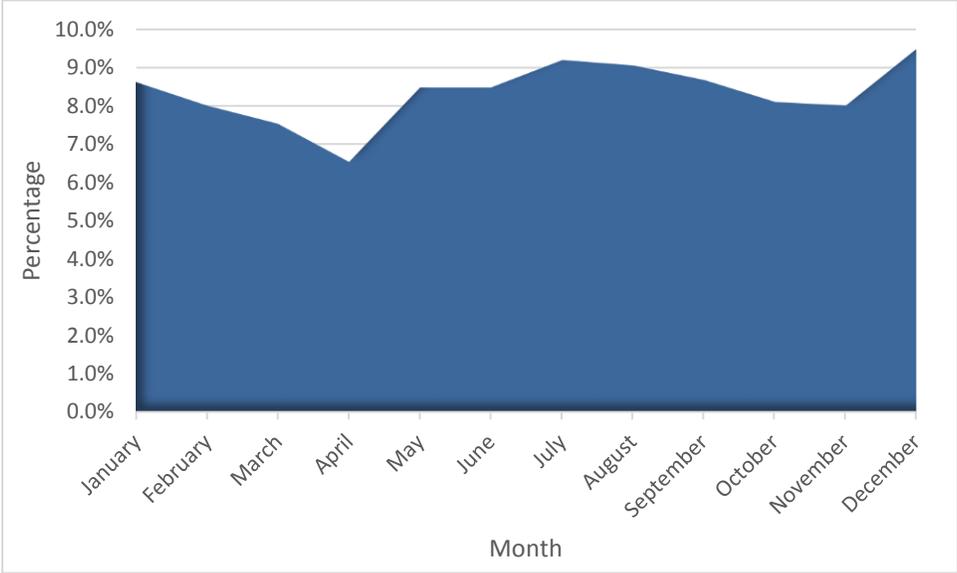
Indianola's fire loss is higher compared to both regional and national medians. The loss is \$32 more per capita based on other comparable departments. This is something that should be researched further to determine if this was a result of an unusually high dollar loss incident or incidents in 2016, or a trend over time. If this is a trend over time, the Indianola Fire Department should examine some applicable community risk reduction programs.

Temporal Analysis

In addition to understanding the types and frequency of service demand, an understanding of when these events occur is critical to the understanding of when system demand will most likely be at its greatest. Knowing when high demand periods occur will assist administrators in determining whether staffing levels are sufficient for the demand and also in scheduling additional duties such as training, fire safety inspections and vehicle maintenance.

The following figure shows the temporal variation of Indianola's service demand by month. Each month is represented by the number of incidents occurring in that month compared to the total number of incidents that occurred from January 1, 2016, through December 31, 2016. These are presented as percentages relative to total service demand that occurred during the period of analysis.

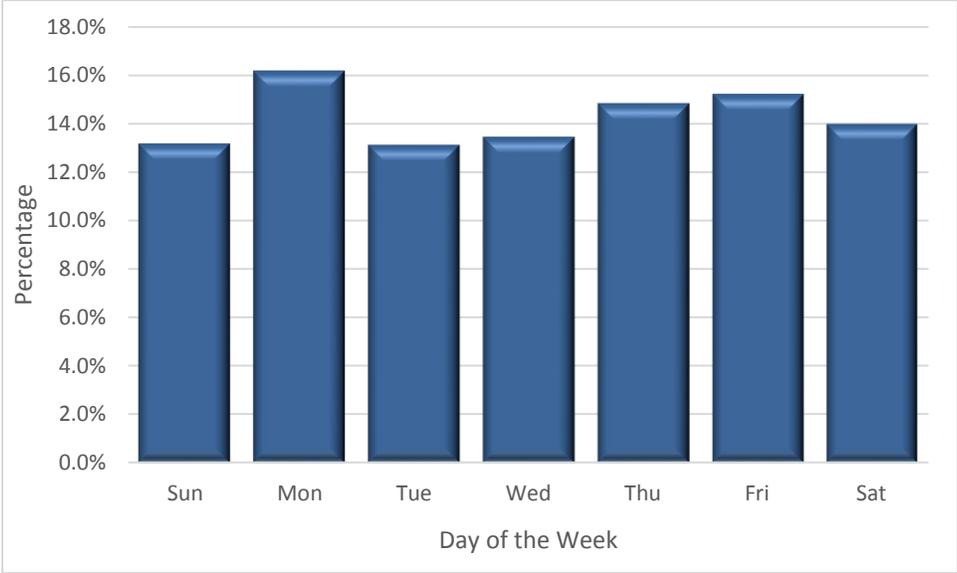
Figure 31: Service Demand by Month, 2016



July and December represent the highest volume of demand throughout the year with a decline in March and April. The number of incident in the slowest month, April is 137 and the highest month December had 199 incidents, a difference of 62 incidents or 2.9 percent. Overall, the variation in incidents per month is small.

Next, demand for service is examined by day of the week. In the next figure, each day is presented as its relative frequency of occurrence.

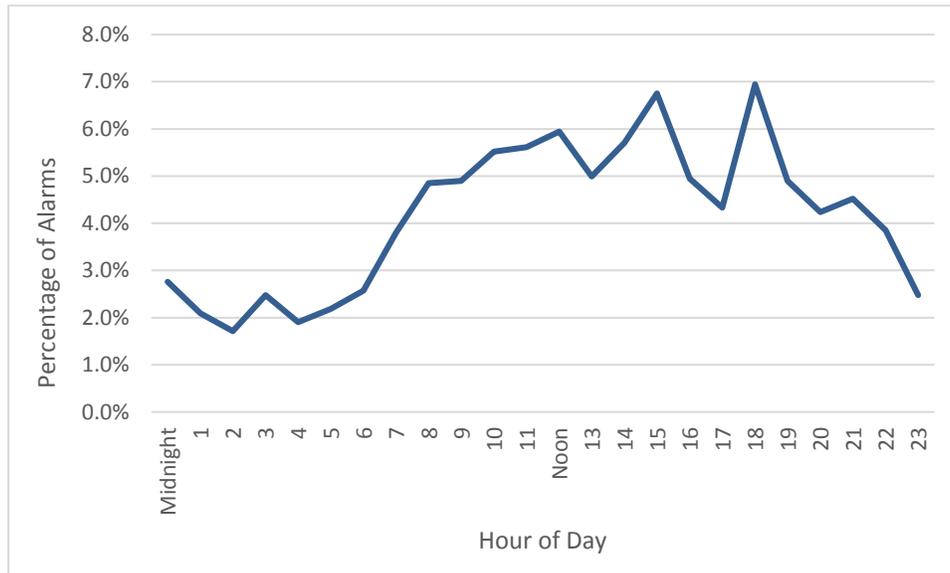
Figure 32: Service Demand by Day, 2016



Generally speaking, service demand appears to be fairly consistent with a high of 340 on Mondays and a low of 276 on Tuesdays. There is a difference of 64 or 3.0% throughout the study period of 2016.

Finally, Figure 33 shows temporal variations in service demand by hour are presented.

Figure 33: Service Demand by Hour, 2016

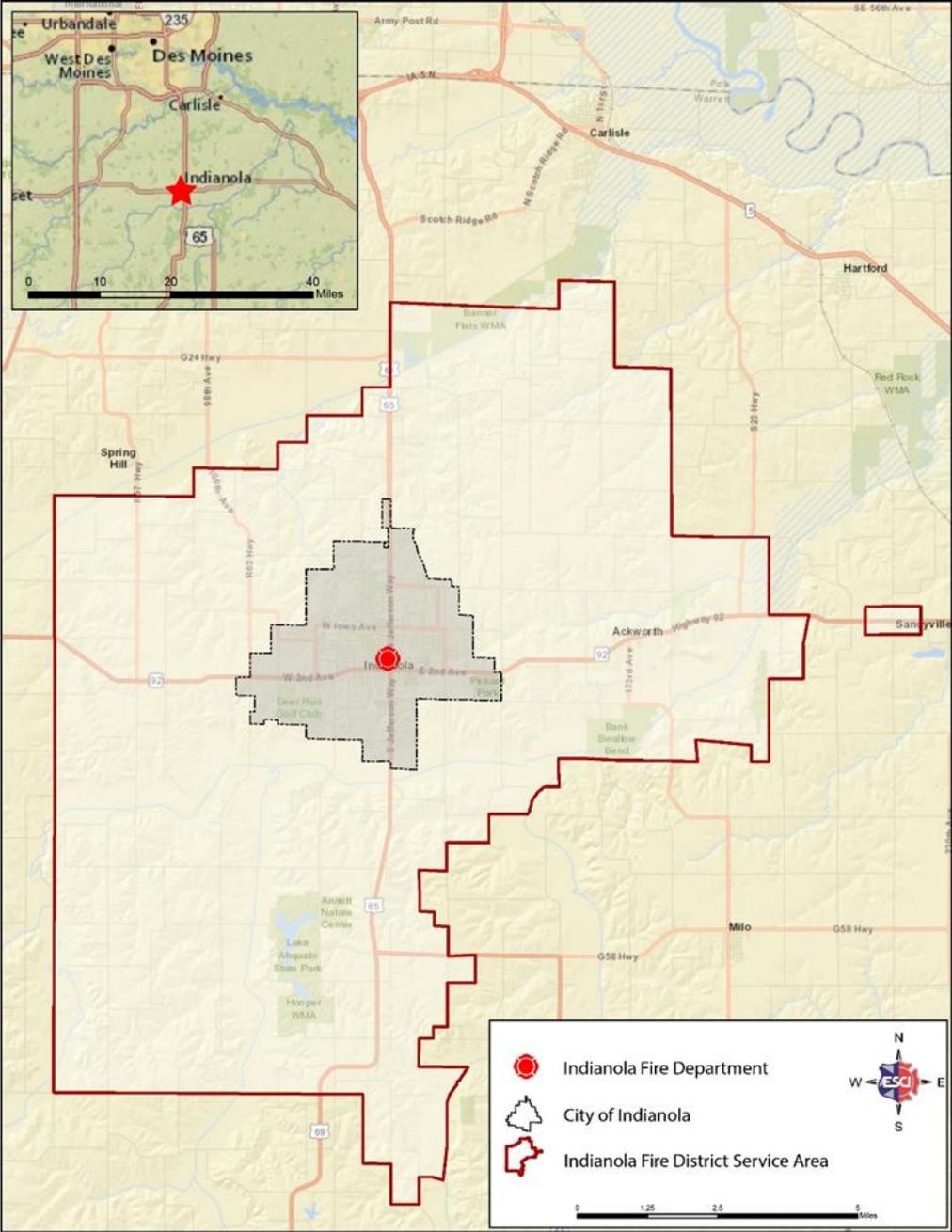


When demand is analyzed for frequency by hour of day, the pattern that emerges suggests that although there is an spike in demand at three o'clock in the morning, it is followed by a drop off and then a steady increase after five o'clock in the morning. Peaks are at three o'clock in the afternoon and six o'clock in the evening. A sharp decline starts at seven o'clock in the evening and continues through two o'clock in the morning. This pattern is consistent with the observation that people are more active during daylight hours leading to increased service demand. The Indianola Fire Department may want to examine further the spike in demand at three o'clock in the morning to assess if any risk reduction programs might be applicable or useful.

Distribution Study

Next an overview of the current deployment strategy, which includes facility and apparatus locations, were analyzed using Geographical Information Systems (GIS) software, to identify potential service gaps and redundancies of resources. In Figure 34 is an overview of the Indianola service area showing the city boundaries as well as the fire district service area boundaries. The fire station location is also illustrated.

Figure 34: Indianola, IA Service Area

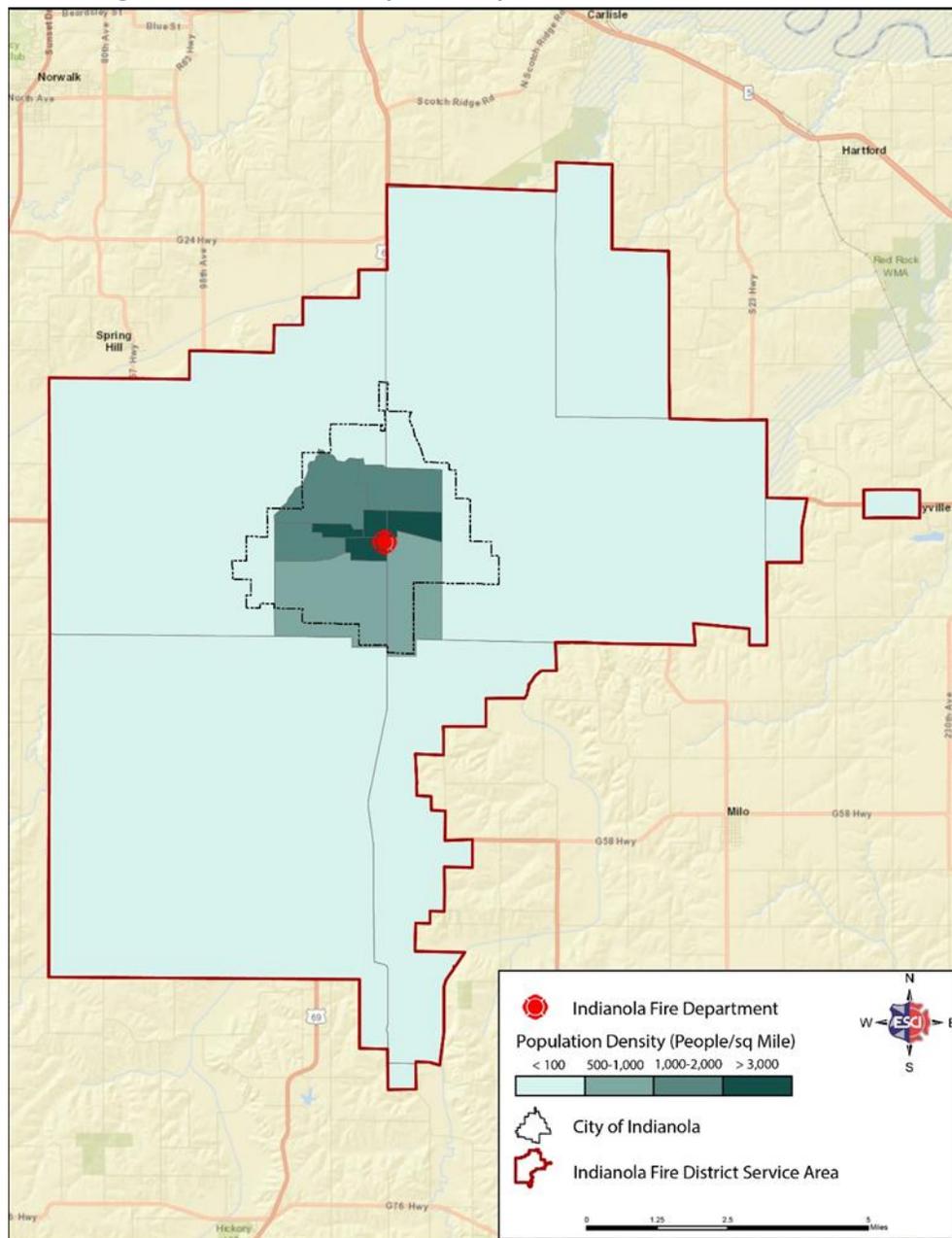


Indianola is a city in Warren County, Iowa, located about 18 miles south of Des Moines. The city encompasses approximately 11.25 square miles. The IFD provides service to the city as well as an additional fire district service area of 114 square miles for a total service area of 125 square miles. The IFD staffs one fire station located within the city as shown in the figure. The station is staffed with two (2) personnel for 24 hours and is augmented by two (2) part-time firefighter as well as the fire chief and captain. The staff for this station is responsible for receiving the call for service and then responding the appropriate apparatus. For example, a fire call for service would require the fire engine, whereas the emergency medical call for service would require the ambulance.

Later in this section, further analysis will be conducted examining unit hour utilization and call concurrency (how often multiple calls occur), each of which impact staffing decisions.

Another important consideration for fire departments and other service delivery organizations is to understand where people are located and the concentrations of the population. If the majority of people live in a concentrated area, it is intuitive to anticipate that that area will also request the highest levels of service demand as calls for service are generally initiated by people. Figure 35 that follows presents Indianola's population by census block based on American Community Survey (ACS) 2016 estimates. The total population used in this study was 14,782.

Figure 35: Indianola, IA, Population by Census Block, ACS 2016 Estimates



A review of the figure above indicates that the greatest population concentration exists near the fire station in the central area of the city. This area possess the greatest population densities, as indicated by the dark shading. The population density within the city boundaries is a combination of 500 to 1,000, and 1,000 to 2,000, with some census blocks of greater than 3,000. For the most part, the fire district service area outside the city boundaries has a density of less than 100 people per square mile.

With a review of the service area and population complete, next the distribution of Indianola's resources will be examined and compared to the Insurance Services Office (ISO) and National Fire Protection Association (NFPA) criteria. These standards provide baseline criteria for comparison of Indianola's deployment strategy. These are important standards for comparison because, while ISO criteria focuses on fire suppression capabilities for insurance purposes, NFPA standards establish a foundation for overall system benchmarking for fire suppression, rescue, and other activities fire departments may be required to perform.

ISO Distribution

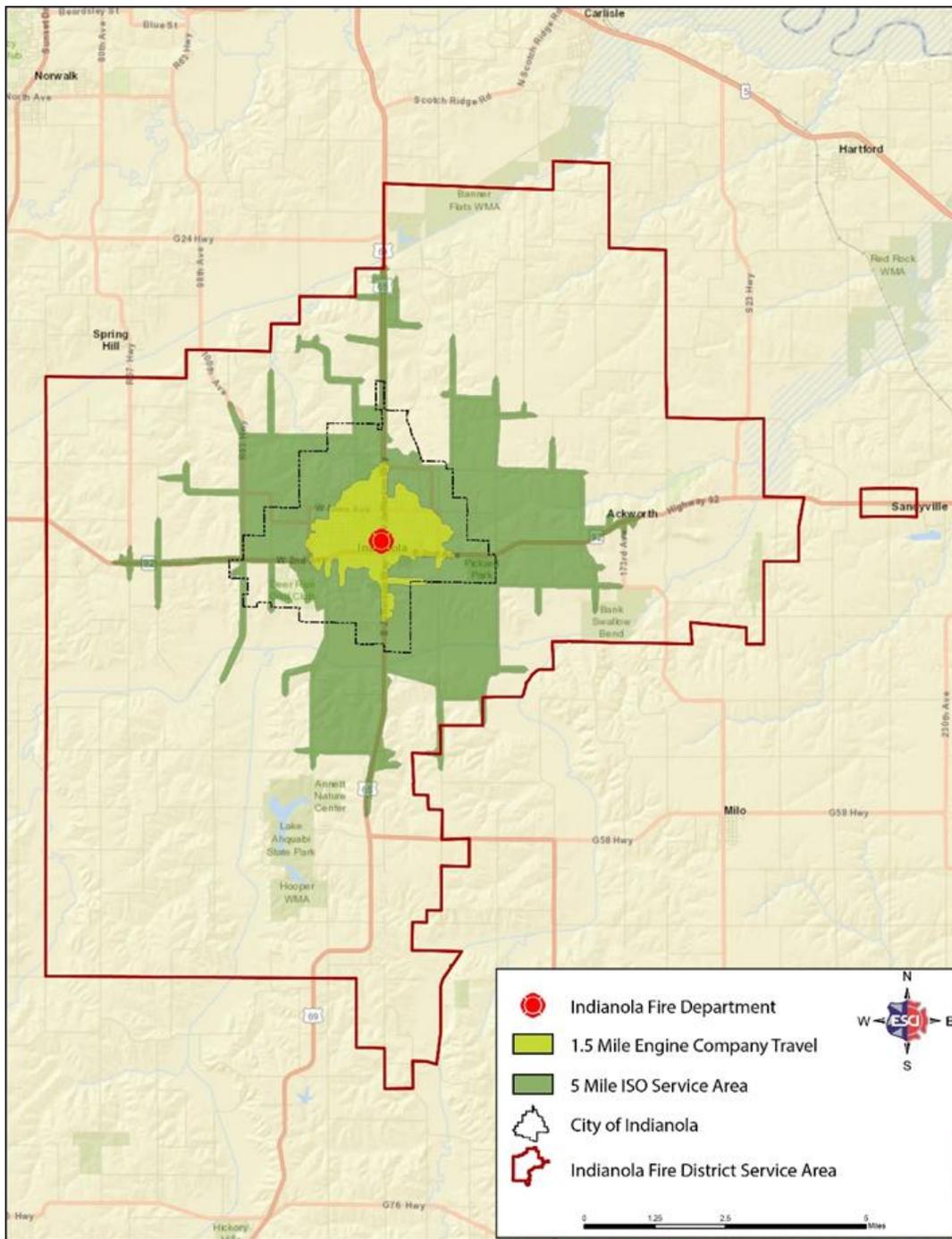
The ISO Public Protection Classification (PPC®) score was developed for communities to provide recommendations for key areas of improvement. The PPC system is a national system used by the New Jersey-based advisory organization Insurance Services Office (ISO) to provide insurance providers with a classification rating of a local community's fire protection. The PPC score classifies communities based upon a rating scale of 1 (best protection) to 10 (no protection) and assesses all areas related to fire protection broken into four major categories which include; emergency dispatch and communications (10 points), water system supply and distribution capabilities (40 points), the fire department (50 points), and Community Risk Reduction (5.5 points). The PPC score is developed using the Fire Suppression Rating Schedule (FSRS), which outlines sub-categories and the detailed requirements for each area of the evaluation.

The first component of ISO distribution is the ability of a fire department to arrive on scene equipped with personnel, equipment, and water sufficient to effectively mitigate a fire. To determine whether or not a structure is eligible to receive a PPC rating better than 10, indicating that the fire department does not meet minimum ISO criteria for the structure to receive a rating, a service area of five road miles from the fire station is generally used.

Figure 36 presents Indianola's fire station with a five-road mile radius extending outward. Generally speaking, ISO is concerned with the provision of fire suppression services to contiguously built upon areas, meaning that ISO is unconcerned with the protection of unpopulated regions of a service area or those areas that lack permanent structures. The maximum service area that an engine can effectively travel away from the facility to conduct fire suppression operations is 1.5 road miles. This service requirement is also illustrated.

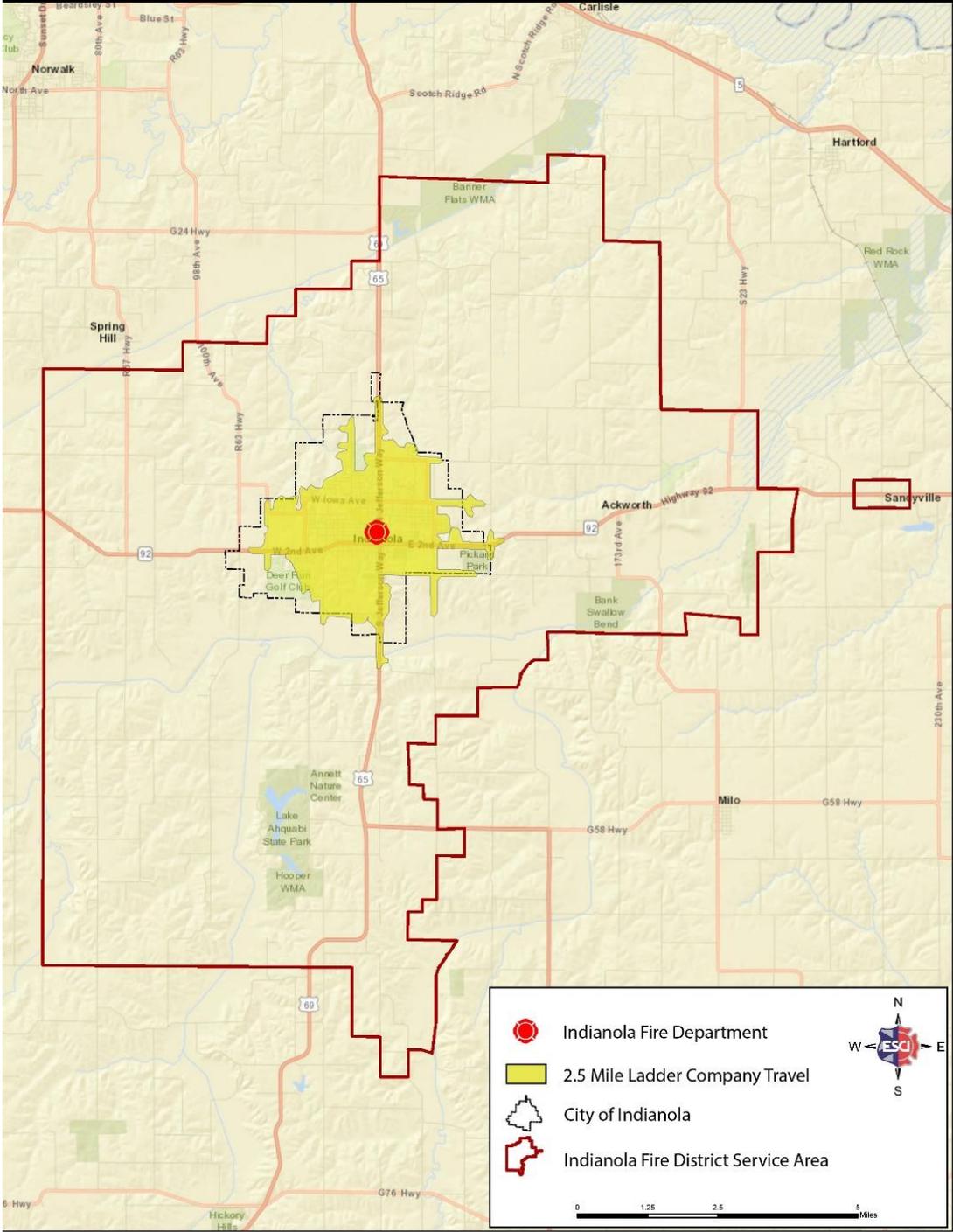
There is a total of 291 road miles in the IFD service area. Fifty-four road miles or 18.7 percent are within 1.5 miles of the station and 156 road miles, or 53.6 percent are within five miles.

Figure 36: Fire Station Distribution, 1.5 Mile and 5 Mile ISO Criteria



Like the maximum service of engine companies shown in this figure, there is a maximum service area for ladder companies. Figure 37: illustrates the 2.5 mile maximum service area for ladder companies. The extended service area for ladder companies is due to ISO requirements for additional staff present on a ladder company to receive full credit. Due to this distinction, prior to deciding whether or not to deploy engine or ladder companies in a given service area, ISO should be consulted because the addition of a ladder company with insufficient personnel may result in an overall reduction of score.

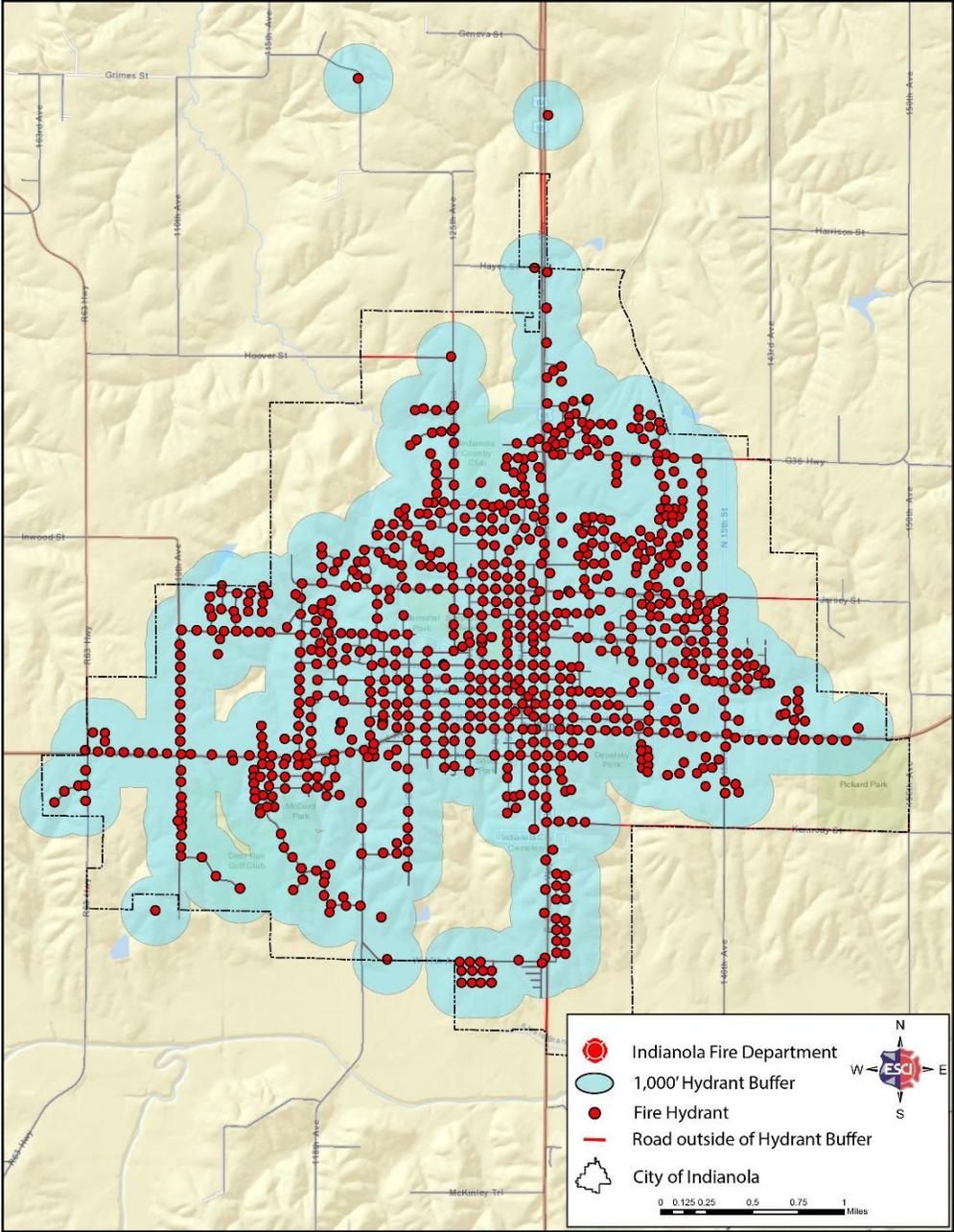
Figure 37: Fire Station Distribution, 2.5 Mile Ladder Company ISO Criteria



Eighty-six of the 291 road miles in the service area are within 2.5 miles, this is 29.7 percent.

The ability of a fire department to arrive on scene of a fire within a given time or distance represents only part of the ISO classification. Other elements include the ability to assemble personnel, resources, and water sufficient to put the fire out. Figure 38 illustrates the hydrant distribution map with a 1000-foot buffer.

Figure 38: Hydrant Distribution Map with 1,000 Foot Buffer



Fire hydrants tend to be located in populated areas, in Indianola generally the distribution of fire hydrants in the service area is good. The IFD should consider the areas that lack hydrants when considering their deployment of resources.

In closing, it bears mentioning again that the addition of fire stations or changes to type of apparatus deployed can have negative impacts to the overall ISO rating if personnel are insufficient to staff those locations based on ISO minimum criteria. Prior to implementing new deployment strategies, the ISO regional representative should be consulted to assess the potential impacts of changes to the deployment strategy.

NFPA Distribution

While ISO criteria is focused on fire suppression activities exclusively, NFPA standards establish benchmarks for all areas of responsibility for a fire department.

For the purposes of this study, ESCI used NFPA 1720, *Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, 2014 Edition* as it relates to response performance. This standard is applicable to the Indianola Fire Department as it meets the definition of combination department. Specifically, NFPA 1720 defines in Chapter 3.3.15.1 that a combination fire department is one that has emergency service personnel comprising less than 85 percent majority of either volunteer or career membership. Further in Chapter 1.3.1 The authority having jurisdiction determines if NFPA 1720 is applicable to its fire department.

While NFPA 1720 requires the fire department to set response goals and to ensure that a sufficient number of members are available to operate safely and effectively, the Standard does provide for staffing and response time objectives for a low-hazard occupancy such as a 2000 ft² two story single family home see Figure 39.

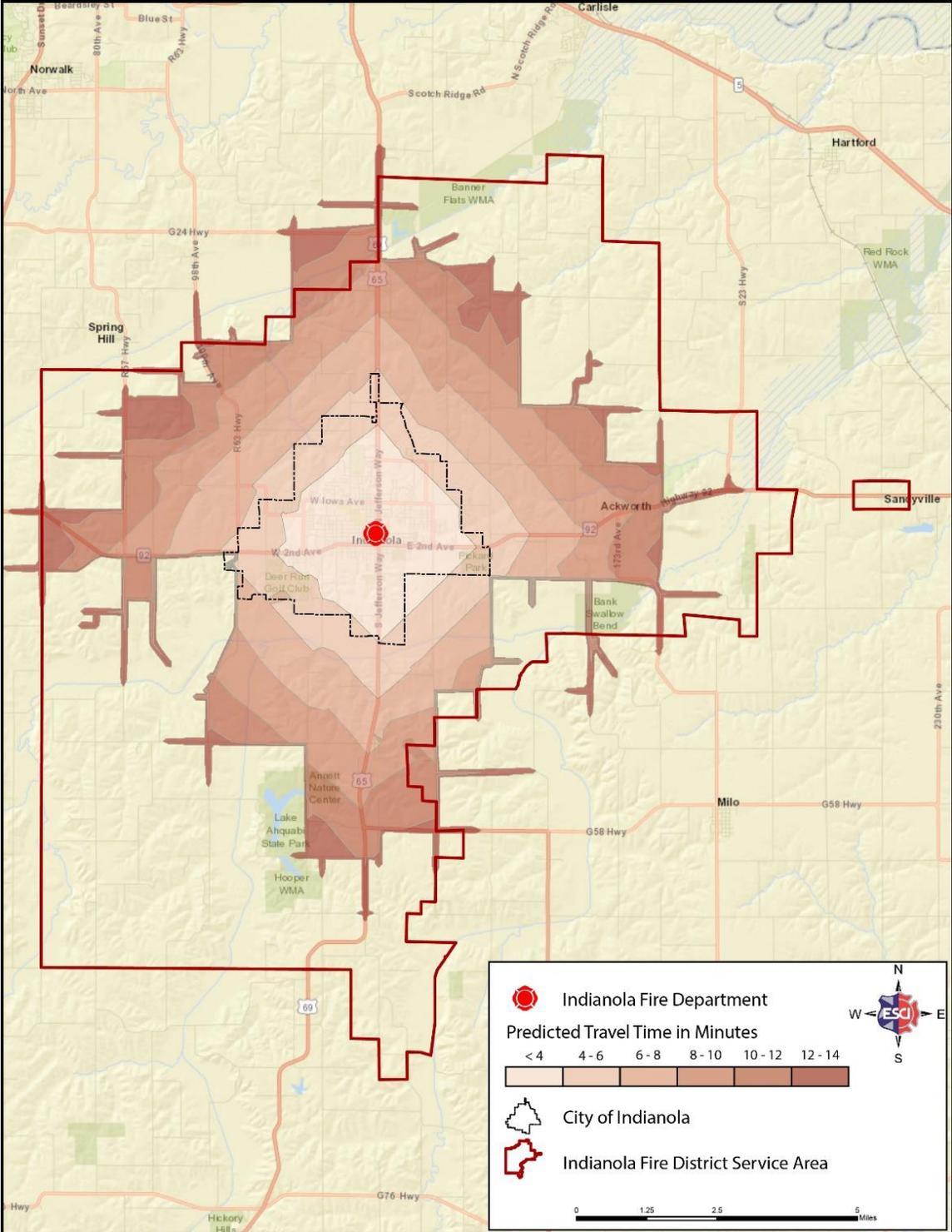
Figure 39: NFPA 1720 Staffing and Response Time

Demand Zones	Demographics	Min. Staff to Respond	Response Time (minutes)	Performance Objective (%)
Urban	More than 1,000 people per sq. mi.	15	9	90
Suburban	500 to 1,000 people per sq. mi.	10	10	80
Rural	Less than 500 people per sq. mi.	6	14	80
Remote	Travel distance 8 miles or more	4	Dependent upon travel distance	90
Special Risk	AHJ determined	Based on risk	AHJ determined	90

When applying the historical performance experience in Indianola to Figure 39, we can divide the service area into two demand zones. Within the city limits, the urban area demand zone should be used as the population density is 1,313 people per square mile. Outside the city limits the rural demand zone was used as there is less than 500 people per square mile.

Figure 40 that follows displays the projected travel time from the fire station in the range of less than four minutes to a maximum of 14 minutes. As can be seen there are areas in the rural demand zone that will fall outside of the 14 minute response time goal in terms of predicted travel times.

Figure 40: Projected Travel Time from the Fire Station

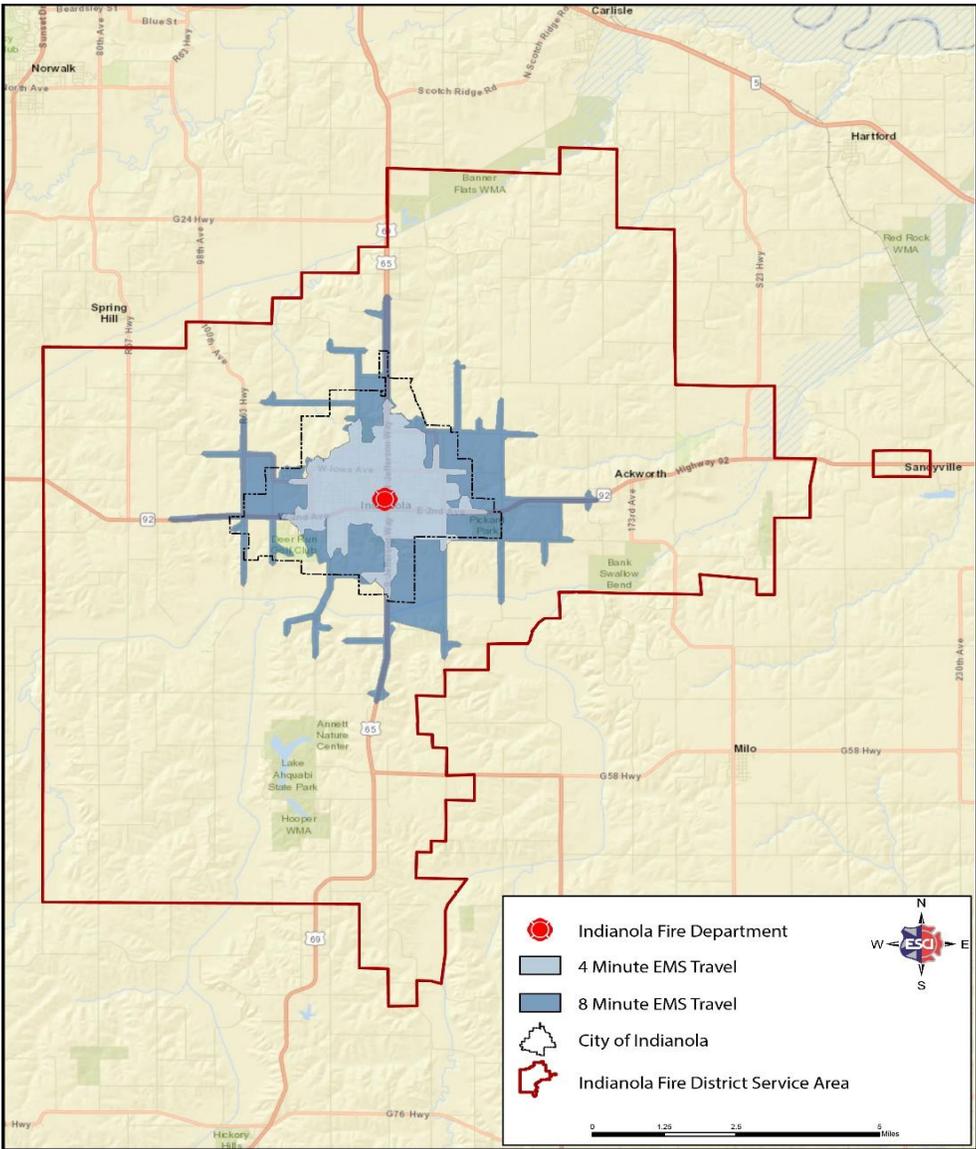


Emergency Medical Transport

Indianola provided emergency medical transport to hospital emergency room receiving facilities. The NFPA 1720 standard requirement for emergency medical services operations is that EMS be organized to ensure the fire departments emergency medical capability includes personnel, equipment, and resources to deploy an initial arriving company and additional alarm assignments. Further, the standard requires that the fire department clearly document its role, responsibilities, functions, and objectives as they relate to the delivery of EMS.

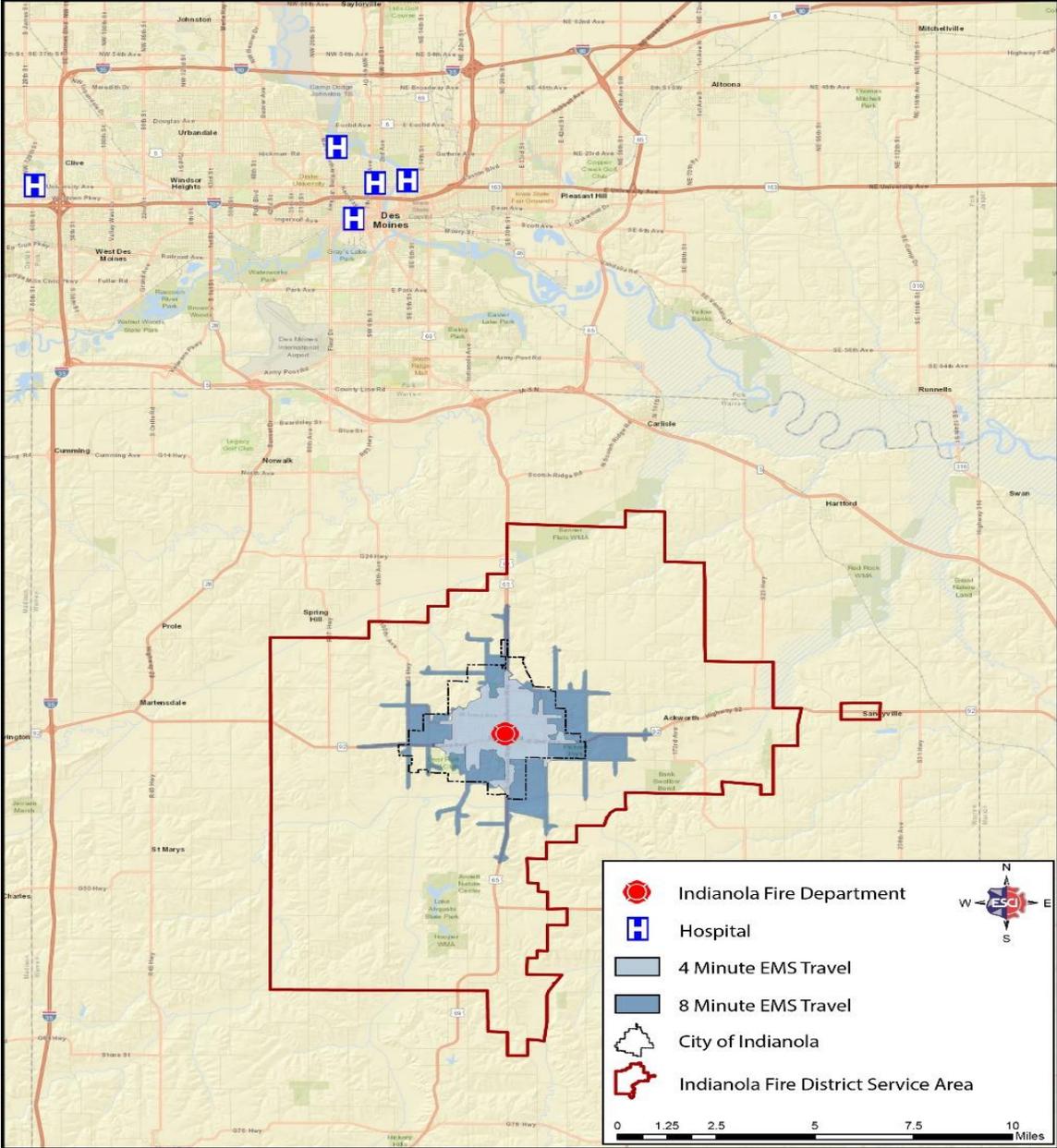
The next figure illustrates travel time at four and eight minutes. These time benchmarks are included in the NFPA 1710 standard but are used here for illustrative purposes. The travel time required for the first arriving unit is four minutes and then arrival of advanced life support and transport unit eight minutes. Both are measured at the 90 percent benchmark.

Figure 41: ALS 4 Minute and 8 Minute Travel



Indianola should anticipate extended periods of ALS transport commitment to calls as no receiving facility ERs are located within Indianola’s service area. As shown in Figure 42, extended travel times can be expected when units are out of service committed to a transport assignment. Time that units are out of service will be analyzed later in this report as unit utilization is studied.

Figure 42: ALS Transport Service Area and ER Locations



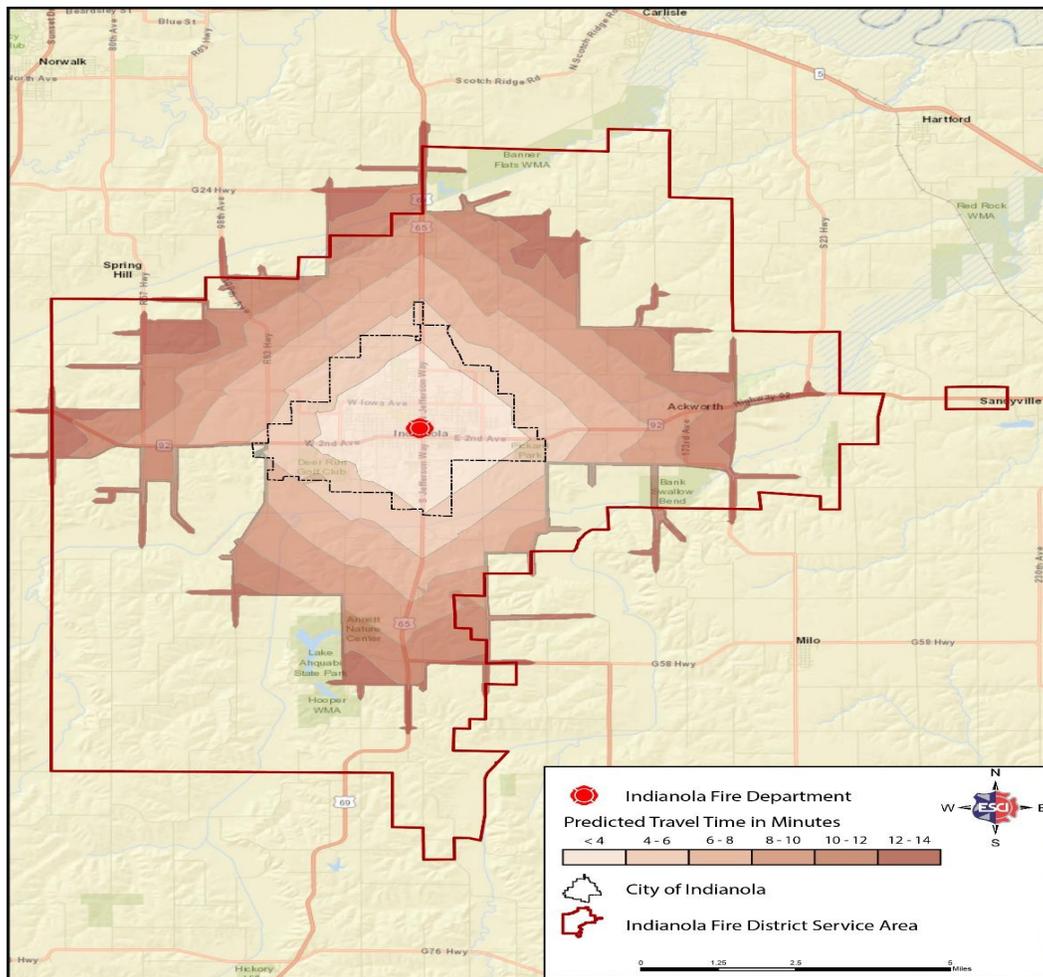
Next, the reliability of the fire resources is examined to determine how often units are utilized and the number of times calls occurred simultaneously will be examined.

Concentration Study

The ability for fire departments to assemble resources from multiple areas to initiate safe and effective fire suppression and rescue operations is critical to the overall success of the department. In the previous section, the requirements of NFPA 1720 were benchmarked.

The following figure presents a resource concentration analysis for IFD using NFPA 1720 standards for the assembly of an Effective Response Force (ERF). In this figure, fire resources are provided from four to fourteen minutes of travel from their respective location to the incident.

Figure 43: Resource Concentration Analysis, NFPA 1720 Travel



Based on the criteria provided by NFPA 1720, IFD has the ability to respond four or more firefighters to incident scenes within a six-minute predicted travel time to almost all of the city during the hours of 8 am to 5 pm. After these hours the number drops to two. Outside the city limits, travel time is in excess of eight minutes for a majority of the service area. This means that travel times in excess of eight minutes are required for the majority of the county before interior fire suppression operations may commence.

Next, the reliability of fire resources are examined to determine how often units are utilized, resource failure rates and the number of times calls occurred simultaneously will be examined.

Reliability Study

The percentage of time that a unit is committed to an incident affects its availability to respond to other incidents as they occur. For example, if a unit is committed to calls 30 percent of the time, they cannot be reasonably expected to meet 90th percentile goals as other units must travel in to the area to pick up the additional work load. Additionally, when multiple incidents, or concurrent calls, occur simultaneously it can create a strain on department resources and affect a jurisdiction’s ability to muster sufficient resources to respond to additional emergencies.

Unit hour utilization (UHU) analyzes the amount of time that a unit is *not* available for response because it is already committed to another incident. The larger the number, the greater its utilization and the less available it is for assignment to subsequent calls for service. The next figure shows the analysis of UHU for the IFD units.

Figure 44: Unit Hour Utilization, 2016

Unit	Number of Responses	Average	Total	UHU
Ambulance 245 (2016)	527	0:59:31	522:47:22	5.97%
Ambulance 246 (2012)	616	1:01:00	626:19:38	7.15%
Ambulance 247 (2014)	659	0:57:59	636:51:27	7.27%
Attack 338	23	2:12:31	50:47:54	0.58%
ATV	15	5:16:00	79:00:03	0.90%
Command 330	108	0:56:01	100:49:20	1.15%
Engine 331	90	0:45:29	68:14:00	0.78%
Engine 332	65	0:58:46	63:40:03	0.73%
Engine 333	34	1:15:40	42:52:24	0.49%
Equipment Squad 337	22	1:46:46	39:08:43	0.45%
Tanker 335	12	1:37:09	19:25:44	0.22%
Truck 334	1	1:14:08	1:14:08	0.01%

The UHU analysis for Indianola indicates that all units fall below the 10 percent threshold to meet 90th percentile performance goals. While Indianola’s service demand volume is currently such that it falls within acceptable parameters, this is a metric that should be monitored regularly to ensure that system performance failures are not a result of over utilization of individual units.

Next, the call concurrency will be examined. As mentioned previously, call concurrency measures the frequency of simultaneous incidents within a jurisdiction.

Figure 45 displays the analysis of call concurrency for Indianola.

Figure 45: Call Concurrency, 2016

Concurrent Calls	Percentage
1	69%
2	25%
3	4%
4 or more	1%

The call concurrency frequency for more than one incident occurring simultaneously in Indianola is 30 percent. This means that should a moderate risk incident occur requiring multiple personnel, some firefighters will be unavailable to respond just under one-third of the time.

The next figure examines the frequency of multiple unit utilization for incidents occurring in 2016. As Indianola currently staffs two firefighters in the station 24/7, with two additional firefighters during the day, and these firefighters cross staff either an engine or rescue, depending on the nature of the call, there is a probability that a system failure may occur when multiple incidents occur or one incident that requires multiple units occurs.

Figure 46: Percentage of Incidents by Number of Units Required, 2016

Number of Units	Percentage of Incidents
1	91.38%
2	6.18%
3	1.79%
4	0.50%
5	0.10%
6 or more	0.05%

Based on the data provided by Indianola Fire Department, they deploy more than one unit to incidents at 8.6 percent of the time.

Performance Summary

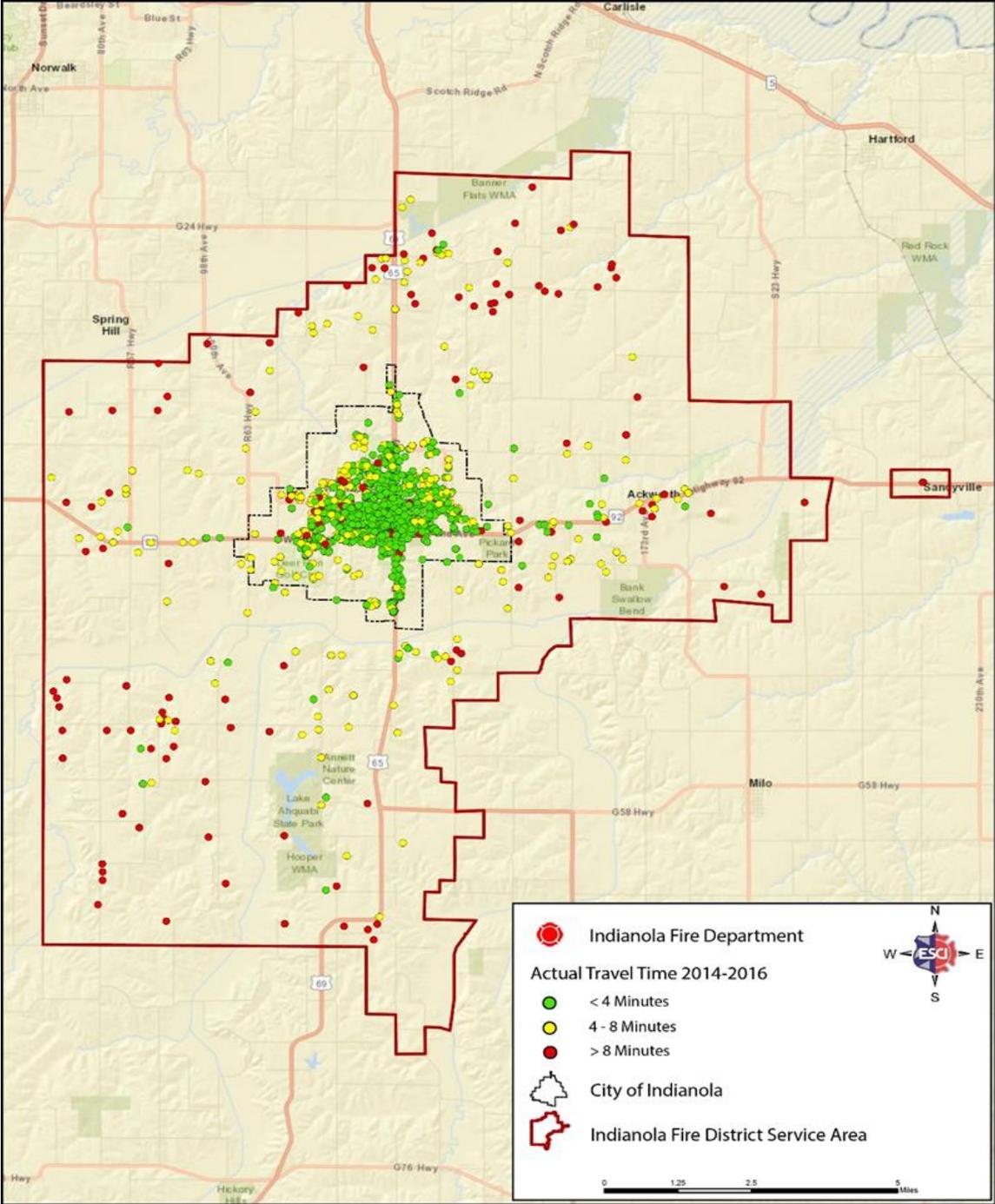
In the performance summary, ESCI examined emergency response performance for Indianola Fire Department's service area, using incident data from January 1, 2016, through December 31, 2016. Non-emergency incidents, mutual or auto-aid incidents (outside the Indianola's boundaries), data outliers, and invalid data were removed from the data set whenever possible. ESCI generated average and percentile response data for these emergency incidents based on the demand zones discussed previously.

In analyzing response performance, ESCI measured response time from the time that responders were notified of an incident to when the first apparatus arrived on the scene of the emergency. ESCI generated average and percentile response data for these emergency incidents as applicable. The use of percentile measurement of all the components of total response time performance follows the recommendations of the National Fire Protection Association (NFPA 1720) standard.

Fire department leaders and policy makers often use average response performance measures, since the term is commonly used and widely understood. The most important reason for not using the "average" for performance standards is that it may not accurately reflect the performance for the entire data set and may be skewed by data outliers. One extremely good or bad value can skew the "average" for the entire data set. Percentile measurements are a better measure of performance since they show that the majority of the data set has achieved a particular level of performance. The 90th percentile means that 10 percent of the values are greater than the value stated, and all other data is at or below this level. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

In Figure 47, actual historical response times are displayed to provide a visual representation of response performance across the service area. Categories for response times are provided as those four minutes or less, four to eight minutes, and greater than eight minutes.

Figure 47: Historical Travel Response Performance, 2014–2016



Performance at the 90th Percentile

The response time for Indianola is comprised of several different components to achieve the overall response time, or how much time will elapse between a caller dialing 911 until the first unit arrives on scene. Response time components are described below:

- Call Processing Time – The amount of time between when a dispatcher answers the 911 call and resources are dispatched.
- Turnout Time – The time interval between when units are notified of the incident and when the apparatus are en route.
- Travel Time – The amount of time the responding unit actually spends travelling to the incident.
- Total Response Time – Total Response Time equals the combination of “Call Processing Time,” “Turnout Time,” and “Travel Time.”¹²

Tracking the individual pieces of total response time facilitates identifying deficiencies and areas for improvement. While NFPA 1720 requires a reliable communication system to facilitate prompt delivery of public fire suppression, EMS, and special operations it does not address the specific components detailed above, however, CPSE/CFAI Standards of Cover, 6th Edition recommend that fire jurisdictions monitor and report the components of total response time listed above. Turnout time and travel time are the only components of response performance specifically addressed for which the fire department may have direct control over, since the communication center is outside of the fire department organization.

As the report progresses through the performance analysis, it is important to keep in mind that each component of response performance is not cumulative. Each is analyzed as an individual component and the point at which the applicable percentile is calculated exists in a set of data unto itself.

Call Processing

The NFPA standard for call processing is derived from NFPA 1221: *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems* and provides for communication centers to have alarm time processing of not more than 64 seconds, 90 percent of the time and for special operations, calls requiring translation, or other factors described in the standard, a call processing time not to exceed 90 seconds, 90 percent of the time.

Examination into the dispatch data provided for this report showed a 00:00:00 call processing time for 2066 of the 2102 incidents in for the calendar year 2016. It appears to ESCI that call processing time is not captured or measured as recommended in NFPA 1221.

ESCI recommends that adjustments to dispatch software or processes be implemented to track and analyze the call processing time. This will help to determine any positive or negative impacts that call processing time has on the overall response time.

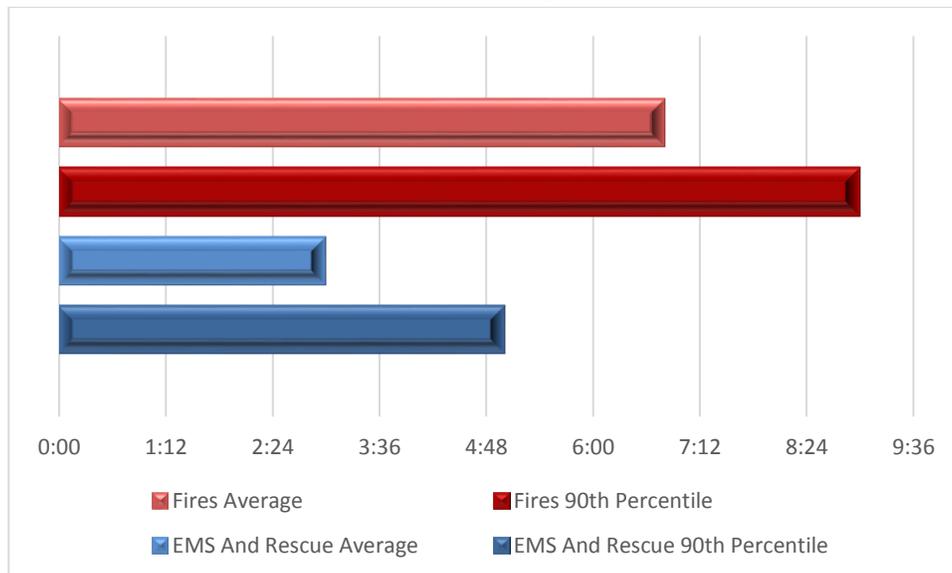
¹² For the purposes of this study, response performance is calculated from time of dispatch to first unit on scene (turnout time + travel time).

Turnout Time

The second component of the response continuum, and one that is directly affected by response personnel, is turnout time. Turnout is the time it takes personnel to receive the dispatch information, move to the appropriate apparatus, and begin responding to the incident.

Just for a point of reference, NFPA 1710 calls for a 90th percentile turnout time of 60 seconds for EMS incidents, and 80 seconds for fire incidents. It is ESCI's experience that these turnout time performance goals are difficult to achieve and that turnout time standards of 90 to 120 seconds for career staffed fire jurisdictions are more reasonable and achievable. This is affirmed in a study published in 2010 by the NFPA.¹³ Figure 48 illustrates the turnout time with performance at the 90th percentile for emergency incidents within both demand zones. EMS and rescue incidents had a turnout time of 05:00, and 08:59 for fire responses. The average turnout times were 02:59, and 06:48, respectively.

Figure 48: Turnout Performance 90th Percentile and Average in the Urban and Rural Demand Zones, 2016



ESCI recommends that Indianola examine possible causation factors related to turnout performance.

Travel Time

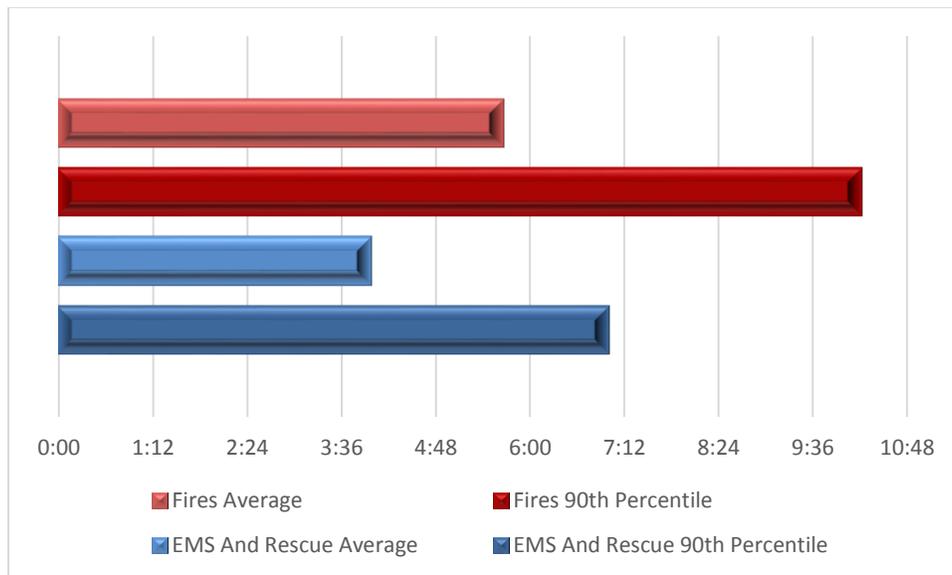
The third component of response time is travel time. NFPA 1720 does not provide a benchmark for travel time, but instead recommends total response time as the time the dispatch notification and ends upon arrival of the first unit on the scene. However, the CPSE/CFAI *Standards of Cover, 6th Edition* offers guidelines for performance objectives based on population density, service demand, community risk, and current baseline response performance.

¹³ *Quantitative Evaluation of Fire and EMS Mobilization Times, May 2010, available at www.nfpa.org/foundation.*

In Chapter 4, Section 4.4.2.1 Annual Evaluation, NFPA 1720 calls for annual evaluations of service delivery performance for each of the geographic areas (as defined by the fire department) within the jurisdiction of the fire department.

Travel time is potentially the longest component of total response time. The location of the fire station and the distance apparatus must travel to reach an emergency, influences response time the most. The quality and connectivity of streets, traffic, and geography are also factors. Figure 49 displays travel time performance for emergency incidents in both of Indianola’s demand zones. As shown, the travel time performance at 90 percent for EMS and rescue is 07:00, and for fires 10:13. Average time is 03:58, for EMS and rescue, and 05:39 for fires.

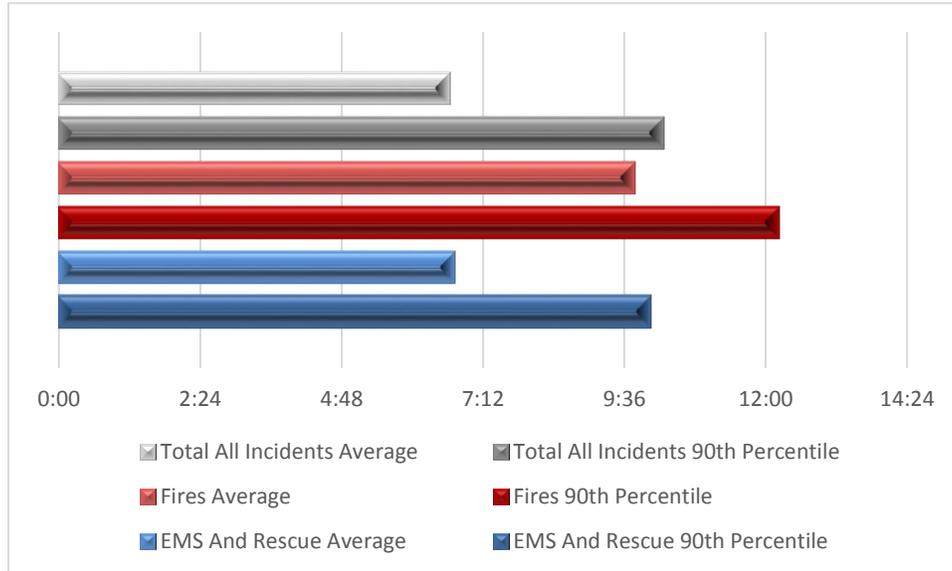
Figure 49: Travel Performance 90th Percentile and Average in the Urban and Rural Demand Zones, 2016



Total Response Time

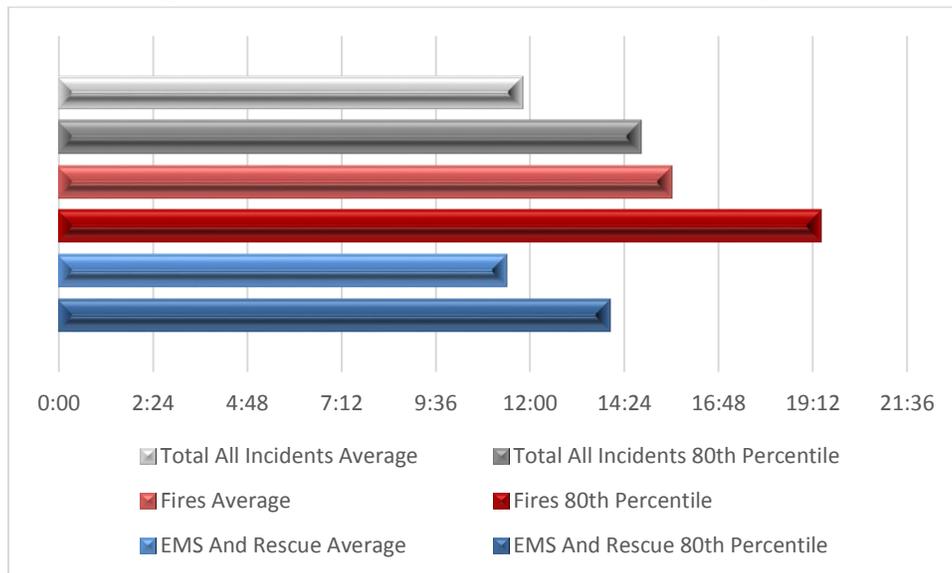
Finally, total response time is examined to establish the baseline for total performance. Figure 50 illustrates the current response capability of the Indianola Fire Department from the moment an emergency call is received by dispatch until the first unit arrives on scene. For this measurement the urban and rural demand zones are measured separately.

Figure 50: Total Performance in the Urban Demand Zone, 2016



The total response time performance for all emergency incidents in the Urban Demand zone is 10 minutes, 15 seconds, from notification to the fire department until the first unit arrives on scene 90 percent of the time. The NFPA 1720 benchmarks for urban demand zones is 9 minutes, 90 percent of the time. Therefore, the IFD is just over one minute away from meeting this benchmark.

Figure 51: Total Performance in the Rural Demand Zone, 2016



The total response time performance for all emergency incidents in the rural demand zone is 14 minutes, 48 seconds, from notification to the fire department until the first unit arrives on scene 80 percent of the time. The NFPA 1720 benchmarks for rural demand zones is 14 minutes, 80 percent of the time. Therefore, the IFD is just under one minute away from meeting this benchmark.

Recommendations:

- ESCI encourages Indianola's leaders to work to ensure that accurate and complete performance data related to call processing is obtained and analyzed.
- Established performance standards for total response time and each component of total response time.
- Develop performance goals and a methodology for monitoring the individual components of response performance provides an opportunity to improve overall response performance.
- Monitor and report annually on the department's compliance with meeting response time goals identified by the department.

FUTURE SYSTEM DEMAND PROJECTIONS

The project moves forward with an assessment of the future community conditions, service demand, and risks that the City of Indianola Fire Department can be expected to serve. ESCI conducted an analysis of community growth projections with particular emphasis on emergency service planning and delivery.

Population Growth Projections

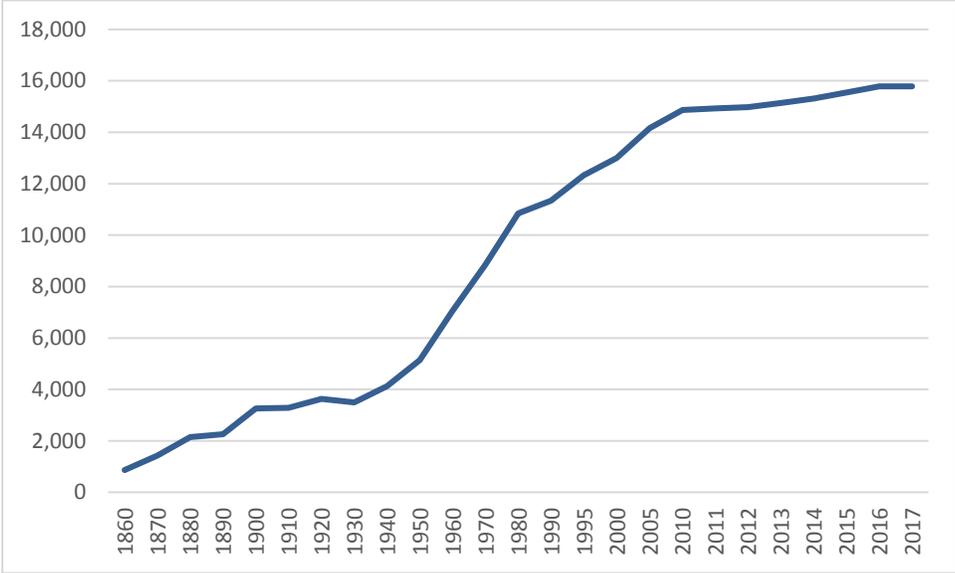
ESCI researched the historical and future projections from available comprehensive growth plans and the U.S. Census Bureau to develop an overview of historical population representations and future population expectations to provide decision makers with accurate estimates to aid the planning process. To start, some key terms need to be defined. *Natural increase* is defined by the U.S. Census Bureau as the rate of births minus deaths per 1,000 people and net migration is the rate of in-migrants minus out-migrants, both domestic and international, per 1,000 people. These numbers are used in conjunction with base population estimates to predict future population totals and reflect historical trends. When categorizing populations rural counties have no urban center of 10,000 or more, micropolitan contain an urban center of 10,000 or more including the suburbs and finally metropolitan includes central counties with an urban center over 50,000 people, plus outlying suburbs linked by commuting patterns.

Historical Populations

The City of Indianola located in the county seat of Warren County was established in 1849 and experienced its first census in 1860 with a population of 836 people. The first few decades of development experienced significant growth and then began to taper off in the 1890s. Growth continued and then slowed through to the 1950s. From 1950 until the 1980s, growth returned and expanded rapidly. Indianola continued to grow from 1990 through the 2010 census. As Des Moines began to grow and the population of Warren County commuted to work in the urbanized area, eventually the county was included in the Des Moines Metropolitan Statistical Area.

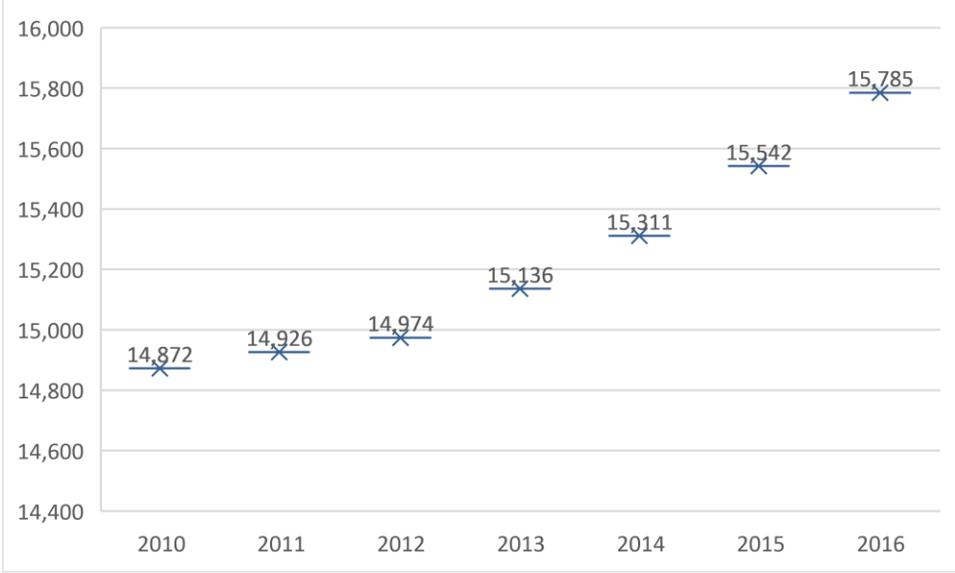
City of Indianola historical populations are represented in the following figure.

Figure 52: City of Indianola Historical Populations



Although linear projections are easy to create and understand, they often do not provide accurate estimates as trends and movement phenomenon tend to change over time. Taking a closer look at recent and more detailed population data will provide a more detailed model of the rate of population change. In the next figure, the population of Indianola for each year, 2000–2016, is presented based on the U.S. Census data.

Figure 53: City of Indianola Actual Populations, U.S. Census



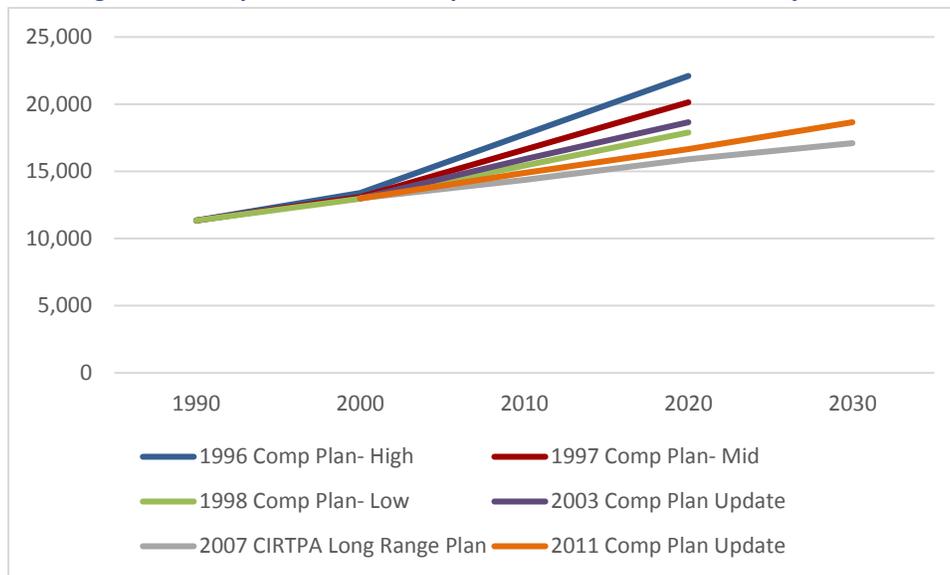
Growth Projections

Population increases from the 2010 census to 2016, represent an increase of 6.8 percent or 15,785 total. Several comprehensive planning documents have predicted growth for the City of Indianola with varying percentage ranges for each. While most are very close, they differ slightly. The 1996 Comprehensive Plan predicted an initial growth of 1.8 percent from 1990 to 2000, 3.2 percent from 2000 to 2010, and 2.5 percent until the year 2020. This plan was later updated in 2003 to use 2.2 percent from 2000 to 2010, and 1.8 percent from 2010 until 2020. In 2007, the Central Iowa Regional Transportation Planning Alliance (CIRTPA) released a Long-Range Transportation Plan which referenced a .8 percent growth through the year 2030. The 2011 Comprehensive Plan for the City of Indianola predicted a growth of 1.2 percent through the year 2030.

The Iowa State University’s Extension and Outreach Small Towns Project analyzed Iowa population trends in 2016 and found that while Iowa’s overall population grew by .41 percent which is slower than the U.S. rate of .70 percent, Warren County was the second fastest growing county at 2.02 percent.

These comprehensive plan population growth projections are depicted in the following figure:

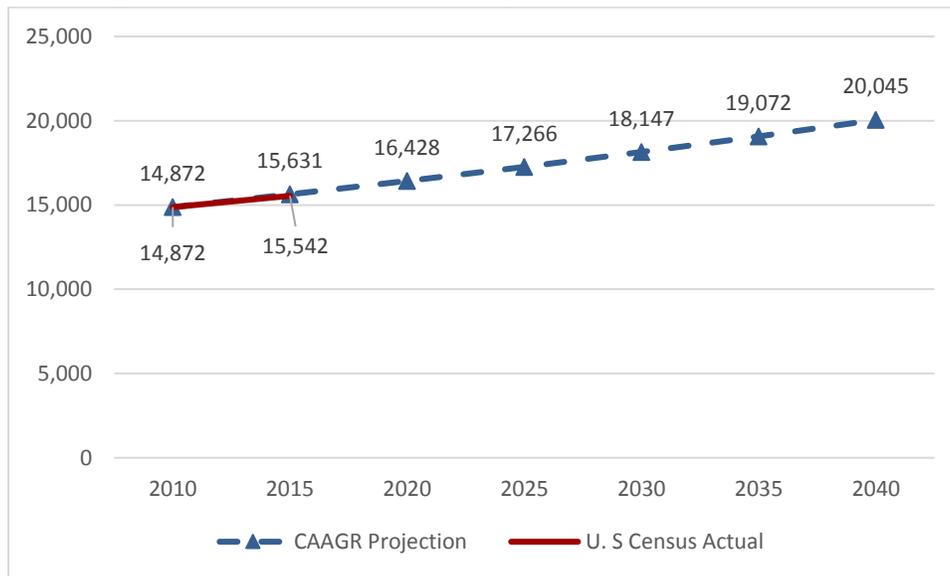
Figure 54: Comprehensive Plan Population Estimated Growth Projections¹⁴



Although several factors influenced how the data was derived, one method for establishing a rate of growth is to use the Compound Annual Average Growth Rate (CAAGR). Using the actual growth rates from the U.S. Census Bureau from the year 2010–2016, a CAAGR of 1 percent can be derived. This CAAGR can then be extrapolated out to predict population growth based on that percentage. The following figure establishes a population growth prediction using the CAAGR.

¹⁴ 1996 Comp Plan: 1996 Comprehensive Plan Update, City of Indianola: Kirkham-Michael and Associates; 2003 Comp Plan: Indianola Action Development Plan, January 2003: Stanley Consultants, Inc. & Environmental Design Group, Ltd.; CIRTPA: CIRTPA Horizon Year 2030 Long-Range Transportation Plan 200; U.S. Census Bureau.

Figure 55: Historical CAAGR Linear Population Predictions for Indianola



In this model, several factors were taken in to account. However, from 2010–2045, the CAAGR for Indianola was 1.0 percent growth per year. Actual U.S. Census Bureau growth from 2010–2015, is just under these projections. If predicted populations continue, Indianola can expect a population of 20,000 in the year 2045. Despite variations between the models, Indianola should expect to experience a steady rise in population at equal to or less than one percent per year for several decades to come and that the majority of new residents are moving into areas away from the greater concentration of IFD’s current resources. Another important consideration is that IFD should expect to experience an increased service demand for emergency medical services with all factors and trends present throughout the city today.

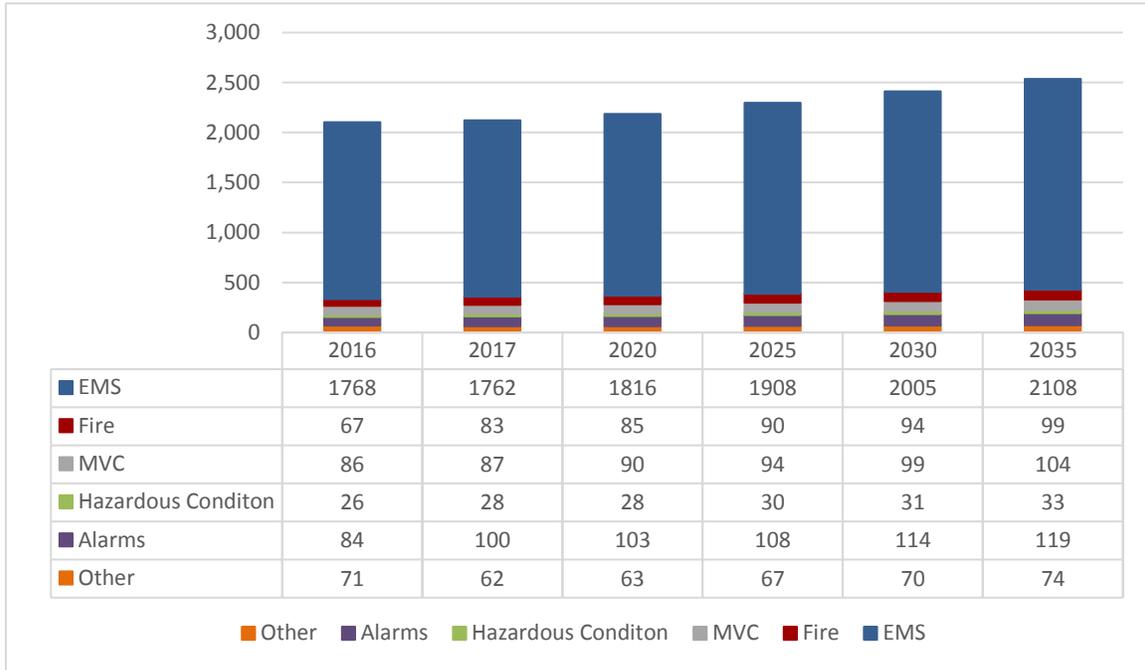
Service Demand Projections

Population growth projections, along with historical and forecast incident rates, were utilized to develop projections for future service demand. As population changes so will the service demand. To determine a historical demand, ESCI considered the last three years of service demand discussed previously. For this analysis public assists and general aid are grouped together as other. EMS responses, fire calls, motor vehicle accidents, hazardous conditions, and alarms are kept separate for more detailed analysis.

In the three years (2014–2016), total service demand increased at an annual rate of .76 percent. This correlates closely with an annual population growth during that same time of roughly 1 percent on average. What is unusual is the average rate of growth in EMS service demand over the years 2014, 2015, and 2016 is 2 percent per year on average and 4.6 percent for the three years. This increase in EMS demand could be contributed to the population demographics that includes a large number of vulnerable citizens. Additionally, there is a 24 percent decrease in fire calls for year 2016. The reason for this change is unknown and may be an aberration in the data. However, this is certainly a positive trend. Based on the projected population growth, service demand within IFD will continue to rise over the next 20 years. Using the 1 percent per year population projection and the historical (2014–2016) average per capita rate for each type of service demand, the following figure was created.

The next figure depicts the service level demand projections IFD could expect to see in the next 20 years.

Figure 56: IFD Projected Service Demand by Incident Category, 2016–2035



This predicts a slightly growing number of all types of calls. The overall number of calls is projected to climb 19 percent over a 20-year period. While this figure shows an increase in fire calls for service, the trend of decreasing fire calls experienced in 2016 may continue and offset a portion of the rise in fires expected due to population growth. EMS calls will continue to be the major type of call for service for the IFD.

Community Risk Analysis

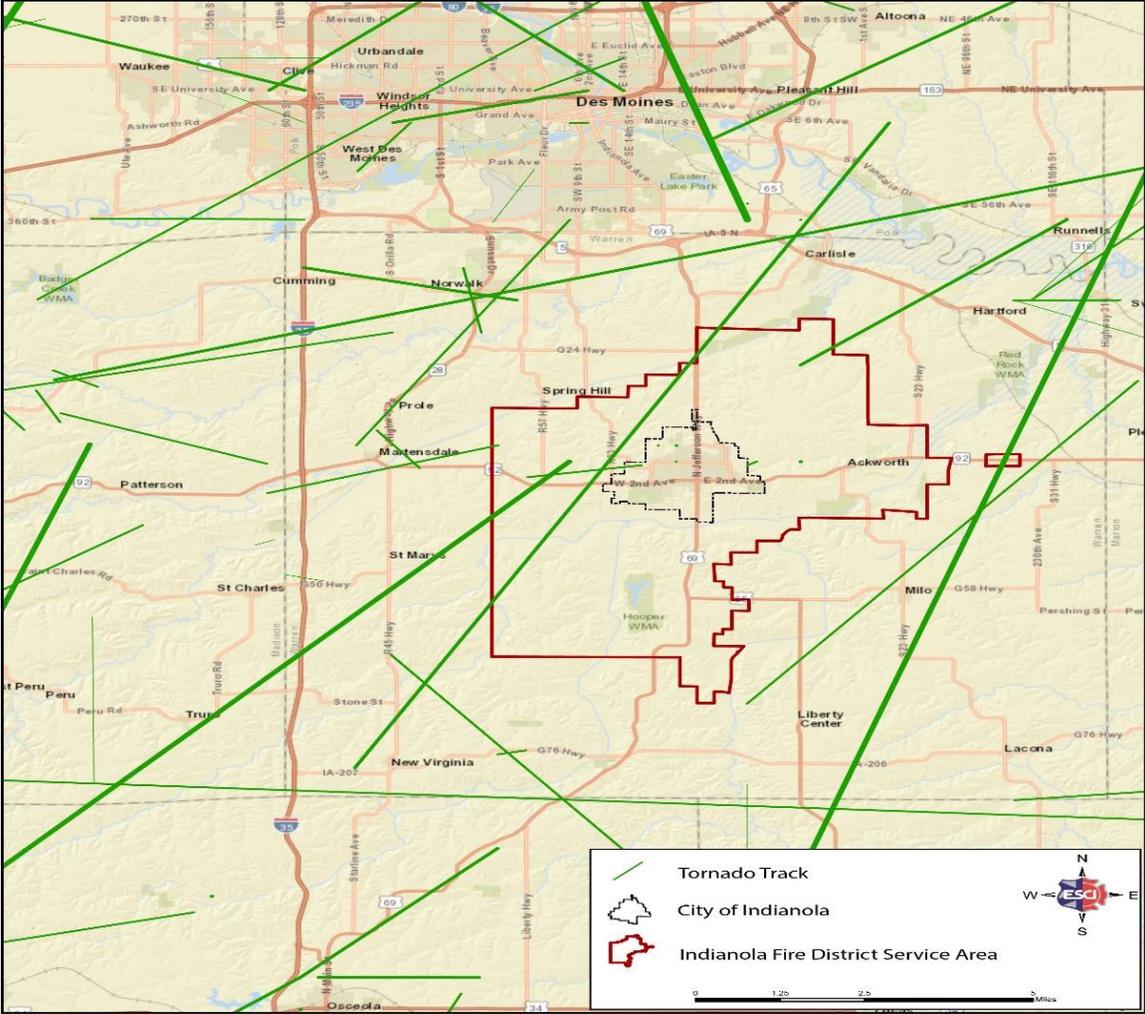
ESCI examined the risk factors for the City of Indianola. While not all hazards of individual occupancies can be considered, there are risks that seem to be relevant to the city.

ESCI did not analyze all hazards within the IFD. That is beyond the scope of the study, but it is recommended that IFD know and rate the hazard risk of the structures and processes in terms of frequency and severity within the jurisdiction. Further these should be ranked and each should have the amount of resources and any special resources that will be needed for an incident involving the property.

The first category of risk considered was that of tornados and the risk to homes and citizens. Modelling is available that gives some indication of this risk.

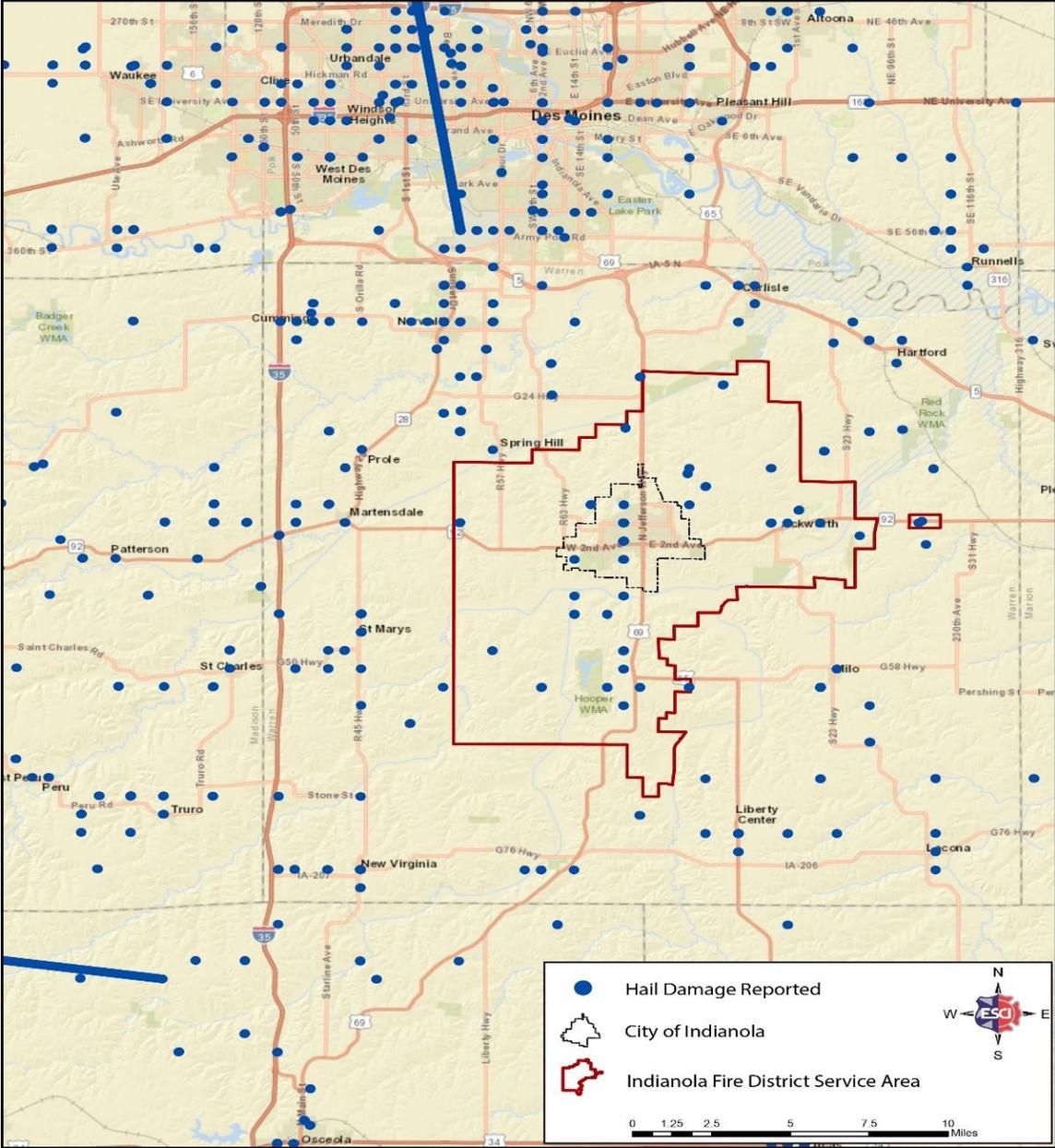
The risk of tornado is depicted in the following figure.

Figure 57: Community Risk Analysis Tornadoes



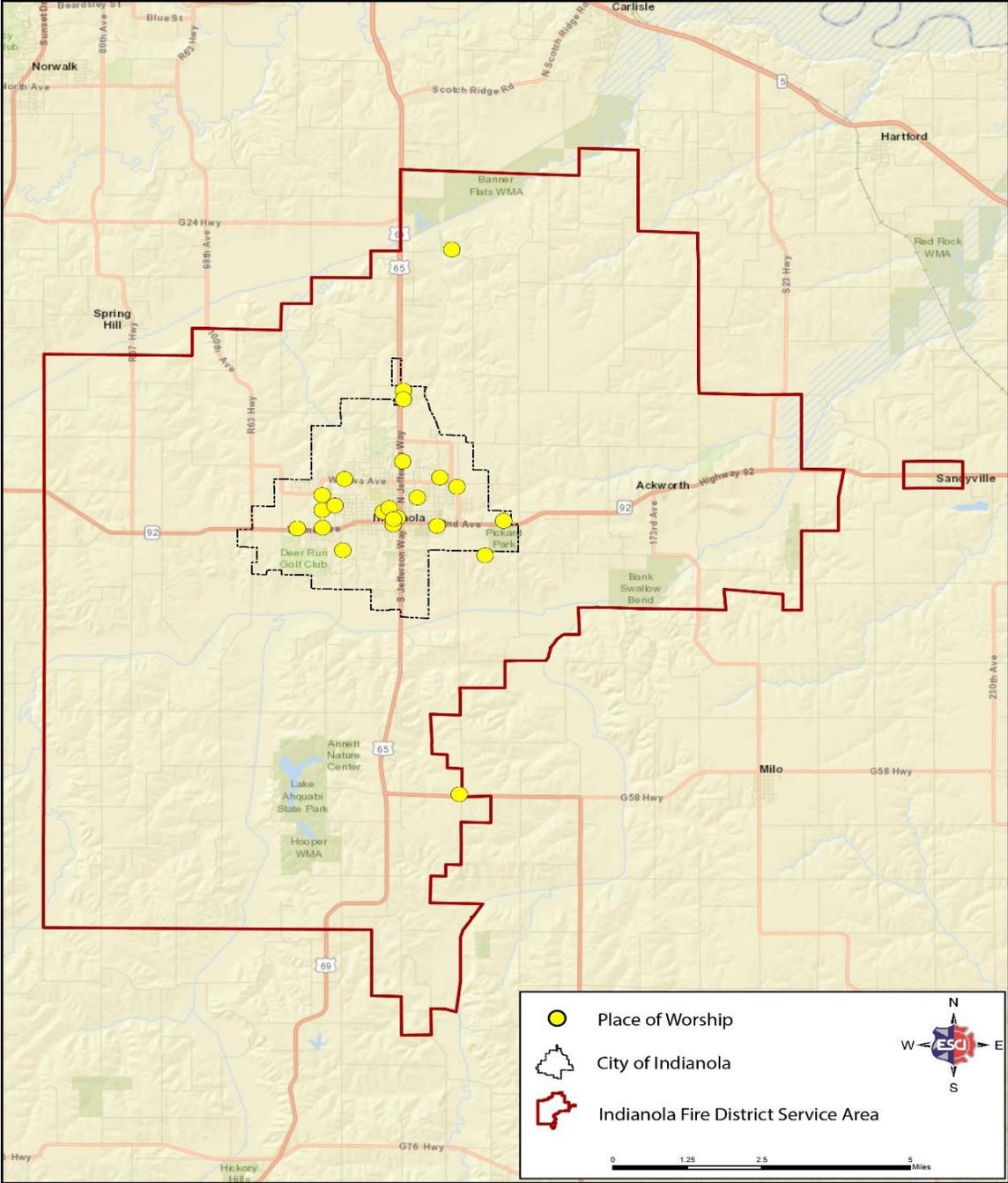
This figure shows the paths of past tornadoes that have crossed the county since 1950, demonstrating the very high probability of future occurrences. Increased growth since the 1970s has increased the potential danger to lives. While preventing tornadoes is not possible, preparing for the potential of another tornado should be considered a high priority. Mass casualty drills using the NIMS system are a necessity.

Figure 58: Community Risk Analysis Hail Storms



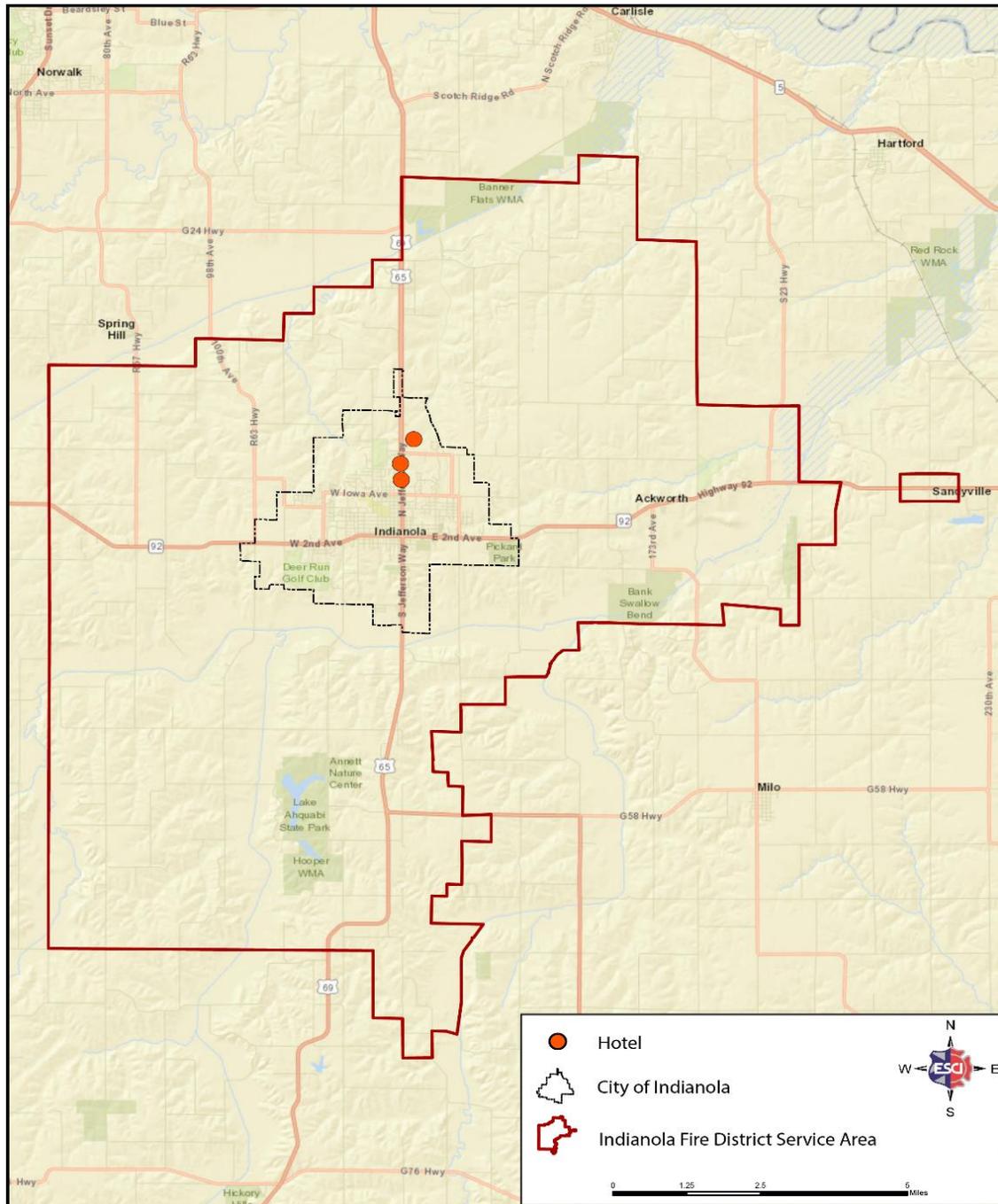
It is likely that Indianola will experience the possibility of severe freezing weather and hail storms. As depicted in the figure, hail storms are prevalent in the area. Cold weather emergencies can be taxing on the EMS system and responders. IFD should ensure that Emergency Management processes are exercised and available during winter months.

Figure 59: Community Risk Analysis Churches



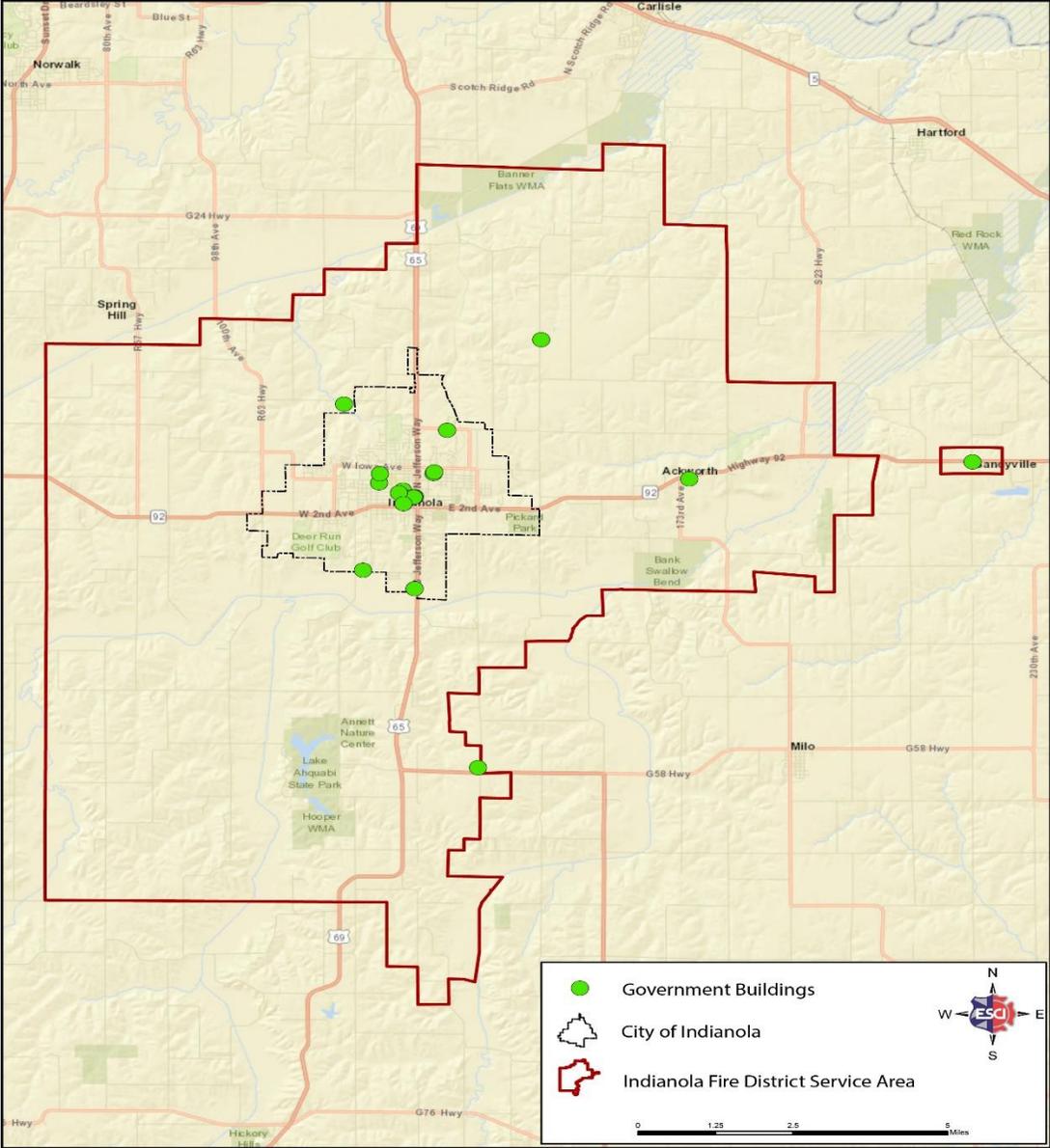
Large gathering occupancies can have an increased risk associated for life safety issues. IFD should ensure pre-planning and training on the hazards associated with these larger structures are conducted. Identifying water supplies and resources ahead of time during these events can ensure better outcomes. These occupancies can have large areas and require significant resources to handle even small incidents.

Figure 60: Community Risk Analysis Hotels



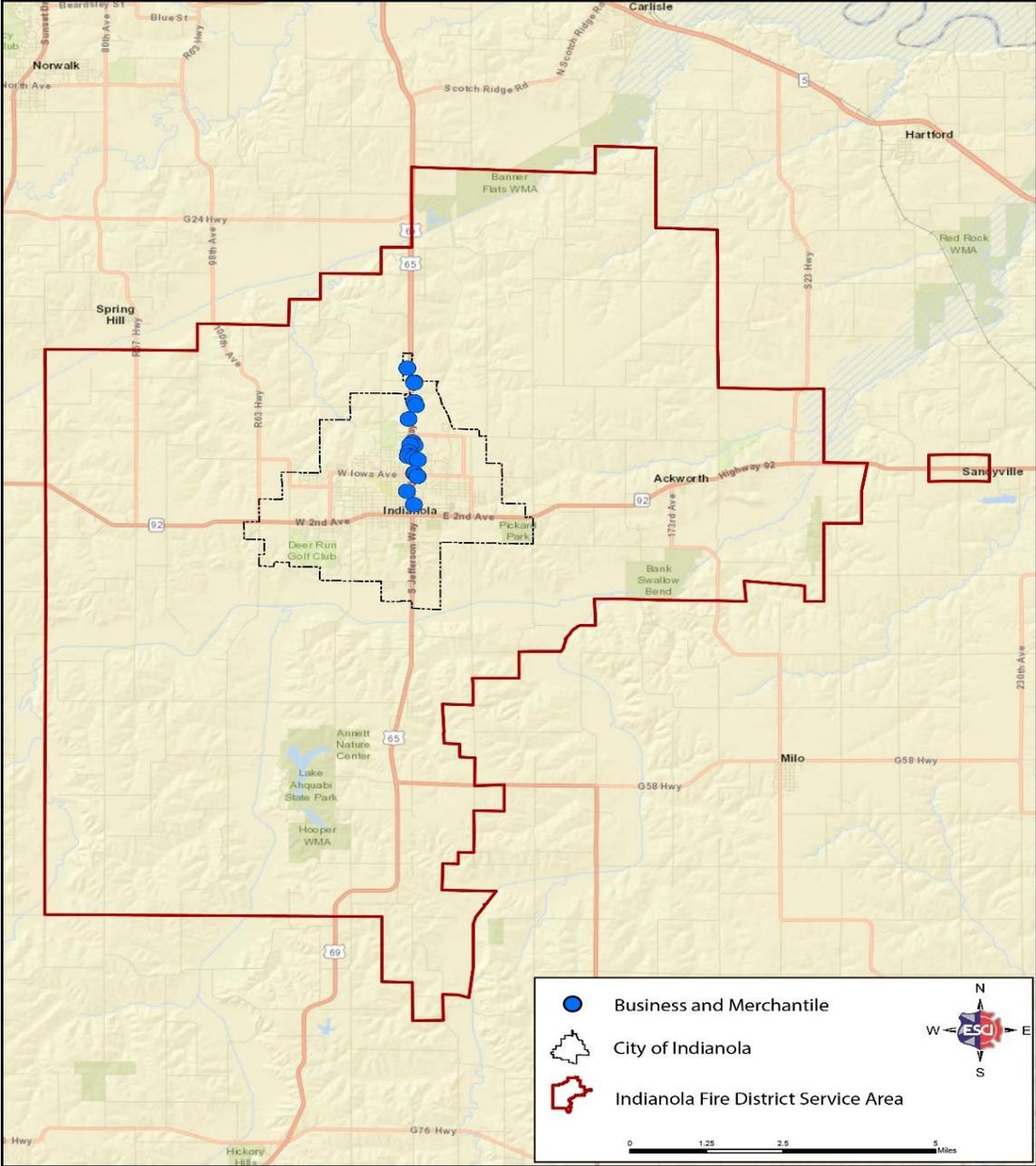
The City of Indianola has three hotels located within the city limits. These occupancies are designed to hold large numbers of people and should be considered a high life hazard event. Pre-incident planning and training on these locations should be a high priority. Conducting drills and training evolutions with responders will ensure they are prepared in the event of a real emergency. Hotels like the ones in Indianola are multi-story and require different tactical decisions than a single family, one-story residence. The daily crew assigned to IFD is not sufficient to handle a moderate fire in these buildings. An incident of this nature will likely require most of the IFD as well as surrounding areas.

Figure 61: Community Risk Analysis Government Buildings



One type of target hazard identified during the community risk analysis are government buildings. Indianola has several government buildings. Often considered “critical facilities” by FEMA, government buildings usually house important official documents or facilitate processes that would upset the community if displaced or lost. These buildings also incorporate enhanced security measures that may make access difficult. Pre-incident planning to identify these hazards is crucial to mitigating and responding to incidents involving government buildings.

Figure 62: Community Risk Analysis Business and Mercantile



The City of Indianola relies on business and mercantile properties to provide goods and services for the community. Furthermore, many of the citizens rely on these occupancies for their place of employment. Ensuring these occupancies are pre-planned and prepared for an emergency will ensure continued success when mitigating incidents involving these structures. Often identifying issues or hazards ahead of time will give the incident commander and responders the upper hand when faced with incidents. These occupancies also require larger amounts of manpower and resources to safely and effectively handle. IFD's daily assignment will have difficulties handling major incidents involving business and mercantile occupancies without mutual aid or recall. Both of which take precious time.

FUTURE SYSTEM DELIVERY MODELS

Development of Response Standards and Targets

ESCI emphasizes the importance of establishing and regularly monitoring performance metrics for the deployment of resources. These metrics serve as the foundation for determining whether the organization is meeting the expectations of the community that it serves. Without regular and consistent performance evaluation, it is impossible to set and achieve goals established to meet community expectations.

Response standards established must originate from the community served to create a balance between what is desired and what can be afforded. Because of this, ESCI cannot establish baseline and benchmark performance metrics for a given organization. However, recommendations based upon the analysis conducted throughout this report may be helpful in serving as a starting point for these discussions with the community served or may serve as a reevaluation tool for the organization's current standards.

Response standards are individual to each organization. Multiple factors such as staffing, financial constraints, size of service area, and politics will influence each department's ability to set achievable goals and objectives for response. Based upon a review of call data, the baseline response for all calls inside the city limits from the initial report to arrival on scene by the first unit is 10 minutes, 15 seconds, 90 percent of the time. Because benchmarks are intended to represent a goal that may not be achievable, it is recommended that IFD consider a performance goal of nine minutes at the 90th percentile. Additionally, IFD may consider establishing separate standards for fire/special operations responses and EMS responses. This will allow for greater discernment between these types of calls and create a body of data for richer analysis. Another consideration related to performance metrics is the additional response standard for ALS calls at the 90th percentile. Currently no field exists within the data to differentiate between ALS and BLS calls which makes the reporting of performance against this standard problematic. IFD may find it helpful to develop a mechanism to capture the final determinant and nature of the call within the call center database for future analysis.

The next sections address the suggested process for a department to determine critical tasks based on local risk and setting response time standards.

Critical Tasks, Risk, and Staffing Performance

The goal of any fire service organization is to provide adequate resources within a period of time to reasonably mitigate an emergency event. However, all emergency events inherently carry their own set of special circumstances and will require varying levels of staffing based upon factors surrounding the incident. Properties with high fire risk often require greater numbers of personnel and apparatus to effectively mitigate the fire emergency. Staffing and deployment decisions should be made with consideration of the level of risk involved. The level of risk categories used in the fire service industry are as follows:

- Low risk – Areas and properties used for agricultural purposes, open space, low-density residential and other low intensity uses.
- Moderate risk – Areas and properties used for medium density single family residences, small commercial and offices uses, low intensity retail sales and equivalently sized business activities.
- High risk – Higher density businesses and structures, mixed use areas, high density residential, industrial, warehousing, and large mercantile structures.

The Center for Public Safety Excellence (CPSE) has a sample critical tasking analysis for the number of personnel required on scene for various levels of risk. This information is shown in the following chart, illustrating an example of critical tasking only and is not intended to conclusively define the actual personnel necessary based on risk.

Figure 63: Sample of Critical Task Staffing by Risk¹⁵

Sample Critical Tasking Analysis				
Firefighter Personnel Needed Based On Level of Risk				
	Structural Maximum Risk	Structure Significant Risk	Structure Moderate Risk	Non-Structure Low Risk
Attack line	4	4	2	2
Back-up line	4	2	2	(2)
Support for hose lines	4	3	2	
Search and rescue	4	4	2	
Ventilation	4	2	2	
Rapid intervention team	4	4	2	
Pump Operator	2	1	1	1
2nd apparatus/ladder operator	1	1	(1)	
Command	2	1	1	1#
Safety	2	1	1#	
Salvage	4			
Rehabilitation	2			
Division/group supervisors	(2)			
Total	37–39	23	14–16	3–6

() indicates tasks may not be required at all such incidents

indicates task may, at times, be completed concurrently with other position

The first 15 minutes are the most crucial period in the suppression of a fire. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations.

¹⁵ Based on examples provided in the publication "Creating and Evaluating Standards of Response Coverage for Fire Departments," 4th edition; Commission on Fire Accreditation International, Inc. (now Center for Public Safety Excellence).

Critical tasks must be conducted in a timely manner to control a fire or to treat a patient. Three scenarios of commonly encountered emergencies are routinely utilized by fire departments when conducting field validation and critical tasking: a moderate risk structure fire, a traffic collision with a trapped victim, and a cardiac arrest. Each scenario is conducted using standard operating procedures and realistic response times based on actual system performance. Each scenario is normally run multiple times with a variety of fire companies to validate and verify observations and times.

To further validate the analysis process, results are compared with records from actual working fires and similar incidents from previous years. Overall results are reviewed to determine if the actions taken within the early minutes of an incident resulted in a stop loss or not and if additional resources were required. The critical task analysis process demonstrates the rate in which the current deployment plan results in stopping loss, a high percentage of time within initial critical time goals.

Again, critical tasks are those activities that must be conducted in a timely manner by firefighters at emergency incidents in order to control the situation, stop loss, and to perform necessary tasks required for a medical emergency. IFD is responsible for assuring that responding companies are capable of performing all of the described tasks in a prompt, efficient, and safe manner.

All Risk Critical Resource Tasking

Fire departments respond to many incidents other than structure fires, including hazardous materials (dangerous goods) releases, motor vehicle collisions, basic and advanced life support medical emergencies, and non-structural fires. Personnel responding to these types of incidents should be assigned tasks similar to structure fires.

The following figures are provided as an example for these types of incidents, although ESCI recommends that IFD conduct its own field validation exercises with its crews, including mutual aid resources, to verify the critical tasking analysis provided. After field validation is complete, IFD may find that the critical tasking can be adjusted appropriately upward or downward for each incident type.

Figure 64: Sample Non-Structure Fire Critical Tasking

Task	Personnel
Command	1
Pump Operator	1
Primary Attack Line	2
Total	4

Figure 65: Sample Hazardous Materials Incident Critical Tasking

Task	Personnel
Command	1
Pump Operator	1
Primary Attack Line	2
Back-Up Line	2
Support Personnel	7
Total	13

Figure 66: Sample Motor Vehicle Collision with Entrapment Critical Tasking

Task	Personnel
Command	1
Pump Operator	1
Primary Attack Line	2
Extrication	3
Patient Care	2
Total	9

Response Time Performance Objectives

To initiate the process of developing performance objectives, several items must be considered. Although the specific information needed to complete this process will vary with each organization, the following items will generally need to be addressed during this process. Historical call data must be collected and analyzed to determine current performance baselines and identify any gaps in data required; response zones must be established based on an agreed upon criteria (i.e., population zones, geographic boundaries, etc.); and benchmarks established as goals for these demand zones.

Because IFD services a fairly wide geographic area with minimal resources and call times are not accurately captured, ESCI recommends that demand zone response performance objectives for fire and EMS be developed based actual demonstrable capabilities at this time. This methodology will serve as a baseline to initiate improvements.

Short and Mid-Term Strategies

The previous sections of this report detail a considerable volume of observations and Comments and Key Recommendations relating to the IFD management and operations. The process of understanding, prioritizing and implementing the recommended enhancements can be daunting, simply due to the amount of work that may be involved. To help the organization navigate through the process, the following discussion further defines the short and mid-term priorities that ESCI has identified as the most important initially.

Short and Mid-Term Comments and Key Recommendations

ESCI continues with the following list that summarizes Comments and Recommendations based on the agency evaluation contained within this report that are achievable in the short or mid-term; typically within a maximum of five years. These comments and recommendations have been compiled into a prioritized list for easy reference. The prioritization system is as follows.

- Priority 1 – Items Involving Immediate Internal Safety Concerns
- Priority 2 – Considerations That May Present Legal or Financial Exposure
- Priority 3 – Matters That Address a Service Delivery Issue
- Priority 4 – Considerations to Enhance the Delivery of a Service
- Priority 5 – A Good Thing to Do

Priority 1 – Items Involving Immediate Internal Safety Concerns

The recommendation deals with an improvement or initiative that solves an issue affecting the safety of firefighters and/or other personnel. These are not matters that simply make it easier to do a particular function but, in fact, change a currently unsafe situation into a safe one.

- It is recommended that each IFD station and/or building have a thorough evaluation for structural integrity and regulation compliance with NFPA standards. The evaluation of station and facilities for compliance with NFPA life safety initiatives.

Priority 2 – Considerations That May Present Legal or Financial Exposure

The recommendation resolves a situation that is creating or has the potential to create an opportunity for legal action against the entity or its officials. It also may be a situation that could subject the entity to a significant expense.

- Standard Operating Guidelines are under review and the newest copy has not been released to the field for employees to adhere to. This process should be completed and the revised version released job descriptions should be evaluated periodically to ensure they match current job duties and assignments.
- A formal process to account for organizational history accounting for the department's existence and success.
- After values statement is created suggest codifying in a code of ethics specifically for the IFD.

- Develop and document a formal process to help coordinate and ensure that identified needs are met when establishing new SOGs and reviewing current SOGs.
- The continuation of training on both SOGs and Policies and Procedures should be maintained and documented.
- IFD should strive to develop a structured Critical Incident Stress Debriefing program for its members. This program should be communicated to make each member aware of the availability of resources.
- ESCI strongly encourages the department to establish and ensure all activities of the safety committee are in alignment with Chapter 4 of NFPA 1500.
- It is also recommended that IFD revise the existing public education job description to include Job Performance Requirements identified within NFPA 1035 with clear timeframes in which the training will be completed.

Priority 3 – Matters That Address a Service Delivery Issue

The recommendation addresses a service delivery situation that, while it does not create an immediate safety risk to personnel or the public, it does affect the department's ability to deliver service in accordance with its standards of performance. For example, adding a response unit to compensate for a growing response workload or delivering training needed to allow personnel to deal effectively with emergency responses already being encountered.

- IFD should incorporate pre-planning events in their training program.
- Develop performance goals and a methodology for monitoring the individual components of response performance. Provides an opportunity to improve overall response performance.
- Established performance standards for total response time and each component of total response time.
- Establish a performance standard for turnout time and monitor for compliance.
- Adopt dispatching best practices model.
- IFD will need to develop and implement accountability mechanisms to ensure necessary training is accomplished.
- It is recommended that IFD further develop training efforts with its regional partners.
- Establish/Develop a suitable place to conduct training evolutions that incorporate all of the necessary and required training knowledge, skills, and abilities.
- It is recommended that IFD establish an internal training program to ensure this position is trained to the Job Performance Requirements of NFPA 1035: *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications*.
- ESCI recommends that IFD begin tracking call processing time and develop a plan to bring the 90th percentile call processing time to within the NFPA standard.
- Reduce turnout time performance to meet the NFPA 1720 standard.

Priority 4 – Considerations to Enhance the Delivery of Services

Comments and Key Recommendations that improve the delivery of a particular service. For example, relocating a fire station to improve response times to a particular part of town or adding a piece of equipment that will improve the delivery of a service.

- Tie performance measures to mission, vision, values and/or strategic planning goals and objectives.
- ESCI also recommends that IFD dispatch center explore the use of modern technology, such as mobile data computers or terminals (MDCs/MDTs) to improve data collection and reporting.
- Response data from all units assigned is necessary.
- IFD should further develop and implement tracking mechanisms to more effectively communicate the activities associated with its strategic fire prevention effort.

Priority 5 – A Good Thing to Do

The recommendation does not fit within any of the above priorities, but is still worth doing and can enhance the department's morale and/or efficiency.

- Create updated values statement for the department.
- An ongoing lists of challenges should be maintained for ease of developing solutions and documenting implementation.
- The use of an annual report gives the organization a chance to showcase achievements and milestones for the year. It also serves to document level of service.
- Develop a process to periodically identify critical issues.
- With the addition of some form of social media presence, the IFD external communications package will be representative of a well-balanced and effective approach to communicating with the citizens if these are utilized often. Develop and distribute social media involvement.
- Report performance against the established goals.
- ESCI encourages IFD leaders to work cooperatively with PSC to ensure that accurate and complete response performance data is transferred to the department's records management software.

Recommended Long-Term Strategies

The short and mid-term strategies discussed will move the organization forward substantially. A longer-term, high-level view of future needs is also important to provide a “big picture” view of how the organization needs to continue with future initiatives. Primarily, long-term strategies are centered around community growth and related workload and how both impact the future deployment of fire stations and personnel.

Fire/EMS Staffing Challenges for the Future

IFD, like many other fire rescue organizations, experiences high service demand for emergency medical services and service calls. While these tasks are today a fundamental part of the fire service mission, when left unchecked they can diminish the organizations ability to effectively handle and mitigate fires. IFD covers a predominately rural area with growth on the horizon. The current and future challenge for IFD is to determine how best to respond to the mass majority of its calls, primarily EMS, while maintaining an effective service force with the ability to muster an appropriate number of firefighters within a time frame quickly enough to suppress and extinguish fires.

Organizational Development, Administrative and Support Staffing

In many regards, IFD is in a state-of-growth with the addition of SAFER grant funded staff. As a result, the membership is in the process of navigating its way through a set of new priorities and paradigms, which is often a difficult process.

To assist in the transition, ESCI recommends internal communications be enhanced in an effort to increase ownership in decisions and appreciation for organizational changes. The establishment of internal advisory committees is recommended, along with the reinforcement of the roles of committees that are available in areas such as:

- Safety Committee
- Training Advisory Committee
- Apparatus Committee
- EMS Committee

Committees should include the participation and oversight of a management officer as well as workforce representation.

In addition to those listed above, ESCI singles out what may be the most important committee—a Labor Management Committee. Even without a bargaining unit, the formation of a workforce committee is important. While the committee may be the most challenging to establish, it is viewed as the one that has the most potential for internal communication improvement and the greatest opportunity for substantial, long-term, gain.

ESCI recommends the executive team continue the strategic planning process. This process should be community and organizationally based and inclusive of the observations and recommendations in this report. The process should include at a minimum:

- Community, county, and organization input town hall meetings
- Joint labor management key stakeholder strategic planning team
- Mission statement development or refinement
- Development of vision statements
- Identification of core values
- Identified department initiatives
- Goals
- Objectives
- Critical Tasks
- Strategic Plan: roll out strategy and operational plan with a visible progress tracking mechanism

The department faces several needs regarding administrative and support staffing practices, which have already been discussed in the Evaluation of Current Conditions section of this report, so they are not repeated here. However, listed below are some areas in need of further evaluation.

ESCI does not find that the department administrative staffing approach inappropriate, however, absent a formal analysis of need, workload, and existing personnel knowledge, skills, and abilities, a fully competent examination cannot be made. To assess how best to address the needs listed above, as well as additional areas of concern that may not be identified, a wholesale workload analysis and review of the district's current administrative staffing strategy is recommended. A process should be undertaken that identifies tasks and demands that need to be met, compared to existing personnel capacities and capabilities and with open consideration of ways to re-distribute responsibilities in a manner that differs from current practice.

Additional Infrastructure or Facilities

The single most important need in terms of facilities used in support of department programs is that of training facilities. As discussed, current classrooms may be sufficient but drill facilities are inadequate and the development of a local or regionally shared training resource would be of considerable value.

Training

Successful fire and EMS training programs typically incorporate dedicated full-time staff that provides a leadership/managerial component and a delivery and evaluation program. ESCI recommends that IFD work toward incorporation of a plan to adequately develop, deliver, and monitor training for the department through the use of their full-time administrative training captain. This may include dissemination of additional training program responsibilities to others in the organization that are identified as possessing the necessary skills and interests.

In doing so, ESCI further recommends that IFD undertake a comprehensive planning process that will:

- Identify and assess training requirements, developmental needs, and skills gaps;
- Establish, implement, and manage a comprehensive professional development program for all employees;
- Incorporate a blended strategy of education, training, and practical skills development and periodic assessment;
- Provide strong leadership for the program;
- Provide effective training delivery and skills assessment; and
- Appropriately staff the program.

Within the training program, ESCI again also recommends that IFD specifically explore cooperative services initiatives with surrounding agencies in the areas of training delivery and training facility development.

Fire Prevention and Public Education

In the Evaluation of Current Conditions discussion, weaknesses were identified in the area of fire code enforcement, prevention, and public education. The importance of effective fire prevention is often overlooked and frequently weakly prioritized, relative to its true importance as a component of a comprehensive fire protection service delivery strategy. ESCI urges IFD to review and re-prioritize its level of commitment to fire prevention overall, including consideration of strengthening the program in the following areas:

- Establishment of more effective community outreach regarding public fire and safety education through Community Risk Reduction (CRR) programs.

Resource Deployment Options and Financial Analysis

The results of the preceding analysis provide several salient considerations for the deployment strategies utilized by IFD. The analysis confirmed that the current fire station location is well suited and provides the best options for fire station location when compared to currently available, alternative, or additional locations and that the greatest need faced by IFD now and in the foreseeable future is not the addition of another fire station(s). Rather, the greatest need indicated by the preceding evaluation is that addition of firefighters in the existing station. The preceding analysis and subsequent solutions have been adjusted to allow for additional positions awarded by the SAFER grant. These positions have been considered in the options for future service. The analysis demonstrates that a minimally staffed fire station, with only two career firefighters assigned per 24-hour period and two part-time firefighters at the station and who are required to cross-staff ambulances and fire engines, does not provide the level of effectiveness that could be obtained by either altering peak hour configurations or increasing the number of career dedicated staff. The award of the SAFER grant has begun to address these concerns but does not fully meet the needs of the community. The following general considerations are provided from the staffing analysis:

- Maintaining at least four firefighters at Station 1 provides IFD with the ability to respond to multiple calls from the same location within the respective fire station service area and potentially reduces the frequency of units not being available for service. This is only possible from 8 am to 5 pm currently.
- Due to limited staffing and distribution across a large and sparsely populated geographical area, it is not currently possible for IFD to meet any national consensus standards for response time, coverage, or the assembly of an effective response force (ERF). Therefore, ESCI recommends either an increase of volunteer, paid-on-call, peak hour staff, and or increasing dedicated career staff.
- Due to the practice of cross-staffing units, minimal staffing, and the complete depletion of available units when any one apparatus is committed to a call, response times are relatively high.

Based on the analysis conducted during this study, ESCI has provided several options for consideration that would improve IFD's ability to enhance service demand, either with currently available resources or through the addition of resources. These options would each enhance firefighter safety and effectiveness. The following analysis of these options will provide the city with the information necessary to select the most appropriate and sustainable option and provide a prioritization for future funding decisions.

To provide realistic alternatives to the current service delivery model, the following series of figures present several options illustrating alternative approaches to the current service delivery model. While these are by no means the only options, the following discussion does provide the county with a sense of the range of models available to them and the impacts on service delivery.

Options identified during this report will be presented in the following order:

- Option 1A) Maintain status quo with no additional staff added.
- Option 1B) Maintain status quo and shift the current hours of operation from 8 am to 5 pm for the part-time staff to better match peak hour demands.
- Option 2A) Increase part time staffing levels at current station to 12-hour shifts to cover more of the peak hour demands (3.0 for 24/7 with 12 hours Peak Demand Unit).
- Option 2B) Add two part-time staff for peak hour demands on a shift that is off set from the current part-time staff (3.0 for 24/7 with 2.0 8 am–5 pm Peak Demand Unit and 2.0 12 pm –8 pm Peak Demand Unit).
- Option 3A) Convert the current part-time staff to full-time staff to provide four full-time staff members (2.0/2.0 for 24/7).
- Option 3B) Promote one FTE per shift to the role of company officer to ensure proper span of control.
- Option 4) After the conversion of the current part-time staff to full time staff, add two additional part-time staff for peak hour demands (2.0/2.0 for 24/7 with part-time peak demand unit).
- Option 5) Hire a FTE for administrative duties and the support of staff.
- Option 6) Hire a FTE dedicated to fire prevention and support staff.

It is important to recognize that the options presented are based upon the data available at the time of this report and additional factors not readily available were not considered when forming the options for consideration. Detailed analysis, including extensive financial modeling of options is beyond the scope of this study. Further, the city may find that it would prefer to implement some variation of the options presented here.

Option 1A) Maintain Status Quo

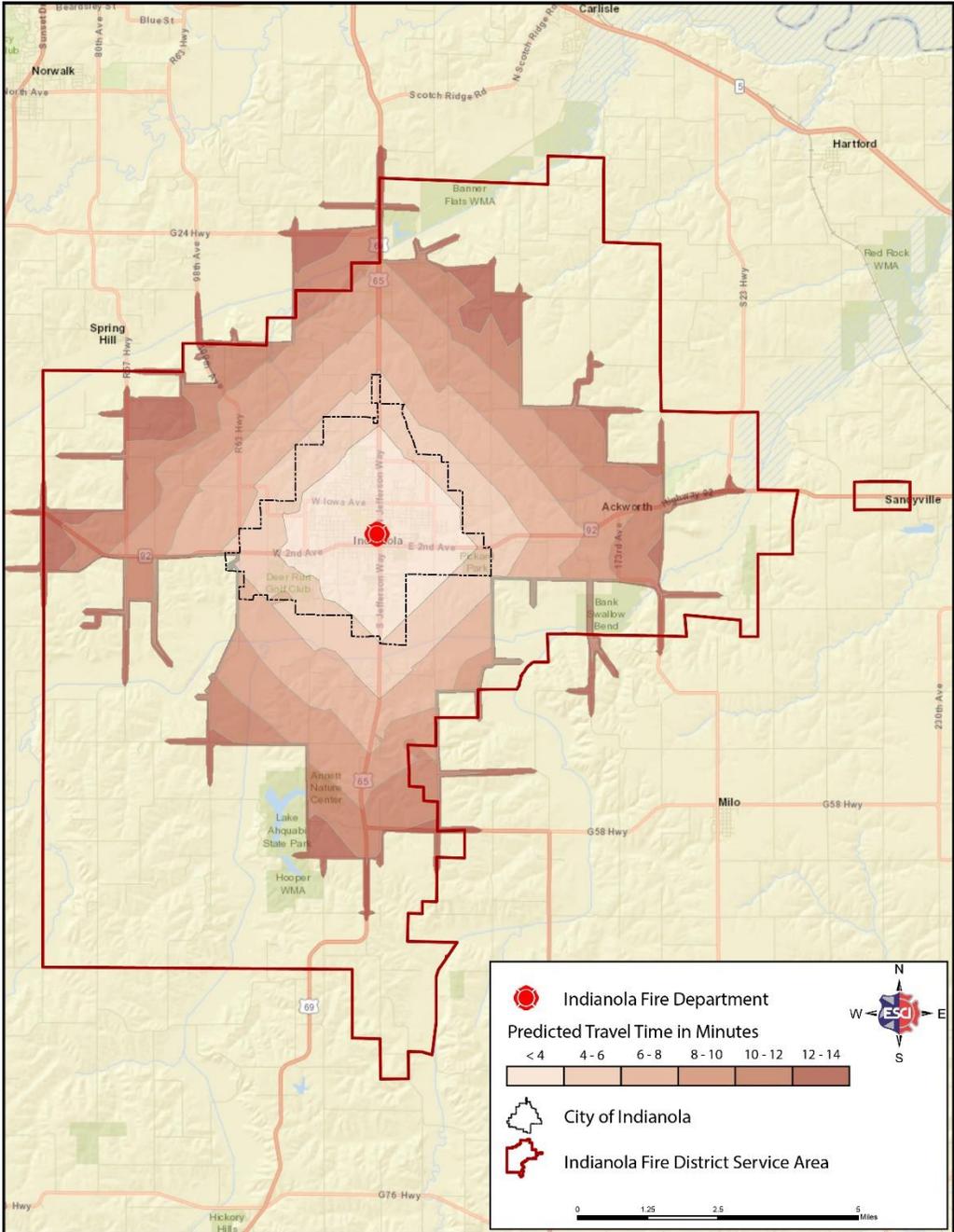
Maintaining the current service delivery model is an option for IFD. As previously discussed, under the current deployment model IFD lacks the ability to comply with the national consensus standard, NFPA 1720, for providing fire and EMS services.

Figure 67: Option 1A Remain Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 8 am–5 pm per Shift

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	3	FTE	24/7	3
Rescue	2	Part-Time	8–5	2
TOTAL				7

As shown in the figure, IFD currently staffs its station with three firefighters per shift (total staff of 9 FTE = 3 FTE per shift x 3, 24-hours shifts) as a result of the recent SAFER grant who respond in either the ambulance or the engine depending upon the nature of the emergency call. IFD also staffs two firefighters from 8 am to 5 pm. These part-time staff are first due for medical calls for service. IFD can only provide five or more firefighters—seven if the chief and administrative captain are included—within an eight-minute travel time during the hours of 8 am to 5 pm to approximately 100 percent of the city as shown in the following figure, and the total demonstrated response time (turnout plus travel) at the 90th percentile is 10 minutes, 15 seconds. Should the department determine that it will continue to operate in this manner, the previously discussed factors should be considered in future service delivery models. IFD will fail to meet national consensus standards outlined in NFPA 1720. Furthermore, after day staff goes home, the IFD relies on three firefighters and POC responders at night. Upon immediate dispatch, IFD does not have the proper staff to commence interior firefighting operations in conjunction with industry standards and Occupational Safety and Health Administration 29 CFR 1910.134(g)(4)(i) guidelines. These guidelines and industry standards require two firefighters to be on scene and available outside the hazard area while two are inside. As population and call volume increase, IFD’s ability to provide the same level of service will decrease.

Figure 68: Option 1A Resource Concentration Status Quo, 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 8 am–5 pm per Shift



As depicted in the above figure, IFD can reach 100 percent of the city limits within 4–6 minutes. The daily staffing assigned becomes the EFF for IFD and correlates to the time limits depicted above. In 4–6 minutes, from 8 am–5 pm, IFD would be able to assemble 7 firefighters—including the chief and administrative captain—if all units are available. After day staff goes home the IFD relies on three firefighters for the remainder of the 24-hour shift. The city meets the qualifications for urban and suburban demand zones and requires 15 firefighters for urban and 10 firefighters for suburban population demands to meet NFPA 1720 recommendations. POC responders help supplement these numbers but are not guaranteed.

OPTION 1A FINANCIAL IMPACT

The financial impact of Option 1A is a status quo projection provided in an earlier section of the study as the recommended 2018 budget since there would be no additional costs incurred with continuing the status quo staffing and deployment model.

Option 1B) Maintain status quo and shift the current hours of operation from 8 am to 5 pm for the part-time staff to match peak hour demands.

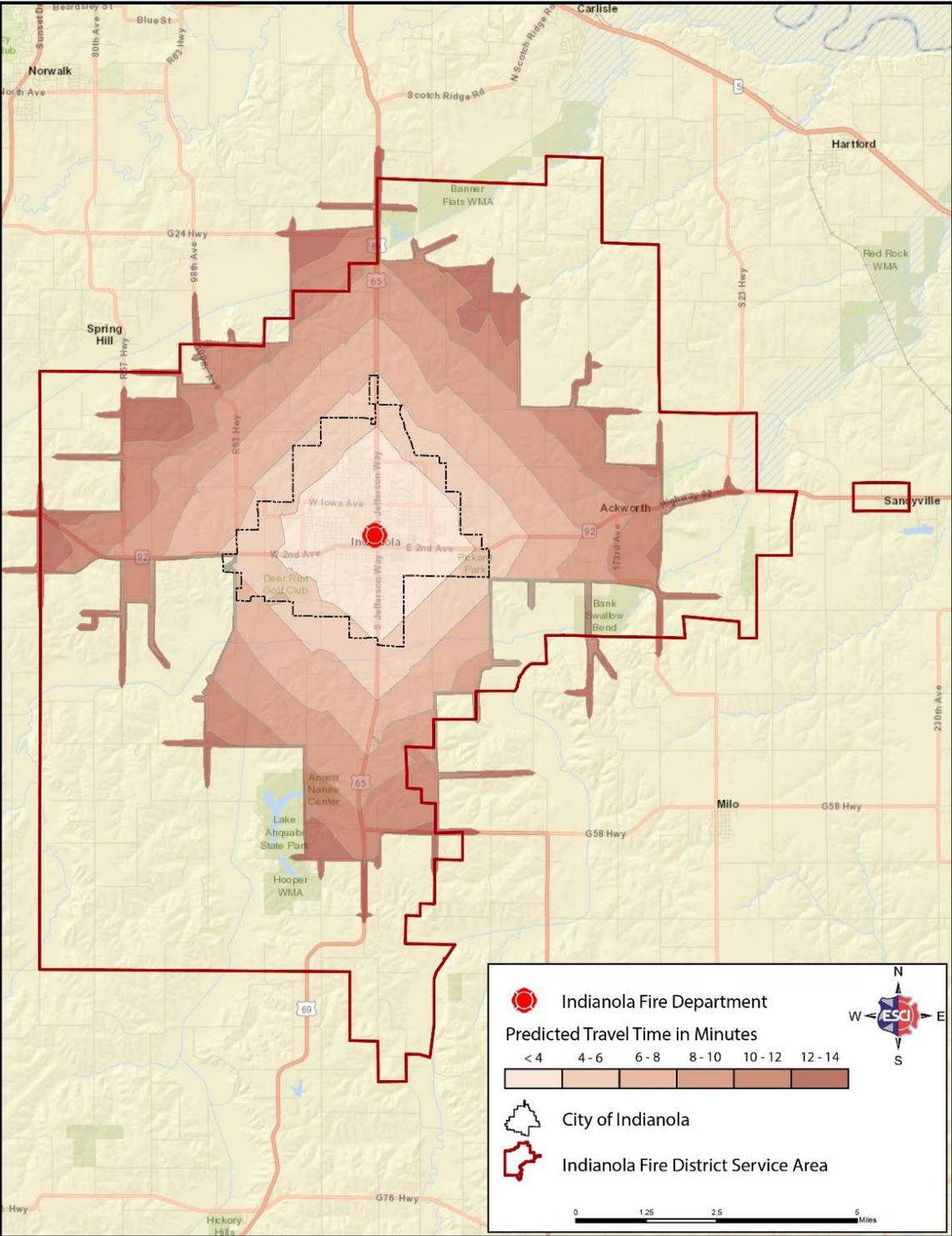
Maintaining the current service delivery model is an option for IFD. However, shifting the hours assigned to the part-time unit to cover peak time will assist with meeting service delivery benchmarks. As previously discussed, under the current deployment model, IFD lacks the ability to comply with the national consensus standard, NFPA 1720, for providing fire and EMS services.

Figure 69: Option 1B Remain Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 10 am to 7 pm per Shift

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	3	FTE	24/7	3
Rescue	2	Part-Time	10–7	2
TOTAL				7

As shown in this figure, IFD currently staffs its station with three firefighters per shift (total staff of 9 FTE = 3 FTE per shift x 3, 24-hours shifts) who respond in either the ambulance or the engine depending upon the nature of the emergency call. IFD also staffs two firefighters from 8 am to 5 pm. These part-time staff are first due for medical calls for service. Current peak time analysis shows that IFD experiences busiest peak call times between the hours of 10 am and 7 pm. IFD should adjust the part-time staff to match peak hour demands. IFD would still only provide five or more firefighters, within an eight-minute travel time during the hours of 8 am to 7 pm to approximately 100 percent of the city as shown in the next figure and the total demonstrated response time (turnout plus travel) at the 90th percentile is 10 minutes, 15 seconds. Should the department determine that it will implement this change the ability to assemble an increased EFF will be available for an extra two hours during the day. The shifting of part-time staff to match peak hours will assist with handling concurrent calls during busy hours. The current part-time staff shift ends during the busiest time of the day. Furthermore, after day staff goes home the IFD relies on three firefighters and POC responders at night. Upon immediate dispatch, IFD does not have the proper staff to commence interior firefighting operations in conjunction with industry standards and Occupational Safety and Health Administration 29 CFR 1910.134(g)(4)(i) guidelines. These guidelines and industry standards require two firefighters to be on scene and available outside the hazard area while two are inside.

Figure 70: Option 1B Resource Concentration Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff
10 am-7 pm per Shift



As depicted in the previous figure, IFD can reach 100 percent of the city limits within 4–6 minutes. The daily staffing assigned becomes the EFF for IFD and correlates to the time limits depicted above. In 4–6 minutes from 10 am-5 pm IFD would be able to assemble 7 firefighters—including the chief and administrative captain—if all units are available. This option does little for assembling an increased EFF but does provide a greater ability to handle concurrent EMS calls during peak hours. After day staff goes home, the IFD relies on three firefighters for the remainder of the 24-hour shift. Several areas in city meet the qualifications for urban and suburban demand zones and requires 15 firefighters for urban and 10 firefighters for suburban population demands to meet NFPA 1720 recommendations. POC responders help supplement these numbers but are not guaranteed.

OPTION 1B FINANCIAL IMPACT

The financial impact of Option 1B is reflected as status quo. There would be no additional costs incurred with continuing the status quo staffing and deployment model. The only change is the actual hours worked during the day.

Option 2A) Increase part-time staffing levels at current station to-12 hour shifts to cover more of the peak hour demands.

Maintaining the current service delivery model is an option for IFD. However, increasing the hours assigned to the part-time unit to cover peak time will assist with meeting service delivery benchmarks. As previously discussed, under the current deployment model IFD lacks the ability to comply with the national consensus standard, NFPA 1720, for providing fire and EMS services.

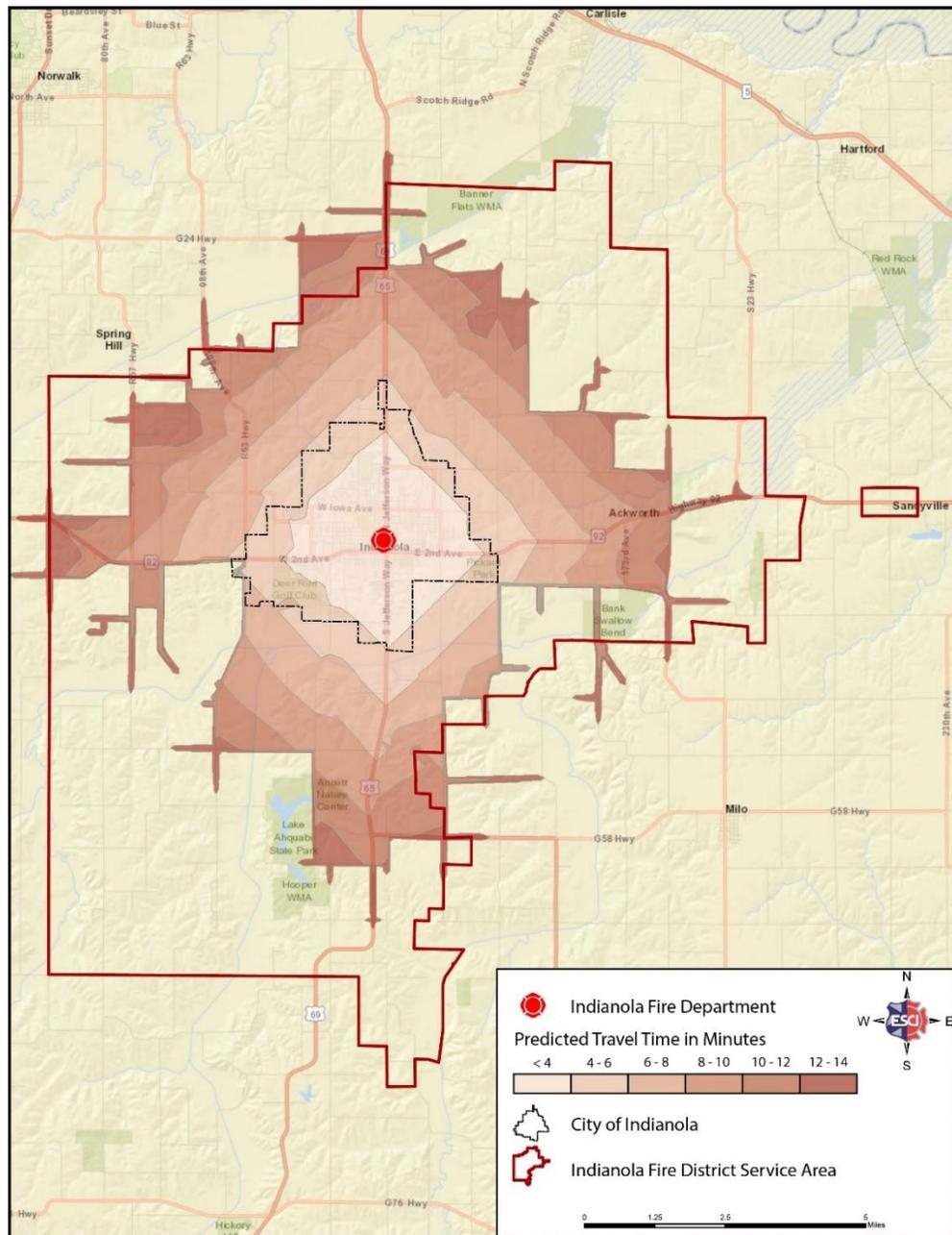
Figure 71: Option 2A Remain Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 7 am to 7 pm per Shift

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	3	FTE	24/7	3
Rescue	2	Part-Time	7–7	2
TOTAL				7

As shown in the figure, IFD currently staffs its station with three firefighters per shift (total staff of 9 FTE = 3 FTE per shift x 3, 24-hours shifts) who respond in either the ambulance or the engine depending upon the nature of the emergency call. IFD also staffs two firefighters from 8 am to 5 pm. These part-time staff are first due for medical calls for service. Current peak time analysis shows that IFD experiences peak call between the hours of 7 am and 7 pm. IFD should increase the part-time staff to match peak hour demands. IFD would still only provide five or more firefighters within an eight-minute travel time during the hours of 7 am to 7 pm to approximately 100 percent of the city as shown in the following figure and the total demonstrated response time (turnout plus travel) at the 90th percentile is 10 minutes, 15 seconds.

Should the department determine that it will implement this change, the ability to assemble an extra two firefighters to add to the EFF and be available for concurrent EMS calls for three more hours a day during the peak time of demand is achieved. The current part-time staff shift ends during the busiest time of the day. Furthermore, after day staff goes home the IFD relies on three firefighters and POC responders at night. Upon immediate dispatch IFD does not have the proper staff to commence interior firefighting operations in conjunction with industry standards and Occupational Safety and Health Administration 29 CFR 1910.134(g)(4)(i) guidelines. These guidelines and industry standards require two firefighters to be on scene and available outside the hazard area while two are inside.

Figure 72: Option 2A Resource Concentration Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-time Staff 7am-7pm per Shift



As depicted in the previous figure, IFD can reach 100 percent of the city limits within 4–6 minutes. The daily staffing assigned becomes the EFF for IFD and correlates to the time limits depicted above. In 4–6 minutes from 8 am–5 pm IFD would be able to assemble seven firefighters—including the chief and administrative captain—if all units are available. This option increases the ability to assemble a greater EFF from 7 am–7 pm, but still does not meet NFPA 1720 recommendations for urban and suburban population demands. However, it does provide a greater ability to handle concurrent EMS calls during peak hours. After day staff goes home the IFD relies on three firefighters for the remainder of the 24-hour shift. The city meets the qualifications for urban and suburban demand zones and requires 15 firefighters for urban and 10 firefighters for suburban population demands to meet NFPA 1720 recommendations. POC responders help supplement these numbers but are not guaranteed.

OPTION 2A FINANCIAL IMPACT

The fiscal impact of Option 2A is reflected in the analysis and includes the addition of 3 hours per part-time employee per shift assigned.

Days	Additional Staff	Hours	Hourly Rate	Additional Impact on the budget
365	2	3	\$21.02	\$23,016

This option includes extending the part-time hours for 3 hours each day. The hourly rate includes benefits earned by the staff for the increased hours.

Option 2B) Add two part-time staff for peak hour demands on a shift that is off set from the current part-time staff.

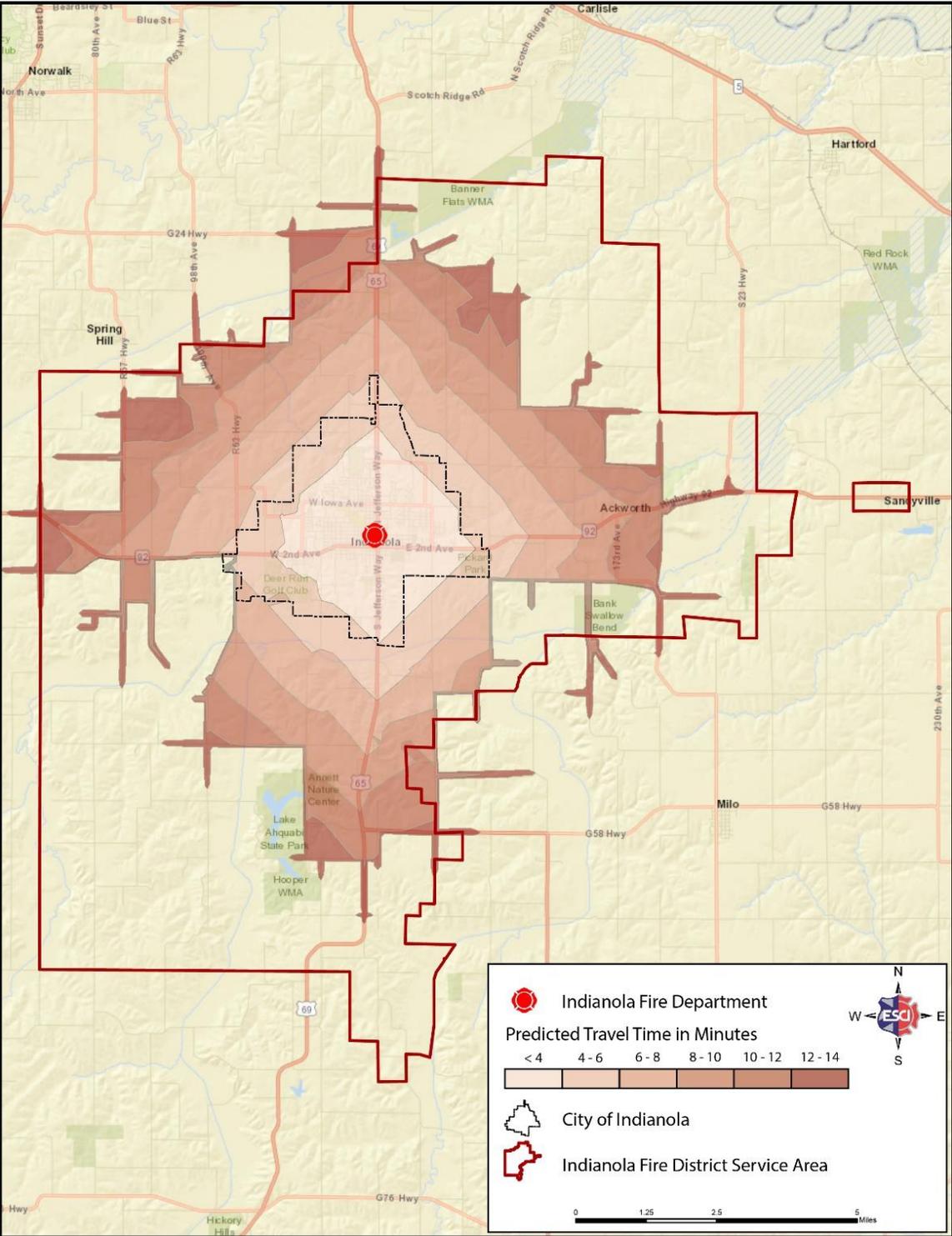
Maintaining the current service delivery model is an option for IFD. However, adding an additional part-time peak hour unit off set from the current part-time staff would provide additional coverage and manpower during a majority of peak demand hours and assist with meeting service delivery benchmarks. As previously discussed, under the current deployment model IFD lacks the ability to comply with the national consensus standard, NFPA 1720, for providing fire and EMS services.

Figure 73: Option 2B Remain Status Quo 3.0 Career Firefighters 24/7, 2.0 Part-Time Staff 8 am–5 pm per Shift, and an Additional 2.0 Part-Time Staff 12 pm–8 pm

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	3	FTE	24/7	3
Rescue	2	Part-Time	8–5	2
Rescue	2	Part-Time	12–8	2
TOTAL				9

As shown in the previous figure, IFD currently staffs its station with three firefighters per shift (total staff of 9 FTE = 3 FTE per shift x 3, 24-hours shifts) who respond in either the ambulance or the engine depending upon the nature of the emergency call. IFD also staffs two firefighters from 8 am to 5 pm. These part-time staff are first due for medical calls for service. Current peak time analysis shows that IFD experiences the highest peak call load between the hours of 10 am and 7 pm. IFD should consider increasing the number of part-time staff and adjust the part-time staff hours to match peak hour demands. IFD would then be able to provide nine or more firefighters within an eight-minute travel time during the hours of 8 am to 5 pm to approximately 100 percent of the city as shown in the following figure and the total demonstrated response time (turnout plus travel) at the 90th percentile is ten minutes fifteen seconds. Should the department determine that it will implement this change the ability to assemble an extra two firefighters to add to the current EFF of seven including the chief and administrative captain will be achieved during the 12 am – 5 pm time frame as well as be available for concurrent EMS calls for three more hours a day during the peak time of demand is achieved. During these hours IFD will still not meet the NFPA 1720 standard upon initial dispatch but the ability to meet NFPA 1720 standards will be greatly increased with the addition of POC responders supplementing career staff. The current part-time staff shift ends during the busiest time of the day. Furthermore, after day staff goes home the IFD relies on three firefighters and POC responders at night. Upon immediate dispatch IFD does not have the proper staff to commence interior firefighting operations in conjunction with industry standards and Occupational Safety and Health Administration 29 CFR 1910.134(g)(4)(i) guidelines. These guidelines and industry standards require two firefighters to be on scene and available outside the hazard area while two are inside.

Figure 74: Option 2B Resource Concentration Remain Status Quo 3.0 Career Firefighters 24/7, 2.0 Part-time Staff 8 am–5 pm per Shift, and an additional 2.0 Part-time Staff 12 pm–8 pm



As depicted in the previous figure, IFD can reach 100 percent of the city limits within 4–6 minutes. The daily staffing assigned becomes the EFF for IFD and correlates to the time limits depicted above. In 4–6 minutes from 12 am–5 pm, IFD would be able to assemble nine firefighters—including the chief and administrative captain—if all units are available. This option increases the ability to assemble a greater EFF from 8 am–8 pm but still does not meet NFPA 1720 recommendations for urban and suburban population demands. However, it does provide a greater ability to handle concurrent EMS calls during peak hours. After day crew go home the IFD relies on three firefighters for the remainder of the 24-hour shift. The city meets the qualifications for urban and suburban demand zones and requires 15 firefighters for urban and 10 firefighters for suburban population demands to meet NFPA 1720 recommendations. POC responders help supplement these numbers but are not guaranteed.

OPTION 2B FINANCIAL IMPACT

The fiscal impact of Option 2B is reflected in the following financial model and included the addition of an additional part-time unit from 12 pm–8 pm. with two firefighters per shift.

Days	Additional Staff	Hours	Hourly Rate	Additional Impact on the budget
365	2	8	\$21.02	\$61,378

This option includes extending the part-time hours for 8 hours each day. The hourly rate includes benefits earned by the staff for the increased hours.

Option 3A) Convert the current part-time staff to full-time staff to provide four full-time staff members.

Maintaining the current service delivery model is an option for IFD. However, converting the current part-time staff to full-time will increase the number of firefighters available 24/7. As previously discussed, under the current deployment model IFD lacks the ability to comply with the national consensus standard, NFPA 1720, for providing fire and EMS services. In this option, some issues previously described are alleviated by increasing the current staffing levels to provide four firefighters as shown in the following figure. Two firefighters are assigned to the engine and two to the ambulance (2.0/2.0 staffing) who are dedicated to those units for the duration of the work period unless multiple calls for service require a change in apparatus. Additionally, this option would allow IFD to align with industry best practices of maintaining separate staffing for medical and suppression units.

Figure 75: Option 3A 2.0 Career Firefighters 24/7 and Convert Part-Time staff to 2.0 Career Firefighters 24/7

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	2	FTE	24/7	2
Rescue	2	FTE	24/7	2
			TOTAL	6

As shown in the previous figure, IFD currently staffs its station with three firefighters per shift (total staff of 9 FTE = 3 FTE per shift x 3, 24-hours shifts) who respond in either the ambulance or the engine depending upon the nature of the emergency call. IFD also staffs two firefighters from 8 am to 5 pm. These part-time staff are first due for medical calls for service. IFD could consider converting these part-time staff to full-time staff and provide four or more firefighters within an 8-minute travel time 24/7 to approximately 100 percent of the city as shown in the following figure and the total demonstrated response time (turnout plus travel) at the 90th percentile is 10 minutes, 15 seconds. Should the department determine that it will implement this option it will do little to increase the EFF during the day but will increase the ability to have four firefighters on duty 24/7. This serves to ensure that an initial crew size of four is immediately dispatched to all fires and can begin interior operations without having to wait for additional units to arrive in accordance with industry standards and OSHA 1910.134 guidelines. Current operations rely on three firefighters after day staff and part-time staff has gone home for the remainder of the 24 hours. This option will also serve to increase the ability to handle concurrent EMS calls during the 24-hour shift.

While this option does not bring IFD into full compliance with NFPA 1720 or ISO criteria, it does provide a significant improvement in ability to handle both current and future service demand. It also represents an entry point for IFD to begin development of a deployment system based upon industry best practices. Whether or not IFD implements this option today or in the near future, some variant of this deployment model should be adopted for IFD to operate in a more effective, safe, and efficient manner. This option represents the absolute minimum staffing levels advisable in a fire rescue system. However, it also represents a significant increase in overall staffing levels and annual expenditures. Because of the factors discussed, this is a realistic option enabling IFD to establish a solid operational framework for current and future deployment and development of fire rescue resources within the system that will eventually lead to conformance with industry standard and best practice.

Option 3A requires the hiring of one additional FTE employees per shift for a total of three additional positions. Many departments develop a step plan to increase FTEs in an incremental manner over a number of years to ease financial impacts. ESCI has provided a sample staffing schedule increasing the department’s current staffing from two firefighters per station/per shift 24/7 with part-time supplemental staff, cross-staffing units to two firefighters assigned per engine and two assigned per ambulance in the following figures. The following figure depicts a sample plan to achieve this staffing. Fortunately for IFD in year 1 the department has been awarded the SAFER grant and can immediately move to year two in FY 2019.

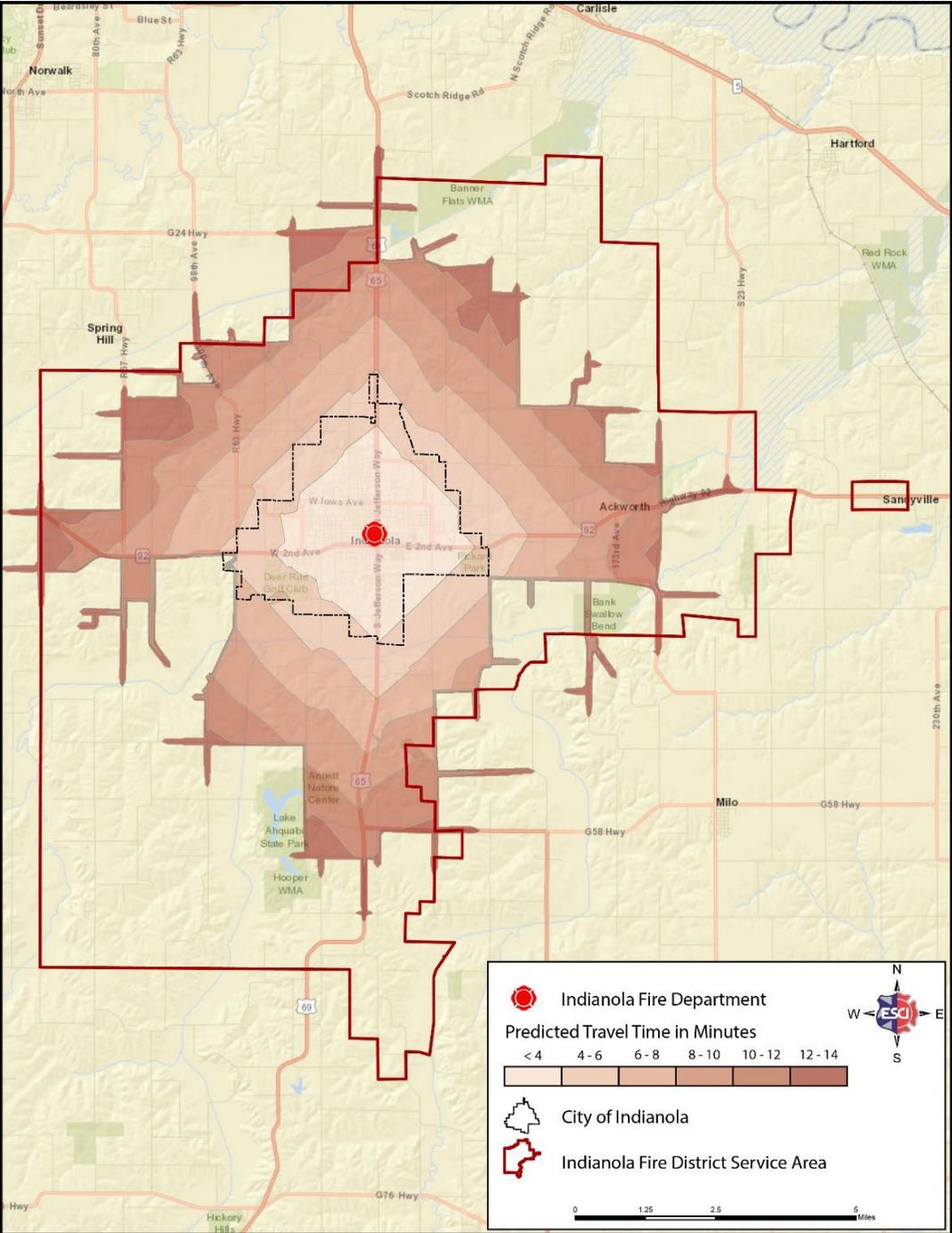
Figure 76: Option 3A Schedule of Additional FTE Added to Meet 2.0 (Engine)/2.0 (Ambulance) Staffing

	Year 1	Year 2	Year 3	Total
One Year	6 FTE			6 FTE
Two Year	3 FTE	3 FTE		6 FTE
Three Year	3 FTE	2 FTE	1 FTE	6 FTE

IMPACT TO FIRE SUPPRESSION

This option provides for several improvements to the fire suppression capabilities of IFD. The increases in staffing would directly result in additional credit for the ISO categories evaluating deployment and staffing. The following figure provides an illustration of IFD’s ability to assemble an effective response force based upon 2.0 staffing for engines and ambulance units; respectively.

Figure 77: Option 3A Resource Concentration 2.0 Career Firefighters 24/7 and Convert Part-Time Staff to 2.0 Career Firefighters 24/7



As depicted in the previous figure, IFD can reach 100 percent of the city limits within 4–6 minutes. The daily staffing assigned becomes the EFF for IFD and correlates to the time limits depicted above. In 4–6 minutes from 8 am–5 pm, IFD would be able to assemble six firefighters—including the chief and administrative captain—if all units are available. This option increases the ability to assemble a greater EFF for 24/7 operations but still does not meet NFPA 1720 recommendations for urban and suburban population demands. However, it does provide a greater ability to handle concurrent EMS calls during peak hours. After day crews go home the IFD would now have four firefighters for the remainder of the 24-hour shift. The city meets the qualifications for urban and suburban demand zones and requires 15 firefighters for urban and 10 firefighters for suburban population demands to meet NFPA 1720 recommendations. POC responders help supplement these numbers but are not guaranteed.

IMPACT TO EMERGENCY MEDICAL SERVICES

Utilizing this option would provide multiple EMS response options for IFD that are not currently available. As EMS response represents a significant portion of IFD’s total call volume, possessing the ability to dispatch additional units while another is committed to a call will greatly enhance IFD’s capabilities to reduce travel times and be more likely to achieve positive outcomes for medical responses. Should a transport unit be committed to another call, the engine company could still be available to respond an additional ambulance and provide critical care.

OPTION 3A FINANCIAL IMPACT

The financial impact of Option 3A includes increasing the part-time staff from 9 hours a shift to 24 for each shift assigned and providing additional 24/7 coverage for 4 employees instead of two. In addition to the three SAFER grant funded staff this would yield 3 total new positions.

Additional FTEs	FYE June-19		
	Salary	Benefits	Total
Fire Dept	\$ 26,049.00	\$ 4,764.00	\$ 30,813.00
Ambulance Dept	\$ 151,836.00	\$ 60,930.00	\$ 212,766.00
Total for 3 FTEs	\$ 177,885.00	\$ 65,694.00	\$ 243,579.00
Reduction in POC			
Hours	7886		7886
Fire Dept	\$ (24,697.00)	\$ -	\$ (24,697.00)
Ambulance Dept	\$ (139,948.00)	\$ -	\$ (139,948.00)
Total	\$ (164,645.00)	\$ -	\$ (164,645.00)
Net Increase to budget	\$ 13,240.00	\$ 65,694.00	\$ 78,934.00

This option reflects the additional salary and benefits needed to add six new full-time positions. Three of those positions are funded by the SAFER grant agreement. The budgeted part-time hours have been reduced because IFD will not use as many hours and has off set the implementation cost of the full-time positions. Nine-hundred, sixty hours were left in the budget to cover vacation and sick time for career employees.

Option 3B) Promote one FTE per shift to the role of company officer to ensure proper span of control.

In all of the options presented the need for additional span of control arises. If IFD increases the number of employees on shift throughout any portion of the shift, then the addition of a company officer should be considered. This company officer could be part of the crew or an additional person on shift assigned to provide administrative support as well. This option can be included or implemented in a step process. For instance, if crew sizes are expanded then one of the new FTE positions could be assigned the role of company officer. As time and crew sizes expand the position could be a stand-alone position that supplements staffing and provides administrative support for the shift.

OPTION 3B FINANCIAL IMPACT

The fiscal impact of Option 3B is included in the financial model for the promotion of a company officer and/or the addition of a FTE position to serve as the company officer.

Additional FTEs	Salary	Benefits	Total
3 new company officers	\$300,312	\$66,954	\$367,266
Total increase in funds needed for new FTEs	\$300,312	\$66,954	\$367,266

The company officer pay is calculated using the 7/25/2017 City CE Table for 2017–18. Benefits calculate as presented for other full-time employees.

Option 4) After the conversion of the current part-time staff to full-time staff, add two additional part-time staff for peak hour demands.

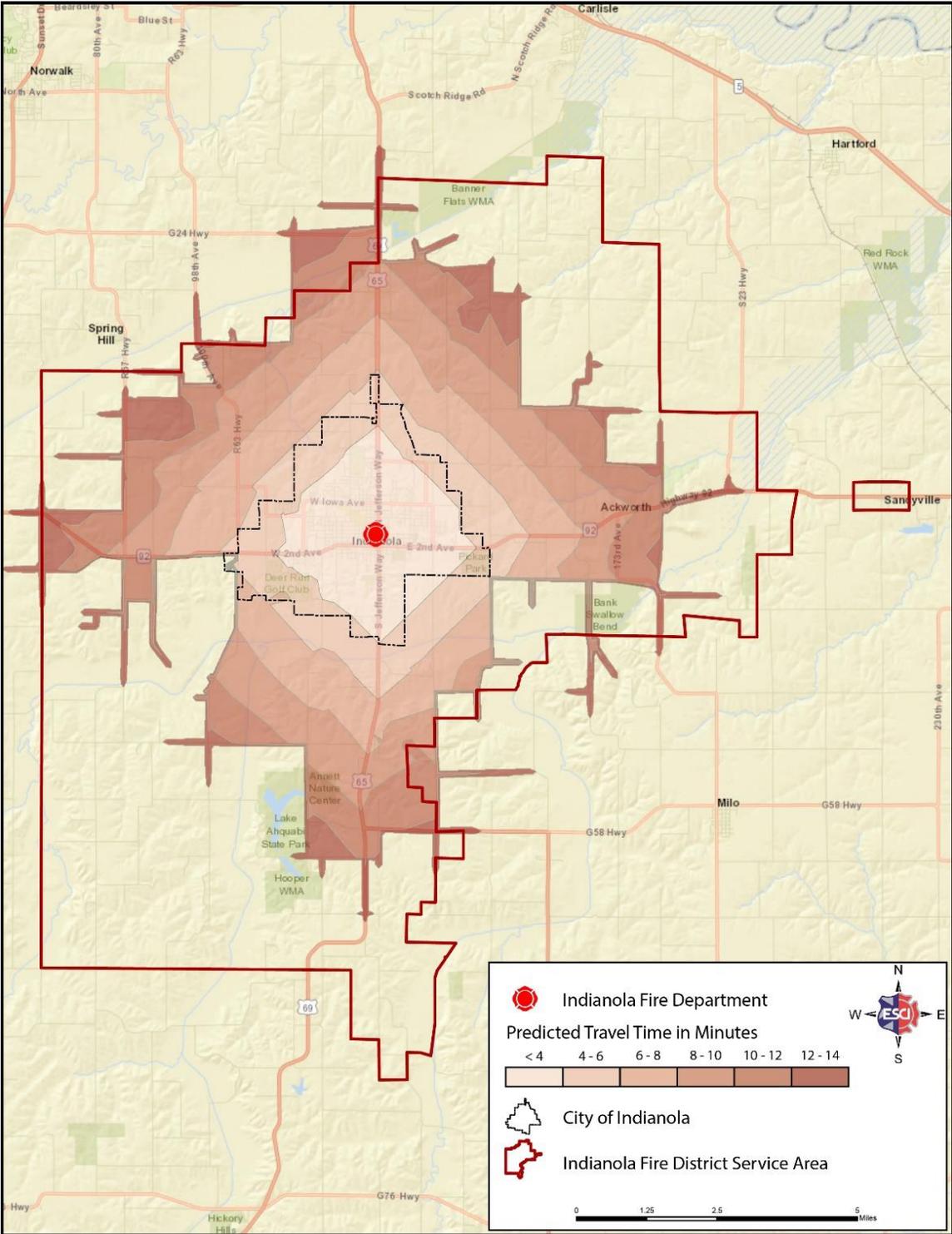
Maintaining the current service delivery model is an option for IFD. However, Option 4 involves converting the current part-time staff to full time to increase the number of firefighters available 24/7. It then also involves keeping the part-time staff currently in operation. As previously discussed, under the current deployment model IFD lacks the ability to comply with the national consensus standard, NFPA 1720, for providing fire and EMS services.

Figure 78: Option 4 2.0 Career Firefighters 24/7 and Convert Part-Time Staff to 2.0 Career Firefighters 24/7 with the Addition/Continuation of Part-Time Peak Hour Unit

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	2	FTE	24/7	2
Rescue	2	FTE	24/7	2
Rescue	2	Part-Time	8–5	2
TOTAL				8

As shown in the figure above, IFD has the option to staff its station with four firefighters per shift (total staff of 12 FTE = 4 FTE per shift x 3, 24-hours shifts) who respond in either the ambulance or the engine depending upon the nature of the emergency call. Additionally, IFD also could staff two firefighters from 8 am to 5 pm. These part-time staff would be first due for medical calls for service. IFD could provide eight or more firefighters including the chief and administrative captain within an eight-minute travel time 24/7 to approximately 100 percent of the city as shown in the following figure and the total demonstrated response time (turnout plus travel) at the 90th percentile is 10 minutes, 15 seconds. Should the department determine that it will implement this option it will increase the EFF during the day and will increase the ability to have four firefighters on duty 24/7. This serves to ensure that an initial crew size of four is immediately dispatched to all fires and can begin interior operations without having to wait for additional units to arrive in accordance with industry standards and OSHA 1910.134 guidelines. Current operations rely on two firefighters after day staff and part-time staff has gone home for the remainder of the 24 hours. Option 4 will serve to increase the ability to handle concurrent EMS calls during the 24-hour shift. Should the department determine to operate in this manner, IFD will still not meet the standard upon initial dispatch but the ability to meet NFPA 1720 standards will be greatly increased with the addition of POC responders supplementing career staff. Option 4 could be implemented in succession with other recommendations or implemented as a whole.

Figure 79: Option 4 Resource Concentration 2.0 Career Firefighters 24/7 and Convert Part-Time Staff to 2.0 Career Firefighters 24/7 followed with the Addition/Continuation of Part-Time Peak Hour Unit



As depicted in the previous figure, IFD can reach 100 percent of the city limits within 4–6 minutes. The daily staffing assigned becomes the EFF for IFD and correlates to the time limits depicted in the previous figure. In 4–6 minutes from 8 am–5 pm IFD would be able to assemble eight firefighters—including the chief and administrative captain—if all units are available. This option increases the ability to assemble a greater EFF from 8 am–5 pm but still does not meet NFPA 1720 recommendations for urban and suburban population demands. However, it does provide a greater ability to handle concurrent EMS calls during peak hours. After day crew go home the IFD would now have four firefighters for the remainder of the 24-hour shift. The city meets the qualifications for urban and suburban demand zones and requires 15 firefighters for urban and 10 firefighters for suburban population demands to meet NFPA 1720 recommendations. POC responders help supplement these numbers but are not guaranteed.

OPTION 4 FINANCIAL IMPACT

The fiscal impact of Option 4 is included in the financial model and includes the addition or continuation of two part-time employees per shift for a peak hour unit and six total new FTE positions including three positions awarded by the SAFER grant for 24/7 coverage.

	Station 1		Shift	Shift Total
Chief	1	FTE	8–5	1
Captain	1	FTE	8–5	1
Engine	2	FTE	24/7	2
Rescue	2	FTE	24/7	2
Rescue	2	Part-Time	8–5	2
TOTAL				8

	FYE June–19		
Additional FTEs	Salary	Benefits	Total
Fire Dept	\$ 26,826.00	\$ 4,764.00	\$ 31,590.00
Ambulance Dept	\$ 156,390.00	\$ 60,930.00	\$ 217,320.00
Total 3 FTE's	\$ 183,216.00	\$ 65,694.00	\$ 248,910.00
Reduction in POC Hours			
Fire Dept	\$ (8,251.47)	\$ -	\$ (8,251.47)
Ambulance Dept	\$ (46,758.33)	\$ -	\$ (46,758.33)
Total	\$ (55,009.80)	\$ -	\$ (55,009.80)
Net Increase to Budget	\$ 128,206.20	\$ 65,694.00	\$ 193,900.20

The part-time hours have been reduced by 3,006 hours to 5,840 hours as a result of FTE positions.

Option 5) Hire an FTE for administrative duties and the support of staff.

The staffing analysis for IFD concluded that administrative support staffing is inadequate to provide necessary support for department functions. Currently, the daily administrative staff are tasked with operational duties, as well as administrative duties. These co-mingling of assignments can make it difficult for time sensitive tasks to be completed based on emergency service demands. The addition of a FTE dedicated to administrative support would free up the chief to work on items that are critical to the success of the organization. Some examples are master planning, strategic planning, budgeting, and capital improvement planning processes. These processes can often be interrupted or neglected based on the need for operational responsibilities. As call volume and population increases the need for planning is crucial to making good policy decisions for the IFD.

OPTION 5 FINANCIAL IMPACT

The fiscal impact of Option 5 is included in the financial model and includes the addition of one FTE on a 40 hours schedule to handle administrative duties as assigned by the fire chief. This position is split between both fire and ambulance funds.

Total Revised Budget	Salary	Benefits	Total
Fire Dept	\$ 271,719	\$ 52,460	\$ 324,180
Ambulance Dept	\$ 928,912	\$ 225,584	\$ 1,154,496
Total with Additional Captain FTE	\$ 1,200,631	\$ 278,044	\$ 1,478,675

Difference	Salary	Benefits	Total
Fire Dept	\$ 42,418	\$ 4,479	\$ 46,898
Ambulance Dept	\$ 42,419	\$ 12,598	\$ 55,017
Increase with Additional Captain FTE	\$ 84,837	\$ 17,077	\$ 101,914

Option 6) Hire a dedicated administrative officer for fire prevention and support staff.

The addition of a dedicated FTE for fire prevention and support of staff would enhance the overall fire prevention initiatives of the IFD. Currently these tasks are assigned to operation’s staff. In doing so there is the chance that operational needs will interfere or detract from the ability to complete tasks associated with fire prevention. The IFD should hire and train a dedicated employee for these functions. Without a dedicated staff member to accomplish fire prevention initiatives the department’s ability to meet and achieve benchmarks established by NFPA and ISO are diminished. The inability to satisfy requirements of ISO can have a negative impact on the department and the citizens of Indianola overall. This would typically be reflected in their insurance premiums.

OPTION 6 FINANCIAL IMPACT

The financial impact of Option 6 is included in the financial model and includes the addition of a FTE on a 40-hour schedule to handle fire prevention and administrative support functions. This additional FTE resides in the fire fund.

Revised Budget	Salary	Benefits	Total
Fire Dept	\$ 314,138	\$ 73,177	\$ 387,315
Ambulance Dept	\$ 886,493	\$ 225,584	\$ 1,112,078
Total with Additional Captain FTE	\$ 1,200,631	\$ 298,761	\$ 1,499,392

Difference	Salary	Benefits	Total
Fire Dept	\$ 84,837	\$ 25,196	\$ 110,033
Ambulance Dept	\$ -	\$ -	\$ -
Increase with Additional Captain FTE	\$ 84,837	\$ 37,794	\$ 122,631

CONCLUSION

The ESCI project team began collecting information concerning IFD in the fall of 2017. The team members recognize this report contains a large amount of information and ESCI would like to thank the chief, leadership, staff members, and employees for their efforts in bringing this project to fruition. ESCI would also like to thank the various individuals and external organizations for their input, opinions, and candid conversations throughout this process. It is ESCI's sincere hope the information contained in this report is used to its fullest extent and the emergency services provided to the citizens of Indianola and the surrounding area will be improved by its implementation.

APPENDIX A

Table of Figures

Figure 1: Service Area	17
Figure 2: Governance Model	18
Figure 3: IFD Organizational Chart	20
Figure 4: Service Area	22
Figure 5: Capital Asset Comparison	23
Figure 6: Fire Department Financial Resources, FY 2015–FY 2018.....	25
Figure 7: Revenues, FY 2015–FY 2018	26
Figure 8: Revenue by Source, FY 2015–FY 2017	26
Figure 9: Fire Department Expenditures, FY 2015–FY 2018	27
Figure 10: Fire Versus Ambulance Expenditures, FY 2015–FY 2018.....	28
Figure 11: Personal Services Expenditures, FY 2015–FY 2018.....	29
Figure 12: Recurring Department-Specific Revenue vs Total Expense and GF Subsidy, FY 2015–FY 2018	30
Figure 13: Foundational Management Elements	31
Figure 14: IFD Administrative and Support Staffing	40
Figure 15: NFPA 1720 Deployment Model	44
Figure 16: IFD Emergency Response Staffing.....	44
Figure 17: Firefighters per 1,000 Population Prior to SAFER Grant.....	45
Figure 18: IFD Initial 1 st Alarm.....	46
Figure 19: Fire Prevention Components	53
Figure 20: IFD Capital Assets and Capital Improvement Planning.....	57
Figure 21: IFD Main Station	59
Figure 22: IFD Storage Building 1	60
Figure 23: IFD Storage Building #2 – “Arby’s Building”	61
Figure 24: IFD Apparatus.....	62
Figure 25: Service Demand by Year and Type, 2014–2016.....	64
Figure 26: Service Demand by Type, 2014–2016.....	65
Figure 27: Service Demand by Type, 2014–2016.....	65
Figure 28: Incidents per 1,000 Population Comparison Based on Indianola’s 2016 Data.....	66
Figure 29: Fires per 1,000 Population Comparison Based on Indianola’s 2016 Data.....	66
Figure 30: Fire Loss Per Capita Comparison Based on Indianola’s 2016 Experience.....	67
Figure 31: Service Demand by Month, 2016.....	68
Figure 32: Service Demand by Day, 2016	68
Figure 33: Service Demand by Hour, 2016.....	69
Figure 34: Indianola, IA Service Area	70
Figure 35: Indianola, IA, Population by Census Block, ACS 2016 Estimates	71
Figure 36: Fire Station Distribution, 1.5 Mile and 5 Mile ISO Criteria	73
Figure 37: Fire Station Distribution, 2.5 Mile Ladder Company ISO Criteria	74
Figure 38: Hydrant Distribution Map with 1,000 Foot Buffer.....	75

Figure 39: NFPA 1720 Staffing and Response Time	76
Figure 40: Projected Travel Time from the Fire Station.....	77
Figure 41: ALS 4 Minute and 8 Minute Travel.....	78
Figure 42: ALS Transport Service Area and ER Locations.....	79
Figure 43: Resource Concentration Analysis, NFPA 1720 Travel	80
Figure 44: Unit Hour Utilization, 2016	81
Figure 45: Call Concurrency, 2016	82
Figure 46: Percentage of Incidents by Number of Units Required, 2016	82
Figure 47: Historical Travel Response Performance, 2014–2016	84
Figure 48: Turnout Performance 90 th Percentile and Average in the Urban and Rural Demand Zones, 2016	86
Figure 49: Travel Performance 90 th Percentile and Average in the Urban and Rural Demand Zones, 2016	87
Figure 50: Total Performance in the Urban Demand Zone, 2016.....	88
Figure 51: Total Performance in the Rural Demand Zone, 2016	88
Figure 52: City of Indianola Historical Populations	91
Figure 53: City of Indianola Actual Populations, U.S. Census	91
Figure 54: Comprehensive Plan Population Estimated Growth Projections	92
Figure 55: Historical CAAGR Linear Population Predictions for Indianola	93
Figure 56: IFD Projected Service Demand by Incident Category, 2016–2035	94
Figure 57: Community Risk Analysis Tornadoes	95
Figure 58: Community Risk Analysis Hail Storms	96
Figure 59: Community Risk Analysis Churches	97
Figure 60: Community Risk Analysis Hotels	98
Figure 61: Community Risk Analysis Government Buildings	99
Figure 62: Community Risk Analysis Business and Mercantile	100
Figure 63: Sample of Critical Task Staffing by Risk.....	102
Figure 64: Sample Non-Structure Fire Critical Tasking	103
Figure 65: Sample Hazardous Materials Incident Critical Tasking	104
Figure 66: Sample Motor Vehicle Collision with Entrapment Critical Tasking.....	104
Figure 67: Option 1A Remain Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 8 am–5 pm per Shift.....	112
Figure 68: Option 1A Resource Concentration Status Quo, 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 8 am–5 pm per Shift	113
Figure 69: Option 1B Remain Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 10 am to 7 pm per Shift	114
Figure 70: Option 1B Resource Concentration Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 10 am–7 pm per Shift	115
Figure 71: Option 2A Remain Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-Time Staff 7 am to 7 pm per Shift	116

Figure 72: Option 2A Resource Concentration Status Quo 3.0 Career Firefighters 24/7 and 2.0 Part-time Staff 7am-7pm per Shift..... 117

Figure 73: Option 2B Remain Status Quo 3.0 Career Firefighters 24/7, 2.0 Part-Time Staff 8 am–5 pm per Shift, and an Additional 2.0 Part-Time Staff 12 pm–8 pm 118

Figure 74: Option 2B Resource Concentration Remain Status Quo 3.0 Career Firefighters 24/7, 2.0 Part-time Staff 8 am–5 pm per Shift, and an additional 2.0 Part-time Staff 12 pm–8 pm..... 120

Figure 75: Option 3A 2.0 Career Firefighters 24/7 and Convert Part-Time staff to 2.0 Career Firefighters 24/7..... 121

Figure 76: Option 3A Schedule of Additional FTE Added to Meet 2.0 (Engine)/2.0 (Ambulance) Staffing 122

Figure 77: Option 3A Resource Concentration 2.0 Career Firefighters 24/7 and Convert Part-Time Staff to 2.0 Career Firefighters 24/7 123

Figure 78: Option 4 2.0 Career Firefighters 24/7 and Convert Part-Time Staff to 2.0 Career Firefighters 24/7 with the Addition/Continuation of Part-Time Peak Hour Unit 125

Figure 79: Option 4 Resource Concentration 2.0 Career Firefighters 24/7 and Convert Part-Time Staff to 2.0 Career Firefighters 24/7 followed with the Addition/Continuation of Part-Time Peak Hour Unit 127