Fire Station Assessment & Location Study

City of Lancaster
Bureau of Fire
Lancaster, PA

Prepared by:

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Executive Summary

VFIS Education, Training and Consulting Group (VFIS-ETC) was contracted to conduct a station location study for the City of Lancaster, Pennsylvania. The Lancaster City Bureau of Fire completed significant research and data development in February and March 2017 and submitted the information to VFIS –ETC for review. On February 22, 2017, a project team from VFIS-ETC completed the field work related to this project and subsequently completed this report. VFIS-ETC is pleased to submit this document to the City of Lancaster for use in its fire protection and public safety planning.

This study will achieve multiple objectives:
1. An examination of current fire station conditions and locations in the City of Lancaster.
2. The study will help the City to develop station placement guidelines that follow and are in accordance with Insurance Services Office, the National Fire Protection Association Standards, and an established Standard of Response Cover.
3. The study will help determine adequacy of fire station location and future placement of fire facilities. This will validate that citizens are getting the best possible protection based on their location to the nearest station. It will guide the City and the Fire Department with future plans regarding fire insurance ratings for the City.

The project team would like to thank the City of Lancaster leadership and the City of Lancaster Bureau of Fire staff for their excellent work in facilitating an efficient analysis process. The planning conducted over the years by the Fire Department and the City was found to be well developed and flexible, providing a comprehensive picture of both the current status of the Bureau of Fire and the City, as well as the needs to assure an appropriate plan for the future. The Fire Department analysis and plan mirrors the reality of the community. The community’s future must include a consistent infrastructure transition for the Bureau of Fire to keep pace with service demands and expectations. In comparing the number of stations, apparatus, service delivery, etc. with fire departments protecting communities of similar size throughout the United States, Lancaster City has slightly less apparatus and stations.

The findings, recommendations, and related support documentation follow.

1. The current three (3) fire stations in the City of Lancaster are very close to reaching their usable life span. Deteriorated physical conditions, cramped space, random storage/lack of storage, no training facilities, and related conditions from normal wear and tear represent the situation.
2. The Lancaster Bureau of Fire is a progressive fire department in a traditional older center-city type environment. Buildings were built to meet the needs of the day and projected needs for a 50 year period. That projected period has been reached and exceeded. An example is vehicle size which will stretch the limits of access in current doorways, the lack of a reasonable and appropriate training space, and adequate accommodations for male and female members.
3. The locations of the three existing stations were determined under a deployment model of the early 20th Century. It is believed that the Bureau of Fire can operate from two strategically located facilities, employing three engines and one ladder; or two engines, one ladder and one quint; and achieve the same response capability as today’s three (3) station system provides.
4. In addition, recent changes in Insurance Services Office Municipal Fire Suppression Rating criteria provides recognition for the deployment of a unit from outside the municipality on structure fire calls. Thus adding a responding unit closer to City areas than current or projected fire stations (e.g. Park City Mall, Fruitville Road; and Southeastern areas of the City) will enhance the delivery model and cost efficiency of the Bureau of Fire.
5. The space at Station 6, occupied by the Credit Union, should be vacated/moved due to deteriorating structural conditions and cramped operational conditions.
6. The long term approach to the Lancaster Bureau of Fire service delivery should include the following steps, which are outlined in this report:
   a. Adopt a Standard of Cover for use in delivering and benchmarking service.
   b. The three current fire stations should be replaced with two modern fire stations as follows:
      - Current Station 1 location to include one engine and one ladder
      - Proposed location at Nann & Walnut Streets to include two engines or one engine and one quint.
      - The current sign shop area at Station 1, if demolished will provide for improved spacing to enhance facility size and operational capability
   c. The current Stations 3 and 6 can be repurposed for City use, sold, or the property can be used in some other manner that would best suit the City.
   d. All officer/fire marshal operations would remain at City Hall.

NOTE: The term “quint” is used in this report. The “quint” concept allows a fire department to derive the benefits of both a pumping fire engine and a “limited ladder truck”. The ability of a quint is limited and should not be considered for stand-alone ladder truck service. The aerial ladder is much shorter and the equipment compartment space on a quint is typically less than a traditional aerial ladder truck.
Introduction

VFIS Education, Training and Consulting Group (VFIS ETC) was contracted to conduct a fire station location assessment for the City of Lancaster, Pennsylvania. The Lancaster City Bureau of Fire completed significant research and data development in January and February 2017 and submitted the information to VFIS ETC for review. On February 22, 2017, a project team from VFIS-ETC completed the field work related to this project and subsequently completed this report. VFIS-ETC is pleased to submit this document to the City of Lancaster for use in its fire protection and public safety planning.

Community Background

Lancaster is a city located in South Central Pennsylvania which serves as the county seat of Pennsylvania’s Lancaster County and is one of the older inland towns in the United States. The city has an estimated 59,000 plus population, and is ranked as one of the ten largest cities in Pennsylvania.

The City’s primary industries include healthcare, tourism, public administration, manufacturing, higher education, both professional and semi-professional services with large retail and manufacturing complexes in adjacent locations.

The community has changed since its founding in 1730. Today’s population in excess of 59,000, reflects a city that is 43.5% white, 37.3 Hispanic, 13.3% Black or African American, 3.1% Asian, 2.5% two or more races, .07% were Native Hawaiian and .09% American Indian.

The city population is projected to be:

- 27.5% under the age of 18
- 13.9% from 18-24 years of age
- 30.5% from the age of 25-44
- 17.7% between the age of 45-64
- 10.5% were over the age of 65

The median income for a household in the City is just under $30,000.

Over the last few years, Lancaster has been working to recreate itself. This has included a growth of specialty shops, boutiques, bars, etc. and a reinvestment into the downtown institutions. Franklin and Marshall College and Lancaster General Hospital are key components in the community. The Lancaster Central Market is one of the oldest continuously operated farmers market in the US.

The City of Lancaster operates under a Mayor/Council form of Government with a full range of municipal services.
**Fire Department History**

The Lancaster Bureau of Fire is a career fire department which is budgeted for 74 persons. The Bureau of Fire operates three (3) stations, located throughout the city. The Bureau operates a fleet of 3 engines, 1 ladder, and reserve/support units. Daily fire station staffing ranges from 10 to 17. The Bureau responds to approximately 3,000 calls for assistance each year.

The Department has three (3) fire stations, each of which has an engine company and one (1) has a ladder company. There are a total of four (4) front line apparatus, one (1) service truck, two (2) reserve engines and one (1) reserve ladder. One (1) of the reserve engines is equipped with hazardous materials response equipment. Two (2) of the engines provide rescue/extrication equipment.

The Operations Division is organized into four (4) platoons, each under the command of a Battalion Chief. Staffing of each platoon is discussed in the Personnel and Training section of the report.

The Fire Prevention Division is responsible for enforcement of the fire code, determining cause of fires, to include arson investigation, public education and public relations. The tasks of this Division include such items as plan review, commercial building inspections (annually), inspection and plans review of new construction, monitoring places of assembly, issuing certificates of fitness to companies performing work regulated by the fire code, investigating complaints, etc.

Over the last decade the overall staffing has been stabilized.
Assumptions and Current Trends

Any conceptual project begins with a set of assumptions and analysis of current trends within the industry. This project is no exception. There were three (3) basic assumptions established prior to the assessment and development of a report for the City of Lancaster. The assumptions included:

- The assessment of various operational aspects that may be impacted by the Department’s facilities and staff, and will require related considerations.
- Nationally recognized standards are used as the baselines for recommended changes in operations.
- Programs, benchmark policies, guidelines, etc. recommended for use, should be recognized as successful programs, policies, guidelines, etc. in other fire and rescue service agencies.

In addition, this study compares the individual departments within the county to fire services in similar sized communities around the United States. A national study was conducted by the National Fire Protection Association entitled “U.S. Fire Department Profile through 2013”, printed in 2014, measured service provision in several key areas. These are compared in the chart below.1

### COMPARISON OF LANCASTER CITY, BUREAU OF FIRE TO NATIONAL AVERAGES

<table>
<thead>
<tr>
<th>Nationwide Area of Comparison</th>
<th>National Result*</th>
<th>Lancaster City Bureau of Fire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of communities between 50,000 and 99,999 population with all career fire services</td>
<td>70.3%</td>
<td>Career</td>
</tr>
<tr>
<td>Number of stations per 1,000 population</td>
<td>.083</td>
<td>.050 (3 stations)</td>
</tr>
<tr>
<td>Number of pumpers per 1,000 population</td>
<td>.083</td>
<td>.050</td>
</tr>
<tr>
<td>Number of aerial trucks per 1,000 population</td>
<td>.015</td>
<td>.017</td>
</tr>
<tr>
<td>Number of other vehicles per 1,000 population</td>
<td>.039</td>
<td>.033</td>
</tr>
<tr>
<td>% Departments in communities between 50,000 and 99,999 population with Stations</td>
<td>3 = 14.6% 4+ = 80%</td>
<td>3 stations</td>
</tr>
<tr>
<td>% Departments in communities between 50,000 and 99,999 population with Pumpers</td>
<td>3-4 = 32.0% 5+ = 57.4%</td>
<td>3 pumpers</td>
</tr>
<tr>
<td>% Departments in communities between 50,000 and 99,999 population with Aerials</td>
<td>0 = 31.1% 1 = 39.4% 2 = 22.0%</td>
<td>1 aerial</td>
</tr>
<tr>
<td>% Departments in communities between 50,000 and 99,999 population with other suppression vehicles</td>
<td>3-4 = 17.8% 5+ = 17.2%</td>
<td>6 other vehicles</td>
</tr>
<tr>
<td>% Departments in communities between 50,000 and 99,999 population where fire department provides EMS Service.</td>
<td>NO EMS – 7.2% BLS – 36.0% ALS – 56.8%</td>
<td>Trauma response only</td>
</tr>
</tbody>
</table>

This data does not take square miles into account, only population. Given the high density of population, some distortion of % may occur.

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*2013 NFPA data indicates 525 fire departments protection populations of 50,000 to 99,999
  69.0% all career,
  18.8% mostly career,
  11.7% mostly volunteer,
  0.5% all volunteer

Career firefighters by work week hours per 1,000 population

<table>
<thead>
<tr>
<th>Nationwide</th>
<th>40-45 hour</th>
<th>46-51 hour</th>
<th>52-60 hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancaster City</td>
<td>1.23</td>
<td>1.57</td>
<td>1.42</td>
</tr>
</tbody>
</table>

Lancaster City works a 10/14 hour combination for a 42 hour average week and has 1.23 firefighters per 1,000 population

Median Number of career firefighters in 50,000-99,000 population range

<table>
<thead>
<tr>
<th>Nationwide</th>
<th>1.30 per 1,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lancaster City</td>
<td>1.23 per 1,000 population</td>
</tr>
</tbody>
</table>

THIS ANALYSIS ILLUSTRATES THAT THE APPARATUS AND STATIONS IN SERVICE TODAY ARE SLIGHTLY LESS COMPARABLE TO DEPARTMENTS PROTECTING SIMILAR SIZE COMMUNITIES THROUGHOUT THE U.S., HOWEVER, THIS APPEARS ADEQUATE AS LANCASTER IS CONSIDERED MUCH MORE DENSE (POPULATION DENSITY) THAN MANY CITIES IN THE STUDY.
Management & Governance

The City of Lancaster Bureau of Fire is a career Fire Department, providing fire, rescue, emergency medical, hazardous material, and hazard management services to the City of Lancaster, Lancaster County Pennsylvania.

The management and governance the Bureau is consistent with the statutes of the City of the Third Class of the Commonwealth of Pennsylvania and the local collective bargaining agreement with labor. Leadership of the Bureau has been actively involved in the monitoring and management of the Bureau’s performance, developing and implementing practices as deemed appropriate and agreed to by labor, management, and elected officials.

As a City of the Third Class in the Commonwealth of Pennsylvania, there are specific provisions that the city must assure are in place. As a reference, the Fire Bureau Section (21) of the City of the Third Class Code, Commonwealth of Pennsylvania, dated March 19, 2014 is provided:

ARTICLE XXI
FIRE BUREAU
(Hdg. reenacted Mar. 19, 2014, P.L.52, No.22)

Compiler’s Note: The act of May 31, 1933 (P.L.1108, No.272), provided for civil service commissions in cities of the third class for firefighters

Section 2101. Organization of Fire Bureau; Maintenance; Apparatus.--With regard to a city fire bureau, council shall have the authority to:
   (1) by ordinance, establish and organize a fire bureau;
   (2) make appropriations for the maintenance of the same;
   (3) promulgate rules and regulations for the government of the officers and companies belonging thereto; and
   (4) purchase equipment and apparatus for the extinguishment, prevention and investigation of fires and for the public safety.

   (2101 amended Mar. 19, 2014, P.L.52, No.22)

Section 2101.1. Appointment and Demotion of Fire Chief.--The mayor, by and with approval and consent of council, shall appoint the fire chief who may be demoted without cause but not to any rank lower than the rank which the fire chief held within the department at the time of designation as fire chief. In the event that no qualified employee of the fire bureau has applied for such appointment, the fire chief shall be appointed by the mayor, by and with approval and consent of council, from without the ranks.

   (2101.1 amended Mar. 19, 2014, P.L.52, No.22)

Section 2102. Paid Bureau; Election of Officers and Companies.--When a paid fire bureau is organized by any city, the council, except as provided by section 2101.1, may provide by ordinance for the election or appointment of the officers and companies belonging thereto, in accordance with civil service provisions where applicable. The minimum annual starting salary or compensation to be paid the officers and firefighters by any city shall be established by the city council.

   (2102 amended Mar. 19, 2014, P.L.52, No.22)
Section 2103. Platoon System; Hours of Service.—

(a) The director of the department having charge of the fire bureau in a city may divide the officers and members of companies of the uniformed fire force in the employ of the city, and any other firefighters and drivers regularly employed and paid by the city, excepting the chief engineer and assistant chiefs, and those employed subject to call, into shifts, bodies or platoons to perform service during such hours as the director shall fix. In cases of riot, serious conflagration, times of war, public celebrations, or other such emergency, the fire chief or officer in charge at any fire shall have the power to assign all the members of the fire force to continuous duty or to continue any member thereof on duty, if necessary. Except as provided in subsection (c), no schedule shall require a member of any shift, body or platoon to perform continuous service for a consecutive period of twenty-four hours, except in cases of emergency or as otherwise agreed through collective bargaining or an award pursuant to the act of June 24, 1968 (P.L.237, No.111), referred to as the Policemen and Firemen Collective Bargaining Act. The provisions of this subsection shall not be deemed to alter or affect any schedules in existence prior to the effective date of this subsection.

(b) In a city where the work schedule in existence prior to the effective date of this subsection required a work shift of less than twenty-four hours, no schedule shall require a member of any shift, body or platoon to perform continuous service for a consecutive period of twenty-four hours, except in cases of emergency or as otherwise voluntarily agreed through collective bargaining. Once so modified, no further work schedule may contain provisions reinstating a restriction on duty of less than twenty-four hours of continuous service.

(2103 amended Mar. 19, 2014, P.L.52, No.22)

Section 2104. Fire Marshal; Powers.—

Every city may, by ordinance, provide for the creation of the office of fire marshal who shall be appointed by the mayor, by and with the approval and consent of council, biennially. The fire marshal and any authorized assistants shall inspect all constructions or buildings within the city or upon property owned or controlled by the city or a municipal authority of the city within the Commonwealth and shall enforce all laws of the Commonwealth and ordinances of the city relating to such constructions or buildings, for the prevention, containment, or investigation of fire and fire hazards, both as to the constructions or buildings and as to the contents or occupancies thereof. The fire marshal or the fire marshal's assistants shall report to the director of public safety or to council or other designated official, as council shall by ordinance provide, any faulty or dangerous construction or building or like condition in any building that may constitute a fire hazard or any proposed use or occupation of any construction, building or premises which would create or increase a hazard of fire. The fire marshal shall investigate and keep a permanent record of the cause, origin and circumstances of every fire and the damage resulting therefrom occurring within the fire marshal's jurisdiction immediately after the occurrence of the fire. The records of the fire marshal shall be open to public inspection except as exempted in accordance with the act of February 14, 2008 (P.L.6, No.3), known as the "Right-to-Know Law." The fire marshal shall submit to council an annual report consolidating the information contained in the records as directed by council. If a fire is deemed suspicious, the fire marshal shall have the authority to investigate the same.

(2104 amended Mar. 19, 2014, P.L.52, No.22)

Section 2105. Obstructing Fire Marshal; Fine.—

It shall be unlawful for any person to obstruct or prevent or attempt to obstruct or prevent the fire marshal in the discharge of the fire marshal's duties. Council may, by ordinance, establish the
types or grades of such criminal conduct and may establish fines or imprisonment, or both, for such violations. No fine so ordained shall exceed one thousand dollars for any single violation, and no imprisonment shall exceed ninety days.

(2105 amended Mar. 19, 2014, P.L.52, No. 22)

Section 2106. Investigation of Cause of Fire; Power of Mayor.—
The mayor of any city may, whenever in the mayor's judgment the occasion demands it, issue a subpoena, in the name of the Commonwealth of Pennsylvania, to any person or persons requiring the attendance of the person or persons before the mayor or the fire marshal at the time and place as may be named in the subpoena, then and there to testify, under oath or affirmation, which the fire marshal in the absence of the mayor is hereby empowered to administer, as to the origin of any fire occurring within the bounds of such city and also as to any facts or circumstances that may be deemed important to secure the detection and conviction of any party or parties guilty of the offense of arson or attempted arson.

(2106 amended Mar. 19, 2014, P.L.52, No. 22)

Section 2107. Fire Chief Ex-officio Fire Marshal.—
The fire chief of any city shall be ex-officio fire marshal thereof in any city wherein the office is not separately filled pursuant to ordinance, and in that case all the powers and duties herein given to or imposed upon the fire marshal shall be enjoyed and exercised by the fire chief.

(2107 amended Mar. 19, 2014, P.L.52, No. 22)

Section 2107. Compensation Insurance for Injured Volunteer Firefighters or Special Fire Police.—
Each city may make appropriations as may be necessary to secure insurance or compensation for volunteer firefighters killed or injured while engaged in the performance of their duties or as special fire police.


Section 2109. Salary of Nonunion City Fire Officers.—
A fire chief or head of a fire department of a city who has been removed from bargaining units under the act of June 24, 1968 (P.L. 237, No. 111), referred to as the Policemen and Firemen Collective Bargaining Act, by rulings of the Pennsylvania Labor Relations Board shall receive not less than the same dollar increase, including fringe benefits but excluding overtime and festive holiday pay, as received by the highest-ranking fire officer participating in the bargaining unit.


Over a thirty (30) year period, a reduction of staff has occurred from over 100 members to the current authorized staffing of 74. The rank and file members of the department are represented by Local 319 of the International Association of Fire Fighters. The lack of significant major loss events and very few service complaints are a tribute to the performance of the organization as a whole.
Appropriate city ordinances are in place to assure general fire safety provisions, the fire department, and the fire prevention code. The Fire Marshal’s staff is responsible for the appropriate inspection and compliance tasks.

The City of Lancaster Bureau of Fire has established a mission and value statement. This helps everyone understand and work toward what services are expected from them, and for the public to understand what services are available to them, for the funding they provide. These statements follow, as supportive references to the study being conducted.

CITY OF LANCASTER BUREAU OF FIRE
MISSION AND VALUE STATEMENT

We, the firefighters of the Lancaster Bureau of Fire, dedicate our efforts to provide for the safety and welfare of the public through preservation of life, property and the environment.

It is the responsibility of each firefighter to support the mission by subscribing to the following values.

For the Community: We recognize that the community is the reason for our presence. We value faith and trust of the community and continually work to serve that confidence through our attitude, conduct and accomplishments. Lives are more valuable than property. The safety of the public is of paramount importance followed closely by the safety of our firefighters. All members of the public are entitled to our best efforts.

For the Bureau: We strive for excellence in everything we do. Honesty, fairness, and integrity will not be compromised. We continually seek effectiveness, efficiency and economy. Unity and teamwork are stressed as being to our mutual advantage as individuals and as an organization. Firefighters are continually encouraged to improve themselves as individual and employees. The free exchange of ideas is encouraged. We will provide professional and courteous service at all times. We are sensitive to changing community needs.

This should be visible in each station and in the office area as a constant reminder to the public and the members of the commitment being made to staff and community alike.

Integral to achieving the mission and supporting the values are defined procedures and plans for:

- Firefighter and officer training, and
- Standard of cover/service delivery statement
- Officer qualifications and Incident command,
- Apparatus response procedures,

which are addressed later in this report. It should be noted that the City of Lancaster Bureau of Fire has addressed or is addressing all of these items in their strategic planning activities.
The issue of a Service Delivery is best quantified via a “Service Delivery Statement or Standard of Response Cover”. Based upon an analysis of the information and data presented to the project team and subsequently discussed with the Chief Officers of the fire department, the following Service Delivery Statement is the current service delivery statement/standard of response cover for the City of Lancaster Bureau of Fire.

**SERVICE DELIVERY STATEMENT**
**STANDARD OF RESPONSE COVER**

Fire department response to an emergency call for service in the City of Lancaster will be provided within one (1) minutes of dispatch and be on scene with one piece of fire apparatus in four (4) minutes, with a crew of three (3) qualified members, 90 percent of the time.

A full complement of 14 firefighters will be on scene within (ten) 10 minutes of dispatch, 90 percent of the time.

Management information is maintained by the Fire Department leadership. The Department has better structured its training and related record-keeping over the years to meet the expectations of the ISO requirements. All incoming firefighters must be Firefighter I and II certified and EMT–I credentialed before being hired. Operations staffing is maintained at 3-4 persons per unit, 24 hours per day, 7 days per week.

Standard Operating Guidelines are developed and serve as the cornerstone of training and operations for the department. The officers and members are to be complemented on the thoroughness of this document. Given the amount of mutual aid that is prevalent in the fire district, assurances should be made that all departments who support the City of Lancaster Bureau of Fire are aware of and have reviewed the Standard Operating Guidelines in use in the City of Lancaster for efficiency and safety during operations. While standard operating guidelines are in place and other mutual aid response protocols are implemented, constant review and updating are needed to assure organizational efficiency and safety. While mutual aid is implemented there is a conceptual opportunity to improve operations with automatic aid.

Within the planning process, the City of Lancaster developed a comprehensive management plan some 25 years ago. The items regarding public safety – fire protection in particular – are not applicable to this study. Growth patterns identified 25 years ago are not applicable in this study of today’s environment and projecting forward.

In summary, the Bureau of Fire was found to be managed effectively and proactively.
RECOMMENDATIONS

17-01 The mission and values statement should be updated and be posted in a conspicuous location in each fire station and at Bureau of Fire Headquarters to constantly remind personnel of the reason the fire department exists and why they train and perform according to their guidelines and regulations.

17-02 The Bureau of Fire has not established a “Standard of Response Cover”. The development of this document should be a high organizational priority. A benchmark using current performance data is provided within this report and should be monitored for sustained performance going forward on a semi-annual basis. Actions should be developed based upon the ability to perform or not perform to the benchmark.
Insurance Services Office (ISO) Ratings

The City of Lancaster rating as of the February 2002 survey by the Public Protection Department of the Insurance Services Office is a 3/3X.

Fire departments may be assigned a split classification rating for various factors as opposed to a consistent, city-wide, fire insurance classification rating. With split classification ratings, protected properties in the recognized fire district within 1,000 feet of a fire hydrant by which route fire hose can be laid and within five (5) road miles of the fire station qualify for a lower rating. The protected properties in the fire district over 1,000 feet from a fire hydrant and within five (5) road miles of the fire station qualify for the Class 9 rating.

Fire departments may have a split classification rating and qualify for a Class 9E (extended rating upon meeting required criteria). The Class 9E rating will allow protected properties located beyond 5 road miles but less than 6 road miles from the fire station to qualify for a Class 9 rating only. It is not uncommon for the same fire department to serve a municipal district (town) and a rural district (county) with a straight rating in the municipality and a split rating in the rural district mostly due to the lack of fire hydrants.

Under separate cover, Chief Gregg was provided with copies of the ISO Recommended Apparatus Equipment Charts for comparison to Lancaster Bureau of Fire apparatus equipment. Many times ISO finds their expected equipment complement does not exist in communities they evaluate. The purpose of providing the charts is to evaluate “compliance” with ISO recommendations and determine if equipment is not provided, whether the need, purchase cost, training and maintenance of that equipment is worth the investment.

As noted, the last survey was conducted in 2015. The schedule measures a community's fire suppression system and develops a numerical grade called a Public Protection Classification (PPC™). The FSRS incorporates nationally accepted standards developed by such organizations as the National Fire Protection Association (NFPA), the Association of Public Communications Officials (APCO), and the American Water Works Association (AWWA). The PPC program provides a useful benchmark that helps fire departments and other public officials measure the effectiveness of their efforts — and plan for improvements. The revised schedule focuses on areas that have a proven effect on fire suppression and prevention (including Community Risk Reduction efforts) as well as revisions that align the FSRS requirements with those of nationally accepted standards. The schedule recognizes proactive efforts to reduce fire risk and frequency. The FSRS evaluates the three major categories of fire suppression: fire department, emergency communications, and water supply.
The Department is currently rated by the ISO criteria as follows:

### RECEIVING & HANDLING FIRE ALARMS

<table>
<thead>
<tr>
<th>Evaluated Item</th>
<th>Actual Credit</th>
<th>Maximum Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit for Emergency Reporting</td>
<td>2.10</td>
<td>3.00</td>
</tr>
<tr>
<td>Credit for Telecommunicators</td>
<td>3.83</td>
<td>4.00</td>
</tr>
<tr>
<td>Credit for Dispatch Circuits</td>
<td>0.97</td>
<td>3.00</td>
</tr>
<tr>
<td><strong>TOTAL FOR EMERGENCY COMMUNICATIONS</strong></td>
<td><strong>6.90</strong></td>
<td><strong>10.00</strong></td>
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</tbody>
</table>

### FIRE DEPARTMENT

<table>
<thead>
<tr>
<th>Evaluated Item</th>
<th>Actual Credit</th>
<th>Maximum Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit for Engine Companies</td>
<td>5.96</td>
<td>6.00</td>
</tr>
<tr>
<td>Credit for Reserve Pumpers</td>
<td>0.42</td>
<td>0.50</td>
</tr>
<tr>
<td>Credit for Pump Capacity</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Credit for Ladder-Service Companies</td>
<td>3.94</td>
<td>4.00</td>
</tr>
<tr>
<td>Credit for Reserve Ladder-Service Companies</td>
<td>0.48</td>
<td>0.50</td>
</tr>
<tr>
<td>Credit for Deployment Analysis (% built upon area with engine response within 1.5 miles and ladder response within 2.5 miles)</td>
<td>8.46</td>
<td>10.00</td>
</tr>
<tr>
<td>Credit for Company Personnel (average number of equivalent firefighters and company officers on duty with existing companies)</td>
<td>7.50</td>
<td>15.00</td>
</tr>
<tr>
<td>Credit for Training</td>
<td>4.60</td>
<td>9.00</td>
</tr>
<tr>
<td>Credit for Operational Considerations</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>TOTAL FOR FIRE DEPARTMENT</strong></td>
<td><strong>36.36</strong></td>
<td><strong>50.00</strong></td>
</tr>
</tbody>
</table>

### WATER SUPPLY

<table>
<thead>
<tr>
<th>Evaluated Item</th>
<th>Actual Credit</th>
<th>Maximum Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit for the Water Systems</td>
<td>27.69</td>
<td>30.00</td>
</tr>
<tr>
<td>Credit for Hydrants</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Credit for Inspection &amp; Condition of Hydrants</td>
<td>2.40</td>
<td>7.00</td>
</tr>
<tr>
<td><strong>TOTAL FOR WATER SUPPLY</strong></td>
<td><strong>33.09</strong></td>
<td><strong>40.00</strong></td>
</tr>
</tbody>
</table>

### COMMUNITY RISK REDUCTION

<table>
<thead>
<tr>
<th>Evaluated Item</th>
<th>Actual Credit</th>
<th>Maximum Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Risk Reduction</td>
<td>2.71</td>
<td>5.50</td>
</tr>
<tr>
<td><strong>TOTAL FOR COMMUNITY RISK REDUCTION</strong></td>
<td><strong>2.71</strong></td>
<td><strong>5.50</strong></td>
</tr>
</tbody>
</table>

**TOTAL CREDIT**

<table>
<thead>
<tr>
<th>Evaluated Item</th>
<th>Actual Credit</th>
<th>Maximum Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>77.06</td>
<td>105.50</td>
</tr>
</tbody>
</table>

The distribution (% built-upon area with engine response within 1.5 miles and ladder response within 2.5 miles) is noted above and maps are provided showing areas that lie outside those parameters. Automatic aid is NOT in use today. This is discussed in the Mutual/Automatic Aid section of this report.

### RECOMMENDATIONS

None
Standard of Cover (SOC), Response Times, & Station Locations

One of the analytical models which was part of this process involves an evaluation of station location in proximity to the location and types of calls for assistance. A study such as this can determine where additional stations can be located to meet service delivery demands. Using a standard model used by the Insurance Services Office for basic station location analysis, Lancaster City was found to have unique locations, for several reasons.

The Insurance Services Office process uses the approach for response time that road distance criteria for engines (1.5 miles), ladders (2.5 miles) and in Pennsylvania a maximum distance (5 miles) translates into response time. The distances are based on a formula developed years ago by the RAND institute, and uses the equation:

\[ T = 0.65 + 1.7D \]

\( T \) = travel time in minutes  
\( D \) = distance in miles

The formula is based on an average 35 mph road speed, which is quite realistic for most areas considering road conditions and type, weather, intersections, traffic, etc. Mathematically, this converts to engines 3.2 minutes, ladders 4.9 minutes, and a maximum response distance of 9.15 minutes. It is easy to see that times much greater than these are pushing the limits of the fire department's ability to successfully control a fire (especially considering that these are only travel times, not dispatch and turnout time, etc.). It is very easy to see why for most states the Insurance Services Office has a maximum five (5) road mile distance for which a protected class (class 1 through 9) will apply; and anything over five (50 road miles is almost a known higher loss and insurance industry data supports that.

Based upon population density per square mile, the City of Lancaster would be considered an urban area. The National Fire Protection Association (NFPA) Standard 1710 – The Standard for the Organization and Deployment of Fire Suppression, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments suggests for urban areas and career departments that you should measure response times at the 90th percentile, the analysis determined that calls for service in the City of Lancaster receive a response in less than “four (4) minutes, 90% of the time.”

Unfortunately, the data provided was limited in analysis. The data was provided in the form of basic Firehouse Software summaries for 2014, 2015 and 2016. While there is a large amount of data in the files that pertain to the calls and apparatus activity, the analytical capability of the software could not summarize every piece of apparatus that responded to each call. Therefore, we were unable to definitively determine response times for any unit other than the first unit recorded as at-scene.

*It should be noted that sustainability of the standard of cover with minimum staffing levels can and will be a challenge if sick and vacation days are not backfilled.*
Based on the data that was provided and analyzed, and input from Chief Gregg during the interview process, the following can be defined as local standards of cover as of this assessment.

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>National*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td>192</td>
<td>205</td>
<td>224</td>
<td>207</td>
</tr>
<tr>
<td>Rescue</td>
<td>756</td>
<td>693</td>
<td>799</td>
<td>4870***</td>
</tr>
<tr>
<td>Hazard</td>
<td>305</td>
<td>218</td>
<td>296</td>
<td>231</td>
</tr>
<tr>
<td>Good Intent</td>
<td>267</td>
<td>289</td>
<td>253</td>
<td>Not tracked</td>
</tr>
<tr>
<td>False Alarm</td>
<td>783</td>
<td>763</td>
<td>798</td>
<td>546</td>
</tr>
<tr>
<td>Public Service</td>
<td>295</td>
<td>318</td>
<td>297</td>
<td>In other</td>
</tr>
<tr>
<td>Other</td>
<td>31</td>
<td>99</td>
<td>31</td>
<td>1285</td>
</tr>
<tr>
<td>Total</td>
<td>2629</td>
<td>2585</td>
<td>2678</td>
<td>2939</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response Time Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Average Response Time (ART)</td>
</tr>
<tr>
<td>For first arriving unit</td>
</tr>
<tr>
<td>Arrival on-scene within 4 minutes</td>
</tr>
</tbody>
</table>

*Average reported fires (incidents by community size 50,000-99,999) for 2013 per NFPA data (NFPA Annual Fire Experience Survey 2012-13).
** NFPA 1710 Standard response time goal
*** includes EMS responses

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>47</td>
<td>33</td>
<td>69</td>
</tr>
<tr>
<td>Vehicle</td>
<td>10</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>135</td>
<td>172</td>
<td>155</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td>226</td>
<td>238</td>
</tr>
</tbody>
</table>

**Station Activity**

<table>
<thead>
<tr>
<th>Station</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station 1 – 425 W. King St.</td>
<td>745</td>
<td>846</td>
<td>962</td>
</tr>
<tr>
<td>Station 3 – 333 E. King St.</td>
<td>1023</td>
<td>1021</td>
<td>1017</td>
</tr>
<tr>
<td>Station 6 – 843 Fremont St.</td>
<td>272</td>
<td>269</td>
<td>293</td>
</tr>
</tbody>
</table>
2017 Fire Station Locations

2017 3 Stations Locations

E = Engine
L = Ladder
The map on this page represents the 1.5 mile pumper response coverage from the current (3) stations.
The map on this page represents the 2.5 mile ladder response coverage from the current (3) stations.
Future 2 Fire Station Locations

Future 2 Stations Locations
E = Engine
L = Ladder
Future 2 Station Deployment Map Engine Response
Future 2 Station Deployment Map Ladder Response
NO CHANGE
Data suggests Census Tracts 1 and 4 (highlighted) have twice the demand of other census tract requiring 25%+ of resources.
Facilities

The facilities were evaluated to consider suitability and growth opportunities within the response district. The fire station conditions were rated objectively, based on housekeeping, size of apparatus bays, existence of detection and suppression equipment ramp size, building maintenance and interior traffic conditions. A review of structures was also conducted for critical areas such as basic construction, maintenance and safety. Discussions on each station follow.

*The ratings are based on project team assessment as observed during visit
   Excellent = relatively new & above average in construction, maintenance, functionality
   Good = useful and meets needs, is well maintained and functional
   Fair = meets need, but has deficiencies
   Poor = old, needs maintenance, not useful as fire/EMS station

Station 1

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Vehicle Exhaust</th>
<th>Emergency Generator</th>
<th>Inspection*</th>
<th>Fire Sprinklers</th>
<th>Fire Detection &amp; Alarm</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970 est.</td>
<td>Yes</td>
<td>Yes</td>
<td>Safety Committee does an annual/bi-annual review</td>
<td>No</td>
<td>Living area only, Local detectors</td>
<td>FAIR – The fire station has limited service life as a career fire station. While built as a fire station, the quarters are cramped, with dated infrastructure and an environment not conducive to a modern career fire department operation</td>
</tr>
</tbody>
</table>

The station has a “footprint” of approximately 3,550 square feet.

Specific items visually noted at this location include the following:

- The parking lot of the facility is in need of repair.
- The station's turnout gear washing machine is plumbed into the station's storm water system instead of sanitary sewer.
- Apparatus room front edge of concrete floor needs repair, edging breaking off.
- The HVAC system in the dormitory room is being supplemented with portable equipment.
- Brick work is deteriorating at several exterior areas.
Station 3

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Vehicle Exhaust</th>
<th>Emergency Generator</th>
<th>Inspection*</th>
<th>Fire Sprinklers</th>
<th>Fire Detection &amp; Alarm</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968 est.</td>
<td>Yes</td>
<td>Yes</td>
<td>Safety Committee does an annual/bi-annual review</td>
<td>No</td>
<td>Living area only</td>
<td>FAIR – The fire station has limited service life as a career fire station. While built as a fire station, the quarters are cramped, with dated infrastructure and an environment not conducive to a modern career fire department operation</td>
</tr>
</tbody>
</table>

The station has a footprint of approximately 4,074 square feet.

Specific items visually noted at this location include the following:

- Shelving was noted that is not affixed to either a wall or the ceiling.
- The proximity of the kitchen to the apparatus room could allow for vehicle exhaust contamination into living quarters.
- The station's turnout gear washing machine is plumbed into the station's storm water system instead of sanitary sewer.
- The air compressor system for the station which should be upgraded to one that is designed for the purpose including a pressure relief valve and filter devices.
## Station 6

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Vehicle Exhaust</th>
<th>Emergency Generator</th>
<th>Inspection*</th>
<th>Fire Sprinklers</th>
<th>Fire Detection &amp; Alarm</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1958</td>
<td>Yes</td>
<td>Yes</td>
<td>Safety Committee does an annual/bi-annual review</td>
<td>No</td>
<td>Living area only Local detectors</td>
<td>POOR – The fire station has minimal service life as a career fire station. While built as a fire station, the quarters are cramped, with dated infrastructure and an environment not conducive to a modern career fire department operation. The construction situation of the credit union space needs to be addressed immediately</td>
</tr>
</tbody>
</table>

The station has a “footprint” of approximately 1,976 square feet, plus credit union area.

Specific items visually noted at this location include the following:

- The area of the Credit Union was found to be cramped, with excessive storage some in a precarious position (on a wooden deck area over the stairway), and blocking the secondary exit; possibly not compliant with local fire and building codes. There were notable wall cracks and floor cracks and a sloping floor. This is an unacceptable space for this type of storage/personnel location, and guest entry to do business. There is no elevator service to the credit union offices. Therefore it is not barrier free and might not be ADA compliant. It is assumed the credit union's electrical power comes from the fire station and is therefore supplied by the station's generator. If not, auxiliary lighting would most likely be required. **The Credit Union needs to be relocated whether or not a new station is built in a short time frame.**
- Apparatus ramp in need of removal, base foundation stabilization and new surface installed.
- The air compressor system for the station which should be upgraded to one that is designed for the purpose including a pressure relief valve and filter devices.
- There was a broken window on the front of building at watch room.
- Fascia on the front of the facility near main door requires repair.
- The side window near the rear of building that could be pushed out with little effort and there are structural cracks in the wall and floor of the credit union.
- There is a lack of storage in the credit union area which has caused materials to be stored in the stairwell, which is also a code violation.
- The rear parking area of the station is need of repair.
- Wide gaps exist in the center apparatus room floor drain cover causing a tripping hazard and a potential for unwanted debris to enter.
- Asbestos flooring reportedly exist in the building that needs to be mitigated.
Items related to all locations include the following:

- Full coverage automatic fire suppression system (NFPA 13 compliant sprinklers) should be installed.
- Full coverage automatic detection and alarm systems should be installed.
- Floor drain systems for the apparatus rooms should be treated (oil/sand separator) prior to entering the city's storm water system.
- Each station had a compliment of exercise equipment, but none of the stations had a designated area of size and design to facilitate such use.
- None of the stations were equipped with an automatic disconnect for kitchen cooking equipment tied in to the station dispatch alarm system.
- None of the stations have designed clean areas for turnout gear storage. Turnout gear storage is mingled with other building uses.
- While EMS was identified as part of the FD's mission, there were no decontamination facilities to support this service.
- In general it appeared site lighting for both parking lot and apparatus ramps at all facilities should use improvement.
- A wireless Internet system should be installed to facilitate not only training but apparatus and equipment maintenance as well.
- Sleeping accommodations are dorm style. Consideration should be given to individual rooms. Separated sleeping quarters for what might someday service an EMS crew needs to be considered. Upgrading of both male and female designated restroom facilities should be a consideration.
- In many places at all three stations automatic door closure devices were found to be missing, inoperative or disconnected. In some places this compromised not only fire separation capabilities but allowed for exhaust infiltration into the living space.
- No eye wash stations nor OSHA first aid stations were observed.
- Refrigerators need to be provided to allow for the storage of all food stuffs in the area designated for consumption. Refrigerators were found storing food in areas other than kitchens.
- The apparatus room should have both sufficient space for the apparatus to be stored there as well as an area to work on and around the apparatus. The NFPA cites specific size recommendations.
- Classroom training takes place in lounge and kitchen areas. Neither of which is conducive to a quality learning environment. Space should be designated along with training support equipment to enhance the training effort.
- These buildings are older than the implementation of Americans With Disabilities Act (ADA) and it would appear that door widths in areas, restrooms as well as access to the building itself could present challenges.
- A very comprehensive security effort was evident at City Hall. That effort did not seem to be as pervasive in the fire stations. While main entry doors to the facility were all equipped with locks and it was reported a new electronic locking system would soon be installed, other access points appeared not secured at all or very loosely secured with loose fitting locks. Consideration should be given to hardening areas of refuge particularly the dormitory and dayroom areas.

The Fire Stations in use were built as fire stations but their functional use has declined in the last decade or two of use. Fire stations were not meant to last forever, and as apparatus become bigger in size, and more demands are placed on use within the structures, there is less practicality for the stations to serve as true fire stations for longer than 50 years. In essence, the growth of the fire department has exceeded the capability of the original stations to serve their purpose. The Fire Department has identified this issue and developed a strategic plan that addresses the problem and challenge.
The Safety Committee conducts an annual inspection of stations. Their report coupled with direct reports from personnel in the stations prompt the City Public Property Unit to respond for repairs and maintenance.

Carbon Monoxide detectors were NOT found to be hard wired not in all sleeping quarters. Given the nature and use of these structures, carbon monoxide detectors should be present in each station sleeping quarters and throughout areas where carbon monoxide could like be produced.

Maintenance agreements were not provided for HVAC, washer or dryer units and should be upon new construction.

In summary, ALL stations are rated fair to poor due to age, deterioration, storage space and cramped conditions observed during the project team visitation. Equipment was observed stored in areas with heat producing equipment with clear indications of insufficient storage space.

21st Century Fire/EMS Stations

Fire stations should be built to meet the needs of the organization and delivery system. This requires:

- Adequate space for vehicles, today and into the foreseeable future
- Compliance with all nationally recognized standards as well as standards for fire/EMS station design and operation
- Modern training facilities and equipment
- Adequate and secure office space
- Adequate and secure storage areas for equipment and records
- Safe and secure living quarters for duty crew personnel
- Safe and secure sleeping areas (as appropriate) for duty crew personnel
- Dedicated physical fitness area
- Adequate living and meeting space
- Adequate space for outdoor training
- Handicapped accessibility as appropriate
- Apparatus exhaust system (point of capture)
- Automatic fire/smoke detection and alarm system
- Automatic fire sprinkler system (NFPA 13 Compliant)
- Carbon monoxide detection and alarm equipment
- Energy efficient design and construction (LEED Certified)
- Decontamination and cleaning area for firefighter protective clothing and equipment
- Adequate parking for all personnel vehicles
- Sustainable construction of the facility (use of design and construction techniques that will reduce or eliminate any negative impact of the building upon environment and occupants)
- Building integrity and capability for continuity of operations during disasters (including emergency power, redundant water supply, sewage, communication, and related systems; protection from high water/flood, high winds, and seismic events; food storage, emergency supplies)
RECOMMENDATIONS

17-03 Assurances should be made that Carbon Monoxide detection devices are in place and functioning in all living (day room, office, meeting, sleeping workout areas) spaces of each station.

17-04 A structural engineer should be consulted to evaluate the second level of Station 6 where conditions may warrant immediate material removal, repairs, elimination of use of space.

17-05 A long term facilities plan and related funding source needs to be identified for the Lancaster Bureau of Fire.
Station 1

Front

Rear

Right Side When Looking at Building Front
Note deteriorated sidewalk

Right Side When Looking at Building Front
Note deteriorated wall finish

Left Side When Looking at Building Front

City Sign Shop in rear parking area
Station 1

Cluttered, mixed use in living space

Cluttered, mixed use in apparatus bay

CO Detectors not-functional

Damaged bollard not repaired

Mixed flooring can cause fall conditions

Ineffective door closer
Station 3

Front

Rear

Left Side When Looking At Building Front

Right Side When Looking At Building Front

Tight space exercise area Promotes accident potential

In appropriate electrical fixtures

Cramped, cluttered, mixed use in apparatus bay
Station 6

Front

Rear

Left Side When Looking at Building Front

Right Side When Looking at Building Front

General storage in apparatus bay area
Station 6

Ceiling damage in apparatus bay area

Damaged floor grate

Damaged window

Potential eye/struck by hazard in bale/storage area

Weed growth in fenced antenna tower area

Original boiler

Ceiling damage above boiler
Station 6 - Credit Union Space

Significant settlement wall cracks

Blocked second exit

Heavy storage on mezzanine above stairway
Vacant Lot

Potential New Fire Station Area
Apparatus Allocation

Current apparatus allocations to stations are as follows:

Station 1

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Date</th>
<th>Manufacturer</th>
<th>Pump Size</th>
<th>Tank Size</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine 1</td>
<td>1999</td>
<td>KME</td>
<td>1500</td>
<td>500</td>
<td>Fair</td>
</tr>
<tr>
<td>Tower 2</td>
<td>2009</td>
<td>Crimson</td>
<td>1500</td>
<td>300</td>
<td>100’ Tower Ladder Good</td>
</tr>
<tr>
<td>Engine 6</td>
<td>1989</td>
<td>Mack</td>
<td>1500</td>
<td>750</td>
<td>Fair</td>
</tr>
</tbody>
</table>

* Fair condition due to age, not mechanical capability

Station 3

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Date</th>
<th>Manufacturer</th>
<th>Pump Size</th>
<th>Tank Size</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck 1</td>
<td>1997</td>
<td>Simon-LTI</td>
<td>1500</td>
<td>150</td>
<td>75’ Ladder Good</td>
</tr>
<tr>
<td>Engine 3</td>
<td>2002</td>
<td>KME</td>
<td>1500</td>
<td>500</td>
<td>Good</td>
</tr>
<tr>
<td>RIT Unit</td>
<td>1997</td>
<td>Ford Light Duty</td>
<td>-</td>
<td>-</td>
<td>Very Good</td>
</tr>
<tr>
<td>Service Unit</td>
<td>2014</td>
<td>Jeep Cherokee</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

* Fair condition due to age, not mechanical capability

Station 6

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Date</th>
<th>Manufacturer</th>
<th>Pump Size</th>
<th>Tank Size</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine 2</td>
<td>2007</td>
<td>HME-Central</td>
<td>1750</td>
<td>750</td>
<td>Good</td>
</tr>
<tr>
<td>Reserve</td>
<td>1996</td>
<td>Jeep Cherokee</td>
<td></td>
<td></td>
<td>Fair</td>
</tr>
</tbody>
</table>

* Fair condition due to age and dependability, not mechanical capability

Critical to the longevity, service ability, functional ability, and reliability is the preventative and on-going maintenance of the apparatus. The apparatus is in good repair. There are a couple of fundamental decisions that have to be made with regard to replacing fire apparatus. These decisions include “what warrants replacement”:

- age alone,
- age coupled with level of performance, or
- performance and reliability

The apparatus complement is consistent with the requirements for the City of Lancaster Bureau of Fire. Based upon the 2015 study conducted, the following was recommended:
SUGGESTED CONSIDERATION FOR
APPARATUS ALLOCATION PER STATION
(based on risks posed, ISO requirements and ability to staff)

<table>
<thead>
<tr>
<th>STATION</th>
<th>PUMPER</th>
<th>RESCUE PUMPER</th>
<th>AERIAL</th>
<th>RESERVE AERIAL</th>
<th>RESERVE ENGINE</th>
<th>CAR/OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Station 1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Station 3</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Station 6</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Should the Bureau of Fire be modified to a two-station system, the following allocation of apparatus is recommended:

SUGGESTED CONSIDERATION FOR
APPARATUS ALLOCATION PER STATION
(based on risks posed, ISO requirements and ability to staff)

<table>
<thead>
<tr>
<th>STATION</th>
<th>PUMPER</th>
<th>RESCUE PUMPER</th>
<th>AERIAL</th>
<th>RESERVE AERIAL</th>
<th>RESERVE ENGINE</th>
<th>CAR/OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Station 1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Station 3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

RECOMMENDATIONS

None
Standard Operating Guidelines

As noted earlier, a comprehensive set of Standard Operating Guidelines has been implemented by the Fire Department.

One item of significant concern is that the Bureau of Fire does not utilize automatic aid effectively in order to assure an adequate response can be assured to respond to an incident, particularly in areas where a fire station outside the city is closer. However these stations are dispatched when a general alarm incident occurs. Given the use of mutual aid, it is important to realize that if departments “run together” they need to operate together. Thus the need to make sure mutual aid departments are aware of and can interface with these SOGs becomes extremely important and should be analyzed by the department leadership (this recommendation is already in process).

Secondly, the use of automatic aid can provide resources for target hazards/high risk areas that can respond faster than a recall of off-duty personnel. Consideration should be given to the selected use of automatic aid dispatching the closest resource to the location requesting assistance. This does not preclude joint (dual) response. As noted earlier, consult with Insurance Services Office personnel should also occur as there may be ISO benefits to the use in whole or part of automatic aid.

RECOMMENDATIONS

None
Mutual/Automatic Aid

The Lancaster Bureau of Fire department uses mutual aid. The philosophies for the number and types of apparatus being deployed to calls and the related use of mutual and automatic aid is established by each response grid, from the closest station to the incident. The mutual aid is requested as needed.

Automatic Aid of the closest station to an incident regardless of municipality is not in place. While it is understood why automatic aid is not used, this is potentially an issue that will be identified as a suggested practice by the Insurance Service Office when evaluating fire suppression capabilities.

The Chief related there is a standardized approach to response and target hazard response, which are defined in dispatch protocols and managed by the Lancaster County Emergency Dispatch Center. From an apparatus standpoint,

Response deployments reportedly include the following:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Automatic Alarm - Residential</strong></td>
<td>1 Engine</td>
</tr>
<tr>
<td><strong>Automatic Alarm - Commercial</strong></td>
<td>1 Engine plus Shift Commander</td>
</tr>
<tr>
<td><strong>Automatic Alarm - High Risk</strong></td>
<td>1 Engine, 1 Ladder, plus Shift Commander</td>
</tr>
<tr>
<td><strong>Structure Fire Dwelling</strong></td>
<td>3 Engines, 1 Ladder, plus Shift Commander General Alarm option</td>
</tr>
<tr>
<td><strong>Structure Fire Commercial</strong></td>
<td>3 Engines, 1 Ladder, plus Shift Commander General Alarm option</td>
</tr>
<tr>
<td><strong>Rescue</strong></td>
<td>Rescue Engine plus Shift Commander</td>
</tr>
<tr>
<td><strong>Hazardous Materials</strong></td>
<td>1 Engine, plus Shift Commander, plus county assets</td>
</tr>
<tr>
<td><strong>Technical Rescue</strong></td>
<td>1 Engine, plus Shift Commander, plus county assets</td>
</tr>
<tr>
<td><strong>Emergency Medical Call</strong></td>
<td>LEMSA response, AED call includes 1 Engine</td>
</tr>
</tbody>
</table>

This appears to be adequate first alarm assignments.

Given that Lancaster County has not mandated the use of Mutual Aid agreements, written agreements are not being recommended, but are considered highly desirable.

There should be a periodic review of all alarm assignments on an every other year basis.

The fire departments use a mix of mutual and automatic aid. The philosophies for the number and types of apparatus being deployed to calls and the related use of mutual and automatic aid is established by each response grid, from the closest station to the incident.
RECOMMENDATIONS

17-06 A review of the deployment and aid received/given by City of Lancaster Bureau of versus the risks protected should be conducted every twenty-four months to assure the response (particularly personnel responding) matches the risk and to properties in the response area.

17-07 Regionalization is ongoing in the Lancaster County area for volunteer stations. Automatic Aid is a long-term option for provision of fire services in the city, for efficiency, safety and insurance rating purposes. Exploratory discussions should be held to further introduce the concept and begin a long-term discussion on pros and cons, viability, responsibility, and options.
SUGGESTED STRATEGIC PLANNING TASKS (By year)
## City of Lancaster Bureau of Fire Strategic Planning Tasks 2017

<table>
<thead>
<tr>
<th>Task</th>
<th>Report Recommendation</th>
<th>Responsibility</th>
<th>Status/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revise, communicate and post mission and values statement</td>
<td>17-01</td>
<td>Chief &amp; Deputy Chiefs</td>
<td></td>
</tr>
<tr>
<td>Adopt and monitor Standard of Response Cover.</td>
<td>17-02</td>
<td>Mayor, City Council &amp; Fire Chief</td>
<td></td>
</tr>
<tr>
<td>Install carbon monoxide detectors/alarms in all station sleeping quarters.</td>
<td>17-03</td>
<td>Fire Chief &amp; Public Buildings Staff</td>
<td></td>
</tr>
<tr>
<td>Evaluate structural integrity of Station 6</td>
<td>17-04</td>
<td>Public Buildings Staff</td>
<td></td>
</tr>
</tbody>
</table>

## City of Lancaster Bureau of Fire Strategic Planning Tasks 2018

<table>
<thead>
<tr>
<th>Task</th>
<th>Report Recommendation</th>
<th>Responsibility</th>
<th>Status/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish long-term facilities upgrade and apparatus purchasing plan and funding model</td>
<td>17-05</td>
<td>Mayor, City Council &amp; Fire Chief</td>
<td></td>
</tr>
<tr>
<td>A review of the deployment and aid received/given by City of Lancaster Bureau of Fire versus the risks protected should be conducted every twenty-four months to assure the response (particularly personnel responding) matches the risk and to properties in the response area</td>
<td>17-06</td>
<td>Fire Chief, Deputy Chief of Operations, &amp; Battalion Chiefs</td>
<td></td>
</tr>
<tr>
<td>Initiate discussions regarding regionalization and use of automatic aid, based on this report and findings of 2016 ISO study (not yet completed at time of this study)</td>
<td>17-07</td>
<td>Mayor, Fire Chief, Deputy Chief of Operations, &amp; President of Local 319</td>
<td></td>
</tr>
</tbody>
</table>
### City of Lancaster Bureau of Fire Strategic Planning Tasks 2019

<table>
<thead>
<tr>
<th>Task</th>
<th>Report Recommendation</th>
<th>Responsibility</th>
<th>Status/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
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</table>

### City of Lancaster Bureau of Fire Strategic Planning Tasks 2020

<table>
<thead>
<tr>
<th>Task</th>
<th>Report Recommendation</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>A review of the deployment and aid received and given by City of Lancaster Bureau of Fire versus the risks protected should be conducted every twenty-four months to assure the response (particularly personnel responding) matches the risk and to properties in the response area</td>
<td>17-07</td>
<td>Fire Chief, Deputy Chief of Operations, &amp; Battalion Chiefs</td>
</tr>
</tbody>
</table>
APPENDIX 1

FACILITY CONCEPT & COST ESTIMATE
Facility Concept & Cost Estimates

Based on the review and analysis conducted, a facility concept and cost estimate is provided for consideration when stations need to be replaced, which can be used for planning purposes. This will include estimates for site preparation, and building construction based on prevailing costs within the local area. VFIS-ETC is not, however, an architectural or engineering firm. Prior to proceeding with acquisition of project funding, it is recommended that the services of a firm qualified in such costing be employed. Note, land is already available or identified, land acquisition costs will not be included in this estimate.

A basic set of needs for a new facility is provided based on current facility usage. A conceptual facility needs compilation was created by the project team and cost projections were developed for review. This information was taken into consideration.

With regard to the potential costs defined on the attached pages, there are two (2) estimates developed for each type structure. It should be noted that a structure of less sturdy construction is feasible. That would reduce the costs by as much as 50%, but would necessitate a discussion as to the pros and cons of that type of construction as well as facility longevity and functionality.

Funding Options

This proposed project will be built using municipal bond funding.

Typical in these projects is the offering of how other agencies nationwide have funded fire station construction. It is offered as a thought provoking method to the City of Lancaster for potential optional or supplemental funding. Based on the cost estimates developed earlier in this report, and nationally used funding tools, there are seven funding options regularly used. These might include:

1. General obligation bond – reportedly the primary method being considered.
2. Special levy/tax – not considered an option at this time.
3. As a portion of the current funding from the City over a long term period.
4. Fund raising by the department – not considered an option at this time for the structure, however all contents of the structure may be donated by local businesses.
5. Property sale by the Municipality
6. Possible contribution from the fire company(ies) and ambulance squad for special requests. – not an option in the City’s situation
7. Public-Private Partnership and/or impact fees on development projects

The actual method used will depend on a financial analysis at the time construction begins. A typical fire station construction timetable is attached for reference. Additional reference documents related to fire station construction are included for your information.
Concept consideration for
Construction of an Emergency Services (Fire & EMS) Building
Five Apparatus-bay Spec-Type Structure

Basic Structure Elements:
- 5 apparatus bays 14’ x 80’ = 5,500 sq. ft.
- Duty/watch/radio area 12’ x 24’ = 268 sq. ft.
- Utility Room (laundry, maintenance) 10’ x 12’ = 120 sq. ft.
- Office/work space 9’ x 12’ = 108 sq. ft.
- Utility closet 6’ x 8’ = 48 sq. ft.
- Kitchen 9’ x 12’ = 108 sq. ft.
- Shower/Locker/Rest Room – male 10’ x 12’ = 120 sq. ft.
- Shower/Locker/Rest Room – female 10’ x 12’ = 120 sq. ft.
- EMS Utility Room (laundry, maintenance) 10’ x 12’ = 120 sq. ft.
- EMS Office/Work space 9’ x 12’ = 108 sq. ft.
- EMS Kitchen 9’ x 12’ = 108 sq. ft.
- EMS Shower/Locker/Rest Room – male 10’ x 12’ = 120 sq. ft.
- EMS Shower/Locker/Rest Room – female 10’ x 12’ = 120 sq. ft.
- Dead storage area 20’ x 30’ = 600 sq. ft.
- Engineering area 9’ x 12’ = 108 sq. ft.
- EMS area 9’ x 12’ = 108 sq. ft.
- Common Day area lounge 20’ x 24’ = 480 sq. ft.
- Meeting/Training room 50’ x 60’ = 3,000 sq. ft.
- Exercise Area 12’ x 20’ = 240 sq. ft.
- Estimated 10% common area = 612 sq. ft.

TOTAL SQUARE FOOTAGE - MINIMUM 12,116 sq. ft.

Type 1 Construction
Face brick, stone, architectural concrete, good entrance, fully equipped includes classroom, kitchen, drywall, acoustic tile, good lighting, good plumbing, forced air heat and bathrooms.
$234.91 /sq.ft. @ 12,116 sq.ft. = $2,846,170 + land, architectural and engineering costs

Type 2 Construction
Face brick or stone, good entrance, office, classroom, kitchenette, drywall and acoustical tile, good lighting, good plumbing and rest rooms and forced air heat or heat pump systems.
$193.43 /sq.ft. @ 12,116 sq.ft. = $2,343,598 + land, architectural and engineering costs

NOTE: This cost estimate is a projection of costs, based on data provided and readily available information on the design and construction of a fire station. It is a conceptual design, not approved by the client. This should not be considered the actual amount or design, but a projected minimum cost of such a project.
EMERGENCY RESPONSE FACILITY DESIGN TIME LINE OF MAJOR MILESTONES

START

- Stakeholders Meeting
- Building Assessments (Needed for Existing Building to be Used for Addition/Renovations)

PROCESS OF DESIGN

- Schematic Design (SD)
- Design Development (DD)
- Construction Documents (CD)
- Construction Administrator (CA)

2 to 4 months
1 to 2 months
5 to 7 months
10 to 14 months

BID

MINIMUM WORK REQUIRED FOR FINANCING

- Environmental Testing (Site + Building)
- Topographical Survey
- Geotechnical Report

1 to 2 months
1 to 2 months
1 to 2 months

Obtain CM

- Regulatory Approvals
- Building Permits

1 to 2 months
4 to 12 months

CONSTRUCTION

OTHERS

- Civil Engineer
- Structural Engineer
- Mechanical Engineer
- Surveyor
- Construction Manager / Clerk of the Works
- Geotechnical Engineer

TEAM INVOLVEMENT

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City of Lancaster Fire Station Assessment & Location Study Report
Construction Options

There are two primary options used in fire station construction:
- Traditional Design-Bid-Build Process
- Design-Build Process

Municipal/statutory requirements may enable or restrict either use. However, it is important to know that typically the “design-build” process is more cost effective, faster, with less hassle. These processes are illustrated below:
When evaluating fire station sites it is important to consider the following:

**Land**
- Size and shape
- Road frontage and access
- Topography
- Accessibility
- Utilities
- Drainage/storm water management
- Detrimental natural features
- Demolition hazards
- Underground waste/hazmat
- Land/site points
- Fatal Flaw considerations, e.g. railroad tracks, bridge capabilities, flooding potential, etc.)

**Building**
- Traffic separation
- Parking
- Ease of apparatus exiting/returning
- Drive thru capability
- Build ability
- Land available around building
- Response time to potential events
- Acquisition costs
- Potential negative reaction
- Building/firematic points
- LEED certification (environmental impact)
APPENDIX 2

PROJECT TEAM
Project Team

William F. Jenaway, Ph.D., CFO, CFPS, Principal Consultant, Project Manager.

Dr. William F. Jenaway, CFO, CFPS will serve as Project Manager for this engagement. Dr. Jenaway is the CEO of VFIS-ETC responsible for training, education and consulting services provided to client of VFIS and VFIS-ETC. His organization provides training to over 20,000 fire/EMS personnel annually and provides technical guidance and consultation to over 200 agencies annually. He has served as Chief and Fire Marshal of the East Bethlehem Township, Pennsylvania Volunteer Fire Department; and as Chief and President of the King of Prussia, Pennsylvania; Volunteer Fire Company, as well as being Chairman of the municipality’s Fire and Rescue Services Board. Under Chief Jenaway’s leadership, the department became the first all-volunteer Accredited Fire Service Agency in the US. Fire Chief Magazine named him the “Volunteer Fire Chief of the Year” in 2001. Bill’s background includes 30-plus years of volunteer fire and EMS experience.

In 2004 he was named to Chair the Pennsylvania Senate Resolution 60 Commission to evaluate and provide recommendations to the Pennsylvania legislature and fire service on strategic approaches to the state’s fire and EMS delivery system.

Over the years, Bill has authored over 200 articles, seven texts and provided over 100 speeches on fire and life safety issues. He holds Certified Fire Protection Specialist and Certified Fire Officer designations as well. In 1999 he was named to the Presidential/Congressional Commission known as the “Advisory Panel to Assess preparedness for Terroristic Acts Involving Weapons of Mass Destruction” (a/k/a Gilmore Commission). Dr. Jenaway also serves as President of the Congressional Fire Services Institute and is Past President of the Pennsylvania Fire Services Institute. He serves on the National Fire Protection Association Committees of Emergency Services Risk Management; Providing Emergency Services to the Public; Fire Department Apparatus, and Fire Service Training. Dr. Jenaway is in his second, three-year term as a Commissioner on the Commission on Fire Department Accreditation.

Bill serves as an adjunct faculty member in the Graduate School of Public Safety at St. Joseph’s University in Philadelphia (Risk Analysis, Strategic Planning & Disaster Preparedness) and the Graduate School of Legal Studies at California University of Pennsylvania (Terrorism Threat Assessment)

Bill is an elected official – Township Supervisor – in Upper Merion Township, Montgomery County, Pennsylvania.

Dennis Rubin

Chief Dennis L. Rubin’s experience in fire and rescue service spans more than 35 years. He has served as a fire fighter, company officer; command level officer; and fire chief in several major cities including Dothan, Alabama, Norfolk, Virginia, Atlanta, Georgia and Washington, DC. In 1994, Rubin served as the President of the State Fire Chiefs Association of Virginia. Rubin was the host Fire Chief for the 1999 Southeastern Fire Chiefs Association conference held in Dothan, Alabama. He served on several committees with the International Association of Fire Chiefs, including a two-year term as the Health and Safety Committee Chair. Chief Rubin was the host Fire Chief for the “Wingspread IV and V” conferences held in 1996 and 2006. Chief Rubin’s educational accomplishments include a Bachelor of Science Degree in Fire Administration from the University of Maryland and Associates in Applied Science Degree in Fire Science Management from the Northern Virginia Community College.
Chief Rubin is a graduate of the National Fire Academy’s Executive Fire Officers Program (EFOP). Rubin is a Certified Emergency Manager (CEM); and a certified Incident Safety Officer as well has obtained the Chief Fire Officer Designation (CFOD) and Chief Medical Officer Designation (CMO) presented by the Center for Public Safety Excellence.

Rubin’s teaching credentials are significant. They include a field instructorship with the University of Maryland Fire & Rescue Institute and Associate Instructorships with the Virginia Commonwealth University in Richmond, Virginia and Rio Salado Community College in Mesa, Arizona. Rubin has been an adjunct faculty member of the National Fire Academy since 1983. At the National Fire Academy he instructed, as well as developed, many courses. Rubin is a popular speaker and lecturer at the local, state, national and international levels. Rubin is the author of several non-fiction books, Rube’s Rules for Survival, Rube’s Rules for Leadership and DC Fire. Rubin contributes to several fire-rescue service publications and has written more than 160 technical articles related to fire department operations, administration, training, and safety.

Thaddeus Lowden, M.S., CFO, Consultant.

Chief Thaddeus (Ted) Lowden currently serves as career fire chief for the Evesham Township (New Jersey) Fire District. Ted Lowden is a 29-year veteran of the fire service. Chief Lowden's fire service career began in 1975, when he joined the Marlton Fire Company (Evesham Township). Chief Lowden worked his way up through all of the ranks within the volunteer department. Chief Lowden also acted as the department training officer during his service with the Marlton Fire Company. In 1984 he was appointed as a career firefighter, and then later, was appointed to the position of career Deputy Fire Marshall. In 1988, at the age of 34, he was promoted to the rank of career Fire Chief.

Chief Lowden is active in many fire service organizations that include: The New Jersey State Career Fire Chiefs Association, the National Society of Executive Fire Officers, Burlington County 200 Club, New Jersey Fire Chiefs Association, and the International Association of Fire Chiefs. Chief Lowden has served as a charter member of the Burlington County Fire Advisory Board, a past President of the Burlington County Fire Chiefs Association. In Burlington County, he currently serves as a Deputy Fire Coordinator and a representative on the Emergency Services Academy New Building Committee, as well as Chairperson of the Burlington County Emergency Services Advisory Board. On a National level, Chief Lowden serves with the National Wildfire Coordinating Group as a subject matter expert, and is the NJ State Director of the International Association of Fire Chiefs. He is also a member of the Eastern Division's Board of Director's. Chief Lowden has designed curriculum for the National Fire Academy, is a graduate of their Executive Fire Officer Program, and serves as an adjunct instructor. He has published a number of articles in fire service trade journals and holds the national designation of Chief Fire Officer as issued by IAFC/ICMA. Chief Lowden has an Associate of Applied Science Degree in Fire Science, a Bachelor's Degree in Fire Science, and a Masters Degree in Public Safety Management from St. Joseph's University.
APPENDIX 3

REFERENCES
References

In addition to the documents provided by representatives of the City of Lancaster, the following documents were used in the analysis of information regarding the City Lancaster Bureau of Fire in the preparation of this report.


ISO, “Public Protection Classification Results, for Lancaster, PA, 2015.


VFIS, Developing and Implementing SOP and SOG for Emergency Service Organizations, VFIS, York, PA, 2001


Documents provided by the Lancaster Fire Department:
- City of Lancaster Comprehensive Plan - 1992
- Response data as requested by the project team
- Maps and related documents
Additional NFPA Standards Referenced:

✓ NFPA 1500 Standard on Fire Department Occupational Health and Safety Program

✓ NFPA 1710, the Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments

✓ NFPA 472 Standard for Professional Competence of Responders to Hazardous Materials Incidents

✓ NFPA 1561 Standard on Emergency Services Incident Management Systems

✓ NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs

✓ NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Service Communications Systems

✓ NFPA 1620 Recommended Practice for Pre-Incident Planning