Dayton Fire Department Station Evaluation:
Improving the Delivery of EMS and Fire Services by Focusing on the Community

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signature: [Signature]
Abstract

The City of Dayton currently operates 12 fire stations and one fire training center. The replacement of these facilities is going to be an imminent problem. The age of these buildings range from one built in 1939, to several built during the 1950’s and 1960’s, with the most recent being completed in 1989, nearly 24 years ago. These facilities do not currently meet many of the standards in place for fire station construction and were built without the consideration of modern community oriented EMS and fire departments. The purpose of this research paper is to examine how the Dayton Fire Department compares to those of like size, developments and standards used in fire station design, several funding mechanisms to fund a fire station construction project, and how to improve EMS and fire services to the community.
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Introduction

Dayton, Ohio located in Montgomery County is the sixth largest city in the State of Ohio, with a population of 141,527 covering 55.65 square miles. The city is home to many notable individuals including Nancy Cartwright (the voice of Bart Simpson), actor Martin Sheen, Charles Kettering (inventor of the automobile self-starter), John H. Patterson (founder of National Cash Register), and The Wright Brothers (inventors of the airplane) just to name a few. Dayton is also home to the University of Dayton, Sinclair Community College, the Dayton Dragons Semi-Pro baseball team (which has broken the all-time sports record for consecutive sell outs, currently at 913 games), and Wright-Patterson Air Force Base.

The Dayton Fire Department consists of 311 personnel working out of twelve stations and one fire training center. The twelve stations are separated into two districts, east and west, which are supervised by a District Chief. Occasionally as staffing allows a third central District Chief is also staffed. EMS services are provided with Advanced Life Support Medics stationed in nine of the stations (the actual number of Medics in service is based on the staffing for that day). The Medics are supervised by a Lieutenant/Paramedic who operates as the Incident Support Unit (ISU).

The fire department does not have a plan in place for the routine replacement or upgrade of current facilities. The oldest facility currently is Company 2’s, which according to records was constructed in 1939. Several of the other stations were constructed in the 1950’s and 1960’s, with the most recent, Company 15’s being constructed in 1989. Many of these buildings were not constructed with the modern fire department in mind. New space requirements, separate sleeping quarters, living quarters, and the implementation of community based items such as playgrounds, community centers, and exercise areas were not considered. Many of the
facilities would also not meet a lot of the standards in place today for the construction of fire station facilities. It is plainly obvious that attention is needed for many of the facilities operated by the department.

The basis of my research will be to compare the Dayton Fire Department to those of like size populations, review some new developments and standards in fire station design, to look at some funding mechanisms for fire station construction, and how to improve EMS and fire services to the community. It is my hope that the Dayton Fire Department will soon be able to develop a comprehensive plan looking at fire station locations and construction timelines.

**Comparison of the Dayton Fire Department**

The process of evaluating the number of fire stations in a community, their location, response times, and staffing are beyond the scope of this research project. I believe an initial step would be to compare the Dayton Fire Department to others of like community population to see how they compare. The table below provides the comparison of the Dayton Fire Department to five other communities:

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th># of Stations</th>
<th># of Personnel</th>
<th>Area (sq. miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dayton, Ohio</td>
<td>141,527</td>
<td>12</td>
<td>311</td>
<td>55.65</td>
</tr>
<tr>
<td>Chattanooga, Tennessee</td>
<td>170,136</td>
<td>19</td>
<td>400</td>
<td>155</td>
</tr>
<tr>
<td>Eugene, Oregon</td>
<td>156,929</td>
<td>11</td>
<td>210</td>
<td>43.72</td>
</tr>
<tr>
<td>Kansas City, Kansas</td>
<td>146,453</td>
<td>18</td>
<td>N/A</td>
<td>127</td>
</tr>
<tr>
<td>Peoria, Illinois</td>
<td>115,234</td>
<td>12</td>
<td>200+</td>
<td>50.23</td>
</tr>
<tr>
<td>Syracuse, New York</td>
<td>145,151</td>
<td>12</td>
<td>390</td>
<td>25</td>
</tr>
</tbody>
</table>
As you can see from the information presented above the Dayton Fire Department is in line with many other fire departments in the United States. It is important to note that while it may appear Chattanooga and Kansas City have a much higher number of fire stations, it must be noted that the area serviced is almost three times larger. Another interesting statistic I noted during my research was the variation in the number of personnel for the different departments. Also of interest is the fact that Syracuse, New York is one of approximately 30 in the country to achieve an ISO rating of Class-1.

Developments and Standards in Fire Station Design

“A fire station supports the needs of the fire department and the community in which it is located. It must accommodate extremely diverse functions, including housing, recreation, administration, training, community education, equipment and vehicle storage, equipment and vehicle maintenance, and hazardous materials storage.”


Several documents can assist in guiding the department looking to build a new fire station. They include:

- National, State, and Local Building Codes
- NFPA 1500- Standard on Fire Department Occupational Safety and Health Program.
- NFPA 1581- Standard on Fire Department Infection Control Program.

**Funding Mechanisms**

Once research is completed noting what is required to be included in new fire station construction, as well as how large the project is going to be, you must then focus on what types of funding mechanisms are available for the project. This funding can come from a number of available sources, the most common of which is some type of tax levy. The two general types of tax levies are:

- Real Estate Tax-In the State of Ohio, real estate taxes are based upon the appraised value of property. Counties, cities, towns, villages, school districts, and special districts each raise money through real estate taxes. Governments have the ability to levy taxes upon
land located within their jurisdiction. The money collected from taxes funds schools, pays for police and fire protection, maintains roads, and supports community services such as libraries and parks.³

- Earnings Tax-A tax levied against the income you earn during employment, typically expressed as a percentage. The City of Dayton currently has an earnings tax rate of 2.25%. This money is used to fund the general operations of the city. An option would be to pass a temporary earnings tax increase to fund a construction project.

- General Fund Monies-Some municipalities allocate a certain amount of the annual budget for capital improvement projects. This would be a great option when planning for future expansion.

- Grant Award-There are many grants available for acquiring new equipment and for certain construction/demolition projects. The U.S. Fire Administration administers the Assistance to Firefighters Grant Program which can provide funding for equipment, staffing, and fire prevention.

Regardless of the funding mechanism selected, you must have buy-in from the community. Citizen groups, business/commerce groups, and labor organizations all play a very important role in securing funding for a capital improvement project. None of the above listed options are easy solutions, but must be addressed in order to fund the project.

**Improving EMS and Fire Service Delivery**

“Over the past 30 years, the fire service has prided itself in becoming an all-hazards emergency service; many departments have even changed their names to reflect their expanded mission as fire, rescue, and emergency services departments. We have taken on duties such as

haz-mat, emergency medical service, water rescue, and even bomb incident response, to name a few. As a result of these increased duties, community risk has been reduced.\textsuperscript{4} This paragraph summarizes what we have become as a profession. Unfortunately our facilities have not kept pace with the changes in the delivery of our services. We must focus on integrating ourselves into the community by any means possible. The benefit to this type of approach is twofold. First, you increase the level of service provided to your community. Second, you build a relationship that will benefit the organization when the time comes to request additional revenue from the citizens.

There has been a large move toward creating an open environment when it comes to fire station facilities. “When the Springfield (MO) Fire Department (SFD) started adding community rooms and public facilities at its new fire stations, it didn’t fully realize the opportunities that it would offer to educate the community in risk reduction.”\textsuperscript{4} Several additions SFD included in their new facilities include community rooms, public walking tracks with exercise stations (also a great opportunity for fire personnel fitness), and playground equipment. By the addition of these types of items, you develop another benefit in that the community will be accustomed to using these facilities. When you achieve this type of interaction with the community, you begin to have the ability to offer other services and be successful at implementation. Ideas of programs that could utilize these new facilities include:

- Neighborhood Association Meetings
- Child safety seat inspections
- Community CPR courses
- Community Emergency Response Team (CERT) training

- Police/Fire training courses
- Flu shot clinics
- Any other need the community may identify

Another new concept that could be assisted with the construction of new facilities is the idea of Community Paramedicine. One community implementing this type of program is in Eagle County, Colorado, “The goals of the WECAD’s Community Paramedic Program are twofold; to improve health outcomes among medically vulnerable populations; and to save healthcare dollars by preventing unnecessary ambulance transports, emergency department visits, and hospital readmissions.”\(^5\) Construction of new facilities could be a perfect time for the Dayton Fire Department to consider this type of initiative, integrating needs into the design process. This could prove to be a vast improvement of the care provided, as well as a method to decrease the demand on emergency services.

**Conclusion**

Fire stations are community landmarks that show the citizen support for their department. In past generations these facilities were neighborhood focal points that were always “open for business”. Today it seems we have moved away from this type of appearance, with doors always being closed, the appearance may be that we don’t want citizens to visit. Many departments do not currently have a plan in place to address their station needs and the City of Dayton is no different. This research has taken a look at how the Dayton Fire Department compares to similar sized jurisdictions, current standards and practices for fire station design and construction, several funding mechanisms for funding the construction of a fire station project and how to improve EMS and fire services to the community. It is my hope that I can

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expand on this information and begin asking the questions to work on a comprehensive plan for the Dayton Fire Department.