

**Virginia Fire Chiefs Association**  
**Virginia Volunteer Workforce Solutions**  
**Phase I Final Report**

**Table of Contents**

<b>Executive Summary .....</b>	<b>2</b>
<b>Introduction/Preface .....</b>	<b>4</b>
<b>The Experiment .....</b>	<b>5</b>
<b>Using GIS Technology for Volunteer Firefighter Recruitment .....</b>	<b>7</b>
<b>Results and Findings .....</b>	<b>12</b>
<b>Firefighter Survey .....</b>	<b>12</b>
<b>Departmental Chiefs' Interviews.....</b>	<b>12</b>
<b>Leadership Training Activities.....</b>	<b>13</b>
<b>VWS Program Comparison Analysis.....</b>	<b>14</b>
<b>Recommendations and Conclusions.....</b>	<b>16</b>
<b>VWS Programmatic Lessons Learned .....</b>	<b>18</b>
<b>The Future.....</b>	<b>18</b>
<b>Bibliography.....</b>	<b>19</b>

## **Executive Summary**

In 2010 and 2012, the Virginia Department of Fire Programs (VD FP) conducted its Annual Needs Assessments Survey in the Commonwealth of Virginia. The results indicated that 76% (2010) and 72% (2012) of the departments needed more volunteer firefighters (Virginia Fire Service Needs Assessment: An annual profile of critical needs as identified by Virginia's Fire Service, 2012, p. 4)(See Appendix A for the complete report). As a result of these findings, the Virginia Fire Chiefs Association identified the need to address the difficulties with finding, recruiting, training, and retaining qualified volunteer firefighters recruits in order to boost the numbers of overall volunteer firefighters. Partnering with the International Association of Fire Chiefs (IAFC), the VFCA applied for and received a Staffing for Adequate Fire and Emergency Response (SAFER) Grant from the U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA) to recruit and retain front line volunteer firefighters.

In order to recruit more volunteer firefighters, it was imperative to analyze current recruitment techniques and find additional techniques that could prove more successful, and be both cost-effective and efficient. Both the IAFC and VFCA felt compelled to explore the use of Geographic Information Systems (GIS) technology as one method of enhancing the recruitment of volunteer firefighters. The thought process was to complete a GIS-based community-level profile analysis of existing firefighters in the hopes of providing valuable information for identifying the types of people who would be the best future candidates for the volunteer fire service. In addition, the analysis attempts to identify where future volunteers can be located and the best practices to communicate with and recruit them. Thus a large experiment was envisioned and was titled; the Virginia Volunteer Workforce Solutions (VWS) Program. In addition, in 2011 the VFCA conducted a Firefighter's Survey of 1,805 Virginia firefighters in order to gain a better understanding of the issues and perceptions related to the recruitment and retention of volunteer firefighters (see Appendix B). Chief's interviews were also conducted to gain a better understanding of the challenges related to recruitment and retention.

The VWS Program began by selecting 20 fire departments with ten departments using traditional recruitment methods (T-10) and ten departments utilizing GIS (GIS-10) based information to assist in their recruiting. The study occurred over an 18-month intervention study period. The study was designed to assess the effectiveness of traditional and GIS-based recruitment tools on volunteer recruitment and retention in comparably populated service areas. Each GIS-10 community was paired with a respective T-10 community, each having similar characteristics, thus resulting in fair and equitable comparisons. The VWS Program provided all recruiting material to the 20 departments.

The VFCA contracted with Environmental Systems Research Institute's (Esri) whose GIS technology was used to conduct the community analysis called Tapestry Segmentation. Tapestry Segmentation is based on the principle that people with similar interests and lifestyles prefer to live in similar neighborhoods (see Appendix C for a sample Tapestry Segmentation Report). In addition, the VFCA also contracted with George Mason University (GMU) to conduct the academic comparative analysis of the VWS Program activities (see Appendix D for the full GMU report).

The major findings of the VWS Program are as follows:

- As of October 2012, the study had 1539 recruits; 956 for the T-10; and 583 for the G-10.
- For the G-10 group, Recruitment Nights, Distributed Materials, Community Posters, Community Business Contacts, and Media Activities (Contacts, Departmental Contacts, Interviews, and

Press Releases) test to be significant. For the T-10 group, none of the activities tests to be significant. For interpretation purposes, recognize that results that do not reach the chosen significance levels are not “negative” results in the sense that activities are bad or even lead to fewer recruits. The relationship between those factors and the number of recruits simply could not be established with a particular level of statistical certainty. Any positive correlation between larger numbers of activities and larger number of recruits suggests that there is a positive effect of that activity which can be further explored.

- Seasonally, Fall has the highest recruitment totals (30%) with the highest monthly total in October. Summer has a similar total (29%) followed by Winter (21%) and Spring (20%). December has the lowest monthly total during the first year of the study for each group.
- Recruits list Special Events (19%), Friend/Family Referrals (17%), and Webpage/Internet Searches (8%) as their leading mechanisms for learning about opportunities in the profession.
- Service to the Community (17%), EMS Response (14%), and Fire Response (12%) are the top three motivators for recruits. The top five motivators account for 60% of the motivating factors for recruits.
- The top three primary recruit occupations, which account for more than half of the responses, include Student, Health Care, and the Military.
- Surprisingly, 26% of the recruits responded to Twitter questions, but 73% think it is a good idea as a recruiting tool.
- Overall, the majority of recruits volunteer for “passive” reasons (39%) such as referrals, combinations, memberships, and departments compared to “active” reasons (42%) such as events, displays, media, and face to face activities (19% non-response rate).
- The results of the Firefighter’s Survey show four major findings: First, personal interaction with a firefighter is the overwhelming impetus to join. Second, tenured firefighters are more likely to enjoy administrative duties and less likely to enjoy response duties and community outreach. Third, social media questions and perceptions of its benefits enhance recruitment strategies. Fourth, people believe that firefighters leave the service due to a lack of leadership, poor fit with others, and politics within the departments.
- Departments with fulltime Volunteer Recruitment Coordinator, a centralized application process, and standardized policies and procedures were more successful in their recruiting efforts.
- Departments with antiquated by-laws, application processes, and lack of an immediate and coordinated response to potential recruits were less successful in their recruiting efforts.
- Departments with mentorship and leadership programs are more successful in their recruitment and retention efforts.
- More detailed information related to the VWS Program is readily available in the Virginia Fire Chiefs Association Recruitment Activity Analysis Report prepared by GMU (Appendix D).

## **Introduction/Preface**

Virginia fire departments, like much of America, are experiencing a declining volunteer base and membership. Changing demographics, training requirements, and economic conditions all impact the declining number of volunteer firefighters across the nation. Adequate firefighter staffing, regardless of the type of department, is elemental for civilian safety as it directly and indirectly affects human outcomes and economic losses for residents within a community (Curtin & Hill, 2012, p. 15). Because of this significance, the central element with the single highest cost across public services is personnel (Curtin & Hill, 2012, p. 15). In order to maintain adequate staffing levels and a skilled workforce that protects residents' safety, fire departments must recruit and retain qualified volunteer personnel – preferably with cost-effective and efficient methods that meet the community's needs.

The Commonwealth of Virginia has been experiencing similar difficulties related to maintaining an adequate volunteer firefighter force. Current research has shown that staffing issues throughout Virginia's volunteer fire service is still the number-one issue they face today. Because two thirds of all Virginia firefighters are volunteers, it's critical to bolster and maintain the volunteer ranks to continue to adequately protect residents and visitors of Virginia. In 2010 and 2012, the Virginia Department of Fire Programs (VDFP) conducted its Annual Needs Assessments Survey in the Commonwealth of Virginia. The results indicated that 76% (2010) and 72% (2012) of the departments needed more volunteer firefighters (Virginia Fire Service Needs Assessment: An annual profile of critical needs as identified by Virginia's Fire Service, 2012, p. 4). As a result of these findings, the Virginia Fire Chiefs Association identified the need to address the difficulties with finding, recruiting, training, and retaining qualified volunteer firefighters recruits in order to boost the overall numbers of volunteer firefighters. Partnering with the International Association of Fire Chiefs (IAFC), the VFCA applied for and was awarded a Staffing for Adequate Fire and Emergency Response (SAFER) Grant from the U.S Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA) to recruit and retain front line volunteer firefighters.

The SAFER-funded program, named the Volunteer Workforce Solutions (VWS) Program, was created to identify and study new recruitment and retention methods for assisting the volunteer fire service in achieving a viable workforce and to assist elected officials in effectively planning for the future of their emergency response system. The VFCA felt that in order to recruit more volunteer firefighters, it was imperative to analyze current recruitment techniques and find additional techniques that could prove more successful, and be both cost-effective and efficient. Both the IAFC and VFCA felt compelled to explore the use of Geographic Information Systems (GIS) technology as one method of enhancing the recruitment of volunteer firefighters. The thought process was to complete a GIS-based community-level profile analysis of existing firefighters in the hopes of providing valuable information for identifying the types of people who would be the best future candidates for the volunteer fire service. The analysis attempts to identify where future volunteers can be located and the best practices to communicate with and recruit them. In addition, in 2011 the VFCA conducted a Firefighter's Survey of 1,805 Virginia firefighters in order to gain a better understanding of the issues and perceptions related to the recruitment and retention of volunteer firefighters. Chief's interviews were also conducted to gain a better understanding of the challenges related to recruitment and retention.

The VFCA contracted with Environmental Systems Research Institute's (Esri) whose GIS technology was used to conduct the community analysis called Tapestry Segmentation. Tapestry Segmentation is based on the principle that people with similar interests and lifestyles prefer to live in similar neighborhoods. In addition, the VFCA also contracted with George Mason University (GMU) to conduct the academic comparative analysis of the VWS Program activities.

### **The Experiment**

After receiving the SAFER Grant funding in December 2010, the VFCA began marketing the VWS Program in order to attract fire departments that were interested in participating in the program. An official application and application process was developed, and overall, 45 applications were received. Of the 45 applications, 28 of the communities met the selection criteria established by the VFCA. The agency selection criteria were designed to select a cross-section of agencies using the following characteristics:

- Geographic location
- Socio-Economic data
- Population
- Size of department (number of stations and personnel)
- Availability of adequate partnering community
- Department need
- Fiscal/Economic conditions

The 28 departments were reduced to the final 20 departments who were stratified into two groups: Traditional (T-10) and GIS (G-10). The T-10 departments included Bedford County, Botetourt County, Caroline County, Charlotte County, City of Colonial Heights, Culpeper County, City of Hampton, Huguenot Volunteer Fire Department, Roanoke County and Rockingham County. The G-10 departments included Fauquier County, Frederick County, Goochland County, Hanover County, Louisa County, City of Martinsville, Namozine Volunteer Fire Department, Page County, Shenandoah County and Spotsylvania County. For comparison sake, each of the ten departments within both the groups, were paired with a similar counterpart agency. The T-10 departments were the control group of the program.

Each of the 20 departments were notified of their selection and were invited to the mandatory kick-off and educational meeting so they could fully understand the nature of the VWS Program and their level of responsibility and participatory requirements. A memorandum of understanding (MOU) was developed and each agency was required to sign and return the MOU.

The T-10 departments (control group) main focus was to recruit using the most tradition methods of recruiting augmented by new marketing campaigns designed and funded by the VWS Program. The traditional methods of recruiting included:

- Recruitment events
- Fundraising events
- Public safety events
- School visits
- Distributed promotional items
- Banner and sign displays

- Community posters
- Speaking engagements
- Community business contacts
- Media contacts
- Media interviews
- Media ride-alongs
- Media press releases
- Mass mailings
- Public Service Announcements
- Facebook contacts
- Twitter contacts
- Webpage contacts
- Video
- Word of mouth

The VFCA's traditional recruitment method was framed as a grassroots campaign striving to create an emotional connection between potential volunteers and the fire department through the use of a local advocate. This roll of advocate or "poster child" was fulfilled by a current member of the participating department. The campaign also focused on the use of social media to reach its target audience. During the study a majority of the T-10 departments received the following print media items (at no cost to them): posters, direct mail postcards, tri-fold brochures, display holders, and large outdoor banners (see Appendix E for examples). Digital media support included: web banner and site design assistance, web advertising, and USB drives. Funding was also allocated to support the creation of print, radio, television public service announcements, and a statewide recruitment video. In addition, all participating departments, including the GIS-10 departments, were included on the Virginia Volunteer Workforce Solutions' website located at [www.everydayherova.org](http://www.everydayherova.org).

The G-10 group followed another recruitment strategy centered on GIS-based citizen-profile analysis called Tapestry Segmentation developed by Esri. Tapestry Segmentation classifies U.S. residential neighborhoods into 65 distinct market segments. The distinctions between the market segments are based on key determinants of citizen behavior such as income, source of income, employment, home value, housing type, occupation, education, household composition and age. Tapestry Segmentation combines the "who" of lifestyle demography with the "where" of local neighborhood geography to create a model of various lifestyle classifications (segments) of actual neighborhoods, each with distinct behavioral market segments. Identifying these Tapestry Segments was the foundation in the development of the VWS Program's GIS-based marketing campaign –**Everyday Hero VA**. Each of the G-10 departments received a customized Tapestry Segmentation Report specific to their community profile. The report graphically mapped and identified the following groups to target their recruitment activities:

**Core Group:** Segments within the community where a majority of its current firefighters live, and where potential recruits have the opportunity to interact with firefighters on a regular basis.

**Developmental Group:** Segments within the community where higher proportions of firefighters live and offer good opportunities for recruitment.

**Niche Group:** Segments within the community that identifies an area where a very small number of firefighters live, and will have little impact on recruitment strategies.

In addition, each G-10 department received very specific recruiting strategies that were to be used and tracked as part of the program analysis and comparative model to the T-10 departments' results.

Both the T-10 and G-10 groups were required to document their marketing strategies and recruitment efforts on a monthly basis using two types of tally forms: Recruitment Activity Monthly Tracking Form (Activity Form) and the Recruit Monthly Tracking Form (Recruit Form) (see in Appendix F). The VWS Program defines a recruit as any person taking the initiative to complete the Recruit Form or give additional information to a staff member within a department. Each form (Activity and Recruit) is approximately one page long. Both forms ask a series of questions that generally require a numerical response; however, a few responses are qualitative. The T-10 groups started collecting data in May 2011, while the G-10 group started in September 2011. All data collection ceased in November 2012. Detailed analysis of the data can be found in the appendix in the Virginia Fire Chiefs Association Recruitment Activity Analysis Report prepared by GMU (see Appendix D for the full report).

### **Using GIS Technology for Volunteer Firefighter Recruitment**

As the number of prospective volunteer firefighters decreases, the fire service is forced to identify and implement new recruitment and retention tools. The VFCA and IAFC identified that new methods were needed to better recruit and retain volunteer firefighters. The VFCA and the IAFC hypothesized that using GIS technology and applications could be one avenue to more effectively locate and recruit future firefighters. The basic theory was to use intelligent demographic and geographic data to recruit firefighters by:

- Holding recruitment functions in locations where desired candidates congregate
- Highlighting the aspects of service that appeal directly to potential firefighters in a specific area
- Directing advertising with the right message to the right audience at the right location
- Targeting direct mail or door-to-door canvassing in the areas where the most responsive recipients live
- Understanding the characteristics of a community's target (ideal) firefighters
- Analyzing the lifestyle characteristics of firefighters
- Determining where ideal and desired firefighters live
- Discovering the untapped potential recruits in specific areas
- Developing strategies to encourage firefighter candidates to enlist

To determine if GIS would enhance recruitment, an experiment needed to be conducted to compare GIS recruitment activities against more traditional recruitment activities. GIS is defined as a system of hardware, software, and procedures designed to support the capture, management, manipulation, analysis, modeling and display of spatially-referenced data for solving complex planning and management problems. Traditionally, most GIS systems have processed geographic and demographic data. In addition to geographic and demographic information, Esri's systems utilize business data, consumer expenditure surveys, retail market place data, and consumer survey data from the GfK MRI Doublebase.

As part of the VWS Program, Esri geocoded the addresses of all active firefighters for each G-10 department into their software programs in order to identify the specific Tapestry segments in which the firefighters reside. Esri's Tapestry Segmentation model provides its users a tool to understand the lifestyles and life stages of consumers within a market or region. Tapestry segmentation classifies U.S. residential neighborhoods into 65 unique market segments based on socioeconomic and demographic characteristics. Tapestry Segmentation uses the notion that most volunteer firefighters have similar backgrounds and that people are attracted by similar tastes, need for security, peer identify, and a sense of place. After researching a volunteer's demographic and personal composition, they are placed within one of the 65 tapestry segments. Once the target audience and tapestry segmentation is understood, recruitment activities can be performed within the identified segments.

A "core segment" consists of a segment that makes up a large percentage of a community's current firefighters. In a core segment, firefighters make up a larger percentage of the workforce than the percentage of firefighters making up the community as a whole. Core segments represent a good opportunity to recruit more of the same types of firefighters that currently make up the workforce. A "developmental segment" not only represents a significant portion of the current workforce, but also represents areas with households that have not yet been reached to volunteer. They represent potential for recruiting new types of firefighters. A "niche segment" represents an area within the community that identifies an area where a very small number of firefighters live, and will have little impact on recruitment strategies. For the purposes of this program, niche segments are not discussed.

Since each of the jurisdictions can recruit from their surrounding areas, multiple market segmentation types apply to each jurisdiction. Five of the GIS-10 departments have a combination of core, development. In this study, nineteen segment types describe the development and core recruitment neighborhoods surrounding the study areas. Eleven of the segment types apply to more than one department, while eight are relevant for a single jurisdiction. Each of the departments has a unique combination of four to seven Esri marketing segments, which help to describe and differentiate them for a "one of a kind" marketing strategy.

To understand segmentation one must be able to interpret the provided information and how it can benefit recruitment and retention within a volunteer organization. Segmentation is broken into four components. The target area identifies just how many groups within a region may contain future firefighters. Population information identifies the workforce and what they are like. Index numbers describe what a demographic likes to do; and trade area penetration predicts how likely individuals within a segment are likely to become a firefighter. For identifying potential recruits, core and developmental groups are evaluated and targeted for recruitment. These groups provide the user with information about the population within the group and why departments need to know them. For this study, the answer to "why a department needs to know them," is clear; they could be the future volunteers needed to maintain its service levels.

Esri Tapestry Segmentation also provides its users with information related to market trends or market potential characteristics. Market potential characteristics help departments create a unique recruitment strategy and gives them the knowledge needed to craft successful marketing messages. The commonalities with the market segments help to describe the G-10 departments as a group.

In the example below, one core and one developmental tapestry segments for Fauquier County are shown (see Appendix C for Fauquier County's full report as well as definitions of all 65 tapestry segments).

## **In Style**

**Demographic:** *In Style* residents live in the suburbs but prefer the city lifestyle. Professional couples predominate. Household distributions by type are similar to those of the United States. Married-couple families represent 54 percent of households. Households without children (married couples without children, single-person, shared, and other family types) comprise more than two-thirds of all households. This count is increasing. The population is slightly older, with a median age of 40 years. There is little diversity in these neighborhoods.

**Residential:** *In Style* residents live in affluent neighborhoods of metropolitan areas across the country. More suburban than urban, they embrace an urbane lifestyle; 14 % prefer townhouses to traditional single-family homes chosen by 56 % of the households. The median home value is \$218,289. The 68 % rate of home ownership is just slightly above average. More than three-quarters of the housing was built in the last 30 years.

**Socioeconomic:** *In Style* residents are prosperous, with a median household income of \$70,745 and a median net worth of \$182,665. Wages and salaries provide income for 84% of the households; 47 % also receive some form of investment income. *In Style* residents are more educated compared to the US level: 42% of the population aged 25 years and older hold a bachelor's or graduate degree. Labor force participation is 68.5%; unemployment is 8.4%. Forty-six percent of employed residents have professional or management positions, with above average concentrations in the finance, insurance, health care, technical services, and education industry sectors.

**Preferences:** Computer savvy *In Style* residents go online daily to research real estate information; do their banking; track investments; trade stocks; book travel; and buy computer hardware or software, concert tickets, or tickets to sporting events. They use a financial planner and invest in stocks, bonds, money market funds, money market bank accounts, and securities. Looking toward the future, residents hold life insurance policies and contribute to IRA and 401(k) retirement accounts. To maintain their homes, they hire professional household cleaning services and contractors to remodel their kitchens.

Residents stay fit by exercising, eating a healthy diet to control their weight, buying low-fat foods, and taking vitamins. They attend live musical performances and gamble at casinos. They take domestic vacations to hike, golf, and go backpacking. They read magazines, listen to news-talkradio, and watch professional sports events and golf on TV.

## **Exurbanites**

**Demographic:** Exurbanites residents prefer an affluent lifestyle in open spaces beyond the urban fringe. Although 40% are empty nesters, another 32% are married couples with children still living at home. Half of the householders are aged between 45 and 64 years. They may be part of the "sandwich generation," because their median age of 45.5 years places them directly between paying for children's college expenses and caring for elderly parents. There is little ethnic diversity; most residents are white.

**Residential:** Although Exurbanites neighborhoods are growing by 1.61% annually, they are not the newest areas. Recent construction comprises only 22% of the housing. Seventy

percent of the housing units were built after 1969. Most are single-family homes. The median home value is \$248,490. Nearly 80% of households own at least two vehicles. Their average commute time to work is comparable to the US average.

**Socioeconomic:** The 65.2% labor force participation rate is slightly higher than the US rate of 62.4%. Approximately half work in substantive professional or management positions. These residents are educated; more than 40% of the population aged 25 years and older holds a bachelor's or graduate degree; approximately three in four have attended college. The median household income is \$84,522; the median net worth is \$368,532. The median household income is \$84,522. More than 20% earn retirement income; another 57% receive additional income from investments.

**Preferences:** Because of their life stages, Exurbanites residents focus on financial security. They consult with financial planners; have IRA accounts; own shares in money market funds, mutual funds, and tax-exempt funds; own common stock; and track their investments online. Between long-term care insurance and substantial life insurance policies, they are well insured. Many have home equity lines of credit. To improve their properties, Exurbanites residents work on their homes, lawns, and gardens. They buy lawn and garden care products, shrubs, and plants. They will tackle some home improvements, but hire contractors for more complicated projects.

They are very physically active; they lift weights, practice yoga, and jog to stay fit. They also go boating, hiking, and kayaking; play Frisbee; take photos; and go bird watching. When vacationing in the United States, they hike, downhill ski, play golf, attend live theater, and see the sights. This is the top market for watching college basketball and professional football games. They listen to public and news/talk radio and contribute to PBS. They participate in civic activities, serve on committees of local organizations, address public meetings, and help with fundraising. Many are members of charitable organizations.

The most common segments found in our research are Green Acres and Midland Crowd, which apply to six departments each. Within these segments, five departments, Fauquier County, Frederick County, Goochland County, Louisa County, and Spotsylvania County are common to both groups. Hanover County and Namozine Volunteer Fire Department are the sixth departments in the Green Acres and Midland Crowd segments, respectively. Frederick County, Goochland County, and Louisa County, which are common to the most popular segments (above), are also Salt of the Earth segments, the next largest group. The Salt of the Earth marketing segment, which includes five departments, also includes the City of Martinsville and Shenandoah County. Three segments, Exurbanites, Midlife Junction, and Up & Coming Families, each have four departments with Hanover County being common to all of them. Four segments, In Style, Rural Resort Dwellers, Sophisticated Squires, and Southern Satellites, have three departments within each of the segments, but none of the departments are common to all four of them. Spotsylvania County is part of the first three segments, but not part of Southern Satellites. Prosperous Empty Nesters describes Shenandoah County and Namozine. Overall, these common segments help to connect the departments by their similar traits.

In addition to grouping like departments, the segments can also differentiate them. The single-entry Tapestry segments with their descriptive titles represent the uniqueness of eight departments; therefore, Goochland County is Boomburbs; Hanover County is Cozy & Comfortable; Louisa County

is Main Street USA; and the City of Martinsville is Hometown. With two unique designations each, Namozine is Family Foundations and Rustbelt Traditions; and Page County is Heartland Communities and Rooted Rural. Overall, these individual segments help to separate the departments by their unique traits.

For each of the GIS-10 departments, an individualized report was produced identifying the core and developmental segments within their jurisdiction. Data on active firefighters within a department was collected and analyzed so that a detailed picture of a volunteer firefighter could be created. This picture includes: their place of residence, what products and services they purchase and use, how to reach them, and the most effective tactics to communicate with them. Core Segments for Fauquier County are; In Style, Midland Crowd, and Up and Coming Families. Developmental tapestry segments identified were; Exurbanites, Green Acres, and Sophisticated Squires. Below is an example of a series of specific recruitment strategy recommendations for Fauquier County based on its specific core and development segments:

1. Select one or more fast food restaurants like Hardees's (or similar) or a family restaurant like Panera Bread or Cracker Barrel, and invite them to be a corporate sponsor of the community fire department. One night each month the restaurant can sponsor a "buy one, get one free" dinner for folks who attend a short recruitment presentation in the parking lot that evening and receive a dinner coupon.
2. Work with your local large combination grocery and drug store and develop a local coupon day where anyone who has a "Volunteer Firefighter Recruit" coupon receives double value. Coupons are given to people who attend the recruitment evening at the station after being invited.
3. Set-up a "power tool safety" demonstration with a local hardware store and have firefighters and store personnel feature a specific tool and its safe use. Have the engine and recruiters there to invite volunteer interest and follow-up with a "Recruitment Evening" at the station within a month. (Core: Midland Crowd, Developmental: Green Acres and Sophisticated Squires)
4. Using the same hardware store owner, feature a woodworking display at the local fair/crafts show that showcases items made by local volunteer firefighters. Have the hardware store sponsor a "Firefighter Shop Day" at the local high school where recruiters visit the wood shop class and talk about hands on skills for responders. (Core: Midland Crowd. Developmental: Green Acres)
5. Sponsor an "Ice Cream Social" as the attraction at the fire station during your recruitment meetings. Ask a local community group such as scouts, sports club, or garden club to bring ice cream machines and make the ice cream at the event. Ask the potential recruit to bring their family to the event so that everyone gets "recruited." (Core: Up and Coming Families, Developmental: Green Acres)
6. Work with a local gym and partner with the personal trainers as recruiters. Ask a trainer to write an article for the local newspaper on fitness that focuses on some of your firefighters and their experiences with getting in shape. Have a Fitness Day at the gym where the trainers give free clinics and the firefighters serve as spotters and demonstrators. Hand out your recruitment materials and invite people to your "Recruitment Meeting" at the fire station. (Core: In Style, Developmental: Exurbanites)
7. Develop an advertising partnership with the local life insurance agents who are doing direct mail marketing in your community. Ask them to support your department overall and to specifically hand out your recruitment information to their clients. Make the agents partners in "Insuring Your Safety – X Fire Department" and recognize their recruitment

efforts at an annual event. (Core: In Style, Developmental: Exurbanites, Sophisticated Squires)

8. Partner with a local motorcycle dealership and sponsor a “Ride for Volunteer Firefighters” where the dealership offers a sales event or drawing event at the dealership and the fire department participates with safety information and recruitment materials. Ask the local firefighters who have motorcycles to ride them to the event. (Core: Midland Crowd, Developmental: Sophisticated Squires and Green Acres)
9. Seek out the local garden club and ask them to be a “Community Partner” to assist in recruiting volunteer firefighters. Have them host a “Plant the Seeds of Volunteer Firefighting” event with a local popular nursery/garden store where recruiters can hand out invitations to a “Recruitment Meeting” at the station. (Core: Midland Crowd, Developmental: Green Acres, Exurbanites, and Sophisticated Squires)

## **Results and Findings**

### **Firefighter Survey**

In the early stages of the VWS Program, the VFCA felt it was necessary to get a gauge of the perception and attitude of the Virginia Fire Service related to recruitment and retention issues. Specific items of interest sought in the survey included: collecting general fire service information, gaining a deeper understanding of motivational factors for becoming a firefighter, gauging the enjoyment levels of various duties, and identifying recruitment, retention and turnover issues.

In 2011, the VFCA created and disseminated a survey, which garnered 1,805 Virginia responses. An analysis of the results by GMU included cross-tabulations of the significant variables, visualizations of the categorical relationships, and Chi-squared tests of the correlation strengths. The results of the initial survey indicate several major findings (see Appendix B for the full survey and analysis):

- Personal interaction with a firefighter is the overwhelming impetus to enlist.
- Tenured firefighters are more likely to enjoy administrative duties and less likely to enjoy response duties and community outreach.
- Social media questions and perceptions of its benefits can enhance recruitment strategies moving forward.
- Perception of why people leave the fire service indicates that a lack of leadership (both on the fireground and in the firehouse), poor fit with others, and political issues within the departments as significant concerns.
- Overall, these results provide a basis for moving forward with an intervention study designed to improve strategies for recruitment and retention of firefighters within Virginia.

### **Departmental Chiefs’ Interviews**

During the final months of the VWS Program, a majority of the participating department chiefs were interviewed and asked a series of questions. The questions were developed to assure that the VFCA had a comprehensive understanding of how the organizations were managed and get a feel for their cultures in order to enhance future recruitment and retention activities. The interview questions

consisted of a general overview of the department and the area it serves; initial application and selection process; relations between the fire department, public and officials; assessment of the departments' leadership and culture; and training requirements. Although the answers were subjective, they provided additional background information needed to determine why some departments were able to excel in recruiting new members while others were not as successful. Throughout the interviews, it was evident that standards and procedures varied significantly between departments, as well as each department's fiscal and personnel needs. Each department had varying sizes and available resources. More specifically, training requirements varied widely between the departments. Some departments had very rigorous and strict training requirements while other departments had limited training requirements that were inconsistently enforced.

Additionally, each of the departments varied in how the overarching organization was managed. Some jurisdictions operate with mostly autonomous fire companies, others are working under a unified and central command and even still, others are in a transition stage somewhere in the middle. Overall, it was determined that those departments working with a full-time volunteer recruitment coordinator were more successful in their volunteer recruitment programs. Volunteer recruitment coordinators provided a quick and consistent message to interested and potential recruits, which expedited their induction into the department, as well as keeping their interest and motivation high. In addition, volunteer recruitment coordinators serve as consistent media contacts, maintain current advertising and marketing materials and campaigns, and perform valuable and reliable record keeping tasks.

Findings also show that departments operating under a unified and central department with one set of procedures and guidelines had more effective recruitment and retention programs. This directly contrasts to jurisdictions having fragmented fire companies with no standardized recruitment, selection and induction processes. It was also found that departments having strong relationships between the career and volunteer companies were more successful in completing and providing recruiting data back to the VFCA. One major lesson learned throughout the program is to ensure that participating departments have the buy-in and endorsement from all levels of the department and jurisdiction. Many chiefs and volunteer recruitment coordinators had every intention of fully participating in the program from the onset; however, they ran into challenges and roadblocks related to volunteer participation in performing recruitment activities and in regards to the collection and submission of data to the VFCA from some volunteer companies.

### **Leadership Training Activities**

In addition to the GIS Tapestry reports and marketing materials distributed to the participating departments, the VFCA organized leadership workshops throughout the period of performance. With a lack of leadership being shown as one of the number one causes of recruitment and retention issues, the VFCA felt compelled to provide free leadership training to Virginia's fire service personnel. Over the course of the two year program, six leadership workshops were held across the state, including Warrenton, Roanoke, Henrico, Abingdon, Fairfax and Virginia Beach. Approximately 175 fire service members participated in the leadership workshops.

The VFCA also sponsored two Virginia Fire Officers Academies, which were held at the University of Richmond and George Mason University. These five day sessions targeted newly promoted and aspiring company officers from across the state. Using a competitive selection process, forty students participated in each academy. Students were exposed to cutting edge safety and leadership topics delivered from renowned instructors. Students spent ample time participating in

role play scenarios where each student had the opportunity to practice their leadership skills in a controlled environment.

### **VWS Program Comparison Analysis**

The VFCA Recruitment Activity Analysis Report, created by George Mason University, discusses analyses based on an intervention study (see Appendix D for the complete report). In this type of study, an investigator defines the desired characteristics then chooses participants from a larger target population. After choosing the participants, the investigator splits them into two comparable groups, but only one of them receives the intervention. Comparability at the start is imperative because the intent of the intervention study is to improve the conditions of the group (Curtin & Hill, 2012, p. 17).

An intervention study differs from an observational study that is typical in scientific research. The main difference between the two types of studies is that within the intervention study, the investigator may determine specific parameters. The investigator assigns the study structure. In other words, the investigator decides what to study. In this case, the investigator is the VFCA, and the study structure is a comparison between a group using traditional recruitment strategies (T-10 group) and a second group utilizing recruitment regimes informed by a GIS marketing strategy (GIS-10 group). The pre-determined structure of this data collection method differs from a typical observational study where there is a treatment group and a control (no treatment) group. Essentially, neither group in an intervention study is technically a control group – since both groups receive some input from the investigator. In addition, contrary to observational analyses where the researcher randomly selects the treatment and control groups to avoid bias from the selection process, the investigator assigns the participant departments into the two specific groups in the intervention-type study. The investigator intentionally assigns bias into the structural framework at this point. The reason for structuring a biased framework for this study type is to ensure that -- at a minimum - the results will produce a small to moderately beneficial outcome, which may be unrealized within a completely randomized study (Curtin & Hill, 2012, p. 17).

To begin the selection process, the investigator first chooses departments with known characteristics that may influence the outcome of the study – in this case, population allocates them to each group in a stratification process. Stratification is a pairing process. For stratification of the groups, the VFCA chose twenty departments, ten for the T-10 group and ten for the GIS-10 group. For each of the ten departments within the groups, there is a similarly populated counterpart in the other group with the same ranking. Overall, the populations do not match exactly, but the totals for each group are within 2.5% of each other. This stratification process ensures that the groups reflect the desired characteristics equally between them, for a comparative parallel study.

This parallel study design has four major benefits. First, it allows the investigator to analyze the effects of the changes from a common starting point. Second, either strategy may produce viable results that expand the options for future recruitment successes. Third, by choosing characteristics from the overall population, the investigator ensures that the design is transferable to other departments that are not part of the study. Fourth, the investigator sets guidelines with stratification that bring randomization into the next step of the intervention study process (Curtin & Hill, 2012, p. 18). Overall, the benefits include a strategy that starts at a common point, ensures viable results, transfers to other departments, and limits the randomization process.

To document their marketing strategies and recruitment efforts that either followed traditional methods or GIS targeted-market strategies, the departments submitted two types of forms, the Recruitment Activity Monthly Tracking Form (Activity Form) and the Recruit Monthly Tracking Form (Recruit Form)(see Appendix F for these forms). On the Activity Form, the activities section asked for responses to six types of events, three modes of advertisements, and two opportunities for face-to-face contact. The questions in the media section elicited responses for six activities, and the social media questions tallied responses for two social networking services and web pages. The Recruit Form required background and demographic information from the recruit along with the answers to five main questions. The questions related to recruitment awareness, primary occupation, social circles, volunteer motivations, and social media. Many of the departments recorded this information in a spreadsheet and tracked the potential recruits throughout the application process. Overall, most of the departments submitted their paperwork on a monthly basis.

After 16 months of data collection with the T-10 group and a year with the GIS-10 group, 100% of the departments have some type of summary activity. A few departments had recruitment activity, but did not submit Recruit Forms, including Charlotte County and Huguenot Volunteer Fire Department in the T-10s and Hanover and Louisa Counties in the GIS-10s. Only one jurisdiction, Goochland County, has no reported recruitment activities, however they do list recruits.

As of October 2012, the study had 1539 recruits (T-10 (956) and G-10 (583)).

- For the G-10 group: Recruitment Nights, Distributed Materials, Community Posters, Community Business Contacts, and Media Activities (Contacts, Departmental Contacts (usually correlated together), Interviews, and Press Releases) test to be significant (non-transformed, including zero values, 95% confidence level).
- Within the T-10 group: none of the activities tests to be significant (95% confidence). Outreach Events, Fire Station Recruitment Activities, Fundraising Events, and School Visits have negatively sloped correlations. Overall, Promotional Materials have the highest activity with 18,683 circulated pieces of information.
- Within the G-10 group (non-transformed data): Speaking Engagements and Twitter Contacts have negatively sloped correlations. The G-10 group has fewer distributed materials (6,157), but prefers to use social media to interact with recruits (~6K-7K more Webpage and Facebook Contacts than T-10s).

Note: For interpretation purposes, recognize that results that do not reach the chosen significance levels are not “negative” results in the sense that activities are bad or even lead to fewer recruits. The relationship between those factors and the number of recruits simply could not be established with a particular level of statistical certainty. Any positive correlation between larger numbers of activities and larger number of recruits suggests that there is a positive effect of that activity which can be further explored.

- With the regression analysis (non-transformed data): the groups do not have any similarities however, Media Ride-alongs have the least amount of activity in each group (T-10 n=8; G-10 n=2).

- Seasonally: Fall has the highest recruitment totals (30%) with the highest monthly total in October (n=193). Summer has a similar total (29%) followed by Winter (21%) and Spring (20%). December has the lowest monthly total (n=51) during the first year of the study for each group.
- Recruits list Special Events (19%), Friend/Family Referrals (17%), and Webpage/Internet Searches (8%) as their leading mechanisms for learning about opportunities in the profession.
- Service to the Community (17%), EMS Response (14%), and Fire Response (12%) are the top three motivators for recruits. The top five motivators account for 60% of the motivating factors for recruits.
- The top three primary recruit occupations, which account for more than half of the responses, include Student, Health Care, and the Military.
- Surprisingly, 26% of the recruits responded to Twitter questions, but 73% think it is a good idea as a recruiting tool.
- Overall, the majority of recruits volunteer for “passive” reasons (39%) such as referrals, combinations, memberships, and departments compared to “active” reasons (42%) such as events, displays, media, and face to face activities (19% non-response rate).

### **Recommendations and Conclusions**

When faced with a challenging and dynamic task, an organization must develop a plan. The key to planning within any organization is to establish responsibility and accountability. Strategic and operational planning is a complicated process and may require technical support for some departments. During this recruitment and retention study it was obvious that requirements bestowed upon the participating departments were not met by a few of the departments. The following observations and recommendations have been identified as part of the VWS Program.

1. All personnel within an agency, including elected and appointed officials, must take ownership of its recruitment and retention efforts.
2. Policies, procedures and standards must be established by the organization so the membership will know how to perform as agents of the organization. General policies should be developed in key areas including general administration, finance, operations, support services, training, fire prevention, communications and the overall handling of department business.
3. By-laws and the recruit application and approval processes must be updated and streamlined to meet today’s challenges.
4. Volunteer fire departments will strongly benefit by having a full-time volunteer recruiter coordinator and a centralized application process. This position does not have to be a paid position, but someone must be assigned and held accountable to perform these functions.

5. Departments without solid leadership and/or a volunteer coordinator tended not to follow the recommendations found within their ESRI recruitment and retention study, showed lack of enthusiasm for the project, and failed to meet the reporting standards set forth to ensure GMU was able to properly analyze the study.
6. Maintaining amicable relationships between independent fire companies and between volunteer and career personnel is necessary to achieve positive recruitments efforts.
7. Personal interaction between current fire service personnel and potential recruits is the overwhelming impetus to effective recruitment. Therefore, personnel should be trained and up-to-date on departmental information and talking points.
8. Social media questions and perceptions of its benefits can enhance recruitment strategies moving forward.
9. Develop and implement a mentorship program for all levels of your department as this positively impacts recruitment and retention.
10. Conduct exit interviews of all firefighters that leave your department in order to identify the reason(s) for leaving. Once reasons are identified, address them if possible.
11. Develop and implement a leadership program to enhance leadership both on the fireground and in the firehouse.
12. Make sure that personnel are treated equally; are not harassed, discriminated against or hazed; eliminate all hostile work environments.
13. Establish and enforce leadership and promotional guidelines, and training requirements, to assure solid leadership and equity within your organization.
14. Focus your recruitment efforts to achieve the highest level of effectiveness and efficiency.
15. Realize that the best recruiters are current satisfied volunteers who relate their positive experiences and encourage others to become involved. Ensure that current volunteers act, speak and appear in positive light at all times as failure to do so could have negative impact on the public perception of the organization and potential recruits.
16. As a leader, ensure that all personnel create an environment that includes a sense of belonging, achievement, increased responsibility, self-respect, challenge, recognition, reward, growth and development.

## **VWS Programmatic Lessons Learned**

As with any new endeavor, lessons are learned along the way. Many elements of the VWS Program went well and should be replicated in future studies while some elements can be enhanced. The following programmatic lessons have been identified:

### *Elements to Replicate:*

- Leadership workshops
- Overall process used to conduct study (tapestry reports, GMU expertise, etc.)
- Variety and types of departments included in study
- Kick-off meeting and other live meetings
- Quality of printed, traditional promotional materials

### *Areas for Enhancement:*

- Clearly lay out expectations for departments during the selection process
- Gain volunteer company buy-in throughout the study in addition to county level leadership
- Make it easier for departments to submit monthly data
- Use video conferencing and teleconferences to streamline travel
- Better assist departments in implementing the GIS Tapestry recruitment recommendations
- Have departments identify their own recruitment strategies and ideas based on the suggested tapestry recommendations
- Identify and conduct mentoring opportunities throughout the process
- Focus more on retention and leadership issues
- Focus on the quality of data, not just the quantity
- Conduct follow-up firefighter survey expanding on leadership and mentoring
- Ensure that departments track the recruits throughout the entire application and membership process, as well as when they depart the organization.

## **The Future**

The VFCA was recently awarded another SAFER Grant in order to continue the VWS Program Study. The new grant, entitled VWS-Phase II, will identify and select 20 new departments to participate in the GIS-based study (Tapestry Segmentation) in order to gain additional data and research. In addition, up to 10 departments from Phase I will continue into Phase II. The goal of VWS-Phase II is to gain more data and perform more research to better understand the impact of GIS Technology for developing and creating a better recruitment and retention model for volunteer firefighters. The end product will be a roadmap for departments to use for improving their volunteer recruitment and retention practices. The Phase I study was a great start to creating the roadmap, but much work still remains. Phase II will contribute more research and expand the body of knowledge needed to enhance the recruitment and retention efforts of the nation's volunteer fire service.

## **Bibliography**

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