

**Federal-State Marketing Improvement Program**  
**Final Performance Report**  
**For the Period of October 1, 2014 – September 30, 2017**

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**An Outline of the Issue or Problem:**

The majority of Virginia’s farms are small, with 41,800 grossing less than \$50,000 and 77% operating on less than 180 acres (40% on less than 50 acres). Yet, Virginia is recognized for leadership in its efforts to develop a strong local food system (Denckla Cobb, 2011), and has a solid agricultural base that supports more than 334,000 jobs, including 44,800 farms (USDA, May 2014). Annual household expenditures for food are over \$19 billion per year, with an unprecedented consumer demand for Virginia-identified foods (Virginia Farm to Table Team, 2011). There is also strong statewide public support for access to fresh local produce to improve public and economic health of communities. These factors have led to the proliferation of farmers markets for direct consumer access to local food, propagation of supply chain intermediaries such as food hubs to facilitate producer access to larger institutional markets, and increased demand from conventional distributors for local food. Despite the growing demand and support for local food, there are barriers related to increased wholesale and institutional buyer expectations, which producers must meet to satisfy various food safety requirements.

**Challenges of Meeting Food Safety Requirements**

Nationally, produce-related food safety concerns have been on the rise due to reported large-scale outbreaks related to a wide variety of leafy greens, fruits, and other vegetables (Gould et al., 2013; FDA, 2008). Outbreaks associated with leafy greens alone have almost doubled in the past decade – from 6% to 11% (1998-2008). An estimated 46% of foodborne illnesses associated with outbreaks are attributed to produce (Painter et al., 2013). With increasing concerns regarding these risks, Congress enacted the Food Safety Modernization Act (FSMA) and the U.S. Food and Drug Administration (FDA) proposed science-based standards for growing, harvesting, packing and holding produce on farms to further strengthen the safety of produce, known in short as the FSMA Rule on Produce Safety (FDA, 2015). The Produce Safety

Rule, which takes a proactive, preventive approach to food safety, was finalized in November 2015. While many small and mid-sized farms are exempt from these new regulatory food safety requirements, heightened marketplace awareness of food safety concerns has increased requirements for greater assurance of the safety of produce. Whether or not a farm falls under the new regulation, the Final Rule on Produce Safety is acting as a potent driver of stiffer food safety policies in the marketplace.

Apart from the Final Produce Rule regulations, producers are often required by buyers to obtain Good Agricultural Practices (GAP) certification as a matter of doing business with them. GAP certification entails creating a written food safety plan and implementing targeted best practices aimed at reducing on-farm food safety risks. However, there is a lack of uniformity among produce buyer food safety requirements and what, if any, audits are needed. Additionally, there are different audit schemes (i.e. USDA-based, GFSI-benchmarked, etc.), making the playing field challenging to navigate by producers. Furthermore, some buyers are unfamiliar with specific on-farm food safety practices, or how GAP certification translates into practices that are in place on the farm. Institutional buyers often also inadvertently favor larger farms that can readily achieve GAP certification, especially since many small and mid-sized producers are not able to readily achieve this certification because of associated costs, extensive record keeping requirements, and time constraints.

In Virginia, this situation has made it difficult for farmers to make informed market access decisions, for buyers to effectively communicate their requirements, and for state agencies and service providers to offer strategic support to producers. Given that new farmers often produce on smaller acreages and have fewer resources for infrastructure and machinery, they are more likely to face market barriers, and need statewide support to help mitigate these barriers. Not only do they require knowledge about marketplace expectations regarding food safety in order to inform their business development, but they also need a well-defined quality assurance framework that is appropriate to their smaller scale, is recognized throughout the state and across sectors, and provides increased market access in certain cases.

### **Engaging Stakeholders to Promote a Robust Food Safety Culture in Virginia**

Food safety culture is an organizational culture of food safety that is made up of knowledge reflected in behaviors of the organization (Yiannas, 2009; Powell et al., 2011). The effectiveness can be determined by the amount of support a farmer or producer receives on a particular guideline (Chapman et al., 2005). Alignment of on-farm food safety practices, quality assurance expectations in the marketplace, and state-wide programs and policy implementation, can create an opportunity to strengthen Virginia agriculture and provide significant economic development while encouraging the production and consumption of locally produced food. Improved understanding of specific market sector knowledge, needs, and expectations for on-farm food safety practices is fundamental to further strengthen its agricultural base and support a local food

system (Harvard Food Law and Policy Clinic, 2013). Likewise, support at the state level is crucial to support and maintain alignment of a robust food safety culture.

Building on several previous efforts conducted in Virginia (Harrison et al., 2012; Virginia Beginning Farmer and Rancher Coalition, 2014; Virginia Farm to Table Team, 2011), Virginia Tech, Virginia Cooperative Extension, Virginia Department of Agriculture and Consumer Services, and Local Food Hub proposed a strategic and unified approach to address market access issues head-on, thereby advancing a more robust food safety culture in Virginia. Given that no comprehensive market data existed, the overall goal of this project was to mitigate market barriers associated with procurement of local and regional produce distributed throughout the fresh produce market chain in Virginia by improving market-wide understanding and expectation for scale-appropriate, on-farm food safety practices.

## **Goals and Objectives:**

### **Project Goals**

- Assist local and regional producers in addressing market barriers through improved alignment of food safety training and resources with market expectations, to ensure that the marketing of agricultural products meets specific market sector expectations generated by increased food safety awareness and regulatory requirements, including those resulting from the Food Safety Modernization Act 21 U.S. Code 2201.
- Increase institutional knowledge of food safety regulations resulting from The Food Safety Modernization Act 21 U.S. Code 2201, as well as scale appropriate on-farm food safety practices and certifications to support further support flexibility in procurement from small and mid-sized farms.
- Provide state agencies, food system non-profits, and private industry with comprehensive market data on food safety knowledge and needs to guide policies, practices, and market incentives essential to the development of a strong food safety culture in Virginia.

### **Project Objectives and Work Plan**

**1. Build vital stakeholder participation with statewide Advisory (Working) Group.** At the start of the project, the core project team members developed a strategy for moving forward on project goals, as well as creating descriptive materials for the larger advisory group, also known as the Working Group (WG) structure. Materials included a recruitment letter for WG members; a schematic of the WG structure with objectives; a textual description detailing WG structure, roles and expectations of WG members, and a summary of project objectives, deliverables, and timeline; and an infographic of project phases based on the timeline (see “Additional Information”, Attachments 1, 2). Building on initial commitment made by individuals willing to serve on the Working Group (when the proposal was submitted), WG members were contacted to update them on the reception of grant funding, and additional WG members were also recruited. Subsequently, within the first six months, a WG Kick-Off Conference Call Meeting was held to provide in-depth project context and to disseminate and discuss the above prepared

materials. Additional meetings with the project team and WG were held periodically via conference calls or WebEx to complete activities outlined in the plan of work. Meeting notes and updates were provided to maintain effective communication.

As a means to create stakeholder buy-in, we ‘piggybacked’ on existing programs of WG members, so as to minimize project and planning costs. Some of the project team co-presented at the Virginia Association of Biological Farming (2015), VA Farm-to-School Conference (2015), VA Beginning Farmer & Rancher Coalition Program meeting (2015), and the “Sustainable Food Systems Symposium” (2016), in which we discussed our work with the project. The relationships nurtured with WG members also helped to foster stronger ties with groups already engaged in food safety education in VA (i.e. VCE, Local Food Hub, Appalachian Harvest, and Virginia State University).

**2. Conduct a market assessment for food procurement by various market sectors in Virginia.** Based on established methodologies for food system market assessment (Maples et al., 2013; Oger et al., 2001; Pirog & Larson, 2007), we collected data on individuals’ perceptions of food safety issues related to local produce production and procurement. To accomplish this objective, we used a mixed method design—specifically, a modified exploratory sequential design in which the mixing serves the purposes of both development and complementarity (Creswell & Clark, 2011). Our design and methods were submitted for review and approval by Virginia Tech’s Institutional Review Board for Research Involving Human Subjects.

The core project team held a series of conference calls and email communication related to survey development. After we reviewed existing literature of food safety surveys, we developed and shared an exploratory *qualitative* interview guide with Working Group (WG) members via email and a follow-up conference call in spring of the first funding year (Attachment 3). The intent of the guide was that WG members would complete the questions in order to provide feedback for developing the quantitative survey instrument. Using responses from the qualitative survey and the literature review of food safety surveys, a *quantitative* survey draft was created and refined by the project team, then shared with the larger WG, refined, and finalized (Attachment 4).

The survey design and online implementation followed a widely accepted method (Dillman et al., 2008) for internet-based data collection, including a systematic approach to piloting the instrument. The targeted market sectors were: 1) farmers markets; 2) public schools (K-12); 3) restaurants; 4) retailers; 5) hospitals; 6) universities; and 7) regional wholesalers. Within these target sectors, we used cluster sampling to balance validity and feasibility and to increase the extent to which we could generalize findings across geographic and institutional differences. Drawing on WG and project team members, we compiled a list of contacts for each of the market sectors to be surveyed. In addition to the Qualtrics-based online assessment, the survey tool was

made available as a paper copy version. The assessment was launched in the beginning of the second funding year.

Subsequent to the online administration of the survey, an additional round of purposefully sampled focus groups were conducted to gain further insights about buyers' decisions around fresh produce (Attachment 5). There were seven instances of qualitative data collection: one one-on-one interview (one participant), two paired interviews (two participants in each), and four group interviews (three to five participants in each), with a total of 20 individuals participating. All interviews were conducted virtually, recorded via WebEx, and transcribed (spring/summer of the second funding year). Subsequent to transcription, the project team conducted a 'data party' to work through the transcripts, code key emerging themes, and identify purchasing priorities and barriers. Focus Group data were then analyzed, interpreted, and summarized.

In the second half of Year 2 and into Year 3 (no-cost extension), we conducted a literature review of purchasing policies and guidelines for those market sectors with low response rates-- universities, hospitals, and retailers. Websites for these market sectors were searched, catalogued, and, where food safety policies were available, record copies were downloaded. Additionally, key themes were coded similar to the Focus Group work (Attachment 6). To corroborate our literature review and provide recommendations, especially since these studies were conducted elsewhere in the U.S. and not in Virginia, we also conducted follow-up face-to-face or phone call interviews with informants in these sectors.

**3. Develop a baseline understanding of Virginia's market sector perceptions, knowledge, and expectations related to locally-sourced fresh produce.** Quantitative data on respondents' perceptions, knowledge, and expectations related to locally-sourced fresh produce were analyzed using descriptive statistics. Additionally, items and subscales of the survey were analyzed in disaggregated form to assess any potential within- and between-group differences using both geographical and institutional difference as potentially interesting variables. These quantitative analyses were complemented by the results of the targeted focus groups. Together, these mixed methods analyses provided a unique and timely perspective and were used to create initial cross sector and within sector graphic profiles (Attachments 7-14), which formed our initial summary and were coupled with our other efforts to further develop producer and buyer recommendations.

**4. Formulate recommendations for growers, market sector representatives, and decision makers.** Building on the initial summary, literature review, and interviews, we discussed and developed finalized recommendations, retooled our profiles into various resources, and created a simplified guide to provide a context for tapping into markets. Additionally, an overview factsheet about accessing Virginia markets, as well as sector-specific factsheets were developed (Attachments 15-23); the factsheets were then used to create web-based content. Infographics were created from condensed versions of the factsheets, along with a separate infographic specifically geared to buyers (Attachments 24-26).

**5. Develop stakeholder strategy for improving alignment between market sector food safety expectations and needs and producer practices.** While we initially proposed participation in various conferences as a means for project dissemination, we determined that a more effective and efficient strategy would be to use web-based avenues of outreach. The Virginia Fresh Produce Food Safety website, a comprehensive clearinghouse of on-farm food safety materials, provides a primary location for our market-related materials and a wealth of other information and guidance related to on-farm risk assessment, direct market food safety, GAPs, food safety certifications, and FSMA. Target audiences are VCE extension agents, produce growers, market representatives, and consumers (<http://www.hort.vt.edu/producesafety/index.html>). In addition, the nine marketing factsheets and other similar materials are also available on the VCE public website (<http://pubs.ext.vt.edu/>). While the content is mainly housed on these websites, links are also posted to our Facebook page and to other existing websites such as WG member organizations (<https://www.facebook.com/VirginiaFreshProduceFoodSafetyTeam/>). These linkages will allow for broader dissemination and use by a variety of stakeholders. Factsheets were also disseminated at the Virginia Farm to Table Conference (2017) and the “Virginia Higher Education Sustainable Food Supply Chain Symposium” (2017). We also will share with VCE agents at the annual winter professional development conference (2018).

### **Contribution of Project Partners:**

**Virginia Tech** is a public land-grant university serving the Commonwealth of Virginia, the nation, and the world community. The university’s mission focuses efforts not only on teaching and research, but also outreach. Extension efforts are led by **Virginia Cooperative Extension (VCE)**. There are roughly 240 Extension agents across the state of Virginia. The extensive, comprehensive infrastructure of VCE have and will continue to aid in the dissemination components of this project. Three members of the project team and several Working Group individuals from Virginia Tech and VCE participated in the project work, representing four departments in Virginia Tech’s College of Agriculture and Life Sciences and four other organizations at the university.

The **Fresh Produce Food Safety Team (FPFST)** is an interdisciplinary team comprised of VCE specialists and agents, and spearheads statewide VCE efforts in providing comprehensive food safety education from farm to fork. The team is working to increase and strengthen internal capacity within VCE, as well as developing a solid educational programming plan for external stakeholders. The Coordinator of the FPFST has served as project manager and lead.

**Virginia Department of Agriculture and Consumer Services** works in cooperation with Virginia State University, Virginia Tech, and the Virginia Cooperative Extension Service on research, education, and marketing projects. VDACS Division of Marketing serves producers, commodity boards and associations, retailers and buyers by providing marketing assistance. Outreach in Agricultural Marketing includes regional marketing development managers who are located in six designated regions of the state to provide assistance in marketing commodities and

enhancing agricultural economic development within those regions. Regional managers provide assistance, advice and counsel to agricultural producers, industry representatives, and organizations through individual consultations, public presentations, newsletters, and the media in order to enhance and influence marketing efforts. A member of the project team was from VDACS and provided important support in the market assessment development and administration work.

**Local Food Hub (LFH)** is a non-profit organization that works with over 80 farms in Virginia and exists as a corollary to traditional agribusiness models by reinstating small farms as the food source for the community. Local Food Hub is a regional leader in ensuring that small farms regain their economic foothold in the marketplace, and that the knowledge and choice of local food becomes the norm, not the exception, for all segments of the community. The Director of Grower Services from LFH was a key project team member and was involved in all facets of the project, providing vital contributions to the efforts.

### **Project Advisory (Working) Group**

A fundamental strategy of this project was to develop a Working Group comprised of individuals who have a close relationship with key stakeholders representing the diversity of growers, market sectors, and demographics. The advisory group provided expertise and guidance on the development of the market assessment questions, and played a key role in assisting in data collection, interpretation of results, and subsequent recommendations. Working Group members included the following organizations and their areas of expertise:

- AgrAbility Virginia (farmers and ranchers with disabilities, veterans)
- Appalachian Foodshed Project (civic agriculture, sustainable food systems, nutrition)
- Appalachian Harvest (wholesale distribution, retail, on-farm food safety education)
- Clyde's Restaurant Group (restaurants)
- Farm Credit of Virginias, Knowledge Center (farmer loans and resources)
- Harrisonburg City Schools (public schools K-12)
- K-VAT Food Stores, Inc. (retail stores, grocers)
- Local Food Hub (wholesale distribution, food safety and other related producer training)
- Produce Source Partners (wholesale distribution, retail)
- Shenandoah Valley Produce Auction (direct market sales, wholesale, retail)
- UVA Medical Center, Food Services (hospitals, Farm to Institution)
- UVA Sustainable Food Strategy Task Force (colleges/universities, Farm to Institution)
- Virginia Beginning Farmer & Rancher Coalition Program (new & beginning farmers, Appalachian Foodshed Project, local and regional food systems, producer training)
- Virginia Farmers Market Managers Association (farmers markets, direct sales)
- Virginia Food System Council (community viability and food systems)

- Virginia Representative for National Farm to School Committee (K-12 schools, Farm to School)
- Virginia Small Farm Outreach Program (minority and limited resource farmer training, restaurants)
- Virginia Tech Agricultural & Applied Economics (women farmers, ‘Market Ready’ training for small/ mid-sized farms, consumer demand, restaurants)
- Virginia Tech Dining Services (colleges/universities, sustainability)
- Wholefoods (retail)

### **Results, Conclusions, and Lessons Learned:**

Out of 577 individuals given the assessment, 46 responses were received, representing a response rate of 8%. While the overall response rate was not as large as expected, the data provided many valuable insights to us related to data collection limitations, poor communication and transparency of market procurement policies, and nuances of different market systems. Our mixed method strategy proved to be a critical approach to gain further data.

The fact that public information regarding procurement policies for certain sectors was difficult to obtain indicates that buyers need to be more transparent and better communicate their food safety requirements to producers. Further, a lack of available information may also indicate that there are certain markets that are challenging for Virginia producers to tap into, assuming these markets may instead be sourcing produce through larger suppliers and broad-line distributors. In some cases, information was non-existent.

As noted earlier, results from the market survey and focus group sessions were initially compiled into a cross-sector comparison report, which spanned all surveyed market sectors. Additionally, each market sector was broken down into sector-specific profiles that included supplementary information in the form of results, recommendations, and resources. While the cross-sector comparison report allowed us to aggregate data and trends, the sector-specific profiles detailed trends and themes by sector, thereby showing sector-specific similarities and nuances. Since we recognized that our audiences vary greatly in terms of how they prefer to access information, we repurposed these preliminary results into different formats such as web-based content, factsheets, and shorter infographics, versus a more academic report.

In meeting and discussing with extension agents in the field, they recommended a future expansion of our work would be to develop additional handouts to reflect their unique markets within their area/region. Thus, subsequent to project completion, it is anticipated that the preliminary report and profiles, along with the factsheets and infographics, can be further used by local extension agents to develop more place-based resources. The infographics provide local growers with a format that is appealing, captivating, and summarizes the most important aspects of our research for their benefit. Further, buyers representing different market outlets can build upon our recommendations to foster greater transparency for producers.

### **Cross-sectional Comparison Considerations**

72% of respondents view buying local produce as important, with quality, availability, and price identified as the top three purchasing priorities. More than half (59%) of respondents do not currently require a third-party food safety audit from their suppliers and food safety was listed as seven out of the ten top purchasing priorities. Since data from each sector was not weighted for its contribution to the whole, those sectors that had a higher survey response rate had a greater influence on the ranking of purchasing priorities. For example, farmers markets, which do not require a third party audit, had one of the highest response rates, whereas hospitals and colleges, which both require third party audits, had the lowest responses. Survey respondents largely represented purchasing channels that functioned outside of corporate or institutional structures, which tend to have more defined policies and restrictions. Although the survey was specifically targeted at food safety perceptions and expectations, other constraints (e.g. logistics, variety, price, volume, seasonality) related to purchasing from local farms were viewed as critical. Given that most respondents communicate their standards to suppliers verbally, there is likely little consistency across sectors on the message growers are receiving related to quality assurance. Consistent themes across sectors demonstrated the importance of relationship building and communication between producers and buyers. Given the complexities inherent in fresh produce supply chains, these factors were emphasized repeatedly.

Requirements for food safety certification were represented in the wholesale, institutional, and public school (K-12) market sectors. In other sectors like retail and restaurants, distributors were often relied upon to verify supplier (producer) adherence to food safety practices and to overcome common logistical challenges, whereas in farmers markets, managers of those markets primarily relied on verbal assurances and established relationships with producers to address food safety and quality assurances. The complexity of supply chains was evident, given the varied and inconsistent procurement strategies in place. Across all market sectors, purchasing direct from the grower was prioritized, presumably linked to the value of relationships and support of local food systems. However, the logistical hurdles faced were also substantial, with a perceived need for more intermediaries like food hubs to streamline access to local foods.

While the data indicate that certain market sectors do not have defined food safety requirements and instead base procurement decisions largely on relationships and verbal agreements, growers should prioritize creating food safety plans with verification and documentation of their practices. Market sectors would benefit greatly with producers having increased access to education about on-farm risk assessment and food safety practices, and market-specific procurement policies, especially given the demand for locally grown produce. Additionally, several buyers suggested the creation of a statewide database of various markets that would convey buyer needs/requirements and better link buyers to producers and their products. This idea could be an excellent opportunity for Virginia stakeholders to pursue.

## **Sector-Specific Profiles**

### **Colleges and Universities**

The college and university sector represented a greater level of complexity in the actual procurement of food as compared to many other sectors. Across Virginia, there are about 60 public and private universities, excluding community colleges. This sector was the most scantily represented of the seven market sectors. Purchasing priorities for this sector were price, availability, liability insurance, food safety certifications, quantity/volume and quality of product delivered, and delivery capabilities of the produce supplier. Barriers to purchasing from local sources were insufficient volume, lack of intermediaries like food hubs, brokers, etc., delivery capabilities, and grower lack of understanding of buyer requirements, needs, and processes. Since larger institutions, like colleges and universities, are typically connected to larger, broad-line, food service companies, the survey indicated less than 10% of produce was sourced locally. Because of existing relationships to larger food service companies and distributors, and other major hurdles faced were volume, deliverability of product, and food safety policies, these institutions were limited in their ability to make business connections with local producers. In cases where institutions had greater flexibility and commitment to sourcing more locally produced food, they were open to establishing new ties. Growers would need to talk to the directors of dining services to figure out who their current suppliers are, as well as what interest lay in outsourcing from a local grower. Further, additional certifications, such as “Fair Trade” and “National Organic Program”, were seen as desirable to boost marketability.

### **Direct-to-Consumer Markets (Farmers Markets)**

In Virginia, there are 235 farmers markets spanning from rural to urban environments (VDACS, 2017). While many other market sectors may be limited in the types of produce that they will purchase, farmers markets often lend themselves to being an outlet for a diverse array of products. Further, selling in a rural market is very different than selling in an urban market. Many of the pros and cons of farmers markets apply to other direct markets as well, including the fact that producers are the sole operators, meaning they don't have to worry about having an integrated format in their supply chain.

As food safety laws continue to develop, along with the general public's health concerns, it is important that local growers intending on selling directly in this sector familiarize themselves with current food safety practices, laws, and regulations. Local growers may need to comply with state and local laws, health department certifications, insurance regulations, business license requirements, and individual market rules and conventions. This includes how produce is packaged and labeled, marketplace handling, and participating in market events. Additionally, operating costs for farmers markets are usually lower than a retail storefront, but higher than street vending. Many farmers markets charge a flat fee anywhere from \$20 to \$100 per day, with higher fees in urban markets.

In terms of GAP certification, food safety audits for farmers markets are not typically required.

In our work, many markets required some sort of verification of on-farm practices and safe produce handling. There was a mixture of how food safety practices were verified. This included verbal assurances, written agreements, and site visits. One respondent reported that they did require a third-party food safety audit, whereas another respondent reported that they did not require any verification. It is important to note that the findings in this survey reflected both buyer and producer respondents. Five respondents were familiar with the Food Safety Modernization Act (FSMA), but were not sure how it might affect their organizations. Given the disparity we saw between survey responses, it would behoove local producers, who intend on selling to farmers markets, to familiarize themselves with current food safety practices and implement them into their respective farm operations.

### **Hospitals**

In Virginia, there are 92 acute care hospitals, with over 18,000 staffed beds (American Hospital Directory, 2017). Urban hospitals (100+ staffed beds) have much higher patient volumes, as compared to rural hospitals (<100 staffed beds), thereby necessitating a higher number of meals served daily. Hospitals can vary greatly in terms of food service operations. Some hospitals prepare foods on site, while others prepare food off-site and ship it in, therefore only needing to heat and serve the food. Additionally, many hospitals have cafeterias or snack bars for visitors and staff.

Another level of complexity with hospitals is how they manage their food service. Some hospitals are self-operated, while others are managed by food service contractors—companies like Sodexo, Inc., Aramark Corp., and Compass Group North America. Add to this complexity the fact that many larger hospitals are in a group purchasing organization (GPO), which oversees all food procurement, typically working through broad-line distributors. These corporate contracts provide a consistent, reliable supply of food that meets specific sanitary and safety standards, often including rebates for large volume purchases. Thus, while there is a growing trend for patients desiring more fresh local produce, even food service directors wishing to purchase from local producers often find it challenging, if not impossible, to do so.

This market represented the most complex and challenging sector for producers to access and develop a fruitful business relationship. In fact, the low rate of responses in our market research were due to limitations in finding points of contact at these institutions, suggesting the complexity and hierarchical management levels in place regarding food procurement. Respondents strongly emphasized the necessity for mandatory adherence to food safety requirements—in fact, GAP certification was essential, as was liability insurance. While all respondents reported that they would increase local procurement if more local producers could meet requirements for food safety, they also stated that consistency in volume and deliverability were often constraints faced with local producers. Given the necessity of these large institutions meeting these food safety requirements and maximizing the value of every dollar spent, primary channels for local food procurement included regional distributors like food hubs.

### **Restaurants**

The restaurant market sector is one of the most diverse sectors when it comes to food procurement practices. Each restaurant has its own style, theme, cuisine, targeted palette, and atmosphere. There are many competitors in this market sector and a broad variety of options. For example, at a sit-down restaurant, customers are essentially paying for both a good and a service, whereas fast-food restaurants eliminate the extra costs of service by allowing food purchases to have near-instant delivery. There is also a heavy amount of direct and indirect competition. Indirect competition is the conflict between vendors whose products or services are not the same but that could satisfy the same consumer need, whereas direct competition is when businesses are selling products or services that are essentially the same.

There are a plethora of options available to the consumer, such as food trucks, diners, fast-food restaurants, and bars. The challenge for producers comes in meeting both the demand and differentiating themselves and their products. High-end restaurants are willing to pay a higher price for fresh, local, unique produce. Certain restaurant chains, however, have local produce featured in their menus, as well as highlighting the farms from which the produce came.

In the survey, respondents indicated produce was purchased primarily from farmers markets, distributors, and direct from growers, and secondarily from food hubs and food service providers. All respondents were principal buyers for their organizations, with one respondent also being in charge of creating policies and procedures related to the procurement of fresh produce. All respondents reported purchasing produce daily during the peak season. Most reported also buying daily during the remainder of the year, whereas one reported buying bi-weekly. There is clearly stratification within the restaurant sector; thus, it is important for producers to be aware of the type of restaurant (i.e. localized “mom and pop” vs. chain) and their readiness to source locally. This includes corporate policies as well as the volume needed. Chain restaurants are inherently more stringent on food safety regulation, so access to these restaurants may be far more challenging than selling to a local/regional type restaurant.

### **Retailers**

The retail market sector often has the most convenient locations, longest duration of operating hours, and the lowest, and therefore, most competitive prices. Retail powerhouses that carry produce, such as Walmart and Target, purchase the goods they’re selling from wholesalers and sell those goods at a higher price. The main operating format for retailers is to sell directly to consumers rather than producers or intermediaries. Local retail businesses support local growers since they are smaller scale operations that can rely largely on the local produce they purchase for their inventory. Other larger retailers, however, such as Kroger, often do supply local produce, but with limited variety.

In the survey, respondents stated that produce was purchased from distributors, food hubs, direct from growers, farmers markets, and food service providers. Some respondents were principal

buyers; all were in charge of creating policies and procedures related to the procurement of fresh produce. Most respondents reported purchasing produce daily during the peak season as well as the remainder of the year, whereas others reported buying weekly all year long. Most respondents were unfamiliar with the Food Safety Modernization Act (FSMA). Of those who were familiar with the FSMA, they were not sure how it affected their organization. None of the respondents anticipated their food safety requirements changing as a result of the act. It is important to note the type of retailer (independent vs. chain stores) and their readiness, or willingness to source locally. This includes corporate policies as well as size limitations of the produce being sold.

### **Public Schools (K-12)**

Similar to hospitals, public schools have contracts with vendors already set in place. Like college and university students, children in public schools can also put money towards a “meal plan”. Most public schools offer both breakfast and lunch and change the menu weekly. A growing number of schools are gradually transitioning from pre-made foods to more fresh, scratch cooked options. Given the emphasis on fresh fruits and vegetables, there is an opportunity for local growers to gain greater access to public school systems. According to the Virginia Department of Education, there are currently 1,822 K-12 schools in Virginia as of the 2017-2018 school year (2017). The USDA has been encouraging school districts to use locally-produced foods in school meals and to use "farm-to-school" activities to spark students' interest in trying new foods. In an article published by NPR, they mentioned that more than a third—36 percent—of U.S. school districts reported serving local foods in the 2011-12 and 2012-13 school years (McMillan, 2017)). Buying local became more feasible with federal legislation that passed in 2008 and again in 2010, when the U.S. Department of Agriculture created the Farm to School program to get more healthful food in schools and link smaller U.S. farmers with a steady market of lunchrooms (USDA, April 2014).

This market sector represented the highest response rate of any sector surveyed, perhaps because of established farm-to-school programs across the state and the likelihood that school nutrition directors are more aware of food safety concerns due to the population they serve. Although the Public School market sector operates under significant constraints in terms of pricing and logistical challenges, it is a sector with significant growth potential for Virginia farms since many school systems make it a priority to spend commodity money on fresh fruits and vegetables. While accessing this market largely depends on the size and policies of a particular school system, more than half of respondents indicated that they would increase local purchasing of produce if food safety requirements were met, representing an area of opportunity for Virginia producers.

In particular, focus group participants mentioned the USDA pilot procurement program, designed to increase procurement of local produce in schools, but they faced challenges due to a lack of approved suppliers that would need to meet Good Agricultural Practices (GAP)

certification requirements in order to participate. Thus, the primary channel for school produce procurement is through distributors, since they handle both logistical hurdles, as well as food safety verification. For those schools buying direct from growers, fulfillment of food safety expectations varied widely from verbal assurances to written agreements to document reviews to site visits to third party food safety audits. Thus, while not all schools may require food safety certification at this point in time, there is increased pressure to do so, and those producers having GAP certification may gain greater access to selling their produce in schools.

### **Regional Wholesalers**

A regional wholesaler is a centrally located facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products. A regional food hub is a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand. Regional food hubs are beneficial because they provide an integrated approach with many potential benefits, including expanded market opportunities for agricultural producers, job creation in rural and urban areas, and increased access of fresh healthy foods for consumers, with strong potentials to reach underserved areas.

All of the respondents reported that they procure produce daily during peak seasons. The main purchasing priorities for wholesalers were quality, third party food safety audits, availability, adequate liability insurance, and delivery capabilities. The barriers identified with this sector included insufficient volume of deliverable produce, as well as corporate restrictions that would otherwise hinder the sale of produce to the institution. Maintaining third-party food safety certification is often standard practice in the wholesale market, although with food hubs there is more flexibility and room for on-boarding. With on-boarding policies, producers are able to sell their non-certified product to the food hubs, while gradually developing a written food safety plan, incorporating food safety practices, and obtaining GAP certification. Non-GAP certified products is channeled to buyers not requiring certification, then, once these producers become certified, their product can then be sold to buyers with more stringent requirements. Additionally, we saw that wholesalers and aggregators would likely increase their purchase of Virginia-grown produce if more Virginia growers could meet requirements for food safety and provide proof of liability insurance.

This sector in particular may be of interest to local producers who lack adequate means to transport their product, or to maintain proper temperature control in relation to food safety regulation. Distributors often have access to advanced food delivery logistics, and in many cases can circumvent some of the hurdles that a local producer may encounter. Since product is being aggregated, uniformity and consistency can be streamlined and maintained—something that is especially important for certain market sectors like schools and institutions. The wholesale route can also remove much of the hassle factor felt by producers when conducting multiple direct

transactions with buyers.

## **Lessons Learned**

### **Advisory (Working) Group Participation and Attrition**

Although initially we had diverse stakeholder involvement on the WG, who represented various market and service sectors, the greatest challenge we faced was attrition of WG members. Some members felt too pressed with other time demands to continue to participate in the WG, while others left the state for new job opportunities. Others failed to participate in conference calls or reply to email requests. From project inception, we were diligent to minimize phone call times, emails, and to explicitly define WG member roles and time commitment required, always recognizing that being in the WG was voluntary. When new gaps in the WG emerged (in terms of particular market sector engagement), we tried to recruit new members from those vital targeted market channels. This proved to be challenging within some sectors like hospitals, in which we had no point of contacts. While we remained convinced that a robust WG was critical to provide the needed framework and input to accomplish our project goals and keep us tuned to broader stakeholder perspectives, challenges, and needs represented, a lack of engagement by some WG members proved frustrating.

- A key lesson learned is that, given informants are very busy and pressed for time, achieving voluntary stakeholder involvement may necessitate some sort of an incentive simply beyond their interest in contributing to a project or their knowledge gained. In other initiatives in Virginia, like the Virginia Beginning Farmer and Rancher Coalition Program, money was budgeted for face-to-face meetings and participant travel, which would have been beyond the reach of the grant dollars available in this project. Nonetheless, *even if incentives are offered*, getting participation can be a huge challenge given people's stressful schedules and the fact that individuals willing to participate often are also giving of their time elsewhere!
- Another key lesson is the importance of fostering and nurturing relationships. In the end, the most important element to WG participation and input was building upon established connections and trust. Where relationships were already strong, individuals seemed more eager and willing to contribute. Further, they were more likely to provide additional contacts for expanding our network.
- This leads to a critical observation: one-on-one conversations (calls, face-to-face interviews, etc.) may be far more effective than group conference calls. While definitely more time consuming for the project team members, it is easier to juggle everyone's time and also provides a good way to focus in on discrete aspects of the project work. Although both one-on-one and group work was clearly necessary, incorporating this strategy proved extremely helpful to achieve our objectives.

### **Survey Design**

In spite of sending the online survey to over 570 people, we only had an 8% return rate. The project team discussed potential reasons for the low return rate, which included: survey fatigue;

survey length; survey format; survey administration timing; inappropriate contact information; and a lack of providing some sort of incentive. In considering the various possibilities, survey fatigue is a possibility, since individuals are often inundated with requests to fill out survey instruments. The length of the survey could have also been a deterrent; however, since our goal was to better understand market perceptions and requirements, we did not want to administer a survey that was of little substance. In the project design phase, we grappled with a fine balance between sufficient thoroughness and survey length. We provided easy-to-use formats, in online and paper versions, so we do not think that contributed to lower response rate. The survey was administered in mid-October, with ample time allotted to complete (a 3-week window, with one reminder email). Scanty contact information could have contributed to low responses for certain sectors (see below).

- A primary take-home lesson was how vital a mixed methods approach proved to be a critical design strategy. Focus Groups and follow-up interviews gleaned excellent data, especially audio recording and transcribing the interviews. Although the number of participants in the focus groups and interviews were small, the insights and anecdotal material added greatly to our understanding of the assessment results. In fact, given the excellent quality of the data from the focus groups, we decided to incorporate interviews as noted below.
- When obstacles were faced in terms of survey responses, using adaptive management strategies were crucial for us to find alternative information sources. Using literature searches and corroborating the literature with follow-up interviews, was an excellent way to further obtain data and ensure place-based accuracy (versus extrapolating information!) The face-to-face interview was an excellent format, though more time consuming, and provided an opportunity for relationship building and seeing the marketplace up close (institution and university).
- Since one of the greatest challenges was retention of WG members, the attrition of WG members from certain market sectors meant identifying and finding new contacts responsible for food procurement in certain market sectors. The project team had difficulty obtaining sufficient contact information for those sectors, especially hospitals; however, building on our existing networks greatly helped us to find and make appropriate new contacts! This speaks to the crucial nature of having participation of the right project partners, and being flexible when obstacles arise.

### **Difficulty in Accessing Buyer Requirement Information in Some Markets**

It is important to recognize that different market sectors use different titles for their food procurement personnel. For example in schools, ‘nutrition directors’ are often the individuals creating menus and placing purchasing orders for their schools, whereas in colleges and universities the ‘dining services manager’ *might* be responsible for food procurement. In other settings, like hospitals, the food manager may be referred to as a ‘food service director’. While they may be responsible for making buying decisions, they often are not the person putting in the purchase orders for food or creating menus (i.e. dietitian). Add to this confusion the fact that in

many health institutions the food service personnel rarely determine actual food procurement *policies*.

- The ‘take-home’ message is that *even if* producers can find an appropriate point of contact in an institution, developing a relationship and getting access to that market is not guaranteed!
- It is important for producers to recognize that market access in some instances is largely determined by company policy, which may prohibit or greatly limit procurement of locally sourced produce. Thus, market access may have very little to do with the attributes of a grower’s products. Given the challenge for producers to access buyer information and specific contact information, means different marketplace sectors--especially institutions—need to be fully transparent in articulating their requirements and policies. This is true since policy information is often only accessible to existing vendors; thus, new vendors may be unable to find specific criteria for the vending of their products. Thus, if certain marketplaces desire to procure locally sourced products, they need to make sure they are conveying that information in ways that are easily accessible and understandable.

### **Project Time Challenges**

While in our initial proposal we outlined what we projected to be a reasonable work timeline, the challenges that materialized, such as Working Group attrition and difficulty finding appropriate points of contact in certain sectors, necessitated flexibility. Our desire as a project team was to obtain the most robust data set that we could in order to offer valuable recommendations and guidance to producers, buyers, and other relevant stakeholders. This meant needing additional time to conduct this work, thereby setting our timeline behind. We requested a one-year no-cost extension, which greatly helped us achieve our goals.

- While the initial proposed timeline of outcomes was a roadmap, using an adaptive management and developmental evaluation (Patton, 2001) strategy was important so internal working processes of the project could be evaluated in light of external factors that were encountered. Rather than being constrained by our timeline when obstacles arose, finding creative alternatives for addressing those challenges was vital to project success.
- Another valuable lesson was engaging our Working Group and field agents as to their input about avenues for outreach efforts. Their feedback was invaluable as we considered our different target audiences and how best to reach them with our results.

### **Interdisciplinary Collaborations**

One of the greatest strengths of the project team and Working Group was having individuals from diverse disciplines and areas of expertise. The wide array of stakeholders represented contributed to more robust project outcomes.

- Having a diversity of stakeholders is critical to project success. In this project, we had academia, extension, state and local agencies, non-profits, and businesses represented.

Our project drew upon stakeholders in the ‘trenches’, thereby grounding our work in the realities of the field. Doing so was critical.

- Working with Local Food Hub as part of the project team proved to be vital to our work. Not only did LFH provide an accurate pulse of the challenges being faced by producers and regional wholesalers in the field, but they also contributed significantly to every aspect of the work objectives. One strategy that worked well was to have regular face-to-face work meetings with LFH to focus on development of the project report and resources. These work sessions were fruitful and an excellent use of funds.
- In addition to the main project team and WG, we also had graduate and undergraduate student involvement, which brought fresh perspective and energy to the project. As part of graduate studies, an MA student contributed to the market assessment and focus group administration, data analyses, and initial report and sector profile drafts. Additionally, undergraduates helped with the focus group transcriptions, literature review, and interview work. The project lead conducted an independent study class, in which some of these undergraduate students focused on the development of resources and the final project report. Not only were these students a part of an applied project relevant to both of their fields of study (food science technology, agricultural marketing/ horticulture), but they were provided the opportunity to be co-authors of the factsheets and infographics—a benefit that they found desirable at this point in their professional life.

### **Evaluation:**

As a reminder, our approach to evaluation of this project was sensitive to the expected long-term impacts of the project, including those that will accrue beyond the life of the grant. Those desired impacts are as follows:

- Improved alignment between on-farm practices and sector-specific market expectations for food safety assurance to support market access and farm viability (especially for small and mid-sized farms);
- Informed statewide food safety training for farmers that meets both shifting regulatory requirements (e.g., move toward harmonized Good Agricultural Practices and integration of requirements as a result of FSMA) and is tailored for farmers to meet specific market sector expectations and requirements;
- Guided education and outreach to each market sector to increase understanding and support for science-based food safety practices used by producers, including those used on small and mid-sized farms; and
- Creation and strengthening of Virginia’s farm-to-fork food safety culture, in which there are clearly defined food safety practice parameters that meet quality assurance standards, while creating wealth and economic opportunity across Virginia communities.

On a periodic basis throughout the life of the project, we collected data on outputs designed to serve as proxy measurements of progress towards these desired long-term impacts. The primary

measurable outcomes at the center of these evaluative efforts, and our data and findings relative to each outcome, are summarized below:

1. ***All milestone dates are met successfully.*** As discussed in the “Lessons Learned” section above, the project encountered a number of unforeseen variables that led us to apply an adaptive management approach to the timeline. As such, not all milestone dates were met, yet our developmental evaluation approach allowed us to respond to changing factors and ensure that the primary goals of the project could be met on an adapted timeline. Some reasons for the need to adapt the project milestone dates are present above in the “Lessons Learned” section.
2. ***The assessment is rated as high-quality by the Advisory Group using an established rubric of assessment quality.*** We elected to use the Advisory Group as a panel to establish the face validity and the expert validity of the tool, rather than a rubric, since that approach could be better tailored to the specific context of this particular assessment. On those criteria of quality, we received formative feedback from the panel to improve the working of numerous items on the assessment, ultimately yielding a higher-quality tool. Another criterion of quality related to the implementation of the assessment is the response rate. As stated above, our response rate of 8% was low, which introduced a threat to the validity of the assessment overall. However, depending on the sample size and the purposes of an assessment, 10% response rate is sometimes seen as acceptable and is relatively common (e.g., Duncan, 2008). The most important considerations are the purposes of the assessment and the size of the population of interests, more so than the response rate. Also, since we had stratified sampling by sector, our relative population size varied, which means that the response rate and the relative importance of those that responded varied by sector. In that sense, while we did further adjust our assessment to control for the low response rate in some sectors, this does not call the overall validity and credibility of the assessment into question.
3. ***The resulting information guides the creation of one new outreach or education material for each of the target sectors.*** This outcome was met with a high degree of success. As demonstrated by the materials included in Attachments 7 – 26, the project led to the creation of numerous outreach and education products (20 in total). The number, type, and focus of products also evolved through our formative cycles of evaluative feedback, to increase the likelihood that the resources would meet the informational needs of key stakeholders.
4. ***At least 25 key market sector and other food system stakeholders increase their involvement in enhancing market access and a food safety culture in Virginia.*** Inasmuch as more than 25 individuals were involved in providing input on the assessment and on the resulting tools, we thus achieved this outcome. What’s more, although data of the ripple effects of the products of this project are still limited, there is initial evidence that VCE agents view these tools in a positive light and are excited to disseminate them widely. In this

way, the outputs of this project will continue to engage stakeholders in efforts to enhance market access and a food safety culture in Virginia for years to come.

### **Current or Future Benefits/Recommendations for Future Research:**

- At present, we have the multiple factsheets, infographics, and web content that we have developed. These materials have been disseminated via the websites we mentioned. Additionally, we are sharing our work with other producer-related websites in the state and larger Mid-Atlantic region. This approach allows for greater dissemination of our project results.
- In addition to web content, we are also sharing our project research in various capacities, building upon and expanding our networks and the deliverables of this project:
  - One example is the Virginia 2017 Farm to Table Conference, in which we connected with farm to hospital stakeholders, shared our accessing hospitals factsheet, and discussed opportunities for further collaboration. As a result of this connection, we were added to the "Chesapeake Farm to Institution Work Group", a collaboration of Health Care Without Harm and the Mid-Atlantic Chesapeake Foodshed Network. The ultimate goal of that effort is to strengthen collaboration between farm to school, farm to college, and farm to hospital initiatives and more efficiently utilize resources and support each other in accomplishing similar goals.
  - We also participated in the Virginia Higher Education Sustainable Food Supply Chain Symposium at UVA Morven Farm. As part of an existing effort of several universities, as well as several other stakeholders, to promote greater access by producers for universities and colleges, the project lead shared the results of our work about the colleges and universities sector (factsheet, infographics), as well as continues to be involved in this on-going initiative (Attachment 27).
  - Another example is involvement by the project lead and LFH with a USDA Farm to School project led by the Virginia Department of Education (DOE), to promote greater procurement of locally sourced produce in Virginia K-12 public schools. As a part of this new project, we will be building upon the knowledge gained from this present project, especially as it relates to overcoming barriers and meeting food safety requirements by producers for access to public schools (Attachment 28). As a part of our involvement, our work will comprise creation and delivery of a food safety talk that will be presented in early 2018 in eight VA regions. Additionally, we will involve VCE agents when possible to build greater capacity.
  - There are also other opportunities with Working Group colleagues, particularly with the Virginia Tech Department of Agricultural Economics and Business, that are currently being considered. While some of these efforts are still in the early planning phases, the results of this present project have already provided an excellent foundation on which to expand efforts, gain interest, and provide greater evidence of the challenges faced by producers and buyers in the marketplace. We

are eager to engage in opportunities where we can continue building upon the work we completed here.

- We will also be sharing our work at the VCE 2018 Winter Professional Development Conference so as to make agents and specialists aware of the work we have done, and to foster continued efforts as mentioned in the next bulleted point.
- These varied examples demonstrate the credibility gained through this project, and clearly our efforts here have opened doors to further expansion and longer term impacts described in our “Evaluation” section.
- While our research focused on understanding different markets at a statewide level, a reasonable next step would be to investigate particular regions of Virginia and marketplace nuances, and for our materials to be further developed into region-based materials. For example, Southwest Virginia is a very different landscape than Northern Virginia (NOVA), not just in terms of geography, but in terms of demographics, economics, types and number of markets, etc.. Given the urban sprawl in NOVA and encroachment of farmland, the urban versus rural contrast of these two regions is striking. In addition to these contrasts, there may be other factors that influence market access, such as smaller institutional systems, human capital, laws and regulations, cost of living, and transport and delivery options. These future efforts should be grassroots and community-driven, making sure all relevant stakeholders are involved. Given VCE’s presence and credibility in communities across Virginia, they could play a vital role in bringing stakeholders together and contributing to the process. In fact, this ‘next step’ is corroborated in the approach that the Virginia DOE is taking with the Farm to School efforts mentioned above—providing farm to school education adapted to each of the eight targeted statewide regions.

### **Project Beneficiaries:**

Since many of our resources are web-based and were recently uploaded, we do not have concrete metrics at this point. However, we do know that the websites will have a wide reach for the following target groups in Virginia, Mid-Atlantic, and beyond (numbers represent estimates of a conservative estimate if stakeholders in each target group):

- Small-medium-, and larger-scale Produce Growers (750+)
- Buyers and other key stakeholders:
  - Colleges & Universities (60)
  - Direct Markets (240)
  - Hospitals (10)
  - Public Schools (1500+)
  - Restaurants (20)
  - Retailers (10)
  - Wholesalers (10)
- Academia (50)

- Trainers (VCE, non-profit groups) (50+)
- Agencies (VDACS, DOE, etc.) (20+)

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## **Additional Information:**

### **Project Materials and Website Links**

#### ***Advisory (Working) Group (Obj. 1)***

- Working Group Schematic (Attachment 1)
- Project Phases Milestones (Attachment 2)

#### ***Market Assessment (Obj. 2)***

- Qualitative Interview Guide (Attachment 3)
- Qualtrics Online Survey (Attachment 4)
- Focus Group Questions (Attachment 5)
- Literature Review and Coding Themes (Attachment 6)

#### ***Develop Baseline Understanding (Obj. 3)***

- Cross-Comparison Report (Attachment 7)
- Colleges and Universities Sector Profile (Attachment 8)
- Direct Market Sector Profile (Attachment 9)
- Hospitals Sector Profile (Attachment 10)
- Public Schools (K-12) Sector Profile (Attachment 11)
- Restaurants Sector Profile (Attachment 12)
- Retailers Sector Profile (Attachment 13)
- Wholesale Distributors Sector Profile (Attachment 14)

#### ***Formulate Recommendations (Obj. 4)***

- Establishing a Market Perspective Factsheet (Attachment 15)
- Accessing Virginia Markets Factsheet (Attachment 16)
- Colleges and Universities Sector Factsheet (Attachment 17)
- Direct Market Sector Factsheet (Attachment 18)
- Hospitals Sector Factsheet (Attachment 19)

- Public Schools (K-12) Sector Factsheet (Attachment 20)
- Restaurants Sector Factsheet (Attachment 21)
- Retailers Sector Factsheet (Attachment 22)
- Wholesale Distributors Sector Factsheet (Attachment 23)
- Establishing a Market Perspective Infographic (Attachment 24)
- Market Sector Infographics (Attachment 25)
- Buyer Points for Local Suppliers Infographic (Attachment 26)

***Develop Stakeholder Strategy (Obj. 5)***

- Virginia Cooperative Extension website, <http://pubs.ext.vt.edu/>
- Virginia Fresh produce Food Safety Website, <http://www.hort.vt.edu/producesafety/index.html>
- Virginia Fresh Produce Food Safety Team Facebook Page, <https://www.facebook.com/VirginiaFreshProduceFoodSafetyTeam/>
- Virginia Higher Education Sustainable Food Supply Chain Symposium Agenda (Attachment 27)
- Virginia Department of Education Inquiry (Attachment 28)