MUNICIPAL AUDITING REPORT
CITY OF ROANOKE

Career & Technical Education Audit

December 18, 2019

Report Number: 20-010
Audit Plan Number: 20-104

Municipal Auditing Department
Chartered 1974

TABLE OF CONTENTS

AUDIT OBJECTIVES & CONCLUSIONS

1. To determine if the Roanoke Technical Education Center ("ROTEC") has accurately reported performance data to the Virginia Department of Education ("VDOE").

   No – While testing showed reporting of Credentials achieved by students was accurate in all material respects, errors were identified with demographic data submitted in the Completer Demographic Report.

   - Non-traditional students were not identified appropriately in accordance with the *CTERS User's Manual.*

   - A sample of students tested also lacked a completer demographic form on-file asserting they had met requirements for Student Competency Attainment.

   We also found that ROTEC does not conduct follow-up surveys of students in accordance with VDOE published guidelines. Current practices ensure student responses are adequately received but surveys are administered prior to graduation – VDOE guidelines aligned with the Perkins Act require program completers to be surveyed 9 to 12 months following graduation.

2. To determine if RCPS students and parents are informed of in-demand programs and careers available in ROTEC.
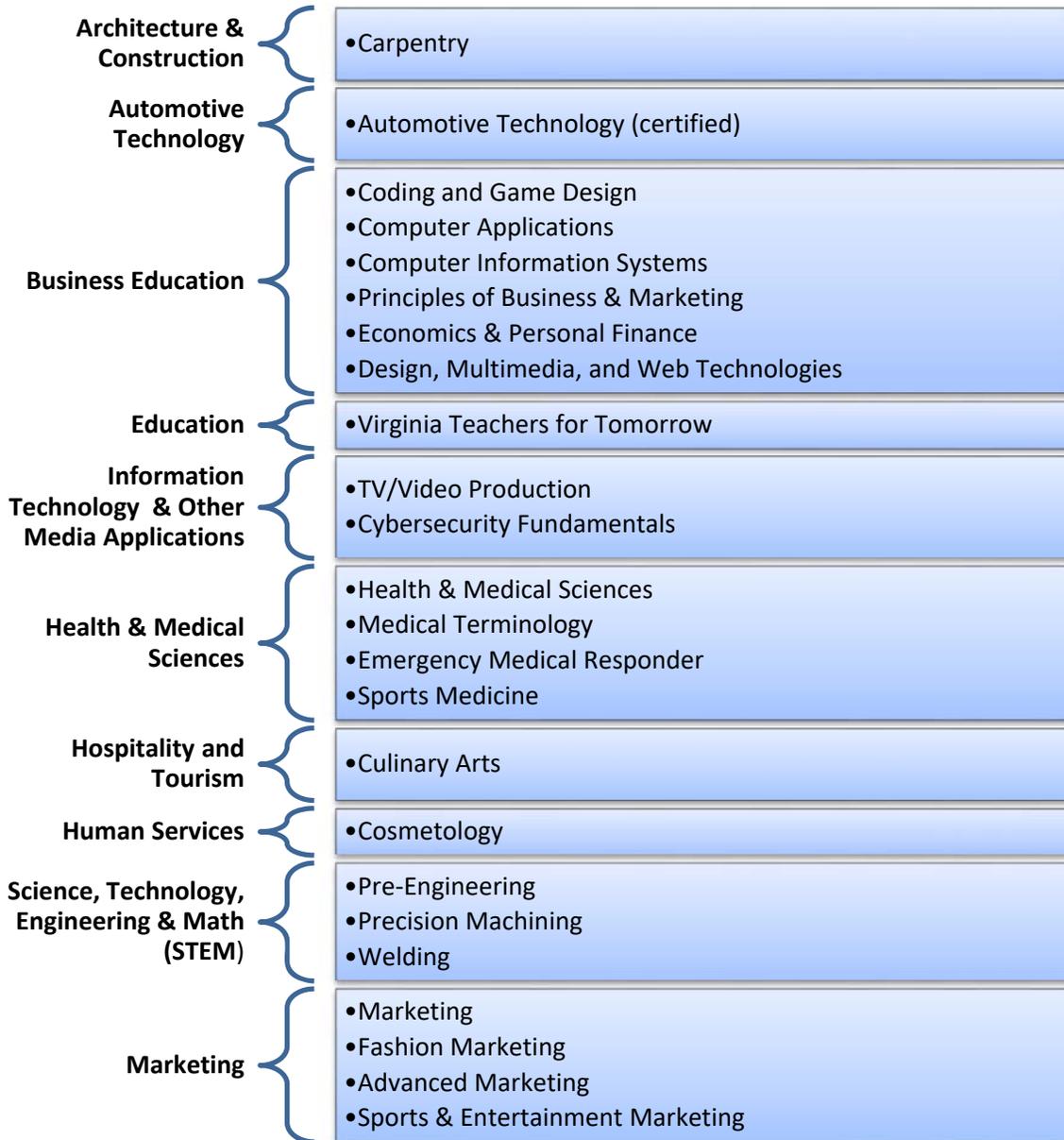
   Yes, with exceptions – Surveys we conducted of other local CTE administrators showed ROTEC utilizes similar marketing methods as other localities. ROTEC's 5x5x5 Program appears to be a unique way for RCPS to reach rising middle school students and highlight their program offerings. Responses by other localities to the survey indicate they also believe students and parents generally are "somewhat aware" of their programs. Survey responses also provide potential additional outreach activities ROTEC may explore in order to increase participation and maximize program impact.

   However, testing showed RCPS middle school students did not complete Academic Career Plans in accordance with VDOE Regulations and School Board policy. Academic Career Plans are intended to enhance student awareness of available career paths, link their education to future career options, and facilitate parental involvement in their student's education path.
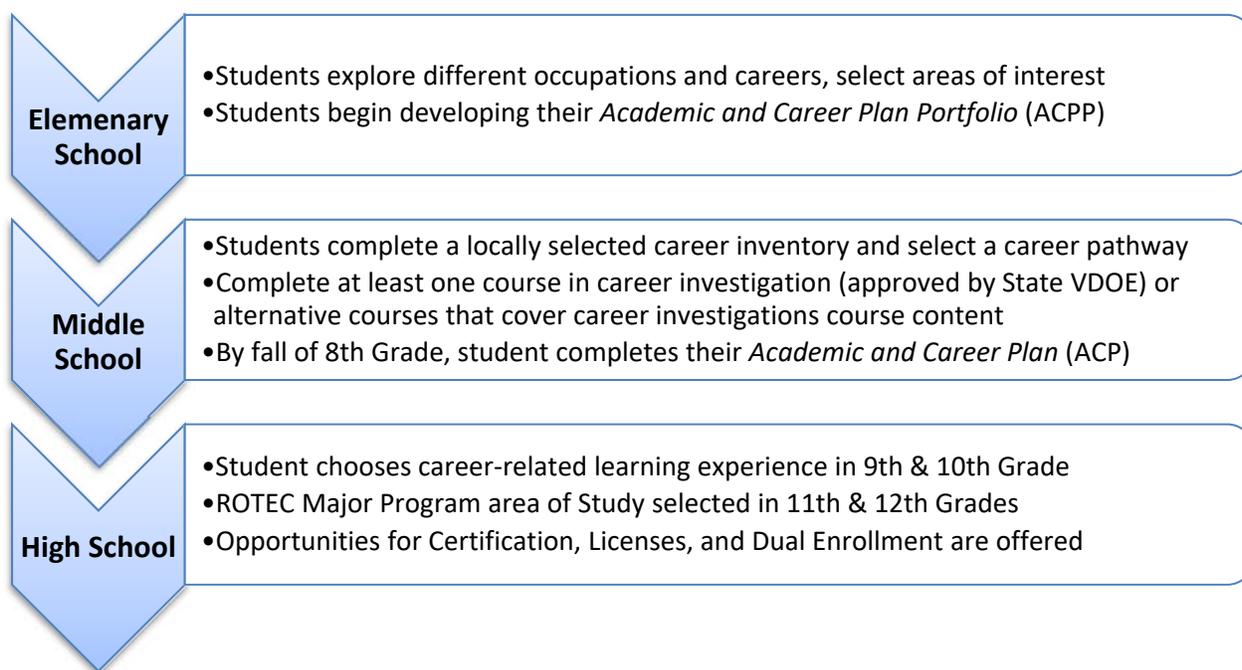
BACKGROUND

ROTEC

The Roanoke Technical Education Center ("ROTEC") serves as Roanoke City Public School's ("RCPS") center for career and technical education classes. Located on the campus of Patrick Henry High School, ROTEC offers classes and programs to all RCPS Middle and High School students. Twenty-five (25) different programs across 10 career clusters are offered:

Architecture & Construction
- Carpentry

Automotive Technology
- Automotive Technology (certified)

Business Education
- Coding and Game Design
- Computer Applications
- Computer Information Systems
- Principles of Business & Marketing
- Economics & Personal Finance
- Design, Multimedia, and Web Technologies

Education
- Virginia Teachers for Tomorrow

Information Technology & Other Media Applications
- TV/Video Production
- Cybersecurity Fundamentals

Health & Medical Sciences
- Health & Medical Sciences
- Medical Terminology
- Emergency Medical Responder
- Sports Medicine

Hospitality and Tourism
- Culinary Arts

Human Services
- Cosmetology

Science, Technology, Engineering & Math (STEM)
- Pre-Engineering
- Precision Machining
- Welding

Marketing
- Marketing
- Fashion Marketing
- Advanced Marketing
- Sports & Entertainment Marketing

ROTEC also has a special elective program on leadership development offered to RCPS students. In addition, Air Force Junior ROTC classes are overseen by ROTEC and considered to be career and technical education programs.

All RCPS students are exposed to ROTEC course offerings at some point during their academic careers, and at a minimum, are required to pass the Economics and Personal Finance course in order to graduate. This VDOE requirement commenced with students entering 9th grade in the fall of 2011, and mandates that one credit course be completed by students earning a standard or advanced studies diploma.

Career and Technical Education ("CTE") courses begin to be offered to RCPS students during middle school. RCPS offers a Career and Investigation course to middle school students designed to satisfy the VDOE requirements that by the fall of a student's 8th grade year they must complete an *Academic Career Plan*. RCPS has accordingly developed their own *College and Career Readiness* policy that aligns with the VDOE policy and outlines the following process for RCPS students:

Elemenary School
- Students explore different occupations and careers, select areas of interest
- Students begin developing their *Academic and Career Plan Portfolio* (ACPP)

Middle School
- Students complete a locally selected career inventory and select a career pathway
- Complete at least one course in career investigation (approved by State VDOE) or alternative courses that cover career investigations course content
- By fall of 8th Grade, student completes their *Academic and Career Plan* (ACP)

High School
- Student chooses career-related learning experience in 9th & 10th Grade
- ROTEC Major Program area of Study selected in 11th & 12th Grades
- Opportunities for Certification, Licenses, and Dual Enrollment are offered

These activities are performed in an effort to achieve ROTEC's primary goal – to ensure that all students graduate with the skills to be college and career ready.

Laws & Regulations – Perkins Act

The primary federal legislation regulating all Career & Technical Education programs at the secondary and post-secondary levels is the *Strengthening Career and Technical Education for the 21st Century Act*. The Act is better known as *Perkins V* because it reauthorized the *Carl D. Perkins Act of 2006*, or *Perkins IV*. Perkins V recently became effective as of July 1, 2019.

Perkins V is very similar to Perkins IV with small changes intended to strengthen state and local CTE programs. Both grants remain formula grants provided to the various states, who in turn make grants to support CTE activities of local education agencies, area CTE schools, and community colleges. States are given flexibility to implement funding, and submit a 6-year plan to the Secretary of Education at the federal level, who evaluates and approves the plan. In Virginia, the following formula is used to allocate funds to local school divisions:

- 70% based upon the number of children living in poverty
- 30% based upon enrollment

Perkins IV and V operate as performance based grants. The VDOE has incorporated six (6) performance indicators specified by Perkins for which the state and all local education agencies are evaluated. The VDOE develops target levels of performance for each performance indicator. For the 2018-2019 school year, the core indicators, performance metrics, and negotiated performance levels (underlined percentages) for Virginia were as follows:
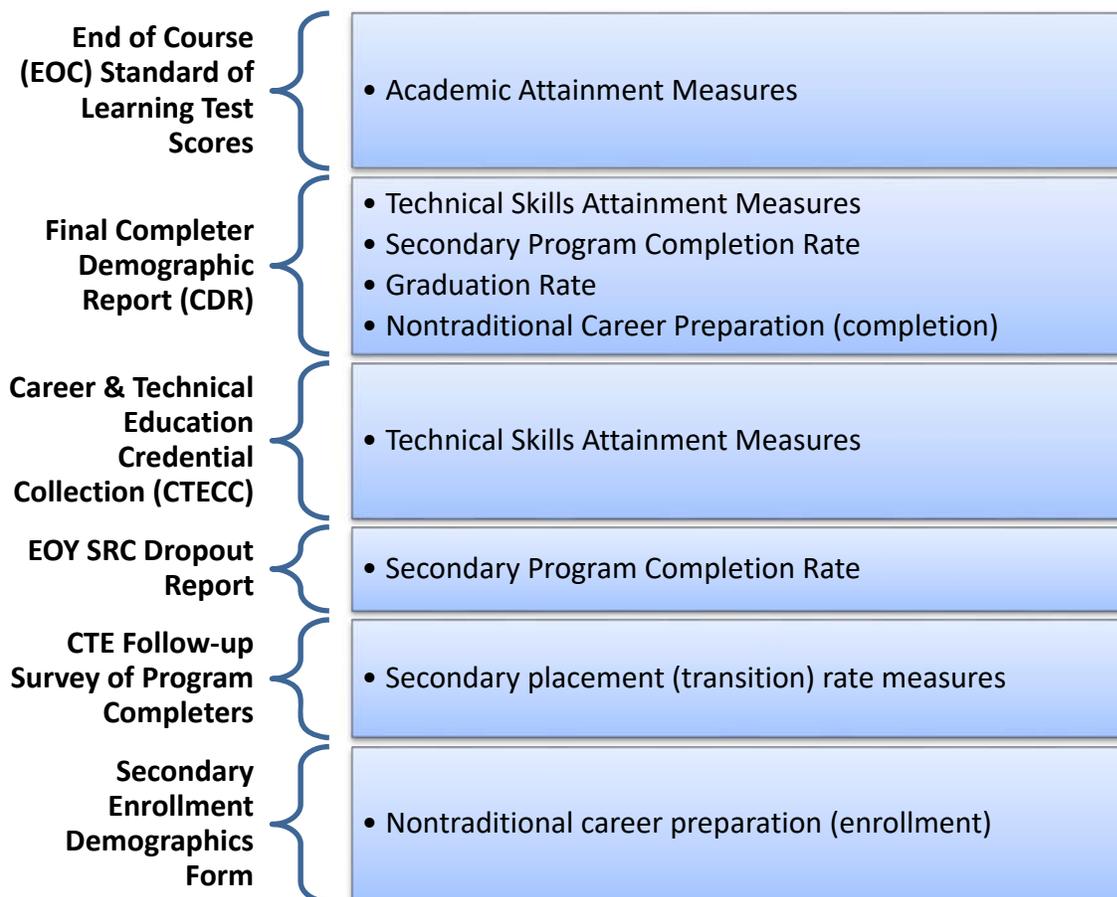
Academic Attainment

- Reading SOL Test pass rate - 87%
- Mathematics SOL Test pass rate - 87%

Technical Skills Attainment

- Student Competency Rate - 93%
- Completers participating in credentialing tests - 85%
- Test takers (completers) passing credentialing tests - 85%
- Completers passing credentialing tests - 78%
- Completers who passed a credentialing test *plus* completers who earned an advanced standard diploma and did not pass a credentialing test - 81%

Secondary Program Completion Rate

- Secondary Program Completion Rate - 97%

Graduation Rate

- Student graduation rate - 94%

Secondary Placement (Transition) Rate

- Transition rate from secondary school to postsecondary education, employment, or military - 94%
- Program completer survey response rate - 75%

Nontraditional Career Preparation

- Nontraditional career preparation (enrollment) - 31.5%
- Nontraditional career preparation (completion) - 28%

Furthermore, these performance indicators are required to be disaggregated by special populations.

Sanctions can be assessed to states for not meeting at least 90% of the state adjusted levels of performance. Likewise, local education agencies who don't meet at least 90% of their local levels of performance for any core indicators may ultimately face sanctions. However, the locality will first work with the VDOE to develop and implement an improvement plan. If improvement plans are not effective to remedy poor performance, states ultimately may withhold all, or a portion of, the local provider's funding.

During the 2017-18 school year, RCPS met the state negotiated level of performance with the exception of core indicator *Nontraditional Career Preparation Completion.*

In order to assess local performance, the VDOE collects a variety of data from local school divisions. The following diagram outlines the various reports compiled by local school divisions with the associated performance metrics measured through the reports:

Report	Performance Metrics
End of Course (EOC) Standard of Learning Test Scores	• Academic Attainment Measures
Final Completer Demographic Report (CDR)	• Technical Skills Attainment Measures • Secondary Program Completion Rate • Graduation Rate • Nontraditional Career Preparation (completion)
Career & Technical Education Credential Collection (CTECC)	• Technical Skills Attainment Measures
EOY SRC Dropout Report	• Secondary Program Completion Rate
CTE Follow-up Survey of Program Completers	• Secondary placement (transition) rate measures
Secondary Enrollment Demographics Form	• Nontraditional career preparation (enrollment)

To supply the VDOE with the required performance data, ROTEC works with the RCPS Data and Analysis Department:

- Performance reports such as SOL Testing scores are not handled by ROTEC but are reported by the Data and Analysis Department to the VDOE.

- Other reports, notably the Completer Demographic Report (CDR), require that ROTEC work to ensure that student data contained within *Synergy* (RCPS student information system) is accurate such that RCPS' Data and Analysis Department can extract the appropriate information and complete reporting requirements on behalf of RCPS.

- ROTEC directly provides data to the VDOE through the Career & Technical Education Credential Collection (CTECC) report along with the CTE Follow-up Survey.

Other notable requirements under the Perkins IV and V include the following:

- Local Plan / Application: Annually, RCPS and local school divisions are required to submit a local application to the VDOE. The document serves as an overview of what ROTEC and RCPS are doing to meet the various requirements of the Perkins Act. It also includes an overview of proposed expenditures to be made in the following year under the Perkins grant. With the change from Perkins IV to Perkins V, the Local Plan was re-named the Local Application to signify that funding is not necessarily guaranteed.

  The School Board approves the Local Application prior to submission on an annual basis.

- Comprehensive Needs Assessment: New under Perkins V, localities must also submit a comprehensive needs assessment with their Local Application and update it every other year. RCPS submitted their first comprehensive needs assessment in April 2019. The additional requirement was intended to engage more stakeholders in the local planning and evaluation process of CTE programs.

During our audit we noted a variety of published resources available through the VDOE website to help localities meet the various administrative requirements. *The CTERS User's Manual* was heavily referenced for the audit as it outlines the various reporting requirements with instructions on how to appropriately meet requirements.

The VDOE also has an established monitoring process to assess local CTE programs that flows as follows:

- School divisions complete a self-assessment of their CTE program on a 6-year cycle

- VDOE analyzes the self-assessment, which may include an on-site visit to the local school division

- School divisions are required to follow-up on identified deficiencies or concerns

RCPS will be subject to this VDOE monitoring for the upcoming 2019-20 cycle.

Career & Technical Education Finance & Funding

Most financial support for career and technical education is provided through local funds. These funds go primarily towards personnel costs. Based on the RCPS 2019-20 budget, around $3,000,000 of operating funds are provided to support CTE. The budget indicated there are 35.8 full-time equivalent positions in career and technical education.

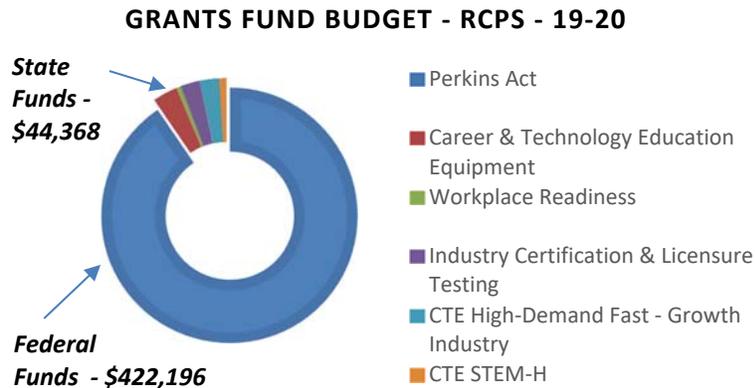**RCPS Operating Budget - Career & Technical Education**
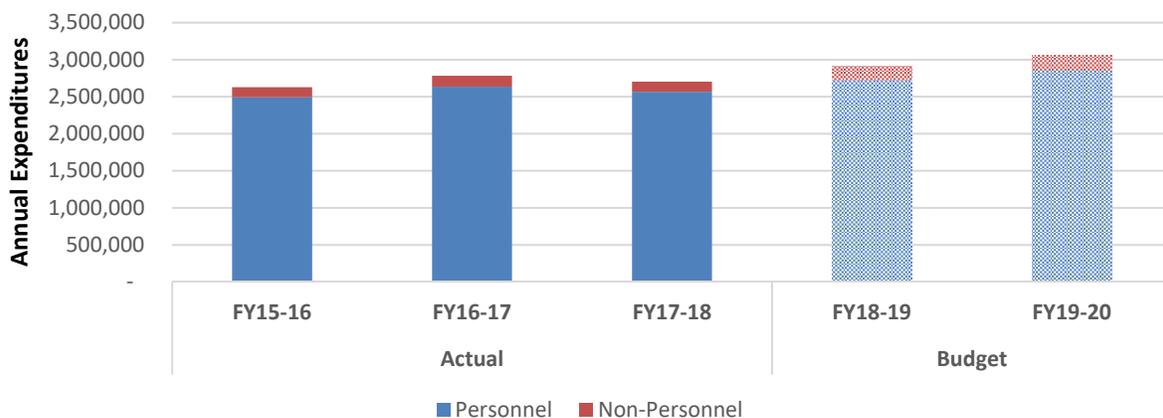
Perkins grant funds are primarily applied towards the purchase of equipment and supplies. Based on VDOE published allocations for the 2019-20 school year, Roanoke City was allocated $422,196 of funding from Perkins V. The chart to the right shows the allocation of expenditures based on RCPS 2019-20 budget with comparisons of annual expenditures from previous years.

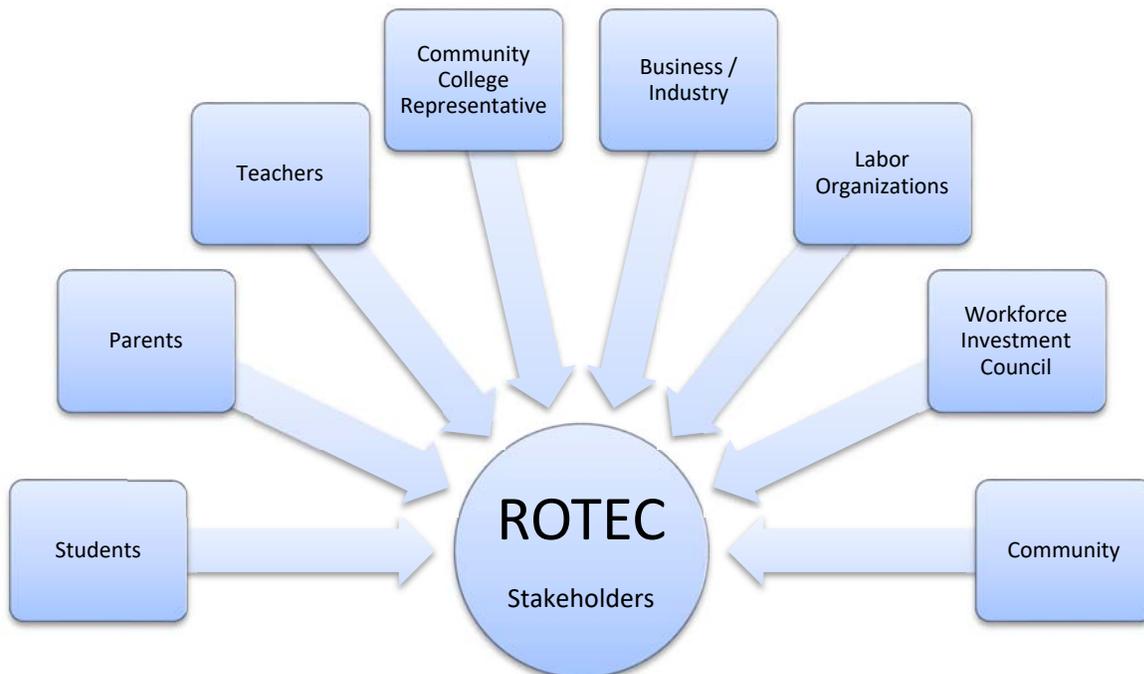**Perkins Act Grant Fund Allocations**
(non-personnel)
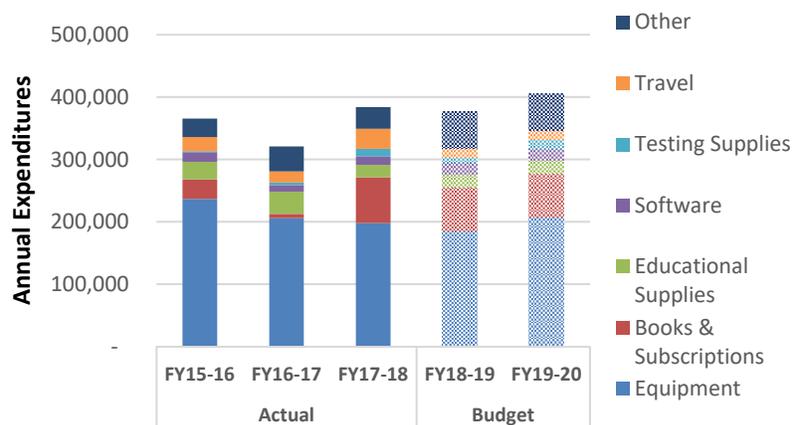
Annually, as part of approving the Local Plan required under the Perkins Act, the School Board reviews and approves ROTEC's proposed capital equipment spending. Funds are generally allocated to ensure classroom equipment is as up-to-date as possible. Perkins Grant regulations are generally lenient towards the use of funds as long as they support Career and Technical Education programs. Accordingly, we did not consider expenditure testing to be a significant risk in our performance audit.

GRANTS FUND BUDGET - RCPS - 19-20

State Funds - $44,368

Federal Funds - $422,196

- Perkins Act
- Career & Technology Education Equipment
- Workplace Readiness
- Industry Certification & Licensure Testing
- CTE High-Demand Fast - Growth Industry
- CTE STEM-H

The Commonwealth of Virginia also provides some CTE funding. These funds are fairly evenly split between equipment purchases and testing supplies. While State funding is comparatively limited, it provides critical support for school operations.

Career & Technical Education role in Workforce Development

Career and Technical Education requires coordination and collaboration with multiple stakeholders in the local economy. The diagram below outlines the various stakeholders who collaborate with ROTEC in order to develop career and technical education programs.

Community College Representative

Business / Industry

Teachers

Labor Organizations

Parents

Workforce Investment Council

Students

ROTEC

Stakeholders

Community

Perkins Grant regulations require consultation with these various stakeholders in the development, implementation, and evaluation of career and technical education programs. To assist with these efforts, two separate boards are appointed by the School Board:

- CTE Advisory Committee
- CTE Foundation Board

The Advisory Committee, which meets quarterly, is represented by these various stakeholders. They provide input on the programs, community and industry needs, along with labor market trends and developments. The CTE Foundation Board is available to provide similar input, but primarily functions to raise funds for, and select students who should be provided scholarships for continuing education. Their input is in addition to general input ROTEC may receive from others stakeholders in the community.

A variety of data is available to ROTEC and stakeholders to assess program effectiveness. Aspects of the Perkins Act require local school divisions and stakeholders to assess programs holistically using labor market data as part of the Local Plan and Comprehensive Needs Assessment. Through the Advisory committee, Foundation board meetings, and informal meetings and phone calls, ROTEC administration receives a variety of input and feedback regarding their programs.

The variety of data and stakeholder input provides for a wide range of interpretations about the appropriate focus and needs for CTE programs. ROTEC plays a role in the larger local and regional workforce systems that include business, non-profit, and government entities interested in addressing workforce and economic development needs in the Roanoke Valley. In development of their Local Workforce Plan in 2017, Virginia's Blue Ridge Works consulted with 53 separate regional "workforce partners" to garner input on regional workforce development. This large network of partners makes it challenging to determine what role individual agencies and education providers such as ROTEC play in the development of the regional workforce system. Given the collective responsibility for addressing the local demand for workers with specific knowledge and skills, we did not attempt to evaluate ROTEC's process for developing program offerings.

Objective 1: Data Reporting

Audit Objective:

To determine if ROTEC has accurately reported performance data to the VDOE.

No

Scope:

To assess accuracy of performance data, we reviewed the following two reports:

- Completer Demographic Report (CDR)

- Career & Technical Education Credential Collection (CTECC)

ROTEC's administration is directly involved in collecting the data elements for these reports. The Data & Analysis Department acts as the primary lead in collecting and reporting other CTE information on behalf of ROTEC and RCPS. Accordingly, only the CDR and CTECC reports were included in the scope of our testing.

We reviewed reporting accuracy for the most recent reporting period (school year 2018-19). We used a sampling approach with varying sample sizes based upon the data population for each report, to gain a general understanding if processes and procedures were producing accurate data records. Data elements were compared to supporting documentation as outlined in the following subsections and referenced against the *VDOE CTERS User's Manual* to determine if they were accurately reported.

Results:

Completer Demographic Report (CDR)

The CDR is used to analyze program completer data by gender, ethnicity, special populations, and technical competency attainment. CDR data is collected annually on two separate occasions – once preliminarily by July 15th (the *Preliminary Completer Demographic Report*) and then again by August 30, 2019 (the *Final Completer Demographic Report*). The bulk of the data collection occurs with the preliminary report as it collects data as of the end of the school year. The final report, which the VDOE utilizes to assess performance measures, is essentially an update of the preliminary records as it incorporates data through the summer school months. ROTEC Administration indicated summer programs are limited and as such, final report data varies little if any from preliminary report data.

Our CDR testing focused on certain data elements applicable to Career & Technical Education.

ROTEC is responsible for ensuring student data related to Career and Technical Education are accurately recorded in Synergy. This data is then pulled into the CDR reported to the state. Accordingly, our testing focused on the following data elements defined by the *VDOE CTERS User's Manual*:

	Data Element	Description
A	CTE Finisher Code	Designates students who have finished CTE course requirements for program completion.
B	CTE Career Pathway Code	State-assigned 4-digit code associated with the student's career pathway.
C	CTE Diploma Seal	Seal code "3" indicates student was awarded a CTE seal upon graduation *Note – there are various other graduation seals awarded by the VDOE but our testing focused solely on requirements to earn a CTE seal.*
D	Graduate/ Other Completer Code	Code entered corresponds with the type of diploma or certificate earned by the student.
E	CTE Special Populations Code	Identifies students with a Single Parent, Displaced Homemaker, and/or in a Non-traditional Career Preparation. *Note – we only tested if completers were enrolled in courses signifying them as Non-traditional during their time with RCPS.*
F	Student Competency Attainment	School enters "Y" (Yes) if CTE Completer attained at least 80% of the essential competencies from the state-provided, industry validated competency list. If the Completer did not, school enters "N" (No).

➤ Data Elements A thru D: We compared data in the CDR to student transcripts in Synergy.

➤ Data Element E: We compared demographic information on the student transcripts to criteria for non-traditional students in the *VDOE CTERS User's Manual*.

➤ Data Element F: We verified students marked in Synergy as attaining competency had a *Completer Demographic Form* on file signed by the teacher that documented the

necessary sequence of courses had been successfully completed and documentation showed the student had attained 80% of essential competencies.

A random sample of 20 completers from a population of 347 showed data attributes contained various errors:

Data Element		Verified	Exceptions	Exception Rate
A	CTE Finisher Code	20	0	0%
B	CTE Career Pathway Code	18	2	10%
C	CTE Diploma Seal	16	4	20%
D	Graduate/ Other Completer Code	20	0	0%
E	CTE Special Populations Code	13	7	35%
F	Student Competency Attainment	13	7	35%

CTE Special Populations Code:

- Three (3) male students had taken "Digital Input Technologies" and had not been marked as non-traditional students.

- Four (4) students were incorrectly marked as non-traditional students as follows:

    o Two (2) female students in the EMT training program

    o One (1) female student in Web and Digital Communications

    o One (1) male student in Welding

These errors impact two VDOE *Non-traditional Career Preparation* performance measures:

Core Indicator of Performance	State Negotiated Level of Performance 2018-19
Non-traditional Career Preparation Enrollment	31.75%
Non-traditional Career Preparation Completion	28.10%

Perkins funds may be used for travel costs of students classified as being a member of a special population. Travel costs for other students must be covered by local funds. Misclassifying students inadvertently increases the risk of incurring an unallowable expense of Perkins funds. Perkins funds utilized for travel are limited and other factors could qualify a student as eligible for funding. Management indicated they do not utilize travel funds for non-traditional students – they use funds for other special population codes.

Student Competency Attainment:

The *CTERS User's Manual* rates Student Competency using the following scale:

1—Can teach others
2—Can perform without supervision
3—Can perform with limited supervision
4—Can perform with supervision
5—Cannot perform

Students who score 1-3 on the general scale are considered to have met the 80% competency attainment level required by the VDOE under their CTE performance metrics. Teachers assign each student competency ratings on the student's *Completer Demographic Form*, which is the basis for entering competency attainment into Synergy.

Our testing showed the following among the 20 completers sampled:

- Six (6) students did not have *Completer Demographic Forms* on file.

- One (1) student had been marked as not achieving 80% competency on the form but was marked as competent in Synergy.

These errors impact one attainment standard outlined by VDOE performance measures:

Core Indicator of Performance	State Negotiated Level of Performance 2018-19
Student Competency Rate (2S1 A)	93%

RCPS's *2018-19 Preliminary Completer Demographic Report* indicated that all 347 completers had attained 80% of their competencies. ROTEC Administrators stated that if a *Completer Demographic Form* is not on-file for a student, they review course transcripts to determine if the student's grades indicate they meet the state competency criteria. Administrators believe students who pass the required ROTEC courses can perform tasks with limited supervision, thus meeting the level three (3) competency on the CTERS scale.
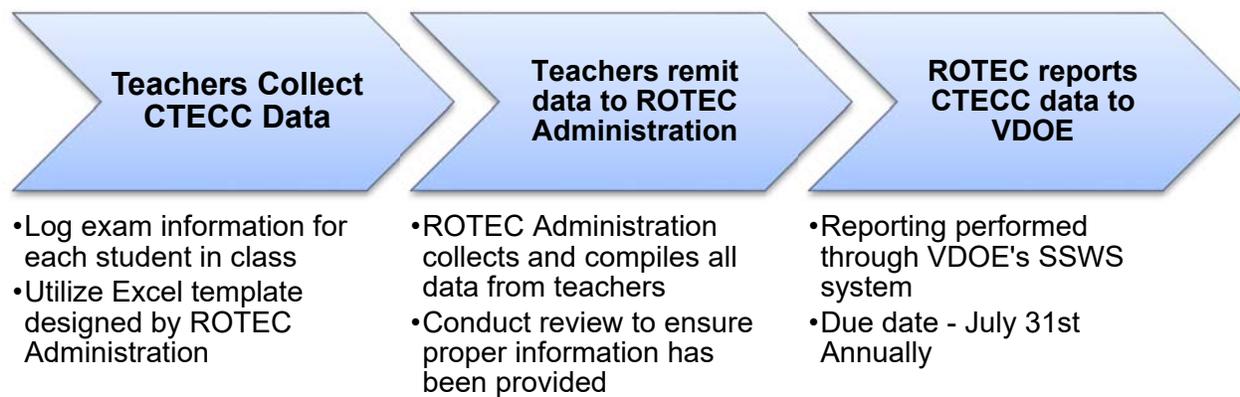
CTE Pathway Code & CTE Diploma Seal

The other two data element errors, CTE Career Pathway Code and CTE Diploma Seal, do not directly affect VDOE performance measures and therefore have limited impacts.

Career & Technical Education Credential Collection (CTECC)

Annually, local school divisions are required to collect and report industry credentialing for students in high school CTE classes to the VDOE. Localities remit data for all external testing while the VDOE compiles testing data related to workplace readiness examinations administered by the VDOE. Submissions are due by July 31st and are required to be in a standardized format outlined by the VDOE's *CTERS User's Manual* for data consistency. Localities are responsible for establishing an appropriate data collection process.

ROTEC collects data from teachers and compiles it centrally in order to meet reporting requirements as follows:

Teachers Collect CTECC Data	Teachers remit data to ROTEC Administration	ROTEC reports CTECC data to VDOE
•Log exam information for each student in class •Utilize Excel template designed by ROTEC Administration	•ROTEC Administration collects and compiles all data from teachers •Conduct review to ensure proper information has been provided	•Reporting performed through VDOE's SSWS system •Due date - July 31st Annually

We reviewed the CTECC collection process based upon ROTEC's reported data for the 2018-19 school year. Credentialing data with the VDOE indicated 2,075 exams were attempted, of which 1,294 exams were passed. We agreed the number of detail records provided by ROTEC, to the VDOE report totals outlined above to verify population completeness, and selected 30 students across a majority of ROTEC teachers to test examination results. We requested supporting examination scores for each reported credentialing exam the student took during the year, resulting in 67 separate examinations being tested.

Our review showed testing scores were properly reported in all material respects. We identified an isolated incidence in which two students who had taken Workplace Readiness Examinations had been incorrectly identified as having taken NRF Customer Service examinations by the teacher. This error resulted in 18 examination records being inaccurately reported to the VDOE.

Based upon a population of 2,075 exams, the reporting errors impacted less than 0.1% of total credential records. Technical attainment performance metrics of attempting and passing credentialing examinations outlined by the VDOE were not impacted because the students took workplace readiness examinations; therefore, the errors were considered to be immaterial.

CTE Follow-up Survey of Program Completers

The VDOE requires localities to follow-up with program completers 9 to 12 months after graduation to assess transition rates to post-secondary education and/or employment. Completers are also supposed to be asked about their satisfaction with the preparation they received in their CTE programs. Surveys generally take 10-15 minutes to complete over the phone, and responses are collected from March 30th – July 1st annually. The VDOE's CTE performance measures stipulate a 75% response rate is required to meet the *Program Completer Survey Response Rate* metric.

In an effort to ensure a sufficient response rate, ROTEC has traditionally administered surveys to completers prior to graduation. Obtaining responses after graduation can be challenging given students often lose connection with the school system. Resources to locate graduates and conduct surveys are limited in relation to the volume of completers. VDOE published guidance on the survey indicates the survey typically takes 10 to 15 minutes per student. Given ROTEC had 347 completers in the 2018-19 school year, conducting surveys would require substantial time and effort to collect an adequate response meeting the VDOE's performance benchmark.

While ROTEC's approach to the follow-up survey is a more practical means of achieving 75% participation, the data collected is less informative than intended. The survey includes 13 questions on employment status, quality of education programs, and participation in continuing education. The quality and benefit of K-12 career and technical education in relation to their post-secondary activities is difficult for students to assess at the time of graduation.

Objective 2: Program Marketing

Objective:

To determine if RCPS students and parents are informed of in-demand programs and careers available in ROTEC.

Yes, with exceptions

Scope:

We surveyed other local CTE administrators during October 2019 to assess ROTEC's marketing and outreach efforts.

We tested a sample of 8th grade students from the 2018-19 (prior) school year to determine if *Academic Career Plans* were completed appropriately.

Results:

ROTEC Marketing and Outreach

To make students and parents aware of program offerings, ROTEC performs a variety of activities. Even so, ROTEC Administrators noted that historic perceptions about CTE programs being for underachieving students and a general push for students to attain 4-year degrees present significant challenges. While ROTEC Administration believes both students and parents are somewhat aware of their programs and offerings, they feel a stronger awareness could increase enrollment and program utilization.

A concern about program awareness exists despite the benefits of Career & Technical Education not only as an alternative to traditional education paths, but as a supplemental tool to compliment traditional education. Recent news articles at a local and national level highlight shortages of skilled trade workers to meet employer demands.

- The Bureau of Labor Statistics estimated demand increased by more than 13% over 2 recent years for skill and trade positions such as plumbers, masons, carpenters, electricians, pipelayers, and roofers – *Roanoke Times article on June 4, 2018*[1]

- More than 80% of Virginia construction firms indicated they are having difficulties filling hourly jobs requiring craft skills based upon a survey conducted by the American

---

[1] *Shortage Of Skilled Trades Workers Hits Roanoke Builders*
Tiffany Holland - https://www.roanoke.com/business/shortage-of-skilled-trades-workers-hits-roanoke-builders/article_63b84f23-5cef-5709-8624-5653d066a239.html

General Contractors of America and Autodesk – *Richmond Times Dispatch article on September 3, 2019*[2]

Given the disconnect between education and the labor market, we compared ROTEC marketing and outreach efforts with those being conducted by other localities throughout the Commonwealth of Virginia. Information on ROTEC's marketing efforts was obtained through interviews of the Director and Assistant Director of Career and Technical Education along with the ROTEC School and Career Counselor.

To collect information on other localities CTE marketing efforts, we designed and conducted a survey for other administrators. The survey, included in **Exhibit 1**, asked CTE administrators about their specific efforts for marketing programs, focusing on both students and parents. We also inquired about their perceptions of effectiveness to ascertain if they were similar to ROTEC.

We considered factors such as student population, minority and disadvantaged student population percentages, median household income, and number of CTE completers in selecting localities to survey. As ROTEC collaborates routinely with localities in CTE Region 6 (localities are clustered by the VDOE into regions), we excluded these from our survey in order to seek outside thoughts and ideas. We reached out to ten (10) different localities to survey, and received responses from the following seven (7):

- Charlottesville & Albemarle Technical Education Center
- Frederick County
- City of Lynchburg
- City of Richmond
- City of Portsmouth
- City of Manassas
- City of Suffolk

We then compared the aggregated survey responses to the information gathered in interviews with ROTEC Administration. Aggregated survey responses are presented as part of **Exhibit 1**.

Responses generally showed ROTEC's marketing and outreach efforts are aligned with other localities, however, some have unique methods. While no survey response mirrored other localities, some common marketing methods included the following:

- Career Fairs
- Program Website
- Social Media
- Open Houses and School Tours

---

[2] *Most Construction Companies in Virginia Are Struggling To Find Workers, Survey Indicates* John Blackwell - https://www.richmond.com/business/most-construction-companies-in-virginia-are-struggling-to-find-workers/article_a3573681-9a55-587e-bcb0-75fd5ca2e66f.html

Unique responses, which could be explored by ROTEC as methods to increase awareness of CTE Programs, included the following:

|	
Participate in National CTE Day	This event mirrors that of an athlete who signs with a college to participate in sports. It recognizes students who will be continuing forward with their education or entering a technical field upon graduation. Two localities consider these ceremonies part of their marketing efforts.
T-Shirts worn by CTE Students	One locality provides t-shirts to their program students to wear on Friday's to promote their programs.
Messenger Apps	One locality utilizes school messenger apps to communicate information to students and parents about programs and events.
Dedicated Screens	One locality utilizes TV Screens with Google Presentations throughout schools in the division to advertise programs to students.
Newsletter	One locality highlights a "good news" story monthly that features the success of a program alumni.
Regional Design and Building Challenge	While all localities, including ROTEC, participate in student organization competitions, one locality participates in a one-day competition, featuring their CTE students along with those in neighboring localities, who showcase their skills by designing, building, presenting and marketing a product developed by CTE students. Local business leaders participate as judges, resource leads, material providers, and event sponsors.

Our survey showed ROTEC also has unique ways they are able to promote their programs that appear to vary from other localities:

5x5x5 Summer Program	Held annually, this program allows 5th grade graduates (rising 6th graders) to explore 5 different careers over 5 days as part of RCPS+. Only 4 of the 7 localities offer summer program options with one locality's programs only including classes that may be taken by students during the summer.
ROTEC Extravaganza	This event serves as a fundraiser for the local CTE Foundation and allows ROTEC to feature the work of their students and inform community leaders of the value of their programs. Only 3 of the 7 responding localities hold fundraising events.

Two localities also discussed *Regional Career Events* being primary activities used to make students aware of Career pathways. These events take collaboration of community partners with the school division to make students aware of career opportunities they can pursue. ROTEC, along with other local school divisions in the Roanoke Valley, participated in the first event for the region, Career Quest, in September 2019. The event drew an estimated 5,000 seventh graders from the area who were able to learn more about a variety of career options with businesses in the area exhibiting to students. This event increases student awareness of the opportunities available through pursuing Career & Technical Education.

Survey responses indicated that marketing efforts are only somewhat effective. Responses also indicate students are more aware of programs than are their parents:

Student & Parent Awareness of CTE Programs

Legend: ■ Very Aware ■ Somewhat Aware ■ Unaware ■ Very Unaware
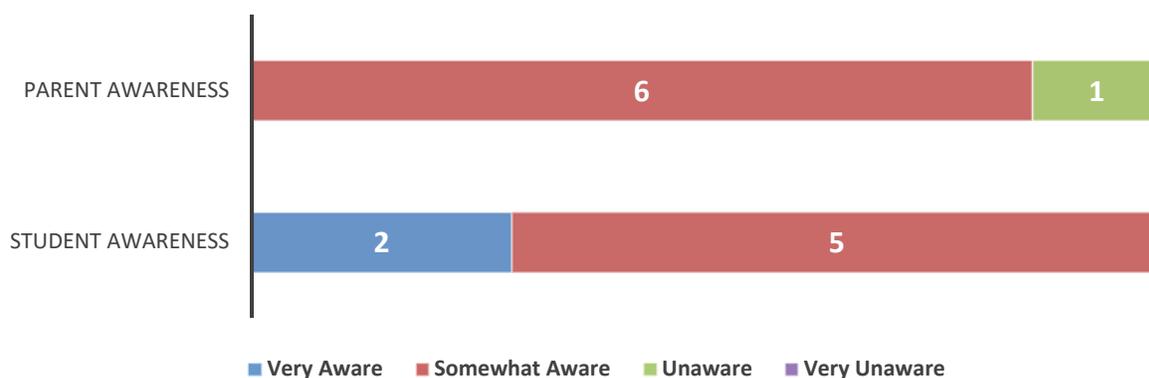
This may be attributed to the fact that while there are many tools and programs designed to attract and inform students, communication to parents about CTE programs typically rely upon more indirect methods. For instance, localities cited open houses (5 of 7 responses) and their website (3 of 7 localities) as primary methods for reaching parents. Both require parents to interact with the school division to fully obtain an understanding of the programs and opportunities provided by CTE.

One locality responded that they will 1) speak at PTSA events, and 2) promote their programs during sporting events. While not common, these could be activities ROTEC could explore to better inform parents of their programs.

We also inquired about the primary ways schools are incorporating CTE at the elementary and middle school levels. Survey responses showed activities consistent to those performed by ROTEC and RCPS. Such activities include the following:

Activity	# of Responses	
Career Exploration Classes	6	VDOE mandates career exploration be included as part of middle school curriculum
Career Fairs	3	Participation in career fairs held by individual elementary and middle schools
School Tours	2	Either available upon request or scheduled school visits
Summer Programs	2	CTE courses taught during summer school

In terms of effectiveness, 6 of the 7 responding localities thought the activities were "somewhat effective." One locality thought their elementary and middle school programs were "very effective" at introducing career paths to students.

Localities were also asked about the biggest challenge of marketing CTE Programs to both students and parents. The following were challenges cited by multiple localities:

Student Challenges	
Response	# of Localities with Response
Accessing Students (reach all students served)	2
School Counselors (not informing students of programs)	2
College Perception (students must go to college)	2

Parent Challenges	
Response	# of Localities with Response
Public Perception (negative connotations)	4

The responses suggest there are a variety of challenges with promoting CTE programs to students. The concern about how CTE has historically been perceived by the public is shared by students and parents. As a result, marketing and outreach efforts that address negative perceptions about CTE could provide schools such as ROTEC methods to increase interest in programs.

Academic Career Plans

In an effort to increase student awareness of career paths and link student education to career options, middle school students throughout Virginia are required to complete an *Academic Career Plan* ("ACP"). *RCPS School Board Policy IJD – RCPS College and Readiness Policy*, incorporates requirements stipulated by the VDOE. The Virginia Board of Education guidelines on ACPs indicate they are "designed to be a working document that maximizes student achievement by having the student accomplish goals in middle and high school that lead to postsecondary and career readiness." (See **Exhibit 2** – ACP Template)

RCPS School Board Policy IJD – RCPS College and Readiness Policy, indicates ACPs should be completed in the following manner:

- All schools continue development of a personal ACP with each 7th grade student with completion by the end of the fall semester of the student's 8th grade year.

- The components of the ACP include the student's program of study for high school graduation and postsecondary career pathway based on the student's academic and career interests.

- The ACP is developed in accordance with guidelines established by the Board of Education and signed by the student, student's parent or guardian, and school official or officials designated by the principal. The ACP is included in the student's record and is reviewed and updated annually.

We obtained copies of ACPs for 17 students, haphazardly selected from a listing of 8th grade students during the 2018-19 school year, to determine if they had appropriately completed their Academic Career Plan in accordance with School Board Policy. Testing indicates ACPs are not being developed as prescribed by the VDOE based upon the following observations:

ACP Element	Observation	# of Exceptions	% w/ Exceptions
Initiation Date	Date shown as N/A	14	100% *
Plan of Study	No planned or recommended courses were shown for 9th – 12th grades	14	82%
Career Assessment	Appeared to not be completed as the field showed "0/48 completed"	10	59%

* For the other 3 students, the initiation date was shown as being during the spring semester of their 8th grade year. The school board policy states the Academic Career Plan would be completed "*by the end of the fall semester of the student's 8th grade year.*"

ACPs on file were not signed by a guardian or counselor; only one (1) was signed by the student. The School Counseling Department indicates students take home a signed ACP, which includes the Counselor's signature. Parents and guardians are asked to sign the ACP but typically do not return them to the school. The VDOE website acknowledges the challenge of having parents sign with the following note included:

- *The school shall have met its obligation for parental involvement if it makes a good faith effort to notify the parent or guardian of the responsibility for the development and approval of the Plan. The academic and career plan must be included in the student record.*

The School Counseling Department acknowledged completing the Academic Career Plans is a challenging process given the various job demands counselors face. For instance, school counselors previously worked as student testing coordinators at many of the schools. Middle school counselors do not have administrative positions to help with clerical work and accordingly must handle these tasks themselves.

Middle School counselors also outlined additional challenges during the past school year that affected their ability to have students appropriately complete Academic Career Plans:

- RCPS transitioned to *Major Clarity* as the software platform for completing Academic Career Plans in FY2018-19. Counselors indicated they encountered issues with the software during the rollout, many of which have been fixed. Additional training on the software platform is planned.

- Students and parents often lacked an understanding of the purpose of Academic Career Plans. Counselors noted many students thought they were signing up for high school courses when putting together the plan. As a result, they would not complete the plan of study module until consulting their parents. Parents typically only returned the plan of study when they had requested changes to be made.

- Each middle school has a large volume of students. Finding the appropriate time to take them out of instructional courses to perform their career assessment and develop their academic career plan is challenging. Not all students enroll in the VDOE required *Career Investigations Course* that includes working on their Academic Career Plan as part of the course content.

The VDOE's Standards of Accreditation, revised beginning in the 2018-19 school year, require local school divisions to provide a Career Investigations course, or alternative means of delivering the career investigations course content, to middle school students. Code of Virginia *8VAC20-131-140* states the following:

- "In middle school, students are to complete a locally selected career interest inventory and select a career pathway. To support development of the ACP, students shall complete a career investigations course selected from the career and technical education state-approved list, or a school division-provided alternative means of delivering the career investigations course content, provided that the alternative is equivalent in content and academic rigor."

School personnel indicated RCPS is taking the alternative approach to providing career investigations course material through content in other courses. This approach appears to meet VDOE compliance requirements. Review of the "task/competency list" published by the *Virginia CTE Resource Center* for the Career Investigations course showed each course task (59 in total) correlated with other Virginia Standards of Learning ("SOL") competencies shown in state-approved curriculum frameworks. The CTE Resource Center indicates further the competencies listed re-inforce the standards being taught in SOL courses.

While RCPS may be able to meet the course equivalent requirements, schools should ensure that instructional goals of the Career Investigations course are covered in the most efficient manner. RCPS incorporates the content primarily through Health & PE courses in the 7th grade along with Civics in the 8th grade. Many of the required Career Investigations course competencies are soft-skilled in nature that fit into the other course programs. Conversely, content in the Career Investigation course reinforces the skills indirectly developed in other classes while allowing for a more expansive and in-depth look at potential careers.

SUMMARY OF MANAGEMENT ACTION PLANS

Management Action Plan – Completer Follow-up Survey	
- The CTE Completer Follow-up surveys are designed to be given to CTE students who have completed at CTE program 9-12 months after graduation through emails or phone conversations. ROTEC conducts the surveys during each Completer's final year before graduation due to the difficult task of making contact with students who are no longer in school. ROTEC will revise the CTE completer surveys to include student emails, parent addresses, and parent telephone numbers in an effort to increase the probability of contacting. - Follow up (9 – 12 months post-graduation) with students to identify changes to the original surveys through email or telephone calls by teachers, prior to reporting to the VDOE.	
Assigned To	**Target Date**
Kathleen Duncan, ROTEC Principal and Director of Career & Technical Education	June 2021

Management Action Plan – Non-traditional Student Data	
- Revise end-of-year teacher reports to include a category that would require teachers to identify and report non-traditional students in their programs. - Work with Roanoke City Public Schools' Data and Analysis Department to develop drop down templates in Synergy to minimize errors in end-of-year teacher reports. - Provide Professional Development to train teachers with accurate reporting.	
Assigned To	**Target Date**
Kathleen Duncan, ROTEC Principal and Director of Career & Technical Education	June 2020

Management Action Plan – Competency Attainment Data
- Require that all teachers produce and archive Student Competency Reports for a minimum of five years. Quarterly checks of teacher SCR's to be conducted by ROTEC administrative staff. Assessment of teacher compliance to be documented in teacher evaluations. - Provide Professional Development to train teachers with accurate reporting.

Assigned To	Target Date
Kathleen Duncan, ROTEC Principal and Director of Career & Technical Education	January 2021

Management Action Plan – Academic Career Plans
All 8th grade students will have a complete academic and career plan that can be located in Major Clarity each fall. The target date for completing this is fall 2021 – the end of first semester.

Assigned To	Target Date
Taisha Steele, Executive Director of School Counseling & Equity	December 2021

MANAGEMENT COMMENTS

None provided

ACKNOWLEDGEMENTS

We would like to thank ROTEC Administration, in particular Kathy Duncan and Eric Lear, for their assistance with planning and performing our audit over their programs. They were friendly and open with us, giving of their time, and responsive to our requests for information.

We would also like to thank the RCPS School Counseling Department, in particular Taisha Steele and the Middle School Counseling Coordinators, for their assistance with testing Academic Career Plans and providing their insight into the process for completing Academic Career Plans.

Finally, we would like to thank each CTE Administrator from other localities that responded to our survey request.

Brian Pendleton, CPA
Senior Auditor
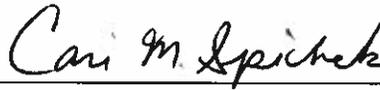
Cari Spichek, CIA
Senior Auditor

Drew Harmon, CPA, CIA
Municipal Auditor

EXHIBIT 1 – CTE Marketing Survey

Survey Goal: To understand the activities local school divisions perform in order to market their Career & Technical Education programs to students and parents along with their perceptions of effectiveness.

Survey Questions:

General Questions:

Name	**Survey responses were obtained from CTE Administrators from 7 Virginia School Divisions.**
Title / Role	
School Division	
How many years have you worked in your current role?	**Aggregated survey responses are presented, shown in BLUE text**
How many years have you been involved in career and technical education?	

Marketing & Outreach Questions:

1. Does your school division utilize any of the following to promote your Career & Technical Education programs (Yes/No)?

Please Indicate Yes or No	Yes	No
Website	7	0
Social Media	7	0
Printed Marketing Brochures	6	1
Career Fairs	7	0
Summer Programs	4	3
Fundraising events	3	4
Open Houses	7	0
Career Exploration Software	4	3
Other	5	2

- If Other, please describe:

Response	# of Responses
CTE Signing Day	**2**
Web/Telephone Applications	**1**
Dedicated Screens & Messenger Apps	**1**
High School Tours	**1**
T-shirts worn by students	**1**
Video	**1**
Local Paper (ads)	**1**
Attend Community Events	**1**
Partnerships / Mentoring with Orgs.	**1**
Part-time Media Specialist	**1**
Newsletter	**1**

Advisory Groups	1
Regional Competition	1

- If your CTE program utilizes social media, what platforms are utilized?

Please Indicate Yes or No	Yes	No
Facebook	6	1
Twitter	7	0
Instagram	0	7
Other	0	7

  o If Other, please describe:

- If your CTE program holds career fairs, summer programs, fundraising events, or open houses, how often are each of these held?

Please Indicate Frequency of Each:	Weekly	Monthly	Quarterly	Bi-Annually	Annually	N/A
Career Fairs	0	0	0	2	5	0
Summer Programs	0	0	0	0	4	3
Fundraising Events	0	0	0	0	2	5
Open Houses	0	0	0	1	4	2

2. What primary activities do you perform to make *students* aware of Career & Technical Education programs?

Response	# of Responses	Response	# of Responses
School Tours / Open House	5	Web/Telephone Application	1
Career Fairs	4	Brochure	1
Guidance Information	3	Video	1
School Visits	2	Student T-Shirt	1
Website	2	News Releases	1
Banners / Flyers	2	Program of Studies	1
Co-Curricular Program	2	Marketing / SWAG items	1
Regional Career Event	2	Student Organizations	1
CTE Signing Day	1	Industry Tours	1
Curriculum Night	1		

o How aware do you believe students in your school division are of the Career & Technical Education programs offered by your school division?

Indicate the Most Applicable Response	
Very Aware	2
Somewhat Aware	5
Unaware	0
Very Unaware	0

3. What primary activities do you perform to make *parents* aware of Career & Technical Education programs?

Response	# of Responses
Open House	5
Website	3
Messaging App	1
Career Fair	1
Brochures	1
Speak at PTSA Events	1
Student Org's Promote during Sporting Events	1

Response	# of Responses
Media Releases	1
Class Sign-up	1
TV Commercials	1
Social Media	1
Programs of Studies	1
Guidance	1

o How aware do you believe parents in your school division are of the Career & Technical Education programs offered by your school division?

Indicate the Most Applicable Response	
Very Aware	0
Somewhat Aware	6
Unaware	1
Very Unaware	0

4. How does your school division incorporate CTE programming and/or career exploration into the elementary and middle school?

Response	# of Responses
Career Exploration Classes	6
Career Fair participation	3
School Tours	2
Summer Programming	2
Print Media	1

Response	# of Responses
Guidance (Career Plans)	1
Virtual Program	1
CTE Organization visit	1
Regional Career Fair	1

- How effective do you believe these programs are at introducing career paths to students?

Indicate the Most Applicable Response	
Very Effective	1
Somewhat Effective	6
Ineffective	0
Very Ineffective	0

5. What do you believe is the biggest challenge of marketing CTE programs to *students*?

Student Challenges	
Response	# of Localities with Response
Accessing Students (reach all students served)	2
School Counselors (not informing students of programs)	2
College Perception (students must go to college)	2
Not enough time carved out (time to attend CTE activities)	1
Non CTE teachers not promoting programs	1
No division-wide communication department	1
Communicating the education jargon	1
Unaware of what CTE is	1

6. What do you believe is the biggest challenge of marketing CTE programs to *parents*?

Parent Challenges	
Response	# of Localities with Response
Public Perception (negative connotations)	4
Information volume (get too much, info overload)	1
Attendance at CTE events (time for parents to attend)	1
Focus on Academics & Other electives (non CTE options)	1

Name	**School**	**Student ID**
Redacted	*Redacted*	*Redacted*

Initiation date	**Dates reviewed**	Note - Academic Career Plan does not represent an actual student. RCPS provided a sample plan for illustration purposes only.
Nov 05, 2018	N/A	

Career assessment	**Career goal**
8/48 completed	N/A

Personality traits	**Learning styles**
Social, Realistic, Investigative	N/A

Selected pathway	**Selected career cluster**
Engineering & Technology	Science, Engineering, Technology, & Math

Secondary Education Goal

Postsecondary Goal

Diploma type	**Diploma recognition**	**College or university**	**Military**
Advanced Studies	Early College Scholars	4 year school	None

ACT score	**PSAT score**	**Workplace Readiness Skills Assessment**	**Clubs and activities**
N/A	N/A	Not taken	Your student has not added any clubs or activities.
SAT score	**ASVAB**	**Career Readiness Certificate**	
N/A	Not taken	Not taken	

Redacted

Student signature	Guardian signature	Counselor signature
		Redacted

Plan of Study

Pathway
Engineering & Technology

Cluster
Science, Engineering, Technology,

Year	7	8	9	10	11	12
English	**Non-pathway** ENGLISH 7 HONORS	**Planned** ENGLISH 8	**Planned** ENGLISH 9	**Planned** ENGLISH 10	No recommended courses.	No recommended courses.
Social Studies	**Planned** SS US HISTORY	**Non-pathway** CIVICS/ECON HON	**Planned** PRE AP WORLD HISTORY I WORLD HISTORY I	**Planned** WORLD HISTORY II	No recommended courses.	No recommended courses.
Math	**Planned** ALGEBRA I MATH 7	**Planned** ALGEBRA I MATH 8	**Planned** ALGEBRA I	**Planned** GEOMETRY	**Planned** ALGEBRA II	**Planned** FUNC; STAT & TRIG
Science	**Non-pathway** LIFE SCIENCE 7H	**Planned** PHYSICAL SCIENCE 8	**Planned** EARTH SCIENCE I	**Planned** BIOLOGY I	**Planned** CHEMISTRY I	No recommended courses.
Elective	No recommended courses.	**Planned** HEALTH AND PE 8	**Planned** ECON AND PER FINANCE... ECONOMICS & PERSONAL...	No recommended courses.	No recommended courses.	No recommended courses.
CTE Electives	No recommended courses.	No recommended courses.	No recommended courses.	No recommended courses.	No recommended courses.	No recommended courses.

Visit MajorClarity.com to view more!

Careers your student is interested in

Your student can identify careers they enjoy by favoriting them on MajorClarity.

No formal educational credential

Athletes and Sports Competitors

High school diploma or equivalent

Correctional Officers and Jailers
First-Line Supervisors of Police and Detectives
Fitness Trainers and Aerobics Instructors

Associate's degree

Nuclear Medicine Technologists
Veterinary Technologists and Technicians

Bachelor's degree

Forensic Science Technicians
Fuel Cell Engineers

Postsecondary nondegree award

Ophthalmic Medical Technicians

Doctoral or professional degree

Anthropology and Archeology Teachers, Postsecondary

Visit MajorClarity.com to view more!

Colleges your student is interested in

Your student can identify postsecondary institutions they are interested in attending by expressing interest on MajorClarity.

Emory & Henry College
Emory, VA

Radford University
Radford, VA

Visit MajorClarity.com to view more!