Public Education in Rural Eastern Kentucky

A Region's Way Forward

Achieving Learner Equity and
School Centered Community Reinvention
in an Economically Distressed Rural Region

Report Advanced by:
The Kentucky Valley Educational Cooperative
Representing Member Districts:

Ashland Independent, Breathitt County, Floyd County, Harlan County,
Hazard Independent, Jackson Independent, Jenkins Independent, Johnson County,
Knott County, Lawrence County, Lee County, Letcher County, Leslie County,
Magoffin County, Martin County, Middlesboro Independent, Owsley County, Paintsville Independent,
Perry County, Pike County, Pikeville Independent, Wolfe County

February 12, 2019

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Our place-based Social Learning Network is: www.theholler.org

A digital version of ***A Region's Way Forward*** is available for download at: www.kvecforward.org

PREFACE

Rural communities and rural school districts possess unique assets.

Rural communities and rural school districts also face a range of challenges that might best be classified in two broad categories: isolation and limited scale.

This report is presented from a regional perspective in the belief that every community possesses unique assets and that strong alignment and collaboration across all boundaries (geographic, education, agency, government, civic and workforce) are necessary to make the regional whole greater than the sum of its parts.

A broad spectrum of data relevant to education, economic opportunity and community vitality in our rural region served by 22 public school districts supported by the Kentucky Valley Educational Cooperative (KVEC) provides a "snapshot" of our current reality.

KVEC leadership staff and key member district Superintendents representing (Breathitt, Floyd, Jackson Ind., Jenkins Ind., Johnson, Harlan, Hazard Ind., Lawrence, Lee, Owsley, Magoffin, Paintsville Ind., Wolfe) served as the working group in the development of this report.

This report is presented in 7 sections (outlined below) that when combined, incorporate a broad range of components and measures demonstrating the complexity and ever-evolving nature of our ecosystem of rural public schools and communities.

Imperative to Act (pg. 4) **-** points out the urgency to invest in efforts to retain our region's talented young people, increase our ability to provide equitable quality learning opportunities for all students, significantly impact economic development and contribute to community vitality.

Regional Demographics and Trend Data (pg. 6) - provides macro trend data to illustrate current conditions in the region covering a broad range of indicators impacting education, work, quality of life and community vitality. Information is presented without implication, leaving the process of inference to the reader.

Learning Resources (pg. 29) - explores the range and complexity of learning resources available in school districts and provides an overview of where finite, often formulaic resources originate, and opportunity gaps exist. This section examines equal and equitable access to opportunities for <u>all</u> students regardless of their zip code.

Teaching and Leading (pg. 37) - reinforces research demonstrating that one of the most critical components of an education system is the quality of people leading the learning process and the people who

support their continuing growth and improvement. This section examines educator preparation and certification, educator professional learning and retention of effective teachers and leaders.

Measuring and Improving (pg. 46) - examines the assessment and accountability system Kentucky public school districts must operate within. This section provides a historical context for assessment and accountability in the state and poses questions relevant to each system's (assessment and accountability) ability to achieve equity across all districts and for all learners.

A Way Forward (pg. 56) - is a call to action strongly advocating for lawmakers to take action during this legislative session by supporting recommendations in this report to make public education the catalyst for economic and community development. Considerations on how schools and districts can accelerate student learning and be a vital part of a solution to enhance quality of life and contribute to overall economic and community vitality are offered for deliberation and as a launchpad for expanded work.

Exceptional Practice (pg. 65) - examines innovative education initiatives currently underway in our region. School district leaders are breaking new ground in public education with innovative initiatives, strategic partnerships and community challenges having positive impacts on academic performance and collaborations throughout our region, contributing to economic vitality and improving the quality of life in communities.

Imperative to Act

Many negative perceptions about education in Appalachian Kentucky are rooted in a lack of knowledge about the region and its schools and often originate from sources more interested in admiring a challenge rather than achieving a solution.

We invite you to analyze the data and information presented in this paper as you consider the future for this region and your role in affecting that future.

Based on our analysis and daily observations, we believe our region has reached a tipping point that has been decades in the making. Concerted action must be taken to reverse negative trends and build a healthy sustainable future.

We recognize the urgency of the moment and feel a compelling need to act. We believe untapped physical, fiscal and human resources exist and can be elements of a strategic effort to rapidly and dramatically shift the region's trajectory.

Education leaders in this region are united by a fierce belief in communities and their ability to play a significant role in advancing academic achievement, economic development and community vitality. In the face of very real challenges, these regional and district leaders choose to leverage ways public education can positively impact the region's future through a lens of abundance versus scarcity – and equity versus equality.

We understand this effort is not for the faint of heart but are secure in the belief it is imperative for the region's future that we invest in efforts to retain our talented young people, increase our ability to provide equitable quality learning opportunities for all learners, contribute to economic development and community vitality.

We believe in the good minds and leadership capabilities of people committed to revitalizing East Kentucky. They will reveal what is possible for this region and make it a reality.

The call to action in the **Way Forward** section of this report is a beginning to develop a more intentional, transparent strategy for rural development by strengthening education to enhance economic vitality, local agency, quality of life and community sustainability.

Below are a few key components from the array of considerations found in the **Way Forward** section, which calls on leaders at all levels to generate a practical, results-driven strategy for the region's future. Details expanding on roles, responsibilities, structures and opportunities for these and other components are contained in the Way Forward section.

- Establish the first **"Rural Edu-conomy Zone"** in the nation.
    - School districts and community partners (both public and private) work together to establish a future vision and strategic plan focused on increasing economic and community vitality.
    - *The edu-conomy is the intersection between education and economic development and premised on the belief that a thriving community is advantaged by a high-performing school system and a high performing school is advantaged by a thriving community.*

- Create a **Rural Futuring Work Group** charged with leading efforts associated with the Rural Edu-conomy Zone. The Futuring Group will explore and present an array of opportunities and initiatives to foster a collaborative environment between school and community with the express purpose of intentionally connecting public school and local community in a joint mission to increase economic vitality and elevate quality of life.

- Create an **Education Equity Team** to develop an EDUCATION EQUITY ASSESSMENT and explore changes in policy and legislation to ensure academic equity for all students.

- Publicly communicate a **Declaration of Commitment** involving all levels of state and local government to achieve a National Top 10 ranking for Kentucky's K-12 public education system within 10 years.

Education can serve as a powerful lever for revitalizing and reinventing local economies in eastern Kentucky.

Education, continued systemic change and a commitment to accelerating economic vitality are keys to overcoming historical barriers, ending generational poverty and improving the region's current trajectory. Schools and school districts in this region are catalysts for positive change and are breaking historical patterns of ineffective behaviors while capitalizing on the strength and energy of extraordinarily resilient students, public school staff, families and community members.

Regional Demographics and Trend Data

On January 8, 1964 (fifty-five years ago) President Lyndon B. Johnson stood before the United States Congress and in his State of the Union Address declared an "unconditional war on poverty in America." Legislation proposed by President Johnson included new programs: Head Start, food stamps, Medicaid, Medicare, more spending on education and tax cuts to help create jobs. The legislation was in response to a national poverty rate of nearly 20 percent.

Three months later, on April 24, 1964 President Johnson visited Martin County in Kentucky's 5th Congressional District to generate support for the legislative effort. While visiting the home of Tommy Fletcher in Inez, President Johnson declared, "I have called for a national war on poverty. Our objective: total victory."

Two out of 10 Americans lived at or **below the poverty threshold in 1964** when the war on poverty was declared.

Now, 55 years later, **three out of every 10** Kentuckians in the KVEC service area live at or **below the poverty threshold**.

The map below identifies 2017 poverty rates for all congressional districts. The 5th District (containing all but one KVEC member district) ranks **3rd highest nationally** among all congressional districts for percentage of population at or **below the poverty threshold** according to the Food Research and Action Center (FRAC) analysis of 2017 American Community Survey data.

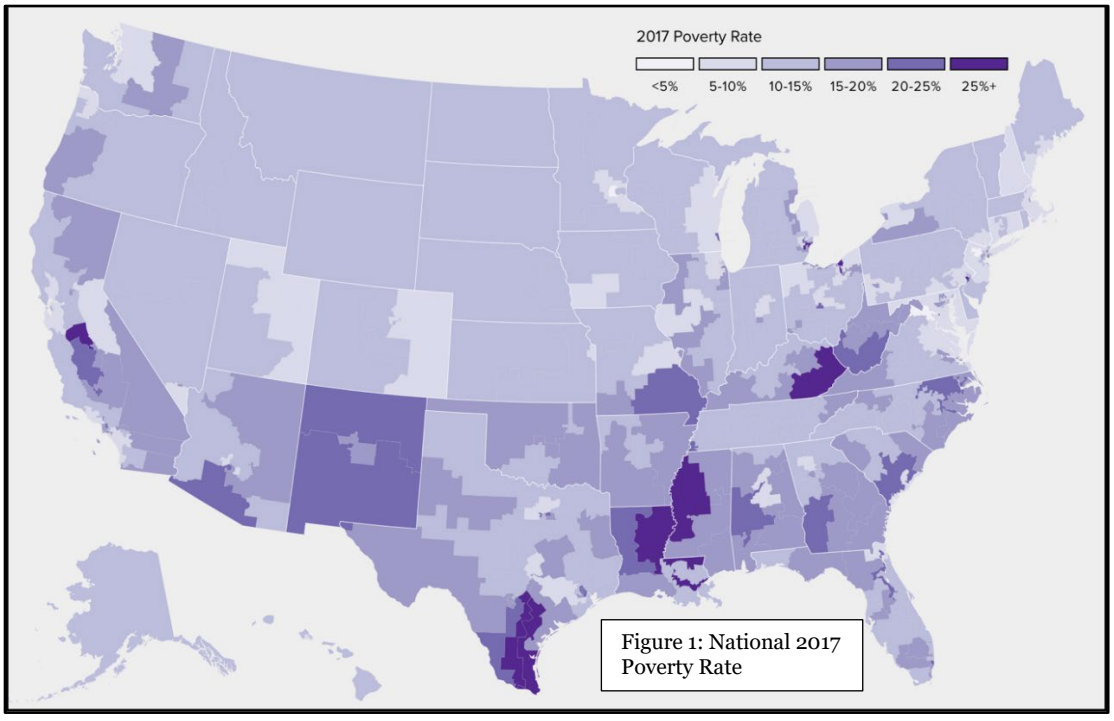


Figure 1: National 2017 Poverty Rate

The map (Kentucky Poverty by County) on page 10 identifies the interstate highway system in Kentucky, the locations of each public University and shows 2017 Poverty levels by county. The poverty level in the KVEC region is 31.3% compared to the state at 18.3%.

Poverty rates for youth 17 and younger have **increased** substantially in the region since 1999 (+25.9%) even though the national rate **declined** by 18 percent in the same time frame according to US Census reports for 1999 and 2017.

One half of the region's youth live in poverty.

According to the 2017 Small Area Income and Poverty Estimates (SAIPE) data on child poverty rates, 12 **counties** in the KVEC region are in the top five percent of all counties in the nation for the **highest levels of child poverty rates**.

KVEC Service Region Counties	**1999** % of Children under 18 in poverty	**2017** % of Children under 18 in poverty	**Percentage Change** Children under 18 in poverty
Bell	42.0 %	57.5 %	**+36.9 %**
Breathitt	42.9 %	54.3 %	**+26.5 %**
Floyd	39.8 %	46.9 %	**+17.8 %**
Harlan	40.1 %	52.6 %	**+31.1 %**
Johnson	35.5 %	39.5 %	**+11.2 %**
Knott	39.8 %	56.4 %	**+41.7 %**
Lawrence	40.0 %	41.5 %	**+3.75 %**
Lee	41.0 %	63.8 %	**+55.6 %**
Leslie	38.8 %	48.2 %	**+24.2 %**
Letcher	35.9 %	52.1%	**+45.1 %**
Martin	45.1 %	54.4 %	**+20.6 %**
Magoffin	45.9 %	52.0 %	**+13.2 %**
Owsley	56.3 %	68.7 %	**+22.0 %**
Perry	36.0 %	46.7 %	**+29.7 %**
Pike	30.2 %	46.5 %	**+53.9 %**
Wolfe	50.2 %	53.6 %	**+6.8 %**
KVEC average	**41.2%**	**49.4%**	**+25.9%**
United States	22.0%	18.0%	-18.0%

U.S. Census data 1999 and 2017

Eastern Kentucky counties have experienced a near steady **population decline since 1941** and significant surges in population loss during the 1950s, 1960s and 1990s (U.S. Census reports 1950-2010). Multiple factors contribute to the population decline and include:

- The ups and downs of a cyclical economy based in great part on resource extraction (timber, coal, oil, natural gas),
- challenging terrain,
- absence of an Interstate highway,
- absence of a public university,
- historically low education attainment rates,
- historically high unemployment rates punctuated by spikes in unemployment brought on by dependence on a mono-industrial economic model, and
- health and wellness challenges.

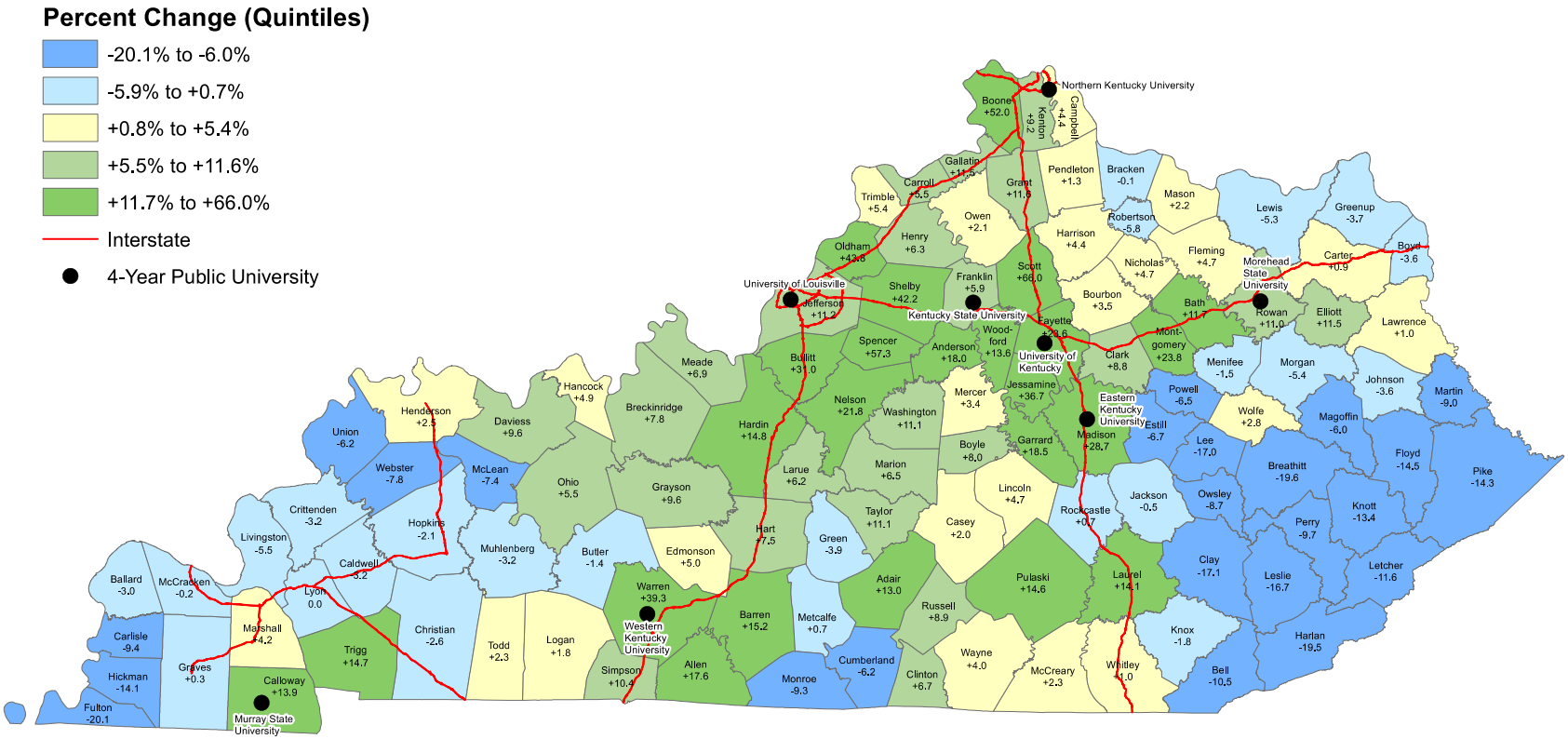
The map (*Change in Kentucky County population 2000 – 2017*) on page nine identifies the interstate highway system in Kentucky, the locations of each public university and illustrates the change in population by county in Kentucky between 2000 and 2017. The state population **increased by 10.2%** during this time, while county populations in the KVEC service area **decreased by 11.4%.** Current population loss trends are expected to result in a **reduction in representation for the region in the State Legislature** following the 2020 census report.

East Kentucky Concentrated Employment Program (EKCEP), the regional Workforce Investment Board, serves all 17 KVEC counties in its 23 county region. EKCEP recorded **34,539 fewer people working** from June 2012 to September 2018 and **lost 47,421 people from the labor force** in the 23 county area. The state of Kentucky as a whole saw an **increase of 84,935** people working and **added 80,117** to its labor force during this same time frame according to the (Kentucky Center for Statistics, 2012-2018).

Poverty rates, Unemployment rates, Labor participation rates and Disability rates by Kentucky county are identified in the maps on pages 10, 11, 12 and 13 in the chart below. (Sources are identified on each respective map.)

	KVEC Region	Kentucky	Difference +/-
Population Change 2000-2017	Loss = 11.2%	Gain = 10.4%	
Poverty Rate	31.3%	18.3%	13%
Unemployment Rate	5.6%	3.5 %	2.1%
Labor Participation	40.3%	59.4%	19.1%
Disability Rate	40.4%	17.3%	23.1%

Percent Change in Population by County
2000-2017



KVEC Counties: **- 11.4%**

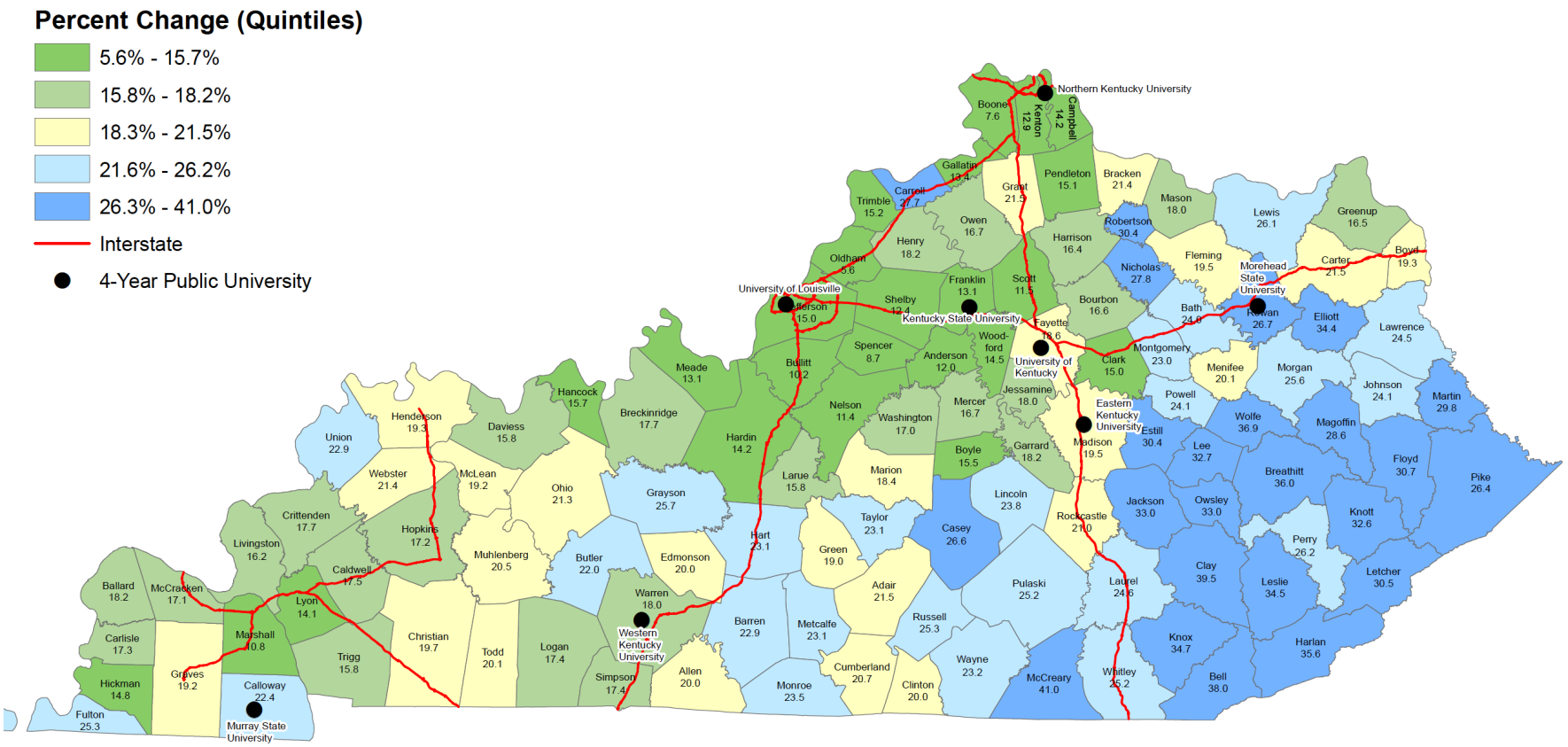
Kentucky: +10.2%

Source: United States Census Bureau, Population Division,
Decennial Census 2000/Annual Estimates of the Resident Population, July 1, 2017

Prepared by: Kentucky Center for Statistics, 1/7/19

Kentucky Center for Statistics
kystats.ky.gov

Poverty Rates by County
2017



Kentucky: 18.3%

Source: United States Census Bureau, American Community Survey (ACS), 2013-2017 5-Year Estimates, Table S1701

Prepared by: Kentucky Center for Statistics, 1/10/19

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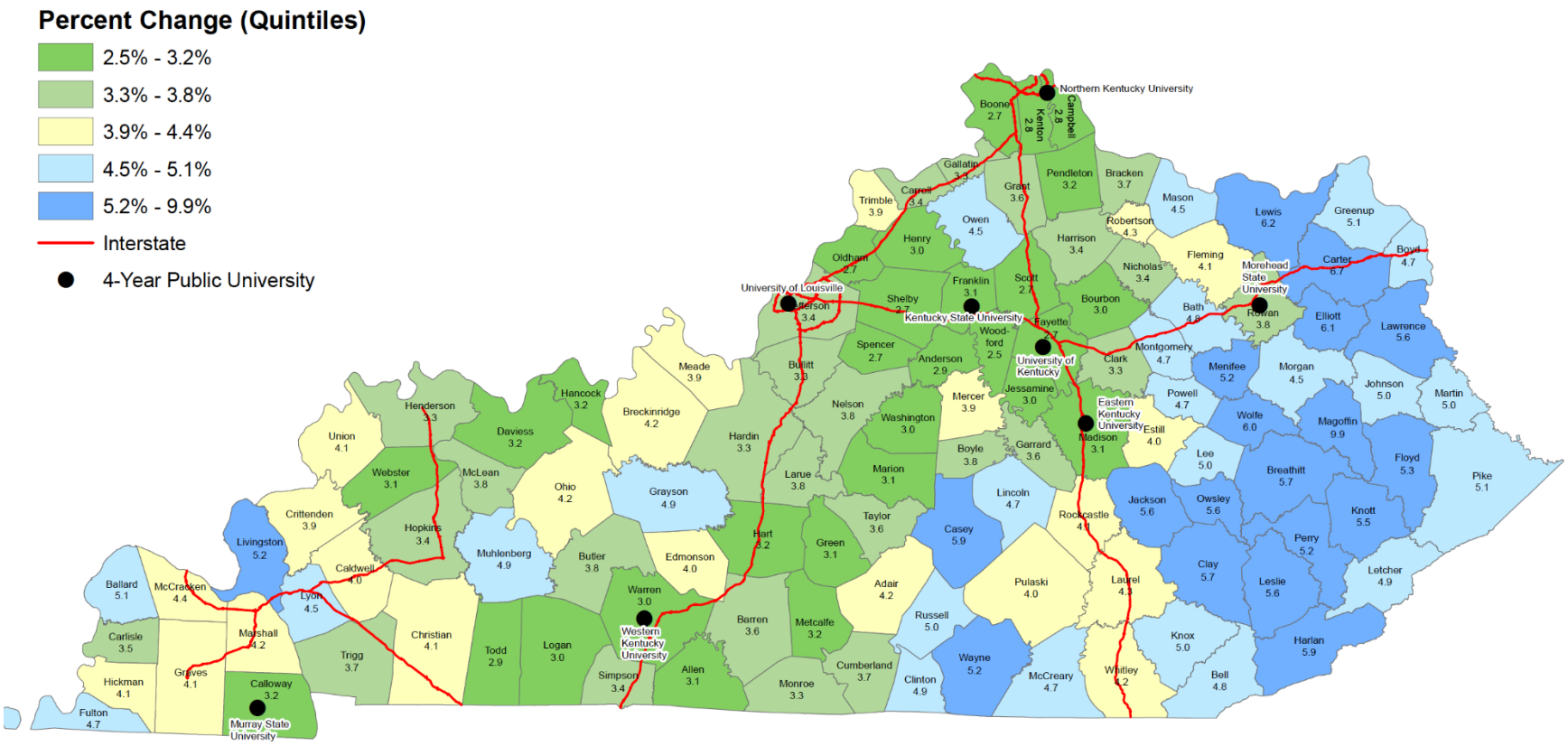
kystats.ky.gov

November 2018 Preliminary Unemployment Rates by County*



Kentucky: 3.5%

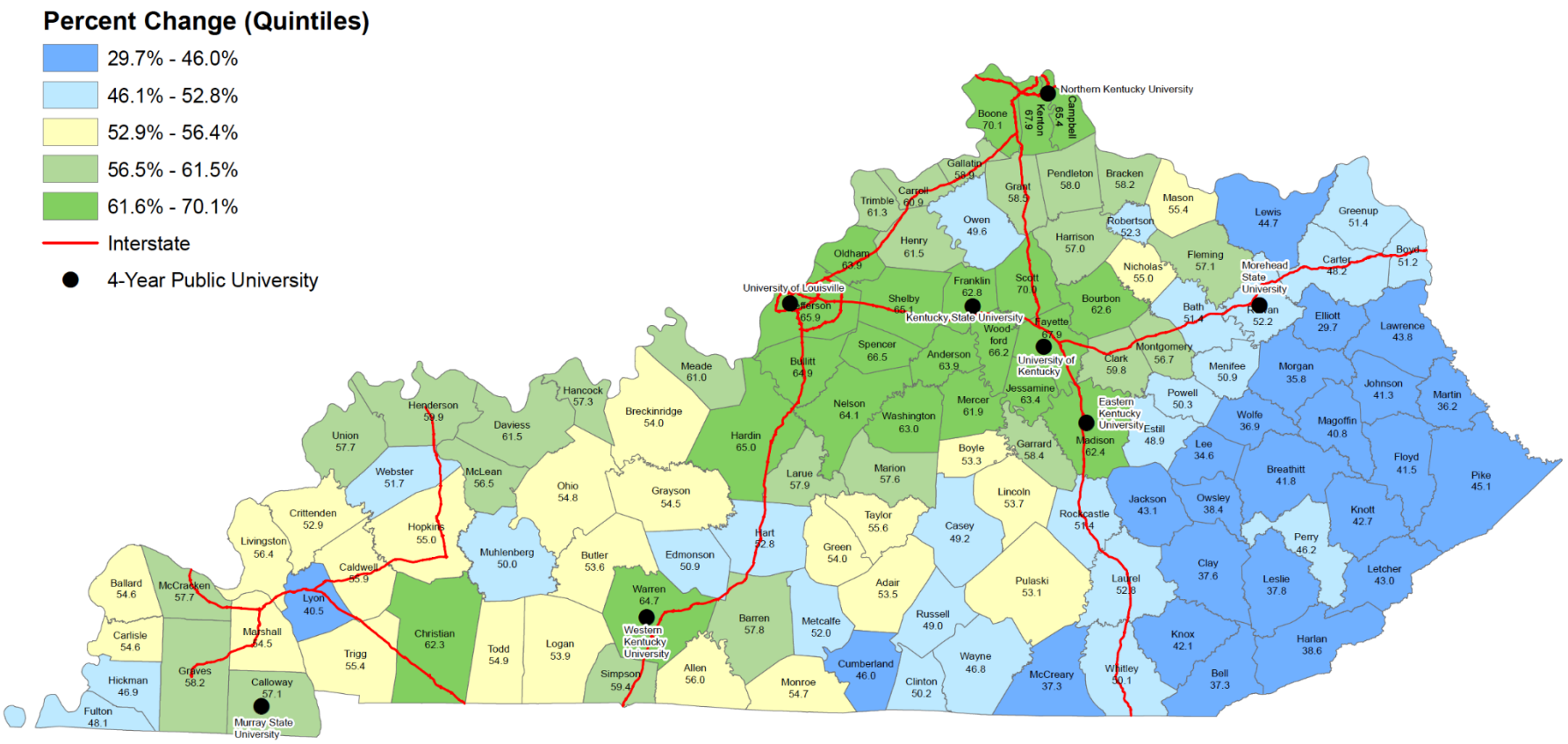
Source: Workforce Intelligence Branch, Kentucky Center for Statistics, Kentucky Education and Workforce Development Cabinet

*Unemployment rates are not seasonally adjusted.

Prepared by: Kentucky Center for Statistics, 1/10/19

Kentucky Center for Statistics
kystats.ky.gov

Labor Force Participation Rates by County
2017



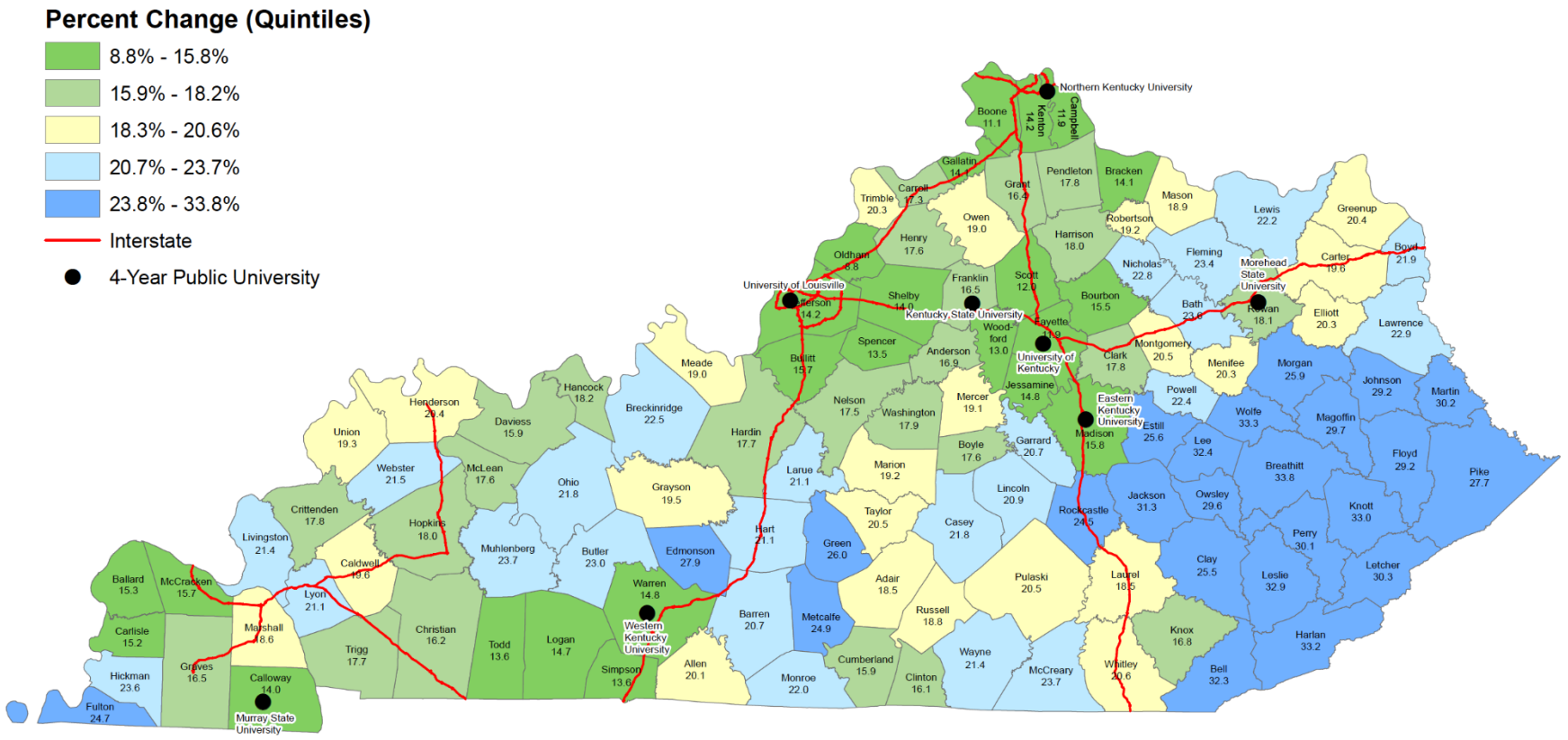
Kentucky: 59.4%

Source: United States Census Bureau, American Community Survey (ACS), 2013-2017 5-Year Estimates, Table S2301

Prepared by: Kentucky Center for Statistics, 1/10/19

Kentucky Center for Statistics
kystats.ky.gov

Percent of Population with a Disability
2017



Kentucky: 17.3%

Source: United States Census Bureau, American Community Survey (ACS), 2013-2017 5-Year Estimates, Table S1810

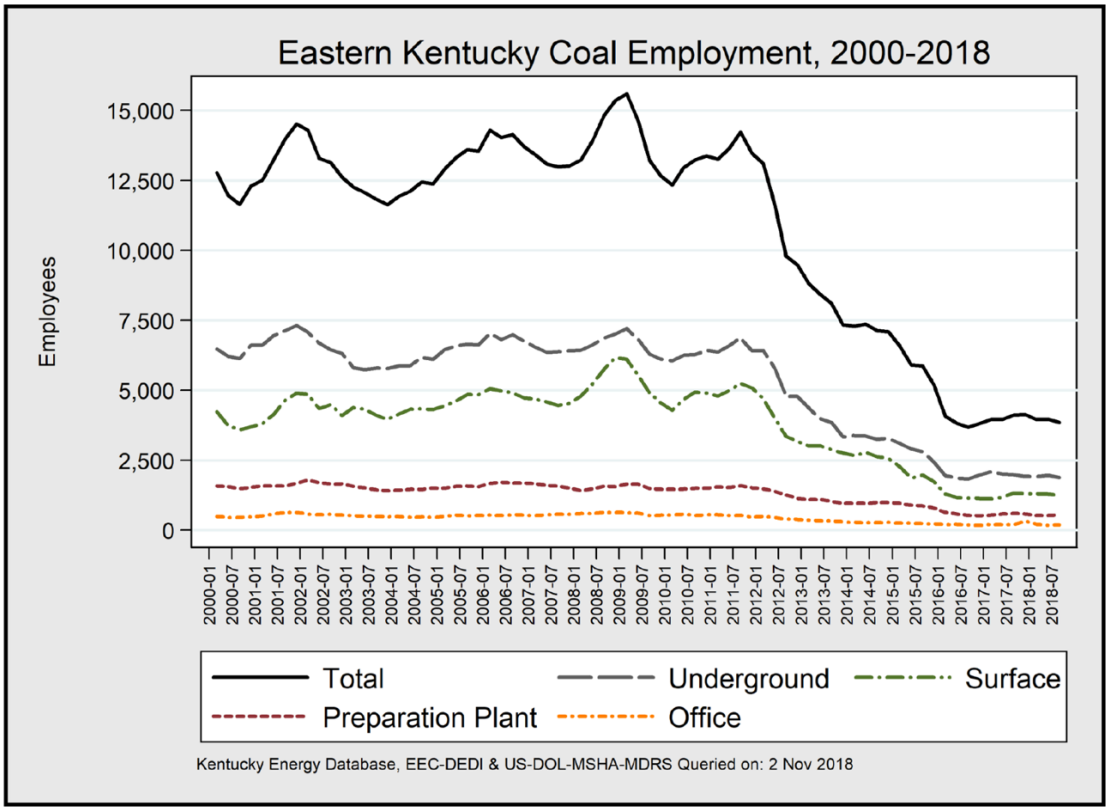
Prepared by: Kentucky Center for Statistics, 1/10/19

Kentucky Center for Statistics
kystats.ky.gov

According to the Kentucky Energy and Environment Cabinet's quarter coal report July to September 2018 (http://energy.ky.gov) there were **14,301 coal jobs** in Eastern Kentucky in the **third quarter of 2011**. That number dropped to **3,851 coal jobs** in the **third quarter of 2018** - a net **loss of 10,450 jobs** in the eastern Kentucky coal fields during that eight year period.

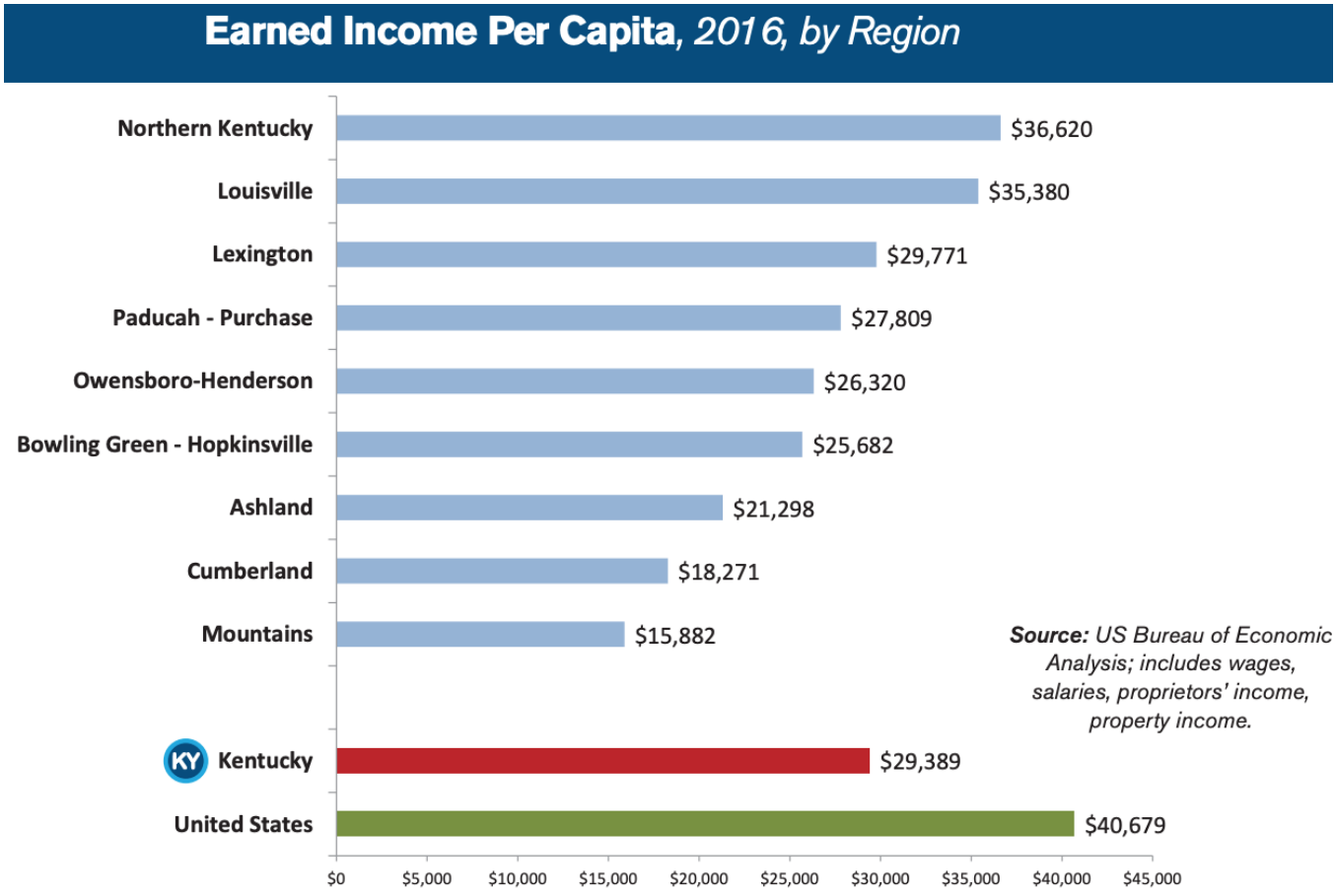
Toyota Manufacturing employs more than 8,000 workers in a single plant in Scott County Kentucky – more than twice the number of employees working in coal employment in the eastern coal fields of Kentucky.

East Kentucky Coal Employment by County as of 11/07/2018		
County	**# employed**	**Yr. over Yr. Change**
Pike	945	**-80**
Harlan	771	**-93**
Perry	679	**-12**
Leslie	304	**+106**
Bell	288	**-88**
Floyd	242	**+6**
Whitley	130	**-13**
Knott	98	**+26**
Letcher	98	**+50**
Martin	61	**-138**
Knox	58	**-10**
Magoffin	42	**+31**
Johnson	39	**-47**
Lawrence	32	**+8**
Boyd	23	**-4**
Clay	15	**+1**
Breathitt	13	**+1**
Morgan	7	**-1**
McCreary	4	**0**
Laurel	2	**-2**
TOTAL	3,851	**-265**
From Kentucky Energy and Environment Cabinet Coal Report 11/7/2018		



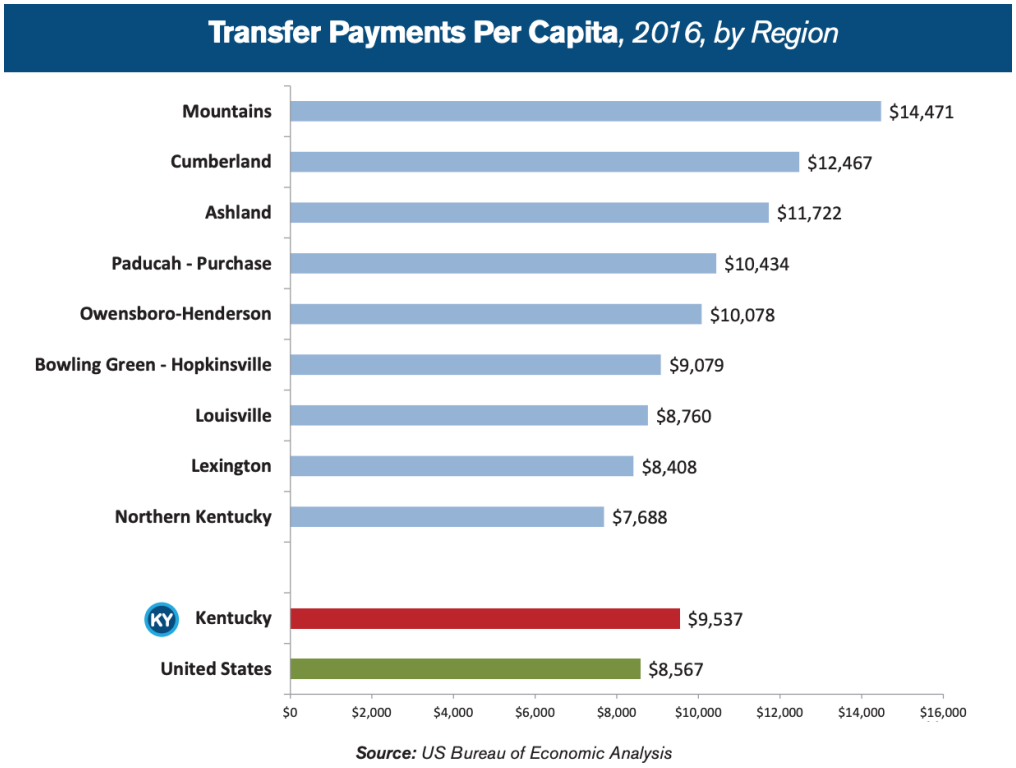
In September 2018, the Kentucky Chamber presented *A Citizen's Guide to Kentucky's Economy Since the Recession (https://www.kychamber.com)* which examines economic conditions in Kentucky since 2009. The report breaks the state into nine regions. The **Mountain Region includes all but two KVEC** service area counties and those two are in the Ashland Region.

The report contains information on personal income of Kentucky residents broken down by region. The chart below, from *A Citizen's Guide to Kentucky's Economy Since the Recession* shows **earned income per capita** (wages, salaries, proprietor income, property income) for each region.

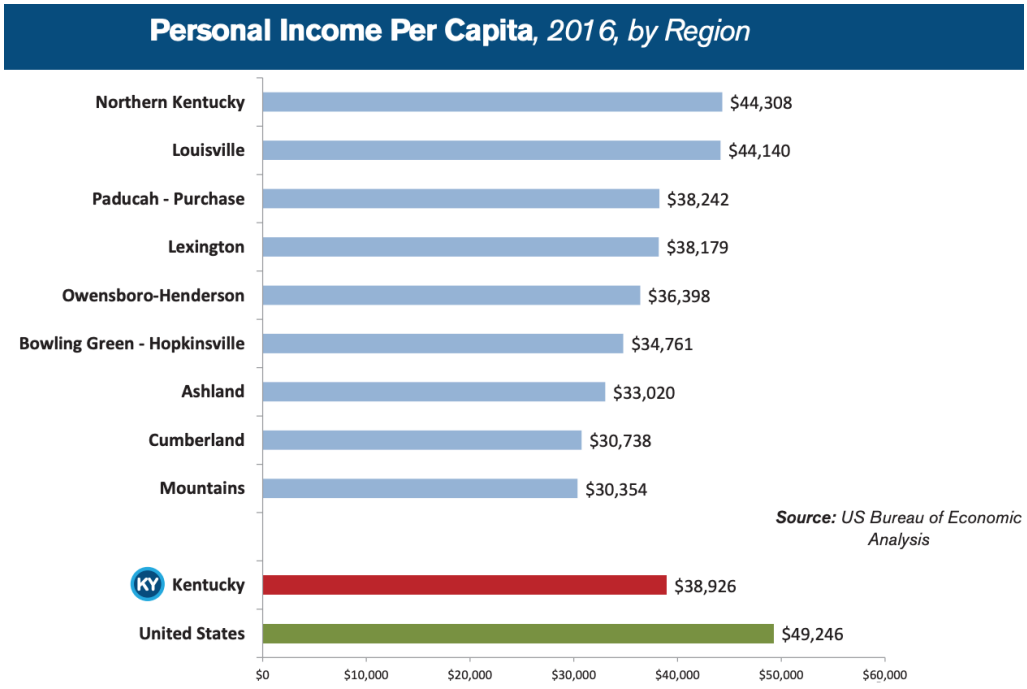


The report also provides information on transfer payments. **"Transfer payments are those made by government agencies to individuals** or, in some cases, to providers of the services they receive. Social Security benefits, for example, are transfer payments made directly to individuals while Medicare and Medicaid benefits are transfer payments paid to entities that provide services to individuals." (pg. 6, *A Citizen's Guide to Kentucky's Economy)*

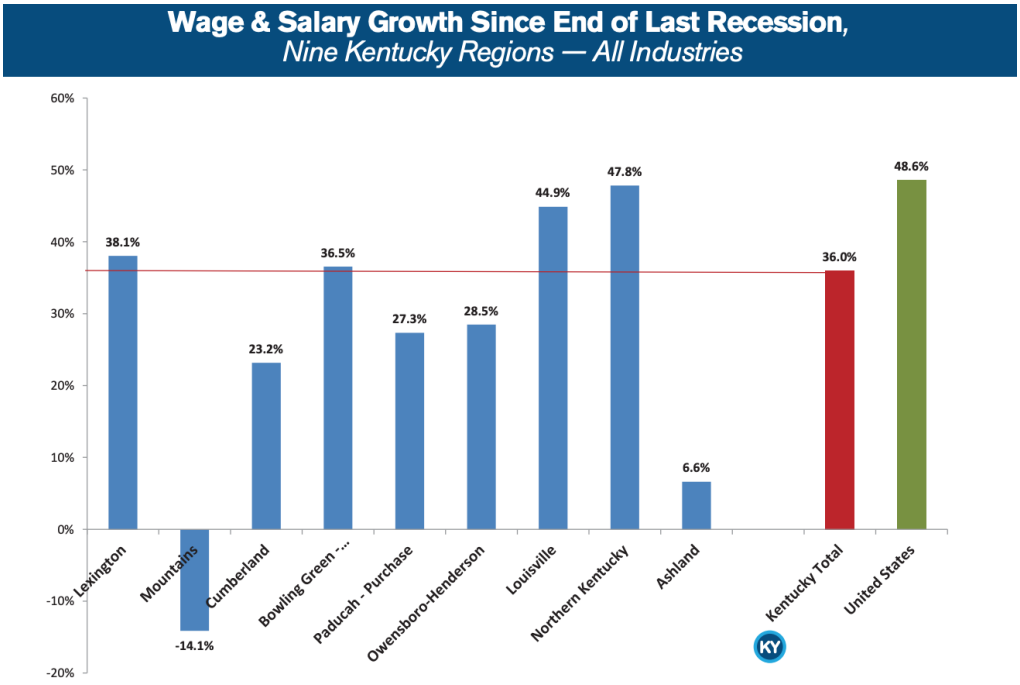
The chart below, from *A Citizen's Guide to Kentucky's Economy Since the Recession* shows the **per capita income from transfer payments** for each region.



The chart below, from *A Citizen's Guide to Kentucky's Economy Since the Recession* shows the **Personal Income per capita** that combines transfer payments and earned income for each region.

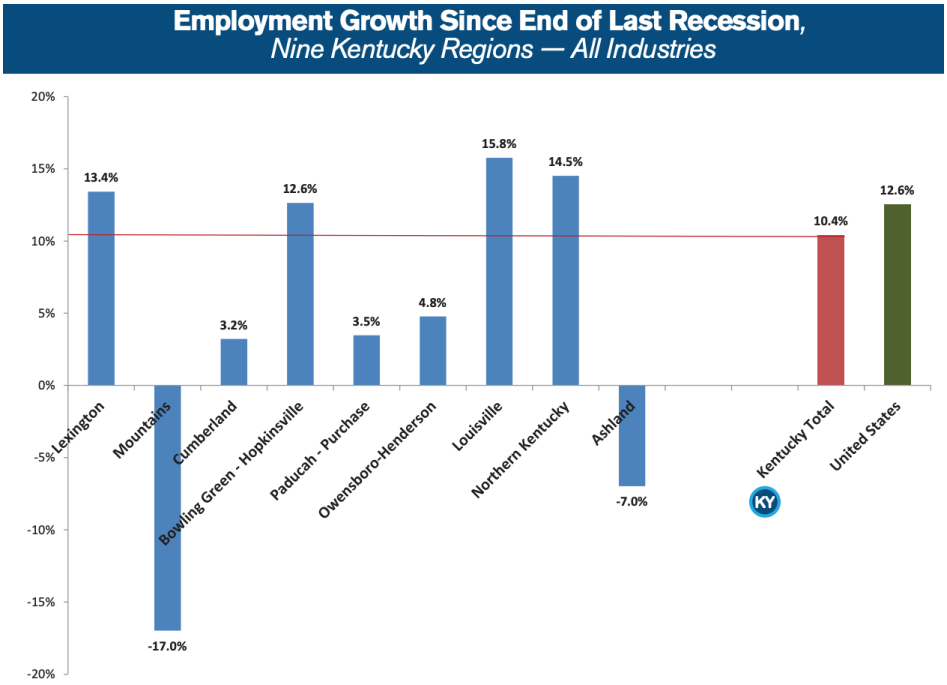


The chart below, from *A Citizen's Guide to Kentucky's Economy Since the Recession* shows the **wage and salary growth since the end of the last recession** for each region.



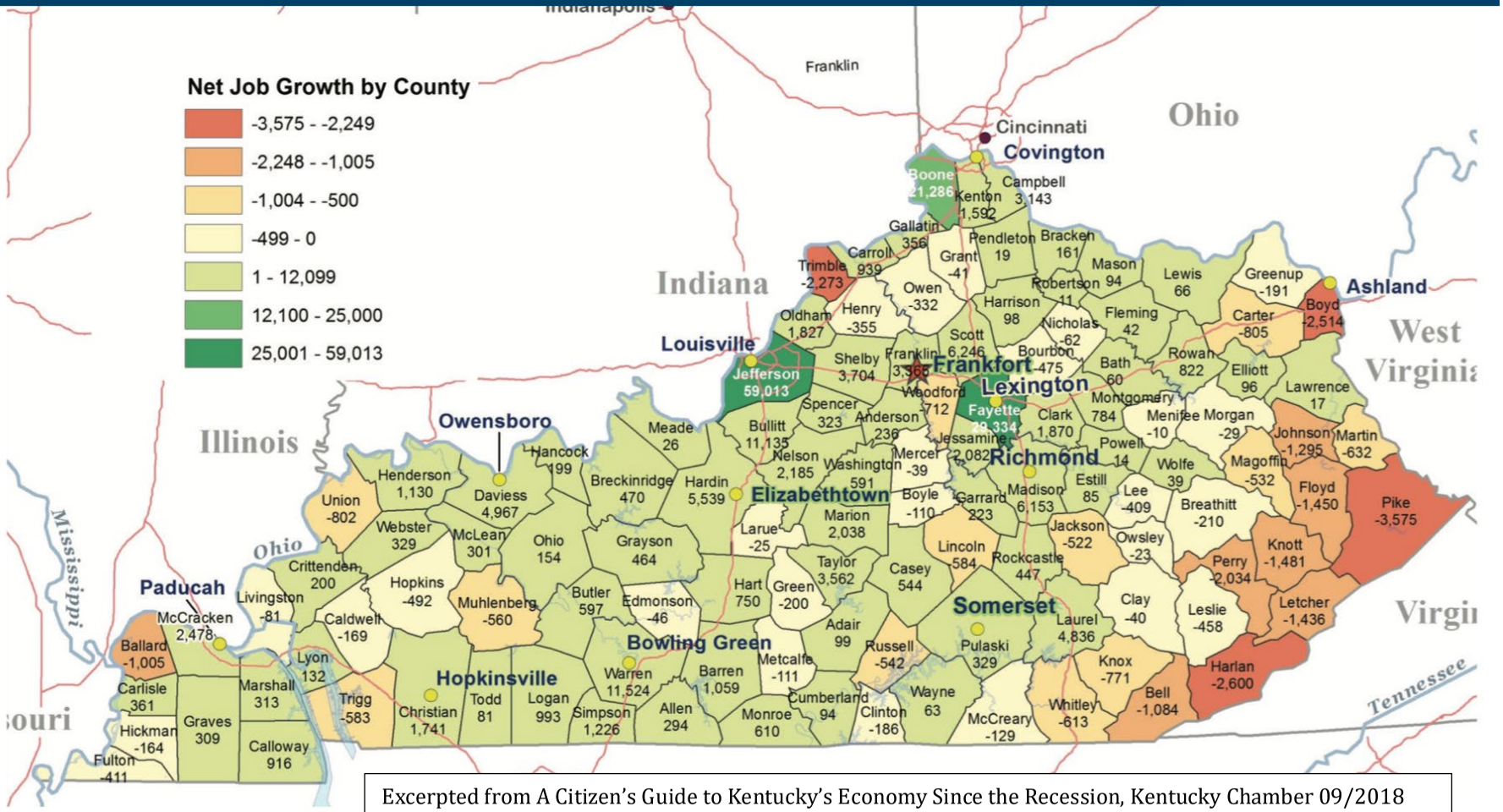
Source: *US Bureau of Labor Statistics, Quarterly Census of Employment and Wages, compiled from county details. Payroll refers to wages and salaries for nonagricultural wage and salary jobs only. Growth is from 2009 II to 2017 IV.*

The chart below, from *A Citizen's Guide to Kentucky's Economy Since the Recession* shows the **employment growth since the end of the last recession** for each region.



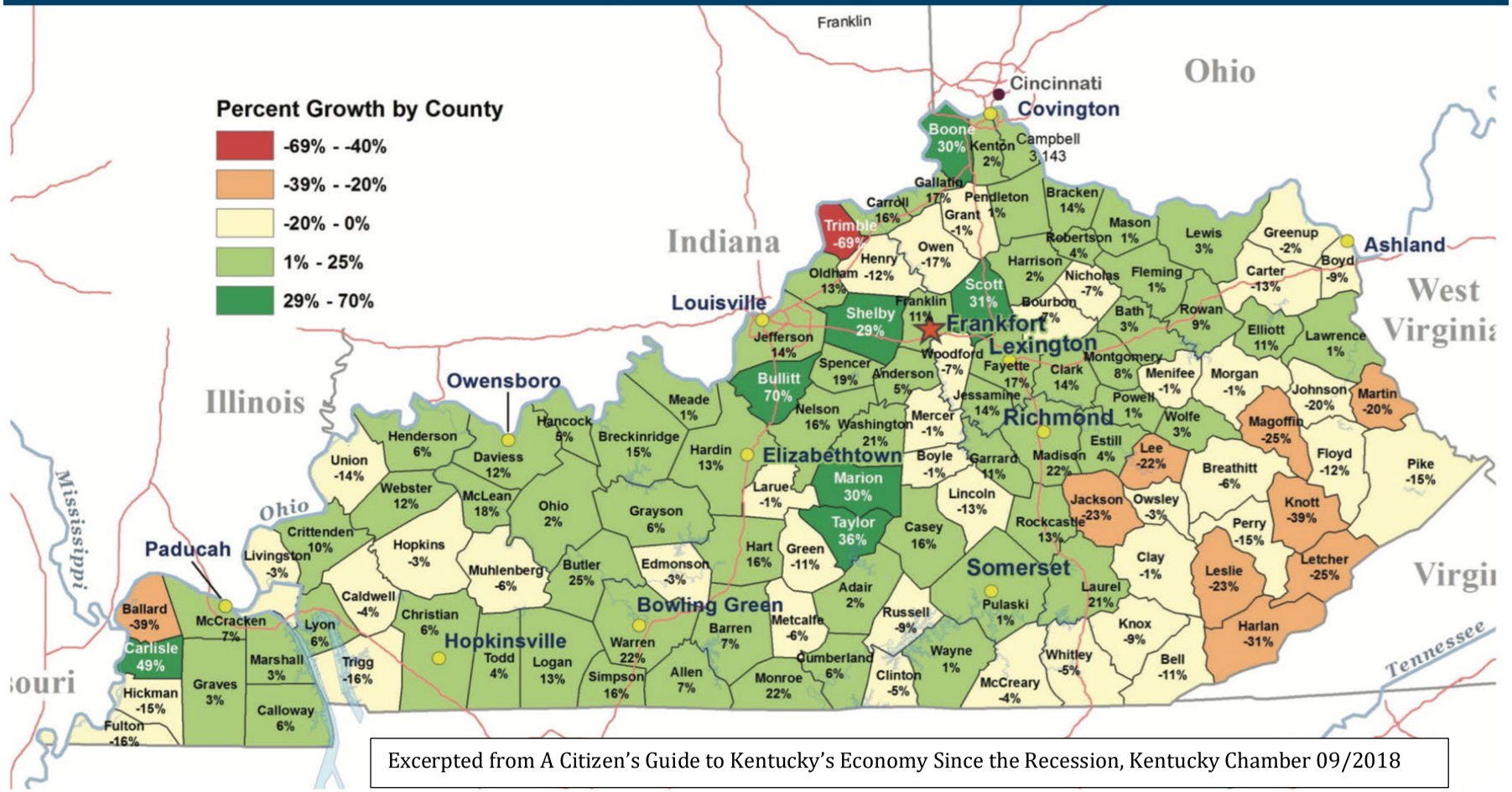
Source: *US Bureau of Labor Statistics, Quarterly Census of Employment and Wages, compiled from county details. Nonagricultural wage and salary jobs only; excludes self-employed. Growth is from June 2009 to December 2017.*

Net Job Growth by County, *June 2009-December 2017*



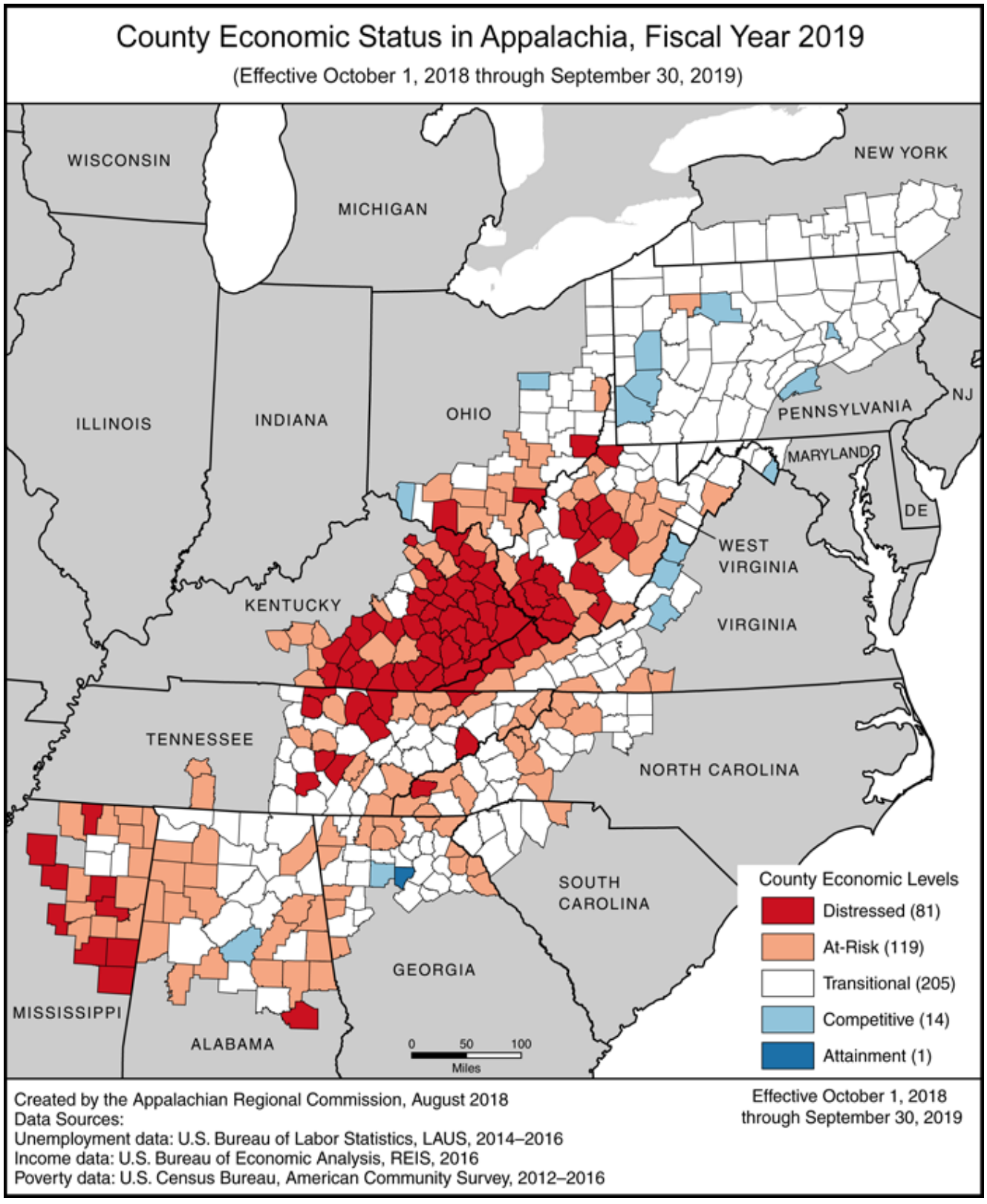
Excerpted from A Citizen's Guide to Kentucky's Economy Since the Recession, Kentucky Chamber 09/2018

Percentage Job Growth by County, *June 2009-December 2017*



Excerpted from A Citizen's Guide to Kentucky's Economy Since the Recession, Kentucky Chamber 09/2018

The graphic below identifies the economic status of Appalachian counties according to the Appalachian Regional Commission (ARC) metrics. All counties in the KVEC service area are designated as distressed.



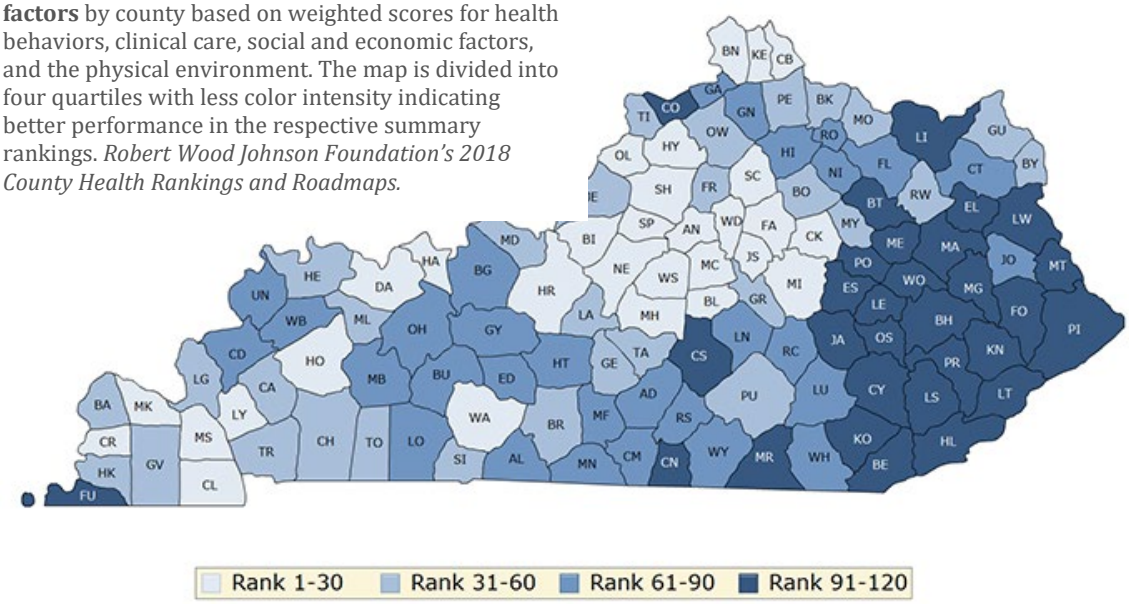
The region's rugged terrain and **sparse population distribution** impacts: wide-spread availability to commercial high-speed internet connectivity due to profitability for providers and affordability for consumers, transportation costs associated with economic development, student transportation for school districts, access and opportunity to entertainment, shopping, health care and employment for residents. (*It is important to recognize that ALL public schools in Kentucky have high speed fiber access through the nationally recognized Kentucky Education Technology System (KETS). East Kentucky schools led the way in achieving 100% access for learners.)

Owsley County has the lowest number of residents per square mile at 24.1, followed by Breathitt and Leslie Counties, each with 28.2. This compares to Jefferson County with 1,948.1 persons per square mile and Fayette County with 1,042.8. The state average is 109 persons per square mile (U.S. Census, Census of Population and Housing. Land area is based on current information in the TIGER® data base, calculated for use with Census 2010).

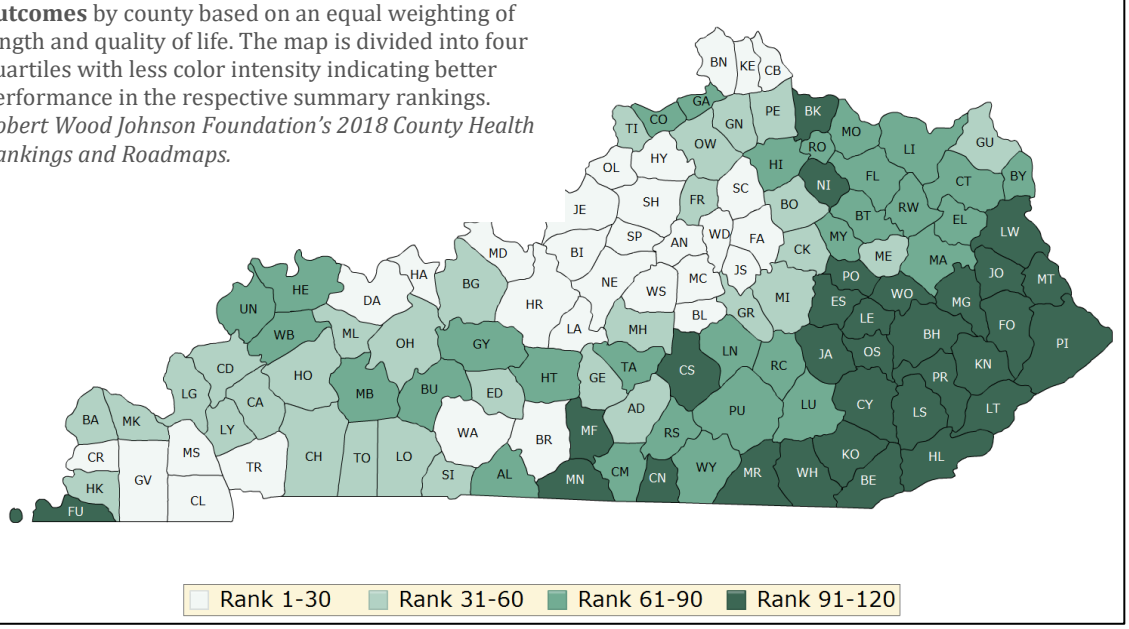
County Size and Population Density 2016		
County	Square Miles	Population per Square Mile
Bell	361	79.9
Breathitt	495	28.2
Floyd	394	100.3
Harlan	467	62.9
Johnson	262	89.2
Knott	352	46.5
Lee	210	37.8
Leslie	404	28.2
Letcher	339	72.6
Magoffin	310	43.2
Martin	231	56.3
Lawrence	419	38.2
Owsley	198	24.1
Perry	342	84.5
Pike	788	82.6
Wolfe	233	33.1
Fayette	284	1,042
Jefferson	385	1,948
Source: quickfacts.census.gov		

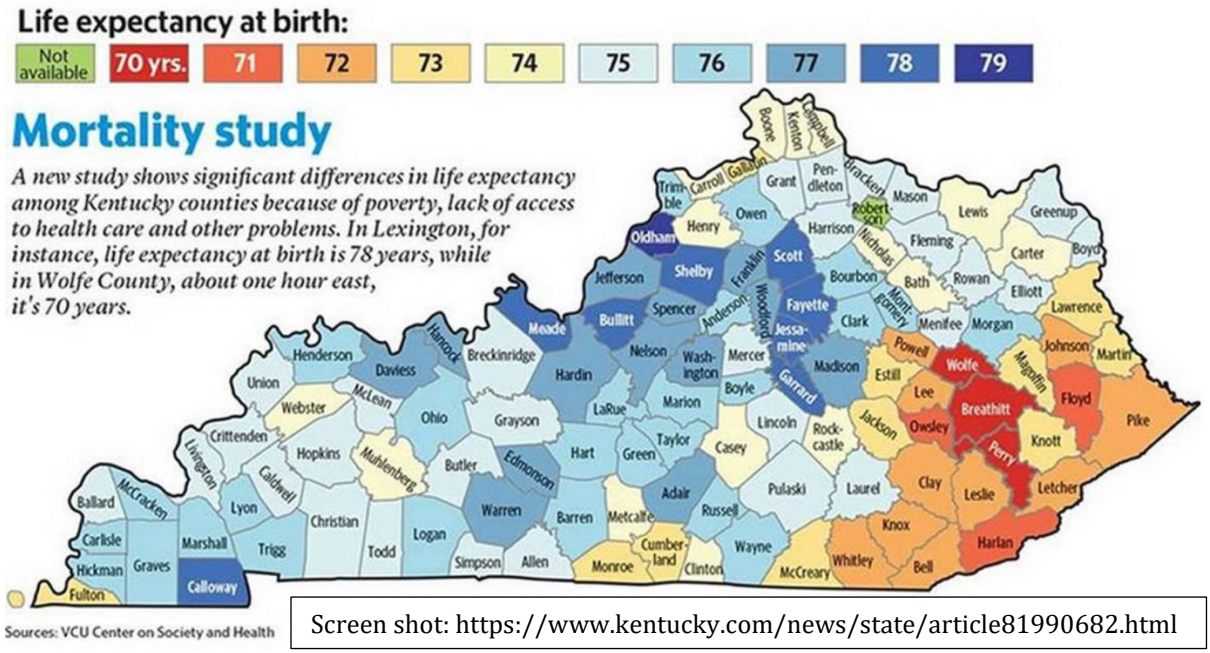
The region is consistently rated as unhealthy. According to the Robert Wood Johnson Foundation's County Health Ranking 2018, all **KVEC districts reside in counties in the top 25 unhealthy counties**. According to the 2018 Kentucky County Health Index KVEC counties ranked near the bottom in "Quality of Life," and in frequent "physical and mental distress," higher than the state average in diabetes prevalence, and **considerably higher in teen births, smoking usage, youth dental and disabilities' issues and cancer rates** while having more challenges to access quality health care. (Kentucky County Health rankings 2018)

This map shows the distribution of Kentucky's **health factors** by county based on weighted scores for health behaviors, clinical care, social and economic factors, and the physical environment. The map is divided into four quartiles with less color intensity indicating better performance in the respective summary rankings. *Robert Wood Johnson Foundation's 2018 County Health Rankings and Roadmaps.*



This map shows the distribution of Kentucky's **health outcomes** by county based on an equal weighting of length and quality of life. The map is divided into four quartiles with less color intensity indicating better performance in the respective summary rankings. *Robert Wood Johnson Foundation's 2018 County Health Rankings and Roadmaps.*

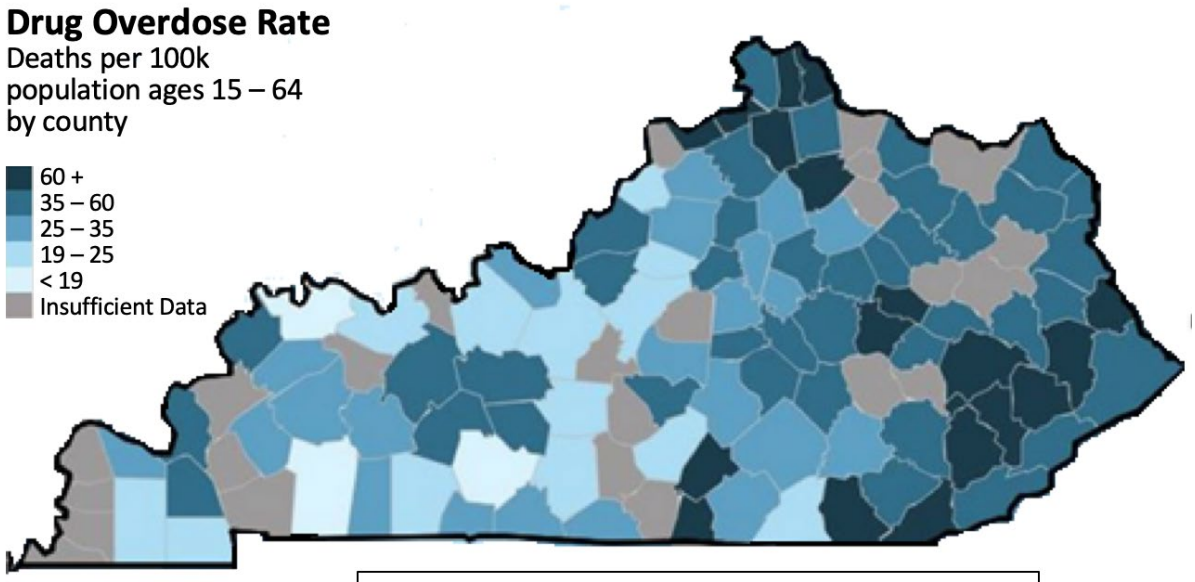




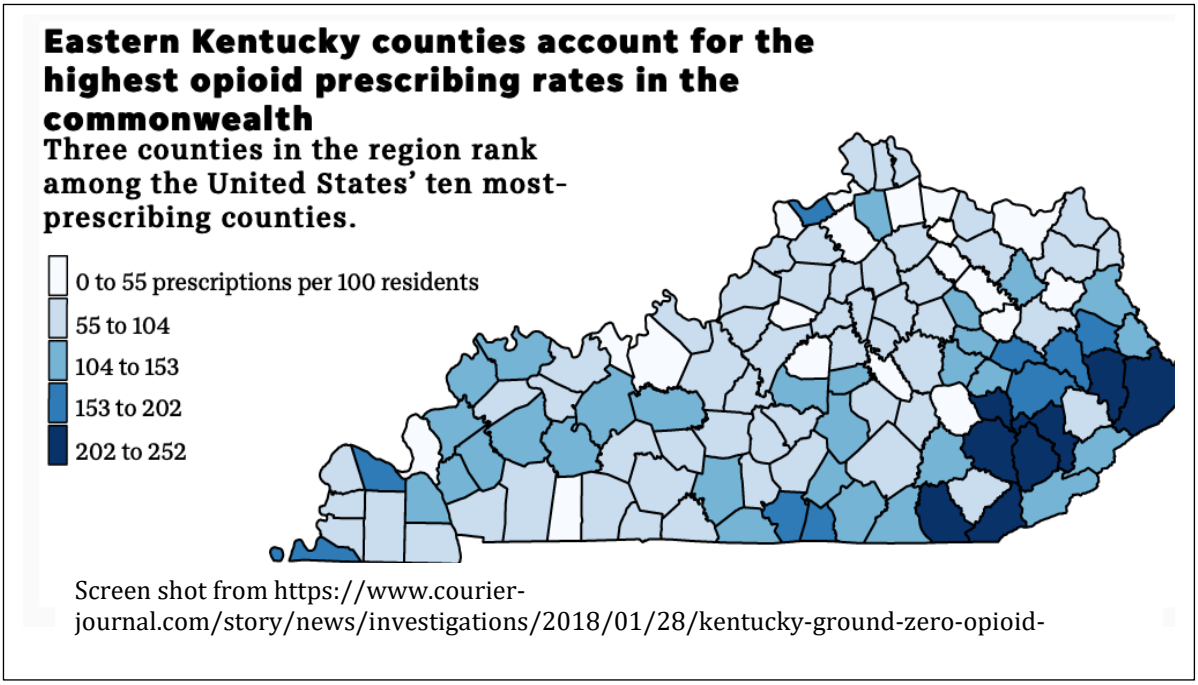
Screen shot: https://www.kentucky.com/news/state/article81990682.html

Based on current conditions, **a child born today in nine Kentucky counties** has a **life expectancy 8-9 years greater than a child born in three KVEC service region counties** and **6-7 years greater than a child born in twelve KVEC service region counties**.

Kentucky had the **nation's fifth highest overdose rate between 2012 and 2016** led by counties in the KVEC region. Three counties in eastern Kentucky rank in the top 10 most prescribing counties in the US in 2018 according to the Center for Disease Control and Prevention.



Screen shot from https://opioidmisusetool.norc.org showing drug overdose rates from 2012-2016. *NORC/USDA*

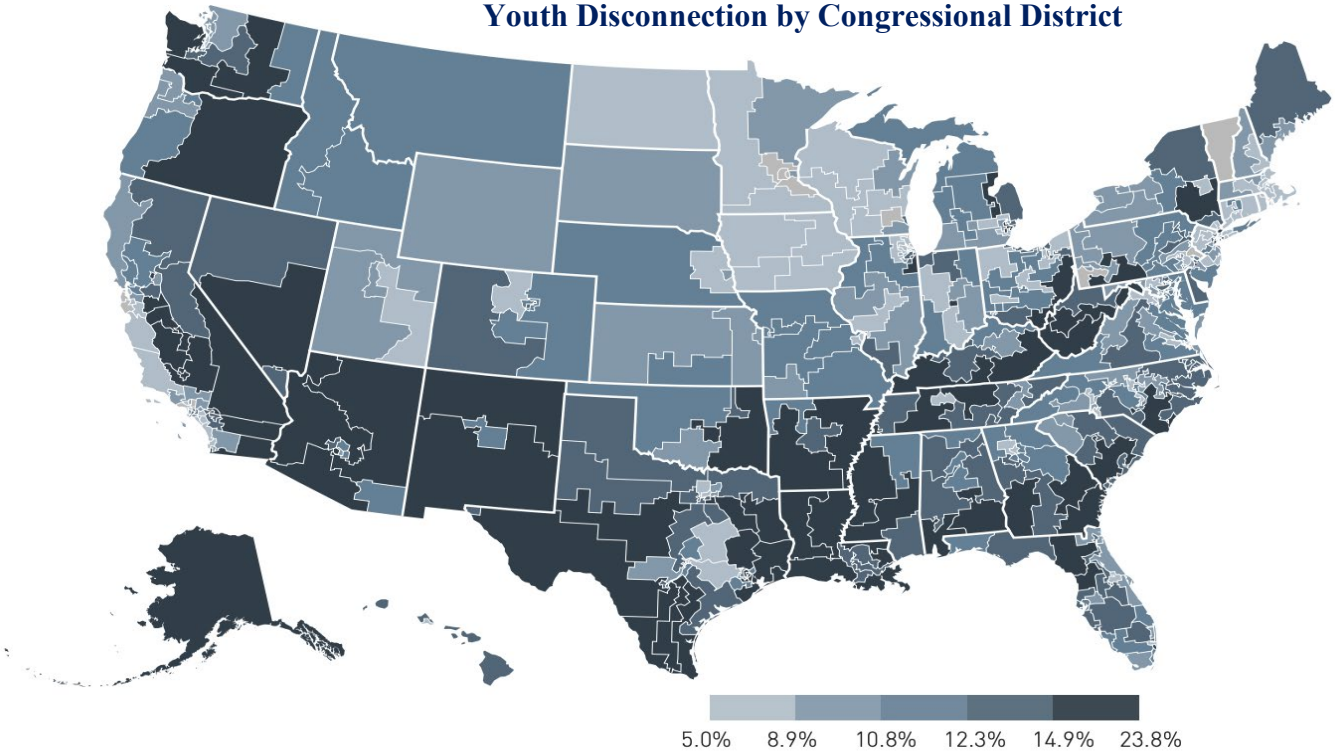


Screen shot from https://www.courier-journal.com/story/news/investigations/2018/01/28/kentucky-ground-zero-opioid-

The opioid epidemic has compelled grandparents and great grandparents into guardian roles for school age children. Other factors, including; addictive behaviors other than opioids, parents working outside the community, parents in jail and parental mental/emotional health, contribute to an increase in the number of grandparents identified as primary caregiver for school age children. In the KVEC region, **10.49 percent of children were being raised by grandparents** in a household where the parents were not present in comparison to 6.0 percent of children statewide (2013-2017 American Community Survey five-year estimates).

"Measure of America's latest report (March 2018) on disconnected youth, *More Than a Million Reasons for Hope: Youth Disconnection in America Today*, analyzes youth disconnection in the United States. MOA defines disconnected youth as **teens and young adults ages 16 to 24 who are neither in school nor working**. MOA has used this definition in its data calculations and analysis on youth disconnection since its first report on the topic, *One in Seven*, published in 2012." (www.measureofamerica.org/youth-disconnection-2018) Kentucky's 5th Congressional District ranks next to last in the report (424th of 425 congressional districts) with a rate of **youth disconnection at 22.5%.**

Youth Disconnection by Congressional District



Source: Measure of America calculations using US Census Bureau ACS, 2016.

FIGURE 4 Top- and Bottom-Ten Congressional Districts

RANK	STATE	CONGRESSIONAL DISTRICT	DISCONNECTED YOUTH (% ages 16-24)	DISCONNECTED YOUTH (# ages 16-24)	US REGION
	United States		11.7	4,599,100	
TOP 10					
1	Colorado	2	5.0	6,300	West
2	Washington	7	5.3	4,900	West
3	California	45	5.3	5,500	West
4	Illinois	9	5.5	4,100	Midwest
5	Massachusetts	5	5.6	4,900	Northeast
6	California	52	5.6	5,400	West
7	New Jersey	5	5.8	4,800	Northeast
8	New York	4	5.9	5,200	Northeast
9	Nebraska	1	6.0	5,500	Midwest
10	New Jersey	11	6.0	5,100	Northeast
BOTTOM 10					
416	California	23	19.6	19,300	West
417	Michigan	13	19.7	16,400	Midwest
418	California	21	19.7	20,000	West
419	New Mexico	3	19.8	16,300	West
420	West Virginia	3	20.0	13,000	South
421	Oklahoma	2	20.2	18,000	South
422	Louisiana	4	20.3	19,400	South
423	New York	15	20.4	22,900	Northeast
424	Kentucky	5	22.5	17,300	South
425	Louisiana	5	23.8	22,300	South

Source: Measure of America calculations using US Census Bureau ACS, 2016.

School district enrollment trends have mirrored population declines across the KVEC Region. The districts have collectively **lost 14,314 K-12 students** since 2000, this change represents a **22.7 percent decrease** in population - meaning districts have **lost more than two of every 10 students** from their schools since the year 2000.

STUDENT POPULATION CHANGE BY DISTRICT AND REGION 1999 - 2018				
District	**Student Population 1999**	**Student Population 2018**	**Loss/gain 1999-2018**	**Percent Loss/Gain revised**
Breathitt	2617	1884	-733	**-28.0%**
Floyd	7500	5765	-1735	**-23.1%**
Harlan	5423	3963	-1460	**-26.9%**
Hazard Ind.	1039	978	-61	**-5.9%**
Jackson Ind.	429	310	-119	**-27.7%**
Jenkins Ind.	599	422	-177	**-29.5%**
Johnson	3812	3504	-308	**-8.1%**
Knott	3217	2277	-940	**-29.2%**
Lee County	1403	917	-486	**-34.6%**
Leslie	2331	1674	-657	**-28.2%**
Letcher	3891	3087	-804	**-20.7%**
Magoffin	2643	2031	-612	**-23.2%**
Middlesboro Ind.	1885	1171	-714	**-37.9%**
Owsley	943	693	-250	**-26.5%**
Paintsville Ind.	791	882	91	**11.5%**
Perry	4876	3885	-991	**-20.3%**
Pike	11131	8390	-2741	**-24.6%**
Pikeville Ind.	1314	1183	-131	**-10.0%**
Wolfe	1419	1262	-157	**-11.1%**
Lawrence	2938	2539	-399	**-13.6%**
Martin	2766	1836	-930	**-33.6%**
Totals	**62,967**	**48,653**	**-14,314**	**-22.7%**
Source: Kentucky Department of Education Annual Superintendent Annual Attendance Report for 1999-2000 and 2017-18.				

Population loss, out-migration, unemployment, poverty, per capita incomes, community wellness and labor participation rates impact community prosperity and thus influence a public school districts' ability to generate local revenue. Providing learners an equal prospect to achieve success requires equitable resources that meet their unique needs, thereby affording them access to overcome existing opportunity gaps.

Districts in the KVEC region are high poverty, low income, rural and remote according to Federal Department of Education Guidelines. The average **free and reduced lunch participation rate for the KVEC region is 73.5%.** Not all students eligible for the program elect to participate for multiple reasons (i.e., parental permissions, social stigma, etc.). Based on 2018-19 School and Community Nutrition Qualifying Data https://education.ky.gov/federal/SCN/Pages/Qualifying-Data.aspx (school-by-school count), **the free and reduced lunch qualifying average for the region is 96.4%.**

Despite the pervasive challenges facing public schools in this region, school districts are united by a fierce belief in community and their ability to play a significant role in advancing academic achievement, economic development and community vitality. It is true that very real challenges exist and cannot be discounted; yet, these districts choose to view education through a lens of abundance versus scarcity and and view themselves as a vital catalyst impacting the future.

Bill and Melinda Gates, Mark Zuckerberg, Howard Schultz and others interested in learning about the educational innovations underway in the region have spent time here during the past three years. These learning visits represent a significant weather change from visits of the past when folk came to observe problems firsthand. Nationally recognized thought leaders now visit to examine place-based solutions driven by educators and learners.

Public school districts in the KVEC service area work tirelessly to provide learners with the critical resources to succeed and demonstrate excellence that is recognized nationally. Schools and students are regularly acknowledged for significant achievements that combine authentic learning and address real-world community challenges. In only the past year student teams from the region were recognized for their work to address: the Opioid Crises, sub-standard housing, locally sourced food production, computer coding, app development, drone design and innovation, 3D printing, wellness, obesity, art, music, publishing and an ongoing list that connects learning to community-building and entrepreneurialism.

Multiple measures are used to determine school success. Two of the most important to both the learner and **building community vitality** are graduation rates and College and Career Readiness Rates.

Collectively, school districts in the KVEC region **graduate students at a higher level** than the state and national average (KVEC region = 94.4%, Kentucky = 89.7%, US = 73%) and have shown steady progress for the past four years.

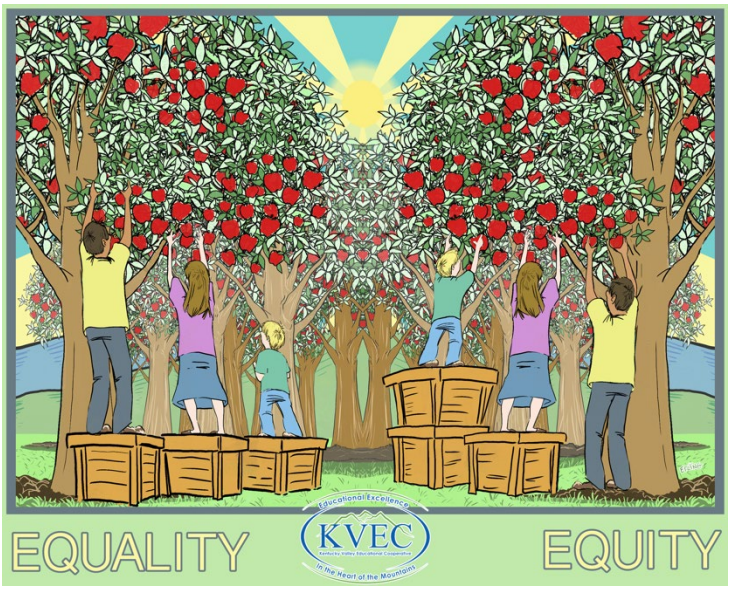
Collectively school districts in the KVEC region have a **higher College and Career Readiness** level than the state average (KVEC region = 72.5%, Kentucky = 66%) and shown progress in each of the last four years.

High School Graduation Rates												
	ALL STUDENTS				STUDENTS WITH DISABILITIES				STUDENTS RECIEVING FREE/REDUCED LUNCH			
	2014	**2015**	**2016**	**2017**	**2014**	**2015**	**2016**	**2017**	**2014**	**2015**	**2016**	**2017**
KVEC Region	90.2	91.3	93.2	94.4	72.6	78.4	81.4	81.5	88.4	89.1	91.4	93.7
Kentucky	87.5	88.0	88.6	89.7	70.8	66.0	71.9	74.4	84.0	84.8	85.6	87.0
College and Career Readiness Rates												
KVEC Region	56.6	67	72	72.5								
Kentucky	54.1	62.5	67	66.0								
Source: Kentucky Department of Education, School Report Card												

Learning Resources

Equitable educational opportunity for the Commonwealth's students should be a top priority of our state. Our call to action supports a system that provides equal opportunity and resources for all learners, and in addition, ensures equity across districts to address specific regional needs.

"An equitable system does not treat all students in a standardized way, but differentiates instruction, services, and resources to respond effectively to the diverse needs of students, so that each student can develop his or her full academic and societal potential." (Learning Policy Institute, Equity and ESSA)



The inherent right of each child to a free and appropriate public education should serve as the foundation on which policymakers who shoulder a decision-making responsibility should build. Further, it is an unbending responsibility of decision-makers to remove any barriers that are prone to lessen the educational experiences provided children. This means that equity of opportunity must become the mantra in public and private conversations that serve to mold policies, laws and regulations. Atchison, Diffey, Rafa and Sarubbi (2017) note that, "simply leveling the field is not enough. States should strive for equity in educational opportunities, providing all students with the unique supports they need to succeed" (para. 1). It is a clarion call to meet these "unique supports" for children that serves as the North Star for this report.

A recent analysis of the effects of school finance reform tracked adult outcomes for 15,000 children born between 1955 and 1985 over 40 years. The authors found that increasing per-pupil spending by 20%, for the duration of a child's K-12 schooling, led to a 23 percentage-point increase in high school completion rates and an increase in adult earnings of almost 25% for individuals and 52% for families. Meanwhile, the incidence of adult poverty was reduced by almost 20% (Jensen, 2010). In other words, children from poverty (poor students) who attend better-funded schools are more likely to graduate from high school and have higher earnings and lower poverty rates in adulthood.

Changing Kentucky's Educational Funding System

This priority of reducing poverty through equitable school financial reform has its roots in Kentucky educational history. In the mid 1980's an unprecedented event unfolded as the Council for Better Education, composed of 66 of Kentucky's poorest districts sued the state legislature claiming it was not fulfilling its constitutional obligation to "provide an efficient system of common schools throughout the state" (Article 183 of the Constitution of Kentucky). In Rose v. Council for Better Education the Kentucky Supreme Court declared the state's entire education system to be unconstitutional and required that the legislature create a new system of public schooling. This included the creation of a new system of finance to better equalize funding across all school districts in the state. In its decision, the Court noted that the Kentucky Constitution mandated that the legislature create a "free and adequate education to all students throughout the state regardless of geographical location or local fiscal resources" (Rose v Council for Better Education, p. 5).

As a result of the court's decision, in 1990 the legislature approved the Kentucky Educational Reform Act (KERA) that included sweeping changes to virtually all aspects of the education system including the way in which school districts were funded. In less than a year Kentucky created and delivered a support mechanism designed to equalize funding across the state to ensure that funding in school districts in high poverty areas, as found in eastern Kentucky, was equitable to that found in more progressive, non-poverty districts. The formula was calculated to provide the following.

- a minimum level of education funding for each student regardless of the wealth of the student's school district;
- at least a minimum level of effort to provide funding from each school district;
- spending per pupil more equal across Kentucky by basing the amount of state aid per pupil on the wealth of the local school district;
- funding per pupil relatively equal, encourage local school districts to increase education funding. (Hager, 2002, p. vii)

A little more than a decade after the implementation of KERA, a 2002 report commissioned by the Legislative Review Commission (LRC) included a survey to superintendents in 2002 which concluded the following.

- Three-quarters of the superintendents reported that funding was better than it was before SEEK.
- About 40% indicated that their districts' funding was about the same as other districts.
- Most superintendents in districts with relatively high poverty reported that school funding for their districts was worse than before SEEK and worse than other districts now (Hager, 2002, p. 4). The promise of equalized funding that was beginning to happen in the years immediately following the implementation of KERA was starting to wane.

A Case to Revisit Equity in Transportation Funding

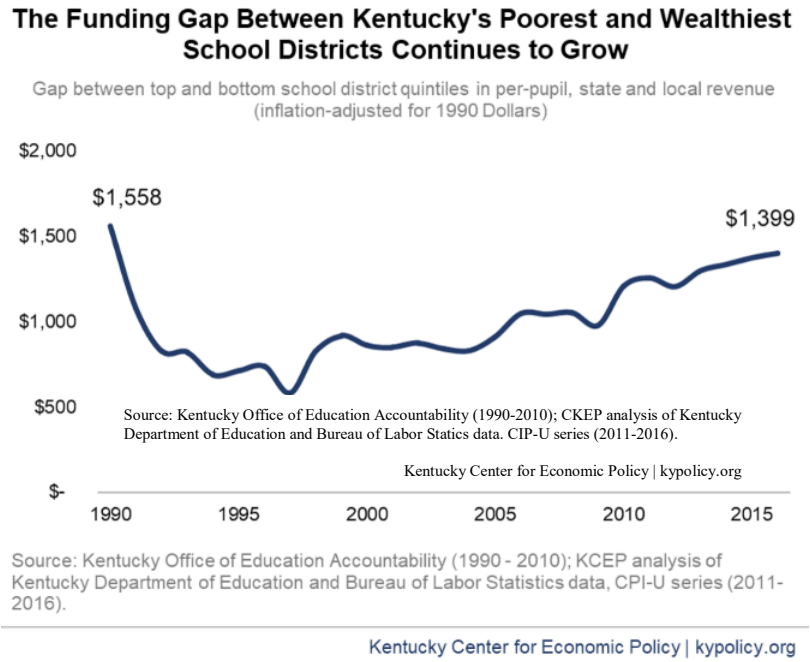
A concern often voiced by superintendents is linked to the **underfunded cost of transportation**. Though providing some level of financial support for students' transportation, the rising costs of transportation are consuming a growing percentage of SEEK funds. In some cases, the percent of transportation costs supported by SEEK is **less than 29% of actual costs**. No Kentucky county school district has its transportation costs wholly met by the current SEEK formula.

Transportation costs are compounded by a number of factors including the topography of the land, the density of student population and road conditions. A 2018 study on the condition of Kentucky roadways reflected that more than half of eastern Kentucky's roads were classified as either fair or poor (www.tripnet.org, 2018). Further, population figures from 2017 show that Kentucky's population density averages 110.2 per square mile. None of the county districts served by KVEC reach that density. So, in the mountains of eastern Kentucky our buses must travel further to pick up students on roads deemed to be fair to poor. Clearly this accounts for the fact that **five of the top 10 districts in the state spending more per pupil on transportation, half of them are in the KVEC service region and include Owsley, Magoffin, Floyd, Knott and Leslie Counties**. Based on this information a recommendation would be that the OEA conduct an in-depth study of the transportation needs of the districts based on attributes of square miles, topography, etc.

Sanchez (2016) examined various aspects of SEEK and reported that, at least in part, "**a funding gap between rich and poor schools remains in Kentucky**, in part because lawmakers did *not* deal with the fundamental imbalance that comes with a reliance on local property taxes" (para. 17). In the areas of eastern Kentucky where the local contributions are less than other districts due to the loss of tax dollars from closing coal fields and other attributing economic factors, the **local contributions cannot keep up with the growing costs of educating students**. Equitable access to learning experiences in persistently impoverished areas is an elusive dream for too many of our students.

While most of the state has emerged from the deep recession of a decade ago, the recovery has remained elusive to the mountains and towns in eastern Kentucky. The decreasing state revenue in real dollars generated means an increasing attempt to offset this loss through local funding. However, in an area where coal mines remain closed and families have moved in the quest for work, local dollars are not adequate to keep pace. The **funding gap between the haves and have-nots is growing**. While the "equity gap" shrank in the years immediately following the passage of KERA, that is no longer the case. Baumann (2017) declares "the trend has reversed and **funding for Kentucky's school districts has become less equitable,** raising the same kinds of issues that prompted the filing of the lawsuit that resulted in the passage of KERA" (para. 1).

In its *2011 School Finance Report*, the Office of Education Accountability (OEA) divided Kentucky public school districts into five categories and examined the funding gap between each group, comparing the differences at each year of the decade 1990-2010 (Seiler et al., 2011). Using data from the Kentucky Department of Education and the Bureau of Labor Statistics, personnel with the Kentucky Center for Economic Development extended the gap analysis through 2015. While there was an initial narrowing of the gap between the top and bottom group, the **gap has been growing since the mid-1990s**. In 1990 per pupil gap between the poorest and wealthiest districts was **$1,558**. Adjusting for 1990 dollars, the gap was cut in half in the late 1990s but steadily increased to $1,399 by 2015. "In current dollars, the gap in state and local funding between students in the top and bottom quintiles in **2016 was $2,570**" (Baumann, 2017, para. 6)



Source: Kentucky Office of Education Accountability (1990 - 2010); KCEP analysis of Kentucky Department of Education and Bureau of Labor Statistics data, CPI-U series (2011-2016).

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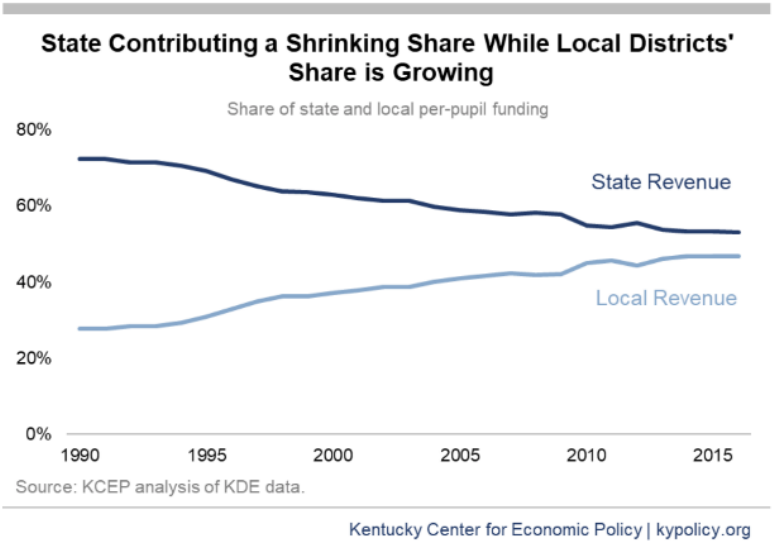
The financial support for education created by the unprecedented decisions driven by a desire to provide equitable opportunities for all of Kentucky's youngest citizens has eroded slowly. A changing tax structure provides tax breaks that generate less state revenue leading to less available funding. The recession has seen multi-year cuts in the state's budget. Baumann (2017) notes "audited per-pupil state revenue **dropped an inflation-adjusted 14% percent between 2008 and 2016"** (para. 18) while **local funding increased 5%**. It is recognized and appreciated that legislators have sometimes attempted to spare K-12 education from the severity of the cuts, yet in areas that lead the nation in levels of poverty any cuts serve to make a dire situation nearly fatal. Many of the provisions of KERA designed to provide equity for poorer school districts



including Family Resource and Youth Service Centers (FRYSCs), extended school services, professional development, and textbook funding have been cut or significantly reduced.

Closed coal mines mean fewer real and tangible tax dollars going to support the local economy. The value of unmined coal is reduced leading to a **near total loss of revenue from unmined minerals tax.** Baumann reports, "Based on analysis of KDE data, in the 2016-2017 school year the re-assessment alone reduced total **local funding in the poorest quintile of school districts by $1.2 million and in the second quintile by $2 million**" (para. 21). An examination of the wealthier school districts shows they were not impacted by the loss of coal that is still unmined.

Equity in Funding for Children of Poverty

Though SEEK does provide the base support and additional funding for targeted populations of students, more resources are needed to ensure students in persistently impoverished areas are provided the life experiences needed to make the same gains as those not in poverty-stricken areas. Cummins and colleagues (2018) note that **"Schools with higher-poverty students require more resources to improve student outcomes"** (p. vii). Their report continues by describing the impact that sustained, persistent poverty has on all aspects of cognitive development.

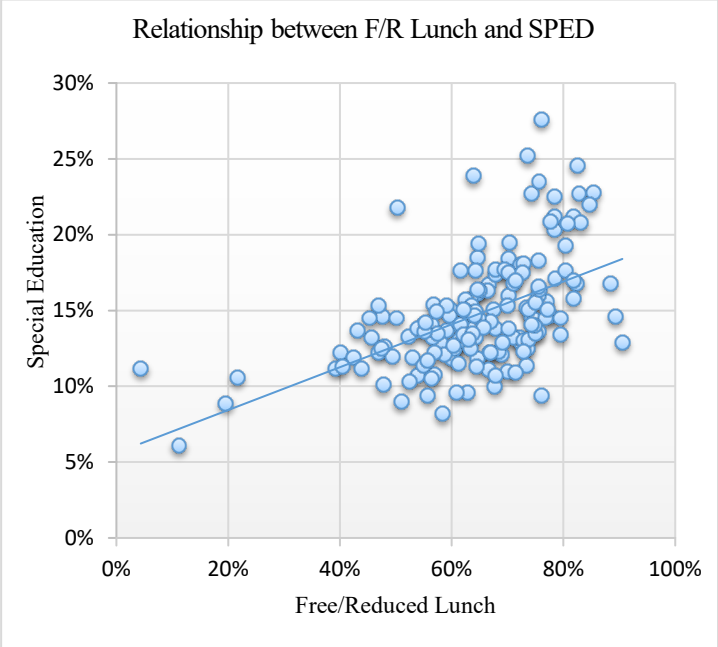
A group of researchers from the University of Pennsylvania (Farah et al., 2006) compared the brain functions of students reflecting middle and low socioeconomic status (SES). To eliminate as many variables as possible, each pair of students, one from middle and one from low SES, were medically screened and matched for age, gender and ethnicity. The results of a battery of tests revealed that brain functions, especially in the areas of language and memory skills were statistically different. From the time children are born their cumulative experiences impact brain development and therefore their life-long learning skills. In examining the learning gap between higher and lower SES students (family income at the 90th and 10th percentiles) Reardon (2011) found that **"the income achievement gap…is now more than twice as large as the black-white achievement gap" (**p. 5).

The good news is that the limiting influence that persistent poverty has on cognitive abilities can be reversed. Jensen (2010) identified specific types of activities that help jump-start brain development. He notes, "Although many factors affect academic success; certain key ones are especially effective in turning around students raised in poverty" (p. 2) including targeted preparation and **building a can-do spirit of success within students**. Active learning is especially helpful including "compelling stories, theater arts and fine-motor tasks" (p. 3). The earlier children can begin to experience academic success, the less the impact of living in persistent poverty.

Very often students living in poverty come to school not expecting to experience success. Many times their parents' success in school was limited and parents may have conveyed these feelings and emotions to their children. Irvin, Meece, Byun Farmer and Hutchins (2011) examined the in-school environments experienced by children of poverty. Not surprisingly they learned that when students are given hope and learn to believe that they can learn regardless of other circumstances, the limiting influences of poverty are lessened. Jensen (2013) noted, **"One reason many students seem unmotivated is because of lack of hope and optimism"** (p. 27).

Steven Barnett (2011) of the National Institute for Early Education Research described the effectiveness that early educational intervention could have on students' academic achievement, social and anti-social behavior and even on crime. Barnett concludes, "These findings are quite robust with respect to social and economic contexts. Early educational intervention can improve the development and adult success of disadvantaged children in the developing world as well as in advanced economies" (p. 978).

Compounding the issue, districts that have a high rate of children in poverty tend to have higher percentages of special education students and the need for more response to intervention (RTI) resources. Data reviewed from the KDE School Report Cards 2016-2017 reflected any number of national studies regarding the relationship between poverty and special education. While these numbers do not represent the students' inabilities to learn, they do support the need for additional educational experiences and the required resources.



Source: KDE School Report Cards (2016-2017)

The research is replete with evidence linking poverty, lower academic success and ultimately its predictability of generational poverty. Hernandez (2011) found that children living in poverty are far less likely to graduate from high school than their more affluent peers. The key findings of the Hernandez study are presented here since they reflect the overwhelming evidence found in scores of other research projects that examined the relationship between poverty and academic success. Hernandez found

- One in six children who are not reading proficiently in third grade do not graduate from high school on time, a rate four times greater than that for proficient readers.

- The rates are highest for the low, below-basic readers: 23 percent of these children drop out or fail to finish high school on time, compared to nine percent of children with basic reading skills and four percent of proficient readers.
- Overall, **22 percent of children who have lived in poverty do not graduate from high school,** compared to six percent of those who have never been poor. This rises to **32 percent for students spending more than half of their childhood in poverty.**
- For children who were poor for at least a year and were not reading proficiently in third grade, the proportion that don't finish school rose to 26 percent. That's more than six times the rate for all proficient readers.
- Even among poor children who were proficient readers in third grade, 11 percent still didn't finish high school. That compares to nine percent of subpar third grade readers who have never been poor.
- Among children who never lived in poverty, all but two percent of the best third grade readers graduated from high school on time. (pp. 3-4)

The challenges facing children of poverty and those who serve them are real, but not impossible to overcome. They require unbending and uncompromising attention and fortitude. They require collaboration between and among the decision-makers in which the schools not only can, but must play a pivotal role. **There are those who stand on the side of affluence and declare that the poor have always been amongst us and their plight is of their own making**. They point to scores of failed programs and unsuccessful struggles, all the while ignoring those who experience the constraints of poverty. It is not a question of should we invest our time, energy and other resources in ensuring all children experience success early and often; it is our moral responsibility.

Equitable and effective distribution of funds is an "**essential precondition**" necessary to **ensure high-quality schooling for all students**, especially those whose needs are more complex and who require more supports, which should trigger additional resources (Baker).

More than half a century ago President John Kennedy implored Americans to prepare for the unprecedented challenges of space exploration and landing on the moon. It was one that required the creative and untiring energies of thousands of people, so do the challenges facing the children of eastern Kentucky. Nevertheless, to paraphrase the words of **President Kennedy, "*We choose to ensure the success of eastern Kentucky and the children who live here!*** *We choose to ensure the success of eastern Kentucky's students in this decade, not because it is easy, but because it is hard; because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to win*" (Logsdon, 2010).

Learning Resources Considerations

1. Analyze the trend data for public investment in K-12 education in Kentucky from 1990 to the current year with a particular focus on the time span beginning in 2008 (National Recession) forward. Analysis may include:
   - **1.1.** examination of "real" dollar inflation-adjusted per pupil spending, change over time in state vs. local contribution to revenue, change in tax policy to combat the recession and resultant change in revenue, funding gap between property poor and property wealth districts, reductions and cuts to Department of Education and other related agencies that result in districts absorbing the cost locally.
   - **1.2.** current research on the impact of public education on economic development and quality of life.
   - **1.3.** impact of unfunded mandates (a statute or regulation that requires a local school district to perform actions, with reduced or zero resources provided by the governing authority) such as: student transportation, Family Resource and Youth Service Centers, text books, Safe Schools, professional development, early childhood, etc.
   - **1.4.** examination of public education funding models in other states that have expanded equitable funding strategies based on student need and community composition. Weighted funding formulas focus on equity and access to opportunity and are based on applying a "weight" on the number of students and, often, on the concentration of students from low-income families, students with disabilities, designated English learners and "at risk" youth.
2. Completed in-depth analysis should be available and distributed publicly as a contributing resource for ongoing dialogue.
3. Examine funding streams that will support redesigned avenues for continuous professional learning, mentorships and recruitment/retention initiatives.
4. Conduct an in-depth study and examine funding formula that ensures equitable funding for transportation based on attributes of square miles, topography, etc.
5. Examine funding mechanism to ensure children of poverty have the resources needed that will provide life experiences for children who can catch up to students in less impoverished areas.

Teaching and Leading

Research shows the two school factors that matter most for student achievement are teaching and leadership (Learning Forward & Education Counsel, 2017). Effective teaching and leadership for rural, remote and high poverty schools that meets the many needs of students must have equitable policies and practices influencing: **a) educator preparation and certification; b) educator professional learning; and c) retention of effective teachers and leaders.**

Educator Preparation and Certification

In the executive summary of How the World's Best-Performing School Systems Come Out on Top (McKinsey & Company, 2007), Sir Michael Barber and Mona Mourshed found, through studying top school systems, three things matter most: 1) Getting the right people to become teachers; 2) Developing them into effective instructors; and 3) Ensuring that the system is able to deliver the best possible instruction for every child. Without a public college or university in the KVEC region, the ability to prepare interested students to be teachers or for teachers to become principals is limited. **The number of people enrolling in traditional four-year educator preparation programs in Kentucky has dropped 35% from 2009 to 2017 (EPSB Data Dashboard, 2018)**.

The map to the right shows Kentucky's state universities. While Eastern Kentucky University and Morehead State University are the public universities charged to serve the KVEC region, geographic location for both institutions present transportation challenges for many potential learners. There are colleges and universities in neighboring states closer to our students.

Recent changes in the way educators are prepared and certified in Kentucky has resulted in an increase in the number of alternatively certified educators in our region. There are currently **198 alternatively certified teachers in the KVEC region**. These are teachers who have had no college or university training, have little or no experience in the pedagogical methods of teaching, and have not had pre-service training in curriculum, instruction, assessment or meeting the social-emotional needs of students.

In addition to the large number of teachers in our region who are not trained to be teachers, **Kentucky no longer requires educators to earn a Master's degree** for continued employment. While the removal of the Master's degree requirement for Kentucky educators is recent and data is limited, the change could lead to more underprepared educators when considering there is **no longer a state approved teacher internship for any certified teacher,** including those alternately certified who have not taken teaching methods courses supported by a college or university and who are not provided a district resource person to ease their transition into teaching.

Through the analysis of data including job postings and alternative certifications, the KVEC region identified **Critical Teacher Shortage Areas**:

- Early Childhood Education
- Exceptional Children Emotional–Behavior Disability
- Moderate and Severe Disability
- Career and Technical Education
- Advanced Placement
- Dual Credit
- Hearing Impaired
- Learning Behavior Disability
- Visually Impaired
- Foreign Languages
- Mathematics
- Science

Research has found consistent staffing problems in rural schools, including a persistent gap between the qualifications of teachers in rural and urban schools. Our rural districts face limitations in recruiting and retaining high-quality teachers for reasons such as: funding issues, limited teacher supply, lack of rigorous training and certification options and geographic and social isolation.

The U.S. Department of Education (2019) identified 98% of school districts in the KVEC region as eligible for the federal Rural Low-Income Schools Program, **which includes schools lacking instructional staff and struggling to offer a wide range of curricular opportunities beyond the basics.**

Many of KVEC's rural schools and districts are not able to provide advanced coursework such as Advanced Placement (AP) and International Baccalaureate (IB) classes, as can more urban and suburban areas due to increased scale. The confluence of distance, rural geography, declining enrollment and the inability of funding to keep pace with rising costs has put pressure on districts to reduce expenses. Core educational services must be maintained. Declining enrollment and shrinking resources make it difficult to offer a full range of course options in school and elective courses are often reduced due to budget constraints or low student enrollment.

Kentucky's Virtual High School (KVHS), eliminated in 2012, provided a national model of virtual or hybrid courses that offered expanded curricular opportunities for students and professional learning for educators. KVHS was developed as a way to provide an expanded curriculum to students across the state. KVHS provided advanced placement and foreign language courses, instructional support for at-risk students, and adult education programs. In addition, professional development opportunities were provided for educators. This program was a component of the technology plan developed as part of the Kentucky Education Reform Act of 1990 to establish a technology network throughout the state to be used, in part, to improve access to high-level curriculum and other support programs in small schools. The virtual high school provided a way of addressing multiple challenges facing rural schools, including the provision of supplemental services. Yet, it was eliminated and left many of our rural schools and students without the added opportunities.

Much of the substantive work around teacher recruitment in Kentucky appears to be happening at the district level, the school level or in partnerships with teacher preparation programs. KVEC rural districts are finding recruiting and retaining effective teachers is challenging which reflects a broader problem across all rural schools and districts. In a national survey of rural school district administrators in 44 states, more than **84% of responding districts said they experienced some difficulty in filling teaching vacancies**; more than half of the respondents reported "moderate" to "extreme difficulty" (Dadisman, Gravelle, Farmer, & Petrin, 2010). Most of our districts have developed "grow your own" systems of teacher recruitment and development. However, the applicant pool has grown smaller with the out-migration of so many of our students.

There are currently **47 unfilled teaching positions** in the KVEC region mid-year (2018-2019 school year). **One third of those vacancies need to be filled by elementary regular education teachers.** This is a new dynamic in our region that typically grew its own for the positions opened up due to retirements and advancements to administrative positions. Recruiting teachers from other areas is not always the best solution. In closely-knit rural communities, a distrust of "outsiders" often places barriers to collaboration between new school personnel and families (Owens, Richerson, Murphy, Jageleweski, & Rossi, 2007). This tendency may be further aggravated by the high teacher turnover and some teachers' desire to live outside the community and commute to work.

A disparity in salary is also a contributing factor in the difficulty recruiting and retaining educators in the KVEC region. **The average certified teacher salary in the KVEC region is 10 percent less than the average teacher salary statewide.** Qualified educators are not likely to take a reduction in salary and relocate to a rural area, where the costs to travel to purchase groceries, shopping, entertainment, health care and other needs are more expensive.

Budget Driven Decision Making
in Educator Development and Professional Learning

Educator professional learning is an unfunded mandate in the 2018-2019 Kentucky state budget, negatively and significantly impacting students in our eastern Kentucky region. Effective collaborative professional development for educators is one factor distinguishing high performing, high poverty schools from lower performing schools (Silva, 2008). In education, research has shown that teaching quality and school leadership are the most important factors in raising student achievement. For teachers, school and district leaders to be as effective as possible, they must continually expand their knowledge and skills to implement the best educational practices.

The job of teaching is not getting easier and neither is the work of preparing highly effective teachers and principals. The children attending our rural, low income schools are increasingly more likely to lack a strong family support system and be living in extreme poverty. To counter these daunting demographic challenges, our students need intelligent and passionate teachers and leaders who understand their content knowledge at a deep level and are skilled, student-centered instructors; ethical professionals; and compassionate human beings who understand how to multiply their effectiveness by engaging students, parents and the community.

Professional learning is defined in 704 KAR 3:035 Section 1 as "an individual and collective responsibility that fosters shared accountability among the entire education workforce for student achievement, and a) aligns with Kentucky's Academic Standards in 704 KAR 3:303, educator effectiveness standards, individual growth goals, and school, school district, and state goals for student achievement; b) focuses on content, pedagogy, pedagogical content-knowledge, as specified in certification requirements and other related job-specific performance standards and expectations; and c) occurs among educators at school who share accountability for student results; d) is facilitated by well-prepared school and district leaders including curriculum specialists, principals, coaches, mentors or other teacher leaders; e) serves simultaneously three purposes: individual improvement, school improvement and program implementation; and f) occurs several times per week."

The most effective professional development engages teams of teachers to focus on the needs of their students. When communities see their schools making steady upward progress, they applaud the role of effective professional development. Policymakers, community leaders, and parents have a responsibility to ensure educators within their schools engage in continuous professional learning and apply that learning to increase student achievement.

Retention of Effective Teachers and Leaders

Teachers and leaders in our rural region would benefit significantly from the restoration of the systems that support and retain effective teachers and leaders. Prior systems enabled students to develop lasting relationships with high-quality educators and ensured continuous improvement for students and schools. Beginning teaching is now well recognized around the world as a particularly complex stage of teacher learning (OECD, 2005). Thus, there is a great deal of research that examines various aspects related to mentoring, induction and comparisons between novice and experienced teachers. An extensive review of international literature on mentoring (Hobson, Ashby, Malderez, & Tomlinson, 2009) looks at the process in terms of benefits, costs, needs and suggestions for policy-makers.

In 2018-2019 the Kentucky state budget, in addition to zeroed out funding for professional learning, removed **funding and support for the Kentucky Teacher Internship Program (KTIP)**. This occurs at a time that we are seeing **more than one quarter of our new teachers leaving the profession less than five years after being certified**. While our local districts are attempting to build their own educator mentoring and retention systems, effective mentoring programs are complex systems and planned over time, sustained, rigorous and embedded within the context of the school. Effective programs must foster collaboration within and across schools and districts. The programs must also be evidence-based and data driven to ensure the program is meeting the needs of the educator and the students they serve. The quality of a school system simply cannot exceed the quality of its teachers. This is true everywhere, but even more amplified in high-need schools with fewer teachers as in the KVEC region. Some KVEC schools have only one teacher per grade level. Those teachers have little opportunity to interact and network with other teachers of the same content and grade level. Local districts are fiscally challenged to have the capacity to develop such systems.

The Kentucky Teacher Internship Program (KTIP) and the former Kentucky Principal Internship Program (KPIP) supported first-year educators who had just completed their undergraduate studies by providing these young professionals with both a mentor teacher from their assigned school and ongoing support from a university professor. KTIP allowed the first-year teacher to be observed and coached by several veteran educators throughout the year, which was vital their success. The internship was good for the teachers and for the students in their classrooms. Rather than allowing first-year teachers to struggle with classroom management, lesson planning, assessments, etc., under KTIP supervision, the specific needs of new teachers were identified and addressed quickly. Without proper funding, it is likely that these teachers will enter the classroom without the additional support of a mentor teacher and professor. This certainly is not what is best for either teachers or students. For every $1 spent on internships, there is an estimated return of $1.66 on the reduced costs for teacher replacement and improvements in student

achievement. Nearly 60% of a school's impact on student achievement is attributable to principal (25%) and teacher (33%) effectiveness.

Additional support from mentoring programs like the former KTIP also helped districts retain new teachers and set them on the path to becoming effective educators. Many states require mentors and induction programs for novice teachers to earn a professional license. Most importantly, research shows that new teachers who received intensive mentoring had a significant effect on student achievement after as little as two years (Strong, Fletcher, & Villar, 2004; Serpell & Bozeman, 1999). These programs need to be restored at least for the schools and districts with the greatest needs, if not for everyone.

In 2019, the Kentucky Department of Education announced a new program, The Kentucky Academy for Equity in Teaching (KAET). KAET is designed to identify and prepare a pool of highly effective, experienced, and diverse educators poised to transition into the teaching profession in Kentucky's public schools. KAET participants going through initial certification will receive financial support and training as they are supported and mentored by experienced and effective educators. The program is a state funded effort supported by KRS 161.165 and KRS 161.167 to encourage and support a diverse applicant pool of persons entering the Kentucky teaching profession.

The benefits of teacher recruitment and retention far surpass fiscal and management benefits. Research has shown that when turnover contributes to teacher shortages, schools often respond by quickly hiring inexperienced or unqualified teachers to fill classrooms, or by increasing class sizes or cutting class offerings, all of which negatively impact student learning. New teachers in high-turnover schools have to learn curriculum, become familiar with policies and get to know classrooms full of students without the benefit of veterans' guidance.

New teachers, without the benefit of mentoring or induction programs have a hard time acclimating to the demands of teaching, their school and education initiatives. A group of committed teachers who come back year after year, work together on meaningful continuous improvement and build collegial relationships as a professional learning community is much more productive than a group constantly trying to get acquainted. Children living in poverty face greater, and more, challenges than other children. Therefore, since children living in poverty may not have access to resources that can further their learning, it is crucial that teachers have the skills and support to adapt their teaching and support for students in order to accommodate for children living in poverty. Teachers of students from poverty cannot conform to the deficit theory as they are responsible for getting their students motivated, ready to learn and to succeed. Schools, teachers and administrators can have a powerful impact on the academic achievement and success of all children by viewing them as 'at-promise' rather than 'at-risk' and preparing them to reach

their full potential (Garris, 2014). A good education is often the only means of breaking the cycle of poverty for poor children (Garris, 2014).

Teachers are critical to help students deal with trauma and stressors in their lives. Poverty impacts the lives of students by creating emotional and social challenges, acute and chronic stressors, cognitive lags, and health and safety issues. These issues include more hazardous places to live or homelessness, lack of healthy food, contaminated water and other stressors. There are fewer support networks on which students can rely. The stressors experienced from poverty traumatize their victims (Jensen, 2009). In addition, many students from poverty have been traumatized in ways not directly related to their socioeconomic status. The number of students living in poverty who have been traumatized has been estimated between 50-80 percent (Jensen, 2009). Trauma is the unimaginable experience of what happens to a person who has experienced or witnessed a threat to themselves or another person. That event or series of events changes the person's physiology in such a way that the sensations from the traumatic event become the current sensations of the body and mind until healing takes place. Trauma stemming from the effects of poverty place an additional burden on the economy and health care systems, as the stressors of both poverty and trauma increase the likelihood of chronic illness and socioeconomic issues among these students as they become adults. Policy makers, administrators and educators should be aware that curriculum alone will not fully and completely educate students. The education community must make room to include the socioemotional component of learning to not only make the educational process whole, but also the minds of our students, especially those from poverty. This type of educational process requires highly qualified educators who are able to establish caring, sustainable relationships with their students.

Teaching in a small school places increased responsibility on educators. For example, a science teacher in a small rural high school may teach each of the science courses offered by the school. She or he may prepare to teach up to five different courses each day. When a job becomes available in a suburban school in which they will be able to teach one or two science courses daily for higher pay, the decision to leave is not a difficult one.

Rural principals must take on extra duties that their counterparts in more urban, populated schools do not. For example, the rural principal provides instructional leadership to the school and staff, must provide oversight for all extra-curricular activities, manage resources to provide basic needs and services to students such as counseling and medical care, make home visits, manage discipline and a host of other leadership duties normally shared among assistants and other support staff in larger schools.

In examining challenges facing rural educators, it is important to acknowledge the challenges faced by **rural Superintendents**. Rural school districts and their superintendents face obstacles not found in suburban and urban areas. These obstacles include isolation, limited resources and community resistance

to change (Barker, 1985; Beckner, 1983; DeYoung, 1994; Sher & Rosenfeld, 1977; Stephens & Turner, 1988). Some attitudes about "ruralness" are negative (Haas, 1991; Herzog & Pittman, 1999). Rural districts endure rapid and frequent turnover among superintendents in their service (Bryant & Grady, 1989; Chance & Capps, 1992; Grady & Bryant, 1991a & 1991b; Wilson & Heim, 1985). The tenure of superintendents in our region is relatively short. **Fifty percent of the districts in the region (11 of 22) are led by superintendents with less than five years' experience**. **Five of 22 districts have first-year superintendents.**

Research highlights the challenges facing those in rural superintendent positions. First, the role of rural school superintendent has become increasingly difficult as a direct result of increased demands and decreased assistance. Superintendents in the KVEC region work to do more with consistently declining resources. As is the case in many public service roles, the rural superintendent has been thrust into a more visible and more accountable position: more media coverage, more accountability for test results and more responsibility for finance. All these factors contribute to greater stress in the role.

Concurrently, the rural superintendent has less assistance to complete key tasks and must complete those tasks himself or herself due to cost-saving measures in many small rural districts. KVEC superintendents also earn less than their counterparts across the state. The average salary for a superintendent in the KVEC region is approximately 10 percent less than the state average for the same position. The superintendent position in the KVEC region requires the district leader to fulfill the same responsibilities as their counterparts in other parts of the state and often requires them to fill multiple time and labor intensive administrative roles in addition to their duties as Superintendent.

Summary

The challenges facing schools and districts are not uniform. Therefore, it makes little sense to address the broad range and diversity of problems faced by schools and districts through one-size fits-all policies. The unique challenges faced by rural schools and districts require federal, state and district policies specifically and equitably targeted to their needs. While the centrality of the school to rural community life may be an asset, it also places added demands on educators to serve functions beyond their primary purpose in education (National Education Association, 2008).

Most gaps that rural schools work to overcome with students—opportunity gaps, achievement gaps, graduation rate gaps — correlate with poverty. Poverty — and the persistence of poverty — directly impacts the ability of children to learn, and the ability of schools to provide educational opportunities. Addressing rural students' lack of resources can be transformative in ensuring they have an equitable opportunity to succeed.

Teaching and Leading Considerations

1. Consider the processes and protocols currently in place to recruit, develop and retain high quality public school educators and how those structures contribute to an intentional systemic investment in our educational system's most valuable asset – it's human capital.
2. Examine whether pay inequities exist for professionals with the same rank and experience and similar responsibilities.
3. Investigate the current system for ongoing professional learning to determine adequacy of resources.
4. Consider restoring professional development resources as an allocation to districts.
5. Consider restoring funding for mentoring systems for both teachers and administrators.
6. Explore developing a recruitment and retention initiative aimed at securing and retaining teachers to serve rural and other high-need areas of the state.
7. Consider support for virtual learning opportunities that provide access to dual credit, AP, CTE or other courses for students who attend small schools that may be adversely affected by the economy of scale.
8. Explore developing or reinforcing partnerships (including resources) between KDE and regional education service agencies to provide multi-level support for critical ongoing professional learning.
9. Develop partnerships (including funding) between SEA and regional education service agencies to provide school improvement support to the schools and districts in the region.
10. Acknowledge that the 2019 KAET program is a positive step toward developing a highly qualified pool of educators in Kentucky and expand upon this initiative to serve learners in communities across the state that struggle to attract and retain talent.

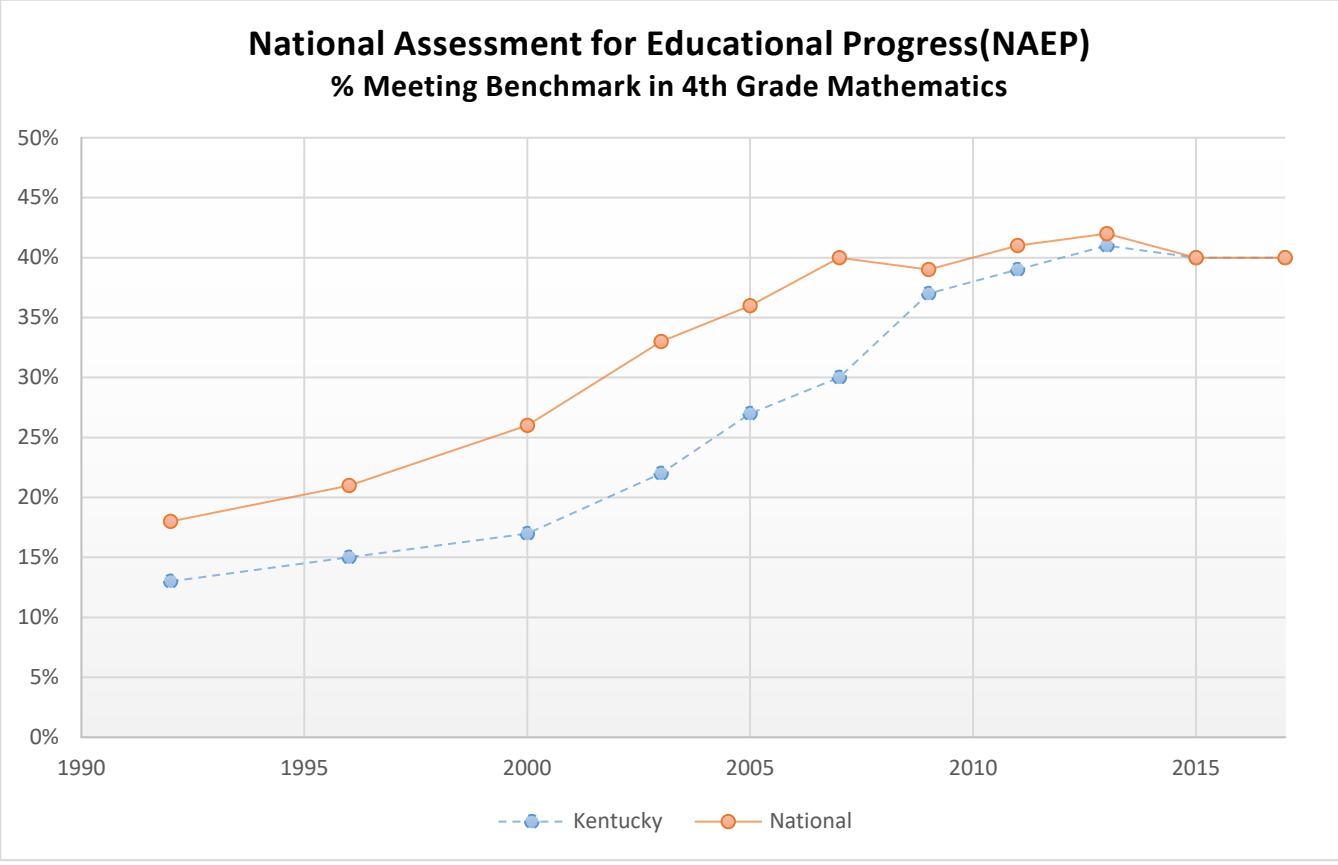
Measuring and Improving

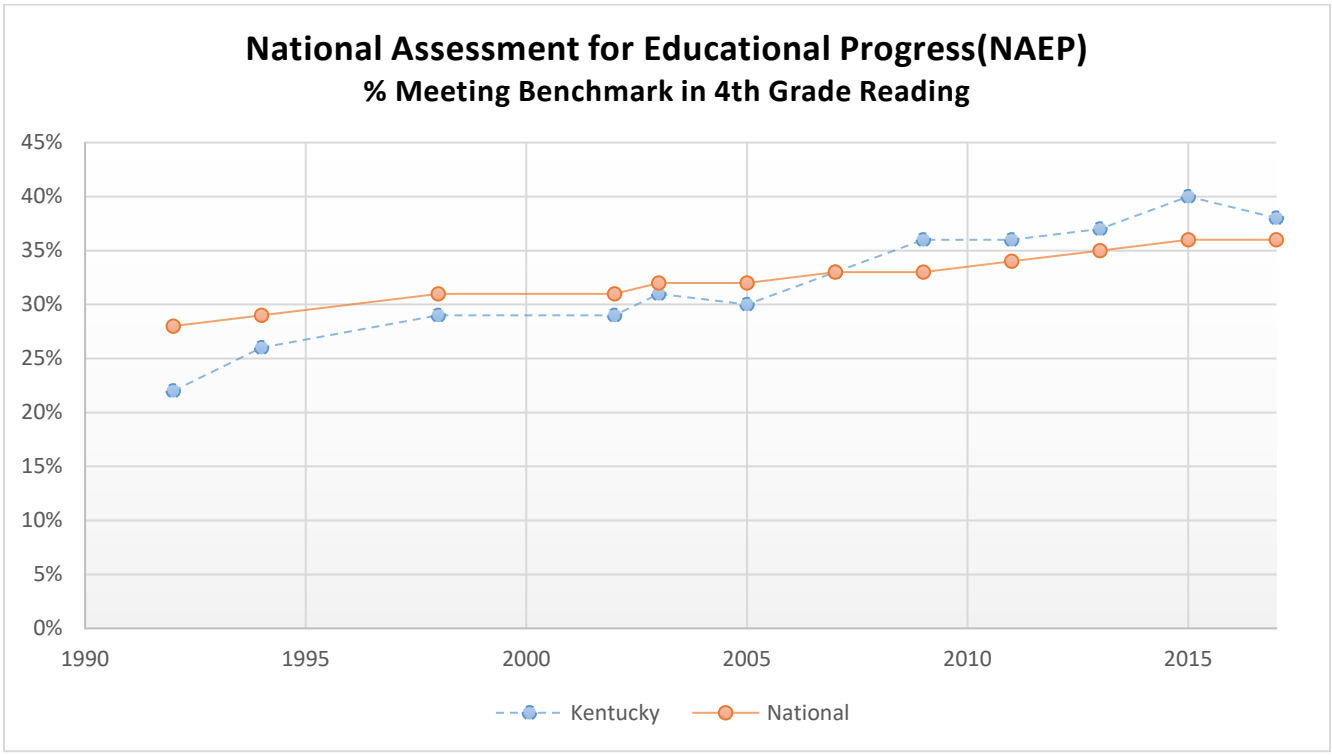
A Significant Beginning

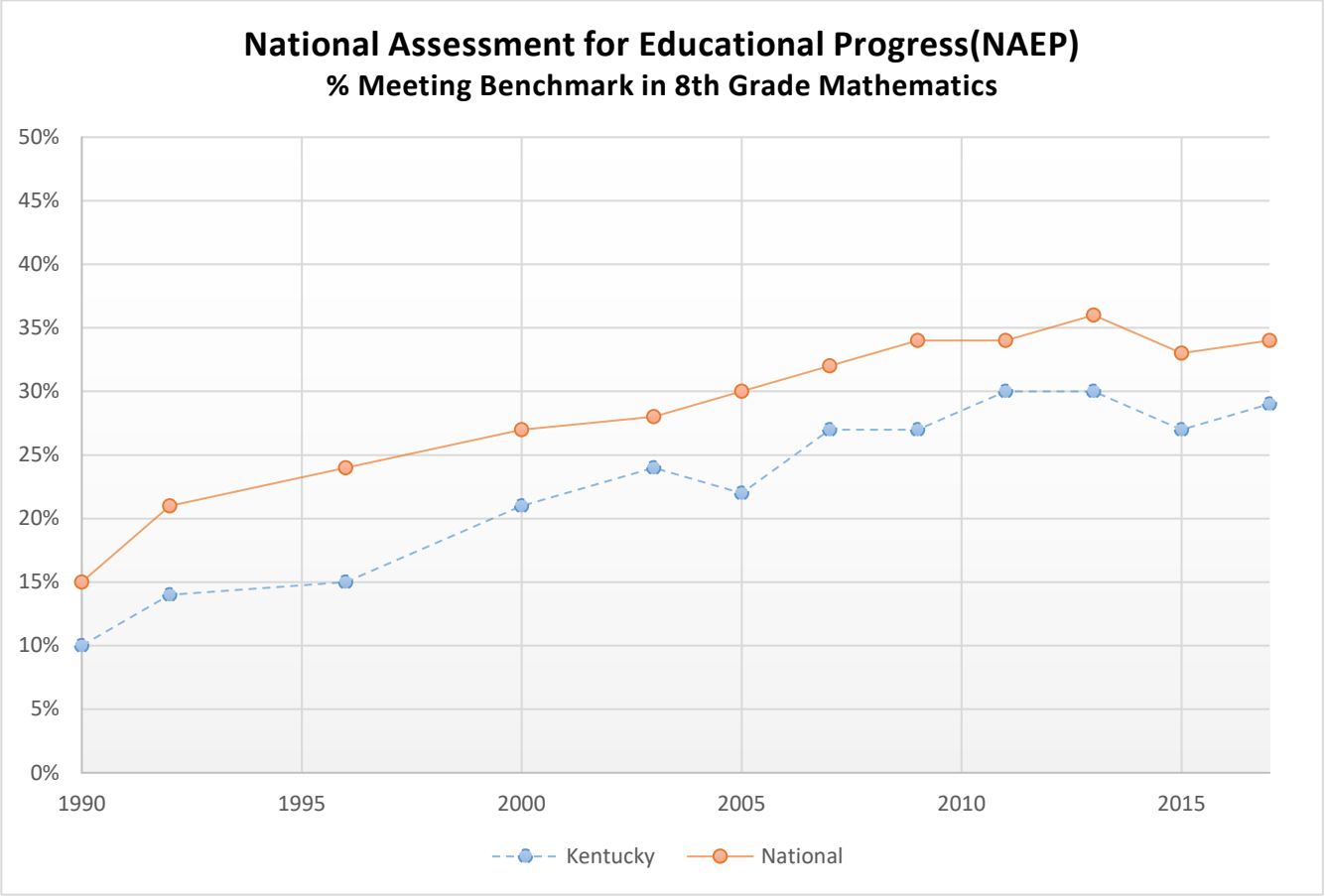
July 13, 1990 marked a turning point in Kentucky's public education system with the passage of House Bill 940. From this bill was born the Kentucky Education Reform Act (KERA) brought about by inequitable funding to schools across the commonwealth. With aims to level the field in available resources to all schools, there also was born Kentucky's school accountability movement. The primary focus of accountability was to lift student achievement and to ensure all students regardless of location would receive a quality education.

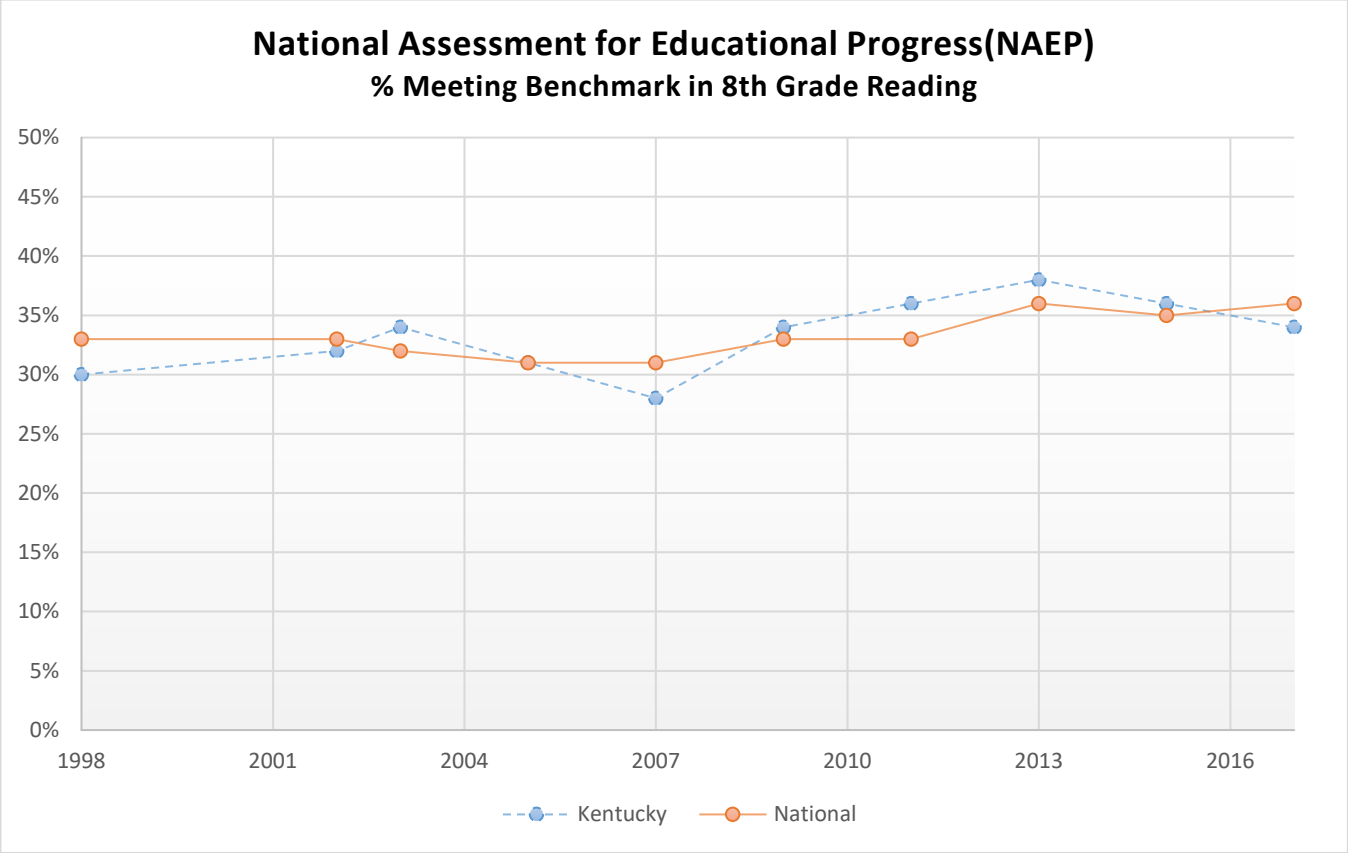
Showing Improvement

Student achievement has improved in Kentucky since 1990 as evidenced in NAEP and ACT scores. The National Assessment for Educational Progress (NAEP) is the most valid nationally administered assessment that can be used to look for this improvement due to its sampling of student performance in every state. NAEP tests fourth and eighth grade reading and math. See below for available NAEP data since 1990.



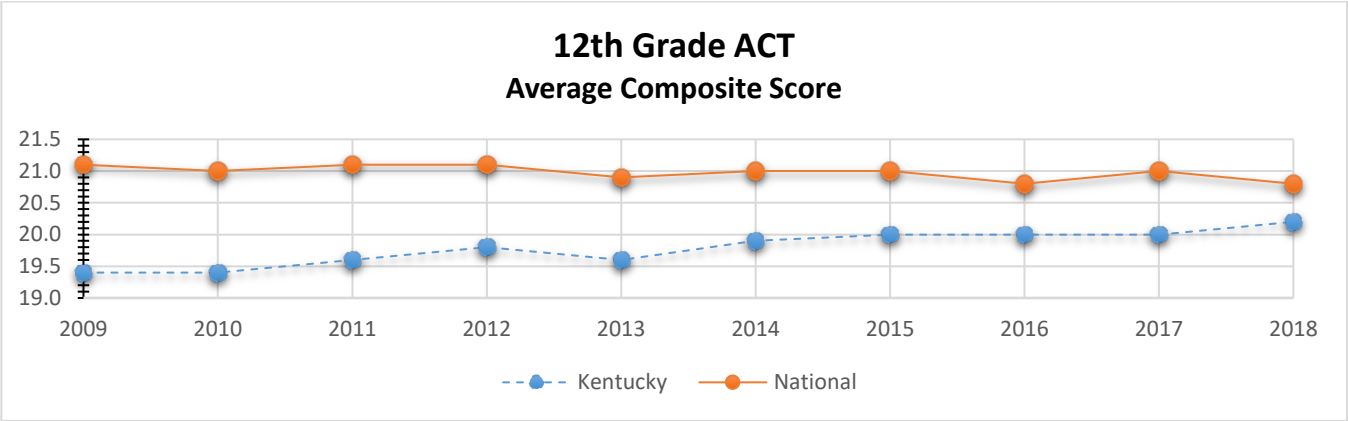

National Assessment for Educational Progress(NAEP)
% Meeting Benchmark in 4th Grade Reading
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
1990
1995
2000
2005
2010
2015
Kentucky
National


National Assessment for Educational Progress(NAEP)
% Meeting Benchmark in 8th Grade Mathematics
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
1990
1995
2000
2005
2010
2015
Kentucky
National



Fourth grade reading has shown improvement in percentages of students at or above proficiency – from 22% in 1992 to 38% in 2017. Likewise, fourth grade mathematics has improved from 13% in 1992 to 40% in 2017. However, the state's performance in comparison to the national average in both reading and math has fluctuated slightly above or below over the years. While we have improved, we continue to hover around the national average. Eighth grade mathematics shows more improvement than reading, but we continue to perform below national average in mathematics, while reading is above.

Not as valid a comparison as NAEP is the high school seniors' average ACT composite score. **Not all students take ACT in every state** and Kentucky students have not always been required to take ACT their junior year. See below for ACT average composite scores since 2009.



Kentucky's 2009 senior ACT average composite was 19.4 compared to 20.2 in 2018. The national average in 2010 was 21.1 and 20.8 in 2018. The drop in national scores is likely due to larger percentages of students who now take the ACT. **Like NAEP, we have seen improvement in ACT composite scores, but are still performing below the national average.**

Assessment & Accountability Timeline

Since 1991 Kentucky has gone through five accountability system phases. The first was the Kentucky Instructional Results Information System (KIRIS), which ended in 1998. The Commonwealth Accountability Testing System (CATS) was in place from 1999 to 2008. For the next two years (2009-2011) there was a period of interim accountability. Unbridled Learning was in place from 2012 to 2016 and then, another interim accountability phase began in 2017. We are expected to enter the sixth accountability phase for the 2019 reporting year that can be referred to as the 5-Star Accountability System. Over the course of thirty years, this would give an average lifespan of five years for an accountability system. The longest span was CATS at nine years, but since 2009, the longest span for any one phase was four years with two Interim accountability phases at two years each during this same time-period. See below for further detail.

Significant Assessment and Accountability Milestones

----- Federal Legislation ----- State Legislation -----Accountability Systems

1990 **Passage of House Bill 940. From this bill was born the Kentucky Education Reform Act (KERA) brought about by inequitable funding to schools across the commonwealth.**

1992 **KIRIS, Kentucky Instructional Results Information System begins – KERA's first statewide assessment accountability system. Included performance events, on-demand writing and writing portfolios.**

1993 Math portfolios added.

1994 On-demand writing removed.

1995 On-demand writing added.

1997 Performance events and math portfolios removed.

1997 CTBS/5 introduced as norm-referenced assessment component.

1999 **Commonwealth Accountability Testing System (CATS) replaces KIRIS.**

1999 KCCT, Kentucky Core Content Test replaces KIRIS assessment.

2002 NCLB, No Child Left Behind Act signed into law.

2006 Augmented version of assessment combining KCCT and CTBS.

2007 CTBS norm-referenced assessment removed with ACT Explore and Plan added.

2008 Junior ACT college entrance exam added.

2009 Senate Bill 1 includes accountability system revisions.

2009 Interim accountability system replaces CATS.

2009 Writing portfolios removed.

2010 ITBS, Iowa Test of Basic Skills added as norm-referenced assessment component.

2010 Kentucky is first state to adopt Common Core Standards in math and English language arts.

2012 Unbridled Learning accountability system replaces the interim accountability system.

2012 KPREP, Kentucky Performance Rating for Educational Progress assessment replaces KCCT.

2012 Stanford 10 replaces ITBS as norm-referenced assessment component.

2012 Separate norm-referenced assessment added in language mechanics.

2012 ACT Quality Core End-of-Course assessments added.

2013 Kentucky adopts Next Generation Science Standards

2015 ESSA, Every Student Succeeds Act signed into law.

2016 ACT Explore and Plan removed.

2016 Science Through Course Tasks debut in classrooms.

2017 Senate Bill 1 includes accountability system revisions and repeals Common Core.

2017 Interim accountability system replaces Unbridled Learning.

2018 ACT Quality Core End-of-Course assessments removed.

2018 Separate norm-referenced assessment in language mechanics removed.

2018 Science Through Course Tasks no longer collected from school districts.

2019 Kentucky plans to adopt new social studies standards.

2019 5-Star Rating accountability system replaces the interim accountability system.

The State of Change

When looking back at assessment schedules for each year **since 1992** and counting the number of changes due to arrangement of tested subjects and types of tests, there have been **a total of 226 changes across tested grade levels**.

Changes in Student Testing across Grade Levels since 1992											
Grade Level	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**11th**	**12th**	**Total**
# of changes	**16**	**37**	**26**	**20**	**26**	**31**	**7**	**21**	**23**	**19**	**226**

Within each accountability system are many components. Components include the subjects tested, grade level, assessment methods employed and question method delivery. Assessments since 1992 have included multiple choice, short answer and extended answer constructed response, performance events, writing portfolios, math portfolios, on-demand writing, alternate assessments, on-line assessments and the introduction of technology enhanced question formats. There have been state designed assessments, norm-referenced assessments, college entrance exams, college placement exams and end of course exams. Names like KIRIS, CTBS/5, KCCT, ACT, Explore, PLAN, KPREP, ITBS, Stanford 10, Quality Core and augmented versions of these have been used throughout the different systems.

There have been **six years out of 27 with the same assessment schedule.** This does not take into account the changes in assessments due to new content standards nor the variations of accountability measures like achievement, GAP, growth, transition readiness, quality of school climate and safety, etc.

When one adds the changes that have happened in federal law such as No Child Left Behind and Every Student Succeeds Act in addition to our own state laws and regulations – it is evident that we have been and are in a constant state of change.

The KIRIS Accountability Cycle 3 Technical Report of 1998 states, *"Inherent in the accountability system is the recognition that the massive changes in instruction and learning will require many years to be achieved. Originally, there was no definite schedule, although many spoke of this as an effort that would take at least 20 years. In its implementation of 1998 amendments to the act, the Kentucky Board of Education specified that the process be targeted for completion by 2014."* **Systemic change requires consistent effort over time. Fluctuating targets requiring complex measures may limit our ability to demonstrate improvement.**

Equity in Accountability

An examination of public policy and national thought on systems of educational accountability reveals two common factors, every system has inputs and outputs. Outputs are items like academic growth while inputs might be how we distribute and monitor financial resources. Many times, we measure outputs hoping to change inputs. For example, we may want all students to have the same opportunities and access to high quality experiences in learning, so accountability is looked to as a way to persuade schools and districts to use their resources to provide this. In an ideal, resource abundant environment, every school could offer AP, IB or Cambridge courses, multiple career pathways including those in high demand, vast opportunities for work experience and apprenticeships, opportunities to experience culture and the arts, opportunities to study multiple languages, and many more, but the reality is not all schools have this ability due to resources. Location and persistent poverty drastically affects resources.

Accountability systems can unintentionally harm schools located in distressed communities. For example, points awarded in the accountability system for schools who offer high demand career pathways can serve to favor locations that are more affluent with larger populations. Communities such as these are more likely to have the capability to offer diverse career pathways, while distressed communities may feel helpless to affect variables outside their control. In this way, we unintentionally send messages of alienation and further handicap schools in measures of performance due primarily to their location and socio-economic status.

At the December 2018 Kentucky Board of Education meeting, Commissioner Wayne Lewis spoke on revisions to the proposed graduation requirements saying, "The key concern is depending on the district that we are talking about, the routes that a district can provide for kids to get all the way to transition readiness can be very limited. There is an equity concern. So as much and as high as I want to recommend

raising the bar and as much as I am going to continue to push to raise the bar, I do think we have to do that while being mindful of the inequities that are currently the reality across our districts."

Zancanella & Brown (1992) among others have found state assessment and accountability systems can exert a powerful influence on teacher decisions related to curriculum and limit the time to include lessons outside what is tested. Distressed communities in particular need their schools to take part in community problem solving, outreach, entrepreneurial projects and many more community-focused activities, but current accountability systems may influence efforts elsewhere. How do we allow schools more flexibility and incentives to become change makers in the communities they serve?

Summary

Kentucky has historically demonstrated boldness in advancing education aims to better the future of our children. Beginning in 1990 with House Bill 940, we embarked on what is nearing a 30-year journey of education improvement. National measures like NAEP and ACT show progress for Kentucky and present us with additional goals to set. While we work to improve academically, like in 1990, we find our communities still vary greatly due to location and levels of poverty. **In efforts to provide students' equal educational opportunity we have included measures in school accountability that unintentionally give advantage to locations of larger populations and wealth.** Measures meant to increase student opportunity could leave many rural communities reaching for solutions that may not be possible due to location and limited resources.

Changes in federal law, state law, revisions to academic standards, available assessment vendors, declining budgets, and genuine intentions to improve our accountability system, have left us in a state of change so frequent that time for implementation and our ability to measure improvement has been limited. Our academic improvement is notable, but the low-lying fruit have already been picked, leaving only difficult obstacles ahead. Such as, how do we limit frequent change in a system with so many contributing organizations? How do we ensure an accountability system that can withstand the winds of change in an effort to improve and measure?

In November 2016, the Learning Policy Institute addressed Equity and Every Student Succeeds Act – *"As states, districts, and schools prepare to transition from an NCLB era of prescriptive federal oversight to one in which they will have increased flexibility to determine the goals, targets, interventions, and supports used to improve schools, it is imperative that communities and stakeholders be informed and engaged"*. The considerations presented below encourage the Kentucky Legislative body and the Department of Education – as the State transitions to a new accountability model – to move beyond a

prescriptive model of a one size fits all assessment/accountability model to allow for a differentiated model that best fits isolated rural school districts with limited resources.

Many of Kentucky's communities are hurting and need their schools to offer hope for a brighter future. **Our emphasis on academic improvement is not misplaced, however a school's function goes beyond academic attainment to also include civic engagement and community leadership.** How do we design systems of accountability that enable schools to demonstrate success in critically important academic measures, enable local voice and leadership in place-based initiatives and account for the wide variances in equity issues that exist across all Kentucky public school districts?

Measuring and Improving Considerations

1. Consider how best to clarify the complex systems of assessment/accountability and study how existing and emerging protocols can best be tailored to accurately demonstrate performance and ensure accountability across resource-diverse communities and districts.
2. Consider the frequency of change to the assessment and accountability systems to allow for implementation and accurate measures.
3. Consider time necessary for educators to acquire the necessary training in the changed systems and adapt curriculum and instruction prior to being tested.
4. Consider establishing an ongoing working group whose sole purpose is to examine and report on unintended consequences that may result from a proposed change to assessment or accountability.
5. Consider adopting an enhanced communication campaign that more clearly articulates the intent of the state assessment and accountability system, how the system achieves the stated intent and how it can be effectively delivered to broad audiences.
6. Consider school accountability measures that magnify inequities between school districts challenged by scale or access to diverse opportunities.
7. Consider recognizing mechanisms that support students and schools collaborating in their local community through civic engagement such as; community problem solving, entrepreneurial projects, outreach programs and student leadership by counting that work as a measure of academic success.

Call to Action

A Way Forward

Allow us to be plain-spoken.

An examination of data associated with economic vitality and quality of life for much of eastern Kentucky is bleak.

The outlook is bleak for many communities in rural Kentucky based on current realties and trend data projections.

Sociologists who study the region and authors who write about the area often observe that the region bears remarkable similarities to struggling countries and to a degree, resembles a third-world country within the continental boundaries of the United States.

Over several decades, indicators of economic vitality and community quality of life have seen little to no gain - and in some measures declined. The region has, however, consistently excelled in one significant area; exporting our natural resources. Whether it be timber, coal, oil, natural gas or the greatest loss of all – our youth and our neighbors. **We have exported our region's wealth to other communities and neglected sustainable investment in our own**.

There have been bright spots: community members unwavering commitment and connection to place, infrastructure improvements in some locations, local entrepreneurs creating place-based opportunities, purpose driven initiatives have provided much needed resources but lasted only as long as grant funding was available – and - a consistent hope that K-12 education could lift the region's youth.

It is important to affirm here that public schools in Kentucky are institutions of the Commonwealth. Educational goals and operational protocols are set by the State and Federal Departments of Education and local districts are charged with offering services to communities while being led by an elected School Board representative of the community. Local school districts are required to operate within protocols for determining school success established by the KDE. In broad terms, this means that; schools employ a curriculum that provides students the best opportunity to perform well on a Kentucky Department of Education (KDE) approved assessment and accountability model, follow fiscal guidance associated with resource acquisition/dispersal and adhere to rules associated with staffing.

Educational reforms and the adoption of high-stakes testing have narrowed the focus for K-12 educators and leaders. Schools now focus a disproportionate amount of time on what the state and federal

governments have indicated as how schools are judged. However, research indicates that the criteria set for school accountability are ***factors that reinforce the patterns of out migration from rural communities*** (Schefft, 2016). As revenue declines, schools are caused to deploy available resources in a manner that focuses concentrated effort toward scoring successfully on high-stakes assessments. This necessary emphasis makes it increasingly difficult for resource-poor districts to provide the wraparound services and diverse learning opportunities critical for low-income at-risk students to be successful. The overemphasis on accountability has led schools to a divergent path. On the one hand, there is a clear necessity to achieve on state assessments. On the other hand, the preponderance of effort may be accomplished at the expense of authentic student learning that connects students, schools and communities.

Rural communities and rural public schools are inextricably intertwined. In addition to meeting accountability measures, schools have the ability to shape and reinforce a community's identity. Effective rural school districts have a shared community purpose and influence future direction. Rural communities and rural school districts do face a range of challenges that might best be classified in two broad categories; isolation and limited scale. These considerations are presented from a regional perspective in the belief that every community possesses unique assets and that strong alignment and collaboration across all boundaries (geographic, education, agency, government, civic and workforce) are necessary to make the regional whole greater than the sum of its parts.

Community and education are interdependent on each other and have the ability to propel each other toward a revitalization in rural eastern Kentucky that is absolutely necessary to create a viable future, a future where communities thrive, not just survive and where schools and learners work collaboratively across multiple sectors to engage in outcomes-based solutions driven by the unique assets and needs of place. Public education is the **best hope for many learners** and may be the **last-best hope for many communities**.

The following considerations are offered for discussion, deliberation and enhancement that may then be crafted into actionable strategies as a collective effort to increase rural public education's ability to advance learners **and,** through strong partnerships, change the trajectory of this region's economic vitality and community quality of life.

Consideration 1

Establish the first "RURAL *EDU-CONOMY* ZONE" in the nation. School districts, state government, local government and community partners (both public and private) work together to establish a future vision and strategic plan focused on increasing economic and community vitality.

The edu-conomy is the intersection between education and economic development and premised on the belief that a thriving community is advantaged by a high-performing educational system and a high performing school is advantaged by a thriving community.

Rural Edu-conomy Zone actionable components:

1. **Create a RURAL FUTURING WORK GROUP charged with leading efforts associated with the Rural Edu-conomy Zone. The Futuring Group will explore and present an array of opportunities and initiatives to foster a collaborative environment between school and community with the express purpose of intentionally connecting public school and local community in a joint mission to increase economic vitality and elevate quality of life.**

   Schools and community partners working together to increase economic vitality and quality of life offers two significant benefits: 1) increasing the capacity for economic development increases the local communities ability to contribute more resources to the school district and lessens the state contribution of equalization funds, 2) connecting learners to educational experiences that examine real world challenges and place-based solutions deepens learning and increases both academic performance and the possibility that learners will remain in their home community as adults and grow economic vitality.

   1.1. Potential framing tasks for work group:

   1.1.A. Possible characteristics of Futuring Work Group members may include:

   1.1.A.A. Help people think for themselves

   1.1.A.B. Inspire Leadership

   1.1.A.C. Think and work across "boundaries"

   1.1.A.D. Provoke new ways of thinking

   1.1.A.E. Filter diverse data, connect ideas, make the complex simple

   1.1.B. Futuring Work Group should:

   1.1.B.A. Ensure membership is **representative of critical partners** that includes practitioners from all levels; students, educators, community members, legislators, business and industry, workforce development, state and local government, agencies, civic organizations and higher education.

   1.1.B.B. Gain the commitment of necessary time from initial Work Group Members.

   1.1.B.C. Be fully aware of the data and trend data associated with all elements of the region.

   1.1.B.D. Commit necessary **resources** to ensure success.

   1.1.B.E. Develop initial framework for dissemination process.

1.1.B.F. Develop a **communication plan** designed to reach the broadest cross section of the population possible to solicit involvement, share opportunities and engage in purpose driven work.

2. The Rural Futuring Work Group may choose to explore any number of potential solutions. Those offered below are starting points to advance the work and provide examples.

2.1. Partnerships between districts and partners to collaboratively share physical space and resources.

2.2. Partners will work to secure space to serve as centers for innovation and entrepreneurism for students and community members such as;

- **2.2.A.** Makerspaces
- **2.2.B.** High-tech labs
- **2.2.C.** Co-work space
- **2.2.D.** P-20 learning centers
- **2.2.E.** Innovation hubs

2.3. Consider how to effectively partner with the existing Kentucky Work Ready Program already underway in each county and charged to raise education levels and create an available skilled workforce. This should be a natural partnership that can be leveraged to create a grassroots launch and achieve rapid success.

2.4. Examine alignment of K-12, Post-secondary and Workforce. KDE, KCTCS, CPE and Workforce Investment Areas to determine if there is a need to consider adjustments to structure and protocols that might provide more effective inter-operability and collaboration to address emerging need for community development.

2.5. Call on institutions and organizations to include K-12 representatives (students, educators and staff) in their decision making (boards and councils) and increase involvement of community members in K-12 decision making.

2.6. Participation in a linked network providing leadership experiences and formal community problem solving opportunities designed to address and achieve solutions for real-world challenges specific to place.

2.7. Develop a master list of all training/certification programs in the region K-12 to postsecondary. Work with institutions to align programs to maximize pools of talent, identify gaps, assist in program development (tied to industry needs) and identify high-tech/entrepreneurial program leaders.

2.8. Develop and host on-line intergenerational curricula for New Economy jobs that focus on robotics, drones, computer application development and promotion of entrepreneurism and emerging career pathways.

2.9. Identify New Economy jobs that are not "place-bound" allowing youth to remain in their communities.

2.10. Creation of county-by-county community digital asset map listing employment, cultural, volunteer and entertainment opportunities in the edu-conomy zone.

2.11. Advocate for state and federal workforce funding for K-12 students and not just out of school youth.

2.12. Advocate for the state of Kentucky to establish a special fund to provide both workforce and entrepreneurial training in public schools similar to the Governor's Work Ready program currently targeting advance manufacturing.

2.13. Enhance entrepreneurial opportunities through engagement in regional, state and national networks designed to showcase student generated innovation and increase connections to business and industry professionals.

3. **Explore creation of funding mechanisms necessary to advance economic vitality through school/community partnerships and within the Rural Edu-conomy Zone in an effort to assist in the development of school/community partnerships that serve as economic drivers.**

3.1. Seek public and private funding for K-12 students entrepreneurial startups.

3.2. Explore establishing a special fund to provide workforce and entrepreneurial training in public schools like the Governor's Work Ready Program targeting advance manufacturing.

3.3. Explore leveraging a percentage of the coal/mineral severance tax to assist distressed counties impacted by the coal industry's rapid decline for use in the Rural Edu-conomy Zone for competitive grants by school/community partnerships that combine assets and engage in actionable strategies that result in jump starting community ability to serve as self-perpetuating economic development engines.

3.4. Support reauthorization of the Endow Kentucky Tax Credit which presently enables any Kentucky taxpayer (business or individual) to receive a state tax credit for up to 20% of a charitable gift to a permanent endowment fund at a local community foundation that benefits any Kentucky charity. Consider the addition of a special tax credit for contributions to economically challenged schools and communities. Identify the Rural Edu-conomy Zone fund as a potential recipient.

3.5. Support school districts and school/community partnerships in learning how to create community foundations where they do not exist thereby taking advantage of the historic transfer of wealth taking place across the country.

4. **Review existing "Community School" Policy (and refine if necessary) to expand opportunity for local communities and school systems to work together toward economic development and community vitality. School districts have tremendous assets - infrastructure and staffing - that may be leveraged for community development efforts. Explore whether municipality groups and local school boards can work to combine resources and better serve their communities as a whole.**

4.1. Excerpt from Kentucky Revised Statutes included below:

4.1.A. 160.155 Definitions for KRS 160.157. As used in KRS 160.157, unless the context otherwise requires: (1) "Board" means the board of education of a local school district; (2) "Community school" means a school that makes its facilities available for citizen use, coordinates activities of local citizens in identifying program needs and establishing priorities, identifies and utilizes available program resources, and assists in the initiation of programs to improve the cultural, social, recreational, and educational opportunities available in a community; (3) "Community education program" means a program in which a public building, including a public elementary or secondary school, is used as a community center operated by a local

education agency in cooperation with other groups in the community, community organizations, and local governmental agencies to provide educational, recreational, cultural, health care, and other related community services in accordance with the needs, interests, and concerns of the community; and (4) "Community education director" means an employee of a local school district who is responsible for a countywide program of community education in a school district or school districts. Effective: June 25, 2009 History: Amended 2009 Ky. Acts Ch. 42, sec. 1, effective June 25, 2009. -- Repealed and reenacted 1990 Ky. Acts Ch. 476, Pt. V, sec. 423, effective July 13, 1990. -- Created 1982 Ky. Acts Ch. 107, sec. 1, effective July 15, 1982.

***Critical questions*:**

- Are there incentives for schools and communities to work together?
- Could an expanded Community School model help to make Work Ready Community status actionable?
- Does a community "asset map" exist that identifies resources (physical and human) for use to determine duplication, gaps and possible collaboration?
- Could different agencies in small communities unite resources to prevent duplications of services? Possible examples may include; school and public libraries sharing resources, county and school bus garages, bonding potential and funding for construction projects, etc.
- Can schools create their own for-profit businesses? Examples may include; school operated movie theater, catering services, weekend restaurant, "pop-up" services, transportation services, maintenance or lawn services, printing shop, country store, etc.

Consideration 2

Create an Education Equity Team to develop an EDUCATION EQUITY ASSESSMENT and explore changes in policy and legislation to ensure academic equity for all students.

*An **education equity assessment** is a necessary first step toward insuring that students in every school across the Commonwealth are provided equitable opportunities and resources to achieve. The equity assessment is comparable to assessments employed through Title IX. (Title IX is a comprehensive federal law that prohibits discrimination based on gender.)*

This education equity assessment may be used by the Legislature, State School Board, Department of Education, local school boards, Site based Councils, Faculty and Staff, Educational Service Agencies to inform planning, resource considerations and equity aligned policy and practice.

1. **The design of an Education Equity Assessment could begin with an examination of the following elements and, through a multi-partner development process, evolve into an effective measure of a school's access to critical learner resources that are necessary to overcome opportunity gaps.**

1.1. Facilities

1.1.A. Age

1.1.B. Size

1.1.C. Capability
1.1.D. Community Access

1.2.Learning Resources
1.2.A. Transportation
1.2.B. Technology
1.2.C. Equipment
1.2.D. Supplies
1.2.E. Media Center
1.2.F. Instructional Supplies

1.3. Opportunities
1.3.A. Career and Tech Education availability
1.3.B. Art
1.3.C. Music
1.3.D. Advanced Placement
1.3.E. Dual Credit
1.3.F. Distance Learning

1.4. Educator Quality
1.4.A. Certification
1.4.B. Available workforce
1.4.C. Compensation

1.5. Local Support
1.5.A. Foundational support
1.5.B. business and Industry
1.5.C. Civic Organizations
1.5.D. Boosters/Volunteer Groups
1.5.E. Community Partnerships

Consideration 3

Publicly communicated DECLARATION OF COMMITTMENT involving all levels of state and local government to achieve a National Top 10 ranking for Kentucky's K-12 public education system within 10 years. Recognize that achieving this goal requires all schools and districts in the Commonwealth to achieve at high levels and be equipped with equitable resources to serve the unique learning needs of students.

1. **Potential framing tasks:**
   1.1. Creation of a working **Task Force** to guide and propel this work.
   1.2. Task Force membership **representative of critical partners** that includes practitioners from all levels; students, educators, community members, business and industry, workforce development, state and local government, agencies, civic organizations and higher education.
   1.3. Commit necessary **resources** to ensure success.
   1.4. Rapid development and implementation of **outcome driven strategic plan**.

1.5. Develop a **communication plan** demonstrating the strong connection between education and economic development that increases the sense of urgency to accomplish this goal and secures support for the work at all levels – state, region and community.

2. To achieve this distinction, it may be necessary to consider the following contributing factors:

2.1. Public Education Funding/Learning Resources

2.1.A. Analyze the trend data for public investment in K-12 education in Kentucky from 1990 to the current year with a particular focus on the time span beginning in 2008 (National Recession) forward. Analysis may include:

2.1.B. examination of "real" dollar inflation-adjusted per pupil spending, change over time in state vs. local contribution to revenue, change in tax policy to combat the recession and resultant change in revenue, funding gap between property poor and property wealth districts, reductions and cuts to Department of Education and other related agencies that result in districts absorbing the cost locally.

2.1.C. current research on the impact of public education on economic development and quality of life.

2.1.D. impact of unfunded mandates (a statute or regulation that requires a local school district to perform actions, with reduced or zero resources provided by the governing authority) such as: student transportation, Family Resource and Youth Service Centers, text books, Safe Schools, professional development, early childhood, etc.

2.1.E. examination of public education funding models in other states that have expanded equitable funding strategies based on student need and community composition. Weighted funding formulas focus on equity and access to opportunity and are based on applying a "weight" on the number of students and, often, on the concentration of students from low-income families, students with disabilities, designated English learners and "at risk" youth.

2.2. Completed in-depth analysis should be available and distributed publicly as a contributing resource for ongoing dialogue.

2.3. Examine funding streams that will support redesigned avenues for continuous professional learning, mentorships and recruitment/retention initiatives.

2.4. Conduct an in-depth study and examine funding formula that ensures equitable funding for transportation based on attributes of square miles, topography, etc.

2.5. Examine funding mechanism to ensure children of poverty have the resources needed that will provide life experiences for children who can catch up to students in less impoverished areas.

3. Teaching and Leading

3.1. Consider the processes and protocols currently in place to recruit, develop and retain high quality public school educators and how those structures contribute to an intentional systemic investment in our educational system's most valuable asset – it's human capital.

3.2. Examine whether pay inequities exist for professionals with the same rank and experience and similar responsibilities.

3.3. Investigate the current system for ongoing professional learning to determine adequacy of resources.

3.4. Consider restoring professional development resources as an allocation to districts.

3.5. Consider restoring funding for mentoring systems for both teachers and administrators.

3.6. Explore developing a recruitment and retention initiative aimed at securing and retaining teachers to serve rural and other high-need areas of the state.

3.7. Consider support for virtual learning opportunities that provide access to dual credit, AP, CTE or other courses for students who attend small schools that may be adversely affected by the economy of scale.

3.8. Explore developing or reinforcing partnerships (including resources) between KDE and regional education service agencies to provide multi-level support for critical ongoing professional learning.

3.9. Develop partnerships (including funding) between SEA and regional education service agencies to provide school improvement support to the schools and districts in the region.

3.10. Acknowledge that the 2019 KAET program is a positive step toward developing a highly qualified pool of educators in Kentucky and expand upon this initiative to serve learners in communities across the state that struggle to attract and retain talent.

4. Measuring and Improving

4.1. Consider how best to clarify the complex systems of assessment/accountability and study how existing and emerging protocols can best be tailored to accurately demonstrate performance and ensure accountability across resource-diverse communities and districts.

4.2. Consider the frequency of change to the assessment and accountability systems to allow for implementation and accurate measures.

4.3. Consider time necessary for educators to acquire the necessary training in the changed systems and adapt curriculum and instruction prior to being tested.

4.4. Consider establishing an ongoing working group whose sole purpose is to examine and report on unintended consequences that may result from a proposed change to assessment or accountability.

4.5. Consider adopting an enhanced communication campaign that more clearly articulates the intent of the state assessment and accountability system, how the system achieves the stated intent and how it can be effectively delivered to broad audiences.

4.6. Consider school accountability measures that magnify inequities between school districts challenged by scale or access to diverse opportunities.

4.7. Consider recognizing mechanisms that support students and schools collaborating in their local community through civic engagement such as; community problem solving, entrepreneurial projects, outreach programs and student leadership by counting that work as a measure of academic success.

Examples of Innovative Practice

from districts and schools across the region

Innovative learning initiatives are underway in schools and classrooms across the region impacting academic performance and meaningful collaborations that contribute to economic vitality and quality of life in our communities.

Below is a sampling of innovative learning practices from the region that:

- *enhance academic performance of students,*
- *demonstrate responsiveness to community need,*
- *focus on College and Career Readiness,*
- *increase teacher quality/talent,*
- *use technology in innovative ways,*
- *reduce student or educator isolation,*
- *build unique partnerships and collaborations with local business or higher education,*
- *highlight student as entrepreneur,*
- *increase student leadership,*
- *overcome access and opportunity gaps.*

All submissions are reprinted as received.

Building it Forward – Regional Initiative

KVEC's Building it Forward/Tiny House initiative began in 2016 as a competitive grant process to empower teachers and students at Area Technology Centers (ATC) to invest in creating their own "future story" through Purpose Driven Learning. We believe **Building it Forward** is one strategy for rural development that addresses education, economic vitality, local agency, quality of life and community sustainability by teaching students trade skills such as home design, construction and budgeting! It goes further to engage students, teachers, schools, districts and communities in using their strengths and assets to collaboratively solve their own challenges and build capacity for improvement and innovation.

Not only has this project created interest from potential business investors, it has allowed students to have practical work experience while under the guidance of their teachers. Vocational school educators were excited by the opportunity to truly engage in this purpose driven project and know that because it was designed with sustainability in mind, they have the option to continue this work each year. Students are now able to have agency in their learning and teachers have more flexibility to personalize instruction for students who learn better by a hands-on approach. Teachers have reported that students are more engaged in learning and they have documented an increase in attendance.

Prior to submitting the application, students conduct research that includes local zoning laws, licensing process, building inspection and fire codes, etc. Designing and constructing a 'turn-key' Tiny Home in only eight months is not easy when factoring in weather related events and other school closures. Teachers and students accept the challenge and they have met their deadline each of the three years. Grants are awarded based on the quality of design, work-plan and ability to complete the project on time and within budget.

Design requirements. Someone must be able to comfortably live in the tiny house. As such, the following are required in the design plans.

- Must be able to be transported (that's the purpose of the house for many)
- Must have a vehicle to transport the tiny house to the ARI April FIRE Summit
- Must have adequate plumbing and electricity

- Must include sink, stove or double burner hot plate – but does not need to be a full-size stove, small fridge, toilet, microwave or convection oven
- Appropriate heating, air conditioning

Application must include:

1. Rough design or blueprint of a tiny house
2. Estimated budget to acquire the materials and build the tiny house
3. Timeline/workplan for building the tiny house
4. Learning objects for the tiny house. Objectives do not need to be specific standards. The section should identify what students will broadly learn and skills they will apply (academic and socio-emotional) to build the tiny house.
5. Oversight structure for the project. How will adults support the collaboration be and facilitate student learning? How many students will participate? Aim to build a design team comprised of students with varying academic and socio-emotional skills.

Final Product:

- A tiny house that can be immediately occupied by a person
- Have all certificates of inspection
- Transported to the ARI April FIRE Summit
- Final budget that reflects planned and actual costs

New grant applicants when selected are awarded $15,000 to complete the project. Upon completion, each tiny house is sold at auction and the money reinvested by the ATC's to build a new tiny house and continue Building it Forward each year.

Appalachian designed and constructed Tiny Homes can now be found from coast to coast!

606 Coffee Shop and 606 Safety Net – Hazard Independent

The KVEC Student Senate from Hazard High School was provided the opportunity to write a community challenge grant. Students attended a three-day Design Thinking/Project Prototyping Workshop to learn a set of Creative Competencies and 21st Century skills. Students divided into teams and spent three days learning how to use design thinking to visualize, plan and implement a creative community project. The initial strategy was to give the students the tools needed that would allow them to make their dreams a reality. Another part of the strategy was the division of the leadership team into two groups that focused on the challenges that are facing our community today.

The 606 Coffee Shop will meet the needs of community downtown development and the issue of community safety will be addressed with the development of **The 606 Safety Net**, a program for 3-D floor plans of community spaces for 911 use. Dividing the student groups was based on student talent and interest and both groups worked together to address the needs they identified as a part of their research for the community challenge opportunity.

Drive down Main Street in Hazard, Kentucky and you will see the burned-out buildings and empty storefronts. Legal offices, the Judicial Center, banking institutions and the lone "Broken Spoke" Lounge are the only visible signs of a once vibrant downtown. In today's terrorist climate, citizen's safety is now forefront when considering community and economic development. Our community challenge is the lack of downtown development and public safety.

How will the HHS Student Senate be proactive in addressing the problem of developing economic opportunities in a safe environment for Hazard? These students have accepted the challenge of becoming a part of the solution to revitalize downtown and reverse the decay while energizing the economy and public safety.

The project goals are the development of a program that will provide 3-D building plans to first responders in an emergency situation and the establishment of a downtown coffee shop. Why a coffee shop? Students want a safe space to gather and socialize. The downtown section of Hazard is centrally located

providing easy access for students. Our partners, InVision Hazard, the City and the Perry County Fiscal Court want to see retail businesses thrive and reverse the downtrend of vacant buildings. Community Partner Joey McKinney has provided free physical space and the business requisites necessary to open a coffee shop.

Since community safety is a prime directive of this project, an additional goal is to provide 3-D safety plans for the coffee shop and adjoining structures as well as the Hazard High School building. The 3-D plans will provide first responders with a virtual "road map" of the layout of the building with areas identified by reflective vinyl numbers. This will address the ever-present threat of an event such as a school shooting or hostage situation, both issues that are identified as priorities with our student senate.

Building It Forward/Tiny House Project – Lee County Schools

Lee County Area Technology Center partnered with the Kentucky Valley Educational Cooperative in the Building It Forward Tiny House project. In the 2017 school year, KVEC awarded Lee Co. ATC with a $15,000 grant for students to design and build a tiny house. Students were required to not only learn to build the house, but also to make blueprints and present their results for approval. The tiny house was auctioned for sale. Another $15,000 was awarded to Lee County ATC in 2018 to build another tiny house, which when sold at KVEC's auction on *The Holler*, another $15,000 plus 80% of the selling price above $15,000 was awarded to the ATC for the 2019 tiny house. The purpose of the Building It Forward grant, is that each year, students will have funds to design and construct a tiny house from scratch. It is a massive hands-on project that takes the entire year to complete. The project provides students with an amazing opportunity to learn skills and build a constructed project.

The Tiny House Project helps students develop technical skills, but also helps students to develop leadership and communication skills. Students at Lee County ATC have been recognized for their diligence and creativity with this project. The project was recognized as regional winner of the first ever *Lt. Governor's Entrepreneurship Challenge*. *Kentucky Living Magazine* did a cover story on the students and the Building It Forward project in their May 2018 issue. KVEC hosts the Fire Summits in Pikeville every April when the tiny houses are complete. Attendees from all over Appalachia are able to see what the students have done through their partnerships with KVEC, and the tiny houses are a major part of that. Leaders from Frankfort have come to Lee County ATC to see the students work on the tiny house and interview them, and students have been on KET as they have presented about the tiny house project.

The partnership with Lee County ATC and KVEC will hopefully continue to provide students with excellent hands-on training and technical skill development at a high level. KVEC's support allows the Lee County ATC to continue the project; without this invaluable support, the project – while extremely beneficial, is also very costly – could not continue. The skills and confidence students learn through the Building It Forward project make it an extremely worthwhile and successful venture.

ECHO – Magoffin County

Can you hear the ECHO in eastern Kentucky? In Magoffin County, we can hear it loud and clear! ECHO (Empower Community - Help Others) is a partnership between Magoffin County Schools and the Magoffin County Community Foundation. ECHO highlights the talents of our county's youth and encourages philanthropy by engaging them through community service projects and other opportunities. Limited funding has created deficits within the area of Arts and Humanities, however our community leaders and Kentucky Valley Educational Cooperative (KVEC) were determined to step in and help bridge the funding gap.

This community service model consists of local business leaders, retired and current teachers, students and artisans who developed a goal to have the talents of Magoffin County youth "ECHO" throughout the hills of Eastern Kentucky. Teachers received grants through KVEC's Appalachian Renaissance Initiative to help students produce artwork and pottery. Several students were aided in writing, illustrating and publishing their own books as well.

Through ECHO, Magoffin County students were given the opportunity to showcase their artistic and musical talents that would have otherwise remained in the shadows. Magoffin County High School served as the venue for this special talent showcase. Students and faculty planned an evening packed with music, art, drama etc., for hundreds of attendees. The entire evening was lead and orchestrated by students. Along with a concert, mostly comprising of country music by artists from the US 23 Country Music Highway, works of art, technology and culinary arts were also displayed by students.

At Magoffin County's annual Community Day event, in which county non-profit groups fundraise during a star-studded bluegrass concert, ECHO students were provided a hands-on approach as they shadowed these organizations, volunteering at the many food booths, while getting to know community leaders, business owners and community leaders.

This networking opportunity is vital and often fosters entrepreneurial relationships. By participating in this program, students have become well known for their talent and skills. Students have been asked to perform the National Anthem at ballgames, sing at weddings, perform at festivals and the like. ECHO students were also presented with the prestigious honor of designing and decorating benches to be placed in the city of Salyersville to provide seating and aesthetics to the downtown area.

Because of this innovative project, students in Magoffin County have taken on leadership roles by mentoring younger students in guitar, drums, piano, vocal harmony, drawing, painting, and graphic arts, providing all students an outlet to express their creativity. ECHO has improved school performance both inside and outside of the classroom. The program has given students who do not normally participate in extracurricular activities a sense of belonging, therefore increasing school culture and excitement!

Funds raised by student involved programs will be added to the ECHO Fund, a charitable fund to benefit Magoffin County and its citizens. Funds raised by the students will also be matched by the Foundation, and the students will participate in determining the charitable uses for the funds.

The goal of this partnership is to have the talent of youth and their good works "ECHO" through the hills. Can you hear it? In Magoffin County, we can!

Solve for Tomorrow – Veterans Crisis Line – Ashland Independent

In 2018, students from Ashland Middle School (AMS) were chosen as national winners in a STEAM competition called Samsung Solve for Tomorrow (SSFT). As a prize for their championship, they received $170,000 in new technology for their school. Many believed that it would be hard to follow up such a performance, however, the students at AMS are at it again! On January 3, 2019, these students were named state winners in the same SSFT competition and they are still in the running to repeat as national winners. While last year's students developed a tool to safely remove drug paraphernalia from their local streets and parks, this year's group is simplifying how veterans find and apply for benefits. Often times, this is a long and tedious process that can frustrate even the most technologically inclined. Since many of the veterans in their region either have limited access to technology or limited experience using technology, this already confusing task becomes all the more difficult.

To help combat this problem, students will develop a mobile app and website to help regional veterans find and apply for life-changing benefits. Both of these resources consolidate the information necessary to find and apply for benefits for which they may be eligible and identify regional contacts that may be of assistance. Furthermore, local psychological resources will be identified, and a Veterans Crisis Line quick call feature will enable veterans to reach psychological help in times of extreme distress. Finally, both the app and the website will help veterans find important documents such as birth certificates and social security cards, while also helping them store these documents digitally so they can be easily accessed from anywhere.

Once their final products are finished, students plan to travel to local assisted living facilities, libraries and veteran outreach centers to host forums where they can provide technology for those without access and personally assist veterans with using these newly developed technologies to search for benefits for which they may qualify. Through their project, this exemplary group of students believes they can help improve the quality of life for many of our nation's heroes.

Aviation Program - Knott County Schools

Over the past several years students at Knott County Central High School have been able to participate in aviation classes. The curriculum covers a wide variety of topics including aviation history, maintenance, safety and among other things unmanned aircraft. One of the most memorable and life-altering activity we participated in, however, was the experience of flight lessons. The advanced students were provided a few hours of actual flight lessons while underclassmen were fortunate to tag along for the ride. Students were given a view of southeastern KY that many had never seen before. Only two of the students had experienced flying prior to these opportunities.

Another activity students have thoroughly enjoyed was the annual KVEC Drone Build and Competition. Students wrote grants for the building materials and from boxes of parts, we constructed three finished drones. The students then participated in races with the drones. The build motivated students to become leaders and how to effectively cooperate with others in order to reach a common goal.

Our students were also able to meet pilots and representatives from the military through this program. Several students decided that aviation was the career choice for them as they learned more about their options. As the economy in our area declines, students need to be shown these viable options in a most urgent way. Students need to be aware of the possibilities and aviation is definitely a possibility, given that aerospace science is among Kentucky's top industries.

Community Challenge Project – Lee County

Lee County's population and student enrollment in Lee County Schools have experienced a steady decline for many years. This decline has had a huge impact on both the county's economy and the school system. Lee County Schools' student senate, senate leaders and Beattyville Tourism employees are working on a multi-agency project to highlight some of the positive features of Lee County. The ultimate hope and goal of the project is to increase tourism in the county and region, which will, in turn, have a positive effect on the economy, population and school enrollment.

The area surrounding Beattyville, county seat of Lee County, KY, is growing as a tourist destination. Lee County is located 20 minutes from increasingly popular destinations, such as Red River Gorge Geological Area and Natural Bridge State Resort Park. The region is also becoming known for world class

rock climbing and is attracting climbing enthusiasts from all over the world. The sport is growing rapidly, and the rock climbing community looks for unique experiences such as local restaurants, shopping areas and diversified outdoor recreation activities such as mountain biking and kayaking. We would like to see visitors travel a short distance to Beattyville to have those experiences.

Local residents are familiar with the community; however, visitors may have difficulty getting around town. GPS assistance can be unreliable in small, rural communities such as Lee County and Beattyville and directional signs are often inadequate. The Community Challenge Project seeks to bring community leaders, school leaders and students together to address the issue of helping visitors navigate the area.

The project targets two particular areas: increasing signage for Lee County and development of a Lee County app. Signage will be added to areas to help lead tourists to Lee County. As visitors come into our community, we want them to easily find their way around, so they can enjoy what we have to offer. Mapping and signage is a sustainable resource and its impact can be measured by increased visits to businesses and attractions. The second phase of the project includes an app for Lee County. Our TEALS Microsoft class is currently developing a "Lee County Attractions Smartphone App" which will include an interactive map that may be pre-downloaded, as cell signal is often unavailable in the Gorge area. In the short term, the online work tasks will immediately boost the search engine optimization of all the listings and can be measured by click rate to the Beattyville/Lee County Tourism website and business websites.

The project's anticipated long-term impact for the community is an increase in establishment of tourism-related businesses in and around the Beattyville area. We are excited to see the impacts that this project will have on our community and schools.

Creating Collaborative Leaders – Pike County

The Pike Department of Instruction is working strategically to design, implement, and monitor the districtwide **structures** needed to create **systemic improvement**! This commitment is a continuous process that reflects a concerted effort to build the **leadership capacity of administrators,** as well as, **teachers** with the intended outcome of improving student achievement.

Initially, the district concentrated on delivering a guaranteed and viable curriculum by establishing teacher leadership teams or **Instructional Transformation Team Leaders (ITTLs)** who were challenged to align the language arts and math standards. The product of this challenge resulted in the creation of a standards mastery document in Language Arts and Math. The ITTLs completed the process by communicating the information to each school, as well as, gathering feedback used to make revisions to the document. The standards based mastery document is the first step that will evolve into the creation of aligned curriculum maps, common assessments, as well as, common entry and exit criteria.

Through the establishment of **professional learning communities (PLCs)** at the school level, team collaboration is used for strategic planning, data analysis and improving teacher effectiveness and student achievement. To support the PLC process the district hosts various professional learning opportunities for school **Instructional Leadership Teams (ILTs**). The ILTs are charged with the mission of communicating the district vision of collaboration and bridging the needs of individual programs to those at the district level. To support the professional learning of each ILT the district hosts an annual **SUMMIT** that brings each school team together for team building, networking and targeted professional learning designed to build each teams' effectiveness. Time is provided for strategic planning data analysis, feedback,

encouragement and celebrations of success. Each ILT team is also supported by the Department of Instruction throughout the year by school visits, area meetings and ongoing communications through SKYPE, emails and individual meetings.

Additionally, the district has created opportunities for administrators to participate in **Administrator Professional Learning Communities**. These communities are designed to provide administrators with opportunities to go beyond building management meetings to intentional instructional focus-type meetings. Administrators are encouraged to share ideas, explore instructional strategies that increase student and teacher effectiveness, and build relationships with colleagues, and promote shared responsibilities, mutual respect and unity.

The district has implemented a **Tiered Support for School Improvement** that is designed to differentiate feedback and support to each school in the use of each structure to ensure systemic improvement. The support system consists of different levels of assistance including school visits, program feedback and individual support by the district team with individual support provided by an assigned **Tiered Support Administrator (TSA).**

By creating these structures, the Pike Department of Instruction will achieve the mission statement that has been communicated which is "to strive to improve student achievement, through effective **collaboration** and clear **communication** by providing **support** and **resources** to **develop teacher and leader effectiveness** that positively impacts student performance.

Early College and Career Explorers – Floyd County

In the 2018-2019 school year, Floyd County Schools began a pilot program designed to expose students to a variety of career pathways beyond the traditional classroom setting. This new early exploration program in college and career pathways is called Floyd County Early College and Career Explorers, FCEC2s. Thanks to a partnership with the Kentucky Department of Education Career and Educational program and the Kentucky Valley Educational Cooperative, our eighth grade students are going through this program currently.

In addition to exposure to more careers, the FCEC2 strives to develop interest in work skills needed in high school and post-secondary education. The program is also giving students an opportunity for onsite interaction with the administration and staff of the Floyd County Area Technology Center (ATC). Lastly, the program seeks to enhance student learning. The students' normal daily instruction is not disrupted and while students will not receive a grade, their participation is necessary for success.

Over 170 students have completed the program at this time. Instructors at the ATC center say that students are engaged and actively participating. Students are reporting the experience has been beneficial in helping them to see potential careers or jobs they may like to have. 8th grade teachers say students are motivated seeing options that are out there for them and are starting to see the connection between a college education and the trades/technical fields of study. Lastly, parents let us know that this program would have been helpful to them when they were in middle school.

Students attend the technology center for a little over 2 months for about an hour a day. The program begins with safety goggles, training, instruction and discussion about potential career pathways facilitated by the ATC instructors. Students visit each of the ATC pathways offered and reflect at the end of the program on what they learned, what program they found most interesting and what their overall experience

was like. These pathways include office technology, welding, electricity, carpentry, automotive, health science (pre-nursing) and HVAC (air systems).

ATC Principal Lenville Martin states, "Students who continue on this route will acquire skills and certifications which will allow them to get a good job when they graduate from high school or be ahead of the game along their career pathway in college."

Criminal Justice – Magoffin County

Eastern Kentucky has a historic negative reputation with law enforcement. However, Magoffin County Schools and the Magoffin County Career & Technical Center has developed a program for students with the opportunity to achieve a career in criminal justice. From law enforcement to crime scene analysis to jobs in the prison system, this emerging program is preparing students for jobs that weren't available in the area in the last century.

Magoffin County has been and still remains one of the poorest counties, not only in Kentucky, but in the nation. It consistently ranks among the top five highest in unemployment. Once strong in agriculture, the dawn of an industrialized economy and the decline of the coal industry has decimated opportunities for citizens to remain in the area. According to federal census statistics, Magoffin County, in particular, has witnessed a reduction in population. Though a record 70% of the population are high school graduates, only 10% go off to obtain a college degree and return home to live. With the larger populated cities of Lexington 100 miles away, many students have few other choices.

However, one such opportunity does exist. That is the field of criminal justice. Currently, the Commonwealth of Kentucky houses approximately 25,000 inmates in 12 facilities and the federal government incarcerates 6,800 prisoners in 10 facilities. Kentucky is ranked 9th in the nation for a prison population and is the second largest with incarcerations of women. Kentucky has a strong need for qualified personnel in all areas of the judicial system.

The Criminal Justice Program at the Magoffin County Career & Technical Center first and foremost aligns with the strict guidelines of College and Career Readiness. Upon graduation, students have the opportunity to complete certifications to work for FEMA and are qualified to apply with the Kentucky State Police Academy, as well as the Lexington Police Academy. Instructor Anthony Taulbee, is a highly qualified instructor with career experience in the field of criminal justice. A former Kentucky State Trooper, he has a healthy working relationship with all state, county, and local law enforcement agencies.

While in the Criminal Justice Program, students participate in a ranking system which promotes leadership skills. Class Duty Officers are responsible for the raising and lowering of the school's flag. They are also responsible for organizing and distributing class materials. The Officer in Charge assists the instructor in various events and activities within the school system and community. The Student Training Officer assists the instructor in learning skills such as fingerprinting and crime scene processing. The program also promotes skills in STEM, with learning crime scene analysis, laboratory techniques in the field of chemistry and other tactical procedures. Students are also exposed to the most modern technological advancements of firearms simulation and fingerprint processing.

With many possible additions to the program, such as working for the courts and in the fields of forensics and investigations, the Criminal Justice Program has the potential to develop into a valuable asset in eastern Kentucky education.

CTE – Johnson County

At the heart of educating our youth, is the concentrated effort to help students discover and connect their areas of talent with their passions to achieve maximum success as an adult.

The Johnson Central Career & Technical Center is very unique in the way it operates within the walls of Johnson Central High School. Every student at JCHS chooses a career major at the end of their 8th grade year. Students meet with our Career Counselor where they learn about the 27 different career majors offered at the high school. Students choose 2 electives their freshman year that introduce and help guide them for the four years they are in high school. Many students will also have double majors or pair their career classes with AP, Dual Credit or other college level courses.

One of the most unique things about our CTE program is that each major has been designed with different exit points in mind. The high achieving student may choose to take the honors pathway whereas a different student may choose a standard route. However, these students sit side by side while in their CTE classes. Once that class is over one may go to an AP English Language class, the other to a standard English class or a class with collaboration. One good example would be a Health Science student who wishes to obtain a CNA certification their senior year in order to graduate and go straight into the workforce while another student would go on to a 4-year university to earn a bachelor's Degree in Nursing. These students would have the same Pre-Nursing coursework during high school, but their core classes may vary. Another example would be in the area of Engineering. These students have the option to a 2-year technical program to be certified in drafting or they may choose to go on to a university to major in Engineering. Our pathways, however, are not just designed for students in traditional career and technical programs. We have also designed career majors for students wanting to focus on art, music or drama.

In addition to many academic opportunities for our students Johnson Central also offers many student clubs and organizations that provide leadership opportunities, including the following: band, dance, drama, choir, National Honor Society, Beta Club, FBLA, Multicultural Club, Speech Team, Spirit Club, STLP, SkillsUSA, HOSA, Interact Club, FCCLA, FCA, FFA, Science Olympiad, Student Council, National Honor Society, Student Advisory Committee, academic team, basketball, soccer, football, golf, wrestling, archery, volleyball, tennis, cheerleading, softball, baseball, cross-country, track and field, bowling, fishing and swimming.

All of these options are available to every student and all under the same roof. Not being bussed offsite allows for a more flexible schedule and provides students a wider selection of opportunities by not having to be removed for multiple consecutive periods during the school day. Overall, it is clear to see that students at Johnson Central High School have the exposure and opportunity of a world class education in rural eastern Kentucky.

Let's Get Moving – Pikeville Independent

With discussions and research done by our Pikeville Independent Student Senate, we have created an innovative project that is sustainable for years to come. Our project is to build an outdoor gym and obstacle course that is free, and in a convenient location so everyone living in our community can use it. It will be located within walking distance of our low-income housing areas. Our goal is to break the barriers that poverty has helped to create. People living in poverty are less able to afford a gym membership, and in counties with higher poverty rates, there are fewer parks and athletic facilities available to the community.

Through this initiative, we hope to address the challenge of obesity in our community. Obesity can lead to diabetes, hypertension, heart disease, arthritis, cancer and several other diseases and conditions. The latest statistics from State of Obesity show Kentucky ranked 7th in the nation with a current adult obesity rate of 34.2%. In the category of 10 – 17 year olds, Kentucky is ranked 14th with a combined overweight and obesity rate of 33.5%. However, the most alarming statistic is with Kentucky's high school students who rank 3rd in the nation for obesity, with a rate of 20.2%. When you look at the obesity related health issues, Kentucky ranks 5th in the number of individuals with diabetes, and 6th in the nation for hypertension.

Kentucky Health Facts states that 33% of adults in Pike County do not participate in exercise or any type of physical activity. In addition, 39% of our citizens are obese and 70% are considered overweight. All three of these statistics are above the state average. With more than 25% of Pike County living below the poverty line, much greater than the national average of 14%, many citizens cannot afford to buy a gym membership or even have transportation to get to the gym. We feel poverty is a contributing factor to obesity in our community.

The impact on the community due to this project, are both short and long term. In the short term, citizens will be intrigued by the new addition of gym equipment and obstacle course and want to try it out. In the long term, we see area groups using the facility for training, competitions and part of weight loss programs and other initiatives. Since this project is sustainable, with no additional costs once it is built, we envision many years of use by many people, which we hope, will have a long-term impact on our community.

Perpetual Data Analysis System – Middlesboro

October 30 and 31, 2016 were two days that changed the trajectory of Middlesboro Elementary. These two days were spent in professional learning sessions at KVEC with their staff in training revolving around data. The biggest impact of the two days came when MES educators started to work with Perpetual Data Analysis System (PDAS).

According to The Holler, "KVEC's Perpetual Data Analysis System (PDAS) provides school and district personnel with the knowledge, skill, and dispositions to use data and assessment results to improve Next Generation Teaching, Learning, and Leading. To this end, the PDAS web portal enables multiple access to a wide range of tools, resources, and information designed to support various ARI interconnected projects."

MES educators returned to the school with the charts created in Hazard and set to work targeting students based on individual data results. The chart that was created in Hazard purposefully and intentionally identified students performing at Novice levels on the 2015-2016 3rd grade K-PREP. Not only were K-PREP scores considered, but also: attendance, homeless status, in house assessment scores, classroom grades, special needs, gender as well as many more. Each time a faculty member thought of a category that could impact performance it was considered and, if appropriate data gathered.

The way data is now viewed at MES evolved from the two days in October 2016 at KVEC. From that point Middlesboro Elementary began an in depth focus on novice reduction throughout our school. We realized that many of our students were falling through the cracks and we needed to develop a plan to target those students and improve our path to proficiency.

Also, during this time, index cards, thumb tacks and a bulletin board became the data wall, "Version I". On each card the student name was recorded, their homeroom teacher, their STAR scores,

special needs status and date of birth. This became a quick point of reference. Students were categorized on the wall as "below grade level", "on grade level" or "above grade level". Following each STAR assessment, we would review each student's progress and begin targeting students that needed extra help and then place them into the proper RTI group.

The next year we improved on our cards for each student. We now include student name, homeroom teacher, birthday, accommodations, retention, KPREP scores (if applicable), Stanford test scores (if applicable), as well as, i-Ready reading and math scores. The data wall is revisited after every assessment and students are moved throughout the board as needed. Teachers review the cards during PLC meetings and decide which RTI group our students need to be in.

Over the past few years we have had great results in our novice reduction and we credit our success to our teachers and the use of our data wall. The catalyst for this new outlook on our students and their needs was the PDAS training provided to MES by KVEC.

CTE Partnerships - Magoffin County

The Magoffin County Career and Technical Center and Magoffin County Skills U, along with Big Sandy Community and Technical College partnered together to break new ground in education by offering educational opportunities to local students, enabling them to obtain certifications to make them more employable. Due to financial hardships, it was important to offer these opportunities at home.

During the summer of 2017, fifteen students including 2 male and 13 females between the ages of 18 and 52 embarked on the adventure of become a certified nurse aid. While most people were enjoying summer vacation, these students were spending 4 evenings a week studying and practicing nurse aid skills. All fifteen students were without a high school diploma. Over 50 percent of these students are employed and 67 percent earned their GED. This opportunity was made available to students through the Accelerated Opportunity for Ky program and was provided at no cost to students.

Magoffin County Schools Superintendent Scott Helton along with Magoffin County Career and Technical Supervisor Vince Minix and Magoffin County Skills U Director Vickie Howard worked with Sally Porter and Kelli Chaney from Big Sandy Career and Technical College to make this program possible. In Spring 2018, we turned our focus to dislocated workers from the downfall of the coal industry. While most workers were winding down from their workweek, a group dubbed the "Weekend Welders" were just getting to work. A group of 9 students ages 18 to 55, consisting of seven men and 2 women met at the Magoffin County Career and Technical Center on Friday nights and Saturdays, in efforts to earn welding, OSHA, and forklift certifications.

Vince Minix, the director of the Magoffin County Career and Technical Center describes these programs as investments. "This is an investment in our community," Minix said. "If we have the workforce, I think the industry will come. This is a unique opportunity for local adults and dislocated workers to get to learn a new skill." Hands-on job training provides special opportunities to make these welders better prepared for the job market. The skills and certifications earned through this program give the students an edge over other job seekers. With Logan Corporation located in Salyersville and Silver Liner in Pikeville, the welding program brings much-needed workforce to these companies. Over 60 percent of the weekend welders are currently employed.

The welding program was possible through The Magoffin County Schools Career and Technical Center and Magoffin County Skills U, Eastern Kentucky Concentrated Employment Program, Magoffin

County Community Action Program, Ky Valley Educational Cooperative, and Big Sandy Community & Technical College at no cost to students. Vickie Howard, Vince Minix, Scott Helton, Sally Porter, Kelli Chaney, Jeff Whitehead, Mae Shurow, and Randy Risner helped organize the Weekend Welder program.

CAT Mobile (Food Truck) – Ashland Independent

Studies have shown that child hunger can delay cognitive development and the child's ability to learn. Spring 2018 data from Ashland Independent School District's MAP and ACT testing support these findings. Elementary students receiving free and reduced lunch comprised over 75 percent of 2nd-5th grade students scoring below the benchmark in *both* reading and mathematics. The trend increased for students grades 6-8, with over 77 percent of below-benchmark scores belonging to free and reduced students. While the numbers were slightly improved for eleventh grade students, free and reduced lunch students comprised over three-in-five of the students below norm or the benchmark. These trends are troubling in preparing students not only for graduation from the district, but for college and career readiness as well.

While local churches and other charities provide some meal assistance to students receiving free and reduced lunch, the scope of need of Ashland's students far exceeds what these organizations are able to provide. Blazer's Student Senate initiative, known as the CATmobile, was designed to help further reduce the significant problem of food insecurity. The CATmobile is a repurposed district-owned box truck designed to help further reduce the detrimental effects of food insecurity from various factors including homelessness, poverty and the opioid epidemic. The CATmobile will deliver lunches during summers, weekends and holiday breaks to hungry students at low-income housing complexes and emergency shelters.

In addition to meeting the needs of some of the district's most vulnerable youth, the project has provided invaluable opportunities for several student organizations: Blazer art students are designing a custom wrap for the CATmobile; construction technology students are getting career training with blueprint design, electrical work, plumbing, and installation; and students in the culinary arts program are working to create healthy recipes in addition to preparing food deliveries. The hands-on aspects of the project have provided key college and career readiness training for these students with the added benefit of reducing food insecurity of free and reduced students, generally. In turn, this will generate greater academic performance for the District overall, by reducing the delay in cognitive development and ability to learn caused by child hunger.

Operating the CATmobile requires an entrepreneurial component as well. In order to generate profit to cover expenses, the truck will be vending at First Fridays, Summer Motion, and local sporting events. Meanwhile, King's Daughters Medical Center and Our Lady of Bellefonte hospitals are also partnering with the initiative as part of their Healthy Choices, Healthy Communities campaign. The trucks renovation is made possible by the KVEC Community Challenge Grant, and the generosity of our community partners. We hope the CATmobile will be a symbol of hope within the community, as well as a reminder of how impactful students' innovative ideas can be.

CTE Regional Approach – Lee County, Owsley County, Wolfe County

A new focus of the Lee County Area Technology Center is to create a regional academic academy. The academy will be housed at the Lee County ATC, and students from the tri-county service region (Lee, Owsley, and Wolfe) will report to the Center and remain there for the entire day. Students will receive both CTE and general education classes.

Prior to the regional approach, only students from Lee County had this opportunity, simply because of their proximity to the ATC building. Owsley County and Wolfe County students had to pick morning or afternoon classes and could not always get the classes they chose. The regional approach will allow students to remain at the ATC all day and access core classes, such as Algebra or English. These classes are streamed online from classrooms at the various tri-county high schools. Students will receive access to all required classes at one facility.

In order to move programs forward and create more opportunity and access for students, we must look at resources and utilize them in creative ways. The Lee County ATC is working with postsecondary partners to create dual credit opportunities that never existed before. The Lee County ATC is currently working on dual-certification for three teachers, which will allow expanded class offerings to students, and we are exploring grants to support needed facilitators for blended learning environments. We are utilizing current staff of all three counties -Lee, Owsley and Wolfe- to teach online, dual credit classes streamed in to the ATC. For example, last semester, students were able to enroll in BIO 135 online through HCTC. The class had never been offered before and was facilitated by the pre-nursing instructor at Lee County ATC. Although the class was challenging, students said it was the best thing they had ever taken for their education because they learned how to successfully prioritize and study for their assignments. Students desire more similar classes, so we are partnering closely with HCTC to make it a reality. Because of this class and work with the regional approach, students in the pre-nursing program will have completed the pre-admission requirements to the LPN/RN program upon completing the Pre-Nursing pathway.

Activating Catalytic Transformation (ACT) Network – Regional Initiative

The Cooperative has developed a model of rural schools working within and across a network to advance learning for all. The Activating Catalytic Transformation (ACT) Network's is a practitioner-driven school and staff transformation model that aims to develop the skills and competencies of school shared leadership to work together to collaboratively analyze all school data (program, demographic, perception, learning, etc.) to identify a school Problem of Practice and define a research and scholarship-based Theory of Action that will include all staff and the school community in developing solutions to the Problem of Practice that are shared within and across the network, region and beyond. KVEC wraps a system of supports around the ACT Network schools to include facilitative coaching, mentoring, networking, clinical professional learning and micro-credentialing that builds the shared leadership capacity of the school and school community to not only solve the problem of practice identified in this work, but to create capacity and systems for ongoing continuous improvement. Teams share their plans, learning, progress and outcomes with the region via KVEC's Forging Innovation in Rural Education (FIRE) Summits in the fall and spring semesters.

The ACT Network launched in 2017-2018 school year with 14 school teams and has grown in 2018-2109 school year to 17 schools. The ACT Network is recognized and supported by funding from the W.K.Kellogg Foundation. The 2017-2018 pilot year saw all 14 schools meet their identified short-term outcomes and commit to ongoing work to reach defined long-term goals. The 2018-2019 ACT Network teams are working on solving problems related to strengthening authentic student engagement, creating a playbook of common high-yield instructional strategies, student goal setting and student-led data conferences, student agency and leadership and school-wide intervention program designed to encourage growth-mindset and perseverance (named Greyhound Grit!).

Allen Elementary, one of the ACT Network schools, described the multi-faceted approach their team is taking to the work in a recent FIRECast (https://www.theholler.org/we-talk-act-at-allen-elementary/). Schools in the ACT Network align and maximize all of their resources in a continuous improvement process to develop shareable and scalable solutions to problems that other rural schools might face. Two key components of the strategy are developing teacher leaders as Assessment and Accountability Teacher Leaders and Community and Caregiver Teacher Leaders who are then able to provide coaching and support within their schools and across the network in using assessment for learning and increasing authentic engagement between schools, communities, and caregivers.

For more information about KVEC's ACT Network, visit act.theholler.org. There you will be able to see the Theory of Action each school is working on, their FIRE Summit presentations, Community and Caregiver Engagement school projects and other information – or – contact Jennifer Carroll (jennifer.carroll@wolfe.kyschools.us).

Dual Credit Opportunities - Lee County Students

Leaving home to attend college is a challenging transition for most students. For students of rural counties where close family ties are a way of life and parents oftentimes don't understand the college experience or benefit, attending college can be even more of a challenge. At Lee County Middle High School, we've worked to provide opportunities for students to get a head start on college coursework, even as students are still at home attending high school. The process presented challenges, but staff have been highly motivated to offer the most for the success of our students.

Lee County Schools partners with five different colleges to provide dual credit courses. During the 2018-19 school year, we offer 27 dual credit courses with over 50 sections ranging from general education to construction and health science. Some specific class offerings include: English 101/102; History 225/226; Math 114 (College Algebra), 122 (Pre-Calculus), 234 (Calculus), and 171; Chemistry 100/101; Digital Literacy; Financial Literacy; Principals of Health; Medical Terminology; Emergency Procedures; Body Structure; Nurse Aid; Construction; Floor and Wall Framing; Ceiling and Roof Framing, Site Layout Foundations; Electrical Construction; Auto Maintenance; Cutting Processes; Gas Tungsten Arc Welding; Agriculture; Psychology; Criminal Justice; Aviation; Police Studies; Communications; and Music Appreciation. Students at Lee County Middle High School have many options of pathways to follow. With students leaving high school with as many as 30 or 40 college credit hours, the task of attending college and earning a degree seems more manageable. In addition, students have some experience in college course requirements and expectations to take with them prior to setting foot on a college campus.

Dual credit coursework has been well received, but it hasn't been easy to implement. Lee County is located a minimum of an hour from an institution of higher education, meaning the likelihood of college instructors traveling to Lee County to teach is not very high. We explored other avenues to make dual credit opportunities become reality. Many classes previously noted are taught by Lee County school staff. Several teachers worked with colleges and went back to college themselves and met varying certification requirements to teach dual credit classes. We also have worked to increase technology resources so students can access classes via the internet. Financial barriers to attend college are always a challenge for our students, but we have been able to take advantage of dual credit and work ready scholarships to help offset the cost. Our leadership team has been very strategic in their approach so we can maximize the academic advantage and minimize cost to our students.

What we are able to offer in Lee County for dual credit presents an amazing opportunity for our students. In addition, it is a tribute to our staff who utilize limited resources for maximum benefit to enhance the opportunity for the success of our students.

Dual Credit Program – Harlan County

The dual credit program at Harlan County High School is an initiative that enables students to earn college credit during the course of the regular school day. As other schools focus on College and Career Ready, we laud our dual credit program as "College and Career Accomplished." Partnering with the University of Pikeville and with SKCTCS provides this exceptional opportunity to our rural southeastern Kentucky students who do not have local access to major universities and institutions of higher learning.

Juniors and seniors can register for courses such as English 101, History 109, Psychology 110, Biology 100, and even College Algebra, Calculus, and Anatomy. Eleven classes are available to students free of charge. If a student takes all eleven classes, he or she can graduate with 36 credit hours. That student could then enter college as a sophomore, having completed the equivalent of two semesters of general studies requirements and/or electives for the traditional freshman year of college.

The invaluable advantages this jumpstart affords include the obvious benefit of time and the tuition savings. Additionally, graduates cite the program with easing their transition from high school in a small town to college in a large city, with helping them prepare for the stringent time demands and the rigor of college classes, and with boosting their confidence by allowing them success with college level courses in a familiar setting with a familiar instructor before graduating and leaving home.

Because this educational practice is such a valuable contribution to the quality of life for our students, District Superintendent Brent Roark calls the HCHS program unique, noting, "It has been a blessing for every child that participates in the dual credit program." As a response to community need, our district funds the program at well over $40,000 per year, as of the 2017-2018 school year. Initially, our district did not shoulder the cost for the program. However, in 2016, state government changed how dual credit scholarship funding was distributed, thereby shifting the financial liability back to families or over to the school system. Roark and the district's school board members knew that our families could not shoulder that burden. Harlan County Schools is one of a very few school systems that did not transfer that cost back to students' families.

As of January 2019, HCHS dual credit enrollment comprises 564 seats as follows:

Course	Enrollment	Course	Enrollment
		MAT 105	53 students
ENG 101	83 students	COM 181	63 students
ENG 102	49 students	CIT 105	47 students
PSY 110	52 students	BIO 112	43 students
HIS 108	59 students	BIO 137	47 students
HIS 109	53 students	CHE 140	15 students

Harlan County Schools' successful dual credit program is in its 11th year, having started when HCHS opened in 2008. The impact to economic vitality for our students, our families, and our community is immeasurable, as it has and will continue to produce college graduates from the hills and hollers, some of whom are first generation college attendees.

Virtual Learning – Owsley County

Owsley County High School is a small, rural, public high school located in southeastern Kentucky. 387 students in grades 6-12 make up the student population, with 91.3% qualifying for free or reduced lunch. One of the challenges faced by our students is access and exposure. Many students have never seen the ocean or even traveled outside of our state making the world seem much smaller and life choices more limited. Students also have difficulty understanding abstract concepts or things they cannot see.

One of the ways our school district is addressing these student needs is through the use of technology. During the 2017-2018 school year, Owsley County High School designed and implemented a virtual learning lab where students could explore the world. Additional funding from grants through KySTE and KEDC/KY Power (GOAL grant), helped our school equip the lab with 6 zSpace virtual reality desktops, a smartboard with webcam and microphone/speakers, and an HTC Vive, a virtual reality system. Research has shown that incorporating virtual reality into lessons can help students have a deeper understanding of content and increase student motivation and achievement.

With the use of the smartboard and video-conferencing, our students have been able to talk to marine life experts in Alaska, solve a case of food poisoning with the Cleveland Museum of Natural History, discuss poetry with "Robert Frost" (portrayed by an actor), and determine the cause of death while viewing an actual autopsy while discussing the case with a pathology resident, just to name a few. They were able to do this without leaving the school. These types of experiences have opened up different career options, helped students make real life connections, and allowed students to see content in a different way by talking to experts. After a video-conference with a surgery team from Jewish Hospital as they performed a live open-heart surgery, several of the students decided they would like to seek a career in the medical field, something they had not considered before.

The virtual reality equipment (zSpace desktops and HTC Vive) allows students to explore and interact with content in a way not possible with a textbook or computer. Students are able to tour a park in the Netherlands, swim with whales in the ocean, become an astronaut and perform a repair on the International Space Station, and view/dissect science models in 3D. Being able to experience the lesson instead of just reading about it, helps students understand complicated concepts. This had led to increased student engagement, motivation and achievement.

Students enjoy using the virtual lab, and when asked, 85% said they were more excited to come to school when they knew they would be doing a virtual lesson. Student quotes include:

- "It helps me understand better because I am a visual learner."
- "It's more engaging than regular classwork."
- "It's easier to understand."
- "It makes me excited to come to school."
- "We can talk to people we normally would not get to talk to."

Hydroponics – Paintsville Independent

For the past four years Paintsville High School science teacher Hans Doderer and his students having been raising and releasing trout into Kentucky waterways. During this time they have raised three different species: rainbow trout, brown trout and brook trout. They have been able to do this because of grant funding secured by Mr. Doderer from the Kentucky Valley Educational Cooperative's Appalachian Renaissance Initiative.

Mr. Doderer and his students work closely with both the Kentucky Department of Fish and Wildlife and the United States Fish and Wildlife Service. The Wolf Creek National Fish Hatchery, which is part of the U.S. Fish and Wildlife Service, has provided trout eggs to Paintsville High School since Mr. Doderer began the project.

With funding provided by a Learning Innovation Grant from KVEC, aquariums, chillers and other materials were purchased to create and maintain a suitable environment for the eggs before, during and after hatching. Once the eggs have been hatched the students feed and care for them until they grow from less than one inch to between three inches and four in length.

In addition to feeding the trout, students monitor and document the pH, ammonia, nitrite, nitrate and oxygen levels of water daily, and make adjustments when necessary. Students also sweep and clean the tanks and filters daily to remove any dead fish, debris, fungus or bacteria.

When the trout reach three to four inches in length they are referred to as fingerlings, and they are ready to be released. At this time the students go on a field trip to release the trout. The students place water and the trout from the classroom aquariums into coolers and aerate the water during transport. Once at the waterway selected by the Kentucky Department of Fish and Wildlife, the students place the fish in plastic bags with water from the cooler and then into the water, so they can become acclimated. Once the temperature in the bag and the water reach the same level the fish are released.

Since 2015 Mr. Doderer's students have successfully raised 1,000's of trout, and they plan to release more than 500 in the spring of 2019. The fish have been released in Little Paint Creek, Paintsville Lake and Parched Corn Creek in the Red River Gorge.

Micro-Credentials – Regional Initiative

Over the past four years the Kentucky Valley Educational Cooperative (KVEC), in collaboration with Digital Promise, has been involved in developing micro-credentials and assessing its region's educators toward successful micro-credential completion. Micro-credentials are a digital form of certification indicating that a person has demonstrated competency in a specific skill, such as data literacy, teacher leadership or growth mindset. They are competency-based, personalized, on-demand, and sharable. Rather than learning by watching, reading, or listening alone, micro-credentials promote learning through authentic experiences based on student and teacher need. Educators apply their learnings in their practice and collect evidence thereby demonstrating competence.

Within the scope of KVEC's work, micro-credentialing is one of the major workstreams of the Activating Catalytic Transformation (Act) initiative. Based on learner or educator need, school district staff members have been actively completing or helping to develop micro-credentials. These are offered on the Digital Promise platform using a format that ensures consistency, validity, and ease of online accessibility. Currently, those completing this online professional development model within Act meet their required professional development hours at no cost to the districts. This is especially important due to limited or no state budget funds allocated toward professional development.

At the state level, KVEC staff have participated in conversations on how micro-credentials could be included in alternative models for Rank 2 attainment. As the cost of a master's degree continues to rise, conversations have been held with the Education Professional Standards Board and the Kentucky Department of Education on how micro-credential stacks could be a viable pathway toward a more affordable Rank 2.

As interest continued to grow, KVEC hosted its first micro-credential summit in 2017. The objectives focused on: the direction of professional learning and educator licensure in various states; to gather information from states regarding the success and lessons learned using micro-credentials; and to develop a sense of need for micro-credentials as a personalized professional learning pathway for in-service educators. Close to eighty leaders of local, state and national education organizations attended and actively engaged with presenters and each other to further define the possibilities of micro-credentialing as a component of a continuous professional learning eco-system. In 2018, the second summit was held showing increased interest from two hundred education leaders from around the nation.

KVEC has become a national catalyst for conversations and conferences in other states. From these original KVEC based summits, organizations such as the National Association of the Directors of Teacher Education and Certification (NASDTEC) and the Council of Chief State School Officers (CCSSO) hosted their own sessions or conferences with a focus on micro-credentials. KVEC staff were invited to attend, participate in discussions, and provide presentations. Additionally, KVEC staff were invited participate in a micro-credential community of practice hosted by Mathematic-MPR, a technical assistance organization for Supporting Effective Educator Development (SEED), Teacher Incentive Fund (TIF), and Teacher and School Leader (TSL) grantees, to share insights, perspectives and resources used to inform KVEC's efforts.

KVEC's third annual 2019 summit is currently being organized to take place in Louisville, KY with a focus on how states are using micro-credentialing as a pathway toward re-licensure or state certification. Additionally, state and national organizations have acknowledged the need in developing a national micro-credential consortium. KVEC staff will lead this discussion in a webinar with a follow-up at the 2019 summit. Plans are also underway for KVEC to co-host the 2020 summit in Iowa with MISIC, an Iowa-based service organization which provides professional development opportunities for re-licensure.

Student Leadership – Jackson Independent

Jackson City School is equipping and empowering our student leaders. Once they leave our doors, our goal is for students to move on to college and career, leading the way. Student involvement at our school is at an all-time high, with many students participating in several organizations, clubs, and athletic teams. We are shaping leaders and building character to create productive citizens who will give back to our community and beyond. The JCS Leadership Team, Y Club, class officers and Student Senate provide opportunities for our high school students to grow in leadership positions and participate in community service, inside and out of school. These teams are learning to make a difference for others through their service activities. Additionally, JCS recently added a student representative to our SBDM council, stemming directly from a student led initiative. This opportunity as well as presentations to our school board and community have opened doors for student voice. Our newly formed Sources of Strength and Green Dot programs have trained peer leaders to serve as trusted individuals for our students.

These opportunities have resulted in identifying leaders not typically active in other leadership groups. Currently, these programs are serving as models for similar organizations in other schools. JCS is also excelling with our JCS Entrepreneurship Team, who has won national recognition for their projects, and our STEM leaders, who help train and pave the way for teaching the newest technologies to others. In addition to these student groups, many of these same students excel in academics, leading in state HS test scores and Governor's Cup competitions. In a high school of less than 100 students total, our students have been given numerous leadership opportunities and have excelled in those opportunities despite obstacles

and challenges of a shrinking population and economic hardship. When students leave our small Jackson City School, they know how to face challenges, problem solve, and serve and lead others, giving them a well-rounded education and preparing them for their next steps.

Eagle Enrichment – Johnson County

Eagle Enrichment is an initiative in Johnson County Schools that serves students before and after school. Enrichment and Academic Support services are offered in the mornings from 7:00 to 8:20 and in the afternoons from 3:30 to 5:30. Transportation services are provided for students who attend. We offer eight parent education classes per year including topics such as "risky behaviors" and "how to help students be successful." On average, we service 110 students daily. We are a "drop in" program meaning that no student is required to attend. Students are volunteering to attend our extended day programming in droves because the enrichment and academic support is relevant and engaging.

Eagle Enrichment is organized by two categories, WIN time or, “What I Need.” We have students who attend for academic support, for engaging enrichment opportunities, and those who attend because they would rather be safe at school than at their home. We provide an afternoon meal through our food services department at JCHS and JCMS.

Our program has students from every academic achievement level. We employ teachers who embrace the Rita Pearson philosophy that students don’t learn from people they don’t like. These teachers, certified in Math, Language Arts, Special Education, High School English and High School Science provide individualized and small group instruction to students. We have integrated peer tutoring in Engineering, Math and Science. The regular day teachers have utilized our extended day programming for test corrections, reteaching, and make up assignments. They have established Google Classroom and flipped lessons that students can access during the extended day setting. Students who have failed a course, or failed a 9 weeks, attend Eagle Enrichment for credit recovery. These students utilize a digital program individualized to their needs and have teachers readily available for assistance. Students have been quoted saying, “Before Eagle Enrichment I had an F and now I have all A’s.”

Eagle Enrichment has become a gathering place for our whole school. We are currently collaborating with our Jobs for America’s Graduates program to provide counseling services for students enrolled in JAG. We have teachers volunteering to sponsor clubs, including strategic gaming, E Sports, Drone Flying, Resistance Training and All Female weightlifting. Teachers have an additional resource to assist with student instruction and to extend learning opportunities. Students have a new place to belong if they are not involved in extracurricular activities. We were awarded the Kentucky Out of School Alliance, Save the Children Mini Grant for $10,000 to extend our programming.

We have partnered with our district wide FRYSC, the Christian Appalachian Project, Mountain Comprehensive Care Mental Health Facility, 4H and our Johnson County Public Library. These community partners offer mentorship, tutoring, and enrichment opportunities. Valuable opportunities from these partnerships include 4H, cooking lessons, computer coding, science labs, team building activities, self defense, painting, yoga and relaxation techniques weekly.

We invite you to check out our Facebook and Instagram at Eagle Enrichment.

Story Makers – Martin County

Sheldon Clark High School students have the opportunity to foster a sense of pride for Martin County by collecting meaningful stories from community members. In a time when the media portrays Appalachia in a singular way that does not fully showcase our diversity and talents, students are taking the initiative to tell their own stories. This project is featured in general English courses and STEM focused courses offered in the Science Department to complement existing curricula. Our work has sought funding from two sources to build opportunities for students to gain hands on experience within their cultural context.

The University of Kentucky and the Livelihood Knowledge Exchange Program (LIKEN) partners with our English Department for "Maker Mondays." This collaboration provides support to empower students to study Appalachian Literature and discover local history through interviews. It also consists of collecting information through the use of media and technology. The learning goals look to push students to relate to their history and challenge their perceptions. Students have created poems, executed interviews, and held class discussions based on how the material relates to them. Currently, students are developing their own podcasts that focuses on topics they are interested in. Examples include folklore stories, homesteading practices, language, and even local athletics. The final project seeks to reframe the question of, *What is Appalachia*? Finally, podcasts will be submitted to a local public radio hosting a segment titled, *Inside Appalachia* in hopes of having their research publicly recognized.

In partnership, the Aerospace Engineering project sought to find ways to showcase stories of place through maps. The class received a grant during the last two years that equipped them with first person viewer drones that have the ability to collect aerial images throughout the Kentucky Valley Education Cooperative. These students seek to tell the stories of place by using base layer maps to pinpoint fishing spots that represent stories of folklore. The project utilizes skills of data collection, GPS, and GIS mapping to tell their stories of Martin County. The group's final product will be a map with pinpointed fishing spots that have a collection of data on flora, fauna, advice for access, bait recommendations, and folklore stories connected to the data points. The project creates a reciprocal relationship between the departments and gives students a multidisciplinary approach.

Throughout the project students have developed their own programming parameters, organized transportation, developed agendas and presentations. Students took a trip to Appalshop to learn more about folklore, have participated in several community events to conduct interviews, and will be presenting at the annual SCHS Heritage Day. Students will also be presenting in the Capitol Rotunda in Frankfort in February. The project will continue throughout the rest of the school year and teachers plan to integrate the projects even more into the curriculum in future academic years.

Innovation Grants and FIRE Summits – Regional Initiative

Learning Innovation Grants have proven to be a strong piece of the compelling work transforming education in east Kentucky. Funds are available to teachers in the 22 KVEC districts to apply for grants that enable them to create a rigorous personalized learning environment for students and to study through action research. Teachers have the opportunity to apply for up to $1,000.00 to enhance classroom learning by implementing innovative strategies to address specific learning problems or challenges. The innovations must be framed around specific teaching and/or learning goals. Teachers submit applications that are awarded based on an identified rubric. Teachers who receive grants use action research to document their efforts and share results through reports and presentations so that others can benefit from work. Over 600 Innovation Grants have been awarded to date.

Educators, community leaders, and students gather each October at the Fall Forging Innovation in Rural Education (FIRE) Summit and in April for the Spring FIRE Summit hosted by the Kentucky Valley Educational Cooperative (KVEC). The FIRE Summits spotlight hard-working innovators in eastern Kentucky that go the extra mile to forge innovation in rural education. The FIRE Summits began when KVEC received the Race to the Top Appalachian Renaissance Initiative (ARI). KVEC has hosted 9 FIRE Summit Events and will host the 10th on April 16, 2019.

Fall FIRE Summits and Spring FIRE Summits allow teachers to share the innovations used in their classrooms for their students using the Innovation Grants awarded through KVEC. More than 201 teachers and students from 22 school districts presented at the October 24, 2018 Fall FIRE Summit sponsored by KVEC student and educator presentations. Learning Innovation Grant Recipients, Student Senate Members,

The Building It Forward Project (Tiny House), and Activating Catalytic Transformation (ACT) teams shared the promise of the practice they had committed to implement within their grant proposal.

On April 11, 2018 over 14,000 participants joined in the Forging Innovation in Rural Education Spring (FIRE) summit hosted by the 22 school districts of the Kentucky Valley Educational Cooperative (KVEC). Over 1,500 persons attended the multi-district K-12 educational professional learning event while more than 13,000 viewers, from 12 countries and 42 states, tuned in to the live stream and engaged with presenters on The Holler. Presentation topics included innovation, entrepreneurialism, classroom redesign, community problem solving and much more. Eight student designed and constructed "Tiny Houses" were on display and available for tours and bidding. The Summit featured drone races, robot battles, graphic art, original music, digital media production and community problem activities. Presenters shared the results and data from the strategy they chose to implement to address their problem of practice.

The FIRE Summits have grown into an international conference with viewing from around the world viewing the presentations and activities. The countries included Canada, France, United Kingdom, China, Germany Saudi Arabia, Spain, and Peru.

The events are streamed LIVE on theholler.org from 11 locations across the East Kentucky Expo Center. The FIRE summit sessions have been archived and are available at summit.theholler.org.

Community Homes for Homelessness and Addiction Recovery – Harlan County

Homelessness and drug abuse are ongoing and many times directly related issues affecting our communities, schools and workforce. Based on data from the 2017-2018 school year, Harlan County High School alone had an alarming number of students identified as homeless due to substandard living conditions or living with someone other than a parent or guardian. In extreme circumstances, many students have nowhere to stay. This is often overlooked by those of us that do not face these day in and out challenges to simply survive. Additionally, the condition of homelessness often leads to substance abuse and there are a number of local facilities that provide addiction recovery, but a very high percentage of rehab graduates relapse back into substance abuse due to having nowhere else to go but back into their former lifestyle and living conditions.

The Student Senate of Harlan County High School, led by ARI Coordinator Scott Pace and currently made up of Senators Garry Henson and Caleb Ashley along with Congressional Representative Brenna Early, has joined a number of community partners to establish the **Community Homes for Homelessness and Addiction Recovery (CHHAR)** project to 'tell the story' of what is collectively being done to make a difference in the lives of those who need a hand up! Through our website (https://chharproject.wixsite.com/chhar) and other platforms including our YouTube Channel, we will provide the goals and progress of our local transitional housing community, how it will impact both students who are identified as homeless and those graduating from a rehabilitation program and what we are doing to educate our communities about the devastating impacts of the opioid epidemic while also providing resources to aid in prevention.

Harlan County Judge Executive Dan Mosley says, "The addiction issue and youth homelessness are two of the greatest obstacles of our time. We can't address this issue effectively without transitional housing options for people coming out of treatment programs or for students who don't have a place to lay their head down at night." In an effort to assist our county, a proposal to help combat this devastating problem is currently being developed. The Harlan County Fiscal Court has set out to create a 20-home community,

which will provide the hand up that so many seem to be lacking. The goal of this proposal is to help construct a sustainable solution to break this cycle substance abuse by creating transitional housing in the form of a tiny home. If provided a place to live and assistance in attaining a job, this could usher them onto the right path of leading a fruitful life. Providing shelter would increase the stability needed for them to become a productive member of society. "As a community, we owe our citizens a pathway to succeed on their own. Those who face these challenges need our assistance in becoming productive members of society rather than becoming burdens to society. This project invests in human beings and gives them a pathway to success and I support it wholeheartedly," says Mosley.

We feel that this will greatly impact our student body and change the lives of our students who are in desperate situations. "Many of our students live in deplorable conditions. Several of our high school students are not even this lucky, they are living in their cars or staying with a different person every night. Anywhere to lay their heads. As of right now, there are at least 7 students that have nowhere to go. The 'Tiny House Project' would be of great benefit to our students. All of these students are 18 and currently getting some type of public assistance, namely food stamps. This tiny house could provide transitional housing until a more suitable living situation could be obtained. Unfortunately, it is very difficult to obtain public housing in Harlan County due to long waiting lists. Cold weather brings more problems for our students. We do not have a fully functional, year round Homeless shelter and these tiny houses would be a God send for our students," Gina Stewart, Homeless Coordinator for the HCPS District.

The CHHAR project in partnership with the Harlan County Fiscal Court allows our students who are homeless along with those in recovery to have a place to live, receive counseling and support services, while on their road to more permanent and structured living conditions, increase focus and success within school, complete the recovery process and begin a career of their choice. This self-sustaining proposal will greatly improve the quality of life for everyone involved and the Student Senate, along with our many community partners are excited and honored to be involved. To learn more, please visit our website and YouTube channel! As the CHHAR project develops, information and updates will be added.

Student Leadership - Letcher County

Letcher County Public Schools Superintendent Denise Yonts believes in cultivating the leadership skills in every student in the district. She has adopted the slogan "Learners Today; Leaders Tomorrow" to exemplify the District's efforts to build future leaders for Letcher County. Through a variety of programs and activities in each school, Letcher County students are provided multiple opportunities to practice leadership skills as they engage in thought-provoking, cutting-edge initiatives designed to create successful citizens.

As students encounter the content in their courses, they are also experiencing structured opportunities to gain enthusiasm about leadership in their schools and community. Leadership qualities such as accountability, critical problem-solving, courage, perseverance and dedication, responsibility, accepting criticism, positivity, decision-making, risk-taking and community consciousness are embedded into curricular explorations. Through social and emotional learning, teachers can encourage students to look at their own habits and behaviors in relation to "becoming a leader" and guide students in setting long-term goals for themselves.

Regardless of their age, grade or degree of involvement in school activities, all students have the capability of becoming leaders. Arlie Boggs Elementary, Letcher Middle School and Martha Jane Potter

Elementary students are heavily involved in an entrepreneurial program where students research and use their own ideas to explore, create and experience the process of developing a product or service for profit to promote within the community. Teacher-guided but student-led, it involves students planning, producing, advertising and promoting, and finally selling their goods or service. The cross-curricular experience allows students to exercise creativity, innovation and ingenuity while they collaborate with educators, families and the community in a real-life setting, thus preparing students for post-graduation experiences in the work-force. Letcher County Central High School offers a multitude of opportunities for students to engage in leadership initiatives. One of the most popular has been the development of student-produced documentaries. Most recently, students are examining the poverty of the region and how people have overcome adverse conditions to make positive contributions to their families and the community. Students interview, film, edit and produce the documentary on their own. Letcher Middle School students are also writing, producing and filming a webcast. Teachers and students have become adept in using Google Classroom, Google Docs, and Google Slides, increasing engagement in the classroom, providing more student choice and utilizing technology as a platform for learning and demonstrating mastery. All these serve as opportunities daily for students to develop and demonstrate their leadership potential.

As we prepare our student leaders for the 21st century workplace, students are busy about the task of learning to lead. Letcher County has a student representative on our Board of Education. Students are using and teaching others about drones and cutting-edge technology; students serve as mentors and peer coaches, they lead clubs, teams and student governments; they are engaged in grant writing, service projects and leadership conferences, and they are assuming the responsibility for the success of our schools, communities and county. Letcher County Schools: Learners Today; Leaders Tomorrow.

Early College Academy – Floyd County

The Floyd County Early College Academy (FCECA) is a districtwide program that is available for juniors and seniors who meet the rigorous requirements. FCECA is housed on the campus of Big Sandy Community and Technical College in Prestonsburg, allowing students more of a college experience, but the Floyd County Schools District oversees the program implementation.

While preparation truly begins in middle school, acceptance to FCECA begins with an application process during the sophomore year that includes a review of the applicants' course history, testing, desire to participate, degree of preparation for the program, and demonstration of parent support. This innovative program's mission is to provide a blended high school-college curriculum that will result in both a high school diploma and an Associate's degree (or significant progress in college courses for enrolled students). Particularly, FCECA is designed to accelerate learning for academically talented students and engage them in challenging experiences that enhance their readiness for college and career. By blending high school and college experiences, Floyd County Schools seeks to develop the academic, personal, creative, social, and leadership abilities of our students. FCECA is the only program of its kind (early college) in Eastern Kentucky. Many students continue to participate in various extra and co-curricular activities at their home schools.

The FCECA's goals include encouraging more high school students to continue postsecondary education and obtain a degree, to support more students in pursuit of degrees/careers in the shortage areas of science, technology, engineering, and math (STEM) and to increase the rigor of courses and instruction for academically talented students through the establishment of a focused program.

By May 2019, one hundred students will have graduated from the Floyd County Early College Academy with Associates degrees and high school diplomas and twenty-three students will have graduated with thirty or more college hours each.

Project Lead the Way – Pikeville Independent

For the first time ever, Pikeville Independent will start offering a pre-engineering pathway for the 2019-2020 school year through Project Lead the Way (PLTW). This will provide our students with courses that will give them a head start for an engineering career. Project Lead the Way engages students, "from launching space explorations to delivering safe, clean water to communities, engineers find solutions to pressing problems and turn their ideas into reality. PLTW Engineering empowers students to step into the role of an engineer, adopt a problem-solving mindset, and make the leap from dreamers to doers. The program's courses engage students in compelling, real-world challenges that help them become better collaborators and thinkers. Students take from the courses in-demand knowledge and skills they will use in high school and for the rest of their lives, on any career path they take. They also provide teachers with the training, resources and support they need to engage students in real-world learning."

The engineering pathway would not be possible without the help of Stanley Pigman and Jesse Lucas. Mr. Pigman, a native of Knott County, attended the University of Kentucky on a scholarship and completed the mining engineering program in 1981. He is providing the district with a grant to help with the initial cost related to the engineering courses offered over the next five years. Mr. Pigman has been a supporter of our region through providing scholarships to students pursuing an engineering degree. Mr. Jesse Lucas is one of our excellent high school science teachers certified to teach pre-engineering classes. He is very excited about being involved with this new initiative in our district. Students will have the option to leave Pikeville High School with courses that will set them on the path to a career in engineering.

Educator Induction – Johnson County

The effectiveness of the individual classroom teacher is *the* most important variable that influences student learning. In Johnson County Schools, we believe that ongoing professional growth is essential to cultivate this excellence and to maximize achievement. Accomplished teachers continuously add to their repertoire of strategies, through deliberate efforts to improve pedagogy and skills in regards to their instruction, classroom management, content and curriculum knowledge, assessment, technology integration and leadership skills. Without funding from our state this year for an induction process (KTIP) or Professional Development (PD), we had to rethink the "how".

What we know is that **effective teachers** do some things in common and those **effective strategies get learning results**. We recognized that integration of PD/PL of high-yield, effective strategies over a two-three year induction process was essential. Also, that a comprehensive, induction process helps support and retain teachers. We also know that when educators in a school/district have the self-perception that they make a positive difference to their students, they do (Hattie's Effect Size: Collective Teacher Efficacy 1.57). Our "Pathway to Excellence" induction process will provide teachers with *the tools* to be successful and to ensure all children in every classroom are provided with the very best educational experience possible by an effective, caring teacher. "Good to great or great to greater!" We want all educators to build upon their instructional practices and pedagogy through this process of continuous learning opportunities, and the belief that they make the biggest difference in ensuring all students learn.

We want all teachers to:

- Maintain a **positive attitude** toward the school/profession
- Participate in **Professional Learning Community** (ies)
- Integrate **high-yield best instructional practices** in teaching
- Create and maintain a **positive, safe climate/culture** for learning
- Understand and utilize strategies for **Assessment for Learning**
- Utilize concepts of **Mastery Learning**
- Use best **Grading and Feedback** practices
- Utilize the **Kentucky Frameworks for Teaching**; rubrics for educator's growth and effectiveness
- Effectively **communicate the learning to parents**
- Integrate **enrichment and intervention** practices
- Continuously **reflect on professional practice** and **set goals** to improve
- **Serve and share** the load with other educators in a leadership role in their school, district, community, and beyond

Innovative Instruction – Pike County

The Pike County School System was awarded seventeen (17) learning innovation grants through the Kentucky Valley Education Cooperative (KVEC) during the 2018-2019 school year. Grants of $1,000.00 each were to be used to identify a problem of practice and to enhance classroom learning by implementing innovative strategies and approaches to learning.

Elementary Grants that were awarded include: **"Tangible Learning and Play,"** which targets students receiving individual instruction for academic and social deficits. The grant will incorporate the Tiggly and Osmo learning system and games to offer hands on learning and play to improve both academic and social skills. Additionally, the grant **"Dramatic Play",** maintains a focus of engaging students in play. Speech language pathologists expect to increase growth in individual students social and/or language goals. "**Appalachia Treasurers"** is a grant that is targeting third grade students and is designed to make writing engaging and innovative, while developing a love for literacy in their hearts.

At the middle school level students are using innovation grants to **"Boogie into the 21st Century"** by using a device known and a Boggie Board, to increase note taking, complete formative assessment assignments and communicate with peers.

Innovation at the high school level encompasses learning in all contents. Using the innovation grant called "**Air Brush Scenes,"** students are being encouraged to look outside of the "paint and canvas" art world to notice everything around them. Students will use small pieces like canvas, and progress to large mural-like-pieces that will be displayed within the school and community. "**Charity, Pathos and Healing Power of Music"** will allow students to sing acapella music to appeal to the emotions of an audience and investigate the curative power of music. Innovation grants are also being used to allow teachers to increase the effective use of technology in the classroom through such grants as "**Whiteboard Tables 1:1,"** which calls for the carpentry class to build whiteboard tables for the classroom that will be used to increase student engagement. **"Promoting Rigorous Computer Science"** allows students to use the Amazon Future Engineer Program and Adhesive AP Computer Science, a Curriculum, to gain access to rigorous industry developed curriculum and scholarship/internship opportunities that are not seen or supported through other curriculums.

"**Seeing is Believing"** is an innovative way to engage student in secondary earth science to see the world in a meaningful way by offering virtual tours using virtual reality goggles. The virtual reality goggles would bring the world into clear view, helping them to understand the importance of conservation of our natural resources, the process of weathering and erosion, and becoming aware of the diversity of the landscape in various regions of the world. **"Lights Camera Action"** allows students to explore through the use of a video production program to connect with one another and their community in a project based, purposed filled learning experience that will encourage teamwork, time management and problem solving. Other projects that are happening in classrooms across the district include: **"Using Kudzu to Produce Cheap Renewable Building Materials"," Synthesizing Gold Nanoparticles,"** and "**Turning Mud into Electrical Energy."**

Innovation grants expand into all curriculums in our district including our vocational education programs. One of the largest grants provided by Building it Forward funding is the **The Tiny House** project. This project allows students to actually design and build a tiny house to be sold. This "hands-on" learning experience has proven to be effective in real world problem solving, development of communication skills and skill development.

Leader in Me - Jenkins Independent

Jenkins Independent, like many other Eastern Kentucky districts, faces many hurdles in teaching our young people. Our community faces high poverty, few economic opportunities and lack of parental support. One of the programs we are using to help build our students personal skill set and leadership skills is the Leader in Me program. Jenkins Independent is utilizing the Leader in Me to help address several issues faced by our students. The program is based on The 7 Habits of Highly Effective People from Dr. Stephen Covey. Our goal is to produce students who are motivated, communicate effectively, set goals for themselves, work collaboratively and make smart choices about their own education.

The cycle of poverty in Eastern Kentucky has proven to be a tough one to break, but we feel by engaging our students in having a voice in their own education we can build their interpersonal skills and help them succeed. We have a student leadership team which works with our district leadership to help create opportunities to improve our school. From creating a nicer looking building to recognizing student success these students work to ensure our young people have a voice in what happens in our school district. We have seen student engagement increase dramatically during this process. We have seen improvement in our academic performance and more students being engaged in extra-curricular activities as well.

The 7 habits are included in everything we do in all grade levels and with all children. Our students now carry notebooks in which they have their own personal goal sheets where they are setting goals for academics and behavior. Our students are now attending and leading data nights where they share their goal sheets with their parents/guardians and actually explain which goals they have met and which ones they are still working towards or modified to be more reasonable. Our students have leadership roles in the school and classrooms that specifically address their strengths and areas of interest. Jenkins Independent Schools is putting more focus and concerted effort into finding each child's special talents and allowing them to put them to use at school each day. Students and teachers are more positive, treat each other more respectfully, and are more willing to try new things that seemed out of reach to them before.

As we move forward in this process I am excited to see how far this process takes us as students become more engaged and even more motivated to make their mark on our district. Seeing young people

excited about being at school and knowing they have a leadership role which allows them to shine is very gratifying as an adult and educator. This program has brought a renewed excitement to our district and we are expecting to see this carry over in our academic performance and extra-curricular activities.

Patriot Pavilion - Knott County Schools

Hindman, along with the rest of Knott County, is an area stricken with poverty and a lack of education. In fact, Knott County is among the 30 poorest counties in the United States according to Bill Estep in his Lexington Herald Leader article (Dec. 3, 2017). The national census reports that our population in Knott County is dropping, the poverty rate is increasing, and 70% of our population has at most a high school education. There has been a push by several groups in Eastern Kentucky to diversify the economy and hopefully pump some life into the dry bones that remain in the wake of losing coal, our economic driver.

In conjunction with local partners, our plan is to bring the idea of new and diversified commerce to a still thriving part of the local community, Knott County Central High School in Hindman, Kentucky. Parents, community members and students frequent the school for sporting events practices, parent teacher meetings, and family nights. The local UK extension office and the Hindman Settlement School will offer programs in which community members can learn valuable ideas on how to stretch their budget with small business or side careers. Also, students can leave high school with not only a diploma but also the ideas and the know-how to earn a living or added income through agriculture, crafts and for other previously unknown avenues.

Knott County Central students are building a covered structure between the gym and main building. The structure once completed can also be used by former class graduates and for reunions. Other uses for the structure will be for performances, such as bluegrass concerts or band concerts. Non-profit organizations can use such events for fundraising purposes at no cost, and thereby protecting all funds raised for their chosen charity group. In areas, like ours, where poverty is high there is no shortage of need.

The structure could also be used as a farmers market for community farmers and the vocational agriculture program as well. While there, the patrons and local producers could participate in small programs or projects to further their education and businesses. Farm to table educational programs will be provided during market days, which help the community to become educated in proper nutrition.

In essence, a metal-poled building with a concrete pad is being constructed. The local Area Technology Center or ATC agreed to build the structure, saving us valuable money that can be put into the structure. Vo-Ag students will also participate in the building of the structure. As soon as the structure is complete we can begin our outreach programs. Once complete this structure will last for years to come, allowing for sustainability. As long as the structure stands it can be used for outreach and programs. If funds are needed for maintenance on the structure, it could also be used to raise those needed funds through a concert or another performing arts event.

Success will be measured by attendance at the community education and outreach programs. Also, follow up surveys will be distributed at the programs so the attendees can inform us on their perceptions and overall thoughts of the individual programs. Another way to measure long term success will be to collect email addresses of attendees in order to correspond and receive updated information about the success of their projects or whether or not they implemented the information presented to them.

Peeking into Pike – Pike County

The Pike County School System is proud to have five (5) senior and five (5) junior members representing each high school as Student Senate Members. The mission of the KVEC Student Senate is to empower the student bodies of the schools in the region by serving as a liaison between the students and faculty, staff, alumni and administration. Each of the five schools agree to develop and implement a school plan and to be a voice of their respective school.

Peeking into Pike County is a concerted effort on behalf of the Student Senate to provide the Pike County Community with access to clear positive communication of events, opportunities, and student success in each of our area schools. Peeking into Pike County will address the challenge of any **negative perception of our school system** by placing a focus on providing the community with a communication resource designed to highlight students in Pike County and opportunities that are available to them.

To address this community challenge, members of the Pike County Student Senate Organization received funding from the Community Challenge Grant sponsored by KVEC.

This goal will be accomplished by establishing five teams, one per high school. These five teams will create a weekly 15-minute **student generated** broadcast showcasing each schools' local events, students, and alumni in order to engage their respective community stakeholders. This video production will be aired on our community partner news station EKB following the evening news. Teams will utilize the same production format to ensure consistency between schools. Furthermore, each school will be assigned a day each week to air their video. The following are the schools and their news show titles:

1. Belfry High School — Off the Hook
2. East Ridge High School — News Around the Ridge
3. Phelps High School — Inside the Hive
4. Pike Central High School — Hawk Talk
5. Shelby Valley High School — Wildcats Purrspective

Each school will offer our community a platform where they can provide notifications of local events. Working with our **primary district community partners and Eastern Kentucky Broadcasting Television (EKB-TV), e**ach of our high schools will be able to establish a better line of communication between our students, our faculty, our parents / guardians, our district administration, our community, and the outside world. In addition to the primary community sponsor, each of the five high schools will ascertain a local community partner that will assist with individual school plans and ultimately contribute to the entire district plan. These partners, as well as, the Kentucky Valley Educational Cooperative (KVEC) and the Rural Strategies group will be identified as community partners.

Tobacco-free Ambassador Partnership – Hazard Independent

The Tobacco-free Ambassador Partnership (TAP) is a collaboration between Hazard High School (HHS) Student Leadership Team and University of Kentucky. It is a student driven project to educate youth and community members on the dangers of tobacco while also empowering them to advocate for effective smoke and tobacco-free policies. The partnership allowed for workshops focused on tobacco, health and social justice, sustainable change in communities, and a breakdown of tobacco policies in Hazard, Perry County and across Kentucky. The youth completed a community assessment prior to the training in order to understand the challenges in their community in regard to tobacco and tobacco policies. The TAP group is comprised of 15 students who meet bi-weekly during the school year, continue to learn about becoming

effective advocates and promote a tobacco-free lifestyle to their community. The goal is to empower youth who could encourage peers and adults in their community to be tobacco-free, stand up to the tobacco industry, and urge key stakeholders to implement smoke and tobacco-free policies due to the health and economic consequences faced by Kentuckians because of tobacco use.

These efforts all strive to build capacity for policy implementation and strengthening the existing high school policy. They are working to strengthen the policy during the upcoming school year. During their community assessment, the youth also identified opportunities to fortify the existing smoke-free policy in Hazard.

The collaboration has entered year two with this year's primary focus on vaping and the use of E-cigarettes among teenagers. The HHS TAP team host and participate in a variety of activities to ensure they get the message out. Vaping among teenagers has reached "epidemic proportions," and the leadership students are doing their part to curb the alarming trend by disseminating information and using other innovative measures to reach the students. The TAP project continues to concentrate on empowering youth to reverse the trend by becoming advocates to be smoke and vape free.

T.E.A.L.S. – Lee County

TEALS (Technology Education and Literacy in Schools) is an initiative by Microsoft that focuses on bringing computer science classes to *"every high school"*. Lee County's partnership with TEALS is in its' seventh year. Student participation in the program has grown substantially, from seven students in the first year to 59 students this year. Students in the program are given the opportunity to learn how to code. Last year, students were able to learn how to use BYOB (Build Your Own Blocks) and each student also learned at least one of the following languages: JavaScript, Java, Python and Ruby. Students have been able to create great projects over the last few years, including websites (built for local businesses), games (the concept completely created by the student) and apps for android devices.

Over the last six years, TEALS has given more than 40 students the opportunity to travel to Seattle, Washington to visit tech giants like Microsoft, Facebook, Google and others. Students have utilized this opportunity to talk to professional programmers, game makers and others about what they need to do to be able to go into each career field.

Students are very excited about the TEALS program and look forward to participating in computer science classes every day. The district has been able to add some Project Lead the Way classes to complete a Computer Science career pathway. The pathway now includes PLTW's new Cybersecurity course, which allows students to learn essential skills needed to protect themselves, their computers, and their networks online.

In conclusion, the TEALS program teaches students skills that are very important to their futures. The program helps prepare students to enter a job market where over 50% of jobs require computer proficiency. It is also preparing students to pursue their individual interests while using coding to help them in their chosen profession through the creation of websites or apps.

Birth through Graduation Reading Initiative – Wolfe County

Wolfe County Schools is working to incorporate a county-wide approach for improving literacy from birth through grade 12. The birth through grade 12 reading initiative is a three-pronged approach for improving literacy for all Wolfe County children. The three prongs include: improving literacy for early

childhood providers; improving technology to promote literacy; and providing meaningful professional learning opportunities for all educators. In order to operationalize this vast effort, Wolfe County schools was able to obtain over 1.3 million dollars in grant funding through the following grants: Striving Readers Comprehensive Literacy (SCRL), Read to Achieve (RtA) and Literacy Innovations for Neighborhoods in Kentucky (LINK).

The first step of the Birth through Grade 12 Reading Initiative is the partnership between Wolfe County Schools and local Early Learning Centers. Through this partnership, using the Striving Readers Comprehensive Literacy (SRCL) grant, Wolfe County Schools are able to provide early learning centers with much needed professional learning opportunities that would otherwise be impossible. Grant funds also allow early learning centers to receive books and technological materials to promote literacy that would also be nearly impossible to obtain. In addition, Wolfe County schools have seen success with improving literacy through the Imagination Library program. Since the inceptions of the program, 68% of Wolfe County children aged 0-5 have been enrolled into this program.

The second step included the implementation process of the Literacy Innovations for Neighborhoods in Kentucky (LINK) grant. Wolfe County Schools has been able to reach our district wide goal of 1 (device) to 1 (student). This accomplishment allows all students in all grade levels to access various programs designed to improve skills in all subject areas as well as promoting literacy through many different online resources.

The final step is ongoing and includes professional learning opportunities to promote literacy district-wide. Funding from the Striving Readers Comprehensive Literacy (SRCL) grant allows teachers to receive quality professional learning to improve literacy knowledge capacity at the classroom level as well as tackle district designated issues and concerns like curriculum alignment. Through collected survey data and anecdotal evidence, the need for a vertically and horizontally aligned curriculum for grades K through 12 became evident. The method of conducting this work will occur on the county-wide scale through Literacy Institutes, which will be monthly district wide events held to assist teachers during this alignment work. Teachers will begin by discussing the alignment of Kentucky Academic Standards and their own lesson planning documents. From this, teachers should develop updated pacing guides with aligned lesson plans and eventually begin designed common assessments. This work will allow teachers the opportunity to review student work and discuss if alignment between what is being taught and learned, align as well. The Literacy Institutes will be supported by collaborative work from all grants.

The Appalachian Voice
August/September 2018

KVEC's FIRE Summit Embraces Hands-On Learning in Kentucky

Lorelei Goff | August 9, 2018

When Belfry High School students in Eastern Kentucky tested groundwater in Pike County for a science project, they never expected to discover contaminants in the area's drinking water.

"We didn't go into this saying there was something wrong with the drinking water," says Hannah McCoy, 18. "We found that this drinking water is not really safe."

The students found high levels of barium, sulfate and sodium in some of wells they tested. McCoy and classmate Aryn Adkins, 18, say the contamination could be alleviated if there were federal regulations regarding acceptable contaminant levels in groundwater.

In June, the group traveled to Kolkata, India, to exchange ideas and research with peers working on a similar project there. The project began after Belfry High School was chosen by the University of Kentucky to receive water testing equipment as part of a project sponsored by the U.S. Department of State's Mission to India that links schools in Kentucky and India to do community-based water quality research and create cultural exchange.

Dr. Haridas Chandran, a science teacher at Belfry, wrote in an email that "the successful completion of the project is due to the experiences that we have gained through the projects that we have received from the Appalachian Renaissance Initiative grants." The Appalachian Renaissance Initiative, which is funded in part through a U.S. Department of Education Race to the Top Grant, includes the twice-yearly Forging Innovation in Rural Education (FIRE) Summits sponsored by Kentucky Valley Educational Cooperative.

KVEC's goal is to shift the focus of the classroom away from activities that simply comply with education standards and toward driving innovation in the classroom. The cooperative distributes between 120 and 150 Appalachian Renaissance Initiative grants each year.

KVEC Executive Director Jeff Hawkins says the FIRE Summits offer students, educators and communities tangible reasons to have hope for the future.

"It's really a celebration of what's right about education," Hawkins says. "It's about kids as makers. It's about teachers as inspirers. It's about connecting the passion that a student has innately with a purpose so that they can then advance themselves, but also help others through their own personal advancement."

Through a U.S. Department of State program, the students then traveled to India to present their work at the U.S. Consulate General in Kolkata, India.

During the fall FIRE Summit, educators present proposals for grants that provide up to $1,000 for classroom projects. These micro-investments focus on getting students more engaged and connecting their passion to a purpose.

In the spring, the students and educators meet again for a show-and-tell to share their projects during the spring FIRE Summit. Other projects funded by the grants during the 2017-2018 school year included powering a blender with a bicycle, detecting cancer using plants and gold nanoparticles, hatching trout to release in streams, monitoring water quality in streams, testing air quality for pollution levels, collaborating with NASA scientists to plan an experiment on a satellite, and designing and building drones, as well as student publishing projects.

A "health hackathon" held during the summit focused on the opioid crisis. Students created an app that connects residents to local law enforcement to report finding drug paraphernalia. The app pings the location and police respond to collect it. The students also designed a 3D-printed sleeve to drop over a used needle that can be placed in an evidence bag.

Another hackathon project invited high school students to submit anonymously written stories about how opioids and drug use have affected them personally. Sixty of those were compiled into a book that will be published this fall.

This year's event also included "Building It Forward," an ongoing tiny house project. Eight houses were designed and built by students using $15,000 in grants from the Appalachian Renaissance Initiative. They were auctioned on theholler.org in May and June Proceeds go back to the school to fund the next year's tiny houses.

"In school systems, there are a lot of things that will come and go with funding," says KVEC Associate Director Dessie Bowling, who founded the Building It Forward project. "That's why we designed this program to be sustainable, because the school gets the money and it goes right back into their budget to build tiny houses year after year."

Building it Forward exemplifies what Hawkins says is KVEC's emphasis on reaching every student to optimize learning.

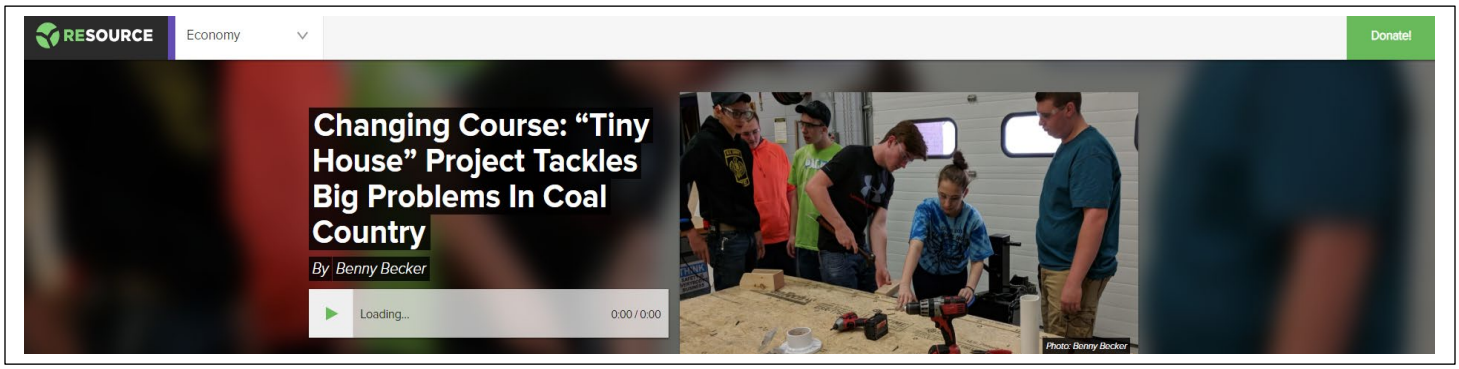
Each year, teams of Eastern Kentucky students build tiny houses as part of the Building It Forward Project. Students collaborate and learn hands-on skills, and the homes are auctioned to fund the following year's project. Photo courtesy of The Holler.

"It's more hands on," Lee County Area Technology Center sophomore Brandon McIntosh told Kentucky Living magazine. "Over at the high school, it's a lot of paperwork. Over here we take a couple of tests and then we're out here learning hands on, which is how a lot of kids learn better. I'm not a paper and pencil kind of person."

Hawkins says small, sustainable programs, such as Building It Forward, are at the heart of KVEC's goal to help solve the region's big problems by developing many small solutions through long-term educational strategies.

"If we only picked one thing that we would do to improve our communities, that would have to be an awfully big lever and we would have to have an awfully big fulcrum" Hawkins says. "By having a thousand levers and a thousand fulcrums, we can incrementally advance our communities and lift them up."

He adds, "Our data tell us that many of our kids who graduate will not come back here to live because the degree that they are in search of or the pathway that they have charted for themselves and the passion that they have, there is not enough diversity of jobs here to satisfy that. Especially in the last five years, with the downturn of the coal industry it has become increasingly important for us to turn our students toward the idea of entrepreneurialism and place-making".



December 11, 2017

The sound of power tools blends with teenage chatter as students clamber around, under, and over a trailer bed that they’re busy turning into a home. They’re part of a project called “Building It Forward,” which has vocational classes building tiny houses as a way of gaining practical skills and new confidence.

Just a few feet from the garage door at the back of the room, there’s a vertical rock face. It’s all coal from the ground up at least ten feet. Coal here can be a reminder of the past — of the time when this land that the school sits on was blasted flat by miners; of times when coal jobs were plentiful here in eastern Kentucky.

Letcher County Area Technology Center students install a tiny house’s floor.

Back inside, students are using hammers, drills, and saws. Educators hope that this class will help them to feel invested in their education, so that one day they might be able to rebuild the economy here in these once-famous coalfields.

Big Goals

The Kentucky Valley Educational Cooperative, or KVEC, is one of eight cooperatives in Kentucky, and it covers the eastern Kentucky coalfields. The fifth congressional district, which contains the KVEC region, has an unemployment rate roughly double the national average, and the country’s lowest life expectancy.

Three years ago, the cooperative won a $30 million federal grant to fund innovation and personalized education in classrooms throughout eastern Kentucky.

"A year into the ARI initiative, we realized that students leaving the high school classrooms each day for vocational school training might be missing out on the innovative work taking place," KVEC Associate Director Dessie Bowling explained.

She described the tiny house project as an effort to fix that — a way of making sure that the cooperative's Area Technology Centers (ATC) or vocational schools offer classes that are interesting and valuable to students, whether or not they plan on going to college.

This past school year, the cooperative funded three eastern Kentucky vocational schools to design and build tiny homes. The project gives students experience with a wide range of construction skills such as plumbing, wiring, carpentry, design, budgeting, heating and cooling, to name a few.

Each school received $15,000 from the cooperative's grant. Combined with some community donations of materials, that enabled the schools to build some very thoughtfully designed and full-featured tiny houses. When the three houses were put up for an online auction, each one had multiple bidders and sold at a profit.

The program is designed to be financially self-sustaining. Money from the sales covers the costs of materials it takes to "build it forward" again the next year.

Bowling said KVEC wanted to avoid falling into the pattern of school programs that go away when funding expires. Designing the project with sustainability in mind has also modeled long-term planning for students. Bowling recalled hearing a high school senior say that he wants the program to keep going so that his children could have the chance to build a tiny home, too. "It made me feel good to know that these students were engaged in the work of building tiny houses and wanted the program to continue".

Tiny Interior

Bowling showed visitors around a blue tiny house that sits in the parking lot behind KVEC's offices in Hazard. The tiny house was built by high school students at the Knott County Area Technology Center and, bought by KVEC to serve as a model for the program.

When you walk into the house, you're surrounded by a small but beautiful oak interior. A staircase on the left leads up to a loft that fits a queen-sized bed. To save space, the steps are narrower at the bottom, and each one has been fitted with a slightly angled drawer.

Tiny house built by students at Knott County Area Technology Center.

When this house was first completed and presented to a gathering of people at a KVEC summit, Knott County student Charles Collin Mosley beamed. “I took a lot of pride in those steps,” Mosley told the crowd. “They’re all custom, they’re real sturdy. I’m just really proud of it.”

Steve Richardson is a truant officer in Knott County. He said the tiny house project has made a big difference for some the students who in previous years had missed a lot of class, to the point where he’d had to make home visits.

Now, students will come to school on Saturdays in order to complete the tiny house by the April FireSummit deadline.

“We’ve been able to get them involved in the learning process,” Richardson said.

Danny Vance is the principal of Knott County’s vocational school, the Knott County Area Technology Center. He was also struck by how much time and care students put into building the tiny house.

“It’s just the best project I’ve ever been involved with,” Vance said.

Next Round

Three schools are building their second tiny house this year, and five other schools got funding from the cooperative to join the ranks. The vocational school in Letcher County is one of the sites building a tiny house for the first time.

As her classmates knocked the final floorboard into place, carpentry student Haley Hart explained the process. “They’re just knocking it in with a piece of wood and drilling holes on the side of it,” she said. “Then they’re just going to screw it down, and that’s the floor laid.”

Haley Hart (in blue) says she’s learned teamwork and communication through working on a tiny house.

This is Haley Hart’s second year taking carpentry. She said she likes how much freedom students have in the class. “Most of the time in other classrooms when you have an idea, you’re not allowed to do it,” Hart said. “But in here you’re allowed to do anything that comes to your mind.”

Hart said she never would have imagined that she’d take part in building a tiny house. She said the experience has made her more confident and also given her communication skills that she expects to come in handy when she’s applying for colleges and jobs.

One of Hart's classmates, Matthew Collier, said he thinks the tiny house project is especially important in small towns like his own, where shrinking industries have left communities struggling to imagine a new economy and a new identity.

"Everybody loves this class," Collier said. "We do the best we can, and when we're done, buddy, it'll look like a million dollars."

Eight schools in eastern Kentucky are now building tiny houses. Students have a deadline to finish construction by April, when the tiny homes will be exhibited and put up for auction to fund another round of construction.

You Can't Outsource Housing

On the day that Dessie Bowling was showing off some of the student's handiwork in Hazard, another of the tiny houses built by students at Phelps Area Technology Center in Pike County was being hauled away.

Charles Hawkins explained that a Letcher County couple bought it to use as temporary housing. "They discovered that they had a black mold," Hawkins said. "So, they're going to get this to use until that's finished and then they're either going to sell this thing or take it out to the lake somewhere and park it." Hawkins said he not only likes the product, he supports the idea behind it.

"They need to concentrate more on vocational trades, because every kid that's going to school's not destined to become a lawyer or a doctor," he said. "Somebody's got to fix the plumbing. Somebody's got to wire the house."

That thinking is echoed by another of Hawkins' sons, Jeff, who is KVEC's executive director. Jeff Hawkins said vocational training has been an important part of the cooperative's education strategy. "We chose to focus on college and career ready," he said. "And I emphasize 'AND'."

Hawkins said vocational skills like those students are learning in the "Building It Forward" program are integral to the "personalized learning" concept that KVEC schools have adopted.

"If you are really focused on personalized learning it needs to be connected to individual passion," he said. "Draw a solid line between what they were doing in school and how that translates to what they would do after that."

Scott McReynolds heads the Housing Development Alliance, based in Hazard. He said that a tiny house could be a good, affordable option for tourists, students, minimalists, and many other people. McReynolds said that eastern Kentucky has a lot of housing needs, including a large amount of rundown and substandard housing.

He pointed out that construction and home repair are kinds of work that can't be done by people who aren't locally available, so it's an area where there will definitely be local needs, and jobs are less likely to go away.

"What really excites me," McReynolds said, "is the skills that students are learning … are really translatable to the rest of the solutions we need."

Pacific Standard

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THE FIX

HOW TO REWRITE A REGION'S STORY

In one of the poorest areas of the country, public schools are driving economic transformation.

DWYER GUNN - SEP 24, 2018

A few miles northwest of downtown Hazard, Kentucky, the headquarters of the Kentucky Valley Educational Cooperative sits at the end of a bumpy road that offers visitors a tour of Appalachia's ills. There's the pain clinic locals refer to as a "pill mill." There's the small addiction-recovery facility next door to a dental clinic. And then there's the incongruously lavish medical office—complete with white Grecian columns, ornate statues, and an elaborate fountain—that has sat vacant ever since its proprietors, a doctor and his wife, were arrested by the Federal Bureau of Investigation in 2014 on charges of drug trafficking, money laundering, illegal distribution of a controlled substance, and health-care fraud. KVEC is housed in a one-story redbrick and metal-sided building that's also home to the Eastern Kentucky Concentrated Employment program, a workforce agency tasked with retraining former coal miners.

Despite its inauspicious surroundings, KVEC, under the banner of the Appalachian Renaissance Initiative, is on a mission to transform not just the local school system but the region's entire economic future. For residents of eastern Kentucky, who are currently suffering through the profound economic dislocation wrought by the coal industry's dramatic decline, such a transformation can't come soon enough. Between 2000 and 2015, the amount of coal produced in eastern Kentucky declined by 74 percent. Employment in the industry has exhibited precipitous declines as well; coal employment in the state is now barely half of what it was in 1927.

KVEC (pronounced Kay-Veck) provides supplemental services and support to 22 rural school districts in the area. In the past, the organization has served as both a local coordinator for statewide initiatives on things like workforce readiness, and as a sort of super-charged PTA, providing the kinds of "extras" that poor, rural districts generally can't fund on their own—school safety and violence prevention workshops, for example.

About 10 years ago, however, the staff of the organization started to think more broadly about the challenges facing the region. Jeff Hawkins, KVEC's executive director and a native of the region, says that the shift was driven by a simple question. "We asked ourselves: What are the key elements that we need to put in place to rewrite the educational narrative in Appalachia?" explains Hawkins, a tall man with snow-white hair who speaks every word thoughtfully. "We recognized the fact that, in order to have excellent

education, it's important to have a vibrant, growing economy; and to have a vibrant, growing economy, it's important to have excellent education."

Fixing education in coal country would require a tectonic shift. In 2013 the small organization was awarded a $30 million Race to the Top grant from the Department of Education. Since then, KVEC has launched a massive effort to ensure that students graduate high school prepared for a future that has everything to do with technology and little to do with the fading coal mines that still dot the landscape. Classrooms in KVEC's member districts are now equipped with next-generation technologies: Students are learning to build drones, competing in advanced robotics competitions, and designing video games. More than 500 kids across eastern Kentucky today are enrolled in computer science classes. At one school, approximately 20 percent of students are currently enrolled in digital learning classes.

But KVEC's goal is larger than just improving the economic prospects of individual students; it's trying to pioneer an approach that uses the public K-12 school system to leverage the development of a technology industry in Appalachia. The organization recently purchased a sophisticated 3-D virtual reality system and works closely with Drone Port USA, a local project to establish a state-of-the-art drone testing and research facility in the region.

The leaders of KVEC hope for two things. The first is that a technically competent workforce and a sophisticated, high-quality school system, combined with strategic investments in facilities and resources, will attract modern industries to the region. The second is that at least some of the students who are learning how to code, build drones, and design video games today will remain in, or return to, the region to start businesses of their own and help rewrite eastern Kentucky's story over time.

"Part of our work is driven by the realization that we need to own our own story," Hawkins says. "We want to broaden the opportunities for work to take place here and create a vibrancy of life in this community that will lead to people not wanting to leave ... but that will also invite others to move here."

On my second day in eastern Kentucky, I visited one of KVEC's schools in Belfry, a small town on the border with West Virginia. If the daunting economic transformation that KVEC is attempting to engineer is to succeed, students at schools like Belfry will play a key role.

Belfry High School sits at the base of several densely forested hills. On the gorgeous, sunny mid-October day that I visited, they are just beginning to blaze with fall color. Inside, halfway down a white-tiled hallway, Haridas Chandran's students are hard at work discussing how to program an 18-inch-tall robot to lead the residents of a local senior living facility in a game of Bingo. By the end of the school year, the team hopes to use the lab's 3-D printer extensions to give the robot arms and legs.

In the center of the cavernous lab, an enormous wind tunnel stretches halfway across the width of the room. Chandran's students are using the tunnel to test different wing designs. Next to the wind tunnel sits a flight simulator station. Students at Belfry, like many in the region, will graduate high school knowing how to build and operate a drone.

At the front of the lab, Austin Dillon, a 17-year-old senior, tinkers with a robot that the school's robotics team built for a contest last year. Per the competition's rules, the robot was built in an intense six-week period, during which Chandran and his students worked on the machine day and night to ensure it could complete the required tasks.

"The kids work on it on weekends, snow days, every single day," says Chandran, a friendly, enthusiastic man with a sly sense of humor. "They stay and work on it until 10 p.m. at night."

"I can tell you about any part of the robot," Dillon says politely as he fiddles with the machine's router. "Ask me anything." With Dillon at the controls, the machine shoots whiffle balls out of a compartment on its front and climbs up a strap that Chandran holds high in the air.

Chandran—a native of Chennai, India—is hopeful that at least some of his students will someday use what they've learned in his lab to tackle some of the region's problems. "The kids can come back and start their own company here," he says. "We should have been doing this a long time ago."

Before I left Chandran's lab, Paul Green, who leads many of KVEC's economic development initiatives, introduced me to Stephanie Younger, the computer science teacher at Belfry. Younger, who's 30 and has curly brown hair, was working as a math teacher at Belfry when KVEC first sent an email to its member districts seeking instructors interested in computer science. She had also worked as a teacher trainer for Microsoft, and trained teachers all around the country in computer science instruction for Code.org. Today, she's tasked with developing and piloting KVEC's computer science curriculum for the entire region. In addition to introductory and Advanced Placement computer science classes, students at Belfry can now take a video game design class.

I asked Younger, whose husband grew up in Belfry, if she thinks her computer science students can serve as a source of economic reinvention for eastern Kentucky. "We keep producing these kids," she told me. "And they want to come home."

When I returned to Hazard later that afternoon, a group of video game developers from Lexington had set up shop in the trailer/innovation lab in KVEC's parking lot. They were receiving training in how to use the new virtual reality system. Green's hope is that the system, which is more sophisticated than any other in the state, will continue to lure game developers to the region to serve as mentors and potential employers for KVEC students.

"Place is important, but workforce is important too," Green told me. "Looking at the real long game here, we in eastern Kentucky could soon be able to say, 'We have 200 kids who are proficient in this technology.” Green is a lanky, bald man in his forties who was born and raised in tiny Owsley, Kentucky, in a county best known for being one of America's poorest. When he talks about his economic development work for KVEC, it's with a sense of cautious optimism.

"We have to have hope, we have to think that we can shift things here," he told me. "If we could attract one person here to be successful, it can help."

A few weeks before I visited eastern Kentucky, Scott Pruitt, the administrator of the Environmental Protection Agency, traveled with Senate Majority Leader Mitch McConnell (R-Kentucky) to Hazard to announce that the Trump administration would repeal the Obama-era Clean Power Plan. "It's good for eastern Kentucky to hear that, right?" Pruitt asked a crowd of applauding civic and business leaders in Hazard. "No better place to make that announcement than in Hazard, Kentucky."

The event was invitation-only and not heavily publicized, so, with the exception of KVEC staffers, few of the people I met in Hazard were even aware that Pruitt had been to town, or that the Clean Power Plan had been repealed. The news didn't seem to convince anyone that the coal industry was about to come roaring back.

"We've always had these booms and busts," says Sherry Spradlin, the owner of a bed and breakfast in Hazard who grew up in the region and whose father was a coal miner. "But it's just never going to be the way it was."

Hopes were even lower among the young people I met. Not one of the students I spoke to at Belfry or the other schools I visited expressed a desire to ever work in the coal industry. Austin Dillon wants to go to Columbia University and be a corporate lawyer. Others told me they wanted to be engineers, or nurse practitioners, or diplomats. Stephanie Younger, the computer science teacher at Belfry, told me that most students don't think coal is coming back.

On the wall of KVEC's conference room, there's a doomsday clock that counts down the days, hours, and minutes remaining in the Race to the Top grant—it's meant to remind everyone of the imperative to use every last minute, and every last cent, of the grant as productively as possible. Dessie Bowling, the associate director for KVEC, says that the organization has gone to great lengths to make its investments sustainable. The teachers they've trained, the curriculums they've designed, and the technology they've purchased will all remain in the region's classrooms.

"The goal is to invest the grant funds wisely to ensure this work can be sustained because we have really built capacity within the school communities," Bowling says.

Nonetheless, it's difficult to imagine that the organization won't struggle when the funding disappears. Chuck Fluharty, the president of the Rural Policy Research Institute and a member of KVEC's advisory board, hopes that philanthropic organizations, as well as any new industry that emerges, will fill in funding gaps. It seems a reasonable hope: KVEC has already received funding from the Gates Foundation, both Bill Gates and Mark Zuckerberg have visited, and Paul Green was selected to be featured at the Obama Foundation's inaugural summit.

While the results of a formal, rigorous evaluation of KVEC's Race to the Top efforts won't be available until next fall, preliminary evidence suggests that KVEC is improving students' prospects. Average graduation rates among the 17 KVEC member districts that are being tracked as part of the grant have increased by 4.2 percentage points since 2014 (nearly double the 2.2 percentage point increase in the state), even as the percentage of students qualifying for free or reduced lunches has increased.

But it's too soon to tell if KVEC's efforts will bear fruit. "It takes about a generation to transition, and [KVEC has] put the wedge in the tree perfectly in the school system," says Fluharty when asked if he thinks KVEC's efforts to remake the region will succeed. "It took 200 years for the Appalachian Mountains to become fully subservient to coal, and coming out of that simply does take time."

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In Kentucky, Rural Schools Betting on Drones to Stem 'Brain Drain'

By Denisa R. Superville - May 16, 2017

Seth Hatfield, a Belfry, Ky., sophomore, flies a drone. Prospects for a drone port near Belfry make him hopeful for high-tech career options after college. —Tim Webb for Education Week

Can a drone port on a strip-mined mountaintop in Kentucky keep an ambitious student like Seth Hatfield from leaving his economically distressed hometown for good?

A co-op of rural school districts in the region—home to a long-declining coal industry—is betting on it.

The districts and other backers of constructing a $50 million complex where companies would design, build, and test drones and train people to operate them, say the region's high schools would provide a strong pipeline of students to learn high-tech skills.

They hope to accomplish two feats in a region where, at 12.8 percent, the January unemployment rate was more than twice the national average: create jobs in the burgeoning high-tech field and entice the region's brightest students back home after college with the promise of good jobs.

For Hatfield, a sophomore at Belfry High School in Pike County whose passions are video games and robots, it's a thrilling prospect.

"I feel like this is a great opportunity for me, and I feel really lucky that all of this is happening in my area, close to my hometown," said Hatfield, 16, whose grandfather was a coal miner.

The project, known as USA Drone Port, is still in its conceptual phase and is expected to be built near Hazard, in southeastern Kentucky. It would include a 3,500-foot runway for drones and other small autonomous aircrafts, as well as an indoor-testing facility for year-round work. There would be space for engineers to build, test, and perfect their inventions. Classroom space would be available for K-12 and college students to learn drone design and manufacturing and have job-shadowing and mentoring opportunities. The facility would have aquatic ponds to test small underwater vehicles—the kinds that might be used in search and rescue missions.

"We know [drone technology] is a growing area of employment opportunities, and the uses are only now being discovered," said Jeff Hawkins, the executive director of the Kentucky Valley Educational Cooperative, or KVEC—a collective of 21 rural districts with 50,000 students that covers an area roughly the size of Connecticut. "It's also a way for us to engage student-learners in a pathway that's focused on drone design, testing, and use, that exposes them to high levels of mathematics, engineering, and physics, etcetera."

Hawkins believes the education system is inextricably linked to the region's economic future. "Where the two intersect is the edu-economy," he said. "That's the sweet spot for us."

The project grew out of discussions about postsecondary opportunities and regional economic development between educators at KVEC and officials from the state's aerospace industry, said Paul Green, the director of KVEC's Appalachian Technology Institute. The need for a facility for research and development of drone technology emerged over and over, Green said. The state has a growing aerospace industry and is second in the country in the export of aerospace products and parts, he said.

Right Conditions

The southeastern Kentucky region has many features that make it a prime location for such a project, including thousands of acres of land and open space far enough away from population centers without being too remote, Green said.

While districts in the region have large numbers of students living in poverty—81 percent qualify for free- or reduced-price meals—they post average four-year graduation rates that are higher than the state's average, Hawkins said.

In 2016, KVEC's graduation rate was 94.9 percent, while Kentucky's statewide rate was 88.6 percent, Hawkins said. Steady growth in the graduation rate has been the result of expanding personalized learning, personalized professional development for educators, and expanding curricular options, particularly career tech-ed courses.

The KVEC districts have also been building a stronger foundation for high-tech education, deploying more than $30 million in federal grants to expand courses in computer programming, computer science, coding, aeronautics, and aviation. Prior to the recent expansion, only two of KVEC's 29 high schools offered computer science classes with coding, and only two had offerings related to aerospace engineering and aviation, Green said.

"Our programming is trying to expose kids to these new things," Green said. "We are working to create potential economic opportunities with something like the drone port, where industry may say, 'This

is a great training facility. This is a great testing facility. It may behoove us to move our research and development center to this location.' "

The drone port dovetails with KVEC's efforts to prepare students for jobs of the future and build multiple career pathways. This fall, KVEC plans to offer a new pathway in drone design and development. It will also emphasize entrepreneurship and creativity.

"The unique thing for me is how do we create an ecosystem that fuels both the K-12 education system and diversifies the economy, so that people can stay here and find gainful employment and create a vibrancy of life," Hawkins said.

Odds for Success?

Revitalizing economically depressed regions is a tall order in any setting where manufacturing and industry jobs have disappeared, said Harry J. Holzer, a public policy professor at Georgetown University in Washington. In many of those regions, residents who had the opportunity left permanently. Many who stayed behind have been out of the workforce for extended periods, often on long-term disability, Holzer said. And some of those areas are in the throes of the opioid epidemic. The eastern Kentucky region is home to several counties with some of the largest declines in life expectancy between 1980 and 2014, according to a recent report in JAMA Internal Medicine, a drop driven in part by poverty and lack of healthcare access. The opioid and prescription drug epidemic and an exodus of younger people have also played a role, Hawkins said.

But there are features in the region that companies may find attractive, such as cheaper land and lower taxes. Building a skilled workforce might also draw interest, and KVEC's partnership with a local community college and the region's relative proximity to Lexington, Ky., also "raise the odds of success," he said. University of Kentucky economist Christopher Bollinger expressed caution.

There are major challenges to luring tech firms to areas where the labor force needed to support the industry does not yet exist, Bollinger said. And a lack of big-city amenities to attract a start-up labor force is also a barrier.

The new training for high-tech jobs in coding, engineering and aviation and entrepreneurship should continue whether the drone port gets built, he said. That kind of training and education can spur entrepreneurial activity and lead to economic revitalization.

"Fundamentally, I am always skeptical of 'if you build it they will come' " he said. "But I am not skeptical that education is the key to economic growth. We see this all the time."

The project is not intended to be exclusive to drone development, said Bart Massey, who works at Hazard Community and Technical College and will serve as the manager for the project. Robotics will also be central, and the complex's final form will be driven by industry needs, he said.

So far, the board that would manage the drone port has received support from local county governments. A landowner has agreed to donate the property for the airstrip. Other property owners have also expressed their intention to donate more land if needed, Massey said. The organizers will need to raise private money, but they also hope to get financial assistance from the Appalachian Regional Commission and grants through the federal Abandoned Mine Land Reclamation Program, Massey said. The first phase is estimated to cost $15 million.

The entire project would take between 24 and 36 months to complete, but educators hope that students and businesses would be able to use portions of the facility as soon as fall 2018, Massey said.

Student Passion

Belfry High School students like Hatfield and his classmate Autumn Gibson see real promise to pursue a career close to home. Gibson, 15, whose early exposure to air shows fostered a love for airplanes, signed up for an early-morning aeronautic class when it was first offered. This semester, she and some classmates built a wind tunnel from scratch.

"I thought it was a great opportunity to get a head start on a possible career," said Gibson, who plans to be an aviation technician and return to work at the regional airport.

Hatfield has already demonstrated a talent with drones. He recently won KVEC's first-ever drone contest in which contestants had to pilot a drone in an enclosed space without crashing it.

The planned drone port gives him hope that his family's Appalachian roots—which run deep in southeastern Kentucky—can remain.

"By the time I complete college," he said, "there is bound to be something for me back home."

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The Kentucky Valley Educational Cooperative (KVEC) is a nationally recognized education service agency governed by superintendents from the counties of Breathitt, Floyd, Harlan, Johnson, Knott, Lawrence, Lee, Leslie, Letcher, Magoffin, Martin, Owsley, Perry, Pike, and Wolfe along with independent districts in Ashland, (Boyd County), Hazard (Perry County), Jackson (Breathitt County), Jenkins (Letcher County), Middlesboro Independent (Bell County), Pikeville (Pike County), and Paintsville (Johnson County).

These rural public-school districts lie within the Central Appalachian Region of Kentucky and comprise an area larger than the state of Connecticut. East Kentucky Superintendents realized the necessity of such an organization that could have a regional impact on educational opportunities for school communities and KVEC was formed in 1969 to address the needs of rural school districts.

The Cooperative serves as a regional public education entity, focusing attention on teaching, learning and leadership, maximizing educational opportunities, and contributing to a more effective use of resources.

KVEC's overarching mission is to lead and direct sustainable systemic improvement that drives education reform and improves student achievement through innovation in systems design, resource use, and human capital development that will contribute to the resurgence in educational achievement taking place in the Appalachian region.

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A Region's Way Forward

Achieving Learner Equity and School Centered Community Reinvention in an Economically Distressed Rural Region

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Education leaders in this region are united by a fierce belief in communities and their ability to play a significant role in advancing academic achievement, economic development and community vitality. In the face of very real challenges, these regional and district leaders choose to leverage ways public education can positively impact the region's future through a lens of abundance versus scarcity – and equity versus equality.

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