



# Many Voices, Many Solutions

## Innovative Mine Reclamation in Central Appalachia

**A report by Appalachian Citizens' Law Center, Appalachian Voices,  
Coalfield Development Corporation, Rural Action, and Downstream Strategies**



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*This report was developed by the Reclaiming Appalachia Coalition and was made possible through the financial support of the New York Community Trust and the blue moon fund, as well as the Mertz Gilmore Foundation, Mary Reynolds Babcock Foundation, Enterprise Community Partners, and the JM Kaplan Fund. We would like to thank all of these supporters who helped make this report possible.*

## OPPORTUNITY

Appalachia is in a moment of profound change. As the region struggles to build a new economy amidst the decline of the coal industry, communities are looking to develop innovative economic solutions that are specific to the context and problems of this place.

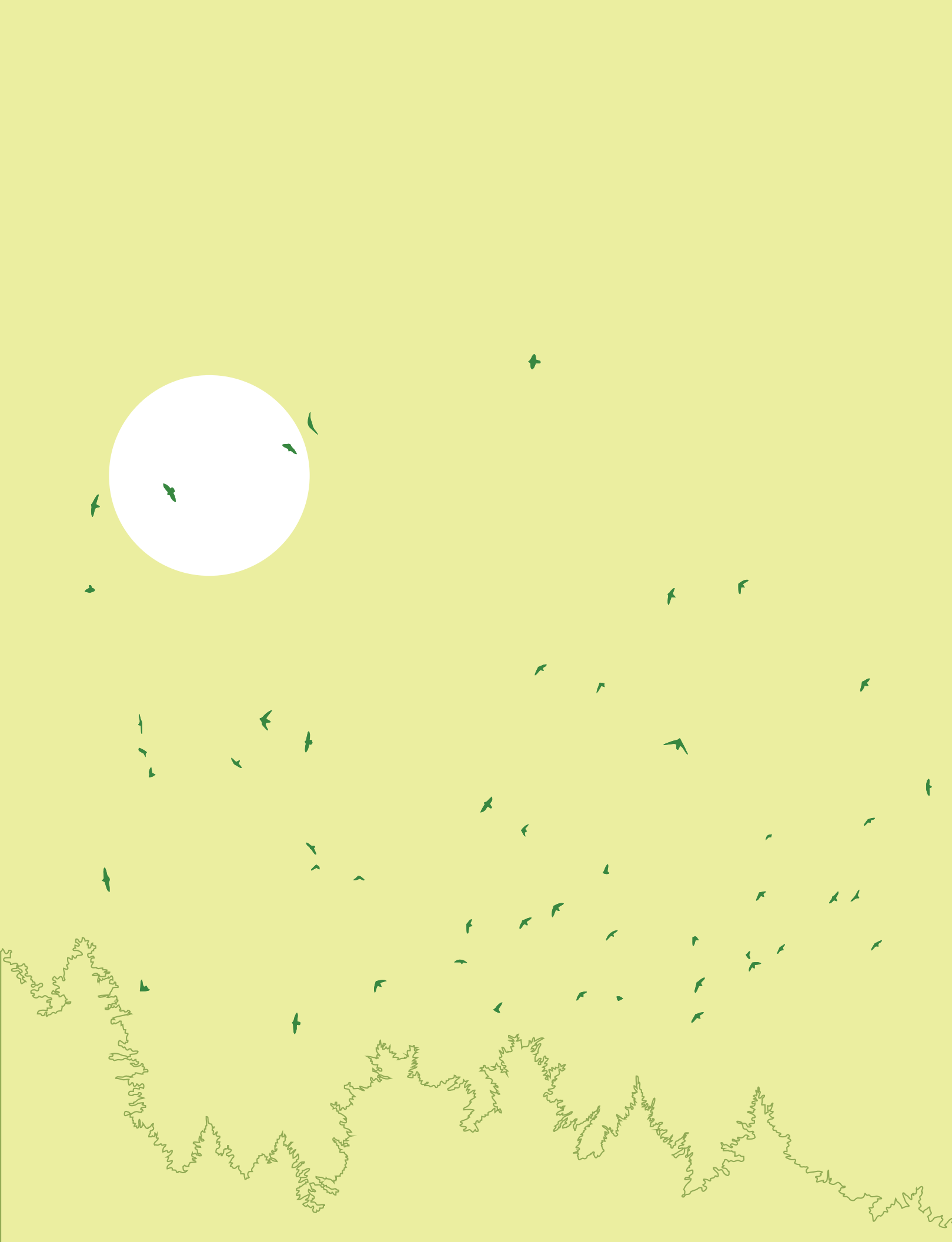
Appalachian communities are plagued by thousands of coal-impacted sites that were abandoned and never cleaned up that pose threats to public health and impede local economic growth. But what if communities could turn these environmental liabilities into economic assets? New funding opportunities are helping make this approach a reality.

This report seeks to spur innovative economic development throughout Appalachia in communities where the landscape has been irreparably changed by coal mining. Specifically, the report provides case studies of projects that advance community development amidst abandoned mine lands, or in

some cases by reclaiming abandoned mine features as part of the project. This report has two goals:

- *To share concrete examples and ideas for projects that communities throughout the region might consider pursuing;*
- *To provide case studies of and highlight communities that are already pursuing projects.*

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## WHY NOW?

Recent initiatives, such as the Abandoned Mine Land (AML) Pilot Program, which appropriated \$105 million in 2017 and \$115 million in 2018 for mine reclamation projects to spur economic development, have expanded revenue streams and regional interest in redeveloping former mine and industrial sites for new projects with sustainable economic and community benefits, often in evolving industries. Repurposing Appalachia's degraded lands presents a unique opportunity to turn environmental, public health, and safety liabilities into community assets. Initiatives like the AML Pilot Program could be Appalachia's new New Deal.



*The Reclaiming Appalachia Coalition is a regional collaboration that seeks to spur mine reclamation projects throughout Central Appalachia that are responsive to community needs and interests and that accelerate the growth of new, sustainable sectors. The Coalition consists of lead organizations in four states—Appalachian Voices in Virginia, Appalachian Citizens' Law Center in Kentucky, Coalfield Development Corporation in West Virginia, and Rural Action in Ohio—and a regional technical expert, Downstream Strategies, based in West Virginia.*

 **Rural Action**

**COALFIELD DEVELOPMENT**  
Appalachian COURAGE, CREATIVITY, COMMUNITY

 **Appalachian Voices**

**Downstream Strategies**  
Ideas that sustain.

**APPALACHIAN CITIZENS' Law Center** 

## BEYOND A BUZZWORD: INNOVATIVE MINE RECLAMATION

Groups involved in Innovative Mine Reclamation seek to learn from the past four decades of mined-land repair and reuse, while creating projects that benefit the residents of the Appalachian coalfields in a variety of ways for decades to come. This is accomplished not by defining a handful of types of development projects as acceptable, but rather by establishing guiding principles and using those to filter concepts that meet the criteria of the Reclaiming Appalachia Coalition.

Those principles are as follows:

- Go above and beyond the legal reclamation requirements for AML features and bond forfeiture properties to create sites that are primed for sustainable development, native ecosystem restoration, or both;
- Make projects appropriate to the specific place they are occurring;
- Be inclusive of multiple community stakeholders, especially in addition to traditional decision makers, in project development;
- Promote environmental sustainability and do not cause additional harm;

- Make projects financially viable beyond the initial grant period;
- Introduce new, viable concepts to the Appalachian coalfields that could be successfully replicated on similar sites throughout the region.

In the past, reclamation and reuse of mined lands generally fell into a few broad categories. High priority mining impacts with potential harm to human health were repaired to the point of not being dangerous, but no post-repair development was implemented. Surface mined areas near population centers were developed into shopping centers, hospitals, and other standard uses, while the more remote sites were either completely abandoned, converted to low-productivity cattle grazing lands, or developed into spec-built industrial parks, prisons, or golf courses at great taxpayer expense. Those “if you build it they will come” industrial parks and golf courses now largely sit empty and unused, because they were not developed with inclusiveness, collaboration, and place-appropriateness as guiding principles. Innovative Mine Reclamation is focused on avoiding these pitfalls through creativity and adaptability.

## EMPLOYING A COLLABORATIVE APPROACH

In implementing and supporting innovative mine-land projects, we have collectively observed similar themes of challenge and opportunity across the region. However, there are important state-by-state differences in how each state handles innovative mine-land efforts, especially with the AML Pilot program. The timelines of application and funding decisions differ widely. How each state interprets what is or is not eligible can differ as well. Some states prioritize local governments as

applicants, while others are more open to community organizations. Some states are more eager to embrace the “nexus” between economic development and mine-land reclamation than others. And some states have detailed processes laid out for potential applicants, whereas others are still refining such processes. Cross-state communication is increasingly important so as to ensure best practices and build a region-wide movement toward a more just and equitable future.

### APPALACHIAN VOICES - VIRGINIA

Appalachian Voices was founded in 1997 to protect the land, air, water, and communities of Central and Southern Appalachia. They are committed to fostering healthy communities and promoting more diverse and sustainable local economies. In the pursuit of a positive vision for Appalachia's future, the organization builds successful grassroots campaigns that are informed and complemented by technical and policy expertise to empower residents of mostly rural communities in five states—Virginia, North Carolina, Kentucky, Tennessee, and West Virginia—to ensure that local voices are heard by influential stakeholders and decision-makers at every level of government.

In 2016, Appalachian Voices financed and spearheaded the publication of *Healing Our Land, Growing Our Future: Innovative Mine Reclamation in Southwest Virginia* in partnership with Downstream Strategies and Coal Mining Engineering Services. This analysis of the Virginia Abandoned Mined Land inventory proposed 14 mine reclamation projects that have sustainable economic development goals and represented an estimated total of over \$16 million in cleanup costs and \$52.7 million in construction investments.

## APPALACHIAN CITIZENS' LAW CENTER (ACLC) - KENTUCKY

The Appalachian Citizens' Law Center is a nonprofit law firm that fights for justice in the coalfields by representing coal miners and their families on issues of black lung and mine safety and by working with grassroots groups and individuals to protect the land and people from misuse and degradation caused by extractive industries. ACLC handles individual cases and engages in strategic litigation and policy work in the areas of mine safety and health; environmental protection; legacy costs of extractive industries on the people, land, and economy of the Central Appalachian region; and sustainable energy. ACLC is based in Whitesburg, Kentucky.

ACLC has been engaged in policy and advocacy efforts related to abandoned mine reclamation and economic transition in Appalachia since 2014, including leading a regional participatory research project that resulted in the release of the 2015 report, "Abandoned Mine Land Program: A Policy Analysis for Central Appalachia and the Nation." Through this work, ACLC has developed a strong understanding of the federal Abandoned Mine Land program. ACLC is currently helping lead the effort to pass the RECLAIM Act (H.R. 1731).



## RURAL ACTION (RA) - OHIO

Rural Action is a member-based non-profit organization with a long history of community development and environmental restoration work. With a mission to foster social, economic, and environmental justice in Appalachian Ohio, RA works at the grassroots level to grow sectors built from the region's assets—sectors that have the potential to expand sustainable economic development. These include projects, programs, and social enterprises in watershed restoration, zero waste/recycling, forestry, agriculture, environmental education, energy and climate, and ecotourism.

Rural Action has been working to restore acid mine drainage (AMD)-affected Appalachian streams for over 20 years in coordination with community members, watershed partners, and state and federal agencies. Over 25 passive and active restoration projects have

been coordinated through RA's efforts. Through years of dedicated work, funding, and community support, aquatic life is returning to those streams. Restoration projects in one watershed, Huff Run, have resulted in an amazing fish-species rebound, increasing total watershed fish diversity from 11 in 1997 to 38 in 2014. In the West Branch of Sunday Creek there were no fish found in 2005, due to AMD pollution. In 2016, after RA coordinated the construction of a treatment system, that number increased to 17 native Ohio species. Currently leading the Appalachian Ohio Watershed Council and promoting state and federal policy to fund the costly issues of water quality, Rural Action is managing long term investment and support for reclamation and water quality as basic preconditions to sustainable development.

## DOWNSTREAM STRATEGIES - REGIONAL TECHNICAL ASSISTANCE

Downstream Strategies offers environmental and economic development consulting services that combine sound interdisciplinary skills with a core belief in the importance of protecting the environment and linking economic development with natural resource stewardship. Downstream has a long track record of successful

consulting and project development work in Central Appalachia and has significant experience in innovative mine reclamation. As the cross-state technical expert for the Reclaiming Appalachia Coalition, Downstream Strategies provides expert services to help with project identification, development, and management.

## COALFIELD DEVELOPMENT CORPORATION (COALFIELD) - WEST VIRGINIA

Coalfield Development Corporation envisions a revitalized people thriving in a renewed, more prosperous economy that is grounded in Appalachian values. The organization supports a family of social enterprises that inspire the courage to grow, the creativity to transform perceived liabilities into assets, and the community needed to cultivate real opportunity in Appalachia through mentorship, education, and employment.

Based in Wayne, West Virginia, Coalfield Development Corporation has grown into a family of social enterprises working throughout the region as a leader in the

building of a new economy during the wake of the coal industry's rapid decline. Coalfield has pioneered a relationship-based, holistic approach to on-the-job training, where trainees work the 33-6-3 model each week: 33 hours of paid labor, 6 hours of higher education class time, and 3 hours of life-skills mentorship. This model has created more than 40 on-the-job training positions, more than 200 professional certification opportunities, redeveloped more than 150,000 square feet of dilapidated property, and successfully launched five new businesses in industries based on local assets and having real viability in the Appalachian region.



## UNDERSTANDING THE REGIONAL CONTEXT AND POTENTIAL IMPACT

For many Appalachian people, this has been a scary time. Many jobs have been lost (see below), serious environmental damage has been done, and social problems such as drug addiction continue to threaten our future. Central Appalachian communities have Median Household Incomes at only half the national average and poverty rates more than 25 percent greater than the rest of the country (source: U.S. Census, 2016). More than 1,200 miles of streambed have been permanently destroyed by mountaintop removal (source: Appalachian Voices, 2016). And Appalachian communities experience drug overdose rates 10 percent above national averages (source: CDC, 2017).



**TABLE 1: COAL JOB LOSSES, Q4 2011 TO Q4 2016**

State	No. of jobs, 2011	No. of jobs, 2016	Jobs lost	% Change	Jobs lost as % of total workforce
Kentucky	18,029	6,459	11,570	-64%	0.60%
Ohio	3,151	1,289	1,862	-59%	0.03%
Virginia	5,439	2,529	2,910	-54%	0.07%
West Virginia	24,772	12,239	12,533	-51%	1.64%

Source: Houser, Bordoff, and Marsters, 2017

The Appalachian Regional Commission monitors the economic status of all Appalachian counties. The commission ranks counties based on measures of unemployment, income, and poverty. Generally, the counties fit into five categories, ranging from attainment to distressed. **Attainment** counties have the strongest economies. These counties rank among the best 10 percent of the nation's counties. **Competitive** counties are able to compete in the national economy but rank lower than attainment counties. These coun-

ties rank between the best 10 and 25 percent of the nation's counties. **Transitional** counties fall somewhere in between strong and weak economies. These counties rank between the best 25 percent and worst 25 percent of the nation's counties. **At-Risk** counties are those that could easily become economically distressed. These rank between the worst 10 and 25 percent of the nation's counties. **Distressed** counties are the most economically depressed counties in the nation. These fall into the bottom 10 percent of the index.

*There are 166 Appalachian counties within our project area. Cumulatively, these counties represent a population of over 5.7 million people. There are no Attainment counties within our project area and nearly 40 percent of the population living in our project area live within an At-Risk or Distressed county. Around 5 percent live within a Competitive county.*

**TABLE 2: POPULATION IN PROJECT AREA**

State	Distressed	At-Risk	Transitional	Competitive	Attainment
Kentucky	680,748	328,005	161,259	0	0
Ohio	193,306	242,348	1,364,289	203,022	0
Virginia	104,417	147,220	461,257	39,923	0
West Virginia	205,068	289,844	1,279,822	56,368	0
<b>Total</b>	<b>1,183,539</b>	<b>1,007,417</b>	<b>3,266,627</b>	<b>299,313</b>	<b>0</b>

Yet, despite these figures, an Appalachian Renaissance is afoot. Entrepreneurs are sprouting up with new business ideas, including ideas that are more socially and environmentally sustainable. As our region considers its economic future, it's important that we don't repeat the mistake of becoming overly dependent on one economic sector for our economic well-being. A diversified approach is necessary, and it should also be one that focuses on investing wealth rather than extracting it. Our coalition sees viable opportunities in the recreation, agriculture, agro-forestry, and solar sectors, and our collective projects reflect such opportunities. Importantly, these sectors build off of existing assets in the region and align with Appalachia's unique culture and heritage.

*What our collaboration illustrates is the fact that increased investment to our region will find a ready pipeline of viable projects.*

Now is the time to invest in these new ideas. The Partnerships for Opportunity and Workforce and Economic Revitalization (POWER) program, primarily administered through the Appalachian Regional Commission, has made important contributions to economic diversification in Central Appalachia to the tune of over \$50 million in new funding. The AML program has contributed more than \$5 billion to mine-land remediation, and the AML Pilot program has experimented with a "nexus" between economic development and mine-land reclamation in six Appalachian states, contributing \$105 million to such efforts in 2018 alone. But much

more is needed to meet the great scale of challenges faced by our region. The RECLAIM Act would be a good first step, adding \$1 billion to the region-wide effort. But to put that in perspective, consider that in August of 2018 when tariffs had a negative effect on agricultural sectors in the Midwest, the federal government quickly mobilized to provide \$12 billion in aid to impacted farmers (source: ABC News, 2018). What our collaboration illustrates is the fact that increased investment to our region will find a ready pipeline of viable projects..

Indeed, quantifying the economic impact of these investments is challenging, as many of the projects have yet to receive funding or be built. However, utilizing the Bureau of Economic Analysis' RIMS II multipliers, the coalition can see that the cumulative impact of project spending during development and construction alone is great. Cumulatively, twenty projects identified by coalition members would cost over \$38 million; however, if these projects were funded, total economic output from project spending would be valued at nearly \$84 million. These projects would provide over \$22 million in wages to employees, support nearly 543 full- and part-time jobs across the region, and improve regional GDP (value-added) by over \$44 million. Further, most projects plan for direct/onsite employment after construction/development.





## Moving Forward and Next Steps

**TABLE 3: IMPACT OF PROJECT SPENDING ON REGIONAL ECONOMY**

Project	Cost	Output	Earnings	Jobs	Regional impact value added	Onsite employment
<b>Kentucky</b>						
Affordable Green Energy Subdivision	\$2,035,000	\$4,439,000	\$1,165,000	27.0	\$2,314,000	✓
Modern Energy at Arlie Boggs	\$125,000	\$227,000	\$56,000	1.4	\$131,000	
N. Fork Kentucky River Makerspace	\$960,000	\$2,218,000	\$756,000	16.8	\$1,231,000	✓
South Fork Elk View	\$4,280,000	\$9,240,000	\$3,116,000	67.3	\$5,041,000	✓
Whitesburg Recycling Expansion	\$475,000	\$1,151,000	\$297,000	5.9	\$521,000	✓
<b>Ohio</b>						
Bailey's Mountain Bike Trailheads	\$866,000	\$1,948,000	\$530,000	11.1	\$1,004,000	
Camp Tuscazoar Dessecker	\$235,000	\$519,000	\$152,000	3.2	\$281,000	✓
D.O. Hall Business Center Expansion	\$1,327,000	\$2,920,000	\$686,000	14.1	\$1,360,000	✓
Paint Pigment Production	\$2,750,000	\$6,410,000	\$1,838,000	37.0	\$3,193,000	✓
Tecumseh Lake Recreation Area	\$2,000,000	\$4,460,000	\$1,205,000	25.1	\$2,309,000	
<b>Virginia</b>						
Dante Revitalization	\$534,000	\$1,173,000	\$358,000	7.8	\$630,000	✓
Devil's Fork	\$260,000	\$616,000	\$168,000	3.5	\$319,000	
The Dream at Flannagan Marina	\$770,000	\$1,630,000	\$495,000	10.4	\$917,000	✓
A New Transaction	\$2,500,000	\$5,697,000	\$1,820,000	47.4	\$3,065,000	✓
SWVA Solar Springboard	\$4,600,000	\$8,054,000	\$1,674,000	29.7	\$4,534,000	
<b>West Virginia</b>						
A Food-Safe Processing Facility	\$5,358,000	\$12,019,000	\$3,707,000	83.3	\$6,311,000	✓
MARE	\$2,966,000	\$6,486,000	\$2,002,000	49.5	\$3,409,000	✓
MCSWA Campus Redevelopment	\$1,460,000	\$3,744,000	\$338,000	27.3	\$2,059,000	✓
Pastured Poultry-Project Concept	\$1,387,000	\$3,214,000	\$1,091,000	28.4	\$1,705,000	✓
RE-CREATE	\$3,550,000	\$7,408,000	\$991,000	46.3	\$4,066,000	✓
<b>Totals</b>	<b>\$38,438,000</b>	<b>\$83,573,000</b>	<b>\$22,445,000</b>	<b>542.5</b>	<b>\$44,400,000</b>	

Note: Regional multipliers are for Kentucky, Ohio, Virginia, and West Virginia.

### KEY TAKEAWAYS FROM EACH STATE

#### KENTUCKY

- The AML Pilot represents a much-needed investment in diversifying the East Kentucky economy, and creative projects are popping up throughout the region. And yet East Kentuckians could benefit from more financial support of just and sustainable, bottom-up development enterprises. Rather than putting millions in infrastructure for a federal prison and laying pipeline to transport natural gas, the AML Pilot Program represents a massive opportunity to invest millions in small businesses and new economic ideas that could help build local wealth here.
- Kentucky communities struggling with the hazard and health risks from AMLs could benefit significantly from AML Pilot-funded projects that include reclamation components. Thus far, the program has focused on economic development and ignored its goal of mine cleanup: most of the projects funded under AML Pilot include little or no reclamation. Projects that include even minor investments in reclamation could go a long way.

#### OHIO

- Innovative Mine Reclamation directed at outdoor recreational opportunities may provide the likelihood of more partners, citizen interest and participation, diverse leveraged funding, and long-term sustainability than traditional economic development initiatives. It is important for the Appalachian region to capitalize on its existing natural resources and develop sites as local and regional destinations.
- The most innovative reclamation projects require research, risk tolerance, diverse partnerships, and development time. As a result, non-profits, public agencies, and universities are often at the forefront of initiating those and must foster the relationships and mindset that create and sustain an innovative environment.

#### VIRGINIA

- In recent years a very exciting level of cross sector collaboration has developed among entities working for economic diversification and community development in far Southwest Virginia. The most impactful, innovative reclamation projects leverage these relationships and advance planning that has been developed through inclusive community processes.
- At the same time, a growing number of entrepreneurs are emerging in the region's new economy, as is illustrated in the Flannagan Marina project. AML Pilot funds can represent a significant source of project capital for these individual business owners, but they often need specific technical assistance to navigate the process of integrating AML remediation into their business plans.

#### WEST VIRGINIA

- In the midst of the extreme challenges and difficulties pertaining to the opioid epidemic and the dilapidated economy, West Virginia is seeing a groundswell of innovative collaborations and creative initiatives taking root, inspiring hope and opportunity across the region. Cross-collaborations for AML sites alone have involved the researching and implementation of remediation through agroforestry, clean energy production, and hydroponic systems, to name just a few.
- However, many challenges still lie in the path of our progress, logistics being one of the more prominent of them. The coal communities of West Virginia have historically been isolated and spread throughout the hills and hollows of the state, and connecting the people and resources from those areas to the opportunity sites we're developing is proving to require more creative solutions than what has been previously accessible to us.



## WHAT'S NEXT?

The Reclaiming Appalachia Coalition has secured additional funding for 2019 to work with local stakeholders to generate additional project profiles and innovative mine reclamation project proposals. We'll take a similar state-based approach where each organization within the coalition will focus on supporting projects within their state (see below for state-specific contact information).

*We are also expanding our focus to project funding beyond the AML Pilot funds. While we still anticipate those funds to be available next year, there are numerous funding sources that can be leveraged for innovative mine reclamation projects, such as EPA Brownfields, ARC POWER, grants from philanthropic organizations, and other state-based funding sources.*

Including these additional funding sources allows us to work on projects that may not be eligible for AML funds, such as more recent mining sites or coal processing and transportation sites.

At the time of this report's publication, Congressional committees have passed draft budgets that include renewed funding for the AML Pilot program at the same funding levels as 2017 and 2018. This funding will be allocated to the Office of Surface Mining Reclamation and Enforcement (OSMRE) upon passage of the Fiscal Year 2019 budget. In previous years, state AML programs have moved at varying speeds in spending their allocation.

In addition to AML Pilot funding, the RECLAIM Act (H.R. 1731) remains an exciting prospect for future investment in innovative mine reclamation projects. The legislation, which currently sits before the US House and Senate, would accelerate \$1 billion to clean up abandoned mines and link those reclamation projects with future development. The bill was passed in the House Natural Resources Committee on a bipartisan basis last year and has garnered 40 bipartisan cosponsors across the country. This legislation represents a sizable funding opportunity and it continues to gain traction as impacted coal communities vie for its passage.

## HOW TO GET INVOLVED

This work is only possible through partnership and collaboration around Innovative Mine Reclamation. Our coalition maintains several points of entry to join the conversation, obtain resources, or partner on projects:

### State Contacts:

**Virginia:** Adam Wells – [adam@appvoices.org](mailto:adam@appvoices.org)

**Kentucky:** Eric Dixon – [eric@appalachianlawcenter.org](mailto:eric@appalachianlawcenter.org)

**West Virginia:** Jacob Hannah – [jhannah@coalfield-development.org](mailto:jhannah@coalfield-development.org)

**Ohio:** Terry Van Offeren – [terryvanofferen@windstream.net](mailto:terryvanofferen@windstream.net)

**Region-Wide:** Joey James – [jjames@downstreamstrategies.com](mailto:jjames@downstreamstrategies.com)

The Reclaiming Appalachian Coalition moderates a listserv for the community of practice around innovative mine reclamation. This list is a forum to share project ideas and updates, funding announcements, learning opportunities, and other relevant information. It is moderated and by invitation only to maintain list integrity, but we encourage anyone interested to email [Adam@appvoices.org](mailto:Adam@appvoices.org) to request to be added.

## FOR POTENTIAL PROJECT PARTNERS

As a coalition we offer the following services free of charge to communities interested in collaborating with us to develop project proposals:

*Mapping and GIS assistance*

*Identifying viable project locations and checking eligibility*

*Economic impact modeling*

*Facilitating introduction with state mining agencies*

*Knowledge of other funding sources that can be leveraged*

*Community engagement*







Hello from Kentucky,

East Kentucky is home to many assets, including beautiful natural landscapes and mountain vistas, cultural folkways and heritage, the most biodiverse ecosystem in North America, and a rich musical history. The cleanup of Kentucky's abandoned mines and the transformation of the East Kentucky economy are two of the most pressing challenges—and opportunities—facing the region. In the recent past, communities have been calling for policies that leverage the two opportunities together: invest more in mine cleanup and link it with local economic development.

In Kentucky, the Abandoned Mine Lands (AML) Pilot Program has brought millions of dollars to the mountains in development projects that will hopefully be a boon for local economies—\$30 million in KY in 2016, \$25 million in 2017, and \$25 million in 2018. Transitioning the regional economy will require hundreds of millions of dollars, and \$25 million annual investments in development projects across East Kentucky is an exciting boost. In its first two years, the AML Pilot Program in Kentucky has invested in a variety of endeavors that provide sorely needed help diversifying our economy. For example, significant investments have been afforded to a workforce retraining program that will assist local workers in gaining new skills for jobs as power line workers.

Moving forward, the program has room to improve by addressing a few concerning areas of implementation. Three areas to maximize the impact of the program include: First, East Kentucky could benefit from increased public outreach and a series of community engagement meetings to continue to raise awareness of the \$25 million opportunity. Second, Kentucky communities struggling with the hazard and health risks from AMLs could benefit significantly from AML Pilot-funded projects that include reclamation components. Thus far, the program has focused on economic development and ignored its goal of mine cleanup: most of the projects funded under AML Pilot include little or no reclamation. Finally, East Kentuckians could benefit from more financial support of just and sustainable, bottom-up development enterprises. Rather than putting millions in infrastructure for a federal prison and laying pipeline to transport natural gas, the AML Pilot Program represents a massive opportunity to invest millions in small businesses and new economic ideas that could help build local wealth here.

For most of ACLC's 16-year history we have focused on legal and policy work, especially on black lung and environmental issues. Engagement around the RECLAIM legislation and AML Pilot Program has been an exciting new foray for our organization. ACLC has been proud to play a small role in spreading awareness of the opportunity and assisting some communities in translating their project ideas into proposals.

East Kentucky's greatest asset is our people. The region is full of leaders ready to try bold, challenging, and innovative endeavors to build out a better economy here. Given the remaining coal impacted lands that must be cleaned up, innovative mine reclamation that links development and cleanup poses real promise as a development approach for our region, and could be an important first step in realizing a just transition here. We believe the Kentucky projects profiled here represent some exciting concrete examples that help the region move in that direction.



Onward!  
Eric Dixon  
Coordinator of Policy and Community Engagement  
Appalachian Citizens' Law Center





## THE AFFORDABLE GREEN ENERGY SUBDIVISION

### INTRODUCTION

Once a thriving coal town, Allais, Kentucky, is now dotted with many vacant and dilapidated properties. One such property may have a brighter future through a forward-thinking Abandoned Mine Lands (AML) Pilot proposal. Led by the Housing Development Alliance (HDA), this project would transform a dilapidated and abandoned strip mall into an energy-efficient housing development for working-class people. The 38,000-square-foot former business center is adjacent to a former mining site and has become a danger and an eyesore within the community it once served. HDA proposes to purchase, demolish, and redevelop the property, repurposing it as the site for 15 new homes as part of the Affordable Green Energy Subdivision (A.G.E.S.) project.

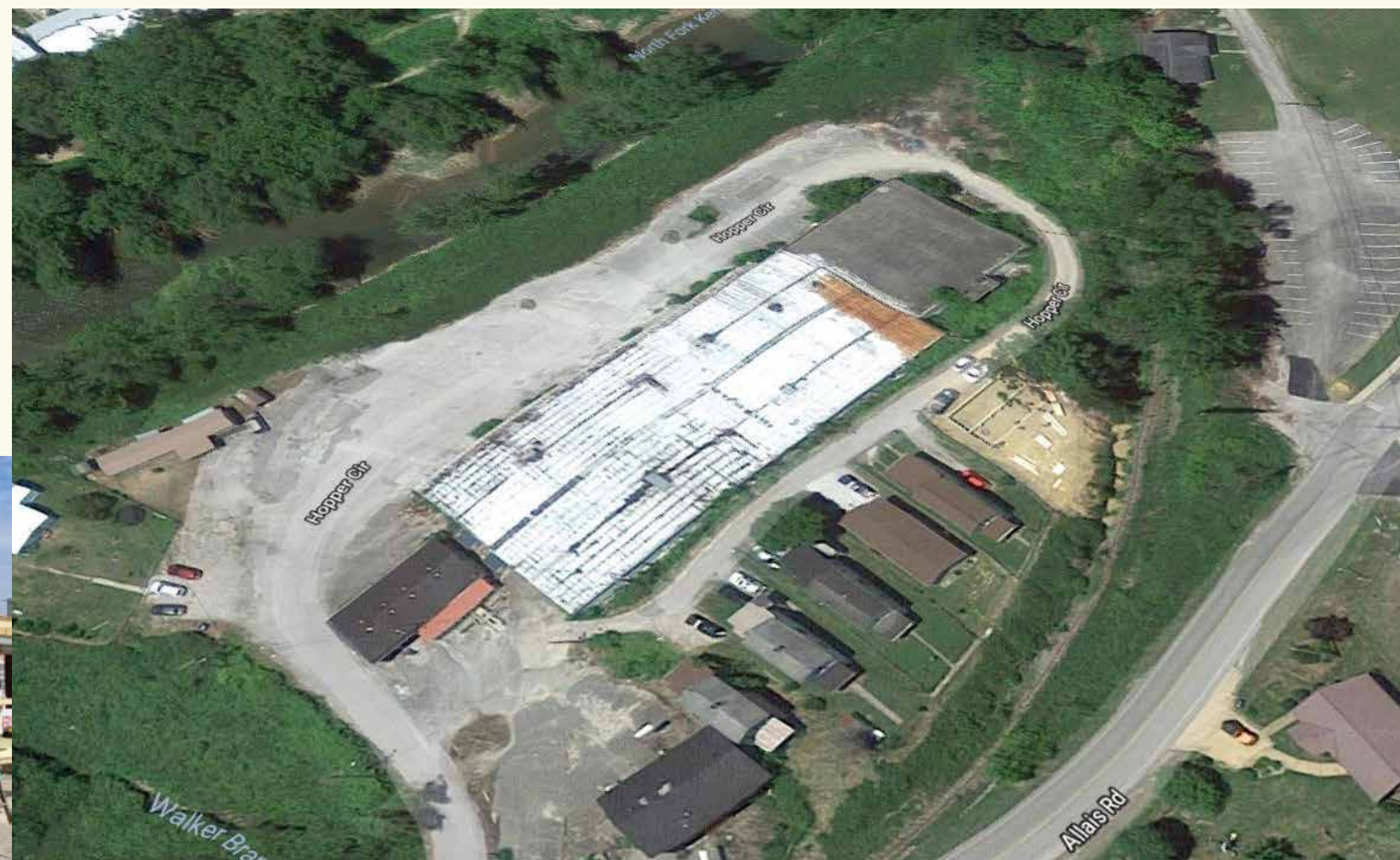
Allais is a community with critical needs: As coal a coal-dependent community, Allais has suffered from local and regional job losses, increasing poverty, and a declining tax base. This project is designed to tackle these needs head-on. The 15 new homes in the A.G.E.S. development will increase the number of affordable homes in the community, which are currently in limited supply. Built with solar panels and cutting edge "green" design, these high-quality, long-lasting homes will be both energy efficient and affordable. This project will build on efforts underway to rebuild the local housing market, bringing an increased tax base for local governments and sustainable equity for the area's low-income and working-class families.

In addition, HDA will train and employ local workers to complete the construction for the A.G.E.S. project. By retraining local residents in construction and solar installation, this project offers a clear pathway to developing a skilled workforce and will encourage wider solar industry expansion in the greater region. Given the magnitude and investment of the A.G.E.S. project, HDA believes that local building suppliers will begin to stock solar equipment in their inventories and will inspire other local entrepreneurs and trade workers to become certified solar installers. These impacts will result in measurable improvements within the local economy.

To make this vision a reality, HDA estimates a total project cost of \$2,035,000. Requested Pilot Program funds would be used to purchase the property, properly demolish the abandoned shopping center, and establish the necessary infrastructure (water and wastewater, utilities, sidewalks, and greenspace) for the A.G.E.S. development.

### PROJECT IMPACT

Spending this \$2,035,000 budget will result in total economic activity valued at \$4,439,000, provide \$1,165,000 in earnings to employees, support 27 full- and part-time jobs in different sectors of the regional economy, and provide \$2,314,000 in value-added benefits. HDA has developed a construction plan and hopes to work with the City of Hazard to purchase the property from the seller. Once developed, the A.G.E.S. project is estimated to produce a \$1,950,000 return on investment as the 15 A.G.E.S. homes are sold, as well as approximately \$42,000 annually in utility and tax revenues.



## MODERN ENERGY AT ARLIE BOGGS

### PROJECT DESCRIPTION

Despite rising energy costs, Kentucky schools are spending less on energy than they were in 2010, thanks in large part to energy efficiency initiatives like the School Energy Managers Project. That program alone has returned over \$225 million in savings to the classroom and has brought Kentucky national notoriety from the Environmental Protection Agency.

Recently, Arlie Boggs Elementary in Letcher County garnered regional attention for its efforts to reduce energy costs with solar power. This project not only saves the school money, but also serves as an opportunity to educate students about a rapidly evolving 21st century industry. However, the current size of the system (3 panels) only reduces the school's energy costs by about \$600 each year. This proposed project offers the school, which is a stone's throw from a large, Priority-3 Abandoned Mine Lands (AML) feature (Franks Creek Strip KY002626) and in a community where both pre- and post-law mining has been integral to the way of life, an opportunity to 1) scale up the size of its solar array and associated savings and 2) expand opportunities to educate students about energy efficiency and renewable energy—a growing portion of the regional economy.

The proposed project would cost \$125,000 –\$100,000 for the installation of a ~40kW (DC) solar array and \$25,000 for the development of an educational program for students at Arlie Boggs Elementary and other schools in Letcher County.

### AML NEXUS

As mentioned in the project description, the project is both near an AML Problem Area (KY002626) and in a community where pre- and post-law mining have shaped the way of life. According to a recent study from West Virginia University and the University of Tennessee, Letcher County remains highly dependent on the coal industry and is at high risk of experiencing additional economic hardship related to the decline of the coal industry. Projects like this, which reduce the operating costs of schools but expand programming opportunities for students, are vitally important for schools like Arlie Boggs Elementary.

While the project does not take place directly on an AML or related feature, it is a way to promote a growing industry, which will no doubt be part of the next-generation economy, an economy that will replace the resource extraction economy of the past. What better way to honor Eastern Kentucky's rich heritage as a coal producer than to teach our kids about the 21st-century energy economy?



Figure 1: Proximity to pre- and post-law mining

### PROJECT BENEFITS

Electricity generated by the proposed solar array will reduce the school's electricity bill (Figure 1), which will enable the district to reallocate funds toward programming for students. Right now, the school's electricity bills average over \$2,000 per month, nearly \$25,000 per year. With this project, we aim to significantly reduce this amount.

In addition, because the project is in a highly visible location, installing solar will demonstrate that this technology CAN work in Kentucky and that solar development can offer educational opportunities for young Kentuckians. While solar projects create jobs during the installation process, these projects also have the potential to create even more jobs over the long-term by lowering energy costs for businesses (or schools) that install solar. Further, with the number of solar installations in Central Appalachia increasing, it will be important to set up regional manufacturing and distribution hubs. While this project won't directly result in this type of advanced manufacturing and distribution facilities, it will promote a culture that is conducive to that type of development happening in Eastern Kentucky.



Figure 2: Electricity consumption at Arlie Boggs Elementary, September 2017 to August 2018.

### PROJECT IMPACT

Utilizing the Bureau of Economic Analysis' RIMS II modeling system, we know that spending related to this project would no doubt positively impact the regional economy, producing a total economic output of over \$227,000, providing over \$56,000 to workers in the region and indirectly supporting nearly 1.5 jobs across multiple sectors. Further, if the money saved over the lifetime of the system is reinvested into the school system, the impact of the solar array will be much greater.





## NORTH FORK KENTUCKY RIVER MAKERSPACE

### INTRODUCTION

Like much of Central Appalachia, the City of Whitesburg has faced many challenges in the face of the shrinking coal industry. The City of Whitesburg, population 1,974, has faced incredible losses in the face of the shrinking coal industry. Despite these challenges, residents, organizations, and elected officials in Whitesburg are working together to create new, innovative development that can spur a more vibrant economy while improving quality of life and ecological health. Appalshop and partners have developed a multi-faceted project that would clean up an AMD-impacted stream, create a river-walk trail and outdoor classroom, develop on-site recreation opportunities, and would refurbish a building into a makerspace for budding creative workers, artists, and entrepreneurs in the region.

### ABOUT THE PROJECT

After passing through property owned by the City of Whitesburg, a stream impacted by Acid Mine Drainage (AMD) empties into the North Fork of the Kentucky River on Appalshop's property. The remediation component of the project will employ passive and ecological remediation techniques to treat water from the stream, improving water quality and serving as an educational tool about the importance of clean water and the process of AMD remediation. The project would also improve public access to the river by including 700 feet of river-walk and public walking trail; a kayak and canoe launch ramp; environmental education signage; a basketball court; and a streamside performance stage to supplement Appalshop's indoor theater.

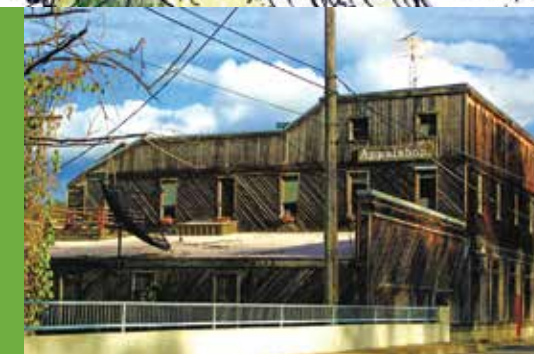
Finally, adjacent to the AMD remediation and park, the project would refurbish Appalshop's Boone building, including the development of artist and musical studios, expansion of a digital classroom, installation of a cutting-edge media lab, and development a makerspace for training in hands-on skills--from 3D design and printing to blacksmithing and sculpture.

### PROJECT IMPACT

This project has many community and economic development benefits, including:

- Creation of at least 3 full-time, permanent jobs in creative fields.
- Expanded visitation to the area, an estimated 1,500 new visitors per year.
- Increased local use of public space and the downtown area.
- Expanded workforce training, youth leadership development, and community event space: expanding from over 100 events per year with 1,400 attendees to 200 events with 3,000 attendees.
- Additional community training in technology, media, and craft-artisan skills.

The proposed project investment of \$970,000 would result in an estimated total economic activity of \$2,218,000. This includes \$756,000 in earnings to employees, support for nearly 17 jobs across different sectors of the economy, and \$1,231,000 in value-added benefits. Creative economic development opportunities like this project are essential to a 21st century economy in the coalfields. According to the 2014 Kentucky Creative Industry Report, "the creative industry in Kentucky includes more self-employed individuals and microenterprises than any other economic sector." Appalshop understands that improving the community's ability to incubate and sustain new businesses begins with offering the kind of space where creative entrepreneurship can flourish.





## SOUTH FORK ELK VIEW

### ABOUT THE PROJECT

The South Fork Elk View area of Breathitt County, near the City of Jackson, is known regionally for its wild elk and free-roaming horse viewing and off-highway vehicle and horse trail riding opportunities. Indeed, the tourism potential for this part of Kentucky is great. One project, on a former surface mine, aims to capitalize on the strengths of the area and create a destination for people from Kentucky and beyond.

The South Fork Elk View Campground and Expo Center project is the continuation of an Abandoned Mine Lands (AML) Pilot project sponsored by the Breathitt County Fiscal Court that was funded in 2017. Phase 1 focused on bringing utilities to a reclaimed post-Surface Mining Control and Reclamation Act (SMCRA) mine site where during Phase 2 project partners will develop a campground area which will include 20 tent sites, 24 RV hook ups with electricity and water, 11 cabins, a visitor center, and a horse expo center and show arena.

### ABOUT THE AREA

According to the Appalachian Regional Commission, Appalachian Kentucky has a three-year average unemployment rate of 8.9 percent and a poverty rate of 25.8 percent--the highest rates in the Appalachian region. Additionally, the per capita market income of the region is less than \$20,000--the lowest rate of any state in the region. While the Elkview project will most directly benefit the City of Jackson and the greater Breathitt County area, it has the potential to be a major draw to the region, which no doubt will impact communities far beyond Breathitt County lines.



TABLE 1: ECONOMIC PROFILE OF BREATHITT COUNTY AND SURROUNDING AREAS

County	Three-Year Average Unemployment Rate 2013-2015	Per Capita Market Income 2015	Poverty Rate 2011-2015
Breathitt	12%	\$13,978	33%
Knott	12%	\$14,305	28%
Lee	10%	\$14,132	32%
Magoffin	16%	\$10,429	29%
Owsley	11%	\$11,029	38%
Perry	11%	\$19,726	25%
Wolfe	12%	\$10,618	43%

Source: Appalachian Regional Commission

### PROJECT IMPACT

The project is expected to create nearly 20 onsite jobs; however, its job creation impact will go well beyond just the jobs at the project site. This highly visible will serve as a positive attraction to anyone considering locating their business or visiting Eastern Kentucky. In fact, landowners in the vicinity, including UK's Robinson Forest Division, have already expressed interest in developing various stores and other tourist attractions that would complement the project.

Further, utilizing the Bureau of Economic Analysis' RIMS II modeling system, we know that the spending related to the requested funds will impact the Central Appalachian region immensely. Over the period of the project, spending of the \$4.3 million budget would result in total economic activity of nearly \$9.2 million, contribute \$3.1 million in earnings to employees, support over 67 jobs in different sectors of the economy, and provide over \$5 million in value-added benefits to the region.





## WHITESBURG RECYCLING EXPANSION

### INTRODUCTION

The City of Whitesburg, Kentucky, currently operates a small but very successful recycling program, and they are keenly interested in shoring up their operation and expanding into new and much needed services. Adding equipment such as a truck tractor will enable the program to expand services and tackle new market opportunities, and establishing a tire grinding facility will fill a gaping hole in the recycling services of southeastern Kentucky. The expansion of the existing recycling system and the creation of a new tire grinding facility that would serve Letcher and surrounding counties poses significant environmental and economic benefits for local residents.

While the operation is an entity of the City of Whitesburg, through cooperation with county government, services have been extended to parts of Letcher County as well. Both within and outside the city, residents who wish to recycle can purchase blue bags for single stream recycling. These are then picked up curbside by either the City of Whitesburg or Letcher County sanitation trucks. The recycling is sorted by hand and brokered on the open market. The program currently accepts #1 and #2 plastics, metal and aluminum cans, paper, and cardboard. Recyclables are hand-sorted, and the organization reports very low rates of contamination of non-recyclables in the recycling stream.

The facility is located on a former coal processing site. The city owns several pieces of equipment including a belt line system, numerous sorting bins, dumpsters, a baler, a shredder, a scale system, one trash truck, and two 53' box trailers. This slate of equipment enables the Whitesburg Recycling Center to sort and package (e.g., cardboard and plastics are baled, paper is shredded, etc.) high quality recyclables for sale to brokers.

Whitesburg does not own a tractor truck to pull the trailers, however, which puts them at the mercy of contract haulers. Many of the recyclables are hauled to Lexington, KY, a significant distance. Depending on the material, a trailer is hauled every 2-4 months. While the trailer is off-site, materials are temporarily stored in existing

warehouse space. This arrangement has an administrative cost—haulers must be paid in advance, availability in the schedule does not always favor the recycling center, and space that might be otherwise utilized must be kept clear for stockpiling during these times. Obtaining a tractor truck will alleviate many problems while allowing the Whitesburg Recycling Center to expand their services.

Whitesburg's recycling program is a regional leader. With one exception (Perry County), Whitesburg is the only major recycling program in this region of southeastern Kentucky. Any expansion of Whitesburg's facilities has the potential to have a positive impact on the region as a whole. There is one even more significant service gap in the region, however: tire recycling. Much like they are in the rest of Central Appalachia, cast-off tires are a problem in southeastern Kentucky, often finding their way into streams. The state of Kentucky operates a disposal program that includes amnesty (i.e., free) disposal days, but outside of those events, disposal costs are high, and several regional governments report difficulties with tire disposal. The problem could potentially be mitigated through a tire-grinding operation.

Ground up tires are a significant resource, and the U.S. Tire Manufacturers Association reports that, today, over 80 percent of waste tires are being captured and reused in some way. Services of this type, however, are not universally available, and regions like southeastern Kentucky are in need of tire-recycling facilities.

### MORE ABOUT THE PROJECT

The primary aims of this project are to obtain a truck tractor, develop a business plan for the current recycling facility that includes expanding into a tire-grinding operation, and start the tire-grinding operation, including the purchase of several specialized pieces of equipment, site design, and site development. The business plan portion of this project will include identifying sources of tires, establishing relationships with waste-tire brokers, and developing a five-year pro-forma of expected costs and revenue. Understanding the likely available quantity of waste tires will allow the operation to make an informed decision about the capacity of the equipment that will be purchased.

### PROJECT COST

Total project cost is estimated to be between \$220,000 and \$665,000, all of which could be covered by the Abandoned Mine Lands (AML) Pilot Program.

### PROJECT IMPACT

The most obvious project impacts are the creation of a new onsite full-time-equivalent job, addressing an existing environmental disposal need, reuse of abandoned mine land, and the expansion of a successful municipal program. Economic modeling of a mid-range project spending estimate of \$475,000 suggests the project would have a total economic output valued at nearly \$1.2 million, provide nearly \$300,000 in wages to workers in different sectors of the economy, and support nearly 6 jobs across the region.





Greetings from Ohio!

Ohio's coal region is a vast and diverse landscape spanning more than 20 counties along the eastern edge of the state. Our 200 year history of extractive industries has left us with numerous Abandoned Mine Lands (AML) sites. These areas include dangerous highwalls, impoundments full of acidic and polluted water, and underground mines with collapsing air shafts and subsidence holes. Our state has produced over 3.6 billion tons of coal, fueling our nation's growth and expansion. Now, the onus of restoring those lands to a safe, productive, and useful landscape is shared between our citizens and our local, state, and federal agencies.

Thank you to the Ohio Department of Natural Resources' Division of Mineral Resources Management (ODNR-DMRM) for their leadership in the ongoing work to reclaim AML sites. They have worked tirelessly to inventory and document the sites that have dangerous features and are the key partner in distributing the AML Pilot program funds from the Office of Surface Mining. Rural Action has worked closely with ODNR-DMRM to help identify innovative approaches to AML reclamation. It has been a logical growth resulting from our 20+ year history of working together on acid mine drainage and environmental restoration projects on AML sites.

Ohio has a plethora of organizations, businesses, and agencies ready and willing to collaborate and work together on innovative AML projects. Rural Action appreciates the relationships that have developed or deepened with partners like the Wayne National Forest, Ohio University, Appalachian Partnership for Economic Growth, and many others. Our offices are located in small towns around the region, allowing us the ability to connect with the ground-level organizations that are plugged into local communities. We have been able to highlight projects, which you'll see in this report, that will help grow our region from the community up.

The road ahead is long and not without challenges. The task to restore over a half-million acres of mined land does not come with a small price tag; the investment that our agencies and communities must make is considerable. This work is hard to continue when the successes are usually small, incremental, and oftentimes go by unnoticed. We must continue to work to make information about potential sites and projects accessible and usable to many partners. And we must remember to celebrate our successes so that the momentum to continue this important work stays strong.

Rural Action has been helping small communities do big things for over 25 years. We are excited to see how the future of innovative mine reclamation can help strengthen our region's toolkit to further diversify and invest in our assets. To enhance economic diversity and program impact, the effort must be augmented with greater community engagement, and Ohio plans to implement a plan that it has developed to accomplish that goal. Ohio has been allocated \$10 million dollars in AML Pilot funding for 2018 and is being considered for an additional \$10 million in the Fiscal Year 2019 budget. This is just one program that we plan to utilize in realizing a just transition for Ohio's coal region economies. Together, we can all help make this region a thriving, healthy, and safe place to live and work.



Marissa Lautzenheiser  
Middle Tuscarawas Watershed Coordinator  
Rural Action



## BAILEY'S MOUNTAIN BIKE TRAILHEADS

### ABOUT THE PROJECT

Rural Action, Inc., the U. S. Forest Service, and other partners propose construction of an 88-mile mountain bike trail within the Wayne National Forest in Athens County, Ohio, as a catalyst for economic development. Once constructed, the Bailey's Mountain Bike Trail will be the largest continuous mountain bike trail system east of the Mississippi River, making Wayne National Forest a destination center for outdoor recreation.

The Bailey's Mountain Bike Trail could be a game-changer for this corner of Ohio. Once at the center of a bustling manufacturing and coal producing region, Athens County is an Appalachian Regional Commission (ARC)-designated "distressed" county that includes part of the 9,000-acre Wayne National Forest within its borders. Guided by a recent trail system master plan, this trail system will link world-class mountain biking trails to a number of attractions, including the 1,400-mile Buckeye Trail system, the cities of Athens and Nelsonville, and beyond.

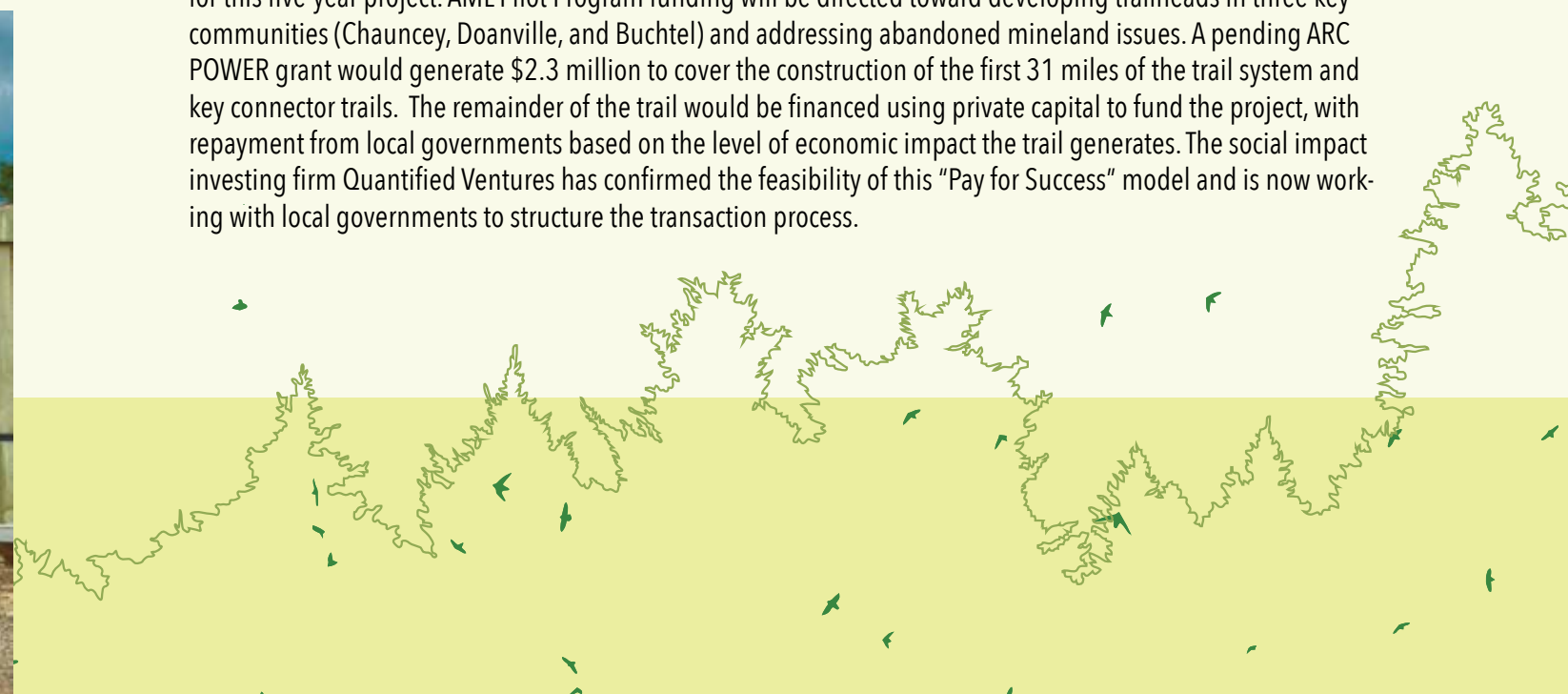


### PROJECT IMPACT

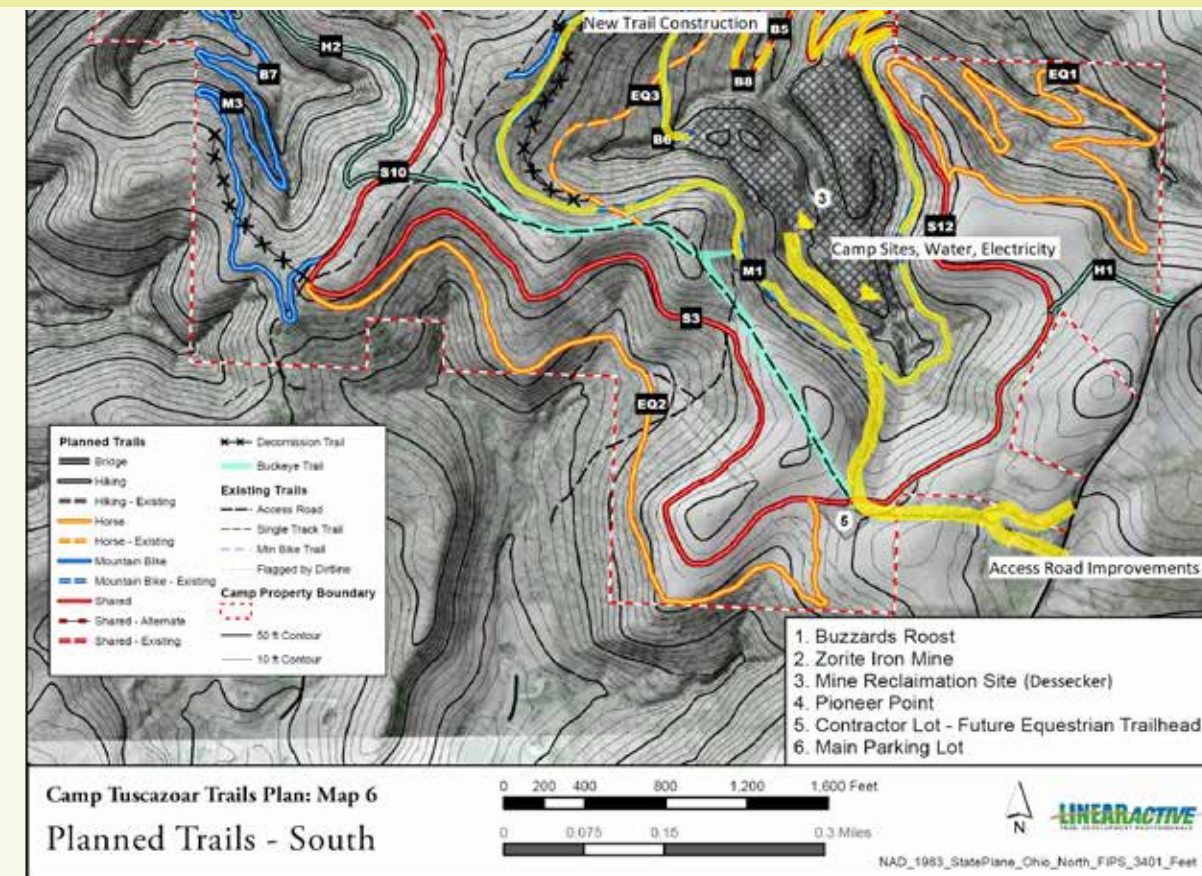
A recent study projected that by launching a resurgence of outdoor recreation and tourism in the region the Bailey's Mountain Bike Trail System will attract 181,000 additional visitors to the area over a ten-year period, resulting in \$20.1 million in increased spending, \$6.9 million in higher wages, and \$7.3 million in increased tax revenue. Twenty-five new tourism-related businesses will be created, and 50 existing businesses will be improved. Thirty-two displaced workers and at-risk youth will be trained in new outdoor recreation careers, and 190 jobs will be created or retained.

What sets this project apart is its broad coalition of partnering organizations and its innovative funding structure. Rural Action has developed a network of partners for this project, starting with the U.S. Forest Service, which will provide partial funding for the trail system. Several local and regional partner organizations will provide technical assistance and marketing support to local entrepreneurs and businesses and train local youth and displaced workers in trail construction.

To fund the total estimated project cost of \$5.4 million, the project team has developed an innovative strategy for this five-year project. AML Pilot Program funding will be directed toward developing trailheads in three key communities (Chauncey, Doanville, and Buchtel) and addressing abandoned mineland issues. A pending ARC POWER grant would generate \$2.3 million to cover the construction of the first 31 miles of the trail system and key connector trails. The remainder of the trail would be financed using private capital to fund the project, with repayment from local governments based on the level of economic impact the trail generates. The social impact investing firm Quantified Ventures has confirmed the feasibility of this "Pay for Success" model and is now working with local governments to structure the transaction process.







## CAMP TUSCAZOAR DESSECKER

### INTRODUCTION

Recreation opportunities are in high demand in Tuscarawas County, Ohio. Tourism in the county, which generated \$410.5 million of direct and indirect sales in 2017, is largely centered on a 600-acre public recreation area maintained by Camp Tuscazoar. Copious trails, mountain bike races, and adventure events hosted by Camp Tuscazoar attract thousands of day-use visitors to the area each year, but the county seeks to build its tourism base among overnight visitors, which could likely triple the overall economic impact from recreation.

### ABOUT THE PROJECT

Led by the nonprofit Camp Tuscazoar Foundation, efforts underway are transforming a former site into a campground and trail system within Camp Tuscazoar's "Hidden Mine Recreation Area." By creating new camping facilities, this project will encourage visitors to stay longer in the area, creating more demand for secondary services such as food service, retail sales of outdoor equipment and supplies, and potentially other overnight accommodations.

The Hidden Mine Recreation Area is poised to become a high-volume tourism destination in eastern Ohio—one that will showcase Abandoned Mine Lands (AML) reclamation as compatible with outdoor recreation and sustainable development. Located on the former Dessecker Mine site, over \$1.2 million has been invested

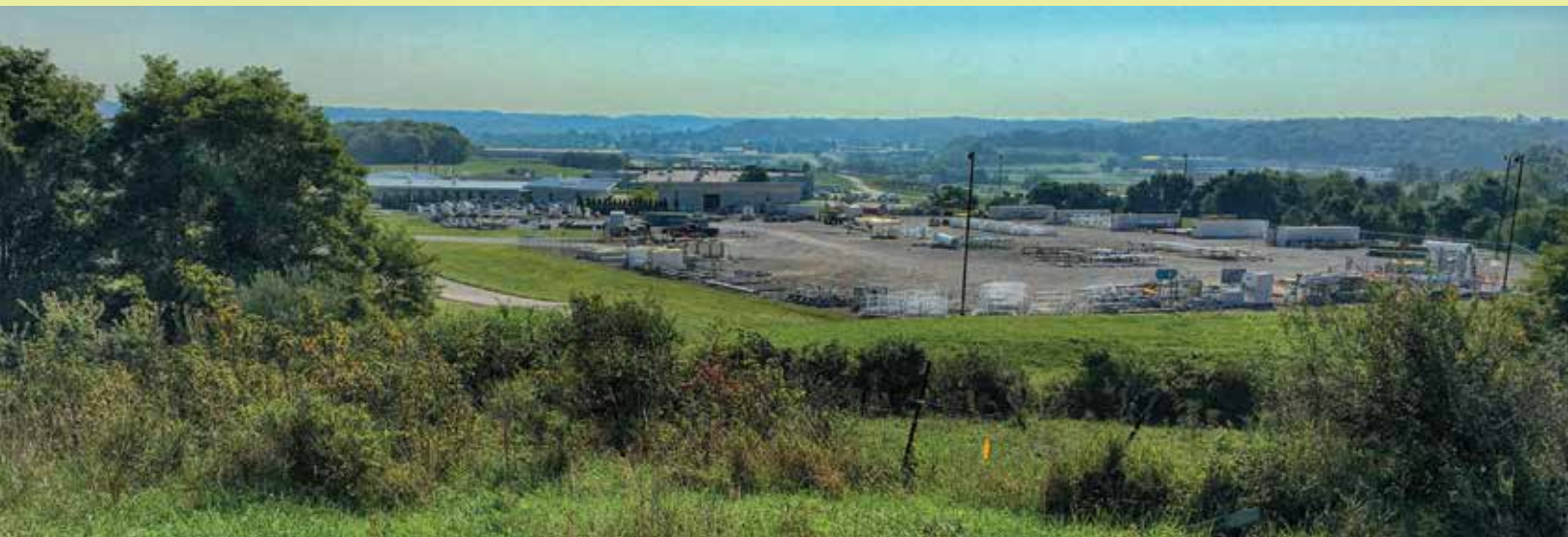
to date in this project to acquire the 218-acre parcel, remediate mining impacts, and plan for recreation development. The Ohio Department of Natural Resources completed reclamation of the site in August 2018 with a total of \$702,000 in AML funding.

Camp Tuscazoar Foundation seeks \$235,000 in AML Pilot funding to construct 12 campsites with primitive structures, electricity and water, and an improved access road. The project will also involve building additional trails with 75 percent matching support secured from the Clean Ohio Fund. Other regional trail groups, including mountain bike and equestrian advocacy groups, have also contributed to trail planning, building, and maintenance. Preliminary grading for 12 campsites was completed as part of the reclamation. As a result, support from the Pilot Program would provide the critical final elements needed to complete this project.

### PROJECT IMPACT

The campground will generate direct revenue and contribute directly and indirectly to the county's overall economy. Located adjacent to the southern terminus of the 100-mile Ohio & Erie Canal Towpath Trail, the facility will be linked to local historical sites nearby points of interest such as the Canal Tavern of Zoar, Lockport Brewery, Hoodletown Brewing Company, and the historic site Fort Laurens.





## D.O. HALL BUSINESS CENTER EXPANSION

### INTRODUCTION

The Community Improvement Corporation (CIC) was created by the Guernsey County Commissioners in 1965 and designated by resolution to perform the economic development functions for the county, City of Cambridge, and Village of Byesville. Central to its mission of bringing economic development to this area of Ohio is the D.O. Hall Business Center, a recently created commerce park that offers many advantages to prospective development in Guernsey County. Current entities located in the park include Zane State University, Southeast Ohio Regional Medical Center, Detroit Diesel, Ridge Tools, Federal Express, Ascent Resources, and Plastic Compounds. An Abandoned Mine Lands (AML) Pilot project proposed by the CIC and Rural Action aims to expand developable property in the Business Center by at least nine acres, opening opportunities for more businesses to locate there.

### ABOUT THE AREA

While Guernsey County as a whole has an economy that the Appalachian Regional Commission (ARC) categorizes as transitional, meaning that it ranks between the worst 25 percent and best 25 percent of the nation's counties, the Business Center is bordered by an economically distressed area with a median family income of just under \$37,000 and an average poverty rate greater than 25 percent. In addition, coal production has declined by over 90 percent in Guernsey County since 2014.



### ABOUT THE PROJECT

The 216-acre commerce park is located on land that was partially surface-mined for coal in the late 1970s and 1980s and undermined in the 1920s. Near the center of the park is a nine-acre tract that several businesses have approached the CIC about developing. However, based on the likelihood of deep mine subsidence, the businesses have shied away from investing in the parcel, despite the fact all necessary infrastructure and utility lines are present. For the business park and the CIC, this is a loss of considerable opportunity. As a result, stabilization of the parcel through drilling and grouting is proposed. The estimated cost for stabilization is \$1,327,465.00.

### PROJECT IMPACT

Five industrial businesses have already located in the commerce park. They have averaged 74 employees hired and have invested an average of \$5.8 million in facility capital costs. Based on the businesses that have inquired about the parcel, the CIC anticipates similar economic benefits to be achieved upon development of this nine-acre parcel.





Photo: Louise O'Rourke

## PAINT PIGMENT PRODUCTION

### INTRODUCTION

Acid mine drainage (AMD) impacts thousands of miles of streams across Appalachia, including a significant portion of the Sunday Creek watershed in southeastern Ohio. Although most of the mines that caused this drainage were long ago abandoned, this legacy of pollution is expected to continue for decades, creating polluted streams throughout economically depressed communities that have few career opportunities for the current generation of families. However, through an engineered chemical process, a project in Perry County, Ohio, aims to convert polluted, AMD-impacted water into job opportunities for locals.

### ABOUT THE AREA

The Appalachian Regional Commission (ARC) categorizes the economy of Perry County as transitional, meaning that it ranks between the worst 25 percent and best 25 percent of the nation's counties. The unemployment rate of the county is slightly higher than the national average at 7.8 percent. The poverty rate is higher than the national average at 19.3 percent. Notably, the per capita market income in the county is only 60 percent of the national average, at just under \$24,000 per year.

### ABOUT THE PROJECT

An unlikely cross-disciplinary partnership between a scientist and an artist at Ohio University has resulted in an innovative treatment and reuse of byproducts from acid mine drainage. Currently, the most common treatment options for these pollution sources are steel slag leach beds and lime dosers. These systems provide alkalinity to

neutralize acidity from the pollution, however no effort is made to remove metals from the AMD. Neutralization of the acid provides significant benefits to the watershed, but in the immediate vicinity of the treatment, large quantities of metals accumulate in the stream—smothering habitat and leaving a localized and heavily polluted area of no recovery. The treatment process developed at Ohio University enables the removal of iron pollution, so not only is the acid neutralized, but tons of metal precipitates are kept out of the streams. The iron removed from the water can be sold to produce highly sought-after paint pigments. This reuse has demonstrated potential profitability that may more than offset AMD treatment costs.

The proposed project will construct a pilot facility that will divert a small percentage of the flow at an AMD discharge point in Corning on the banks of Sunday Creek and remove iron to be used as paint pigment. Clean water will be returned to the creek. At this site, the team is able to test parameters for best operating conditions for future full-scale application. Some of these parameters include target pH, dissolved oxygen, sludge recirculation, retention times, and iron-oxidizing bacteria. The plan is to tweak the technology and process at this pilot scale and prove the technology in the field, so that funding for a full-scale plant can be secured. The total cost to scale up the facility is expected to be around \$2.75 million.

### PROJECT IMPACT

While the cost of scaling up production capacity is significant, the project will create long-term jobs in an area of Ohio that desperately needs them. Further, spending related to the project will have positive ripple effects on the regional economy, estimated at \$6,410,000 in total economic output, \$1,838,000 in earnings to employees, and over 37 full- and part-time jobs.



Photos: Louise O'Rourke



## TECUMSEH LAKE RECREATION AREA

### INTRODUCTION

Rural Action, Inc., is partnering with the Buckeye Trail Association, the U.S. Forest Service, and the Village of Shawnee, Ohio, to enhance a 50-acre recreation area within the Wayne National Forest in Perry County, Ohio. Specifically, this project will improve sections of the existing Buckeye Trail network, build strategic connector trails to the Village of Shawnee, and position the Wayne National Forest as an outdoor trail destination.

### ABOUT THE AREA

The 1,400-mile Buckeye Trail traverses 91 miles through the Wayne National Forest and features some of the most rugged and scenic landscapes in Appalachian Ohio. The Wayne National Forest trails comprise the state's most extensive hiking opportunities, all within an hour's drive of Columbus, yet they remain a largely underutilized resource.



Hit hard by industry job losses, this former coal and manufacturing region seeks to revitalize and diversify its economy through outdoor recreation and tourism. As a result, this project proposes key targeted trail improvements that set the Wayne National Forest apart as a sought-after trail center.

### MORE ABOUT THE PROJECT

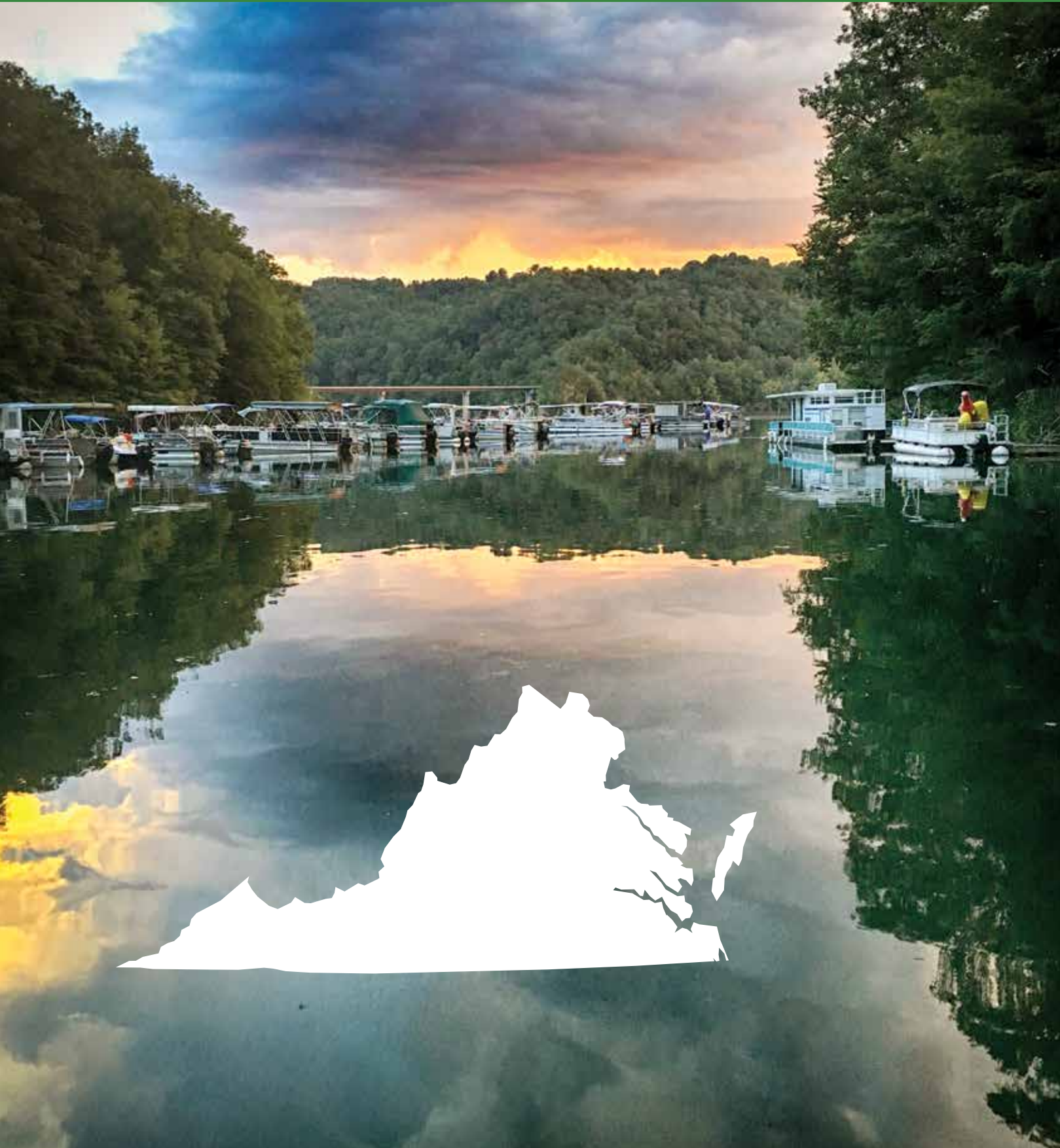
With an estimated total cost of \$2 million, the first of several project phases will target two key trail-building objectives:

- First, a fully-accessible, paved trail will be constructed from Shawnee's Historic District to the community park at Tecumseh Lake, where a parking lot will be built. This will connect downtown Shawnee directly with the lake, which features a new handicapped-accessible lakeside trail, and with the greater forest trail network.
- Second, several existing sections of the Buckeye Trail will be rerouted to fall entirely within Wayne National Forest. This effort will remove portions of the trail that currently follow roads, offering visitors a true forest experience.

### PROJECT IMPACT

Literally encircled by the Wayne National Forest, the Village of Shawnee (population 655) offers a quintessential trail town experience and will gain from better integration with the nearby trail network. By connecting downtown Shawnee to the trail system, this project will spur local economic development and expand opportunities for local entrepreneurs to provide food, accommodation, and other services to trail users.





Hello From Southwest Virginia!

It is an exciting moment in Southwest Virginia's path toward land restoration and innovative re-use. This fall, the Department of Mines Minerals and Energy (DMME) accepted a second round of Abandoned Mine Lands (AML) Pilot applications, as the 2017 projects moved closer to implementation. Since receiving Pilot funds, several first-round projects have garnered additional funding from economic revitalization sources such as Appalachian Regional Commission's POWER program. It is wonderful to see layered federal investment in new economic opportunities to create viable projects, and we're very hopeful to see continued innovation with continued funding next year.

As word gets out about AML Pilot to an ever broader circle of economic- and community-development stakeholders, it becomes even more important to invest in and support project-development processes that are truly forward looking and inclusive of multiple perspectives and voices. More project proposals submitted can—and should—mean better project proposals, as the broader community learns how to better leverage this source of funding. It should also mean more collaboration, as strategic partnerships are developed, bringing multiple disciplines and expertise areas to project teams. The Dante Revitalization proposal is a great example of a community improving a project concept from year to year while also developing strong new partnerships that add depth and value to the overall project proposal.

With at least one more year of AML Pilot funding likely, we have an opportunity as a community of practice to take our work to the next level. For several years now, Appalachian Voices and our partners have been talking about (and doing) Innovative Mine Reclamation. Using a baseline of comparison of the old days of hard-packing rocks and planting white pines and autumn olive, the the projects outlined in this report really represent a sea-change in thinking of how mine land can be restored for community benefit.

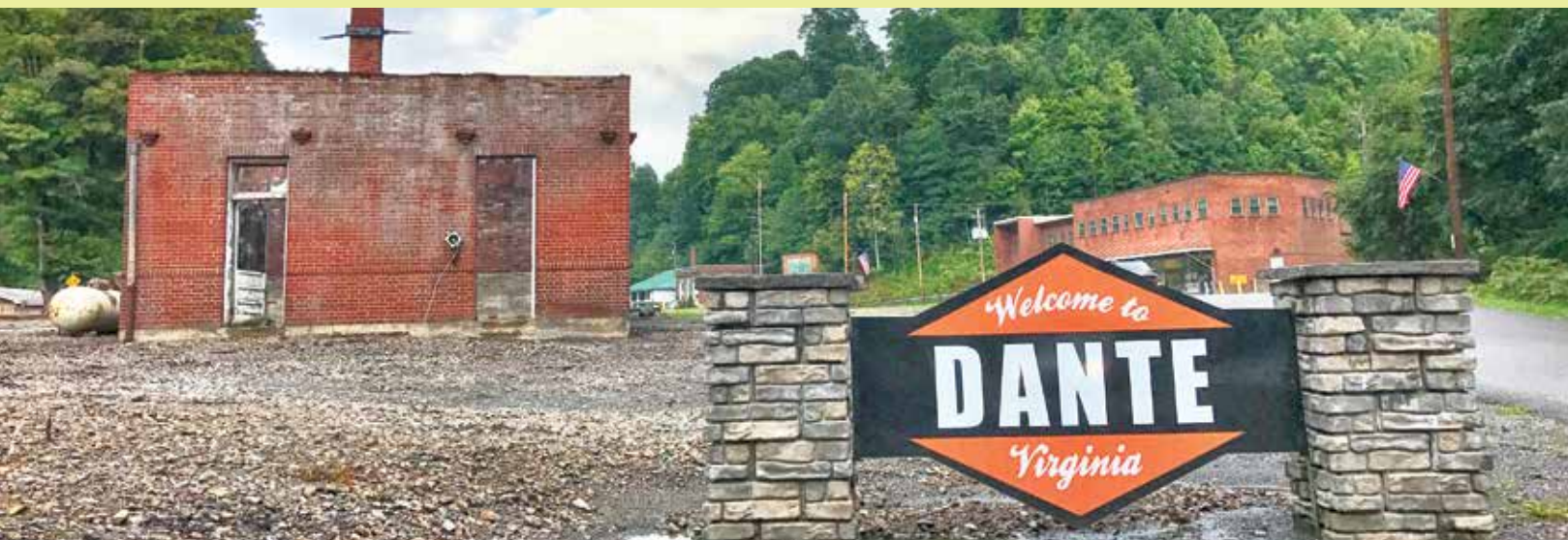
But as our whole region grapples with the challenge of reinventing the bedrock of our economy, we need to go even deeper, think even more creatively, and challenge ourselves to be truly revolutionary in the way we approach land restoration and economic development. There's a lot of attention—and funding—focused on Appalachian coal country right now, and it would be naive to think that either will last forever. We're in the midst of a narrow window of opportunity where need overlaps with willingness and resources to recreate our economy. If we're to actually build an economy that has staying power anything close to that of our mountains themselves, then we need to be dreaming up big projects that are highly integrative, make use of the most cutting edge technologies, and bring people together around a bold vision for a future that can sustain us for generations to come. The projects outlined in this study move us in that direction, but we're not there yet.

Overall, Virginia's implementation of the AML Pilot has been exemplary—agency staff have succeeded at creating an application process that is accessible, and they have done a wonderful job at making the mapping and data resources available at DMME easily reachable by the public at large. There is strong evidence for this claim in the number of Pilot applications being submitted, especially from groups and individuals beyond the usual circle of local government and economic-development professionals. There's a lot that other states implementing the Pilot program can learn and adapt from Virginia's success, and there's also room to grow. Our region as a whole would benefit from a project-selection process that is equally accessible and transparent, including a publicly available scoring rubric.

There's a timely reminder that the work isn't anywhere close to complete. The federal legislation authorizing the Abandoned Mine Land program needs to be reauthorized by 2021 in order to maintain funding. As stakeholders gear up for this reauthorization effort, there's a powerful opportunity to reconsider how to make the program stronger and how to expand and deepen the pairing of mine land restoration with community and economic development—both in Appalachia and in coal communities across the nation.



Onward,  
Adam Wells  
*Regional Director of Community and Economic Development*  
Appalachian Voices



## DANTE REVITALIZATION

### INTRODUCTION

The possibilities for Abandoned-Mine-Lands-connected economic development in the community of Dante, Virginia, were first highlighted in the 2016 report *Healing Our Land, Growing our Future: Innovative Mine Reclamation in Southwest Virginia*. That report laid out a broad-spectrum vision for what might be possible in Dante, based strongly on the emerging vision of the then-newly-created Dante Community Association (DCA). When Abandoned Mine Lands (AML) Pilot funds were made available in Virginia in 2017, the community eagerly submitted an application to fund some of the vision laid out in the report; however, it was unsuccessful in securing funding during the 2017 cycle. With this experience of going through the first AML Pilot application round, and with several other key funds secured since then, the DCA again applied for Pilot funds in 2018 with a revised proposal reflecting the updated needs and vision of the community; this profile reflects that revision.

### ABOUT THE PROJECT

The unincorporated community of Dante, Virginia—population 650—is the former headquarters of Clinchfield Coal Corporation, is enriched by its history and culture, and seeks a vision and path towards economic transition and vitality. In March 2016 the community formed the DCA, an all-volunteer group of residents and organizations striving to transform the town through the development of a strategic plan. In 2017 the community recorded over 7,000 volunteer hours and was recognized by The Upper Tennessee River Roundtable with the “local community group” award at their spring awards banquet.

The vision of the Dante Community Association is as follows: *“Dante will transform its community into a model town for visitors and one that people will desire to raise a family and grow old in. This will be achieved through*

*radical cleanup, downtown beautification, and enhanced outdoor and youth activities. Compounded by robust partnerships with neighboring towns and counties, Dante will once again see value in the homes, visitors to the town, and a resurrected sense of hope and ultimately pride in this great community, all while preserving the extensive history and small-town values.”* Reclaiming Abandoned Mine Lands (AML) sites is a natural fit for this vision.

The town’s history as a regional coal mining hub and the former headquarters of Clinchfield Coal Corporation place it squarely in the nexus of pre-law reclamation and economic development need. Dante is a residential community with rugged terrain, and large industrial development sites are nearly non-existent, requiring innovative thought on how to stimulate a community that was once populated with over 6,000 residents and home to multiple stores, car dealerships, an area hospital, a movie theatre, and more.

Due to the limited job opportunities for residents of Dante, this community aspires to be known as a partnering community, striving to see industrial development success in neighboring towns and counties. The vision set forth is to attract visitors to the community for history around coal mining, railroad, and coalfield baseball to ensure that Dante’s story lives on, while looking to the future by attracting extreme sports enthusiasts seeking the rugged terrain of the area.

In partnership with Virginia Tech’s Community Design Assistance Center (CDAC), the DCA finalized a comprehensive downtown plan in July 2017. Since that time the community has completed two of the projects identified in the plan: a new playground and a main welcome sign. Additionally, DCA has secured funding for two more projects: relocation of the coal miner’s memorial and downtown walking paths, benches, and bike racks, which will be completed by the end of 2018. Subsequent phases of additional downtown projects are laid out within the plan, preliminary approval has been received through the Virginia Historic Registry for the downtown area, and \$118K has been secured for Dante Depot restoration. Additionally, in partnership with CDAC and others, the community has laid out a strategic vision for the preservation of the historic baseball complex. Improvements to that complex have begun, and softball tournaments for 2019 are already planned.



## DANTE REVITALIZATION (CONTINUED)

### 2018 AML PILOT PROPOSAL

The Dante Community Association requested 2018 AML Pilot funding to address three specific areas of work: 1) Remediation of the Arty Lee School and ballfield area; 2) Downtown revitalization and development of ATV, walking and mountain bike trails; and 3) Remediation of two AML mine portals. Below is a summary of work that will be completed through this project:

**Arty Lee School area:** A portion of funds requested for this project will be used to remove a dilapidated structure, Arty Lee School, which is adjacent to the baseball complex. Funds will also be used to establish the reclaimed school area as a primitive campsite with a single short-stay cabin planned to serve as a pilot to gauge interest prior to further investment. Additionally, in this area a small bath house with vending machines and an environmental classroom for studies of the ecology of Lick Creek (a Clinch River tributary) will be constructed. This outdoor classroom will also serve as gathering area for campers when not in use by students and will include a fire pit seating area. Signage will be installed, along with parking lot improvements, to facilitate ease of use for all visitors, and a stream bank clean up and restoration will be performed. Finally, a connector trail to link the ballfield to the downtown area will be constructed, which will tie this project into the overall Dante revitalization effort.

**Downtown Revitalization and Trail Construction:** AML Pilot funds are also requested for the development of multi-use trails in support of Dante's vision to attract extreme sports enthusiasts and to be a partnering community. Funds via the AML Pilot are requested to build out connector trails (walking/biking) from the Dante ballfield to the downtown to connect visitors to the museum and future general store, as well as using old coal and railroad roads to create eight miles of inner-community trails to attract avid mountain bikers. Concurrently, Spearhead Trails, a regional trail authority constructing and managing ATV trails across Southwest Virginia, will complete 30 miles of non-intrusive peripheral multi-use trails connecting Dante with the Mountain View trail system and the town of St. Paul.

**AML Remediation:** Finally, Dante has recently identified the need for two open mine portals to be closed. The Dante Community Association proposes that funding be used to close these portals, which are located along the route of the proposed hiking/biking trail system.

The Dante Community Association has worked over the past two years to capture community input, commit that vision to paper, and set forth a strategic plan as a roadmap to fulfilling the desired outcome. This comprehensive strategic plan is nearing completion, and funding via the AML Pilot will be utilized to move forward on imple-



mentation. Within the master plan there are numerous projects not part of this proposal that have already been funded through various sources, including funds raised from Dante community members.

### PARTNERSHIPS

The Dante Community Association has succeeded in building numerous strategic partnerships with organizations that bring substantial technical assistance and capacity, helping to unlock the potential of the community.

Key among these partners is the Virginia Tech Community Design Assistance Center, which helped CDA to develop their master plan and is currently working with the community to leverage both state and federal Brownfields funding for planning and clean up. Dante also has a strong relationship with Russell County government, which will be the fiscal administrator of AML Pilots funds if awarded.

### PROJECT IMPACT

The impact of project implementation spending (~ \$534,000) will result in total economic activity valued at \$1,173,000; provide nearly \$400,000 in wages to employees; support eight jobs across many different sectors of the regional economy; and provide \$630,000 in value-added benefits (similar to an improvement in GDP).





Photo: Michael Schrader

## DEVIL'S FORK

### INTRODUCTION

The Devil's Bathtub project is a success story of pairing Abandoned Mine Lands (AML) Pilot funds with other economic revitalization resources through diverse partnerships, resulting in improved access to a vital outdoor recreation asset in Southwest Virginia. This project appeared in the 2016 report, *Healing Our Land, Growing Our Future: Innovative Reclamation in Southwest Virginia*, and was funded through Virginia's inaugural round of AML Pilot funding, as well as Appalachian Regional Commission's (ARC) POWER funds, both in 2017. The project is now in early implementation phase, with environmental assessments being conducted in fall 2018 and construction planned for early 2019. This profile provides a brief overview of the project as funded.

### ABOUT THE AREA

The Devil's Fork Loop Trail is the primary access to the famous Devil's Bathtub, a swimming, hiking, and sightseeing destination in the Jefferson National Forest in Scott County, Virginia. The trail and parking lot are maintained by the Clinch Ranger District of the U.S. Forest Service (USFS), along with volunteer contributions from local organizations. The site was quietly utilized—mostly by locals—for most of its existence, but thanks to some forward-thinking promotion by the Scott County tourism office, the popularity of Devil's Fork has exploded over the past four to five years.

Increased visitation to Devil's Fork has been a boon for local businesses and attractions. Natural Tunnel State Park, already a popular destination, has seen a large uptick in visitation and has incorporated a guided hike to the Devil's Bathtub into its activity offerings. Both Teddy's Restaurant of Nickelsville and the Hob-Knob Drive-In in Gate City have reported that their customer counts have more than doubled since Devil's Fork Trail became popular. Local gas stations and convenience stores now frequently find themselves offering directions to the trailhead alongside the usual fare of trail mix and bottled water.

Unfortunately, the massive uptick in visitors has several drawbacks. Most glaring is that the parking lot is very small and poorly equipped to handle the 800-1,000 visitors the area sees during peak season weekends. Numerous ideas have been floated to try to ease the stress of the high volume of traffic, such as a shuttle bus service, but the clear long-term solution is the construction of a new parking area on adjacent property.

### ABOUT THE PROJECT

The project approach pairs the mitigation of two mine portals and trail improvements—funded by the AML Pilot—with development of a new county-owned recreation area and parking lot—funded by an ARC POWER grant. This will marry two important goals: 1) the repair of a dangerous AML feature, and 2) the enhancement of a very popular tourist destination so that high volume visitation can continue in a sustainable manner.

In early 2017 Friends of Southwest Virginia received an ARC POWER Grant to fund several eco-tourism-based projects in far Southwest Virginia. Addressing the Devil's Fork parking issue was included in that suite of projects through a \$172,350 construction project, which will fund building a new county recreation area, including a parking lot on recently acquired land that will be owned and administered by Scott County government. Taking this approach not only solves the issue of parking for the Devil's Bathtub, but also places a highly valuable asset under local control. The Clinch Ranger District had numerous concerns about taking on additional upkeep of an improved parking lot, and this arrangement avoids placing additional burden on their already over-extended resources.

Project implementation is ongoing through a partnership between Upper Tennessee River Roundtable (UTRR, which is the fiscal administrator of the AML Pilot grant), Scott County, Virginia Department of Mines Minerals and Energy, Friends of Southwest Virginia, and the US Forest Service Clinch Ranger District. A memorandum of understanding was established early in project implementation that allowed UTRR to carry out the scope of work on USFS property, which has allowed the project to proceed at a much more rapid pace than could be achieved by a large federal agency, while still adhering to all relevant environmental impact procedures.

### PROJECT IMPACT

This project as funded will result in an overall project spending of \$260,000, generating \$616,000 in economic output, while providing \$168,000 in earnings to employees through the creation of 3.5 full time jobs, and bringing \$319,000 in value-added benefits.



Photo: DMME



Photo: Michael Schrader





## THE DREAM AT FLANNAGAN MARINA

### INTRODUCTION

Regional tourism investments have truly bolstered the small-business economy of Southwest Virginia. For people living in communities where opportunity—historically—has been limited, possibilities for entrepreneurship seem to abound. Additionally, as large tourism draws, like the Spearhead Trails, expand into communities like Haysi, it is vitally important that the community has attractions and amenities where people can spend their time and money to help maximize the local economic impact.

### ABOUT THE AREA

The John Flannagan Dam and Reservoir, an underutilized tourism asset in Dickenson County, was constructed in the 1960s. This mountain escape has more than fifty miles of beautiful shoreline, stands of mature hardwood trees, plentiful fish and wildlife, and spectacular rock bluffs. Amidst this beauty, however, are dozens of unreclaimed Abandoned Mine Lands (AML) features.

### PROJECT OVERVIEW

Recognizing the immense potential of the reservoir to draw tourists—both local and from afar—the Oquin family of Dickenson County recently acquired the John Flannagan Marina and have invested a considerable amount of time and money into transforming the once underutilized area into a destination...and it has worked. The Dream is an AML Pilot project aimed at leveraging the Oquin Family's investment to further transform the high-potential

and picturesque lakeside area surrounding the marina into a cozy upscale mountain resort. At its core, The Dream involves the construction of three cabins, full-service camping sites, and a primitive camping area on an AML feature. However, the impact of this project will go well beyond the remediation/reuse of an AML feature. The project will augment previous investments made in tourism in the area and provide direct job opportunities for people living in Southwest Virginia.

The project will take place on a 90-acre parcel the family recently leased from the U.S. Army Corps of Engineers. The project area was abandoned by the Clarence Jordan Coal Corporation in 1964, before the land was turned over to the U.S. Army Corps of Engineers for the reservoir in 1967. Remaining today is a dangerous high wall, which will be stabilized as part of this project.

### PROJECT IMPACT

Visitation to the project area has increased in recent years as a result of the private investments made to the marina, including establishing a full service restaurant and a floating Aqua Park. The Marina currently employs seven people part-time. Undoubtedly a sustainable management strategy for the site will support multiple additional permanent jobs at project completion. However, we know that spending related to this ~\$1 million project would result in a total economic output valued at \$1.6 million, provide \$495,000 in wages to employees, and support 10.4 jobs across the regional economy.





## A NEW TRANSACTION

### HIGH-VALUE FARMING AND PROCESSING IN APPALACHIA—MINED LANDS AND FORESTS

The landscape of the Central Appalachian heartland is unique within the United States. Wise and Buchanan counties in southwest Virginia are highly representative of the region, with the majority of their landmass consisting of steep forested hillsides, narrow hollows, and occasional large swaths of flat to rolling reclaimed mined land. Traditional farming in the region has been limited to small acreages of creek and river bottoms, which have rich alluvial soils but are generally prioritized for housing and also somewhat flood-prone. Forests and post-mining lands make up the majority of land in the region but have not traditionally been thought of as suitable for agriculture. This is now changing. Several high-value crops are very productive in these environments, and a vast opportunity exists to develop an economy around the growing and processing of these crops.

The Appalachian Sustainable Development (ASD) Abandoned Mine Lands (AML) Pilot seeks to bring this opportunity into reality in three ways:

- 1) Develop a commercial-scale pilot farm that will combine production and value-added processing with demonstration, education, and research
- 2) Increase the capacity of independent producers who are already practicing this kind of agriculture on a smaller scale and encourage new producers to enter the market
- 3) Develop local, regional, national, and international markets for these products and connect both the pilot farm and independent producers to them

The pilot farm in Wise County will focus mostly on reuse of reclaimed surface mined land, and an existing forest botanical herb operation in Buchanan County will be expanded to include intensive cultivation on pre-law strip-mined benches. Virginia Tech will serve as a close partner both in terms of extension outreach and academic research; in fact, the pilot farm will occur on land that was previously the Powell River Project. They have some small-scale demonstration forest agriculture occurring there already, which will be integrated into the overall project scope. Crops to be grown on the reclaimed mine land include: hemp for CBD, rosemary, sage, peppermint, lavender, elderberry, blackberry, pawpaw, and barley. Examples of forest crops include: ginseng, cohosh, golden-seal, and maple syrup. The onsite value-added processing will include drying, milling, packing, cold storage, and essential oil extraction, with potential future expansion into craft beverage manufacturing.

Independent farmers will be provided with greater access to land, planting stock, tools, the pilot site's facilities and labor, and greater market opportunities. By developing a unique, innovative, and very place-appropriate model for high-value agriculture, a blueprint will be established that could expand across thousands of acres of the Central Appalachian landscape, creating a host of economic opportunities that were previously unrealized.

### ROCKS INTO SOIL

Agriculture is one of the most obvious potential uses of several post-mining sites across the region, though a true agricultural economy has not taken root on these landscapes in the past decades of mining activity. This has largely been due to perceived impediments such as extreme rockiness, lack of organic matter, intensive compaction, and competition from invasive species. However, all of these problems are fixable with a combination of recently developed specialized heavy machinery, focus on high-value crops that are especially well-suited to the site conditions, onsite value-added processing that diversifies product offerings and maximizes profit potential, and sound agronomic practices informed by university research and extension guidance.

In addition to surface-mined lands, the southwest Virginia coalfields contain hundreds of thousands of acres of dense mixed mesophytic hardwood forest growing on hillsides, ridges, and narrow stream bottoms. A very lucrative opportunity exists to intentionally grow high-value medicinal plants in a "wild-simulated" setting, which retains the physical and chemical characteristics desired by nutraceutical and traditional medicine buyers and which cannot be replicated in field-farmed settings.

This AML Pilot proposal will combine these two concepts in a way that seeks to jumpstart the innovative agriculture economy in the region by developing a diversified for-profit pilot farm and value-adding center on a large reclaimed mine site in Wise County and by augmenting two existing innovative agriculture businesses on pre-law mining-impacted lands in Buchanan and Wise counties.

### PROJECT IMPACT

Fourteen direct full-time-employment positions will be created as a result of this AML pilot project, as well as one graduate student research position. Dozens of new independent farmers will be created through outreach, education, and training in conjunction with Virginia Tech/Virginia State University Extension, as well as by providing the connection to lucrative markets.





## SOUTHWEST VIRGINIA SOLAR SPRINGBOARD

### INTRODUCTION

Global investment in renewable energy is at an all-time high. In the United States, growth in the renewable energy sector continues to outpace projections, despite low wholesale electricity rates, uncertainty about policy and incentives, and low natural gas prices. Solar photovoltaic energy, in particular, has had record-breaking growth year over year.

As electricity demand is expected to grow in Southwest Virginia, the development of some or all aspects of the solar industry value-chain—from component manufacturing and sales to engineering and installation—will not only grow the local economy, but also provide new businesses with abundant, redundant, and renewable energy. The development of this value-chain, however, must start with proving that large-scale solar development works in Southwest Virginia and that it can support solar and non-solar jobs alike.

Efforts by entities like the Solar Workgroup of Southwest Virginia are vitally important to ensuring that rural communities maximize the potential benefits of solar energy in the region. One contemplated and extensively studied way to maximize the returns of solar development—economic or otherwise—is smart-siting of solar on underutilized former mine areas. The Abandoned Mine Lands (AML) Pilot program is one of several programs that can be used to sweeten the deal of development on these sites. Further, this opportunity can be used as a springboard to developing a critical mass of solar, which will bring more value-chain jobs to Southwest Virginia.

### SMART-SITING AT EXISTING INDUSTRIAL SITES

There are several industrial areas across Southwest Virginia, and the pervasive nature of pre-Surface Mining Control and Reclamation Act (SMCRA) features ensures that most of these sites qualify for AML Pilot funding. Some of these areas are actually built on pre-SMCRA mine sites.

Existing and future industrial facilities can utilize the AML Pilot program to install solar and greatly reduce their operating costs, which would increase the competitiveness of any business. This could open up opportunities for future expansion and additional jobs.

### PROJECT IMPACT

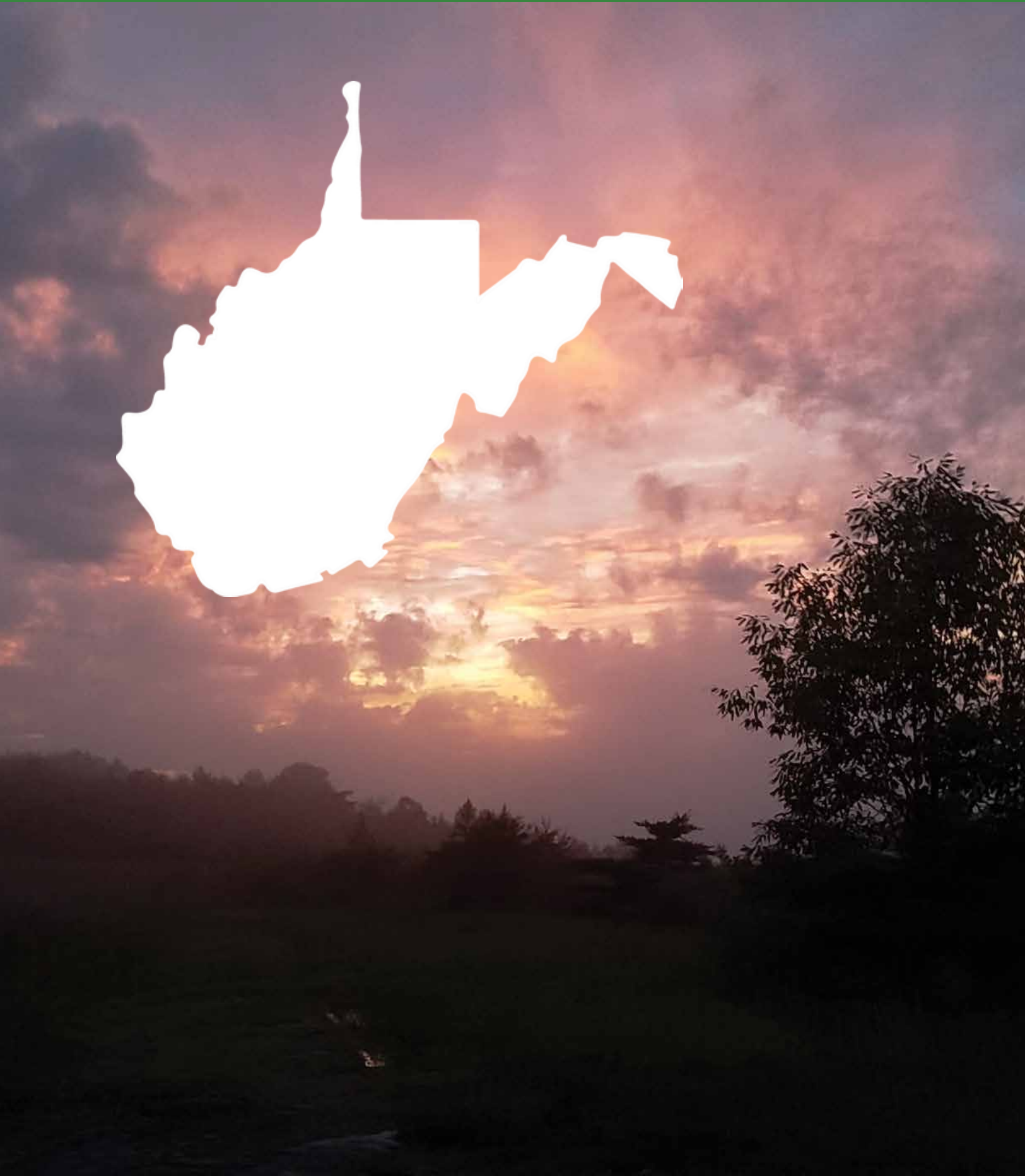
This project concept would lead to several economic and community development benefits, the first being the increase in skilled labor experienced in the installation of large solar projects. Development of future projects will be more desirable if there is a workforce available to deliver. Another benefit would be the annual influx of capital into the local community from land leases and operation-and-maintenance costs.

A recent study from Downstream Strategies found that under an aggressive solar development scenario, utility-scale installations in Southwest Virginia could support approximately 212 jobs on average over the 10-year period—including project development and onsite jobs, supply chain jobs, and induced jobs. Again, while this project will not support that number of jobs, it is a vital first step towards achieving that type of economic return in Southwest Virginia. Essentially, these jobs are going to be created somewhere, why not here?

### APPLYING THE CONCEPT

The Reclaiming Appalachia Coalition worked with community partners, who have requested to remain anonymous, to submit an AML Pilot Proposal for supporting funds for a 3.5 MW behind-the-meter solar installation at a 21st century industrial center. The project, if funded, will leverage significant private investment to support existing and future jobs at the site. Further, it will significantly increase the marketability of the area for similar enterprise.





Hello from West Virginia!

Reclamation is what we need here in coal country. We need to reclaim our landscape, which has been irreparably transformed by the mining industry, yes. But in doing so innovatively, we can also reclaim economic opportunity for our people. We can reclaim a better quality of life, remembering our heritage as a resilient and creative people living in tune with our land. If we are smart, we can use the mineland reclamation process to shape a future in which Appalachia is no longer punished with economic and environmental oppression for having an abundance of natural resources. We can convert what are now major liabilities into community assets. We can leverage these new assets and do business with the rest of the country and world in a way that is fair and sustainable.

For decades now, the coal industry has been in steady decline. Today, there are fewer coal miners employed in the entire country than could fill West Virginia University's football stadium. That our country is experiencing a profound transition in how we produce energy is undeniable. The question, then, is how to make this transition just for the people that have powered our country for generations? Step one is to ensure the people in mining communities are the ones shaping their own future. The projects highlighted in this report represent investable opportunities promising social, environmental, and financial returns. But these investments should be done *with* local people and not just *for* them.

The emphasis on innovative mineland reclamation is important too. Traditionally, the reclamation process has often been woefully inadequate, leaving behind soil as compacted as parking lots and seas of invasive plant species. The projects proposed herein offer a better way. This better way will create local jobs, attract new investment, and support community vision for renewal rather than thwart it.

Such work is particularly important here in West Virginia where 53 out of 55 counties are coal bearing. Being the second most coal-producing state in America, West Virginia's body has borne the scars, ruptures, and losses that comes with the extraction of over 14.6 billion tons of coal. These wounds include 43 recognized project sites under the Abandoned Mine Lands (AML) program and thousands of other AML sites: dangerously dilapidated underground shafts, creeks that turn orange from acidic runoff, barren mountaintops, and a despairing workforce struggling to see the promise of a future. For these reasons, we pursue the charge of restoring the 352,000 acres of surface mining land in West Virginia. In doing so, we are putting our miners back to work through innovative reclamation. Since 2012, 11,225 miners have lost their jobs. We think of them every day and engage as many as we can in this renewal effort.

The West Virginia Department of Environmental Protection Division of Land Restoration has been a solid working partner under the leadership of Mr. Rob Rice. Another crucial West Virginia leader on these issues is Mr. Rick Buckley, Supervisory Program Specialist for the Office of Surface Mine Reclamation and Enforcement. It is strong collaboration from the grassroots to the highest levels of leadership that can truly advance a land restoration economy in Central Appalachia.

We look forward to learning more about these important issues alongside you.



Sincerely,  
Brandon M. Dennison, CEO  
Coalfield Development

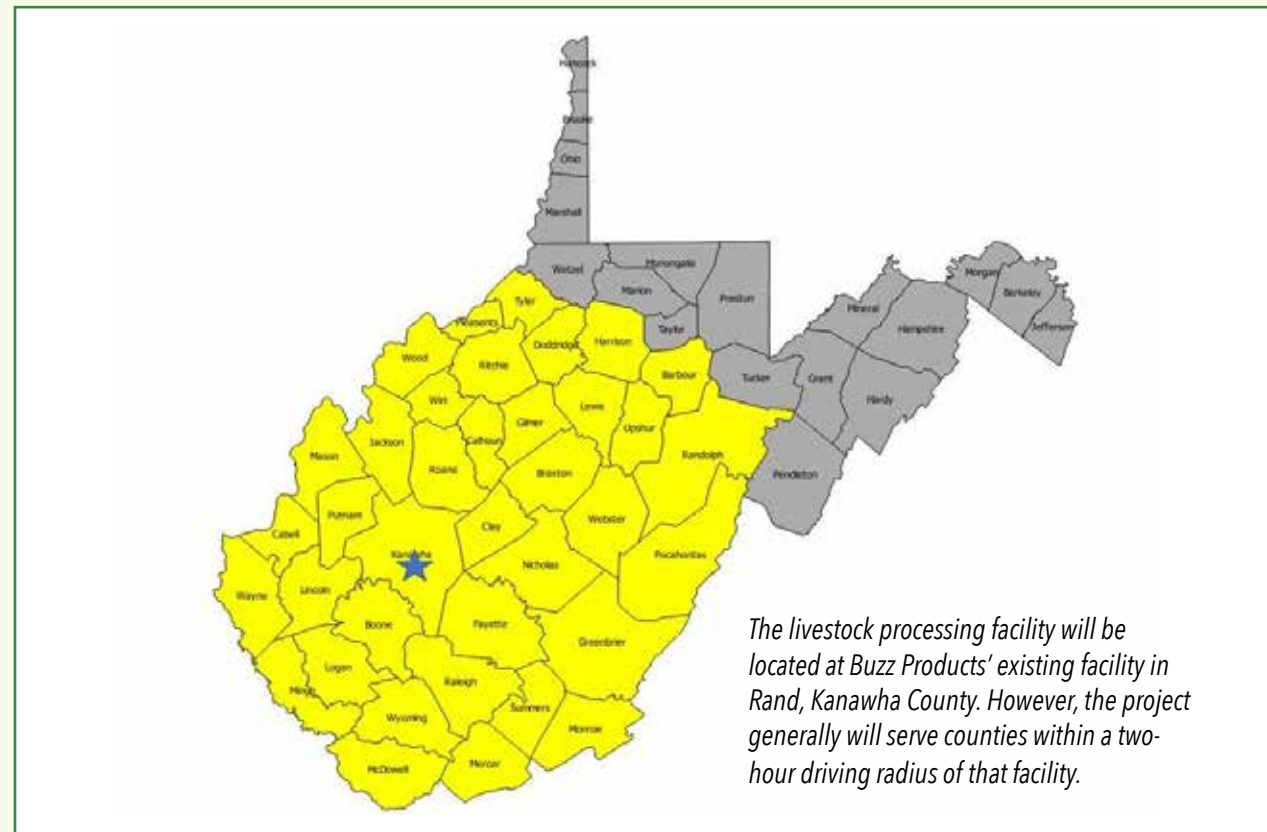
## A FOOD-SAFE PROCESSING FACILITY

### INTRODUCTION

West Virginia has a well-developed livestock industry with a successful track record of producing high-quality beef, pork, and other proteins. However, due to a lack of critical agricultural infrastructure, most of the state's traditional beef producers sell cattle to out-of-state operators who "finish" cattle for slaughter and production in other markets. This long-standing practice has made it challenging for anyone in the local food supply chain to successfully market West Virginia-grown meat products.

The lack of a modern, food-safe slaughter facility currently limits: a) local sourcing options for meat retailers and wholesalers, b) processing options for local livestock producers, and c) custom, value-added WV meat product offerings, all at a time when interest in locally-raised meat products is rising. Furthermore, the lack of USDA grading services prohibits promotion of West Virginia-grown beef, pork, lamb, and other meats for their premium value, and therefore limits the vitality and capacity of agricultural enterprise in our region.

Buzz Products, Inc., an established meat wholesaler with expertise in production and marketing of meat products to wholesale and retail customers, in partnership with a variety of governmental, non-profit, and education partners, has been awarded an Abandoned Mine Lands (AML) Pilot grant to construct a small-scale livestock processing facility with modern food safety standards to satisfy the needs of southern West Virginia livestock producers, meat sellers, and consumers. Additionally, this project aims to provide educational and on-the-job training programs to develop highly skilled workforce, targeting dislocated coal miners, military veterans, and disadvantaged young adults.



### AML FEATURES

Two AML features exist within the project area: 1) Malden "Hancock" Portals and Slide - WV004077; and 2) Malden "Cochren" Drainage - WV006306. Cumulatively, these features represent \$63,000 in potential remediation costs (summarized below).

AML Feature	Description	Cost
WV004077	P-2 Portals	\$18,000
WV006306	P-2 Dangerous slide	\$20,000
WV006306	P-2 Dangerous Impoundment	\$25,000

**AML PILOT REQUEST:** \$5,999,950

### ECONOMIC AND COMMUNITY DEVELOPMENT END USE

The slaughter and processing facility will be directly focused on economic and community development by providing: 1) direct employment for as many as 25 to 30 full-time staff, 2) 15 to 20 temporary construction jobs, 3) countless indirect employment opportunities through the expansion of southern West Virginia's existing but limited livestock industry; 4) a much-needed piece of agricultural infrastructure with which to grow the local food supply chain; and 5) ability to increase the percentage of consumer food spending on West Virginia-grown products.

### PROJECT IMPACT

Economic modeling of project development spending (\$5.3 million) suggests the Buzz project would result in total immediate economic activity of over \$12 million, contribute nearly \$4 million in earnings to employees, support over 83 jobs across different sectors of the economy, and provide over \$6.3 million in value-added benefits.





## MIXED AGRICULTURE AND RENEWABLE ENERGY

### INTRODUCTION

Reclaimed mountaintop mine sites are present throughout the coalfields of West Virginia, and the vast majority of them are sitting idle and unused for any productive purpose. Several challenges prevent their rapid development into profitable economic development projects. Coal haul and other access roads may have fallen into disrepair. Many sites are miles away from the nearest large towns or major roads and have limited infrastructure present. Land companies may be hesitant to lease to unfamiliar entities or individuals—or to developments outside of the familiar coal/gas/timber mix. Sites may not yet have full bond release from permits for certain features such as settling ponds and Abandoned Mine Lands treatment. Large portions of the surface may be reclaimed to “approximate original contour” slopes with limited flat to rolling land. Dense thickets of woody shrubs may dominate the land, making clearing with conventional equipment difficult.

If a development model was designed that could be reliably applied to a multitude of sites with these conditions, it could unlock a world of economic possibilities for the coalfields of West Virginia. A proposed AML Pilot project on Cazy Mountain in Boone County seeks to develop such a model on a highly representative mine site impacted by both pre- and post-Surface Mining Control and Reclamation Act (SMCRA) mining activities.

### ABOUT THE AREA

Boone County is distressed. According to the Appalachian Regional Commission (ARC), Boone County’s per capita market income is just over 50 percent of the national average at just under \$20,000 per year. The three-year average unemployment rate of the county is 151 percent of the national average at 9.5 percent, and the poverty rate is over 150 percent of the national average at 23.3 percent.

### MORE ABOUT THE PROJECT

The proposed Mixed Agriculture and Renewable Energy (MARE) project is the product of an innovative partnership between Downstream Strategies, Penn Virginia Resources, the Boone County Community and Economic Development Corporation, Coalfield Development Corporation, and others. It applies a mix of innovative agriculture, value added processing, and large-scale renewable energy to provide a diversified income base for long-term job creation. By focusing on activities that are well-suited to the conditions typical of post-mined landscapes, utilizing innovative equipment and operating with a business-oriented approach, this model will not only be successful on Cazy Mountain but on numerous other reclaimed mountaintops throughout West Virginia.

**PROJECT COST:** \$4,200,000

### PROJECT IMPACT

About 20 full-time jobs will be created to directly manage and work on the site, paying between \$12 and \$30 per hour, on average. Several contractors will be employed to execute surveying and engineering studies, site prep work, building construction, and other key tasks. Nearby mine repair and auto repair shops will be used to work on agriculture machinery and vehicles. Certain types of management roles may require recruiting people with special skill sets from outside the region, who will then live in the area and spend money in the local economy.





## MARION COUNTY SOLID WASTE AUTHORITY CAMPUS REDEVELOPMENT

### INTRODUCTION

The Marion County Solid Waste Authority (MCSWA) headquarters spans nearly 300 acres in North Central West Virginia. The primary facility on the campus, known as the Butler Building, was built nearly 55 years ago directly on top of an old slurry pond for the Idamay #44 coal mine. This aging building serves as the county's only recycling center. While the area in immediate proximity to the recycling center is used by the Solid Waste Authority, the vast majority of the property is underutilized. This underutilization, in large part, is because a sizeable portion of the property is a capped former landfill. A forward-thinking Abandoned Mine Lands (AML) Pilot project aims to improve access to and renovate the Butler Building, which will improve recycling services in the county, and also construct a facility to be used by the Marion County Beekeepers Association to take advantage of the surrounding underutilized capped landfill area, which is planted with grasses and pollinator crops.

### ABOUT THE AREA

Marion County is designated as 'transitional' by Appalachian Regional Commission, meaning it ranks somewhere between the worst 25 percent and the best 25 percent of the nation's counties. The county has a relatively high poverty rate at 16 percent and a low per-capita market income of close to \$24,000.

### MORE ABOUT THE PROJECT

MCSWA began engaging local stakeholders for reuse and redevelopment of its campus in early 2017. A May 2017 site tour and community visioning event was attended by representatives of the Marion County Commission, Fairmont State University, the Northern West Virginia Brownfields Assistance Center, the West Virginia Development Office, Resolute Forest Products, Downstream Strategies, and others. Since this event, MCSWA has refined its vision for the property to include renovations to the existing recycling facility and the creation of the Marion County Beekeepers' facility, which will make use of the underutilized sections of the property and pollinator-friendly plants growing on the capped landfill.

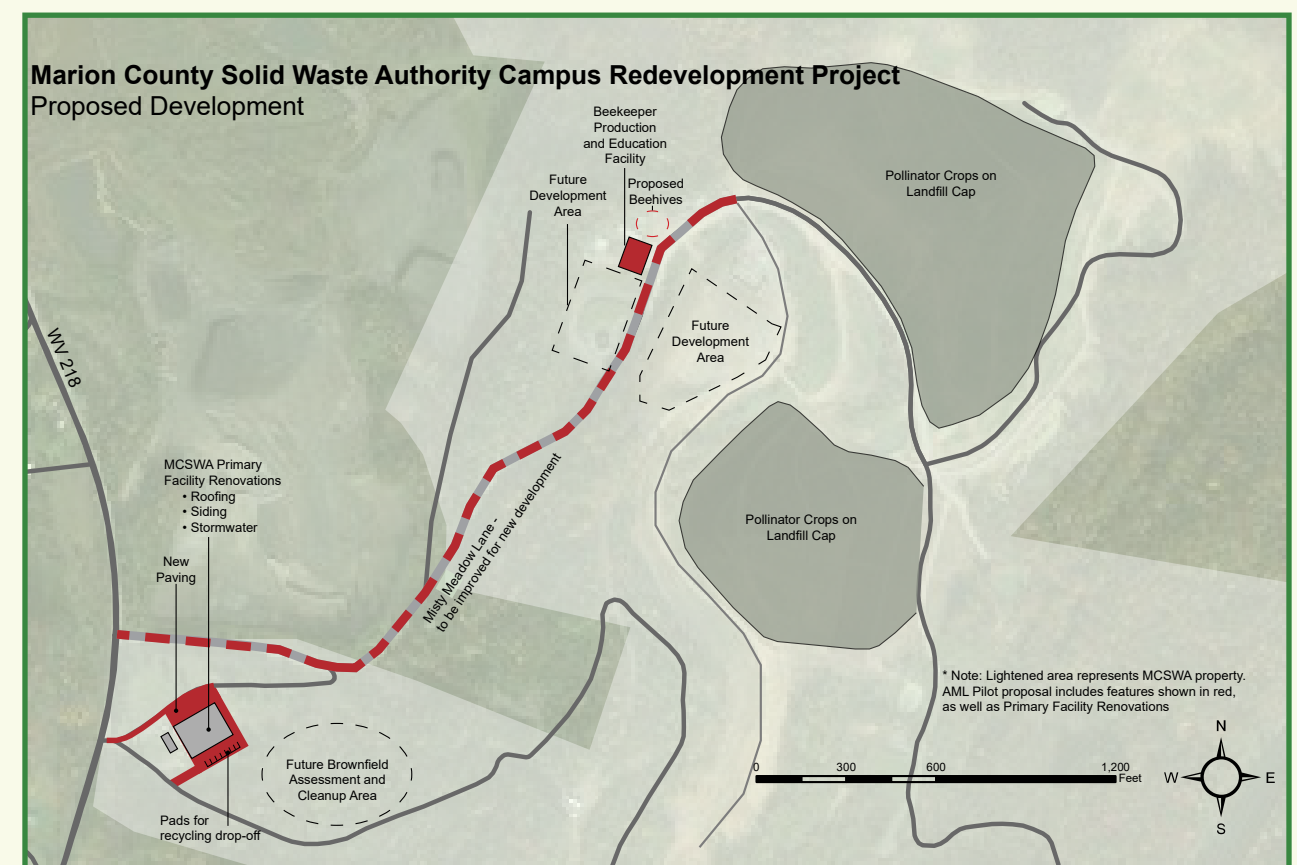
### NEXT STEPS FOR CAMPUS REDEVELOPMENT

1. Update and improve the existing recycling center (Butler Building).
  - a. Renovate the interior and exterior of the building.
  - b. Improve access to the building by constructing a road.
2. Construct Marion County Beekeepers' Facility on an underutilized section of property.
  - a. Construct Beekeeper Processing and Education Facility.
  - b. Install beehives.
3. Identify an agricultural development partner to occupy the "Future Development" area.
  - a. Determine highest value agricultural use.
  - b. Market the site.

**PROJECT COST:** \$1,615,400

### PROJECT IMPACT

Economic modeling of the project development budget (~\$1.6 million) suggests spending from the MCSWA project would result in total immediate economic activity of nearly \$3.7 million, contribute over \$330,000 in earnings to employees, support nearly 27 jobs across different sectors of the economy, and provide over \$2 million in value-added benefits.





**PROJECT COST**

While a site has yet to be selected, the project as outlined above is expected to cost nearly \$1.4 million dollars over the first two years, summarized below.

Category	Cost
Equipment	\$530,000
Supplies	\$141,800
Land and Facilities	\$170,000
Personnel	\$390,000
Consulting/Contracting	\$25,000
Administrative	\$130,000

**PROJECT IMPACT**

This project is expected to support up to six full-time onsite employees. Additionally, project spending \$1.4 million is expected to result in total immediate economic activity of over \$3.2 million, contribute over \$1 million in earnings to employees, support over 28 jobs across different sectors of the economy, and provide over \$1.7 million in value-added benefits.

**PASTURED POULTRY PROJECT CONCEPT**

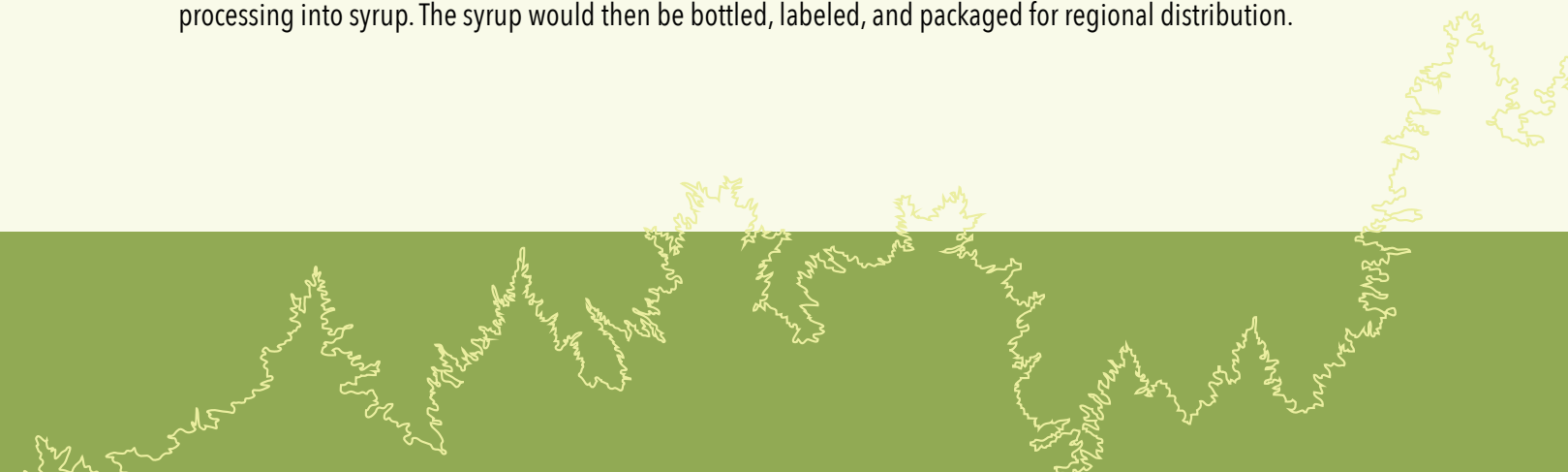
**INTRODUCTION**

The Southeast Economic and Educational Development Hub Cooperative Corporation (SEEDH) / Economic Development Greater East (EDGE) group is promoting a mix of craft distilleries, syrup production and mixed intensive grazing in southern West Virginia and southwest Virginia. With a geographic center point in McDowell County, West Virginia, the group is initially focused on developing a large-scale pastured poultry system on mined lands with syrup tapping on the forested slopes below the mined areas.

**MORE ABOUT THE PROJECT**

At least 20,000 broiler chickens per year would be raised in mobile coops on reclaimed mined lands, greatly improving the fertility of the degraded landscapes while raising healthy birds in an open air environment. The chickens would be processed into final product with a USDA-certified commercial-scale poultry processing trailer that could be moved to other sites with future expansion. Sites would ideally be certified organic, and the pasture-raised organic meat cuts would be stored in local cold storage facilities and then distributed to local and regional markets. After a period of time undergoing fertilization with chicken manure, the reclaimed mine sites could then be transitioned into high-value crop production.

On the mountain slopes below the reclaimed mine area, trees in the *Acer* family (sugar maple, red maple, sycamore) would be tapped for their sap, which would be accumulated at a central point at the bottom of the slope for processing into syrup. The syrup would then be bottled, labeled, and packaged for regional distribution.







### RE-CREATE

The lower Cheat River watershed includes at least 342 identified Abandoned Mine Lands (AMLs) emanating acid mine drainage into the Cheat River and its tributaries. These AMLs have severely degraded the water quality of receiving streams, including: Pringle, Lick, Heather, Morgan, and Greens Run. The decline of the coal industry, coupled with infamous river disasters including the Great Flood of 1985 and major pollution blowouts from the T&T mine, has resulted in a persistent economic depression across the communities of the Cheat River Valley. With media and resources directed to West Virginia's struggling southern coalfields, Preston County in North-Central West Virginia can feel like the forgotten county of coal country, while being arguably West Virginia's premiere AML-degraded area.

A project proposed by the Friends of Cheat (FOC) aims to create a recreational trail corridor about eight and a half miles long beside the Cheat River in Preston County, marketing Kingwood and Rowlesburg as gateway "Trail Towns" and bringing crucial economic development activity to the area.

### ABOUT THE AREA

An Economic Analysis of the Appalachian Coal Industry Ecosystem, conducted by West Virginia University and the University of Tennessee in early 2018 for Appalachian Regional Commission found Preston County to be highly dependent on the coal industry and categorized the county as one at high risk for experiencing additional economic hardship from the continued decline of the coal industry. Today, Preston County's economy is considered transitional. The county has a relatively low per capita market income of just over \$24,000 and a poverty rate just under 15 percent.



Mouth of Muddy Creek, Cheat River near Albright, WV  
photo: Joey James



### MORE ABOUT THE PROJECT

Reclaiming the Cheat River as an Economic Asset through Trail Enhancement (RE-CREATE) is an economic-development and community-capacity-building project in the heart of Cheat River AML territory. Project funds will build a continuous recreation corridor (~8.5 miles) along the Cheat River in Preston County, marketing Kingwood and Rowlesburg as gateway Trail Towns. FOC will expand its existing River of Promise Trail to include a walking trail spur from the Cheat River Rail-Trail at Preston to an acid mine drainage (AMD) learning park at the Lick Run Portals AML site. Funding will also support a Trail Town program modeled after the successful Great Allegheny Passage Trails Towns project which will work collaboratively with Preston County trail communities to take advantage of the economic opportunity provided by completed trail corridors and complementary recreational attractions.

**PROJECT COST:** \$3,449,000

### PROJECT IMPACT

FOC strives to restore, preserve, and promote the outstanding natural qualities of the Cheat Watershed. Notably, this project proposal has received 35 letters of support from community and government organizations and businesses in the vicinity. The RE-CREATE project is emblematic of this mission. Through the efforts of our organization and its community partners, the Cheat River has become one of the most popular recreation destinations in north-central West Virginia. The RE-CREATE project will attract new users to our watershed. Economic modeling of project development spending (\$3.5 million) suggests the RE-CREATE project would result in total immediate economic activity of nearly \$7.5 million, contribute nearly \$1 million in earnings to employees, support nearly 50 jobs across different sectors of the economy, and provide over \$4 million in value-added benefits. Beyond this, after construction the project will directly employ a small number of people through its Trail Town Program and related programming, thereby assisting local communities in capturing the economic benefits of the trail. This undoubtedly will have the most significant and long-lasting impact on the local economy.

