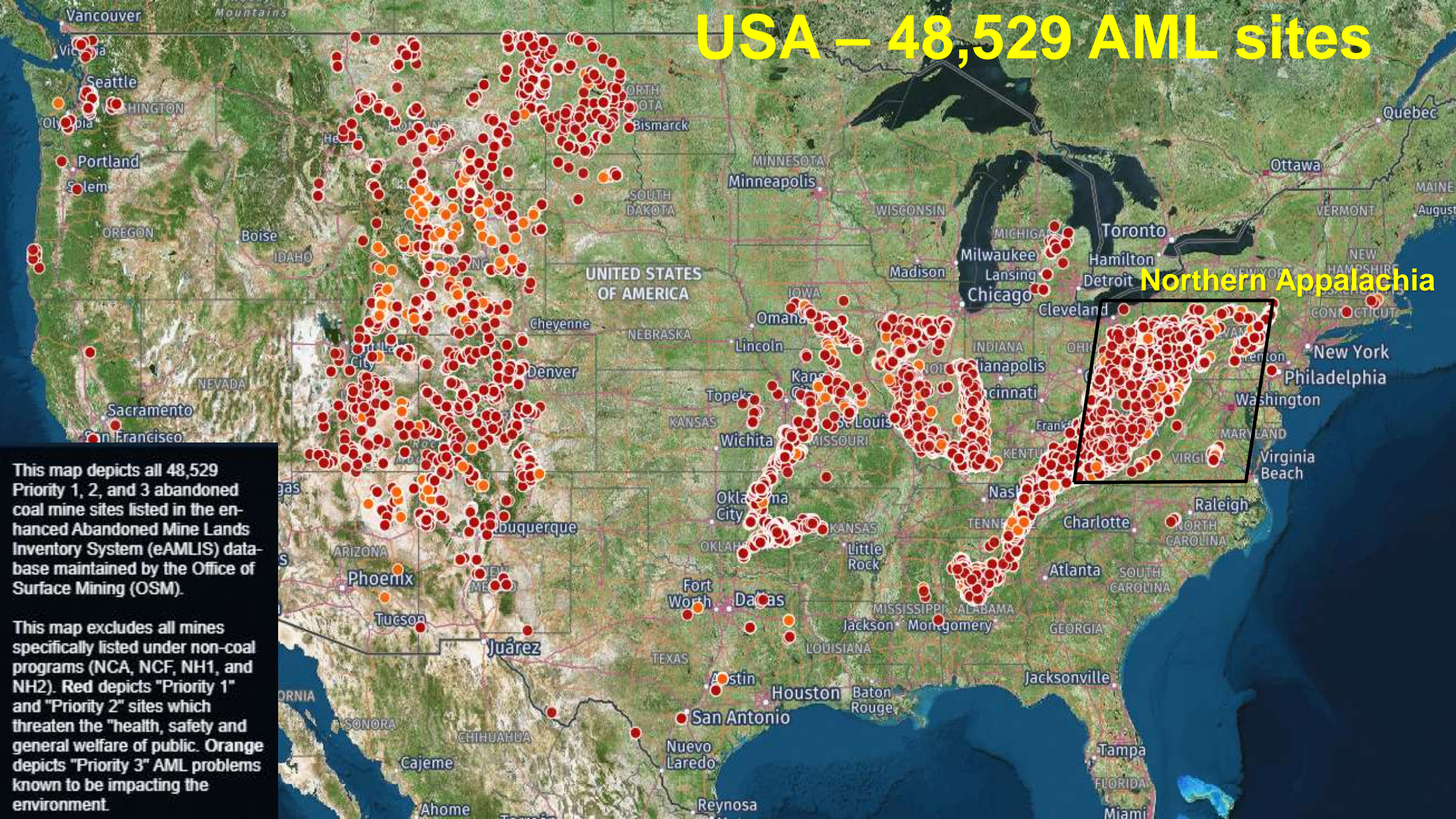


AML Reclamation at the WVU Farm Woodlot for Economic Development

Jeff Skousen
West Virginia University

04/21/2016

USA – 48,529 AML sites

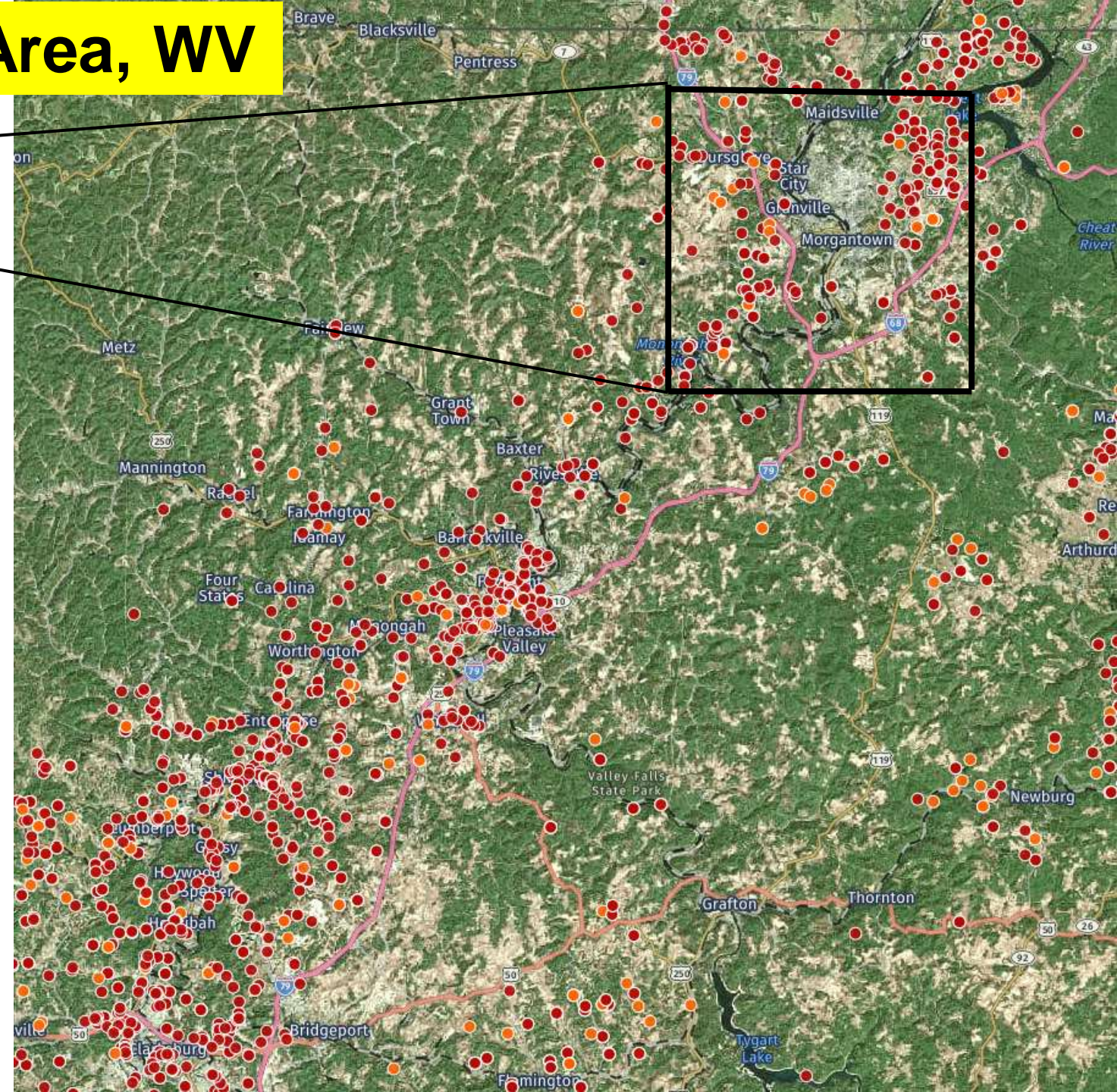
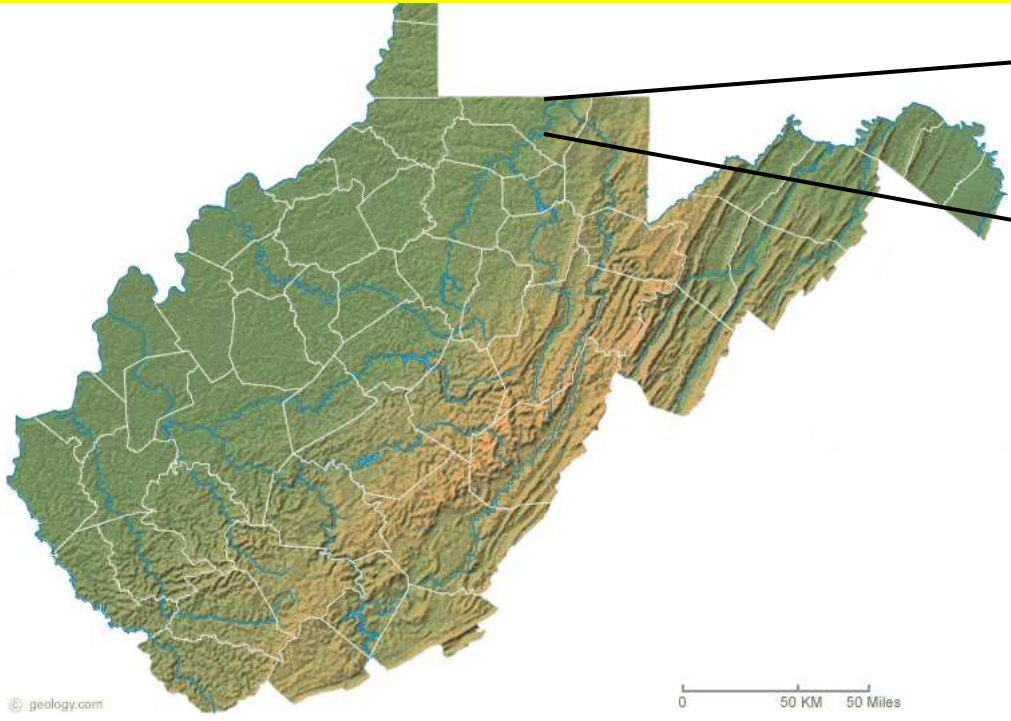


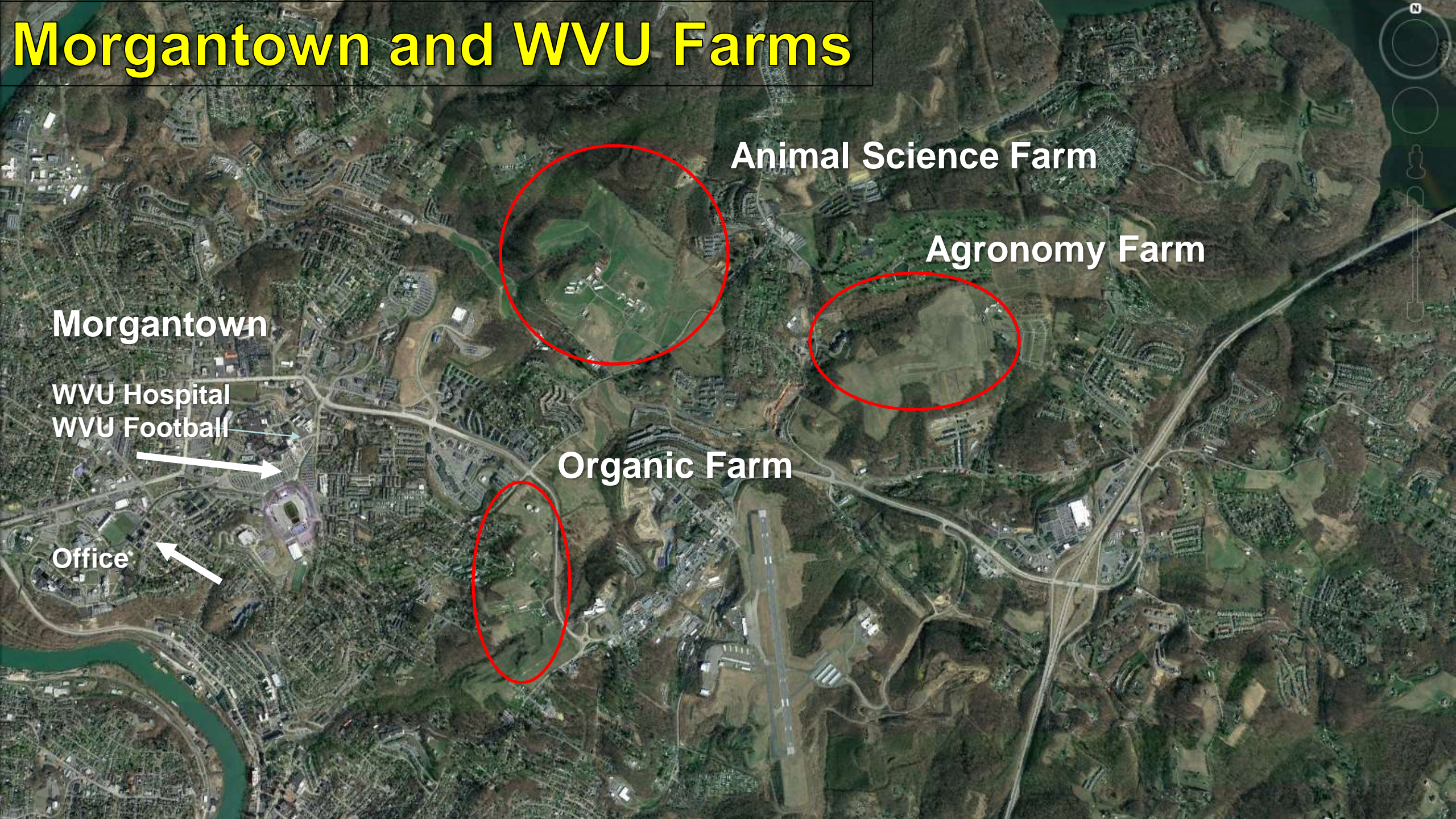
Northern Appalachia

This map depicts all 48,529 Priority 1, 2, and 3 abandoned coal mine sites listed in the enhanced Abandoned Mine Lands Inventory System (eAMLIS) database maintained by the Office of Surface Mining (OSM).

This map excludes all mines specifically listed under non-coal programs (NCA, NCF, NH1, and NH2). Red depicts "Priority 1" and "Priority 2" sites which threaten the "health, safety and general welfare of public. Orange depicts "Priority 3" AML problems known to be impacting the environment.

AML Sites – Morgantown Area, WV





Morgantown and WVU Farms

Morgantown

WVU Hospital
WVU Football

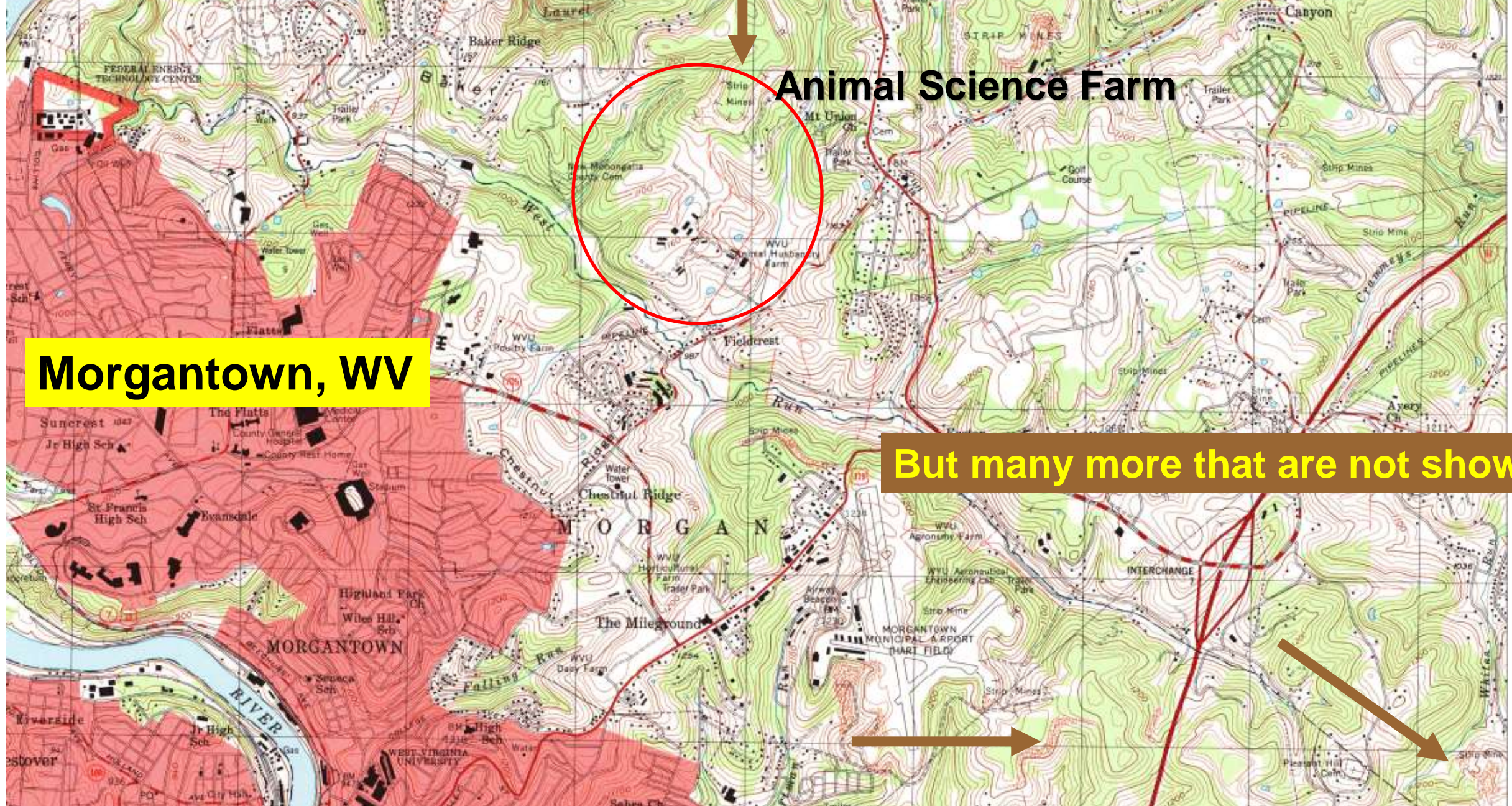
Office

Animal Science Farm

Agronomy Farm

Organic Farm

Brown areas show AMLs

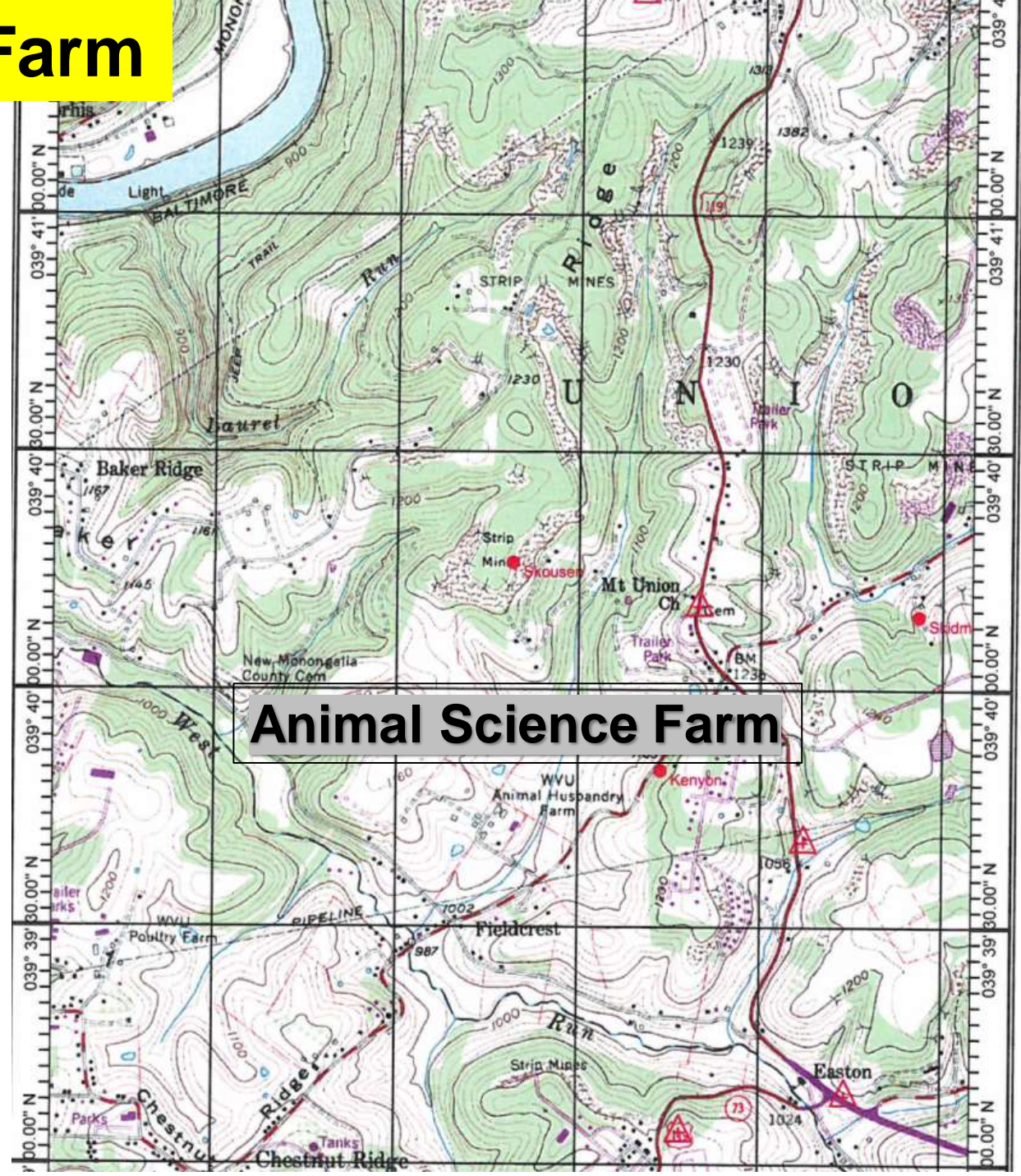


Animal Science Farm

Morgantown, WV

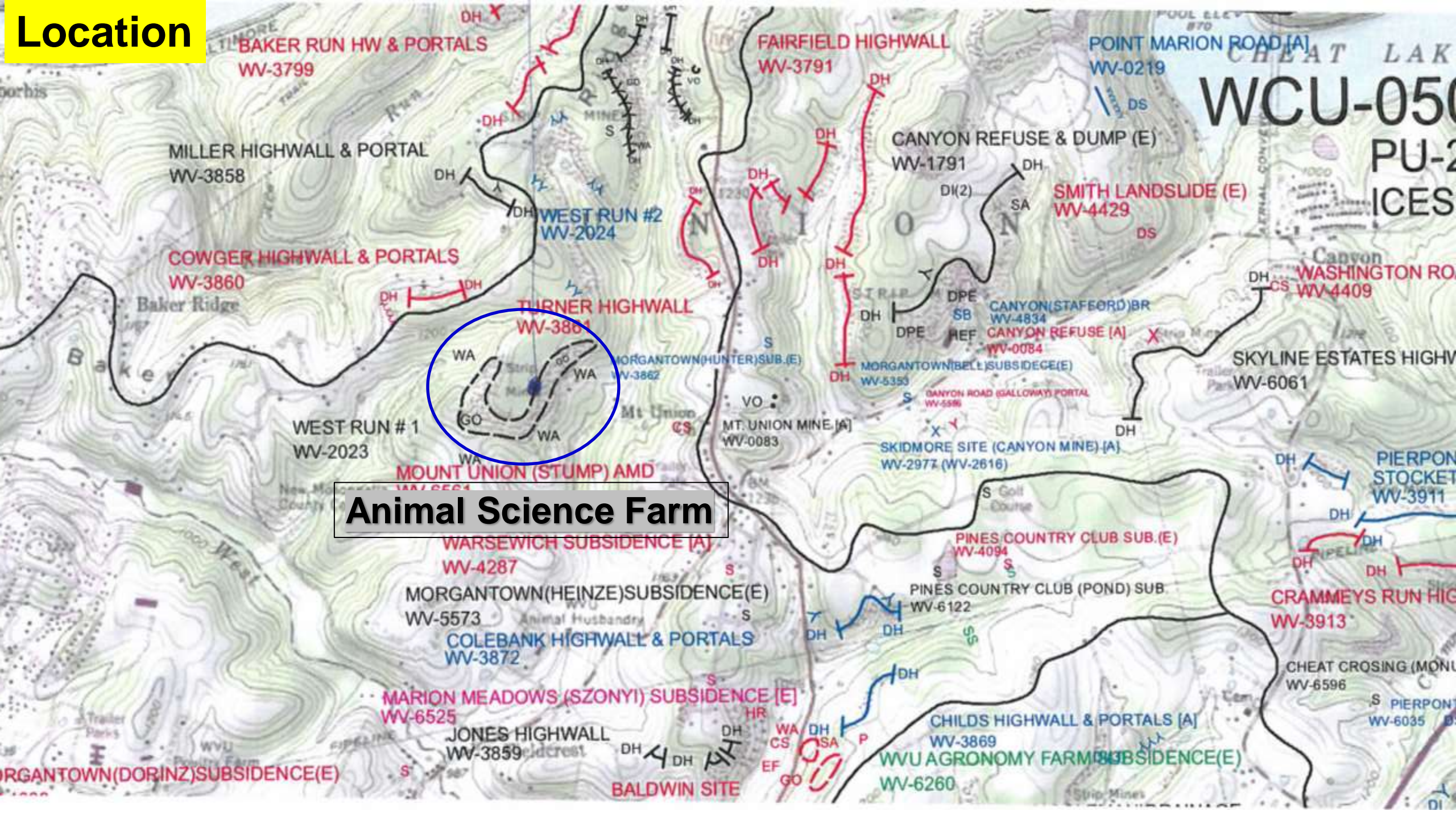
But many more that are not shown

Numerous AML Sites near Farm



Animal Science Farm

Location



WVU Animal Science Farm





Surface and Underground Mining 1930s and 1950s

5-ac AML site
40-ft highwall
1930-50s
Underground and Surface



04/21/2016

Dangerous Rocky Outslope
Tree growth – good ...



04/21/2016

Difficult to manage



04/21/2016

Subsidence and sinkholes at surface



05/20/2016

Numerous cracking features

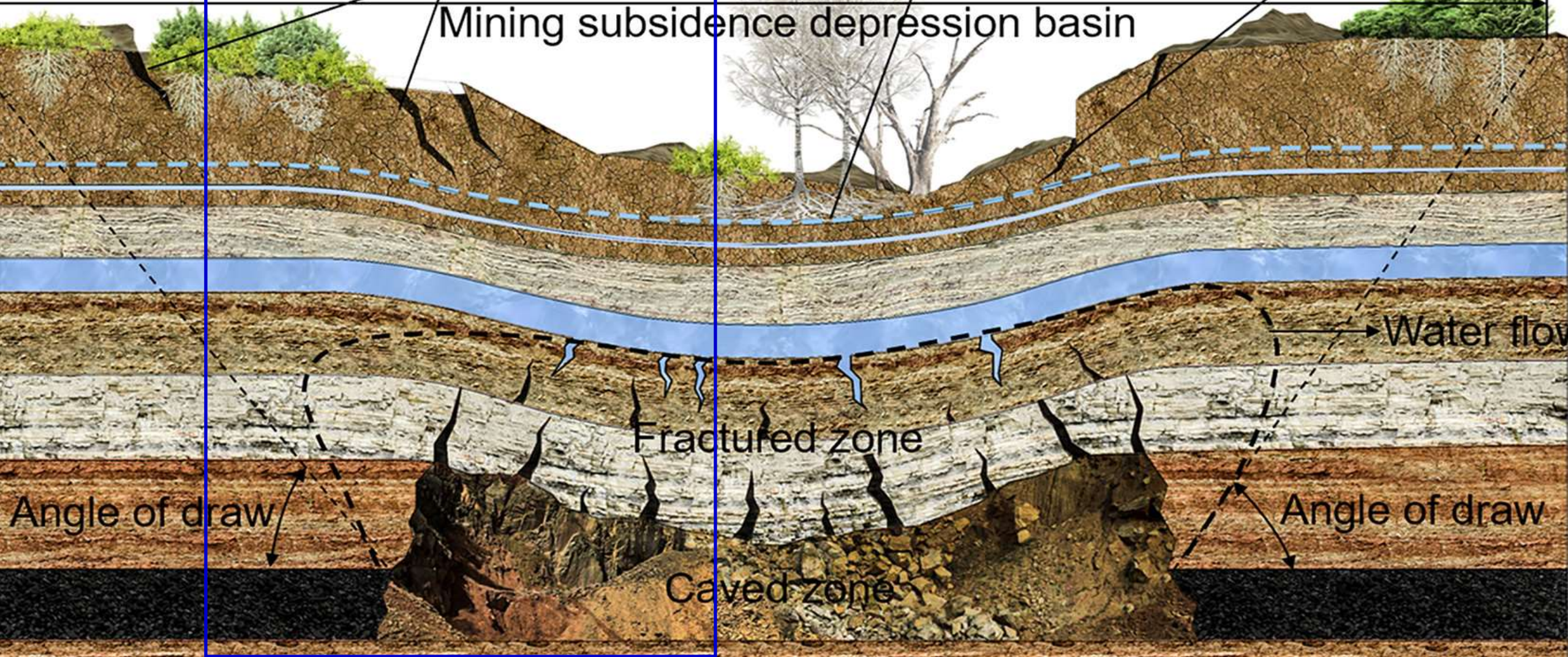


Cracks and fissure at the edge of subsidence depression caused by horizontal displacement

Tree death and vegetation deterioration in valley area

Unstable slope and subsidence induced landslides

Mining subsidence depression basin



Fractured zone

Caved zone

Water flow

Angle of draw

Angle of draw

Hideouts and Homeless



Room and Pillar Subsidence



Throughout this area
Unofficial Bike Trails



WVU Woodlot Trails



Evidence of 4-wheeler Use



Bikers use extensively

Asked him...

“Danger signs?”



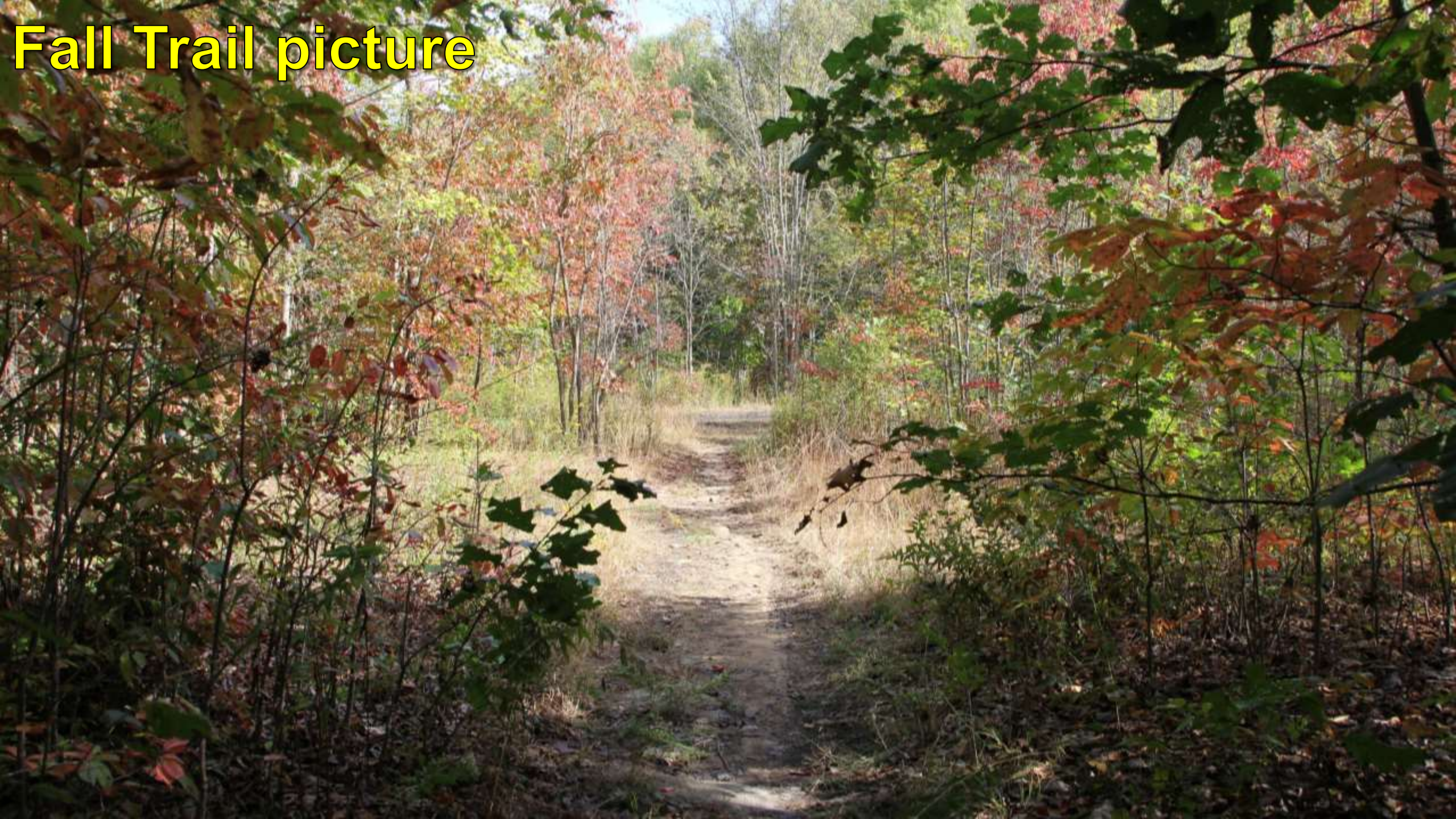


“Yea, I see it, but it’s too nice...”
“A lot of my friends...”

Beautiful trails



Fall Trail picture



Dangerous Ramp!



Acid mine drainage from portal



Looking into portal

Wood pillars and remaining coal stumps



Students Field Trips Biology Class

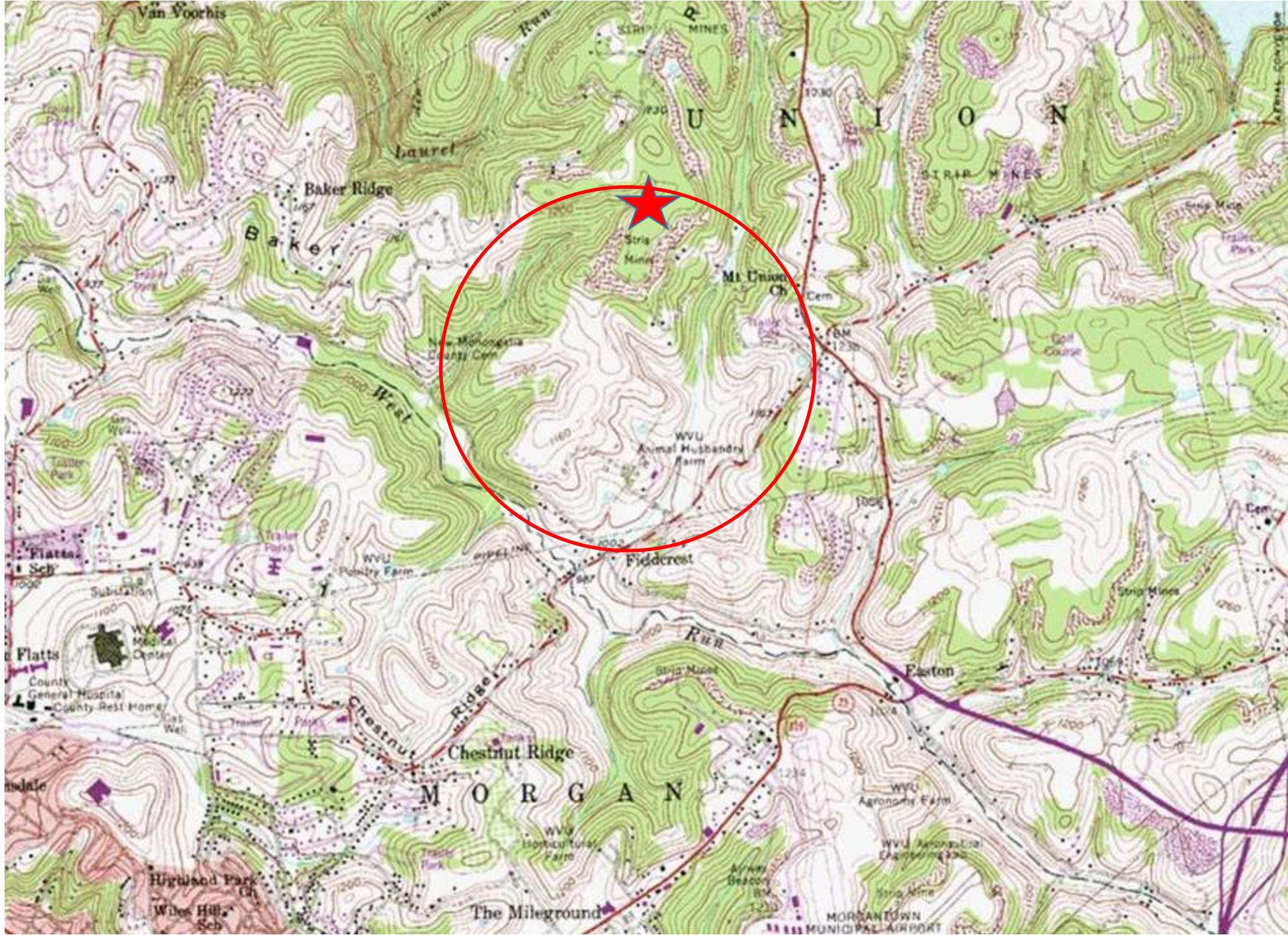


2006 9 26

Acid Mine Drainage Acid Soils



2006 9 26



Demonstration of foam filling Marcus Anderson



Filled 16 holes



Abandoned Mine Land Economic Revitalization (AMLER) Program

west virginia department of environmental protection

Abandoned Mine Lands Economic Revitalization (AMLER) Program

Overview

The WVDEP's Office of Abandoned Mine Lands and Reclamation (AML) administers federal funding for economic development projects on abandoned mine lands through its AMLER Program. This program helps projects located on or adjacent to mine sites that ceased operations prior to the signing of the Surface Mine Control and Reclamation Act (SMCRA) on Aug. 3, 1977.

All projects must receive final approval from the U.S. Department of the Interior's Office of Surface Mining, Reclamation, and Enforcement (OSMRE).

An advisory committee comprised of representatives from the WVDEP, state Departments of Commerce, Tourism, and Transportation, and the Governor's Office, is responsible for determining project eligibility and advancing recommended projects to OSMRE.

Since 2016, the AMLER Program has committed \$181 million in grant funding to assist projects all across the West Virginia coalfields.

2020 AML Economic and Community Development Pilot Program Application

*ALL fields must be completed for application to be accepted. Supplemental attachments may be used to provide project details.

**Stating "See Attached" in the fields will not be accepted.

PROJECT NAME:	Maximizing the Economic Potential of Reclaimed Public Property: Morgantown, WV
PROJECT ADDRESS/LOCATION:	WVU Woodlot, Morgantown, WV
e-AMLIS IDENTIFICATION:	WV002024, WV002023

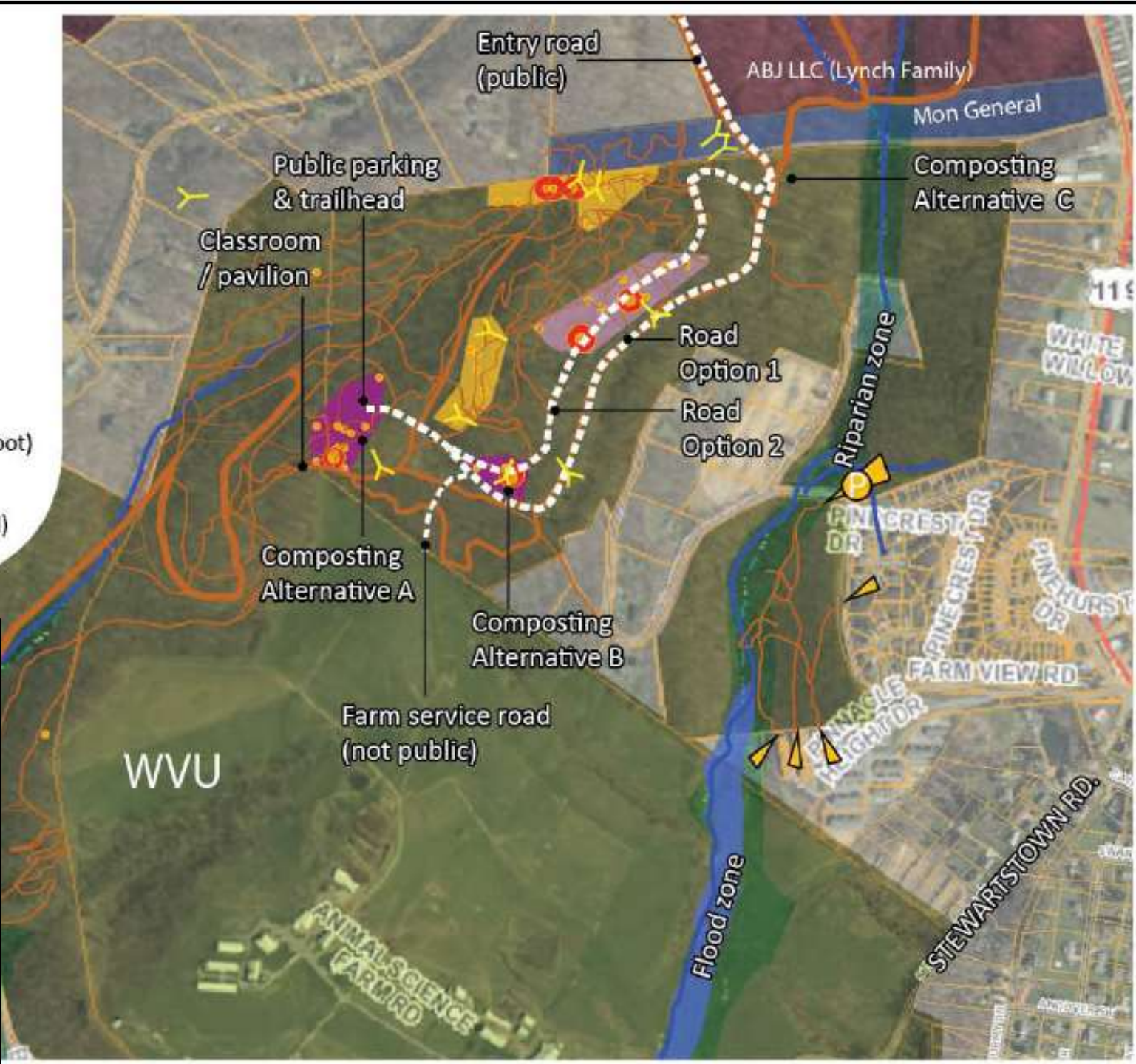
APPLICANT

Name	Agency	Telephone Number	E-mail address		
Coalfield Development Corporation		(304) 501-4755			
Street or P. O. Box	City	County	State	ZIP Code	
312 Hall Street	Wayne	Wayne	WV	25570	

CONTACT PERSON

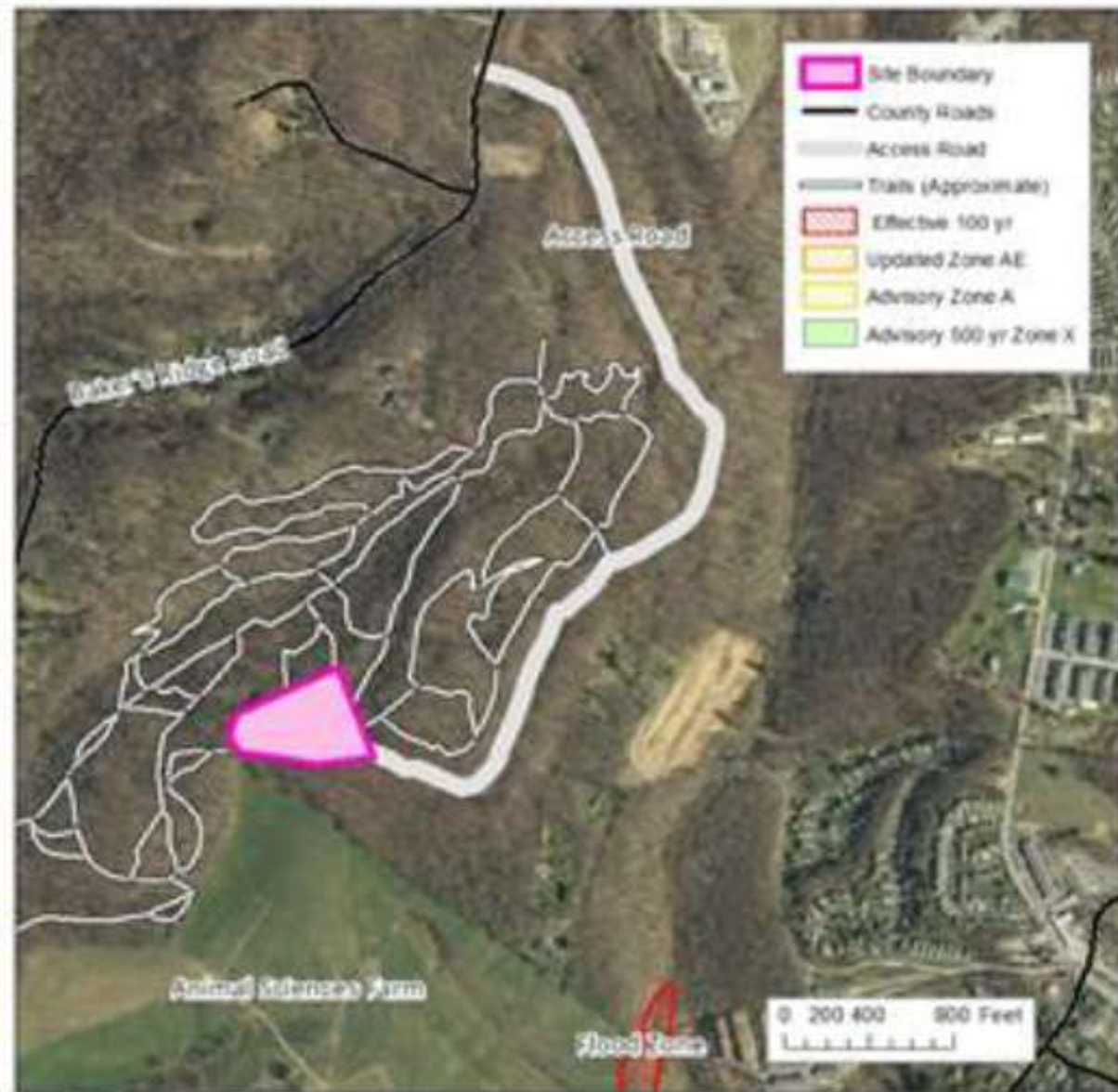
Name	Firm/Agency	Telephone Number	E-mail address	
Jacob Hannah	Coalfield Dev. Corp	(304) 614-8035	jhannah@coalfield-development.org	
Street or P. O. Box	City	County	State	ZIP Code

- potential mitigation area (3.7 ac)
- potential incidental mitigation (4.4 ac)
- potential restricted area (5.6 ac)
- FEMA flood zone
- riparian area
- water
- potential public entry road (1.0 mi)
- potential farm service road (600 ft)
- existing primary trail/road (>3 ft width)
- existing secondary trail (<3 ft width)
- existing access point (with parking/on foot)
- sinkhole (visible)
- conspicuous hazard (active sink / on trail)
- mine entrance (1956 USGS)



Plan:
Reclaim 5 acres
Compost Facility
Biking Trailhead
Educational Building

Requires reclamation, road, partners.



Reclamation – flat surface for development



Reclamation estimate

AML REMEDIATION

Estimate	Cost	Funding Source
Clearing and Grubbing: \$6,500.00 per acre.	\$29,250	AML Pilot
Drilling and Blasting: \$3.00 per Cubic yard.	\$288,000	AML Pilot
Earthwork: \$4.00 per Cubic yard.	\$456,000	AML Pilot
Seeding and Mulching: \$3,000.00 per acre.	\$13,500	AML Pilot
Standard Silt Fencing: \$4.00 per lineal foot.	\$7,328	AML Pilot
Mobilization and De-Mobilization: \$25,000.00	\$25,000	AML Pilot
Compaction Testing if required: \$.15 per Cubic Yard.	\$2,700	AML Pilot
If a Performance Bond is required add 1.5% to the Total.	\$12,327	AML Pilot
Other Erosion and Sediment control items that may develop are Rip Rap Ditches, Pond, etc. The onsite rock should be adequate for the ditches.	\$81,000	AML Pilot
Internal project management	\$7,000	WVU/in-kind
SUBTOTAL	\$922,105	

Reclaimed site – roads



Composting facility



Storage structures – digestion



Cost Estimate

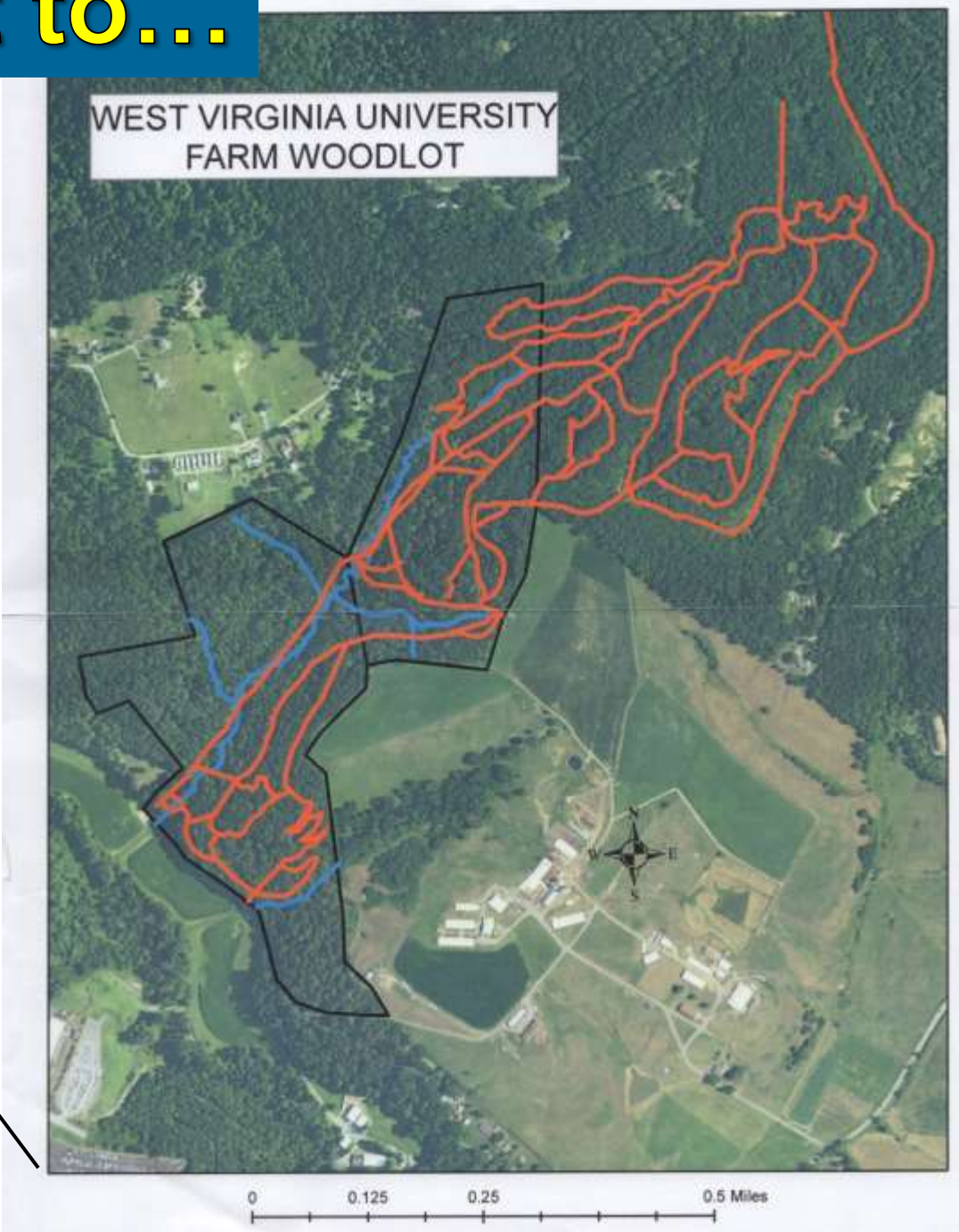
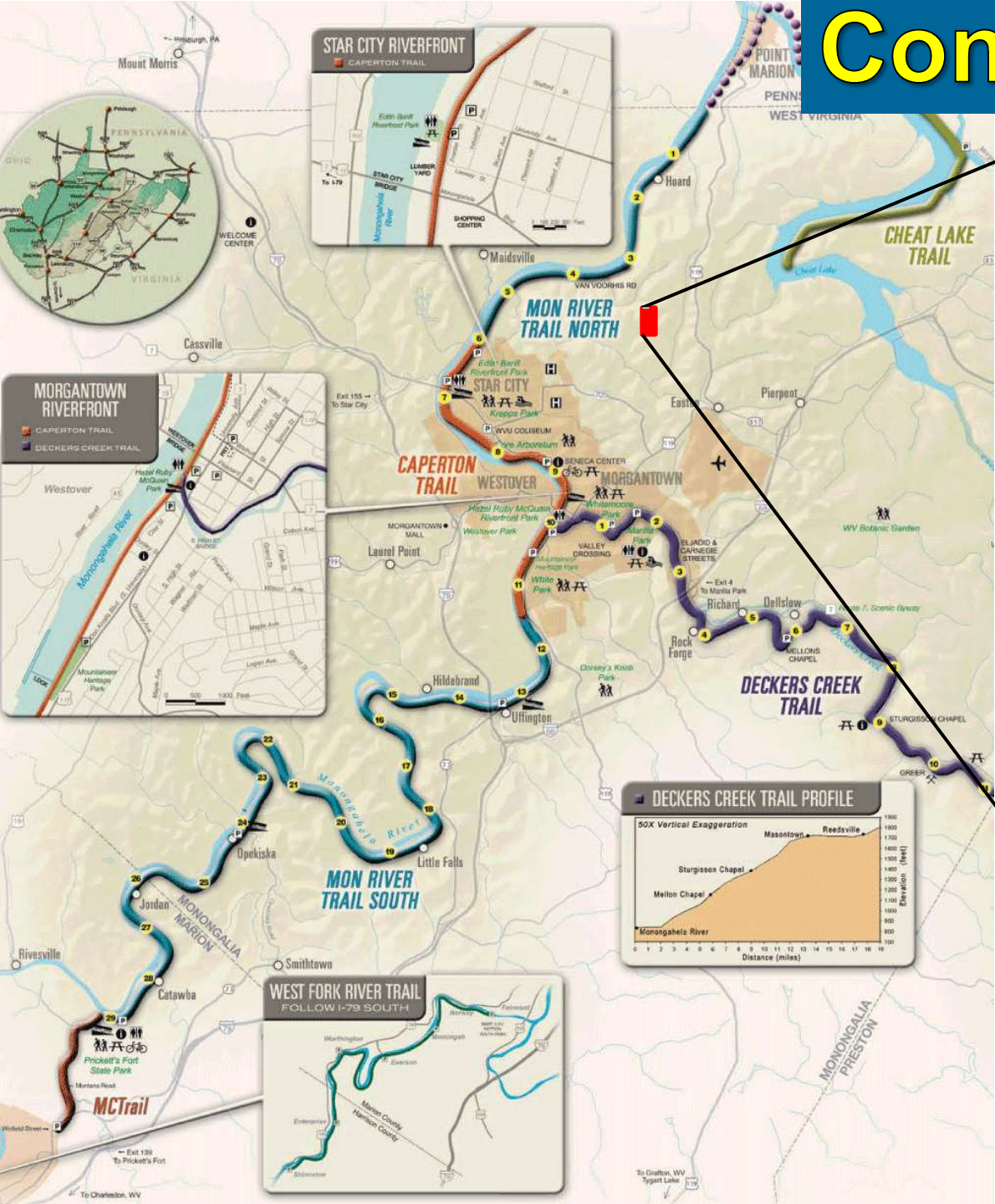
COMPOST FACILITY

Element	Cost	Funding Source
20,000 sq. ft Building with 6 inch insulated concrete with vapor barrier. Staging, Processing, Curing and Office Space; including design and project management	\$1,100,000	AML Pilot
2 Container Delivery Trucks with 3 Containers	\$250,000	AML Pilot
1 scale	\$50,000	AML Pilot
Industrial Grinder	\$100,000	AML Pilot
Vertical Auger Mixer	\$200,000	AML Pilot
Aeration Blowers	\$150,000	AML Pilot
Automatic Bagging and Sealing Line	\$15,000	AML Pilot
Front End Loader with Windrow Turner	\$150,000	AML Pilot
Screening Machine	\$250,000	AML Pilot
Programming	\$300,000	AML Pilot
Project Management (Build out and purchasing)	\$200,000	AML Pilot
Fuel	\$50,000	AML Pilot
Overhead for 3 Years	\$709,500	AML Pilot
SUBTOTAL	\$3,524,500	

Bike Trailhead and Trails



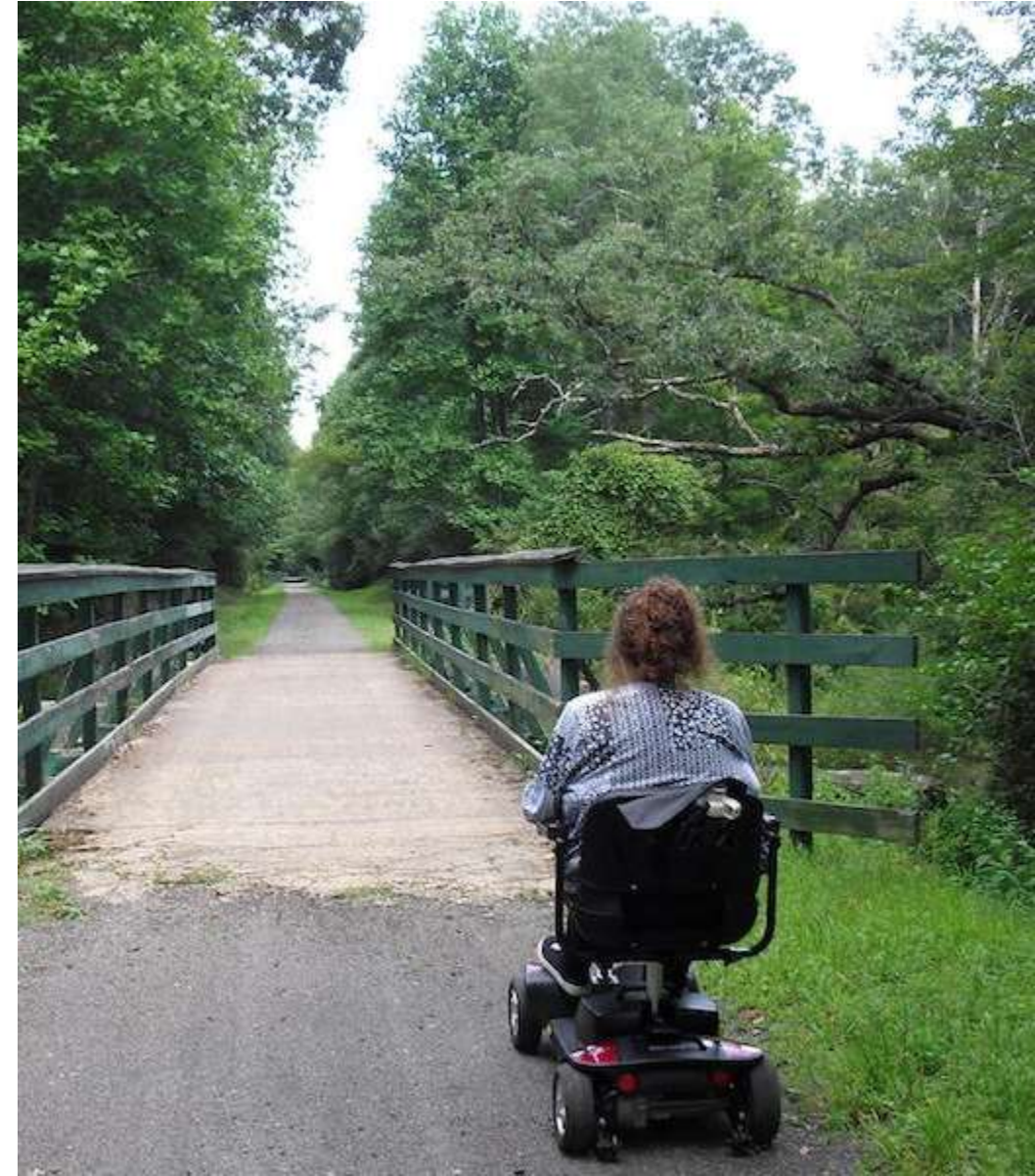
Connect to...



Wild sections – experienced riders



Accessible sections



Cost Estimate

TRAILHEAD + PARKING

Element	Cost	Funding Source	Notes
Design and engineering	\$45,000.00	AML Pilot	
Parking lot, 1.5 acres	\$141,783.00	AML Pilot	Van Voorhis precedent, engineering + construction, adjusted for inflation (since 2015) - parking lot, approach path.
Information Kiosk	\$2,078.00	AML Pilot	Van Voorhis precedent: http://www.hopewellmfg.com
Composting toilets (2)	\$18,679.00	AML Pilot	Van Voorhis precedent - Gunnison style vault toilets http://www.cxtinc.com
Bicycle repair stations (2)	\$3,600.00	AML Pilot	Van Voorhis precedent: \$1800 each with shipping. https://www.sarisinfrastructure.com/product/public-work-stand and https://www.sarisinfrastructure.com/product/outdoor-public-bike-pump-with-gauge shipping rough est based on bike repair
Trail work	\$300,000	WVU	cost estimate based on \$10/linear foot for 10 miles of trail; trails would be reworked/redesigned from the existing condition (10 miles on WVU property, connecting to 3 miles on Lynch, and 7.3 mi of
Trail planning	\$50,000	WVU/IMBA	grant + WVU match received in 2019
Internal project management	\$7,000	WVU, in-kind	
Final access road (0.5 mi, paved)	\$315,048.00	AML Pilot	
SUBTOTAL	\$897,114		

Outdoor Learning Facility



Cost Estimate

OUTDOOR CLASSROOM

Element	Cost	Funding Source	Notes
Pavillion(s)	\$60,000	AML Pilot	60' x 100' pavilion at \$10 / sq ft.
Cement Pad	\$24,000	AML Pilot	60' x 100' pad at \$4 / sq ft.
SUBTOTAL	\$84,000		

Cost Estimate

AML Reclamation	\$ 922,105
Compost Facility	\$3,524,500
Trails and Trailhead	\$ 897,144
Education Building	<u>\$ 84,000</u>

TOTAL BUDGET **\$5,427,719**

AML Reclamation

Animal Sci. Farm



Monongalia

Cheat Lake

Conclusions

Use these AML Lands for economic development.
Must remediate hazards!
Support from AMLER and local partners.



04/21/2016



TRAIL LOOP/ SKILLS LINE

SKILLS LINE

SKILLS PLAYGROUND

INSTRUCTIONAL PAVILLION

TRAIL LOOP/ SKILLS LINE

FUTURE PHASE BMX FREESTYLE PARK

PUMP PLAY GROUND

FUTURE STRAIGHT RYTHM COURSE

JUMP FLOW LINES

PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING
PARKING

RESTROOMS
PARKING
PARKING
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ACCESSIBLE PARKING

PARKING
PARKING
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PARKING
PARKING
PARKING

REGISTRATION

CONCESSION

RESTROOMS

BMX RACE TRACK
USA BMX SANCTIONED

CENTRAL PEDESTRIAN WALKWAY

EVENT AND AWARDS PAVILLION

SKILLS LINE

EXISTING FIELD TO REMAIN

NEW FIELD EVENT OVERFLOW SPACE

PUMP TRACK AND FUTURE DUEL PUMP TRACK

TRAIL LOOP/ SKILLS LINE

TRAIL LOOP/ SKILLS LINE