Crossing Pine Mountain
US119 – A Success Story

• Context
  – Project Needs: Upgrade a circa 1920s serpentine roadway to accommodate changing traffic demands and reduce traffic crashes, with community and stakeholder support, while preserving several environmentally sensitive areas.

  – Location: US119 in Southeastern Kentucky in rural Letcher County in the Appalachian foothills along the Pine Mountain Fault Line.

  – Size: 7.7 miles
  – Cost: $50,440,679

• Status: Complete – Open to Traffic

• Main CSS Elements:
  – The project satisfies the purpose and needs as agreed to by a full range of stakeholders.
  – The project is a safe facility for both the user and community.
  – The project is in harmony with the community and preserves environmental, scenic, aesthetic, historic, and natural resource values of the area.
  – The project exceeds the expectations of both KYTC and stakeholders and achieves a level of excellence in people’s minds.
  – The project involved the efficient and effective use of the resources of all parties.
  – The project was designed and built with minimal disruption to the community.
  – The project added a lasting value to the community.
Location of Project
CSS Approach

• This project was a CSS project in that it:
  – Involved a full range of stakeholders in a design-build process until completion.
  – Adapted to geological, environmental, and community needs when they were revealed as the project evolved.
  – Utilized innovative design principles to address traffic needs while minimizing disruption to surroundings.
  – Procured about 200 acres of land that was donated to environmental resource agencies.
  – Established a multidisciplinary team established before any design decisions were made.
  – Secured commitments from top agency officials (local, state, and federal) at the beginning of the project.
  – Fostered open, honest, continuous communication among all stakeholders.
  – Tailored the project development process to meet the circumstances.
Transportation Need

- US 119 over Pine Mountain divides Letcher County near the Harlan County and Virginia state lines. Included in the country’s Defense Highway Network, US 119 is a Kentucky Scenic Byway and part of the Appalachian Development Highway System of roads. Pine Mountain is an thrust-fault mountain, an unusual geologic configuration that contributed to unstable road conditions. Passenger vehicles join school buses, commercial trucks, and coal trucks as everyday users of the road. Most curves on the mountain were such that two vehicles could not pass each other safely. Thus, the mountain became the site of numerous crashes.

The project recommended by the Pine Mountain Task Force included spot improvements to widen curves, provide additional truck lanes, create a new entrance to Little Shepherd Trail, and repair several slope stability problems along the route.
Transportation Need

Following a logging truck up the mountain was a hair-raising, dangerous experience. Built in the 1920s, the roadway was not designed for today’s larger vehicles, such as RVs, coal trucks, horse trailers, and commercial delivery trucks. Vehicles over 30 feet long had to cross over the center line in order to negotiate nearly every curve.
Transportation Need
Transportation Need
Transportation Need
Overcoming Slope Stability Issues

Before

After
Transportation Need

Two wrecks show dangers of US 119
School bus driver killed

September 27, 1990

A school bus driver was killed in a two-vehicle accident on US 119 in Grayson County, Kentucky. The accident occurred just before 4 p.m. when a tractor-trailerremium truck, carrying a load of chicken, is plugged into traffic. The school bus driver died from injuries sustained in the collision. The school bus, carrying 25 students, was heading northbound on US 119 when it collided with the chicken-laden tractor-trailer. The impact was so forceful that it tore the school bus apart, killing the driver instantly.

Bus driver dies in wreck

Continued from Page 11

The accident occurred just after 4 p.m. The school bus was traveling northbound on US 119 when it collided with a chicken-laden tractor-trailer. The impact was so forceful that it tore the school bus apart, killing the driver instantly. The school bus was carrying 25 students at the time of the accident, and several of them were injured. The accident occurred just before 4 p.m., and the chicken-laden tractor-trailer was heading southbound on US 119. The accident caused traffic to come to a standstill for several hours, and emergency personnel worked hard to clear the scene and treat the injured students. The accident brought attention to the need for better roadside safety measures to prevent such incidents in the future.
Compatibility with Natural Environment

• Environmental Needs:
  – Protection of the Presley House Branch watershed, the location of Bad Branch State Nature Preserve. Protection of the state Wildlife Management area. Protection of streams from erosion resulting from the work in and along the unstable, shifting fault region. Protection of tourism assets such as Kingdom Come State Park, Little Shepherd Trail, and Pine Mountain Trail State Park.

• Major Issues:
  – Preserve Presley House Branch watershed.
  – Provide more scenic view sites.
  – Protect the Bad Branch Nature Preserve
  – Minimize disruption to the bedding planes along the fault line.
  – Preserve and protect the habitats of some 93 species of rare plants and animals.

• Resolution Methodologies
  – Restore approximately 3,000 linear feet of stream.
  – Create a 1.8-acre scenic overlook to be donated to the Department of Parks.
  – Utilize native stone for gateway sign at the Little Shepherd Trail entrance.
  – Purchase approximately 200+/- acres to donate to the Department of Parks, Nature Preserve, and Department of Fish and Wildlife.
Natural Environment Concerns

Above, left, corydalis, one of 93 species of rare plants and animals found on Pine Mountain. Above right, Bad Branch Falls in the Presley House Branch watershed, said by the Division of Water to be the most pristine water in the Commonwealth. Bottom photo: Black Side Dace, a federally endangered species, found in the streams on Pine Mountain.
Natural Environment Concerns

AASHTO/FHWA Peer Exchange: Context Sensitive Solutions

Baltimore, MD

Sept. 6-8, 2006
Compatibility with Human Environment

• Community Needs
  – Provide a safer journey across Pine Mountain.
  – Protect the scenic, cultural, and environmental assets of Pine Mountain.

• Major Issues
  – Trust in the highway delivery process had been destroyed through years of inaction on the part of KYTC.

• Resolution Methodologies
  – Established a Pine Mountain Task Force comprised of community leaders, lay leaders, elected officials, resource agency officials.
  – Involved the task force at the beginning of the process to establish a scope along with a purpose and need for the project.
  – Kept the task force involved throughout the process.
The Public Trust before CSS

WARNING
NEXT SEVEN MILES
UNSAFE AT ANY SPEED
PINE MOUNTAIN SAFETY COMMITTEE
Establishing Trust and Involving the Stakeholders

December 8, 1998

The Mountain Eagle.
The way we were

December 12, 1968

The Kentucky Department of Transportation was giving serious consideration to tunneling through Pine Mountain with the new route of US 119. Core drilling had been in progress for several months in the area considered the most likely for the tunnel — starting at the head of Big Cowan and continuing for about a mile and a quarter. The cost was estimated at $28 million.
Opinions sought on U.S. 119 proposals

State presents 3 plans for Pine Mountain road

By Lee Musler
EASTERN KENTUCKY BUREAU

PICKETVILLE — After 30 years of trying to chart a better route for U.S. 119 across, or through, Pine Mountain in Letcher County, the state Transportation Cabinet yesterday floated three proposals for public comment:

1. For $50 million, reconstruct the existing serpentine road across one of Eastern Kentucky’s highest mountains into a safer 7.7-mile route, including a full-length passing lane.

2. For $100 million, build an entirely new 6.7-mile route, with passing lane, across the mountain near the existing road.

3. For $175 million, reroute the highway into a tunnel through the mountain. The 9,272-foot tunnel would be part of a 4.2-mile road connecting Whitesburg and Harlan County.

Highway officials yesterday listed advantages and disadvantages for each proposal at a news conference in Pikeville. But they stressed that none has been funded or included in the state’s six-year road plan.

“The current road across the mountain is mostly a 7-mile coil of two-lane blacktop that residents claim is both dangerous and slow,” said a Letcher County state legislator recently called the most dangerous section of road in Kentucky.

Dwayne Beshear, a Lexington engineer, said yesterday that at least five studies since 1968 have suggested an alternative route across Pine Mountain, including two tunnels.

Ultimately, officials abandoned the projects for a variety of reasons, he said, including costs, construction obstacles created by the unique, internal rock structure of the mountain and the environmental impact on the area, which includes two protected nature areas.

“Every study that’s been done in the last 30 years has come back with the same type of alternatives every time,” he said.

Rebuilding the existing road would be at least 50 percent cheaper, and minimize environmental impacts while a passing lane would make travel safer and faster, Beshear said. With this option, however, the roadway would still have many of the same curves and steep slopes. Construction would cause many delays, he said.

Building a new road across the mountain near the existing U.S. 119 would create a safer road, he said, but the new road would still have many curves. Nearly a mile of roadway would have to be constructed inside a nature preserve. Environmental and funding issues could take years to resolve and stall the project, he said.

The tunnel would avoid making cuts in Pine Mountain and not affect the nature preserve property, Beshear said. The project could be broken into six different contracts, making funding easier to obtain, he said, while traffic flow on the mountain would not be interrupted.

The tunnel’s proposed cost does not include about $2.5 million a year the state would pay to operate and maintain it, Beshear said.

State Transportation Cabinet spokeswoman Terri Gilmer said public meetings will be conducted to discuss which of the alternatives for crossing the mountain are most desirable and beneficial to communities along U.S. 119.

The agency also is forming a Pine Mountain Task Force that will include at least 10 residents affected by any decision, she said.

State highway officials also said yesterday they have taken steps to improve safety on the existing road over the mountain.

Darnon said new message signs on either side of the mountain have been installed; state Motor Vehicle Enforcement officers are escorting school buses across it, morning and evening; special permits that allowed overloaded trucks to cross the mountain have been stopped, and funding has been requested to improve “particularly bad sections of the road.”
Project Vision

- Design and build a safe, reliable, cost-effective roadway that ensures the efficient mobility of people and goods, minimizes adverse effects to the natural environment, and enhances the overall quality of life and economic vitality of the region.
Stakeholder Involvement

This was a community-driven project. The pivotal meeting that started the ball rolling was called by a community-formed safety committee. The project task force – with KYTC as the lead agency - was an outgrowth of this safety committee. Although the number of people on the task force was limited in order to have a manageable entity, all meetings were open to the public and public comments were encouraged.
Empowering the task force was essential if the community’s hostility and cynicism were to be conquered.

The first significant recommendation made by the task force was that KYTC impose a ban on all vehicles over 30 feet long. The task force was formed in January 2001. The ban was approved by the Cabinet in March 2001. This event established the Cabinet’s credibility with the task force. It also was an important bonding experience for task force members, many of whom came to the table skeptical of each other.
Task Force Resolution

What engineers had not been able to do in 40-some years, the task force accomplished after just seven months of intense study and debate. In a formal, signed recommendation to the Cabinet, the task force asked for:

- A series of spot improvements to the current roadway, and
- A tunnel through the mountain as a long-term solution to improve safety while protecting and preserving the mountain and its inhabitants.
Task Force Groundbreaking
Lesson Worth Sharing

Never underestimate the power and creativity of an involved public whose trust is gained through conscious effort and care.

Gayle Lawson – Retired Educator and Pine Mountain Task Force Member

Task Force Member agreed to take possession of this former road house and move it to improve a dangerous curve situation.
Transportation Success

• How was the project successful in meeting transportation needs?

  – Improved pavement widths along route for oncoming vehicles to pass at several horizontal curve locations.
  – Provided ample passing opportunities.
  – Improved safety to reduce crashes, with particular attention to those involving vehicles more than 30 feet long. The first year after project completion saw a crash reduction of 55% overall and a 94% decrease in truck crashes.
  – Provided a safer connection between northeastern Kentucky and southeastern Kentucky.
Transportation Success

- Used methods to determine the area needed for vehicles to pass and minimizing disruption to the surroundings
Transportation Success

Before

After
Transportation Success

Before

After
Facility as a Community Asset

- Importance of Facility to Community
  - Regional
    - Provides a safer connection of US 119 from the Virginia and Tennessee borders to the Commonwealth of Kentucky
    - Enhances the mobility of goods and services from the southeastern United States to the Midwest
    - Improves the tourism assets of the Eastern Kentucky Region
  - Local
    - Improves the connection of Cumberland and Whitesburg communities.
    - Opens Little Shepherd Trail to tourism.
    - Enhances the local quality of life by protecting this awesome natural resource – the mountain, its plant and animal life, and its impact on the region’s cultural heritage.
Facility as a Community Asset

Created an Overlook and New Entrance to Little Shepherd Trail
Facility as a Community Asset

Created a Destination for the Pine Mountain Trail State Park
Accomplishments & Shortcomings

Accomplishments:

– Established public trust and partnership.
– Empowered the community through the task force to make all the critical decisions about the project.
– Established a progressive method of addressing complex transportation issues while embracing the surrounding environmental challenges.
– Protected and preserved the environmental treasures on the mountain crossing.
– Provided scenic overlooks and pull-offs along the route.
– Added to the property owned by the Kentucky State Nature Preserves Commission.

Shortcomings:
– None identified.
Other

• Significant Atypical Project Specific Issues
  – Pine Mountain Thrust Fault Bedding Plane provided geotechnical issues throughout the project.
  – Absolute ban of fill material in the Presley House Branch watershed.
  – Mountain was home to 97 species of rare plants and animals, including some endangered and some protected by international treaty as well as an endemic cave beetle and an endemic isopod.
  – Acquisition of property for use by other resource agencies/stakeholders.
CSS Bottom Line

- How were our actions different?
  - Provided continuous involvement of all stakeholders from the planning stages to final celebration of accomplishments.
  - Acted as an agent for other resource agencies to protect their concerns.
- How was our attitude different?
  - Embraced all stakeholders as equal partners in the process.
- How was our decision-making different?
  - No decision was made by the lead agency without task force agreement.
- How did our customers respond as partners? Was there buy-in from all?
  - Our customers were unsure and angry at first but came to trust the process and each other and believe the sincerity of KYTC’s commitment.
  - The community has overwhelmingly expressed satisfaction with the project and pointed out that it far exceeds their expectations.
CSS WORKS!
Celebrate Pine Mountain
Contact Information

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