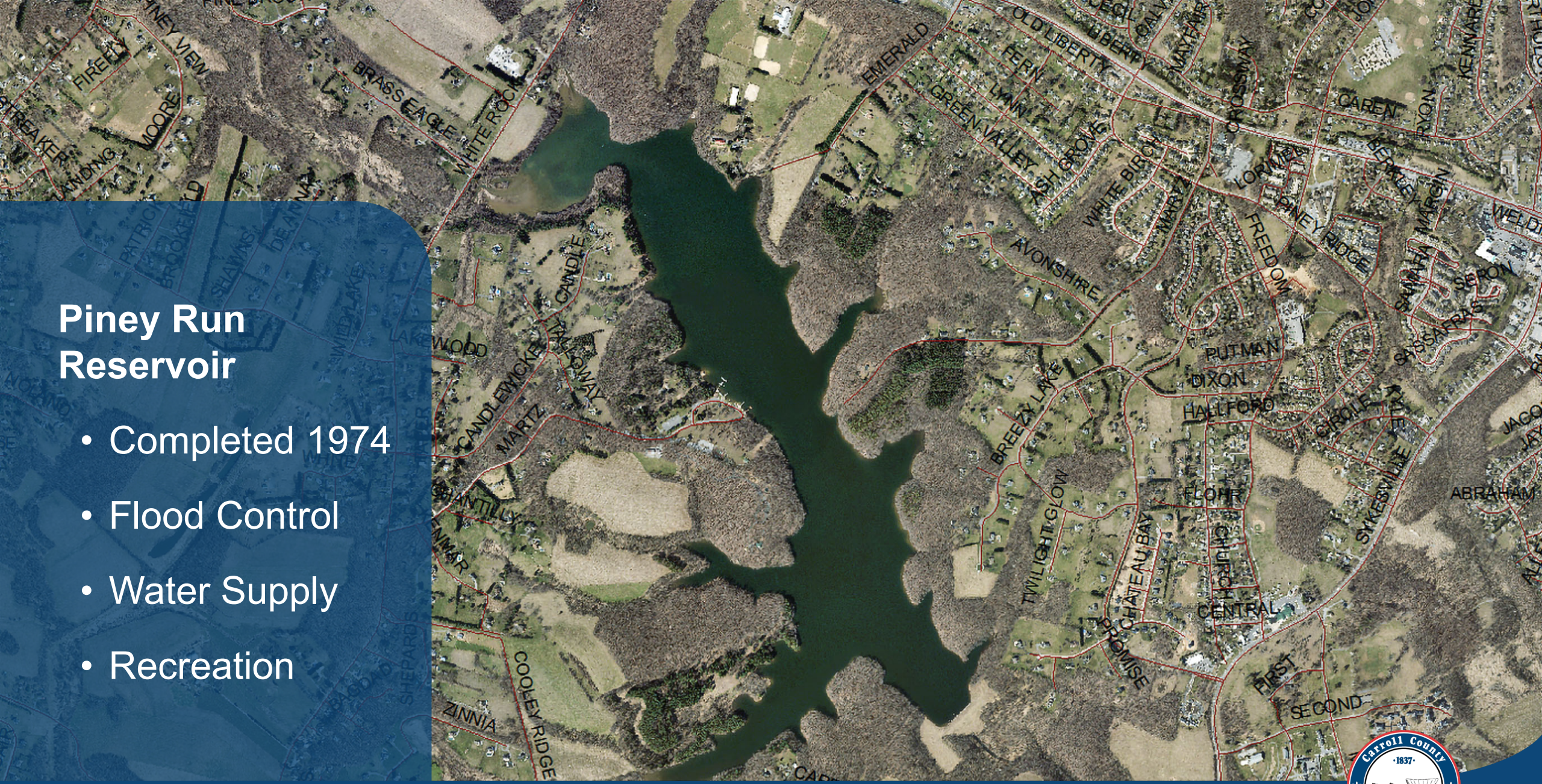
Piney Run Reservoir

Board of County Commissioners Briefing

February 25, 2021



Piney Run Reservoir

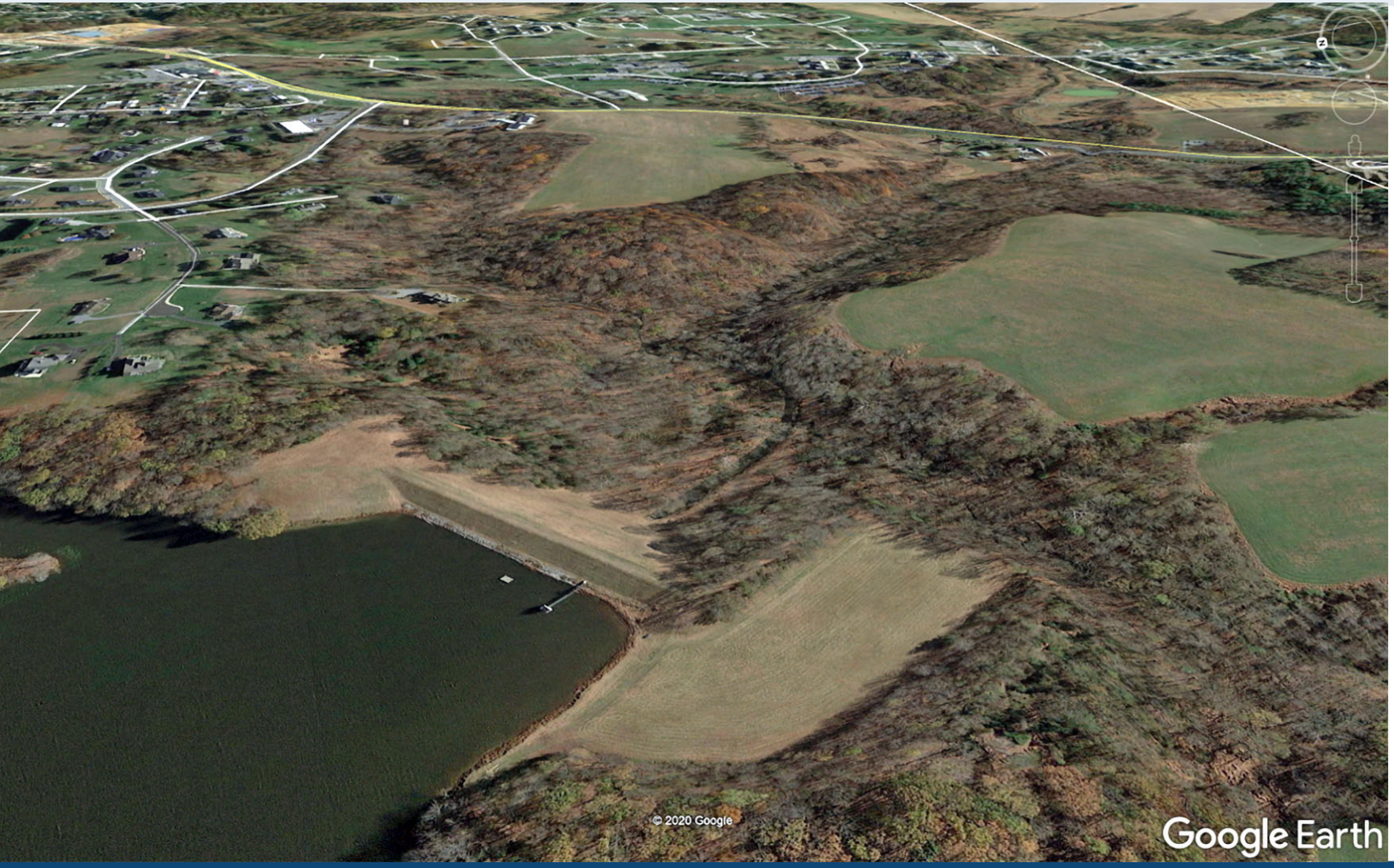
- Completed 1974
- Flood Control
- Water Supply
- Recreation

Piney Run Dam

- 73 feet tall, 600 feet long
- Reservoir:
  - 290 acres
  - 54-foot maximum normal depth
  - 1.7B gallon maximum normal capacity

Piney Run Dam

Piney Run Dam



- Classified as “High Hazard”
- High standards for operation and maintenance
- Must safely pass most severe storm predictable

Operation and Maintenance

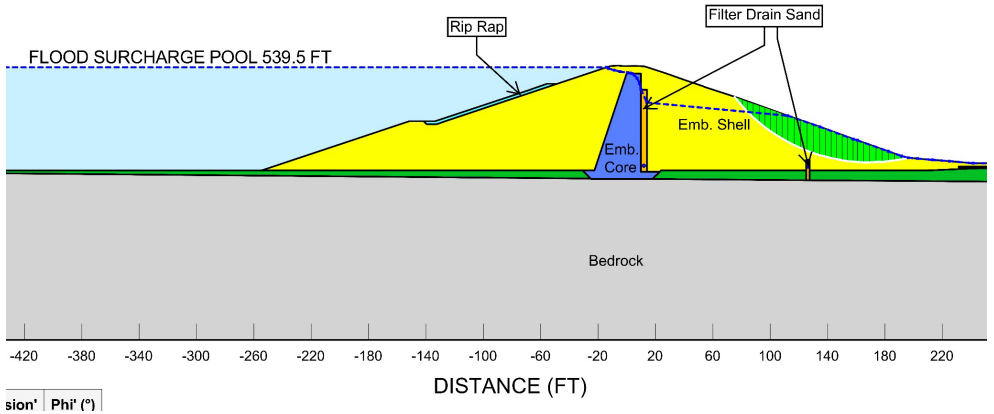
- Inspected annually by County, State (MDE), and Natural Resources Conservation Service (NRCS) engineers
- Last inspection: November 12, 2020
- Good condition, well-maintained
- No findings that raise safety concerns

Inspection of principal spillway riser

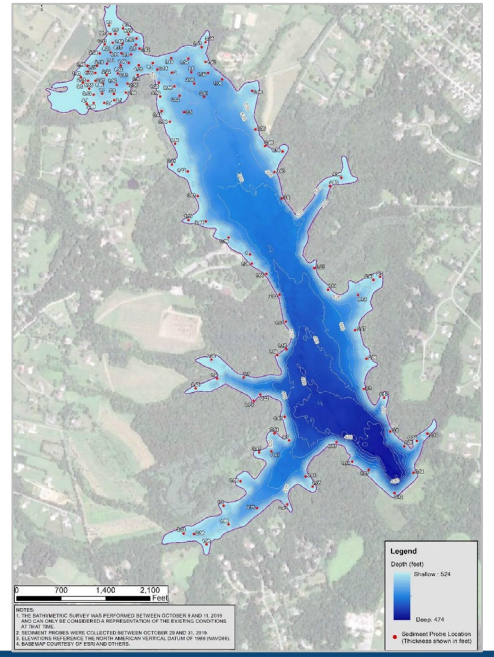
MDE Compliance

- Safely pass design storm
  - Auxiliary Spillway capacity
  - Erodibility of Auxiliary Spillway
- MDE requires analysis and mitigation by 2027
- AECOM hired to perform analysis with NRCS grant

NRCS-Funded Watershed Study

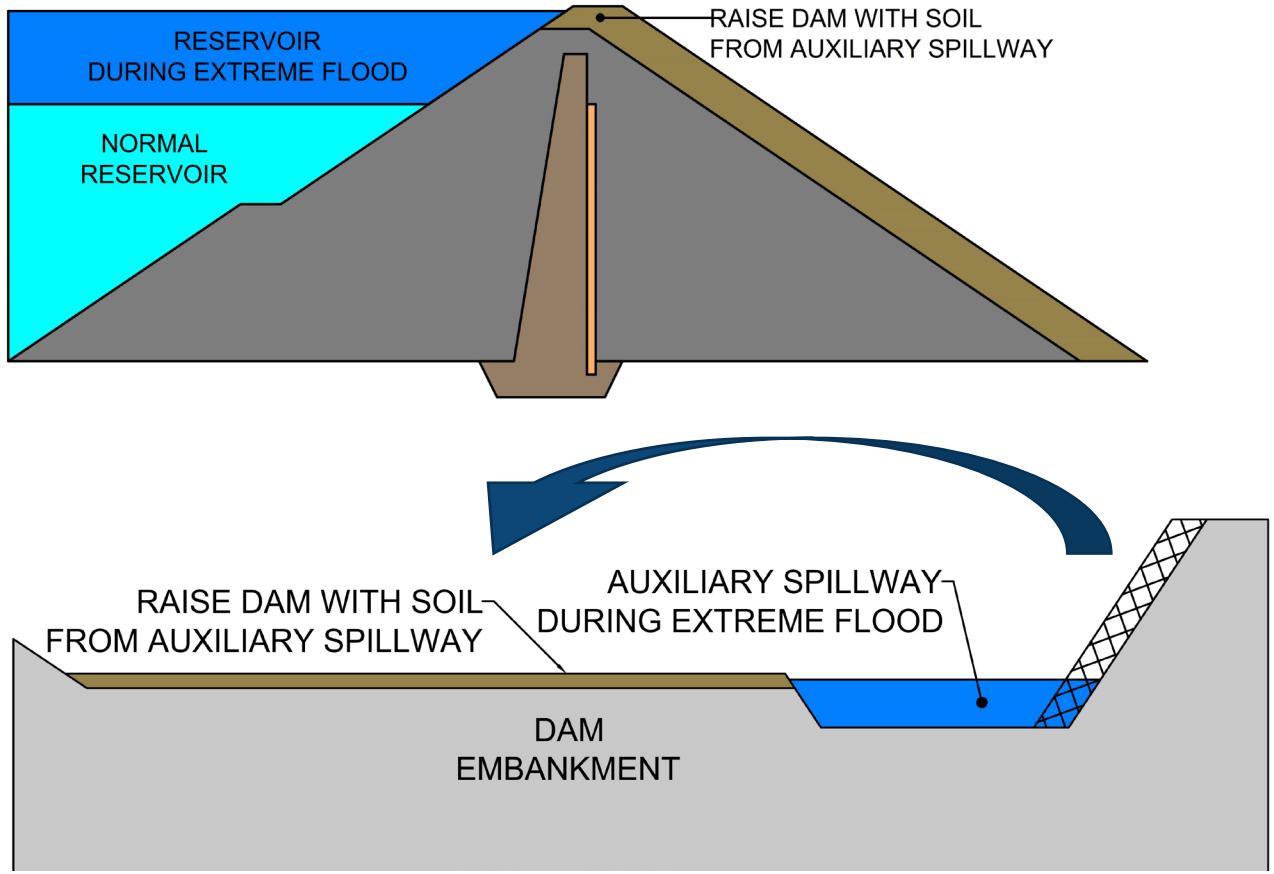


- Inspections
- Hydrologic/Hydraulic Analysis
- Geotechnical Analysis
- Sedimentation Analysis
- Environmental, Cultural, and Archeological Surveys



Auxiliary Spillway Capacity

- Design storm: Probable Maximum Flood
- 39 inches of rain in 72 hours
- 2.7 times greater than Hurricane Eloise (1975)
- Must be safely passed through auxiliary spillway
- Solution: Spillway widening and embankment crest raise



Auxiliary Spillway Erodibility

Black Creek Site 53 (MS) failure from spillway erosion in 1983 (courtesy: NRCS)

- Forces on the spillway are potentially enough to erode the weathered rock
- Erosion of the spillway could lead to a failure

SOLUTION:
Concrete armoring of downstream end of spillway

MDE Compliance Requirement

2027 deadline to:

- ✓ Raise dam and widen spillway
- ✓ Armor downstream end of auxiliary spillway with concrete

- Estimated costs: $7.5M in design, permitting, and construction
- Potential NRCS Grant for 100% of design, 65% of construction
- Potential $5M NRCS Grant

Path to Future Water Supply Security

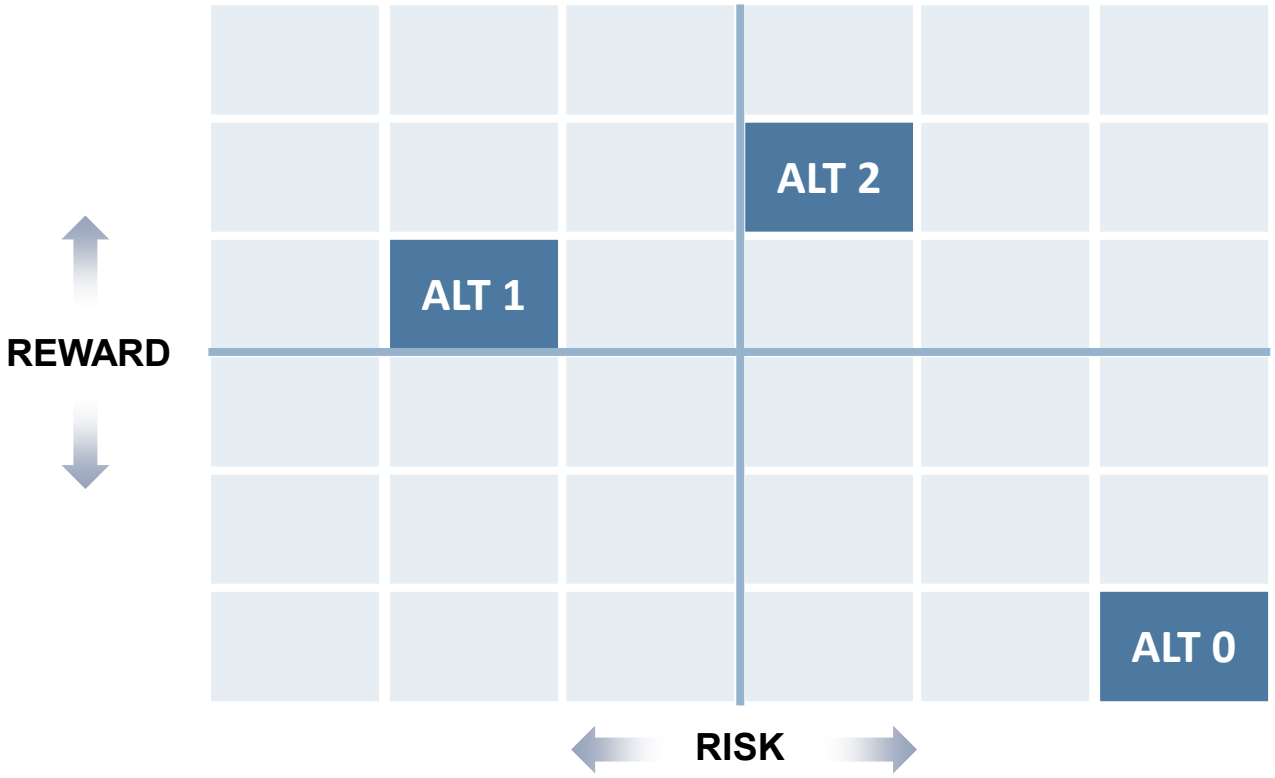
- **Address accumulated sediment:**
  - Volume of water for water supply
  - Surface area for recreation
- **Remove sediment:** Cost-prohibitive
- **Raise normal pool elevation** by 2.3 feet
  - Concrete weir structure across spillway
  - Reinforce riser structure
  - Modify recreational area
  - Potential draining of reservoir for construction

Projected normal pool surface after 2.3-foot raise.

Path to Future Water Supply Security

- Additional $8M in design, permitting, and construction costs
- Potential NRCS funding of 65% of $15.5M cost ($10M)
- Additional $5.5M in County investment (not reimbursable by NRCS)
  - Pump station and piping
  - Recreational infrastructure modifications
- Total $21M Capital Project with potential of $10M in NRCS grant funding

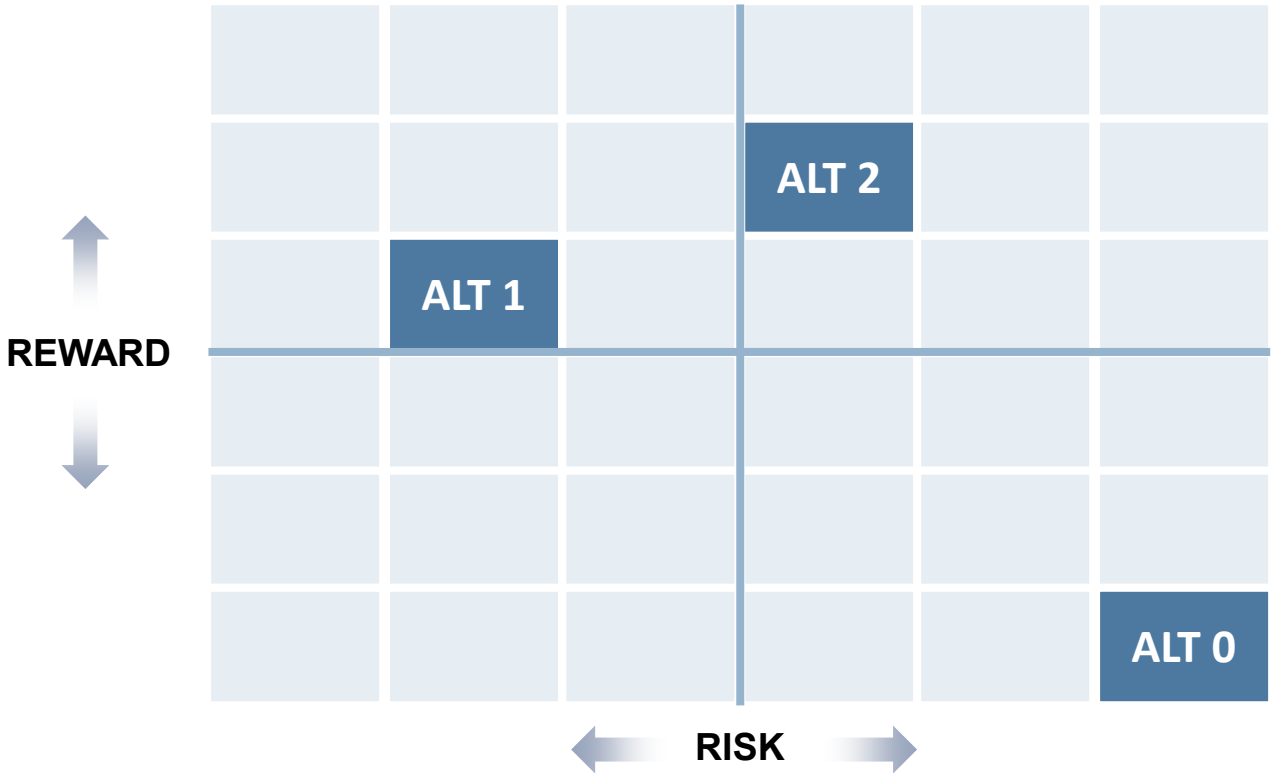
Alternatives



Alternative 0: Non-Compliance
Estimated Budget: $0

REWARD	Reduced early investment of capital and resources by the County
	• MDE can perform the work anyway and charge the County. • If MDE performs the work, the County does not control the costs. • No potential for cost share with NRCS. • Compliance will be achieved, but not at County direction. MDE may also remove the dam. • Compliance is replated to public safety. There is a liability if the County takes no action. • Severely damaged relationship with MDE.

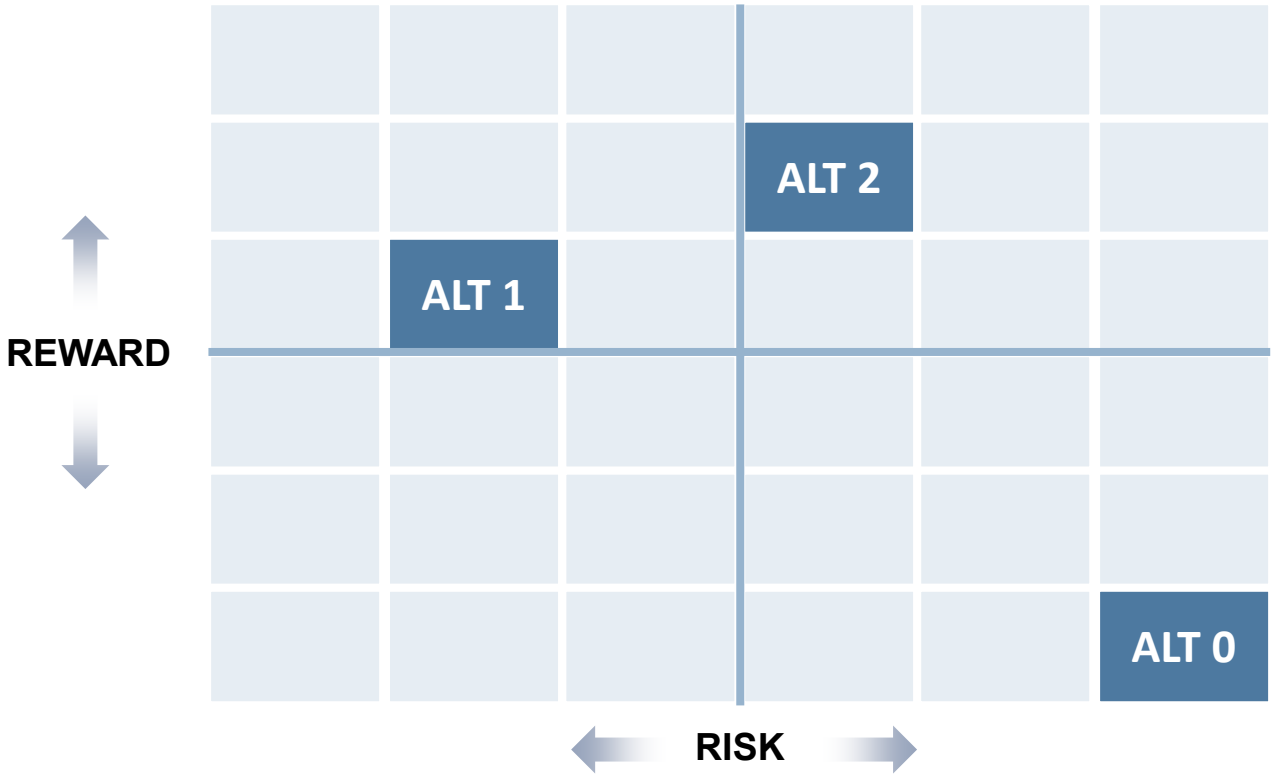
Alternatives



Alternative 1: Compliance Only
Estimated Budget: $7.5M

REWARD	• Lower County investment • Address MDE compliance issues related to public safety • Does not preclude future water supply use • Potential for NRCS cost share • Minimal impact to reservoir during construction
RISK	• No potential for NRCS cost share of water supply work

Alternatives



Alternative 2: Compliance and Water Supply Preparation
Estimated Budget: $15.5M to $21M

REWARD	• Potential for NRCS cost share • Address MDE compliance issues related to public safety • Reservoir is prepared for future water supply implementation • Moves the County down the path of water supply security
RISK	• Higher County investment • May require full draining of the reservoir for construction • Potential loss of park revenue during construction • Full implementation of water supply requires additional investment beyond $21M.

Next Steps

FEBRUARY 25
Commissioner Briefing

MARCH 11
Public Meeting
(2 sessions)

MID-MARCH
Request Commissioner Public Hearing

EARLY APRIL
Commissioner decision on alternative

SEPTEMBER
Watershed Study complete with NRCS

DECEMBER
Apply to NRCS Grant for design funding