



Public Meeting
Cherrystone Creek Watershed
Dams #1 and #2A

Dam Rehabilitation Program

by

Wade Biddix
Watershed Program Specialist

Tonight's Objectives

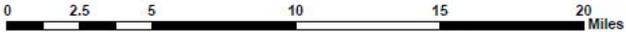
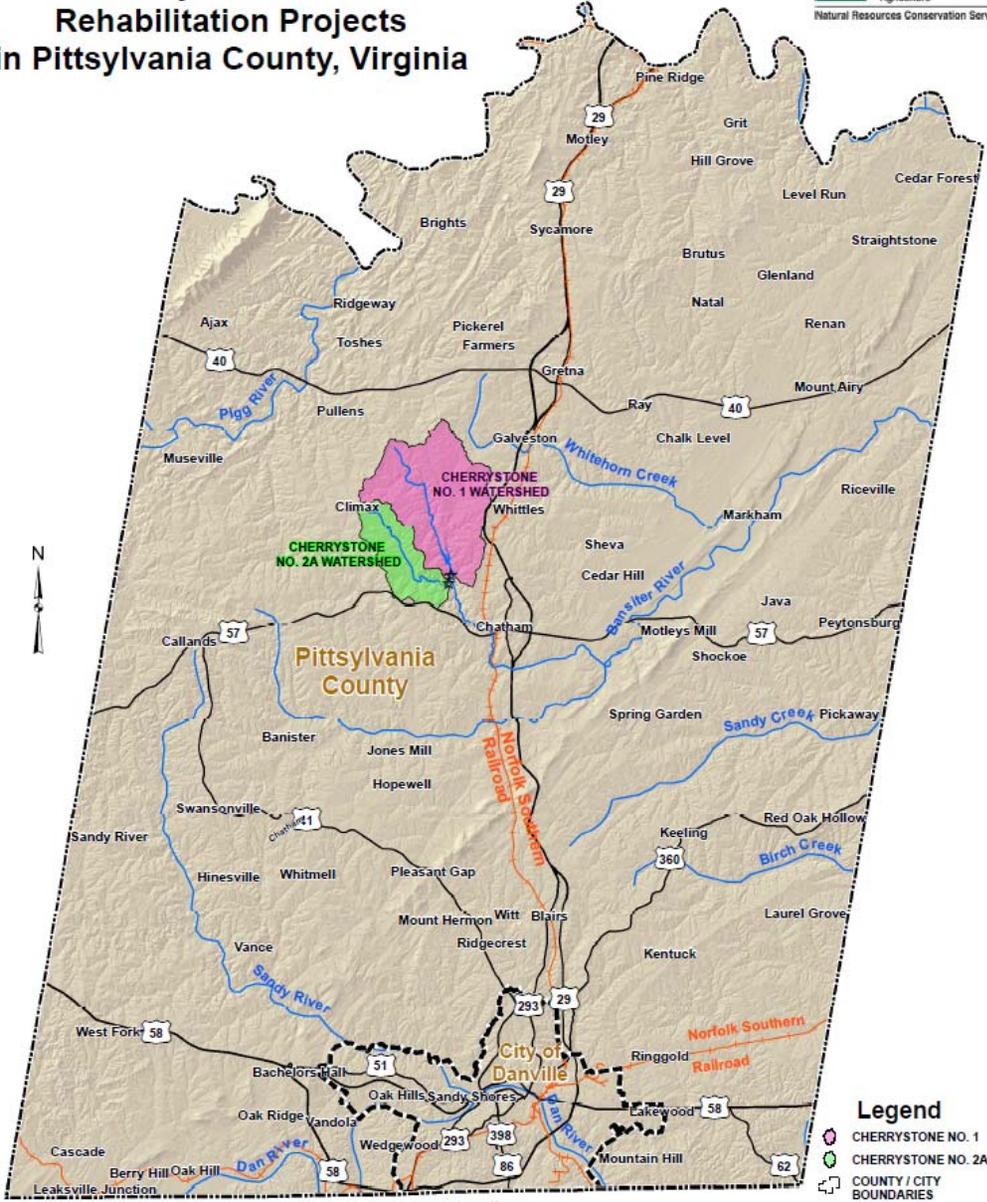
- Review Information About the Cherrystone Creek Dams
 - Site 1 – Cherrystone Lake
 - Site 2A – Roaring Fork Lake
- Discuss Planning Activities to Date
- Discuss New Rehabilitation Alternatives, the Recommended Alternative and Costs
- Review Planning Schedules
- Solicit Questions and Comments

Local Sponsors

- Town of Chatham (Owner / Lead Sponsor)
- Pittsylvania County Board of Supervisors
- Pittsylvania Soil and Water Conservation District

Cherrystone Dam Rehabilitation Projects in Pittsylvania County, Virginia

USDA United States Department of Agriculture
Natural Resources Conservation Service



- Legend**
- CHERRYSTONE NO. 1
 - CHERRYSTONE NO. 2A
 - COUNTY / CITY BOUNDARIES
 - VDOT PRIMARIES
 - MAJOR STREAMS
 - MAJOR RAIL ROADS



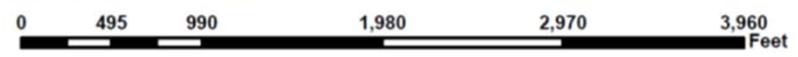
Cherrystone Lake

Roaring Fork Lake

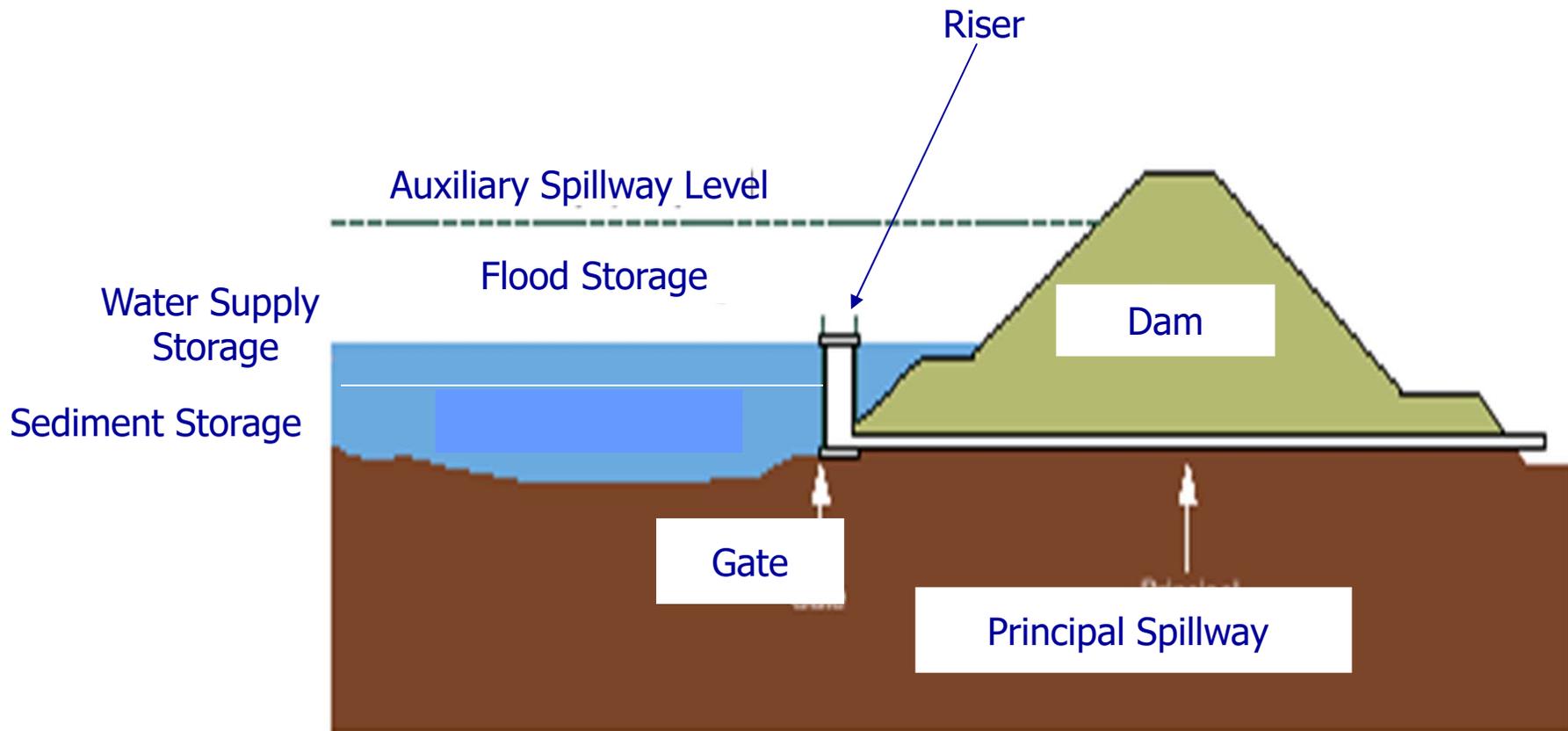
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Cherrystone 1 and 2A
Cherrystone & Roaring Fork Lakes



Typical Dam with Water Supply

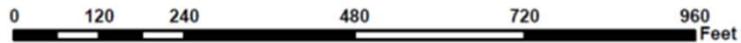




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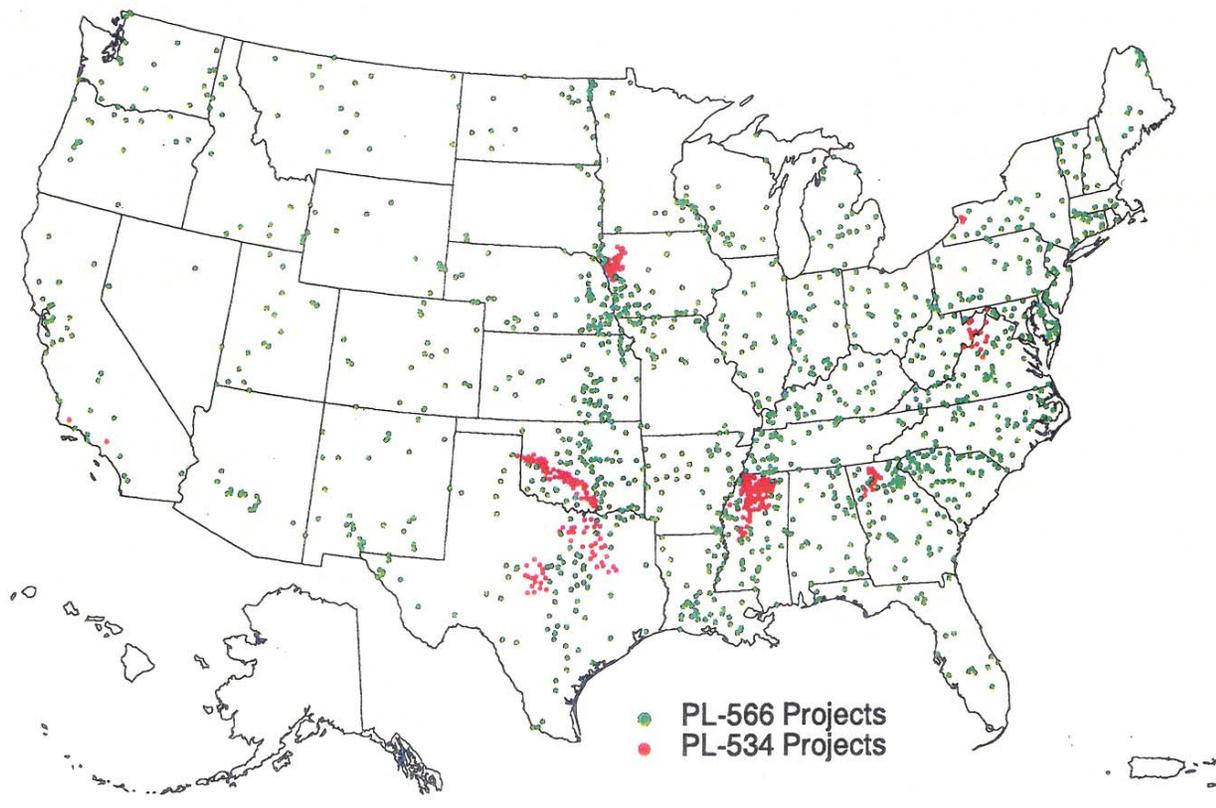


Cherrystone 1 Dam Area



Small Watershed Program

Watershed Project Locations



NRCS has assisted communities build more than 11,000 dams since 1948.

Dam Rehabilitation Legislation

“The Small Watershed
Rehabilitation Amendments”
(Public Law 106 - 472; Sec. 313)

Enacted November 9, 2000

Reasons for Rehabilitation of Dams

- The Hazard Class for each dam was changed by the VA Dept. of Conservation and Recreation, Division of Dam Safety and Floodplain Management.
- The Town of Chatham received a *Conditional Operation and Maintenance Certificate* for each dam.
- The Sponsors are responsible for bringing the dams into compliance with requirements for a high hazard dam or removing the dams.

Site 1 - Cherrystone Lake Statistics

- Built in 1968
- Drainage area = 9,410 acres
- Normal pool surface area = 103 acres
- Floodwater surface area = 250 acres
- Length = 780 feet
- Height = 55 feet

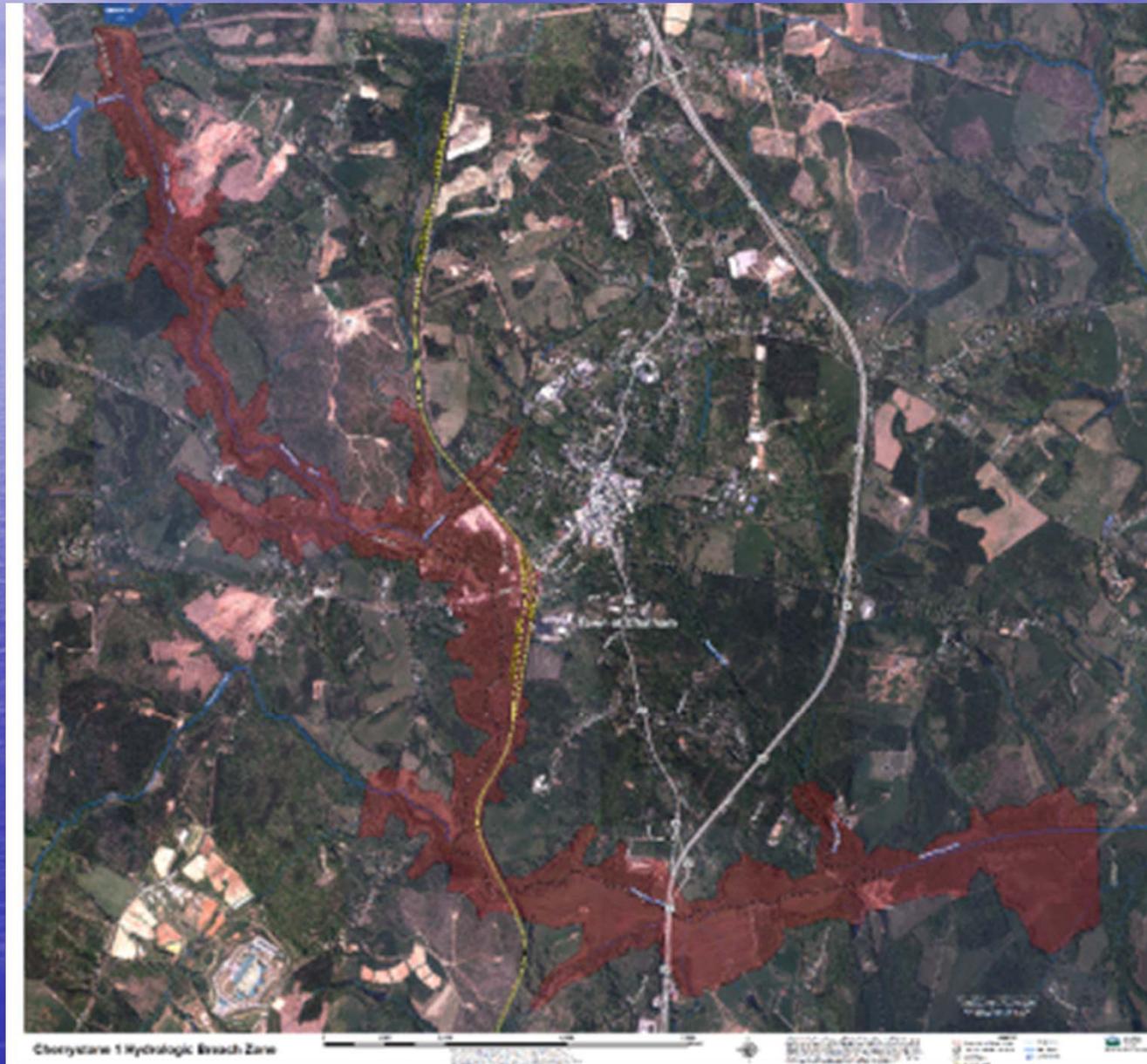




ATTENTION
No swimming, fishing,
boating, or other water
activities are allowed on
this lake. No dogs or
other animals are
allowed on the
property.



Cherrystone Lake Breach Zone



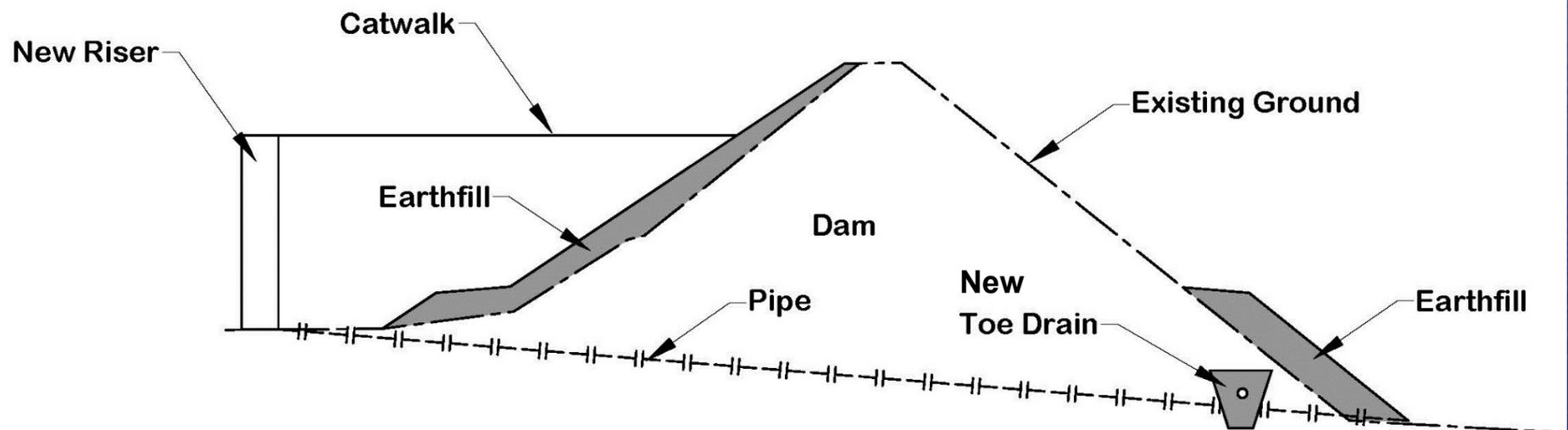
Impacts from Breach – Site 1

- Homes - 8
- Water Treatment Plant - 1
- Businesses - 4
- Industrial Bldg. - 1
- Commercial Bldg. – 1
- Barn - 1
- Roads – 6 (Routes 57, 694, 703, 793, 802, and 1428)

Findings

- The dam has been well maintained.
- Key Issues
 - No significant environmental resources found
 - The upstream and downstream slopes of the embankment do not meet current stability criteria and the top width is too narrow
 - The riser footer does not meet seismic criteria
 - The corrugated metal toe drains are corroded
 - The culvert at Hodnetts Mill Road is too high
 - The auxiliary spillway does not meet criteria for capacity or integrity

Proposed solution for embankment issues





Auxiliary Spillway for Cherrystone Lake



Alternatives Considered but Eliminated From Detailed Study

- Decommission the Dam (Remove it)
 - Too expensive
 - Unacceptable to Local Sponsors
- Non-structural – Elevate, Relocate or Floodproof all the Downstream Properties
 - Doesn't address the dam deficiencies and doesn't eliminate the threat of loss of life with dam failure

Originally Proposed Cut-off Wall in Existing Spillway Won't Work

- At the public meeting last February, we proposed a roller-compacted concrete cut-off wall in the existing ASW.
- Upon further detailed engineering analyses, we found the soils in the ASW were not suitable for a cut-off wall.
- This alternative was eliminated altogether.

Labyrinth Weir Over Dam



Roller-Compacted Concrete (RCC) Chute Over the Top of Dam for Auxiliary Spillway



Cherrystone Lake Alternative Costs

| | Construction Cost | Total Cost |
|--------------------------------------|---------------------|---------------------|
| RCC Chute over the top of dam | \$11,142,200 | \$12,968,300 |
| Labyrinth weir over top of dam | \$12,794,000 | \$14,727,000 |



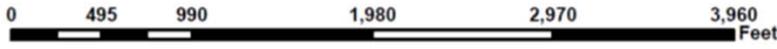
Cherrystone Lake

Roaring Fork Lake

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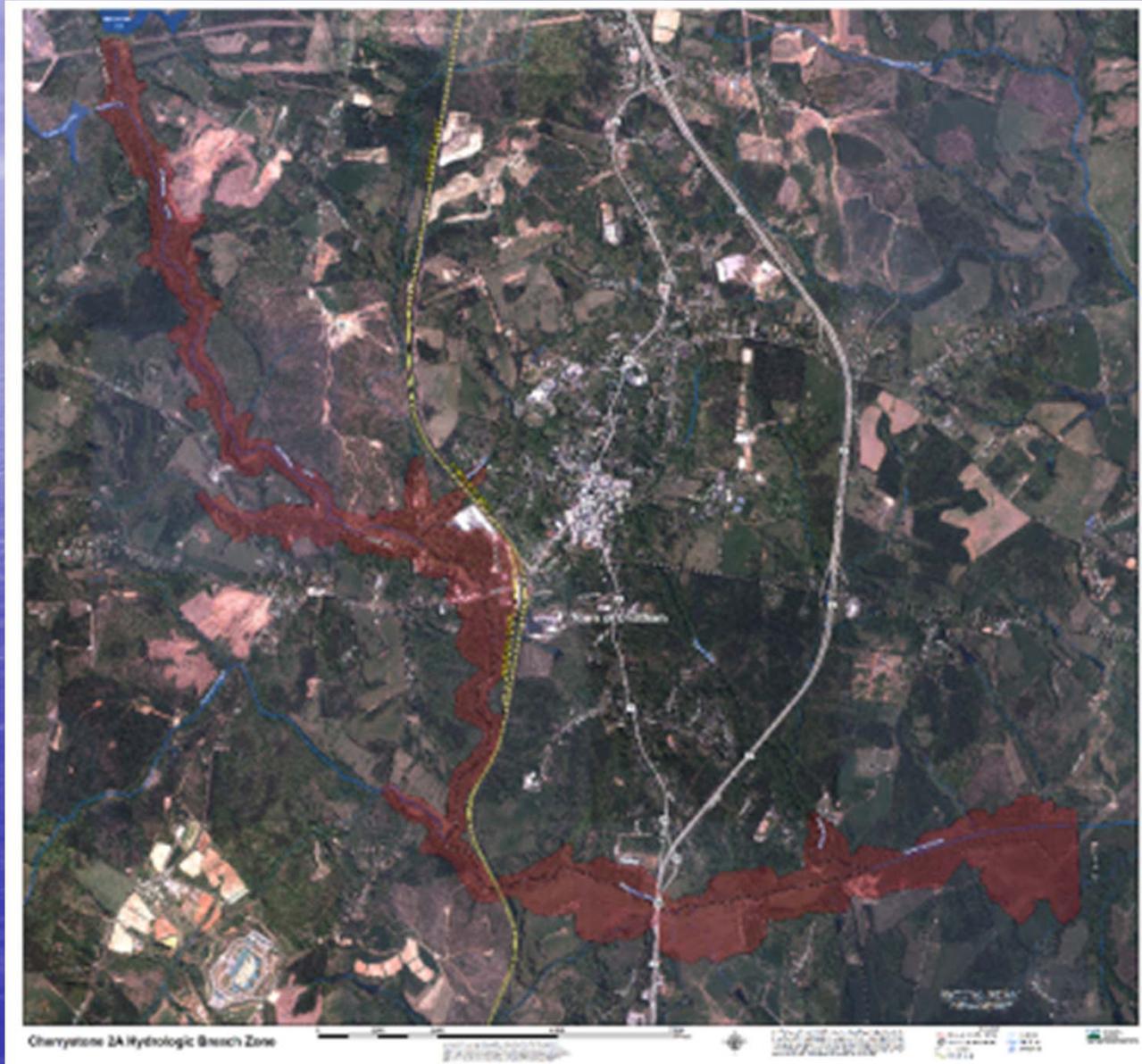
**Cherrystone 1 and 2A
Cherrystone & Roaring Fork Lakes**



Roaring Fork Lake Statistics

- Built in 1969
- Drainage area = 3,648 acres
- Normal pool surface area = 15.6 acres
- Floodwater surface area = 72 acres
- Length = 400 feet
- Height = 62 feet

Roaring Fork Lake Breach Zone



Summary of Impacts from Breach – Site 2A

- Homes - 4
- Business - 1
- Commercial Bldg. - 1
- Barn - 1
- Roads – 4 (Routes 694, 802, 793 and 1428)





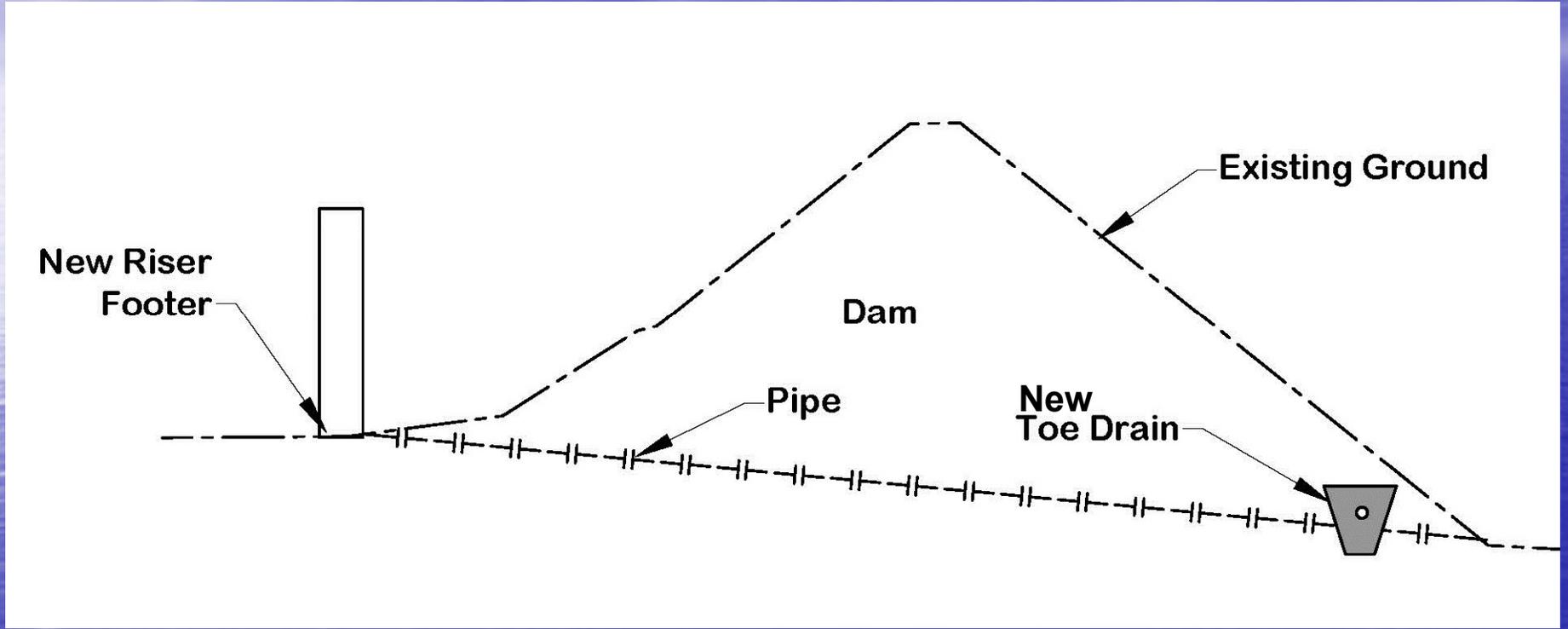






Findings

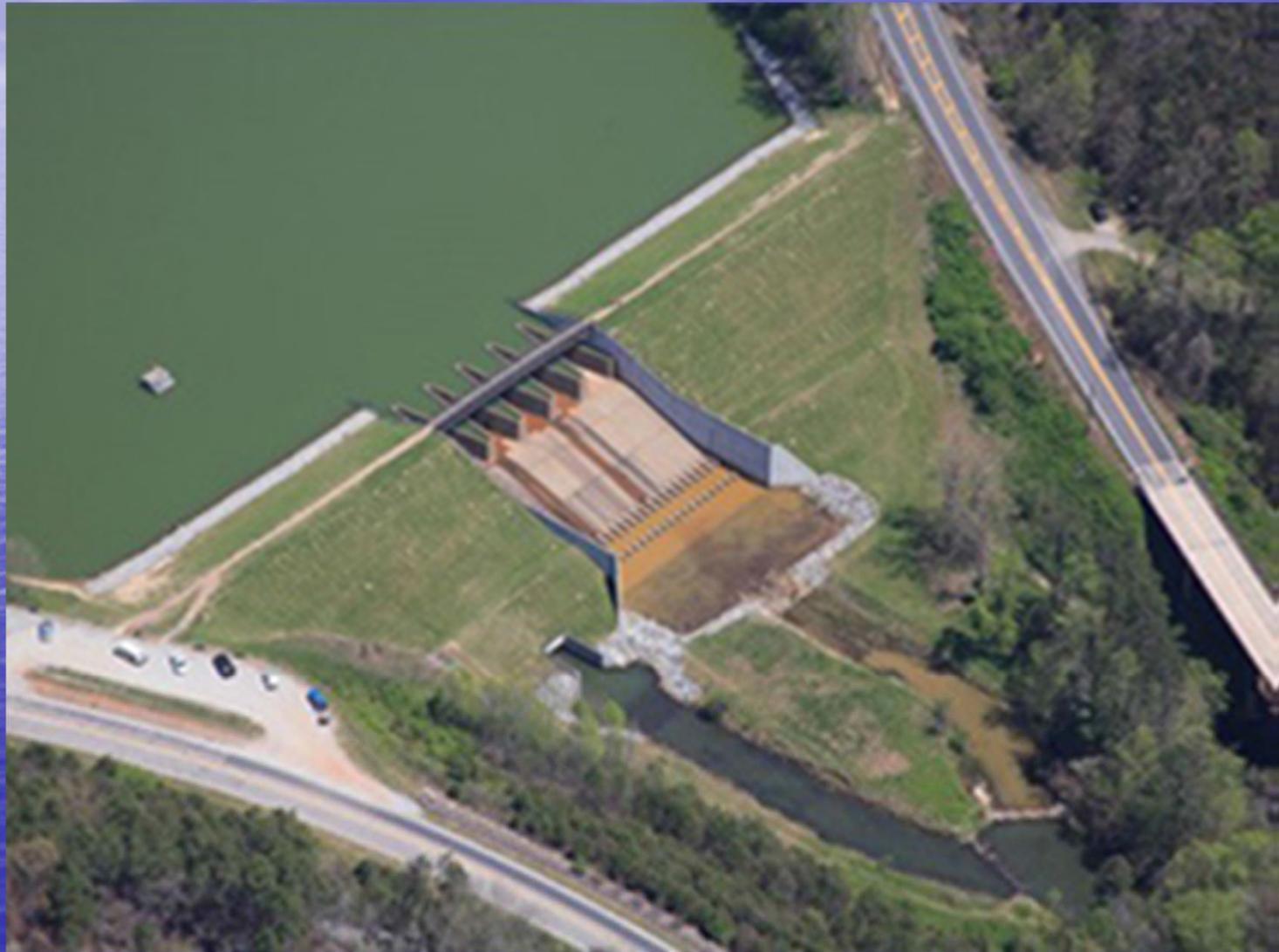
- The dam has been well maintained.
- Key Issues
 - No significant environmental resources found except for the carp and suckers in the lake
 - The riser footer does not meet seismic criteria
 - The corrugated metal toe drains are corroded
 - The vegetated earth auxiliary spillway does not meet the criteria for integrity



Auxiliary Spillway for Roaring Fork Lake



Labyrinth Weir Over Dam



Roller-Compacted Concrete (RCC) Chute Over the Top of Dam for Auxiliary Spillway



Roaring Fork Lake Alternative Costs

| | Construction Cost | Total Cost |
|--------------------------------------|--------------------|--------------------|
| RCC Chute over the top of dam | \$7,546,700 | \$8,183,700 |
| Labyrinth weir over top of dam | \$10,260,000 | \$12,260,400 |

General Information on Both Dams

- Design and Construction Considerations
- Land Rights / Easements
- Planning Schedules
- Points of Contact

Design and Construction Considerations

- More detailed analysis during design
- Culvert replacement on Hodnetts Mill Road
 - coordinated with VDOT
 - done in a separate contract
- Draining the lakes
 - Water supply
 - Turbidity in Roaring Fork Lake will improve
 - Visual appearance and timing
 - Recreation
- Economies of scale > both dams together

Land Rights / Easement Issues

- The points of entry and first floor elevations were surveyed for all properties around both lakes.
- For Site 1, there are 3 houses below the crest of the auxiliary spillway elevation and 7 more below the top of dam elev.
- For Site 2A, there are no habitable structures below the top of dam elevation.

Land Rights / Easements (cont.)

- NRCS Policy – Sponsors must acquire land rights to top of dam elevation unless there is a basis for going to the higher of the crest of ASW or 100-year, 24-hour storm elevation.
 - The rehab. plans allow for a lower easement elevation than the top of dam.
- In 1960's the easements were secured and recorded for the dams. These easements remain in place today.

Proposed Actions to Meet Policy

- The 3 existing houses on Cherrystone Lake below ASW crest elevation will be elevated, floodproofed or removed prior to rehabilitation of the dam.
- County will enact an ordinance to restrict future development, structures and/or buildings upstream of the dams below:
 - Elevation 682.0 for Cherrystone Lake
 - Elevation 700.6 for Roaring Fork Lake

Planning Schedule – Site 1

- Cherrystone Lake
 - Public Review of Revised Draft Plan > January 7 – February 8, 2019. Comments are due by February 8th.
 - Final Plan Completed by February 28, 2019.
 - Sponsors and NRCS Approve/Sign Plan by March 22, 2019.
 - Submit Plan to NRCS Chief for Authorization by March 29, 2019.
 - Request funding for design and construction.

Review Information for Cherrystone Lake Plan

- Copies of Revised Draft available at local libraries in Chatham, Gretna and Danville.
- The Town of Chatham has a few hard copies for loaning out to landowners.
- Electronic copies of the Revised Draft Plan are available to download at VA website: www.va.nrcs.usda.gov. Under "Highlights" – click on Cherrystone Lake Revised Plan and scroll to bottom of page

Planning Schedule – Site 2A

- Roaring Fork Lake
 - Submit Draft Plan for NRCS Technical Review > January 14 – February 15, 2019.
 - Public and Interagency Review > March 15 – April 15, 2019.
 - Final Plan Completed by April 30, 2019.
 - Sponsors and NRCS Approve/Sign Plan by May 24, 2019.
 - Submit Plan to NRCS Chief by May 31, 2019.
 - Request funding for design and construction.

Federal Funding Outlook

- Crystal Ball is a bit cloudy right now
- Plan Must Be Authorized First
- Design Phase and Construction Phase
 - Higher priority for funding after plan is done
 - We will push to fund them together
 - Usually takes 1 year for design and 1 year for construction

Points of Contact

- Town of Chatham is Richard Cocke
 - Town Manager
 - Phone: (434) 432-9515
 - Email: Rcocke@Chatham-VA.gov
- NRCS is David Kriz
 - Program Manager
 - Phone: (804) 287-1646
 - Email: David.Kriz@va.usda.gov

QUESTIONS or COMMENTS?

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