



2019 Project Excellence Award





Three Nominees

- Item No. 3-201.00 – Allen County KY 98
- Bridge Over Middle Fork Red River
- Item No. 11-9014 – Laurel Co. KY 80/KY 1535



KY 98 ALLEN COUNTY DURHAM SPRINGS



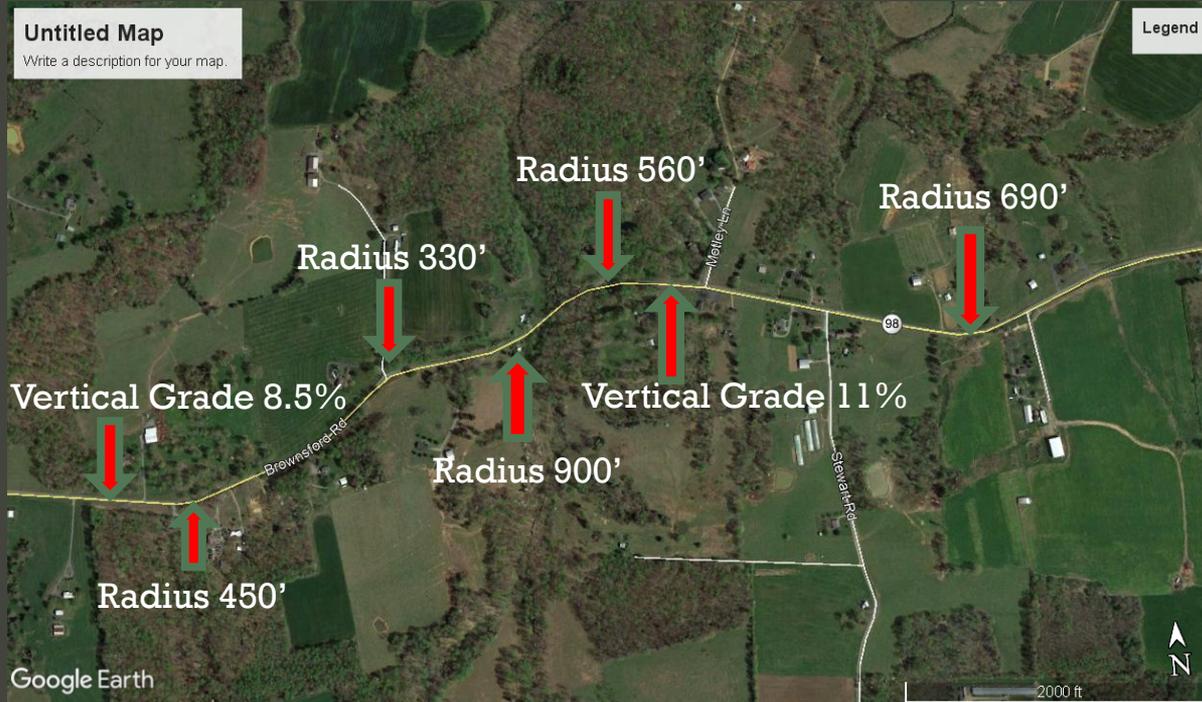
EXISTING CONDITIONS

Substandard Geometrics = Poor Sight Distance

Very Little Shoulder = Little Room for Driver Error

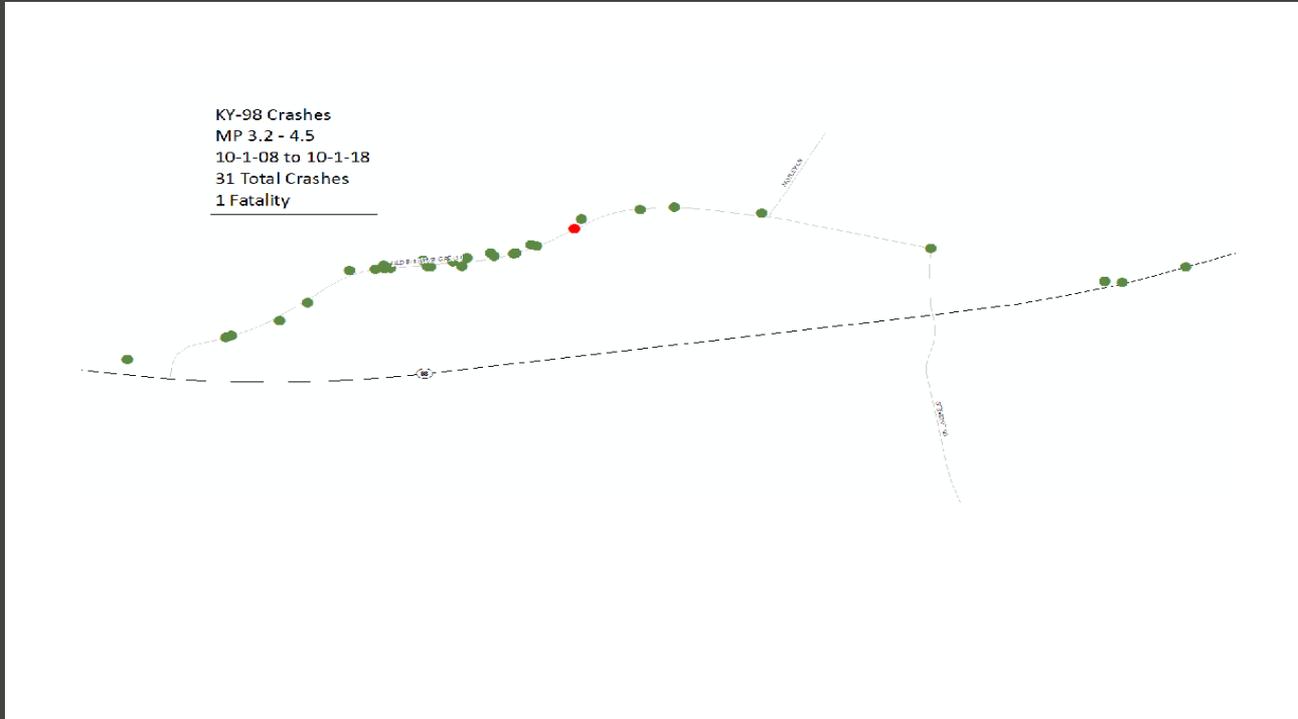


Minimum Radius 55mph = 960' with 8%emax
Maximum Grade 55pmh Rolling Terrain = 7%



CRASHES

Last 10 Years – 31 Crashes, 1 Fatality



CEMETERIES TO AVOID



PROPOSED ALIGNMENT

Approximately 1.3mi



PROPOSED 14' X 10' BOX CULVERT

AERIAL VIEW OF CULVERT
CONSTRUCTION



CULVERT WINGWALL



MAINTENANCE OF TRAFFIC

- Temporary Diversion Used to Keep Traffic Open During Construction of Tie-in



KY 98 Typical Section

BEFORE



AFTER



KY 98 New Alignment Looking East



KY 98 New Alignment Looking West



Natural Bridge State Resort Park

Bridge at Hoe Down Island



- Critical access to Park facilities

Natural Bridge State Resort Park

Bridge at Hoe Down Island



- According to the inspection report the bridge was closed “due to a majority of the beams failing at abutment 4.” Buckling and compression of the steel beams were noted in the report. A number of the other beams have issues including holes in the web near bottom flanges.
- The existing substructures had advanced deterioration

11/09/2017

Natural Bridge State Resort Park

Bridge at Hoe Down Island

Options Considered

- **Repair the existing bridge** - This option will have a very limited design life which is difficult to quantify and the bridge will continue to have significant maintenance costs. **This option is not recommended.**
- **Reuse the existing foundations and replace the superstructure.** - Upon review of the existing foundations it was determined that this option is not feasible.
- **Install a new multi-span bridge** – This option was considered but would require extensive work in the stream and removal of the existing foundations.
- **Install a new clear span (no structural piers) bridge** – This option was determined to be the most cost effective and least intrusive at this location. Retain the existing wet stone masonry foundations for historical significance and aesthetics. **CHOSEN OPTION!**

Natural Bridge State Resort Park

Bridge at Hoe Down Island



Original



Replacement

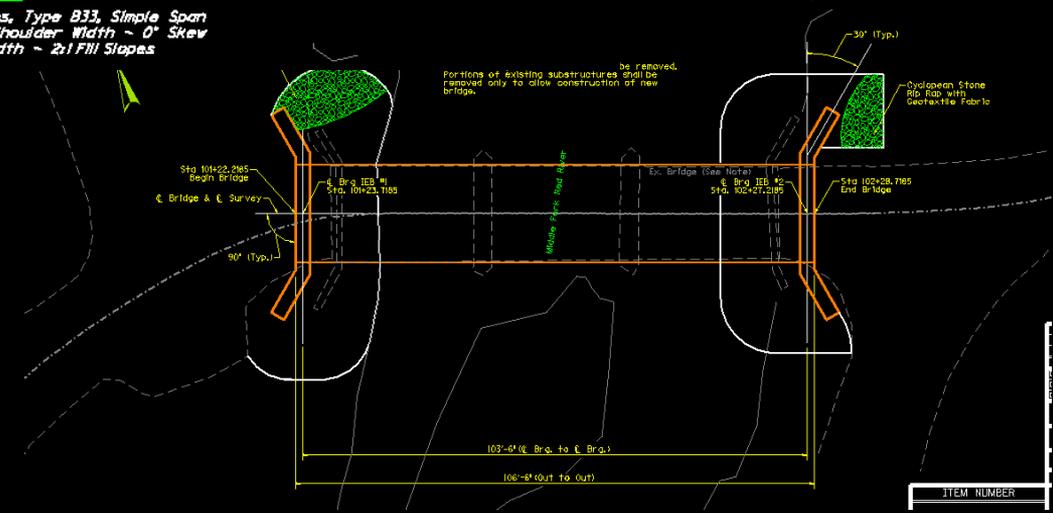
Natural Bridge State Resort Park

Bridge at Hoe Down Island

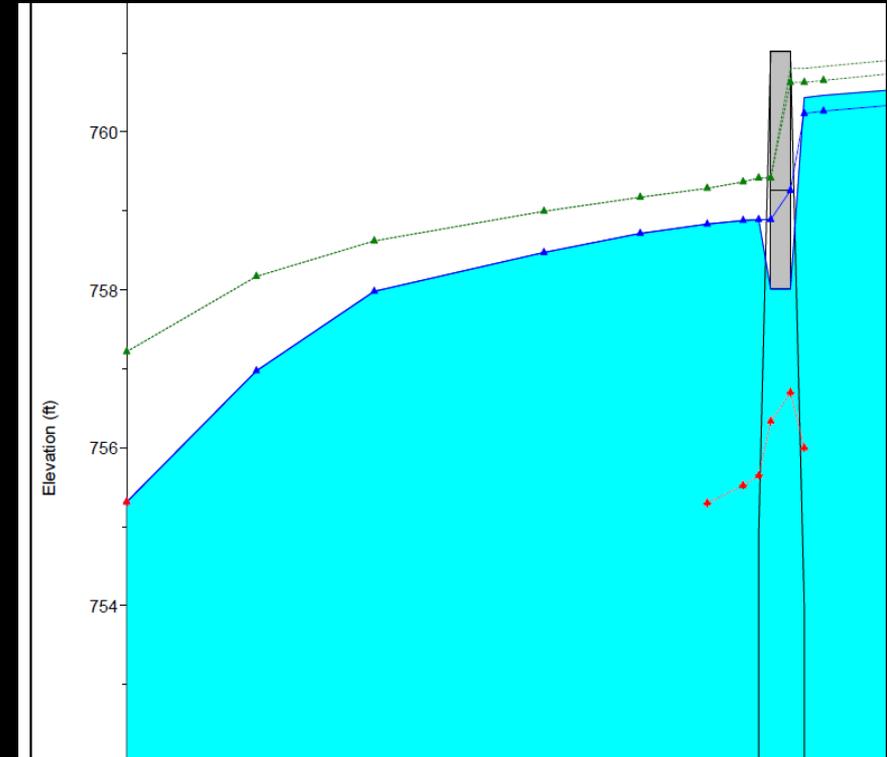
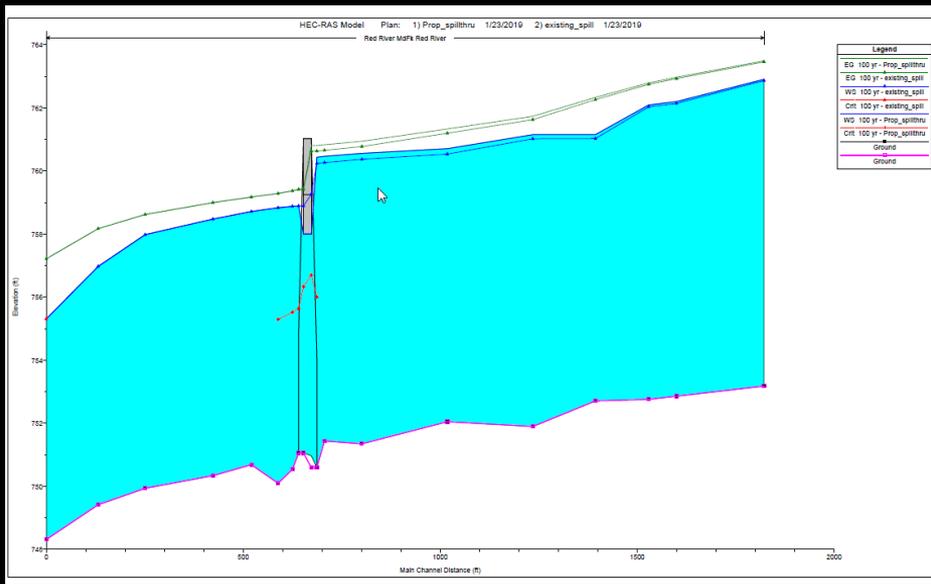


ELEVATION

10'-6", Side by Side Box Beams, Type B33, Simple Span
1.25x11'-93 Live Load ~ 26'-0" Shoulder Width ~ 0° Skew
18'-0" Bridge Roadway Width ~ 2:1 Fill Slopes



Carefully chose bridge layout and elevations



**Conducted extensive hydraulic
analyses**

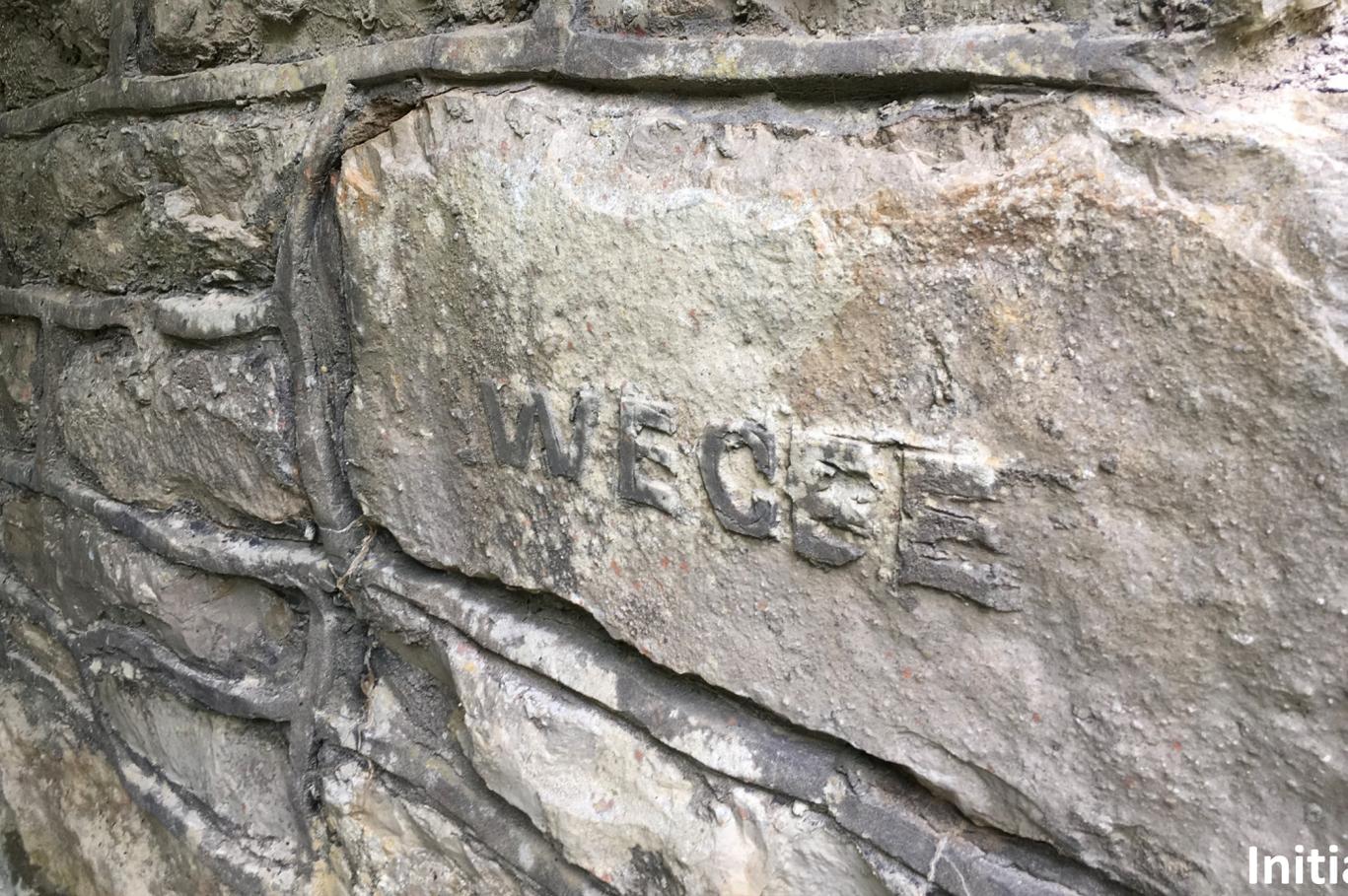
**Lowered bottom chord to minimize
approach impacts!**



Completed Structure



Completed Structure
Special Design
Pedestrian Friendly
railing – weathering
steel



**Initials of original workmen
on various parts of the wet
stone masonry**

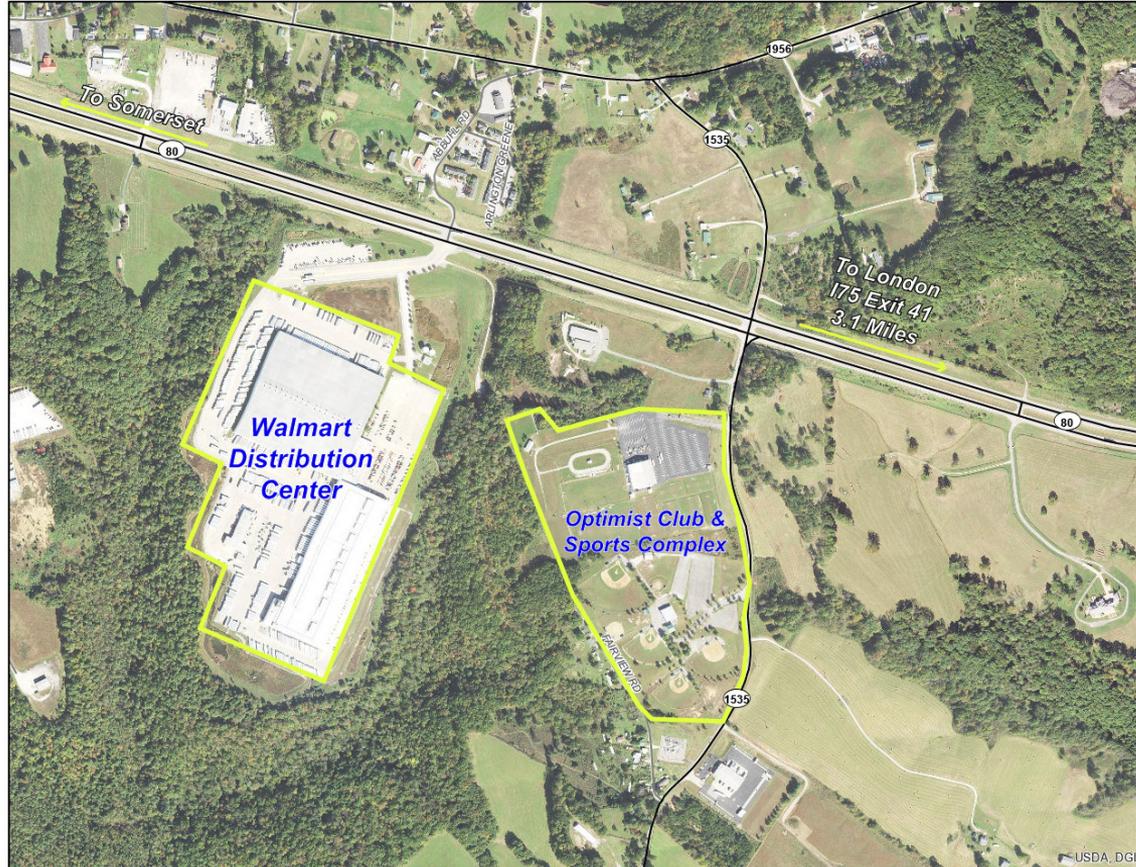


Context Sensitive and Performance based flexibility?





KY 80/KY 1535 Intersection



Multiple Fatality March 2, 2018



Project Schedule

- May 2018 – Traffic Study
 - Signal not warranted
 - Recommended remove left turns and through traffic from KY 1535
 - Recommended construct an acceleration lane in the existing median for northbound KY 1535 turning left onto westbound KY 80
- December 2018 – Project Team Meeting
 - Select Alt. with new crossovers at 750' from intersection
 - Add acceleration lane and right turn lane on WB KY 80
 - Connect Walmart DC's existing acceleration lane to right turn lane on EB KY 80
- March 2019 – Let to Construction
- September 2019 – Construction Complete

Proposed J Turn at KY 80/KY 1535 Intersection





Construction of J-Turn at the intersection from KY 1535

Scheduled Completion 9/30/19





The 2019 Project Excellence Award Goes To...

