This is an intersection improvement project located in Lexington County, SC. The project site is Exit 119 on Interstate 26 where US 21 passes over the interstate. Some of the work involved in this project includes a bridge replacement and a roadway redesign. The existing bridge was built in 1959 and is out of date with current codes. The existing intersection is not user-friendly and is quite complicated to navigate.

### Scope of Services
- Bridge replacement
- Roadway design
- Retaining wall design
- Hydraulic design
- Traffic coordination
- Permitting

### Acknowledgements
This project would not have been possible without the expert knowledge and professional guidance we received from the following individuals:

David Taylor, PE, Stantec
Andy Cook, SE, Stantec
Josh Quattlebaum, PE, SCDOT

### Bridge Stages of Construction
The bridge would be replaced in two stages; the first stage would be constructing part of the new bridge large enough for two lanes both ways. The second stage would be to shift traffic onto the newly built section of the bridge and then remove all of the existing bridge. Then the new bridge would be fully constructed and the stages would be complete. This method minimizes traffic interruption.

### Bridge Design
The new bridge will be a single span built up steel plate girder in composite with a RC deck for the superstructure. The substructure will consist of two integral end bents at both ends of the bridge and the foundation will be a single row of steel H-piles under each bent. The bridge length is 152’ and there is a 20’ approach slab at both ends. An MSE wall was chosen to be built at both ends of the bridge in order to achieve the smallest span length.

### Roadway Design
The new design will be a Diverging Diamond Interchange (DDI). The two intersections at either end of a DDI are crucial for traffic operations. At these intersections or crossover nodes, the opposing traffic movement along an arterial crosses each other. Being on the opposite side of the roadway allow the left turn movements, from the ramp to the arterial and from the arterial to the ramp, operate free, without being impeded by opposing through movement.

### Benefits of Diverging Diamond
- Simple two-phase signals with short cycle length
- Removes left-hand turns across opposing traffic
- Increases capacity of turning movements to and from ramps
- Reduces the number of conflict points; improving safety
- Costs less than a normal interchange

### Timeline

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