

Monticello, Utah

SAFE WILDLIFE CROSSING

The Oldcastle Infrastructure three-sided bridge offered a solution for the Utah Department of Transportation (UDOT) to create a large, open underpass crossing in a remote part of the state to allow elk to continue migrating safely past US-191.



CHALLENGE

Elk migration patterns created a need for a structure that was large enough to not disrupt their routine, and strong enough to withstand traditional highway traffic. Roads and other urban developments can often bisect wildlife habitats for a number of species, so providing connectivity between habitats can ensure greater survival for an entire ecosystem. This project raised a number of challenges along the way, including:

- | **The UDOT was looking for an economical, ecological solution** to provide both road travellers and wildlife a way to coexist.
- | **Load rating the three-sided-bridge** proved challenging as the required rating software and methods had not been used on a three-sided "clamshell" bridge.
- | **Drive-time restrictions due to the project's remote location** restricted the number of bridge sections that were able to be delivered each day.

SOLUTION

Oldcastle Infrastructure delivered 14, 26'x8' three-sided-bridge units to be set in a "clamshell" configuration, creating a 26' x16' measuring 54 feet in length.

The installation process:

- | First, a diversion around the highway was constructed to allow traffic to continue to travel and the contractor began excavation.
- | Despite logistical limitations due to drive-time restrictions and travel distance, installation of the three-sided-bridges took just two days. The bottom seven units were set in one day, with the top units completed the next day.
- | Lastly, the highway was reconstructed after the bridge was installed.

The Oldcastle Infrastructure engineering team was integral in modeling the bridge in finite analysis software to calculate and incorporate the load rating into UDOT's system. This project laid the foundation for the load-rating of three-sided-bridges and developed processes to streamline future projects utilizing this product.

BENEFITS

The three-sided-bridge was the perfect product to design a system for such a project. It met the customer's need for a highly constructible, precast solution and satisfied the Accelerated Bridge Construction (ABC) requirements. ABC is a bridge-construction that uses innovative planning, design, materials and construction methods in both a safe and cost-effective manner to reduce onsite construction time.

Precast concrete advantages from the Oldcastle Infrastructure products enhanced this project in a number of ways, including:

- | Improved site constructability
- | Expedited total product delivery time
- | Enhanced work-zone safety for the traveling public
- | Reduced traffic impact
- | Shorter onsite construction time
- | Less weather-related time delays



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Even with the remote location, we were able to supply enough bridges that our product was set in two days.”

Randy Wahlen, PE | Marketing Engineer