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US-20 Interchange Design in Thornton, Idaho

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Background
Thorton is a small town in Eastern Idaho located approximately five miles from Rexburg. The Thornton Interchange Project replaces an unsafe, at-grade intersection—that currently experiences great number of vehicle accidents—with an overpass and interchange. The Thornton Interchange project includes a pre-stressed concrete bridge designed to carry US-20 and allow vehicles to safely cross underneath the highway. Other project elements for a new, full interchange—centered on durability and safety—include an on-off ramp design, new roadway alignment designs, a pavement design, and an environmental impact assessment.

Project Location

Structural Elements
The superstructure elements of the project include nine girders, two parapets, a deck, and diaphragms. The girders are made of prestressed concrete and span over 74 ft. This type of girders is the most suitable and efficient material for our span in terms of cost and strength. The parapets and the deck are made of reinforced concrete. The diaphragms are made of concrete and located in mid span to prevent any lateral movement.

Transportation Elements
The transportation elements of this project include new alignments of the bridge and ramps as well as pavement design for the new portion of roadway. The newly constructed roadway will feature a grade separated diamond interchange configuration. Two identical bridges will be placed along Highway 20 as it passes over 5000 South. Two single lane off ramps allow vehicles to safely travel into Thornton. A durable asphalt pavement option was chosen for the entire interchange.

References: ITD, Google, AASHTO, DOT, FHWA, FTA