Construction activity along the WCR 49 Corridor will continue at a fast pace as Weld County and IHC (the construction company) work to complete the project by the end of 2017. Construction progress during 2016 proceeded as scheduled, with the remainder of construction scheduled to be completed during 2017.

Dirt and base work to prepare the new roadway for paving operations will continue on Segment 2 from WCR 30 to WCR 44 (expected to be completed this summer) and Segment 3 from WCR 44 to US 34 (expected to be completed by the end of 2017). As weather allows, work will continue to move forward over the winter (see the following article on cold weather paving). Similar to work on Segment 1, construction will be phased. The first phase will leave traffic on the existing WCR 49 while new construction is taking place off to one side or the other. The second phase will move traffic onto the new concrete roadway while the old roadway is demolished and rebuilt to match.

The project will reach a major milestone in February, when utility relocation is completed. Over the last year, utility companies have worked with Weld County to coordinate the relocation of approximately 110 miles of their infrastructure impacted by the widening of the WCR 49 Corridor.

The relocation of the remaining irrigation structures will be completed in the upcoming months, including single-span crossings over the Latham and Gilmore Ditches and box culverts at the north and south crossings of the East Neres Canal. Some of the existing crossing structures date back to the 1920s and are very much in need of upgrades.
As temperatures drop, you will likely see a corresponding drop in the amount of work occurring on the project. Winter construction presents a number of challenges for the WCR 49 construction team. First and foremost is the safety and well-being of the construction crews and the traveling public. On days when the temperatures are extremely cold or the roads are icy, the construction sites will be quiet.

On the warmer days, as we often see throughout the Colorado winter, the crews are able to continue working if they can overcome a few obstacles. To place dirt, base, or concrete, temperatures must be above freezing to prevent the formation of ice in the completed product. In addition, paving material cannot be placed on frozen subgrade. If required, the crews can deploy ground heaters to prevent the ground from freezing. A ground heater is basically a large heater that heats fluid passed through hoses that are laid out on the ground and covered in blankets. You also may see workers adding a layer of insulating dirt to completed portions of the subgrade work to prevent the ground from freezing. Prior to finalizing the work, crews will remove this insulating layer of dirt to place the next course: either base or base course materia;

To place concrete, temperatures must be above 35 degrees. This restriction limits the time available to complete work, typically only giving crews four to five hours a day to work during the winter). IHC will use heated water in the concrete mixture to ensure that the mixture temperature remains above 50 degrees at the time of placement. Following placement, workers will cover the concrete with blankets to hold in the heat generated by the concrete during the hydration process and keep the concrete from freezing. The concrete temperature must stay above 40 degrees until it reaches a strength of 2,000 psi. This typically occurs in 24 to 36 hours. To monitor the temperature and determine the strength of the concrete, we embed “loggers” in the concrete that take readings at pre-determined intervals, which are later evaluated.

There are numerous other general issues to consider. Aggregate stockpiles can’t be frozen. The air lines and water lines in the equipment must be drained and blown out each night to prevent freezing. On pieces of equipment that have hundreds of feet of line—the batch plant, for example—this process can be quite a task. Just getting the diesel equipment fired up in the morning where there is no power source for engine block heaters can be challenging.

Phase 2 work on Jim’s Creek and Box Elder Creek bridges will continue through the spring. Similar to other aspects of the project, the bridges are constructed in phases. During the first phase, IHC built the first half of the new bridge while maintaining two lanes of traffic along the existing bridge. Now that the first phase of the bridges is complete, traffic has been routed to the new side while the existing bridge is demolished and rebuilt to match. When the project is completed, six bridges or box culverts will have been built. Other work, such as asphalt paving, landscaping, fencing, accesses, signage, and striping will be occurring as the weather allows. Most of this work will be occurring over the summer and fall months of 2017.

Winter Paving

Blankets are used to insulate the concrete so as they don't freeze in low temperatures. Shown are crews removing the blankets now that the concrete has cured to the appropriate strength. (Taken: December 2016)

A maturity logger similar to those being used for the WCR 49 Corridor project. Readings are taken at pre-determined intervals to ensure the concrete is maintaining a temperature above 40 degrees. (Taken from: https://www.fhwa.dot.gov/pavement/concrete/mcl0005.cfm)