Using Innovative Construction Management Methods for Roundabout Projects

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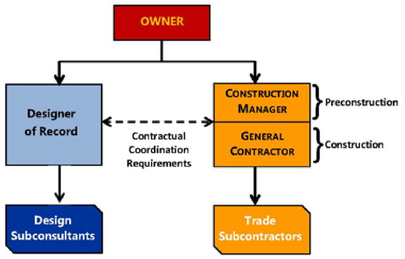
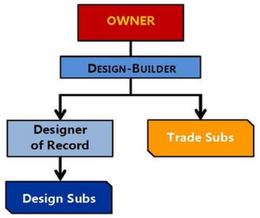
For any complex construction project, streamlining the transition between design and construction is essential for a project's success. Two ways agencies are accelerating project delivery while maintaining high quality and good value is through the Construction Manager/General Contractor and Design-Build methods. The Construction Manager/General Contractor (CM/GC) project delivery method allows an owner to engage a construction manager during the design process to provide constructability input. During the design phase, the construction manager provides input regarding scheduling, pricing, phasing and other input that helps the owner design a more constructible project. In the Design-Build process owning agency identifies what they want constructed, accepts proposals and selects a D-B team to assume the risk and responsibility for design and construction. Examples of the methods are shown below.

CM/GC Method

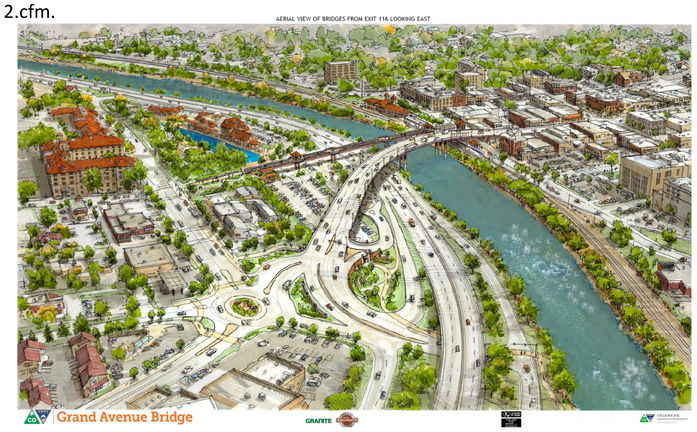


Design- Build Method



In many jurisdictions across the country roundabouts are being designed and built for the first time. In fact, in some cases it may be the first time a designer is designing a roundabout and the first time a contractor is building a roundabout. Looking to innovative project delivery methods may reduce some of the risk for the owners as well as the stakeholders. The CM/GC method breaks down the contract into two phases, a design phase and a construction phase. This may be helpful as even if the design is not complex the construction phasing and staging may need to be sophisticated to reduce inconvenience to the traveling public, so bringing on a contractor on during the design phase of the roundabout may provide more efficiency and better value for everyone. For some roundabout projects, CM/GC and Design-Build may even provide an overall better project and reduce risk (real or perceived), especially if it is the first roundabout being build in a community or region.

Roundabout projects delivered though CM/GC and Design-Build methods have been completed successfully in numerous states, including (but not limited to) Colorado, South Carolina, Virginia. More information on these methods can be found on these project delivery methods at https://www.fhwa.dot.gov/innovation/everydaycounts/edc-2.cfm.

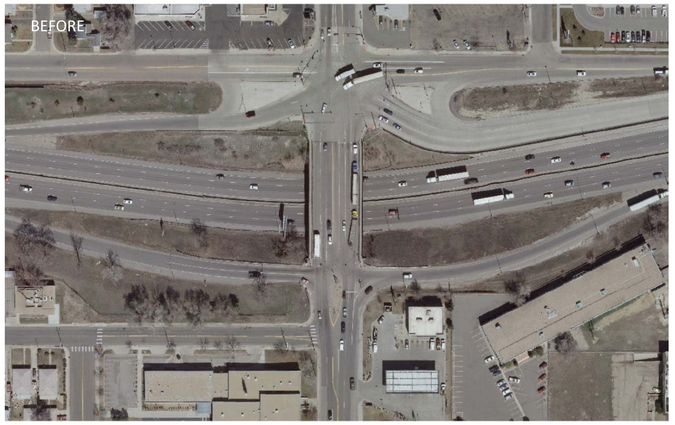


Source: Colorado DOT

Roundabout Projects with Innovative Contracting—Design Build and CM/GC

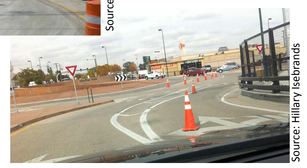
Pecos St and I-70 Interchange Roundabout Project (CM/GC)

A high volume, tight diamond interchange project with substantial constraints and a fast schedule needed an innovative design and construction method to address the challenges with a new bridge over the interstate, six leg roundabout , 4 leg roundabout (partially on the bridge), a school, business, and high pedestrian volumes. The Colorado DOT used a CM/GC team to maximize design and construction efficiency, accelerate delivery, minimize inconvenience and provide a successful project.



Source: GoogleEarth

Source: Hillary Isebrands

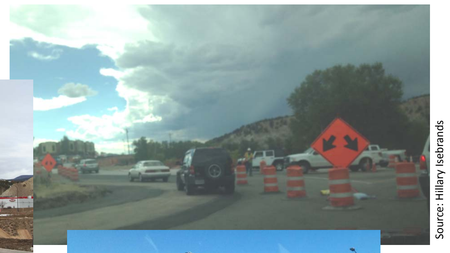


Source: Hillary Isebrands

Source: Public Roads & Skewit Infrastructure Co.

https://www.codot.gov/projects/pecosoveri70

Source: Hillary Isebrands



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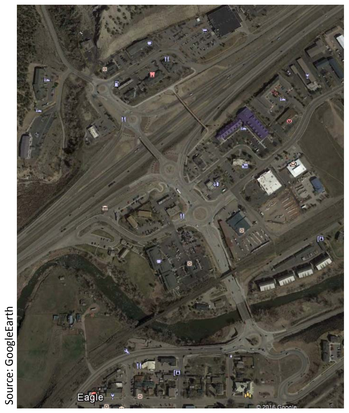


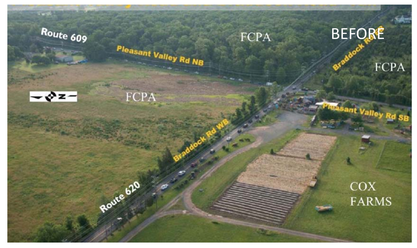
Source: GoogleEarth

I-70/Eby Creek Rd Roundabout Project (CM/GC)

This Colorado DOT project reconstructed five intersections including the conversion of two signalized intersections and two stop controlled intersections to roundabouts as well as converted a single lane roundabout to a two-lane roundabout. The CM/GC delivery method was used to improve constructability, cut costs and construction risk and integrate construction phasing that allowed efficient traffic movement and an accelerated construction schedule. This project was the main roadway in and out of a mountain town with a population near 8,000 in addition to serving a regional airport and county seat. Construction phasing and staging of these roundabouts and access to the only two roads that served the community was critical to the success of the project. As the CM/GC team was brought in during the latter parts of design, they continued to make modifications that resulted in a high quality project and improved value. The project was successful and the delays and safety concerns due to back-ups on the ramp terminals before the roundabouts have disappeared with the roundabout corridor.

Virginia DOT Design Build Roundabout Braddock Rd (Route 620)/Pleasant Valley Rd (Route 609)

VDOT replaced an all way stop controlled intersection with a design/build roundabout project.



Source: Virginia DOT

http://www.virginiadot.org/projects/northernvirginia/

Source: Virginia DOT