The ABC advantage: Time, safety, and quality make ABC a bridge construction hero

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By Michael Dopko, Behrouz Shafei, and Brent Phares, Iowa State University

In our on-going series about accelerated bridge construction (ABC), we have discussed the "how to's" and the "what if's," but what about the *advantage*?

Let's talk about something that affects nearly all drivers at some point or another: the frustrating, road-rage inducing slow in traffic or, in other words, the traffic delay. Sometimes it's caused by an accident, or by the natural ebb and flow of traffic, but many times the cause is due to some sort of construction or necessary detour involving bridge construction.

Now, these delays and detours do not only cause personal inconvenience but also significant economic or financial loss to the local communities. This can be a major problem. Now remember, approximately 600,000 bridges exist in the United States, but nearly 25 percent of them are not up to current standards and are in need of reconstruction or repair. All that adds up to one thing: a lot of frustrated drivers and economic impact. But ABC is something like a superhero here, its goal is to limit these impacts by providing various advantages over conventional bridge construction methods. ABC, the bridge construction hero?

ABC projects usually take advantage of technology called pre-cast bridge construction, which, as you might guess, is what makes the construction "accelerated," because pre-cast bridge members are made off-site and then assembled on-site much like LEGO blocks. These members are made from concrete, which go through a process of casting and curing to create a beam or member of sufficient strength.

The ABC process speeds up the "waiting game," because builders don't need to wait for concrete members that were cast on the construction site (i.e., cast-in-place) to gain their strength before subsequent members can be constructed on top of them. It also eliminates the need to wait for good weather so that concrete can be poured, which is the case for conventional cast-in-place concrete construction. Since pre-cast members are made in a controlled environment, they tend to be of higher quality than cast-in-place members, making them more reliable and safer. Using pre-cast bridge members as an alternative to cast-in-place bridge members can result in decreased on-site construction time and increased bridge quality.

Another "fast" technology that ABC takes advantage of is called slide-in bridge construction. This one involves a lot of moving parts. Here a new bridge is constructed beside an existing bridge on temporary supports while the old bridge is still in service. The new bridge is then "slid" into place of the old bridge once the new bridge has been completed and the old bridge has been taken down. Slide-in bridge construction can be used in conjunction with pre-cast concrete

construction to limit both the on-site construction time and also the time the bridge is closed to traffic, thus avoiding those pesky delays.

The use of pre-cast and slide-in bridge construction, as well as highly organized scheduling, gives ABC a huge time savings over conventional bridge construction. This means less inconvenience to drivers and less economic impact from traffic delays and re-routes. Time savings also means work zone and driver safety will be increased because construction workers will spend less time on active highways and drivers will spend less time in construction zones. Slide-in bridge construction even further limits the possible danger from driver/worker interaction. Safety is important, after all, to an ABC hero, right? But so is the environment.

Another advantage of ABC is the reduction in environmental impact. ABC projects tend to have smaller, cleaner construction sites. Also, less traffic delays mean less time for vehicles spent idling and emitting air pollution. It is even less likely to disrupt fish spawning cycles because bridge projects can likely be timed around events like these.

The advantages and benefits of ABC make it the way of the future for bridge construction in the United States and abroad as it will allow us to fix our rapidly deteriorating bridges with minimal impact to traffic flow and the environment while producing high quality, safe, and cost-effective bridges. Almost sounds like a victory speech, right?

Related links

- Check out the ABC-UTC homepage.
- See the Federal Highway Administration initiative to promote ABC (scroll to bottom of page for videos, photos, and more).
- Learn about the Massena Lateral Bridge Slide project.