

January 2012 ABC Webinar Featured Presentation: Part 1 - Everyday Solutions: ABC Standard Designs from SHRP2

Q&A Session: Questions	Responses
I'm interested in precast abutments.	Precast abutments are part of the substructure focus for the next generation of ABC standard details. The SHRP2 R04 project prepared ABC standards for Integral and Semi-Integral abutments. This was discussed during the presentation.
How does the Fast 14 in Massachusetts on Route 93 north of Boston fit in with other ABC projects and methods?	The Fast 14 project in MassDOT had the benefit of significant pre-job advertisement (get the word out), and some benefit from "economy of scale" with several bridges in one project.
Bearings & Joint Details esp. for Rehabilitation	Focus of R04 was bridge renewal; so we did not look into rehab needs. In ABC we try to eliminate joints and keep bearing details simple as these are time consuming construction details.
Would it be possible for us to obtain the design computation example related to your ABC products in some way ?	Yes, examples are under development for typical operations, process and procedure. Three worked out ABC design examples have been prepared.
For pile foundation structures, what abutment/pier-to-pile connection details will permit quick erection of abutment/pier caps ?	A few examples were covered in the presentation. In the R04 project we used Self Consolidating Concrete to make the pile cap to corrugated pipe annular space connection. This was fast field construction.
Are the products open enough to fit any kind of bridge?	Generally yes, but some modification to standards may be required. This is often the case when using standards for conventional construction as well. Can be used for any routine bridge with minor site-specific modifications. Severe skews should be avoided.
What are some of the aesthetic enhancements that could be implemented on prefabricated bridges?	Aesthetic features can easily be incorporated in most cases, which is also the case in conventional construction. The cost of fabrication is likely more of an issue than what is possible.
Literature and evaluation reports of success stories.	Various sources are available. In addition to the SHRP2 R04 report that will be coming out soon, the FHWA ABC/PBES website (http://www.fhwa.dot.gov/bridge/abc/prefab.cfm) includes reference materials under the links "Innovative Projects" and "Publications." More reference materials will soon be posted with the expanded Case Studies that are being developed. In addition, the Highways for LIFE "Demonstration Projects" website (http://www.fhwa.dot.gov/hfl/projects.cfm) has project reports under "Project Summaries."
It would be good to know what states are currently using standard designs.	States involved in taking the lead include Utah, Iowa, MassDOT, and Texas, with other states expressing a strong interest in doing the same. Utah has the most comprehensive set of ABC standards available on their website.
We maintain a County Bridge System with many bridges under 40 feet span. Will the project be expanded to address these bridges?	This presentation noted a range between 40 and 130 feet; however, structures with smaller spans can benefit from many of the same details and standards with some modification. Future webinars are being planned for shorter span bridges often encountered by local agencies.
How do interlinked ABC components provide access for maintenance repairs and replacements?	Most of the standard details should provide adequate access for future maintenance, repair and replacement. That said, future access should be a consideration and having maintenance engineers at the table early in the development process can help with this issue.

<p>Has lightweight concrete been considered in development of the standard designs?</p>	<p>The ABC standards were based on normal weight concrete as it is the most common material used. The EOR can easily use LWC with minimal changes to design if there is a benefit to having lighter components. Use of LWC is wide open but it is not needed or recommended for every site</p>
<p>Who is doing onsite full deck casting- PCI certified installers or PCI certified manufacturers?</p>	<p>On site casting where there is prestress involved will need PCI certification. Certification for on-site casting of non-prestressed components will depend on State DOT requirements.</p>
<p>When will the tool kit be available?</p>	<p>We expect the tool kit to be available mid to late summer of 2012.</p>
<p>The detail of typical decked steel girder module does not show shear connectors.</p>	<p>All decked steel girders have shear connectors. Not shown in some details for clarity.</p>
<p>It seems that in ABC details, several longitudinal joints will be introduced. How will they be prevented from leaking?</p>	<p>The trend is to limit the number of joints where possible, but when joints are required drainage and leakage is a consideration. This is also the case with longitudinal joints. We used UHPC joints which provide joints that do not leak. This was verified through testing at the FHWA labs.</p>
<p>Are you proposing a single row of piles for semi-integral abutments?</p>	<p>This question relates to one of the slides - however, single or multiple rows of piles can be used pending the situation. If a flexible abutment system is required and there is economy in more than one row of piles, the flexibility needed can be developed in the abutment stem, etc. A single row of piles may be used for a semi-integral abutment by making a bin out of the abutment and the wingwalls, which will provide longitudinal stability even with one row of piles.</p>
<p>Can these techniques be used for bridges over a railway, etc.?</p>	<p>Absolutely, and probably best suited for situations that require rapid construction and limited construction windows.</p>
<p>How much savings in cost using ABC versus conventional construction? Labor cost for off site precasting should be considered.</p>	<p>The comparison of cost between conventional construction and rapid construction techniques comes up often. Basically, many aspects of the cost of a project need to be considered, and ABC versus a conventional approach to a project often end up being two different construction projects. We don't recommend a comparison of cost based on construction alone. Many cost related impacts need to be considered, including escalation, and road user costs to the general public.</p>