

We are giving away an Apple iPad – Find out how you can enter to win below

Hopefully everyone cast off 2013 with a safe and happy holiday season! To start off the new year on the right foot, the BGFMA is giving away a brand new Apple iPad to a lucky survey participant! Yes, we will be conducting a short online survey to see how many of you visit our website, read our newsletters, and know the very basics about grid deck systems! If you are signed up on our distribution list, which you probably already are if you are receiving this newsletter, then you are automatically registered to participate. The survey will be emailed out in February to everyone on our email distribution list, and all you need to do is correctly answer a few short survey questions that will only take a few minutes of your time. The survey must be completed by the end of February, and the lucky winner of the iPad will be announced when our next technical bulletin, Tech-Line #10, is sent out in the March /April timeframe. The winner will be drawn randomly and given the option to choose between several different iPad models.



If you received this newsletter from a friend or colleague and are not registered but would like to be, just visit our website www.bgfma/contact.htm and submit a contact form requesting to be added no later than February 14th. Good luck to those who participate and please do not hesitate to contact the BGFMA if you should have any questions about grid deck systems or the above mentioned survey!

Two Grid Deck Projects Showcased in Road & Bridges

In the last BGFMA Gridline newsletter we highlighted the use of a grid reinforced concrete deck for redecking of the **Walt Whitman Bridge**, which was selected for several reasons including speed of construction, weight savings and durability. That newsletter also included an article which explained how a modular and lightweight grid deck was used to overcome several staging hurdles on **Scott Road Bridge No. 6** over Montour Run - a small county bridge in Allegheny County, PA. We are pleased to have shared both of these case studies with readers of **Road & Bridges (R&B)** magazine. An electronic case study about the Walt Whitman Bridge redecking project was emailed out to nearly 40,000 R&B subscribers in late October 2013, and can still be found on the R&B homepage by searching "Walt Whitman." Additionally, R&B published our case study highlighting the use of a grid deck on the unique Allegheny County bridge that was totally replaced over Thanksgiving weekend in their October 2013 issue.

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Walt Whitman Bridge receives new steel grid deck system



Designed by renowned civil engineer Othmar Ammann and constructed by American Bridge Co., the **Walt Whitman Bridge** was first opened to traffic in 1957 and utilized a concrete-filled steel grid deck. The seven-lane 3,540-ft-long suspension bridge is owned and operated by the Delaware River Port Authority (DRPA) and currently carries roughly 120,000 vehicles per day on I-76 over the Delaware River between Philadelphia and New Jersey. To accommodate peak traffic during morning and afternoon rush hours, the DRPA utilizes a movable barrier on the structure to reverse traffic in the middle lane in or out of Philadelphia. The "Walt" also is the primary route for sports fans and vacationers, giving

access to the Sports Complex in South Philadelphia for sporting events and the Jersey Shore during summer travel months.

After more than a half-century of heavy use the Walt Whitman Bridge was in need of repairs, so in 2010 the DRPA awarded a \$128 million deck-replacement contract to American Bridge, the same company that originally built the

Pulaski Skyway – Contract 3 Redecking to Kick-Off Shortly after Super Bowl XLVIII

Although significant construction is already underway to rehabilitate the section of US Route 1 & 9 in New Jersey between Newark and Jersey City, a.k.a. *Pulaski Skyway*, motorists will not see significant impacts from the traffic detours used during Skyway redecking until late February or March. The New Jersey Department of Transportation did a great job of coordinating this project with other regional transportation construction projects, as well as the Super Bowl, and will not be shutting down the Skyway's northbound travel lanes until after the Super Bowl festivities are concluded. However, even without the added traffic caused by Super Bowl travelers, the Skyway traffic volume approaches 70,000 vehicles per day. Considering the large traffic volume and the fact the structure is only 4 lanes wide, minimizing construction inconveniences to the traveling public was a major engineering challenge.



Like all high profile projects, several design and construction concepts were evaluated to determine the best solution to minimize not only costs, but social, economic & environmental impacts as well, while extending the life of the structure. In this case, the ultimate goal is to extend the service life of the Skyway by 75 years!



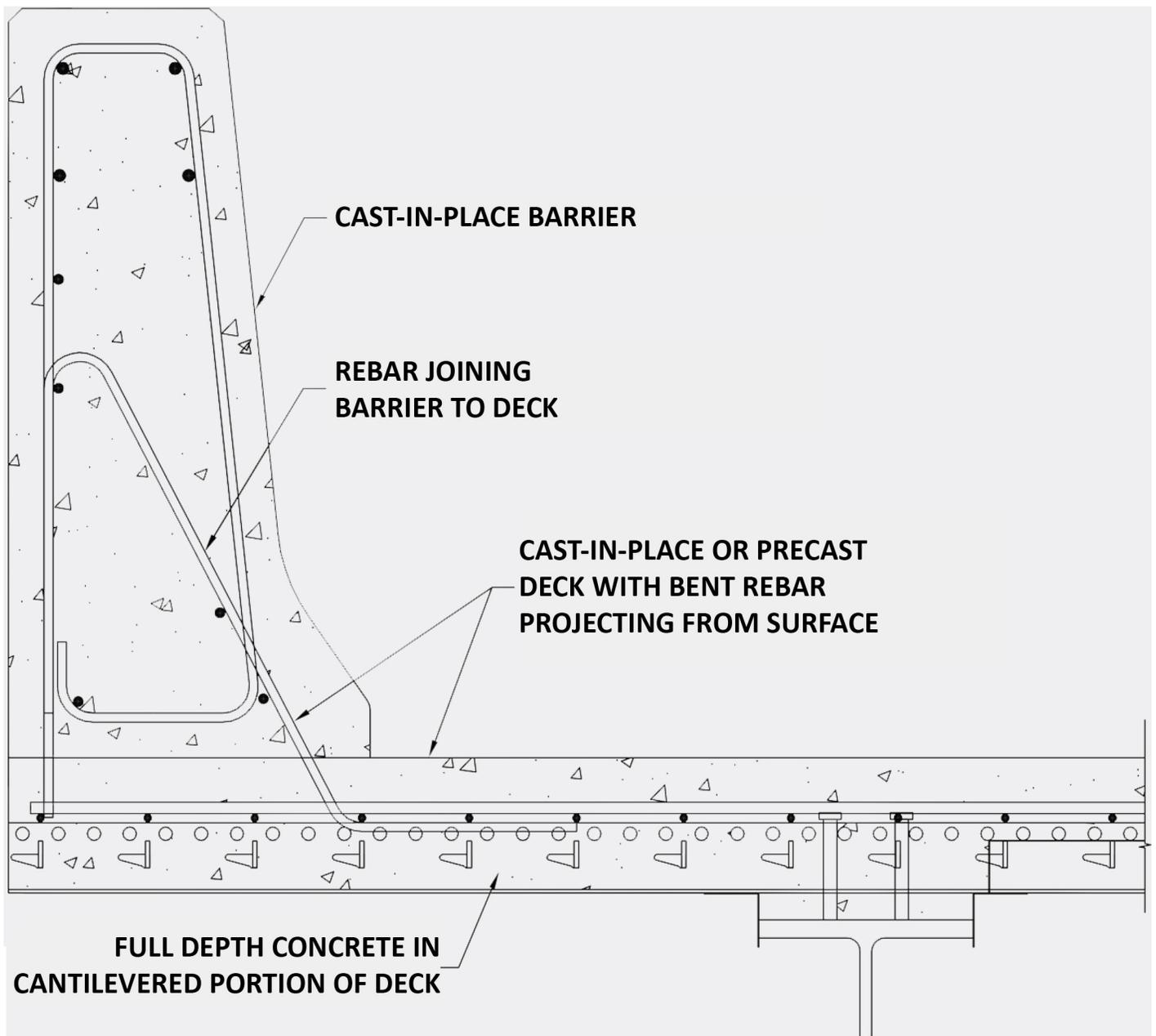
The NJDOT decided to utilize a combination of precast **Exodermic**[®] bridge deck panels and conventional precast deck panels to accelerate construction and reduce dead load on the 80 year-old structure. This preferred rehabilitation alternative will require fulltime, half-width closures during the execution of contracts 3 & 4 that will only allow southbound traffic to pass. The very important upside to this alternative is that the closure time is significantly reduced using the precast Exodermic[®] deck. In fact, redecking the entire 3-1/2 mile long structure is anticipated to take only 2 years, when more conventional construction methods would have extended traffic closures by several additional years. Between contracts 3 & 4, nearly 260,000 square feet of new precast Exodermic[®] deck panels will be installed over the 2-year period.

Grid Facts

The BGFMA is often asked about *overhang capacity* of grid deck systems. All grid reinforced concrete decks are orthotropic in nature which means they have distinct strong and weak directions that are orthogonal to each other. The strong direction of the deck always runs normal to the deck support elements (floor beams, stringers, etc.) and consequently lies parallel or perpendicular to the direction of traffic.

Grid reinforced concrete decks designed with main bars perpendicular to traffic generally have enough capacity to resist the loads imposed on the deck overhang without need for additional reinforcement; however, increasing the strength of the deck if required, is easily accomplished. If a barrier is supported by a grid reinforced concrete deck designed with main bars parallel to traffic, then there is no overhang, but the capacity of the deck needs to be checked for the barrier impact load.

If you would like to read more about overhang design for grid systems, please read BGFMA Techline #4 which is available on our website (<http://bgfma.org/Downloads/PDF/Techline/BGFMAtech4.pdf>). Also, please do not hesitate to contact the BGFMA for assistance in evaluating the overhang for a specific structure.



More Information

If you would like to receive more information about the features and benefits of grid deck systems, please contact us at **1-877-257-5499** or **bgfma@bgfma.org**. We are also available to make presentations at your office and can offer continuing education credits for professional engineers as a registered provider in New York and Florida.

BGFMA Tradeshow Schedule

Please visit BGFMA members at our exhibit booth during the following upcoming bridge engineering conferences:

NASCC Steel Conference (NSBA)	March 26-28	Toronto, Canada
International Bridge Conference (IBC)	June 8-12	Pittsburgh, PA
Heavy Movable Structures Symposium	September 15-18	New Orleans, LA

