

High Steel Delivers \$85 Million in Structural Steel for HOT Lanes Project

In its largest single contract to date, High Steel Structures is delivering \$85 million in structural steel for the \$2 billion Washington, D.C. area HOT Lanes Project.

It is a massive undertaking for the Virginia Department of Transportation, Fluor-Lane, Fluor-Transurban and High Steel Structures, all in the name of relieving the chronic traffic congestion that has plagued the Washington, D.C. area's I-495 Virginia Capital Beltway.

Bridging The Gap

A Look At Famous Bridges



London Bridge

Namesake of the famous nursery rhyme, the London Bridge spanned the River Thames and was designed by Peter de Colechurch in 1176. That wasn't the first London Bridge. Earlier bridges were built of wood and were ravaged by fire and Roman invaders. In 1831 a new stone bridge was built just north of the Old London Bridge, which was torn down. Then in the 1960s, the latest bascule London Bridge was built on two massive piers that used more than 11,000 tons of steel and could be raised to 135 feet high to allow ships to pass. As for the 1831 London Bridge, it no longer crosses the Thames, but it is in Arizona, painstakingly reconstructed stone by stone at Lake Havasu.

The project involves building four HOV/HOT lanes, two in each direction, on a 14-mile stretch of the Capital Beltway between the Springfield Interchange and just north of the Dulles Toll Road. Completion is estimated for late 2012 or early 2013.

The project replaces more than \$260 million in aging infrastructure, including 58 bridges. For High Steel's role in the significant project, High Steel is fabricating more than 21,500 tons of steel plate girders. High Steel's field operations group began steel erection in July 2009, which is continuing through the next year.

"Everyone here at High Steel Structures Inc. realizes the importance of working on a project of this magnitude," says Ken Glidden, project manager for High Steel Structures. "From our Engineering Department that is responsible for shop drawing preparation, to our Fabrication groups, to High Transit for the steel delivery, and the Field Operations area, which is erecting the steel, the team here at High Steel Structures Inc. is working diligently to provide our customer with a quality product, in a timely manner. It is a great partnership with Fluor-Lane."

The concept behind the HOT Lanes Project is to provide a fast-track alternative to traveling in the more congested lanes. The term HOT stands for High Occupancy Toll lanes, which are tolled lanes that oper-



ate alongside existing highway lanes to provide users with a faster and more reliable travel option.

"The biggest challenge is the sheer size of the HOT Lanes. Because of the design-build nature of the HOT Lanes, we literally have overlap on this project to the point where we had some bridges that were being erected, while others were still being designed," notes Glidden.

Bob Urban, head of field operations for High Steel, agrees, noting that the biggest challenge they faced was setting up girder delivery and erection in such a highly trafficked area. Even storage of equipment is challenging, he adds.

"The best way for High Steel and field operations to handle these challenges is to tackle this project one bridge at a time," says Urban. "That requires a lot of up front communications."

High Transit put their expertise to work in delivery of the finished product to the job sites in the Washington, D.C. area, including permitting, and the logistics of



Message from the President Jeffrey L. Sterner, P.E.

Fix the User Fee System

I often challenge my own bias when it comes to our nation's spending level on infrastructure. I am not blind to the overwhelming deficits that we face. Our nation spends money at an unsustainable level, and something needs to be done quickly to bring revenue and expenses back in sync with each other. But I do strongly support an increase in spending on the infrastructure of this country. So how do I justify that? Am I just rationalizing a selfish interest in pumping up the bridge construction market so that High Steel Structures Inc. can benefit? I won't deny that more infrastructure spending is likely to help all companies that serve the transportation construction industry, but I think there are several important distinctions that need to be noted.

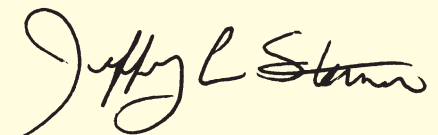
First of all, if the funding mechanism of the Highway Trust Fund is fixed, transportation spending should not add to the deficit of this country. The transportation system of this country has for decades been funded by user fees dedicated for the exclusive purpose of re-investing back into the system. However the user fees as currently defined have become inadequate, and I have winced each time during the current administration when money has been allocated out of the general fund of the federal government to support the current spending levels on highways and bridges. I don't want that money. Frankly, there is no money there. It is only a hole that we keep digging deeper and deeper by borrowing from our children. What I want is for the politicians to fix the funding

mechanism of the Highway Trust Fund. We are funded primarily based upon a gas tax that was set in 1993, with no indexing for inflation, and with no consideration for the fact that more fuel-efficient vehicles put the same wear on the highway system without generating the same level of user fees to maintain the system. Every time I meet with my elected officials in Washington D.C., I plead with them not to leave the same problem for the next generation. However they decide to fix the user fee funding of the Highway Trust Fund, they absolutely must index that funding mechanism to the cost to maintain the system. Think about it. If that was done in 1993, there would be no crisis in the condition of this nation's infrastructure, and the gasoline tax as a percentage of the total price to the consumer would still be less today than it was in 1993.

I also see funding of our nation's transportation system as a smart investment. This is not an entitlement program. The transportation system is not part of the battle between polar opposite views on the social order of this country. Roads and bridges and airports and navigable waterways are non-partisan. They provide the same level of service and economic activity for all Americans. When we spend one dollar of tax dollars (or more appropriately said, user fee dollars) on the transportation system, the American public gets something in return. These are real assets, available for the benefit of the entire public. And we have centuries of experience that proves the importance of a well developed

and well maintained infrastructure in creating and sustaining economic growth. Transportation is an investment program, not a spending program. That is why it is the only tax increase currently supported by the US Chamber of Commerce, National Association of Manufacturers, and the trucking industry.

So how do we get this distinction across to our political leaders, many of whom got themselves elected with across-the-board pledges to not increase any taxes? I wish I had that answer, but I don't. But what I do have is a voice, and I intend to use it. I hope you are using your voice as well. This country needs to invest in its transportation system. More specifically, the users of the transportation system need to fund the system at a level which lets it be sustainable to service our citizens and businesses today, and facilitate the growth of tomorrow's businesses.



Jeffrey L. Sterner, P.E.
President
High Steel Structures Inc.



Emergency Projects: Quick Response is the Recipe for Success

by **Steve Bussanmas**, Senior Vice President of Sales & Marketing

Over the years High Steel has been a team member of many successful emergency projects. One example is the bridge emergency on May 23, 1998, when a tanker truck full of fuel crashed and damaged the I-95 Bridge over Chester Creek in Philadelphia, closing the bridge that carried over 80,000 cars daily. In this case the severely damaged portion of the bridge was removed, the new super-

structure put in place, the deck poured and the bridge was reopened to traffic in just five weeks after the accident.

What ingredients go into a successful emergency project? Well, there are many, but the most important factor is the owner treating the project with a sense of urgency. The owner sets the tone of the project by helping to manage any obstacles encountered by the design team,

subcontractors or the general contractor on the project.

As the steel superstructure supplier on an emergency project, High Steel Structures is the proverbial tail on the dog. We don't run the



High Steel Fabricates Emergency Lake Champlain Bridge

High Steel is currently fabricating and setting up the structural steel for its \$17 Million contract with General Contractor Flatiron Construction Corporation for the Lake Champlain Bridge connecting Crown Point, NY and Chimney Point, Vermont in upstate New York.

A fast-track high profile emergency replacement project, the new 4,234-ton modified network tied arch requires complex fabrication and the application of a metallized coating to protect the steel from the harsh weather common to upstate New York.

High Steel's yard and setup team has played a major role in this project because of its size, the aggressive schedule, and the requirement for full set-up and reaming. Setup is especially complex for the over 40'-deep rigid frame delta-leg girder assemblies at the beginning of the arch span. Because these assemblies exceed the height at which complete vertical



Stage 3 setup

assembly and set-up can be done safely, the set-up and reaming teams are working on the bridge's ten delta-legs in three stages.

The first stage is the entire delta put together in the lay down position. In the second stage, the top part of the delta, with the roadway girder, is set up to elevation in an inverted fashion. In the third stage, the bottom part of the assembly which will ultimately rest on the pier, is set up vertically in the field position. Even with this method, the height of the bottom delta-leg portions

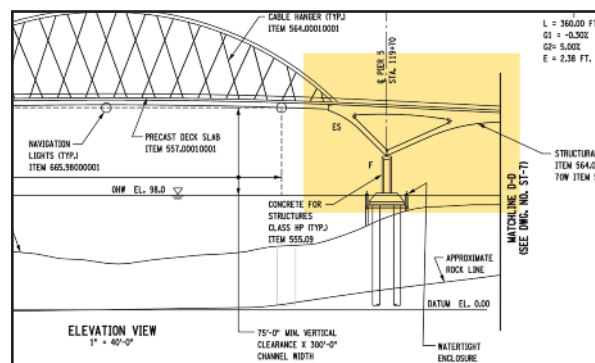


Stage 1 setup, foreground, and Stage 2 setup, background

in the third stage required Manlifts up to 30 feet high.

Over the next weeks, setup will begin at High Steel's Williamsport facility for the box girders in the arch span.

The new bridge, which is jointly owned by the New York State D.O.T and the Vermont Agency of Transportation, replaces a truss built in 1929 which was suddenly closed due to severe deterioration in late 2009. The new bridge is expected to be open to traffic this fall. Stay tuned



The project plans elevation shows the area of the bridge in the setup.

for updates on this project in future issues of the High Steel News.

Recent Contracts Awarded

Cleveland Innerbelt Viaduct (Design Build)

Cuyahoga County, OH
Walsh Construction Company
19,876 Tons

Milton-Madison Truss Bridge (Design-Build)

Jefferson, IN
Walsh Construction Company
8,165 Tons

NJ TPK Interchange 6-9, MP 56.5 to 59.7

South State, Inc.
Mercer, NJ
4,760 Tons

NJ TPK Interchange 6-9 Widening - Section 6, MP 67.5

Mercer County, NJ
Crisdel Group Inc
1,243 Tons

Veterans Memorial Bridge

Beaver County, PA
Golden Triangle Construction Company, Inc.
1,035 Tons

Bates Bridge, Routes 97 & 113 over the Merrimack River

Groveland-Haverhill, MA
Cianbro Corporation
1,138 Tons

Thruway Bridge over the Mohawk River

Herkimer County, NY
Tioga Construction Co., Inc.
998 Tons

I-87 Bridges/Seven Lakes Dr & East Village Rd

Rockland and Orange Counties, NY
A. Servidone, Inc./B. Anthony Const. Corp.
857 Tons

Strank Memorial Bridge - Alternate Design

Cambria County, PA
Brayman Construction Corporation
756 Tons

Hunters Point South, 51st Avenue - Plate Girders

Queens, NY
Weir Welding Company Inc.
448 Tons

Employee Spotlight:

Ronnie Medlock, P.E., Vice President Technical Services

Ronnie Medlock Awarded AISC Distinguished Industry Achievement Award



The American Institute of Steel Construction (AISC) recently presented High Steel VP of Technical Services Ronnie Medlock, P.E. with a Special Achievement Award at its 88th Annual Meeting in Boston, in October 2010.

AISC's Achievement Awards honor

significant projects and individuals who have made a difference in the success of the fabricated structural steel industry.

Medlock was honored for his vision in initiating the AASHTO/NSBA Steel Bridge Collaboration as a means to develop and implement standards for the construction of steel bridges, and for his continuing

effort in shepherding the Collaboration to a highly regarded position within the community of bridge owners and designers.

For more information on AISC Awards, please visit www.aisc.org/awards.

Tech Talk The High Tech Corner

By Ronnie Medlock, P.E., Vice President Technical Services

The Right Steel Design Can Reduce Shipping Costs

High Transit's extraordinary new trailer significantly enhances the structural element size that can be delivered by truck, particularly with respect to height and weight.

Engineers know well that designs which facilitate shipping by truck provide optimal economy, and piece height and weight are often limiting factors. The trailer must be able to handle the piece weight, and loads must pass beneath bridges en route. While High's standard trailers are 33" off the ground, the new trailer deck is only 11 inches high, increasing the maximum piece height by almost two feet. The typical legal bridge clearance in Pennsylvania is 13' 6", so this puts the height limit for in-state shipping at about 12 and a half feet.

The weight that the trailer can support is also an extraordinary 85 tons. Note, though, that the maximum fully supported length that can be shipped on the eleven inch high deck is 70 feet. These constraints will work well for deep pier elements or complex structural connections, like arch knuckles, but for long span



stringer elements, field splices will be necessary to take advantage of this depth. Remember that it is best to be flexible with field splice locations.

Featuring multi-axle positive steering, the rear trailer provides the dexterity to navigate corners and other urban congestion. This is similar to the way

that multi-axle cranes turn. While the very minimum turning radii have not yet been established, the 227' truck-trailer assembly can readily negotiate a typical turn onto a street or highway.

Fundamentally, this new equipment shifts the paradigm of the piece sizes that can be shipped economically. High has 40 pieces ranging from 19 ft wide, 48 ft long, and 9 ft deep scheduled to ship on this trailer. The piece weights range from 120k lbs to 170k lbs. If your design pushes the limit of what can be shipped economically, be sure to call High Steel for appropriate shipping alternatives or use the convenient shipping tool at highsteel.com.



getting steel to the right locations at the right time. Fabrication is taking place at the Lancaster and Williamsport facilities, and High Steel Structures Inc. Field Operations is doing most of the field erection.

"Keep in mind that this is the Capital Beltway that we're traveling to," stresses Glidden. "But High Transit has made this part of the project a non-issue."

The HOT Lanes project is an example of a cooperative public-private partnership. The public partner is the Virginia Department of Transportation (VDOT), while the private partner is Fluor-Transurban. Fluor-Transurban is financing, designing and building the project with environmental review and oversight from VDOT. Once completed, Fluor-Transurban will operate and maintain the HOT lanes, while VDOT will continue to own the facility.

"High has been very professional and effective to work with," says Ron

Quasebarth, structural contracts engineer at Fluor-Lane. "With a massive design build project in the city with the densest traffic in the country, High has made great efforts to aid the overall flow and schedule of the project."

Quasebarth adds that High Steel's scheduling, fabrication and field operations have allowed several of the bridges to be completed ahead of schedule. He credits Glidden and Bernd Laudorn, Vice President of Project Management, Estimating and Field Operations, along with Jeff Wampler in drafting and Bob Cisneros and Bob Wolpert in field engineering, for their expertise.

Through the public-private partnership, the state of Virginia has been able to move more quickly than would normally be possible using traditional funding and construction methods. The private aspect

of the partnership allows for optimal use of the best technology, financing methods, engineering and innovation.

Not only does the HOT Lanes Project provide greater efficiency in moving traffic through the highly congested Washington, D.C. area, but it makes a significant improvement to the Beltway's 45-year-old infrastructure, replacing more than 50 aging bridges and overpasses, varying in scope from overpasses to highly complex ramps at the interchange of I-495 with I-395.

"It is an honor to be involved in a project that will have such a huge impact on the traveling public in an area that has so much traffic congestion. When the HOT Lanes are completed, the daily commute for thousands of people should be greatly improved. We are proud to be a part of this project," says Glidden.

JUST THE FACTS:

Steel:	21,500 Tons of Steel
Project:	HOV/HOT lanes on the Capital Beltway between the Springfield Interchange and the Dulles Toll Road
Cost:	\$2 billion
Funding:	Public-Private Partnership with Virginia Department of Transportation (VDOT and Fluor-Transurban)
Design/Build:	Fluor-Transurban and Fluor-Lane, LLC
Steel Fabricator/Erector:	High Steel Structures Inc., Lancaster, Pa.
Start date:	July 2008
Estimated completion:	Late 2012 / 2013

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project in any way, but the product we supply is generally on the critical path, so we can dramatically affect the schedule. The purpose of this article is to identify the important portions of our process that can significantly affect our ability to deliver a quality product in the shortest amount of time.

The first factor is really very simple: get us started. The sooner we get to the starting line the sooner we'll get to the finish line.

To get us started we need a design that is complete enough to develop a bill of material so that we can get an order in to the steel mills. We generally have seven to ten thousand tons of plate in our yard waiting for fabrication on an already-booked project. We will look to use that plate, that is not schedule sensitive, where possible, to speed the process. Otherwise, we push the steel mill to expedite our order.

In the meantime, we are producing the detail drawings. High Steel has 35 employees in our Engineering/Detailing/Programming department that will be allocated as necessary, depending on the size of the job, to expedite the detail drawings. As the drawings are finalized and submitted for approvals, it is critical that the owner or designer who is in charge of approvals execute this critical process as soon as possible. The successful projects we have been a part of have produced one- to three-day approval cycles.

The next portion of the process is our responsibility; it is the fabrication and coating of the product. With four production plants and the capacity to produce over 85,000 tons of fabricated steel yearly, High Steel has the flexibility to immediately move an emergency project into production using overtime and weekend shifts to subsidize our production schedule.

Transportation of the product to the jobsite is the final phase. At High Steel we have our own in-house transportation company, High Transit, with 28 tractors, over 200 trailers and 117 employees, giving us control over the transportation function and thus avoiding any delays. Typically, obtaining load permits is not an issue, but in those cases where very large super loads are a part of the project, DOT intervention to expedite the permits can be an important aspect of success.

High Steel participated in two recent emergency projects, one in Michigan and one in Maryland, and much like the I-95 project, both were very successful in restoring critical transportation arteries in their respective cities. They all shared one thing in common: all members of the team— owners, designers, suppliers and the general contractors— worked together to break down barriers to expedite the project for the good of the public.



**"Lay down a good weld
and give good measure"**

Sanford High 1931

www.highsteel.com

Fast Answers to Your STEEL Questions

Please address comments or requests
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