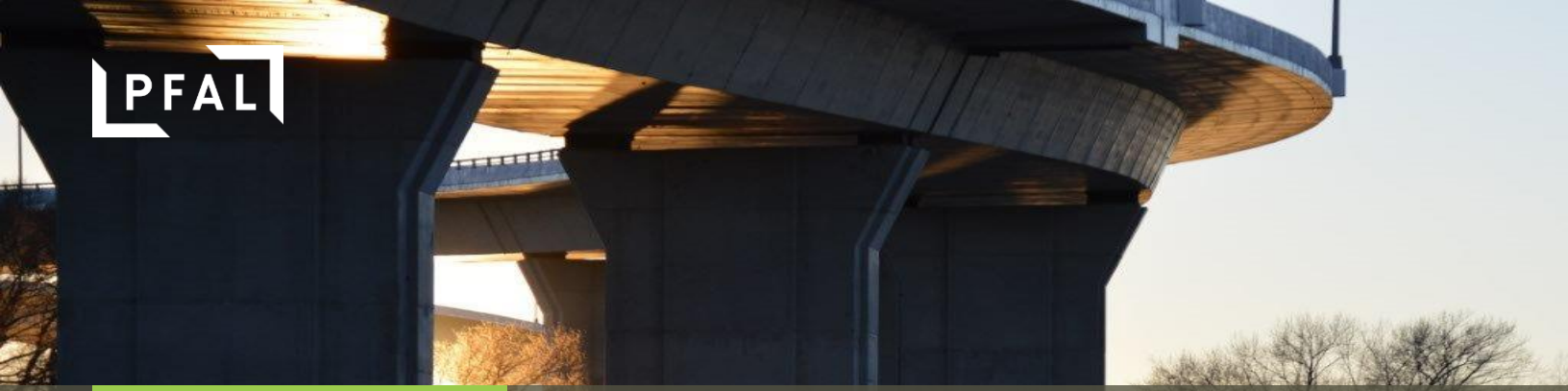


- ✓ TOLL REVENUE
- ✓ NEW BUILD / REPLACEMENT
- ✓ PRIVATIZATION
- ✓ PRIVATE FINANCING
- ✓ UNSOLICITED BID

# SOUTH NORFOLK JORDAN BRIDGE

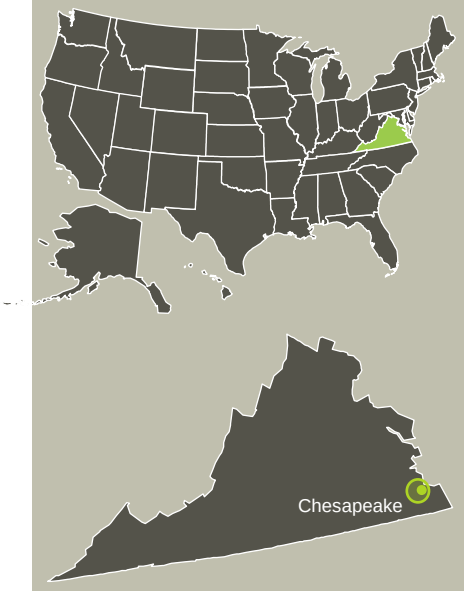



**Figure 1: Elizabeth River Crossings.**
Source: Pickard, A. (2008, June). Elizabeth River Crossings Study

## CHESAPEAKE, VA

The South Norfolk Jordan Bridge ("SNJB") is a 5,372 ft fixed bridge that connects the City of Chesapeake to the City of Portsmouth over the Elizabeth River in Virginia. The City of Chesapeake had decommissioned the original Jordan Bridge in November 2008. An unsolicited proposal submitted by United Bridge Partners ("UBP") to replace the Jordan Bridge with a new, privately owned bridge was approved by the City of Chesapeake in January 2009[1] by executing an Acquisition and Development Agreement ("ADA") between UBP and the City of Chesapeake. As part of the ADA, UBP assumed responsibility to demolish the existing Jordan Bridge, aquired the right of way and easments associated with the bridge, and the right to toll, design, construct, finance, operate and assume ownership of a new bridge and associated tolling facilities on the SNJB. The construction of the SNJB was reported to be privately financed. Project revenue on the SNJB comes from tolls, set by the private operator with no defined limit, which are collected electronically on the bridge[2].

Note: the facts of this case study were reviewed by UBP. We have provided footnotes to describe instances where UBP disputes information in the public domain.

## BACKGROUND + PROJECT DRIVERS

The Elizabeth River Corridor between Midtown Tunnel and High Rise Bridge in southern eastern Virginia near the Chesapeake Bay serves approximately 250,000 vehicle trip crossings per weekday. It is a growing corridor that primarily serves naval and industrial operations. The original Jordan Bridge, opened in 1928, was the first highway crossing of the Elizabeth River. Since the Jordan Bridge opened in 1928, four additional crossings (two tunnels and two bridges) were added to the Elizabeth River Corridor to accommodate the needs of the growing population and military in the area. Prior to construction of the SNJB, there had not been any new crossing or expanded capacity since the construction of the eastbound Downtown Tunnel in 1987.

[1] City of Chesapeake. (2009, January 27). City Council Work Session.
[2] UPB responses from September 21, 2016

**FISCAL YEAR ADA APPROVED**
January 2009

**FISCAL YEAR NTP APPROVED**
November 2010

**OPENED TO TRAFFIC**
October 2012

**DELIVERY METHOD**
Privatization

**CAPITAL VALUE**
$142 million

**FINANCING**
Private -Toll Revenue

**TOLL RATES**
$2.00 - 4.75 (2 axles)

**ROUTE**
Two-lane toll bridge, connecting the cities of Portsmouth and Chesapeake

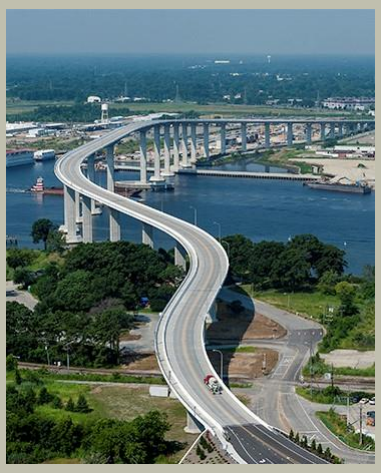
**RIDERSHIP**
6,300 AADT in 2015

**POPULATION (2014)**
230,571 – City of Chesapeake

1.7 million - Hampton Roads Metropolitan Area

**MEDIAN HOUSEHOLD INCOME (2013)**
$56,161 - Hampton Roads Metropolitan Area

**UNEMPLOYMENT (2014)**
6.1% - Hampton Roads Metropolitan Area



The original Jordan Bridge was a vertical-lift drawbridge built in 1928 by a private company to support their own industrial needs. It was operated by the South Norfolk Bridge Commission, Inc. until 1977, when ownership and operations of the Jordan Bridge and landings were transferred to the City of Chesapeake. By 2008, the Jordan Bridge was serving approximately 7,200 vehicles per weekday despite an estimated "unrestricted" demand of 18,000 per weekday[3]. Limited usage of the Jordan Bridge was primarily driven by delays due to the manual toll collection operation, delays from daily bridge lifts, delays from rail crossings and a vehicle weight limit of 3 tons owing to the age and condition of the Jordan Bridge structure.

Deferred maintenance of the asset further compounded the deteriorating integrity of the structure, resulting in the Virginia Department of Transportation downgrading the Sufficiency Rating (which is based on a 0-100 scale) of the Jordan Bridge from a 3 ("serious condition") in 2007 to a 0 ("failed condition") in 2008[4]. Due to structural concerns, the City of Chesapeake had to decide to repair, replace or decommission the Jordan Bridge. At the time, the City of Chesapeake had $17 million available to repair the bridge[5] and estimated full-replacement with a four-lane bridge was approximately $200 million[6]. Lacking sufficient funding and given the concerns over the safety of the bridge, the Chesapeake City Council voted to decommission the Jordan Bridge in October 2008.

In December 2008, UBP formally submitted an unsolicited proposal to the City of Chesapeake to replace the Jordan Bridge using private financing. By January 27, 2009, the City of Chesapeake's City Council authorized the execution of the ADA between the City and UBP[7]. The project received significant political support from both local governmental agencies and the Commonwealth of Virginia despite concerns over SNJB's height and width clearance requirements to accommodate New Panamax-sized ships[8]. In November 2010, the City of Chesapeake issued UPB a Notice-to-Proceed ("NTP")[9]. Approximately 45 months after the City of Chesapeake approved the ADA and approxiamtely 23 months after the NTP, the SNJB opened to traffic in October 2012[10].

According to UBP, the total cost to demolish the Jordan Bridge and construct the new SNJB was $142 million on completion[11]. The SNJB was constructed as a 5,372-ft long pre-cast concrete bridge. There is one 12-ft wide lane in each direction (the City originally contemplated 2 lanes in each direction[12]), two 8-ft shoulders and one pedestrian walkway. At its maximum clearance height, the SNJB is 145-ft tall. Tolls are collected using a fully electronic tolling system.

[3] Pickard, A. (2008). Elizabeth River Crossings Study (pp. 6). Hampton Roads MPO.
[4] City of Chesapeake. (2008, October 14). City Council Work Session.
[5] City of Chesapeake. (2008, October 14). City Council Work Session.
[6] Harell, W., & Saunders, M. (2012, July). Build that bridge. ICMA/PM, 12. A request to the City of Chesapeake to obtain the cost estiamte report was made in August 2016 but no report was furnished. According to UBP, the City's replacement cost estimates were approximately $300 million.
[7] City of Chesapeake. (2009, January 27). City Council Work Session.
[8] Virginia Marine Resources Commission. (2009, August 25). Commission Meeting Minutes
[9] UPB responses from September 21, 2016
[10] Rohleder, J., & Woodruff, S. (2013, Winter). South norfolk jordan bridge. ASPIRE, 29.
[11] South Norfolk Jordan Bridge Project Information Sheet
[12] Pickard, A. (2008). Elizabeth River Crossings Study (pp. v). Hampton Roads MPO.

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**UNEMPLOYMENT (2014)**
6.1% - Hampton Roads Metropolitan Area

The acceptance of the unsolicited proposal and need for the new SNJB was driven by:

- City Council's decision to decommission the Jordan Bridge due to structural concerns and limited use
- City of Chesapeake was not willing to seek funding, raise financing or taxes to pay for the Jordan Bridge's repair or replacement
- City of Chesapeake's view that private financing and delivery of SNJB would reduce risk to the City and expedite delivery
- New bridge would allow heavier vehicles and reduce congestion at neighboring crossings

**Timeline**

- 1928 – original Jordan Bridge constructed by private party
- 1977 – original Jordan Bridge ownership transferred to City of Chesapeake
- November 2008 – Jordan Bridge decommissioned
- December 2008 – Unsolicited proposal submitted to City of Chesapeake by UBP
- January 2009 – Approval of Acquisition and Development Agreement between the City and UBP
- November 2010 – NTP issued
- October 2012 – South Norfolk Jordan Bridge opened for traffic

## BENEFITS & ISSUES

Benefits:

- The new SNJB increased the weight limit over the prior bridge, reducing traffic burden on adjacent bridges/tunnels
- No City imposed taxes were required to fund the project
- Responsibility for demolishing the old bridge was transferred to UBP
- Permitting, design, construction and revenue risk was transferred to UBP
- Provided additional non-tunnel route for emergency use
- City waived liablity for the asset e.g. for cost increases, lawsuits from construction claims/accidents and schedule delays.

Issues:

The chief concerns raised during the City's decision-making process and issues after construction were:

- Public loss of control on toll pricing set by UBP; however it was agreed that City and State vehicles would travel for free and there would be no tolling during a state of emergency
- City of Portsmouth filed a lawsuit over their ability to collect tax on the project. Note, they were not party to the original ADA.
- Concerns regarding the use of eminent domain on a privately financed and constructed project. No eminent domain was ultimately required and it was explicitly prohibited in the ADA.

## DELIVERY METHOD ASSESSMENT

Prior to the unsolicited proposal by UPB, the City of Chesapeake was considering the following three options for the Jordan Bridge:

- Repair: Estimated to be approximately $17 million in 2007 dollars
- Replace: Estimated to be approximately $200 million in 2007 dollar. UPB has stated that estimates were $300 million.
- Decommission in place

The City, along with the Hampton Roads Metropolitan Planning Organization, developed a report in 2008 that indicated the potential traffic impact and costs of the three options for the Jordan Bridge. The 2008 report indicated the "replace" option would require a $0.60 toll in 2007 dollars and assumed volume crossing of the Jordan Bridge would increase by approximately 30% by 2030[13]. The decommission option indicated that existing ridership would primarily shift to the existing Downtown Tunnel, further straining the tunnel's capacity.

It appears the decision to select between the three options was primarily made on the basis of cost. Lacking dedicated funding or the desire to increase taxes and fees, the City of Chesapeake voted to decommission the bridge with no apparent analysis on potential delivery methods of procuring a new bridge.

Upon receiving the unsolicited proposal from UBP, the City did not appear to perform any independent alternative delivery method assessment. With the Jordan Bridge no longer operational, the decision to deliver the SNJB as a privately funded project was primarily driven by the unsafe condition of the structure, as indicated by the speed of approval of the ADA and approval by the Virginia legislature[14].

## PROCUREMENT APPROACH

Unlike typical public transportation projects, the SNJB project did not go through a competitive public procurement process. The City instead chose to negotiate directly with UBP once the unsolicited proposal was submitted. The City of Chesapeake did not appear to have an unsolicited proposal policy in place, nor was the project subject to Virginia Department of Transportation's unsolicited proposal policy. As a result, the unsolicited proposal process for the SNJB did not involve an unsolicited proposal review fee, a requirement to conduct a financial feasibility

[13] Pickard, A. (2008). Elizabeth River Crossings Study (pp. 19). Hampton Roads MPO.
[14] An Act to authorize the emergency replacement of the Jordan Bridge in the City of Chesapeake; emergency, § 581 (2009).

assessment, or a mandatory public procurement for the project.

In January of 2009, an ADA was signed between the City of Chesapeake and UBP. The City of Portsmouth, the city on the west landing of the SNJB, was not party to the ADA. The ADA provided for the sale of City of Chesapeake property to UBP for $10.00 and the transfer of ownership of the Jordan Bridge to UBP. It obligated the purchaser to demolish the existing Jordan Bridge and gave the purchaser sole responsibility to set tolls on the SNJB.

Legislation was required to permit execution of the ADA. Shortly after the ADA was signed, the Virginia legislature unanimously (40-0) passed SB1550 in February 2009. The bill confirmed the City of Chesapeake's right to transfer the bridge to a private entity and enter into an ADA for a private entity to design, build, finance, operate and maintain the bridge so long as no public funds were used. It also clarified the City has no financial obligation or responsibilities for the bridge's construction and ongoing operations.

Under the ADA, UBP was responsible for obtaining necessary permits including from Virginia Marine Resources Commission and the US Coast Guard. All construction and material contracts were the responsibility of UBP and were privately negotiated.

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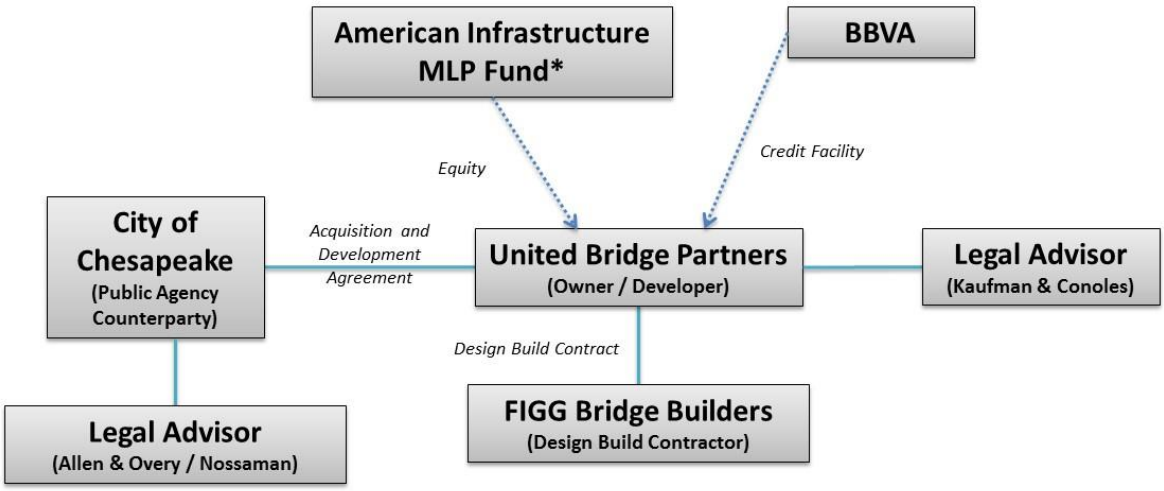
## ORGANIZATION CHART




*American Infrastructure MLP Fund replaced Britton Hill Partners, LLC in October, 2009

## FINANCING

Under the ADA, no City, State or Federal funds were used to finance the SNJB. The SNJB was privately financed by American Infrastructure MLP Fund, a partner to UBP. Because SNJB was privately financed, limited information is available regarding the financing of the SNJB.

According to UPB, the project was financed using a combination of equity from UBP through American Infrastructure MLP Fund and debt from BBVA. Exact details are confidential and were not made available by UBP. As reported by the global Infrastructure Journal publication, SNJB used $105 million financed with $66 million in equity and a $39 million credit facility from BBVA. The credit facility had a 12 year term and a maturity date of October 22, 2022. The accuracy of this information and a "like-for-like" comparison of the project scope is in question based on UBP's feedback, but no other additional information sources could be identified in our research.

Toll revenues are used to pay debt service for the project's private financing, operating costs and equity returns. As demonstrated in the following table comparing rates prior to decommissioning the Jordan Bridge and the SNJB tolls as of January 2016, tolls increased by a factor of four and added tolling in each direction.

| Vehicle Type | 2008 City of Chesapeake each way | 2016 UBP each way E-ZPass[15] | 2016 UBP Pay by Plate | 2016 UBP Pay by Mail |
|---|---|---|---|---|
| Motorcycles | $0.50 | $2.00 | $3.50 | $4.75 |
| Two axles | $0.75 | $2.00 | $3.50 | $4.75 |
| Three axles | $1.00 | $4.00 | $5.50 | $6.75 |
| Four axles | N/A | $5.00 | $6.50 | $7.75 |
| Five + axles | N/A | $6.00 | $7.50 | $8.75 |

## DESIGN & CONSTRUCTION

The SNJB is a precast, post-tensioned fixed-span bridge. The span of the bridge is 5,375-ft with a 145-ft vertical and 270-ft horizontal clearance for shipping and naval vessels. Because the SNJB was designed with an 8-ft pedestrian walkway, SNJB's pavement gradient could not exceed 5 degrees, thus limiting the vertical clearance for ships to 145-ft instead of 185-ft, the height recommended by local shipping contractors and associations. SNJB has a total of two 12-ft wide lanes and two 8-ft wide shoulders for vehicle traffic.

All permits were the responsibility of UBP under the ADA. UBP initiated the US Coast Guard application in May of 2009[16] and appeared to obtain approval in December of 2009. As part of the US Coast Guard permit, UBP conducted an Environmental Assessment ("EA"). It does not appear an Environmental Impact Statement ("EIS") was required. The project also obtained a Nationwide Permit from the US Army Corps of Engineers, Water Protection Permit from the Virginia Department of Environmental Quality and approval from the Virginia Marine Resources Commission.

In November 2010, the City of Chesapeake issued the NTP to UBP. The use of pile driving dampeners and bubble curtain enabled UBP to work throughout the year by limiting disturbance to marine life. By January 2012, SNJB's foundations were completed and the construction of the SNJB's precast piers and spans were underway. The main span was constructed using precast concrete segments that were cast on-site. The main span used precast concrete segments and the balanced cantilever construction method.

In the ADA, UBP agreed to advance "best efforts" to complete the SNJB by July 4, 2010, but no later than January 2012. UPB indicated to the City that work would be completed two years from start of construction, though no mention of construction time limit was included in the ADA. UBP's presentation to the Chesapeake City Council on June 23, 2009 stated the SNJB would be open to traffic 18 months after construction start. The SNJB opened in October of 2012, nine months later than the planned, and approximately 23 months after the NTP was issued to UBP. No documentation was disclosed to determine if penalties were incurred by UBP for the delay in the planned opening. The exact reasons for the delay in operational commencement are not clear. One influencing factor may have been a reported accident involving one of the pre-cast concrete spans, but UBP disputes this information[17].

[15] Traveling the SNJB. (2016, January 1). Retrieved September 9, 2016, from http://www.snjb.net/traveling-the-snjb/travel-fees-accounts

[16] FIGG Bridge Developers (2009, June 23). South Norfolk Jordan Bridge a private proposal. Presentation presented at Chesapeake City Council

[17] Forster, D. (2013, April 27). Railroad company sues over Jordan Bridge accident.

UBP's unsolicited proposal indicated the SNJB project would cost approximately $100 million[18, 19]. Total construction costs, including the demolition of the existing Jordan Bridge was reported by UBP to be $142 million. Note; none of these additional costs were the responsibility of the City of Chesapeake.

## TOLLING & OPERATIONS

All operations and maintenance of the SNJB and the tolling facilities are the responsibility of UBP under the ADA. No termination or handback date was noted in the ADA, indicating UBP ownership and operation of the SNJB is perpetual. Inspections and compliance with State standards are also the responsibility of UBP.

Tolls on the SNJB are collected using a fully electronic tolling system. UBP is responsible for collecting tolls, but utilizes E-ZPass. The E-ZPass tolling tags used for the SNJB are compatible with the neighboring toll systems operated by the State.

## CURRENT STATUS

SNJB is currently operational. Ridership has averaged around 6,400 daily riders since 2012. UBP disputes these numbers but did not provide additional information.

| Year | Annual Average Daily Traffic Volume |
|---|---|
| 2015 | 6,300[20] |
| 2014 | 6,200[21] |
| 2013 | 6,400[22] |
| 2012 | 6,600[23] |

A lawsuit was filed by the City of Portsmouth against SNJB over a property tax dispute. The lawsuit was settled in August of 2016. According to UBP, the settlement created a revenue sharing mechanism between UBP and the cities of Portsmouth and Chesapeake. According to the Virginian-Pilot, the settlement resulted in a $1 million payment from the State to the City of Portsmouth for back taxes and obligated SNJB to pay the City of Portsmouth annual payments of approximately $130,000[24].

[18] Saewitz, M. (2008, December 24). Proposal: Tolls to pay for new $100M Jordan Bridge.
[19] City of Chesapeake. 2011 Annual Report
[20] Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2015).
[21] Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2014).
[22] Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2013).
[23] Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2012).
[24] Somers, J. (2016, July 29). Portsmouth and South Norfolk Jordan Bridge reach settlement over taxes, document says.

## ROLES + RESPONSIBILITIES

| RISK | OBLIGATIONS ASSUMED BY CITY OF CHESAPEAKE | OBLIGATIONS ASSUMED BY PRIVATE DEVELOPER |
|---|---|---|
| Design and Construction | | Yes |
| Financing | | Yes |
| Traffic and Revenue | | Yes |
| Toll Rate Setting | | Yes |
| O&M and Major Maintenance | | Yes |
| Insurance | | Yes |
| Change in Law (discriminatory) | | Yes |
| Environmental Permitting & Licensing | | Yes |
| ROW Acquisition | | Yes |
| Hand-back | N/A | N/A |
| Police and Emergency Services | Yes | |
| Environmental | | Yes |
| Termination for Convenience | N/A | N/A |
| Protection from Competitive Transportation Facilities | | Yes |
| Federal Requirements | | Yes |
| Force Majeure | | Yes |

## APPLICABILITY TO HWY 37

The six main lessons applicable to Hwy 37 are: approval process of an unsolicited proposal, the bridge was originally built with private funds, availability of alternate routes, toll setting policy, potential for political challenge and direct versus indirect public use of funds.

It is important to note the review and approval of the unsolicited proposal for the SNJB was done under "emergency" conditions. The Jordan Bridge was decommissioned over structural concerns and a lack of dedicated funding or financing to repair or replace the entire existing facility. The unsolicited proposal may have been seen as an option of last resort by the City of Chesapeake and the State. These conditions do not currently apply to Hwy 37 and should be taken into consideration.

The Jordan Bridge was originally built and funded by a private party, the ownership was transferred to the City in 1977, therefore, the political support for transferring the ownership of the facility back to private partners was likely politically more acceptable given no public funds were used to originally build the project and it was not part of the statewide highway system. Unlike Hwy 37 which was built with public funds and is part of the statewide system, the transfer of ownership may have different political challenges and consequences compared to the Jordan Bridge.

The Elizabeth River Corridor has five different crossings within approximately 5 miles, including SNJB. The existence of alternative routes in the vicinity of the privately owned bridge is a relevant fact that likely entered in to the City of Chesapeake's decision to accept the UBP proposal. Because constituents have several travel options in the immediate vicinity of the Jordan Bridge, there were likely fewer stakeholder engagement and political issues to consider for the government.

Toll setting is seen as a potentially contentious issue, both for the SNJB and Hwy 37. The loss of public control of the tolls on the SNJB could have serious implications. As would be expected from more than a 4x increase in tolls, we understand users have filed complaints to the City of Chesapeake. As a result, an economic benefit report was meant to be conducted in December of 2014. No additional information on this report was found.

Despite SNJB's strong political support through the development of the project, public records indicate that the City of Portsmouth sued SNJB over their ability to collect property tax after construction was completed. It should be noted, property tax has been an obligation of other road projects in California that were developed via public private partnerships. It is difficult at this stage to determine what type of political challenges Hwy 37 may face, but it important to understand a private company will most likely not receive tax relief from the state and county authorities without prior engagement and agreement.

Though no public funds were used to finance the SNJB, there are questions around the use of indirect public resources such as the cost to review and negotiate the ADA, toll increases, and loss of future toll revenue once the cost to replace and operate the facility is paid off. The City of Portsmouth's settlement also included the State to provide $1 million in back taxes related to the SNJB. For clarity, no breach of the ADA occurred, but total costs to the government should be scrutinized and considered when evaluating a full privatization for Hwy 37.

Based on information reviewed, the City did not conduct a valuation of future toll revenue and did not consider alternatives to privatizing the SNJB. In a separate transaction, a privately developed toll road in Virginia, the Pocahontas Parkway, was leased to a private developer for 99 years in 2006 for $604 million. The $604 million was used to pay an upfront consideration to the Virginia Department of Transportation for the lease and to complete the legal retirement of the existing debt on the highway. The Virginia Department of Transportation and the Pocahontas Parkway operator have a revenue-sharing mechanism in the project lease agreement once a certain equity return threshold is met. The implication of this example is that all revenue-generating assets have value and cost obligations that should be calculated and considered to avoid potentially sacrificing long term benefits of an asset to a private developer.

## WHAT LEGISLATION NEEDS TO BE ENACTED TO PERMIT A SIMILAR EFFORT FOR HWY 37?

The City of Chesapeake's main legislative requirement was obtaining State approval for the sale of the Jordan Bridge to a private entity. The State unanimously passed SB1550 in February 2009 which allowed the City to proceed with the ADA. The Jordan Bridge was owned and operated by the City of Chesapeake which did not requirement them to follow the legislation applicable to the Virginia Department of Transportation.

## SOURCES OF INFORMATION

An Act to authorize the emergency replacement of the Jordan Bridge in the City of Chesapeake; emergency, § 581 (2009).

Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2015).

Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2014).

Average daily traffic volumes with vehicle classification data on interstate, arterial and primary routes (Rep.). (2013).

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Chesapeake Department of Public Works. Innovative Finance. (2012). Lecture presented at Urban Construction Initiative Annual Meeting.

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