

Mid Year Budget Workshop



The roles that bridges play . . .

They can be architectural marvels, cultural icons, and tourist attractions. While they are physical connectors, making movement possible between different geographical areas, they can also serve as social connectors, facilitating commerce and interaction between people. In some cases they can even be emotional connectors - symbols with which people identify, or visual icons that remind them of the places they call home.

– Project for Public Spaces



A Bastrop Icon



El Mina

- El Camino Real, King's Highway or Old San Antonio Road
- Low Water, Small Boats (1800's)
- Ferry Boats (1830's)
- Steamboats (1850's)
- Bastrop Bridge Company, 1889
 - Chicago Bridge & Iron Company
 - Wrought Iron & Cantilever
 - 1,268 ft long, 60 ft above water
 - \$45,000
 - Flood of 1913- 57 ft

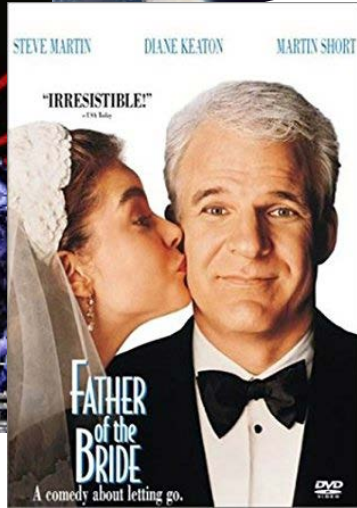


History of Today's Icon

- Built by Kansas City Bridge Co.
 - Parker Through-Truss
 - Constructed 1923
 - 60 feet above water
 - \$167,000
- National Register of Historic Places, 1990
 - Prior to construction of the modern bridge
- Traffic was redirected in 1992
- City of Bastrop assumed ownership at that time



27 Years Ago in 1991...



Income: \$29,430.00

Rent: \$495.00

Bacon: \$1.95

Gas: \$1.21

Eggs: \$0.85



Internet is made available to unrestricted commercial use

911 Emergency Number tested in US Northwestern Cities



Also 27 Years Ago in 1990 & 1991:

The City of Bastrop and the Bastrop Advertiser Discussed:

- Creating Pedestrian & Bicycle passage on the bridge across the river
- Adding lighting to the Old Iron Bridge
- Downtown Business Owners concerned changes in traffic patterns could disrupt business

Historic span to stay in place

Within a year state highway department officials expect they'll be ready to take bids for a new Colorado River bridge linking Chestnut Street and Loop 150 West

have pledged to assume responsibility for maintaining the historic iron truss span, possibly as part of the city's park system.

"When we're through (with the new bridge), maintenance responsibility (for the old one) will go to the city," Smith said. "We will not alter it. We have a gentleman's agreement with the mayor and the city manager."

State and local historic preservation officials have voiced fears the landmark Bastrop bridge could be dismantled once it passes out of use as part of the state highway system.

Downtown business operators worry that closing the old bridge during construction could disrupt the normal flow of customers.

The next stages of the project include determining specific right-of-way requirements and current property ownership, Smith said. Later will come an assessment of the project's impact on the environment, he said.

Detailed design work on the new

bridge will take about 1 to complete, according

On a different project, Bastrop, Smith said the department is still awaiting a study of the Houston endangered species, at 21 before completing safety improvements on Bastrop and FM 1441.

Under orders from the and Wildlife Service, the department has hired a consultant to assess a number of changes along the right-of-way on the river.

Last year FWS made modifications in the area, including new signs and lighting. More than 50 trees were removed to make way for the endangered population.

The consultant will locate and count

Cor

1923 bridge now listed on National Register

Bastrop's 1923 steel bridge over the Colorado River on Chestnut Street is now registered as an historic landmark by the National Register of Historic Places.

The National Register is maintained by the U.S. Department of the Interior.

The designation was announced by Curtis Tunnell, state historic preservation officer of the Texas Historical Commission.

"We hope formal recognition (of the bridge) will encourage owners and government officials to respect the property's integrity," said Tunnell in an Aug. 15 letter to Byron Blaschke of the State Department of Highways and Public Transportation.

Current plans for the old bridge call for it to become City of Bastrop property once construction of a new concrete span on Loop 150 is completed.

Bastrop City Manager Henry Cunningham Jr. hailed the designation, saying he is seeking more information about how the National Register designation

could affect the city's use of the bridge as a bicycle and pedestrian passage across the river.

The city council has discussed lighting the old bridge and adding security fencing for safety reasons.

Construction of the new bridge is slated to begin next year.

The National Register designation was made under terms of the federal Historic Preservation Act of 1966.

More than 120 buildings, bridges and other sites in Bastrop have been added to the National Register since 1978.

the bridge is set to be dismantled, Bastrop resident Smith said Friday. "It's an alignment" for the bridge, he said, with the general procedures strict officials.

A way for acquiring the right-of-way immediately adjacent to the current bridge would be to acquire the city since

time Smith sought the designation. "I'm concerned about the impact on downtown business and historic preservation,"

Smith said. "The old bridge will not be dismantled while a new one is built."

Smith said. "The new 1290-foot-long bridge, city officials

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Google Challenge

When you google Bastrop, TX you find multiple pictures of the Old Iron Bridge



Photo from Texas Monthly

These postcard photos were part of the:
T. B. Willis Photograph Collection



Concrete and steel shouldn't move like this!



Tacoma Narrows Bridge



Miami bridge collapse

Posted: 9:04 AM, March 16, 2018

Bridge Inspection 2014

- Burgess & Niple (B&N) performed an in-depth inspection of the above referenced bridge on January 25th-27th, 2014.
- Prior to 2014 bridge inspections were performed: 1992, 2001, 2009, 2011.
- The limits of the bridge which were inspected include the three truss spans over the Colorado River.
- The three spans (photos 1 and 2) are numbered 16 through 18 from west to east and consist of 192-foot long through trusses.



End view looking east.

Bridge Inspection 2014

- Panel points and floor beams are numbered from 0 to 9 on each truss from west to east.
- Stringers are numbered 1 through 6 from north to south.
- The trusses are labeled as north and south.



Elevation looking northwest.

What you can't see below:



Looking north at the asphalt wearing surface over pier 17 between spans 17 and 18.
Note: the asphalt patch is loose and deteriorated.



Looking southeast at the north edge of the deck at panel point 7 in span 16. Note: 3-foot long spall in the edge of the deck with exposed reinforcing steel.

What you can't see below:



Looking north at the underside of the deck at floor beam 3 in span 16. Note: spall in deck underside with exposed reinforcing steel adjacent to floor beam top flange.



Looking northeast at the stringers at floor beam 8. Note: typical stringer condition with minor surface corrosion on the webs and flanges.

What you can't see below:



Looking southeast at stringer 1, span 16 at floor beam 7. Note: 1-inch wide knife edge section loss to the stringer top flange for 10-feet of stringer length.



Looking northwest at stringer 6 connection to floor beam 3 in span 17. Note: heavy pack rust between stringer bottom flange and seat angle.

What you can't see below:



Looking northwest at the outboard gusset plate at L2, span 17, north truss. Note: 1-inch diameter corrosion hole through the gusset plate along the horizontal shear plane.



Looking southeast at the outboard gusset plate at L4, span 17, north truss. Note: 3 1/2-inch horizontal by 1-inch vertical corrosion hole through the gusset plate along the horizontal shear plane.

What you can't see below:



Looking northwest at the inboard gusset plate at L6, span 18, north truss. Note: 3 1/2-inch horizontal by 2 1/2-inch vertical corrosion hole through the gusset plate along the horizontal shear plane.



Looking west at L5L6 at L6, south truss in span 16. Note: 1/8-inch deep by 1-inch wide pitting on the top flange of the lower chord.

What you can't see below:



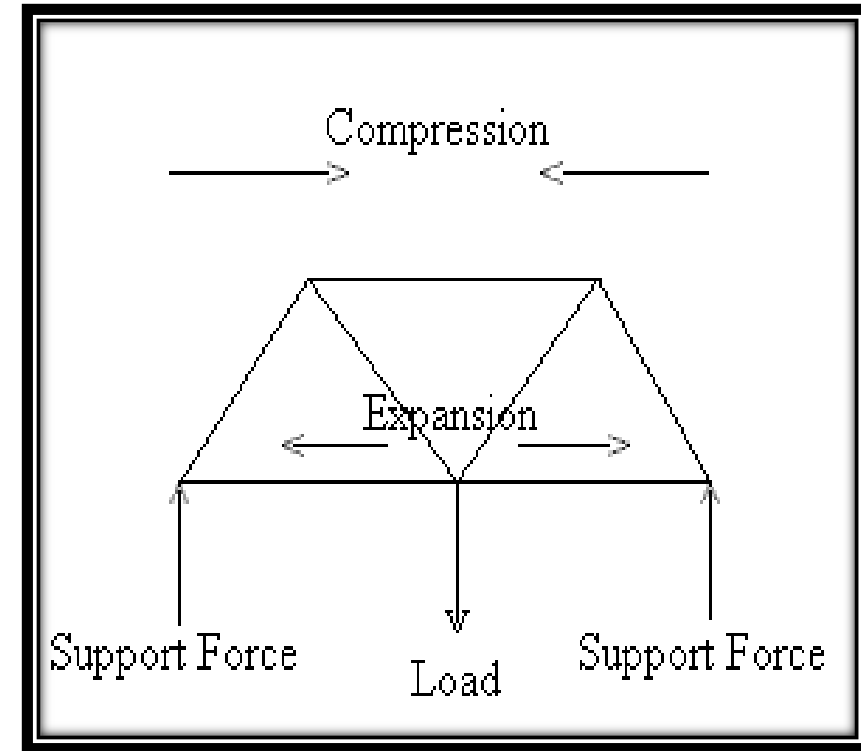
Looking north at the south truss bearing at L0, span 17. Note: 1 1/2-inch nominal diameter anchor bolt exhibits up to 75% section loss at the base of the anchor bolt.



Looking southeast at the north truss bearing at L0, north truss. Note: one missing anchor bolt on outboard face of the bearing. Also note, expansion slot filled with corrosion and debris.

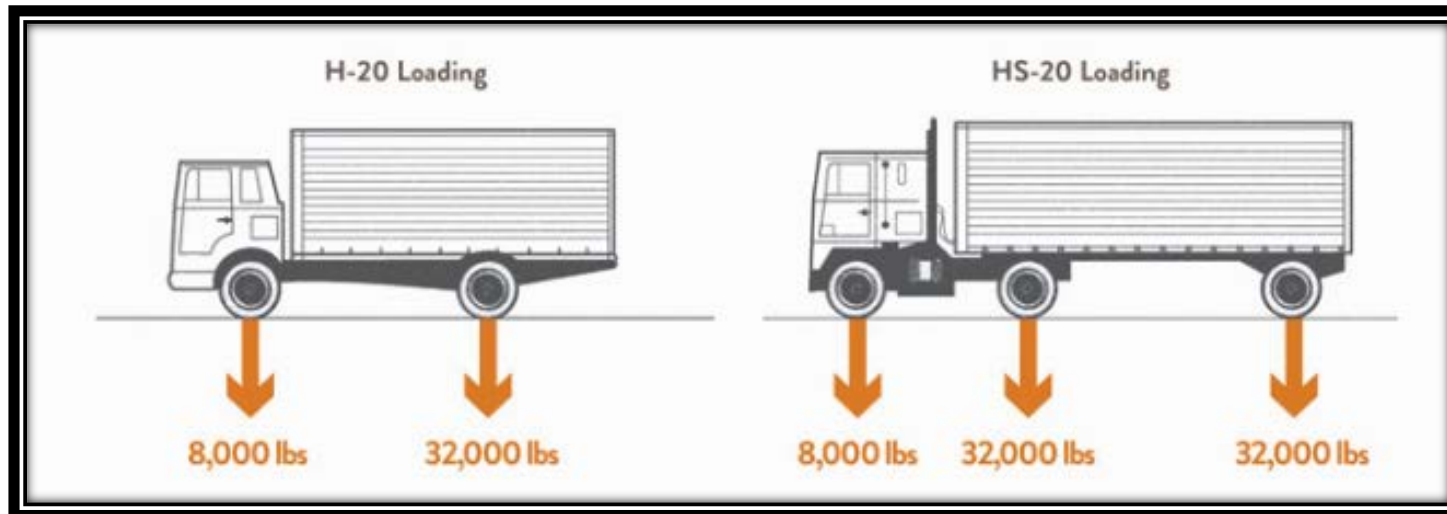
Load Rating

- Multiple rating software programs were utilized for the load rating of this structure.
- Plans for this bridge were not available; therefore, B&N measured the section properties of the members and overall geometry for use in the load rating calculations.
- Dead and live loads were used in combination with their coinciding section properties and capacities to calculate the rating factors for the main components of the bridge.
(truss members, floor beams, stringers, and lower chord gusset plates with heavy section loss).



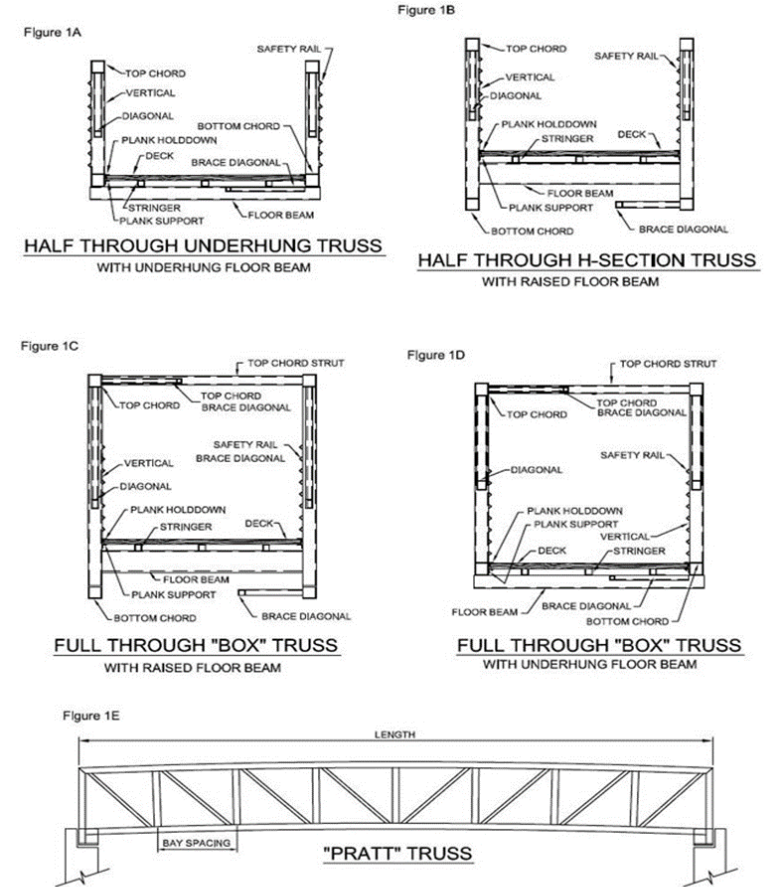
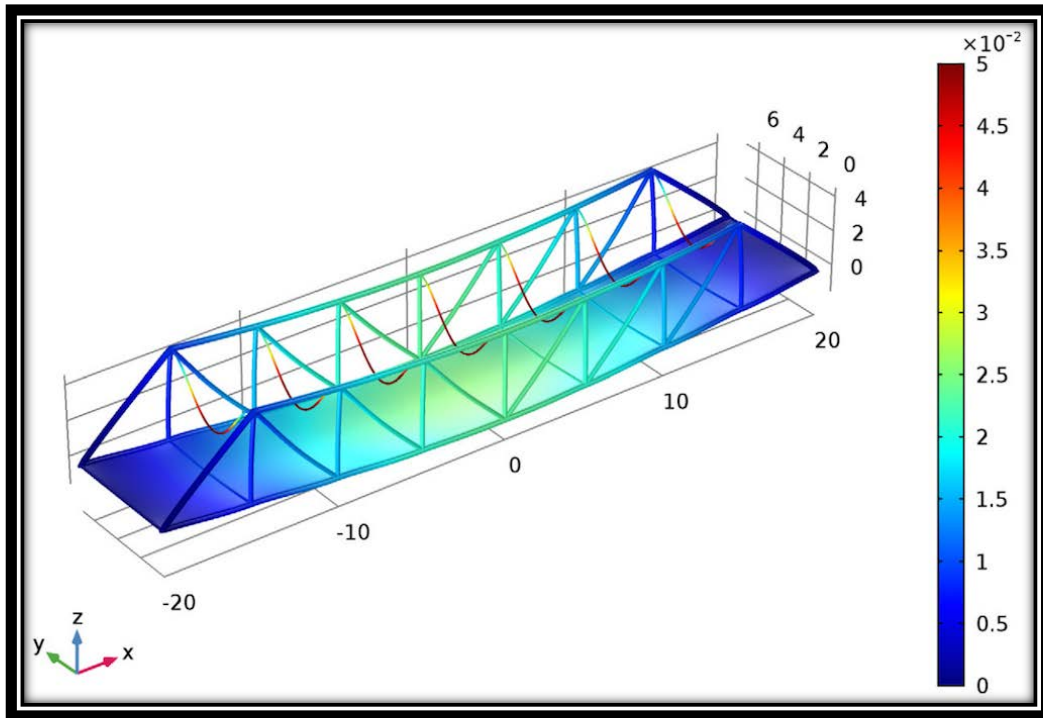
Load Rating

- Two live load scenarios were used for each main component; a single, vehicular truck and/or pedestrian live load. The H-20 design truck was used to model a solitary maintenance and/or emergency vehicle that may occasionally use the bridge.



Load Rating

- The pedestrian live load used for rating is **85 psf**, as prescribed by AASHTO's Standard Specifications for Highway Bridges, latest Edition.



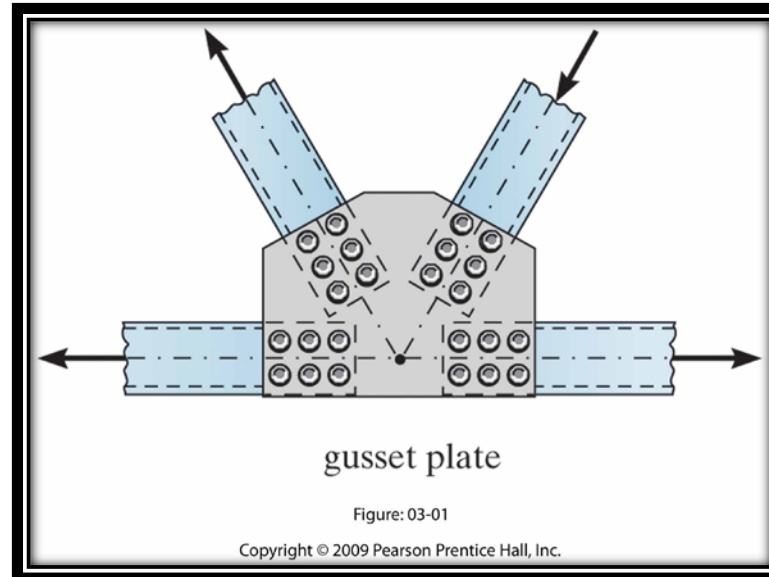
Load Rating

- The stringers were rated by the Allowable Stress Method in Microsoft Excel. Rating factors for both shear and moments were calculated based on the dead and live loads applied to the stringers. The stringers were rated for **either truck or pedestrian** live load since the stringers cannot be loaded simultaneously by both live loads.



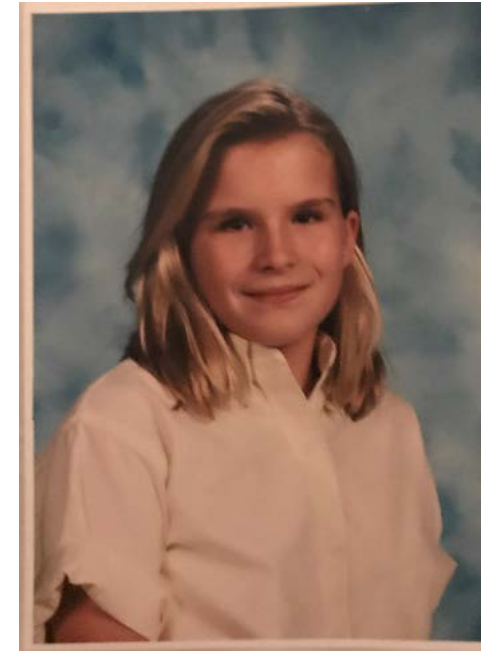
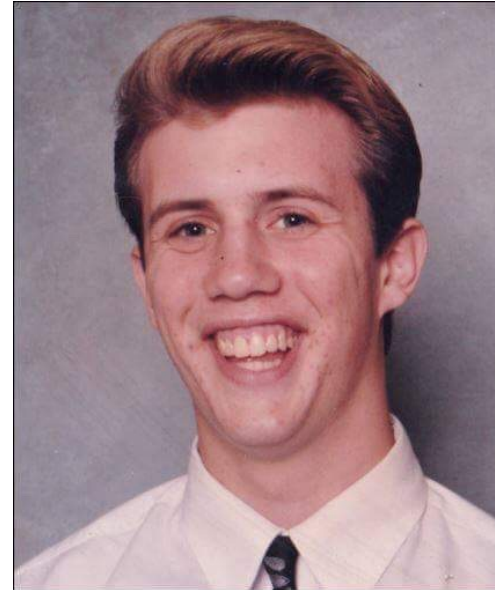
Load Rating

- Additionally, during the inspection, heavy and active section loss was noted on many lower chord gusset plates including through holes. Some locations of section loss were greater than **50%** of the original area. These gusset plates were rated for horizontal shear (by the Load Factor Method) since the section loss occurred nearly exclusively along the top of the lower chord. The gusset plates were rated for a combination of truck and pedestrian live load.



Here is what we know today:

- Bridge inspections were performed: 1992, 2001, 2009, 2011, and 2014.
- The bridge has seen significant deterioration in various areas.
- Pedestrian traffic is acceptable as of 2014.
- Vehicular traffic such as a single vehicle with a crew is acceptable.
- Combined Pedestrian and vehicular traffic is **not** ok.



Here is what we know today

- The current weight load for pedestrians is 85 pound per square foot.
- The bridge has reached a point of 50% deterioration in various locations, which suggests that repairs are required before maintenance is no longer an option, given the fact that the community has expressed an interest in its restoration for the past 27 years.
- We have not allowed commercial filming on the bridge since 2017.

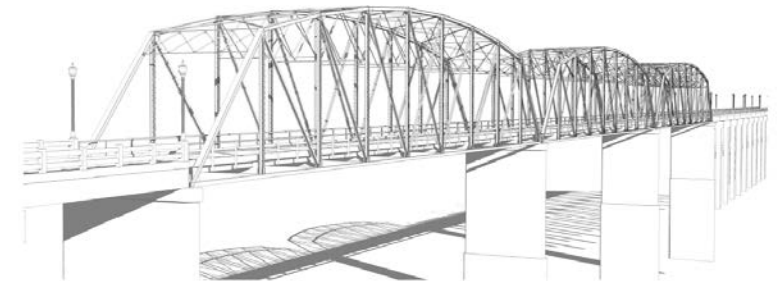


Texas Chainsaw Massacre



Estimated Cost for Structural repairs

- The estimated cost in 2014 was \$960,000.
- The revised estimated cost in 2018 is approximately \$1,285,000.
- In four years the cost has increased \$325,000
- Can we afford to wait another year?



COLORADO RIVER BRIDGE

Placemaking – Create a programmable space to take advantage of the Colorado River



A gathering space and gateway to Downtown...

- Special Event Venue
- Walkability & Bikeability
- Family Friendly
- Google Challenge Success
- Economic Driver- Films
- Connection with River
- Public Art
- Green Space
- Lighting
- Multi-Modal
- Community Pride & Spirit



What does a gathering space need?



- The Acorn lighting on the bridge needs to be upgraded and vandalism issues addressed.
- Controllable walkway path lighting should be planned for safety.
- Electrical receptacles should be provided along the bridge for events.
- Seating, Art, and decorative plantings should be installed.
- Lighting should be year round and controllable to allow for celebrations of all seasons
- Multi-Modal & Functional Space for a variety of uses

Recent Lighting History

- Current acorn lighting installed Between 1996-1998
- LED Testing Performed at request of Main Street Design Committee in 2013: Est. \$325,000
- Blueprint Model was created in 2017 through BAIPP
- 2018 Lighting Architectural Design: \$7,500
- 2018 Lighting and Electrical Upgrade Projections: estimated \$850,000



Imagine the Possibilities...



Next Steps:

There is \$4.2 million available in new debt capacity without raising taxes. Is repairing the structural issues of the Old Iron Bridge a priority for inclusion in a bond sale? Yes/No

Per attorney opinion from Texas Hotel & Lodging Association, Hotel Occupancy Tax can be used for the lighting and public space design and installation. Fund with HOT or Bond Sale?

If yes to both, next steps:

- RFQ for Structural Repairs
- RFQ for Bridge Lighting Design
- RFP for Lighting Installation
- RFP for Designing Public Space



THE END



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