



BRIDGING THE GULF

**CREATING OPPORTUNITY ON
THE VICTORIA BARGE CANAL**

May 2024 | Multimodal Projects Discretionary Grant (MPDG) Program

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1. Project Description

1.1 Introduction

The Texas Department of Transportation (TxDOT) is requesting \$36 million from the FY 2025-2026 Multimodal Projects Discretionary Grant (MPDG) Program to support ***Bridging the Gulf: Creating Opportunity on the Victoria Barge Canal***. A \$60 million project, this critical investment will replace the bridge carrying State Highway 35 (SH 35) over the Victoria Barge Canal. Prone to strikes by barges traversing the 36 miles between the Port of Victoria and the Gulf Intracoastal Waterway (GIWW), the existing bridge was built in 1960 with a navigational clearance of just 50 feet. **The recent tragedy of the Key Bridge collapse has emphasized the need for critical infrastructure investments like this one to prevent catastrophic damage, loss of life, and supply chain disruptions.**

In 2023, an average of **3 to 8 strikes per month** resulted in frequent bridge repairs and repeated damage to the SH 35 bridge’s fender system. If the existing bridge were to deteriorate into Poor condition or close, it would force the deployment of a 40+ mile detour generating \$3.5 million in external costs every week. The existing steel girder superstructure requires regular maintenance, painting, and inspection; the proposed prestressed concrete bridge replacement would minimize these costs while increasing the navigational clearance to 75 feet and widening the main span to eliminate in-water infrastructure. ***Bridging the Gulf*** will shape the future of economic development for the surrounding region and directly support all six of the MPDG Outcome Criteria as shown in the table below.

Table 1-1 | Outcome Criteria Implementation Strategies

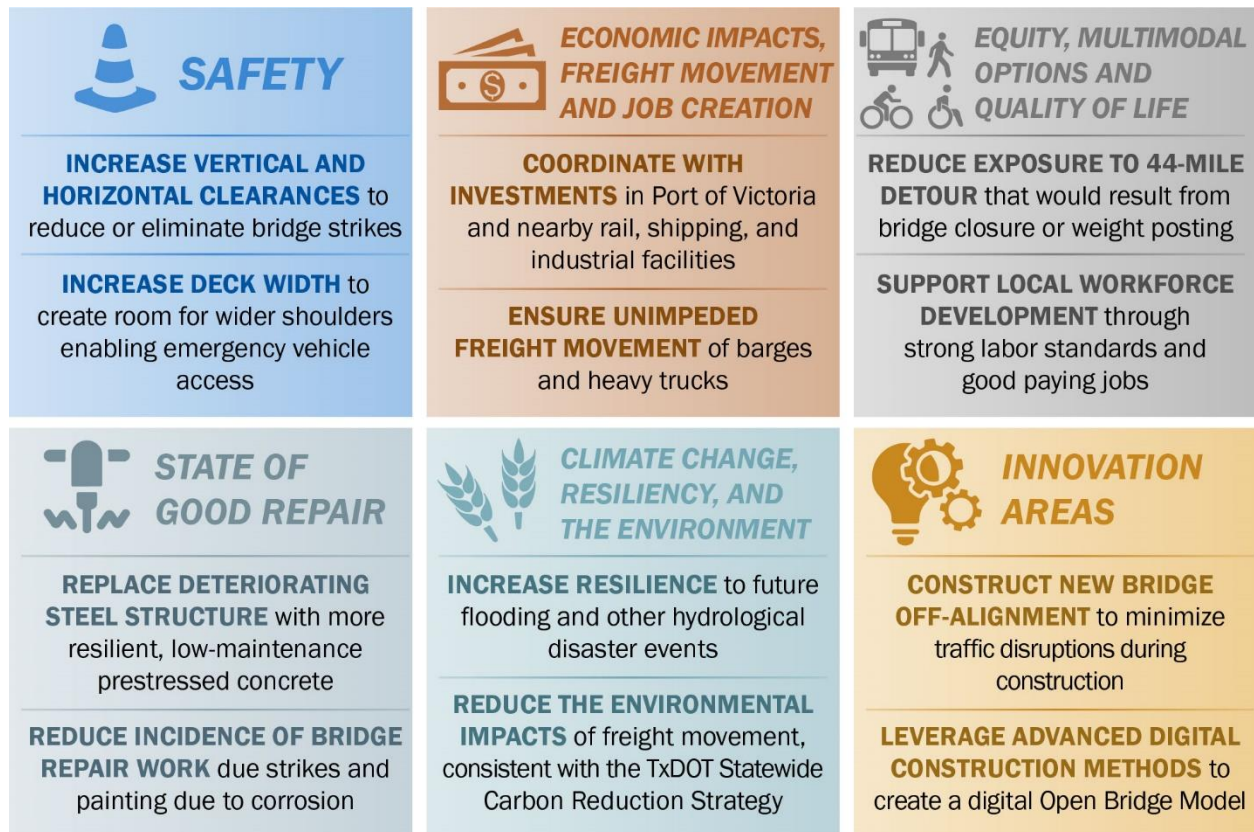
Outcome Criterion	Implementation Strategy
Safety	<ul style="list-style-type: none"> • Increase bridge clearance to reduce strikes and prevent a tragic collapse like the Key Bridge in Baltimore. • Widen shoulders to improve emergency access.
State of Good Repair	<ul style="list-style-type: none"> • Replace corroded steel with prestressed concrete. • Increase clearances to reduce bridge strikes.
Economic Impacts, Freight Movement, and Job Creation	<ul style="list-style-type: none"> • Accommodate projected growth in barge traffic. • Incentivize industrial job creation in region by improving travel time reliability and freight safety.
Climate Change, Resiliency, and the Environment	<ul style="list-style-type: none"> • Reduce barge strikes and hazardous material spills. • Reduce exposure to 40+ mile detour if bridge closes.
Equity, Multimodal Options, and Quality of Life	<ul style="list-style-type: none"> • Improve access to major job centers and growth opportunities in and around the Port of Victoria. • Improve freight travel time reliability.
Innovation Areas: Technology, Delivery, Financing	<ul style="list-style-type: none"> • Deploy new monitoring and detection sensors. • Leverage advanced digital construction techniques to minimize traffic disruption.

1.2 Statement of Work

Technical and Engineering Aspects of the Project

This project will replace the existing bridge (NBI Structure Number 130290018001034), which carries SH 35 over the Victoria Barge Canal in Calhoun County, Texas. The existing bridge carries one lane of traffic in each direction, totaling about 3,500 vehicles per day. As of 2019, trucks made up 15.3% of daily traffic, a number that is only expected to climb as the area continues to industrialize. **The proposed project will replace the existing bridge with a taller, wider structure designed to mitigate safety concerns, bring a key commercial corridor up to a state of good repair, and make room for continued growth in the Port of Victoria, Calhoun County, and the Greater Victoria Region.**

Figure 1-1 | Technical and Engineering Aspects of the Project



Current Design Status

TxDOT completed 30% design plans in September 2023 and 60% designs in April 2024. TxDOT expects to complete design by December 2024. Following completion of design, TxDOT has already identified two parcels that will need to be acquired for the project. Right-of-way acquisition and utility relocation will be completed by January 2026, prior to an anticipated letting date of October 2026.

A complete schedule is available in the **Project Readiness** section of this application.

Transportation Challenges to Be Addressed

Capacity Challenges for Road and Canal Users

The existing SH 35 bridge over the Victoria Barge Canal is inadequate in several ways:

- The bridge piers and protective fender system create a bottleneck in the canal, requiring single-file barge passage under the bridge. The narrow navigational clearance results in bridge strikes by barges as frequently as **twice weekly**. TxDOT has spent an estimated **\$1.75 million** on the last three rounds of repairs to mitigate barge strikes. **The proposed project would replace the 554-foot bridge with a 2,970-foot structure that fully spans the Victoria Barge Canal, eliminating all in-water structural elements.**
- The current vertical clearance of 50 feet has historically hindered expansion at the Port of Victoria, with potential developers citing the overhead clearance as an obstacle to movement of waterborne construction modules. The proposed project **would increase the vertical clearance to 75 feet, unlocking the economic development potential of the Port of Victoria and surrounding region.**
- At just 29.8 feet wide, the existing bridge deck is too narrow to accommodate safe shoulders for emergency use or cyclist and pedestrian passage. The bridge is also 15 feet narrower than the approaching roadways on either side. With 3,500 vehicles crossing daily, truck traffic at 15.3%, and Annual Average Daily Traffic (AADT) expected to grow by 1.9% annually over the next 20 years, rising traffic volumes will exacerbate the capacity challenges caused by bridge constriction. **The proposed project will install 10-foot shoulders on the bridge in each direction to ensure safe passage and access for all modes including emergency personnel, cyclists, and pedestrians.**

Lack of Alternative Routes

This project will replace **one of only two vehicular crossings over the 35-mile long Victoria Barge Canal**. Given that the other crossing is nearly 20 miles north, failure or closure at the SH 35 bridge would result in a **44-mile detour**, which would adversely impact the residents of Calhoun County who rely on the bridge to access jobs, schools, and community centers on either side of the canal. The detour would similarly impact adjacent businesses that produce products and materials critical to supply chain manufacturing like [INEOS' Green Lake Works](#), a 4,000-acre site with 208 employees that produces acrylonitrile, acetonitrile, hydrogen cyanide, and acetylcholine used to manufacture carpets, clothing, plastics, pharmaceuticals, solvents, plexiglass, and more. ***Bridging the Gulf* will construct a stronger, more resilient bridge to reinforce a critical connection for adjacent communities and businesses that rely on the Victoria Barge Canal and its few crossings.**

Economic Growth Potential is Limited by the Existing Bridge

The SH 35 bridge is a key asset for Calhoun County and the Greater Victoria region, but it cannot keep up with the demands and plans for growth surrounding it. Nearby plants and distribution centers for Dow Chemical, Seadrift, Frontier Logistics, Calhoun Chemical, and INEOS Nitriles house thousands of jobs. The Port of Victoria is a multimodal hub for shipping, with waterway, rail, highway, and air transportation options.

Bridging the Gulf lays critical groundwork for future economic development by:

- Improving reliability along SH 35, which connects major arteries in South Texas and 15 million+ customers, including US 59, US 77, US 87, and I-10 and I-37;
- Facilitating the construction of \$8 billion in site improvements under option at the Port of Victoria, including significant investments in renewable energy production; and
- Accommodating larger, heavier, and more frequent barge traffic in the Victoria Barge Canal to support expansion at the Port of Victoria.

Funding this project will allow for the construction of a bridge that can unlock the growth potential of Calhoun County and Greater Victoria. Without it, this region could miss out on development opportunities due to substandard infrastructure.

1.3 History & Context

Project History

This project has been under development since late 2021, but its roots can be traced back decades. When the existing bridge was constructed in 1960, the barge canal which it spans was still being built, and the connection between the Port of Victoria and the Gulf Intracoastal Waterway (GIWW) would not be complete for another 8 years. In 1995, construction began to widen and deepen the channel to 12 feet to match the GIWW. The completion of the Port's Turning Basin in 2002, followed by an agreement with the Port of Houston to share cargo in 2005, brought an increase in barge traffic to the canal. Since 2017, the Port of Victoria has averaged 4 million tons of cargo annually, and by 2022, the need for expanded intermodal connectivity led to the formation of the [Texas Logistics Center](#).

The Port of Victoria provides intermodal connections to air, railroads, highways, and waterborne trade. **However, the existing SH 35 bridge has proven to be a constraint on the region.** In at least one instance in recent years, major investors have chosen to locate their operations elsewhere due to the insufficient navigational clearance of the bridge, which will not allow for the passage of major port construction modules. The recent collapse of the Key Bridge in Baltimore has highlighted the catastrophic damage, loss of life, and economic impacts that can occur from a marine vessel striking a structural element of a bridge. This reinforces the case for replacing the SH 35 bridge spanning the Victoria Barge Canal in support of safety and economic development in the region.

The bridge replacement complements existing enhancements occurring at the Port of Victoria made possible from the \$6 million CARES Act Grant awarded to the Victoria County Navigation District to improve BNSF and Union Pacific freight rail capacity; expanding rail at the Port will enable increased barge traffic along the canal and alleviate current backlogs. **The highway is the last remaining transportation mode in need of improvements to facilitate the continued growth and development of Calhoun County and the Victoria region.**

Project Location

The Project connects SH 35 over the Victoria Bridge Canal. It is located on the southeastern coast of Texas, approximately 150 miles from Houston and 135 miles from San Antonio. The Project is in rural Calhoun County, adjacent to Refugio County to the west and Victoria County

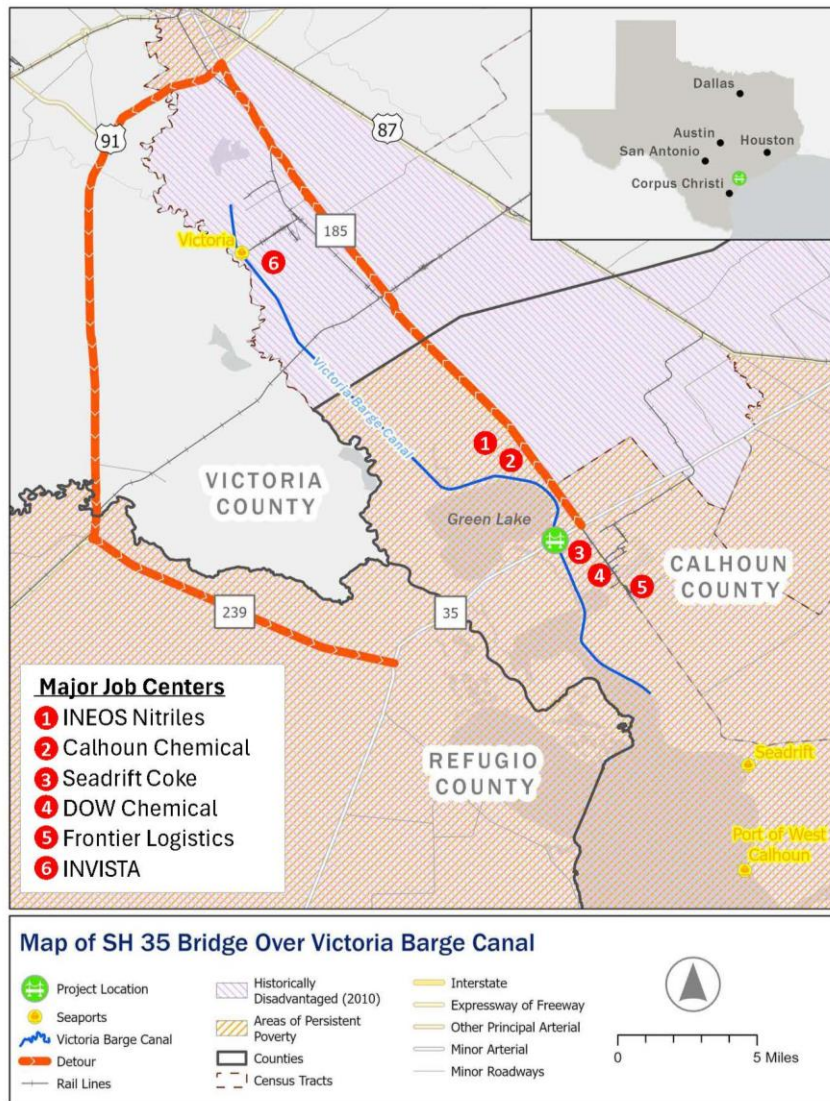
to the north. The Project is surrounded by multiple water features; Green Lake to the north and Mission Lake to the south, leading to the San Antonio Bay (Figure 1-2).

The Bridge is part of an interconnected network of multimodal transportation spanning rail, roadways, and waterways. The Port of Victoria is connected by water via the GIWW, by rail via Union Pacific, by road via US 77 and Texas State Highways 35, 185, and 239, and by air via the Victoria Regional Airport. In 2016, the Texas portion of the GIWW (GIWW-T) was designated as [Marine Highway 69](#) by the U.S. Maritime Administration in recognition of its contributions to the transportation network. Prior to the M-69 designation, the GIWW-T was part of the larger M-10 corridor, which encompasses the entire length of the GIWW from Florida to Brownsville. SH 35 and US 77 are part of the Texas Highway Freight Network, as designated by TxDOT. SH 35 also includes connections to critical State Evacuation Routes on US 87 and SH 239, which provide points of access for coastal communities escaping extreme weather events.

The Project Area facilitates interlocal traffic in Southeast Texas as well as passenger and freight traffic between the Corpus Christi region and Houston. The Project Area is close to Census-designated urban areas in the cities of Port Lavaca and Victoria, approximately 13 and 25 miles away, respectively.

Census tract 5.02, where the Project is located, is considered a [Historically Disadvantaged Community \(HDC\)](#) due to numerous factors that affect the residents' quality of life and wellbeing, including energy, public health, transportation, and income. The Project location is also considered an [Area of Persistent Poverty](#), overlapping with the HDC boundary throughout Calhoun County as shown in Figure 1-2.

Figure 1-2 | Project Area Map



2. Project Budget

2.1 Project Overview

The Texas Department of Transportation (TxDOT) is requesting \$36 million from the Multimodal Projects Discretionary Grant (MPDG) Program to support *Bridging the Gulf*. A \$60 million project to replace the existing bridge carrying SH 35 over the Victoria Barge Canal, this critical safety investment will:

- Replace a low, narrow bridge built in 1960 with a wider, taller structure, reducing the incidence of bridge strikes.
- Increase resiliency and reduce maintenance costs for TxDOT, Calhoun County, and the Greater Victoria region by replacing an at-risk steel structure with a prestressed concrete bridge with longer spans that increase the barge opening.
- Unlock the economic potential of the region by accommodating multimodal freight traffic near two ports, encouraging investment in high-quality industrial and logistics jobs.

Figure 2-1 | Bridge and Fender System



2.2 Budget Overview

Previously Incurred Costs

As of April 9, 2024, TxDOT has incurred approximately \$355,524 to develop this project. All funds to date have been spent on preconstruction activities.

Future Eligible Project Costs

TxDOT estimates that the future eligible costs associated with this project will be approximately \$60 million. This estimate was generated at the alignment, material, and component level, corresponding to the 60% design phase. As shown in Table 2-1, this project will be supported by MPDG and Non-Federal Funds.

TxDOT has separately applied for funding under the Rebuilding America’s Infrastructure with Sustainability and Equity (RAISE) Grant Program’s 2024 Notice of Funding Opportunity (NOFO). For the purposes of both applications, funding amounts are presented independently.

Table 2-1 | Project Budget by Source of Funds

Funding Source	Funding Amount	Cost Share
MPDG Funds	\$36,000,000.00	60.00%
Other Federal Funds	\$0.00	0%
Non-Federal Funds	\$24,000,000.00	40.00%
Total Project Cost	\$60,000,000.00	100.00%

Cost Estimation and Contingencies

The budget for this project includes approximately **\$9 million** in contingencies. TxDOT has determined this amount is sufficient to cover unanticipated cost increases based on the current level of design. Projects of similar size and scope have succeeded with proportionate contingency funds set aside, which are most often used to account for change orders, incentives, disincentives, force account work, and other miscellaneous expenses that arise.

In the unlikely event that the project budget evolves to exceed planned expenditures and contingency amounts, TxDOT has developed a **Plan to Address Potential Cost Overruns** (see next page). This project has reached a **60%** level of design. Project cost estimates were prepared by TxDOT to support the 60% designs, which were completed in April 2024. TxDOT is confident recent estimates account for both itemized and anticipated expenditures, including, but not limited to design completion, right-of-way acquisition, utility coordination, material cost escalation, and potential scope creep.

This project satisfies the statutory cost share by committing **40.00%** of the overall budget in non-federal funds (\$24 million non-federal out of a total budget of \$60 million).




Figure 2-2 | Damage to Bridge Fender System, 2016 Crash



Plan to Address Potential Cost Overruns

The MPDG funding requested is expected to complete a funding package to execute the entirety of this project. In the unlikely event that the budget for this project is determined to exceed \$60 million at any point in the final design, letting, or construction processes, TxDOT will deploy a three-phased approach to mitigate cost overruns as shown in the figure below.

Figure 2-3 | Plan to Address Potential Cost Overruns

<p>PHASE 1</p>  <p>VALUE ENGINEERING STUDY</p>	<p>TxDOT includes a Value Engineering (VE) study as a standard part of its project development process. TxDOT policy requires that each VE study include and document <u>seven</u> unique phases:</p> <ol style="list-style-type: none"> 1. Information: Gather project information, commitments, and restraints. 2. Function Analysis: Analyze project to understand required functions. 3. Creative: Generate ideas to improve performance, enhance quality, and lower project costs. 4. Evaluation: Evaluate feasible ideas for development. 5. Development: Develop the selected alternatives into fully supported recommendations. 6. Presentation: Present VE recommendations to stakeholders. 7. Resolution: Evaluate, resolve, document and implement all approved recommendations.
<p>PHASE 2</p>  <p>PRIORITIZE INVESTMENTS</p>	<p>The 2024 Texas Unified Transportation Program provides a framework for identifying and allocating funds to address cost overruns for projects ready for letting. Pursuant to a legislative mandate, each TxDOT district receives a minimum of \$2.5 million in discretionary funds, with additional funding distributed through an allocation formula. The Texas Transportation Commission may supplement the funds allocated to individual districts on a case-by-case basis to cover project cost overruns.</p>
<p>PHASE 3</p>  <p>PURSUE ADDITIONAL FUNDING</p>	<p>TxDOT has developed a tested strategy for securing additional funds for major projects including recent grants for the Texas Active Transportation Network (\$25 million) and the US 59 San Antonio River Bridge (\$14.04 million). In the event of a major cost overrun that could not be resolved through Phases 1 and 2, TxDOT would deploy a combination of these tools to secure the required funding. TxDOT would entertain all avenues to make the project whole and to secure sufficient financing to proceed.</p>

Budget Allocation for Urbanized, Areas of Persistent Poverty, or Historically Disadvantaged Communities

The project is located entirely within Calhoun County, Texas. The limits fall within the boundaries of 2020 Census Tract 5.02, identified in the 2010 Census as Tract 5. This is entirely a rural area. It is considered an **Area of Persistent Poverty (APP)** and a **Historically Disadvantaged Community (HDC)**. Not all of Calhoun County is considered Historically Disadvantaged, but nearly one in six residents live below the Federal poverty line. The tables below present the estimated project costs by census tract and urban/rural designation pursuant to the guidance in the FY 2025-2026 MPDG NOFO.

Census Tract 5.02 has considerable [transportation barriers](#) already. The area is in the 95th percentile for average relative cost and time spent on transportation. That burden also falls on a population with low rates of educational attainment. This project will make a timely investment to prevent a 40+ mile detour if the bridge were to close, which would exacerbate already significant transportation barriers.

Table 2-2 | Project Costs by 2020 Census Tract

2020 Census Tract(s)	Project Costs per Census Tract
Census Tract 5.02	\$60,000,000.00

Table 2-3 | Project Costs by 2010 Census Tract

2010 Census Tract(s)	Project Costs per Census Tract
Census Tract 5	\$60,000,000.00

Table 2-4 | Project Costs by Urban/Rural Designation

Urban/Rural	Project Costs
Urban (2020 Census-designated urban area with a population greater than 200,000)	\$0.00
Rural (Located outside of a 2020 Census-designated urban area with a population greater than 200,000)	\$60,000,000.00
Total Project Cost:	\$60,000,000.00

Plan for Project Fund Usage

The project is included in the [FY2023-2026 TxDOT Statewide Transportation Improvement Program \(STIP\)](#). It is listed as a Grouped Control-Section-Job (CSJ) under CSJ-5000-00-953 which provides dedicated funding to “replace and/or rehabilitate functionally obsolete or structurally deficient bridges.” As shown in the table below, the funding for this project includes **\$24 million** in non-federal funds.

The State of Texas is a stable and reliable funding partner committed to maintaining the existing system and building new infrastructure to encourage economic growth. A broad range of state funding sources leverage federal funding support and are dedicated by the Texas Constitution to fund public roadway projects, including:

1. State motor vehicle fuels tax;
2. State vehicle registration fees;
3. Oil and gas severance taxes (Proposition 1); and
4. General sales and use tax, motor vehicle sales, and rental tax (Proposition 7).

If TxDOT is awarded the \$36 million in MPDG funds requested for this project, TxDOT commits the remaining \$24 million from a combination of these state funds to complete the funding package for *Bridging the Gulf*.

TxDOT has also included a Letter of Funding Commitment as an appendix to this application.

Table 2-5 | Detailed Project Budget

Category	Federal	Non-Federal	Total
Design	\$821,383.79	\$547,589.19	\$1,368,972.98
Right-of-Way	\$240,000.00	\$160,000.00	\$400,000.00
Utility Relocations	\$905,331.38	\$603,554.27	\$1,508,885.65
Roadway	\$3,488,985.00	\$2,325,990.00	\$5,814,975.00
Barricades	\$54,000.00	\$36,000.00	\$90,000.00
Drainage	\$46,860.00	\$31,240.00	\$78,100.00
Erosion	\$102,916.50	\$68,611.00	\$171,527.50
Mobilization	\$2,400,000.00	\$1,600,000.00	\$4,000,000.00
Pavement Markings	\$28,512.60	\$19,008.40	\$47,521.00
Removal	\$216,030.00	\$144,020.00	\$360,050.00
Signing	\$7,020.00	\$4,680.00	\$11,700.00
Work Zone	\$569,418.36	\$379,612.24	\$949,030.60
Structural	\$19,559,338.92	\$13,039,559.28	\$32,598,898.20
Contingency	\$5,400,000.00	\$3,600,000.00	\$9,000,000.00
Inflation (4% x 2 Years = 1.0816)	\$2,160,203.44	\$1,440,135.63	\$3,600,339.07
Total	\$36,000,000.00	\$24,000,000.00	\$60,000,000.00

3. Outcome Criteria

3.1 Project Overview

The Texas Department of Transportation (TxDOT) is requesting \$36 million from the Multimodal Projects Discretionary Grant (MPDG) Program to support *Bridging the Gulf*. A \$60 million project to replace the bridge carrying State Highway 35 (SH 35) over the Victoria Barge Canal, this critical safety investment will:

- Improve public safety by redesigning a 1960 bridge with a wider, taller structure, designed to withstand modern freight loads and accommodate pedestrians, cyclists, and access for emergency vehicles;
- Eliminate the incidence of bridge strikes and crashes by increasing the main span length to traverse the entirety of the Victoria Barge Canal, eliminating the opportunity for pier strikes by barges; and
- Expand the economic development potential of Calhoun County and the Greater Victoria region by increasing the vertical clearance of the structure, opening the possibility of floating large, industrial construction modules through the Canal to expand the offerings at the Port of Victoria.

As this section shows, this project directly addresses all six Outcome Criteria identified in the 2025-2026 MPDG Program NOFO. The anticipated outcomes of this project are summarized in Figure 2-1.

Figure 2-1 | Primary Project Purposes



3.2 Project Outcome Criteria

Criterion #1: Safety

One of the primary purposes of *Bridging the Gulf* is improving the safety of SH 35 by replacing the existing bridge with a new structure. **The primary safety benefits of this project include:**

- Increasing the load carrying capacity of SH 35;
- Incorporating proven safety countermeasures into the design of the bridge to protect vulnerable road users; and
- Improving navigational clearance through the Victoria Barge Canal.

The secondary safety benefits of this project include:

- Reducing ongoing repair costs, often accompanied by disruptive work zones; and
- Reducing the risk of bridge failure detouring traffic 44-miles on high-risk roadways.

Protects Vulnerable Users

The [Texas Strategic Highway Safety Plan \(SHSP\)](#) (2022-2027) identified 11 safety emphasis areas, including pedestrians as vulnerable road users. **This project will improve safety for the most vulnerable users by installing a 10-foot shoulder to accommodate non-motorized traffic as well as emergency personnel access.**

TxDOT has developed a Pedestrian Safety Action Plan (PSAP), including a targeted [fact sheet](#) for TxDOT’s Yoakum District, where the project is located. If the bridge were to close, the detour includes a 44-mile route that travels into more densely populated areas. There are multiple areas of the bridge closure detour route identified as **PSAP Focus Facilities and high-risk segments** including portions of US 59 and US 77 in Victoria County. The increase in traffic along the detour puts more travelers at risk compared to when the bridge is open and functional. **This project will reduce the risk of bridge closure and detour use by building a safer bridge, limiting strain on these high-risk safety areas.**

Reduces Fatalities and/or Serious Injuries

TxDOT is committed to improving safety and pursuing zero crash-related deaths by 2050. Proven counter measures identified in the Texas Traffic Safety Task Force Report [Solutions for Saving Lives on Texas Roads](#) (2016) in this project include:

Figure 3-2 | Proven Safety Countermeasures Incorporated Into Design



There were 26 crashes between 2019-2023 within a half mile buffer of the project area. Of the 26 crashes, two crashes included possible injury, one crash included a suspected injury, and two crashes included fatal injury.

While TxDOT does not track roadway departures as a contributing factor to crashes, many of the crashes that involved possible injuries or fatalities involved vehicles leaving the lane or roadway and striking embankments, fixed objects, or other vehicles in the opposite directional lane (resulting in two fatalities). TxDOT incorporates proven safety countermeasures and strategies to address known safety risks that directly or indirectly contributed to injury or fatality within the project area. Other known safety problems being addressed in the design and construction of the new proposed bridge include:

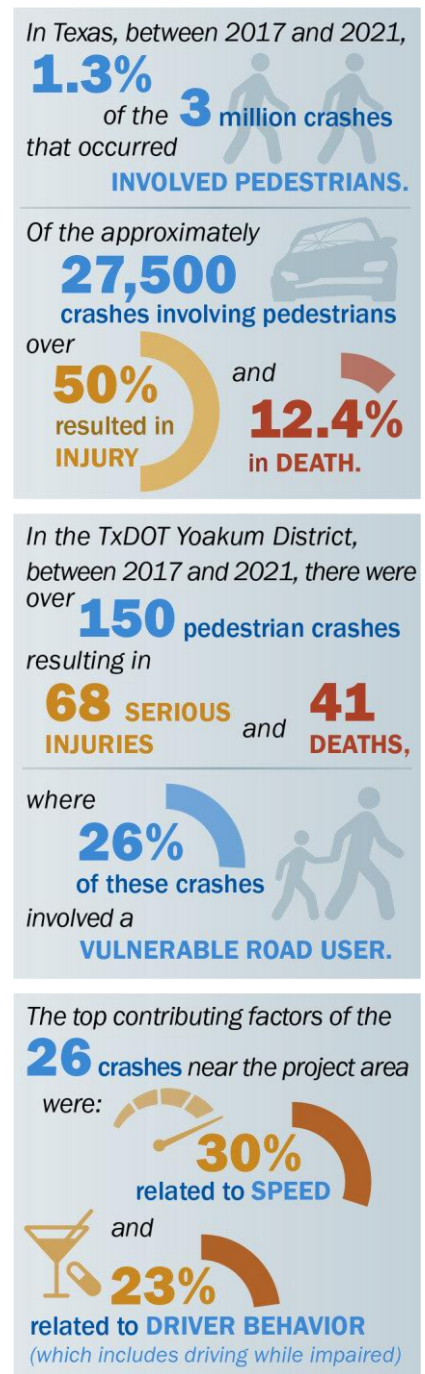
- **Limiting Risk of Bridge Strikes by Barges Navigating the Victoria Barge Canal** – The proposed bridge redesign includes removing bridge footings from the canal, eliminating the risk of barge strikes. Currently, the fender system near the bridge footings is struck three to eight times per month due to the narrow horizontal passage.
- **Increasing Bridge Carrying Capacity** – The current bridge was constructed in 1960 and has a H-20 design load, a limit of 32,000 pounds. Since the bridge was constructed, reliance on truck freight has increased, with larger and heavier trucks frequently being used to transport materials. SH 35 is part of the state freight system and 15.3% of the total AADT are trucks, largely due to the proximity to two ports and surrounding industrial land uses. Failing to replace the structure will accelerate deterioration and pose a safety risk as heavy trucks continue to use the bridge.

In its 2040 Long Range Transportation Plan, TxDOT plans to program \$3.14 billion towards safety projects between to meet the goal of zero deaths by 2050.

Criterion #2: State of Good Repair

Achieving and maintaining a State of Good Repair is a primary purpose of this project. **Bridging the Gulf** will replace the bridge carrying SH 35 across the Victoria Barge Canal with a more **resilient, purpose-built structure** designed to withstand modern freight loads and optimize operations and maintenance responsibilities. Adjoining roadways, neighboring waterways, and associated land uses will all be enhanced as the bridge is upgraded, reducing the amount of interference from temporary repair work and improving the reliability of SH 35. Bringing the bridge in line with current safety standards will keep traffic moving across the region and ensure Calhoun County remains regionally competitive across local and national economies.

Figure 3-3 | Crash Severity

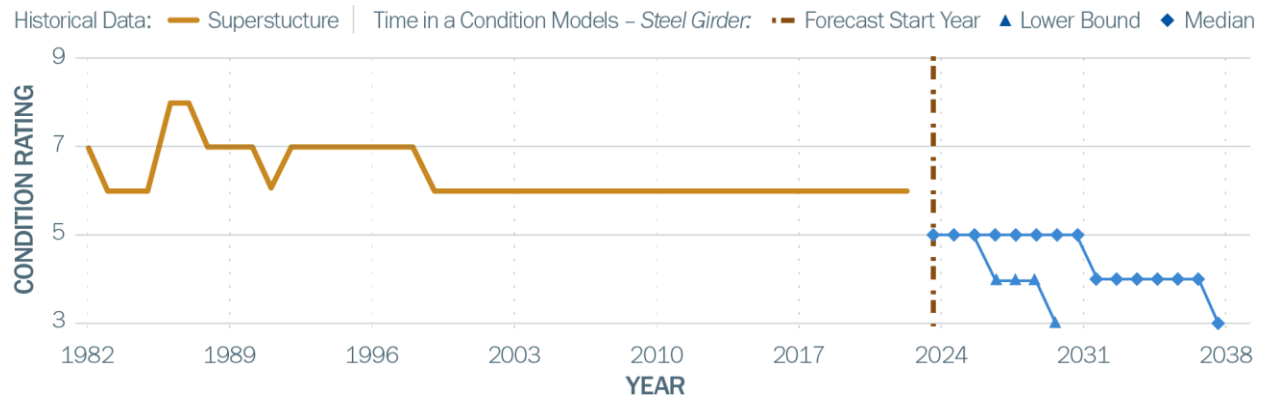


Restores and Modernizes Existing Core Infrastructure

The Project replaces the existing bridge with a new structure in line with current rating standards. The SH 35 Bridge was constructed in 1960 with a design load of H-20, which equates to a 32,000-pound weight limit. The bridge regularly carries loads that exceed its design standard, originally intended to cater towards empty two-axel trucks. However, hundreds of times per day, trucks weighing as much as 80,000 pounds use the bridge, exceeding the original design capacity and accelerating existing deterioration, wearing down the bridge’s current infrastructure and shortening its useful life.

TxDOT data indicates the current bridge is in Fair condition, but regular wear and tear over the past 60 years plus increasingly frequent barge strikes have deteriorated the condition of the steel girder superstructure to the point that it will likely hit Poor condition between 2027 and 2032 (Figure 3-4). At that point, TxDOT policy dictates that heavy trucks will be prohibited from the bridge and forced to take a 44-mile detour. A timely bridge replacement ensures that this structure can be upgraded to meet modern safety as well as State of Good Repair standards before the existing structure becomes entirely Structurally Deficient.

Figure 3-4 | TxDOT Superstructure Condition Projections, Existing Bridge



Current and Future Vulnerabilities

This project will eliminate vulnerabilities due to bridge strikes by barges and bring the navigational clearance of the structure in line with local and regional demands. Frequent bridge strikes are a current concern, which will be mitigated by eliminating all in-water structural elements. A navigational clearance of 50 feet limits potential opportunities for the transport of heavy construction equipment, port development modules, and certain commodity loads from traversing the canal.

The Project is a critical component to supporting the growth and resilience of a strategic transportation asset in the Victoria region and across Calhoun County. The Project provides readiness investments to support the Port of Victoria’s current expansion which will improve both the resilience and condition of the entire Port as well as neighboring communities. Without replacing the degraded bridge, local, regional, and national transportation infrastructure remains vulnerable because the Port of Victoria and SH 35 are key components to multiple inter- and intra-state transportation systems. Maintenance responsibilities for the infrastructure built by this project will be the purview of TxDOT in partnership with the Port of Victoria and Calhoun County.

The roadway infrastructure will be managed by TxDOT, while any maritime needs will be managed by the Port of Victoria. Both departments have ample capacity to plan and carry out infrastructure maintenance activities after project completion. TxDOT will manage the inspection and maintenance of the new bridge.

Criterion #3: Economic Impacts, Freight Movement, and Job Creation

The Project will enhance local, regional, and statewide economic competitiveness, bringing more economic opportunities to the [Port of Victoria](#), Calhoun County, and regional intrastate multimodal networks. The Port of Victoria combines multiple transportation advantages as businesses can send and receive goods as well as supplies along waterways, railroads, highways, and by air. However, the existing bridge hinders vehicular and maritime traffic, with barges hitting fenders along the bridge three to eight times per month. With roughly 40 barges passing under the bridge each day, keeping traffic moving is key to maintaining supply chains and encouraging economic growth. A new bridge will permit larger volumes and heavier loads, and reduce barge delays by removing in-water infrastructure, reducing risk of strikes.

If the bridge was shut down for any reason, like a barge strike carrying commodities or construction equipment, up to 4 million tons of cargo would be impacted, affecting refineries and other raw material processors. Long-term local and regional economic activity would be repressed if businesses had to deal with higher costs from land-only shipments and diverted pipelines. Barges would be delayed in unloading or rerouted elsewhere, and construction expansion projects would be stalled, harming economic activity and regional competitiveness.

A bridge closure also halts any truck traffic from crossing the canal, effectively limiting access to the Port of Victoria. That closure would therefore burden the Port of West Calhoun located south of the bridge, which could be used as temporary relief, as well as businesses dependent on receiving critical commodities (in-bound or out-bound). The INEOS facility and other businesses north of the bridge would be prevented from receiving necessary raw materials from barges. As the largest acrylonitrile facility in the world with a pipeline to Calhoun Port Authority, lasting negative impacts would ripple widely through multiple economies. ***Bridging the Gulf* will construct a bridge that enables positive economic impacts, enhancements to freight movement, and job creation.**

Increase Public and Private Investments

The Project directly supports an increase in surrounding property values. **Upgrading the bridge will increase property values for regional homes and businesses affected by and dependent on SH 35.** This Project augments the productivity of the land surrounding the bridge, generating higher property taxes to be invested directly back into the surrounding communities. A recent proposal from the U.S. Department of Defense to construct a production facility for electric car batteries exemplifies the region's potential for growth. This site, adjacent to Dow Chemical along SH 35, requires the ability for larger imports. **Ample private land is available for sale north of the bridge which is part of the Port of West Calhoun District and brings even more promising potential for future development.**

The Project will also support the growth of the Texas Logistic Center (TXLC) as a regional logistics hub. With access to rail, water, and highway transportation, proximity to the Victoria Regional Airport, and over 2,000 acres currently available for development, TXLC provides unmatched business and industry opportunities in Texas.

- The Port has received over \$20.35 million to fund new rail infrastructure at the TXLC.
- An integrated green hydrogen and ammonia facility of up to 1.2 million metric tons per year and a solar power plant anticipate development at the Port.

These developments will keep the Port and region competitive and open to new jobs, new businesses, and new energy sources and support the industry with a large private investment.

The Project will encourage more residential and commercial development, helping local businesses grow for residents and workers to enjoy. As industrial activity continues to grow, the possibility of building large solar fields is being explored, bringing further tax revenues to the surrounding communities from the project. Furthermore, the Project will also improve land use around the canal's floodplain, which increases land use productivity and minimizes waste, complementing the Green Lake Park being developed by Calhoun County and contributing to economic development and competitiveness.

Enhance Recreational and Tourism Opportunities

Located within the project area, the SH 35 bridge provides direct access to the [Guadalupe Delta Wildlife Management Area](#) (WMA) at Mission Lake open daily for fishing. The coastal, freshwater marsh is also a popular location for hunting (by permit) for waterfowl and migratory shore birds, alligators, and other wetland wildlife. An existing wheelchair accessible viewing platform on SH 35 adjacent to the WMA provided by TxDOT affords an opportunity to view several state and federal threatened and endangered specials that have been recorded at the WMA, including the brown pelican, reddish egret, bald eagle, peregrine falcon, and whooping crane. **Closure of the SH 35 bridge would require a 44-mile detour to access the WMA from east of the Victoria Barge Canal.**

Improve Freight Mobility, Reliability, and Efficiency

This project will directly improve system-wide connectivity in three key ways:

1. The bridge carrying SH 35 will be replaced by a wider, taller bridge, enabling faster, more frequent, unimpeded travel beneath it by barges and over it by heavy trucks.
2. The addition of wide shoulders, lane departure warning technology, and the Manual for Assessing Safety Hardware (MASH)-compliant bridge railings will improve safety for all modes and make it easier for emergency personnel to access and cross the bridge.
3. The replacement of the existing bridge before it deteriorates into poor condition or closes will prevent the need for a 44-mile detour that would increase transportation costs, pollution, and damage to other routes, including in busier residential and commercial areas where routing more traffic puts cyclists and pedestrians at risk.

TxDOT projects that the bridge will fall to Poor condition between 2027 and 2032, at which time TxDOT policy would dictate that a weight limit be placed on the bridge, forcing trucks to detour. Every day the detour remains in place would add \$60,000 in costs for truck operators. If the bridge were closed, forcing light duty vehicles to use the detour, costs would total **\$535,000 per day. The replacement of this bridge all but eliminates the possibility of incurring \$3.5 million in operating and travel time delay costs every week.**

Develop Coastal and Inland Ports

This project will directly enable an increase in intermodal and multimodal freight movement by eliminating the current height and navigational clearance constraints on the Victoria Barge Canal. The Port of Victoria is an intermodal facility that moved between 3 to 5 million tons annually between 2016 and 2020. Currently, the Project Area is a pinch-point along the canal due to the limited width between bridge footings and the height of the bridge. **Increasing the navigational clearance for barges will help improve access to the Port of Victoria, supporting the growth of multimodal freight.**

The Port of Victoria ranks among the top 10 busiest ports in Texas and the only shallow-draft port that supplies domestic-only barge traffic. **As outlined in [Texas Delivers 2050](#), for Texas to handle the volume of freight expected in 2050, multimodal freight investments are needed, and waterways have an important role to play in alleviating some of the demand and congestion on the state's major freight corridors.**

The proposed 50% increase in vertical clearance will allow for larger, faster barges to traverse the canal, allowing for transport of double stacked containers, new commodities, and construction modules to expand the offerings of the Port of Victoria. Similarly, the proposed bridge will be constructed without in-water infrastructure to eliminate possible barge-pier strikes. This will allow for the bidirectional flow of barges, reducing the time that vessels are forced to wait in the channel for others before them to cross under the bridge.

Support Job Creation

This project eliminates a key barrier to economic growth. The existing bridge limits capacity for transporting large construction modules to build future project sites along the Victoria Barge Canal and Transportation Logistics Center. By building a new bridge, the Port of Victoria could expand its potential \$8 billion in private investments over the next 10+ years. An estimated **185,000** potential employees live within a 55-mile radius from Victoria. **The median income for individuals in 2022 (ACS 5-Year Estimates) is \$35,700 in Calhoun County and \$32,075 in Victoria County.** Existing energy developments under option in 2023 will add an estimated 607 jobs in the energy sector, many of which will raise local incomes as the average annual wage for jobs in solar generation is **\$109,943**.

Under the “Build” scenario, the ***Bridging Gulf Project*** will spur the creation of direct, indirect and induced jobs. Outputs of a Transportation Economic Development Impact System (TREDIS) economic model developed for this project indicate that expenditures in the Project's capital costs will make a significant contribution to the State economy **creating more than 140** (combined direct, indirect and induced) **jobs annually over the 2027-2028 construction period.** These jobs will add **\$10.9 billion in labor income**, generate **\$12.8 billion in Gross State Product (GSP)**, and yield **\$1.1 million in tax revenue**, annually, over the Project construction period.

Eighty-eight percent (88%) of the total new jobs will be created within the Construction industry. The Project Capital Cost will also support high-paying jobs on average, per employee, within the construction industry (\$78,000 in wages and benefits), professionals services (\$84,000 in wages and benefits), and real state and rental and leasing (\$104,000 in wages and benefits).

Local Workforce Development

In pursuit of a larger green energy strategy, the Port of Victoria has recruited tenants that have the means and interest to employ residents at competitive wages. Current and prospective tenants have met with Victoria College and Bloomington Independent School District, comprised largely of economically disadvantaged students, to discuss workforce training programs. The Port also regularly collaborates with Workforce Solutions Golden Crescent to discuss policies for training residents, vocational programs, and potential agreements for local workforce requirements for new tenants. **Topics have included solar panel technician and solar photovoltaic installer training programs for a prospective tenant at the Port interested in building a largescale solar field.**

TxDOT is committed to maintaining open communication with the Port of Victoria and the Port of West Calhoun throughout this project to share construction updates and identify partnering opportunities for future regional workforce development efforts.

Criterion #4: Climate Change, Resilience, and the Environment

Bridging the Gulf will directly promote a more sustainable future by:

- Elevating the SH 35 Bridge, which will enable expansion of green energy investments at the Port of Victoria, already totaling **\$8 billion** in planned future investments.
- Promoting more efficient freight modes by expanding the navigational clearance of the bridge, allowing for the bi-directional passage of larger, faster, more frequent barges.
- Deploying sustainable infrastructure improvements to the bridge like material upgrades from steel girders to prestressed concrete and eliminating obstacles for freight operators, recreational users, and wildlife inhabiting the canal.

These improvements allow for greater use of the canal and directly impact freight movements in Texas providing for more cost-efficient and cleaner freight transportation compared to light- and heavy-trucks. This project:

- Aligns with [U.S. National Blueprint for Transportation Decarbonization](#), shifting freight to lower-carbon modes and improving the resilience of at-risk infrastructure.
- Reduces VMT and carbon emissions on the Texas Highway Freight Network by eliminating the risk of barge strikes and bridge closures requiring a 44-mile detour.
- Improves the resilience of the bridge and surrounding roadways located in a vulnerable area for coastal inundation due to major weather events.
- Incorporates the use of resilient and innovative materials designed to withstand extreme heat and reduce rutting and cracking.

Emissions Reductions

Reduce Greenhouse Gas Emissions

By increasing the navigational clearance of the SH 35 bridge, the project will enable the bidirectional passage of larger, more efficient barges, thus supporting a reduction in transportation-related greenhouse gas emissions. In addition, the Port of Victoria stands to

benefit from enhanced capacity for barge movements, reducing reliance on heavy trucks which are responsible for a significant portion of transport emissions.

The new SH 35 bridge will ensure continued access to the Port of Victoria’s new Texas Logistic Center (TXLC). TXLC is attracting companies at the leading edge of renewable energy innovation providing energy solutions that will produce and store solar power as well as manufacture zero-emission green ammonia at the world’s first commercial-scale green ammonia production facilities at the Port. These alternatives allow the possibility of powering homes and businesses in the community with clean, reliable energy. **Replacing the SH 35 bridge will entice continued investment in the Port of Victoria, drawing major investment from private partners like First Ammonia (see details at right).**

Shifting freight to lower-carbon modes is a key strategy to reducing transportation-related air pollution, and this project will implement that strategy by expanding the navigational clearance of the SH 35 bridge. Improvements in the reliability of the canal, are likely to result in an increase in barge traffic, reducing land transport reliance.

Medium- and heavy-duty trucks comprise 23% of transportation-related greenhouse gas emissions. Rail, ships, and boats make up a combined 5% of transportation-related greenhouse gas emissions. **As shown in the figures below, barges are among the most efficient freight modes, emitting far fewer emissions than trucks or rail.**

CLEAN ENERGY INVESTMENT IN ACTION

First Ammonia at the Texas Logistic Center

- [First Ammonia](#) is an “integrated green ammonia producer pioneering modular, commercial scale plants utilizing solid oxide electrolyzer cell technology.”
- Their flagship facility at the Port of Victoria will use renewable solar and wind power to fuel energy-efficient solid oxide electrolyzer cells (SOEC) that produce ammonia from water and air.
- It will create approximately **50 locally-sourced jobs**.
- It will provide the region with the ability to **produce green ammonia with zero emissions and a low carbon footprint**; this can help lead the way in the green energy transition.
- The green ammonia could also be used **as a marine fuel**, a power generation and storage source, and a **clean-energy option for cars** that emit only steam and nitrogen when the ammonia is consumed.
- Each 100MW module [will initially produce](#) up to 100,000MTPA of green ammonia. This is the equivalent to **180,000-240,000MT of CO₂ avoided per year** when compared to grey ammonia.

Figure 3-5 | Measuring Freight Volumes by Mode

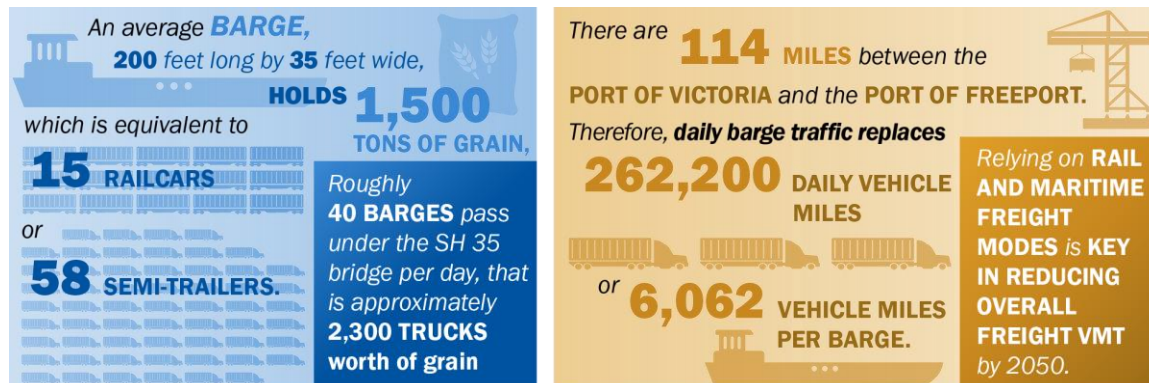
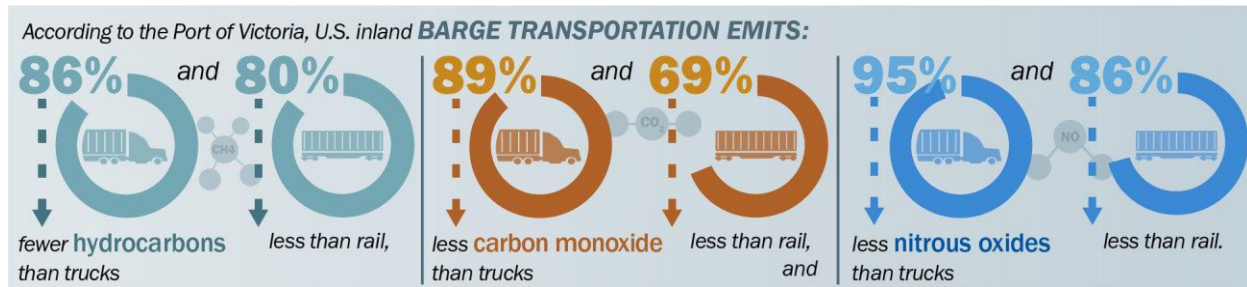


Figure 3-6 | Efficiency of Freight Movement by Barge



Bridging the Gulf will directly increase the potential for domestic-barge movements at the Port of Victoria, a key multimodal port in Texas. As the freight sector continues to grow, investing in more efficient freight transportation will help keep trucks off the roadways. The **Benefit-Cost Analysis** submitted with this application quantifies these impacts, as well as foregone costs from avoiding a costly detour.

- **Energy-Efficiency** | According to the [Army Corps of Engineers](#), U.S. inland barges are the **most efficient freight mode**, moving one ton of bulk liquid products 514 miles per gallon of fuel compared to 202 miles by rail and 59 miles by truck.
- **Lower-Emissions** | According to EPA’s [SmartWay Vision 2020: A New Era of Freight Sustainability](#), waterborne transport uses less fuel on a per-ton basis, emits fewer emissions, and has fewer direct impacts on communities. The maritime transportation sector can offer more efficient freight than heavy-duty vehicles, which have been the largest, fastest growing contributor to greenhouse gas emissions, accounting for 23%.
- **Reduced VMT** | A preliminary study by the University of Texas found that it takes ten times the amount of energy to transport goods over land than by barge; 50 to 100 containers moved by one barge removes 50 to 100 trucks from the road. Growing barge capacity can remove the need to ship goods via truck, reducing the overall VMT on the roadways.
- **Increase Capacity of Multimodal Freight** | The [2024-2025 Texas Port Mission Plan](#) identifies the improvement of the SH 35 clearance over the Victoria Barge Channel as a key project. Improving the clearance of the bridge ensures that vessels can continue to move in and out of ports safely and efficiently. TxDOT is also investing \$36 million in port and rail infrastructure at the Port of Victoria, including \$5 million for General Cargo Dock Development and \$26.4 million for the Texas Logistics Center Rail Expansion.

This project is another critical investments in intermodal freight connectivity, directly supporting TxDOT’s [Texas Delivers 2050 Freight Mobility Plan](#) recommendation to enhance intermodal connectivity efficiency between railroads, seaports, airports, and highways.

Inclusion in State Plans

Bridging the Gulf supports the [Texas Statewide Carbon Reduction Strategy](#) and aligns with the [U.S. National Blueprint for Transportation](#) strategy to improve efficiency by supporting the growth of freight transportation through maritime and rail modes. In addition, **Bridging the Gulf** directly supports the objectives of several federally required TxDOT plans and programs as described throughout the **Outcome Criteria** narrative of this application, including the Texas Freight Mobility Plan, [Texas Delivers 2050](#); Texas’ [Statewide Long-Range Transportation Plan](#); the 2022 TxDOT [Transportation Asset Management Plan \(TAMP\)](#); and more.

Monitor Project Impacts

The project will adhere to a maintenance plan which conforms to TxDOT bridge inspection standards and the 2022 update to the Nation Bridge Inspection Standards. TxDOT is among the Nation's leaders in bridge inspection frequency and preparedness. In addition to the federally required biannual NBI inspection cycle, TxDOT also inspects this bridge on all "off" years, staggered to ensure the bridge is inspected every year. The new bridge will also have the following maintenance advantages:

- The bridge design will follow TxDOT's newer bridge design standards that utilize continuous decks over interior bent caps.
- The new bridge will have longer and fewer spans, reducing the number of substructure elements in the channel and the number of deck joints to maintain.
- The reduction of substructure elements will catch less bridge canal debris, reduce debris removal needs, and significantly reduce the number of deck joints that maintenance crews or maintenance contractors would need to clean and maintain.

Adopt Low-Carbon Construction Methods and Materials

The project will replace steel girders with prestressed concrete that will enhance the durability of the bridge. The project design also incorporates the use of resilient and innovative materials designed to withstand extreme heat and reduce rutting and cracking

Resilience and the Environment

Bridging the Gulf will incorporate resilient infrastructure and design into the SH 35 bridge and approaching roadways. The project area is an at-risk area for coastal inundation, especially under extreme weather. Texas also experiences extreme heat and droughts, which can impact the pavement conditions. **This project will include the following strategic investments to enhance environmental resiliency:**

- Deploy retroreflective pavement markings to improve visibility during weather events;
- Replacement of the current steel bridge with a concrete superstructure to reduce maintenance costs and treatment frequency; and
- Designing the new bridge with longer spans to eliminate footings from the canal, reducing the risk of damage caused by canal flooding and debris in the water.

Inclusion in Resilience Plan or Framework

The project advances objectives in the National Climate Resilience Framework. The project will help increase resilience of the bridge to both acute climate shocks and chronic stressors. The increased clearance and removal of in-water structure will not only make it less susceptible to barge strikes but it will also make it resilient to any future flooding events or extreme hydrological disaster.

Improve Disaster Preparedness

The project will elevate the bridge for anticipated increases in flooding, based on regional climate projections. These changes will safeguard the bridge as a vital transport route.

The project does not fall under a flood risk zone or a FEMA-designated Community Disaster Resilience Zone, nor is it designated as a TxDOT Evacuation Route.

Incorporate Solutions Beyond Standard Practice

The project includes the removal of all in-water structures, eliminating the need for maintenance of the bridge piers. Relative to the existing design, the new bridge design will reduce or eliminate the risk of barge strikes, thereby significantly reducing the risk of strike-related debris, paint, and chemicals spilling into the canal. This will positively impact water quality and remove any and all obstacles to migrating and residing aquatic wildlife.

Criterion #5: Equity, Multimodal Options, and Quality of Life

The project has a significant impact on freight transportation, providing opportunities for investments at the Port of Victoria and its surrounding communities. As outlined in the **Economic Impacts, Freight Movement, and Job Creation** section, this project eliminates a key barrier to economic growth. The existing bridge limits capacity for transporting large construction modules to build along the Victoria Barge Canal and Transportation Logistics Center. By building a new bridge, the Port of Victoria could expand its potential \$8 billion in private investments over the next 10+ years. **These opportunities will help generate new tax revenues bring new, good-paying jobs, and improve quality of life in the surrounding Areas of Persistent Poverty and Historically Disadvantaged Communities.**

Improving Quality of Life

Improve Access to Emergency Services

Major centers for emergency care, essential services, healthcare providers as well as drug and alcohol treatment and rehabilitation centers are situated in Port Lavaca and/or Victoria. These urban centers are best accessed by underserved communities west of Green Lake by SH 35. Without SH 35, residents as well as service care providers will be forced to use a detour that has a significantly higher travel time. This project will ensure that emergency services are able to respond to those in need and reach care centers safely.

Reduce Transportation and Housing Cost Burdens

This project improves the load capacity of the bridge over the Victoria Barge Canal allowing heavier vehicles to move between urban centers along SH 35. This will improve fuel efficiency and reduce transportation costs relative to the No Build (detour) scenario.

Increase Walkability and Accessibility

This project will ensure continued access and optimized travel times for vehicles in the Greater Victoria region. In addition, the project will install 10-foot shoulders on the bridge in each direction to ensure safe passage and access for all modes including emergency personnel, cyclists, and pedestrians.

Support Local, Regional, State Equitable Development Plan

This project directly supports the objectives of key TxDOT strategic and transportation management plans. TxDOT's [2023-2027 Strategic Plan](#) identified asset preservation and stewardship as its core pillars. This project supports those objectives by investing in an asset based on declining performance and continuously informing the public and relevant stakeholders, processes which have already begun for this bridge. The [Transportation Asset Management Plan](#) (TAMP) for TxDOT promotes public outreach and is driven to ensure management practices are understandable to the general population.

Once completed, this project will serve as an excellent example of both the primary and secondary benefits of asset management in practice. A key asset for the region which is currently at-risk will be replaced by a more reliable, lower maintenance cost alternative, an effort which is likely to generate second-order economic impacts for the Port of Victoria and Calhoun County as a whole.

Areas of Persistent Poverty or Historically Disadvantaged Communities

The project is located entirely within an Historically Disadvantaged Community. The project benefits that will affect the community have been described throughout the application. These include, but are not limited to:

- The continued operations of SH 35 as well as the upgrade of the bridge to increase load capacity will accommodate multimodal freight traffic near the Port of Victoria, encouraging investment in high-quality jobs in manufacturing and logistics;
- Air quality improvements are anticipated due to reduced congestion-related costs;
- Ensure bridge safety by safeguarding it from barge strikes and hazardous spills and prevent long-term and short-term health/quality of life impacts to adjacent communities;
- Increased resilience to extreme weather and impacts by increasing height of bridge and using appropriate construction materials; and
- Increased travel time reliability for all vehicles, by preventing a 44-mile detour and creating **\$259 million** (\$133.3 million discounted to 2022 dollars) in travel time savings benefits over 30 years.

Equity in Overall Project Delivery and Implementation

Adopting Equity and Inclusion Program/Plan

TxDOT is committed to creating a diverse and inclusive workforce through policies and commitments to attain fairness and equality of opportunity. TxDOT continues to maintain and improve its Equal Employment Opportunity (EEO) Program, Title VI/Nondiscrimination Program, On-the-Job Training Program—which trains women, minorities, and disadvantaged individuals for entry into journey-level positions—and Disadvantaged Business Enterprises (DBE) programs. TxDOT also maintains policies and programs towards compliance of the Civil Rights and Americans with Disabilities Act (ADA).

Engage Diverse People and Communities

TxDOT has meaningfully sought community input through early coordination with state and local stakeholders, including Calhoun County, the Port of Victoria, the Port of West Calhoun, the U.S. Coast Guard, and the Army Corps of Engineers. This project will also be among the first to utilize TxDOT's new [Strategic Public Engagement Guidance](#).

TxDOT will continue to engage with diverse people and communities to ensure equity considerations and community input and ownership, particularly among disadvantaged communities, through all stages of the project including planning, development, and implementation of transportation investments.

Ensuring Equity Impact Analysis

The project is located in an area identified as a Historically Disadvantaged Community (HDC) as well as an Area of Persistent Poverty (APP), overlapping with the HDC boundary throughout Calhoun County. TxDOT has worked in coordination with state and local governments to ensure local and community input. TxDOT will continue to engage in various outreach activities to engage affected abutters through different stages of the project.

Walking and Bicycling Infrastructure

While pedestrian or bicycling infrastructure is not a primary focus of the project, installation of 10-foot shoulders on the bridge in each direction will ensure safe passage and access for all modes including emergency personnel, cyclists, and pedestrians.

Support Local Workforce Development

Designed to engage with the community, advocacy groups, and developers, this Project supports inclusive economic development. By hiring residents, community members, and vendors, this Project will benefit small businesses through improved trade connections in addition to smoother everyday trips and deliveries.

TxDOT is committed to creating a business environment that includes strong labor standards and good-paying jobs. This project will deploy contracting incentives to employ local labor, to the extent permissible under Federal law. TxDOT's procurement and contracting policies allow for local preference when evaluating bids, subject to local limits governing procurement rules when using federal funds. Every effort will be made to provide quality, good-paying jobs for the local workforce, and targets for Minority and Women-Owned Business Enterprises (M/WBE) particularly as it pertains to subcontracting under general service contracts. In 2013, [Calhoun County](#) implemented a living wage policy for all general service contracts, detailing rules to adhere to living wage standards, including fringe benefits, for the life of the contract.

Connect Underserved Communities by Transportation

The project will ensure that the bridge maintains its condition and is not forced to close due to damage or deterioration. SH 35 is vital for traffic moving towards and between the underserved communities in Calhoun County. The communities will be forced to use a 44-mile detour in the absence of the bridge over the Victoria Barge Canal.

Improve Affordable and Accessible Transportation

Bridging the Gulf will help ensure transportation choices remain affordable. The no-build scenario estimates the bridge will be closed due to poor condition ratings by 2029 or due to the increasing risk of barge strike damage that will make the bridge unsafe to travel. The project will ensure continued access for disadvantaged communities east and west of Green Lake by avoiding a potential 44-mile detour. This includes but is not limited to residents of Calhoun County, Refugio County, Aransas County, and Victoria County.

Physical Barrier Mitigation

The project will proactively mitigate the development of a physical barrier due to the closure of SH 35 over the Victoria Barge Canal allowing low-income communities on both sides continued connection and opportunities.

Improve Access and Reduce Automobile Dependence

According to the 2022 American Community Survey (ACS) 5-Year Estimates, Calhoun County has a mean commute time of 18 minutes, with 64% of workers aged 16 years or older reporting a commuting time of less than 20 minutes. Over 80% of workers report driving alone as their main mode of transportation when commuting. In the no-build scenario's bridge closure and 44-mile detour, individuals using SH 35 would add 45 minutes to their commute, greatly increasing the cost of commuting for workers who would otherwise use the bridge. **Using U.S. DOT's recommended operating cost of \$0.52 per mile for light duty vehicles from the [Benefit-Cost Analysis Guidance for Discretionary Grant Programs](#), the detour would cost EACH driver an estimated additional \$23 per trip.**

Improve Freight Access to Disadvantaged and Underserved Communities

Rebuilding the SH 35 over the Victoria Barge Canal will accommodate full 80,000-pound trucks and allow for more efficient freight movement along the route. Previously, SH 35 over the Victoria Barge Canal was only rated for 40,000-pound trucks with two axles. This project will ensure improved freight access to disadvantaged and underserved communities west of Green Lake and an increased access to goods and job opportunities for those communities.

Criterion #6: Innovation Areas: Technology, Project Delivery, and Financing

Innovative Technology

This project will include the installation of new energy-efficient lighting throughout the project area. Existing cameras and sensors mounted on the bridge to monitor barge strikes have been instrumental in documenting the case for replacing this bridge, but the proposed design of the bridge will eliminate the need for the cameras to be replaced with similar sensors because the new bridge will not have any in-water infrastructure at risk of being damaged.

Innovative Project Delivery

This project will utilize [Open Bridge Modeler \(OBM\)](#) to create a 3D bridge model to support final design and analysis. OBM connects natively to OpenRoads Designer (ORD) and is capable of reading and updating geometric data. A 3D bridge model referenced into a corridor model can help better visualize the project as a whole and lead to identifying possible conflicts with utilities, vertical and horizontal clearances, excavation, and schedule that might otherwise be overlooked. This is the foundational step TxDOT has taken to move towards Digital Delivery.

Innovative Financing

TxDOT has a well-documented history of embracing innovative financing methods. Previous grant awarded projects have included financing agreements between public agencies, public-private partnerships, and local support. The financing for this project does not currently include any innovative methods, but TxDOT would welcome the opportunity to incorporate innovative methods prior to authorizing construction. **This project will enable deployment of innovative financing methods for future local, County, and Port projects by easing Port access to encourage future development which will, in turn, increase potential revenue for local municipalities and counties.** That revenue can support further expansion of logistics infrastructure, community resources, or road and bridge repairs. In addition, continuous investments in energy resources will continue to diversify Texas' energy production portfolio and create new sources of energy for local businesses to draw on.

4. Benefit-Cost Analysis Narrative

4.1 Executive Summary

This benefit-cost analysis (BCA) was conducted for submission to the U.S. Department of Transportation (USDOT) as a requirement of an application for the FY 2025-2026 Multimodal Project Discretionary Grant Opportunity (MPDG) Program. The analysis was conducted in accordance with the benefit-cost methodology as outlined by USDOT in the Benefit-Cost Analysis Guidance for Discretionary Grant Programs, released in December 2023.

The **period of analysis** corresponds to 32 years and includes 2 years of construction and 30 years of benefits after operations (replacement bridge) begin in 2029.

Prone to strikes by barges traversing the 36 miles between the Port of Victoria and the Gulf Intracoastal Waterway (GIWW), the existing bridge was built in 1960 with a vertical clearance of 50 feet that is now insufficient to accommodate heavy barge traffic, which is projected to grow significantly in the coming years.

In 2023, an average of 3 to 8 strikes per month has resulted in frequent bridge repairs, partial closures, and repeated damage to the bridge's fender system. The existing steel girder superstructure requires regular maintenance, painting, and inspection; the proposed prestressed concrete bridge replacement would minimize these costs while increasing the navigational clearance to 75 feet and widening the main span to eliminate in-water infrastructure.

If the bridge is not reconstructed, TxDOT expects that by 2029 the bridge would fall into Poor condition and need significant remediation work just to keep the existing structure operable, or the bridge would need to be indefinitely closed to commercial vehicular (truck) traffic. This closure would require trucks to detour about 44 miles around the bridge and incur significant time and costs. In addition, frequent barge strikes leave open the potential threat of critical damage to the bridge prior to 2029, potentially resulting in bridge closure, failure, or even loss of life as seen recently on the Key Bridge in Maryland. The economic disruption of such an event would be significant.

The capital cost for this Project (2023-dollar estimate) is expected to be **\$60.0 million or \$57.9 million in 2022 dollars**. At a 3.1% discount rate, the capital costs are **\$49.0 million** in discounted 2022 dollars. With a service life of 60 years, at the end of 30 years, the assets will retain 50% of their original value with a residual value of **\$29.0 million** in undiscounted dollars and **\$9.6 million** in 2022 discounted dollars. The residual value is added to the total benefits of the project as per USDOT guidance.

Savings in Operations and Maintenance costs (including repairs to the bridge fender system from barge strikes) if the Project is built versus maintaining the current bridge is expected to be \$283,905 per year on average, totaling **\$8.5 million** over 30 years, or **\$4.6 million** discounted to 2022. Considering all costs and benefits of the Project and using a 3.1% discount rate (2% for carbon emissions), this leads to an overall discounted Net Present Value (including residual value of assets) of **\$467.2 million** and a Benefit Cost Ratio (BCR) of **10.5:1**. The overall project benefit and costs are presented in Table 4-1.

Table 4-1 | Summary of Project Benefits and Costs

Benefits and Costs	\$2022 Value	Discounted Value (2022\$)
Travel Time Savings (Avoided Detours)	\$259,027,186	\$133,318,061
Vehicle Operating Cost Savings (Avoided Detours)	\$510,322,218	\$262,656,479
Safety Crash Cost Savings (Avoided Crashes)	\$10,438,409	\$5,372,519
CO2 Emissions Cost Reduction	\$115,595,715	\$74,539,603
Non- CO2 Emissions Cost Reduction	\$13,531,271	\$6,964,376
Avoided Highway Externality (Congestion & Noise)	\$30,426,029	\$15,659,898
Pavement Damage Cost Reduction	\$6,644,627	\$3,419,907
Residual Asset Value	\$28,951,940	\$9,646,410
O&M Cost Savings	\$8,517,156	\$4,573,944
Total Benefits	\$983,454,551	\$516,151,197
Capital Costs	\$57,903,880	\$48,959,345
Benefit/Cost Ratio	17.0	10.5
Net Present Value	\$925,550,672	\$467,191,852

4.2 Introduction

A benefit-cost analysis (BCA) was conducted for the *Bridging the Gulf: Creating Opportunity on the Victoria Barge Canal* (“the project”) submission to the U.S. Department of Transportation (USDOT) as a requirement of an application for the FY 2025-2026 Multimodal Project Discretionary Grant (MPDG). The analysis was conducted in accordance with the benefit-cost methodology as outlined by USDOT in the Benefit-Cost Analysis Guidance for Discretionary Grant Programs, released in December 2023. The period of analysis corresponds to 32 years and includes 2 years of construction and 30 years of benefits after operations (replacement bridge) begin in 2028. This section is organized as follows:

- **Section 4.2** contains the Project current baseline.
- **Section 4.3** documents the BCA methodology, including key methodological components, assumptions, the study scenarios, data sources, and key input parameters.
- **Section 4.4** explains the baseline challenges, the proposed changes and impacts.
- **Section 4.5** presents a detailed explanation and calculation of the Project benefits.
- **Section 4.6** contains a detailed explanation and calculation of the Project costs.
- **Section 4.7** depicts a detailed results of the BCA.
- **Section 4.8** contains the results of sensitivity analyses of critical variables’ impacts on the BC ratio.

4.3 Current Baseline

The Texas Department of Transportation (TxDOT) is requesting \$36 million from the FY 2025-2026 MPDG Program to support *Bridging the Gulf: Creating Opportunity on the Victoria Barge*

Canal. A \$60 million project, this critical investment will replace the bridge carrying State Highway 35 (SH 35) over the Victoria Barge Canal. Prone to strikes by barges traversing the 36 miles between the Port of Victoria and the Gulf Intracoastal Waterway (GIWW), the existing bridge was built in 1960 with a vertical clearance of 50 feet that is now insufficient to accommodate heavy barge traffic, which is projected to grow significantly in the coming years. **In 2023, an average of 3 to 8 strikes per month** has resulted in frequent bridge repairs, partial closures, and repeated damage to the bridge’s fender system. The existing steel girder superstructure requires frequent maintenance, painting, and inspection, costs which the proposed replacement would minimize using prestressed concrete, increasing the vertical clearance to 75 feet, and widening the main span to eliminate all in-water infrastructure.

This project will replace NBI Structure Number 130290018001034, which carries SH 35 over the Victoria Barge Canal in Calhoun County, Texas. The existing bridge carries one lane of traffic in each direction, totaling about 3,500 vehicles per day. As of 2019, trucks made up 15.3% of daily traffic, a number that is expected to climb as the area continues to industrialize. The proposed project will replace the existing bridge with a taller, wider structure designed to mitigate safety issues, bring a key commercial corridor up to a state of good repair, and make room for continued growth in the Port of Victoria and Calhoun County.

The replacement bridge will be constructed off-alignment from the old bridge; therefore, no construction-related detours are expected.

4.4 Assumptions and Methodology

The BCA provides an evaluation framework to assess the economic advantages (benefits) and disadvantages (costs) of a potential infrastructure project. Project benefits and costs are broadly defined and are quantified in monetary terms to the extent possible. The overall goal of the project BCA is to assess whether the expected benefits of the project justify the costs from a national perspective. The BCA framework attempts to capture the net welfare change created by the project, including cost savings and increases in welfare (benefits), as well as disbenefits where costs can be identified (e.g., project capital costs).

The BCA framework involves defining a Baseline or “No Build” scenario, which is compared to a scenario with the Project or “Build” scenario. The BCA assesses the incremental difference between the “Build” scenario and the “No Build” scenario (the bridge is not reconstructed, it will be closed to commercial vehicles and create a 44-mile detour for the trucks) which represents the net change in welfare. BCAs are forward-looking exercises which seek to assess the incremental change in welfare over a project life cycle. The importance of future changes is determined through discounting, which is meant to reflect the time value of money.

Methodological Components

The Project BCA is conducted in accordance with the [benefit-cost methodology recommended by USDOT](#). The methodology includes the following key components:

- Defining existing and future conditions under the “No Build” (Baseline) scenario and the “Build” scenario;
- Assessing the project benefits over the 30 years of operations beyond the Project completion when benefits accrue, and using USDOT recommended values to monetize

changes in travel time, vehicle operating costs, and traffic crashes by severity while relying on best practices for monetization of other benefits or disbenefits;

- Estimating the project capital costs during Project construction and Project operation and maintenance costs over the 30 years of operations beyond the Project completion when benefits accrue;
- Discounting Project benefits and costs using a real discount rate of 3.1% (2% for CO₂ emissions costs) consistent with USDOT guidance (December 2023).

Key Assumptions

The assessment of the Project benefits and costs associated with the **Project** involve the following key assumptions:

- The evaluation period includes the design and engineering and construction during which capital expenditures are undertaken, plus 30 years of operations beyond the Project completion within which to evaluate the ongoing Project benefits and costs.
- The preconstruction and construction phase of the Project is assumed to begin in 2027, ending in 2028 at which point the Project will be deemed complete.
- The Project will be opened to the public in 2029 and the 30-year operational period will conclude in 2058. Project benefits begin in the calendar year immediately following final construction occurs.
- The reconstructed bridge will have a service life of 60 years. Therefore, the bridge will have a 50% residual value of the bridge costs in year 2058.
- All Project benefits and costs are conservatively assumed to occur at the end of each calendar year for purposes of present value discounting.
- Monetary values of Project costs and benefits are expressed in constant, year-end 2022 dollars.

“Build” and “No Build” Scenarios

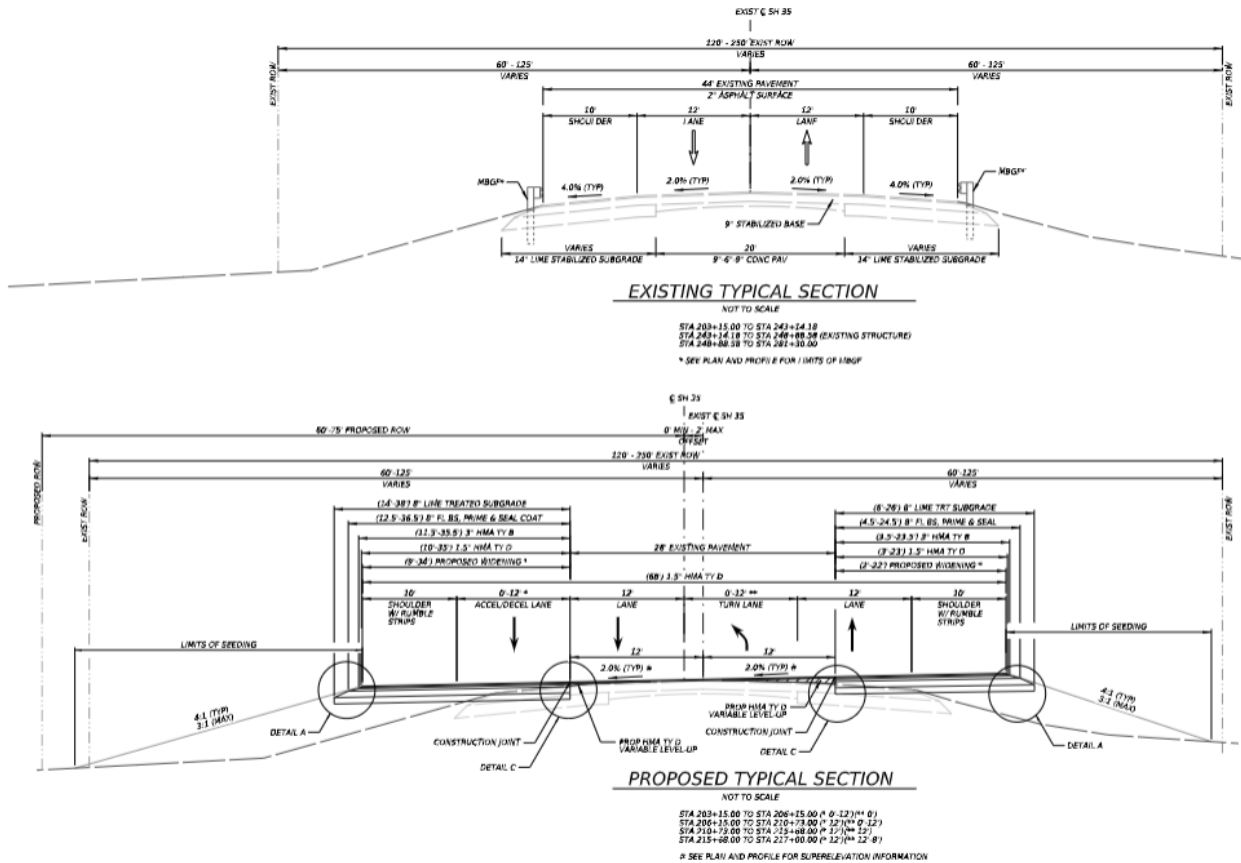
The analysis of *Bridging the Gulf* considered how the balance of costs and benefits resulting from the construction of the Project would result in long-term benefits to its users and general society. This is accomplished by comparing the “Build” scenario relative to the “No-Build” scenario.

The “Build” scenario will replace the bridge carrying State Highway 35 (SH 35) over the Victoria Barge Canal. This critical safety investment will:

- Replace a low, narrow bridge built in 1960 with a wider, taller structure, reducing the incidence of bridge strikes and crashes on and below the bridge;
- Increase resiliency and reducing maintenance costs for TxDOT by replacing an at-risk steel structure with wider-span, prestressed concrete construction; and
- Unlock the economic potential of the region by accommodating multimodal freight traffic near the Port of Victoria, encouraging investment in high-quality jobs in manufacturing and logistics.

Construction will be completed off-alignment and replace the existing structure with a wider, taller structure that increases the navigational clearance of the waterway below.

Figure 4-1 | 30% Designs Showing Existing and Proposed Cross Sections



The No-build scenario assumes that the current bridge is not replaced. If the bridge is not replaced, TxDOT expects that by 2027 the bridge would fall into poor condition, requiring restriction of commercial vehicles (trucks) from using the bridge. In addition, to maintain the bridge for passenger vehicles, significant maintenance work on the bridge and fender system will be required. Given the bridge’s age, build specifications, and condition, TxDOT considers replacement of the bridge less expensive and more practical than attempting the significant restoration work required to bring the existing bridge up to modern specifications.

Data Sources

All data utilized in this benefit-cost analysis was compiled from the following sources:

- TxDOT project cost estimates and 60% design documents;
- TxDOT traffic counts and crash data; and
- Crash Modification Factor (CMF) Clearinghouse.

Key Input Parameters

In addition to the Data Sources listed above, all key input parameters in this analysis are taken from USDOT's "Benefit-Cost Analysis Guidance for Discretionary Grant Programs," December 2023, unless otherwise noted. Safety benefit calculations utilize Crash Modification Factor Clearinghouse (CMF) inputs.

The BCA converts potential gains (benefits) and losses (costs) from the project into monetary units and compares them. The following common benefit-cost evaluation measures are included in this BCA:

- Net Present Value (NPV): NPV compares the net benefits (benefits minus costs) after being discounted to present values using the real discount rate assumption. The NPV provides a perspective on the overall dollar magnitude of cash flows over time in today's dollar terms.
- Benefit Cost Ratio (BCR): The present value of incremental benefits is divided by the present value of incremental costs to yield the BCR. The BCR expresses the relation of discounted benefits to discounted costs as a measure of the extent to which a project's benefits either exceed or fall short of the costs.

4.5 Baseline Challenges, Proposed Changes, and Impacts

This project will replace the existing bridge utilizing off-alignment construction methods to ensure that SH 35 remains open and functional throughout the construction period. The proposed bridge is being designed to update the mid-century design with MASH-compliant safety standards, load ratings to accommodate heavy freight trucks, and a larger navigational clearance to eliminate existing barge strike issues.

Overall, this project represents a critical safety investment for the region that will:

- Replace a low, narrow bridge built in 1960 to traverse the Victoria Barge Canal with a wider, taller structure, reducing the incidence of bridge strikes and crashes on and below the bridge;
- Increase resiliency and reduce maintenance costs for TxDOT by replacing an at-risk steel structure with wider-span, prestressed concrete construction; and
- Unlock the economic potential of the region by accommodating multimodal freight traffic near the Port of Victoria, encouraging investment in high-quality jobs in manufacturing and logistics.

The table below summarizes several of the current baseline issues and describes how they will be addressed by the proposed project.

Table 4-2 | Baseline Issues to be Addressed

Baseline / Current Status and Problem to be Addressed	Change to Baseline / Proposed Project to Address Problem	Example Impacts
The existing design of the bridge leads to frequent barge strikes	The proposed design will eliminate all in-water infrastructure	Barge strikes will be eliminated
The existing bridge has an insufficient navigational clearance of 50 feet	The proposed bridge will increase the navigational clearance by 50%	More frequent, larger, heavier barges will be able to traverse the Victoria Barge Canal; transport of large construction modules by barge will attract industrial development along the Victoria Barge Canal and Transportation Logistics Center
The only other vehicular crossing of the Victoria Barge Canal is 20-miles north of SH 35; a bridge failure would create a 44-mile detour	A new bridge will be constructed that is wider and taller, designed to withstand modern freight loads and accommodate an increase in vehicular and truck traffic, pedestrians, cyclists, and access for emergency vehicles	The likelihood of forced detours will decrease, reducing harmful emissions and lower vehicle operating costs

4.6 Project Benefits

This Project would contribute to increasing the economic competitiveness of the region through improvements in the mobility of people and goods. Cost-avoidance benefits are measured in the assessment of economic competitiveness, including detour-related travel time savings and vehicle operating cost savings for commercial vehicles.

The reduction in travel time and vehicle distance traveled enables the freight truck industry to deliver goods in an improved cost- and time-efficient manner, impacting nearly all economic industries active regionally and nationally. This project will improve system operations to increase travel time reliability and improve mobility for both freight and passenger vehicles if a barge strike shuts the bridge down entirely).

Build Detour Avoidance: Travel Time and Vehicle Operating Cost Savings

The replacement of the current deficient bridge (Build) would eliminate the possibility of load posting and of truck traffic to detour approximately 44 miles around the bridge. In addition, a significant barge strike could render the bridge unsafe and, therefore, closed to all traffic.

Travel time savings include in-vehicle travel time savings for drivers and passengers. Travel time is considered a cost to users, and its value depends on the disutility that travelers attribute to time spent traveling. A reduction in travel time translates into more time available for work, leisure, or other activities. Travel time savings in this BCA is calculated by multiplying the number of truck drivers (Truck occupancy of 1 is assumed) by the corresponding driver value of travel time (VoTT, see table below) and the changes in Vehicle Hours of Travel (VHT) between the “Build” (zero hours) and the “No Build” (53 minutes per detour). The VoTT is the driver time cost for trucks.

Table 4-3 | Unit Values/Rates Used in the Monetization of Travel Time Savings

Variable	Unit	Value	Source
Value of Travel Time (VoTT) – Truck Drivers	2022\$ per person hour	\$33.50	U.S. Department of Transportation, <i>Benefit-Cost Analysis Guidance for Discretionary Grant Programs</i> , (December 2023)

Vehicle operating costs (VOC) comprise fuel costs and all the necessary replacement items on the vehicle and regular maintenance (e.g., oil and fluid changes, tire rotations, tire replacements, and wiper replacement) as well as truck/trailer lease or purchase payments, permits and licenses, and other related costs to owners of commercial vehicles. The estimation of these benefits is based on the detour VMT for trucks and passenger cars under the “Build” scenario (zero miles detour) relative to the “No Build” (44.1 miles detour) for trucks. The detour VMT for trucks in the “No Build” scenario is multiplied by the corresponding VOC per mile (Table).

Table 4-4 | Unit Values/Rates Used in the Monetization of Vehicle Operating Costs

Vehicle Type	Recommended Vehicle-Operating Cost per Mile	Source
Trucks	\$1.32	U.S. Department of Transportation, <i>Benefit-Cost Analysis Guidance for Discretionary Grant Programs</i> , (December 2023)

These factors were applied to the estimated detour VMT and VHT based on available TxDOT data, which included the following about the SH 35 bridge over the Victoria Barge Canal:

- 2024 AADT of **3,587 vehicles**, 15.3% or 549 of which are trucks.
- 2042 Projected AADT of **5,022 vehicles**, 15.3% or 768 of which are trucks.

Bridge posting would force trucks to detour 44.1 miles. The Annual VMT for the analysis period (2029-2058) was based on extrapolation of these AADT figures assuming this detour length. The compound annual VMT growth rate of truck traffic is 1.9% based on the AADT values. Assuming a travel speed of 50 miles per hours, the estimated VMT and travel time for the first and last years of the analysis based on the aforementioned truck detour are:

- 2029: 9,699,519 Truck VMT and 193,990 hours of travel
- 2058: 16,680,404 Truck VMT and 333,608 hours of travel

The annual VOC and travel time cost savings of the “Build” (no detour) scenario relative to the “No-Build” (detour) scenario are presented in . These costs - **\$769.3 million** (\$396.0 million discounted to 2022 dollars), are avoided by the “Build” scenario, and considered Project benefits.

Table 4-5 | Project Vehicle Operating Costs and Travel Time Benefits

Year	Travel Time Cost Savings	Vehicle Operating Cost Savings	Total Detour TT & VOC Cost Savings	Total Detour TT & VOC Cost Savings (Discounted 2022\$)
2029	\$6,498,678	\$12,803,365	\$19,302,042	\$15,588,079
2030	\$6,621,314	\$13,044,977	\$19,666,290	\$15,404,696
2031	\$6,746,264	\$13,291,148	\$20,037,412	\$15,223,470
2032	\$6,873,573	\$13,541,965	\$20,415,538	\$15,044,376
2033	\$7,003,284	\$13,797,514	\$20,800,798	\$14,867,388
2034	\$7,135,443	\$14,057,887	\$21,193,329	\$14,692,483
2035	\$7,270,095	\$14,323,173	\$21,593,268	\$14,519,636
2036	\$7,407,289	\$14,593,465	\$22,000,754	\$14,348,822
2037	\$7,547,072	\$14,868,857	\$22,415,929	\$14,180,017
2038	\$7,689,492	\$15,149,447	\$22,838,939	\$14,013,199
2039	\$7,834,600	\$15,435,332	\$23,269,932	\$13,848,343
2040	\$7,982,447	\$15,726,611	\$23,709,058	\$13,685,426
2041	\$8,133,083	\$16,023,388	\$24,156,471	\$13,524,426
2042	\$8,286,562	\$16,325,764	\$24,612,327	\$13,365,320
2043	\$8,442,938	\$16,633,847	\$25,076,785	\$13,208,086
2044	\$8,602,264	\$16,947,744	\$25,550,008	\$13,052,701
2045	\$8,764,597	\$17,267,564	\$26,032,161	\$12,899,145
2046	\$8,929,993	\$17,593,420	\$26,523,413	\$12,747,395
2047	\$9,098,511	\$17,925,425	\$27,023,935	\$12,597,430
2048	\$9,270,209	\$18,263,695	\$27,533,903	\$12,449,230
2049	\$9,445,146	\$18,608,348	\$28,053,494	\$12,302,773
2050	\$9,623,385	\$18,959,505	\$28,582,891	\$12,158,039
2051	\$9,804,988	\$19,317,290	\$29,122,277	\$12,015,007
2052	\$9,990,017	\$19,681,825	\$29,671,843	\$11,873,659
2053	\$10,178,539	\$20,053,240	\$30,231,779	\$11,733,973
2054	\$10,370,618	\$20,431,664	\$30,802,282	\$11,595,930
2055	\$10,566,321	\$20,817,230	\$31,383,551	\$11,459,512
2056	\$10,765,718	\$21,210,071	\$31,975,788	\$11,324,698
2057	\$10,968,877	\$21,610,325	\$32,579,202	\$11,191,471
2058	\$11,175,870	\$22,018,133	\$33,194,003	\$11,059,810
Total	\$259,027,186	\$510,322,218	\$769,349,404	\$395,974,541

Impacts to Barge Operations and Ports on the Victoria Barge Canal

The potential impacts of not replacing the existing SH 35 bridge on barge operations and the ports they service along the Victoria Barge Canal can be significant. These are described in the following, but not quantified in this BCA.

Limiting Risk of Bridge Strikes by Barges Navigating the Port Victoria Canal – The proposed bridge redesign includes removing the bridge footings from the canal, significantly widening the horizontal clearance under the bridge and reducing the risk of the bridge being struck and damaged. Currently, the fender system near the bridge footings is struck 3 to 8 times per month because of the narrow horizontal passageway under the bridge. The barge strikes on the fender system require periodic repairs which can hinder barge traffic and create expensive delays. Additionally, due to the narrowness of the passage, barge operators often must break down double-wide barge “packs” to single file for passage under the bridge. It takes time to break down the packs and reassemble them on the far side of the bridge. In addition, the narrow and relatively low passage under the current bridge also limits the size of cargo that can potentially traverse the canal, affecting the economic potential of the Port of Victoria.

This project will directly enable an increase in intermodal and multimodal freight movement by eliminating a major constraint on the Victoria Barge Canal: its current navigational clearance of 50 feet. The proposed bridge will be constructed without the use of in-water infrastructure, eliminating the possibility of barge-pier strikes. The proposed 50% increase in vertical clearance will allow a larger variety of different barges to traverse the canal, allowing for transport of double stacked containers, new commodities, industrial equipment, and construction modules to expand the offerings of the Port of Victoria.

Safety Benefits (Crash Cost Reduction)

This project will incorporate many design elements that will make the proposed bridge a safer facility than what is currently in place. Given the relatively low number of crashes on the bridge historically, the crash modification benefits are not quantified in this BCA. That notwithstanding, significant safety benefits can be associated with eliminating detour-related roadway miles and the crashes that could occur if trucks were forced to detour around the bridge.

The calculation of these crash-reduction safety benefits is straight forward. USDOT benefit-cost guidance provides a safety value per vehicle mile traveled of \$0.027 per VMT. The safety benefit is calculated as the detour related VMT multiplied by \$0.027 per VMT. The crash reduction benefit over the 30-year analysis horizon is estimated at **\$10.4 million** (\$5.4 million discounted to 2022).

Environmental Sustainability Benefits

This analysis examined the potential automotive emissions associated with the “No-Build” detour that would be avoided if *Bridging the Gulf* is completed. Similar to the safety benefits, USDOT provides monetized values per VMT for CO₂ and Non-CO₂ emissions. These are \$0.299 and \$0.035 per VMT for CO₂ and Non-CO₂ emissions, respectively. Multiplying these values by the avoided detour-related VMT, provides the emissions reduction benefits of the Project.

Over 30 years, the Project reduces CO₂ costs by **\$115.6 million** (\$74.5 million discounted to 2022) and Non-CO₂ emissions by **\$13.5 million** (\$6.9 million discounted to 2022). The table below presents the annual emissions reduction benefits.

Table 4-6 | Project Vehicle Emissions Benefits

Year	CO ₂ Emissions Cost Reductions	CO ₂ Emissions Cost Reductions (Discounted 2022\$)	Non-CO ₂ Emissions Cost Reductions	Non-CO ₂ Emissions Cost Reductions (Discounted 2022\$)
2029	\$2,900,156	\$2,524,760	\$339,483	\$274,162
2030	\$2,954,885	\$2,521,966	\$345,890	\$270,937
2031	\$3,010,646	\$2,519,174	\$352,417	\$267,749
2032	\$3,067,460	\$2,516,386	\$359,067	\$264,600
2033	\$3,125,346	\$2,513,600	\$365,843	\$261,487
2034	\$3,184,324	\$2,510,818	\$372,747	\$258,411
2035	\$3,244,416	\$2,508,039	\$379,781	\$255,370
2036	\$3,305,641	\$2,505,263	\$386,948	\$252,366
2037	\$3,368,022	\$2,502,490	\$394,250	\$249,397
2038	\$3,431,579	\$2,499,720	\$401,690	\$246,463
2039	\$3,496,337	\$2,496,953	\$409,270	\$243,564
2040	\$3,562,316	\$2,494,189	\$416,993	\$240,698
2041	\$3,629,540	\$2,491,428	\$424,863	\$237,867
2042	\$3,698,033	\$2,488,670	\$432,880	\$235,068
2043	\$3,767,818	\$2,485,915	\$441,049	\$232,303
2044	\$3,838,921	\$2,483,164	\$449,372	\$229,570
2045	\$3,911,365	\$2,480,415	\$457,852	\$226,869
2046	\$3,985,176	\$2,477,670	\$466,492	\$224,200
2047	\$4,060,380	\$2,474,927	\$475,295	\$221,563
2048	\$4,137,004	\$2,472,188	\$484,265	\$218,956
2049	\$4,215,073	\$2,469,451	\$493,403	\$216,380
2050	\$4,294,615	\$2,466,718	\$502,714	\$213,835
2051	\$4,375,659	\$2,463,987	\$512,201	\$211,319
2052	\$4,458,232	\$2,461,260	\$521,867	\$208,833
2053	\$4,542,363	\$2,458,536	\$531,715	\$206,376
2054	\$4,628,082	\$2,455,814	\$541,749	\$203,949
2055	\$4,715,418	\$2,453,096	\$551,972	\$201,549
2056	\$4,804,402	\$2,450,381	\$562,388	\$199,178
2057	\$4,895,066	\$2,447,668	\$573,001	\$196,835
2058	\$4,987,441	\$2,444,959	\$583,814	\$194,519
Total	\$115,595,715	\$74,539,603	\$13,531,271	\$6,964,376

State of Good Repair Benefits

Repair and maintenance costs continue to increase as structures age, and upgrading infrastructure on aging assets will lower long-term maintenance burdens for TxDOT. Furthermore, upgrading the bridge will help TxDOT continue its upward trend of improving pavement and bridge conditions across Texas. Repairing the bridge saves vehicles from having to use the circuitous 44-mile detour, saving unnecessary vehicular miles traveled (VMT) on neighboring roadways and further lowering future wear-and-tear maintenance costs. Currently the existing bridge [exceeds the 48-year average age of bridges in Texas](#). Replacing the bridge will greatly extend the life cycle of all components of the SH 35 crossing including bridge approach and on- and off-ramp facilities, as each will be updated with the new bridge design. Furthermore, the condition forecast for the bridge superstructure shows aggressive deterioration will bring the bridge to poor condition by 2027 in addition to expected decay from coastal weather and regular erosion. The State of Good Repair benefit category focuses on two benefit types:

- Reducing bridge maintenance costs, as the replacement bridge will require much less maintenance and need for frequent bridge fender repairs due to barge strikes.
- Obviating the need to detour in the Build scenario, thus eliminating the potential deterioration of the road by the detoured trucks.

These benefits are described in the following sections.

Reduced Bridge Maintenance Costs

According to TxDOT, the average annual costs of maintaining the current bridge versus the replacement bridge are:

- Current bridge: \$435,000 average cost per year (2022 dollars).
- Replacement bridge \$111,549 average cost per year (2022 dollars).

Over the analysis period, the replacement bridge would save TxDOT on average \$283,905 per year. Over the 30-year analysis period, maintenance and repair savings for the new bridge versus the current bridge total **\$8.5 million** (\$4.6 million discounted to 2022).

Reduced Truck Detour-Related pavement Costs

If the current bridge is not replaced by at least 2029, commercial vehicles (trucks) will no longer be able to use the bridge due to deterioration of the bridge resulting in load posting. This would create a circuitous 44-mile detour for trucks, resulting in increased pavement damage on the detour route. Pavement damage per truck VMT was based on inflating the values provided for 2000 in the [Federal Highway Summary Report](#). The minimum pavement cost for trucks of \$0.01 was inflated to \$0.017 using the US Bureau of Economic Analysis GDP Price deflator values. This \$0.017 is based on pavement damage per mile for a 40,000 pound 4-axle single unit truck on a rural interstate. Given that many commercial vehicles far exceed that weight, the per mile cost is considered conservative. The \$0.017 per mile pavement cost was applied to the estimated annual truck VMT for the No-Build scenario to calculate the annual cost of pavement damage if the replacement bridge was not built. In total, the replacement bridge would eliminate an estimated **\$6.6 million** in pavement damage (\$3.4 million discounted to 2022).

Replacement Bridge Residual Value

The Residual Value of the replacement bridge assumes that its original value depreciates in a linear manner over its service life. The replacement bridge has an expected useful life of 60 years and would thus retain half its value after 30 years (the analysis period). The estimated construction cost is \$57.9 million in undiscounted 2022 dollars. After 30 years, 50% or **\$29.0 million** (\$9.6 million discounted to 2022) in value of the replacement bridge remains.

Other Benefits of the Build Scenario

Three additional benefits were quantified for this BCA. These are mobility (congestion reduction) costs, noise reduction (Quality of Life) costs, and Residual Value of the Replacement Bridge. The mobility (congestion reduction) and noise reduction benefits, similar to the emissions and the pavement cost reduction benefits, are based on eliminating the potential truck VMT associated with future load posting on the current bridge. As previously mentioned, this detour would require trucks to add 44 miles to their trip, adding to potential congestion on the detour routes. This analysis multiplied the estimated truck detour VMT by [\\$0.075 per mile as recommended by USDOT](#) for buses and trucks in a rural setting.

The recommended value of noise reductions by USDOT is \$0.0037 per VMT for buses and trucks in a rural setting. This analysis multiplied the estimated truck detour VMT by \$0.0037 per mile to obtain the noise reduction benefit of replacing the bridge, eliminating the truck detour. Over the 30-year analysis period, the new bridge would eliminate the potential congestion and noise costs valued at **\$30.4 million** (\$15.7 million discounted to 2022).

Project Benefits Summary

The benefits of the **Bridging the Gulf Project** include the reduction of existing costs, or the prevention of future costs related to the current bridge. Total benefits for the replacement bridge project are estimated at **\$983.5 million** (\$516.2 million discounted to 2022) over 30 years. The table below summarizes the project’s long-term benefits.

Table 4-7 | Project Benefits Summary

Benefits and Costs	Nominal Value	Discounted Value (2022\$)
Travel Time Savings (Avoided Detours)	\$259,027,186	\$133,318,061
Vehicle Operating Cost Savings (Avoided Detours)	\$510,322,218	\$262,656,479
Safety Crash Cost Savings (Avoided Crashes)	\$10,438,409	\$5,372,519
CO2 Emissions Cost Reduction	\$115,595,715	\$74,539,603
Non- CO2 Emissions Cost Reduction	\$13,531,271	\$6,964,376
Avoided Highway Externality (Congestion & Noise)	\$30,426,029	\$15,659,898
Pavement Damage Cost Reduction	\$6,644,627	\$3,419,907
Residual Asset Value	\$28,951,940	\$9,646,410
O&M Cost Savings	\$8,517,156	\$4,573,944
Total Benefits	\$983,454,551	\$516,151,197

4.7 Project Costs

The capital costs associated with this project are primarily associated with construction. Project costs will total **\$57.9 million** in 2022 dollars (\$50.5 million discounted to 2022).

Table 4-8 | Capital Costs Summary

Variable	\$2022 Value (\$Millions)	Discounted Value (2022\$ Millions)
Construction Start	2027	-
Construction End	2028	-
Construction Duration	2	-
Project Opening	2029	-
Capital Cost	\$57.90	\$50.50

Table 4-9 presents the evaluation results for *Bridging the Gulf*. Results are presented in undiscounted and discounted to 2022. All benefits and costs were estimated over an evaluation period extending 30 years beyond project completion in 2027 (starting in 2028).

The total benefits from the Project improvements within the analysis period represent **\$516.2 million** discounted to 2022. The total project capital costs are calculated to be **\$49.0 million** when discounted to 2022. The difference of the discounted benefits and costs equal a NPV of **\$467.2 million**, resulting in a BCR of **10.5:1**.

Table 4-9 | Brief Summary of Project Costs and Benefits

Benefits and Costs	\$2022 Value	Discounted Value (2022\$)
Total Benefits	\$983,454,551	\$516,151,197
Capital Costs	\$57,903,880	\$48,959,345
Benefit/Cost Ratio	17	10.5
Net Present Value	\$925,550,671	\$467,191,852

Table 4-10 summarizes the results of the BCA by year. The full spreadsheet model has been attached with the application.

Table 4-10 | Lifecycle Benefit-Cost Analysis

Year	Costs Undiscounted 2022\$	Benefits Undiscounted 2022\$	Costs Discounted 2022\$	Benefits Discounted 2022\$
2027	\$28,951,940	\$0	\$24,853,316	\$0
2028	\$28,951,940	\$0	\$24,106,029	\$0
2029	\$0	\$24,017,532	\$0	\$19,578,879
2030	\$0	\$24,465,408	\$0	\$19,371,257
2031	\$0	\$24,921,736	\$0	\$19,166,175
2032	\$0	\$25,386,676	\$0	\$18,963,597
2033	\$0	\$25,860,389	\$0	\$18,763,492
2034	\$0	\$26,343,042	\$0	\$18,565,826
2035	\$0	\$26,834,803	\$0	\$18,370,568
2036	\$0	\$27,335,844	\$0	\$18,177,685
2037	\$0	\$27,846,340	\$0	\$17,987,147
2038	\$0	\$28,366,470	\$0	\$17,798,923
2039	\$0	\$28,896,415	\$0	\$17,612,983
2040	\$0	\$29,436,360	\$0	\$17,429,296
2041	\$0	\$29,986,495	\$0	\$17,247,834
2042	\$0	\$30,547,012	\$0	\$17,068,568
2043	\$0	\$31,118,106	\$0	\$16,891,468
2044	\$0	\$31,699,977	\$0	\$16,716,508
2045	\$0	\$32,292,828	\$0	\$16,543,658
2046	\$0	\$32,896,867	\$0	\$16,372,893
2047	\$0	\$33,512,305	\$0	\$16,204,185
2048	\$0	\$34,139,357	\$0	\$16,037,507
2049	\$0	\$34,778,242	\$0	\$15,872,834
2050	\$0	\$35,429,184	\$0	\$15,710,140
2051	\$0	\$36,092,409	\$0	\$15,549,399
2052	\$0	\$36,768,150	\$0	\$15,390,586
2053	\$0	\$37,456,643	\$0	\$15,233,677
2054	\$0	\$38,158,128	\$0	\$15,078,648
2055	\$0	\$38,872,851	\$0	\$14,925,474
2056	\$0	\$39,601,061	\$0	\$14,774,132
2057	\$0	\$40,343,014	\$0	\$14,624,598
2058	\$0	\$70,050,908	\$0	\$24,123,260
Total	\$57,903,880	\$983,454,551	\$48,959,345	\$516,151,197

4.8 Sensitivity Testing

A sensitivity analysis is used to help identify which variables have the greatest impact on the BCA results. This analysis can be used to estimate how changes to key variables from their preferred value affect the results and how sensitive the results are to these changes. This allows for the assessment of the strength of the BCA, including whether the results reached using the preferred set of input variables are significantly different by reasonable departures from those values. Table 4-11 summarizes the key variables which have been tested for sensitivity and the results of this analysis.

First, sensitivity was tested by decreasing the expected detour associated with the “No-Build” scenario by 50%. The resulting discounted BCR was **5.1:1**, with a NPV of **\$202.1** million.

Second, sensitivity was tested by increasing the cost of the replacement bridge by 25%. The resulting discounted BCR was **8.4:1**, with a NPV of **\$455.0** million.

The analysis shows that the BCA estimates are robust and demonstrate Project feasibility under extreme assumptions.

Table 4-11 | Sensitivity Analysis

Sensitivity Variable	Sensitivity Value	New BCR (Discounted)	New NPV (Millions of Discounted \$2022)
Decrease Detour Miles	-50%	5.1:1	\$202.10
Increase Cost of Replacement Bridge	25%	8.4:1	\$455.00

Economic Analysis Rating

This project has a benefit-cost ratio of **10.5 to 1**, indicating that this project is an extremely worthwhile and cost-effective investment. *Bridging the Gulf* is expected to generate a Net Present Value (NPV) of **\$467.191** million. It will also:

- Leverage off-alignment construction to construct a new bridge without impacting the existing structure.
- Replace a low, narrow bridge built in 1960 with a new structure that increases navigational clearances by 50%, reducing the incidence of bridge strikes.
- Increase resiliency and reduce maintenance costs for TxDOT, Calhoun County, and the Greater Victoria region by replacing an at-risk steel structure with a prestressed concrete bridge with longer spans that increase the barge opening.
- Unlock the economic potential of the region by accommodating multimodal freight traffic near the Port of Victoria, encouraging investment in high-quality jobs in manufacturing and logistics.

5. Project Readiness

5.1 Project Overview

The Texas Department of Transportation (TxDOT) is requesting \$36 million from the Multimodal Projects Discretionary Grant (MPDG) Program to support ***Bridging the Gulf: Creating Opportunity on the Victoria Barge Canal***. This \$60 million project will unleash the economic development potential of Calhoun County and the Port of Victoria by replacing an undersized bridge prone to barge strikes with a new structure that will:

- Improve environmental conditions by removing all in-water structural elements;
- Increase the navigational clearance of the structure from 50 to 75 feet;
- Reduce the risk of transportation cost burdens by preventing the need to implement a 44-mile detour; and
- Implement modern safety, accessibility, and load rating standards, capable of accommodating and supporting surrounding growth and development.

TxDOT completed 30% designs on this project in September 2023 and 60% designs in April 2024. Final designs, right-of-way, utility force account coordination, public outreach, and environmental approvals at the local, state, and federal levels are all expected to be complete by the end of 2024.

If this project receives MPDG grant support, TxDOT will move quickly through each project development milestone required to reach construction well in advance of the obligation deadline of September 30, 2028 for INFRA and Rural funds.

5.2 Environmental Risk

Detailed Project Schedule

The schedule presented in Table 5-1 demonstrates that this project will meet all required milestones in the FY 2025-2026 MPDG NOFO. Specifically:

- All necessary activities will be complete by **December 2026**, 21 months in advance of the obligation deadline of **September 30, 2028**.
- The 21 months of contingency in the schedule will allow sufficient time for unexpected delays, **ensuring no funding is at risk of expiring before it is obligated**.
- This **capital project** can begin construction upon obligation of grant funds. Construction is expected to begin in **December 2026** and be completed by **December 2028**, well ahead of the **September 30, 2033** expenditure deadline.
- All real property and right-of-way acquisition will be completed by **December 2024**, in accordance with all requirements of 49 CFR part 24, 23 CFR Part 710, and all other applicable legal requirements.

Table 5-1 | Detailed Project Schedule

Milestone	Start Date	End Date
State and Local Planning Approvals	9/30/2021	5/6/2022
NEPA	1/1/2024	6/1/2025
Other Federal Environmental Approvals	1/1/2024	1/1/2025
Permitting	1/1/2024	6/1/2025
Design Completion	1/1/2023	12/1/2024
Right of Way Acquisition	4/1/2024	1/31/2026
Grant Agreement and Obligation of Funds	6/1/2025	12/1/2026
Plans, Specifications, and Estimates	12/1/2024	4/1/2025
Procurement	12/1/2025	12/1/2026
State and Local Approvals	5/6/2022	10/20/2022
Project Partnership and Implementation Agreements	8/1/2023	12/1/2024
Railroad Coordination	N/A	N/A
Construction	12/1/2026	12/1/2028
Substantial Completion	12/1/2028	12/31/2028
Punchlist & Closeout	1/1/2029	1/31/2029

Required Approvals

NEPA

Bridging the Gulf is anticipated to occur mainly in the operational right-of-way. TxDOT has determined that the project will qualify for Categorical Exclusion (CE) under the National Environmental Policy Act (NEPA). TxDOT does not expect this project to negatively impact social, economic, or sensitive environmental resources. The project will require permits from both the Army Corps of Engineers and the U.S. Coast Guard. TxDOT has already initiated coordination with both bodies, and the project is currently under review by the Army Corps. Therefore, this project will qualify for a CE under 23 CFR 771.117(d)(13).

Reviews, Approvals, and Permits by Other Federal and State Agencies

This project requires permits from the Army Corps of Engineers, U.S. Coast Guard, and approval by the Texas Coastal Management Program. Archeological coordination will be conducted with the Apache Tribe of Oklahoma, Comanche Nation of Oklahoma, Kiowa Tribe, Mescalero Apache Tribe, Seminole Nation of Oklahoma, Tonkawa Tribe of Oklahoma, and Tunica-Biloxi Tribe of Louisiana. The Texas Historical Commission (THC) and Texas State Historic Preservation Officer (SHPO) will also be consulted, and historical coordination would occur in conjunction with the THC, SHPO, and Calhoun County Historical Commission. If the bridge is determined to be eligible for inclusion, the Advisory Council on Historic Preservation may need to be consulted as well.

Environmental Studies or Other Documents

This project may require the following permits and approvals:

- Section 7 Consultation under the Endangered Species Act (ESA) as administered by the U.S. Fish and Wildlife Service (USFWS);
- Clean Water Act Section 404 as administered by the Army Corp of Engineers which may include Programmatic General Permit (PGP);
- Clean Water Act Section 401 administered by the Texas Commission on Environmental Quality (TCEQ) under the Water Quality Certification Program;
- TCEQ Pollutant Discharge Elimination System (TPDES) Program Construction General Permit due to an anticipated soil disturbance >1 acre.

Discussions with DOT Field or Headquarters Offices

TxDOT has NEPA Assignment authority, which limits the need for ongoing coordination meetings with FHWA-TX. However, TxDOT will provide all necessary project updates, notifications, and approval requests to FHWA as required throughout construction.

Right-of-Way Acquisition Plans

Two parcels, including a small piece of county-owned property, will be acquired. Parcel plats are under development. Formal acquisition began in Spring 2024, with an anticipated completion of December 2024.

Description of Public Engagement

TxDOT has begun coordination with local stakeholders including County Commissioners, local leadership, the Ports of Victoria and West Calhoun, the U.S. Coast Guard, and Army Corps of Engineers. In the Spring of 2024, TxDOT will notify right-of-way owners and abutters and host public meetings pursuant to the Department's [Strategic Public Engagement Guidance](#).

State and Local Approvals

Receipt of Tribal Government, State, and Local Approvals

Archaeological and historical coordination with agencies listed in [Reviews, Approvals, and Permits by Other Federal and State Agencies](#) will be conducted under the NEPA Process. TxDOT expects to secure all state/local approvals by **June 2025** and NEPA by **January 2026**.

Federal Transportation Requirements Affecting State and Local Planning

This project is included in the [FY2023-2026 TxDOT Statewide Transportation Improvement Program \(STIP\)](#). It is listed as a Grouped Control-Section-Job (CSJ) under CSJ-5000-00-953 to “replace and/or rehabilitate functionally obsolete or structurally deficient bridges.” Also, *Bridging the Gulf* supports the objectives of several federally required TxDOT plans and programs as described in the Outcome Criteria narrative, including the Texas Freight Mobility Plan, [Texas Delivers 2050](#); Texas' [Statewide Long-Range Transportation Plan](#); the 2022 TxDOT [Transportation Asset Management Plan \(TAMP\)](#); and more.

5.3 Technical Capacity

Federal Funding

TxDOT has the capacity to deliver the project in a manner that satisfies Federal requirements. As documented in the [Stewardship and Oversight Annual Report](#), in FY 2022 TxDOT:

- Let 701 federally funded projects totaling \$7.904 billion.
- Processed 810 construction project preliminary engineering plan sets.
- Managed approximately 1,722 active construction projects.

TxDOT’s Civil Rights Division oversees the implementation and enforcement of its [Disadvantaged Business Enterprise](#) programs. TxDOT also maintains Historically Underutilized Business (HUB) Programs, setting goals to be implemented statewide. Any contracts or purchases with HUB businesses will count towards the appropriate spending category. **Approximately 18% of the work underway on this project is being supported by HUB firms.**

Federal Regulations

TxDOT has NEPA Assignment Authority. TxDOT has issued several policy guidance documents to account for federal program requirements, including Standard Operating Procedures (SOPs) on Cost Estimation, Plan Review, and Early Plans Posting for Contractor Review. A Design Exception SOP and accompanying Template Checklist are also under development.

Project Planning

TxDOT maintains a robust [Strategic Plan](#), prepared biannually at the direction of the Texas Transportation Commission, to set vision, mission, and strategic goals for the agency. TxDOT also provides a suite of [Project Planning Tools](#) for use in project development.

Project Delivery

In 2022, 84% of TxDOT projects were completed on-budget, and in 2023, TxDOT released an Educational Series Report on [Project Development, Selection and Delivery](#).

5.4 Financial Completeness

This section demonstrates that TxDOT has a complete funding package based on reasonable cost estimates. Table 5-2 summarizes the Financial Completeness of *Bridging the Gulf*.

Table 5-2 | Financial Completeness Assessment Summary

Criteria	Details
All Funding Sources for Project Budget Identified	<ul style="list-style-type: none"> • The Project Budget narrative summarizes the allocation of all funding sources intended to support the project. • Additional funding details are also provided in the Plan for Project Fund Usage subsection.
Funding Availability and Commitments Documented	<ul style="list-style-type: none"> • The project is funded in the FY2023-2026 TxDOT STIP. • TxDOT has included a letter to this application to demonstrate proof of funding commitments (Appendix A).
Contingency Amounts Included Budget	<ul style="list-style-type: none"> • The project budget of \$60 million includes \$9 million in contingency funds, derived from 30% design-level estimates.
Plan to Address Cost Overruns Described	<ul style="list-style-type: none"> • This application includes a three-phase plan to address potential cost overruns. • The plan is directly informed by existing TxDOT policies, plans, and programs.
Cost Estimates No More Than a Year Old	<ul style="list-style-type: none"> • 60% Design-level cost estimates were finalized in April 2024.

5.5 Additional Considerations

Geographic Diversity

As stated in **Project Location**, this project is located entirely within Census Tract 5.02, which is both an Area of Persistent Poverty and an Historically Disadvantaged Community.

Previous Awards

This project has not previously received an award from any USDOT discretionary grant programs. TxDOT did submit an application to the FY 2024 RAISE program earlier this year.

5.6 Assessment of Project Risks and Mitigation Strategies

As described in [TxDOT's 2022 TAMP](#), Table 5-3 summarizes the principal risks to this project and strategies to mitigate them. This project is not applicable for a Public Participation Plan. TxDOT does not expect to pursue any waivers for any domestic preference laws on this project. TxDOT has remained up-to-date with all Build America, Buy America requirements and maintains [a public webpage providing guidance to all TxDOT contractors](#).

Table 5-3 | Project Risks and Mitigation Strategies

Risk	Criticality	Mitigation
Approvals by Army Corps and U.S. Coast Guard are delayed	High	<ul style="list-style-type: none"> Coordinate between both agencies to encourage parallel reviews. Develop detailed schedule with adequate contingencies and redundancies.
Material Cost Escalation	Medium	<ul style="list-style-type: none"> Monitor incoming bids over the next two years to refine cost estimates. Deploy Plan to Address Potential Cost Overruns (see Section 2, Project Budget) as required.
The existing bridge is forced to deploy weight restrictions or close entirely	Medium	<ul style="list-style-type: none"> Leverage TxDOT Notification System to mobilize employees and contractors. Utilize TxDOT Emergency Response App (TERA) and Highway Emergency Response Operator (HERO) Program to notify public and distribute detour routes.

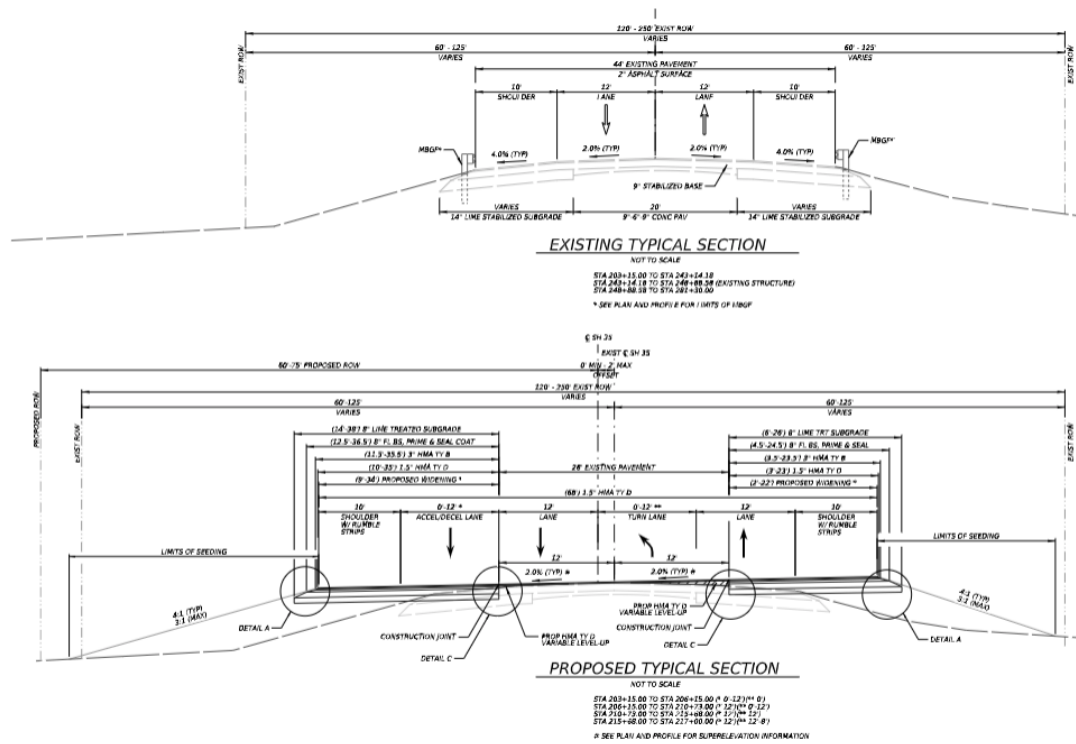
6. Project Requirements

6.1 Project Overview

The Texas Department of Transportation (TxDOT) is requesting \$36 million from the Multimodal Projects Discretionary Grant (MPDG) Program to support *Bridging the Gulf: Creating Opportunity on the Victoria Barge Canal*. This \$60 million project will unleash the economic development potential of Calhoun County and the Port of Victoria by replacing an undersized bridge prone to barge strikes with a new structure that will:

- Improve environmental conditions by removing all in-water structural elements;
- Increase the navigational clearance of the structure from 50 to 75 feet;
- Reduce the risk of transportation cost burdens by preventing the need to implement a 44-mile detour; and
- Implement modern safety, accessibility, and load rating standards, capable of accommodating and supporting surrounding growth and development.

Figure 6-1 | 30% Designs Showing Existing and Proposed Cross Sections



TxDOT has completed 30% design on this project in September 2023 and 60% design in April 2024. Final design, right-of-way, utility force account coordination, public outreach, and environmental approvals at the local, state, and federal levels are all expected to be complete by the end of 2024. TxDOT expects the project to begin construction by **December 2026**.

The project qualifies for both INFRA and Rural Programs. This project aligns with the requirements for INFRA projects below \$100 million in the following ways:

1. The project is cost-effective, with a benefit-cost ratio of 10.5 to 1;
2. The project will positively affect mobility in the State and region by preventing the deployment of a 44-mile detour through more densely populated areas and improving the Travel Time Reliability (TTR) of both SH 35 and the Victoria Barge Canal; and
3. The project will increase safety on freight corridors with significant hazards such as high winds, snowfall, flooding, rockslides, mudslides, wildfire, wildlife crossing onto the roadway, or steep grades.

Additional details about these project impacts and benefits have been provided in the **BCA Section** and **Project Outcome Criteria Section** of this application narrative.

As required for a Rural project, TxDOT will review the statutory selection requirements applicable to the proposed project.

6.2 Statutory Selection Requirements

This project satisfies all the statutory requirements of 23 USC 173. The table below summarizes how this project meets the applicable (Rural) statutory requirements.

Table 6-1 | Statutory Selection Requirements - Rural

23 U.S.C. 173 Rural	Meeting Requirements
(1) The project will generate regional economic, mobility, or safety benefits	<p>Components: The project will replace a low, narrow bridge built in 1960 with a wider, taller structure. The existing at-risk steel structure will be replaced with a prestressed concrete bridge with longer spans and no in-water structural elements.</p> <p>Benefits: The project will reduce incidence of barge strikes ensuring safety of both the bridge and bridge users. The project will also prevent a 44-mile detour for vehicles in the future, increase infrastructure resiliency and reduce maintenance costs for TxDOT, Calhoun County, and the Greater Victoria region. The project will enhance capacity of the bridge to accommodate multimodal freight traffic near two ports, encouraging investment in high-quality industrial and logistics jobs. It will install a bridge designed to current safety standards, enhance protections for vulnerable road users, and encourage additional investment in the Port of Victoria.</p> <p>Impacts: This project will directly enable an increase in intermodal and multimodal freight movement by eliminating a major constraint on the Victoria Barge Canal: its current navigational clearance of 50 feet. This will enhance local, regional and statewide competitiveness by bringing more opportunities to the Port of Victoria. Up to four million tons of cargo from refineries and other raw material processors will continue movement after the bridge is upgraded.</p>

23 U.S.C. 173 Rural	Meeting Requirements
<p>(2) The project will be cost effective</p>	<p>The project has a an overall discounted Net Present Value (including residual value of assets) of \$467.2 million and a Benefit Cost Ratio (BCR) of 10.5:1.</p> <p>Total benefits for the replacement bridge project are estimated at \$983.5 million (\$516.2 million discounted to 2022) over 30-years.</p> <p>The crash reduction benefit over the 30-year analysis horizon is estimated at \$10.4 million (\$5.4 million discounted to 2022).</p> <p>Over 30 years, the Project reduces CO₂ costs by \$115.6 million (\$74.5 million discounted to 2022) and Non-CO₂ emissions by \$13.5 million (\$6.9 million discounted to 2022).</p> <p>Savings in Operations and Maintenance costs (including repairs to the bridge fender system from barge strikes) if the Project is built is expected to be \$283,905 per year on average, totaling \$8.5 million over 30 years, or \$4.6 million discounted to 2022.</p> <p>The replacement bridge would eliminate an estimated \$6.6 million in pavement damage (\$3.4 million discounted to 2022).</p> <p>The estimated construction cost is \$57.9 million in undiscounted 2022 dollars. After 30 years, 50% or \$29.0 million (\$9.6 million discounted to 2022) in value of the replacement bridge remains.</p> <p>Over the 30-year analysis period, the construction of the new bridge would eliminate the potential congestion and noise costs of a detour valued at \$30.4 million (\$15.7 million discounted to 2022).</p>
<p>(3) The project will contribute to 1 or more of the national goals described under Section 23 U.S.C. § 150</p>	<p>Safety: The existing structure has pillars that are vulnerable to barge strikes. The new replacement will remove all in-water structural elements, significantly widening the horizontal clearance and reducing impacts due to barge strikes; this will ensure continued safety of freight and non-freight vehicles moving over and under the bridge.</p> <p>Infrastructure Construction: The no-build scenario estimates the bridge will be closed due to poor condition ratings by 2029 or due to the increasing risk of barge strike damage that will make the bridge unsafe to travel. The infrastructure upgrade to the bridge includes replacing an at-risk steel structure that will maintain the bridge in a state of good repair. Additionally, the continued operations of the bridge will ensure that freight vehicles are not forced to use a 44 mile detour resulting in pavement damage on the alternative route.</p> <p>Congestion reduction: The continued operations of the bridge will keep freight vehicles off the alternative routes, preventing congestion on those highways.</p>

23 U.S.C. 173 Rural

Meeting Requirements

System Reliability: The project will provide increased horizontal clearance to barges using the canal under the bridge as well as increase the load capacity for freight vehicles moving over the bridge. Both barges and land freight vehicles will be able to carry more commodities more efficiently as a result.

Freight Movement and Economic Vitality: The project will ensure continued access to areas of opportunities for the community in Calhoun County and the Greater Victoria Region. The access will be supplemented by reduced travel time and congestion reduction during movement.

Environmental Sustainability: The project will reduce carbon emissions, reduce potential congestion and noise costs. Also, it will reduce the incidence of barge strikes that can result in hazardous spills into the canal and affect local ecosystems.

Reduced Project Delivery Delays: This project will reduce delivery delays by constructing a replacement bridge off-alignment from the existing structure, ensuring that the current bridge can remain in use during the construction period and avoiding significant cost and delay of constructing a temporary structure or detouring traffic during construction.

(4) The project is based on the results of preliminary engineering

Environmental Assessments: TxDOT has determined that this project will qualify for a Categorical Exclusion (CE) because the project will not have significant individual or cumulative impacts to the interests protected by the National Environmental Policy Act (NEPA). TxDOT does not expect this project to negatively impact social, economic, or sensitive environmental resources such as floodplains, wetlands, endangered species, wildlife habitat, historic and archaeological sites, parklands, air quality, noise, right-of-way, historically and/or economically disadvantaged populations, travel patterns, or environmental grounds. NEPA is expected to be complete by June 1, 2025.

Topographic Surveys: Complete

Metes and Bounds Surveys: Complete

Geotechnical Investigations: Complete

Hydrologic Analysis: To be Completed By August 2024

Utility Engineering: To be Completed by October 2024

Traffic Studies: N/A (Existing bridge to remain open during construction period).

Financial Plans: Project included in TxDOT STIP

Revenue Estimates: N/A

Hazardous Materials

Assessments: To be Completed by December 2024

23 U.S.C. 173 Rural	Meeting Requirements	
	<p>Estimates, Type and Quantity of Materials:</p>	<p>Complete at 60% Design, April 2024 Final to be Completed Dec. 2024</p>
	<p>Other Work Needed To Establish Parameters Of Final Design:</p>	<p>60% Design Complete Stakeholder Engagement in Process Design to be Completed Dec 2024</p>
<p>(5) The project is reasonably expected to begin construction not later than 18 months after the date of obligation of funds for the project</p>	<p>Project’s Expected Obligation Date: Project Construction Start Date: Project Budget: Project Schedule:</p>	<p>December 2026 December 2026 \$60 Million, Design underway; expected to begin construction in December 2026. See Section 5.2 for more.</p>

7. Letters of Support

TxDOT received support from a variety of elected officials, project stakeholders, and other public and private partners in support of Bridging the Gulf: Creating Opportunity on the Victoria Barge Canal. The list below provides a summary of the supporting parties committed as of the application deadline of February 28, 2024.

7.1 Elected Officials

- Congressman Michael Cloud (TX-27)
- State Representative Geanie W. Morrison (HD-30)
- State Senator Lois W. Kolkhorst (SD-18)

7.2 Public Entities

- Port of Victoria
- Port of West Calhoun

Appendix A. Funding Commitment