



Grand Parkway Segments H, I-1, and I-2 FASTLANE Grant Application

i. COVER PAGE

Project Name: SH-99 (Grand Parkway) - Segments H, I-1, I-2A and I-2B	
Previously Incurred Project Cost	\$14,000,000
Future Eligible Project Cost	\$1,227,000,000
Total Project Cost	\$1,241,000,000
NSFHP Request	\$45,000,000
Total Federal Funding (including NSFHP)	\$567,000,000 (NSFHP plus TIFIA request amount)
Are matching funds restricted to a specific project component? If so, which one?	No
Is the project or a portion of the project currently located on National Highway Freight Network?	No (However, potential to be part of Critical Rural Freight Corridor designation)
Is the project or a portion of the project located on the National Highway System <ul style="list-style-type: none"> Does the project add capacity to the Interstate system? Is the project in a national scenic area? 	Yes No No
Do the project components include a railway-highway grade crossing or grade separation project?	Yes
Do the project components include an intermodal or freight rail project, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility?	No
If answered yes to either of the two component questions above, how much of requested NSFHP funds will be spent on each of these projects components?	\$0.0
State(s) in which project is located.	Texas
Small or large project	Large
Also submitting an application to TIGER for this project?	No
Urbanized Area in which project is located, if applicable.	Houston
Population of Urbanized Area.	4.9 million
Is the project currently programmed in the: (please specify in which plans the project is currently programmed) <ul style="list-style-type: none"> TIP STIP MPO Long Range Transportation Plan State Long Range Transportation Plan State Freight Plan 	Yes Yes Yes Yes Yes

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iii. PROJECT NARRATIVE

a. PROJECT DESCRIPTION

1. ELIGIBILITY

The Texas Department of Transportation (TxDOT) State Highway (SH) 99 Grand Parkway project would add capacity to the National Highway System (NHS) through the implementation of a new state highway circumnavigating the east and northeast portion of Houston, Texas. Grand Parkway has been identified as an un-built NHS route. The segments H, I-1, I-2A, I-2B of the Grand Parkway would facilitate the movement of goods and services to and from the Port of Houston, other freight facilities located in the region, and to petrochemical facilities and storage yards, and enhance the connectivity between existing interstate systems including I-10, I-69 and I-45. The total project cost for these four segments of Grand Parkway is estimated to be \$1.227 billion with federal funding sources (including this grant request) estimated for 46 percent of the future eligible project costs. This Nationally Significant Freight and Highway Projects (NSFHP) grant request is for \$45 million for Segment I-2, which is approximately 4 percent of the future eligible project costs. Grand Parkway is anticipated to begin construction in early 2017.

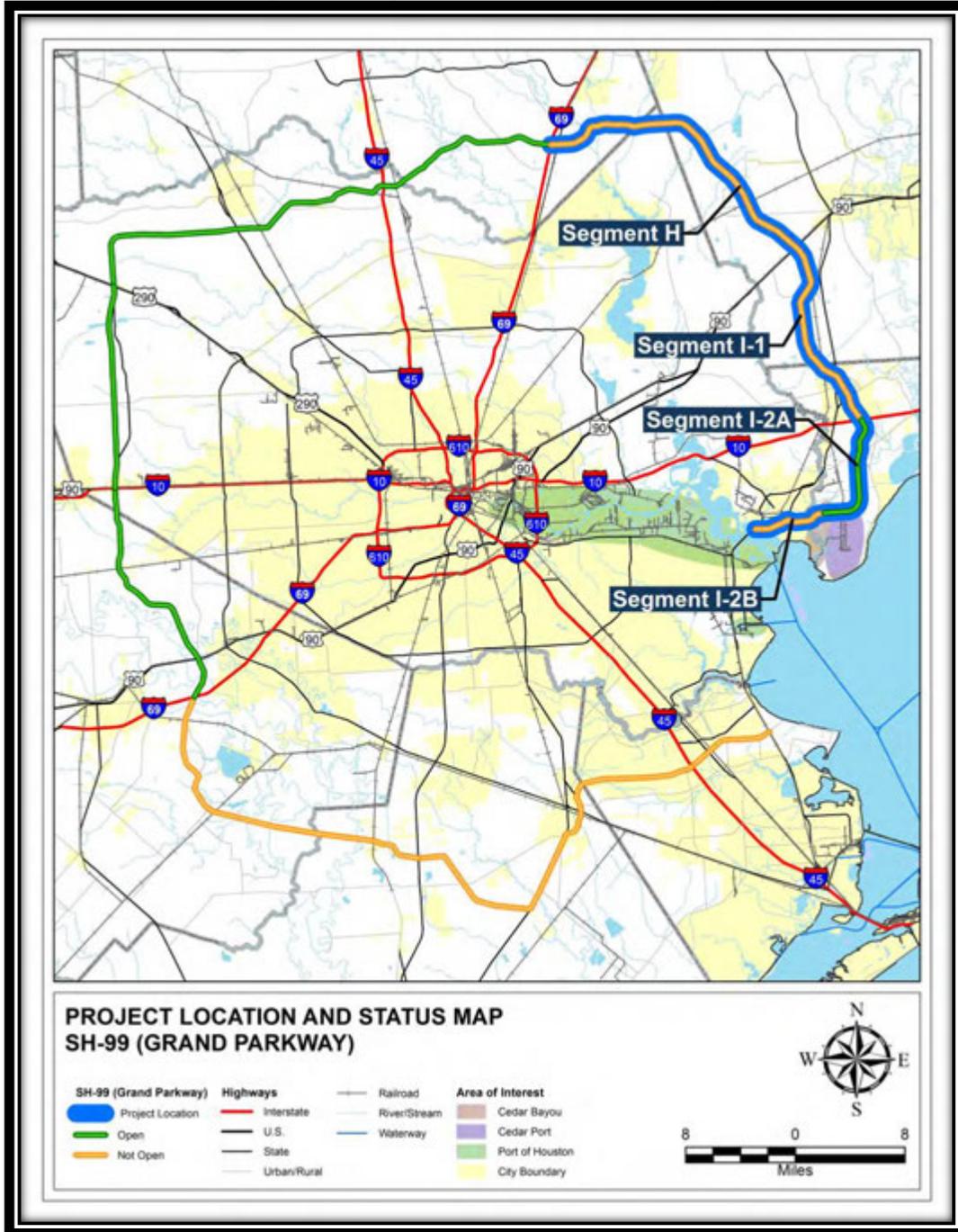
2. DETAILED DESCRIPTION

Segments H, I-1, I-2A and I-2B of the SH 99 Grand Parkway are located in Montgomery, Harris, Liberty, and Chambers counties. The entire Grand Parkway (SH 99) is a 180-mile loop around the greater Houston metropolitan area as shown in Figure 1. SH 99 will facilitate freight and passenger traffic in and from the Port of Houston, which is ranked first in U.S. ports in terms of foreign tonnage, second in total U.S. tonnage, and sixth in terms of total TEUs. Grand Parkway will also facilitate freight movement to and from Cedar Bayou, considered a maritime highway, and Trans-Global Solutions Cedar Port Industrial Park (Cedar Port), the fifth largest intermodal logistics facility in the world with connections to I-10 and I-69/US 59.

Grand Parkway is divided into 11 segments, each of which has logical termini and can function separately to facilitate planning, design, and construction. Each segment connects at least two existing major transportation corridors to ensure independent utility as well as independent significance as required by the Federal Highway Administration (FHWA) regulations (23 Code of Federal Regulations [CFR] 771.111(f)). This proposed project includes four sections of independent utility that were evaluated in two environmental documents:

- Segments H and I-1 from I-69/US 59 North to I-10 East – National Freight Corridor
- Segments I-2A and I-2B from I-10 East to the Fred Hartman Memorial Bridge (FHMB)

Figure 1: Project Location and Status Map



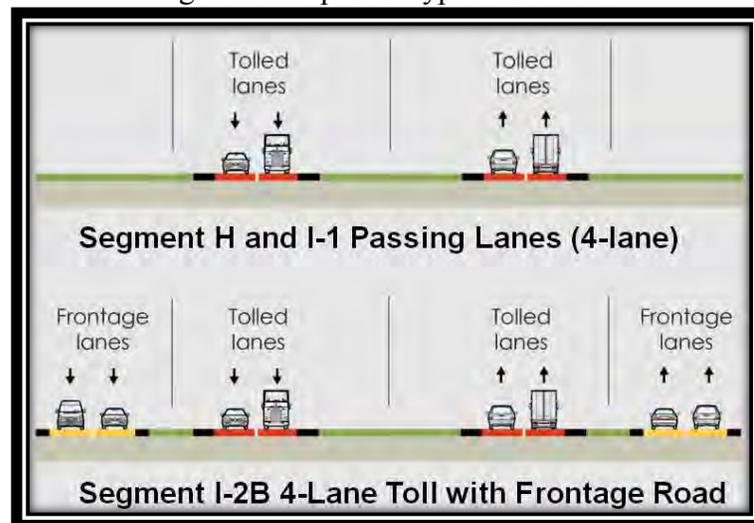
The SH 99 Grand Parkway Segments H, I-1, and I-2 project will increase capacity of the NHS and enhance the movement of goods and services by providing the following improvements to the four segments:

- Segments H & I-1, approximately 37.5 miles, will be a new tolled two-lane controlled access facility with intermittent four lane sections for passing and two-lane discontinuous frontage roads in each direction;

- Segment I-2B, approximately 6.1 miles, will be the construction of four additional toll lanes from Farm-to-Market (FM) 1405 to SH 146; and
- Segment I-2A, existing 8.7 miles, will include upgrading tolling equipment on the existing facility from I-10(E) to FM 1405. Segment I-2A was opened to traffic in March 2008.

Figure 2 illustrates each typical section for the new roadway construction. The Grand Parkway Segments H, I-1, I-2A and I-2B project is being procured as a single complete project to be delivered in a design-build contract. The design-build developer will construct the 43.6 miles (Segments H, I-1, and I-2B) and will maintain the entire 52.3 miles of the project.

Figure 2: Proposed Typical Sections¹



3. FUNDS & USAGE

The NSFHP funds would be used for Segment I-2B, which consists of design and construction for 4 new tolled main lanes (two each direction) with five bridged overpasses for the following cross streets: Wyoming, Lee Drive, M.L. Wismer, Business 146, Tri-Cities Beach Road, and FM 1405; widening of existing bridges over Goose Creek; retaining walls; drainage storm sewer and outfall structures; utility adjustments; removal of railroad bridge underpass; and reconstruction of four-lane frontage road (two lanes each way) between Lee Drive and Business 146. The proposed improvements will provide direct connectivity from SH 146 and the Port of Houston Authority (PHA) Container Terminal facilities along SH 146 to existing SH 99 Segment I-2A, allowing continuous non-stop movements from SH 146 to I-10 and to Segments H and I-1 that will integrate with I-69 around the east side of the Greater Houston Area. Cedar Port is located at the connection of Segment I-2A and Segment I-2B. The improvements will provide overpasses allowing continuous movement over five existing at-grade intersections; greatly enhance mobility and reduce existing congestion; increase capacity and improve the movement of goods to Port of Houston, Cedar Port, associated container terminals, petrochemical facilities, Greater Houston Area; and enhance connectivity between existing interstate systems including I-10, I-69 and I-45.

¹ Source: TxDOT 2016.

4. NATIONAL & REGIONAL SIGNIFICANCE

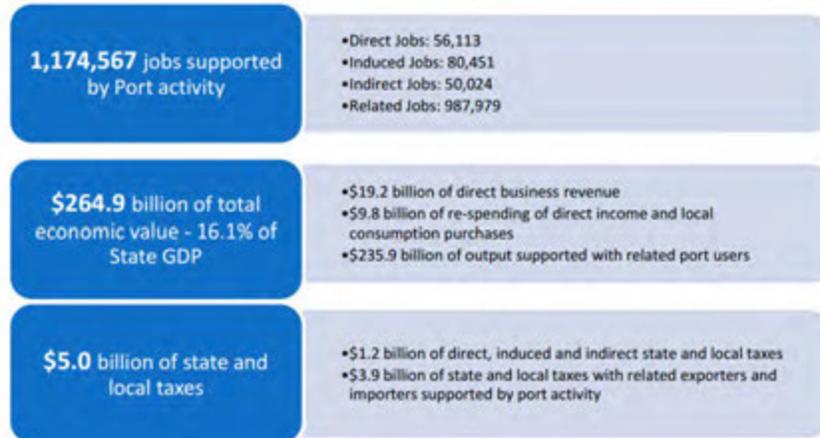
The Grand Parkway Segments H, I-1, and I-2 will help facilitate efficient and effective movement of freight and goods in the region and to the national freight network. The Houston region is a significant hub for trade. Houston is home to the Port of Houston, a strategic global trade gateway and is the leading container port in the Gulf of Mexico, handling 2 million Twenty Foot Equivalent (TEUs) containers in 2015 and accounting for over 67 percent of Gulf Coast container traffic. The Port handles over 8,000 ships annually. The Port of Houston handles the most foreign import and export cargo of all ports in the United States.² Providing enhanced access and capacity to the national freight network is vital for truck traffic accessing these facilities. According to the Greater Houston Partnership, in 2015, the Houston metropolitan area had over \$196.4 billion in total trade and the region was the top goods exporter with over \$110.2 billion in exports and importing \$8.2 billion. Continued growth of the Houston region and Texas combined with continued growth of international trade has the potential to increase truck freight from its current one billion annual tons to 2.15 billion annual tons in 2040.

The April 2003 Texas Transportation Commission Minute Order 109226 states, “The completion of the Grand Parkway is essential and urgent, as construction of the projects would alleviate congestion and improve traffic flow in the greater Houston metropolitan area and the surrounding region.” This proposed project will serve the Port of Houston; Cedar Bayou, a maritime highway; and Cedar Port, the fifth largest industrial park in the nation. Segments I-2A and I-2B would provide direct access to this facility located in Chambers County, with 5.5 miles of the facility passing through Cedar Port³. A 2015 study conducted for the PHA estimated that Houston Ship Channel-related businesses are the economic engine for the Houston region, the state of Texas and the nation. The Port contributes over one million jobs throughout Texas which helped generate more than \$264.9 billion in statewide economic impact. The Port also supports over 2.1 million nationwide jobs and generates over \$499 billion in nationwide economic activity. Additionally, more than \$5 billion in state and local tax revenues are generated by business activities related to the Port, as presented in Figure 3.

² Panama Canal Expansion Study, Phase I Report: Developments in Trade and National and Global Economics, U.S. Department of Transportation Maritime Division, November 2013.

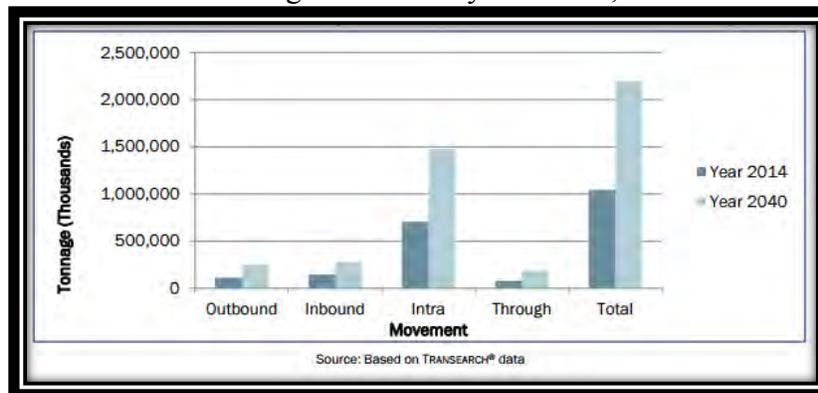
³ <http://www.tgscedarport.com/>

Figure 3: Summary of 2014 Economic Impact of the Port of Houston⁴



The 2016 Texas Freight Mobility Report indicates that intrastate truck traffic is expected to double between 2014 and 2040 and 46 percent of the primary freight network is anticipated to operate under unacceptable conditions. Figure 4 presents the forecasts by direction.⁵ The 2011 Houston-Galveston Area Council (H-GAC) Regional Goods Movement Profile concurs that the level of service (LOS) on significant portions of key freight highway corridors such as I-10, I-45, I-610, and US 59/I-69 is D or F, indicating that volume to capacity ratios are approaching or exceeding 1.0. H-GAC is anticipating that truck volume will increase by 77 percent by 2035; meaning that for every 100 trucks on the road today, there will be 177 trucks in 2035⁶.

Figure 4: Texas Truck Freight Forecast by Direction, 2014 and 2040 Tonnage⁷



The four Grand Parkway segments are also recommended to serve as emergency evacuation routes such as during hurricane events. During Hurricane Rita in 2005, hurricane evacuation was impeded by the lack of circumferential highways in this region. An estimated 2.5 to 3.5 million people evacuated between Wednesday, September 21, 2005 and Friday, September 23, 2005 for Hurricane Rita. The total

⁴ Source: 2014 Economic Impact of Marine Cargo Activity at the Port of Houston: Executive Summary, Port of Houston, September 2014.

⁵ 2016 Freight Mobility Report, TxDOT.

⁶ Regional Goods Movement Profile, H-GAC 2011.

⁷ Source: TxDOT 2016.

estimated average evacuation time was estimated to be approximately 31 hours. Residents living in the southern Houston region that were trying to evacuate to the north had limited choices on available facilities. The Grand Parkway Segments H, I-1, and I-2 provide additional evacuation capacity and a direct route to US 59/I-69(N), which would be under contraflow, as well as connectivity to I-45 via connection to Segment G. (see Attachment 1: Hurricane Evacuation Route for Houston Region)

5. GRAND PARKWAY USERS

In order to appropriately plan transportation improvements that will serve existing and future needs, the travel characteristics, mobility patterns, and expected system users within the area must be understood. Montgomery, Harris, Liberty, and Chambers counties are generally characterized with major industrial complexes related to oil and gas refining, oil and gas storage facilities, and transport of petrochemical products. Additional freight through-traffic is associated with ingress and egress from the Port of Houston and Cedar Port. The Port of Houston handles over 7,000 trucks a day and is projected to increase significantly with the anticipated opening of the Panama Canal. The Houston region also has the highest concentration of petrochemical industries and facilities in the nation while also generating large volumes of imports and exports. The Panama Canal also increases opportunities with the Port of Houston to expand export of dry bulk, liquid bulk, value added manufacturing, and break bulk cargo and containers to existing, new and emerging markets. Based on the H-GAC's 2035 forecast data, the population in Montgomery, Harris, Liberty, and Chambers counties is expected to increase by 46 percent from 4.7 million in 2011 to 6.8 million by 2035. These projections represent projected growth within the region where the Segments H, I-1, I-2A and I-2B are located. Employment growth within the same area is expected to increase by 39 percent from 2.5 million in 2011 to 3.4 million in 2035. Table 1 illustrates the H-GAC 2035 Forecast Data for population and employment growth.

Table 1: H-GAC 2035 Population and Employment Growth by County⁹

County	Total Population			Employment		
	2011	2035	% Increase	2011	2035	% Increase
Chambers	35,000	53,000	51	9,000	13,000	44
Harris	4,088,000	5,769,000	41	2,296,000	3,136,000	37
Liberty	83,000	120,000	45	24,000	36,000	50
Montgomery	455,000	858,000	89	133,000	239,000	80
Area Total	4,661,000	6,800,000	46	2,462,000	3,424,000	39

Using the 2035 H-GAC regional travel demand model and 2039 demographics, analysis indicates that an average of 29 percent of the trips generated within the H-GAC region would travel the proposed Grand Parkway Segments H and I-1 (see Attachment 2: 2011 and Predicted 2039 O-D Data) and have

⁹ Source: H-GAC, 2035 Forecast Data, 2012

origins or destinations within the Census study area defined in the Final Environmental Impact Statement (FEIS); which represents approximately 17,000 daily trips (trips leaving + trips arriving) using the proposed Grand Parkway Segments H and I-1. Approximately 69,000 trips from the Environmental Justice (EJ) Traffic Analysis Zones (TAZ) would utilize Segments H or I-1, compared to an estimated 407,100 trips from the entire Census study area. Based on the analysis, approximately 16.9 percent of the trips into and out of the Census study area are from an area with high proportions of low-income or minority populations. The Grand Parkway Segments H and I-1 project would benefit users and adjacent populations as a result of the improved system linkage, improved mobility, and enhanced safety and infrastructure to support population growth within the study area and region.

6. TRANSPORTATION CHALLENGES AND SOLUTIONS

The study area lacks efficient connections to major radial roadways, suburban communities, local ports, and industries which cause congestion and safety concerns on the existing local roadways. With the proximity of the Port of Houston and Cedar Port and the opening of the Panama Canal, truck traffic on the Grand Parkway on Segments H and I-1 is projected to reach approximately 37 percent in 2039.¹⁰ In the surrounding area, without the project, truck traffic would vary between six and 20 percent trucks on local roads. In 2014, the Houston region is home to five of the top 25 nationally significant freight bottleneck. In 2013, the Houston region ranked sixth among 10 metro areas with the highest cost of congestion to the trucking industry with over \$373,603,620 annually. This forecast would strain the existing network and potentially increase the number of crashes on the roadways. The purpose and need of the proposed transportation improvements in the Segments H and I-1 study area is to provide system linkage, improve mobility, enhance safety, and provide infrastructure to support population growth. For Segments I-2A and I-2B, the proposed project would interface directly with the Port of Houston including the Barbour's Cut truck terminal. Freight destined to and from the Port would use the proposed facility. Segments I-2A and I-2B would provide for more direct routes of travel to and from the Port of Houston, the Barbour's Cut marine terminal, the Port of Galveston, and the Texas City Ship Channel. In addition, these segments would provide additional capacity to handle emergency evacuation from the coastal regions in the event of a hurricane and provide a less urban route for trucks carrying hazardous materials around the City of Baytown.

7. RELEVANT DATA: EXISTING AND FUTURE CONDITIONS

Existing Average Traffic Volumes & Congestion

The Grand Parkway Segments H and I-1 are proposed new location roadways. Existing average daily traffic (ADT) volumes and future ADTs for the roadways within the study area are shown in the table included in Attachment 3: Segment H and I-1 Existing and Future ADT. As shown in the table, the 2039 no-build forecast conditions are anticipated to have degraded levels of mobility varying from tolerable to severe. Currently trucks are using the existing two-lane local roadways in the study area for long trips which degrade traffic operations and increase safety issues since the local network was not

¹⁰ *Consideration for Truck Lanes on the Grand Parkway Segments H & I-1*, TxDOT, August 20 2007.

designed to accommodate heavy trucks. The base year (2011) and design year (2039) levels of service (LOS) for the local roadway network in the vicinity of Segments H and I-1 for the no-build conditions are presented on exhibits included in Attachment 4: Existing and No-Build LOS Exhibits. As shown, many of the north-south routes would degrade from LOS A to LOS F in 2039. With the estimated increase in population in this area and the increase in truck volume associated with movement of freight from the Port of Houston, Cedar Port, and other marine and rail terminals, additional capacity is necessary to facilitate the efficient movement of people and goods.

Future Average Traffic Volumes & Congestion

Average daily traffic on the Grand Parkway Segments H and I-1 is estimated to be between 22,400 and 41,800 vehicles per day in 2039. The highest volume on the Grand Parkway is estimated to be located on the facility located closest to I-10(E). I-10 is one of two national freight network routes that the four segments would cross; the second national freight network is US 59/I-69. In previous documentation, Segment I-2 was projected to have 15 percent trucks for the design year of 2015. The annual average daily traffic (AADT) for the Segment I-2 is estimated to be 43,800 vehicles per day in 2035. The proposed roadway sections for Segment H and I-2 and the proposed improvements to Segment I-2 through the addition of roadway capacity would relocate single occupancy vehicle traffic and truck traffic from the local roadway network SH 99, a limited access facility.

Freight Volumes

Freight traffic is transported via trucks from the Port of Houston and Cedar Port through the study area to the major industrial complexes, as well as to US 59 (N)/I-69 for national distribution. Trucks currently use the existing two-lane local roadways in the study area for long trips which present traffic operation and safety issues. These local roadways were not structurally and geometrically designed to accommodate high volumes of commercial truck traffic. These FM roads have several sharp turns which cause the operating speed of the road to be slower and possibly hazardous for trucks to negotiate.

Safety

A crash analysis was conducted to determine how travel safety would be affected by a new circumferential highway. According to TxDOT, highways have lower crash rates than lower classified roads due to the design of the highways, fewer access points, fewer driver distractions, and less stop-and-go conditions. Therefore, diverting traffic from collector roadways to a controlled-access facility such as Segments H and I-1, would be expected to reduce the crash rates within the study area. Crash rates were previously calculated for roadways within the study area based on the number of crashes per 100 million vehicle miles traveled (MVMT). Table 2 shows the roadways that were found to have a crash rate more than double the statewide average. The table also shows the amount of projected traffic that would be diverted by Segments H and I-1. As shown traffic volumes on these roadways with high crash rates would be reduced by as much as 10 percent in 2019 and by as much as 62 percent in 2039 with the opening of the Grand Parkway.

Table 2: Crash Rates within the Segments H and I-1 Study Area (2010 - 2012)¹¹

Roadway Segment	Limits	Length (Miles)	Crash Rate (crashes/100 MVMt)	Statewide Average (crashes/100 MVMt)	ADT and % Change with Construction of Segments H and I-1					
					2019			2039		
					No-Build ADT (vpd)	Build ADT (vpd)	% Change	No-Build ADT (vpd)	Build ADT (vpd)	% Change
FM 1485	US 59/I-69 to FM 2100	8.96	333.9	120.26	11,261	12,062	7%	14,792	18,536	25%
FM 3360	FM 565 to SH 146	2.28	364.5	120.26	1,672	1,512	-10%	3,970	1,494	-62%
FM 1314	Loop 494 to Andrew	1.8	733.2	120.26	27,860	25,674	-8%	38,420	36,546	-5%
SH 321	US 90 to FM 1008	14.03	188.0	84.19	8,477	6,977	-18%	13,487	10,967	-19%
Loop 494	Northpark Dr to US 59/I- 69	7.15	277.9	97.81	9,352	9,540	2%	15,191	15,591	3%

Note: This table includes facilities with crash rates more than or close to double the statewide average.

Infrastructure Condition

Segments H and I-1 are new location alternatives so no infrastructure exists for this roadway. Segment I-2A was recently constructed and opened to traffic in March 2008 so the condition of the infrastructure is acceptable; this project includes upgrading the tolling equipment for Segment I-2A. Segment I-2B will include the construction of four toll lanes where there are currently only frontage roads.

b. PROJECT LOCATION

SH 99 (Grand Parkway) is a much needed 180+ mile ring road around the Houston metropolitan area. To date, approximately 85-miles of the 180+ mile route are open to traffic and are already generating a positive influence on freight and passenger traffic by providing an alternative route to many of the major highways on the northern and western portions of the Houston region. This project comprises the next portion of SH 99 scheduled to be built (Segments H, I-1, I-2A and I-2B) totalling approximately 52-miles in length, located on the northeast and eastern side of the Greater Houston Area (see Figure 1). These segments will further facilitate the efficient movement of freight and passenger traffic by providing direct access to the existing interstate system (I-10, I-69, I-45) without going deeper into the urban area. The southern portion of the project (Segment I-2B) will directly service the heavily

¹¹ Source: TxDOT, 2012.

congested and commercialized areas around the Port of Houston, Cedar Bayou and Cedar Port with connections to I-10, I-45, I-69 and other major highways designated as part of the freight network.

c. PROJECT PARTIES

The applicant is the Texas Department of Transportation (TxDOT). FHWA, TxDOT and the Grand Parkway Association (GPA) were the lead agencies responsible for the environmental review process and will ensure that all environmental commitments are met. During the Environmental Impact Statement (EIS) for Segments H, H-1 and I-2, participating and coordinating federal, state and local agencies were identified and included in the environmental process. As the project progresses TxDOT and the GPA will coordinate with public and private parties that would be affected by the project, such as the Union Pacific Railroad (UPRR) regarding railroad overpasses; the U.S. Army Corps of Engineers (USACE) regarding Clean Water Act Section 404 permits for Segments H, I-1 and I-2B; the U.S. Coast Guard (USCG) for Cedar Bayou Section 9 permit for Segment I-2B; and the Port of Houston, container terminals and Cedar Port regarding traffic control, roadway closures and any navigable waterway closures associated with the construction of the Grand Parkway. Additionally, TxDOT will be in coordination with the four counties the project traverses: Montgomery, Harris, Liberty, and Chambers counties.

d. GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS

The Grand Parkway Segments H, I-1 and I-2 represent a significant surface transportation infrastructure investment to improve freight and general mobility. Accordingly, multiple revenue sources are utilized throughout construction to balance project needs against the broader fiscal constraints of the statewide construction program as a whole. Table 3 shows planned sources and uses of project funds delivered using a Design-Build delivery model assuming a \$45 million FASTLANE award.

Table 3: Overall Project Sources and Uses

SOURCES		USES	
FASTLANE Grant	\$45,000,000	Design/Construction	\$673,000,000
Matching Funds (Total)	\$1,182,000,000	Right-of Way	\$319,000,000
State Funds (Bonds)	\$660,000,000	Utilities	\$211,000,000
Other Federal Funds (TIFIA)	\$522,000,000	Tolling/ITS	\$24,000,000
TOTAL Project Cost	\$1,227,000,000	TOTAL	\$1,227,000,000

Viability and Completeness of the Project’s Financing

The funding package for the Grand Parkway Segments H, I-1, and I-2 includes a mix of federal dollars in the form of Transportation Infrastructure Finance and Innovation Act (TIFIA) funds and FASTLANE

grant dollars, as well as a substantial infusion of state transportation fund dollars through bond programs. This financial plan assumes an overall 47 percent federal participation rate and a 4 percent FASTLANE award share of the future eligible project costs.

Stable and Reliable Fund Commitments

Traditionally, TxDOT annually oversees approximately \$7.5 billion in the state highway fund (35%), \$3.4 billion in state bond proceeds (16%), \$1.8 billion in other funding mechanisms (tolls, mobility fund, concession fees), and over \$8.6 billion in federal funds (40%) to construct, maintain, and operate approximately 197,100 miles of state highway system.

Contingency Reserves

Despite the strong funding plan that is in place, TxDOT recognizes the need for contingency funding in the event of potential funding interruptions. The possibility of federal or state transportation dollars being unavailable for project expenditures is remote. Historically, periodic short term interruptions in federal reimbursements have been successfully managed through cash management practices. In the unlikely event that federal and state dollars are both unavailable, Texas has a variety of contingency solutions available depending upon the duration of the unavailability of funds ranging from short term cash management techniques to longer term access to credit and capital markets.

Financial Condition of the Project Sponsor

As a 100-year-old organization, TxDOT has the financial wherewithal to see the Grand Parkway Segments H, I-1, and I-2 project through to completion. The Texas Department of Transportation oversees a biennial budget of \$8.6 billion.¹² As an agency of the state government, TxDOT is able to access capital markets by selling general obligation debt backed by the full faith and credit of the government. This debt is rated triple-A by all three national rating agencies.¹³

Ability to Manage Grants

The financial strength of TxDOT goes hand in hand with past success in managing several federal grants and hundreds of federal contracts, both as a recipient and a pass-through agency for sub-recipients. TxDOT complies with all federal government expenditure and reporting requirements including the general requirements of the U.S. Office of Management and Budget's "Super Circular"¹⁴ and the transportation specific guidance outlined in the Stewardship and Oversight Agreement¹⁵ between the Department and FHWA.

¹² Texas Department of Transportation, 2015-2019 Strategic Plan. <http://ftp.dot.state.tx.us/pub/txdot-info/sla/strategic-plan-2015-2019.pdf>

¹³ TxDOT Semi-Annual Issuer Report prepared for February 29, 2016. http://ftp.dot.state.tx.us/pub/txdot-info/fin/investor/brb_semiannual_excerpts.pdf

¹⁴ <https://www.federalregister.gov/articles/2013/12/26/2013-30465/uniform-administrative-requirements-cost-principles-and-audit-requirements-for-federal-awards>

¹⁵ <http://www.fhwa.dot.gov/federalaid/stewardship/agreements/ga.pdf>

1. FUTURE ELIGIBLE COST

The future eligible cost of this project, \$1.227 billion, is comprised of design, construction, right of way, utilities, and tolling/ ITS components, all of which are eligible costs under this funding program.

2. AVAILABILITY AND COMMITMENT OF FUNDS

- State Funds - \$660,000,000
 - Grand Parkway D-G Bond Sale - \$300,000,000
 - Toll Road Revenue Bonds - \$360,000,000
- Federal Funds - \$567,000,000
 - FASTLANE Grant - \$45,000,000
 - TIFIA - \$522,000,000

3. FEDERAL FUNDS ALREADY PROVIDED

The Grand Parkway Segments H, I-1 and I-2 is included in the approved 2013-2016 State Transportation Improvement Plan (STIP). The projects are also as fiscally constrained projects identified in H-GAC's 2040 Regional Transportation Plan (RTP). The federal funds identified are TIFIA funds. Approximately 45 percent of the total initial project cost or \$522 million (excluding costs of financing and internal agency costs) are from TIFIA funds. All of the state matching funds are from bond sales disbursed by the Grand Parkway Transportation Corporation (GPTC) and toll road revenue bonds.

4. DETAILED PROJECT BUDGET

Table 4: Detailed Project Budget

Funding	Project Component	Segment H	Segment I-1	Segment I-2
FASTLANE	Design/Construction	\$0	\$0	\$45,000,000
	ROW	\$0	\$0	\$0
	Utilities	\$0	\$0	\$0
	Tolling/ITS	\$0	\$0	\$0
	TOTAL	\$0	\$0	\$45,000,000
Federal	Design/Construction	\$125,400,000	\$107,600,000	\$44,500,000
	ROW	\$69,700,000	\$68,600,000	\$2,700,000
	Utilities	\$34,700,000	\$52,100,000	\$6,400,000
	Tolling/ITS	\$5,300,000	\$3,600,000	\$1,700,000
	TOTAL	\$235,100,000	\$231,900,000	\$55,300,000
State	Design/Construction	\$168,000,000	\$126,200,000	\$56,300,000
	ROW	\$88,100,000	\$86,600,000	\$3,300,000
	Utilities	\$43,900,000	\$65,800,000	\$8,100,000

Funding	Project Component	Segment H	Segment I-1	Segment I-2
	Tolling/ITS	\$6,600,000	\$4,600,000	\$2,200,000
	TOTAL	\$306,600,000	\$283,200,000	\$69,900,000
TOTAL by Segment		\$541,700,000	\$515,100,000	\$170,200,000
TOTAL Project Cost		\$1,227,000,000		

5. AMOUNT OF REQUESTED NSFHP FUNDS

Table 5: Segment I-2 NSFHP Fund by Project Component

Detailed Project Component	Requested NSFHP Amount	% Cost
Highway	\$40,500,000	90%
Bridge	\$4,500,000	10%
Freight Rail/Freight Intermodal	\$0	0%
Grade Crossings	\$0	0%
Grade Separations	\$0	0%
TOTAL	\$45,000,000	100%

e. COST EFFECTIVENESS ANALYSIS

A Benefit-Cost Analysis (BCA) was conducted in conformance with US DOT guidance to assess the impacts of the Grand Parkway project. The BCA was prepared using the Corridor version of the California Life-Cycle Benefit/Cost Analysis Model (Cal-B/C) which incorporates project costs by category and benefits related to travel time, vehicle operation, and emissions reductions. A summary of the BCA results is provided in this section and more detail regarding the inputs, sources, analysis, and results is provided in Attachment 5: Grand Parkway BCA Details. All monetary values were adjusted to 2015 dollars, the default value of the “2016 TIGER” version of the Cal B/C model, based on the Gross Domestic Product Price Index, unless otherwise stated. A seven percent discount rate was used to compute net present values of benefits and costs.

Note that there are other potential benefits resulting from the project which have not been included in the Cal-B/C analysis summarized below. Some of these additional benefit classes could potentially be quantified, while others are more qualitative. The additional benefits include (but are not limited to): improved travel time reliability, reduced bottleneck delays, increased access and/or mobility, public safety and health benefits, improvements to the human and natural environment surrounding the project, mitigation of storm water runoff, and noise reduction. For example, other segments of the Grand Parkway are complete and local public safety officials have already noted improved emergency response times in the first few days. Because the Cal-B/C model indicates a favorable B/C ratio with only the

three benefit categories directly supported by the model, these additional benefit categories were not analyzed at this time.

BENEFIT COST ANALYSIS

The Cal B/C model calculates the benefit/cost ratio based on inputs including the type of project, existing and resulting highway design and traffic data, and estimated project costs. Table 6 provides a summary of the Cal B/C results for the Grand Parkway project.

Table 6: Benefit Cost Analysis Summary

Life-Cycle Costs (bil. \$)	\$1.15
Life-Cycle Benefits (bil. \$)	\$2.96
Benefit / Cost Ratio	2.6

Note: 2015\$, 20-year life cycle (2019-2038)

Figure 6 and Figure 7 graphically depicts the share by category of total project life-cycle costs and total project life-cycle benefits associated with the Grand Parkway project, as discussed in more detail in the following sub-sections.

Figure 6: Project Costs, Net Present Value

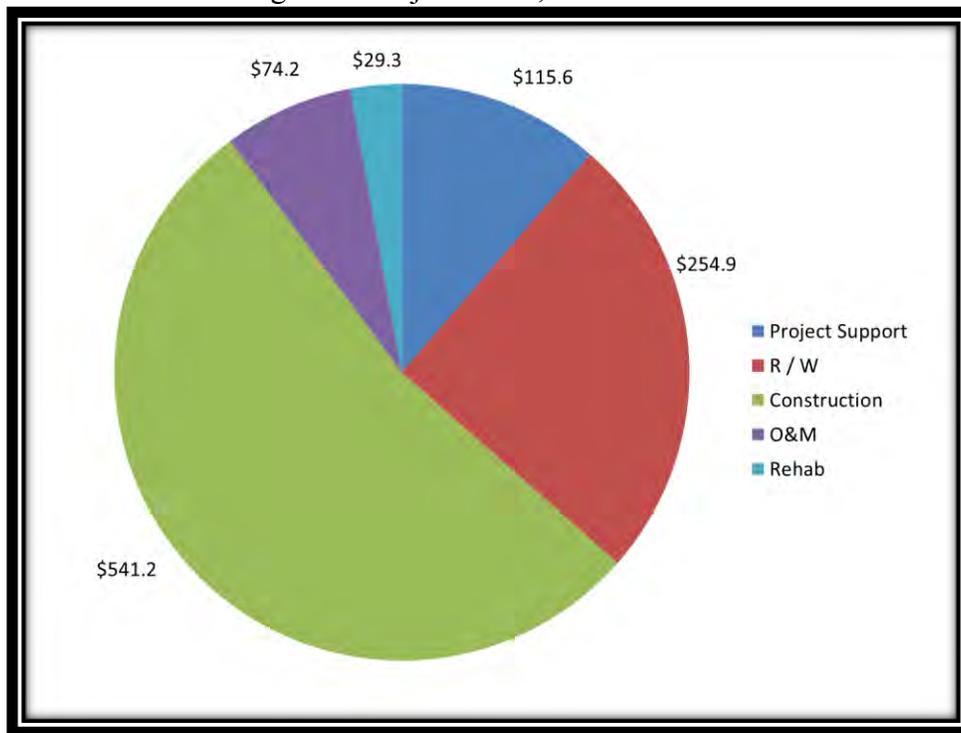


Figure 7: Itemized Benefits, Net Present Value

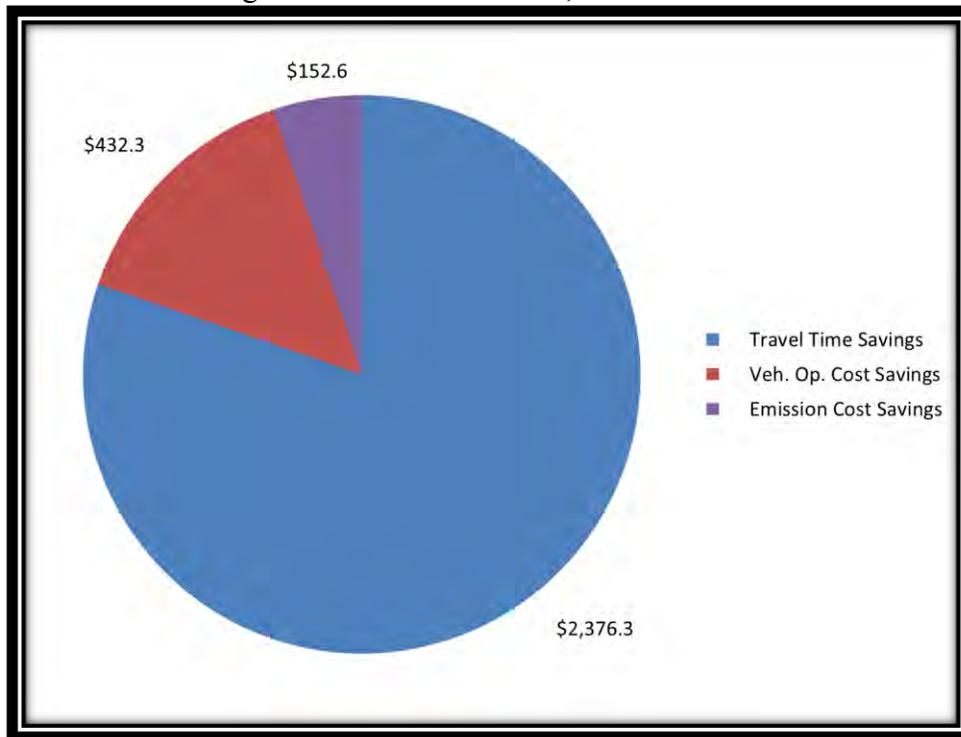


Table 7 provides a general overview of the Grand Parkway project parameters, as described elsewhere in this application in more detail.

Table 7: Project Matrix

Current Status / Baseline & Problem to be Addressed	Lack of efficient connections between major radial roadways and suburban communities, local ports and industries.
Change to Baseline / Alternatives	New 52-mile toll highway segment connects completed portions of SH-99 (Grand Parkway) with Houston port facilities.
Type of Impacts	New highway facility reduces system-wide vehicle hours of travel. Even with system-wide increase in VMT, average speed is improved.
Affected Population	Houston - 4.9 million population. Montgomery, Harris, Liberty, and Chambers counties are generally characterized with major industrial complexes related to oil and gas refining, oil and gas storage facilities, transport of petrochemical products and through-traffic is associated with ingress and egress from the Port of Houston and Cedar Port.
Economic Benefit	The Cal-B/C model indicates that the project will result in travel time, vehicle operation, and emission reduction

	benefits.
Summary of Results	The Grand Parkway project would benefit users and adjacent populations as a result of the improved system linkage, improved mobility, and enhanced safety to support population growth and freight movement within the study area and region. The B/C ratio is 2.6.

1. PROJECT COSTS

Project costs incurred each year of the construction period were entered into the Cal B/C model. Project costs are represented in the following categories, as appropriate: Project Support, Right-of-Way (ROW), Construction, Maintenance/Operations, Rehabilitation, and/or Mitigation. These costs are then discounted at seven percent to reflect their present value (2015\$).

The initial design and construction costs for the Grand Parkway project are approximately \$1.227 billion as described in more detail in Section 4: Grant Funds, Sources and Uses of Project Funds of this application. Support costs are approximately \$147 million. Cost estimates indicate that ROW costs are approximately \$324 million. The construction period is expected to be five years with the construction costs equal to approximately \$755 million. Operations and maintenance (O&M) costs were estimated in the FEIS and adjusted to 2015 dollars using the GDP deflator per U.S. Bureau of Economic Analysis. O&M costs are approximately \$208 million over the first 20 years of the project. Rehabilitation costs were derived from the FEIS replacement cost estimates and adjusted using the same method as described for O&M costs. Rehabilitation costs, or replacement costs, are estimated to equal \$94 million over the first 20 years. The total project costs equal \$1.15 billion in present value terms. The breakdown of project costs as reflected in the Cal B/C analysis is indicated in Table 8 below.

Monetized Benefits

Table 9 below also provides a summary of the monetized benefits for travel time savings, vehicle operating cost savings, and emissions reduction over the 20-year life cycle of the project that are reflected in the B/C ratio. Annual costs and benefits are presented in constant dollars. The total by category is then discounted at a seven percent annual rate to convert to present value (2015\$). More information regarding the input assumptions and data sources underlying these annual benefit totals is provided in the sub-sections that follow, and in the Attachments.

The Cal-B/C model calculates that over 555 million hours of time will be saved over the life cycle of the project. This equates to more than \$55 million in travel time savings. The model indicates that the project would result in approximately \$9 million in vehicle operating cost savings. The model indicates that the project would result in \$2 million in emissions reduction benefits. These benefits include over seven million tons of CO2 emissions saved over the life of the project.

Table 8: Project Costs

Year	Year	Undiscounted						Discounted
		Project Support	ROW	Construct	O&M	Rehab.	Total Costs	PV Costs
2014	Cons 1	\$11,599,000					\$11,599,000	\$13,279,695
2015	Cons 2	\$11,810,000					\$11,810,000	\$12,636,700
2016	Cons 3	\$3,615,000	\$31,910,000				\$35,525,000	\$35,525,000
2017	Cons 4	\$43,723,000	\$135,269,000	\$78,265,000			\$257,257,000	\$240,427,103
2018	Cons 5	\$24,724,000	\$94,206,000	\$217,425,000			\$336,355,000	\$293,785,483
2019	Cons 6	\$17,921,000	\$62,804,000	\$193,344,000			\$274,069,000	\$223,721,943
2020	Cons 7	\$28,790,000		\$177,391,000			\$206,181,000	\$157,294,498
2021	Cons 8	\$5,231,000		\$89,003,000			\$94,234,000	\$67,187,540
2022	1				\$6,886,217	\$1,617,218	\$8,503,435	\$5,666,198
2023	2				\$7,752,211	\$1,836,325	\$9,588,536	\$5,971,258
2024	3				\$8,294,762	\$2,869,257	\$11,164,019	\$6,497,561
2025	4				\$9,505,067	\$2,138,901	\$11,643,968	\$6,333,547
2026	5				\$8,566,037	\$2,086,733	\$10,652,770	\$5,415,328
2027	6				\$9,682,439	\$3,130,099	\$12,812,538	\$6,087,144
2028	7				\$9,985,015	\$2,138,901	\$12,123,916	\$5,383,164
2029	8				\$10,183,255	\$2,170,202	\$12,353,457	\$5,126,245
2030	9				\$10,381,494	\$2,890,125	\$13,271,619	\$5,146,963
2031	10				\$10,673,637	\$9,473,766	\$20,147,403	\$7,302,346
2032	11				\$10,245,857	\$4,142,164	\$14,388,021	\$4,873,721
2033	12				\$10,444,096	\$4,653,414	\$15,097,510	\$4,779,485
2034	13				\$10,652,770	\$3,641,348	\$14,294,118	\$4,229,114
2035	14				\$10,882,310	\$3,693,517	\$14,575,827	\$4,030,338
2036	15				\$11,122,285	\$7,491,370	\$18,613,654	\$4,810,122
2037	16				\$12,927,308	\$6,051,524	\$18,978,833	\$4,583,636
2038	17				\$12,416,059	\$5,540,275	\$17,956,334	\$4,052,981

Year	Year	Undiscounted					Discounted	
		Project Support	ROW	Construct	O&M	Rehab.	Total Costs	PV Costs
2039	18				\$12,551,696	\$6,552,340	\$19,104,037	\$4,029,937
2040	19				\$12,687,334	\$5,592,443	\$18,279,777	\$3,603,796
2041	20				\$12,833,405	\$17,048,605	\$29,882,010	\$5,505,736
Total (2015\$)		\$147,413,000	\$324,189,000	\$755,428,000	\$208,673,256	\$94,758,526	\$1,530,461,782	\$1,147,286,581

Table 9: Project Benefits

Year	Project Year	Undiscounted				Discounted
		Travel Time Savings	Vehicle Operating Cost Savings	Emissions Reduction	Total Benefits	PV Benefits
2019	1	\$3,074,632	(\$31,565,391)	(\$2,977,309)	(\$31,468,068)	(\$20,968,502)
2020	2	\$45,653,770	(\$31,570,864)	(\$3,043,598)	\$11,039,308	\$6,874,726
2021	3	\$88,232,908	(\$31,459,412)	(\$3,089,586)	\$53,683,910	\$31,244,525
2022	4	\$130,812,046	\$113,353,825	\$28,838,706	\$273,004,577	\$148,496,402
2023	5	\$173,391,184	\$116,902,131	\$30,563,083	\$320,856,398	\$163,107,123
2024	6	\$215,970,322	(\$31,445,493)	(\$3,313,149)	\$181,211,680	\$86,092,364
2025	7	\$258,549,460	\$124,006,771	\$33,374,993	\$415,931,225	\$184,678,438
2026	8	\$301,128,599	\$127,563,107	\$34,748,792	\$463,440,497	\$192,311,330
2027	9	\$343,707,737	(\$31,115,690)	(\$3,290,611)	\$309,301,436	\$119,952,430
2028	10	\$386,286,875	(\$31,152,335)	(\$3,389,451)	\$351,745,089	\$127,488,607
2029	11	\$428,866,013	\$223,530,918	\$61,877,662	\$714,274,592	\$241,949,517
2030	12	\$471,445,151	(\$30,947,532)	(\$3,528,649)	\$436,968,971	\$138,333,186
2031	13	\$514,024,289	\$219,623,991	\$68,171,041	\$801,819,321	\$237,229,405
2032	14	\$556,603,427	(\$30,720,320)	(\$3,676,957)	\$522,206,151	\$144,394,352
2033	15	\$599,182,566	\$245,059,232	\$77,762,032	\$922,003,829	\$238,263,310
2034	16	\$641,761,704	(\$30,499,642)	(\$3,837,384)	\$607,424,677	\$146,701,009
2035	17	\$684,340,842	\$257,109,316	\$83,173,041	\$1,024,623,199	\$231,270,945
2036	18	\$726,919,980	(\$30,272,043)	(\$4,005,898)	\$692,642,039	\$146,110,679
2037	19	\$769,499,118	(\$30,029,892)	(\$4,053,952)	\$735,415,274	\$144,984,636
2038	20	\$812,078,256	\$414,721,661	\$144,399,853	\$1,371,199,771	\$252,642,430
Total (2015\$)		\$8,151,528,878	\$1,501,092,338	\$524,702,660	\$10,177,323,876	\$2,961,156,909

f. PROJECT READINESS

1. TECHNICAL FEASIBILITY

This project is ready to be let and begin construction within one year of receipt of the NSFHP grant. TxDOT has completed schematic drawings with final design and construction activities to be performed by a design-build developer chosen through a request for proposals. All required environmental permits will be obtained prior to construction activities beginning as shown in the project schedule. Project design criteria follows the TxDOT Roadway Design Manual, TxDOT Bridge Design Manual, Texas Manual on Uniform Traffic Control Devices (TMUTCD), and other state- and federally-approved design standards as applicable. The basis for the estimated project cost is a detailed construction estimate utilizing unit bid items based on prior projects as well as management and consultant costs, ROW and toll equipment expenditures, and a project contingency of 6.6 percent.

Overall project statement of work for the improvements includes:

- Design-build construction of the four project segments (H, I-1, I-2A, and I-2B). Within segments H and I-1 (37.3 miles), the project will provide a new tolled two-lane controlled access facility with intermittent four-lane sections for passing. Segment I-2A (6.1 miles) will add four toll lanes to the existing frontage lanes, and upgrades to the tolling equipment will be made in segment I-2B (8.7 miles).
- Acquisition of right of way for segments H and I-1. This includes negotiation and purchase of properties as well as other ancillary activities associated with the ROW acquisition.
- Utility relocation activities. In locations that require removal/replacement, abandonment, or adjustment of existing utilities there will be coordination with the utility owners to clear utilities as needed to construct the project.
- Management and consultant services. This includes project management activities for construction, financing and bond counsel consultant, general engineering consultant, toll integration, and legal consultant.
- Maintenance agreement between TxDOT and the design-build developer to maintain the facility once constructed.

The NSFHP grant application is for the following improvements:

- Design-build construction for design, construction, and maintenance of four new tolled mainlanes (two in each direction) with overpasses at five cross streets, including Wyoming Street, Lee Drive, M.L. Wismer Drive, Business SH 146, and Tri-Cities Beach Road/FM 1405; widening of existing bridges over Goose Creek; retaining walls; drainage, storm sewer, and outfall structures; utility adjustments; removal of railroad bridge underpass; and reconstruction of a four-lane frontage road (two lanes in each direction) between Lee Drive and Bus. SH 146.

2. PROJECT SCHEDULE

A project implementation schedule is provided below. The schedule details anticipated timeframes for major milestones such as the conditional project award, contract execution, contractor notice to proceed for construction activities, and substantial project completion/open to traffic. The project meets all

identified schedule requirements. The construction of segment I-2B and associated use of NSFHP grant funds would be within the anticipated overall project schedule.

Task/Month	2016				2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4																				
Best-and-Final Offer (BAFO)	█	█																						
Conditional Project Award			█																					
Contract Execution				█																				
Contractor NTP				█																				
Design/Construction					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Construction Complete																								█

a) NECESSARY ACTIVITIES TO ALLOW GRANT FUNDS TO BE OBLIGATED

All segments within the project have a Record of Decision (ROD) and subsequent re-evaluations have been approved for environmental clearance. TxDOT is currently receiving design-build proposals from contractors for project letting. Conditional project award is anticipated in Summer 2016 with an executed contract expected in Fall 2016. Construction is intended to start in early 2017.

b) PROJECT CONSTRUCTION TIMELINE

Upon receipt of the NSFHP grant and contractor selection, construction is anticipated to begin in early 2017. Project construction should be substantially complete within 4.5 years in Summer 2021.

c) PROPERTY AND/OR ROW ACQUISITION TIMELINE

Currently, there are on-going ROW negotiations with property owners within the overall project limits. However, Segment I-2B is to be constructed within existing ROW. ROW acquisition for other portions of the project is anticipated to be completed by end of 2018.

3. REQUIRED APPROVALS

- a) ENVIRONMENTAL PERMITS AND REVIEWS: NEPA STATUS; REVIEWS, APPROVALS, AND PERMITS BY OTHER AGENCIES; ENVIRONMENTAL STUDIES; DISCUSSIONS WITH FHWA AND PUBLIC INVOLVEMENT

Segments H and I-1

Approval of the EIS via a Record of Decision (ROD) was issued for Segments H and I-1 on June 24, 2014. Due to the design alignment shifting at 5 locations, a Re-evaluation was required and was

approved for Segments H and I-1 on January 25, 2016. A subsequent additional design alignment shift to reduce impacts to utilities and pipelines necessitated a second Re-evaluation for Segments H and I-1. This Re-evaluation was approved on March 24, 2016.

U.S. Army Corps of Engineers

Segments H and I-1 require a Clean Water Act Section 404 Individual Permit with mitigation for impacts to waters of the U.S. The permit is currently in the public comment period. Wetland mitigation credits will be purchased through existing mitigation banks, including the TxDOT Blue Elbow Mitigation Bank and Gin City Mitigation Bank. Stream mitigation will be constructed by TxDOT. Approval of the permit is anticipated in mid-2016.

State Historic Preservation Office

The developer must conduct archeological surveys of areas previously not surveyed upon obtaining right-of-entry, and complete Section 106 consultation with the State Historic Preservation Office (SHPO). Section 106 consultation, in accordance with the Programmatic Agreement for Transportation Undertakings (PA-TU) authorized among FHWA, the ACHP, the SHPO, and TxDOT, was completed for non-archeological resources as part of the first Re-evaluation. The SHPO issued concurrence of no adverse effects on November 19, 2015.

Texas Parks and Wildlife Department

Texas Parks and Wildlife Department (TPWD) coordination was completed under the TxDOT/TPWD MOU. The project was approved by TPWD January 21, 2016.

Segments I-2A and I-2B

The ROD resulting from the EIS for Segments I-2A and I-2B was issued on August 13, 1998. Several Re-evaluations were subsequently required. The first Re-evaluation was required for the redesign of the U-turn at Cedar Bayou and was approved in May 2002. The second Re-evaluation was completed to evaluate the proposed implementation of tolling from I-10E to Fisher Road and was approved in October 2007. The most recent Re-evaluation, which addressed design modifications, received approval on October 9, 2012. The 1998 ROD was determined to remain valid as a result of the Re-evaluations.

Waters of the U.S.

In adherence with Section 404 of the Clean Water Act, a jurisdictional determination and delineation study was completed for potentially jurisdictional waters of the U.S. and special aquatic sites, including wetlands. Numerous potential waters of the U.S. were evaluated, including 52 named waters and various other unnamed ponds, streams, and ditches.

Cultural Resources

Archeological surveys were completed in 2012 for limited areas only due to restrictions on right-of-entry. One previously unknown site was identified during the survey. This site has limited research potential and is not considered potentially eligible for listing on the National Register of Historic Places (NRHP). A historic resource survey report (HRSR) was completed as part of the first Re-evaluation.

Two NRHP-eligible resources, the Dayton Canal rice irrigation system and the Big Ditch drainage canal, were identified. A recommendation of no adverse effects was made.

Biological Resources

In accordance with the TxDOT/TPWD MOU, a biological evaluation was completed for the project. Based on the presence of suitable habitat within the project area, the potential for the occurrence of 43 state-listed species was evaluated. Ultimately, it was determined that two state-listed threatened species, three state-listed species of concern, and two rare plant communities could occur within the project area.

Hazardous Materials

An initial hazardous materials site assessment was conducted. A total of nine sites were identified as potential concerns to the project, including the Cox Road Dump, an 83 acre landfill operated by an oil company. A Phase II Environmental Site Assessments (ESA) is required, and will be completed by the developer prior to the onset of construction.

Section 4(f) Evaluation

The proposed project would require acquisition of 11 acres from the Lake Houston Wilderness Park. A *de minimus* Section 4(f) Evaluation was completed for the park. Mitigation and commitments outlined in the Evaluation would be followed during the design phase of the project.

Discussions with FHWA

FHWA is the lead federal agency for this EIS. The ROD was approved by FHWA on June 24, 2014. Neither the first Re-evaluation, nor the second Re-evaluation required FHWA coordination due to recent FHWA delegation of NEPA responsibility to TxDOT. Effective as of December 16, 2014, the MOU executed by FHWA and TxDOT states that TxDOT will review and approve EIS Re-Evaluations, with exceptions not applicable to the proposed project, for projects previously issued a ROD by FHWA. TxDOT, under delegated authority from FHWA, approved both the first and second Re-evaluations.

Public Involvement

Elected officials and agency coordination meetings were held throughout the development of the EIS process at important milestones of the process that included the corridor study, development and analysis of the preliminary and reasonable alternatives, and prior to and following public scoping meetings. A public hearing was held in August 2011, prior to the FEIS development. A meeting with affected property owners (MAPO) in the vicinity of FM 1960 was held to discuss a minor alignment shift. Alignment changes to the Recommended Alternative were made as a result of input received at the public hearing and affected property owners meeting to create the Preferred Alignment. A MAPO and public meeting were completed for the first Re-evaluation. Only a MAPO was completed for the second Re-evaluation.

Segments I-2A and I-2B

U.S. Army Corps of Engineers

Segments I-2A and I-2B require a Clean Water Act Section 404 Nationwide Permit 14 with a Pre-construction Notification (PCN) to the USACE due to impacts to waters of the U.S., including wetlands.

The USACE has granted approval of the PCN on December 1, 2014. Due to the low acreage of impacts to waters of the U.S., compensatory mitigation is not required.

U.S. Coast Guard

A Rivers and Harbors Act Section 9 Permit with the USCG is required due to the proposed construction of the SH 146 Bridge over Cedar Bayou, which is considered a navigable waterway. The USCG approved the permit on August 10, 2015.

Alabama-Coushatta Tribe of Texas

The Alabama-Coushatta Tribe of Texas issued concurrence with the determination of no historic properties effected for Segment I-2B on March 14, 2011.

Chambers County Historical Commission

Chambers County Historical Commission issued concurrence on the determination of the project area containing no historical or archeological resources for Segment I-2B on August 10, 2009.

National Marine Fisheries Service

The National Marine Fisheries Service issued concurrence on TxDOT's determination of no adverse effect to essential fish habitat for Segment I-2B on October 26, 2006, and again on January 14, 2008 in relation to Goose Creek at SH 146E.

Waters of the U.S.

In adherence with Section 404 of the Clean Water Act, a jurisdictional determination and delineation study was completed for potentially jurisdictional waters of the US and special aquatic sites, including wetlands. A total of 51 aquatic resources were evaluated for jurisdictional status.

Cultural Resources

TxDOT conducted two internal reviews for archeological resources potential in accordance with the Programmatic Agreement for Transportation Undertakings (PA-TU) authorized among FHWA, the ACHP, the SHPO, and TxDOT. The first internal review, covering Segment I-2A, was approved on August 22, 2007, with the determination of no potential to effect intact, significant archeological materials and no further archeological investigations warranted. Consultation with SHPO was determined not to be necessary. TxDOT subsequently conducted a second internal review for Segment I-2A to evaluate the Fisher Road grade separation. This second internal review was approved on March 22, 2011, with the determination of no potential to effect intact, archeological historic properties and no further archeological investigations warranted. Consultation with SHPO was determined not to be necessary. TxDOT conducted an internal review for historic properties resources potential in accordance with the Programmatic Agreement for Transportation Undertakings (PA-TU) authorized among FHWA, the ACHP, the SHPO, and TxDOT. This review covered Segment I-2B and was approved on November 30, 2009 with the determination of no historic properties present. Individual project coordination with SHPO was determined not to be required.

Hazardous Materials

During development of the EIS, a Phase II Environmental Site Assessment was conducted to assess the potential of an active oil well site to impact the proposed project right-of-way. The proposed right-of-way was revised to avoid the area containing the oil well.

Discussions with FHWA

FHWA is the lead federal agency for this EIS. The ROD was approved by FHWA on August 13, 1998. The Re-evaluation was approved by FHWA on October 9, 2012.

Public Involvement

During the EIS planning process, seven public meetings and a public hearing were held, starting in March 1992 and ending at the public hearing in January 1995. A public meeting was conducted on October 20, 2005 for the Re-evaluation. An additional public meeting using the open house format was conducted on July 27, 2010.

b) STATE AND LOCAL APPROVALS

The Grand Parkway, including Segments H, I-1 and I-2 is included in the H-GAC's 2040 RTP. H-GAC serves as the transportation planning organization for the greater Houston region, which is comprised of 13 counties. The funds for Grand Parkway Segments H, I-1 and I-2 are identified in the 2040 RTP and their 2015-2018 Transportation Improvement Program (TIP), adopted on May 23, 2014. State funds identified in the RTP and TIP are from toll revenues. Additional federal funding has been procured from a TIFIA loan. In total, the overall Grand Parkway has received \$840 million from TIFIA loans. All of the matching state funds are from bond sales and toll revenue. Segments H, I-1 and I-2 of the Grand Parkway have received the necessary State and local approvals to move forward. Support from the State of Texas was validated with the April 2003 Texas Transportation Commission Minute Order 109226 that states, "The completion of the Grand Parkway is essential and urgent, as construction of the projects would alleviate congestion and improve traffic flow in the greater Houston metropolitan area and the surrounding region," and "The commission has determined that constructing and operating the Grand Parkway as a toll facility is the most efficient and expeditious means of ensuring its development, and encourages the development of partnerships and the employment of innovative methods for its financing and construction." The Grand Parkway has been developed and built in phases. The segments H, I-1 and I-2 project is included in TxDOT's 2016 Unified Transportation Program (UTP) and is identified as one of six *Designated Major Transportation Projects* in the State of Texas.

The Grand Parkway, including Segments H, I-1 and I-2, have been identified as "proposed thoroughfare" in the *2012 Chamber County Regional Thoroughfare Plan Update*. Additionally, the Grand Parkway, including Segments H, I-1 and I-2, have been identified in the *Thoroughfare Amendment Study: Unincorporated and Non- Extraterritorial jurisdiction (ETJ) Areas, Harris County, Texas* (December 2014).

c) STATE AND LOCAL PLANNING

The Grand Parkway project is included in the H-GAC's 2040 RTP, which is the current long range plan that meets all the air quality transportation conformity requirements. H-GAC serves as the metropolitan transportation planning organization for the greater Houston region, which is comprised of 13 counties. The funds for Grand Parkway Segments H, I-1 and I-2 are identified in the 2040 RTP and the corresponding and conforming 2015-2018 TIP. The original 2015-2018 TIP and several revisions to it have been incorporated into the STIP.

4. PROJECT RISKS AND MITIGATION STRATEGIES

The Grand Parkway Segments H, I-1 and I-2 project has several risks that are typical of any project of this type and magnitude. TxDOT has been very successful in the delivery this type of projects. One of the key factors contributing to the success is the implementation of a risk management process that identifies potential risks to the project at a very early stage and identifies mitigation strategies to manage each risk element. The process tracks each risk element as the project moves along its development. Segments H, I-1 and I-2 are intended to be implemented through a Design-Build delivery method, where several risk elements of a project are typically transferred from the "owner" (i.e., TxDOT) to the design-build developer in order to manage risk.

Specific risk elements to this project are summarized below:

- ROW: Acquisition of all needed right of way has not been initiated. However, coordination with affected property owners has occurred throughout the planning process. Once the design-build developed has been selected the ROW mapping process will be initiated. This is considered a medium risk as the eminent domain process can be lengthy.
- NEPA: The corridor has received NEPA clearance, which is a major milestone.
- Section 404 Permit: Although the needed permit for segments H and I-1 has not been issued yet, it is anticipated that the USACE will approve the application by Summer 2016 given that it is in the public comment phase.
- Section 106 Consultation: For segments H and I-1, the Design-Build developer will be required to conduct archaeological surveys and complete Section 106 consultation with the SHPO. This is considered a medium risk because it has not been initiated.
- Coordination with the UPRR: Discussions with UPRR have begun; TxDOT has submitted letters of authority to the railroad which has initiated the UPRR project coordination and review processes. The design-build developer will continue coordination with the UPRR. This is considered a medium risk; although communication has been initiated, the authorization process may extend longer than anticipated.
- Hazardous Materials: Although a Phase I ESA has been completed, there are numerous pipelines in the Segment H and I-1 project area. The design-build developer will be responsible for the conducting the Phase II assessments once the ROW has been acquired. This risk is considered medium since a Phase I ESA has been completed.