APPENDIX F
TOLL FEASIBILITY STUDY
H.015428

Lower St. Bernard / Louisiana International Terminal Roadway Network and Resilience Stage 0 Feasibility Study

Reference #H.015428

Draft Modeling and Toll Feasibility Summary

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Regional Planning Commission

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Chapter 1
Introduction

This chapter details the travel demand forecasting and toll revenue analysis associated with the Lower St Bernard / Louisiana International Terminal Stage 0 Feasibility Study in St Bernard Parish, LA.

For this analysis the most recent available version of the NORPC SELATRAM Model was provided by the RPC to forecast travel demand in the study area. The SELATRAM is a four-step regional travel demand forecasting model developed by the RPC to perform capacity deficiency analysis, future year demand analysis, long range strategic planning, and other transportation and land use related tasks in a geospatial database format. The Model includes 2015 Base and 2052 Forecast year scenarios as well as interim year network and Socioeconomic (SE) datasets.

As outlined in the scope of services, project forecasts were developed for 2030 LIT Phase 1 and 2050 LIT Buildout scenarios. Build project scenario forecasts were developed once the proposed elevated roadway alternatives were identified. For the purpose of this study, the term 'No Build' refers to the transportation infrastructure such that the No Build operations evaluation reviews what congestion would look like without any change or upgrade to the existing infrastructure in 2030 and 2050.

1.1 2030 No Build Forecasts

Development of 2030 No Build forecasts included updates to the model SE Data in St Bernard Parish to account for project background growth in employment and population as a result of the initial phased opening of the LIT facility. The SELATRAM model was updated with the projected number of truck trips that the new LIT facility is expected to generate (2,050 Multi-Unit trucks per day in the 2030 LIT Phase 1 opening year), as well as the general direction to/from the facility that the trips are forecast to travel based on data received from the Port of New Orleans. The additional truck trips were added to the SELATRAM Multi-Unit truck trip table in order to include them in the overall project vehicle assignments. Through coordination with RPC staff, it was determined that the 2023 Highway network included with the SELATRAM Model package would be used as the base highway network for the 2030 No Build model analysis. This was due to the fact that no major highway improvements are expected between 2023 and 2030 in the project area.

1.2 2050 No Build Forecasts

Development of 2050 No Build forecasts included updates to the model SE Data in St Bernard Parish to account for project background growth in employment and population as a result of the full buildout of the LIT facility. The SELATRAM model was updated with the projected number of truck trips that the full buildout of the LIT facility is expected to generate (6,450 Multi-Unit

trucks per day in the 2050 LIT Buildout year), as well as the general direction to/from the facility that the trips are forecast to travel based on data received from the Port of New Orleans. The additional truck trips were added to the SELATRAM Multi-Unit truck trip table and the model's assignment process distributed these trucks with the overall vehicle assignments. It should be noted that the model distribution of the LIT truck trips resulted in 20% of those trips utilizing Paris Rd in order to travel to/from the east on I-10. The model routed the remaining 80% of estimated truck trips to/from the west to access other Port of New Orleans facilities and to exit the region to the west on I-10. Further refinement of the estimated LIT truck distribution is recommended as a next step in future analyses.

The 2052 highway network included with the SELATRAM Model package was used as the base highway network for the 2050 No Build model analysis. This was due to the fact that no major highway improvements are expected between 2050 and 2052 in the project area. The only update to the network was the removal of the north/south road highlighted in red in the image below. This road was included in the highway network of the 2052 SELATRAM model package that was received. The decision was made to remove this highway link due to the similarity to the Build alternatives that would be tested.

Figure 1-1: North/South Road Removal

1.3 2050 Build Forecasts

Build forecasts were developed to analyze the elevated highway alternatives with the 2050 Buildout of the LIT. Three Toll-Free Build alternatives were coded into the 2050 Model. The alignments are defined as follows:

1.3.1 Elevated Highway Alternative 12 (C-H-I-P)

Alternative 12 is an approximately 8.9-mile elevated roadway planned to have two 12-foot lanes and two 8-foot shoulders that originates at Paris Road (LA 47) north of Eddie Pinto's Marina. From there, the alignment crosses Bayou Bienvenue (requiring a mid-level bridge) before extending southeast over the marsh toward Meraux. The alignment then parallels the Forty Arpent Canal and crosses Violet Canal (requiring a second mid-level bridge) before making a southwest turn, ultimately terminating directly at the Port of New Orleans Louisiana International Terminal site on Judge Perez Highway (LA 39) near Violet.

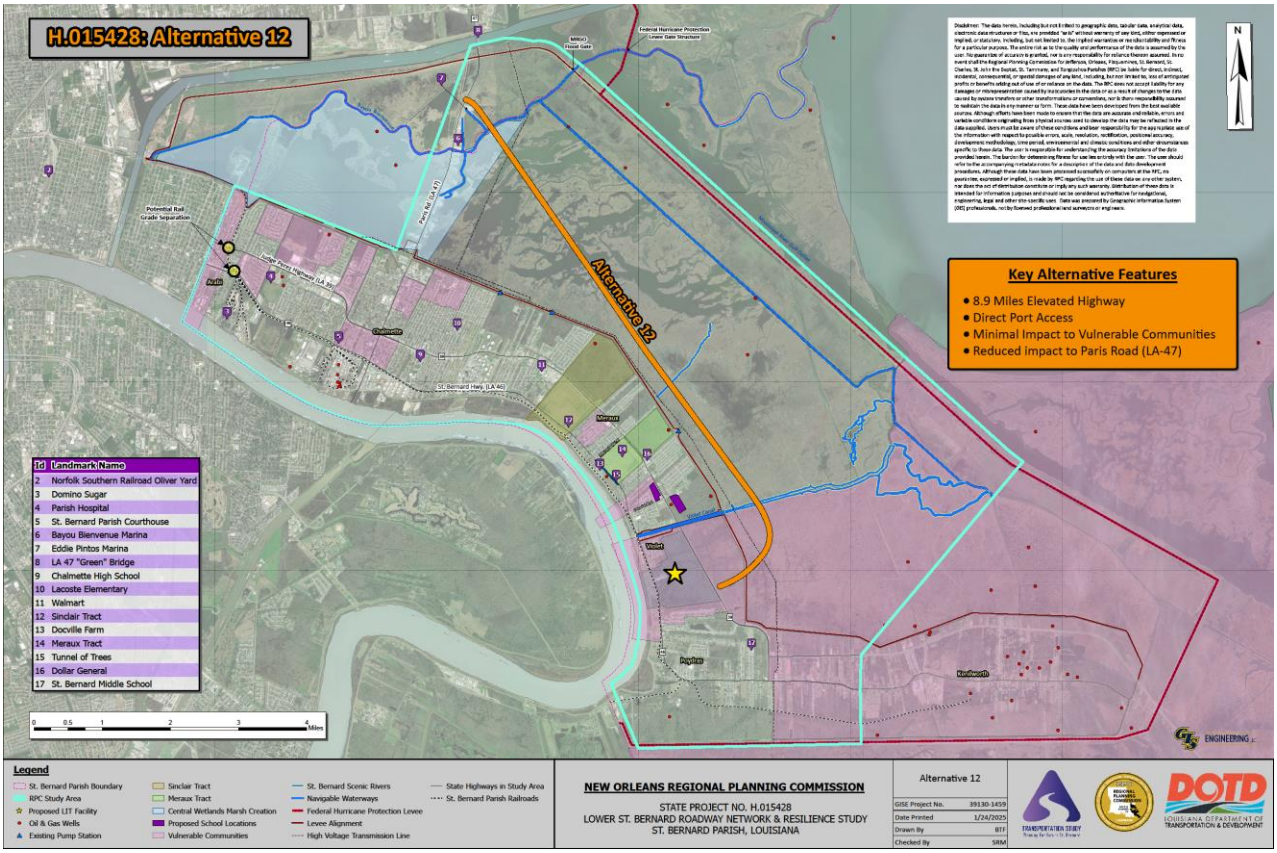

Figure 1-2: Elevated Highway Alternative 12 (C-H-I-P)

1.3.2 Elevated Highway Alternative 22 (G-E-H-I-P)

Alternative 22 is an approximately 8.1-mile elevated roadway planned to have two 12-foot travel lanes and two 8-foot shoulders that originates on Paris Rd (LA47) near its intersection with Forty Arpent Canal Rd. The alignment parallels Forty Arpent through the marsh where it crosses over Violet Canal (requiring a mid-level bridge) before making a southwest turn, ultimately terminating directly at the Port of New Orleans Louisiana International Terminal site on Judge Perez Highway (LA39) near Violet.

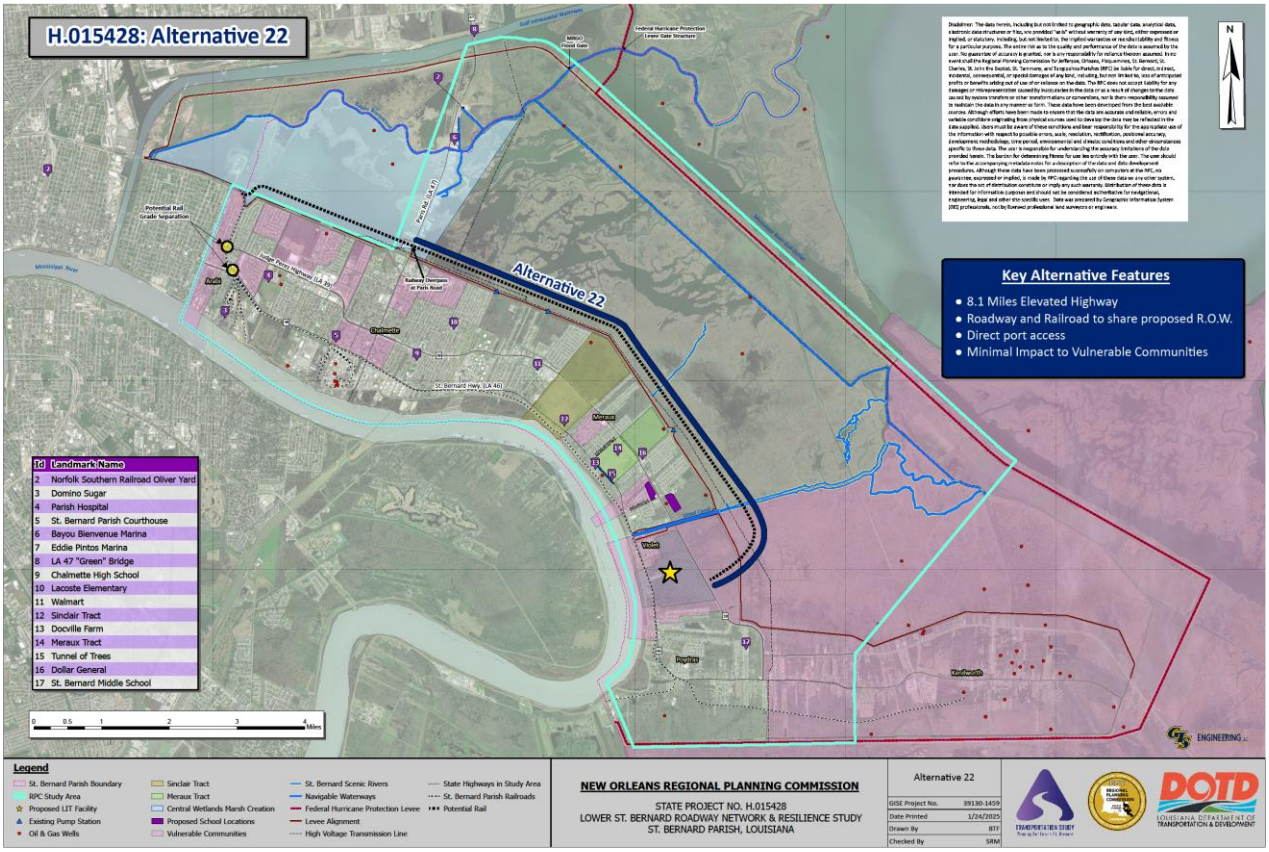

Figure 1-3: Elevated Highway Alternative 22 (G-E-H-I-P)

1.3.3 Elevated Highway Alternative 25 (G-E-S)

Alternative 25 is an approximately 4.7-mile roadway that originates on Paris Rd. (LA47) near its intersection with Forty Arpent Canal Rd. The alignment parallels Forty Arpent elevated through the marsh with a planned elevated section consisting of two 12-foot travel lanes and two 8-foot shoulders. The roadway then turns southwest and transitions to an at-grade section through the Meraux tract, ultimately tying into Judge Perez Highway (LA39) between Maureen Lane and St. Marie Dr.

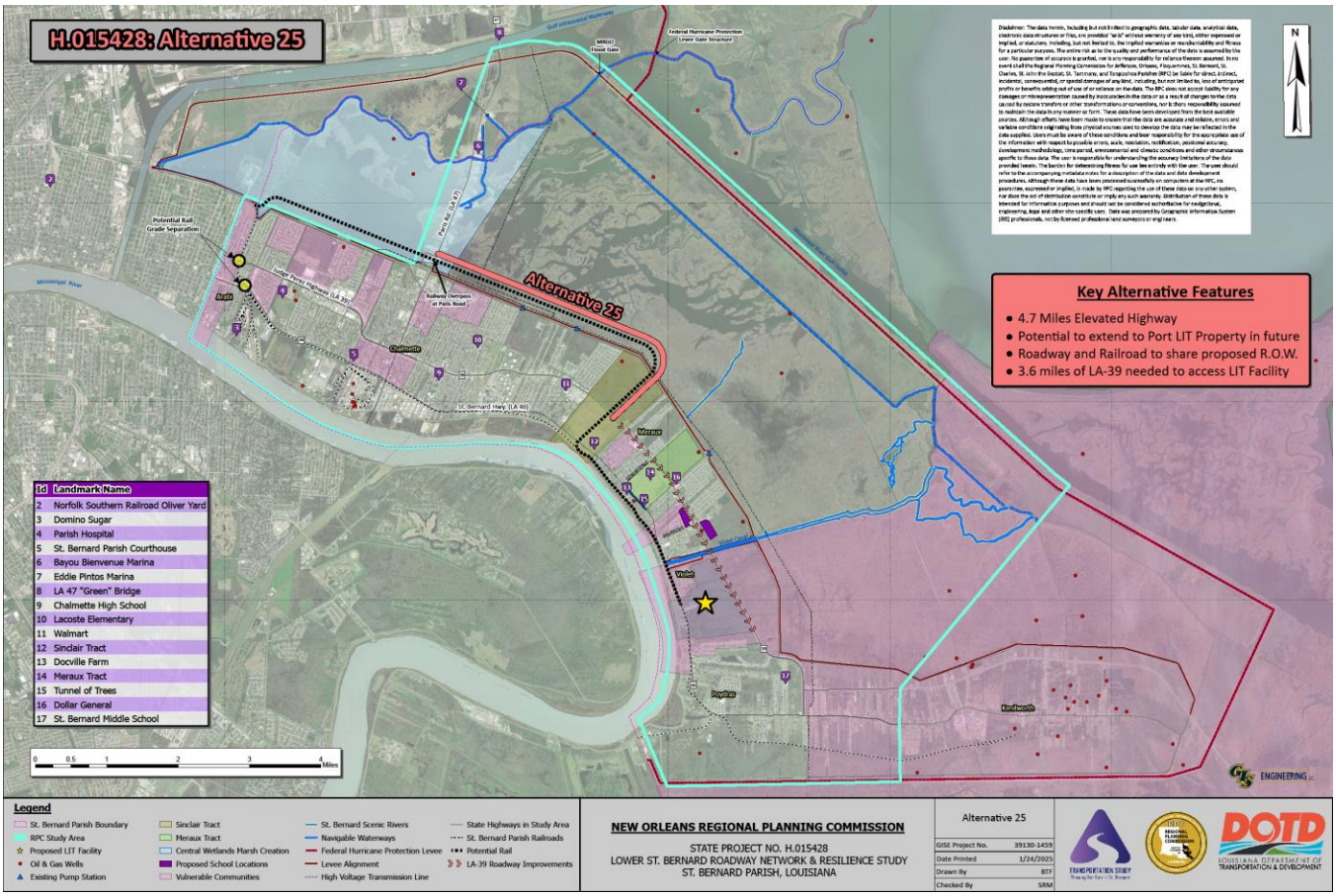

Figure 1-4: Elevated Highway Alternative 25 (G-E-S)

Chapter 2
Toll Revenue Analysis

2.1 Assumed Toll Rates

A key consideration for the traffic and revenue estimates are the toll rates in the 2050 Buildout year of the LIT. CDM Smith assumed that the proposed LIT Facility will be tolled at rates consistent with other toll facilities in the State of Louisiana. CDM Smith identified three toll facilities that are currently or planned to be owned and operated by the Louisiana Department of Transportation and Development:

- The Belle Chase Bridge
- The LA 1 Bridge
- The proposed Calcasieu Bridge

The average passenger car transponder toll rate for these three facilities inflated to 2050 levels is $3.30.

As a result of the widespread use of All Electronic Tolling (AET), most tolling agencies have instituted a toll differential for using a transponder, sticker or pass card, as compared to video tolling. This type of discount allows all drivers using a compatible transponder, sticker or pass card to pay a lower rate than those paying via video. One of the primary purposes of providing a toll differential to transponder customers is to encourage the use transponders, stickers or pass cards rather than video tolling. This reduces back-office processing costs and decreases the potential for uncollected fares. Generally, the additional tolls paid by video customers are also set high enough to cover these additional costs and to recover any revenue leakage.

In Louisiana, the current GeauxPass toll facilities include a set amount (roughly $1.00) as a toll differential for video customers, regardless of vehicle class. However, most toll agencies utilize a percentage difference between transponder and video payment methods. Based on a survey of national toll agencies, video toll differentials averaged about 40 percent. Based on previous direction received from LADOTD officials, an assumed video toll differential of 50 percent was indicated for the proposed facility. CDM Smith incorporated this assumption into the traffic and revenue forecasts.

The vast majority of facilities base their truck toll rates on the number of axles, either completely or in combination with other measures such as truck length. However, it is assumed that a truck payment structure will be utilized for the proposed facility comparable to other GeauxPass facilities in Louisiana:

- **Class 1:** Length < 23.5' & Width ≤ 8.5' & Height < 12'
  Includes passenger vehicles such as cars, pickup trucks, motorcycles;
- **Class 2:** Length > 23.5' & < 35' or Length ≤ 23.5' & Width > 8.5' or Height >12'
  Includes light 2-axle trucks and passenger vehicles with trailers; and
- **Class 3:** Length >35'
  Includes heavy trucks, such as 5-axle tractor trailers.

Nationally, roughly 60 percent of toll agencies charge the same rate to both passenger cars and 2-axle trucks. The remaining facilities have an average 2-axle truck toll factor of roughly 2.5. The national average toll factor for a 5-axle truck is about 5 times the passenger car rate. These truck toll factors are somewhat comparable to the average 2-axle truck (Class 2) and 5-axle truck (Class 3) toll factors (versus Class 1) for the existing GeauxPass Louisiana Toll Bridges. The toll factors used in this analysis are 1.9 for 2-axle truck (Class 2) and 4.4 for 5-axle truck (Class 3) which are consistent with existing GeauxPass Louisiana Toll Bridges.

Based on the tolling assumptions identified in this study, CDM Smith developed estimated toll rates by method of payment and vehicle class for the proposed LIT Facility for the opening year of 2050, which are presented in **Table 2-1**. As previously noted, the toll rates assume AET utilizing GeauxPass, a 50 percent video toll rate differential, a 1.9 toll factor for Class 2, and a 4.4 toll factor for Class 3. All toll rates have been rounded up to nearest nickel.

Table 2-1 Toll Rate Assumptions for Proposed Opening Year 2050

Toll Rates by Method of Payment and Vehicle Class

Vehicle Class	GeauxPass / Transponder Toll Rate	Video Toll Rate
Class 1:	**$3.30**	**$5.00**
Class 2:	**$6.45**	**$9.65**
Class 3:	**$14.65**	**$22.00**

Like other GeauxPass facilities, CDM Smith believes it is reasonable to incorporate an annual, biennial, or triennial Consumer Price Index (CPI)-based toll rate increase for the facility. The CPI is developed by the US Bureau of Labor Statistics and is used in this analysis to ensure that potential toll rates are calculated in order to keep pace with normal inflation.

2.2 Toll Feasibility Analysis

In order to conduct the toll modeling analysis, the highway network and trip tables developed from the modified SELATRAM Model, reflecting the updated socioeconomics/land-use scenarios, future truck movements from the port, and proposed highway improvements were imported into CDM Smiths' tolling algorithm model. The model algorithm assesses the travel costs and times for each origin-destination movement for both a tolled route using the proposed LIT facility and the best toll-free alternative route. The relationship between the travel costs and times of those two routes is then used to estimate the share of traffic that will use the proposed tolled LIT facility and the various non-toll alternatives. However, the outputs of the toll modeling effort are dependent on the particular model inputs. These include the travel speeds, distances, and the configuration of the model network, as well as future estimates of variables such as value of time, vehicle operating costs, and the travel demand based on the underlying socioeconomic forecasts. Being based on a regional travel demand model, the toll feasibility analysis is also limited by the fact that regional travel demand modeling is not typically used to assess roadway operations, such as the impacts of signalized intersections. These can be addressed partially by included time penalties or other network-level restrictions. Given the high-level scope and schedule of this study, these additional refinements would need to be addressed in a future analysis. However, despite the limitations noted here, CDM Smith has significantly refined this modeling approach and believes that it is the best methodology for estimating toll facility traffic demand and volumes. For the current high-level effort, CDM Smith believes the modeling effort conducted for this analysis represents a good "first pass" effort to assess the traffic and revenue potential of the proposed LIT facility under the identified configurations.

It is assumed that the proposed LIT facility will operate as an All Electronic Toll (AET) facility, utilizing the GeauxPass statewide toll transponder system and video tolling. No cash will be accepted to facilitate non-stop high-speed travel. A toll-pricing scheme was developed and the toll rates and tolling points were then incorporated into the model.

A series of traffic assignments were run using CDM Smith's proprietary tolling algorithms for the 2050 opening year. These assignments were run with and without the proposed tolls to identify the potential toll diversion. The results of these assignments were reviewed for reasonableness and compared against the toll-free conditions. **Table 2-2** presents the DRAFT average daily transaction estimates for the proposed LIT Facility under the three build scenarios by method of payment and vehicle class.

Table 2-2 Estimated 2050 Daily Traffic Volumes for the Proposed LIT Facility by Method of Payment and Vehicle Class

Build Scenario				
Class	**Method of Payment**	**CHIP**	**GEHIP**	**GES**
Class 1	Transponder	2,290	1,320	2,210
	Video	720	410	660
Class 2	Transponder	200	100	160
	Video	100	50	90
Class 3	Transponder	440	310	370
	Video	580	410	470
Total		**4,330**	**2,600**	**3,960**
Percent Transponder		67.7%	66.5%	69.2%
Percent Class 2 and 3		30.5%	33.5%	27.5%

As shown in **Table 2-2**, the CHIP scenario produces the greatest level of transactions, likely due to the fact that it bypasses all of LA 39 and lower Paris Rd. by connecting to LA 47 just south of the Green Bridge, avoiding congestion with St. Bernard Parish retail, marinas, and schools. However, the GEHIP scenario produces the greatest share of Class 2 and Class 3 vehicles, as this alternative bypasses all of LA 39 west of the LIT facility in Violet and connects to LA 47 north of St. Bernard urban retail. Lastly, the GES scenario produces the greatest share of GeauxPass transponder customers, likely due to its use as a partial local bypass to LA 39 connecting to LA 47 north of St Bernard urban retail.

The final daily traffic volumes output under the tolled scenarios were then multiplied by the proposed toll rates by method of payment and by vehicle class to develop the toll revenue estimates. It was assumed that 50 percent of video toll revenue would not be collected due to revenue leakage (bad images, incorrect mailing address information, or non-payment). This level of leakage is a conservative estimate for a new toll facility such as the proposed LIT Facility. The average daily transactions and net toll revenues were then multiplied by 365 to produce the estimated LIT Facility transactions and toll revenue estimates for 2050 presented in **Table 2-3**. All revenues provided are in 2050 dollars. Moreover, the Net Revenue estimates do not include adjustments for operations and maintenance costs associated with the toll system (or the LIT Facility in general), nor do they include the costs of revenue collection. Given their preliminary nature, these transaction and revenue estimates are for planning purposes only and should not be used in support of financing.

Table 2-3 Estimated 2050 Annual Transaction and Net Toll Revenues for the Proposed LIT Facility

Build Scenario			
	CHIP	GEHIP	GES
Annual Transactions (000s)	1.6	1.0	1.4
Annual Net Revenue (Millions)	$8.7	$5.6	$7.6

2.3 Conclusion

In summary, the tolling assumptions and traffic modeling outlined in this analysis provide a comprehensive and conservative framework for estimating potential 2050 traffic volumes and toll revenue for the proposed elevated Facility. The toll rates were derived based on other Louisiana toll facilities and adjusted for inflation, vehicle classification, and payment method, incorporating a 50 percent video toll differential and industry-standard truck toll factors. The use of All Electronic Tolling (AET) via the GeauxPass system is expected to streamline toll collection, enhance operational efficiency, and reduce revenue leakage, although a conservative 50 percent leakage rate has been applied to video toll transactions.

The estimated daily transaction volumes under the three build scenarios—CHIP, GEHIP, and GES—reflect differences in projected route utility and regional connectivity, with CHIP producing the highest overall transaction levels, GEHIP attracting the highest proportion of commercial vehicles, and GES showing the greatest share of transponder usage. While the three proposed alternatives offer potential benefits to travelers and commercial vehicles seeking to bypass Judge Perez Drive and Paris Road in Violet, the projected travel time savings identified in the modeling analysis is primarily attributed to the close proximity of existing parallel routes, as reflected in the conservative usage projections.

While the traffic and revenue forecasts presented offer valuable insights into the facility's potential performance, they are preliminary and intended solely for planning purposes. Further analysis, refinement, and validation will be necessary to support financing and long-term investment decisions, especially as project development continues and more detailed engineering and financial information becomes available. Some potential areas for refinement in a future study include:

- A socioeconomic assessment of local population, employment, induced demand and special traffic generators – which would ultimately affect the underlying local travel demand;
- A detailed review of the travel times, traffic controls, pavement conditions, and local roadway restrictions associated with the competing toll-free arterial networks, particularly between the proposed LIT Facility and I-10 – which would lead to the use of

time penalties or network restrictions in the model affecting estimated commercial vehicle travel times and routing;

- A stated preference survey or other specialized analysis of the value of time of commercial vehicles potential to the proposed LIT Facility – which would impact the share of vehicles willing to utilize the new facility at different toll rates; and
- A toll sensitivity analysis to assess multiple toll rates and estimate the revenue maximizing toll rate and the traffic volume optimizing toll rate for the proposed LIT Facility under future year conditions.

Disclaimer

CDM Smith uses currently accepted professional practices and procedures in the development of the traffic and revenue estimates. However, as with any forecast, it should be understood that differences between forecasted and actual results may occur, as caused by events and circumstances beyond the control of the forecasters. In formulating the estimates, CDM Smith will reasonably rely upon the accuracy and completeness of information provided (both written and oral) by the RPC and the Louisiana Department of Transportation and Development (LADOTD). CDM Smith will also rely upon the reasonable assurances of independent parties and is not aware of any material facts that would make such information misleading.

CDM Smith makes qualitative judgments related to several key variables in the development and analysis of the traffic and revenue estimates that must be considered as a whole; therefore, selecting portions of any individual result without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underlying methodologies used to obtain the results. CDM Smith gives no opinion as to the value or merit of partial information extracted from their reports.

All estimates and projections reported herein are based on CDM Smith's experience and judgment and on a review of information obtained from multiple agencies, including the Louisiana Department of Transportation and Development (LADOTD). These estimates and projections may not be indicative of actual or future values and are therefore subject to substantial uncertainty. Certain variables such as future developments, economic cycles, pandemics, government actions, climate change related events, or impacts related to advances in automotive technology etc. cannot be predicted with certainty and may affect the estimates or projections expressed in this report, such that CDM Smith does not specifically guarantee or warrant any estimate or projection contained within their reports.

While CDM Smith believes that the projections and other forward-looking statements contained within their reports are based on reasonable assumptions as of the date of such report, such forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Therefore, following the date of such report, CDM Smith will take no responsibility or assume any obligation to advise of changes that may affect its assumptions contained within the report, as they pertain to socioeconomic and demographic forecasts, proposed residential or commercial land use development projects and/or potential improvements to the regional transportation network.

The report and its contents are intended solely for use by the RPC and Louisiana Department of Transportation and Development (LADOTD), and designated parties approved by the RPC and Louisiana Department of Transportation and Development (LADOTD) and CDM Smith. Any use by third-parties, other than as noted above, is expressly prohibited. In addition, any publication of study deliverables without the express written consent of CDM Smith is prohibited.

CDM Smith is not, and has not been, a municipal advisor as defined in Federal law (the Dodd-Frank Bill) to the RPC and the Louisiana Department of Transportation and Development (LADOTD) and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to the Louisiana Department of Transportation and Development (LADOTD) with respect to the information and material contained in their reports. CDM Smith is not recommending and has not recommended any action to the RPC and Louisiana Department of Transportation and Development (LADOTD). The RPC and The Louisiana Department of Transportation and Development (LADOTD) should discuss the information and material contained in this report with any and all internal and external advisors that it deems appropriate before acting on this information.