

High-Level Detour Traffic Analysis Memo

To: Mr. Matthew Rodrigue, P.E., Duplantis Design Group

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Date: August 11, 2026

Re: Canal Bridge Replacement
Detour Analysis
Technical Memorandum



Included in this tech memo are the following sections:

I. Introduction

II. Analysis

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I. Introduction

The following is a high-level traffic analysis performed to approximate the potential increase in traffic volumes and delays associated with the proposed Canal Boulevard bridge closure at the Bayou Lafourche crossing. This analysis is intended to assist in the decision-making of the City of Thibodaux's administration with regards to the alternatives of operating the bridge with one lane open in each direction or imposing full bridge closure during construction.

This analysis was performed at a high level. A larger study would need to be conducted for detailed results/signal plans to be generated.

II. Analysis

To evaluate the high-level traffic impacts associated with the Canal Boulevard Bridge construction scenarios, the Houma-Thibodaux MPO Travel Demand Model was utilized. Three scenarios were analyzed:

1. **Base (2022):** Existing conditions with all four lanes of the Canal Boulevard Bridge open to traffic.
2. **One Lane Open:** Construction scenario with one lane open in each direction on the Canal Boulevard Bridge.
3. **Full Closure:** Construction scenario with the Canal Boulevard Bridge fully closed to traffic.

To assess the impacts of each scenario, Average Daily Traffic (ADT) volumes and the percent change in vehicle-hours of delay (VHD) were evaluated on five bridge crossings within the City of Thibodaux (model results are attached). These bridges were selected based on their potential to experience traffic shifts resulting from the Canal Boulevard Bridge construction activities. The bridges analyzed include:

1. Canal Boulevard Bridge
2. Jackson Street Bridge
3. Tiger Drive Bridge
4. Audubon Avenue Bridge
5. Percy Brown Road Bridge

The bridges investigated are shown below in **Figure 1**.



Figure 1: Bridge Locations

As previously discussed, the travel demand model was run for each scenario to estimate the corresponding Average Daily Traffic (ADT) volumes. For Scenario 2 (One Lane Open), the speed assigned to the Canal Boulevard Bridge link was reduced to better reflect anticipated operating conditions during construction. This adjustment was made to more accurately represent real-world traffic conditions, as the lane reduction is expected to result in lower travel speeds and additional delays caused by left-turning vehicles waiting for gaps in opposing traffic or a protected signal phase, which may create queueing and periodic backups.

The resulting ADT estimates for each scenario are presented in **Table 1** below.

Table 1: Houma-Thibodaux MPO Travel Demand Model ADTs

Bridge	ADT on Bridge Link (Average Daily Traffic) (vpd)		
	1. Base (2022)	2. One Lane Open	3. Full Closure
Canal	20,873	15,413	---
Tiger	6,997	7,314	7,853
Jackson	5,907	8,436	18,560
Audubon	2,745	3,720	5,143
Percy Brown	6,907	7,672	8,619

As can be seen in the table above, traffic volumes on Canal Bridge are anticipated to reduce by about 25% while all the other bridges in the area are anticipated to see an increase in traffic volumes.

In addition to the ADTs, the percent change in vehicle-hours of delay was also investigated under the two (2) construction scenarios. The model results are shown below in **Table 2**.

Table 2: Houma-Thibodaux MPO Travel Demand Model % Change in VHD

Bridge	% Increase in VHD on Bridge link (Vehicle Hours of Delay)		
	1. Base (2022)	2. One Lane Open	3. Full Closure
Canal	0.0%	660.5%	---
Tiger	0.0%	10.0%	31.9%
Jackson	0.0%	209.0%	3291.8%
Audubon	0.0%	168.4%	606.0%
Percy Brown	0.0%	39.7%	99.8%

As expected, both construction scenarios result in increased vehicle-hours of delay (VHD) compared to existing conditions, as traffic is diverted and travelers adjust their routes during construction.

III. Conclusion

Although the Full Closure scenario generates higher daily VHD and ADTs on the surrounding bridges than the One Lane Open scenario, it should be noted that the Full Closure scenario has a much shorter construction period (7 months) than the One Lane Open scenario (15 months) as a phased construction approach would be necessary to complete both sides of the Canal Bridge construction. This substantially shorter construction duration suggests that the cumulative delay experienced by motorists over the entire construction period may be comparable to, or potentially less than, the One Lane Open alternative. Consequently, the Full Closure option may provide a more efficient overall construction approach by shortening the period of traffic disruption, reducing long-term impacts to roadway users, and accelerating the return to normal traffic operations.

It should be noted that the analysis presented herein was conducted at a planning-level and high-level assessment. As such, the estimated ADTs and VHDs should not be interpreted as precise values. They were developed solely to support the decision-making of construction options at a high level. If more accurate traffic volumes or a delays are required, a more comprehensive study should be undertaken to evaluate the affected routes and roadway network.