

# Memorandum

**DATE:** June 19, 2024  
**TO:** Victoria MPO  
**CC:**  
**FROM:** ATG|DCCM  
**RE:** Freight and Travel Time Reliability Analysis

## Introduction

---

Alliance Transportation Group, LLC (ATG) conducted a reliability analysis to better understand the existing conditions for mobility for the Victoria Metropolitan Planning Area (MPA). This reliability analysis used Level of Travel Time Reliability (LOTTR) scores from 2020 through 2023. This analysis provides an understanding of the state of the roadways in the Victoria MPA. More specifically, this analysis serves to point out roadways where improvements focusing on travel time reliability and freight resilience may have the highest impact as the Victoria MPO moves forward with the MTP planning process and strategy prioritization. The analysis also identifies major freight generators that may impact the MPA.

## Methods

The following section identifies the data sources and describes the various methods and tools used to complete the roadway needs assessment.

### **National Performance Management Research Data Set Measures (NPMRDS)**

To ensure a complete understanding of existing conditions on the Victoria MPO roadway network and a federally compliant Metropolitan Transportation Plan (MTP), the 2050 MTP project team used FHWA's NPMRDS to calculate roadway performance measures for the existing system. These values were aggregated from the NPMRDS and joined to the NPMRDS Texas roadway network to spatially analyze and target areas of concern. The results of this analysis provide the Victoria MPO with quantitative values for performance measures for use in the evaluation and prioritization of transportation investments. The mobility measures used in the analysis include:

- National Performance Management Measures for System Performance
  - Level of Travel Time Reliability (LOTTR)
  - Percent of interstate segments that are reliable
  - Percent of non-interstate NHS segments that are reliable.

## National Performance Metrics

Travel time reliability is a measure of “the consistency or dependability of travel times from day to day or across different times of day” for a given roadway<sup>1</sup>. While congestion typically focuses on the average roadway conditions in terms of delay, travel time reliability indicates the level to which traffic or roadway conditions can be anticipated for travelers to plan around expected delays. Reliability of the roadway network is important because it allows travelers to reach their destinations at their planned time. This is important for passenger travel and goods movement as well as for transit services as route planning plays an important role in how people manage their day-to-day lives.

## LOTTR Analysis Results

The following sections detail findings from analyses based on FHWA’s NPMRDS to create a robust understanding of existing and future roadway conditions.

### Level of Travel Time Reliability

Level of Travel Time Reliability (LOTTR) is calculated using a ratio of the 50th and 80th percentile travel time for all vehicles traveling a given roadway segment. Travel time data is provided as part of FHWA’s NPMRDS. For the Victoria MPO study area, 2020, 2021, 2022, and 2023 travel time data was used for the defined Victoria MPO NPMRDS roadway network. Multiple years were examined to provide an overview of changes to reliability year over year as well as to identify possible segments with persistent issues with reliability. It is worth noting that decreased roadway volumes during the COVID-19 lockdown may have affected the resulting reliability of the roadway system in 2020.

Per FHWA standards, any roadway with a LOTTR over 1.50 is considered unreliable. “Unreliable” means that travelers of a roadway segment cannot reasonably predict the time it would take to travel the roadway during peak traffic time periods.

Per the 2023 NPMRDS, the current system reports 97.1% of vehicle-miles traveled on non-interstate segments that are reliable. This achieves the target of greater than or equal to 70% of the system containing a LOTTR less than 1.50, which will help inform planning decisions moving forward.

---

<sup>1</sup>Source: FHWA; *National Performance Measures for Congestion, Reliability, and Freight, and CMAQ Traffic Congestion – General Guidance and Step-by-Step Metric Calculation Procedures*; <https://fhwa.dot.gov/tpm/guidance/hif18040.pdf>

**Non-Interstate NHS Level of Travel Time Reliability**

Non-Interstate NHS segments are typically separated out from interstate segments for analysis because the MPO is required to report travel time performance metrics on the NHS as divided between the interstate and non-interstate portions of the NHS. The Victoria MPA has no interstate highways, so this analysis only includes non-Interstate NHS roadways. Performance measures for non-Interstate NHS reliability within the MTP study area for 2020 through 2023 have consistently performed better than the statewide baselines, as shown in Table 1.

*Table 1: Non-IH NHS LOTTR - MPO to Texas Statewide Comparison*

Year	Victoria MPO	TxDOT Baseline	TxDOT 2 Year Target	TxDOT 4 Year Target
2020	98.04%	84.6%	70%	70%
2021	98.36%			
2022	97.28%			
2023	97.13%			

Figure 1: 2020 Non-Interstate LOTTR

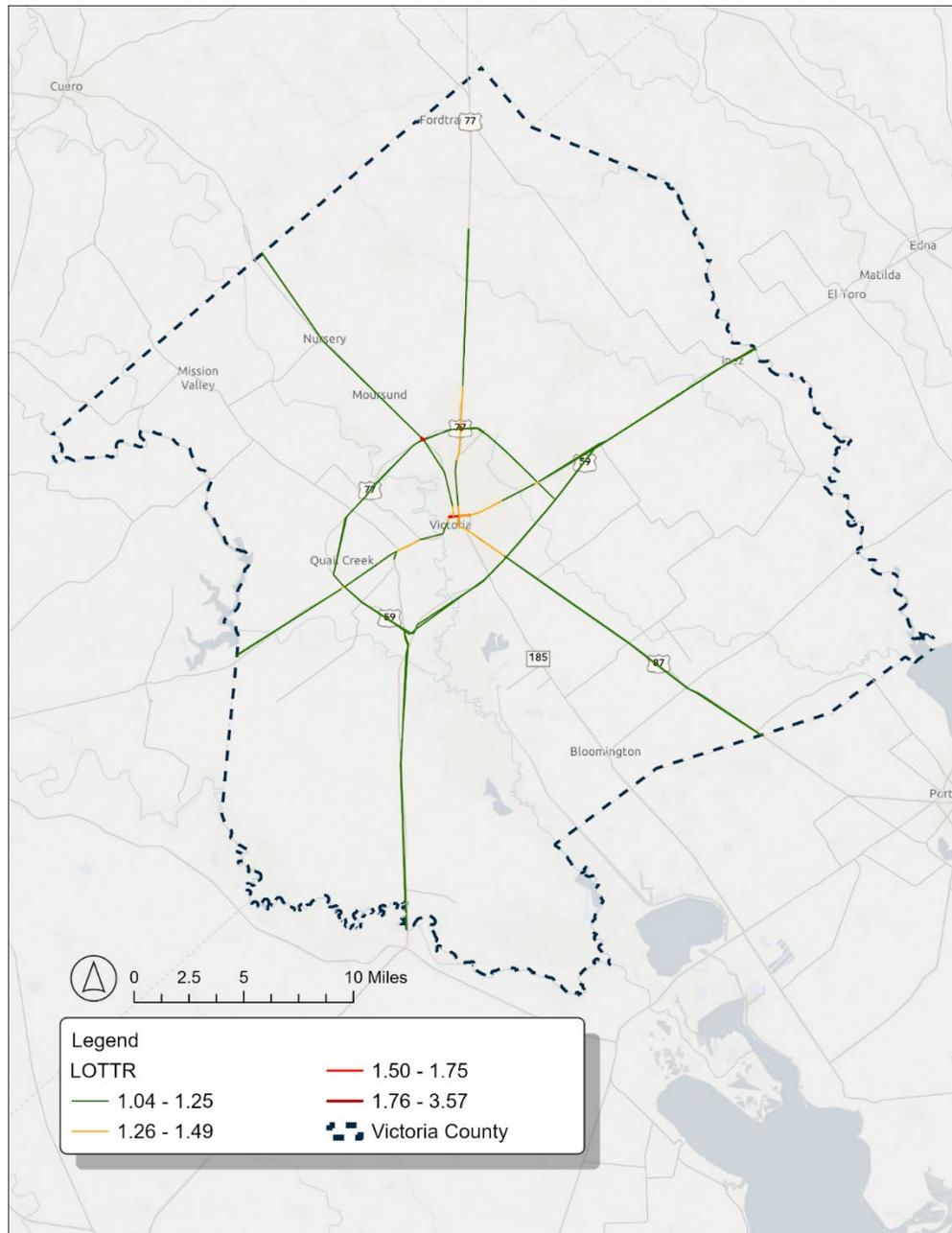


Figure 1 displays travel time reliability for the MPO area in 2020. Areas with noted reliability issues include W Rio Grande St from W North St to 77, N Main Street from the northbound frontage lane of Zac Lentz Parkway to the southbound frontage lane of Zac Lentz Parkway, N Navarro St from the northbound frontage lane of Zac Lentz Parkway to the southbound frontage lane of Zac Lentz Parkway.

Figure 2: 2021 Non-Interstate LOTTR

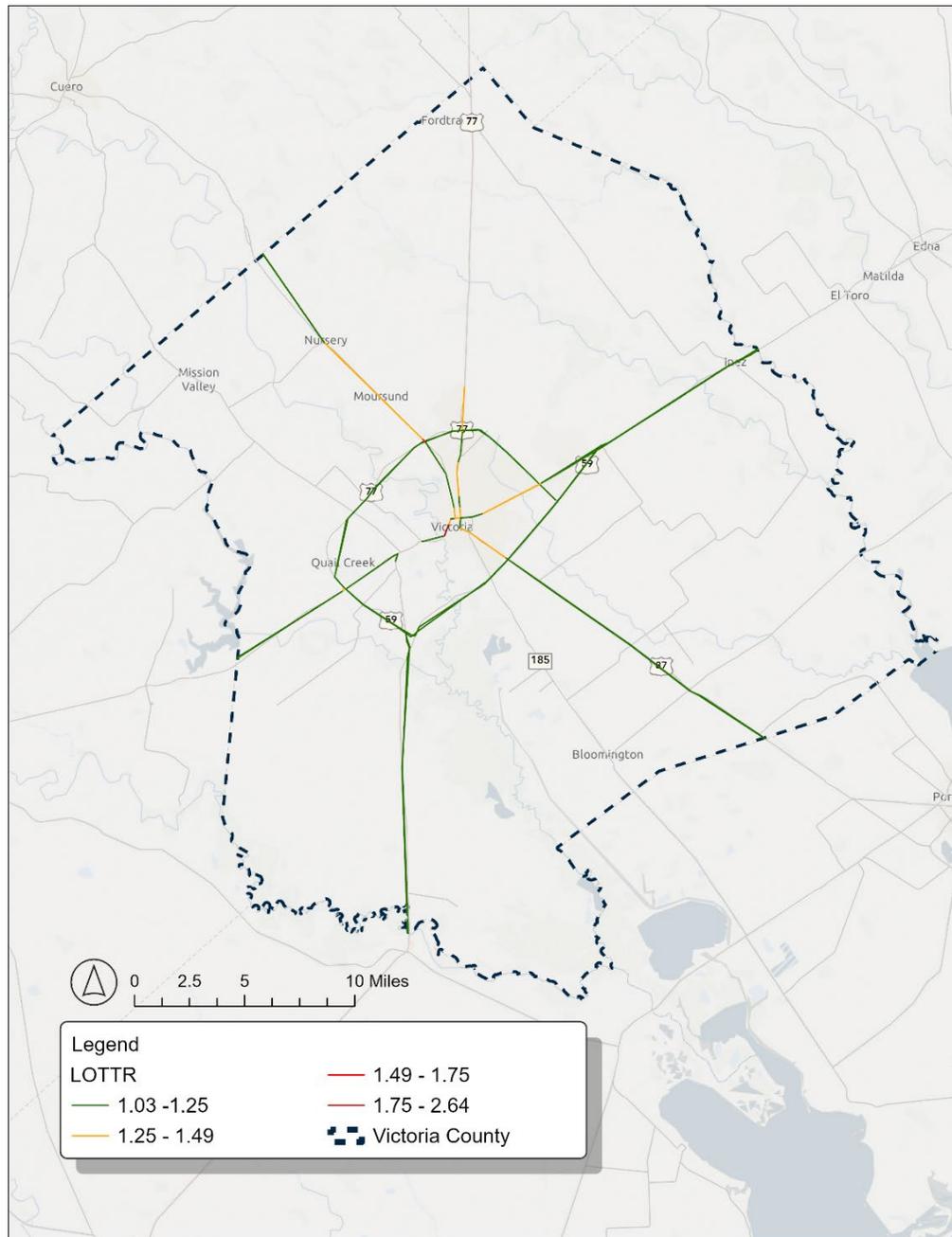


Figure 2 displays travel time reliability for the MPO area in 2021. The data shows improved reliability downtown, but less reliability along US 87 starting at Zac Lentz Parkway and US 77 starting at US Business 59, both going north of town, and on US Business 59 and US 87 going east and south respectively out of the urban core.

Figure 3: 2022 Non-Interstate LOTTR

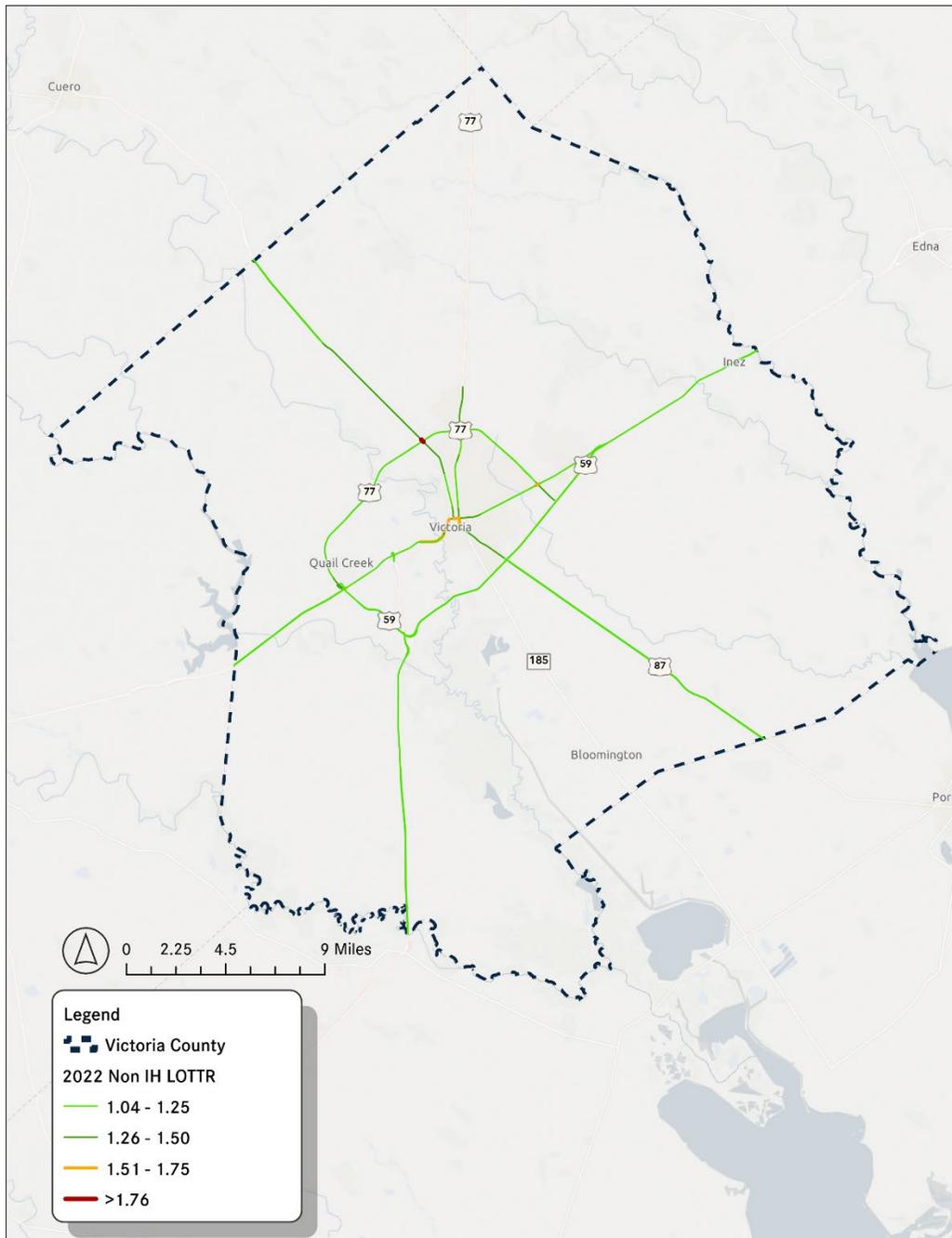


Figure 3 shows travel time reliability for the MPO area in 2022. According to the NPMRDS data, the most unreliable segment is on US 87 where it passes beneath Zac Lentz Parkway. The data also shows some failing reliability around the urban core, on US Business 59 from W North St to W Goodwin Ave; on W Rio Grande St from US 77 to US 87; and on N Navarro St from W Rio Grande to E Goodwin Ave.

Figure 4: 2023 Non-Interstate LOTTR

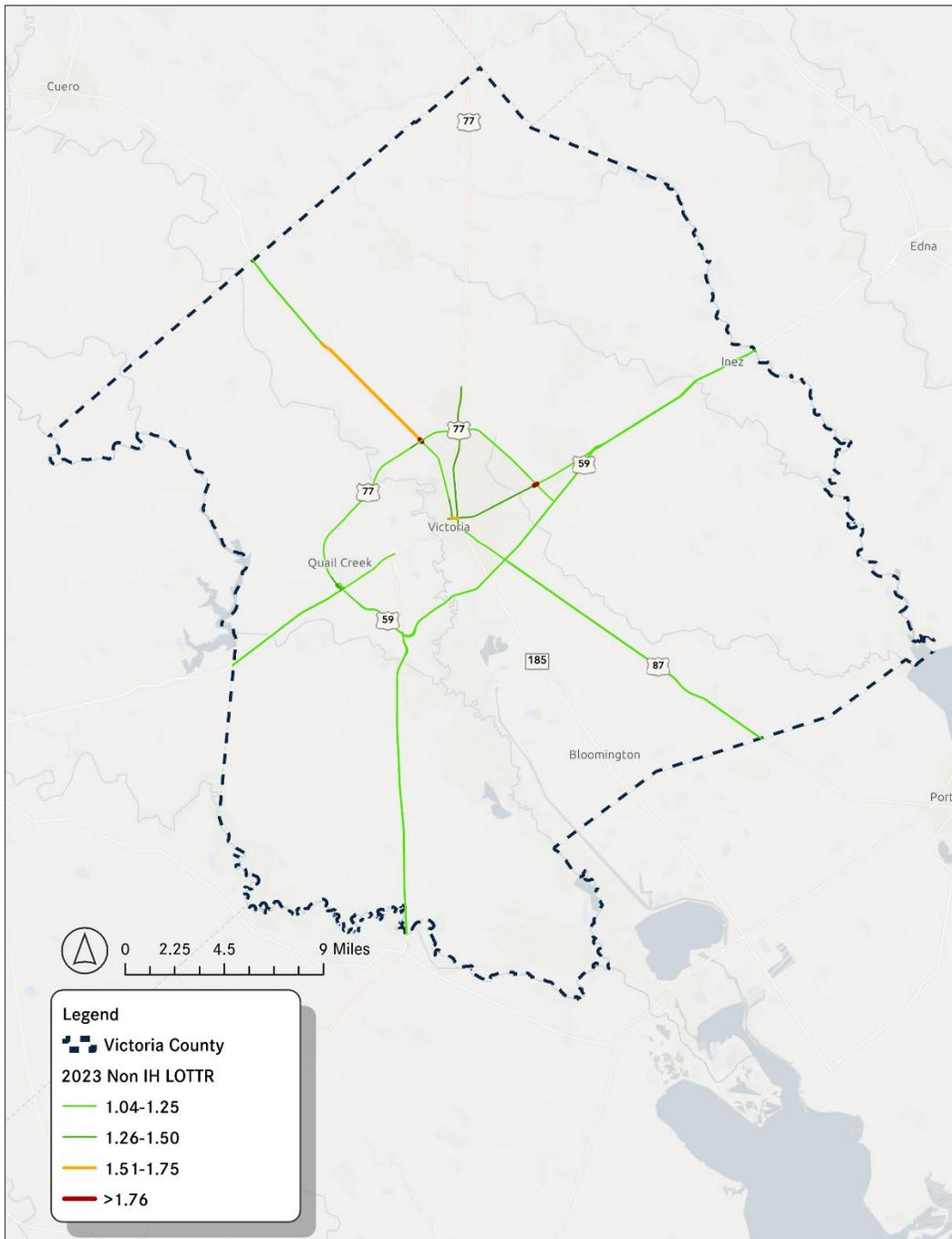
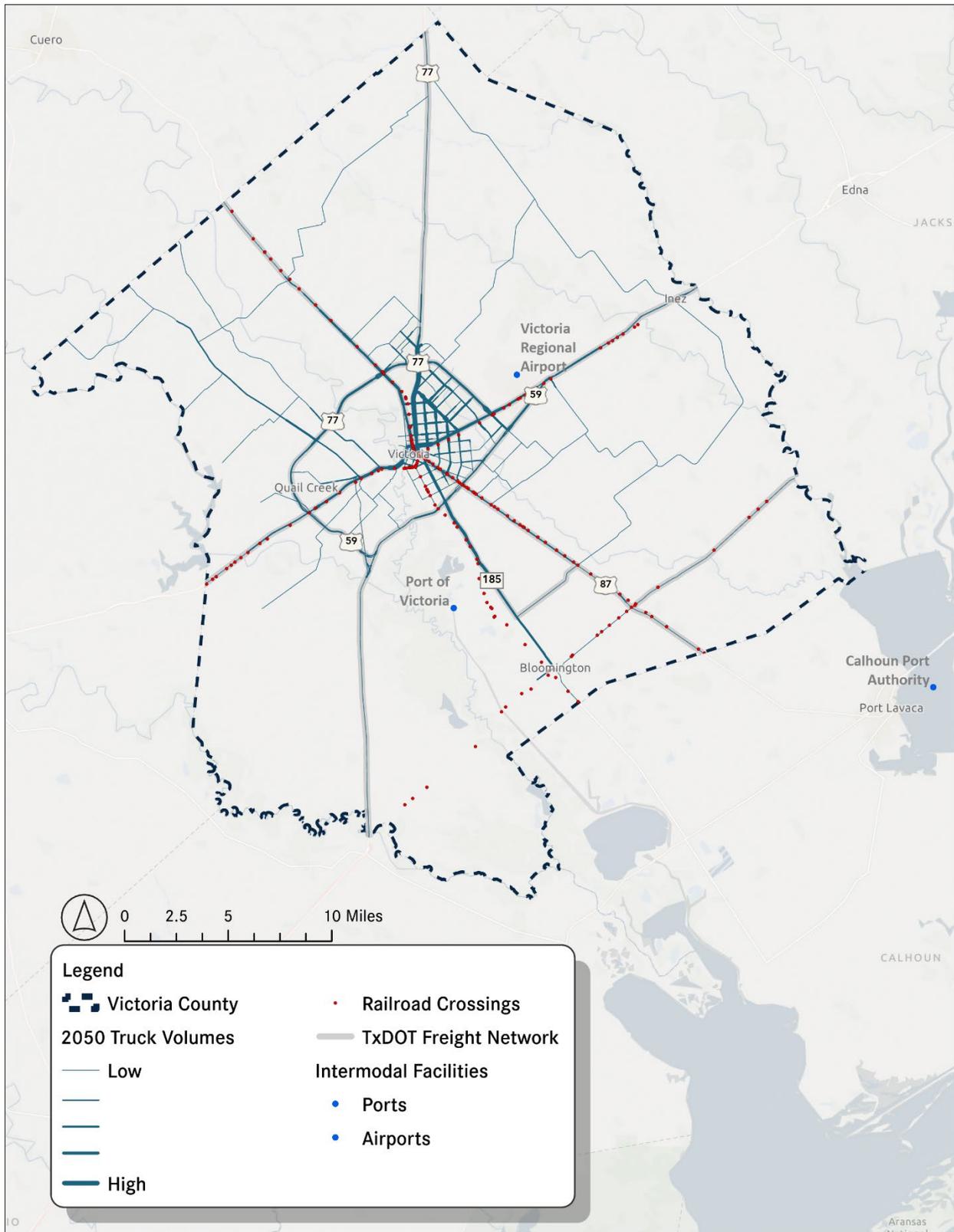


Figure 4 displays travel time reliability for the MPO area in 2023. NPMRDS data shows much improvement downtown, with only W Rio Grande from US 77 to US 87 still being unreliable. The segment of US 87 under and north of Zac Lentz Parkway still shows high reliability, and additional segment of US Business 59 under Zac Lentz Parkway shows a similarly high level of unreliability.

## Freight Analysis

Local, state, and national economies depend on freight transportation systems to function reliably. Supply chains and the movement of goods are supported by freight systems. Dependable and safe freight requires a minimization of delays along the transportation system, including a predictable traffic pattern. A reliable and safe freight system ensures successful, on-time deliveries that are vital for the shipping/freight industries. The following sections identify the location of important freight system assets, general freight activity, and potential issues along the freight network in the Victoria metropolitan planning area (MPA). Figure 5 shows truck volumes along with major generators in the region.

Figure 5: Freight Volumes and Major Freight Generators



## Regional Generators

Victoria County is in close proximity to other critical sites on the freight network. Considering the area's connection to these other generators is important in planning for the future of regional freight movement.

### *Port of Victoria*

The Port of Victoria is a shallow-draft commercial port located within the study area. The port processes over four million tons of cargo every year<sup>2</sup>. Potential expansions to the port's operations could further freight operations in the region.

### *Calhoun Port Authority*

The Calhoun Port Authority, formerly known as the Port of Port Lavaca-Point Comfort, is a deep draft dock that handles break bulk, liquid bulk, and dry bulk carriers up to 750-feet in length.<sup>3</sup> Calhoun Port Authority is outside of the planning area, but the port connects to US 59 and US 87, both of which run through Victoria County, thus it is critical for transportation planning.

Formosa Plastics Corporation is one of the many economic generators located at Point Comfort. Recently approved expansion plans include building a new hexene plant and expanding the current polyethylene plant.

### *Rio Grande Valley*

Located at the southernmost point of the state of Texas, the Rio Grande Valley operates as an important hub for freight passing between the United States and Mexico. The Victoria area may expect to experience freight traffic as goods move from the border up to the Houston area.

## Other Freight Considerations

### *Marine Highway*

The U.S. Marine Highway system currently includes 31 routes that serve as extensions of the surface transportation system<sup>4</sup>. These routes are comprised of some of the United States' most expansive network of navigable waterways, such as rivers, channels, and coasts. The Gulf Intracoastal Marine Highway runs along Matagorda Bay, which connects to the bays surrounding the Calhoun Port Authority. Currently, the Gulf Intracoastal Waterway is not maintained to be at its authorized depth, meaning that carriers have to "light load" barges in order to prevent scraping<sup>5</sup>. This raises the costs of shipping goods. If the waterway were to be deepened, it may increase traffic to the Port of Victoria.

### *Interstate 69*

Interstate 69 is a future interstate highway that will run from Texas to Michigan. In Victoria, US 77 starting at US 59 and running down to Brownsville will become part of IH 69. In order to be

<sup>2</sup> <https://ftp.txdot.gov/pub/txdot/mrd/port-profiles/port-victoria-profile.pdf>

<sup>3</sup> <https://ftp.txdot.gov/pub/txdot/mrd/port-profiles/calhoun-port-authority-profile.pdf>

<sup>4</sup> <https://www.maritime.dot.gov/grants/marine-highways/marine-highway>

<sup>5</sup> <https://library.ctr.utexas.edu/hostedpdfs/tti/0-6807-1-booklet.pdf>

designated as an interstate highway, the roadway facility will be brought up to interstate standards and then designated by the Federal Highway Administration (FHWA)<sup>6</sup>. Upon completion, this highway will serve as an important facility for moving freight in the region.

### **Rail**

Two Class I freight railroads operate in Victoria County, Canadian Pacific Kansas City Railway and Union Pacific. Railroad tracks crisscross the study area, including around 200 at-grade crossings, points at which the railroad tracks cross the roadway. Railroads serve as important freight connectors, but at-grade crossings also may delay surface freight traffic.

### **Victoria Regional Airport**

The Victoria Regional Airport connects locals to Houston, providing twice daily service to and from George Bush Intercontinental Airport. The airport currently does not serve any freight traffic, but growth in the region might prompt expansion.

### **Caterpillar Victoria**

The Caterpillar Victoria facility has manufactured hydraulic excavators in Victoria since 2012. The company employs over 600 people<sup>7</sup> Since opening, the plant has built over 20,000 excavators. In 2022, a supplier of Caterpillar parts, VicTec, moved into the same business park. As operations at Caterpillar increase and as related suppliers move in, the area will see more freight traffic.

---

<sup>6</sup> <https://www.txdot.gov/projects/projects-studies/statewide/interstate-69-system-in-texas.html>

<sup>7</sup> [https://www.crossroadstoday.com/news/local-news/caterpillar-victoria-celebrates-10-year-anniversary/article\\_3f2e14ba-1344-557d-82f6-604a1dd7f08e.html](https://www.crossroadstoday.com/news/local-news/caterpillar-victoria-celebrates-10-year-anniversary/article_3f2e14ba-1344-557d-82f6-604a1dd7f08e.html)