TECHNICAL ADVISORY COMMITTEE MEETING
Monday, October 16, 2023
2:00 p.m.

Livestream at: www.campotexas.org

AGENDA

1. Certification of Quorum – Quorum requirement is 13 members
   .....Mr. Gary Hudder, Vice Chair

ACTION:

2. Approval of July 24, 2023 Meeting Summary .....Mr. Gary Hudder, Vice Chair
   The Vice Chair will seek TAC approval of the July 24, 2023 meeting summary.

INFORMATION:

3. Update on 2050 Travel Demand Model .....Mr. Greg Lancaster, CAMPO
   Mr. Lancaster will provide an update on the 2050 Travel Demand Model to be used in the development of the 2050 Regional Transportation Plan (RTP).

4. Update on Regional Freight Plan ..... Mr. Nirav Ved, CAMPO
   Mr. Ved will provide an update on the Regional Freight Plan being developed for the CAMPO region.

5. Discussion on Short-Range Planning Activities .....Mr. Ryan Collins, CAMPO
   Mr. Collins will discuss the 2025-2028 TIP, Refunding, and Project Tracking.

6. Discussion on Category 7 Federal Funding Utilization.....Mr. Ryan Collins, CAMPO
   Mr. Collins will discuss the utilization of Category 7 federal funding and upcoming rule changes.

7. Presentation on 2022 State of Safety Report
   .....Mr. Jeff Kaufman, Texas Transportation Institute
   Mr. Kaufman will provide a presentation on the annual State of Safety Report for the years 2013-2022.

8. Presentation on CAMPO Congestion Management Process Update
   .....Mr. Jeff Kaufman, Texas Transportation Institute
   Mr. Kaufman will provide a presentation the Congestion Management Process updated with 2021 data.

Persons with Disabilities:
Upon request, reasonable accommodations are provided. Please call 737-226-4840 at least three (3) business days prior to the meeting to arrange for assistance.

9. Report on Transportation Planning Activities

10. TAC Vice Chair Announcements
    - Next TPB Meeting – November 13, 2023, 2:00 p.m.
    - Next TAC Meeting – November 27, 2023, 2:00 p.m.

11. Adjournment

Persons with Disabilities:
Upon request, reasonable accommodations are provided. Please call 737-226-4840 at least three (3) business days prior to the meeting to arrange for assistance.

Capital Area Metropolitan Planning Organization
Technical Advisory Committee Meeting

Livestream at: www.campotexas.org

Meeting Minutes
July 24, 2023
2:00 p.m.

1. Certification of Quorum ..... Mr. Gary Hudder, Vice Chair

In the absence of the Chair, Ms. Laure Moyer, P.E. and Vice Chair Mr. Gary Hudder, Mr. Chad McKeown, CAMPO Deputy Executive Director called the CAMPO Technical Advisory Committee (TAC) meeting to order at 2:01 p.m.

A quorum was announced present.

Mr. McKeown recommended to the TAC members that Past Chair, Mr. Mike Hodge, P.E. serve as Chair Pro Tem to preside over the July 24, 2023 meeting of the CAMPO TAC. Mr. McKeown requested additional nominations from the floor.

Hearing none, Mr. Tom Gdala moved for approval to elect Mr. Mike Hodge, P.E. as Chair Pro Tem for the July 24, 2023 meeting of the CAMPO TAC.

Ms. Emily Barron seconded the motion.

The motion prevailed unanimously.

Present:

	Member	Representing	Member Attending	Alternate Attending
1.	Stevie Greathouse	City of Austin	Y	
2.	Cole Kitten	City of Austin	Y	
3.	Richard Mendoza, P.E.	City of Austin	N	
4.	Tom Gdala	City of Cedar Park	Y	
5.	Nick Woolery	City of Georgetown	Y	

6.	Amber Schmeits	City of Kyle	N	
7.	Ann Weis	City of Leander	Y	
8.	Emily Barron	City of Pflugerville	Y	
9.	Gary Hudder, Vice Chair	City of Round Rock	N	Gerald Pohlmeyer
10.	Laurie Moyer, P.E., Chair	City of San Marcos	N	
11.	Aimee Robertson	Bastrop County	Y	
12.	Doug Haggerty	Bastrop County (Smaller Cities)	Y	
13.	Greg Haley, P.E.	Burnet County	Y	
14.	Mike Hodge, P.E.	Burnet County (Smaller Cities)	Y	
15.	Will Conley	Caldwell County	N	
16.	David Fowler, AICP	Caldwell County (Smaller Cities)	Y	
17.	Jerry Borcherding	Hays County	Y	
18.	Angela Kennedy	Hays County (Smaller Cities)	N	Aaron Reed
19.	Charlie Watts	Travis County	Y	
20.	Cathy Stephens	Travis County (Smaller Cities)	N	Melissa Zone
21.	Bob Daigh, P.E.	Williamson County	Y	
22.	Tom Yantis	Williamson County (Smaller Cities)	N	
23.	David Marsh	CARTS	N	
24.	Mike Sexton, P.E.	CTRMA	Y	
25.	Sharmila Mukherjee	Capital Metro	Y	Nadia Barrera-Ramirez
26.	Heather Ashley-Nguyen, P.E.	TxDOT	Y	Akila Thamizharasa

2. Approval of May 22, 2023 Meeting Summary

..... Mr. Gary Hudder, Vice Chair

Chair Pro Tem Hodge entertained a motion for approval of the May 22, 2023 meeting summary, as presented.

Mr. Bob Daigh, P.E. moved for approval of the May 22, 2023 meeting summary, as presented.

Mr. David Fowler seconded the motion.

The motion prevailed unanimously.

3. Discussion and Recommendation on Amendments to the 2023-2026 Transportation Improvement Program (TIP) and 2045 Regional Transportation Plan (RTP)

..... Mr. Ryan Collins, CAMPO

Chair Pro Tem Hodge recognized Ms. Heather Ashley-Nguyen, P.E., TxDOT-Austin District who served as presenter in the absence of Mr. Ryan Collins. Ms. Ashley-Nguyen informed the Committee that an open house was held for the 2023 Summer amendment cycle for the 2023-2026 TIP and 2045 RTP on July 17, 2023 and noted that the public comment period is still ongoing. Ms. Ashley-Nguyen presented and discussed the amendment cycle schedule and requested amendments for the 2023 out of cycle summer amendment and noted that the TxDOT-Austin District is working very hard to bring projects forward in order to focus on the deferred projects.

Mr. Chad McKeown later provided a summary of key considerations for the 2023 Summer and Fall amendment cycles. Mr. McKeown informed the Committee that the amendments as presented would normally be processed in the Fall amendment cycle. Mr. McKeown added that TxDOT Transportation and Planning made a statewide request for Metropolitan Planning Organizations (MPOs) to adjust their amendment schedules to ensure coordination with the Statewide Transportation Improvement Program (STIP) and Unified Transportation Program (UTP). Mr. McKeown reported that no other amendment requests were submitted by the June 6, 2023 deadline for the Fall amendment cycle. The Committee was informed that the submittal deadline for the Spring 2024 amendment cycle is November 10, 2023. However, amendments for the Spring 2024 amendment can be submitted to CAMPO anytime prior to November 10, 2023.

Mr. McKeown informed the Committee that the public comment period is open for 30 days which meets the requirement of CAMPO's Public Participation Plan and closes on July 31, 2023. Mr. McKeown noted that CAMPO's preference is to have the public comment period close prior to requesting TAC recommendation but the schedule did not allow for this amendment cycle. Mr. McKeown further noted that Transportation Policy Board members will receive a copy of the public comments received for review seven (7) days in advance of the next Transportation Policy Board meeting. The Committee was informed that no public comments have been received to date. The presentation was concluded by a brief question and answer with comments.

CAMPO staff and the TxDOT-Austin District requested that the TAC make a technical recommendation to the Transportation Policy Board regarding the amendment process and submitted amendments.

Chair Pro Tem Hodge entertained a motion for approval of a technical recommendation to the Transportation Policy Board regarding the amendment process and submitted amendments.
Mr. Bob Daigh, P.E. moved for approval of a technical recommendation to the Transportation Policy Board regarding the amendment process and submitted amendments.

Mr. Mike Sexton seconded the motion.

The motion prevailed unanimously.

4. Update on Project Readiness Program

.....Mr. Chad McKeown, CAMPO and Mr. Eric Busker, P.E., BGE, Inc.

Chair Pro Tem Hodge recognized Mr. Chad McKeown who introduced Mr. Eric Busker, P.E. of BGE, Inc. and CAMPO's General Engineering Consultant (GEC) team as presenter of the update for the Project Readiness Program.

Mr. Busker presented and discussed the project readiness schedule and provided an update on the following projects:

1. FM 969 moved from calendar year 2024 to calendar year 2023
2. FM 973 agreement to update the project limits
3. FM 734 alternative evaluations and stakeholder engagements are ongoing

Mr. Busker also informed the Committee of upcoming follow-up with stakeholders along FM 973 to ensure that adjacent local transportation plans do not conflict. The presentation was concluded by a brief question and answer with comments.

5. Report on Transportation Planning Activities

Mr. Will Lisska, CAMPO Regional Planning Manager reminded the Committee to sign up for the Notice of Funding Opportunities (NOFOs) mailing list through the U.S. DOT website to be notified of new discretionary grant opportunities. Mr. Lisska identified and briefly discussed specific NOFOs of interest.

Ms. Sharmila Mukherjee, CapMetro reported that CapMetro received a $18 million RAISE Grant for double tracking along the Red Line Rail, on a segment would also be useful on the future Green Line Rail, as well as the Plaza Saltillo Station Expansion.

6. TAC Chair Announcements

Chair Pro Tem Hodge announced the next Transportation Policy Board Meeting will be held on August 14, 2023 at 2:00 p.m. and the next Technical Advisory Committee will be held on August 21, 2023 at 2:00 p.m.

7. Adjournment

The July 24, 2023 meeting of the CAMPO Technical Advisory Committee was adjourned at 2:23 p.m.

Date:	October 16, 2023
Continued From:	April 24, 2023
Action Requested:	Information

To:	Technical Advisory Committee
From:	Mr. Greg Lancaster, Travel Demand Modeling Manager
Agenda Item:	3
Subject:	Update on 2050 Travel Demand Model

RECOMMENDATION

None. Information only.

PURPOSE AND EXECUTIVE SUMMARY

Provide information concerning the 2050 CAMPO Travel Demand Model delivery.

FINANCIAL IMPACT

None.

BACKGROUND AND DISCUSSION

All rounds of review have been completed and the Texas Department of Transportation (TxDOT) along with their consultant team at AECOM have delivered the 2020, 2025, 2030 and 2050 travel demand models for CAMPO. The 2030 network has been derived using the current Transportation Improvement Program (TIP) and the 2050 network is the current 2045 Regional Transportation Plan (RTP) network and reflects the most current design of the IH 35 project which was recently issued a Final Environmental Impact Statement Record of Decision. The model update will be used in the development of the 2050 RTP.

SUPPORTING DOCUMENTS

None.

Date:	October 16, 2023
Continued From:	N/A
Action Requested:	Information

To:	Technical Advisory Committee
From:	Mr. Nirav Ved, Data and Operations Manager
Agenda Item:	4
Subject:	Update on Regional Freight Plan

RECOMMENDATION

None. This item is for information only.

PURPOSE AND EXECUTIVE SUMMARY

Mr. Ved will provide an update on the ongoing efforts in developing the Regional Freight Plan.

FINANCIAL IMPACT

None.

BACKGROUND AND DISCUSSION

CAMPO last adopted a Regional Freight Plan in March 2008. Since that time, the region has experienced a numerous amount of changes in population, demographics, travel patterns, shopping habits, and freight logistics. In December 2022, CAMPO staff and its consultant team, led by Cambridge Systematics, began work on developing a new Regional Freight Plan. This presentation will detail the first phase of that effort which will provide an examination of the existing freight conditions for the region. Future TAC meetings will include presentations on regional freight trends and recommendations on how to address freight-related challenges.

SUPPORTING DOCUMENTS

Attachment A – *Regional Freight Plan – Existing Conditions Report*
Attachment B – *Existing Conditions Report – Appendix A*
Attachment C – *Existing Conditions Report – Appendix B*

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Freight Plan

Existing Conditions Report

Final 1: July 5, 2023

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Acronyms

AADTT – Average Annual Daily Truck Traffic

AAMPO - Alamo Area Metropolitan Planning Organization

ABIA – Austin-Bergstrom International Airport

ASPM – Aviation System Performance Metrics

ATRI – American Transportation Research Institute

CAMPO – Capital Area Metropolitan Planning Organization

CapMetro – Capital Metropolitan Transportation Authority

DOA – City of Austin Department of Aviation

CRFC - Critical Rural Freight Corridors

CRIS – Crash Records Information System

CUFC – Critical Urban Freight Corridors

EIA – Energy Information Administration

ETJ – Extraterritorial Jurisdiction

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FHWA – Federal Highway Administration

FM – Farm-to-Market

HGL – Hydrocarbon Gas Liquids

IIJA – Infrastructure Investment and Jobs Act

IRI – International Roughness Index

KTMPO - Killeen-Temple Metropolitan Planning Organization

LMI – Labor Market Information

LP - Loop

MPO – Metropolitan Planning Organization

NAICS – North American Industry Classification System

NHFN – National Highway Freight Network

NHFP - National Highway Freight Program

NMFN – National Multimodal Freight Network

NPMRDS – National Performance Management Research Data Set

NRI – National Risk Index

OEM – Original Equipment Manufacturers

OS/OW – Oversize/Overweight

PHFS – Primary Highway Freight System

POLA/POLB – Port of Los Angeles and the Port of Long Beach

RM – Ranch-to-Market

RTP – Regional Transportation Plan

SH – State Highway

SL – State Loop

SS – State Spur

THFN – Texas Highway Freight Network

TMFN – Texas Multimodal Freight Network

TOFC/COFC – Rail Trailer on Flatcar or Container on Flatcar

TTI – Texas A&M Transportation Institute

TTTR – Truck Travel Time Reliability

TxDMV – Texas Department of Motor Vehicles

TxDOT – Texas Department of Transportation

TxFAC – Texas Freight Advisory Committee

UP – Union Pacific

VMT – Vehicle Miles Travelled

Introduction/Overview

The Capital Area region, a six-county metropolitan area in Central Texas, has experienced rapid growth and economic development in recent years. A key aspect of this growth is an increase in freight and the movement of goods by truck, rail, pipeline, and air. Efficient freight movement is crucial to the competitiveness of the region's businesses and industries, and the overall way of life for its residents. Recognizing this importance, the Capital Area Metropolitan Planning Organization (CAMPO) is developing a Freight Plan that will highlight the importance of freight to the region and inform the Regional Transportation Plan (RTP) by identifying policies, strategies, and investments to enhance the performance and safety of the multimodal freight network.

Project Background and Purpose

CAMPO's six-county region is comprised of Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson counties. The total land area for the region is 5,215 square miles or roughly the size of Connecticut. The region is traversed by IH 35, a national corridor for trade, commerce, and passenger travel that connects major cities in Texas, spanning 21 counties from the border with Mexico to Oklahoma. The CAMPO region itself is diverse geographically, with the population concentrated in the urban metropolitan core in Travis County and a variety of established and emerging suburbs, historic towns, and rural areas in the surrounding counties. These areas generate and attract freight, each providing a unique set of industries and challenges.

Since the last regional freight plan in 2008, several forces have contributed to the increasing demand for freight transportation in the CAMPO region. First, the growth of e-commerce carried over from the COVID-19 pandemic has significantly increased the demand for last-mile delivery services, which has increased the demand for truck transportation and warehousing. Second, the region has experienced tremendous population growth, resulting in an overall higher demand for goods and services. Finally, growing key freight-intensive industries in the region, such as automobile and semiconductor production, have increased the need to transport raw materials, finished goods, and equipment. These factors underscore the importance of efficient and reliable freight transportation in the CAMPO region.

The purpose of this existing conditions report is to provide insights into freight transportation in the CAMPO region and help in developing regional planning and policy decisions. To that end, this report has four objectives:

- Provide an overview of the existing multimodal freight network and its assets;
- Assess the conditions and performance of the freight network, including key topics such as safety, mobility, and reliability;
- Analyze the role of land uses in the region, specifically those that generate freight activity; and
- Examine the role of key supply chains in the region, identifying critical industries and their transportation needs.

To achieve these goals, this report comprehensively analyzes the freight transportation network in the CAMPO region. Drawing from publicly available data, data acquired by CAMPO, and datasets from Texas Delivers 2050,[1] the latest statewide freight mobility plan, this Existing Conditions report details the characteristics and needs of each mode and how they influence freight mobility in the CAMPO region. Conversely, this report will also describe how the CAMPO region's freight-intensive industries influence freight movements, including an analysis of trip flows and freight generators within the region.

The following bullets summarize key findings in the existing conditions analysis regarding highway infrastructure, non-highway infrastructure, and freight-intensive industries/supply chains.

Highway Infrastructure

- IH 35 is the primary corridor for freight movement, as well as the most highly utilized and most congested. It serves critical industries in the region, connecting supply chains with manufacturers, suppliers, and markets in the urban areas of the Texas Triangle and beyond. Trucks utilize the corridor for long-haul trips and also for shorter, interregional trips. Automotive manufacturing, electronics, warehousing, and mining/quarrying are key freight-generating industries that cluster in proximity to IH 35.
- The congestion on IH 35 leads to trucks using SH 130 as a bypass around the Austin-Round Rock metro area in Travis and Williamson counties. Trips bound to and from IH 10 in Caldwell County utilize SH 130 to bypass the congestion on IH 35 between San Antonio and Austin.
- Other key north-south corridors include US 281 in Burnet County and US 183, which traverses most of the region from Caldwell County through Travis, Williamson, and Burnet counties. To the east, SH 95 connects Bastrop and Williamson counties.
- Principal arterials consisting of US highways, state highways, and RM/FM roads provide key east-west connectivity with the primary freight corridors on IH 35, US 183, and SH 130. On these types of roadways, delay and travel time unreliability are the highest in Travis County. Additionally, US 290 and SH 71 provides east-west connectivity with Houston and other regions along the Texas Gulf Coast; these longer distance trips benefit from having access to maritime gateways for domestic and international trade.
- The pavement condition for the roadway network in the region is rated mostly fair or better. Only 4% of the roadway mileage is rated poor.
- Most of the overpasses that carry the Texas Highway Freight Network (THFN) are in good or better condition (87% of the total). Most of the underpasses on the THFN are 16.5 feet or taller (59%), with nearly 20% of the underpasses meeting the updated vertical clearance standard of 18.5 feet to accommodate oversize vehicles.
- Nearly all of the overpasses on IH 35 are also in good or better condition (98% of the total). Most of the underpasses on IH 35 are 16.5 feet or taller (63%), with 9% of the underpasses meeting the updated vertical clearance standard of 18.5 feet.

[1] https://www.txdot.gov/projects/planning/freight-planning/texas-delivers-2050.html

Non-Highway Infrastructure

- Austin-Bergstrom International Airport (ABIA) is the only commercial airport in the region and is an important gateway for high-value freight arriving from the rest of the U.S. and the world. Since 2020, congestion at ABIA has increased as air traffic recovers from the COVID-19 pandemic.
- Pipelines are an element of the multimodal freight network and are used for the bulk transport of liquefied products and natural gas. Pipelines supply product terminals with motor gasoline and other fuels that are distributed to homes, businesses, and industries by truck.
- The freight rail network consists of Class I and Class III railroads. The Class I rail corridor through the CAMPO region complements IH 35 and SH 130 in facilitating north-south freight movements. The region lacks a major rail hub, so much of the long-haul movement by rail passes through. The Class III railroads provide east-west connections to the Class I network and serve mining and agriculture supply chains.

Freight-Intensive Industries and Supply Chains

- Freight-intensive industries are important to the regional economy. Employment in these sectors represents nearly 3 out of every 10 jobs. Most of the activity is concentrated in Williamson and Travis counties.
- Supply chains for key Texas industries in the region are clustered along the IH 35 corridor. Establishments for automotive, semiconductors, warehousing, and construction materials are concentrated in Williamson and Travis counties. Other freight-intensive sectors such as agriculture and energy are located in the surrounding counties and are served by east-west corridors such as SH 29, US 79, SH 71, and US 290.
- Manufacturing supply chains in the CAMPO region are connected to markets and suppliers in the major urban areas of the Texas Triangle. The THFN and rail provide connectivity to those areas, as well as the trade gateways along the border with Mexico and on the Texas Gulf Coast.

Report Organization

This document is one of the deliverables as defined under Task 3 – Existing Conditions Report from the scope of work for Cambridge Systematics, Inc.'s project number 220134. The remainder of this document is organized into the following sections:

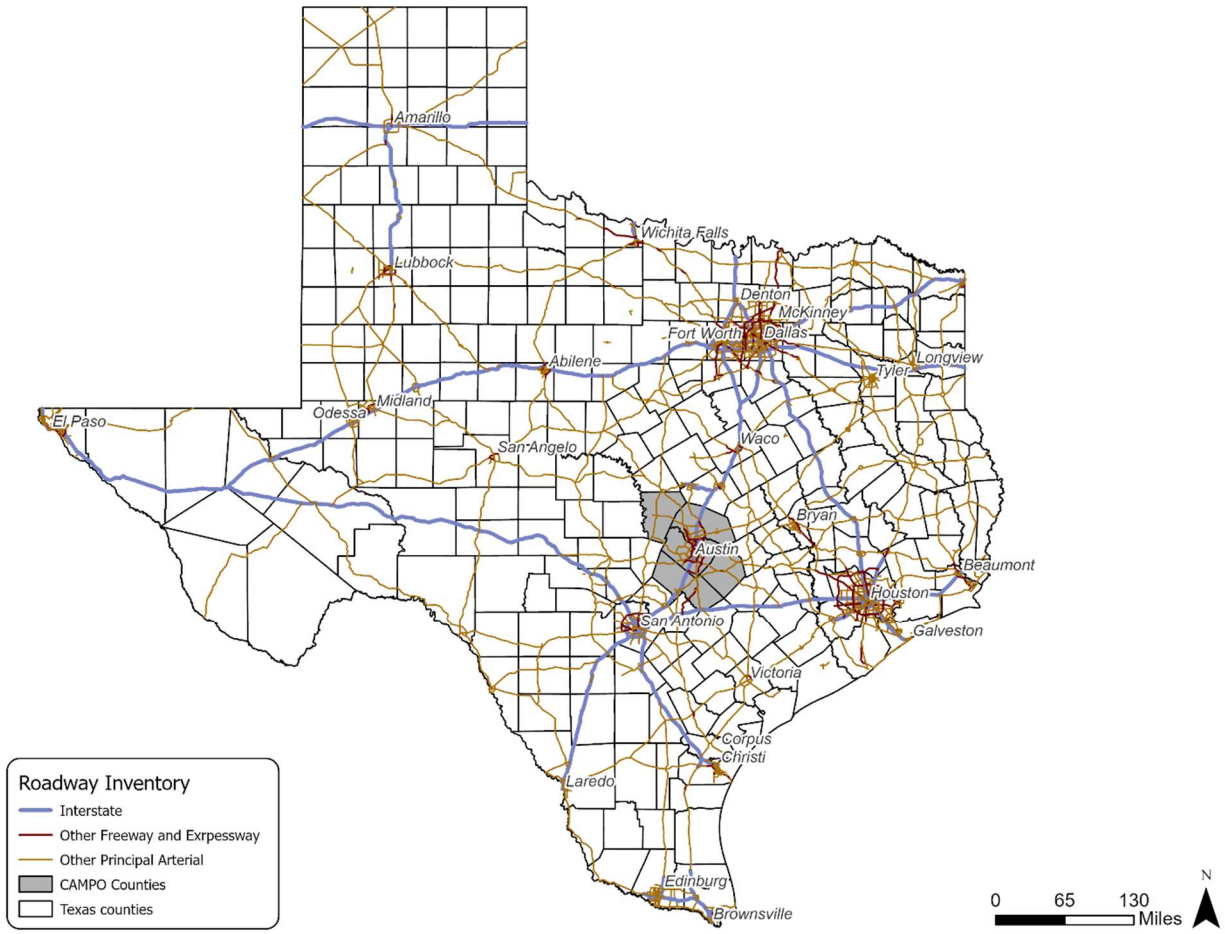
- **Highway, Rail, Airport, and Pipeline Asset**s: These sections together identify the freight transportation assets in the CAMPO region and provide an overview of the current condition and performance of each mode.
- **Equity**: This section identifies equity populations in the CAMPO region and how much of the highway freight network comes in proximity to minority populations and populations living in poverty.
- **Resiliency**: This section evaluates how much of the highway freight network intersects areas of the region that have a high risk exposure to natural disasters according to federal definitions.

- **Freight Trip Origins and Destination**s: This section identifies the origins and destinations for truck trips that originate or end in the CAMPO region.
- **Freight Generators**: This section identifies the location of existing industrial land uses that supports freight-intensive activity. The analysis looks at where the establishments for key supply chains are concentrated in the CAMPO region and the freight transportation activity that those industries generate.
- **Conclusion/Next Steps**: This section summarizes how the existing conditions analysis will inform next steps in the development of the regional freight plan.

Highway Assets

Highways are the most extensive component of CAMPO's freight network infrastructure. Highways directly connect population centers, freight-generating businesses, and the broader economic system both within the region and beyond. Figure 1 shows the CAMPO region's counties in relation to the statewide roadway network, which connects Central Texas to suppliers and consumers in markets around the state and with gateways to domestic and international trade.

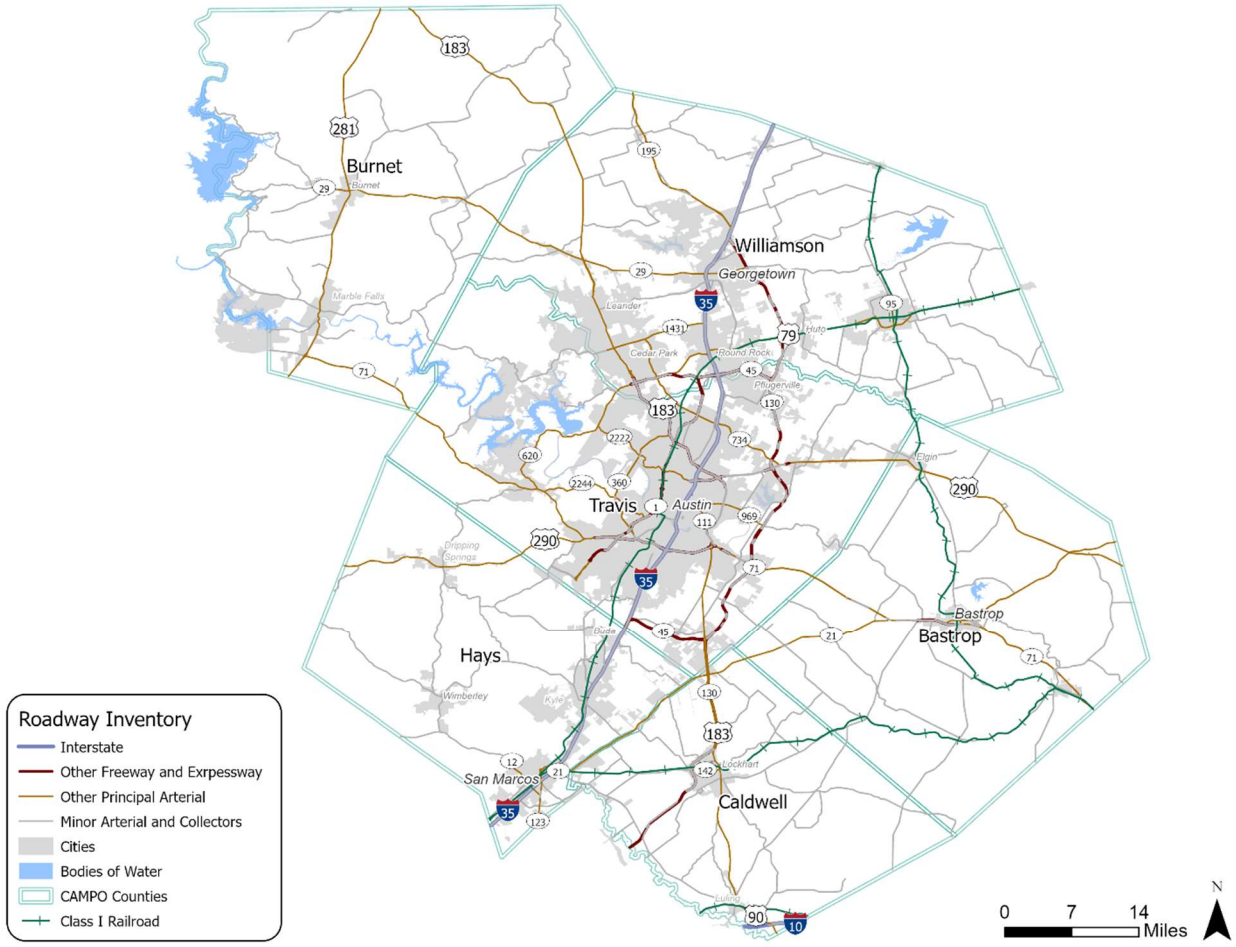
Figure 1: CAMPO Counties and Texas Statewide Roadway Network



Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

Figure 2 provides a comprehensive view of the major corridors within the six-county region. Austin and IH 35 have clearly influenced the region's development pattern, with the urbanized area extending north-south through Williamson, Travis, and Hays counties. In most cases, towns and population centers in the more rural counties (Bastrop, Burnet, Caldwell) connect back to this urban core through a network of highways and principal arterials. CAMPO's position within the Texas Triangle megaregion connects it to the large Dallas-Fort Worth and San Antonio metropolitan areas via IH 35 to the north and south and Houston to the east via IH 10 and US 290. In addition, the network of interstates and U.S. and state highways provides connectivity between the CAMPO region and gateways to domestic and global trade.

Figure 2: Inventory of Roadways in the Capital Area Region



Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

Functional Classification

The following analysis uses geographic databases maintained by the Texas Department of Transportation (TxDOT) and the Federal Highway Administration (FHWA). The TxDOT Roadway Inventory is a statewide public road database published annually in FHWA's Highway Performance Monitoring System Program and internal TxDOT inventory reports.[2] The database includes information on functional classification, physical features, traffic, and population data. Mileage, unless otherwise stated, references centerline miles.

[2] https://www.txdot.gov/data-maps/roadway-inventory.html

Table 1 shows the total mileage by county for each functional classification within the TxDOT roadway inventory. Functional classification is a definition maintained by the FHWA that defines roadways based on the roadway and traffic characteristics, mainly access, continuity, and connectivity:

- **Interstates** – functional classification indicates roadways that are part of the Interstate system. These are usually access-controlled highways (e.g., access and egress limited on- and off-ramps, limited at-grade intersections, directional travel lanes separated by a physical median, and have an overall high mobility design). These roadways span large portions of the U.S., connecting major urban centers in states nationwide.
- **Other Freeway and Expressways** – in terms of physical design, these roadways have all the features of interstates though they are not part of the interstate system.
- **Other Principal Arterial** – these roadways tend to serve longer trips and have a high-mobility design as the previous two functional classifications but only have partial or uncontrolled access.
- **Minor Arterial** – these roadways tend to short to moderate length intracommunity trips, with moderate mobility and limited access control.
- **Major and minor collectors** – these roadways funnel traffic from local roads onto arterial routes. Major and minor roadways are somewhat subjective, with major roadways having higher speeder limits, fewer access points, and higher traffic volumes.
- **Local roads** – this classification is the largest in terms of mileage and accounts for all not otherwise classified roadways. They tend to disallow thru-traffic, serve small trip lengths, and have many access points.

Table 1: Roadway Functional Class Mileage by County

Functional Classification	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	Williamson County
Interstate (miles)	0 (0%)	0 (0%)	15 (2%)	73 (5%)	99 (2%)	89 (2%)
Other Freeway and Expressway (miles)	10 (1%)	0 (0%)	67 (7%)	0 (0%)	398 (7%)	132 (3%)
Other Principal Arterial (miles)	175 (12%)	95 (9%)	54 (6%)	53 (3%)	265 (5%)	272 (7%)
Minor Arterial (miles)	42 (3%)	11 (1%)	45 (5%)	78 (5%)	359 (6%)	191 (5%)
Major Collector (miles)	178 (12%)	162 (16%)	154 (17%)	233 (15%)	718 (13%)	538 (13%)
Minor Collector (miles)	68 (5%)	91 (9%)	57 (6%)	18 (1%)	129 (2%)	88 (2%)
Local roads (miles)	1,040 (69%)	679 (65%)	530 (58%)	1,113 (71%)	3,772 (66%)	2,865 (69%)
Total	1,514 (100%)	1,039 (100%)	922 (100%)	1,568 (100%)	5,741 (100%)	4,174 (100%)

Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

The TxDOT roadway inventory uses on and off-system designations to indicate maintenance responsibilities for the state's roadway network. Table 2 shows the on-off system designation by county. Overall, TxDOT maintains 22% of the roadway mileage in the CAMPO region. However, across the different counties, that average is split between the rural and urbanized counties somewhat unevenly. The rural counties of Bastrop, Burnet, and Caldwell have a slightly higher percentage of their roadway mileage designated as on-system. For instance, Caldwell has the highest percentage at 40%. The percentages for the urbanized counties are slightly lower. Williamson, for example, only has 18% of its roadway mileage maintained by TxDOT, and Hays and Williamson counties have 22% and 20%, respectively.

Counties and cities maintain the vast majority of total roadway centerline mileage, representing 77% of the total combined. Most freight trips will eventually use TxDOT's on-system network, but local arterial roadways are the final connections to consumers of other freight destinations.

Table 2: TxDOT On and Off-System Roadway Mileage by County

Roadway Type	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	Williamson County	Total
On-System Mainlines	414	296	327	291	821	740	2,889
On-System Right Frontage Road	10	0	21	26	109	50	216
On-System Left Frontage Road	6	0	16	26	107	51	208
On-System Total	**430 (28%)**	**296 (29%)**	**364 (40%)**	**344 (22%)**	**1,037 (18%)**	**841 (20%)**	**3,313 (22%)**
County Road	949	481	427	782	1,386	1,564	5,590
City Street	135	260	129	438	3,207	1,686	5,855
Non-TxDOT Toll Authority Road	0	0	0	1	58	43	102
Federal Road	0	0	0	3	2	26	31
Off-System Total	**1,084 (72%)**	**741 (71%)**	**556 (60%)**	**1,225 (78%)**	**4,653 (82%)**	**3,319 (80%)**	**11,578 (78%)**
Total	1,514 (100%)	1,037 (100%)	920 (100%)	1,569 (100%)	5,690 (100%)	4,160 (100%)	14,891 (100%)

Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

National Highway Freight Network (NHFN)

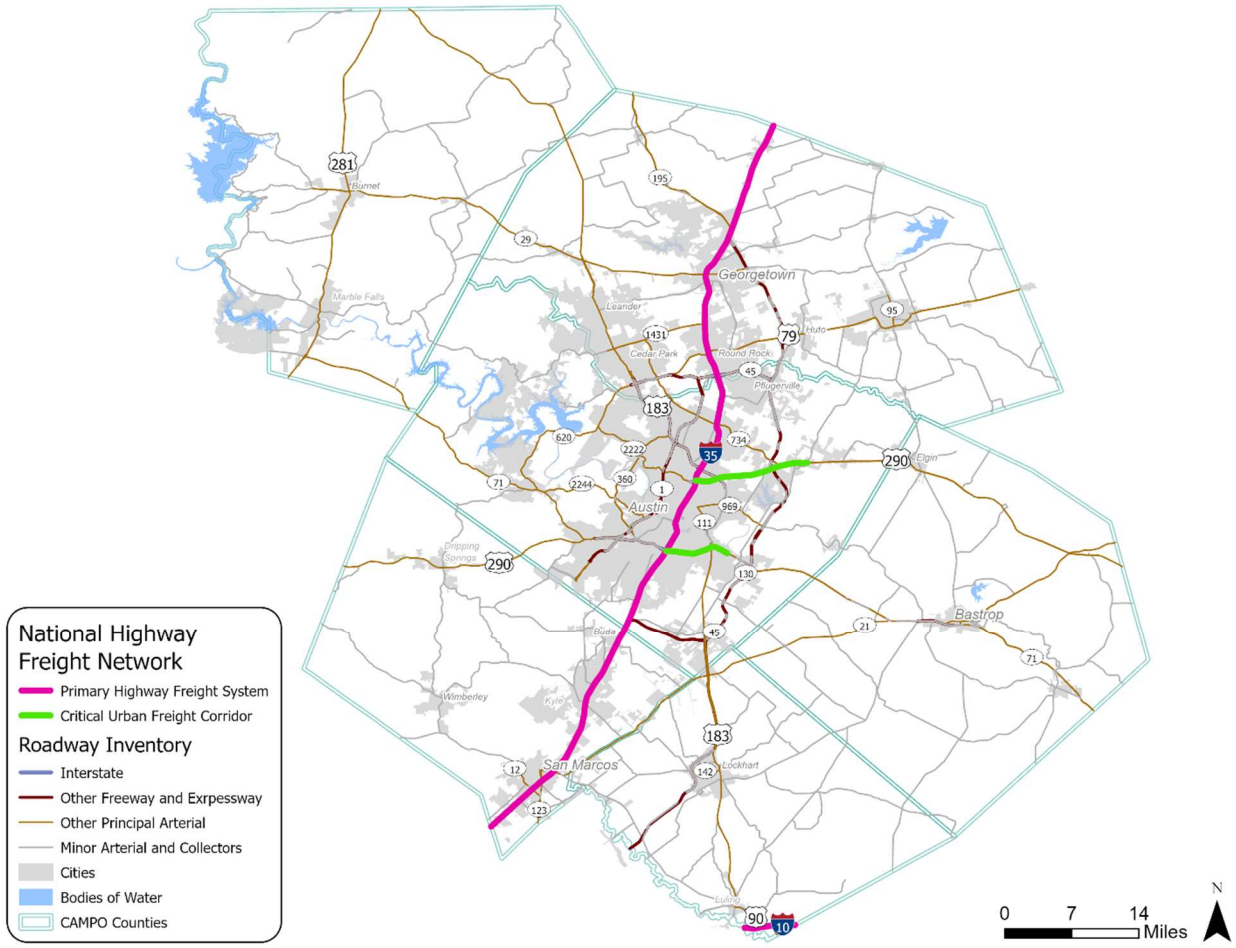
The National Highway Freight Network (NHFN) is a system of federally designated roadways that the FHWA uses to prioritize policy and funding for improving highway performance on facilities used to transport freight.[3] The Fixing America's Surface Transportation (FAST) Act required the FHWA to establish an NHFN, which has been continued under the recent Infrastructure Investment and Jobs Act (IIJA). Figure 3 shows the portions of the NHFN designated within the CAMPO region. The NHFN includes all of IH 35 and IH 10 within CAMPO and portions of US 290 and SH 71.

The NHFN consists of multiple subsystems, including the Primary Highway Freight System (PHFS); the PHFS is a network of highways identified as the most critical portions of the U.S. freight transportation system. The NFHN includes Interstate portions not on the PHFS - Critical Rural Freight Corridors (CRFCs), and Critical Urban Freight Corridors (CUFCs) – that are also critical to freight movement.

In the CAMPO region, IH 35 and IH 10 are designated as parts of the PHFS. CUFCs are designated in partnership between TxDOT and metropolitan planning organizations (MPOs). Federal requirements limit TxDOT to approximately 382 total miles of CUFC corridors statewide, and 16 miles of US 290 and SH 71 within the CAMPO region are designated as CUFCs. There are no CRFCs in the CAMPO region. Projects on the PHFS and the CUFCs are eligible for National Highway Freight Program (NHFP) funds.

[3] https://ops.fhwa.dot.gov/Freight/infrastructure/nfn/index.htm

Figure 3: National Highway Freight Network (NHFN)

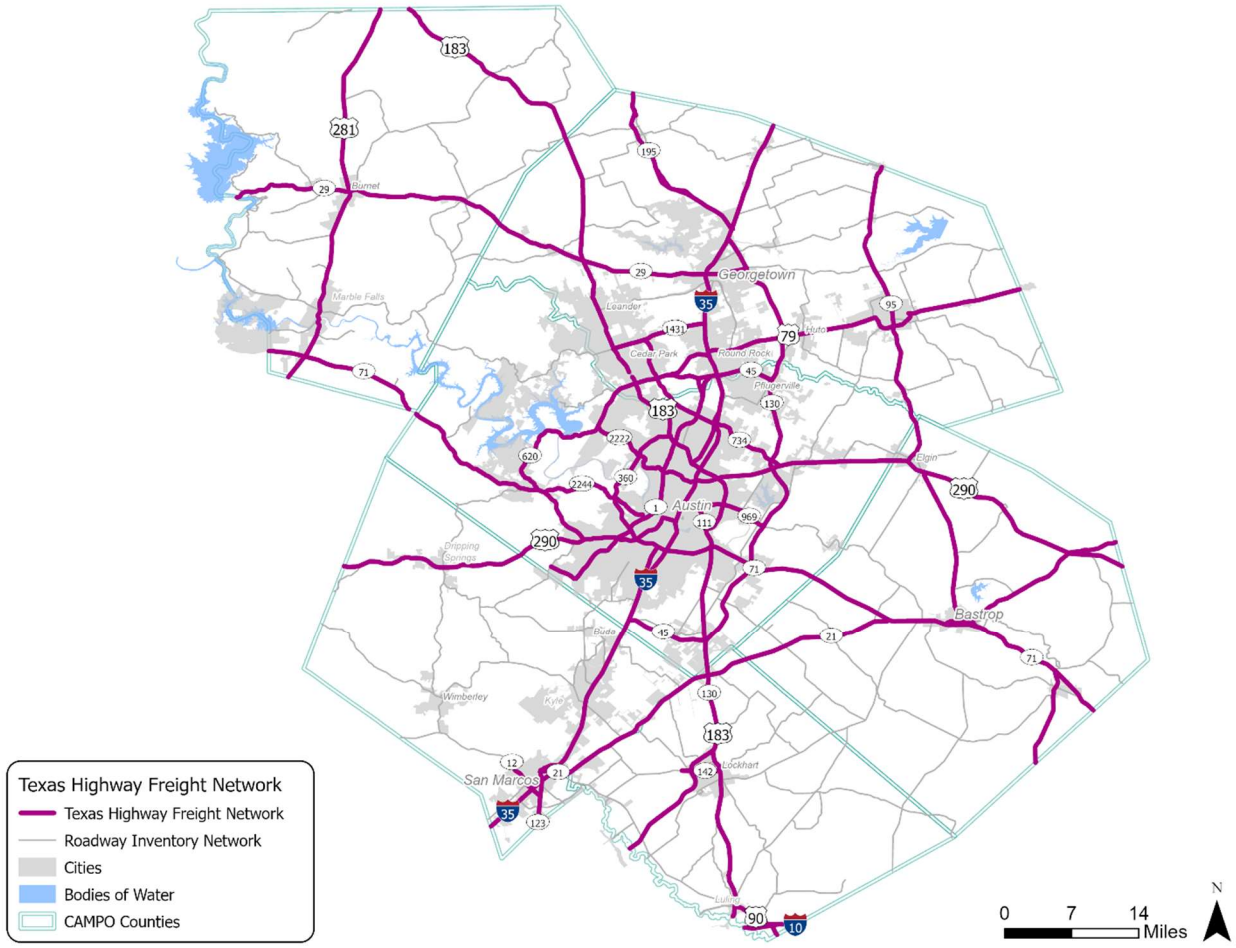


Source: Federal Highway Administration (FHWA). National Freight Network. Available at: https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm

Texas Highway Freight Network (THFN)

The THFN, an element of the Texas Multimodal Freight Network (TMFN), identifies the highway corridors and segments most critical to freight movement for planning and project prioritization. Done in conjunction with Texas Delivers 2050, the designation of the THFN is based on geospatial analysis of freight movement patterns, freight-generating businesses, population and workforce centers, and trade and transportation gateways. As seen in Figure 4 every interstate, freeway, expressway, and most principal arterials in the CAMPO region are included in the THFN. Notably, these roads are the primary connections between counties and provide interconnectivity between urban and rural areas of the region.

Figure 4: Texas Highway Freight Network (THFN)



Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

Table 3 provides a summary of the mileage on the THFN by county. In the CAMPO region, Travis County has the most significant share (34%) of the mileage on the THFN, followed by Williamson County with 25%. Caldwell County has the least mileage, with 7% of the total. Travis County is the only county with roadways in the PHFS and roadways designated as CUFCs.

Table 3: Mileage on the Texas Highway Freight Network (THFN) by CAMPO Counties

County	Primary Highway Freight System Mileage (% of THFN Mileage)	Critical Urban Freight Corridor Mileage (% of THFN Mileage)	Texas Highway Freight Network Mileage
Bastrop	0 (0%)	0 (0%)	119 (14%)
Burnet	0 (0%)	0 (0%)	101 (12%)
Caldwell	5 (5%)	0 (0%)	63 (7%)
Hays	24 (29%)	0 (0%)	70 (8%)
Travis	28 (33%)	16 (100%)	292 (34%)
Williamson	28 (32%)	0 (0%)	211 (25%)
Total	85 (100%	16 (100%)	856 (100%)

Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

Route Restrictions

Route restrictions can apply to commercial vehicles, usually of a specific size, restricting them from using certain roadways. In addition, restrictions apply to vehicles carrying specific loads such as hazardous materials, and to increase safety, specify which routes these vehicles can use. According to TxDOT, the CAMPO region currently has no non-radioactive hazardous materials (NRHM) routes.[4]

TxDOT is the state routing agency in charge of approving NRHM routes in Texas, which is required by state law for cities with a population of 850,000 or greater. The City of Austin is the only municipality in the region that meets the population threshold. The City has developed a draft network of recommended NRHM routes that identifies US 290 and SH 71 as designated through routes for east-west travel and SH 130 for north-south travel to avoid routing NHRM loads through the city on IH 35.[5]

CAMPO currently has no publicly available list of route restrictions. Some truck restrictions can be found at the jurisdictional level by searching jurisdictional websites and records. The City of Austin, for instance, has specific requirements for large commercial vehicles loading and unloading within certain areas of the city.[6] San Marcos and Wimberly both restrict thru-truck traffic within the city limits. These restrictions do not preclude commercial vehicles from entering the jurisdiction for delivery purposes. In 2021, Bastrop County enacted a similar policy on a number of county roads.[7]

[4] TxDOT. Non-radioactive hazardous materials (NRHM) routing maps. Available at: https://www.txdot.gov/data-maps/reference-maps/non-radioactive-hazardous-materials.html
[5] City of Austin. Non-Radioactive Hazardous Route Designation Plan. Available at: https://www.austintexas.gov/department/non-radioactive-hazardous-materials-route-designation-plan
[6] City of Austin. Commercial Vehicle Loading. Available at: https://www.austintexas.gov/loadingpermit
[7] Bastrop County. Ordinance #2021-01. Available at: https://www.co.bastrop.tx.us/upload/page/0283/docs/Ordinance%20Imposing%20Thru%20Truck%20Restriction%20on%20Certain%20Bastrop%20County%20Roads%202021-01%2012%2027%2021.pdf

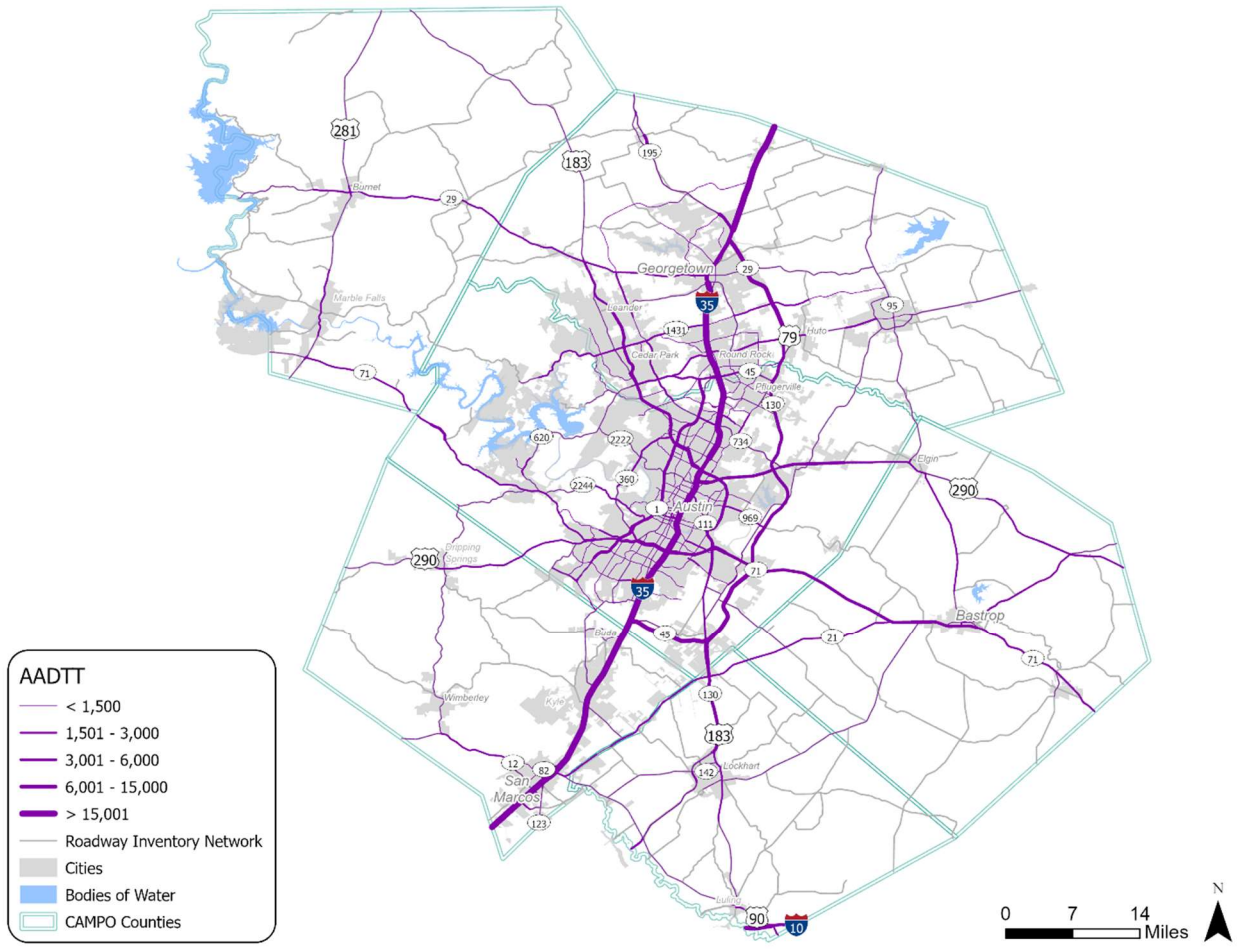
Highway Condition and Performance

This section discusses the performance of highways in the CAMPO region, focusing on mobility measures that assess the efficiency of freight vehicle movements on the roadway network, as well as safety and asset conditions.

Truck Traffic Volumes

Figure 5 shows the Average Annual Daily Truck Traffic (AADTT) for the CAMPO region. IH 35 carries the majority of daily truck traffic in the region, and the additional concentration of traffic on SH 45 and SH 130 results from trucks avoiding the north-south congestion on IH 35 that goes through central Austin from Hays County to Williamson County. Other notable routes tend to be east-west highways connecting Travis and Williamson counties to other urbanized areas such as Bastrop, Lockhart, Leander, and Dripping Springs.

Figure 5: Average Annual Daily Truck Traffic (AADTT), 2021



Source: Texas Department of Transportation (TxDOT). Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

Table 4 lists the top 5 corridors in each county according to AADTT. To identify top corridors by AADTT, segment-level values were aggregated and weighted by the length (in miles) to identify a representative level of truck volume for the corridor.

Table 4: Top Roadway Corridors by Average Annual Daily Truck Traffic (AADTT), 2021

County	Corridor	Functional Classification	Average Annual Daily Truck Traffic (AADTT)	Length (miles)
Bastrop	SH 71	Other Principal Arterial	2,980	76
	SH 21	Other Freeway and Expressway	2,229	74
	US 290	Other Principal Arterial	1,733	49
	SH95	Minor Arterial	1,417	31
	FM 1100	Major Collector	911	2
Burnet	SH 71	Other Principal Arterial	2,417	15
	SH 29	Other Principal Arterial	1,795	26
	US 281	Other Principal Arterial	1,307	46
	US 183	Other Principal Arterial	926	21
	FM 3509	Minor Collector	452	6
Caldwell	IH 10	Interstate	7,529	17
	SH 130	Other Freeway and Expressway	2,507	84
	SH 21	Other Principal Arterial	1,851	7
	SH 80	Minor Arterial	1,086	22
	US 183	Other Principal Arterial	1,029	39
Hays	IH 35	Interstate	12,896	123
	SH 21	Other Principal Arterial	1,620	17
	US 290	Other Principal Arterial	1,472	17
	SH 123	Other Principal Arterial	1,179	6
	SL 82	Other Principal Arterial	1,089	7
Travis	IH 35	Interstate	10,637	158
	71 Toll Lane	Other Freeway and Expressway	5,020	6
	183 Toll	Other Freeway and Expressway	4,767	22
	SH 130	Other Freeway and Expressway	4,216	143
	SH 71	Other Freeway and Expressway	3,714	76
Williamson	IH 35	Interstate	9,983	144
	SH 130	Other Freeway and Expressway	5,123	59
	183A Toll	Other Freeway and Expressway	3,545	32
	SL 1	Other Freeway and Expressway	2,646	3
	RM 620	Other Principal Arterial	2,014	12

Source: Texas Department of Transportation (TxDOT). TxDOT Roadway Inventory (2021). Available at: https://www.txdot.gov/data-maps/roadway-inventory.html

Congestion, Reliability, and Delay

This section discusses key metrics of highway performance that compare the potential performance of a highway under ideal traffic conditions and actual conditions. For example, the IH 35 corridor through Travis and Williamson counties is among the most congested segments in the country. Each year, the American Transportation Research Institute (ATRI) analyzes the top 100 truck bottlenecks in the U.S. and has consistently found IH 35 (from Manor Road to Cesar Chavez Street) in central Austin to be a significant bottleneck. In ATRI's 2023 list, IH 35 was ranked the 32nd worst truck bottleneck in the entire nation.[8]

Texas A&M Transportation Institute (TTI) maintains a list of Texas' most congested truck roadways, using person-hours of delay per mile as the primary measurement for ranking roadway segments.[9] As shown in Table 5, IH 35 from US 290 N to SH 71 ranks first in the whole state for truck delay. Four other segments of IH 35 in Travis and Williamson counties rank within the top 100 roadways. Additionally, US-290/SH-71 from RM 1826 to SL 1 (MoPac Expressway) ranks 79th statewide. The two remaining segments on IH 35 from SH 45 to US 290 are ranked 91st and 98th on TTI's list.

Table 5: Texas A&M Transportation Institute (TTI) List of Top Truck-Congested Roadways in Texas, 2021

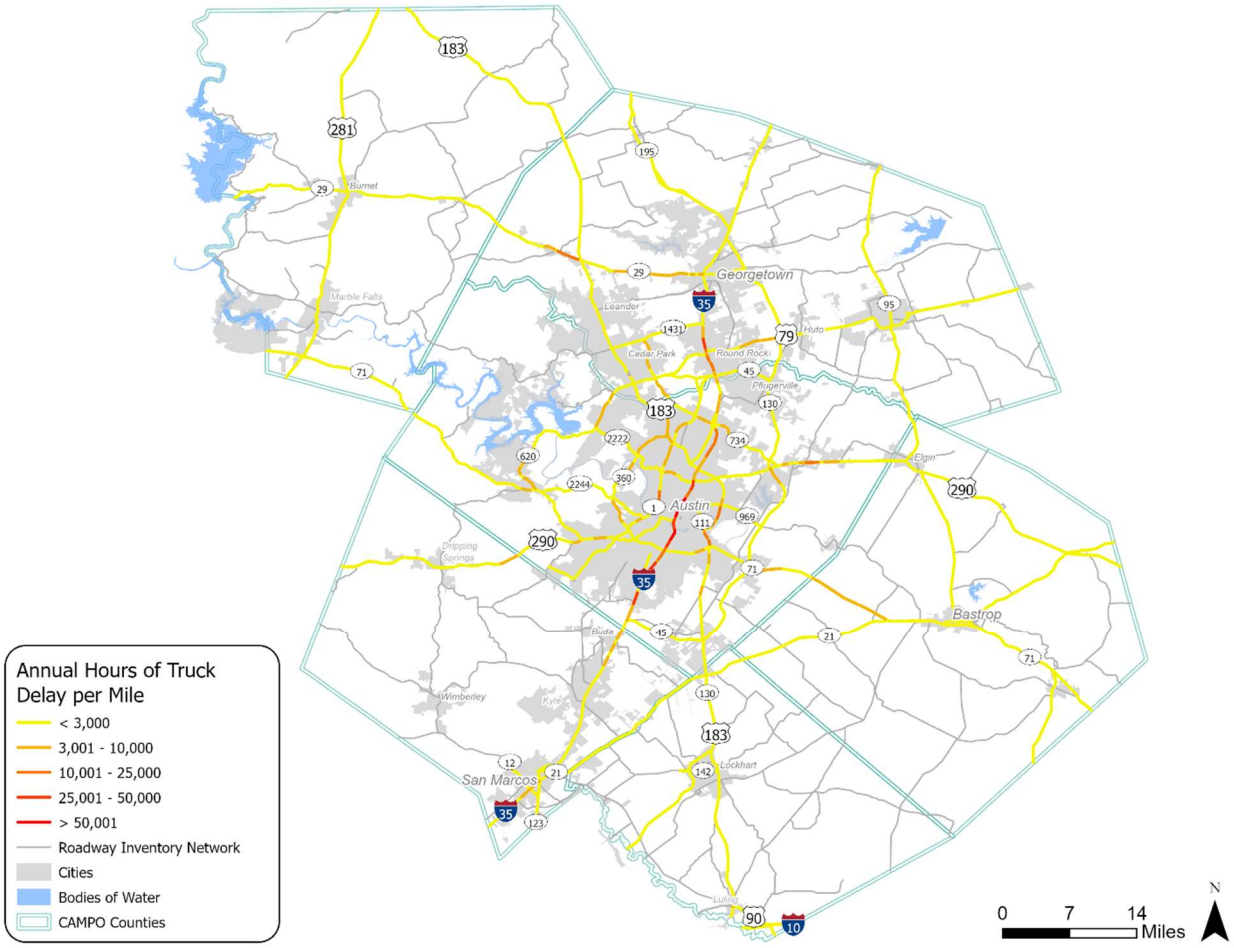
TTI Rank	Road Name	From	To	Annual Hours of Truck Delay/Mile
1	IH 35	US 290 N	Ben White Blvd / SH 71	78,333
13	IH 35	RM 1431	SH 45 / Louis Henna Blvd	35,975
19	IH 35	Ben White Blvd / SH 71	Slaughter Ln	27,897
30	IH 35	Slaughter Ln	SH 45	19,375
79	US 290/SH 71	RM 1826	S MoPac Expy / SL 1	8,381
91	IH 35	SH 45 / Louis Henna Blvd	Parmer Ln / FM734	7,228
98	IH 35	Parmer Ln / FM 734	US 290 N / SS 69	6,854

Source: Texas A&M Transportation Institute (TTI). Texas' Most Congested Roadways. Available at: https://mobility.tamu.edu/texas-most-congested-roadways/

Figure 6 shows the annual hours of truck delay per mile on the THFN according to TTI's analysis of 2019 INRIX data. The IH 35 corridor shows the highest levels of truck delay. However, segments with elevated levels of truck delay are also seen on several other north-south corridors, such as US 183 and SL 360 in Travis County. In addition, high truck delay is seen on east-west corridors such as SH 29 in Williamson County between Burnet and Georgetown, US 79 in Round Rock, and SH 71 in western Bastrop County.

8 American Transportation Research Institute, Top 100 Truck Bottlenecks – 2023. Available at: https://truckingresearch.org/2023/02/07/top-100-truck-bottlenecks-2023/
9 Texas Transportation Institute, Texas' Most Congested Roadways. Available at: https://mobility.tamu.edu/texas-most-congested-roadways/

Figure 6: Annual Hours of Truck Delay per Mile on the Texas Highway Freight Network (THFN), 2019



Source: Texas A&M Transportation Institute (TTI) analysis of INRIX data, 2019.

Table 6 lists the top five (5) corridors in each CAMPO county by annual hours of truck delay per mile. To identify top corridors by hours of truck delay, segment-level values were aggregated and weighted by length to identify a representative level of delay for the corridor. For example, in Travis, Hays, and Williamson counties, IH 35 has the highest levels of truck delay. In the more rural counties of Bastrop, Burnet, and Caldwell counties, principal arterials such as SH 71, US 281, and US 183 are notable corridors with a high level of truck delay.

Table 6: Annual Hours of Truck Delay per Mile Summarized by Corridor and County, 2019

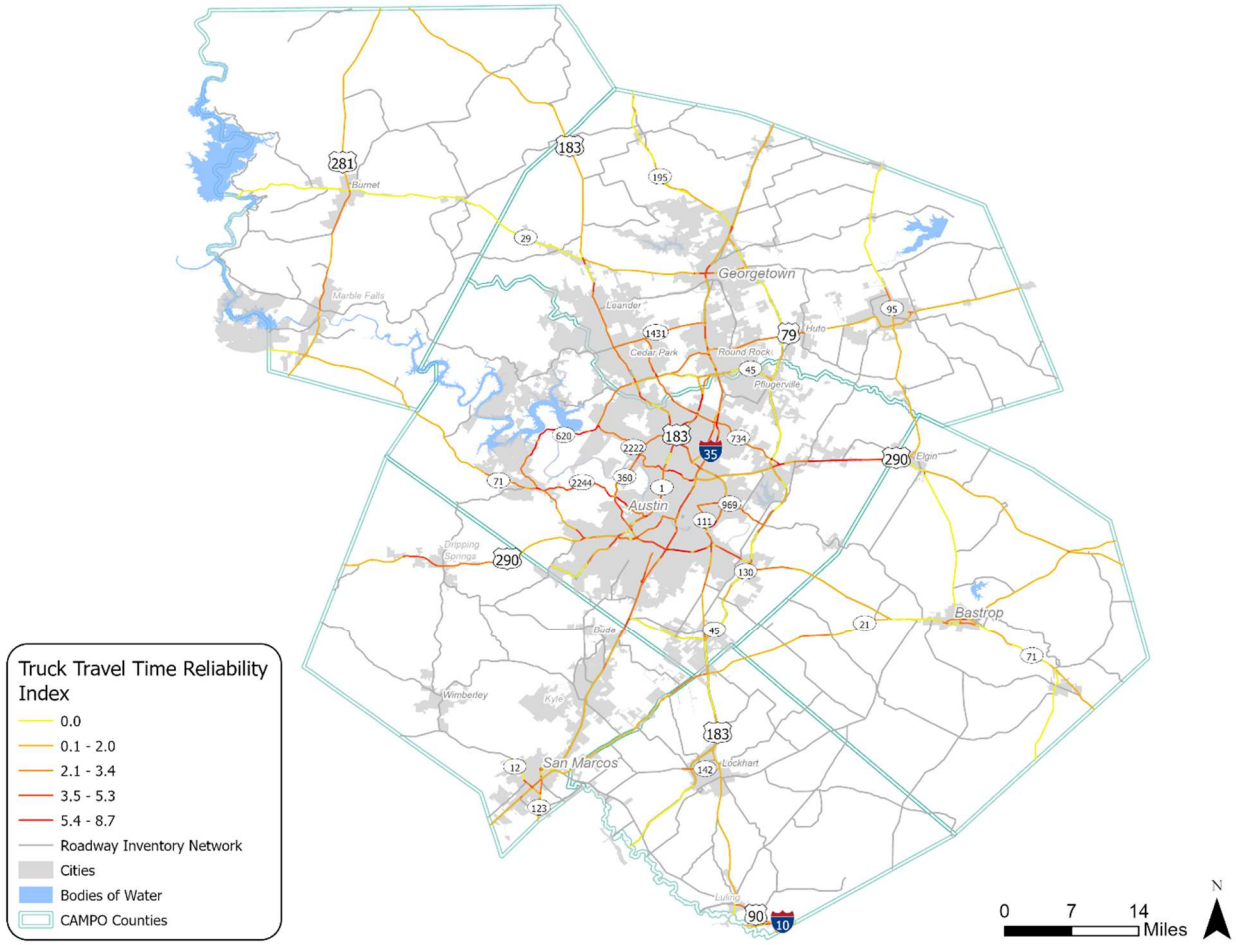
County	Corridor	Functional Classification	Annual Hours of Truck Delay per Mile	Mileage
Bastrop	SL 150	Other Principal Arterial	2,261	2
	SH 71	Other Principal Arterial	960	24
	SH 21	Other Freeway and Expressway	724	38
	US 290	Other Principal Arterial	641	25
	SH 95	Minor Arterial	505	31
Burnet	US 281	Other Principal Arterial	654	40
	SH 29	Other Principal Arterial	592	26
	US 183	Other Principal Arterial	232	21
	SH 71	Other Principal Arterial	113	15
	RM 963	Major Collector	44	0
Caldwell	SH 142	Other Principal Arterial	1,215	3
	US 183	Other Principal Arterial	994	18
	SH 80	Major Collector	959	1
	SH 21	Other Principal Arterial	813	8
	US 90	Other Principal Arterial	634	6
Hays	IH 35	Interstate	3,428	24
	SL 82	Other Principal Arterial	2,597	3
	SH 80	Minor Arterial	2,163	1
	SH 123	Other Principal Arterial	1,983	4
	RM 12	Other Principal Arterial	1,647	5
Travis	IH 35	Interstate	52,613	28
	US 183	Other Freeway and Expressway	6,887	28
	FM 734	Other Principal Arterial	4,104	13
	SL 1	Other Freeway and Expressway	3,852	24
	SL 360	Other Principal Arterial	3,294	14
Williamson	IH 35	Interstate	7,389	28
	SS 377	Major Collector	4,884	1
	SH 29	Other Principal Arterial	3,813	24
	FM 734	Other Principal Arterial	3,516	7
	RM 620	Other Principal Arterial	2,922	6

Source: Cambridge Analysis of truck delay data from the Texas A&M Transportation Institute (TTI), 2019

Truck Travel Time Reliability (TTTR) is defined by comparing truck travel times between a free-flow period with no congestion against normal travel times (95th percentile). The lower the TTTR, the more reliable travel time is, with little difference between the roadway's optimal performance and typical traffic patterns. Figure 7 maps TTTR on the THFN, and Table 7 summarizes this information by corridor for each county in the region.

While truck delay in the region is more concentrated along specific corridors/segments, reliability is an issue across the region. Several parts of the region experience high levels of congestion during peak travel periods, with non-recurring events such as incidents and inclement weather causing additional delays and variability in travel times. For truck drivers, this means adding buffer time to a trip or taking circuitous routes to avoid congestion to ensure on-time arrival, which increases vehicle miles traveled and leads to higher transport costs. While travel delay is concentrated along IH 35, it is important to note that travel time unreliability can still impact less congested roadways, particularly on the east-west connecting with IH 35 and corridors that provide parallel north-south access.

Figure 7: Truck Travel Time Reliability Ratio (TTTR) on the Texas Highway Freight Network (THFN), 2019



Source: Cambridge Systematics Analysis of the National Performance Management Research Data Set (NPMRDS), 2019.

Table 7: Truck Travel Time Reliability (TTTR) Summarized by Corridor and County, 2019

	Corridor	Functional Classification	Truck Travel Time Reliability (TTTR)	Length (miles)
Bastrop	SL 150	Other Principal Arterial	2.3	2
	US 290	Other Principal Arterial	1.3	25
	SH 21	Other Freeway and Expressway	1.2	38
	SH 71	Other Principal Arterial	1.2	24
	SH 95	Minor Arterial	0.2	31
Burnet	US 281	Other Principal Arterial	1.7	40
	RM 963	Major Collector	1.2	0
	US 183	Other Principal Arterial	1.2	21
	SH 71	Other Principal Arterial	1.1	15
	SH 29	Other Principal Arterial	<0.1	26
Caldwell	SH 142	Other Principal Arterial	2.0	3
	IH 10	Interstate	2.0	5
	SH 21	Other Principal Arterial	1.7	8
	US 90	Other Principal Arterial	1.5	6
	US 183	Other Principal Arterial	1.4	18
Hays	FM 2439	Major Collector	4.4	0
	US 290	Other Principal Arterial	2.5	17
	FM 621	Major Collector	2.3	0
	SL 82	Other Principal Arterial	2.1	3
	SH 123	Other Principal Arterial	1.9	4
Travis	RM 2244	Other Principal Arterial	4.7	11
	RM 620	Other Principal Arterial	4.6	17
	SS 69	Other Freeway and Expressway	3.9	1
	RM 2222	Other Principal Arterial	3.5	11
	IH 35	Interstate	3.4	28
Williamson	FM 734	Other Principal Arterial	3.5	7
	FM 1325	Minor Arterial	2.8	1
	RM 620	Other Principal Arterial	2.7	6
	RM 1431	Other Principal Arterial	2.6	9
	US 183	Other Freeway and Expressway	1.9	30

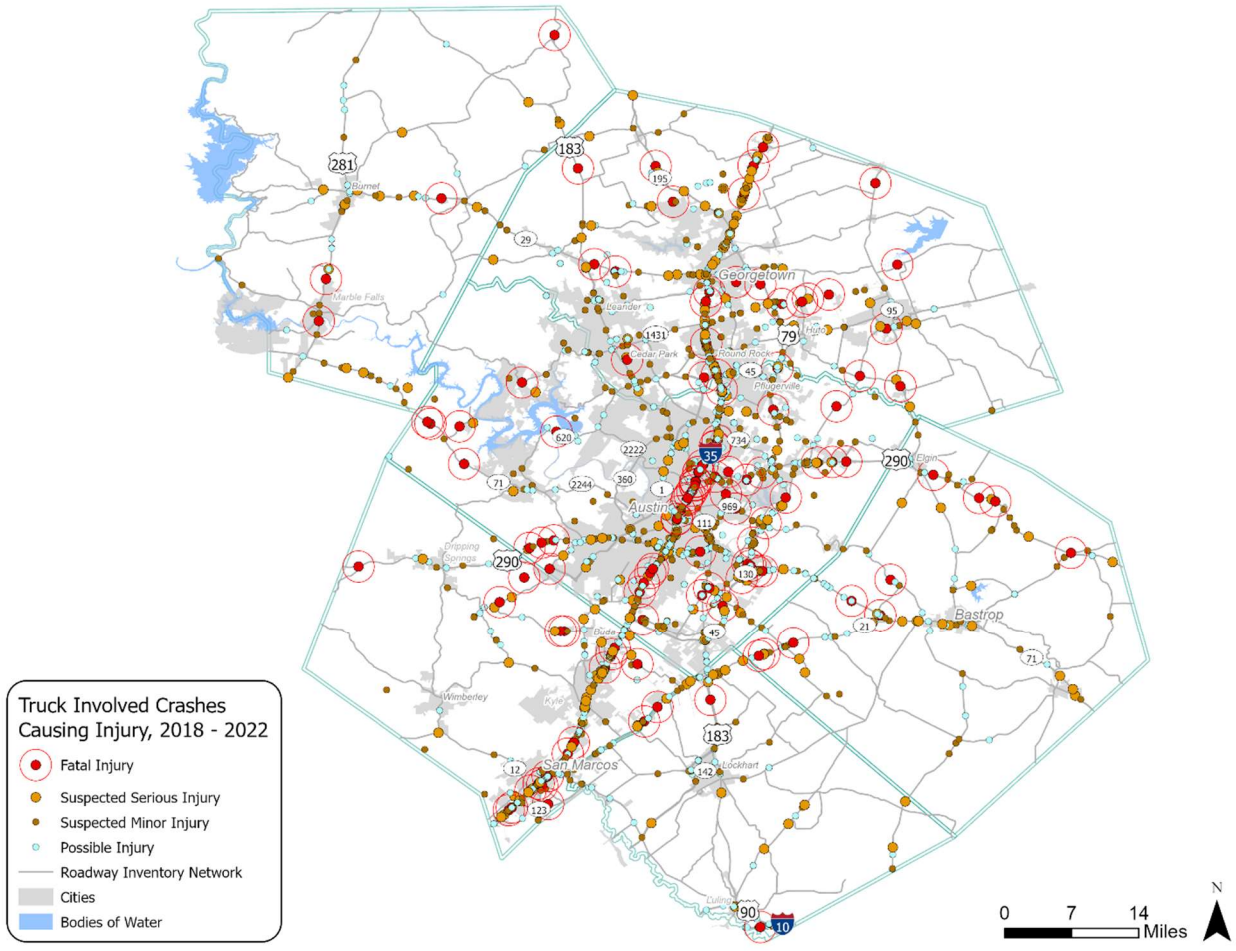
Source: Cambridge Systematics Analysis of the National Performance Management Research Data Set (NPMRDS), 2019.

Safety

This section analyzes truck-involved crashes using data from the Crash Records Information System (CRIS) for the reporting period of 2018 to 2022. Due to their inherent size and momentum, the involvement of a truck vehicle can contribute to severe crash injuries. Therefore, understanding the location of crashes and severity is essential for assessing the safety of freight movement in the region. Over the five-year period, a total of 6,415 truck-involved crashes have occurred in the CAMPO region.

Figure 8 maps the location of truck-involved crashes that resulted in injury. The map shows visual concentrations of these crashes along the IH 35 corridor, particularly in the segment through the central part of Austin in Travis County and in San Marcos in Hays County. Across the network, there were 145 crashes involving a fatality (2% of the total). Injury crashes represented 32% of all truck-involved crashes in the region.

Figure 8: Truck-Involved Crashes Causing Injury by Severity, 2018-2022



Source: Texas Department of Transportation (TxDOT). Crash Records Information System (CRIS) Query. Available at: https://cris.dot.state.tx.us/public/Query/app/home

Table 8 breaks down truck-involved injury crashes by severity for each county. For example, over 50% of fatal crashes occurred in Travis County though only 37% of all crashes involving trucks occurred there. Bastrop also had a higher share of fatal injuries than its total share of truck-involved crashes. Overall, 2,081 or nearly a third of the total truck-involved crashes resulted in a form of personal injury.

Table 8: Truck-Involved Crashes by Severity, 2018-2022

Crash Severity	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	William. County	Total
Fatal Injury	12 (8%)	4 (3%)	4 (3%)	74 (51%)	30 (21%)	21 (14%)	145 (100%)
Suspected Serious Injury	26 (10%)	15 (5%)	19 (7%)	81 (30%)	80 (29%)	52 (19%)	273 (100%)
Suspected Minor Injury	60 (7%)	30 (4%)	30 (4%)	368 (45%)	203 (25%)	128 (16%)	819 (100%)
Possible Injury	47 (6%)	30 (4%)	48 (6%)	408 (48%)	173 (20%)	138 (16%)	844 (100%)
Not Injured	332 (8%)	210 (5%)	243 (6%)	1,436 (33%)	1,395 (32%)	684 (16%)	4,300 (100%)
Unknown	2 (6%)	2 (6%)	3 (9%)	15 (44%)	8 (24%)	4 (12%)	34 (100%)
Total	479 (7%)	291 (5%)	347 (5%)	2,382 (37%)	1,889 (29%)	1,027 (16%)	6,415 (100%)

Source: Texas Department of Transportation (TxDOT). Crash Records Information System (CRIS) Query. Available at: https://cris.dot.state.tx.us/public/Query/app/home

Table 9 ranks corridors in the region by the total number of truck-involved crashes. IH 35 represents 40% of all crashes, with the next highest roadway, US 183, representing about 8% of all truck-involved crashes; compared to US 183 which had more truck-involved crashes, SH 71, US 290, and SH 130 had more fatal injury crashes.

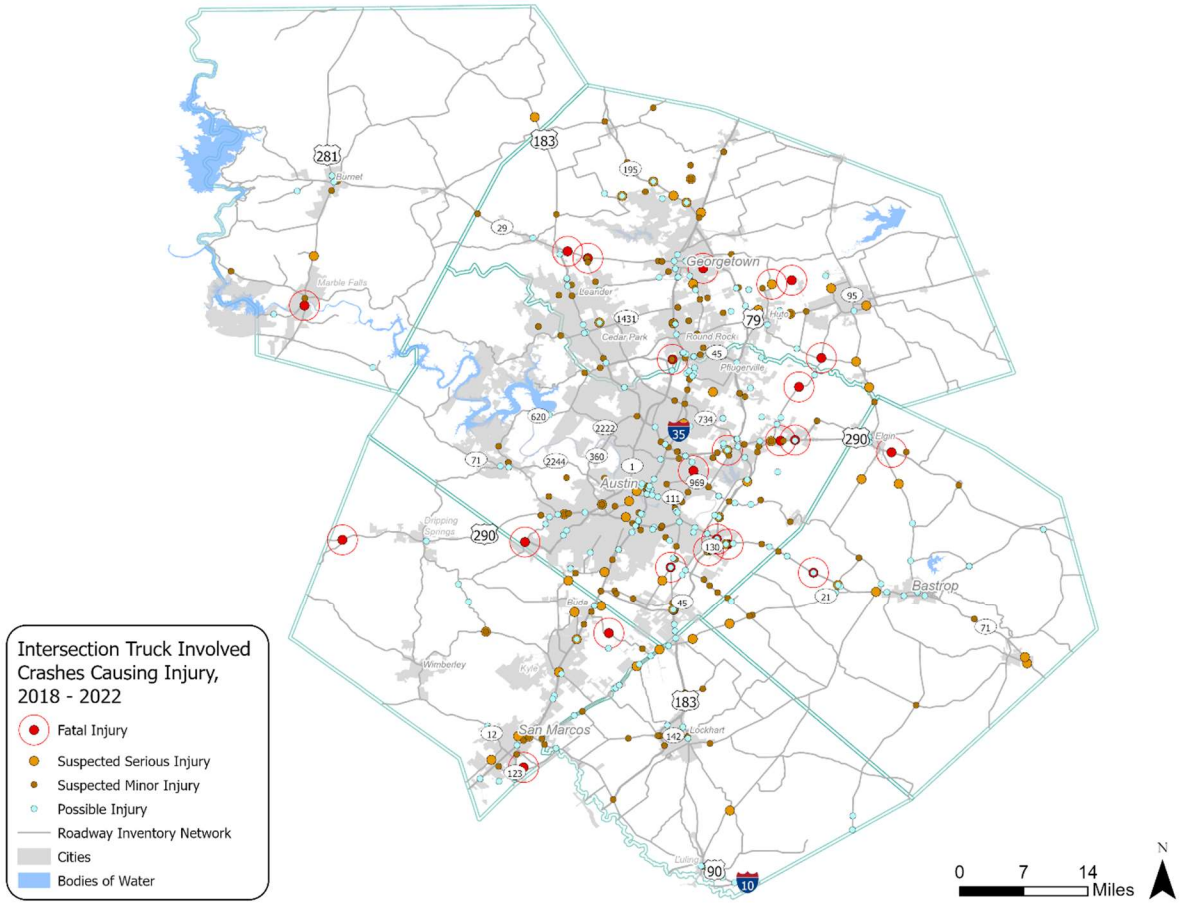
Table 9: Top 20 Corridors by Total Truck-Involved Crashes, 2018-2022

Corridor	Total Crashes	Fatal Injury	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Not Injured	Unknown
IH 35	1,794	40	79	264	254	1,152	5
US 183	349	4	14	48	42	238	3
SH 71	280	10	11	34	45	177	3
US 290	237	11	12	35	32	147	0
SH 21	208	6	12	26	25	138	1
SH 130	192	8	4	22	36	122	0
SH 29	146	3	9	16	11	107	0
US 281	103	2	4	8	12	77	0
US 79	81	1	3	15	5	56	1
RM 1431	69	0	1	11	5	52	0
FM 973	59	2	1	9	9	38	0
FM 969	52	2	0	9	5	36	0
IH 10	49	1	0	5	5	37	1
SH 45	45	0	1	2	7	34	1
SH 95	44	2	3	5	5	28	1
LP 1	42	0	4	3	12	23	0
FM 812	40	1	4	7	7	21	0
SH 195	37	1	4	3	4	25	0
US 90	37	0	0	2	6	29	0
RM 620	34	1	0	1	3	29	0

Source: Texas Department of Transportation (TxDOT). Crash Records Information System (CRIS) Query. Available at: https://cris.dot.state.tx.us/public/Query/app/home

Figure 9 shows the truck-involved injury crashes in the region that occurred at an intersection. Between 2018-2022, trucks were involved in 543 intersection-related crashes resulting in an injury, representing 26% of all injury crashes. Intersection crashes could suggest issues with access control on principal arterials and at certain arterial intersections, especially along corridors in exurban and rural areas that were not initially designed to handle the volume and types of truck traffic. These corridors include undivided U.S. highways and FM/RM roads.

Figure 9: Truck-Involved Injury Crashes located at an Intersection, 2018 – 2022



Source: Texas Department of Transportation (TxDOT). Crash Records Information System (CRIS) Query. Available at: https://cris.dot.state.tx.us/public/Query/app/home

Truck Parking

Truck drivers need parking for various reasons, including rest and travel amenities on long-haul routes, staging outside of pick-up/delivery locations and border crossings, taking federally mandated rest breaks, and parking vehicles during off-duty periods. TxDOT's 2020 Truck Parking Study analyzed truck parking safety and the deficit of available spaces during periods of peak demand.

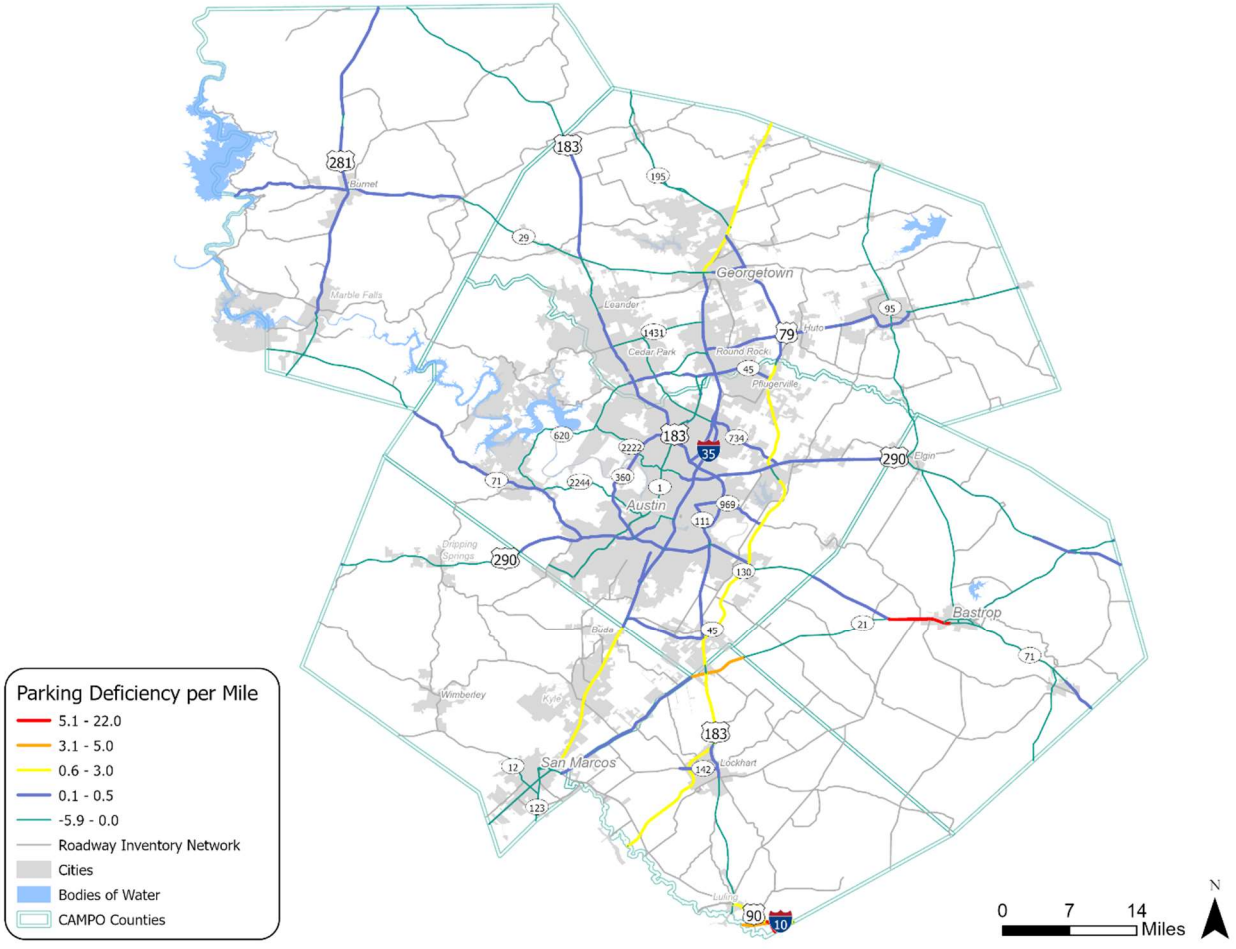
Currently, the CAMPO region does not have public truck parking locations along its Interstate corridors, notably along IH 35. Several public truck parking facilities are located just outside the region along key freight corridors:

- Northbound/southbound Bell County Safety Rest Area, north of Williamson County along IH 35
- Fayette County Picnic Area, east of Bastrop County along eastbound SH 71

- Eastbound/westbound Guadalupe County Safety Rest Area, southwest of Caldwell County along IH 10

Figure 10 shows the estimated peak hour deficit for truck parking in the CAMPO region using the analysis from the Truck Parking Study. Many corridors near Austin, including IH 35, have only slight to moderate parking deficits. The largest deficits along IH 35 are in Williamson and Hays counties, south of SH 45 and north of SH 29. Truck parking deficits are also seen on SH 130, which trucks use to bypass the congested segments of IH 35 through Travis County. The greatest deficiency in the region by far occurs west of the city of Bastrop along SH 71. Another significant deficit along SH 21 occurs in north Caldwell County where the highway intersects with US-183. The short segment of IH 10 in Caldwell County is also notably deficient for truck parking.

Figure 10: Peak Hour Truck Parking Deficit on the Texas Highway Freight Network (THFN)



Source: Texas Department of Transportation (TxDOT). Statewide Truck Parking Study, 2020.

Pavement Condition

Table 10 summarizes the pavement condition rating for roadways in the CAMPO region and the THFN. A rating is assigned according to the International Roughness Index (IRI). IRI values are measured in inches per mile and are used by the FHWA and state DOTs to evaluate pavement ride quality. Qualitative ratings – "Good," "Fair," and "Poor" – are assigned to roadway segments according to the following performance thresholds:

- **Good** – IRI value is less than 95
- **Fair** – IRI value is between 95 and 170
- **Poor** – IRI value is greater than 170

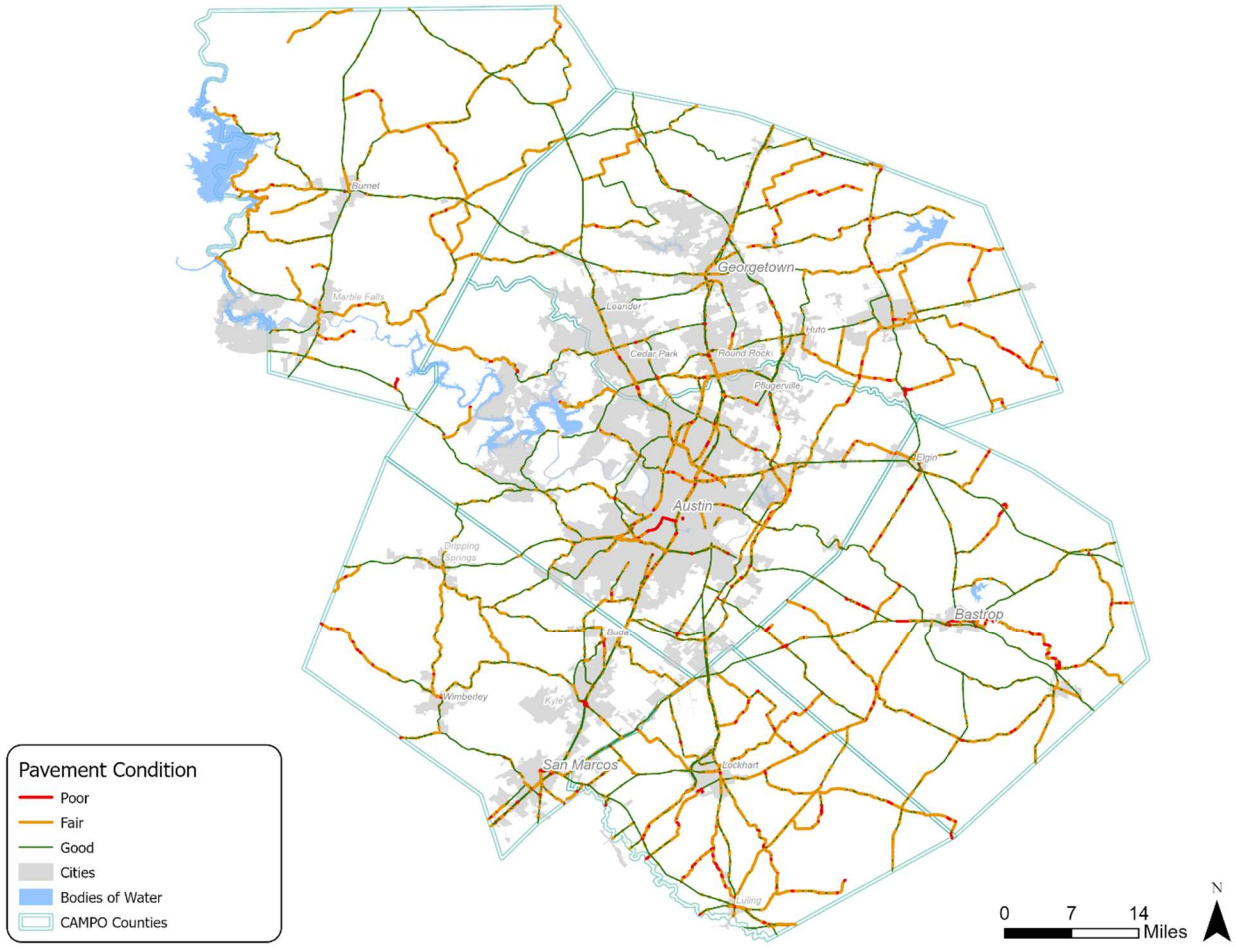
Among the roadway mileage reported for the on-system network, 92% were rated in "good" or "fair" condition, while only 8% were rated "poor." Figure 11 maps this information for the on-system network in the CAMPO region.

Table 10: Pavement Conditions in the CAMPO Region

Pavement Quality	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	Williamson County
Good	180 (56%)	134 (46%)	137 (45%)	158 (60%)	345 (59%)	323 (58%)
Fair	108 (33%)	142 (49%)	135 (44%)	89 (34%)	200 (34%)	197 (35%)
Poor	35 (11%)	14 (5%)	32 (11%)	15 (6%)	44 (7 %)	37 (7%)
Total	323 (100%)	290 (100%)	304 (100%)	262 (100%)	589 (100%)	557 (100%)

Source: Texas Department of Transportation (TxDOT), 2021.

Figure 11: Pavement Condition for On-System Roadways, 2021



Source: Texas Department of Transportation (TxDOT), 2021.

Bridge Condition and Vertical Clearance

The TxDOT bridge database was analyzed to evaluate bridge conditions and vertical clearances specific to freight considerations. These factors could affect the overall efficiency of freight operations by limiting the route options for certain trucks, particularly those that are transporting oversized and overweight loads. This requires vehicles to travel additional distances to avoid striking a low-clearance bridge, for example. In addition, trucks are not always aware of bridge condition issues, and traveling on them accelerates the rate of deterioration of the deck and structure.

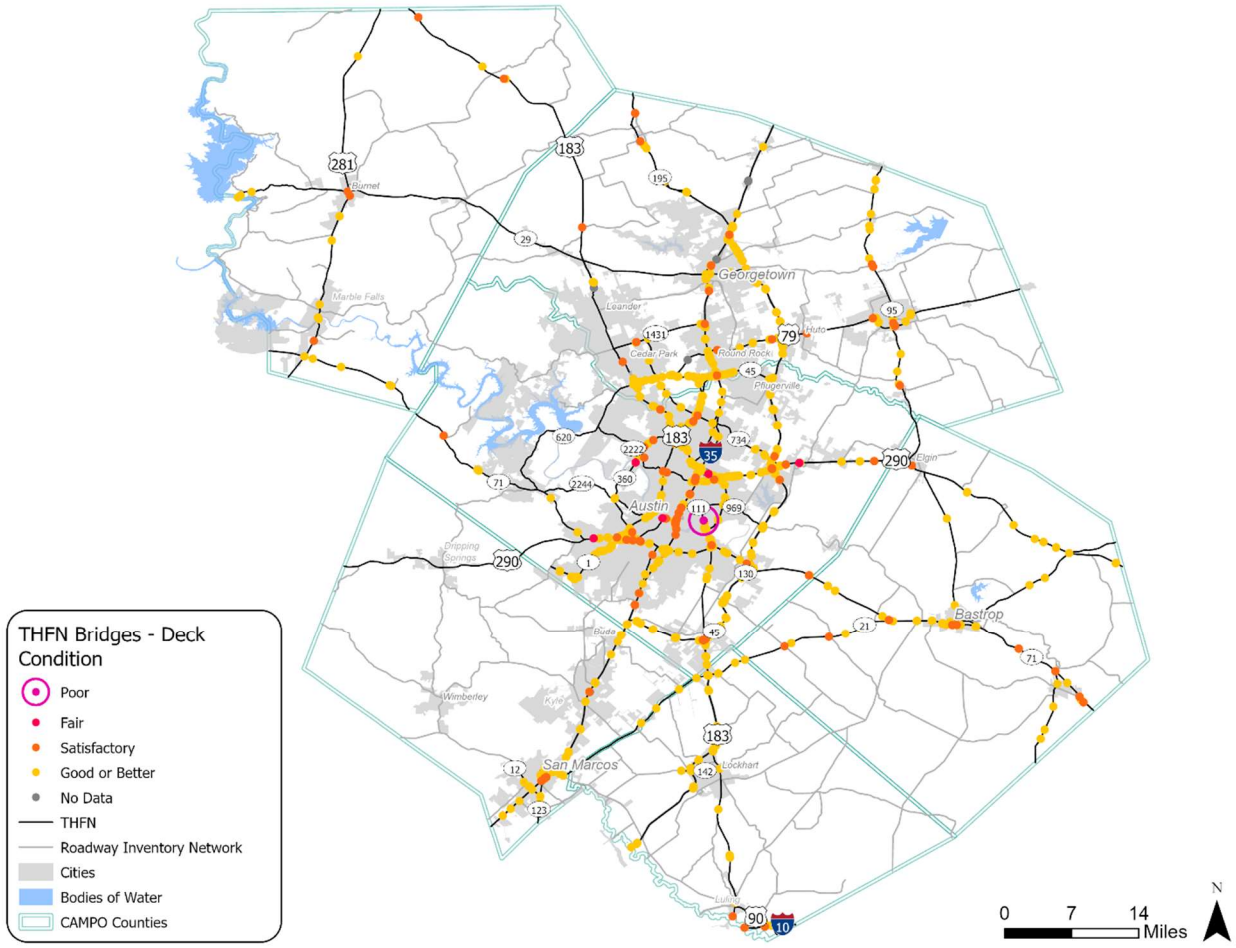
Using the bridges point shapefile from the TxDOT data portal, bridges along the THFN were identified and analyzed for deck condition according to the following classification codes:

- **Excellent Condition:** N/A (no definition provided).
- **Very Good condition:** No problems noted.
- **Good Condition:** Some minor problems.

- **Satisfactory Condition:** Structural elements show some minor deterioration.
- **Fair Condition:** All primary structural elements are sound but may have minor section loss, cracking, spalling, or scour.
- **Poor Condition:** Advanced section loss, deterioration, spalling, or scour.
- **Serious Condition:** Loss of section, deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present.
- **Critical Condition:** Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present, or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
- **Imminent Failure Condition:** Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. The bridge is closed to traffic, but corrective action may put it back in light service.
- **Failed Condition:** Out of service; beyond corrective action.

Figure 12 maps the location and deck condition for bridge overpasses carrying the THFN in the CAMPO region. Of the 920 bridges shown on the map, 87% are rated good or better for deck condition, and 11% are rated in satisfactory condition. Most of the overpass locations are in Travis County, which has 53% of the total, followed by Williamson County with 25%. Burnet County has the most significant proportion of locations rated as satisfactory, with 23%. Travis County has the only location with a poor deck condition rating – the overpass carrying LP 111 (Airport Blvd.) over railroad tracks in East Austin.

Figure 12: Bridge Deck Condition on the Texas Highway Freight Network (THFN)



Source: Texas Department of Transportation (TxDOT). TxDOT Bridges (2021). Available at: https://gis-txdot.opendata.arcgis.com/datasets/txdot-bridges

TxDOT has implemented a vertical clearance requirement of 18.5 feet for bridges spanning the THFN. Since September 28, 2017, an 18.5-ft bridge underpass vertical clearance has been required on the THFN for all new construction and reconstruction projects.[10] The higher vertical clearance standard is designed to increase freight mobility across the network by accommodating the needs of oversized loads. The increased vertical standard also improves safety and asset management by reducing the potential for bridge strikes.

[10] TxDOT. Roadway Design Manual. Section 8: Texas Highway Freight Network (THFN).

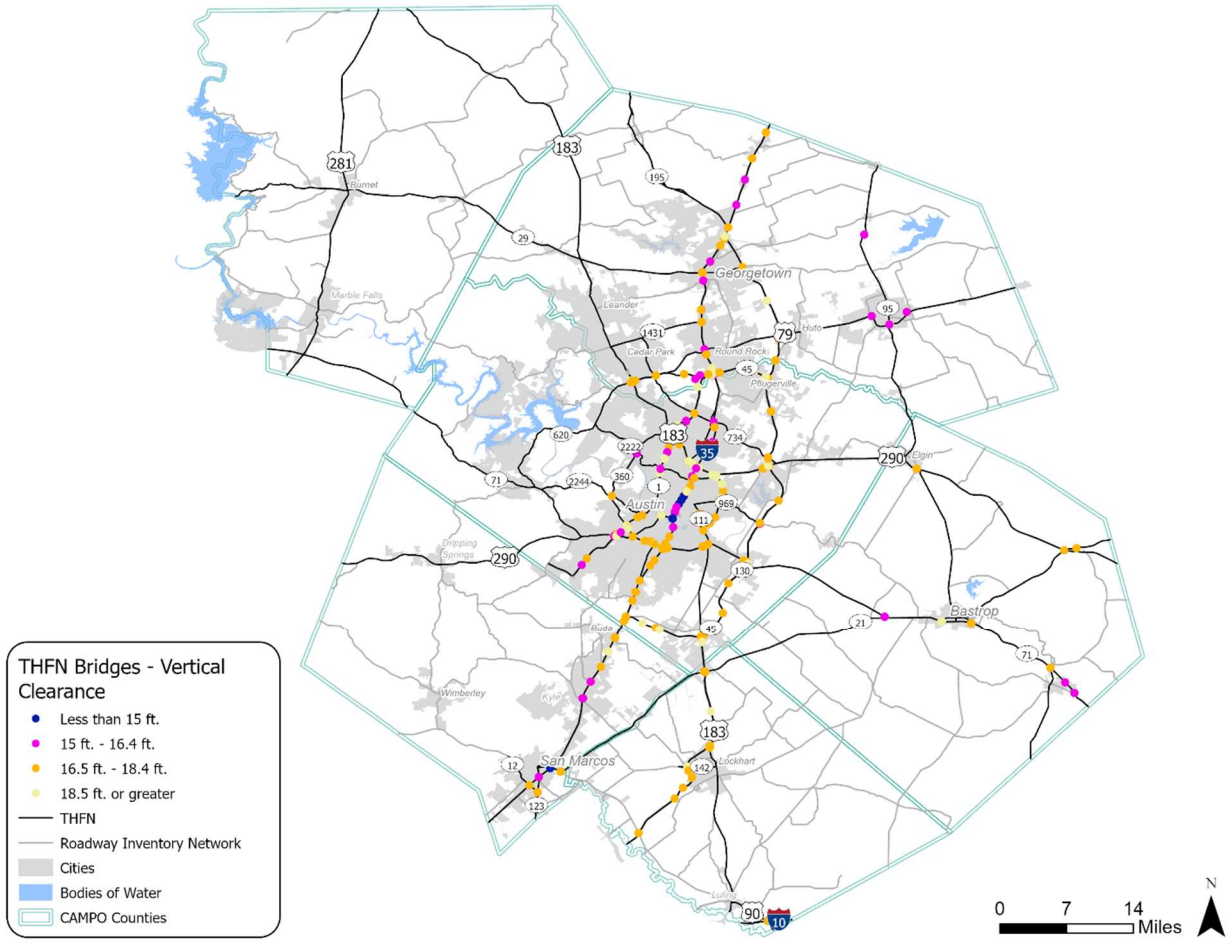
Table 11 summarizes the number of highway and rail underpasses by minimum vertical clearance on the THFN. It is important to note that the totals do not include bridges spanning non-THFN roadways since the vertical clearance standard applies to constructing or reconstructing bridge structures over the THFN. Most bridges (59%) are between 16.5' and 18.4'; 18% meet the 18.5-foot standard for vertical clearance over the THFN. Travis County has the most underpasses on the THFN, with 58% of the total, and has the highest proportion of bridges that meet the vertical clearance standard (21%). Conversely, Hays County has the smallest percentage of bridges that meet the vertical clearance standard at 9% and a greater proportion of bridges under 15 feet (14%). Figure 13 maps the location of the highway and rail underpasses on the THFN.

Table 11: Bridge Vertical Clearance over the Texas Highway Freight Network (THFN)

Vertical Clearance	Bastrop County	Caldwell County	Hays County	Travis County	Williamson County	Total
Less than 15'	0 (0%)	0 (0%)	3 (14%)	5 (3%)	0 (0%)	8 (3%)
15'-16'5"	5 (33%)	0 (0%)	6 (27%)	32 (19%)	18 (28%)	61 (21%)
16'6"-18'5"	8 (53%)	18 (86%)	11 (50%)	97 (57%)	38 (58%)	172 (59%)
18'6" or greater	2 (13%)	3 (14%)	2 (9%)	36 (21%)	9 (14%)	52 (18%)
Total	15 (100%)	21 (100%)	22 (100%)	170 (100%)	65 (100%)	293 (100%)

Source: Texas Department of Transportation (TxDOT). TxDOT Bridges (2021). Available at: https://gis-txdot.opendata.arcgis.com/datasets/txdot-bridges

Figure 13: Bridges Vertical Clearance on the Texas Highway Freight Network (THFN)



Source: Texas Department of Transportation (TxDOT). TxDOT Bridges (2021). Available at: https://gis-txdot.opendata.arcgis.com/datasets/txdot-bridges

Oversize and Overweight Vehicle Permits

Vehicle types and loads over a specific size or weight must apply for oversize/overweight (OS/OW) permits from the Texas Department of Motor Vehicles (TxDMV). Freight vehicles carrying OS/OW loads need to be routed along corridors without impediments to their size, such as low bridges, narrow roads, steep grades, sharp turns, or other restrictions. Overweight vehicles can accelerate wear and tear on roadway networks, so they must be permitted to ensure pavement conditions do not deteriorate under these heavy loads. Some permits carry additional restrictions, such as restricting OS/OW movements during certain hours.

Table 12 summarizes average tonnage and permit counts for single-use trip permits traveling in the CAMPO region for 2022 by county. Super Heavy permits are required for any vehicle exceeding a gross vehicle weight of 250,000 lbs. Overheight permits are required for any vehicle exceeding 16 feet in height. Super Heavy loads had the highest average tonnage and number of permits on roadways in Bastrop County. For overheight loads, the roadways in

Bastrop County had the highest average tonnage and number of permits. Overall, roadways in Hays County saw the highest average tonnage and permits for all types of OS/OW permitted loads.

Table 12: OS/OW Permits Activity in the Capital Area Region, 2022

Permit Type	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	Williamson County
Super Heavy Permit Tonnage	5,552	2,012	3,400	2,828	2,927	4,230
Super Heavy Permit Count	39	15	25	22	22	32
Overheight Permit Tonnage	4,843	3,112	2,128	1,071	1,271	2,140
Overheight Permit Count	98	102	55	33	30	52
All OS/OW Permits Tonnage	44,030	27,936	42,499	88,251	61,435	73,081
All OS/OW Permits Count	1,261	1,013	1,338	2,712	1,966	2,520

Source: TxDMV, Oversize/Overweight Permits Database, 2022; Analysis by the Texas A&M Transportation Institute (TTI).

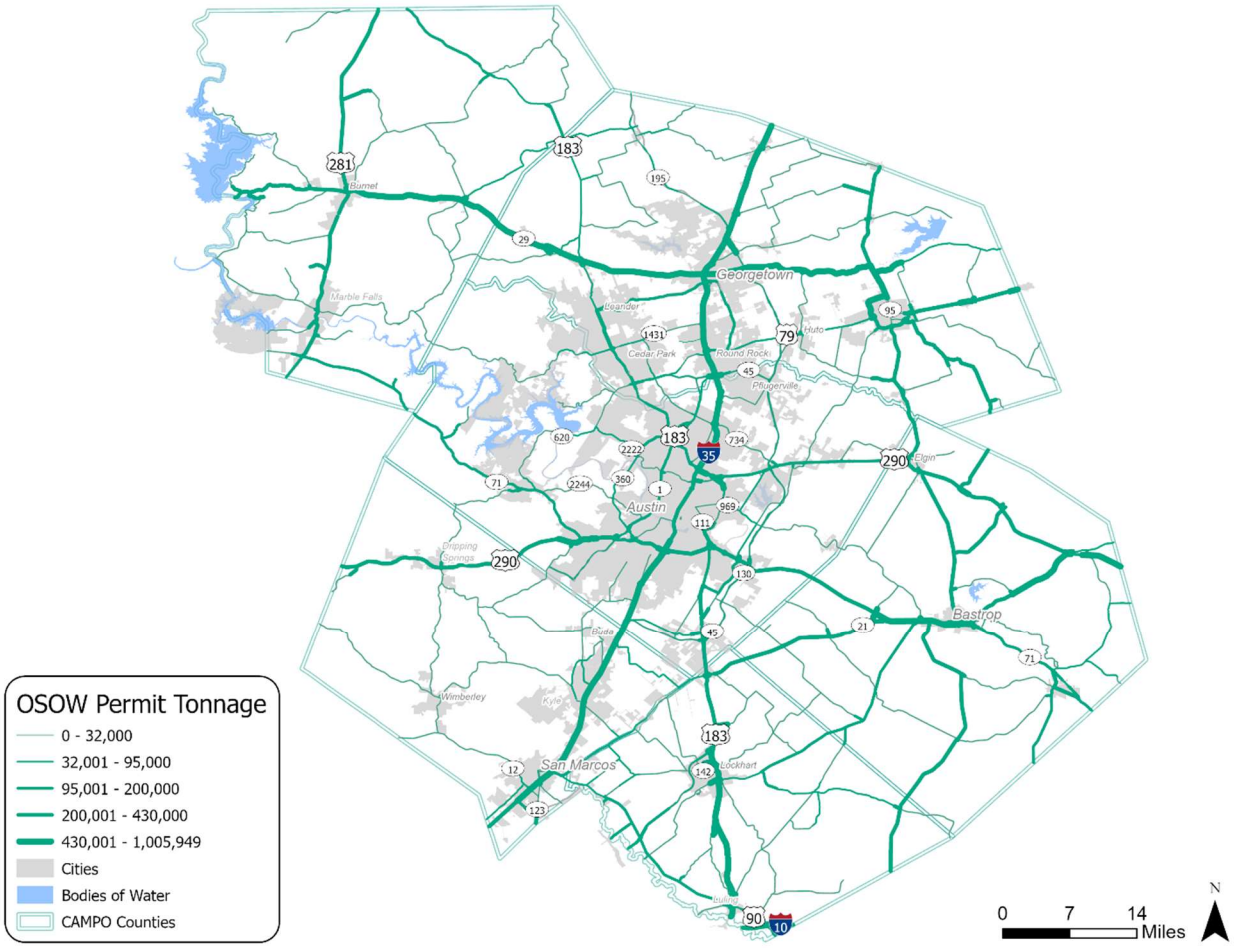
Figure 14 shows the tonnage for all OS/OW permits in the CAMPO region in 2022. Clearly, OS-OW permitted trucks are using major roadways across the region. Major north-south routes with high levels of OS/OW permit activity include:

- IH 35, notably with less tonnage directly within downtown Austin between US-183 and US-290
- US-183, particularly between Lockhart and Luling in Caldwell county
- US 281 in Burnet County
- SH 95, which connects the cities of Bastrop, Elgin, and Taylor in Bastrop and Williamson counties

Major east-west routes include:

- US-290, which passes through southern Austin and connects the cities of Dripping Springs, Austin, and Bastrop
- SH 29, which goes between the cities of Burnet and Georgetown
- SH 71, especially between US-183 and US-290 near the city of Bastrop

Figure 14: Tonnage Transported by all Oversize/Overweight (OS/OW) Permitted Loads, 2022



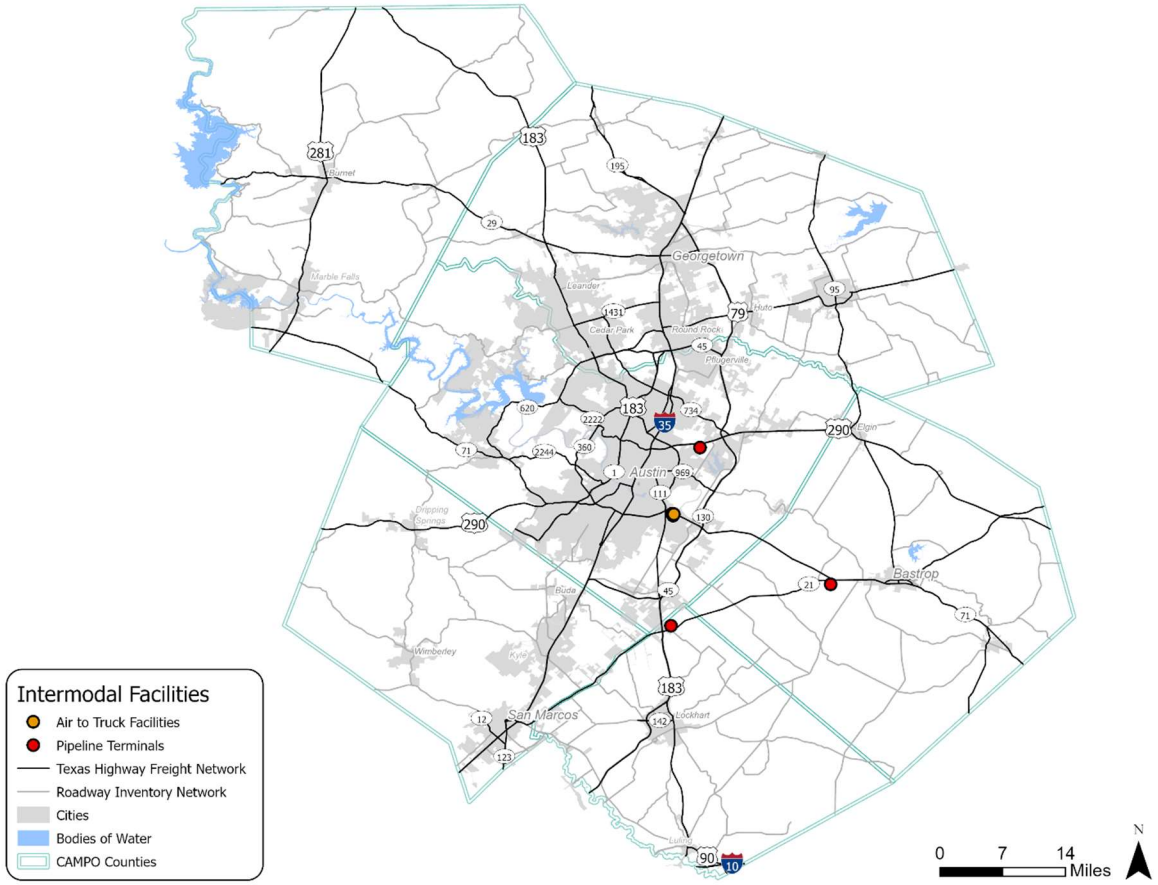
Source: TxDMV, Oversize/Overweight Permits Database, 2022; Analysis by the Texas A&M Transportation Institute (TTI).

Intermodal Freight Facilities

Intermodal facilities allow goods shipped by one transportation mode to be transferred to another. Major intermodal facilities are reported to the FHWA, which maintains a database of all facilities in the U.S. The reported facilities include pipeline terminals, marine roll-on/roll-off facilities, rail trailer-on-flatcar or container-on-flatcar (TOFC/COFC), and air-to-truck facilities.

Figure 15 shows all seven (7) facilities within the CAMPO region comprised of three (3) pipeline terminals and four (4) air-to-truck facilities. Notably, the region lacks any Rail TOFC/COFC facilities despite having a moderate railway infrastructure. All air-to-truck facilities are located at the ABIA. The three pipeline terminals are located in Travis, Bastrop, and Caldwell counties. These terminals store crude and refined petroleum products for transfer from pipelines to rail and trucks.

Figure 15: Intermodal Freight Facilities



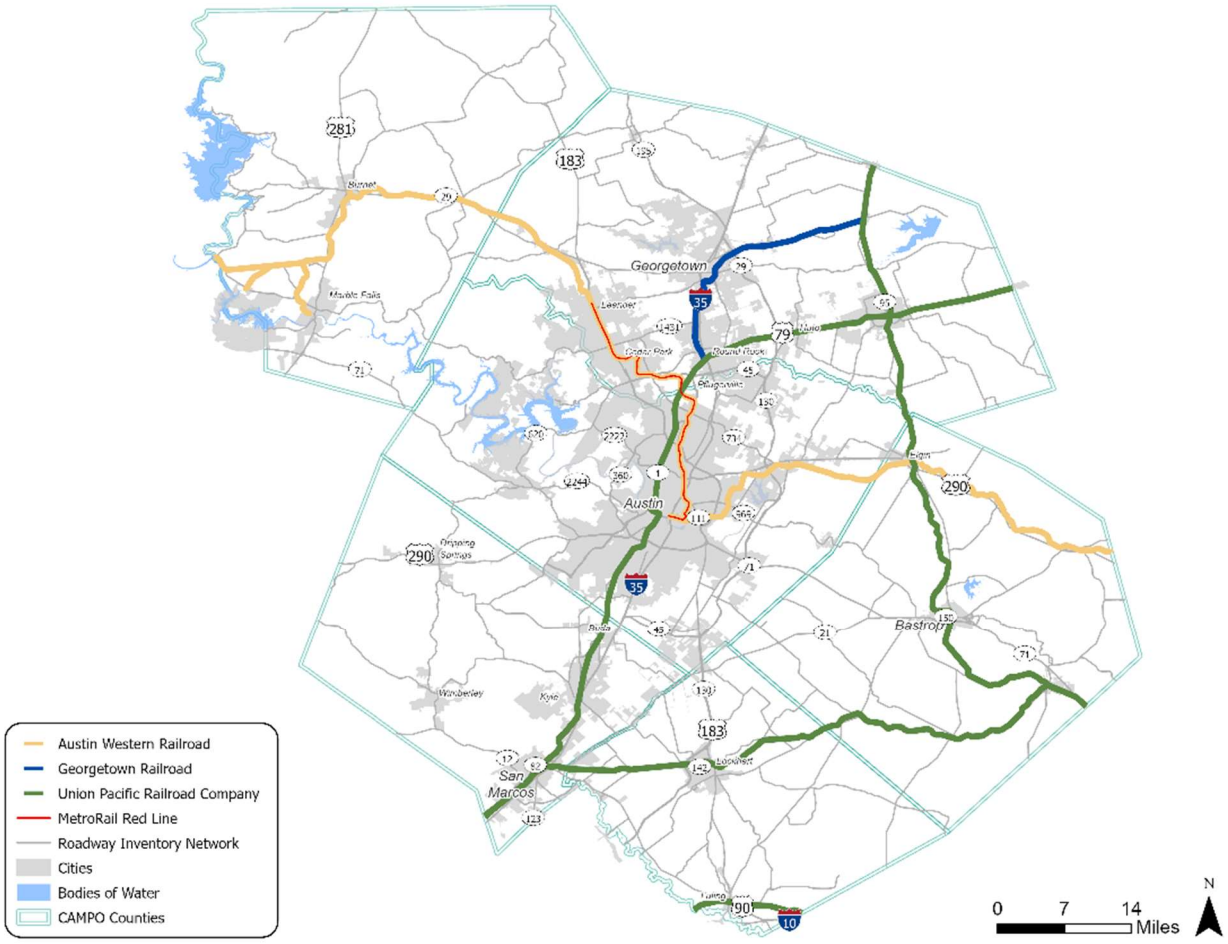
Note: The air-to-truck facilities are in close proximity to each other and appear as overlapping dots due to the extents of the map.
Source: U.S. Department of Transportation (USDOT), Bureau of Transportation Statistics (BTS). Open Data Catalog. Available at: https://geodata.bts.gov/

Rail Assets

Rail is an important element of the multimodal network in the CAMPO region that provides freight transport over longer distances without congesting highways. The CAMPO region is served by Union Pacific (UP), a Class I railroad, and Class III freight railroads.[11] Figure 16 shows the existing active freight rail system within the CAMPO region. Summarized in Table 13, UP operates 260 miles of Class I railroads in the region. In addition, the Austin Western Railroad, known as the Austin Area Terminal Railroad before 2017, and the Georgetown Railroad each operate 156 and 37 miles of Class III railroads, respectively. The Austin Western Railroad also shares 32 miles of track with the Red Line, a passenger rail service operated by the Capital Metropolitan Transportation Authority (CapMetro).

[11] The Surface Transportation Board (STB) classifies rail carriers based on their annual operating revenues. Class I carrier operating revenues are greater than $943.9 million annually, while Class III carriers have annual operating revenues below $42.4 million. https://www.stb.gov/reports-data/economic-data/

Figure 16: Active Freight Rail Networks in the Capital Area Region



Source: Texas Department of Transportation (TxDOT). Open Data Portal. Texas Railroads. Available at: https://gis-txdot.opendata.arcgis.com/datasets/texas-railroads

Table 13: Active Freight Track Miles by Class and Operators

Railroad	Standard Carrier Alpha Code	Railroad Class	Total Miles
Austin Western Railroad	AWRR	Class III	156
Georgetown Railroad	GRR	Class III	37
Union Pacific Railroad	UP	Class I	260
Not Specified	-	-	22
Total Miles			475

Source: Texas Department of Transportation (TxDOT). Open Data Portal. Texas Railroads. Available at: https://gis-txdot.opendata.arcgis.com/datasets/texas-railroads/explore?location=30.965836%2C-100.077132%2C6.55

Within the CAMPO area, there are 47 at-grade crossings that intersect the on-system roadway network. As shown in Table 14, Williamson County has 16 on-system railroad crossings, the most of the six counties, which make up around 34% of all railroad crossings in the study region. With 11 railroad crossings (23%), Bastrop County has the second-highest number in the study area.

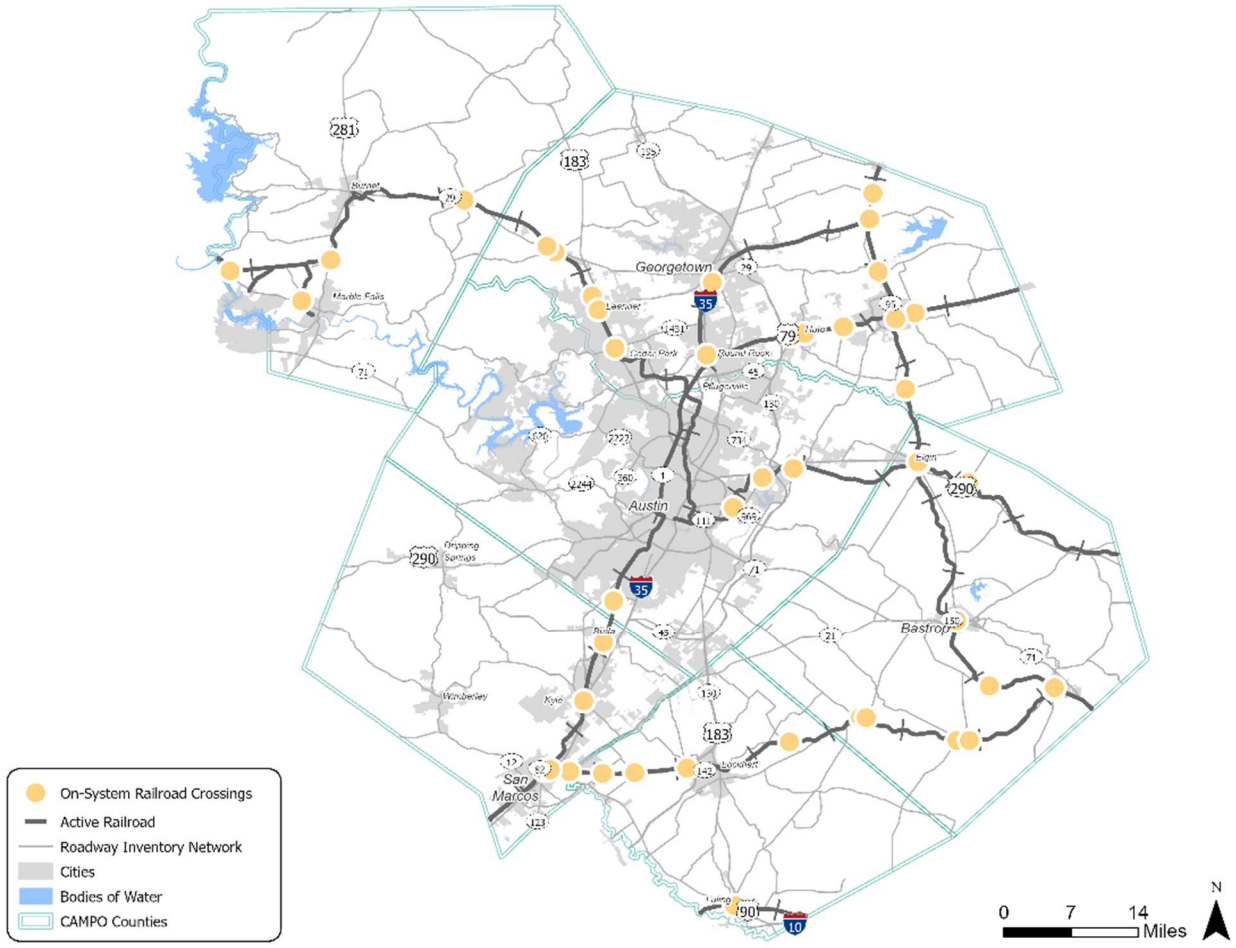
Table 14: Summary of On-System Railroad Crossings by County

County	Number of At-Grade Crossings
Bastrop County	11
Burnet County	5
Caldwell County	5
Hays County	6
Travis County	4
Williamson County	16
Total	47

Source: Federal Railroad Administration (FRA), Highway-Rail Crossing Inventory Data. Available at: https://safetydata.fra.dot.gov/officeofsafety/publicsite/downloaddbf.aspx.

Figure 17 maps the locations of the at-grade crossings that intersect the on-system roadway network.

Figure 17: At-Grade Highway-Rail Crossings on the On-System Roadway Network

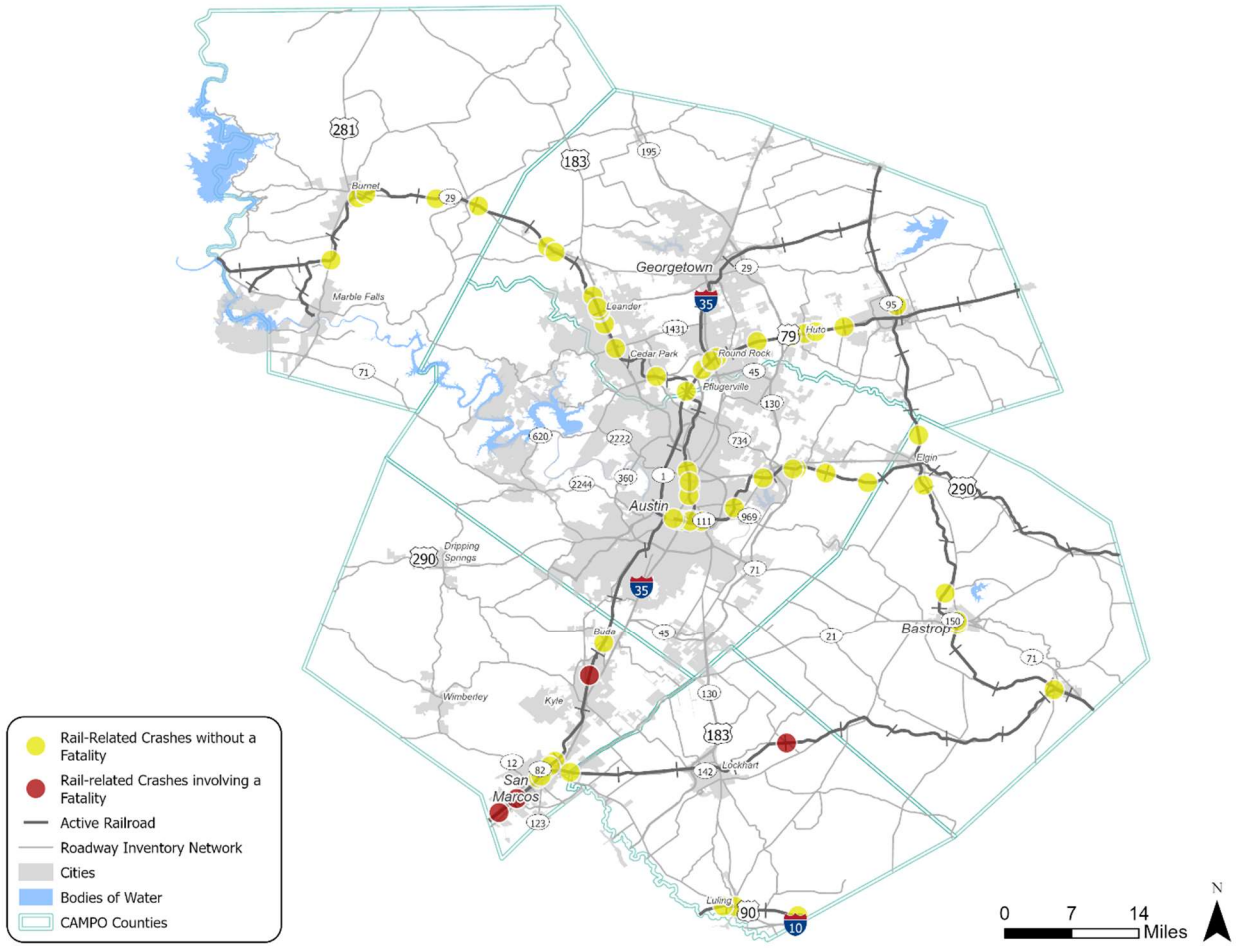


Source: Federal Railroad Administration (FRA), Highway-Rail Crossing Inventory Data. Available at: https://safetydata.fra.dot.gov/officeofsafety/publicsite/downloaddbf.aspx

Rail System Performance

Figure 18 shows the location of 132 rail-involved crashes in the CAMPO region. A crash is rail-involved if it is related to a train, railcar, or a rail crossing. Geographically speaking, Travis County, Williamson County and Hays County each account for 37%, 31%, and 19% of the total crashes in the region, respectively.

Figure 18: Rail-related Crashes in the Capital Area Region, 2018- 2022



Source: Texas Department of Transportation (TxDOT). Crash Records Information System (CRIS) Query. Available at: https://cris.dot.state.tx.us/public/Query/app/home

Table 15 shows the total number of individuals involved in rail-related crashes by severity. From 2018 to 2022, a total of 292 persons were involved in rail-related crashes. Of the 60 persons injured (nearly 21% of total), 5% were seriously injured; during the period there was a total of 4 fatalities. Three fatalities were located in Hays County and one in Caldwell County. Overall, most persons involved in rail-related crashes were not injured (73% of total).

Table 15: Injury Type and Associated Headcounts for Rail-Related Crashes located at At-Grade Crossings, 2018 – 2022

Severity Type	2018	2019	2020	2021	2022	Total
Non-Suspected Serious Injury Count	4	0	3	4	3	14
Possible Injury Count	23	9	1	7	3	43
Suspected Serious Injury Count	1	0	1	1	0	3
Total Injury Count	**28**	**9**	**5**	**12**	**6**	**60**
Crash Death Count	1	0	2	0	1	4
Not Injured Count	38	45	21	83	27	214
Unknown Injury Count	1	3	1	5	4	14
Total Personnel Involved In Crash	**68**	**57**	**29**	**100**	**38**	**292**

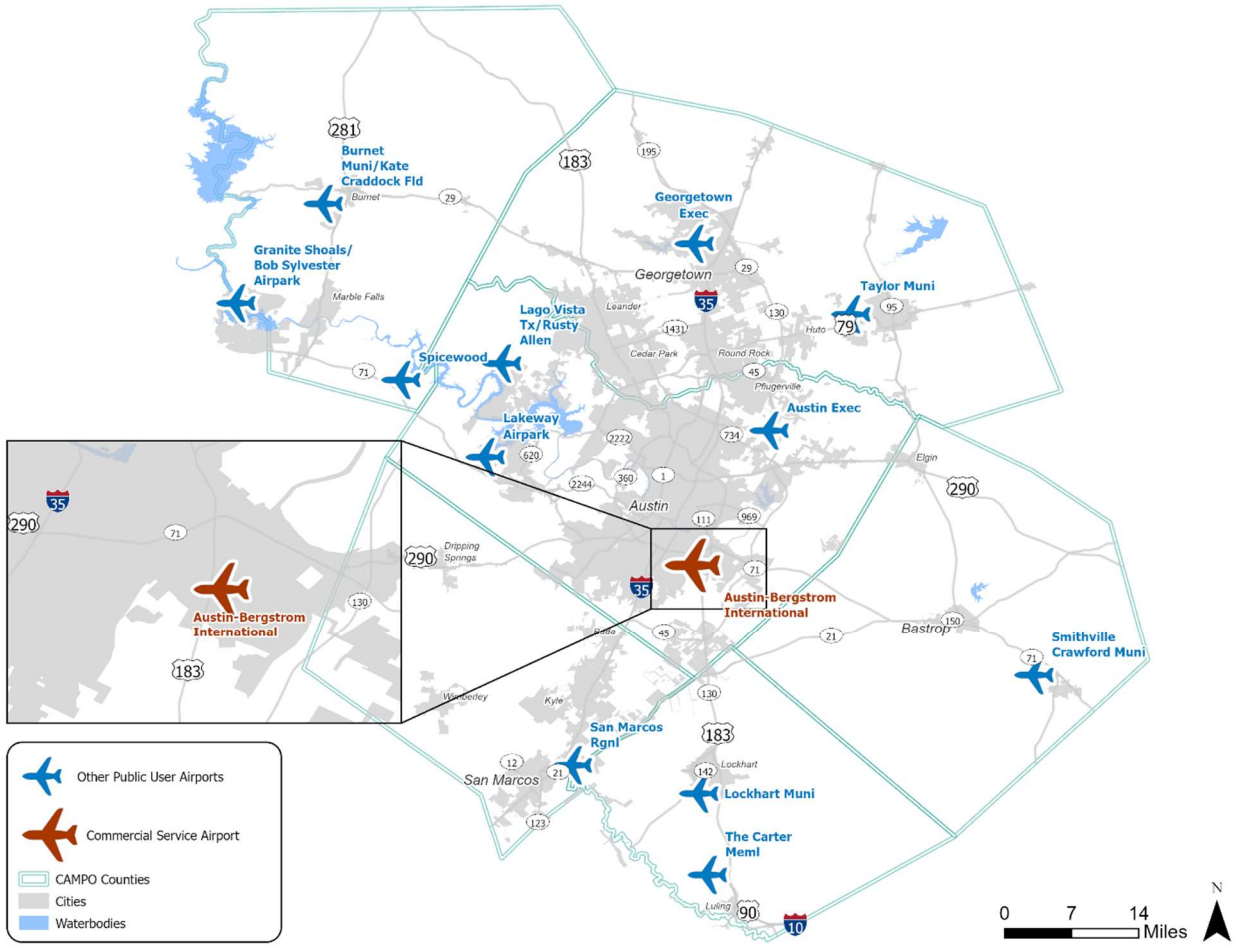
Source: Texas Department of Transportation (TxDOT). Crash Records Information System (CRIS) Query. Available at: https://cris.dot.state.tx.us/public/Query/app/home

Airport Assets

Commercial Service and Public-Use Airports

Texas has one of the largest state airport systems with nearly 400 public-use airports and 24 commercial service airports. As shown in Figure 19, there are 13 public-use airports in the CAMPO area. ABIA, considered part of the National Multimodal Freight Network (NMFN) and TMFN, is the only commercial service airport in the region. In addition, the San Marcos Regional Airport is located between the Austin and San Antonio metropolitan areas and is the designated reliever airport for the commercial airports situated there.

Figure 19: Public Use and Commercial Service Airports



Source: Federal Aviation Administration (FAA). Airports. Available at: https://adds-faa.opendata.arcgis.com/datasets/faa::airports-1/explore?location=1.244470%2C-43.129815%2C1.84

Airport Conditions and Performance

Due to the substantial weight of aircraft resulting from a fuel load and cargo, runway length is critical for air cargo plane takeoff. Generally, 8,000 feet is required for most large domestic cargo aircraft and 10,000 feet for most international operations.[12] With two runways, the longest of which has a maximum length of 12,248 feet and a width of 150 feet, ABIA is the only airport qualified for the runway length requirements for large cargo aircraft. Other airports in the CAMPO region may handle on-demand cargo or package service via small aircraft; however, this data is generally not reported. Some of these airports may handle small amounts of cargo or provide feeder service to larger airports.

ABIA is five miles southeast of the City of Austin, next to SH 71 to the north, U.S. 183 to the west, and within minutes of IH 35. This convenient location allows the airport to transport cargo easily

[12] https://ftp.txdot.gov/pub/txdot/move-texas-freight/resources/texas-delivers-2050.pdf

via ground transportation. The airport has two parallel runways: a 12,248-foot 17R/35L runway and a 9,000-foot 17L/35R runway.[13] Aeroterm and the City of Austin's Department of Aviation DOA operate the air cargo facilities at ABIA, located on the northeast side of Runway 17R.[14]

- Aeroterm is a property investment firm. It has 51,000 square feet of freight facility space (building #6040). The City of Austin's DOA, United Parcel Service (UPS), Air General, and Worldwide Flight Services (WFS) all have facility leases from Aeroterm.
- The City of Austin's DOA manages Buildings #6029, #6030, and #6035. The total area adds up to 194,500 square feet. FedEx, DHL, UPS, and certain non-cargo activity companies lease the space.

As one of the major commercial airports in Texas, ABIA handled approximately 260 million pounds of cargo in 2022, including both on-flight freight enplaned and mail enplaned. Table 16 summarizes enplaned cargo that arrived at and departed from ABIA. As the trend shows, from 2018 to 2022, the enplaned mail fluctuated slightly and reached its peak weight in 2019. The enplaned freight generally indicates an increasing trend but decreased slightly between 2018 and 2019; arriving and departing freight grew by an average rate of 8% per year between 2020 and 2022. Additionally, ABIA appeared to have more arrival freight and mail than departure during the reporting period.

Table 16: ABIA Enplaned Freight and Mail, 2018 - 2022

Type	2018	2019	2020	2021	2022
Arrival-Mail	5,609,865	8,289,574	5,329,591	6,985,945	5,448,213
Departure-Mail	2,424,463	2,635,866	2,186,154	1,899,467	311,540
Arrival-Freight	115,733,867	113,431,549	124,655,767	126,293,710	135,722,607
Departure-Freight	85,597,381	87,532,956	90,445,778	102,168,878	118,340,558
Total Enplaned (lbs.)	209,365,576	211,889,945	222,617,290	237,348,000	259,822,918

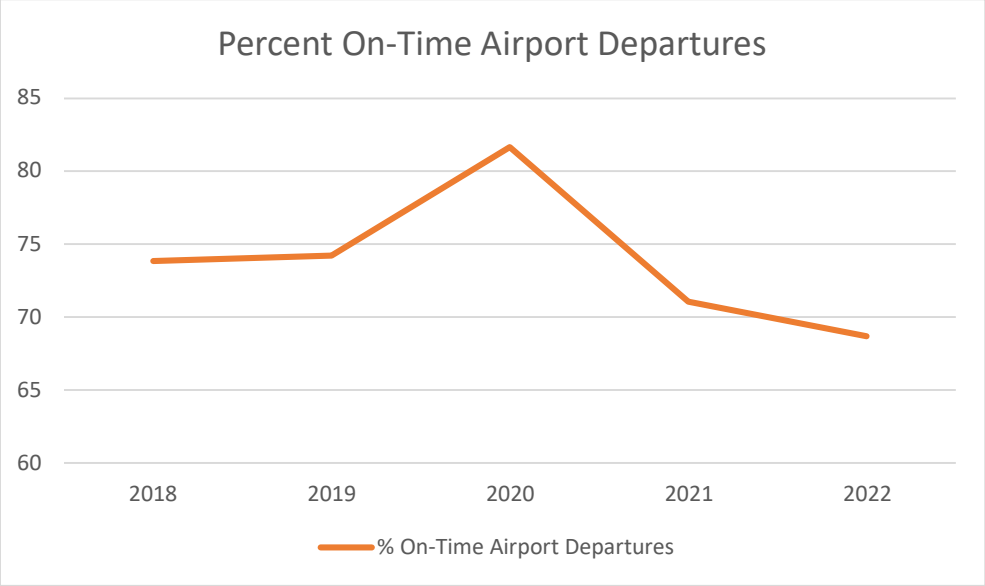
Source: United State Department of Transportation (USDOT). Bureau of Transportation Statistics (BTS). T-100 Market (all-carrier). 2018-2022.Available at: https://www.transtats.bts.gov/Fields.asp?gnoyr_VQ=FMF

ABIA is the only airport in the CAMPO region that is required to report performance data to the FAA. Figure 20, Figure 21, and Figure 22 shows the percent on-time departures, average departure delay, and the taxi-in delay measures generated from Aviation System Performance Metrics (ASPM) database, respectively. The calendar year 2020 shows an abnormal trend as compared to other years. The percent on-time departure is the highest, and departure and taxi-in delays were the lowest for 2020. This is likely due to the reduction in flights caused by COVID-19. The on-time departure rate dropped sharply after 2019, likely due to the labor shortages and early retirement phenomena among workers in the transportation industry influenced by the pandemic.[15] Since 2020, the figures show declines in the percentage of on-time departures and increases in departure and taxi-in times, which suggest that ABIA is getting

[13] https://ftp.dot.state.tx.us/pub/txdot-info/avn/airport-directory-list.pdf
[14] https://www.austintexas.gov/sites/default/files/images/Airport/business/AUS_Master_Plan/c2_Master Plan.pdf
[15] https://ftp.txdot.gov/pub/txdot/move-texas-freight/resources/texas-delivers-2050.pdf

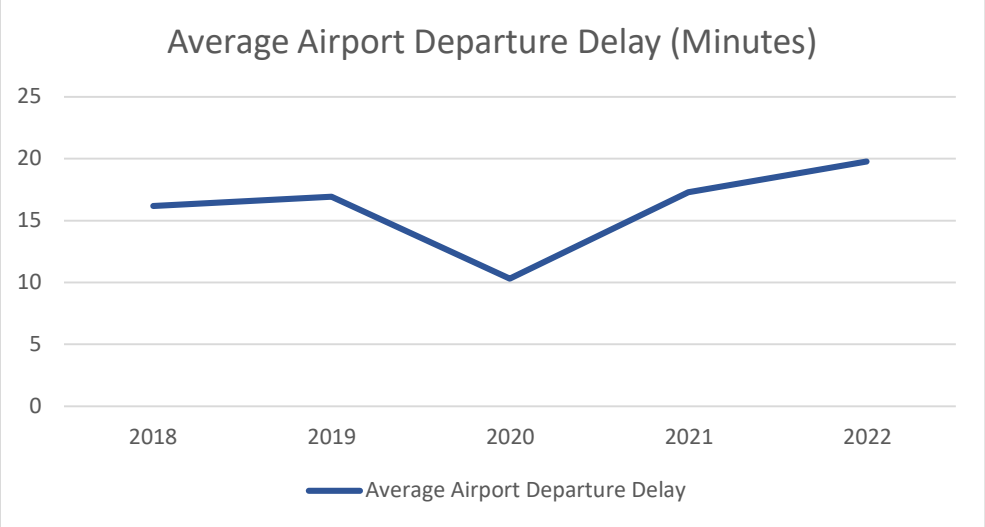
more congested; the delays are also attributed to a shortage of airport staff to handle security screening and baggage.

Figure 20: Percent On-Time Airport Departures at ABIA, 2018 - 2022



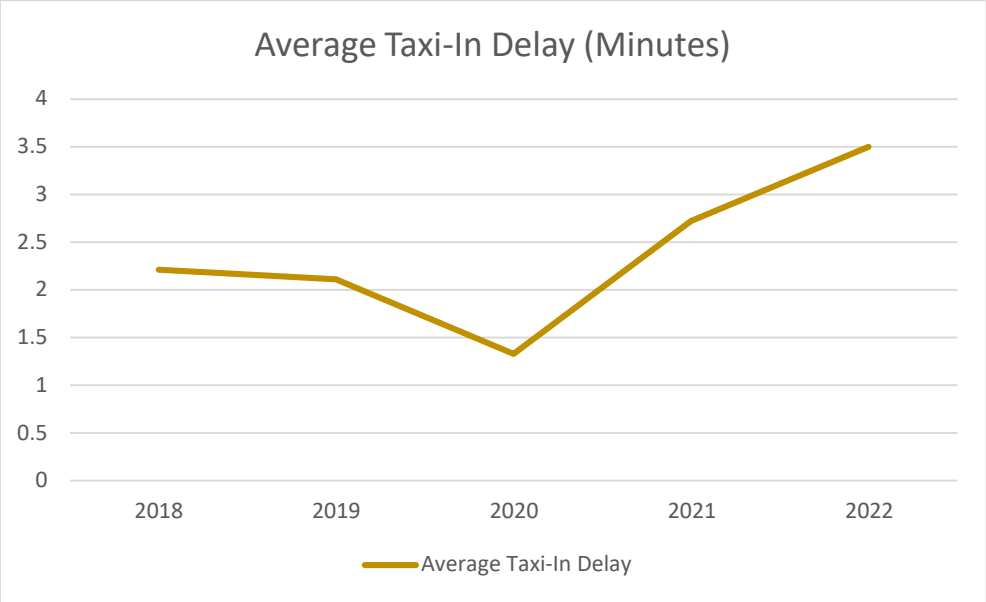
Source: Federal Aviation Administration (FAA). Aviation System Performance Metrics (ASPM) database. Available at: https://aspm.faa.gov/apm/sys/main.asp

Figure 21: Average Airport Departure Delay at ABIA, 2018 - 2022



Source: Federal Aviation Administration (FAA). Aviation System Performance Metrics (ASPM) database. Available at: https://aspm.faa.gov/apm/sys/main.asp

Figure 22: Average Taxi-In Delay at ABIA, 2018 - 2022



Source: Federal Aviation Administration (FAA). Aviation System Performance Metrics (ASPM) database. Available at: https://aspm.faa.gov/apm/sys/main.asp

Pipeline Assets

Pipelines are involved in many aspects of supply chain operations for the petroleum industry – from initial extraction to refinement, processing, storage, and last-mile distribution to customers. While most products are transported by gathering and transmission pipelines, pipelines interface with other modes (i.e., truck rail and water) on the multimodal network.

Table 17 breaks down pipeline mileage by the major commodity types transported by petroleum industry supply chains. Texas pipeline systems transport crude oil, natural gas, and hydrocarbon gas liquids (HGLs) from sources of energy production,[16] traversing the CAMPO region to reach refineries and petrochemical complexes on the Gulf Coast. These transmission pipelines tend to span larger areas with fewer branches and terminals, which is the case in the CAMPO region. Petroleum product pipelines, in turn, transmit refined products such as motor gasoline and various fuels to urbanized areas where product is stored and distributed from terminals for last-mile deliveries by truck to fueling stations, industrial establishments, airports, and other consumption points. In addition, processed, or dry natural gas is delivered directly to homes and businesses via distribution pipelines.

Travis and Bastrop counties are traversed by the most pipeline mileage in the region consisting primarily of natural gas and petroleum product pipelines.

[16] Hydrogen gas liquids (HGLs) are extracted at natural gas processing plants to produce natural gas plant liquids such as propane and butane used for heating or cooking. Ethane is a key natural gas liquid that is converted to ethylene and propylene at "cracking" plant facilities. These products are feedstocks for petrochemical manufacturing to make plastics and synthetic rubber.

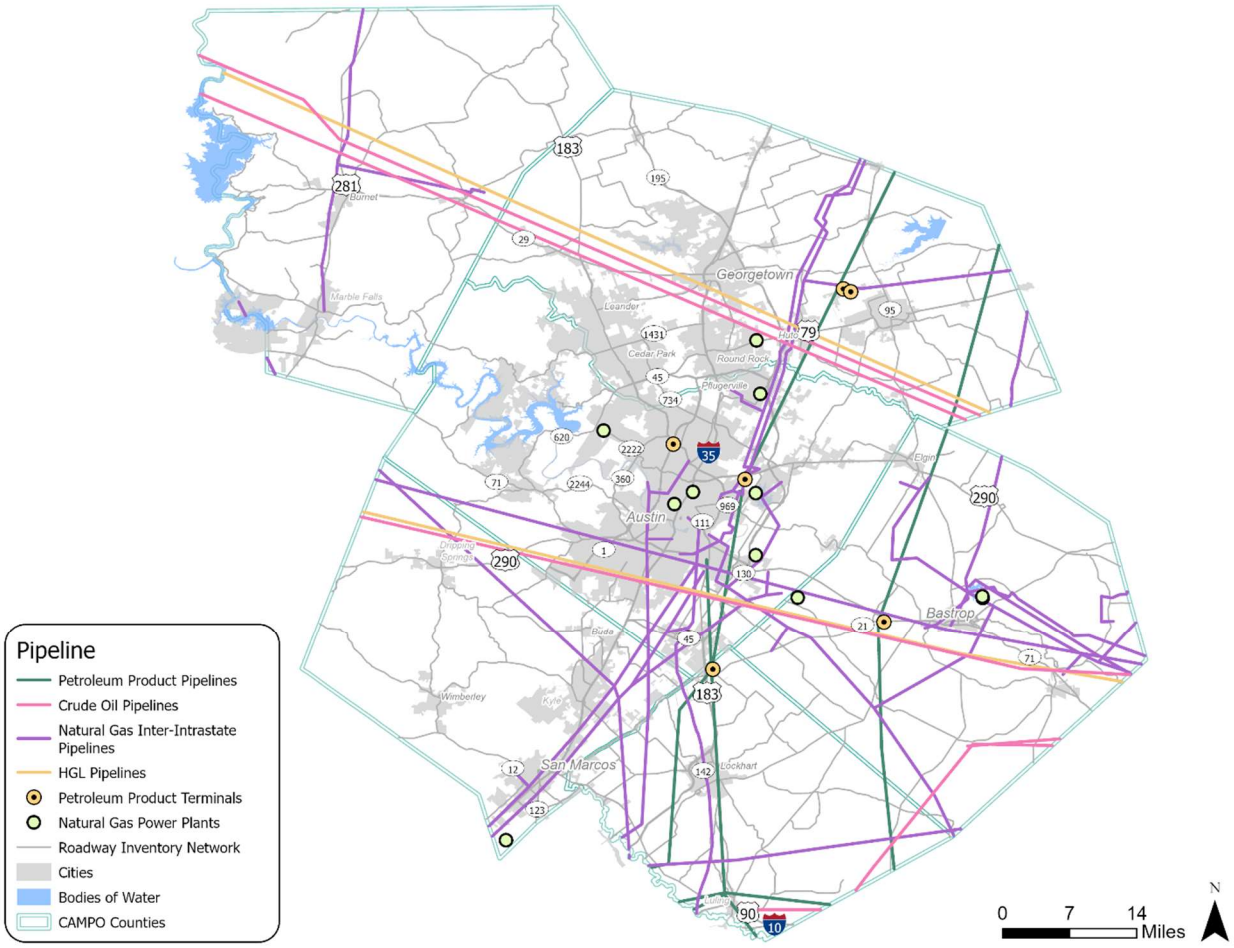
Table 17: Pipeline Mileage by Commodity Type

Type	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	Williamson County
Crude Oil	105 (19%)	156 (50%)	32 (10%)	71 (15%)	71 (12%)	156 (32%)
Natural Gas	249 (44%)	80 (25%)	85 (27%)	266 (56%)	282 (46%)	116 (24%)
Petroleum Products	137 (24%)	0 (0%)	200 (63%)	71 (15%)	188 (31%)	143 (29%)
Hydrocarbon Gas Liquids	71 (13%)	77 (25%)	0 (0%)	71 (15%)	71 (12%)	77 (16%)
Total	562 (100%)	313 (100%)	318 (100%)	478 (100%)	612 (100%)	493 (100%)

Source: U.S. Energy Information Administration (EIA). US Energy Atlas. Available at: https://atlas.eia.gov/

Figure 23 maps the pipeline networks in the CAMPO region, power plants, and product terminals. Several natural gas power plants are within Austin limits, with a few other plants in Bastrop and Hays counties. In addition, the map shows the location of product terminals. The single terminal within Austin city limits with no obvious pipeline connection is an asphalt plant receiving product deliveries by rail and truck. The other terminals shown in Travis, Williamson, Bastrop, and Caldwell counties serve regional demand for fuel.

Figure 23: Pipeline Infrastructure in the Capital Area Region



Source: U.S. Energy Information Administration (EIA). US Energy Atlas. Available at: https://atlas.eia.gov/

Equity

The equity analysis in this section identifies the locations of historically marginalized communities in the CAMPO region in order to better understand where freight activity is likely to impact these populations. Consistent with the definitions in CAMPO's 2045 Regional Transportation Plan, census tracts representing equity focus areas were identified based on socioeconomic characteristics. The definitions include any census tract with 50% of its population earning less than 80% of the county median family income and/or having at least 25% of its population earning an income below the national poverty threshold or any census tract with 50% of its population not identifying as non-Hispanic white.

Table 18 identifies the equity populations in the CAMPO region by county. Across the region, the population living in equity census tracts represented nearly 30% of the overall population of 2.3 million. Travis County has the highest number of people living in equity census tracts and by

proportion (33% of the county total); Hays County follows closely with the second highest proportion of its population living in equity census tracts (32%).

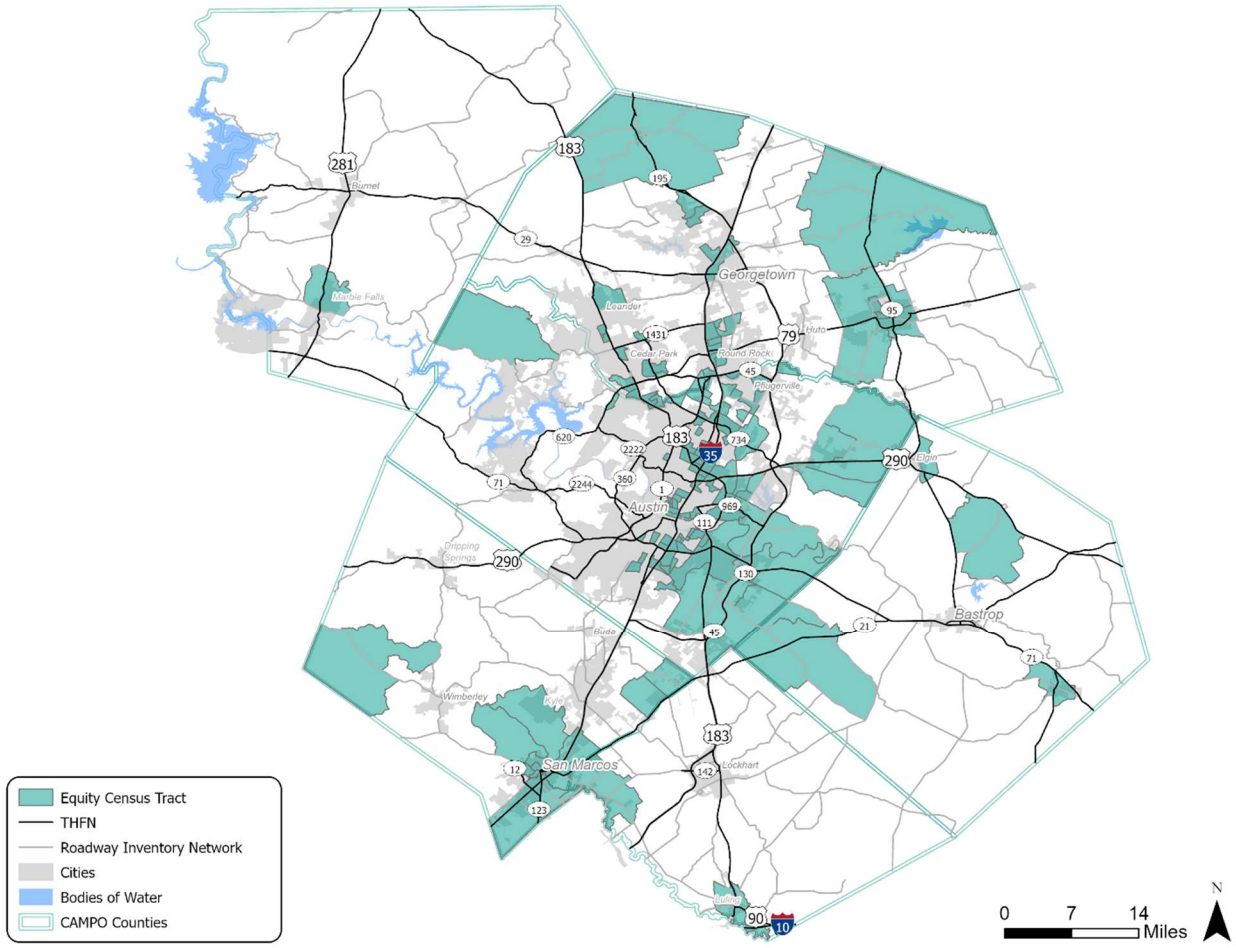
Table 18: Equity Populations in the Capital Area Region

Equity Populations	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	William. County
Minority Population (non-Hispanic white)	35,848	7,078	13,725	54,870	428,955	166,538
Below County Median Income Population	12,398	6,466	5,578	29,925	181,992	84,347
Below National Poverty Line Population	10,089	3,403	5,737	30,917	139,464	36,983
Equity Census Tracts	6	1	3	18	98	35
# of Census Tracts	21	15	11	46	290	135
Equity Tract Population	**27,297**	**4,079**	**10,895**	**75,176**	**424,206**	**125,655**
Total Population	**94,887**	**48,424**	**45,286**	**234,573**	**1,267,795**	**591,759**

Source: US Census Bureau 2021 5-year American Community Survey. Available at: https://www.census.gov/

Figure 24 maps the location of the equity census tracts. Where the tracts intersect, the THFN highlights areas where concentrated freight activity can come near equity populations. Nearly 30% of the total mileage on the THFN is intersecting the equity census tracts. Frequent truck movements along those corridors can impact the quality of life for these communities from increased exposure to tailpipe emissions, noise, and pollution.

Figure 24: Equity Populations in the Capital Area Region



Source: US Census Bureau 2021 5-year American Community Survey. Available at: https://www.census.gov/

Table 19 summarizes the overlap between certain freight infrastructure assets and metrics discussed in previous sections with the equity and non-equity census tracts. If a piece of infrastructure/metric fell within a census tract, then the entire population of that census tract was considered to be affected by the infrastructure/metric. Proximity to freight infrastructure has positive and negative externalities for local populations that can be difficult to balance. Freight infrastructure is often associated with increased exposure to pollutants, noise, and safety risks and may create access barriers (e.g., rail lines with limited crossings) or decrease the utility of other infrastructure (e.g., roads with heavy truck volumes.) However, freight infrastructure is a vector for economic activity in terms of the investment that can be leveraged to improve local infrastructure and create jobs.

Truck exposure is heavily skewed towards equity populations. Despite having less THFN mileage per population, equity tracts have a higher average AADTT, higher average TTTR, a significantly higher truck Vehicle Miles Traveled (VMT) per capita (around 35%), and nearly twice as many truck-involved accidents per capita including higher numbers of fatal and serious injury crashes.

Railroad mileage and crossings per equity and nonequity populations are very similar, with nonequity populations having only slightly more mileage and crossings per capita. Pipeline mileage is skewed towards nonequity populations with around 5 additional miles per 10,000 people in nonequity tracts. Comparison of pipeline terminals and power plants is somewhat difficult due to the low numbers of terminals in the region. For instance, three petroleum product terminals are located in equity and nonequity tracts each. However, the total nonequity population exposed to terminals is more than four times larger than the equity population. Eight natural gas power plants are located in equity tracts and 16 are located in nonequity tracts mirroring the population exposure which is about twice as large for nonequity tracts as equity tracts.

Table 19: Summary of Freight Equity Indicators for Equity and Nonequity Census Tract Populations

Freight Equity Indicators	Equity Census Tracts	Nonequity Census Tracts
THFN Mileage per 10,000 population	5.18	5.66
Mileage weighted AADTT on THFN	4,787	3,257
Mileage weighted TTTR on THFN	4.44	3.96
Truck VMT per Capita on THFN	905	672
Truck Involved Crashes per 10,000 population	48.4	27.6
Fatal and serious injury Truck-Involved crashes per 10,000 population	2.8	1.9
Railroad Mileage per 10,000 population	7.1	8.7
Railroads Crossings per 10,000 population	11.8	11.9
Pipeline Mileage per 10,000 population	11.6	16.0
Population near a Petroleum Product Terminals	4,505	19,076
Population near a Natural Gas Power Plant	37,056	74,301

Source: Cambridge Systematics Analysis, 2023

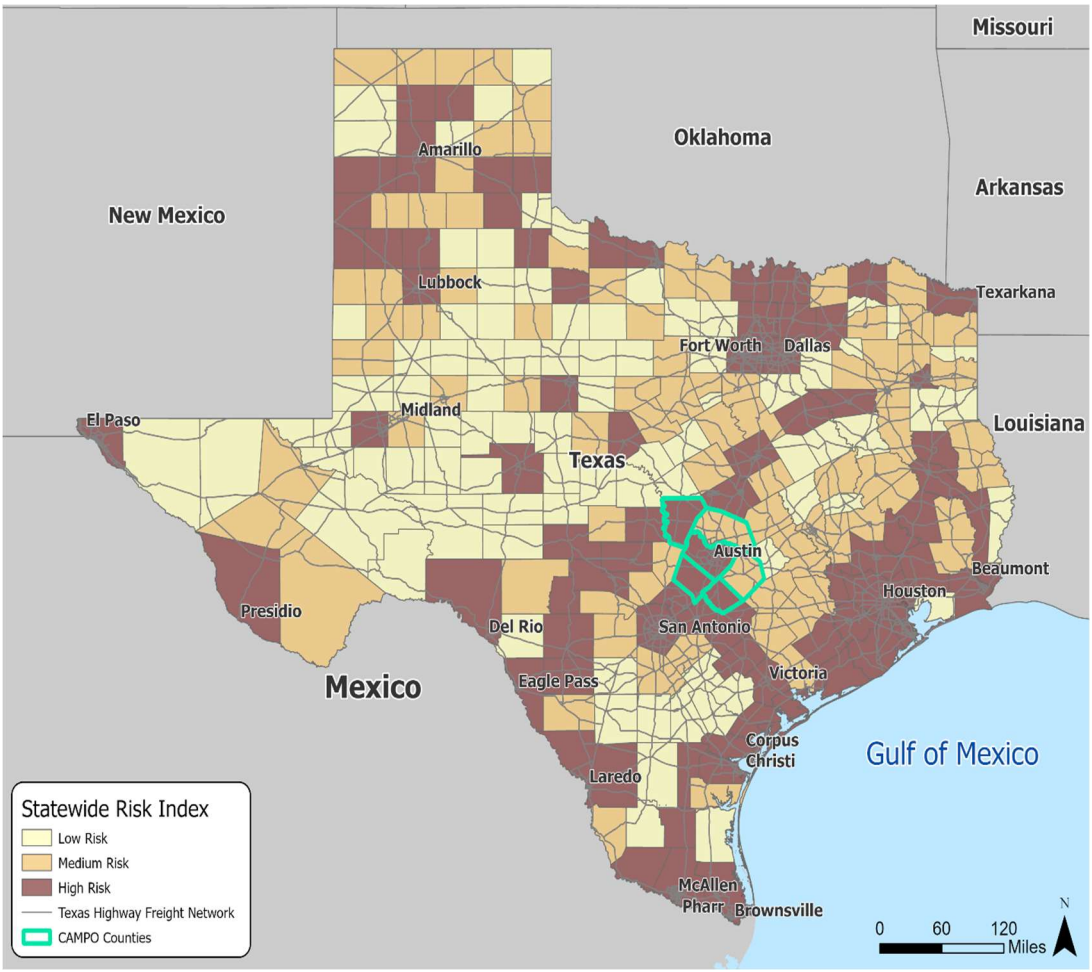
Resiliency

Resiliency needs on the THFN were evaluated for Texas Delivers 2050 using the Statewide Risk Index (SRI), which scores the level of likely impacts for various natural disaster risks. The SRI was calculated for each county in Texas based on the National Risk Index (NRI) provided by Federal Emergency Management Agency (FEMA). Natural disasters include coastal flooding, cold

waves, drought, earthquakes, hail, heat waves, hurricanes, ice storms, landslides, lightning, riverine flooding, strong wind, tornados, wildfire, and winter weather.

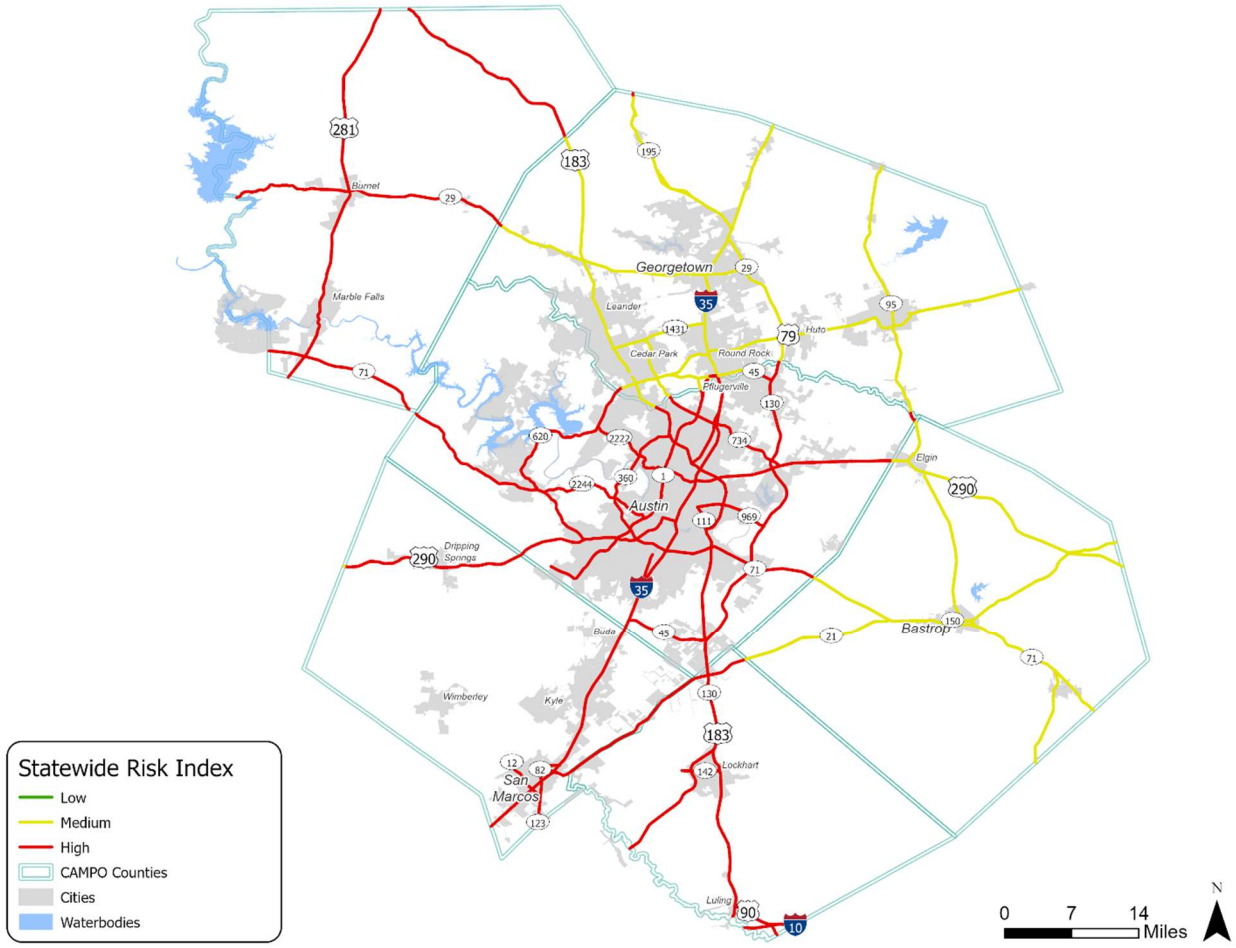
Figure 25 shows the hazard risk index for each county in Texas. The risk is categorized into Low, Medium, and High. Overall, 84 out of the 254 counties in Texas are classified as having high-hazard risk, and 85 are low-hazard risk. As the map shows, counties along the coast are likely more vulnerable than inland counties, and most major cities in Texas are located in high-hazard risk counties. In the CAMPO area, Burnet County, Travis County, Hays County, and Caldwell County are classified as having high hazard risk, while Williamson County and Bastrop County are characterized as having medium hazard risk. Figure 26 shows the THFN classified based on the SRI in the CAMPO area. As the figures show, all segments of THFN within the CAMPO area are classified as either medium or high-risk index. Approximately 526 miles, accounting for more than 61% of total THFN in the area, have a high hazard risk index.

Figure 25: State Hazard Risk Index for Texas Counties



Source: TranSystems analysis of FEMA National Risk Index (NRI) data prepared for Texas Delivers 2050.

Figure 26: Texas Highway Freight Network (THFN) Classified by the Statewide Risk Index



Source: Prepared by Cambridge Systematics based on Transystems analysis of FEMA National Risk Index (NRI) data.

Freight Trip Origins and Destinations

Developed for Texas Delivers 2050, the Texas Truck Analysis Tool uses INRIX commercial vehicle GPS data from 2022 to report the origin and destination flows for truck movements in the state. As outlined in Table 20, there is an average of 43,860 truck trips entering and leaving the CAMPO region each day. Approximately one-third of these trips originate or end in Travis County, followed by Williamson and Hays counties. Caldwell, Bastrop and Burnet counties have the smallest share of truck trips, accounting for about 7%, 6%, and 6% of daily trips, respectively.

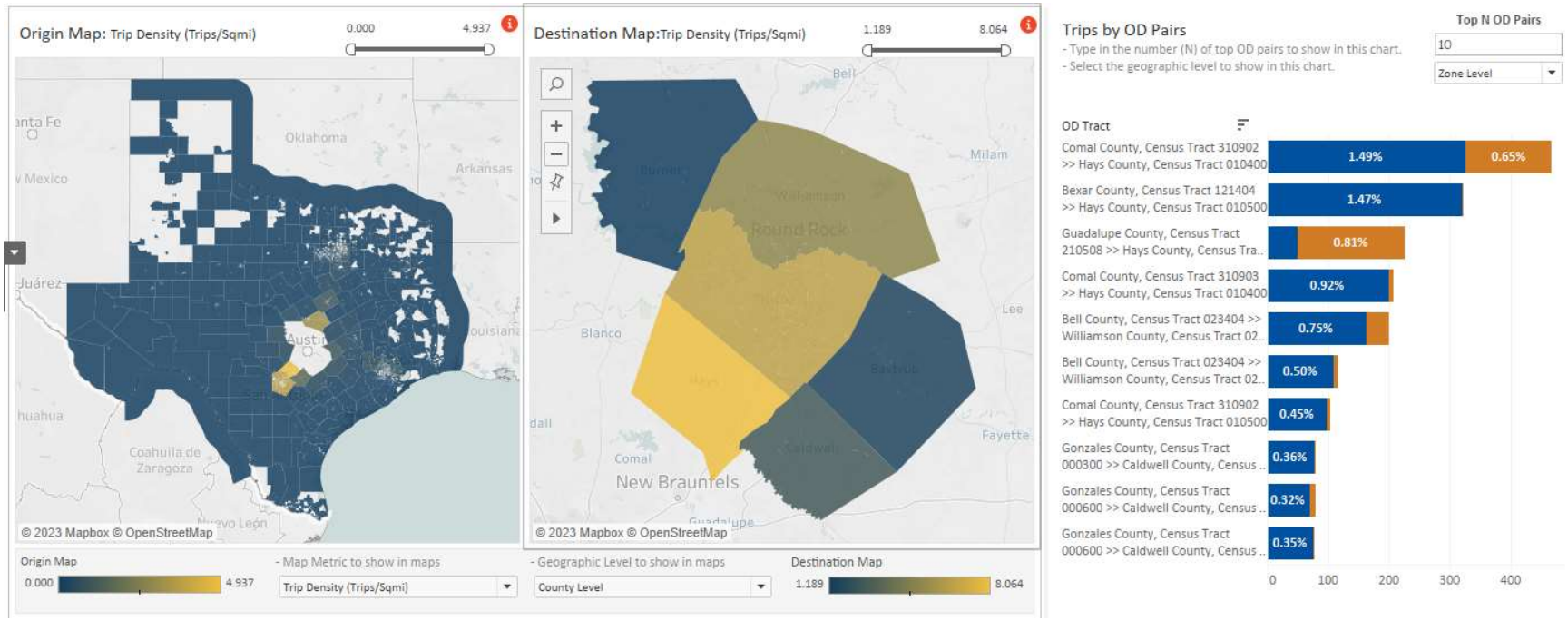
Table 20. Total Inbound and Outbound Trip Trips by County

County	Average Daily Trips (Inbound & Outbound)
Bastrop	2,681 (6%)
Burnet	2,522 (6%)
Caldwell	2,902 (7%)
Hays	9,871 (23%)
Travis	13,349 (31%)
Williamson	11,749 (27%)
Total	43,074 (100%)

Source: Texas Department of Transportation (TxDOT). Texas Truck Analysis Tool (2022).

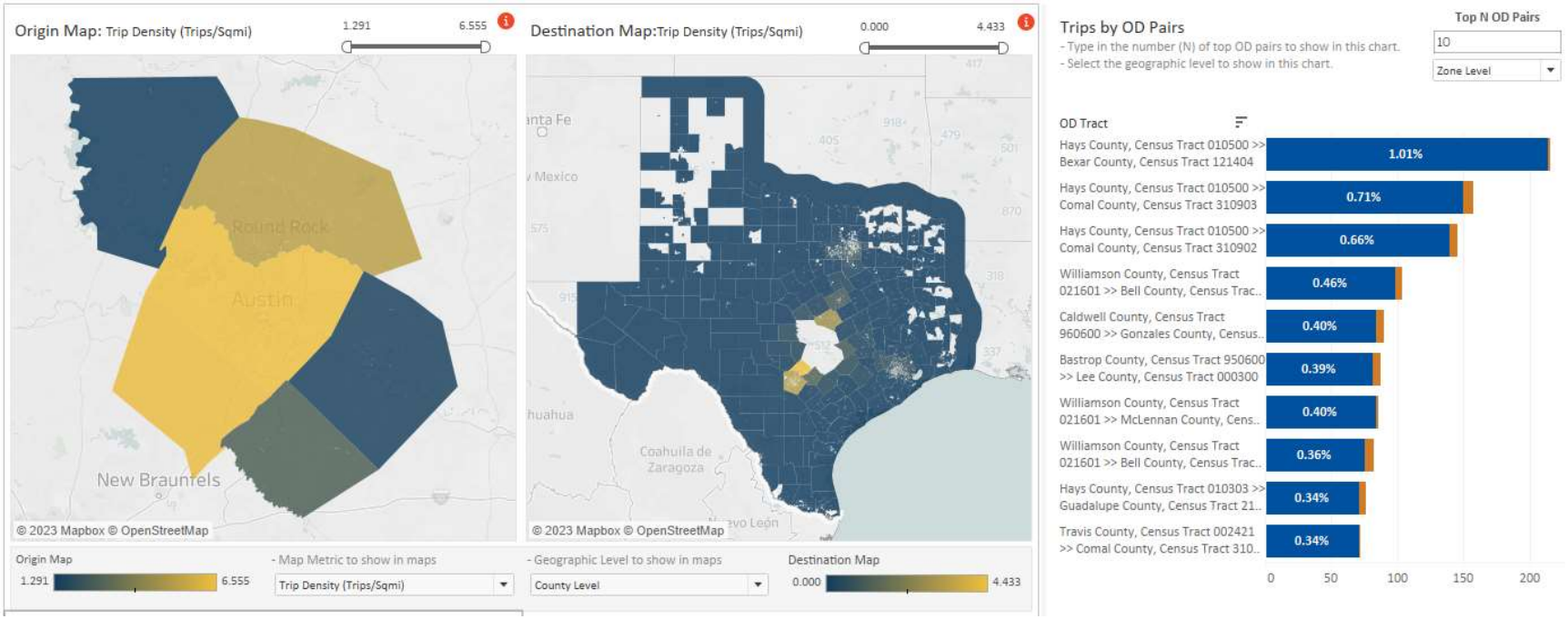
Figure 27 and Figure 28 shows the dashboard from the Texas Truck Analysis tool displaying information on the daily trip flows between the rest of Texas and the CAMPO region. For both inbound and outbound flows, most truck trips are associated with the counties surrounding the CAMPO region such as Bell County to the north and Comal and Bexar counties to the south. The figures show the top 10 origin-destination (O-D) pairs. The top 5 inbound and outbound O-D pairs include Comal, Bexar, Guadalupe, Bell, and Gonzales counties, all of which are adjacent to the CAMPO region. The top 10 O-D pairs are distinguished by vehicle class – blue for heavy-duty trucks and orange for medium-duty. Most of the O-D pairs shown are comprised of trips by heavy-duty trucks.

Figure 27: Daily Inbound Truck Trips to the Capital Area Region, 2022



Source: Texas Department of Transportation (TxDOT). Texas Truck Analysis Tool (2022). Note: In the chart shown (Trips by OD Pairs), trips by heavy-duty trucks are denoted in blue and medium-duty trucks are denoted in orange.

Figure 28: Average Daily Outbound Trips from the Capital Area Region, 2022



Source: Texas Department of Transportation (TxDOT). Texas Truck Analysis Tool (2022). Note: In the chart shown (Trips by OD Pairs), trips by heavy-duty trucks are denoted in blue and medium-duty trucks are denoted in orange.

As shown in Table 21, most truck trips, over 162,000 a day, occurred entirely within the CAMPO region. For trips entering the CAMPO region, 43% originated from the rest of the state of Texas, excluding the Killeen-Temple Metropolitan Planning Organization (KTMPO) and Alamo Area Metropolitan Planning Organization (AAMPO) regions; 39% was from the AAMPO region, 17% from the KTMPO region, and 1% from outside of Texas. Regarding outbound trips from the CAMPO region, 46% of trips terminated within the rest of Texas, excluding the KTMPO and AAMPO regions; 36% went to the AAMPO region, 17% went to the KTMPO region, and 1% went outside of Texas.

Table 21. Trip Distribution Summary for the Capital Area Region

Origin	Destination	Average Daily Trips (% of directional total)
Internal		
CAMPO Region	CAMPO Region	162,715 (100%)
Inbound Trips		
Rest of Texas (excluding KTMPO and AAMPO Regions)	CAMPO Region	9,361 (43%)
Outside of Texas	CAMPO Region	244 (1%)
KTMPO Region	CAMPO Region	3,766 (17%)
AAMPO Region	CAMPO Region	8,519 (39%)
Outbound Trips		
CAMPO Region	Rest of Texas (excluding KTMPO and AAMPO Regions)	9,756 (46%)
CAMPO Region	Outside of Texas	243 (1%)
CAMPO Region	KTMPO Region	3,608 (17%)
CAMPO Region	AAMPO Region	7,580 (36%)

Source: Texas Department of Transportation (TxDOT). Texas Truck Analysis Tool (2022).

Freight Generators

The CAMPO region has experienced rapid population growth, as well as the growth of key industry sectors. As a result, demand on the regional freight network is increasing. This section looks at the intersection of freight activity and land use to identify where freight-intensive industries are clustered and where freight compatible uses are located in the region.

Freight Intensive Industries

The following uses Texas Labor Market Information (LMI) data from the Texas Workforce Commission (TWC) that categorizes employment in the state using North American Industry Classification System (NAICS) codes. Table 22 summarizes employment for particular industries that generate large amounts of freight traffic according to the NAICS classification. With a workforce of over 673,000, the CAMPO region represents nearly 8% of all freight-intensive industry employment in Texas. Travis County has by far the largest workforce in the CAMPO

region across all industries, with 1.7 million total jobs. Travis County's workforce is more diverse than the rest of the region, where freight-intensive employment represents the smallest share of the county total (25%). Outside of Travis County, which is the most populated and urbanized in the region, freight-intensive industries account for a greater share of the employment total. The percentage of jobs in freight-intensive industries is 34% in Bastrop, 37% in Burnet, 38% in Caldwell, 41% in Hays, and 38% in Williamson County. Retail trade and construction employment account for each county's highest share of freight-intensive employment.

Table 22: Freight-Intensive Industry Employment in Texas, 2022

Industry	Bastrop County	Burnet County	Caldwell County	Hays County	Travis County	William. County	Total
Ag., Forestry, Fishing, Hunting (NAICS 11)	396	232	306	292	1,028	458	2,712
Energy (NAICS 2111, 2131, 2211, 2212)	333	216	448	482	7,476	2,048	11,003
Construction (NAICS 23)	3,032	3,501	1,635	13,607	98,528	35,151	155,454
Advanced Manufacturing (NAICS 326, 331, 332, 333, 334, 335, 336)	464	936	130	4,284	64,100	22,946	92,860
Wholesale Trade (NAICS 42)	464	1,606	328	4,092	61,622	27,352	95,464
Retail Trade (NAICS 44-45)	7,896	4,530	3,268	24,450	134,352	54,470	228,966
Transportation, Warehousing, Waste Mgmt. (NAICS 48-49, 562)	944	470	760	16,287	46,724	10,166	75,351
Food, Beverage, and Tobacco Product Manuf. (NAICS 311-312)	434	262	144	1,718	8,352	1,024	11,934
Total, Freight-intensive industries	**13,963**	**11,753**	**7,019**	**65,212**	**422,182**	**153,615**	**673,744**
Total, All Industries	**41,175**	**31,468**	**18,638**	**159,483**	**1,697,504**	**402,968**	**2,351,236**

Source: Texas Workforce Commission (TWC). Texas Labor Market Information. Available at: https://texaslmi.com/LMIbyCategory/QCEW

Land Use

Understanding the linkages between freight and land use is crucial for developing the CAMPO regional freight plan. Land use is important in an existing conditions context since it influences where freight generators and employment are located. The ability to accommodate freight-generating businesses and industries is important for contributing to tax revenues and increasing economic output at state and local levels. This section identifies the region's existing land uses compatible with freight and can help develop a baseline for future land use considerations and freight trends and forecasts.

The land use assessment looks at parcels located within incorporated city limits, which carry three designations that will influence where each type of land use is: Current, Zoning, and Future. Additionally, parcels in a city's extraterritorial jurisdiction (ETJ) are considered. The ETJ is where cities plan for future growth and how they anticipate using those parcels.

These designations influence land use planning, providing insights for formulating recommendations for improving freight access and mobility and supporting economic development. Land use is essential in freight planning, specifically analyzing freight-intensive uses' current and potential future locations. An understanding of future freight trends and needs can be used to inform policies and strategies, such as reserving the most compatible parcels for freight-intensive uses, or prioritizing freight-intensive developments in locations with minimal impacts to surrounding communities and natural resources yet near the multimodal freight network which provides efficient access and connectivity.

Approach

Several steps were taken to gather information concerning land use. First, freight-intensive establishments were mapped within the CAMPO region using Data Axle data. The freight-intensive industries were identified using NAICS codes that correspond to the following industries and are consistent with the definitions used to analyze supply chains for Texas Delivers 2050:

- **Agriculture** (crop, livestock, and food manufacturing)
- **Energy** (oil & gas production and product manufacturing)
- **Mining** (construction materials such as aggregates and cement)
- **Advanced manufacturing** (automotive, electronics, and aerospace)
- **Warehousing, transportation, and retail trade**

Second, to identify existing freight-related land use in each city and county, several sources were referenced, such as land use maps, zoning maps, and economic development corporation websites. Digital news articles were also used to gather information about recently approved or built industrial parks and developments.

Finally, studies were available as additional sources to gather existing land use data. For example, the CAMPO 2045 Regional Arterials Study provided existing land use information along RM 1431, FM 734 (Parmer Lane), RM 12, and SH 21, which will be discussed further in the

County/City Analysis section.[17] Another study available was the City of Austin's Planning and Zoning Department's "Analysis of Industrial Land Use and Zoning," which reviewed the current state of Austin's industrially zoned land.[18]

The total land area for the six-county region is 5,215 square miles. There are numerous municipalities in the region, each with its own land use and zoning maps. **Appendix A** provides a summary assessment of existing industrial land uses and is organized by county. In addition, cities with notable freight-intensive uses are described in further detail within their respective county. Land use maps are provided in **Appendix B**.

Summary

The CAMPO region has experienced significant growth, and vacant or industrial-zoned land should be preserved to accommodate and encourage freight-related growth. Municipalities with suitable access to the freight network that plan for industrial uses within city limits and ETJ will attract freight-intensive users. The economic benefits of industries are numerous – creating jobs, increasing the tax base, promoting business diversity, and catalyzing growth in the surrounding area.

Travis County and Williamson County currently have the highest concentration of freight-intensive uses. Smaller municipalities with existing land use designated as industrial, near major roadways, and without environmental constraints are well-positioned for increased freight-intensive uses. The remaining vacant land designated for industrial uses will be critical to CAMPO's economic growth opportunities to redevelop areas located near major highways that may not have an industrial land use designation and preserve land for agricultural uses. In these developing areas, the roadway networks may not be designed initially to handle frequent truck traffic and oversized/overweight loads. The following are considerations for integrating freight-intensive land uses with the multimodal freight network across the region:

- Access management
- Rural highway safety
- Bridge and pavement asset management
- Presence of low-clearance or load-restricted bridges
- Roadway design criteria
- Connectivity with the Texas Highway Freight Network (THFN)

The Forecasts and Trends section in the CAMPO regional freight plan will identify major planned projects, examine economic development priorities, and review land use policies to create a conceptual map of freight growth areas. Most importantly, stakeholder input will be critical for proposing future freight-intensive land use designations and identifying preferred growth areas. These areas will also depend on identifying multimodal freight roadway networks for

[17] Capital Area Metropolitan Planning Organization. Regional Arterials Concept Inventory, p. 318. August 2019. Accessed at FINAL-CAMPO-Regional-Arterials-Concept-Inventory
[18] Water, M., & Engstrom, J. Analysis of Industrial Land Use and Zoning in Austin, Texas, September 2020. Accessed at Presentation to Planning Commission

improvements. This comprehensive approach will address growth and development for one of the nation's fastest-growing regions.

Key Supply Chains

With the national focus on supply chains and their sensitivity to disruption, Texas Delivers 2050 informed freight transportation investments and decision-making by analyzing the TMFN's role in the State's critical supply chains. In coordination with the Texas Freight Advisory Committee (TxFAC) and targeted industry clusters identified by the Texas Governor's Office on Economic Development, critical supply chains contribute to key areas of the Texas economy. The supply chains and subsectors listed below have major clusters located in Central Texas and generate significant freight activity.

- **Agriculture**: animal and crop production and food manufacturing
- **Construction**: mining and production of non-metallic minerals and aggregates
- **Electronics**: production of electrical components and semiconductors
- **Petroleum**: midstream distribution and downstream production of petroleum-based products
- **Transportation Equipmen**t: automobile parts manufacturing and vehicle assembly
- **Warehousing and Distribution**: general warehousing and retail distribution

The sectors above represent the high-profile investments fueling the rapid growth and transformation of the regional economy in Central Texas. On the manufacturing front, recent investments by Tesla and Samsung in Travis and Williamson counties are closely identified with the growth of the region's semiconductor manufacturing, automotive production, and other high-value sectors. Those industries have been attracted to the CAMPO region with its strong manufacturing base, access to skilled and talented labor, and connectivity with markets and trade gateways through the multimodal freight network.

The following section references the supply chain analysis conducted for Texas Delivers 2050 to highlight clusters of key freight generators and land uses in the CAMPO region. The commodity flow analysis for Texas Delivers 2050 includes using the Transearch database from IHS Markit (now S&P Global) for Texas. This database has the base year of 2019 and was enhanced to improve how some important flows in Texas are captured, including cross-border trade, maritime trade, and energy-related commodities. The analysis also references the location of business establishments for the six supply chains using the Business Data product from Data Axle (formerly InfoUSA). The locations were filtered to the industry sectors represented by the supply chains using NAICS codes that correspond to the types of commodities for the sectors outlined earlier.

Agriculture

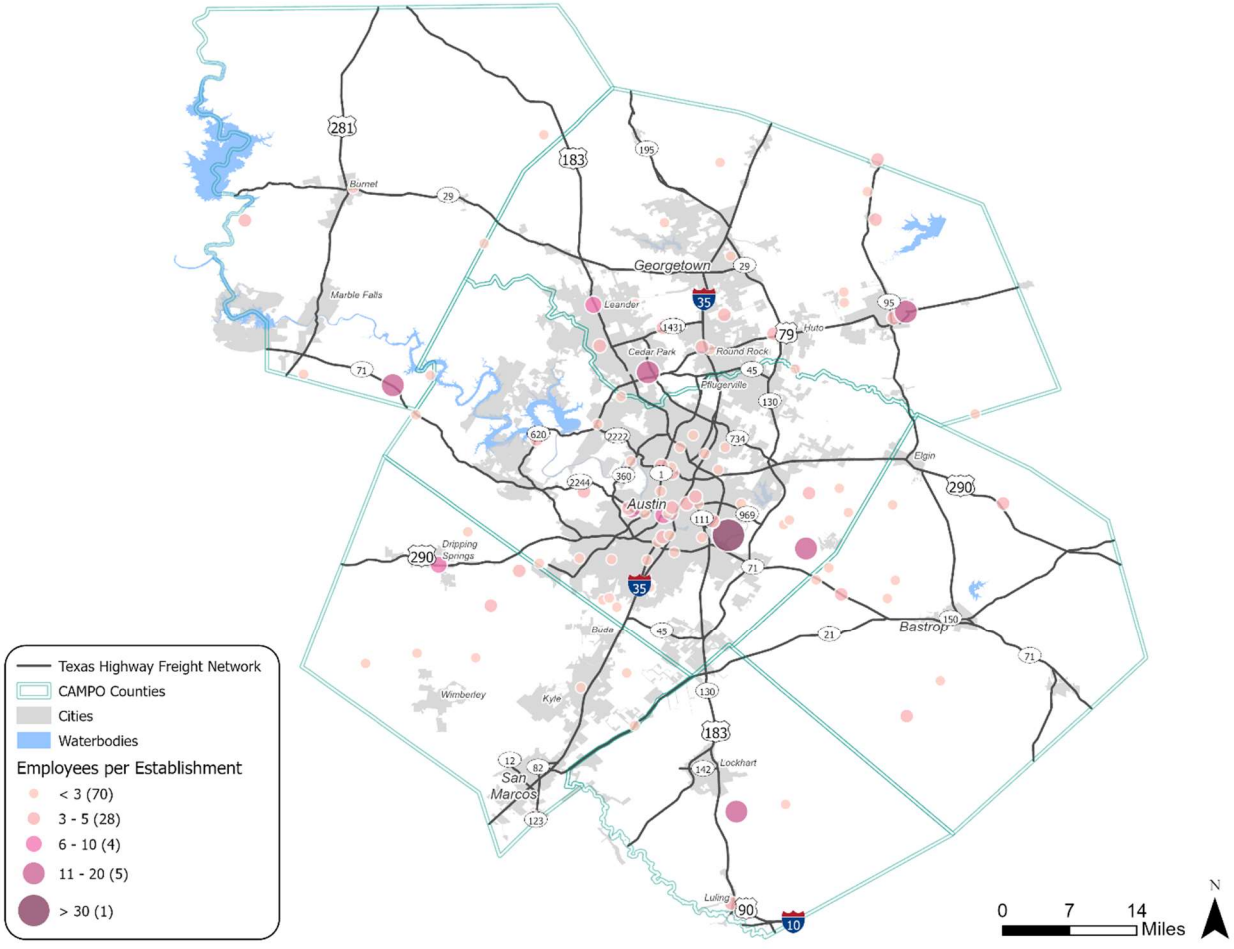
This section discusses the location of supply chains in Central Texas that support the state's agriculture and food manufacturing industries. The sector includes establishments in agriculture crop production, animal livestock production, and food manufacturing. Crop production includes crops that are farmed, harvested, and sent to market. Animal livestock production

includes livestock breeding, farming, and slaughter. Finally, food manufacturing is associated with the production of food products.

Crop Production Sector

The location of agricultural crop production establishments is shown in Figure 29. Crops produced in the CAMPO region include corn, hay, and wheat. Most establishments are located in Travis and Williamson counties, especially in the parts east of the IH 35 corridor where most cultivated land is situated. For example, the cluster shown in central Austin includes small-scale urban farms, orchards, and nurseries located in the city's eastern part. Outside of urbanized Travis County, roadways such as SH 95, SH 71, US 290, and US 79 provide access to the THFN for agricultural production establishments.

Figure 29: Agricultural Crop Production Establishments by Employee Size in the Capital Area Region, 2020



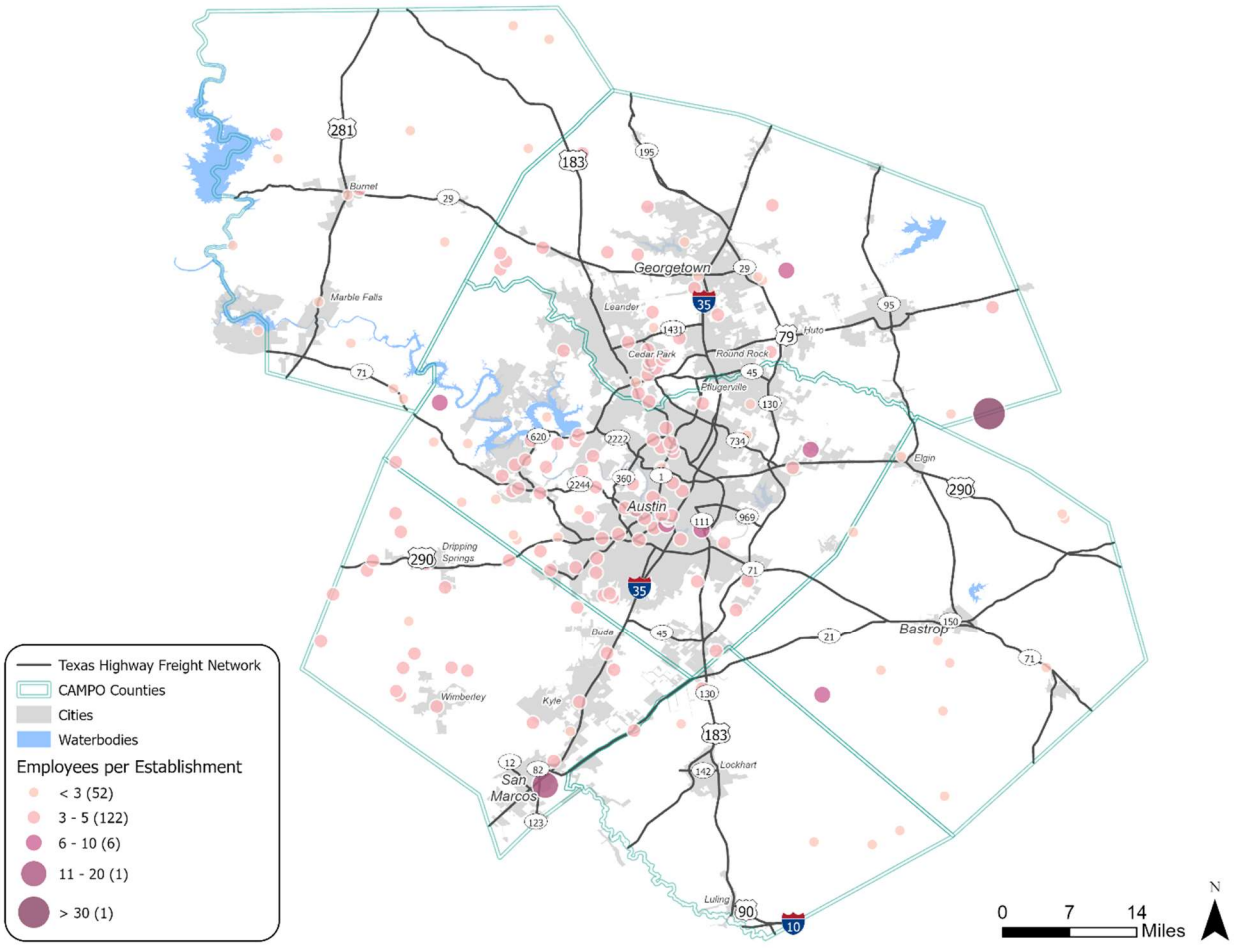
Source: Prepared by Cambridge Systematics using data provided by Data Axle. (2021). Business Data (2020)

Animal Livestock Production Sector

The location of establishments in the animal production industry is shown in Figure 30. Compared to the previous figure for crop production, most establishments in Travis, Hays, and

Williamson counties, especially in the parts west of the IH 35 corridor where many ranches are located in the Hill Country area. Roadways such as SH 29, RM 620, RM 2244, US 290, and SH 71 provide access to the THFN for animal production establishments in Hays County and the western parts of Travis and Williamson counties.

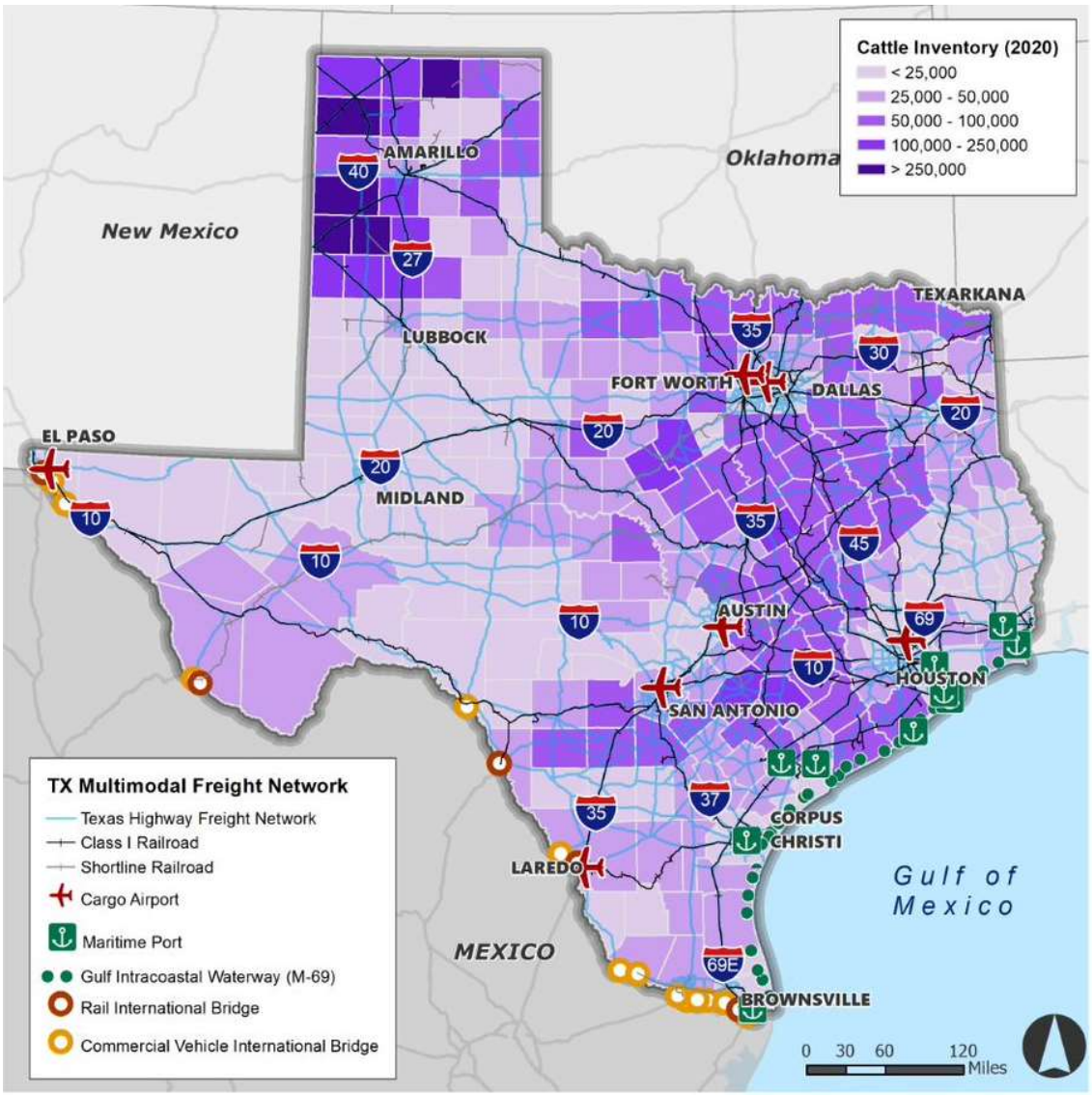
Figure 30: Animal Production Facilities by Employee Size in the Capital Area Region, 2020



Source: Prepared by Cambridge Systematics using data provided by Data Axle. (2021). Business Data (2020)

The livestock cattle supply chain consists of multiple well-defined clusters, especially within Texas. However, it also consists of numerous small farms dispersed throughout the majority of the state. For Texas-born cattle, large concentrations of early-stage farms can be found throughout the state, but especially in eastern Texas (Figure 31). Williamson and Bastrop counties have the highest cattle inventory within the CAMPO region.

Figure 31: Cattle Inventory by County in 2020

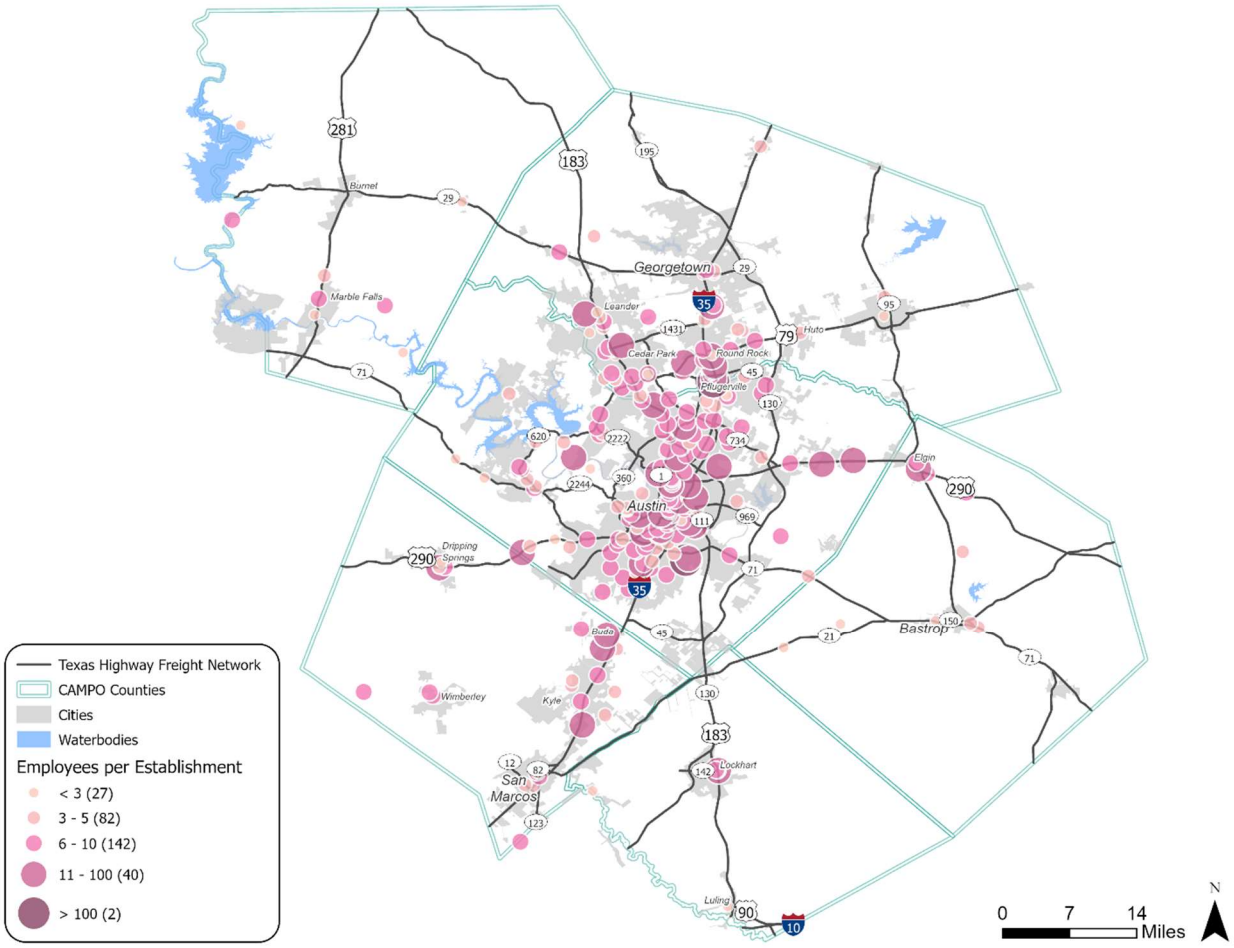


Source: Prepared by Cambridge Systematics using data provided by USDA, Texas Agricultural Statistics 2020, Available at- https://www.nass.usda.gov/Statistics_by_State/Texas/Publications/Annual_Statistical_Bulletin/index.php

Food Manufacturing Sector

The location of establishments in the food manufacturing industry is highlighted in Figure 32. Many establishments are close to roadways such as US 183, FM 734, and IH 35 in Austin's north and central parts. Some of the larger establishments by employee size are outside of the urban areas of Austin along US 290 and IH 35 in Hays County and along US 290 in the western and eastern parts of Travis County.

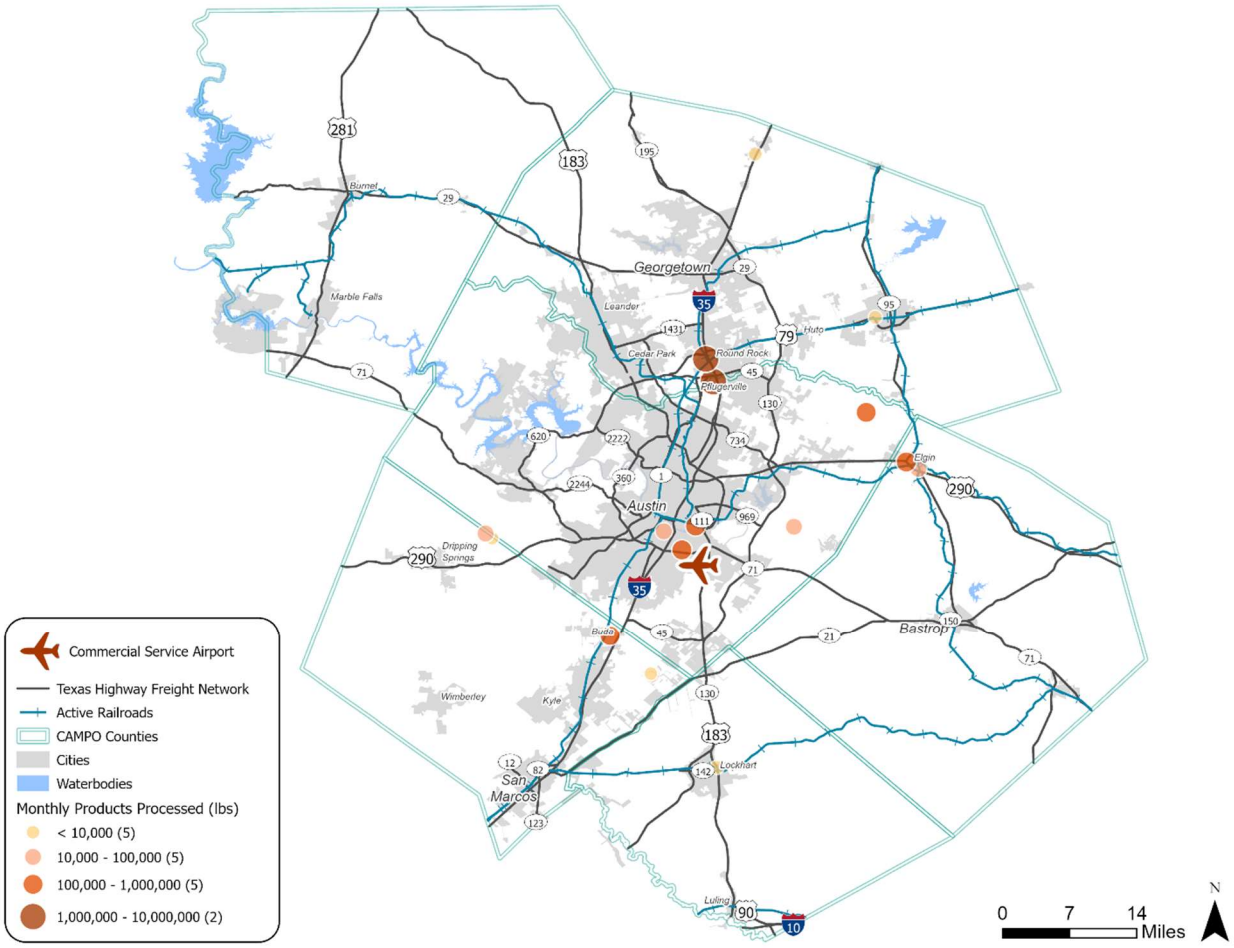
Figure 32: Location of Food Manufacturing Establishments in the Capital Area Region, 2020



Source: Prepared by Cambridge Systematics using data provided by Data Axle. (2021). Business Data (2020)

Figure 33 shows the location of meat, poultry, and egg product manufacturing plants in the CAMPO region by volume of monthly processed products. Much of the food manufacturing activity in the region is located in the area of IH 35 and US 79, and SH 45 in the northern part of Austin and to the south near the airport. Other locations with a high production volume are near Elgin in Bastrop County and Buda in Hays County.

Figure 33: Meat, Poultry, and Egg Manufacturers in the Capital Area Region, 2020



Source: Prepared by Cambridge Systematics using data provided by USDA's Food Safety and Inspection Service (FSIS).

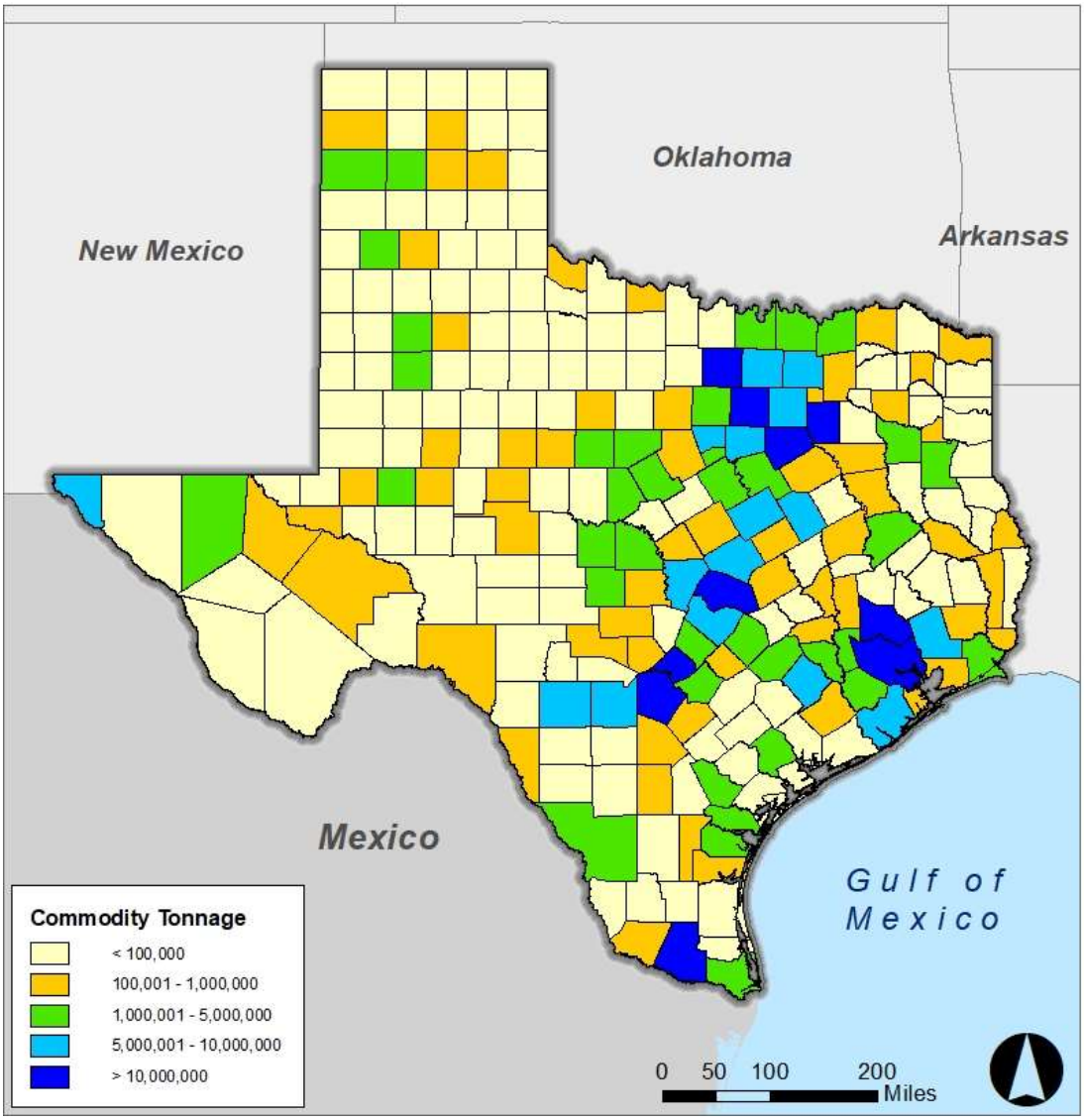
Construction

This section discusses the location of supply chains in Central Texas that supports construction industries in the state. The sector includes nonmetallic mineral production establishments, including raw materials, such as aggregates and limestone originating from quarries and mines, and finished materials, such as cement and concrete, either brought to or manufactured in Texas. Central Texas is both a producer and consumer of nonmetallic minerals; the region has the requisite geological formations to produce limestone and sandstone.

Nonmetallic Mineral Production Sector

Nonmetallic mineral products have a low value per ton and are expensive to transport, so they tend to be sourced from locations close to where they are consumed. Since much of the construction occurs in urban metropolitan areas, the highest concentrations of nonmetallic mineral production in Texas are located near metropolitan areas, as shown in Figure 34. Within the CAMPO region, Williamson County has the highest level of originating tonnage, followed by Williamson, Travis, and Burnet counties; production is concentrated on the west side of IH 35.

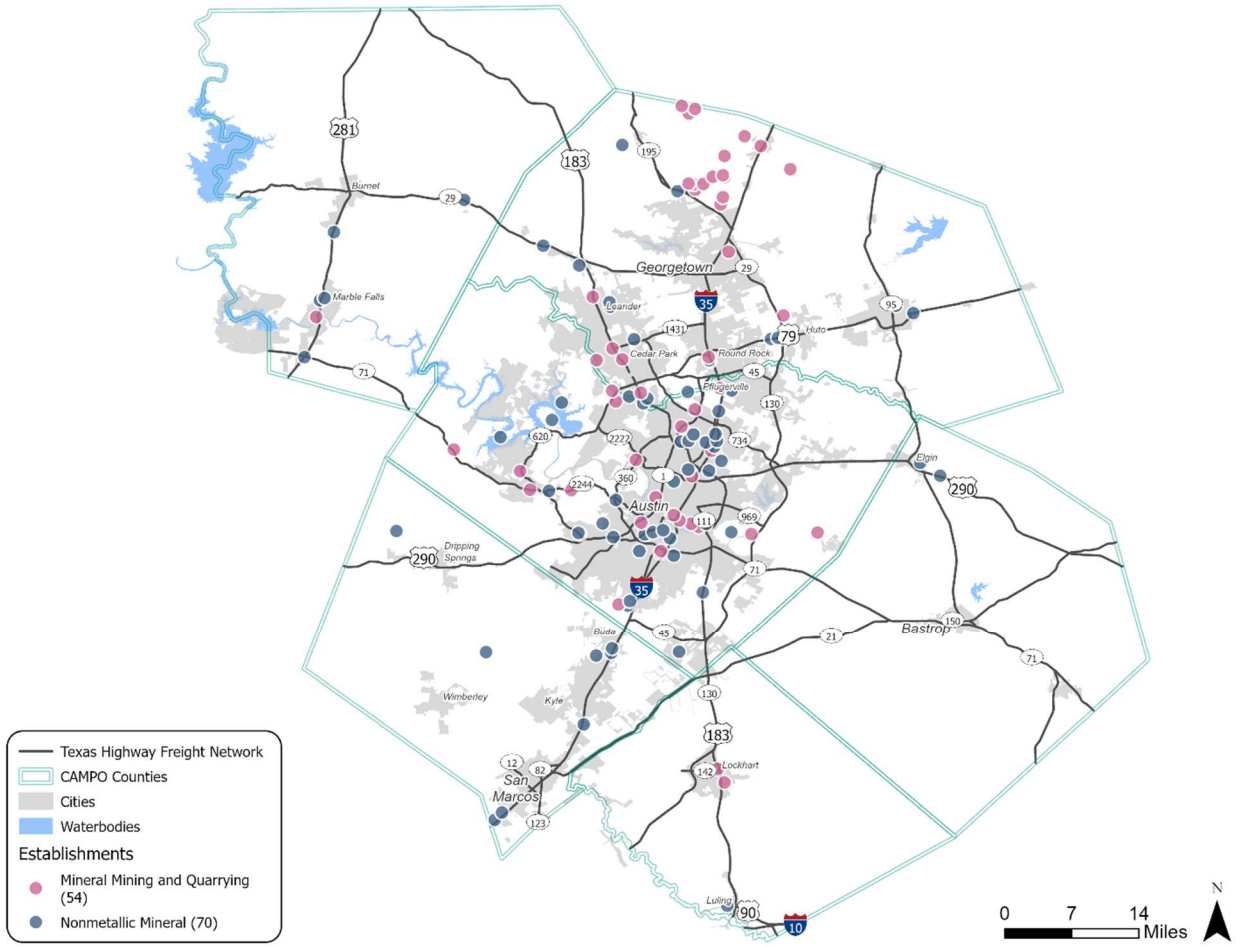
Figure 34: Origins of Commodity Flow Tonnage for Nonmetallic Mineral Production, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Figure 35 displays mining and quarrying establishments and nonmetallic mineral manufacturing establishments, which use nonmetallic minerals to make products like cement, concrete, and precast concrete items. Establishments are mainly clustered to the west of IH 35 in Williamson and Travis counties. These locations are near roadways on the THFN, such as SH 195, US 183, and SH 71, and in proximity to the freight rail network.

Figure 35: Location of Nonmetallic Mineral Product Manufacturing and Quarrying Establishments, 2020



Source: Prepared by Cambridge Systematics using data provided by Data Axle (2021). Business Data (2020).

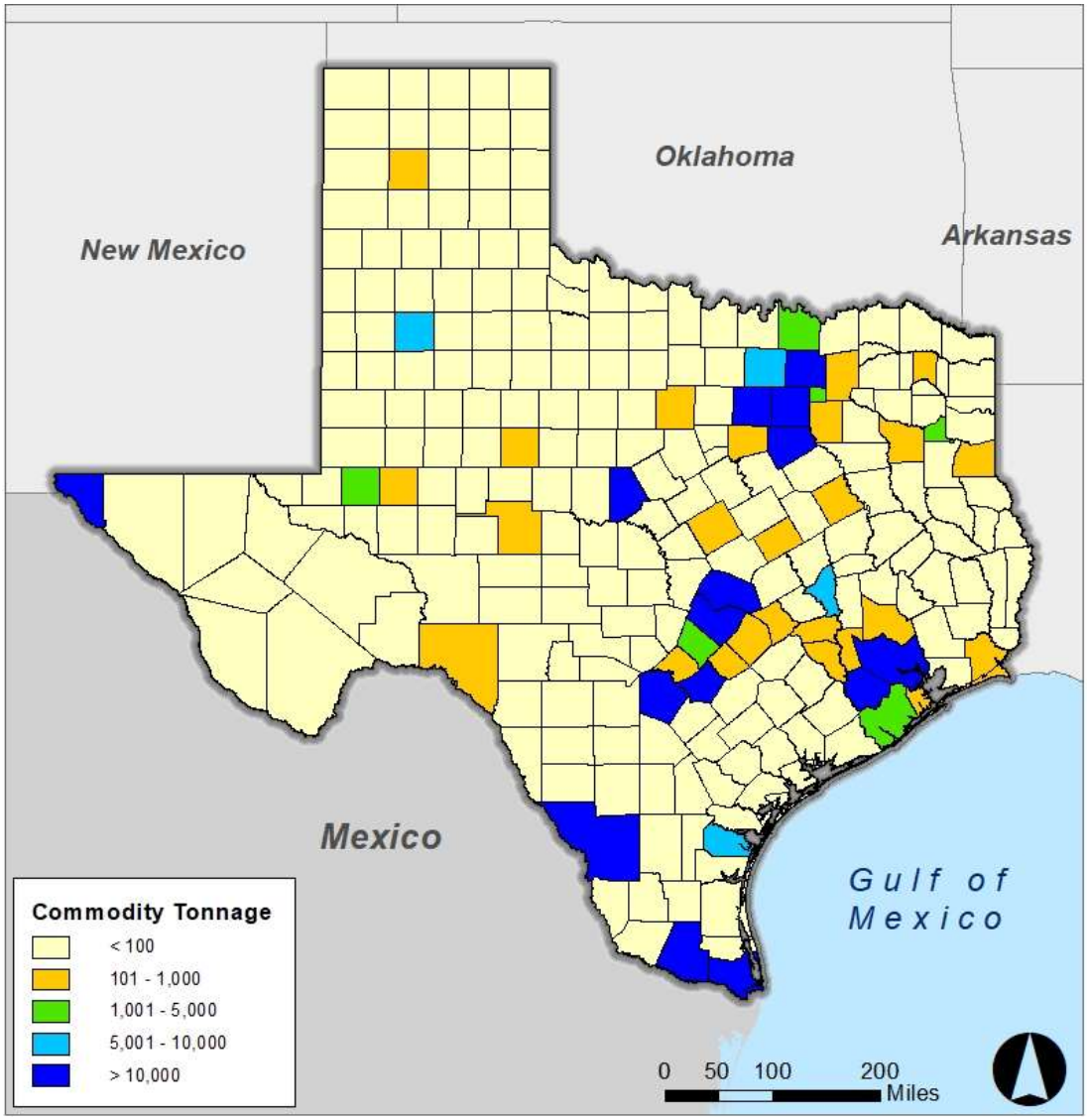
Electronics

This section discusses the location of supply chains in Central Texas that supports electronics industries in the state. The sector includes establishments that manufacture electronic components and semiconductors. Electronic commodities include consumer products such as televisions, radios, phones, and equipment used in industrial and commercial settings; the sector also produces components such as batteries and semiconductors. Semiconductors are a key sector comprising a broad set of intermediate products, including diodes, computer logic modules, and transistors, essential components of most electronic circuits. All items in this category are critical building blocks of the components that go into computers, cell phones, automobiles, and many other products.

As shown in Figure 36 the largest concentrations of electronics commodities originate in the Texas Triangle (Austin, Dallas-Fort Worth-Arlington, Houston, and San Antonio). Within the CAMPO region, Williamson and Travis counties have the highest levels of originating tonnage for electronics commodities. Overall, production facilities are primarily centered in the Texas

Triangle. However, the concentration in Houston is likely attributed to imports through Port Houston. Likewise, the tonnage along the border in El Paso, Laredo, McAllen, and Brownville is likely attributed to imports from Mexico.

Figure 36: Origination of Commodity Tonnage for Electronics, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

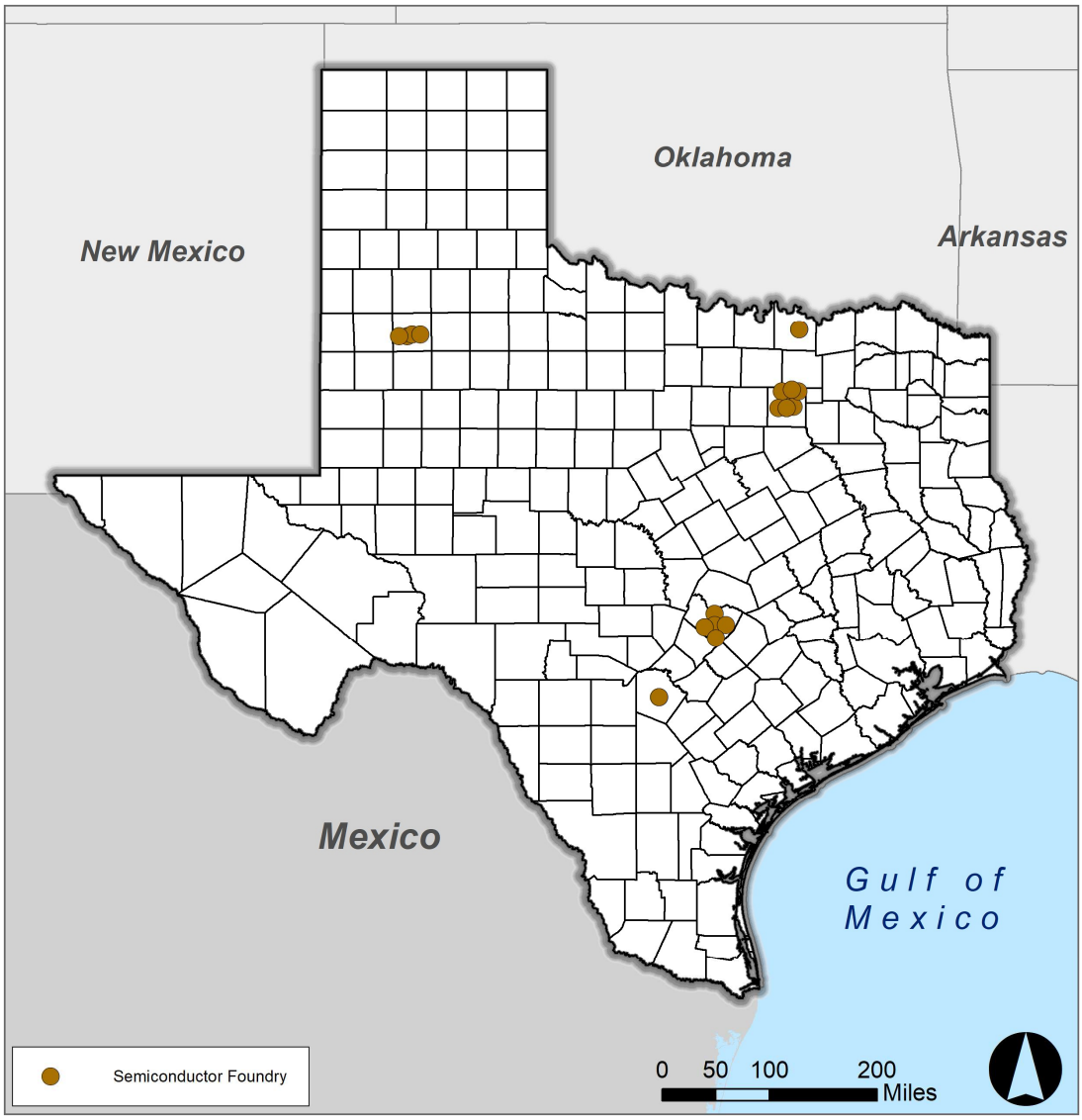
Semiconductor Sector

Semiconductors are an important part of the U.S. and Texas economies. Moreover, they are an integral part of the technology used in everyday life, and they go into everything from light switches and refrigerators to computers, automobiles, and cell phones. The term semiconductor for the purpose of this supply chain analysis is a broad term that includes items such as solid-state electronic devices, diodes, computer logic modules, and transistors.

Semiconductor foundries are high-tech plants that are a vital part of the chip manufacturing process. These large facilities use a tremendous amount of electricity at rates higher than automotive plants and oil refineries. Additionally, the amount of water used by these plants is very substantial. Further, the manufacturing of semiconductors is a complex process that includes hundreds of inputs, a large portion of which are raw materials such as chemicals and gases. Raw materials and intermediate materials are sourced both domestically and internationally. However, while there are domestic sources of some of these materials (such as gases and wet chemicals), a large portion of materials, including intermediate products (such as silicon wafers, photomasks, and photoresists), are imported from abroad, especially Asia. For these reasons, as well as the cost of labor, most semiconductors are currently produced in Asia. However, Texas has a growing number of semiconductor facilities, with newer arrivals such as Samsung joining well-established companies such as Texas Instruments, Advanced Micro Devices (AMD), and National Instruments, which have long-standing design and fabrication facilities in Central Texas.

Within Texas, two main areas produce a large portion of the state's semiconductors: Dallas-Fort Worth-Arlington to the north and Austin-Round Rock in the CAMPO region. These two metro areas are home to 12 of the 15 semiconductor foundries within the state, as shown in Figure 37. In the CAMPO region, the foundries are concentrated in Travis County.

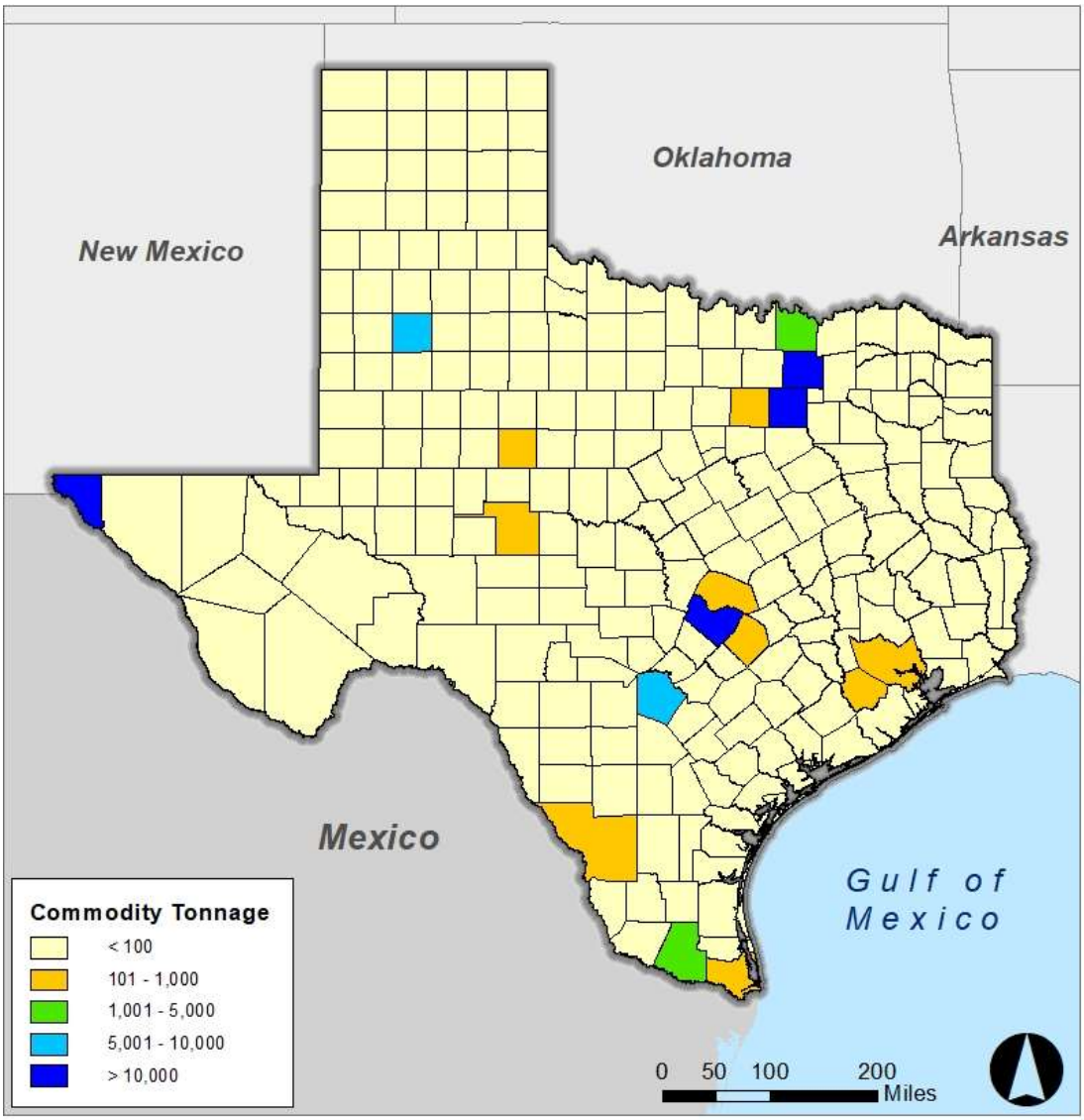
Figure 37: Semiconductor Foundry Locations in Texas, 2021



Source: Semiconductor Industry Association

As shown in Figure 38, Travis County is among the Texas counties with the highest originating tonnage for semiconductor commodities. Williamson and Bastrop counties are also among the counties that produce originating tonnage. However, these are more likely to be diodes and other smaller components categorized with semiconductors.

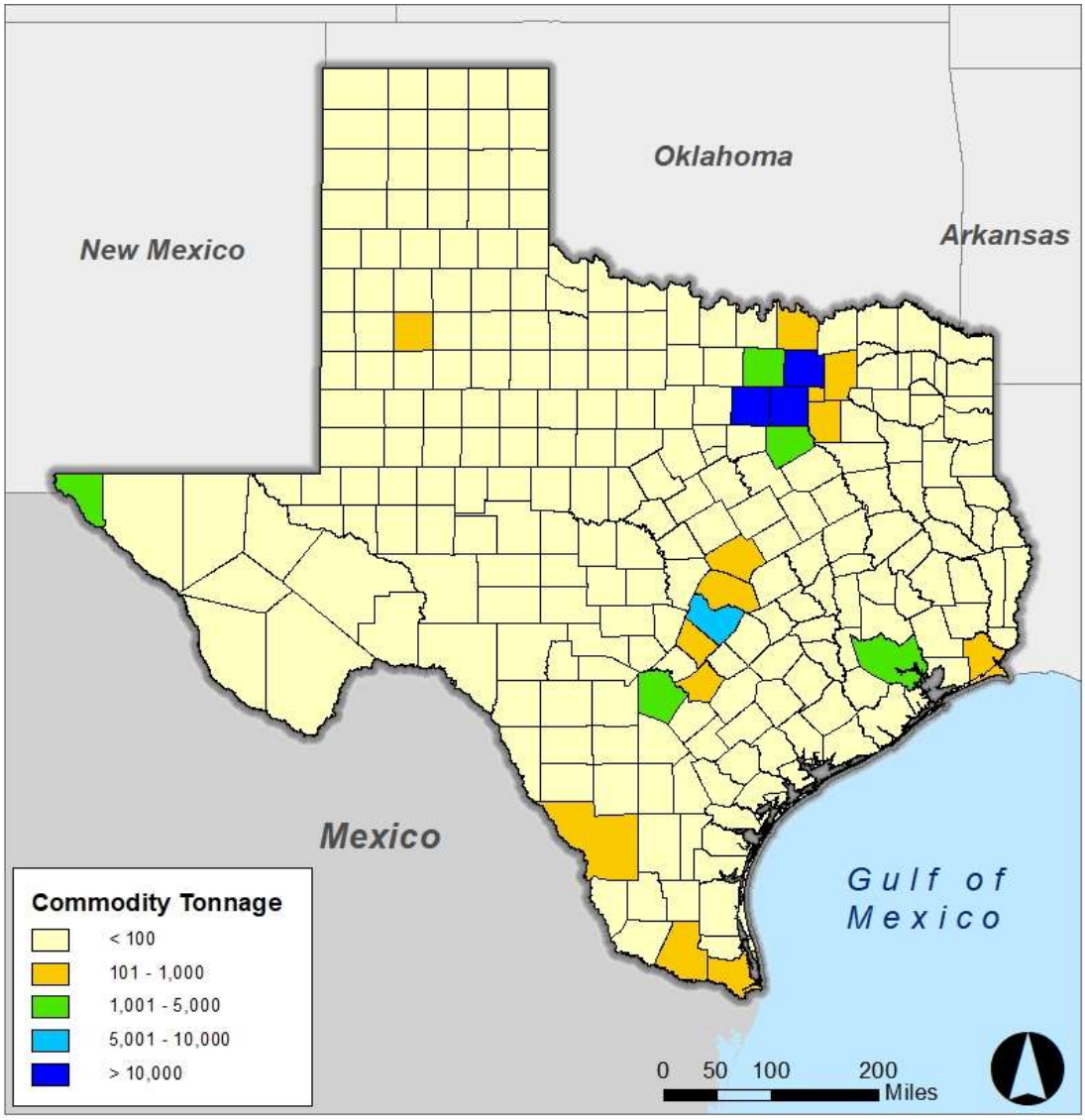
Figure 38: Origins of Commodity Tonnage for Solid-State Semiconductors, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

As shown in Figure 39, the demand for semiconductors is concentrated in the Texas Triangle since this area serves as input to computers and other electronics products manufactured in these areas. Along with the Dallas-Fort Worth-Arlington metropolitan area, counties in the CAMPO region have the highest concentration of semiconductor demand. The high-value shipment of semiconductors requires access to air freight. Airports such as DFW and Austin-Bergstrom provide global gateways to manufacturing materials, intermediate products, and finished semiconductors. Semiconductors are extremely fragile, and the vibrations from truck travel can easily damage them. Thus, they are predominately trucked to an airport and shipped via air to locations domestically and internationally.

Figure 39: Destinations of Commodity Tonnage for Solid-State Semiconductors, 2019



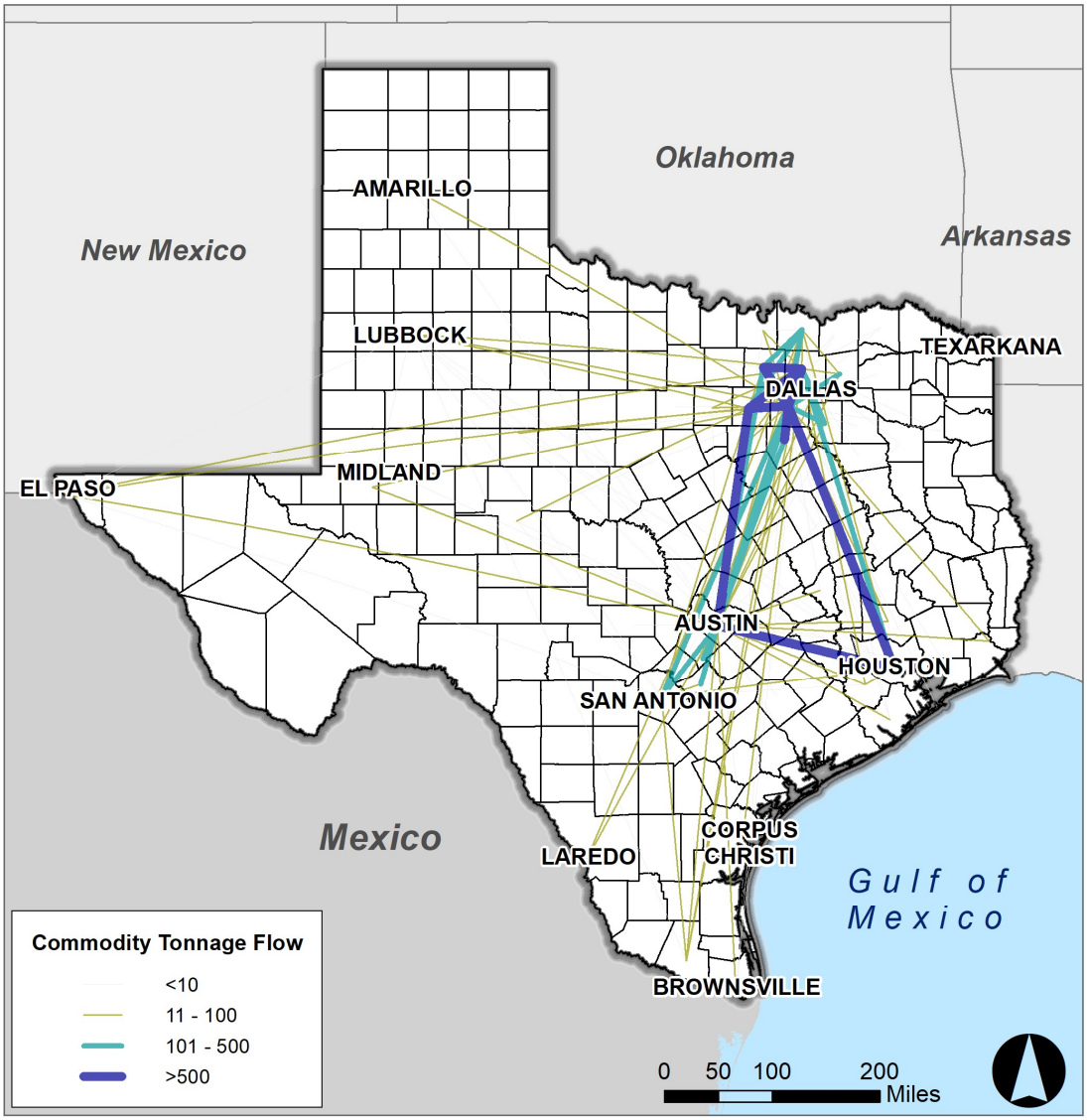
Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

According to Transearch, the predominant inbound flows are from California, Oregon, and Colorado, which includes semiconductors manufactured in those states but, importantly, the flows from ports of entry which, in this case, include significant flows from airports. In addition, international air cargo consists of flows from Asia with suppliers and semiconductor manufacturing in countries such as Taiwan, South Korea, and Malaysia.

For outbound flows, large portions go domestically to states such as Illinois, Florida, and New York. Internationally, there are large flows that go to Mexico and Central America and considerable flows to Europe. International air cargo flows also connect manufacturers and suppliers in Texas with East Asia. Figure 40 shows the commodity flows for semiconductors

within Texas. The flows connecting the urban areas of the Texas Triangle highlight the importance of the CAMPO region as a primary consumer and producer of semiconductors.

Figure 40: Commodity Tonnage Flows within Texas for Solid-State Semiconductors, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Petroleum

This section discusses the location of supply chains in Central Texas that supports petroleum industries in the state. The sector includes establishments in petroleum product distribution and the downstream production of plastics and rubber derived from petrochemicals. Texas is the leading domestic producer of crude oil and natural gas, and Central Texas has several transmission pipelines crossing the region. The sector includes establishments involved in storing and distributing finished products such as motor gasoline, diesel, and other liquified fuels

and gasses refined and processed in other parts of the state. The plastics and rubber manufacturing sector uses resins that are a byproduct of petroleum refining and polymerization to create pellets that are key components for the other manufacturing industries, namely automotive, which has a major cluster in the CAMPO region.

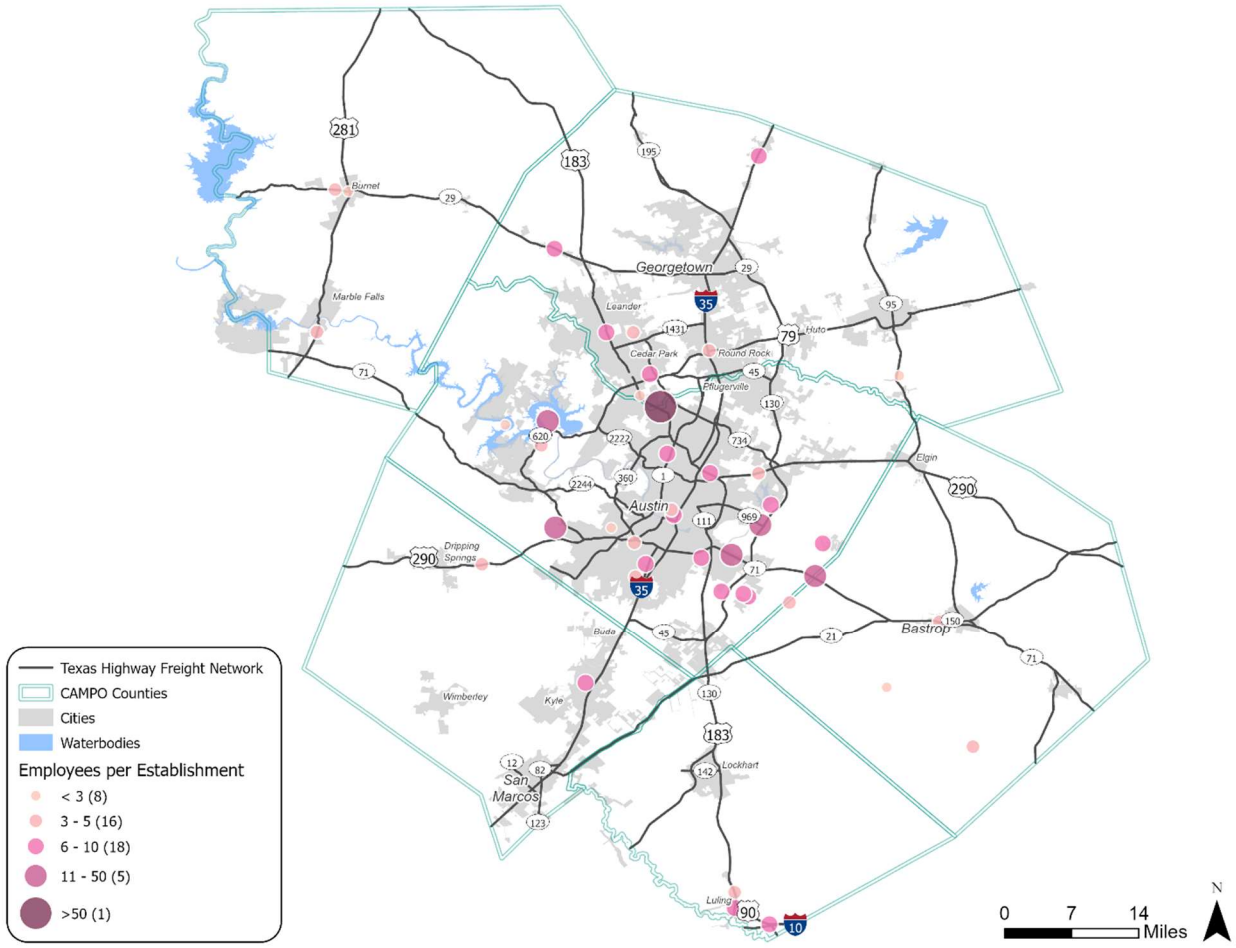
Petroleum Product Distribution Sector

The distribution part of the supply chain refers to the midstream operations of the petroleum industry. This sector provides the logistical networks and the storage and handling facilities that link upstream oil & gas producers with downstream operators that refine and process petroleum into various products. For example, pipelines transport crude products in bulk from shale gas-producing regions such as the Permian Basin in West Texas to storage terminals closer to urban areas and ports. There, products are redistributed by pipeline, tanker truck, or tanker ship to downstream oil refineries, natural gas processing plants, and petrochemical manufacturers.

Most of Texas's refining and petrochemical manufacturing is clustered in complexes along the Gulf Coast in Houston, Beaumont, Port Arthur, and Corpus Christi. From there, finished products such as motor gasoline, diesel fuel, dry natural gas, and propane are transported by pipeline and rail to the state's population centers and delivered to end users at homes, gasoline stations, power plants, airports, and other sources of energy demand. Other products, such as petrochemicals, are diverted downstream to produce resins for various rubber and plastic materials and goods.

Petroleum distribution in Texas is classified under several NAICS codes, including the movement of crude oil and petroleum products via pipelines and terminals. They specifically include petroleum bulk stations and terminals, crude oil transportation, refined petroleum products, and fuel dealers. Therefore, NAICS codes were combined, and employment was mapped for the CAMPO region, as shown in Figure 41.

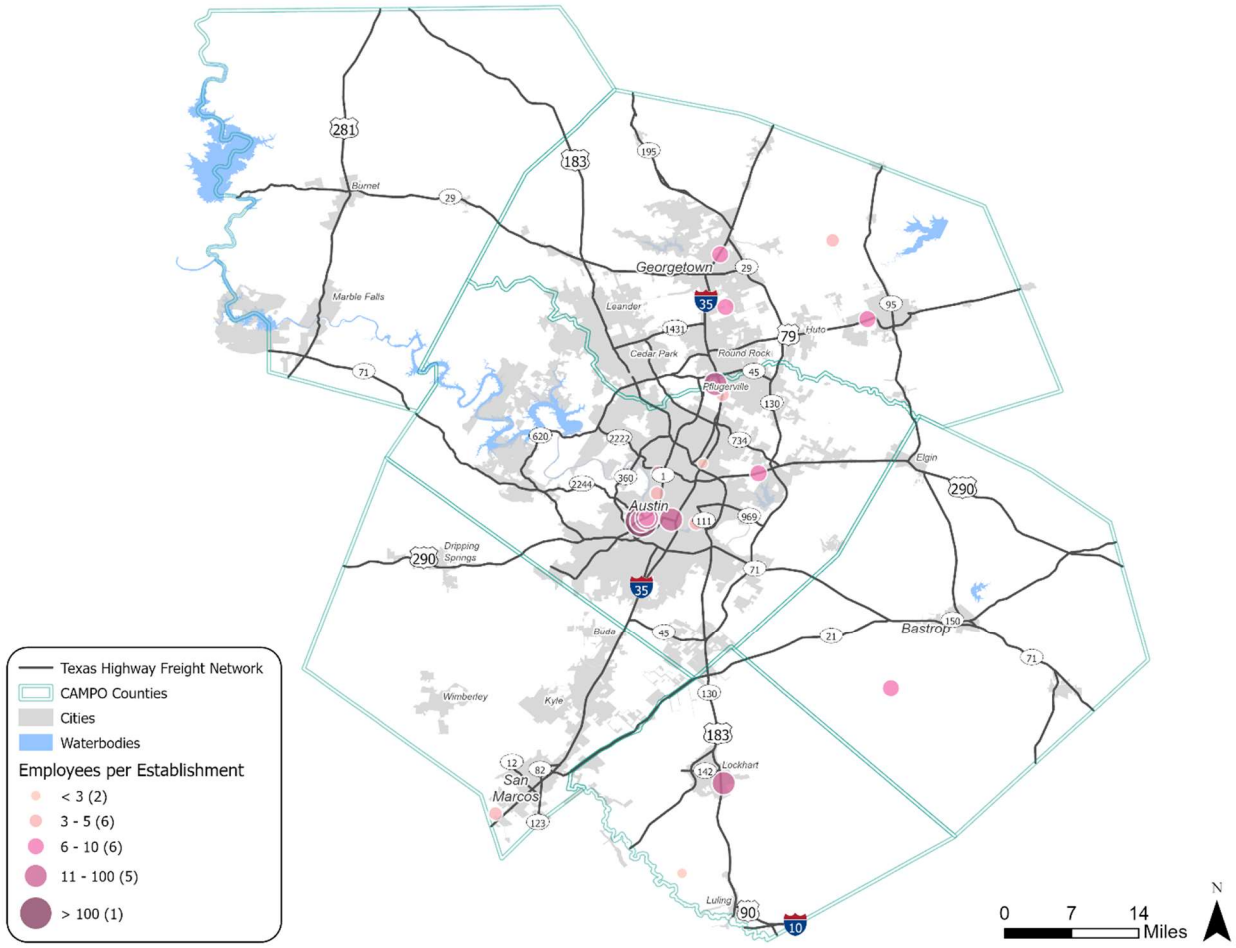
Figure 41: Location of Petroleum Distribution Establishments in the Capital Area Region, 2020



Source: Prepared by Cambridge Systematics using data provided by Data Axle (2021). Business Data (2020).

Figure 42 shows the location of establishment involved in the pipeline transport and distribution of natural gas. The main cluster is surrounded by RM 2244, SL 360, and SL 1 (MoPac Expressway).

Figure 42. Location of Natural Gas Distribution Establishments in the Capital Area Region, 2020



Source: Prepared by Cambridge Systematics using data provided by Data Axle (2021). Business Data (2020).

Plastics and Rubber Manufacturing Sector

The plastic and rubber manufacturing supply chain involves many complex chemical processes resulting in consumer products. Before plastic and rubber products reach consumers, the raw resources and processed materials change hands often amongst various modal alternatives.

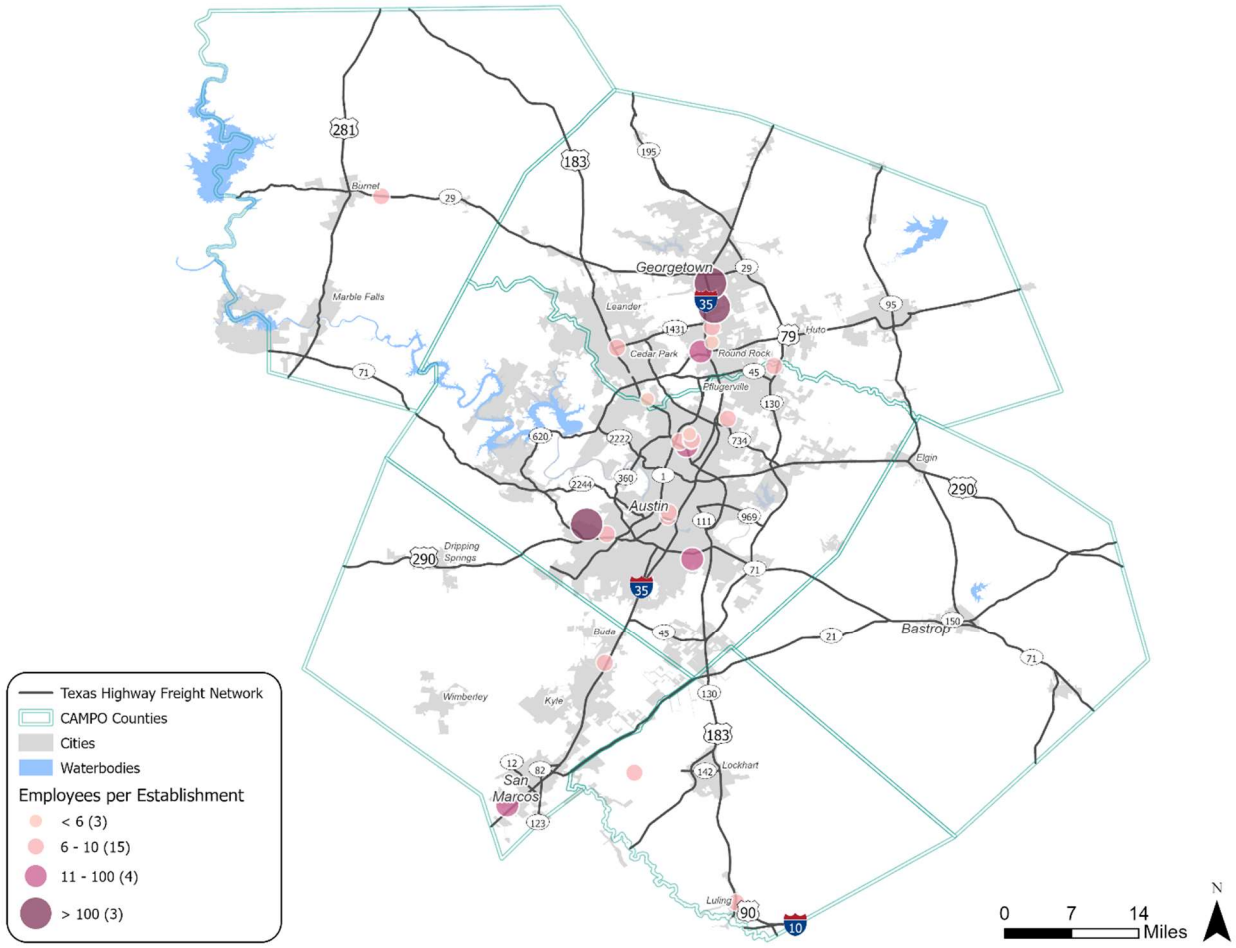
Plastic resin is the primary staging point for many plastic and synthetic rubber products. The resin, as a byproduct of petroleum refining and polymerization, exists in its raw form as plastic pellets that are easily hoppered, or bagged and containerized, for distribution to manufacturing facilities. Overseas manufacturers import resins as primary inputs for plastic and rubber product manufacturing. International, and often domestic, distribution of plastic pellets requires it to be shipped by container to the manufacturing facility. This almost exclusively involves transport by rail and sometimes trucks to domestic manufacturing facilities or maritime ports of entry.

Once the resin has reached manufacturing facilities, the plastic and rubber products are fabricated and shipped to down-chain manufacturers or end-users through direct transactions

or wholesale purchasers and distributors. Downstream manufacturing includes the shipment of multiple plastic and rubber products, both domestic and international, to facilities that require multiple inputs to manufacture the ultimate end-used product, as is the case with car parts or other assembly-type manufacturing.

Figure 43 shows the locations and approximate employment for plastic and rubber manufacturing establishments. The larger establishments by employee size are near SH 71 in the southwestern part of Travis County and IH 35 near Georgetown.

Figure 43: Location of Plastic and Rubber Product Manufacturers in the Capital Area Region, 2020



Source: Prepared by Cambridge Systematics using data provided by Data Axle (2021). Business Data (2020).

Warehousing and Distribution

This section discusses the location of supply chains in Central Texas that supports warehousing and distribution industries in the state. The warehousing sector includes facilities dedicated to storing raw materials before production, maintaining work in progress through the production cycle, and collecting finished goods ready for delivery to the point of final consumption by

businesses or consumers. Warehouse establishments are considered an intermediate stage in the consumer goods supply chain.

Distribution and fulfillment centers play an important role in the final stages of the warehousing supply chain, ensuring that goods move from convenient storage facilities to retail locations and consumers. Distribution and fulfillment centers tend to store goods for shorter periods than general warehouses. Distribution centers typically serve as transit hubs for goods, whereas fulfillment centers store products before they are shipped to customers. However, the distinction between these facilities is becoming less clear over time, as fulfillment centers increasingly provide transit services while some distribution centers offer storage and direct shipment to customers. Retail Distribution includes facilities primarily engaged in selling goods or services to consumers or end users. Retail distribution establishments are considered the final stage of the consumer goods supply chain.

Warehousing Sector

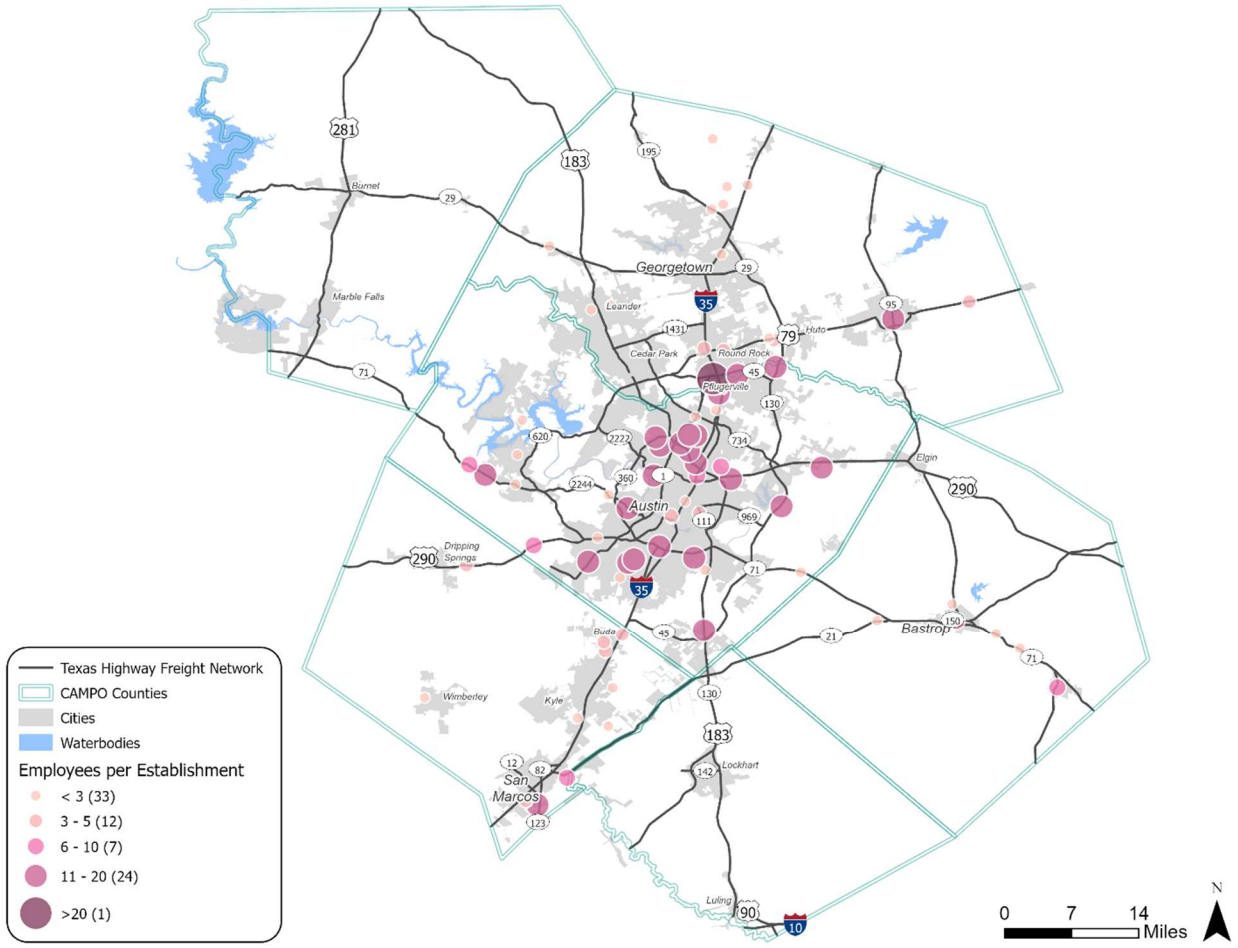
General warehouses are ideally suited for storing bulk quantities of consumer products that do not have strict refrigeration requirements. As a result, they play a major role in the supply chains of various non-perishable goods that go to retail, grocery, and drug stores. These facilities are usually the first stopping point for goods after manufacturing and processing; the products will then move onto distribution centers or retail distribution establishments.

Products move to and from Texas warehouses and international and domestic sources via water, rail, and truck. Texas has 28 border crossing points from Mexico, three of which are official land ports for incoming and outgoing freight.[19] In addition, there are twelve deep draft seaports in Texas, owned mainly by port entities with land leased to private operators along the Gulf of Mexico. Products from Asia via West Coast ports (primarily in California) are moved into Texas markets via rail and truck. Warehousing is critical to effectively storing and sorting a variety of commodities as they make their way from the initial mode of transport into the distribution chain.

Figure 44 shows the location of general warehouses by employee size in the CAMPO region. Most warehouse establishments are clustered in Travis County and located along segments of the THFN in proximity to the IH 35 corridor. Some of the larger establishments in terms of employment are located near US 183 and SH 45 in north Austin and along SH 130.

[19]TxDOT (Accessed 2022, April 9). Texas-Mexico Border Crossings. Available at: https://www.txdot.gov/inside-txdot/projects/studies/statewide/border-crossing.html

Figure 44: Location of General Warehousing Establishments in the Capital Area Region, 2020



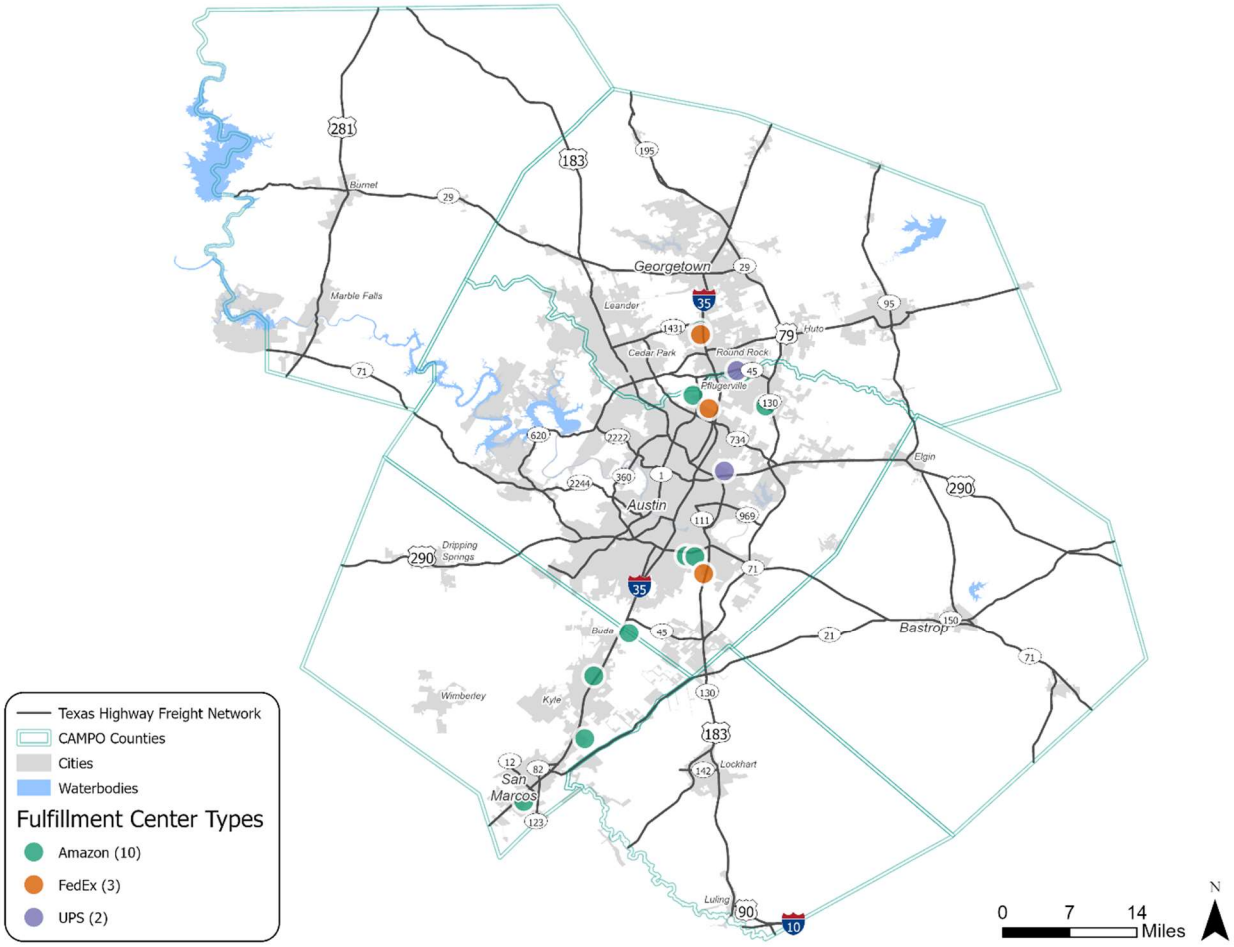
Source: Prepared by Cambridge Systematics using data provided by Data Axle. (2021). Business Data (2020)

Much of the goods flowing through the warehousing and distribution supply chains are imported into the U.S. from manufacturers in East Asia. Before arriving in Texas, goods are brought on container ships to ports on the West Coast, namely the Port of Los Angeles and the Port of Long Beach (POLA/POLB). The containerized cargo is then transported across the western U.S. by rail and truck to warehouses and fulfillment centers in El Paso, San Antonio, and Dallas-Fort Worth; goods then make the final journey by truck to reach households and businesses in urban areas where consumer demand is concentrated, including the CAMPO region. Commodity flows for warehousing also originate in the Midwest, with large inbound flows from Illinois. Other sources of tonnage arrive via seaports, such as Port Houston, for imports from Central America and Europe. Tonnage also enters Texas from Mexico, going north by rail and truck through Laredo to San Antonio via IH 35 to reach the rest of the state.

Figure 45 shows the location and number of warehouse and fulfillment centers in the CAMPO region, focusing on the dominant players in in the e-commerce space – Amazon, FedEx, and UPS. Four (4) are located in Hays County, eight (8) in Travis County, and three (3) in Williamson

County. All of the locations shown are located in proximity to the THFN. The facilities operated by Amazon, FedEx, and UPS store and distributes customer orders and packages for final delivery in the CAMPO region and in surrounding counties. Capital Area households and businesses benefit from the convenience of online shopping and access to a broad selection of goods and products from around the world.

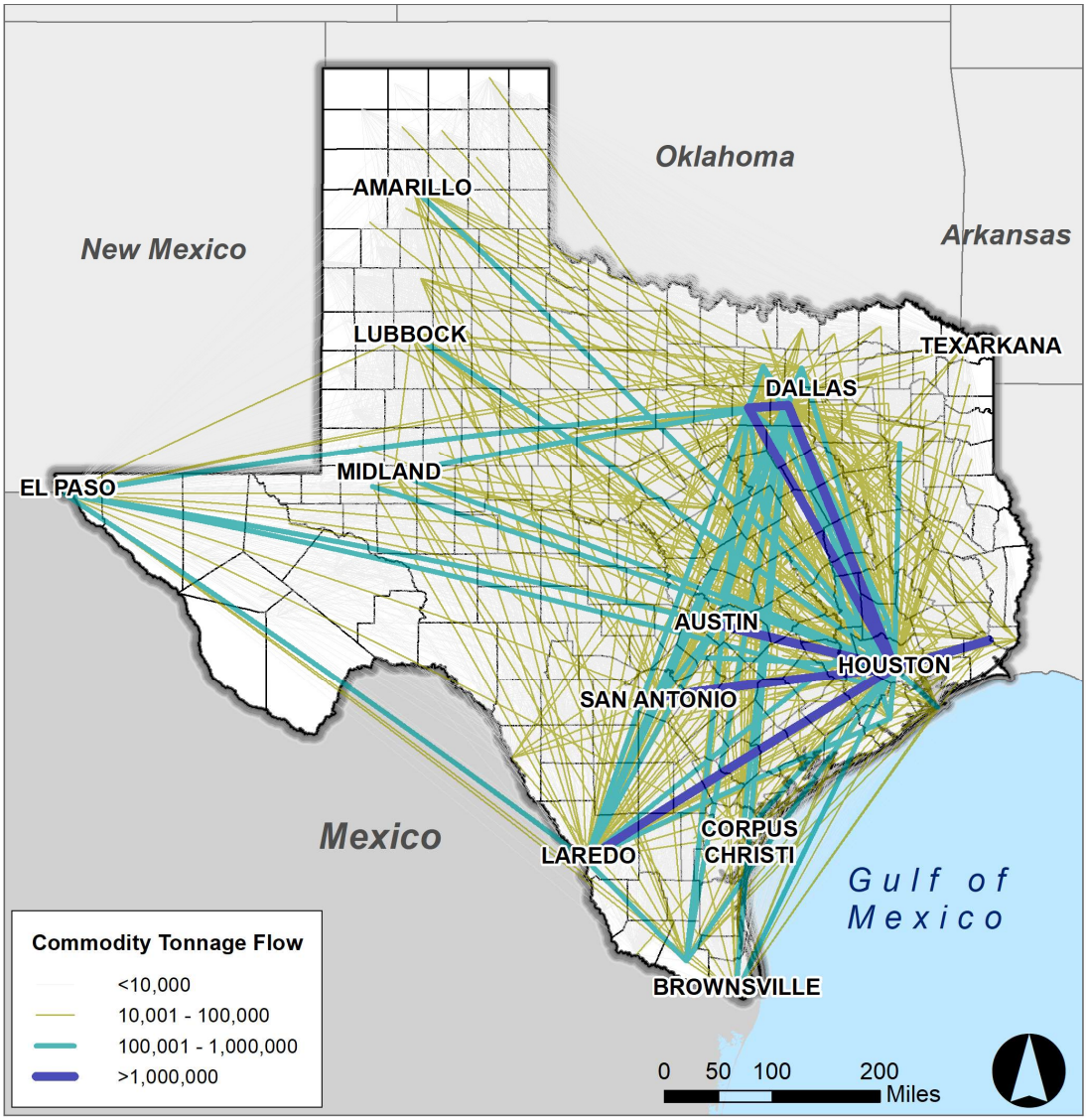
Figure 45: Capital Area Warehouses and Fulfillment Centers operated by Amazon, FedEx, and UPS



Source: Prepared by Cambridge Systematics using data provided by CAMPO (2023).

Figure 46 shows that the largest warehouse distribution commodity tonnage flows within Texas are between Houston and Austin and between Houston and urban areas in Laredo, San Antonio, and Dallas. There is also a large movement of distribution cargo from Houston to the border with Louisiana.

Figure 46: Commodity Tonnage Flows within Texas for Warehouse Distribution, 2019



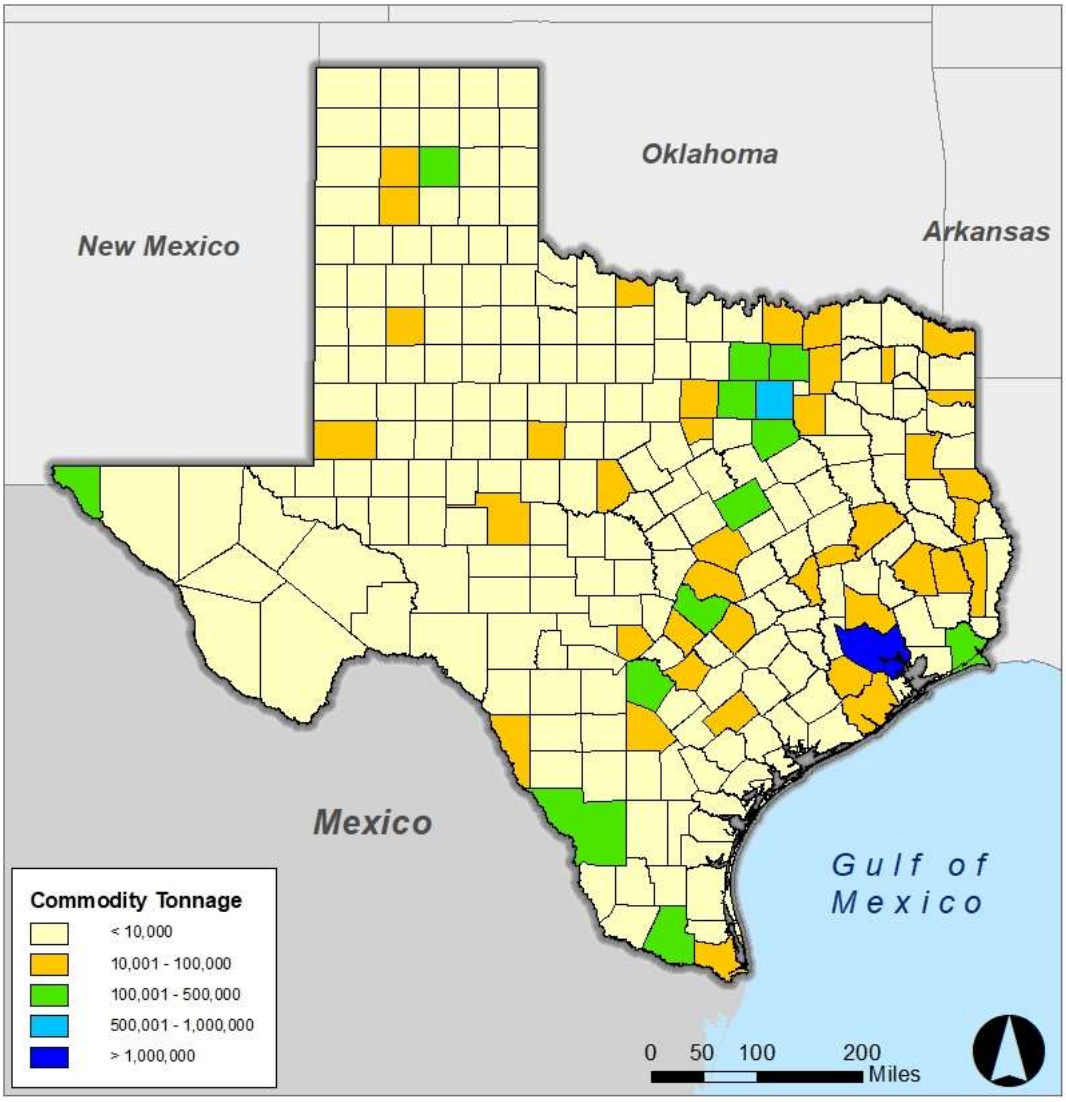
Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Retail Distribution Sector

The Retail Distribution Sector includes many establishments, which can be categorized according to their general purpose and the types of goods handled. General retail is a broad category that covers selling various consumer goods, primarily to individuals. These establishments may also sell medical and grocery products. The general retail category includes

malls as well as warehouse clubs (e.g., Costco), specialized retailers (e.g., Best Buy), and big box retailers (e.g., Walmart and Target). In addition, the sector includes e-commerce as a growing sub-sector of retail distribution. Figure 47 shows that the highest origination volume of general retail commodities comes from densely populated urban areas such as Houston and Dallas-Fort Worth. Travis, Hays, Williamson, and Bastrop counties in the CAMPO region are major source of originating tonnage for retail commodities.

Figure 47: Origins of Commodity Tonnage for General Retail, 2019

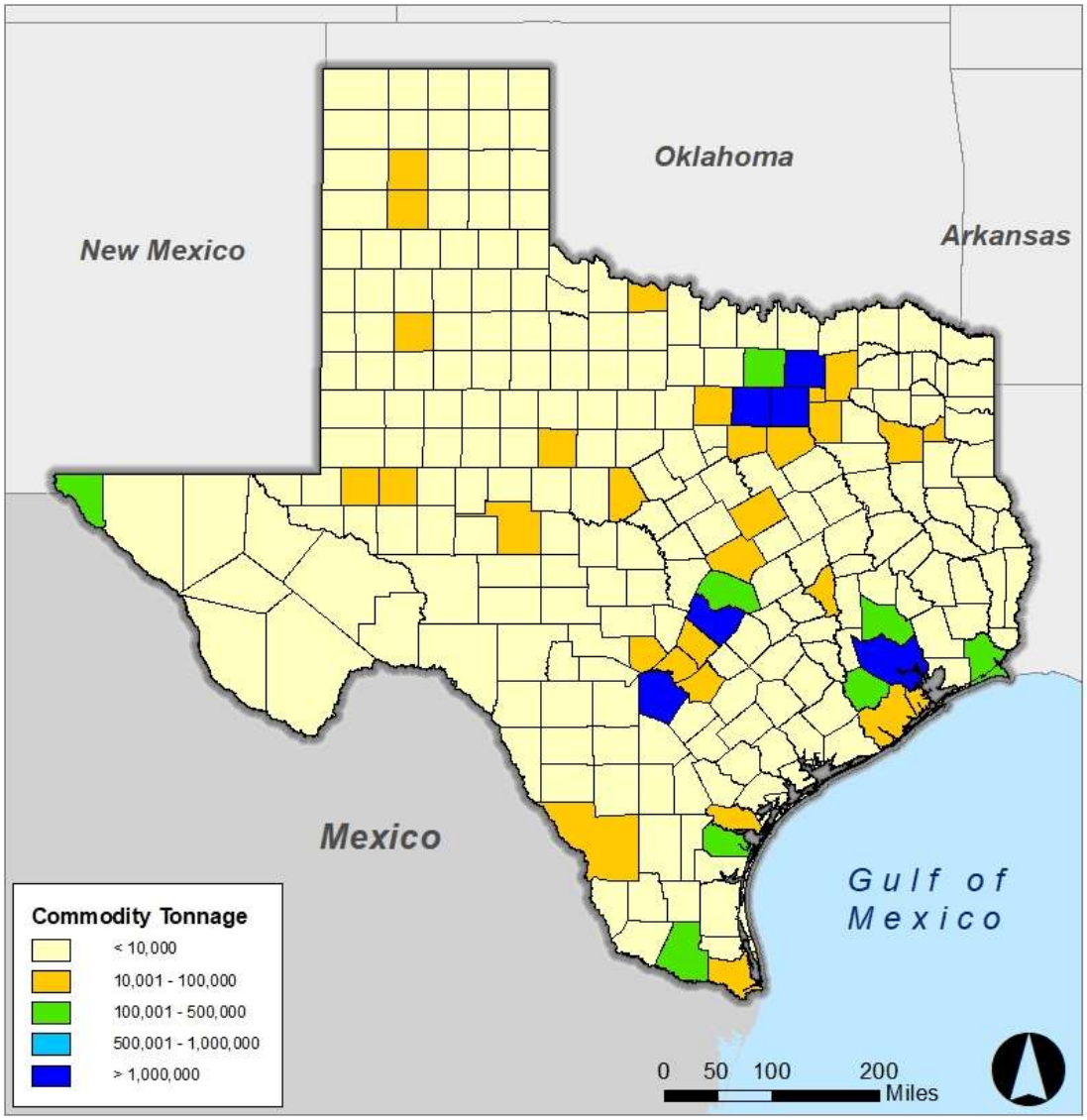


Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Figure 48 shows that the greatest destination volume of general retail commodities is headed to densely populated urban areas such as Austin and the other major metropolitan areas of Houston, Dallas-Fort Worth, and San Antonio. Travis County is among the counties with the

highest amount of inbound tonnage for retail commodities. Williamson and Hays counties are also major destinations for retail commodities.

Figure 48: Destinations of Commodity Tonnage for General Retail, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Travel Characteristics for E-commerce Warehousing Trips

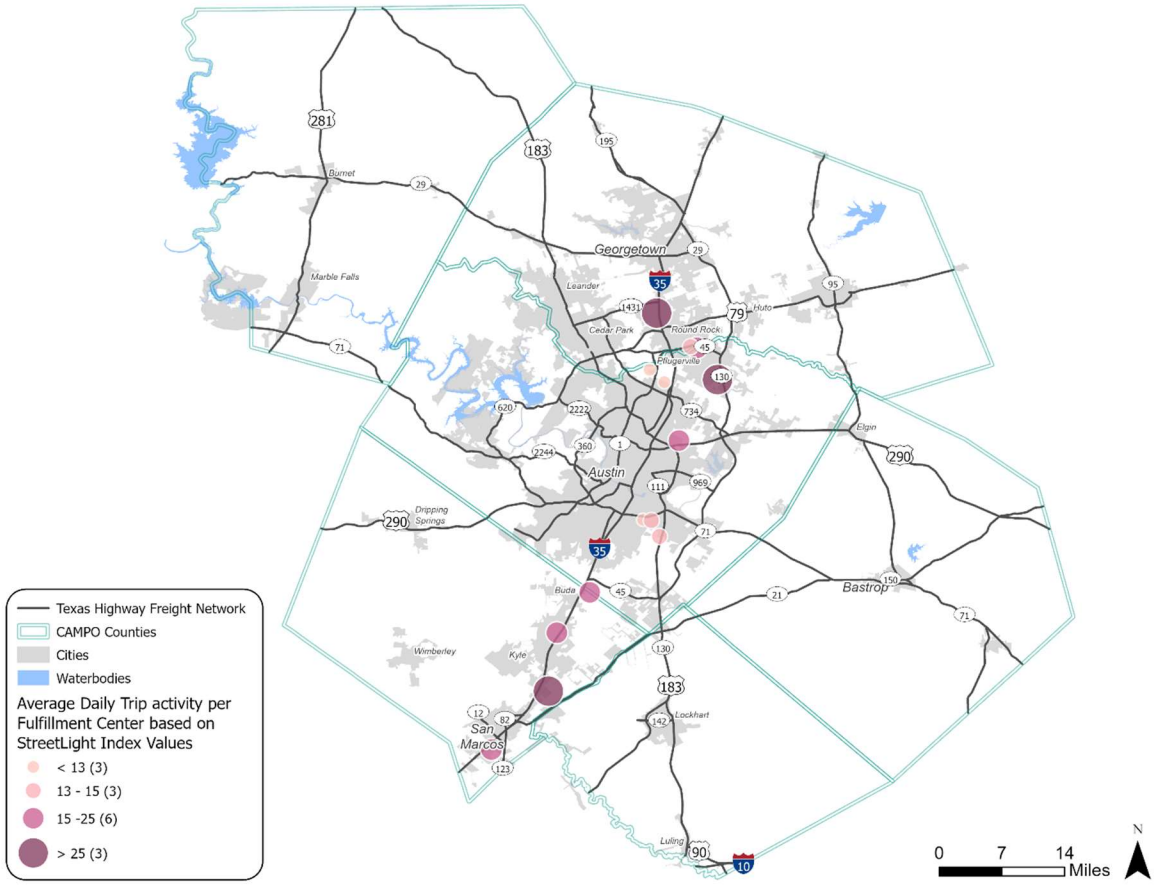
Trip origins and destinations were analyzed for the 15 fulfilment centers in the CAMPO region operated by FedEx, UPS, and Amazon. Using StreetLight Data,[20] zones were created at facility

[20] StreetLight Data is a transportation analytics platform that uses location-based data from mobile devices to analyze data on trip origins-destinations (O-Ds) and other travel metrics.

location to capture information on the trips that started and ended at each location. The period of 2018 to 2022 was analyzed.

Figure 51 shows the location of the fulfillment centers in the CAMPO region and the daily trip activity observed at each location. The size of the circles represents the relative level of average daily trip activity for each location based on the number of data samples indexed by StreetLight Data. The fulfillment centers in Hays and Travis counties that have the highest levels of activity are located near IH 35 and SH 130, respectively, and are operated by Amazon. The location with the highest level of activity in Williamson County is located near IH 35 and is operated by FedEx.

Figure 49: Relative Daily Trip Activity for Fulfillment Center Locations in the Capital Area Region, 2018 – 2022

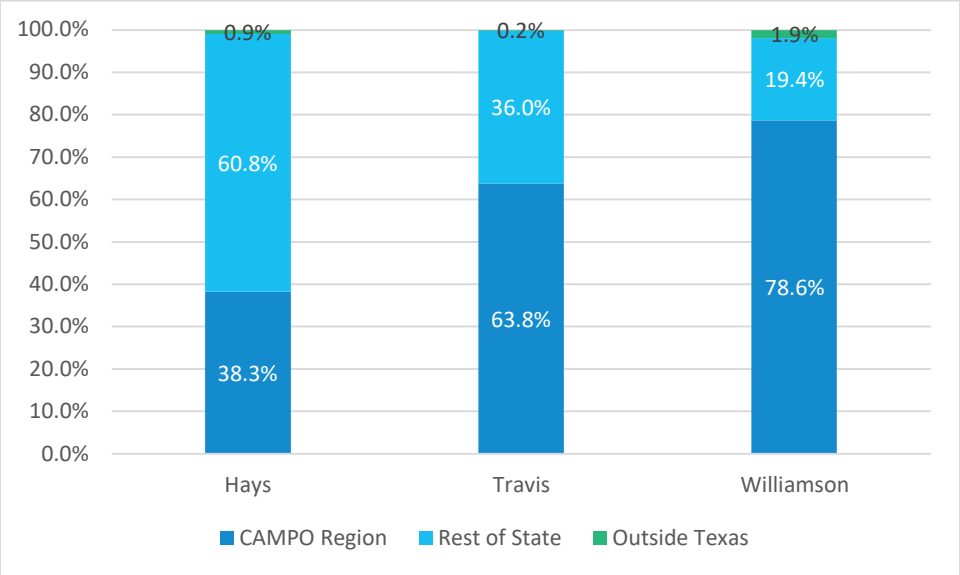


Source: Cambridge Systematics Analysis of data from StreetLight Data Insights, 2018-2022. Note: Relative trip activity is shown based on index values that correspond to the number of data samples captured at each fulfillment center location. The index value is not the actual number of trips or vehicles.

Figure 50 provide a trip distribution summary identifying the proportion of outbound truck trips that stay within the CAMPO region and the proportion that travels to counties outside of the region. The fulfillment centers in Hays County have the highest proportion of outbound trips (60.8%) that travel outside of the CAMPO region; among these trips, the top interregional destination is Comal County, located in the Alamo Area region to the south. Travis County has

the next highest with 36% of its trips going north towards Waco, with McLennan County the top destination. Williamson County has the lowest proportion of interregional trips (19.4%) and the top outbound destination is going north as well to Bell County.

Figure 50: Trip Distribution Summary for Fulfillment Center Locations in the Capital Area Region, 2018 - 2022



Source: StreetLight Data Insights, 2018-2022.

Table 23 provides a trip distribution summary for intraregional trips that originate and end within the CAMPO region. Most of the trips from the originating county stay within that county to serve the households and businesses there. Williamson County has the highest share of intra-county trips (84.2%). Hays has the lowest (53.4%), with a proportion of its trips serving Travis (25.5%) and Williamson counties (16.4%).

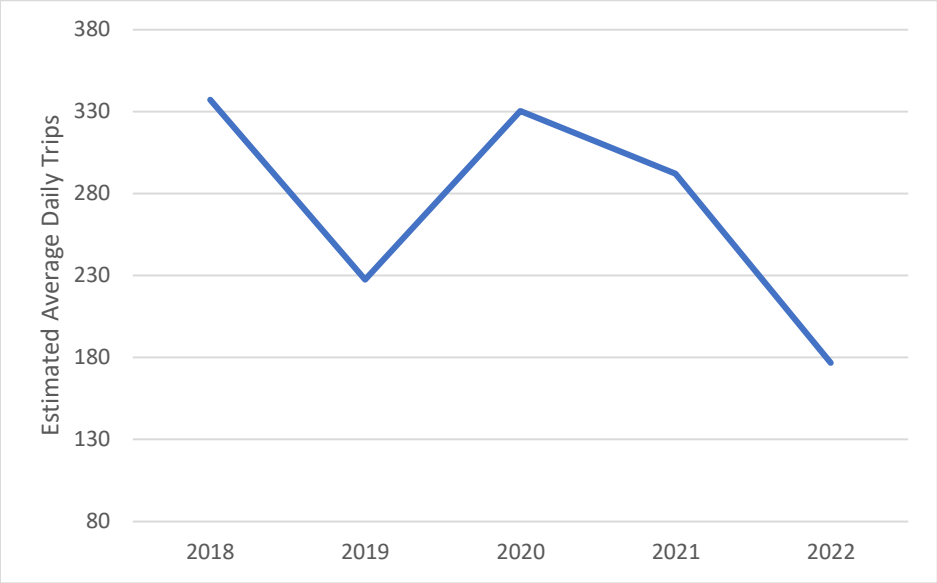
Table 23: Trip Distribution Summary for Fulfillment Center Trips within the Capital Area Region, 2018-2022

Originating County	Destination County						Total
	Bastrop	Burnet	Caldwell	Hays	Travis	Williams.	
Hays	0.3%	0.6%	3.8%	53.4%	25.5%	16.4%	100.0%
Travis	2.2%	0.8%	1.5%	10.9%	63.2%	21.4%	100.0%
Williamson	1.3%	0.1%	0.3%	1.5%	12.5%	84.2%	100.0%

Source: StreetLight Data Insights, 2018-2022.

Figure 51 shows the average daily trip activity by year across the 15 locations. Year 2019 saw a decline from the previous year and then increasing significantly in 2020 when stay-at-home restrictions were in effect for the COVID-19 pandemic. Trip activity remained elevated in 2021 while the Texas economy was just reopening, and then dropping drastically in 2022 when restrictions largely ended. The drop in activity in 2022 could be attributed to a slow down in consumer spending as the Federal Reserve initiated a series of interest rate hikes to curb persistent inflation. In addition, signs of recessionary headwinds in the overall U.S. economy also dampened consumer sentiments.

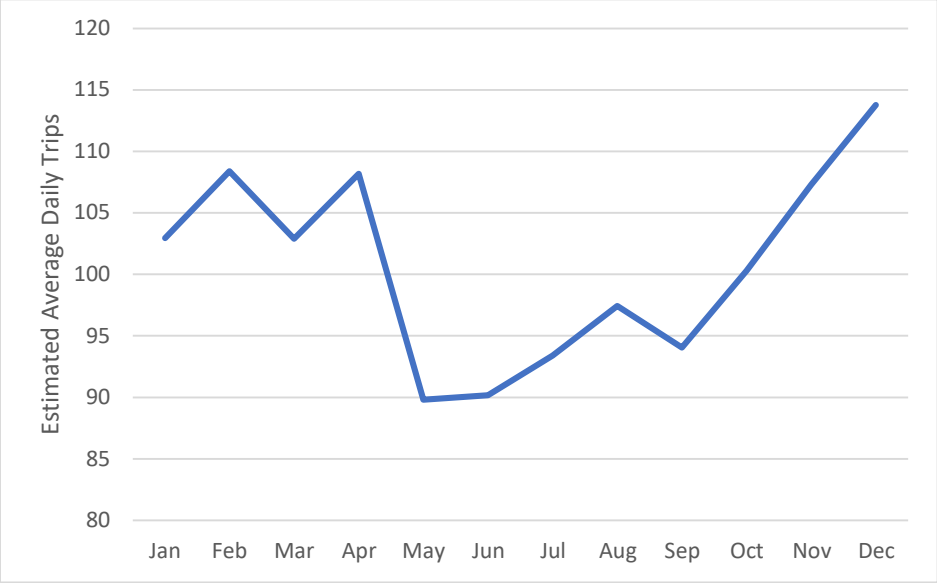
Figure 51: Average Daily Trips by Year for Capital Area Fulfillment Centers, 2018-2022



Source: StreetLight Data Insights, 2018-2022

Figure 52 shows the seasonal distribution of the average daily trip activity by month. The chart indicates that the peak holiday season begins in September and increases steadily until reaching the highest level of daily activity in December.

Figure 52: Average Daily Trip Activity by Month for Capital Area Fulfilment Centers, 2018-2022

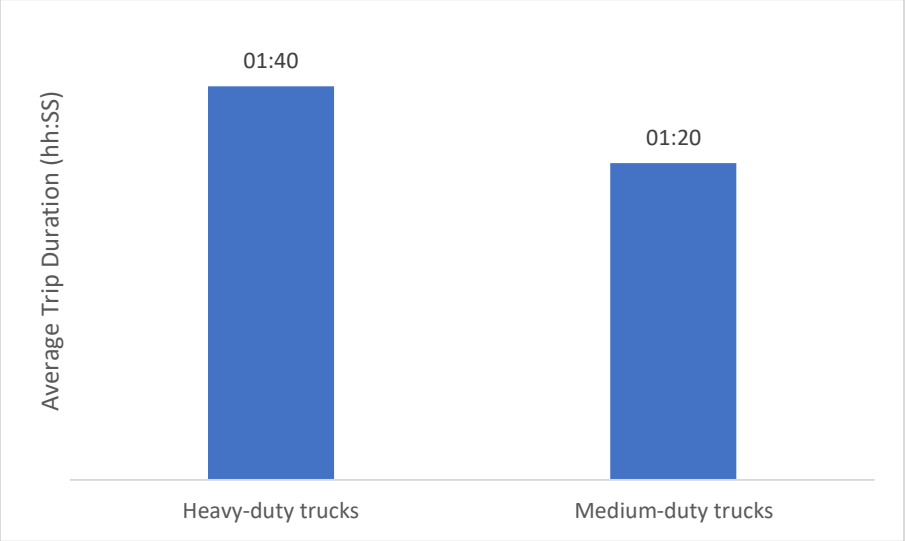


Source: StreetLight Data Insights, 2018-2022

Figure 53 compares the average trip duration for medium and heavy-duty trucks that serves the fulfilment center locations. Heavy-duty trucks includes Class 8 tractor-trailers used for long-haul

trips. On average, the trip duration was 25% longer than that of the medium-duty vehicles, which includes box trucks used for shorter distances.

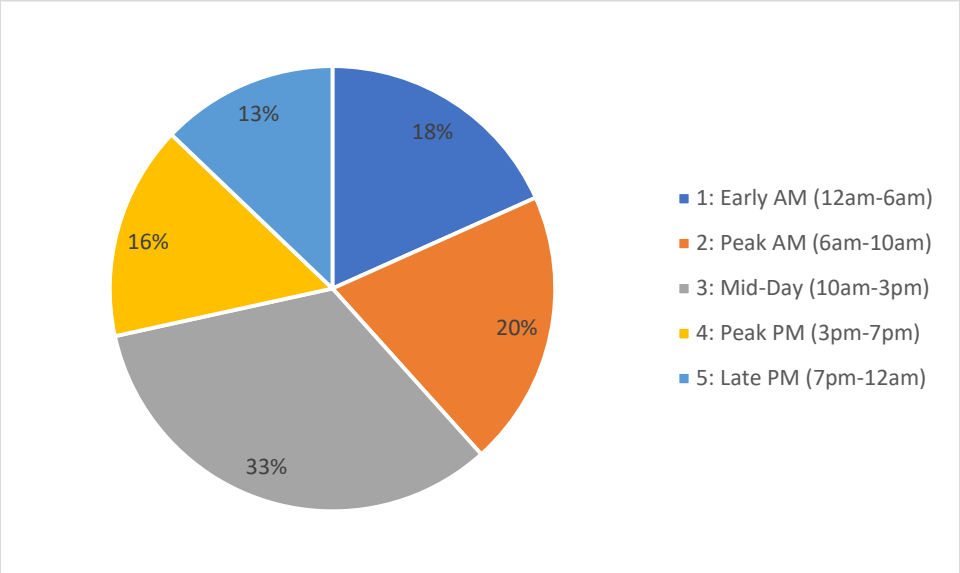
Figure 53: Average Trip duration for Medium and Heavy-Duty Trucks, 2018-2022



Source: StreetLight Data Insights, 2018-2022

Figure 54 shows a breakdown of daily trip activity by time of day. Most of the trip activity (33% of total) occurs in the mid-day period, followed by the morning peak period (20% of total). This suggests that trip activity is highest in the morning and mid-day periods when businesses are open and congestion is lower.

Figure 54: Average Daily Trip Activity by Time of Day for Capital Area Fulfilment Centers, 2018-2022



Source: StreetLight Data Insights, 2018-2022

Transportation Equipment

This section discusses the location of supply chains in Central Texas that supports transportation equipment industries in the state. The sectors include establishments in vehicle parts production and vehicle assembly or manufacturing. The vehicle parts sector includes manufacturing many materials and components necessary to produce finished automobiles, buses, and trucks, but not actual vehicles. Vehicle manufacturing includes receiving manufactured inputs, assembly of components into finished automobiles, buses, and trucks, and shipment of finished products through customer distribution channels.

Vehicle Parts Sector

The Texas Governor's Office of Economic Development and Tourism identifies nearly 140 Texas industries associated with vehicle parts manufacturing.[21] Employers from the directory located in the CAMPO region are listed in Table 24. Semiconductor manufacturers are well represented on the list and highlight the importance of the sector as a key supplier of electronic components for advanced manufacturing. The COVID-19 pandemic saw shutdowns in vehicle manufacturing due to the limited supply of semiconductors affected by disruptions to the global supply chain. The electronics industry in the CAMPO region is a major supplier of microprocessors used in various components and forms a close ecosystem with the vehicle manufacturing industry in Texas and across the border in Mexico.

Table 24: Texas Vehicle Parts Employers and Locations

Company	Description	Location
Corvac Composites	Airflow and water deflection systems	San Marcos
DANA Holding Corp.	Axles, driveshafts, transmissions	Cedar Park
Freescale Semiconductor	Automotive semiconductors	Austin
Microchip Technology	Automotive semiconductors	Austin
Samsung	Automotive semiconductors	Austin
Silicon Laboratories	Automotive semiconductors	Austin
Spansion	Automotive semiconductors	Austin
TASUS Texas Corp.	Plastic injection molding	Georgetown
Texas Instruments	Automotive semiconductors	Austin
US Farathane	Plastic components	Austin

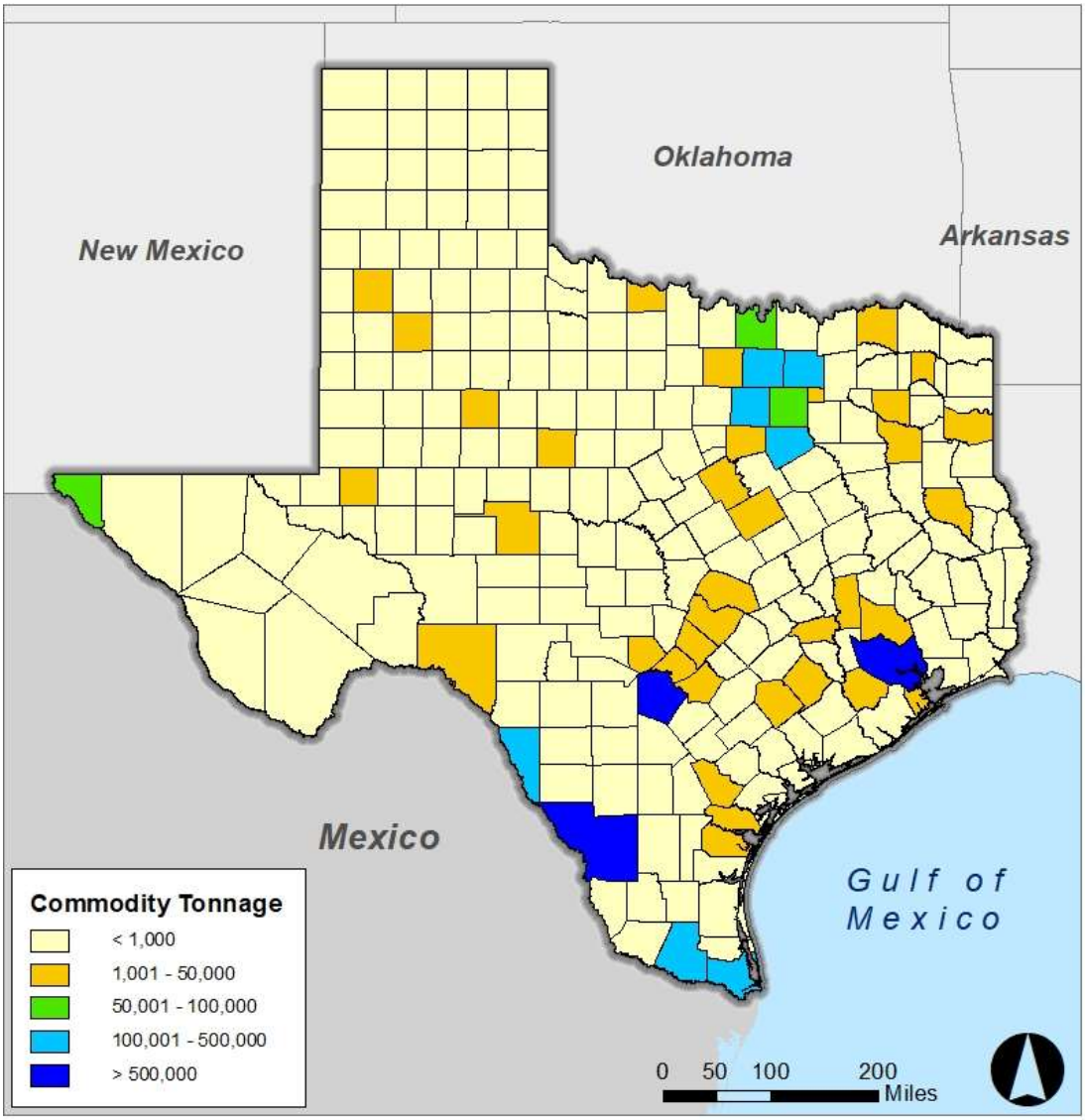
Source: https://gov.texas.gov/uploads/files/business/auto_parts_directory.pdf

Vehicle parts manufacturers are located in the major urban areas of the Texas Triangle and connected via IH 35, IH 10, and IH 45 and with supply chains in Mexico. Figure 55 shows the state's top originator of vehicle parts by county. Webb County in the Laredo area, Bexar County

[21] The complete directory is available at: https://gov.texas.gov/uploads/files/business/auto_parts_directory.pdf

in the San Antonio area, and Harris County in Houston have the highest outbound tonnage for vehicle parts. In the CAMPO region, manufacturers are located in Williamson, Travis, and Hays counties along the IH 35 corridor, which also connects with parts manufacturers and vehicle assembly plants in San Antonio and Dallas-Fort Worth.

Figure 55: Origins of Commodity Tonnage for Vehicle Parts, 2019

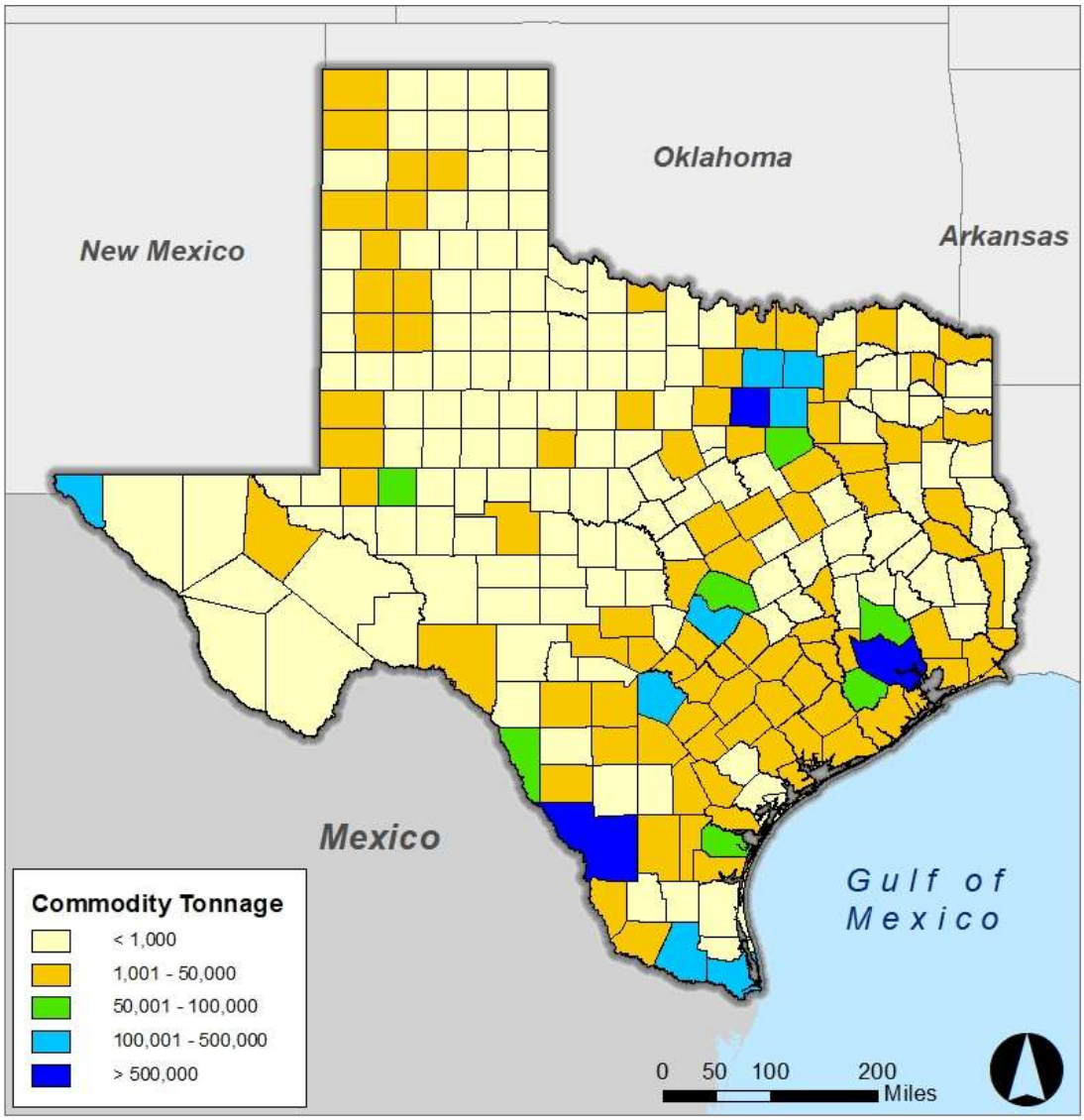


Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Figure 56 shows the destination counties for vehicle parts. Similar to Figure 10, showing originating tonnage, the urban areas of the Texas Triangle and along the border with Mexico are the top destinations for parts, where it is assembled into other components or used in vehicle assembly. In the CAMPO region, Travis and Williamson counties are the top destinations for

vehicle parts. Once the Tesla plant becomes operational, the amount of inbound tonnage is expected to increase.

Figure 56: Destinations of Commodity Tonnage for Vehicle Parts, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

International trade is essential to producing and using vehicle parts by Original Equipment Manufacturers (OEMs). TTI analyzed the locations and relationships of Tier 1 parts manufacturers and OEMs in Texas and Mexico (see Figure 57). The TTI exhibit illustrates the clustering of facilities along IH 35 in Texas and its Federal Highway 85 counterpart in Mexico and the significance of Laredo connecting the two.

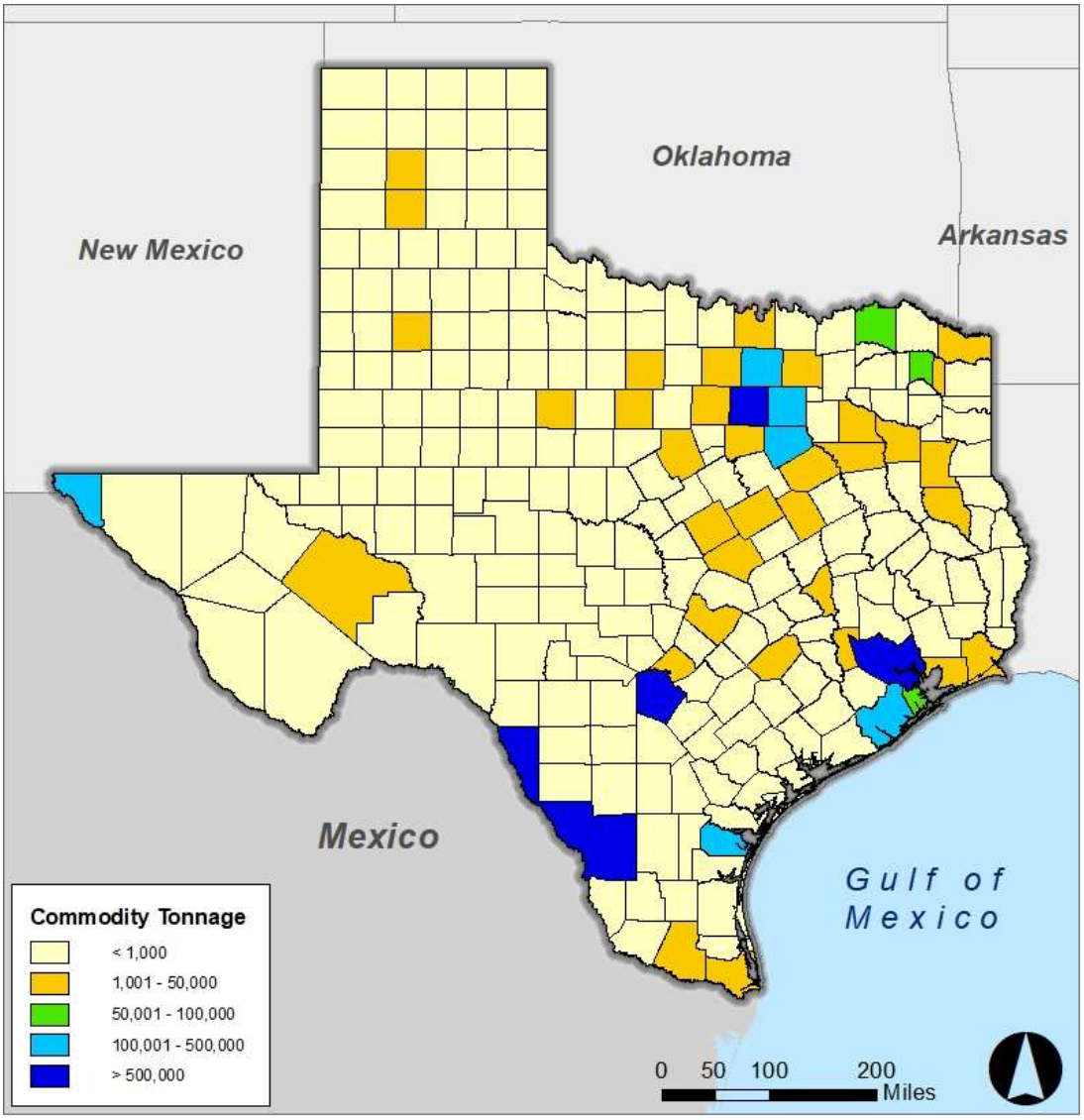
Figure 57: Auto and Motor Vehicle Parts Trade Manufacturing, Texas and Mexico

Source: Texas A&M Transportation Institute (TTI). "Moving Texas Exports: Examining the Role of Transportation in the Vehicle Parts Supply Chain." March 2016. Accessed from: https://policy.tti.tamu.edu/freight/moving-texas-exports/the-vehicle-part-supply-chain

Vehicle Manufacturing Sector

Figure 58 shows the counties that are leading originators of vehicle manufacturing tonnage. Webb, Maverick, and El Paso counties are located along the border and facilitate trade with Mexican supply chains. Within the Texas Triangle, Harris, Bexar, and Tarrant counties have major production facilities. In the CAMPO region, Travis County has the highest level of originating tonnage.

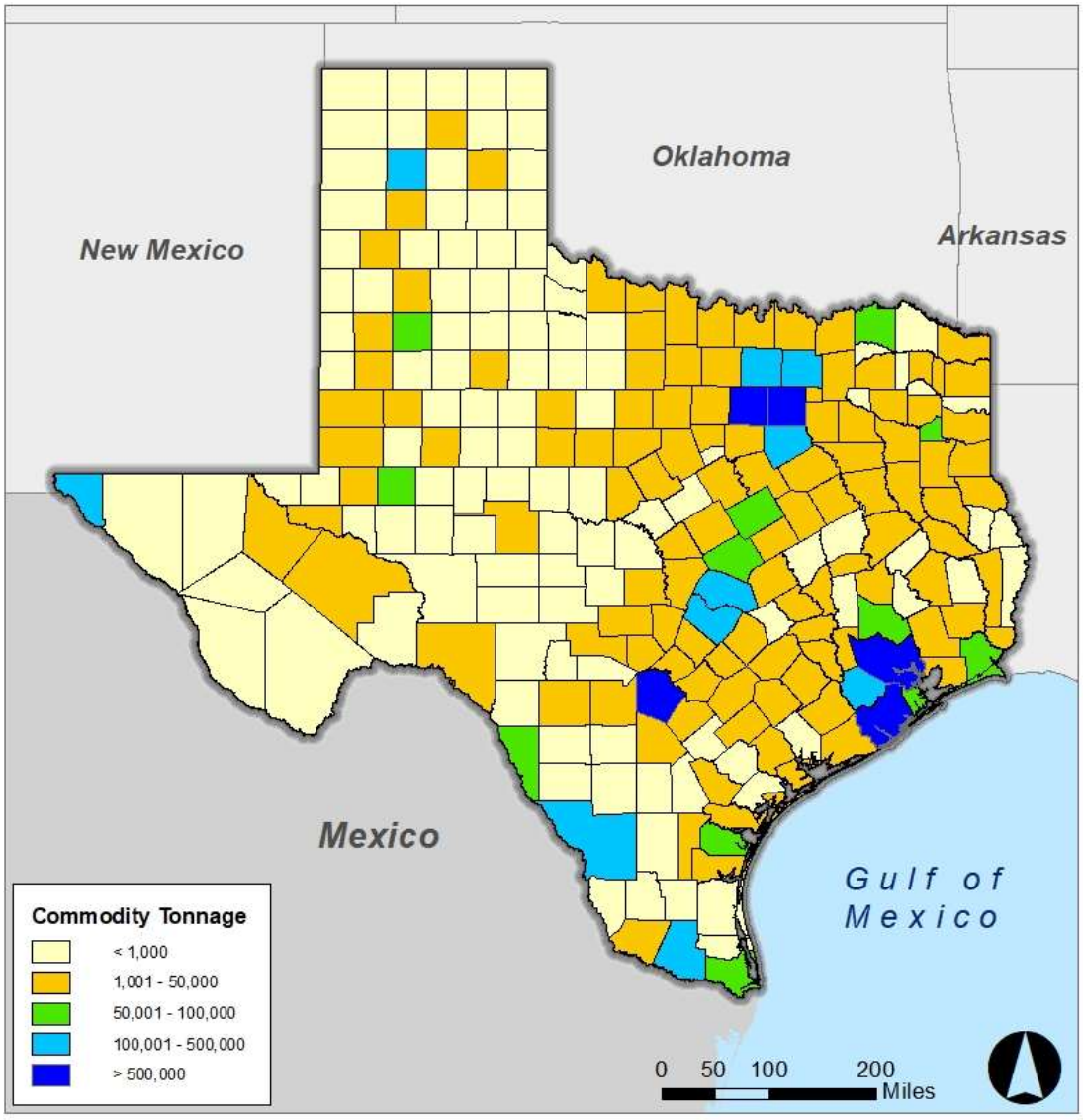
Figure 58: Origins of Commodity Tonnage for Vehicle Manufacturing, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Figure 59 shows the inbound tonnage for vehicle manufacturing by county. The urban areas of the Texas Triangle again dominate with the state's highest populations, where demand for assembled vehicles is the greatest. Similarly, Williamson and Travis counties in the CAMPO region have the highest level of destination tonnage.

Figure 59: Destinations of Commodity Tonnage for Vehicle Parts, 2019



Source: WSP analysis of 2019 Transearch database updated to reflect energy-related commodities (sand, brine, and water) and international water and air cargo.

Conclusion/Next Steps

The population and economic growth in the CAMPO region is increasing freight demand on the multimodal network. This report has provided an assessment of the current conditions of the freight network in the six counties comprising the region. By establishing a baseline understanding of the network's performance and identifying areas of concentrated freight activity, this analysis serves as a valuable reference point. Furthermore, this examination of existing conditions will inform the evaluation of trends and opportunities that will shape the future of regional freight movement. It is crucial to address these challenges and leverage the

identified opportunities to ensure a resilient and efficient multimodal freight network that can accommodate the growing demands of the region's population and economy.

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Existing Conditions

Appendix A: Existing Land Use Assessment

Final 1: July 5, 2023

Bastrop County

- 888 square miles (land only)
- Cities: Bastrop (county seat), Mustang Ridge, Elgin, Smithville
- Major highways: US 290, SH 21, SH 71, SH 95, SH 304

Freight generators are scattered throughout Bastrop County, mainly along SH 71. According to Bastrop County's Economic Overview Report, the pharmaceutical industry cluster has the highest relative concentration.[1] The report defines a cluster as a geographic concentration of interrelated industries or occupations. Employment in the pharmaceutical industry was projected to expand in the region by about 0.7% per year over the next ten years. The largest employment sector identified in the county was retail trade. The next-largest sectors in the area were educational services and accommodation and food services. The National Guard's Camp Swift Army Base is in the northern portion of Burnet County on SH 95 and is the home of the 136th Combat Arms Training Regiment and Texas National Guard Training Center of Excellence.[2] The Guard also uses the base as a storage and training facility.

Bastrop

The Bastrop Comprehensive Plan Update Existing Land Use Map (see Appendix B) shows minimal industrial land use within the Bastrop city limits.[3] However, the city has a sizeable ETJ area, including substantial portions of land along SH 21, SH 71, and SH 95. In the Existing Land Use Map, nine acres are designated light industrial, and 215 in the ETJ are designated heavy industrial. In addition, there are 62 acres in the city limits designated light industrial. Currently, the freight uses identified as part of the regional supply chain in Bastrop County are along SH 71/SH 21.

The land use data in the comprehensive plan is twenty years old. Therefore, additional sources were used to identify areas of freight-intensive uses. According to Bastrop's Economic Development website, the area has grown tremendously in the manufacturing, media and entertainment, bio and life sciences, and tourism and hospitality industries. Bastrop has a 263-acre business park zoned commercial/industrial use located south of SH 71/SH 21 and east of the Colorado River. Johnson Architectural Metal Company's (JamCo, Inc.) 40,000-square-foot facility is in the business park. Designed Security Inc. is another manufacturing business located in Bastrop, close to SH 95/Hawthorne St.[4]

Bastrop's bio and life science industries include the MD Anderson Cancer Science Park, The University of Texas MD Anderson Cancer Center (both near SH 95/FM 2336), Agilent Technologies (on SH 71), The Coghlan Group (SH 71/SH 21), and ARQ Genetics (just north of TX Loop 150). All are within the city limits.

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[1] Economic Overview Bastrop County, October 2016. Accessed at Economic Overview - Bastrop County
[2] Texas Military Department. Camp Swift, 2016-2023. Accessed at Camp Swift
[3] Bastrop Comprehensive Plan Update (2016-2036), p. 5-4. November 2016. Accessed at Bastrop Existing Land Use 2016
[4] Bastrop Economic Development. Target Industries, 2023. Accessed at Target Industries

In 2021, The Boring Company purchased 73 acres in Bastrop County to build an 80,000-square-foot warehouse and manufacturing facility at 130 Walker Watson Road north of the SH 71 and SH 21 westbound split.[5] The Bastrop County Commissioner's Court tabled the conditional use permit in February 2022.[6] As a result, the project has not been approved as of May 2023.

Burnet County

- 994 square miles (land only)
- Cities: Bertram, Burnet (county seat), Cottonwood Shores, Double Horn, Granite Shoals, Highland Haven, Horseshoe Bay (mostly in Llano County), Marble Falls, and Meadowlakes
- Major highways: US 183, US 281, SH 29

Burnet County has several freight generators sporadically located along US 281.[7] The agriculture and tourism industries are the main economic drivers.[8]

Burnet

The City of Burnet has an industrial land use area along Houston Clifton Drive, just north of the Burnet Municipal Airport (see Appendix B).[9]

Marble Falls

Marble Falls has a few manufacturing businesses located along US 281.[10] The city has 341 acres of industrial land use within the city limits and 93 acres in the ETJ.[11] The city's Zoning Map only has two industrially zoned parcels at the corner of Granite Mountain Trail and S. Avenue. S (see Appendix B).

The Marble Falls Economic Development Corporation references several planned business and industrial parks for manufacturing, distribution, regional service companies, regional corporate headquarters, and professional service firms.[12] These include:

- Marble Falls Business & Technology Park – a 300-acre park with immediate access to US 281.
- Gateway Business Park – a light manufacturing and office park with access to US 281.

---

[5] Ashbrook, M. *Elon Musk's The Boring Company purchases land in Bastrop outside Austin,* July 9, 2021. KVUE News. Accessed at Elon Musk's The Boring Company
[6] O'Kane, S. and McBride, S. *Elon Musk's Tunneling Company Hits Roadblock on Texas Plans,* March 1, 2022. Bloomberg News. Accessed at Elon Musk Tunneling Company
[7] Data Axle
[8] Burnet County, Texas. *Welcome to Burnet County, Texas,* 2023. Accessed at Burnet County Texas
[9] City of Burnet. Zoning Map. February 23, 2021. Accessed at Burnet Zoning Map
[10] Data Axle
[11] Halff Associates, Inc. Marble Falls Comprehensive Plan Update 2016, pg. 59. June 7, 2016. Accessed at Marble Falls Comprehensive Plan Update
[12] Marble Falls Economic Development Corporation. May 2023. Access at Marble Falls Business Industrial Parks

- Industrial Boulevard Park – a light manufacturing park with access to FM 1431 for east-west shipping.
- Commerce Business Park – a light manufacturing business park for start-up manufacturing and distribution companies.

Marble Falls is updating their Comprehensive Plan, which may result in an increase or decrease of land designated for industrial use. In addition, the plan will address physical development, redevelopment, and future direction of growth within the Marble Falls planning area.[13] The plan is expected to be complete in fall 2023.

Caldwell County

- 545 square miles (land only)
- Cities: Lockhart (county seat), Niederwald, Martindale, Luling, San Marcos (mainly in Hays County)
- Major highways: IH-10, US 90, US 183, SH 80, SH 130

Lockhart

Lockhart is situated along SH 130 and has access to major highways, including I-10 and I-35. There are two large industrial land-use clusters (see Appendix B).[14] The first is near the intersection of SH 130 and SH 142. A second area is near SH 20 and FM 1322. Much of the land on the city's periphery is designated as agricultural/rural development land use.

According to the Lockhart Economic Development Corporation (LEDC), Lockhart targets several industries, such as auto parts, metal, and electronic manufacturing, food and beverage processing, logistics and distribution, pharmaceutical and medical supplies, and medical device manufacturing.[15]

A recently added freight-intensive use in Lockhart is Iron Ox, a hydroponic farm.[16] The 535,000-square-foot facility broke ground in the spring of 2021 and is located on 25 acres along FM 20. The company operates autonomous robotic greenhouses to grow fresh and pesticide-free farm products. It plans to distribute its products to customers and communities throughout Texas. The LEDC also has a 75-acre industrial park on SH 130 located about 27 miles south of Austin-Bergstrom International Airport and Tesla's new Giga Texas facility. The industrial park is on the city's west side adjacent to SH 130, approximately 10 miles from I-35 and 17 miles from I-10.[17]

[13] City of Marble Falls. Marble Falls Comprehensive Plan Update, May 2023. Accessed at Comprehensive Plan Update
[14] Lockhart 2020 Land Use Plan. Figure 3.2. Access at Land Use Plan
[15] City of Lockhart Economic Development Corporation. May 2023. Accessed at Lockhart Economic Development
[16] Fisher, L. *Iron Ox Farm Optimizes Indoor Farming with AI and Robots,* April 19, 2022. The Austin Chronicle. Accessed at Iron Ox article
[17] City of Lockhart Economic Development Corporation. May 2023. Accessed at Lockhart Economic Development

Hays County

- 680 square miles (land only)
- Cities: San Marcos (county seat), Niederwald, Uhland, Buda, Dripping Springs, Hays, Kyle, Mountain City, Wimberley, Woodcreek
- Major highways: I-35, US 290, SH 21, SH 80

Hays County has a concentration of freight generators along I-35 from McCarty Lane to SH 123. In addition, several freight generators are located along US 290 in northern Hays County, including in Dripping Springs. Finally, freight generators are sparsely located in the remaining southern portion of the county.[18]

Dripping Springs

Dripping Springs has few freight-intensive uses. The city's zoning map has an industrial-zoned parcel on Springs Lane just north of W US 290 (see Appendix B).[19] The CAMPO 2045 Regional Arterials Study notes the land use along RM 12 is mostly vacant/rural. However, there is commercial development at the corner where RM 12 joins US 290. Meanwhile, Dripping Springs and RM 12 have many breweries and distilleries.[20]

The City of Dripping Springs initiated a Comprehensive Plan update in April 2022, which may result in an increase or decrease of land designated for industrial use. The city's website indicates the plan will help guide real estate, infrastructure investments, economic development, and zoning.[21] The public input process will continue through 2023.

San Marcos

The San Marcos Comprehensive Plan's Preferred Scenario Map designates land use as high intensity, medium intensity, and employment areas (see Appendix B.)[22] The land use corridors are conservation, employment, and mixed-use.

Large clusters of high-intensity land use are in the downtown, midtown, and entertainment areas. For example, downtown is located at I-35 and SH 123, midtown is at I-35 and SH 80, and entertainment is at I-35 and Aquarena Springs Drive.

The Preferred Scenario Map also shows both sides of the interstate are designated medium intensity and employment areas along I-35 from the city's southern end to just south of SH 123 near Bintu Drive.[23] This area includes the medical district and Texas State University. The San Marcos Airport is on the city's eastern side along SH 21. The land use surrounding the airport is

[18] Data Axle
[19] City of Dripping Springs Citywide Zoning Map. January 2017. Accessed at Dripping Springs Planning & Zoning
[20] Capital Area Metropolitan Planning Organization. Regional Arterials Concept Inventory, p. 422. August 2019. Accessed at FINAL-CAMPO-Regional-Arterials-Concept-Inventory
[21] City of Dripping Springs. *Dripping Springs Launches Comprehensive Plan Initiative,* April 18, 2022. Accessed at Comprehensive Plan Initiative
[22] City of San Marcos Preferred Scenario. April 2018. Accessed at Comprehensive Plan Map
[23] City of San Marcos Preferred Scenario. April 2018. Accessed at Comprehensive Plan Map

designated as low density. This corridor has a significant volume of undeveloped land, with just over 250 acres of vacant lots and/or qualified open space.[24]

The city's zoning map shows heavy and light industrial zoning districts on the west side of I-35 at the southern end of San Marcos (see Appendix B).[25] These properties have direct access to I-35, and adjacent land is in the ETJ. Heavy and light industrial tracts are also located east of I-35, near McCarty Lane, SH 110, Clovis Barker Road, Civic Center Loop, and Wonder World Drive. There is a light industrial area on the north side of San Marcos west of I-35 along Carlson Circle and an area of light industrial east of I-35, just north of the Blanco River.

As of April 2023, the city is processing an annexation and zoning request for land east of FM 110, between SH 80 and the Union Pacific Railroad Tracks. The site is east of the alignment for the new FM 110 loop. The land is part of an approved Development Agreement called SMART (San Marcos Air, Rail, and Truck) Terminal. Based on the SMART Terminal Amendment FAQ on the City of San Marcos website, the project is requesting annexation into San Marcos and heavy industrial zoning.[26] The current SMART Terminal agreement covers approximately 2,020 acres of land. One of the developer agreements is the construction of public improvements, including additional roadways to carry truck traffic to and from FM 110/I-35. This project is still under review as of May 2023.

The CAMPO 2045 Regional Arterials Study evaluated the segment of Wonder World Drive from Hunter Road to I-35, including land use information.[27] Wonder World is located on the southern side of San Marcos and runs northwest from I-35. The current land use is oriented toward industrial and warehouse-based commercial, with some multi-family residential. The current zoning along Wonder World Drive is primarily commercial and industrial. Additional heavy and light industrial-zoned properties are located on the west side of I-35 north and south of Wonder World Drive.

This corridor also has approximately 70 acres of vacant lots. The study notes if the 70 acres of undeveloped property are developed consistently with the future land use plan and zoning, over one million square feet of new commercial and industrial space could be developed.[28]

In 2022, the San Marcos City Council annexed 40 acres of land in its extraterritorial jurisdiction on Posey Road between Transportation Way and I-35.[29] The parcel along Posey Road is zoned commercial, and the parcel along Transportation Way is industrial. Heavy industrial zoning was

[24] Capital Area Metropolitan Planning Organization. Regional Arterials Concept Inventory, p. 426. August 2019. Accessed at FINAL-CAMPO-Regional-Arterials-Concept-Inventory
[25] San Marcos, Current Zoning Districts. September 2020. Accessed at San Marcos Zoning Districts
[26] City of San Marcos. SMART Terminal Amendment FAQ, April 2023. Accessed at SMART Terminal
[27] Capital Area Metropolitan Planning Organization. Regional Arterials Concept Inventory, p. 334. August 2019. Accessed at FINAL-CAMPO-Regional-Arterials-Concept-Inventory
[28] Capital Area Metropolitan Planning Organization. Regional Arterials Concept Inventory, p. 335. August 2019. Accessed at FINAL-CAMPO-Regional-Arterials-Concept-Inventory
[29] Weilbacher, E. *San Marcos City Council approves annexation, rezoning for two industrial, heavy commercial areas,* May 6, 2022. Community Impact Newspaper. Accessed at San Marcos City Council approves annexation

recommended to be compatible with the area's surrounding land use, including an Ingram Ready Mix concrete plant, Transdev transportation services, and other industrial uses. The zoning allows for a significant increase in commercial and industrial development on the fringes of San Marcos.

Approximately 65 acres of a 112-acre property near Clovis Barker Road and SH 123 intersection was rezoned from a "future development district" in 2022 to a "light industrial district." Warehouses, manufacturing facilities, and vacant properties surround the property.

Travis County

- 990 square miles (land only)
- Cities: Austin (county seat) (small parts in Hays and Williamson Counties), Cedar Park (mainly in Williamson County), Elgin (mostly in Bastrop County), Leander (mainly in Williamson County), Mustang Ridge (small parts in Caldwell and Bastrop Counties), Pflugerville (small amount in Williamson County), Round Rock (mainly in Williamson County), Bee Cave, Creedmoor, Jonestown, Lago Vista, Lakeway, Manor, Rollingwood, Sunset Valley, West Lake Hills
- Major highways: I-35, US 183, US 290, SH 71, TX Loop 1 (Mopac Expressway), SH 45, SH 130

Austin

Austin has an extremely high concentration of freight-intensive uses, especially along TX Hwy Loop 1 (Mopac Expressway), I-35, US 290 W, SH 71, US 290 E, Research Blvd., and W. Parmer Lane. In October of 2021, the City of Austin Planning and Zoning Department conducted an "Analysis of Industrial Land Use and Zoning" as part of a Comprehensive Plan Joint Committee Briefing.[30] Using 2018 data, the study notes 11,657 Acres, or 6.6% of Austin, were zoned for industrial use. Only 38% of industrial-zoned land was used for industrial purposes. Approximately 27% of Austin is undeveloped (see Appendix B). In the past twenty years, about 1,900 acres were rezoned from industrial to non-industrial use.

The analysis identifies industrial-zoned areas strategically located near highways or close to the Austin-Bergstrom International Airport. Airport cargo facilities are on the property's northern end, including those for FedEx, DHL, and UPS.

The analysis also identified eight industrial clusters within Austin (see Appendix B):

- North Research Boulevard (US 183/Research Park/Technology Blvd.)
- North Burnet/Gateway (on US 183 near North Mopac Expressway/Hwy 1)
- Tech Ridge (near I-35/Tech Ridge/Palmer Lane)
- US-290 E (at US 183/I-35)
- Near East
- US-183

[30] Water, M., & Engstrom, J. Analysis of Industrial Land Use and Zoning in Austin, Texas, September 2020. Accessed at Presentation to Planning Commission

- St. Elmo
- Ben White (along SH 71 between I-35 and US 183, SH 71/SH 130)

The CAMPO 2045 Regional Arterials Study included Parmer Lane (FM 734).[31] Parmer Lane is in eastern Travis County in Austin's ETJ and is a significant roadway connecting SH 45 to SH 130. The land use in this area is primarily vacant or rural, with some single-family uses. Parmer Lane passes through highly developed areas and connects major job centers in Travis and Williamson counties.

Parmer Lane is home to the campuses of Electronic Arts (EA), Apple/Oracle, Tech Ridge, Dell South, and Samsung. Austin is also home to the Tesla Giga Texas vehicle assembly plant, where the company will build its Cybertruck, semi-truck, and Model Y. The 2,000+ acre site is adjacent to SH 130 near Austin-Bergstrom International Airport.

Austin's Land Use Inventory Map identifies additional large clusters of industrial land use not included in either the "Analysis of Industrial Land Use and Zoning" or the 2045 Regional Arterials Study (see Appendix B):[32]

- US 290 W/SH 130
- US 183 near FM 969
- FM 2222 and FM 620

Williamson County

- 1,118 square miles (land only)
- Cities: Georgetown (county seat), Austin (mostly in Travis County and a small part in Hays County), Bartlett (partly in Bell County), Cedar Park (a small part in Travis County), Leander (small amount in Travis County), Pflugerville (mostly in Travis County), Round Rock (small amount in Travis County), Thorndale (mostly in Milam County), Coupland, Florence, Granger, Hutto, Jarrell, Leander, Liberty Hill, Taylor, Thrall, Weir
- Major highways: I-35, US 79, US 183, SH 29, SH 45, SH 95, SH 130, Loop 1, SH 195, 183A Toll Road

There is a high concentration of freight-intensive uses in Williamson County along I-35 and US 183.[33] The highest concentration is in Round Rock. In addition, US 183 has numerous uses from the southern county line to Leander.

Round Rock

Most industrial land uses in Round Rock are located along or close to I-35. Many are manufacturing businesses. Most notably, Dell headquarters is in Round Rock near I-35 and Louis Henna Blvd (SH 45.)

[31] Capital Area Metropolitan Planning Organization. Regional Arterials Concept Inventory, p. 325. August 2019. Accessed at FINAL-CAMPO-Regional-Arterials-Concept-Inventory
[32] City of Austin Land Use Inventory. March 2023. Accessed at Austin Land Use Inventory map
[33] Data Axle

According to the Round Rock Comprehensive Plan 2030, the city has 663 acres of industrial land use, with only 2% being developed.[34] The property at the southwest corner of I-35 and E. New Hope Drive is in the ETJ and has a mining future land use designation (see Appendix B).

Taylor

Taylor currently has a small number of freight-intensive users. However, Samsung will open a new semiconductor chip fabrication plant in Taylor.[35] The plant will be located near US 79 and CR 401. Construction was scheduled to begin in 2022 and is expected to be completed in 2025. As a result, the City of Taylor is planning to update its Comprehensive Plan in anticipation that the considerable investment by Samsung will influence the growth and development of the small town.[36]

Cedar Park

Cedar Park is located on US 183, north of SH 45. Cedar Park's zoning map shows a few heavy industrial zones on the city's western side (see Appendix B).[37]

A light industrial-zoned property is home to Brushy Creek Corporate Center. The two-building campus sits on a 16-acre site. The property's current tenants include manufacturing, research, and development companies.[38]

Shop LC is relocating its headquarters from Austin to Cedar Park.[39] The home shopping network will begin construction of its headquarters this year. Construction was expected to start in early 2023, with anticipated completion in mid-2024. The 200,000-square-foot facility will be constructed near East New Hope Drive and North Bell Boulevard (US 183).

Georgetown

The Georgetown 2030 Plan indicates that almost 300 acres are designated for light, heavy industrial uses, and approximately 10,000 acres are designated for light and heavy industrial uses in the ETJ (see Appendix B).[40] The most prominent heavy industrial land use areas are at the city's southern end on I-35, Leander Road, and SH 29. In addition, numerous smaller areas are scattered in the northern part of the city between SH 195 and CR 234. They include quarries and stone suppliers.

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[34] Round Rock 2030 *Developing Our Future*, p. 111. June 2020. Accessed at Adopted Comprehensive Plan
[35] Falcon, R. and Madden, M. *$17B Samsung plant officially coming to Taylor, Texas,* November 23, 2021. KXAN Austin News. Accessed at Samsung KXAN Austin News
[36] Ortiz, M. *Samsung development leaves residents questioning Taylor's infrastructure plans,* December 12, 2021. Spectrum News 1. Accessed at Taylor's infrastructure plans
[37] Cedar Park Zoning Map. April 2023. Accessed at Cedar Park Atlas
[38] Aquila. *Dogwood Industrial Properties Acquires Brushy Creek Corporate Center in Cedar Park, Texas,* March 23, 2023. Accessed at Brushy Creek Corporate Center
[39] *Shop LC moving headquarters from Austin to Cedar Park,* November 19, 2021. KVUE News. Accessed at Shop LC to move headquarters
[40] Georgetown 2030 Plan Land Use, p. 28-29. March 2020. Accessed at Georgetown 2030 Plan

Georgetown Logistics Park is a new industrial park with 625,000 square feet of development for larger tenant warehouse space driven by e-commerce, last-mile delivery, and manufacturing tenants.[41] The development is at the southwest corner of I-35 and SH 130 along Aviation Drive, just east of Georgetown Municipal Airport. It is suited to larger warehouse/distribution and manufacturing tenants in the greater Central Texas region.

he Capital Area region, a six-county metropolitan area in Central Texas, has experienced rapid growth and economic development in recent years. A key aspect of this growth is an increase in freight and the movement of goods by truck, rail, pipeline, and air. Efficient freight movement is crucial to the competitiveness of the region's businesses and industries, and the overall way of life for its residents. Recognizing this importance, the Capital Area Metropolitan Planning Organization (CAMPO) is developing a Freight Plan that will highlight the importance of freight to the region and also inform the Regional Transportation Plan (RTP) by identifying policies, strategies, and investments to enhance the performance and safety of the multimodal freight network.

[41] Widner, C. *Stonelake breaks ground on massive Georgetown logistics park,* August 1, 2022. Urbanize Austin. Accessed at Georgetown logistics park

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Existing Conditions

Appendix B: Land Use Maps

Final 1: July 5, 2023

Industrial Cluster Typology for Austin

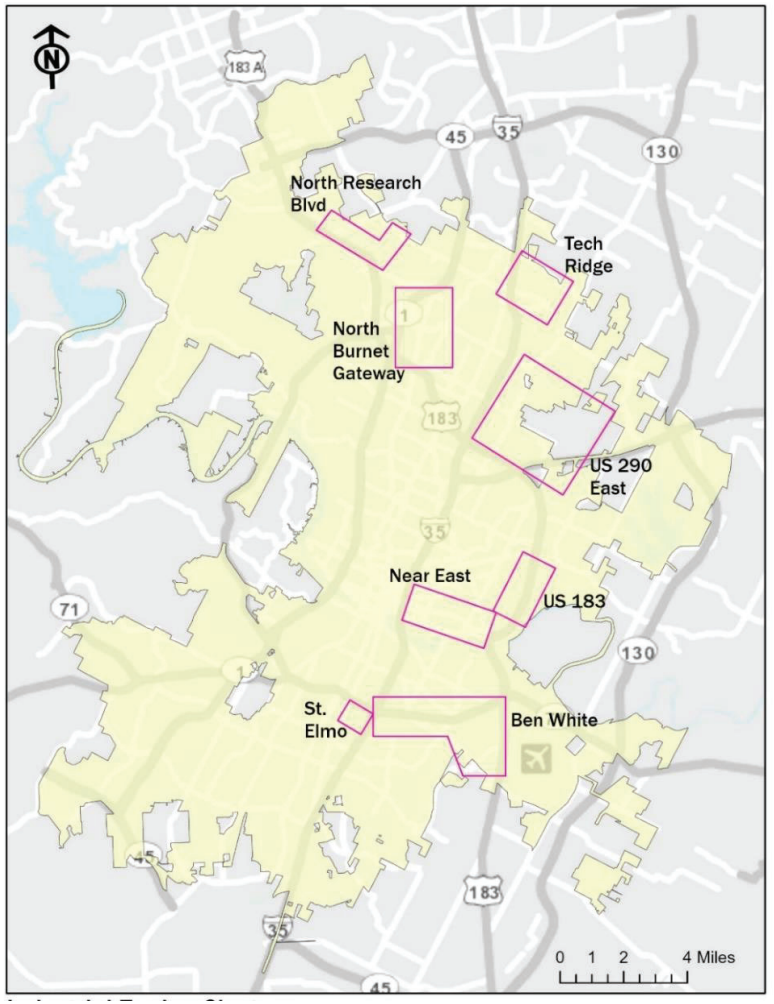
Identified 8 industrial clusters within Austin

Based on best practices from Las Angeles, CA and Philadelphia, PA staff developed an industrial cluster typology

Protection

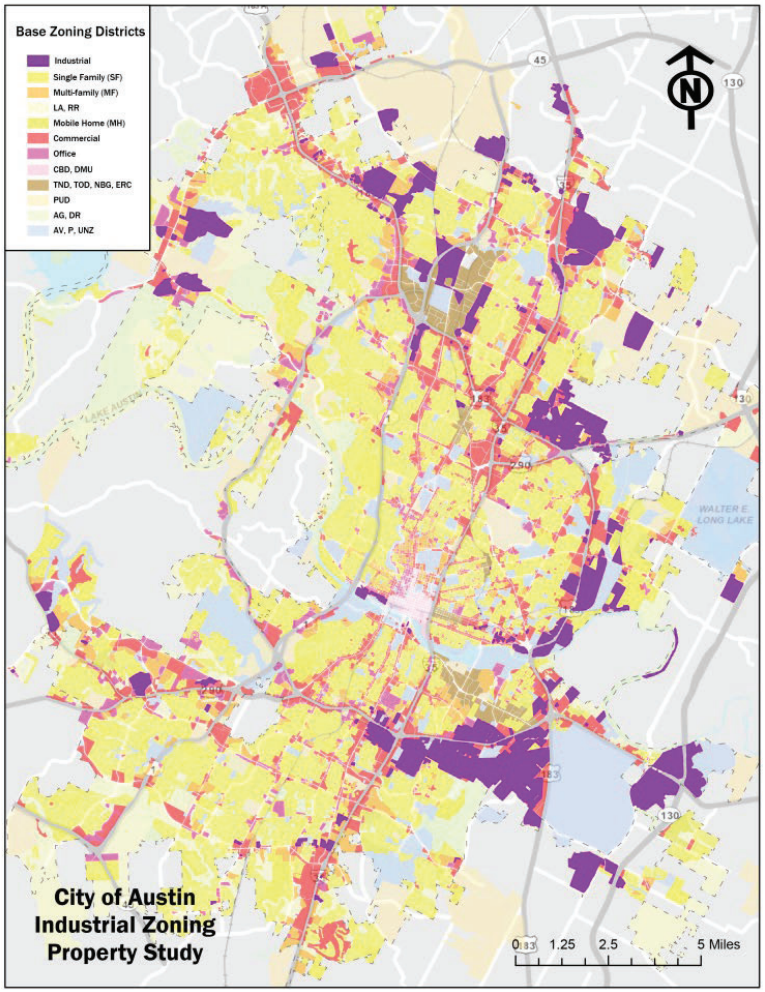
Intensification

Transition



Current State of Austin's Industrially-Zoned Land

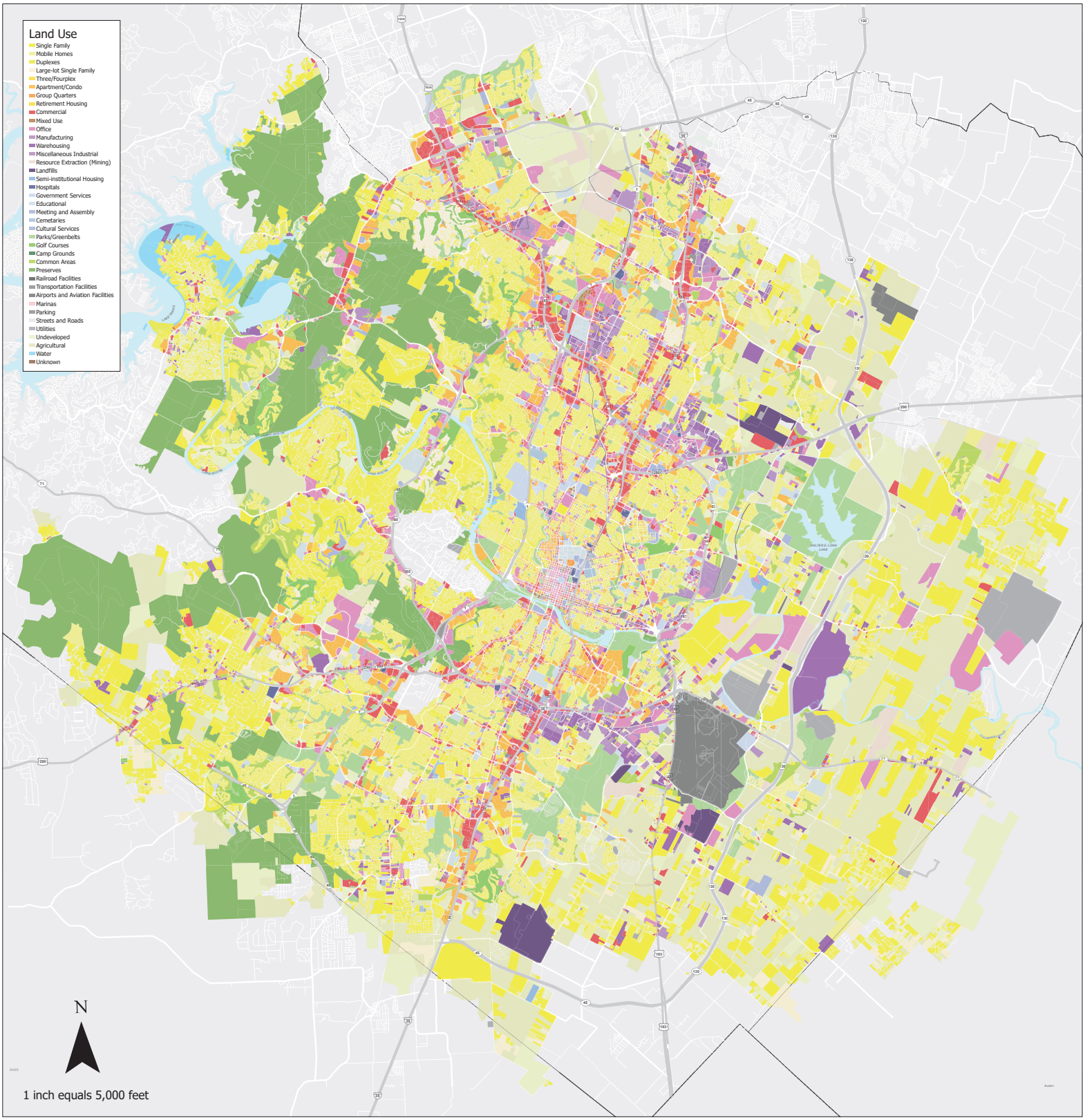
Map #1 Base Zoning Districts



11,657 Acres or 6.6% of Austin zoned for industrial (2018)

Only 38% of Industrial zoned land used for industrial uses

- Undeveloped 27%
- Office 12%



Date Exported: 3/30/2023

Land Use Inventory

CITY OF AUSTIN
EXTRA-TERRITORIAL JURISDICTION

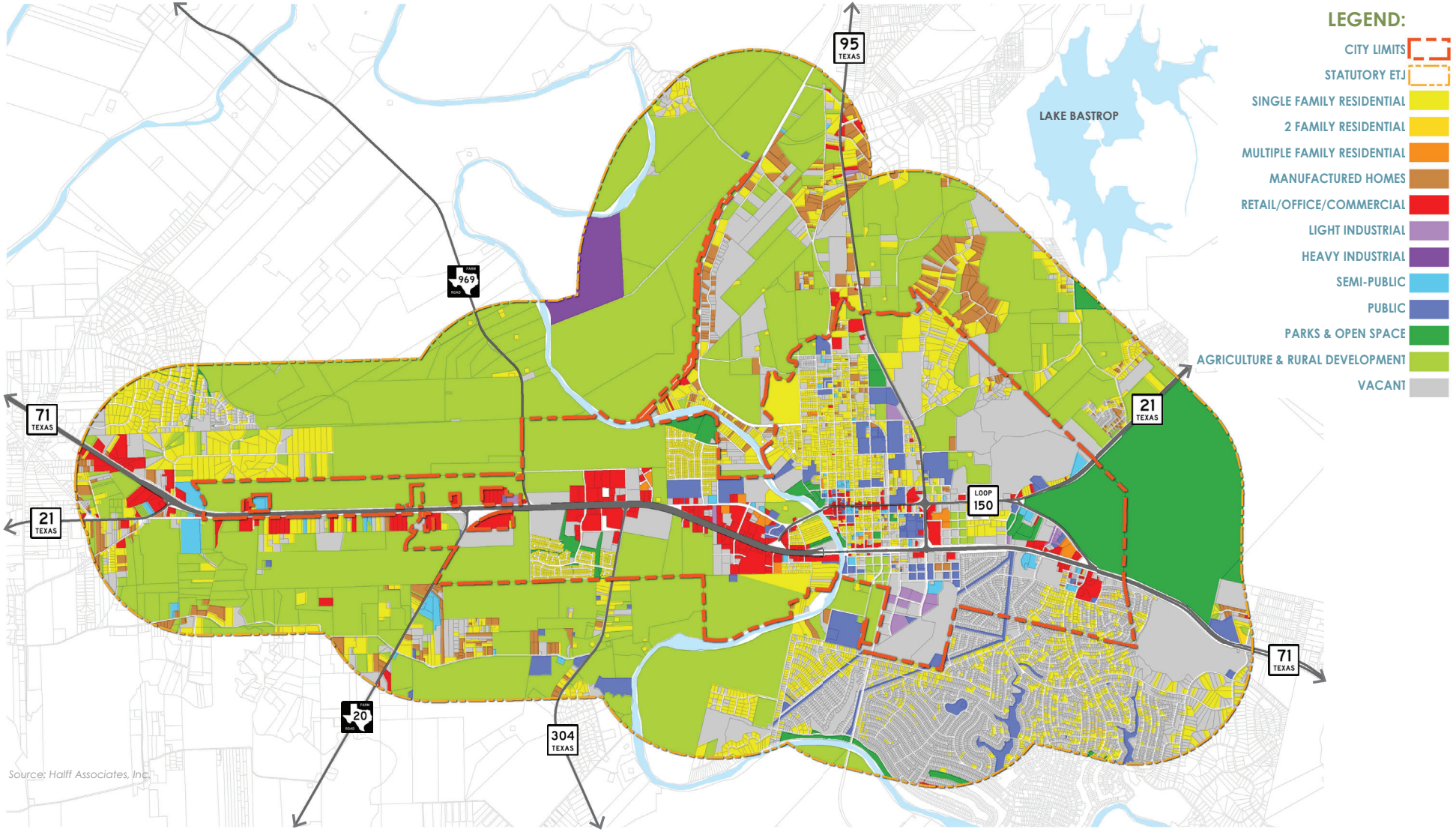
This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.

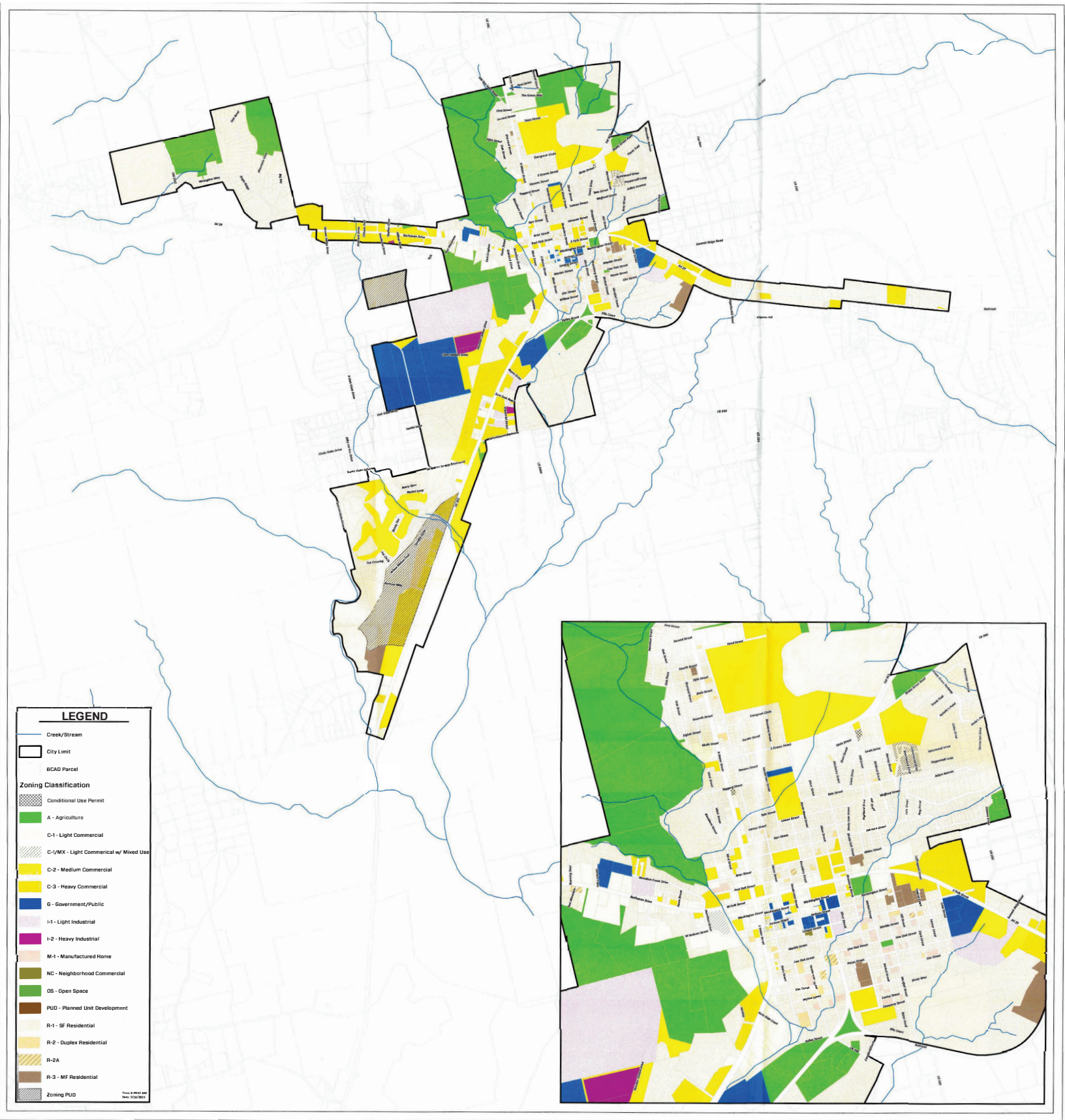
This product has been produced by the Development Services Department for the sole purpose of geographic reference. No warranty is made by the City of Austin regarding specific accuracy or completeness.

The land use inventory is maintained in a geographic information system (GIS) that electronically stores parcel boundaries and land use information. The inventory is a snapshot of how land was being used at time of export. However, different source materials mean that the data may reflect different timeframes.

BASTROP EXISTING LAND USE (2016)

MAP 5-A:





Disclaimer: This product is offered for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property, governmental and/or political boundaries or related facilities to said boundary. No express warranties are made by Quiddity Engineering concerning the accuracy, completeness, reliability, or usability of the information included within this exhibit.

QUIDDITY

CITY OF BURNET, TEXAS

The official Zoning Map of the City of Burnet, Texas, accepted by the City Council of the City of Burnet

Signed _____ (Mayor)

CITY OF BURNET

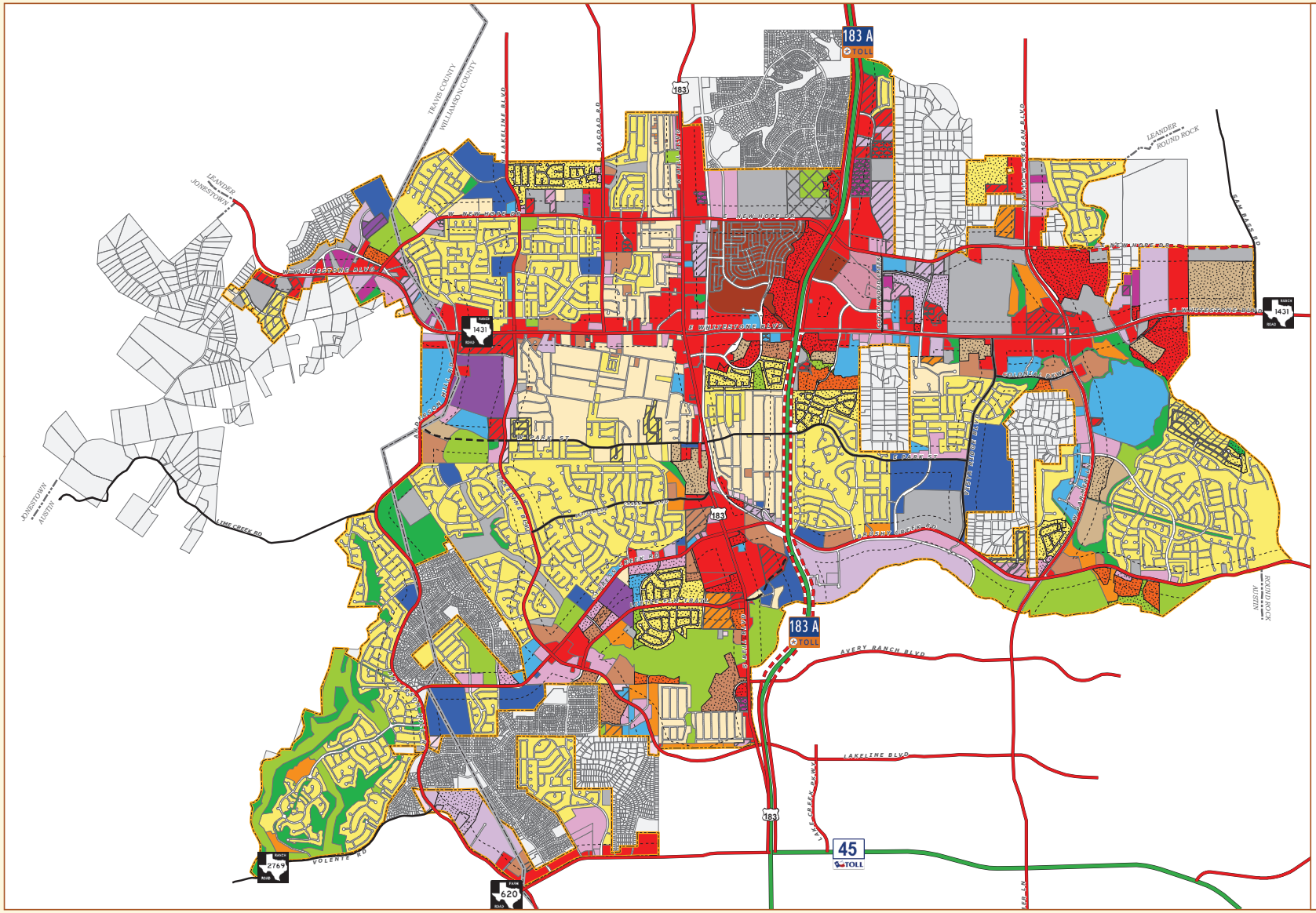
Official Zoning Map - February 28, 2023

0 0.25 0.5 0.75 1 Mile

VICINITY MAP
Scale: 1 inch equals 100 miles

CITY OF CEDAR PARK

OFFICIAL ZONING DISTRICTS



ZONING DISTRICTS

- DR - DEVELOPMENT RESERVE
- ES - ESTATE RESIDENTIAL
- SR - SUBURBAN RESIDENTIAL
- SU - SEMI URBAN RESIDENTIAL
- UR - URBAN RESIDENTIAL
- MF - MULTIFAMILY RESIDENTIAL
- NB - NEIGHBORHOOD BUSINESS
- LB - LOCAL BUSINESS
- GB - GENERAL BUSINESS
- PO - PROFESSIONAL OFFICE
- HC - HEAVY COMMERCIAL
- LI - LIGHT INDUSTRIAL
- HI - HEAVY INDUSTRIAL
- H - HOSPITAL
- PS - PUBLIC SERVICES
- OG - OPEN SPACE GREENBELT
- OR - OPEN SPACE RECREATIONAL
- MU - MIXED USE
- TC - TOWN CENTER
- PA - PLANNING AREA

SPECIAL DISTRICTS

- PD - PLANNED DEVELOPMENT
- CONDITIONAL OVERLAY
- ENTERTAINMENT CENTER
- SPECIAL USE PERMIT
- MAJOR CORRIDORS

- CITY LIMITS
- MAJOR ARTERIAL
- MAJOR ARTERIAL (PLANNED)
- MINOR ARTERIAL
- MINOR ARTERIAL (PLANNED)
- TOLLWAY

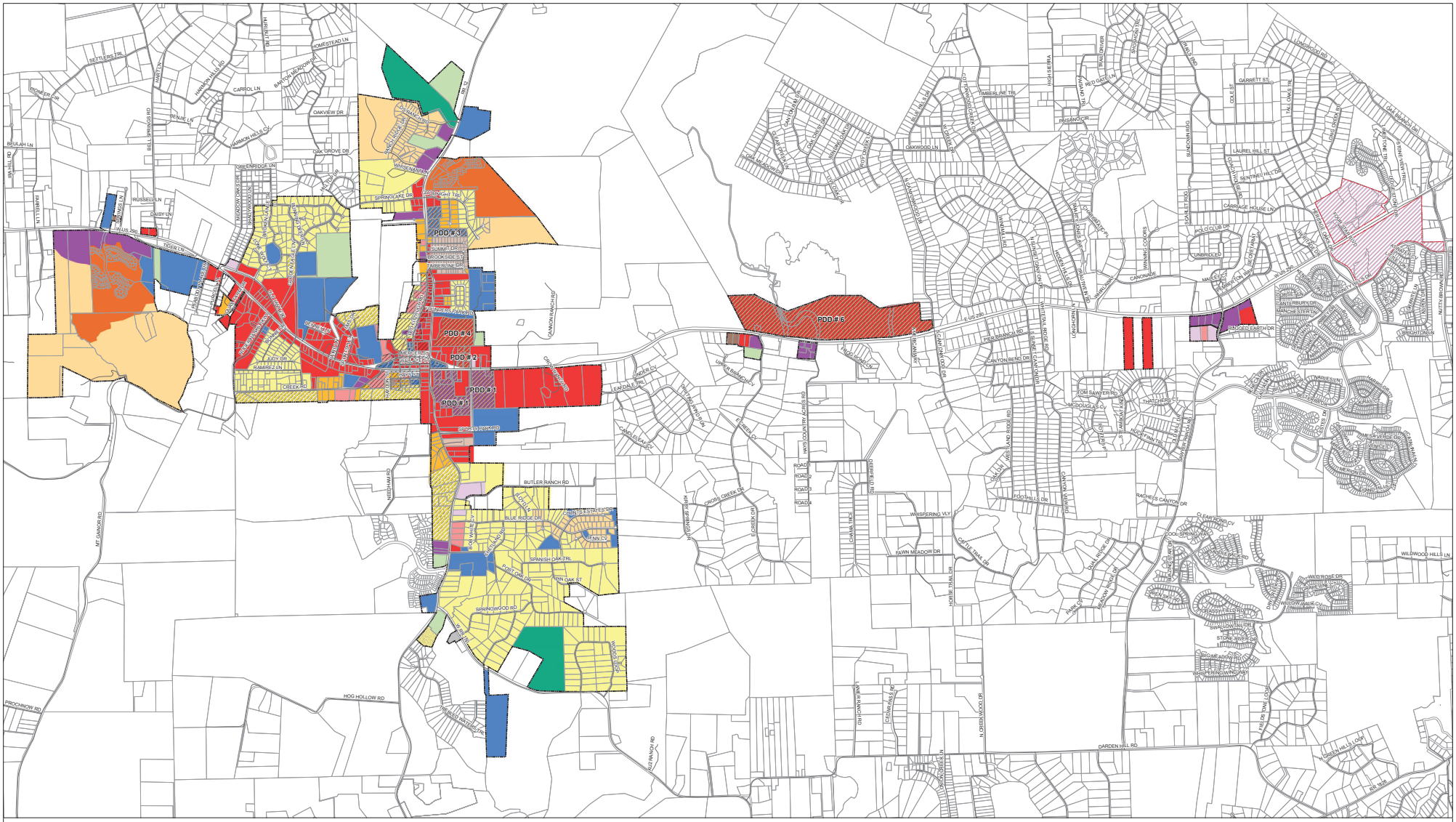
1:48,000

0 0.25 0.5 0.75 1 Miles

Coordinate System: NAD 1983 Texas Statewide Mapping System
Projection: Lambert Conformal Conic
Units: Meter
Datum: North American 1983
False Easting: 1,000,000.0000
False Northing: 1,000,000.0000
Central Meridian: -100.0000
Standard Parallel 1: 27.4167
Standard Parallel 2: 34.9167
Latitude Of Origin: 31.1667

Updated: January 26, 2023

CEDAR PARK

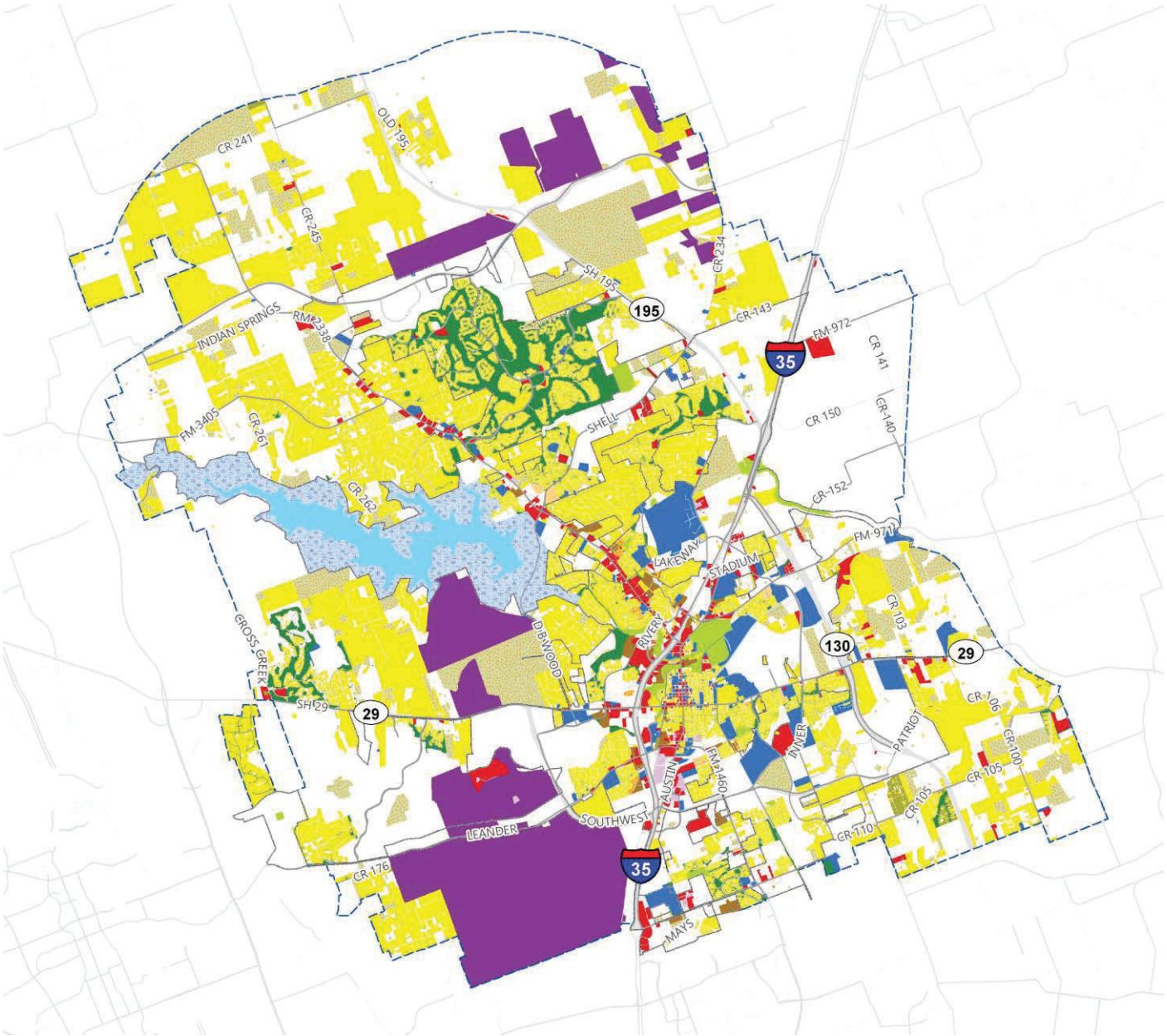


City of Dripping Springs, Texas
Official Zoning Map

Map Updated January 2017

This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-ground survey and represents only the approximate relative location of property boundaries.

Figure 21. Existing Land Use Map (as of 1/22/2020)



Classification: Light vs. Heavy Industrial

Light industrial uses are typically conducted entirely inside and include uses such as light manufacturing and assembly. Such uses often generate truck traffic.

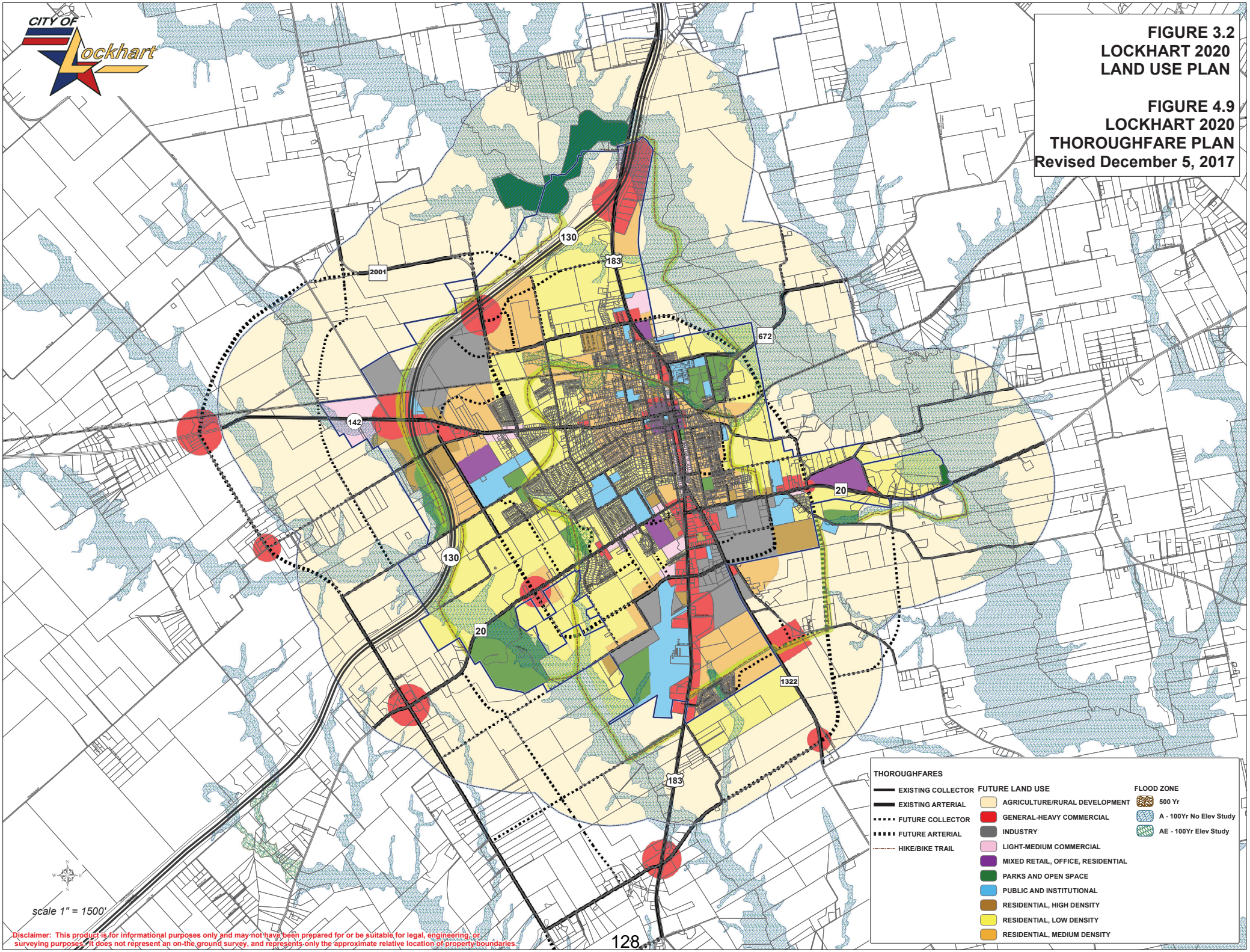
Heavy industrial uses may have outside storage or on-site excavation. Such uses may generate noise, light, dust, vibration, and other impacts.

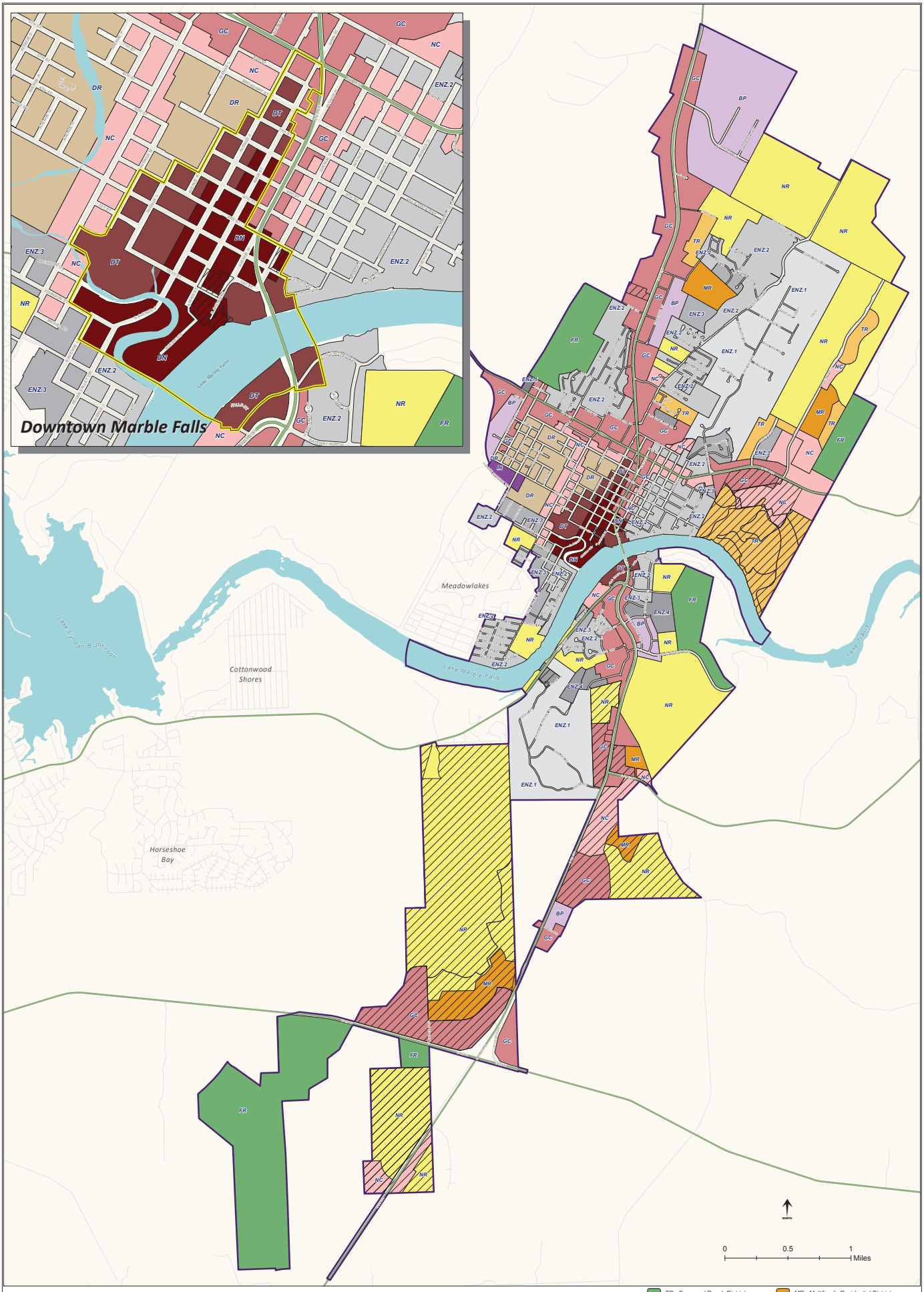
- Agriculture/Rural Residential
- Single Family
- Two-Family (Duplex)
- Townhome
- Multi-Family
- Manufactured Home
- Office/Retail/Commercial
- Light Industrial
- Heavy Industrial
- Parks and Open Space
- Private Recreation
- Public/Semi-Public
- Right-of-way
- Lake Georgetown
- Lake/Corps of Engineers
- Vacant
- Georgetown City Limits
- Georgetown ETJ

NORTH

0 1 2 3
MILES

Source: Williamson County Appraisal District


CITY OF Lockhart
FIGURE 3.2
LOCKHART 2020
LAND USE PLAN
FIGURE 4.9
LOCKHART 2020
THOROUGHFARE PLAN
Revised December 5, 2017
130
183
2001
672
142
20
130
20
1322
183
THOROUGHFARES
EXISTING COLLECTOR
EXISTING ARTERIAL
FUTURE COLLECTOR
FUTURE ARTERIAL
HIKE/BIKE TRAIL
FUTURE LAND USE
AGRICULTURE/RURAL DEVELOPMENT
GENERAL-HEAVY COMMERCIAL
INDUSTRY
LIGHT-MEDIUM COMMERCIAL
MIXED RETAIL, OFFICE, RESIDENTIAL
PARKS AND OPEN SPACE
PUBLIC AND INSTITUTIONAL
RESIDENTIAL, HIGH DENSITY
RESIDENTIAL, LOW DENSITY
RESIDENTIAL, MEDIUM DENSITY
FLOOD ZONE
500 Yr
A - 100Yr No Elev Study
AE - 100Yr Elev Study
scale 1" = 1500'
Disclaimer: This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the ground survey, and represents only the approximate relative location of property boundaries.



Official Zoning Map of Marble Falls, Texas

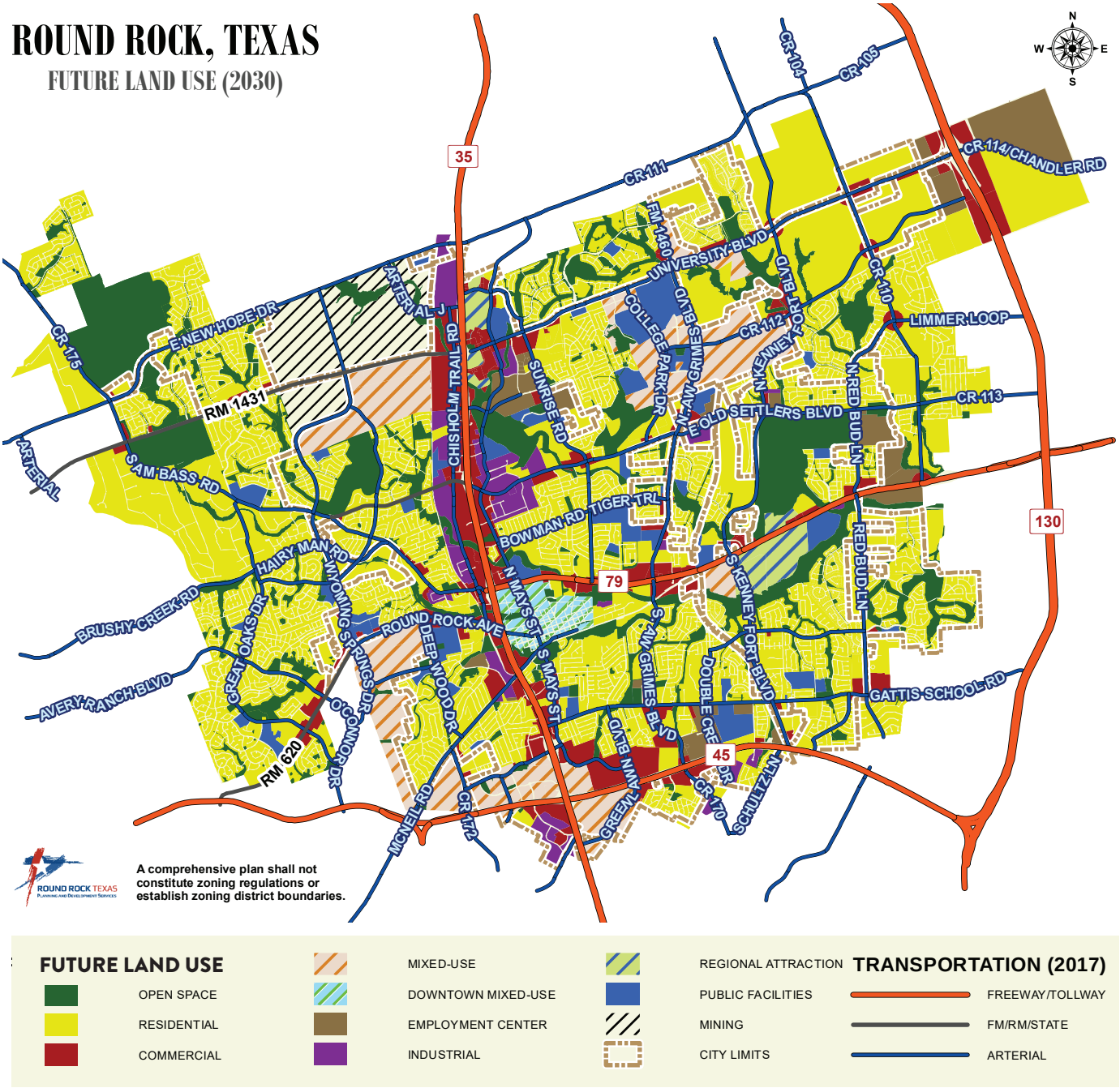
CITY OF Marble Falls TEXAS

This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of boundary properties.

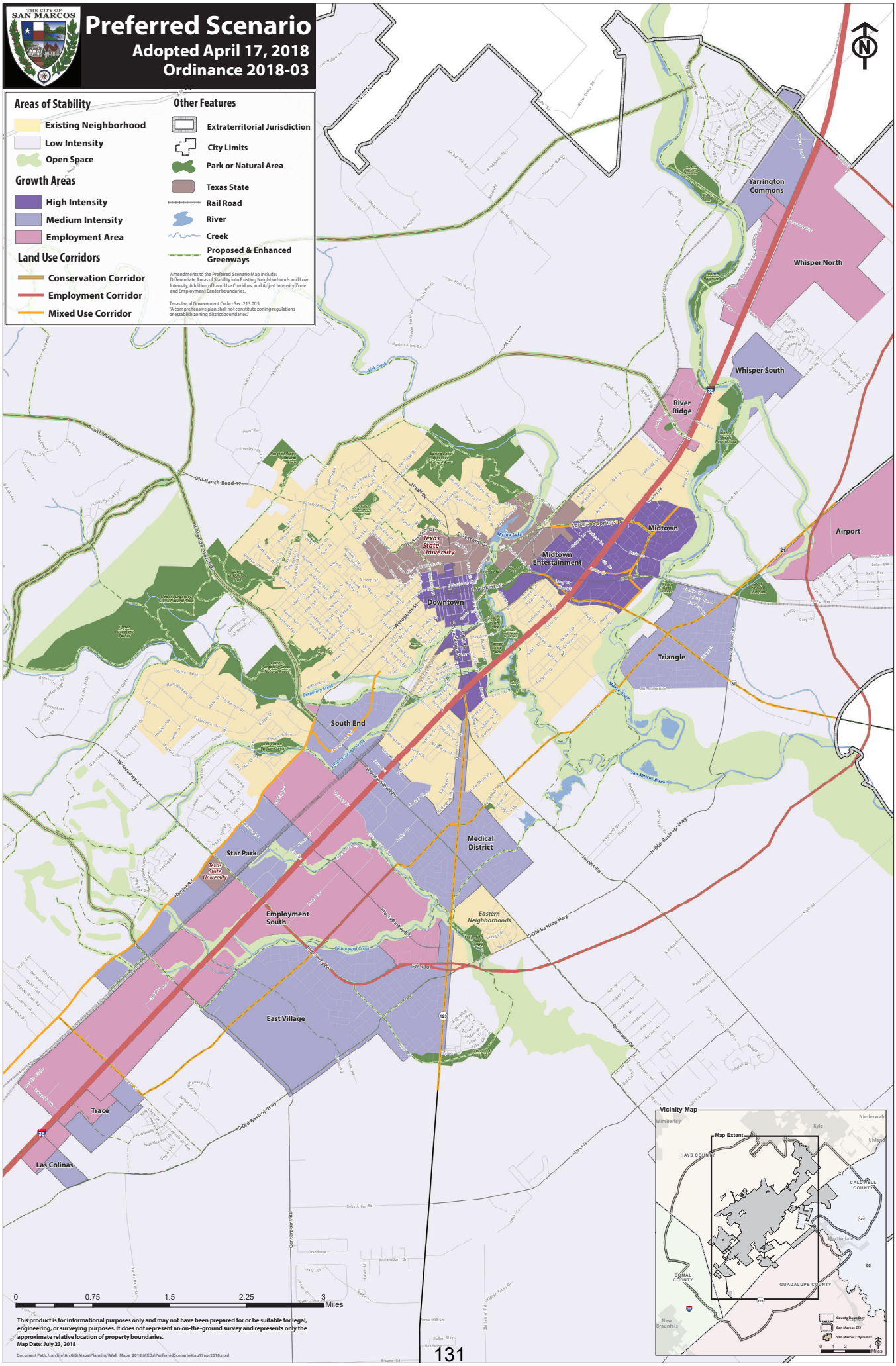
Effective Date: January 1, 2019

- FR - Farm and Ranch District
- ENZ.1 - Existing Neighborhood Zone 1
- ENZ.2 - Existing Neighborhood Zone 2
- ENZ.3 - Existing Neighborhood Zone 3
- ENZ.4 - Existing Neighborhood Zone 4
- ENZ.5 - Existing Neighborhood Zone 5
- RE - Rural Estate District
- NR - Neighborhood Residential District
- TR - Transitional Residential District
- MR - Multifamily Residential District
- DR - Downtown Residential District
- NC - Neighborhood Commercial District
- GC - General Commercial District
- DT - Downtown Transition District
- DN - Downtown District
- BP - Business/Industrial Park District
- IN - General Industrial District
- Planned Development Districts

FIGURE 29. FUTURE LAND USE MAP



changes to map categories associated with new zoning districts and changing land use trends. To consider adjustments on the FLUM, staff conducted a preliminary review of the existing FLUM and identified potential revisions to create a new draft map. Staff then offered individual meetings between staff and stakeholders owning 100-plus acres of land in the city limits and/or ETJ to discuss potential changes to their land envisioned in the next ten years. Once a new draft FLUM was created, staff held an open house on July 22, 2019 to solicit public input. Staff identified 402 parcels of land in the city limits and ETJ consisting of five acres or more with a single owner and sent a letter inviting those owners to attend the Open House. The Open House was open to the public as well. The public and stakeholders provided input on how they saw the city and their parcels being developed or redeveloped in the future. Staff then revised the FLUM based on the input received.


Preferred Scenario
Adopted April 17, 2018
Ordinance 2018-03
Areas of Stability
Existing Neighborhood
Low Intensity
Open Space
Growth Areas
High Intensity
Medium Intensity
Employment Area
Land Use Corridors
Conservation Corridor
Employment Corridor
Mixed Use Corridor
Other Features
Extraterritorial Jurisdiction
City Limits
Park or Natural Area
Texas State
Rail Road
River
Creek
Proposed & Enhanced Greenways
Amendments to the Preferred Scenario Map include: Differentiate Areas of Stability into Existing Neighborhoods and Low Intensity, Addition of Land Use Corridors, and Adjust Intensity Zone and Employment Center boundaries.
Texas Local Government Code - Sec. 213.005
"A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries."
Yarrington Commons
Whisper North
Whisper South
River Ridge
Airport
Midtown
Midtown Entertainment
Texas State University
Downtown
Triangle
South End
Medical District
Star Park
Employment South
Eastern Neighborhoods
East Village
Trace
Las Colinas
Old-Ranch-Road-12
Centerpoint Rd
S Old Bastrop Hwy
N Old Bastrop Hwy
Staples Rd
Redwood Rd
W McCarty Ln
Hunter Rd
Wonder World Dr
Clovis Barker Rd
Purgatory Creek
San Marcos River
Cottonwood Creek
Vicinity Map
Map Extent
HAYS COUNTY
CALDWELL COUNTY
COMAL COUNTY
GUADALUPE COUNTY
Kyle
Buda
Niederwald
Uhland
Martindale
New Braunfels
County Boundary
San Marcos ETJ
San Marcos City Limits
0 1 2 4 Miles
0 0.75 1.5 2.25 3 Miles
This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries.
Map Date: July 23, 2018
Document Path: \\arcfile\ArcGIS\Maps\Planning\Wall_Maps_2018\MXDs\Perferred\ScenarioMap17apr2018.mxd

Current Zoning Districts

September 2020

AR	*Agriculture Ranch District (AR)*
CC	*Community Commercial (CC)*
CD-3	*Character District 3*
CD-4	*Character District 4 (CD-4)*
CD-5	*Character District 5 (CD-5)*
CD-5D	*Character District 5-Downtown (CD-5D)*
D	*Duplex (D)*
DR	*Duplex Restricted (DR)*
FD	*Future Development (FD)*
GC	*General Commercial (GC)*
HC	*Heavy Commercial (HC)*
HI	*Heavy Industrial (HI)*
LI	*Light Industrial (LI)*
MF-12	*Multi-Family 12* (MF-12)*
MF-18	*Multi-Family 18* (MF-18)*
MF-24	*Multi-Family 24* (MF-24)*
MH	*Manufactured Home (MH)*
MR	*Manufactured Home and Residential (MR)*
MU	*Mixed Use (MU)*
N-MS	*Neighborhood Main Street (N-MS)*
NC	*Neighborhood Commercial (NC)*
ND-3	*Neighborhood Density 3 (ND-3)*
OP	*Office Professional (OP)*
P	*Public (P)*
PA	*Planning Area (PA)*
PDD	*Planned Development (PDD)*
PH-ZL	*Patio Home, Zero Lot Line (PH-ZL)*
SC	*Smart Code (SC)*
SF-4.5	*Single Family 4.5* (SF-4.5)*
SF-6	*Single Family 6 (SF 6)*
SF-R	*Single Family Rural Residential (SF-R)*
TH	*Townhouse (TH)*
VMU	*Vertical Mixed Use (VMU)*

*Residential District Definitions:

Multi-Family	12:	maximum 12 units per gross acre
Multi-Family	18:	maximum 18 units per gross acre
Multi-Family	24:	maximum 24 units per gross acre
Single-Family	6:	minimum 11,000 square foot lots
Single-Family	4.5:	minimum 4,500 square foot lots
Single-Family	R:	minimum 1-acre lots

CITY OF SAN MARCOS
PLANNING & DEVELOPMENT SERVICES

PlanningInfo@sanmarcostx.gov
www.sanmarcostx.gov
512-393-8230

0 0.5 1 2 Miles

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Map Date: September 22, 2020

Any discrepancy between the ordinance information and the map is unintentional. The official action of the City Council, as contained in the ordinance, shall govern in the event of discrepancy.

Land Development Code, Chapter 4, Ordinance No. 2018-02.

Date:	October 16, 2023
Continued From:	N/A
Action Requested:	Information

To:	Technical Advisory Committee
From:	Mr. Ryan Collins, Short-Range Planning Manager
Agenda Item:	5
Subject:	Discussion on Short-Range Planning Activities

RECOMMENDATION

None. This item is for information purposes only.

PURPOSE AND EXECUTIVE SUMMARY

The Capital Area Metropolitan Planning Organization (CAMPO) is undergoing several important interrelated activities related to short-range planning summarized below.

Deferred Project Refunding

CAMPO, in coordination with TxDOT, is working with sponsors of the four remaining deferred Surface Transportation Block Grant (STBG) projects listed below to conduct a full project readiness assessment. This process will develop a refunding and scheduling recommendation to the Transportation Policy Board (TPB) to conclude the deferral of STBG projects (see Attachment A for additional information).

CSJ	Sponsor	Project Name	Original STBG Award
0914-04-314	City of Austin	West Rundberg Lane	$8,800,000
0914-05-194	City of Austin	Lakeline Blvd	$11,540,000
0914-04-326	Travis County	Pearce Lane	$22,000,000
0914-04-316	Travis County	Braker Lane North	$11,737,000

Project Tracking

CAMPO is moving to a new project tracking platform in October. This platform, MyProjects, is a custom cloud-based project management software that will provide a robust, transparent, and efficient platform for project management including progress reporting, project milestone management, and dashboard views of project information including progress and funding utilization. This system will increase accountability and provide the TPB with real time information for decision-making purposes.

Spring Amendment Cycle and 2025-2028 Transportation Improvement Program

The cut-off date for the final regularly scheduled amendment cycle for the 2023-2026 Transportation Improvement Program (TIP) is November 10, 2023. Sponsors may submit amendment requests at any time using the online form. CAMPO will also be developing the 2025-2028 TIP in conjunction with the spring amendment cycle process and schedule. To be included in the 2025-2028 TIP, sponsors must submit an amendment application by November 10, 2023. CAMPO will list the projects in the appropriate program (current, future, or both) based on the submitted fiscal year. Please review the program documentation to ensure your project meets all requirements to be listed in the TIP including committed federal surface transportation funding.

Future Funding Opportunities

CAMPO is preparing to initiate a project call in the upcoming calendar year to schedule projects for future funding availability. This funding opportunity will be impacted by several outstanding factors including the refunding of the deferred projects, currently funded projects not demonstrating progress, project readiness, potential funding availability from other sources, and statewide administrative code changes.

FINANCIAL IMPACT

None.

BACKGROUND AND DISCUSSION

The TPB is responsible for the TIP and the allocation and management of certain federal and state funds for transportation projects in the six-county capital region. To administer these funding programs effectively, the TPB has adopted a regional approach to project selection that includes a comprehensive readiness assessment, planning factor review, and cost-benefit analysis. In addition to selection, the TPB also monitors selected projects to ensure continual progress.

SUPPORTING DOCUMENTS

None.

Date:	October 16, 2023
Continued From:	N /A
Action Requested:	Information

To:	Technical Advisory Committee
From:	Mr. Ryan Collins, Short-Range Planning Manager
Agenda Item:	6
Subject:	Discussion on Category 7 Federal Funding Utilization

RECOMMENDATION

None. This item is for information purposes only.

PURPOSE AND EXECUTIVE SUMMARY

The Texas Department of Transportation (TxDOT) periodically reviews Metropolitan Planning Organization (MPO) federal funding utilization rates as part of its larger financial strategy. As part of the most recent review, TxDOT is proposing revisions to the Texas Administrative Code regarding utilization rates to help optimize the use of federal funds by MPOs. These changes include an annual review of Category 5 (CMAQ) and Category 7 (STBG) carryover and incentives to encourage utilization and increased funding flexibility. This flexibility includes a provision to redistribute Category 2 (Mobility) and Category 5 (CMAQ) should an MPO accrue a carryover amount over 200% of the annual apportionment without sufficient cause.

Over the 4-year period (2024-2027), CAMPO has a 99.2% utilization rate for federal funding and would not be negatively affected by this rule change in the near and mid-term future. These changes provide additional flexibility for TxDOT and MPOs regarding funding distribution. This change also emphasizes the importance of project readiness and could potentially represent additional funding resources for regional projects.

FINANCIAL IMPACT

None.

BACKGROUND AND DISCUSSION

TxDOT is responsible for managing the surface transportation funding portfolio and maximizing funding utilization and obligation on a statewide level. Because Metropolitan Planning Organizations (MPOs) in Transportation Management Areas (TMAs) are directly responsible for certain funding sources included in the statewide portfolio, TxDOT regularly coordinates with MPOs to ensure these funds are being utilized appropriately.

SUPPORTING DOCUMENTS

Attachment A – *TxDOT Category 7 Presentation*

Federal Fund Utilization: Category7

Table of contents

Federal Funding Overview

Federal Apportionment vs. Obligation Limitation

Apportionment

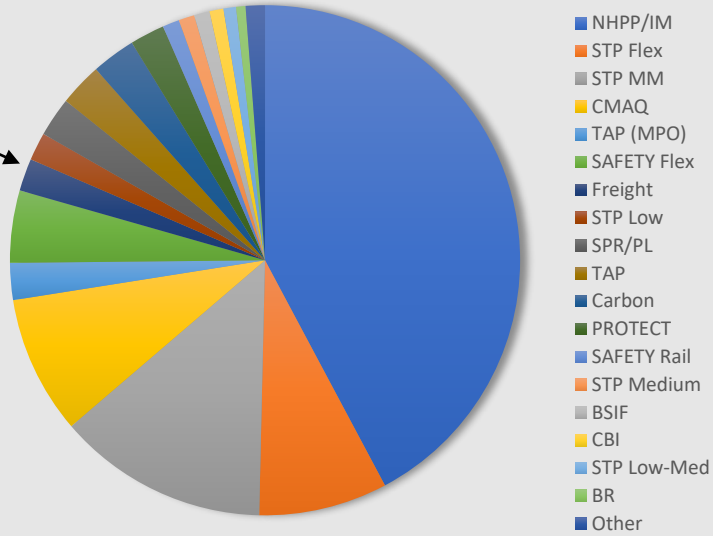
- Federal-aid highway funding; annually distributed to programs by a **statutory formula**
- Usually **available for four years** (current FY funds were apportioned + 3 years)
- Subject to **carryover, lapses** and **expirations**

Obligation Limitation

- **Maximum** amount of federal a state can obligate during a fiscal year, **expires annually**
- **Not** program specific; single amount
- Allows FHWA to be more responsive to budget policies

FY23 Available Apportionment
$6.6B
$5.2B FY23 Apportionment &
$1.4B Carryover

FY23 Obligation Limit $4.5B
on average ≈90%



Additional Definitions

Obligation: Federal government's legal commitment to pay or reimburse entities for the Federal share of a project's eligible cost, via submission of Federal Project Authorization and Agreement (FPAA).

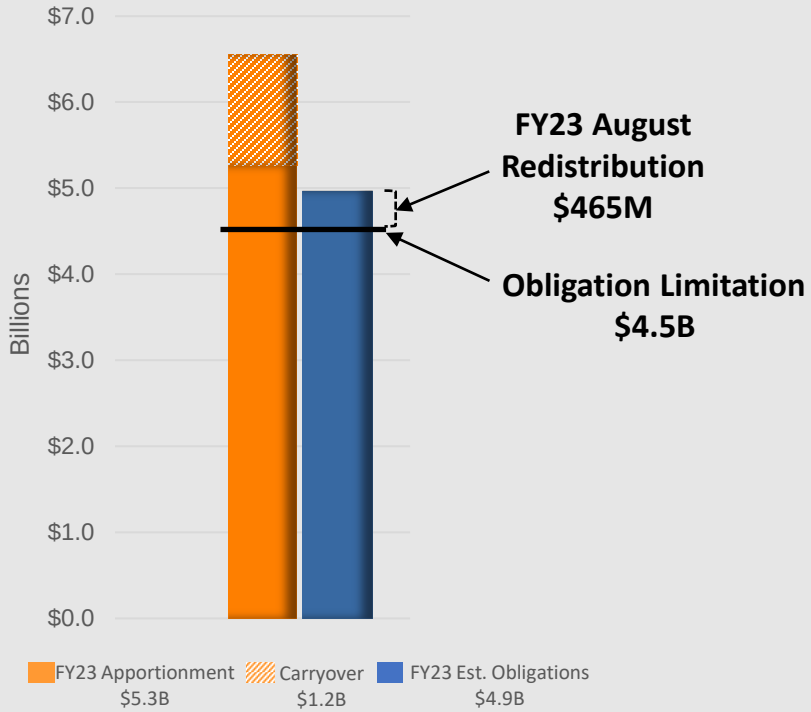
Advance Construction (AC): FHWA financial tool that allows TxDOT to request federal authorization present day, for future obligation when apportionment or Obligation Limitation is available.

Lapse: Most federal-aid funds must be obligated within four years (of being apportioned to the state); any unobligated apportionment will lapse and is no longer available for future projects.

Allocated Federal Funds: An administrative distribution of funds for programs that are not distributed to States by statutory formula. (ex. Earmark and Emergency Relief)

2023 August Redistribution Estimate - $465M

August Redistribution allows states to return unused FY 2023 Obligation Limitation, so that others (such as Texas) may request the available Obligation Limitation and maximize federal obligations.



Benefits

- Ability to maximizes federal obligations by requesting additional obligation limitation
- Enables Texas to access apportionment current year and carryover balances.

Challenges

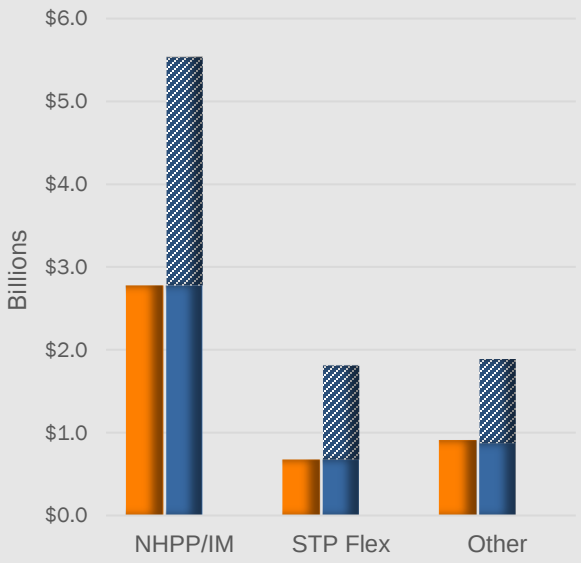
- Obligation Limitation does not carryover
- Redistributed amounts must be obligated by the end of fiscal year; need ready to let projects

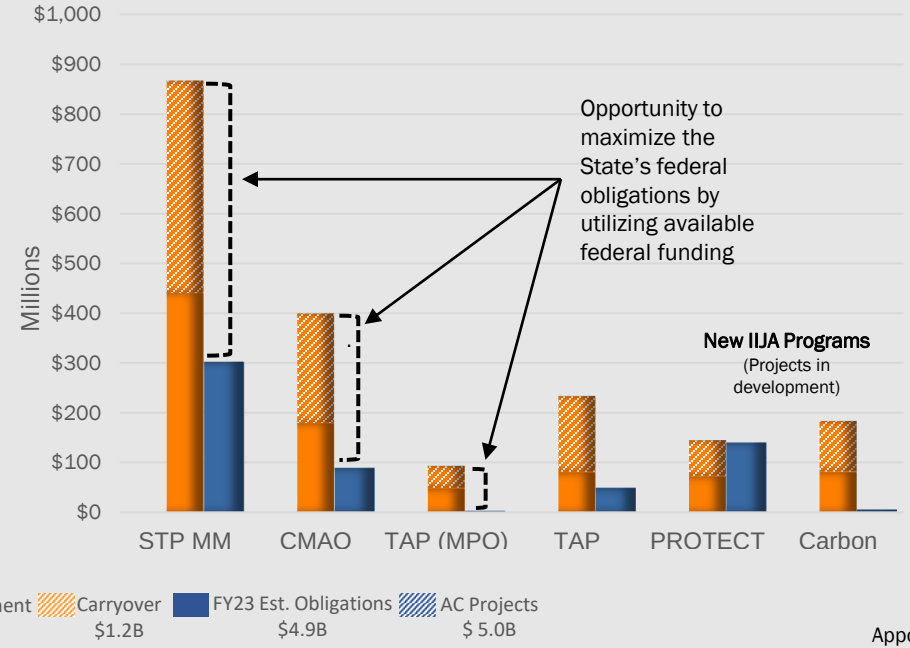
Apportionment as of 9/6/2023

2023 August Redistribution (by Federal Program)

August Redistribution enables Texas to request **additional Obligation Limitation** and <u>obligate more</u> federal funds.

- TxDOT can only **leverage** federal programs with **available apportionment** such as **STP MM, CMAQ & TAP**





Apportionment as of 9/6/2023

FY 2023 MPO Federal Program Balances

	CMAQ	STP MM
FY23 Apportionment	$190.1	$440.4
Prior FY Apportionment Carryover	$304.4	$427.0
Total Apportionment	$494.5	$867.4
Less Est. Obligations	($81.6)	($302.1)
Remaining Appn Balance	**$412.9**	**$565.3**
Remaining as % of FY23 Appn	217%	128%

CMAQ

- FY23 estimated obligations are currently
- Estimated carryover is approximately 2.17 years of apportionment

STP MM

- STP MM swaps & MPO project lettings have increased obligations
- Estimated carryover is approximately 1.25 years of apportionment
- IIJA increased annual apportionment levels by ~$50M

Apportionment as 9/6/2023

FY 2023 MPO Allocation Utilization

CMAQ

	FY23 Revised Allocation	FY23 Scheduled	Allocation Remaining	% Scheduled to Allocation
AAMPO	$37.32	($4.37)	$32.95	11.7%
EL Paso MPO	$16.27	($2.53)	$13.74	15.6%
HGAC MPO	$330.93	($61.01)	$269.92	18.4%
NCTCOG MPO	$132.06	($121.45)	$10.60	92.3%
Total	**$516.58**	**($189.36)**	**$327.21**	**36.7%**

STP MM

	FY23 Revised Allocation	FY23 Scheduled	Allocation Remaining	% Scheduled to Allocation
AAMPO	$152.95	($25.16)	$127.79	16.4%
CAMPO	$125.08	($15.01)	$110.07	12.0%
Corpus Christi MPO	$24.77	$0.01	$24.78	0.0%
El Paso MPO	$62.24	($20.45)	$41.79	32.9%
HGAC	$577.96	($158.41)	$419.55	27.4%
KTUTS	$24.75	($11.08)	$13.67	44.8%
Laredo MPO	$55.42	$0.00	$55.42	0.0%
Lubbock MPO	$17.10	($21.62)	-$4.52	126.4%
NCTCOG	$227.07	($172.83)	$54.24	76.1%
RGV MPO	$109.44	$0.58	$110.02	-5.0%
Total	**$1,376.78**	**($423.97)**	**$952.81**	**30.8%**

- Allocations include federal plus state/local match
- Revised Allocations include prior fiscal year carryover
- Cat 7 allocations are higher than STP MM apportionments due to timing of STP MM swaps
- Negative % are due to credits from PE/ROW and Federal Adjustments

Allocation as of 9/6/2023

Awarded vs. Scheduled

Awarded Projects

- MPO awarded projects are not automatically included in TxDOT's letting schedule.
- Work in coordination with TxDOT District office to get the projects on TxDOT's letting schedule

Scheduled Projects

All construction projects must be progressing towards being **Ready-to-Let.**
A Ready-to-Let project **must meet all federal and state requirements**, which may include:

- All NEPA and Environmental Clearances/Documentation are secured
- STIP Approval and STIP federal funding fiscal constraint is met
- ROW Clearance *(if required)*
- Utility Agreements in place *(if required)*
- 100% PS&E completed and approved schematics
- Project agreements in place and fully executed, including local funding agreements, Memorandums of Understanding and inter-state agreements
- Railroad coordination is complete and agreements in place *(if required)*

This will ensure projects are included in TxDOT's letting schedule and federal funds are obligated prior to letting.

Category 7 Utilization and Carryover

Category 7: Implementing Cat 2 Carryover Provisions

Cat 7 (STP MM)

	a			b	c	d = b - c
MPO	**FY23 Allocation**	**FY22 Carryover**	**FTR adjs**	**FY23 Revised Allocation**	***Total Used***	**Remaining Allocation**
Alamo Area	59.63	93.32	0.00	152.95	*25.16*	127.79
CAMPO	46.21	78.87	0.00	125.08	*15.01*	110.07
Corpus Christi	10.86	13.92	0.00	24.78	*(0.01)*	24.79
El Paso	26.20	36.05	0.00	62.24	*20.45*	41.79
HGAC	175.83	402.14	0.00	577.97	*158.41*	419.56
Killeen-Temple	7.38	17.37	0.00	24.75	*11.08*	13.67
Laredo	7.99	47.42	0.00	55.41	*0.00*	55.41
Lubbock	8.05	9.05	0.00	17.10	*21.62*	(4.52)
NCTCOG	186.13	40.94	0.00	227.07	*172.83*	54.24
RGVMPO	32.10	77.35	0.00	109.45	*(0.58)*	110.03
Total	560.38	816.43	0.00	1,376.80	423.97	952.83

Projected FY23 Carryover

Data as of 9/6/2023

Fund Management and Incentivizing Use of Funds: Chapter 16 (UTP) TAC Proposed Revisions

Summary of Proposed TAC Revisions

- **Objective:** Help optimize the use of federal funds.

- **Proposed Revisions** to:
  - Unified Transportation Program (UTP) funding categories 2 and 5 formula allocations to provide additional flexibility and allow the department to redistribute if there is a significant carryover associated with categories 5 and 7.
  - The definition of a “major change” to enable the redistribution to be performed administratively with TxDOT Executive Leadership approval.

Communication Plan & Briefings

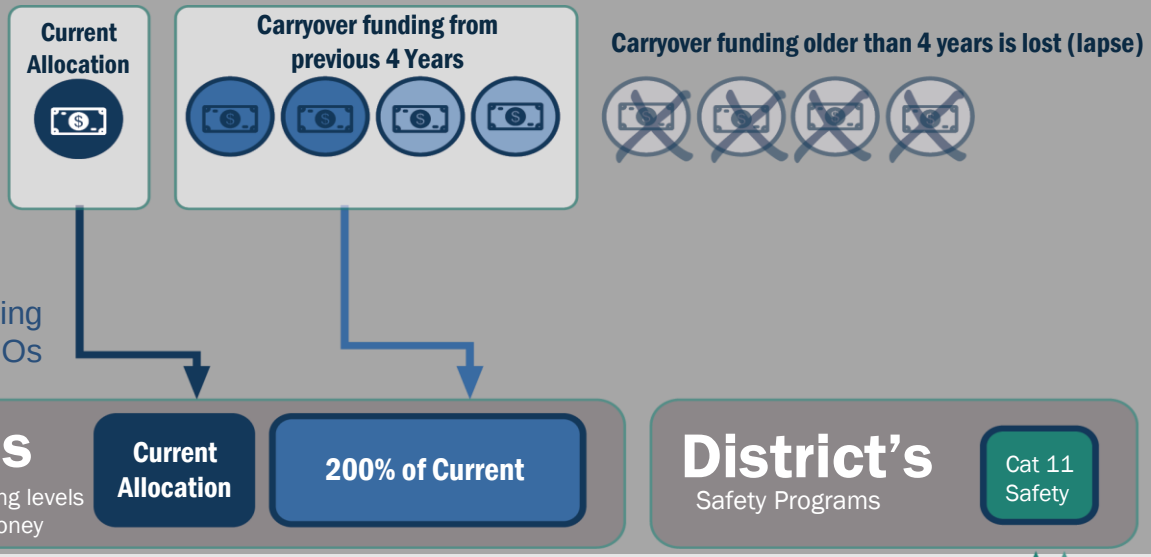
- **Late Aug/early Sept:** 2 separate meetings with districts
  - Aug. 30th: One meeting with districts where their MPOs have both Cat 5 and 7
  - Sept. 5th: One meeting with districts where their MPOs have just Cat 7
  - Sept. 8th: Updated data pull and reports for districts and MPOs
- **Early/mid Sept:** meeting with MPOs & districts
  - Sept. 11th: One meeting with MPOs/districts that have both Cat 5 and 7
  - Sept. 13th: One meeting with MPOs/districts that have just Cat 7
- **September 28th:** Propose TAC Revisions to Commission

Detailed Schedule for TAC Rules: 2023-2024

Required public involvement	
Thurs., September 28th	Commission meeting present/propose Draft rules
Thurs., September 28th	Coordinate Texas Register Notice Posting
Fri., October 13th	Texas Register Notice Posts & Open Public Comment
Thus., October 26th	Commission meeting
Friday, November 3rd	Public Hearing
Thurs., November 16th	Commission meeting
Mon., November 13th	Close Public Comment
Tues., December 12th	Commission meeting
Tues., Nov. 14th - Fri, Dec 22nd	Public comment consolidation & rule revision review
Mon., Dec 25 - Mon., Jan 1st	Holidays
Tues., Jan 2nd - Fri., Jan 5th	Final review of public comments & rule changes
Mon., Jan 8th - Fri., Jan 12th	TxDOT Administration/Chairman briefing of comments/changes
Mon., Jan 15th - Wed. Jan 24th	Commission review of comments
Thurs., January 25th	Commission meeting Final Rule adoption

Carryover management/transfer visualization

CAT. 7 (MPO)



CAT. 2 (MPO)

Cat. 2 funding equivalent to the amount of Cat. 7 that is in excess of 200% can be transferred to District Cat 11 Safety subprogram

Annual Review of Carryover

- Fall:
  - FIN finalize carryover (late October)
  - FIN/TPP run report of carryover
  - Assess programming / planned use for funds
  - Provide and discuss report to districts/MPOs
- Winter:
  - FIN/TPP rerun report and assess programming / planned use for funds
  - Present UTP Distribution to Commission (January)
  - TxDOT leadership consider implementing TAC 200% threshold

Category 7: Implementing Cat 2 Carryover Provisions

Cat 7 (STP MM)

% Remaining	200%

	a			b	c	d = b - c	d/a	
MPO	FY23 Allocation	FY22 Carryover	FTR adjs	FY23 Revised Allocation	*Total Used*	Remaining Allocation	Remaining Allocation as % of FY23 Allocation	Amount Subject to TAC Rule*
Alamo Area	59.63	93.32	0.00	152.95	*25.16*	127.79	**214%**	8.53
CAMPO	46.21	78.87	0.00	125.08	*15.01*	110.07	**238%**	17.65
Corpus Christi	10.86	13.92	0.00	24.78	*(0.01)*	24.79	**228%**	3.07
El Paso	26.20	36.05	0.00	62.24	*20.45*	41.79	**160%**	0.00
HGAC	175.83	402.14	0.00	577.97	*158.41*	419.56	**239%**	67.90
Killeen-Temple	7.38	17.37	0.00	24.75	*11.08*	13.67	**185%**	0.00
Laredo	7.99	47.42	0.00	55.41	*0.00*	55.41	**693%**	39.43
Lubbock	8.05	9.05	0.00	17.10	*21.62*	(4.52)	**-56%**	0.00
NCTCOG	186.13	40.94	0.00	227.07	*172.83*	54.24	**29%**	0.00
RGVMPO	32.10	77.35	0.00	109.45	*(0.58)*	110.03	**343%**	45.83
Total	560.38	816.43	0.00	1,376.80	423.97	952.83		182.41

* Estimated impact of proposed TAC Rule change based on FY2023 projected allocation usage as of 9/6/2023

- Based on the 200% proposed TAC rule change, AAMPO, CAMPO, CRPMPO, HGAC, LWCMPO, LRDMPO and RGVMPO would be considered to potentially shift Category 2 funds to Category 11 Safety

Data as of 9/6/2023

Category 7: Programming

MPO	Balance Remaining					Estimated Utilization (%)				
	2024	2025	2026	2027	4-Year Total	2024	2025	2026	2027	4-Year Total
Alamo Area	73,576,772	54,934,635	(69,788,102)	(28,898,144)	29,825,160	61.0%	11.5%	210.3%	147.5%	92.0%
CAMPO	(97,256,819)	39,161,099	14,297,590	46,274,405	2,476,276	161.9%	18.5%	70.8%	1.9%	99.2%
Corpus Christi	35,862,350	3,073,811	6,509,582	(59,282,508)	(13,836,765)	0.0%	72.8%	43.5%	635.2%	119.8%
El Paso	36,074,203	1,712,668	(9,761,913)	(3,270,297)	24,754,660	47.3%	93.7%	135.1%	112.2%	83.5%
HGAC	520,014,033	11,010,008	32,740,437	138,033,076	701,797,554	13.2%	94.0%	82.5%	23.1%	38.9%
Killeen-Temple	14,687,550	7,679,194	(5,047,212)	(2,170,237)	15,149,296	30.7%	0.0%	164.4%	128.8%	65.8%
Laredo	(36,435,243)	1,287,576	8,484,231	8,157,956	(18,505,480)	157.3%	84.5%	0.0%	0.0%	120.9%
Lubbock	(3,308,994)	1,225,237	4,992,753	(11,285,773)	(8,376,777)	189.7%	85.4%	41.6%	237.4%	129.1%
NCTCOG	127,660,782	69,622,095	(71,687,341)	130,197,823	255,793,358	47.7%	64.0%	136.3%	31.4%	69.0%
RGVMPO	105,027,178	(4,584,832)	(68,557,835)	(17,981,845)	13,902,665	26.4%	113.7%	301.3%	154.9%	94.3%
	775,901,812	185,121,492	(157,817,811)	199,774,454	1,002,979,948	49.1%	68.2%	126.5%	65.1%	69.4%

Data as of 9/6/2023

Category 7: Proposed TAC Rule Change Impacts

MPO	Balance Remaining					Estimated Utilization (%)				
	2024	2025	2026	2027	4-Year Total	2024	2025	2026	2027	4-Year Total
HGAC	520,014,033	11,010,008	32,740,437	138,033,076	701,797,554	13.2%	94.0%	82.5%	23.1%	38.9%

- Based on programming and an assessment of remaining balances:
  - HGAC: Transfer $67.90M from Cat 2 to Cat 11 Safety

Data as of 9/6/2023

Resources

Resources/Links

MPO Reports and Federal Funds Transactions

- https://www.txdot.gov/inside-txdot/division/transportation-planning/orgs-committees/mpo-fed-funds.html

Category Analysis

- FY23 Category Analysis
- FY24 - FY25 Category Analysis

2023 and 2024 UTP Dashboards

- https://txdot4awdashp01/#/projects/428

QUESTIONS

Date:	October 16, 2023
Continued From:	N/A
Action Requested:	Information

To:	Technical Advisory Committee
From:	Mr. Jeff Kaufman, Texas Transportation Institute
Agenda Item:	7
Subject:	Presentation on 2022 State of Safety Report

RECOMMENDATION

None. This item is for information only.

PURPOSE AND EXECUTIVE SUMMARY

Mr. Kaufman will provide a presentation to the TAC regarding transportation safety trends for the CAMPO region for 2022.

FINANCIAL IMPACT

None.

BACKGROUND AND DISCUSSION

Each year, CAMPO, with assistance from the Texas A&M Transportation Institute, produces a Regional State of Safety Report which identifies the latest trends regarding vehicular crashes in the region. Mr. Kaufman will provide a presentation discussing those trends and potential strategies available to CAMPO to address safety concerns in the region.

SUPPORTING DOCUMENTS

Attachment A – *State of Safety Report: 2013-2022*

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

CENTRAL TEXAS

STATE OF SAFETY UPDATE 2013-2022

Texas A&M Transportation Institute

SEPTEMBER 2023

The preparation of this document was financed in part through grants from the U.S. Department of Transportation under Section 112 of the 1973 Federal Aid Highway Act and Section 8(d) of the Federal Transit act of 1964, as amended. The contents of this document do not necessarily reflect the official views or policy of the Federal Highway Administration, Federal Transit Administration, U.S. Department of Transportation, Texas Department of Transportation, or the Capital Area Metropolitan Planning Organization. Acceptance of this report does not in any way constitute a commitment on the part of any of the above agencies to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

STATE OF SAFETY UPDATE: 2013-2022

STATE OF SAFETY IN THE CAMPO REGION

The following report provides an annual update of the Regional State of Safety Report, released in October 2021. Crashes in the CAMPO region continued to increase from the declines experienced during the COVID pandemic in 2020-2021. While still below 2019 highs (34,963 crashes), regional crashes increased to 33,338 in 2022, up 6.6 percent from 2021 (31,287 crashes) and 19 percent from 2020 levels (28,004 crashes).

Regional fatalities and serious injuries both reached 20-year highs in 2022. Traffic fatalities (336 deaths) increased 17.1 percent over 2021 (287 deaths). In addition, the region's share of statewide traffic fatalities increased from 6.4 percent in 2021 to 7.5 percent in 2022, the highest level in the 10-year analysis period. Serious injuries (1, 498 injured) increased 9.2 percent over 2021 (1,372 injured).

Looking at individual safety focus areas in 2022, crashes at unsignalized intersections represented the largest crash factor in terms of total events. Alcohol played the largest factor in regional fatalities, while road departures contributed to the largest number of serious injuries.

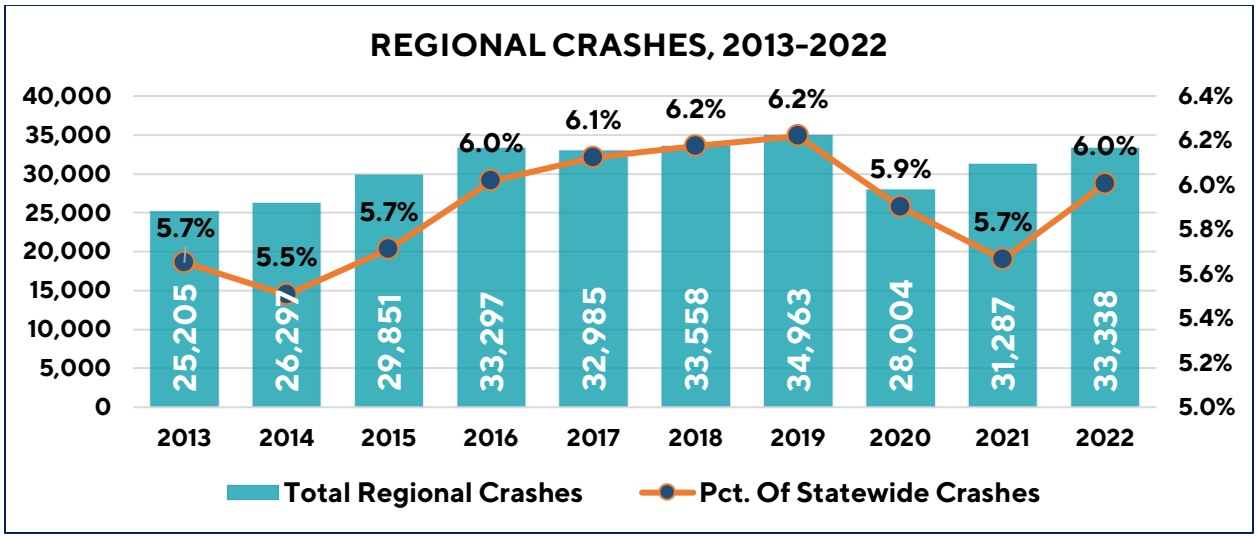
Crash Focus Area*	Crashes	Pct. of all crashes	Fatalities	Pct. of Fatalities	Serious Injuries	Pct. of Injuries
Unsignalized Intersections	**8,644**	**25.9%**	57	17.0%	363	24.2%
Distracted Driving	8,473	25.4%	47	14.0%	277	18.5%
Road Departures	6,556	19.7%	96	28.6%	**395**	**26.4%**
Signalized Intersections	5,785	17.4%	35	10.4%	244	16.3%
Young Drivers	4,425	13.3%	25	7.4%	181	12.1%
Older Drivers	2,370	7.1%	38	11.3%	131	8.7%
Alcohol-Related	2,274	6.8%	**125**	**37.2%**	229	15.3%
Speeding	1,595	4.8%	57	17.0%	191	12.8%
Work Zone	1,434	4.3%	17	5.1%	52	3.5%
Unrestrained Occupants	875	2.6%	72	21.4%	173	11.5%
Large Trucks	825	2.5%	29	8.6%	66	4.4%
Motorcycles	668	2.0%	55	16.4%	193	12.9%
Pedestrians	476	1.4%	74	22.0%	119	7.9%
Bicyclists	297	0.9%	6	1.8%	45	3.0%
Bus Crashes	219	0.7%	2	0.6%	13	0.9%
RR Grade Crossing	56	0.2%	1	0.3%	0	0.0%

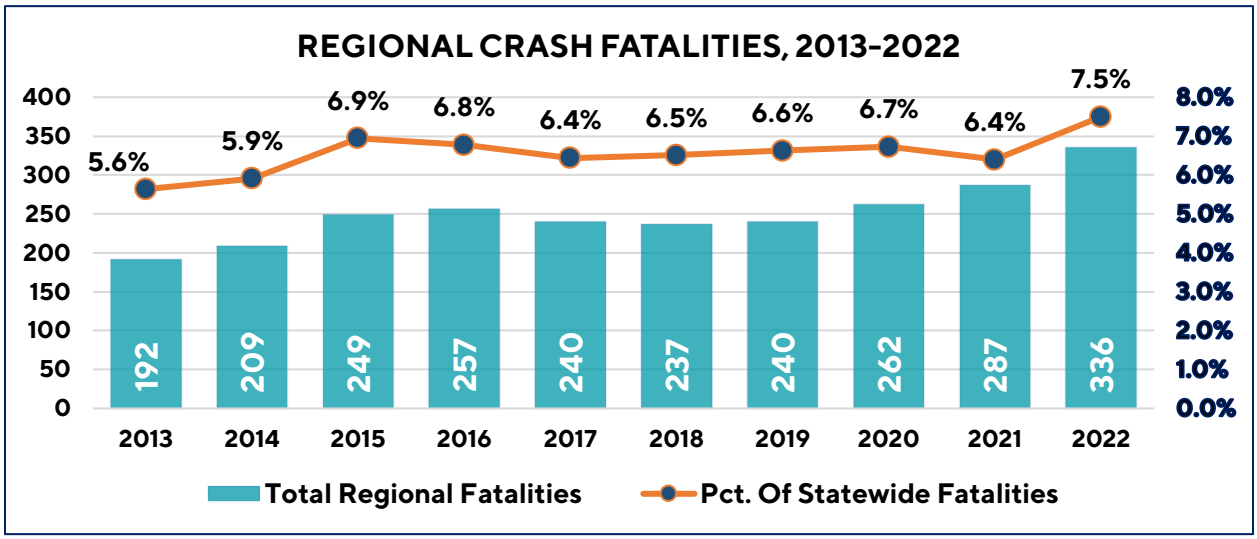
*Crash focus areas reflect crashes where the focus area is a factor, but not necessarily the sole factor in the crash. Data should not be added together for a cumulative result.

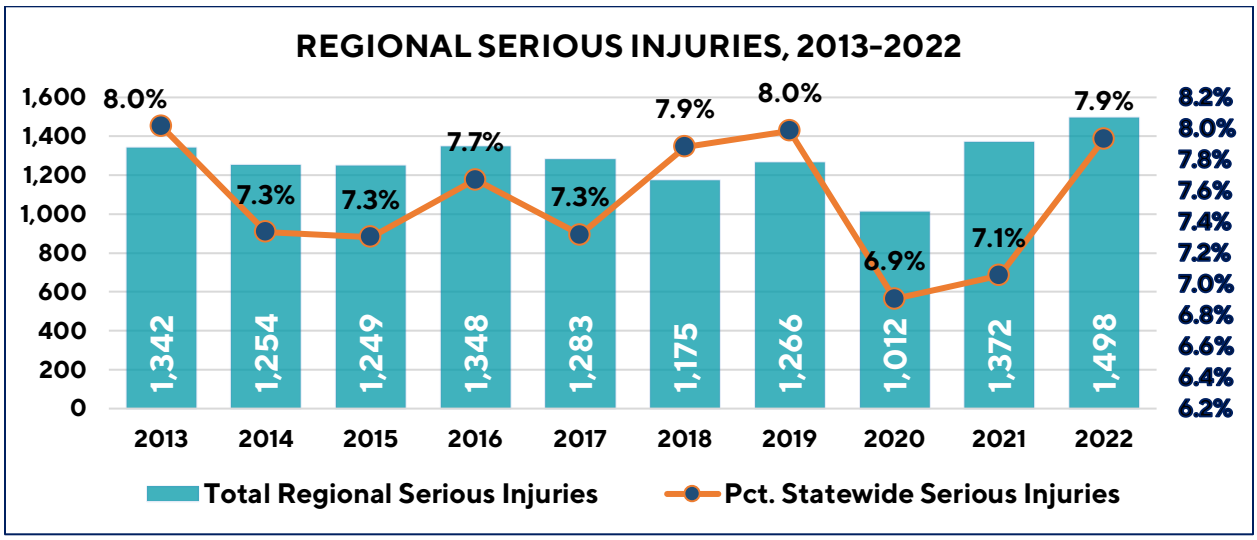
Five focus areas - alcohol, speeding, unrestrained occupants, motorcycles, and pedestrians - registered considerably disproportionate fatality and serious injury levels compared to the number of crashes experienced.

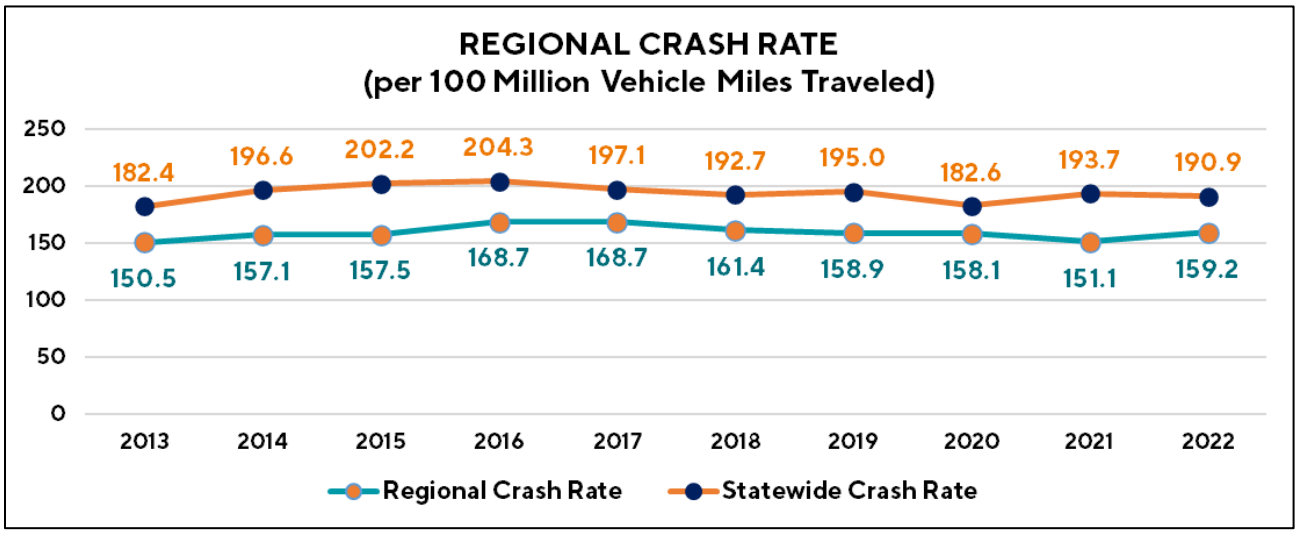
The following set of charts provides a synopsis of regional crashes based on the 16 identified focus areas addressed in the Regional State of Safety Report.

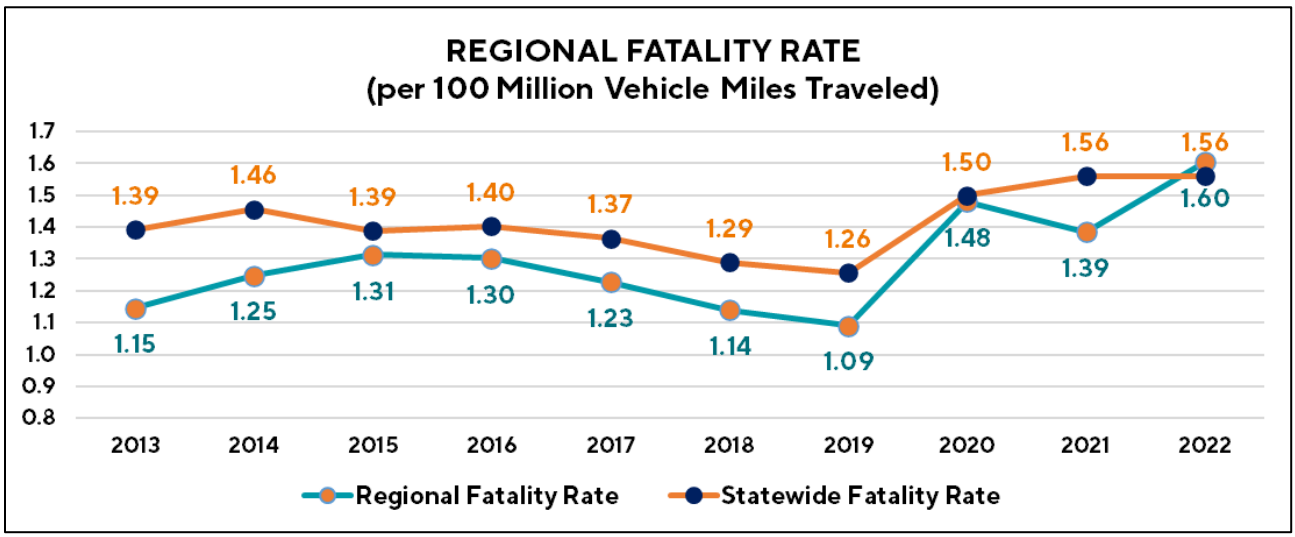
REGIONAL OVERVIEW

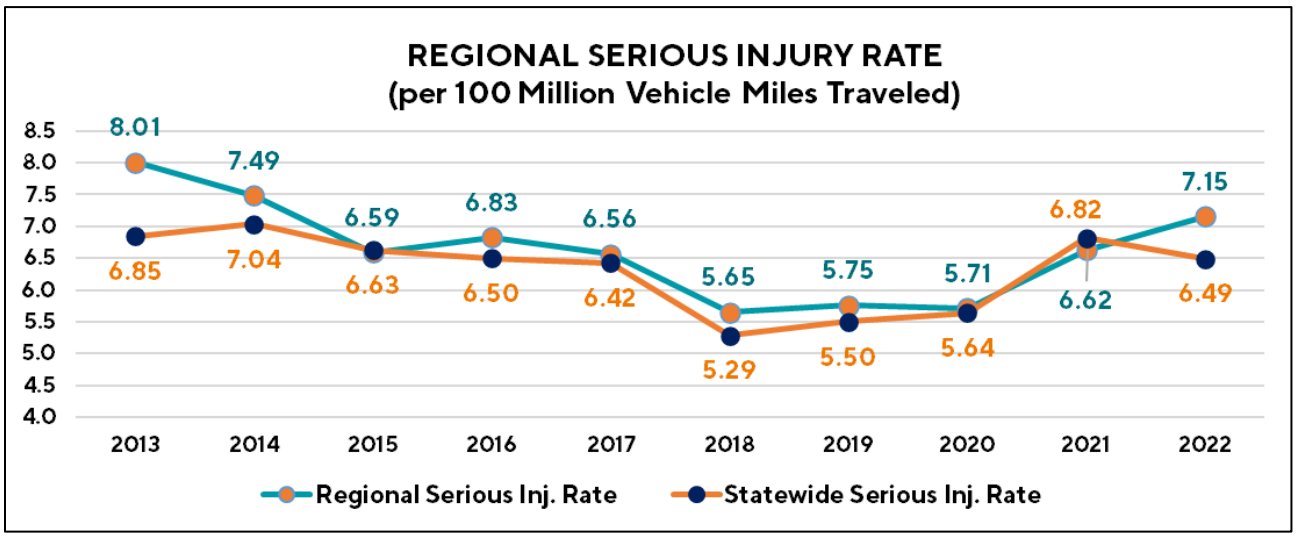




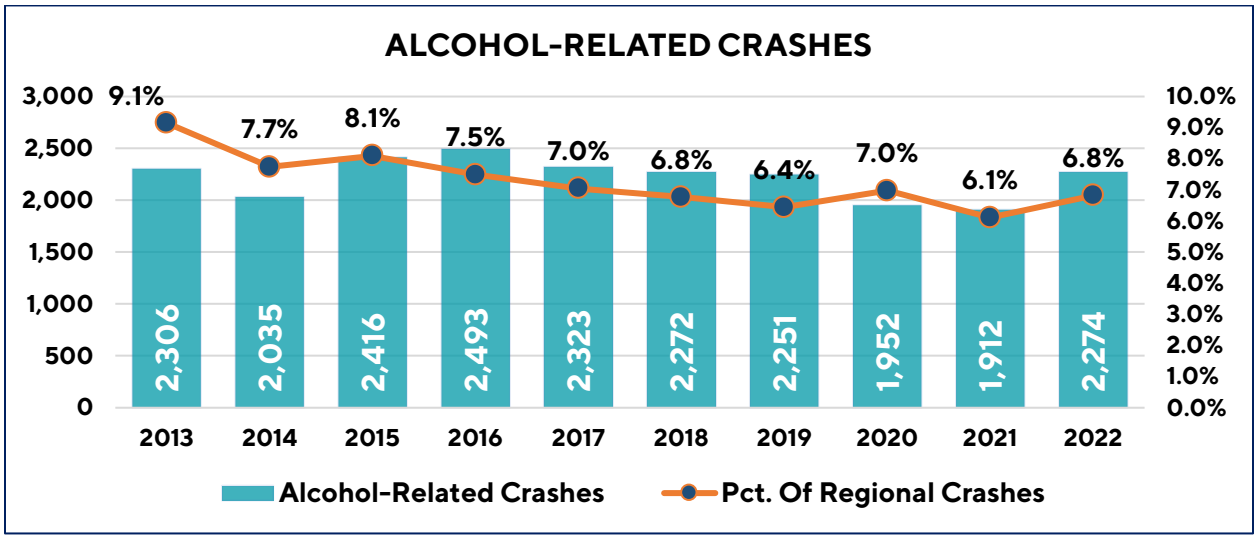


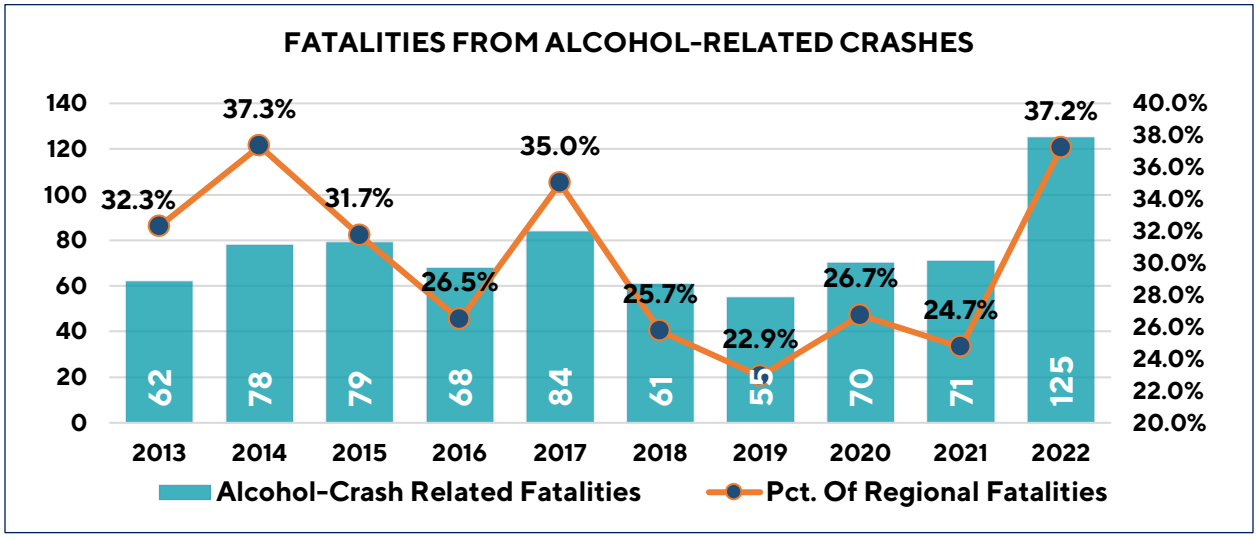

REGIONAL CRASH RATE
(per 100 Million Vehicle Miles Traveled)
250
200
150
100
50
0
182.4
196.6
202.2
204.3
197.1
192.7
195.0
182.6
193.7
190.9
150.5
157.1
157.5
168.7
168.7
161.4
158.9
158.1
151.1
159.2
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Regional Crash Rate
Statewide Crash Rate

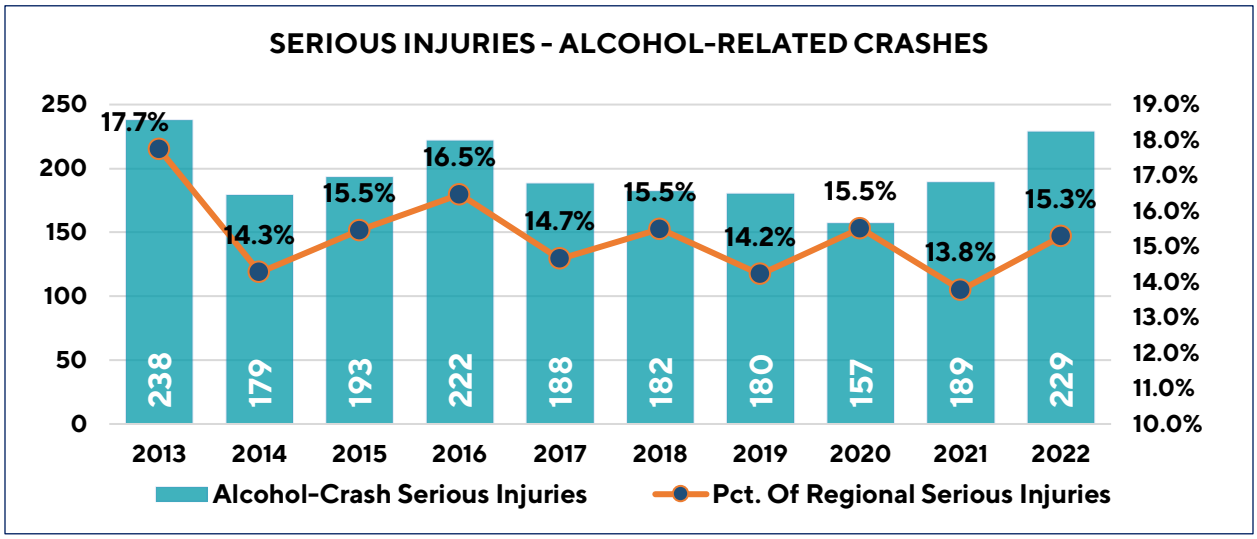

REGIONAL FATALITY RATE
(per 100 Million Vehicle Miles Traveled)
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
1.39
1.46
1.39
1.40
1.37
1.29
1.26
1.50
1.56
1.56
1.15
1.25
1.31
1.30
1.23
1.14
1.09
1.48
1.39
1.60
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Regional Fatality Rate
Statewide Fatality Rate


REGIONAL SERIOUS INJURY RATE
(per 100 Million Vehicle Miles Traveled)
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
8.01
7.49
6.59
6.83
6.56
5.65
5.75
5.71
6.82
7.15
6.85
7.04
6.63
6.50
6.42
5.29
5.50
5.64
6.62
6.49
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Regional Serious Inj. Rate
Statewide Serious Inj. Rate

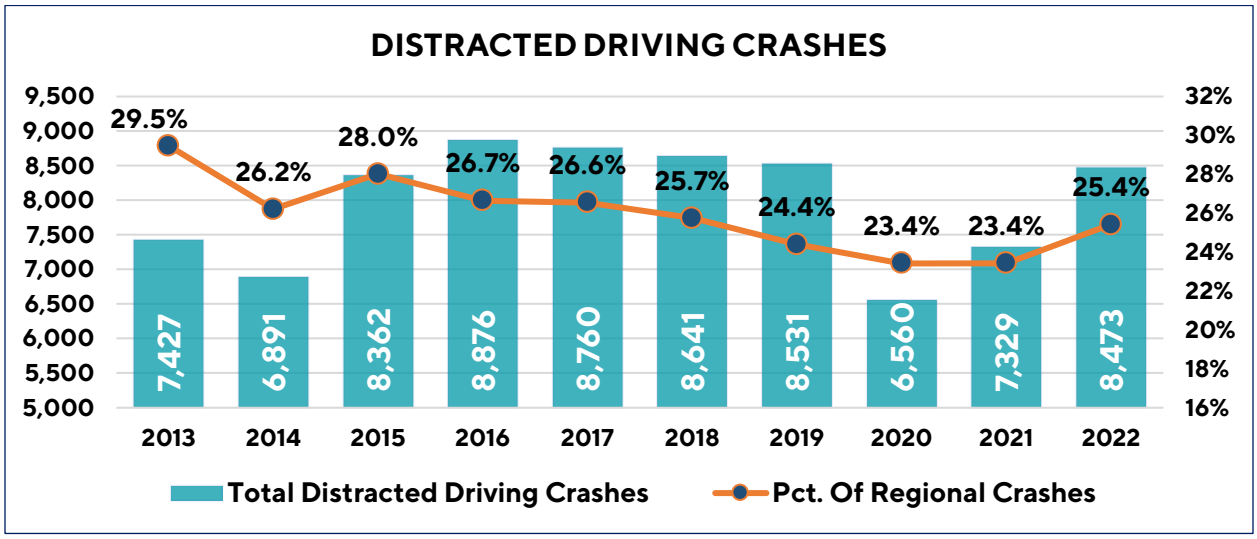
ALCOHOL-RELATED

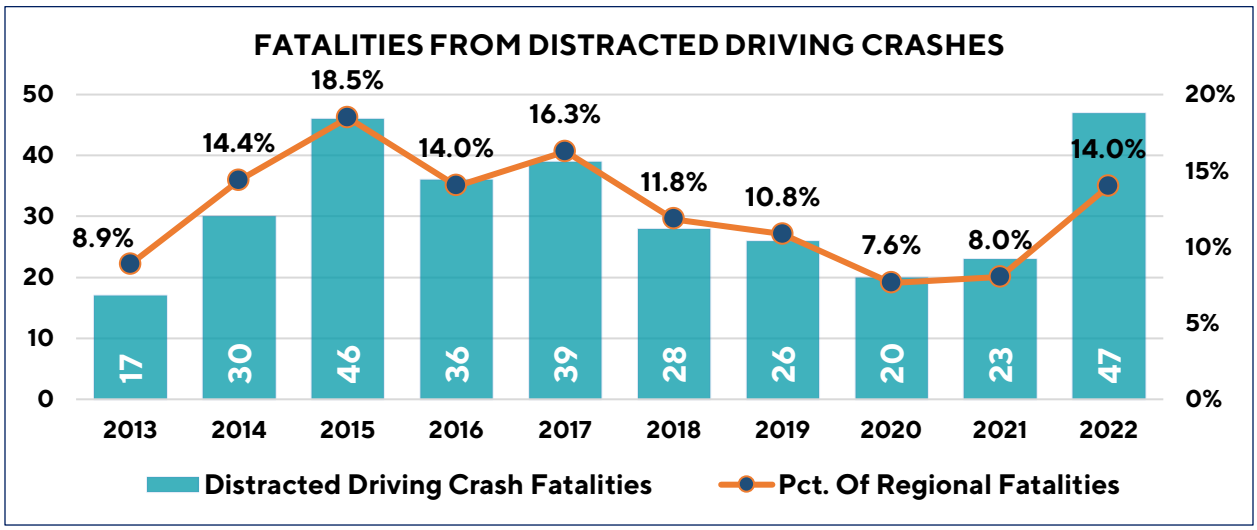


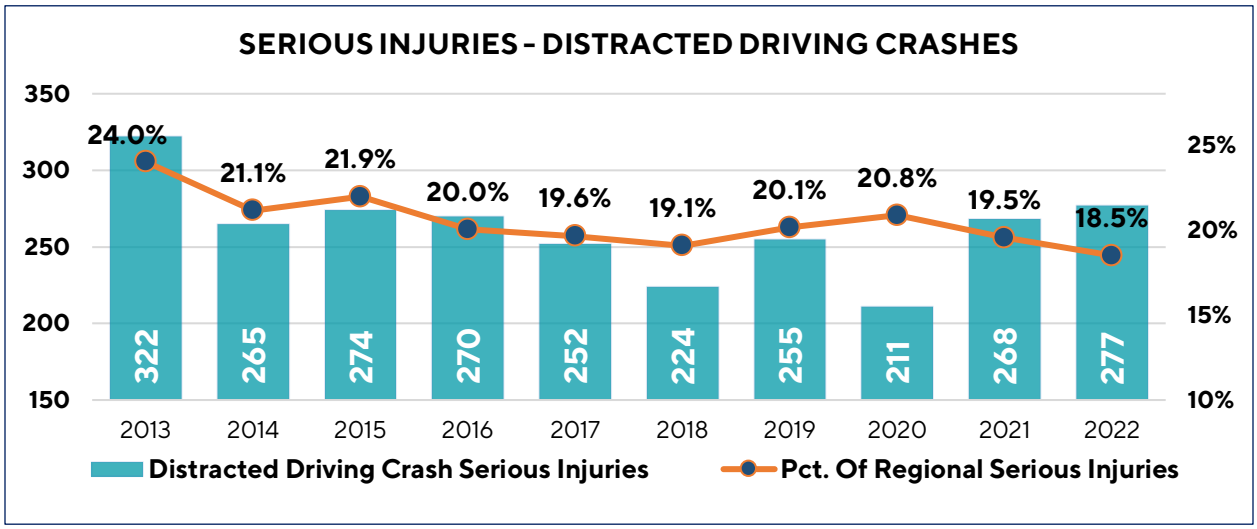




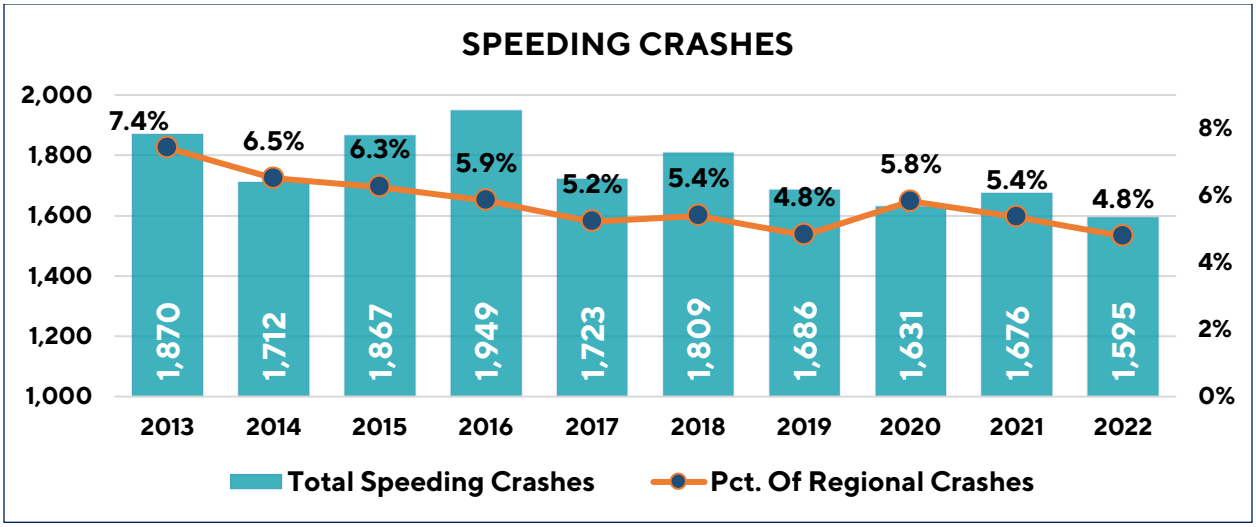
DISTRACTED DRIVING

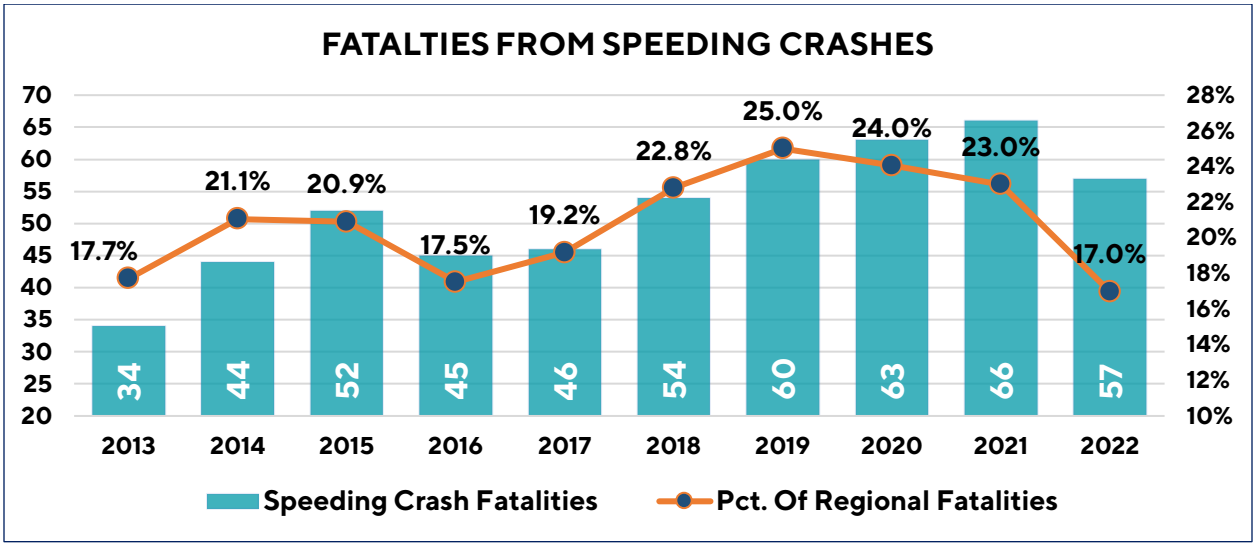


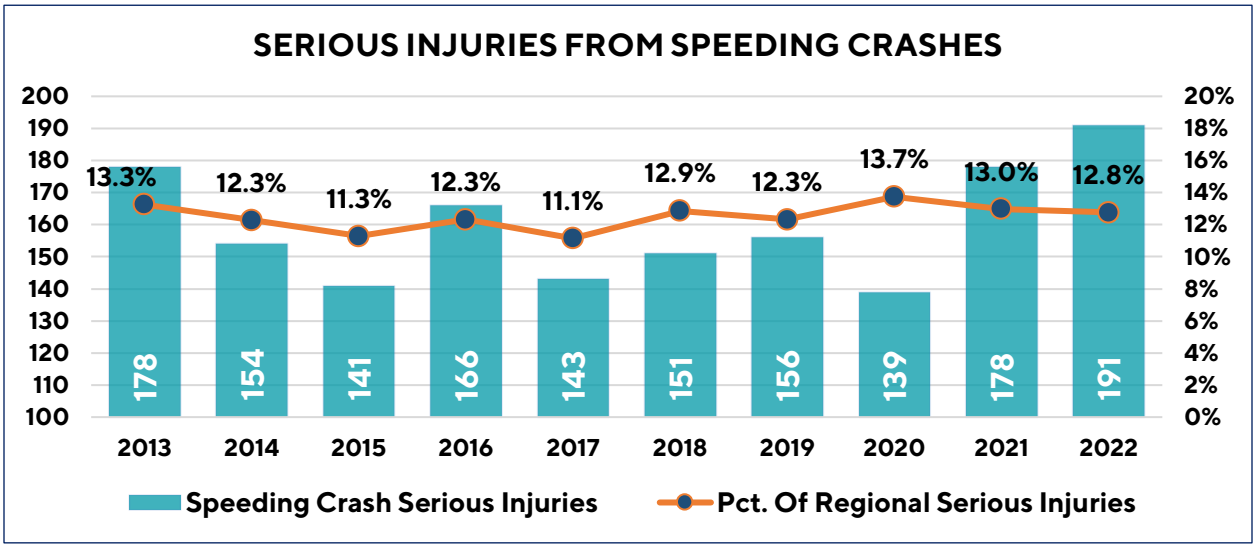




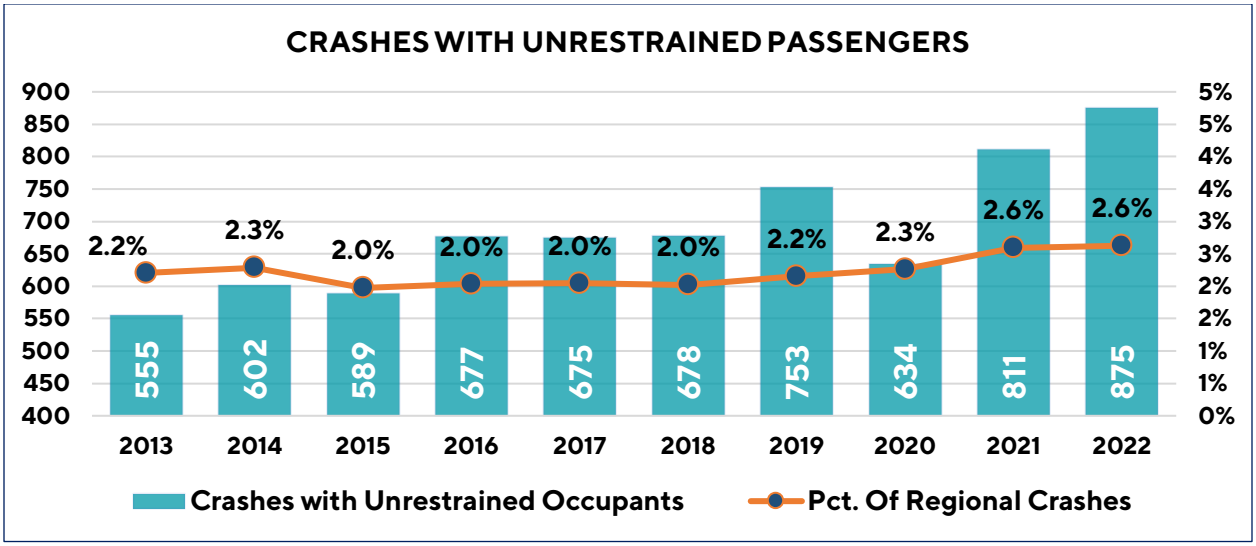
SPEED-RELATED

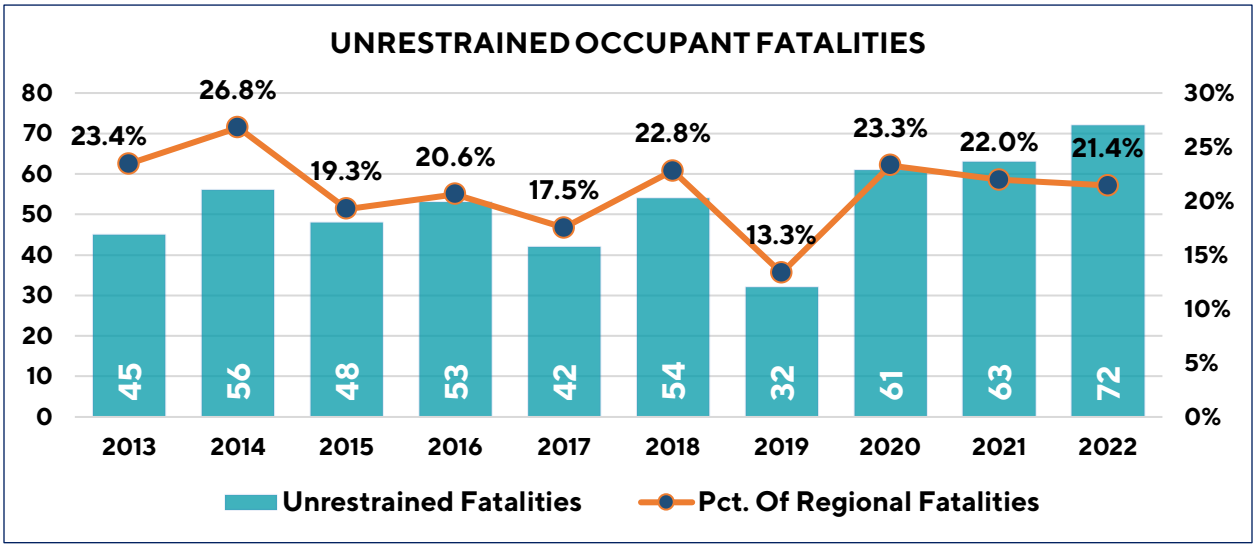


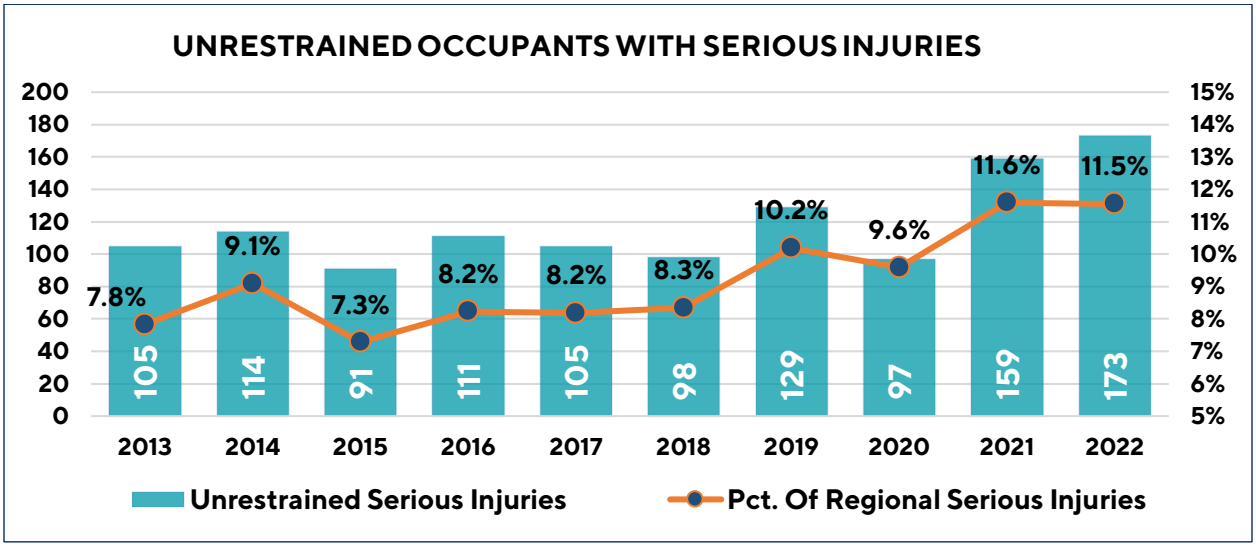




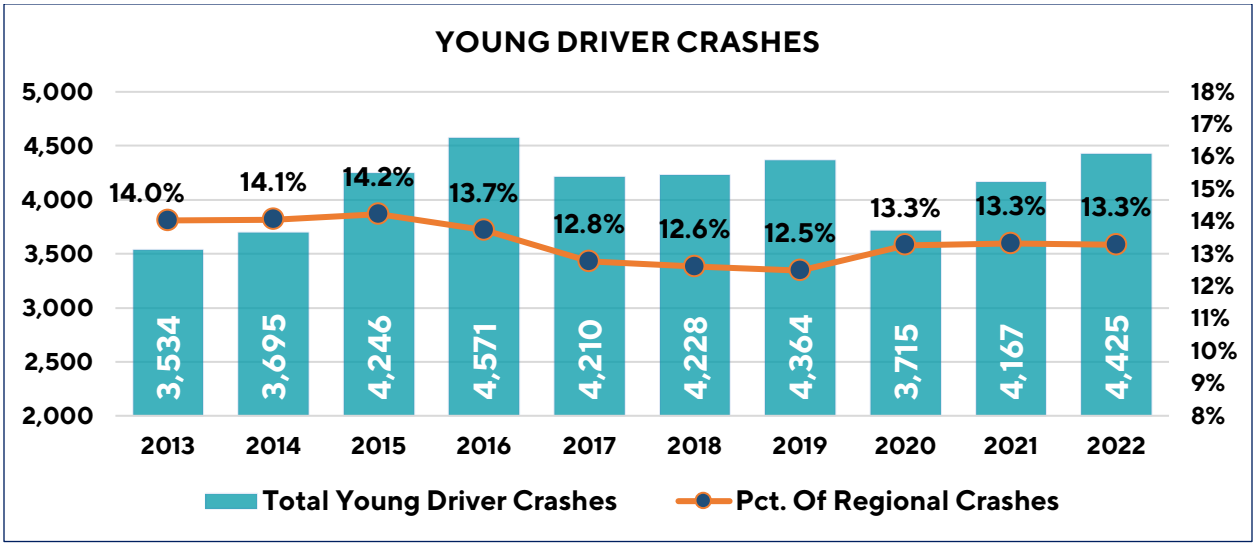
UNRESTRAINED OCCUPANTS

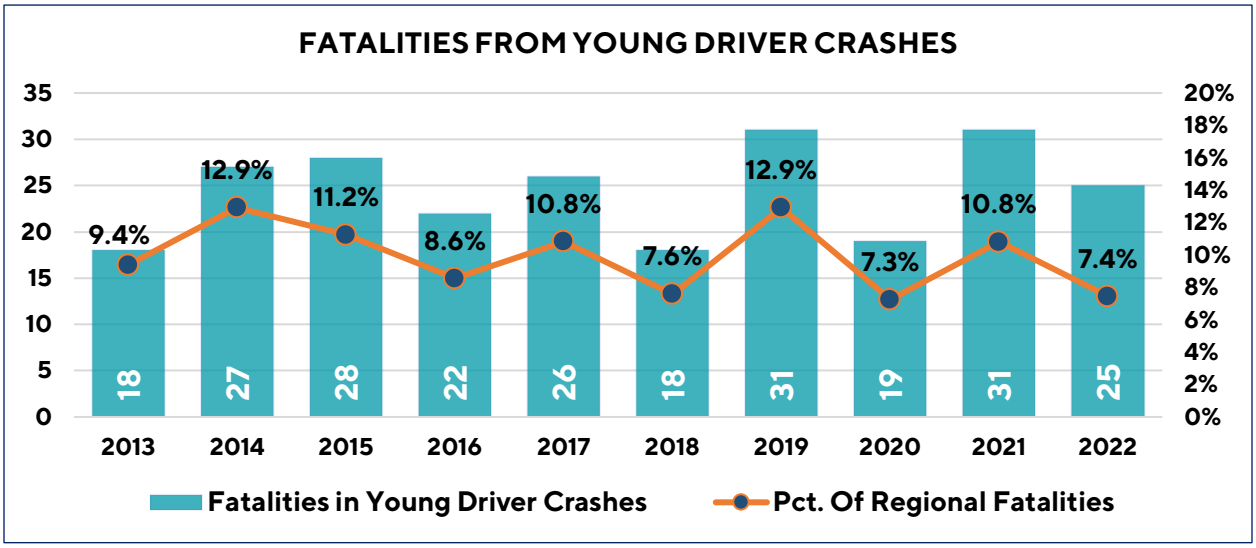


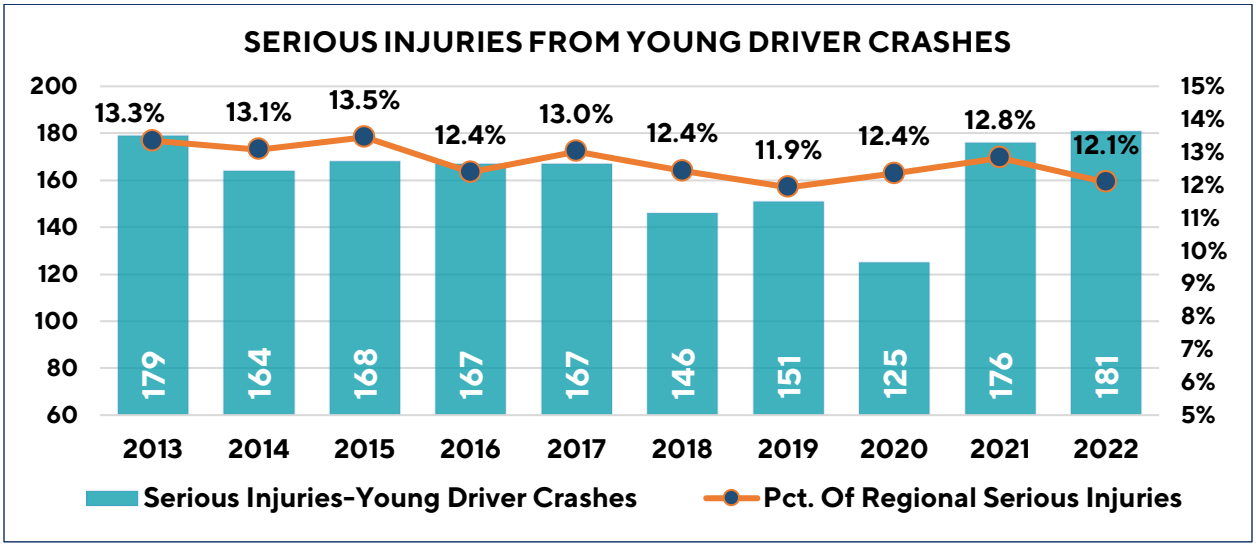




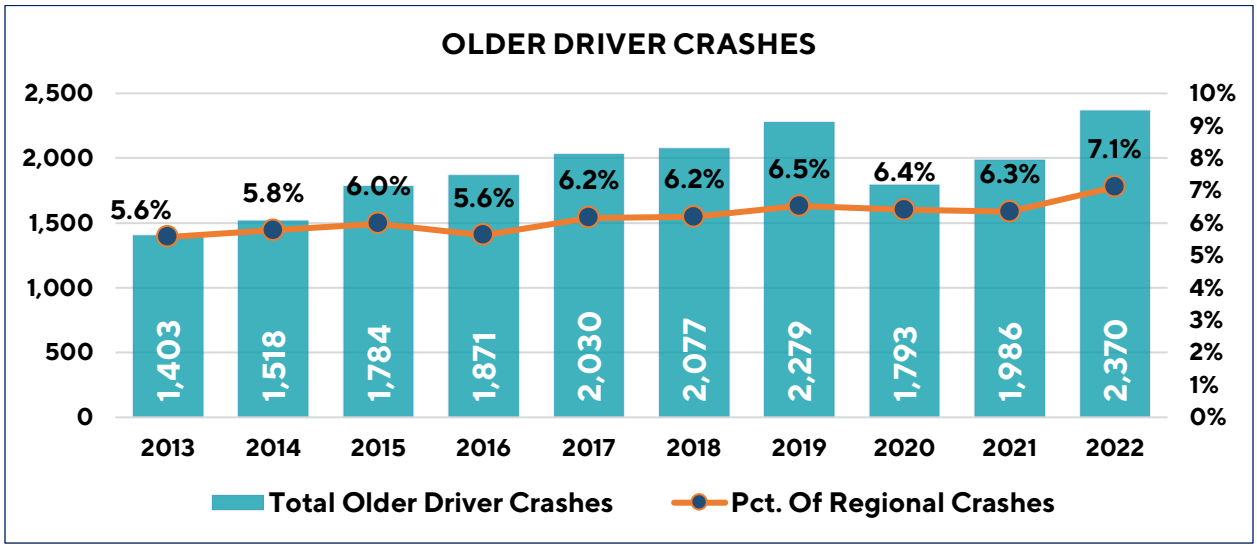
YOUNG DRIVERS

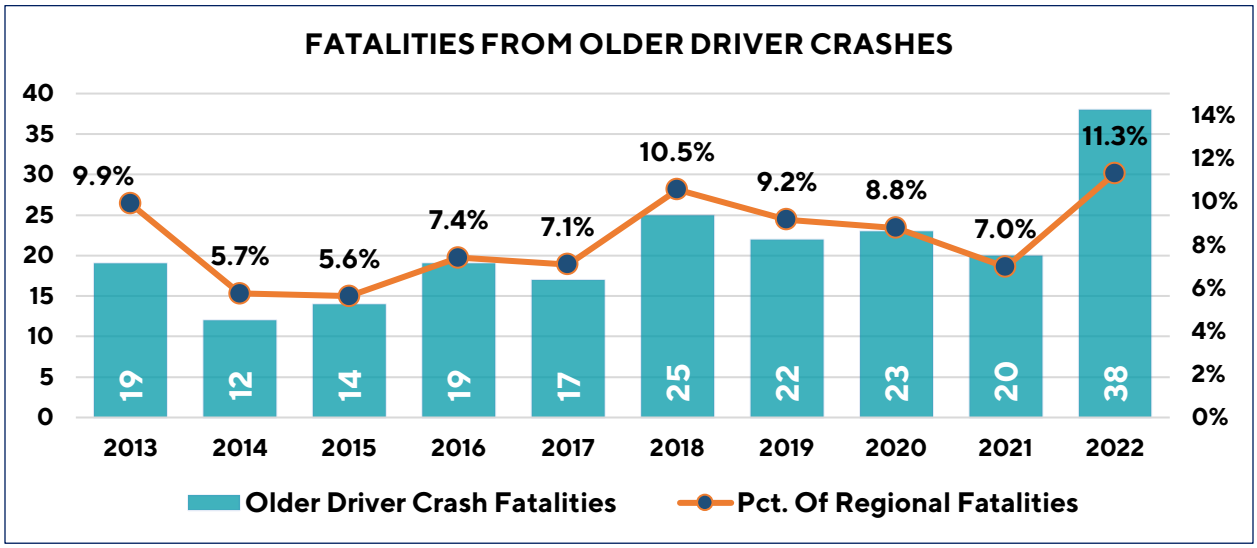


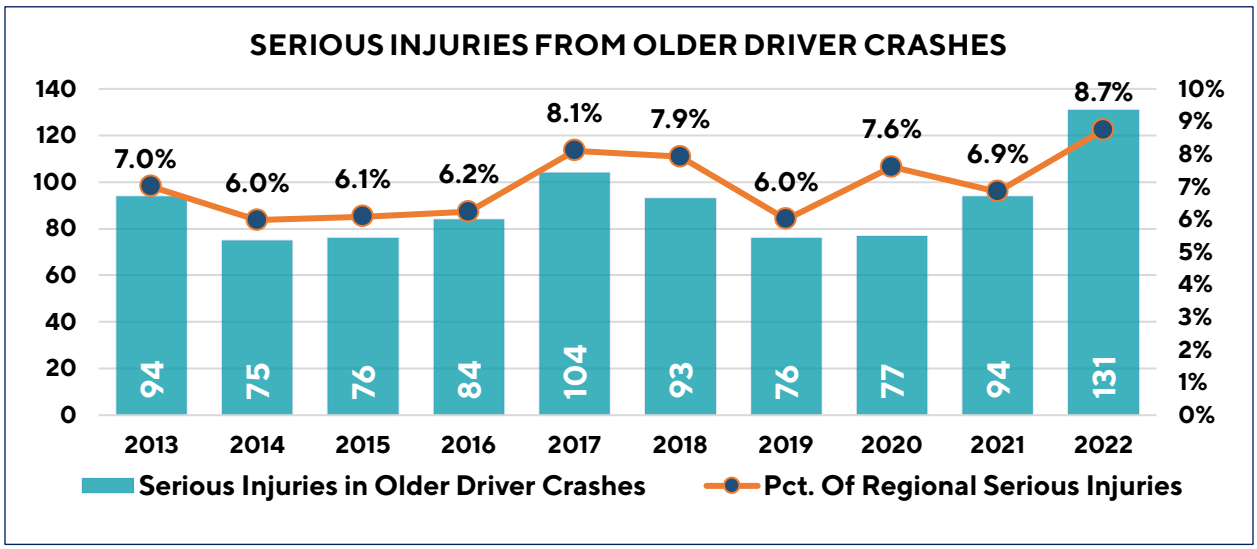




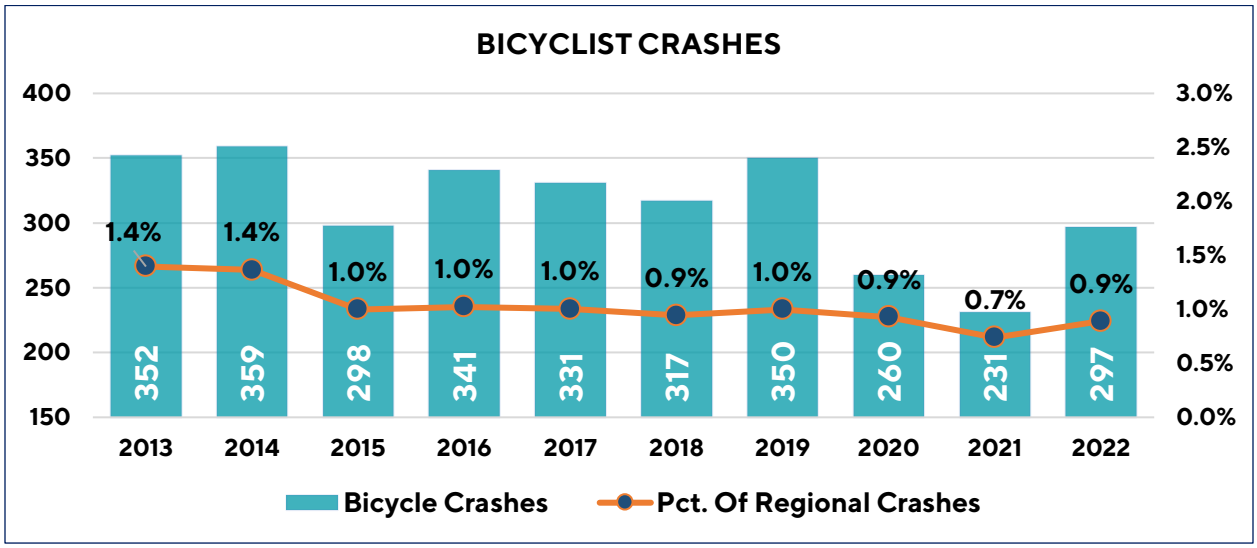
OLDER DRIVERS

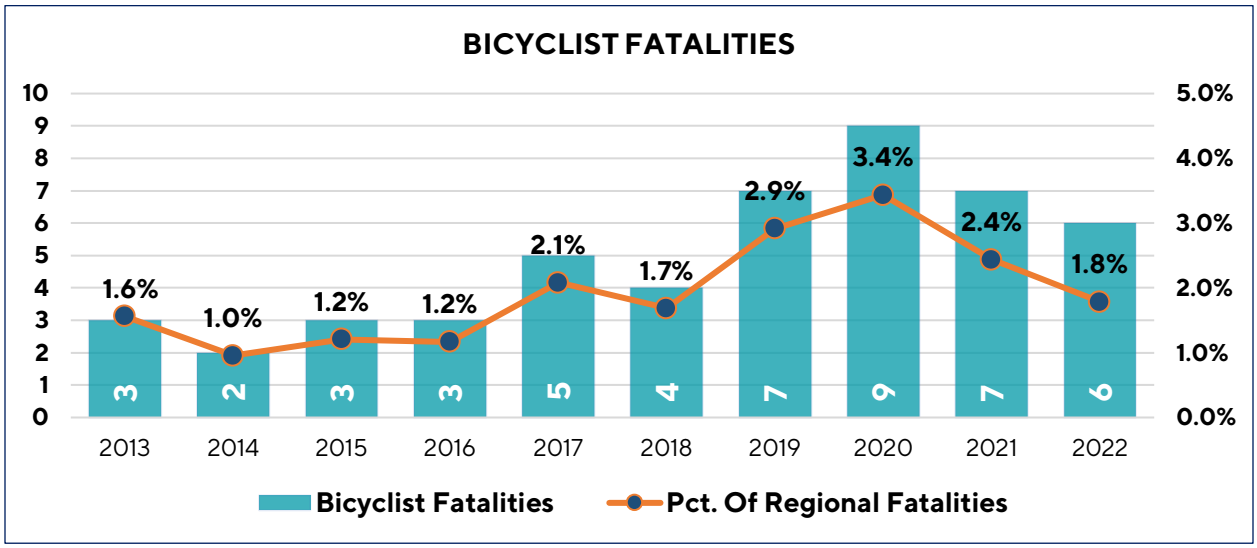


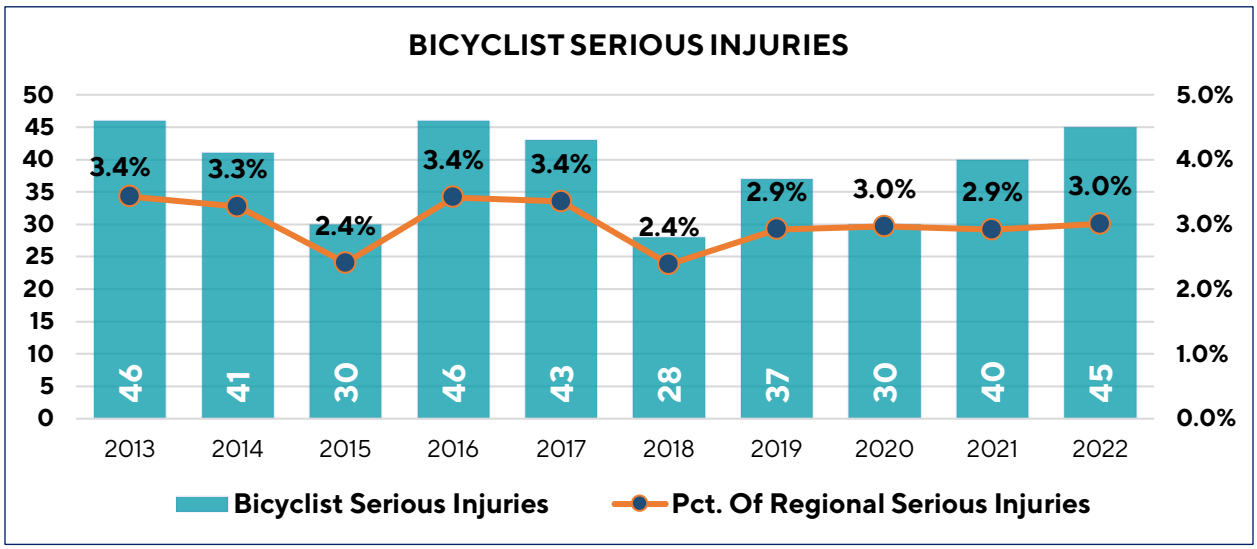




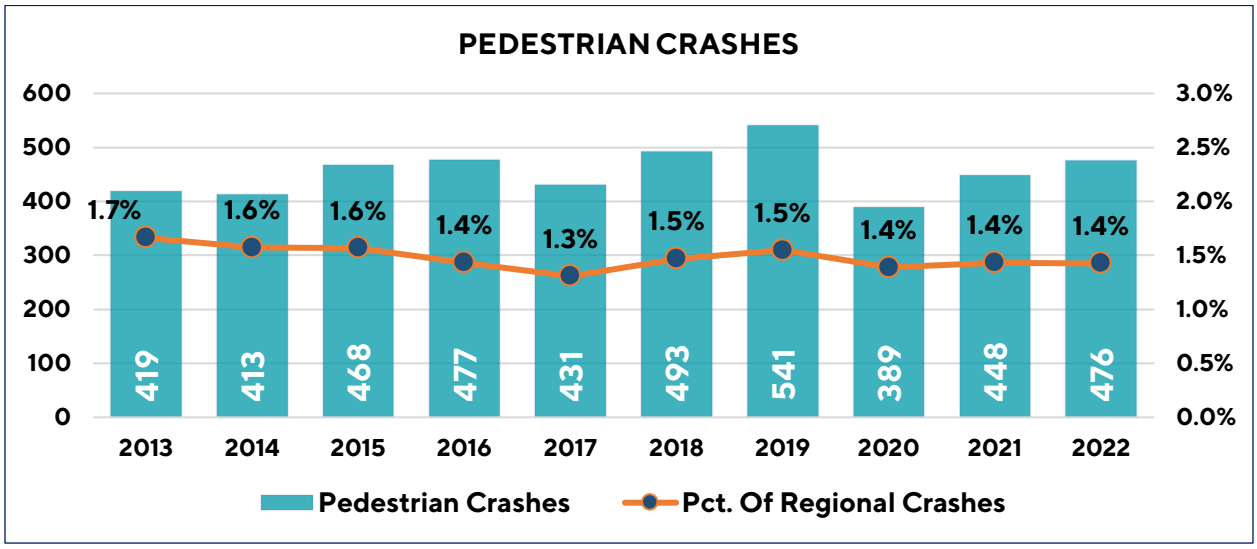
BICYCLISTS

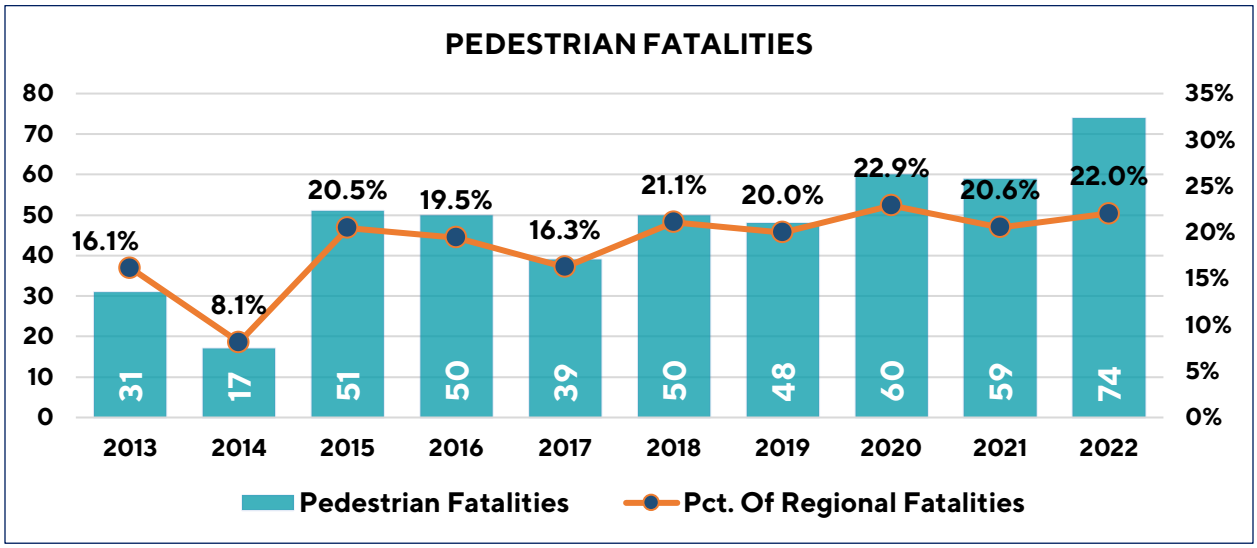

BICYCLIST CRASHES
400
350
300
250
200
150
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
1.4%
1.4%
1.0%
1.0%
1.0%
0.9%
1.0%
0.9%
0.7%
0.9%
352
359
298
341
331
317
350
260
231
297
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Bicycle Crashes
Pct. Of Regional Crashes

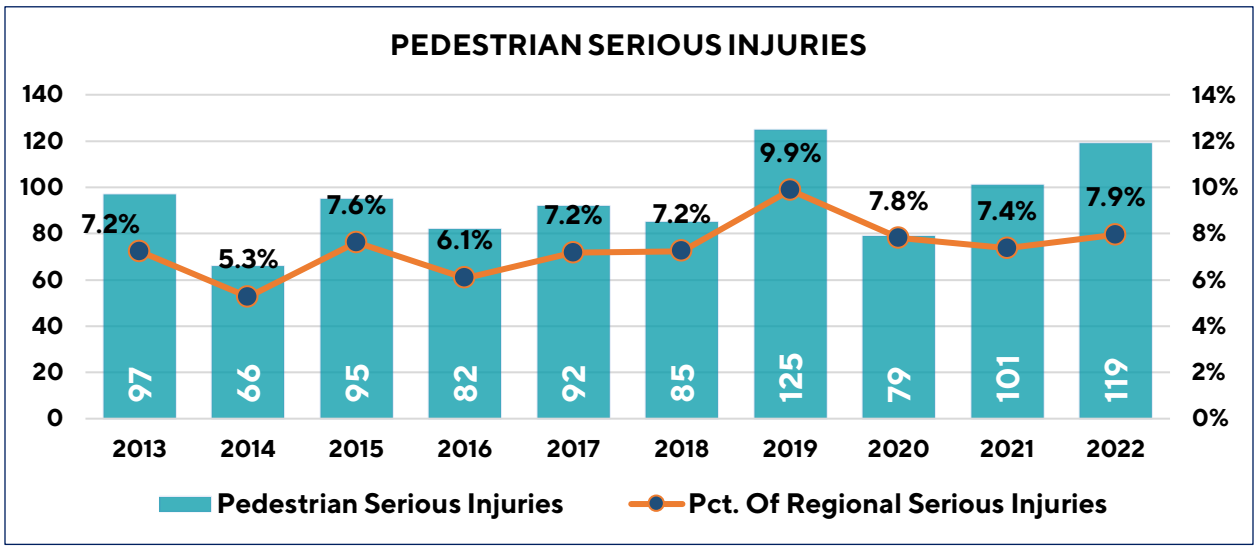

BICYCLIST FATALITIES
10
9
8
7
6
5
4
3
2
1
0
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
1.6%
1.0%
1.2%
1.2%
2.1%
1.7%
2.9%
3.4%
2.4%
1.8%
3
2
3
3
5
4
7
9
7
6
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Bicyclist Fatalities
Pct. Of Regional Fatalities


BICYCLIST SERIOUS INJURIES
50
45
40
35
30
25
20
15
10
5
0
5.0%
4.0%
3.0%
2.0%
1.0%
0.0%
3.4%
3.3%
2.4%
3.4%
3.4%
2.4%
2.9%
3.0%
2.9%
3.0%
46
41
30
46
43
28
37
30
40
45
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Bicyclist Serious Injuries
Pct. Of Regional Serious Injuries

PEDESTRIANS







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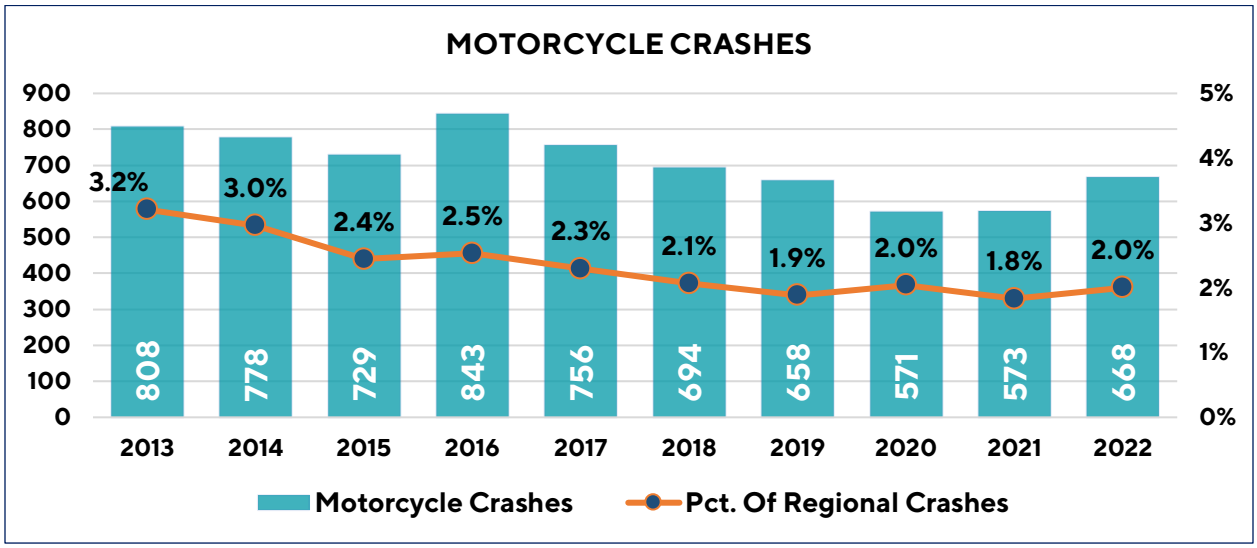

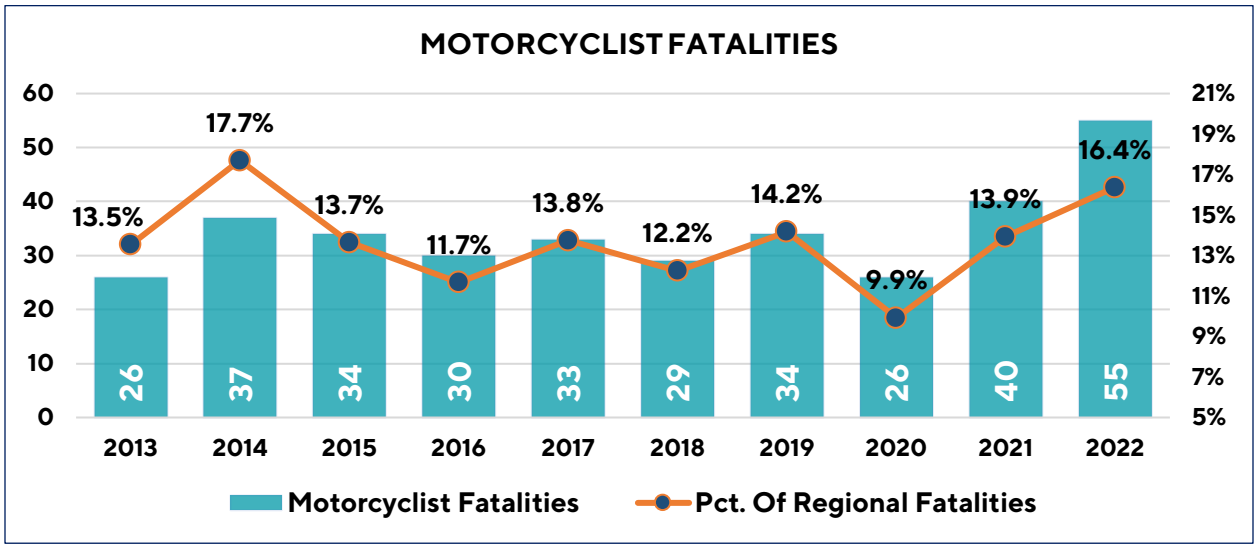

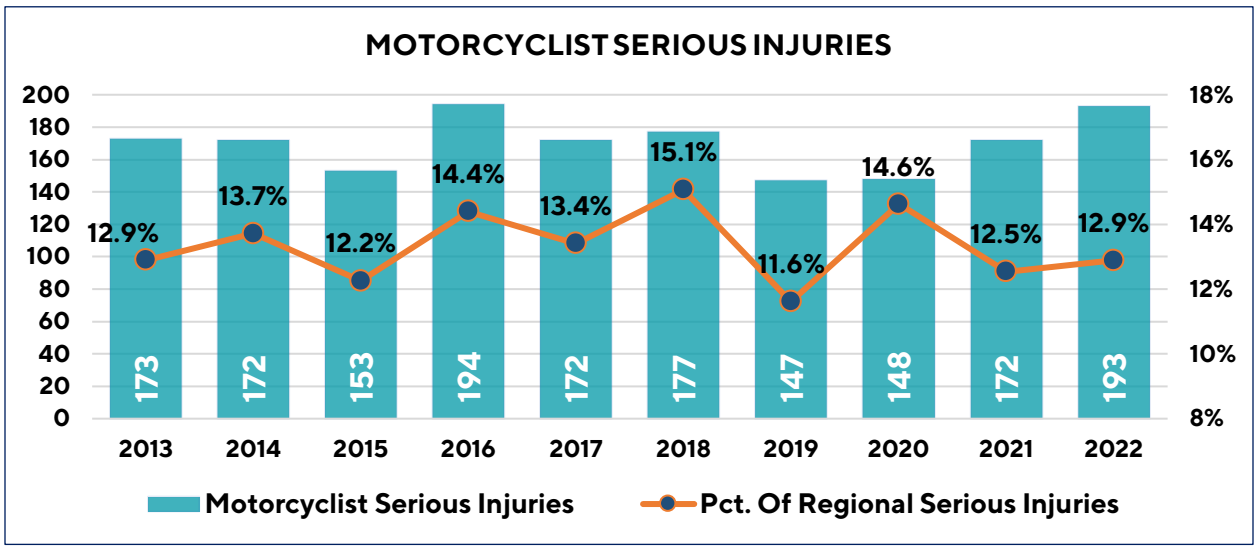

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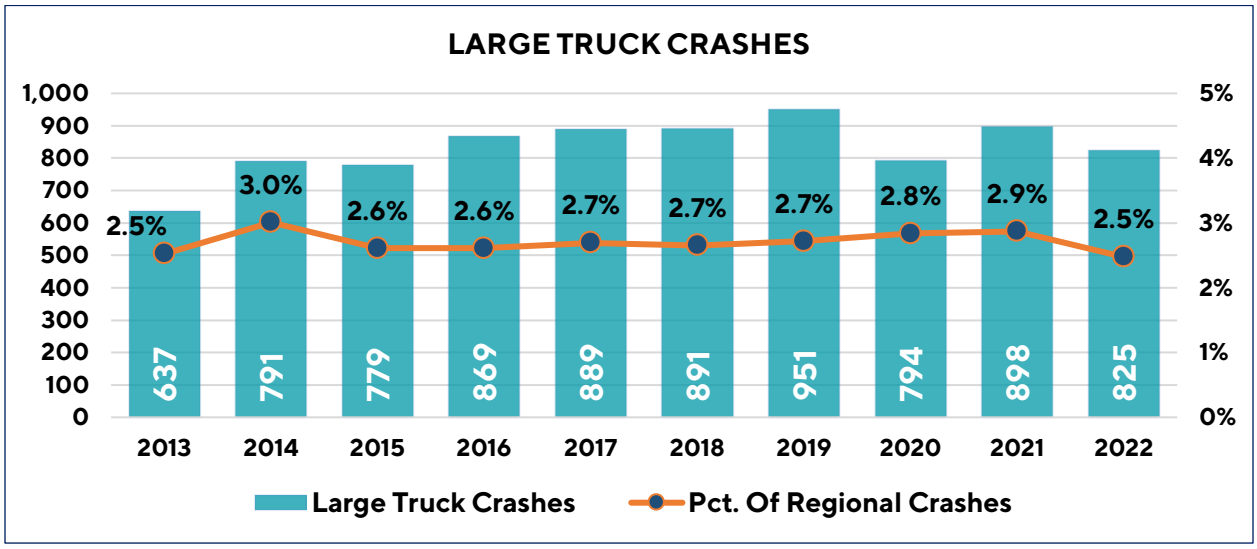

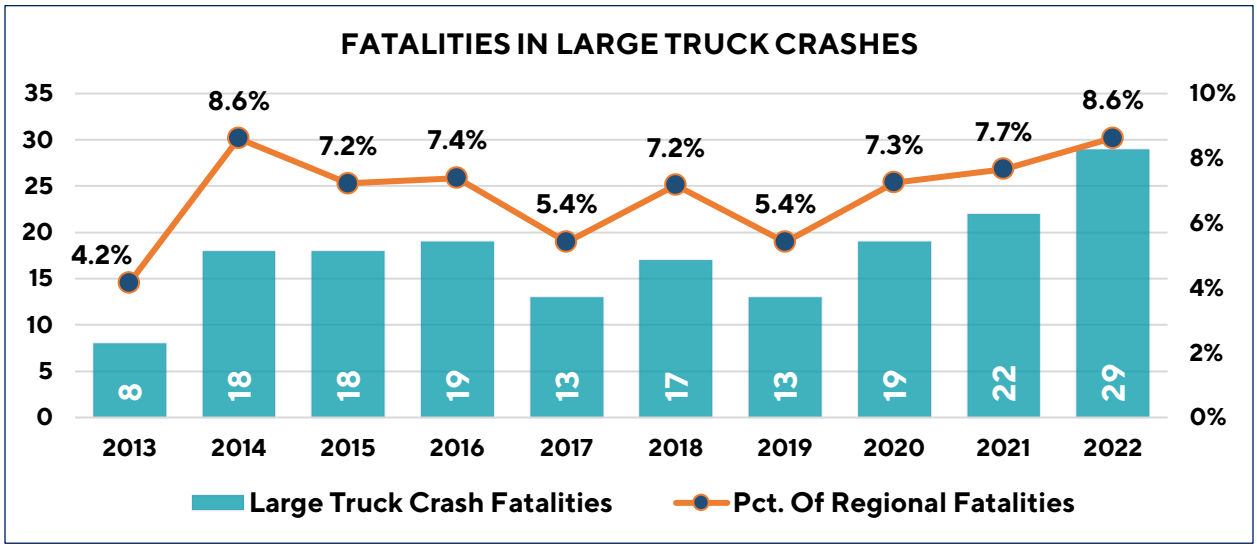

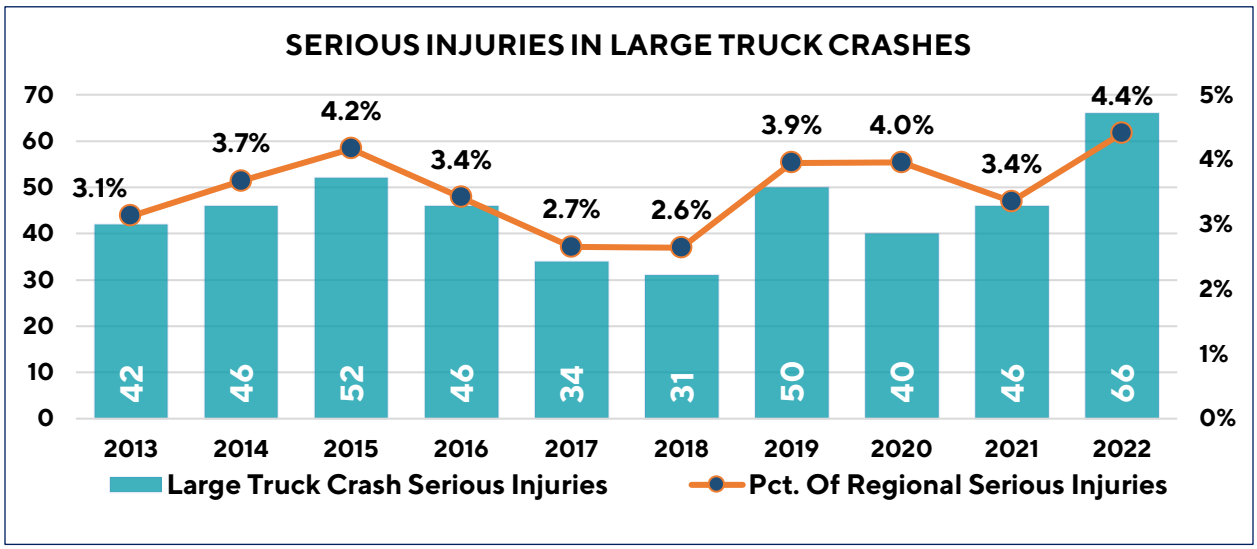

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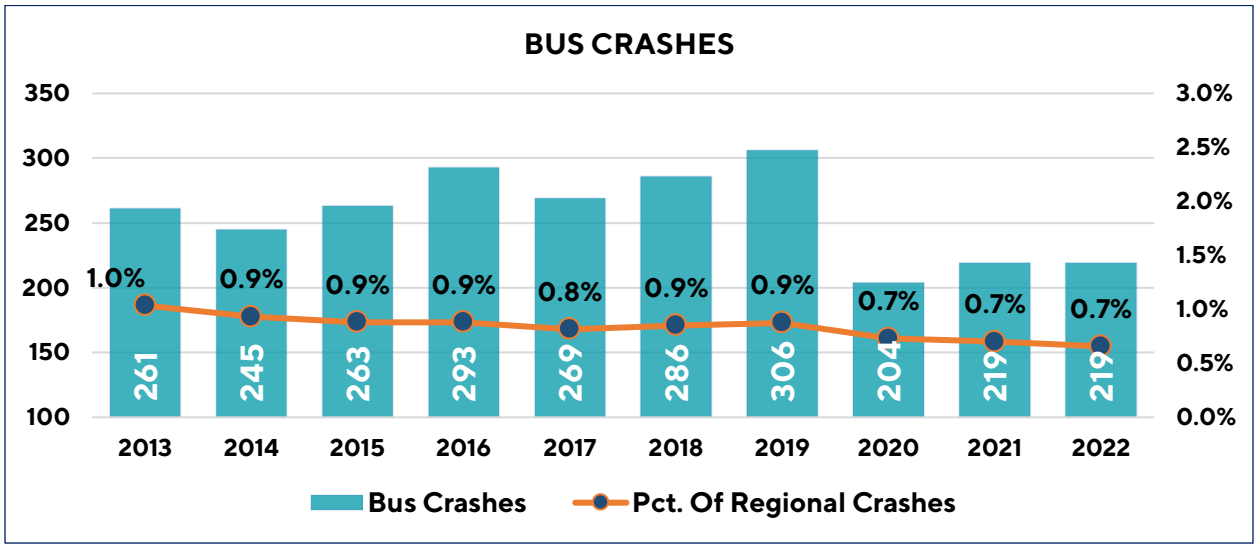
BUS CRASHES
350
300
250
200
150
100
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
1.0%
0.9%
0.9%
0.9%
0.8%
0.9%
0.9%
0.7%
0.7%
0.7%
261
245
263
293
269
286
306
204
219
219
2013
2014
2015
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2017
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2019
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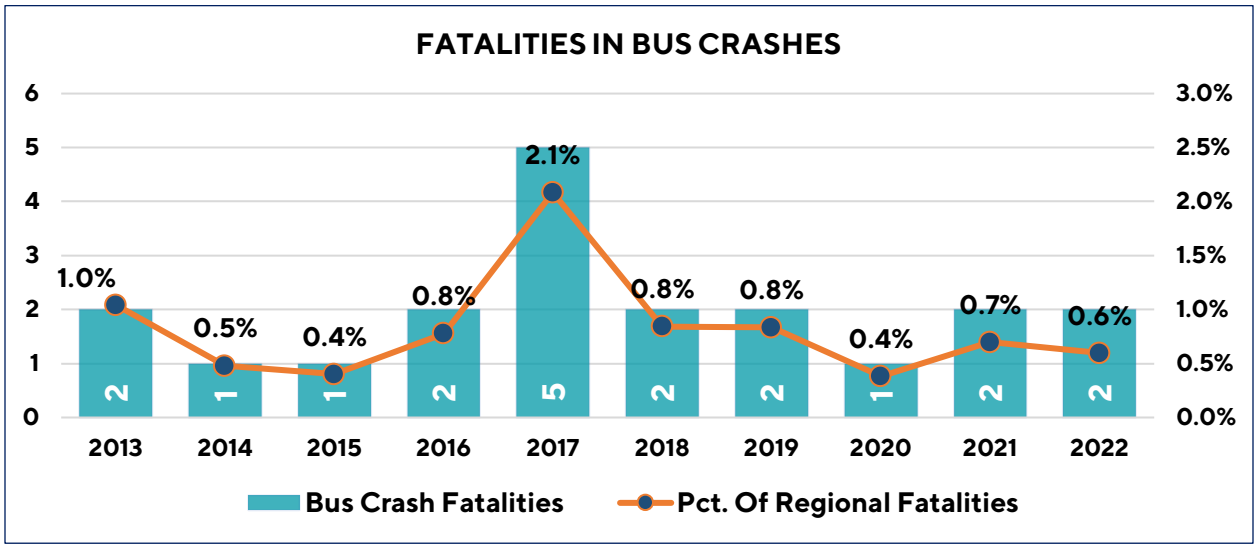
2021
2022
Bus Crashes
Pct. Of Regional Crashes


FATALITIES IN BUS CRASHES
6
5
4
3
2
1
0
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
1.0%
0.5%
0.4%
0.8%
2.1%
0.8%
0.8%
0.4%
0.7%
0.6%
2
1
1
2
5
2
2
1
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2
2013
2014
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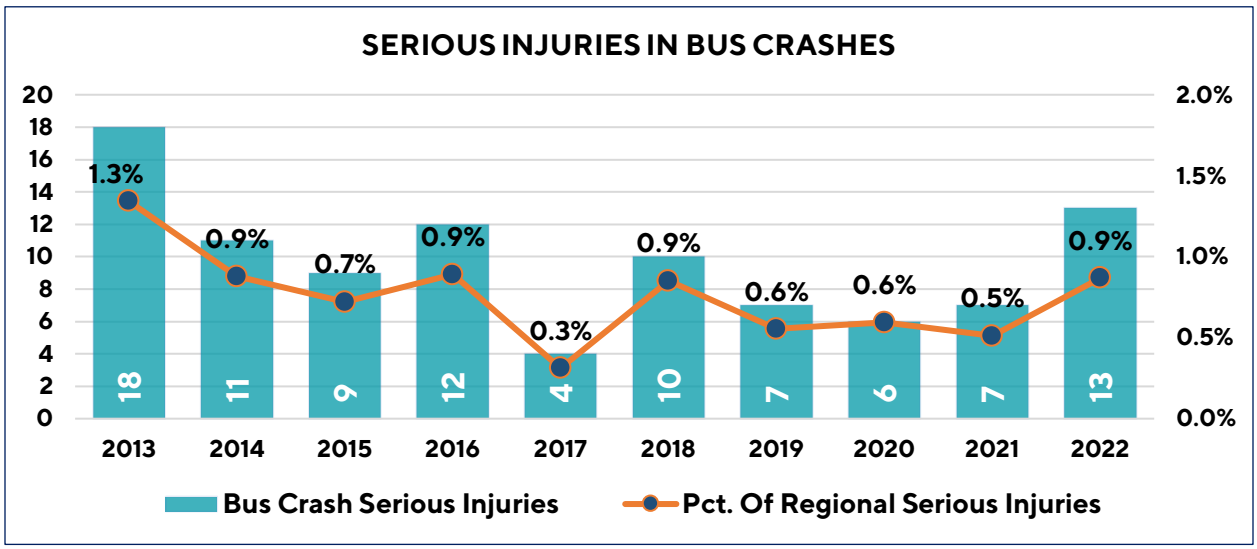
2019
2020
2021
2022
Bus Crash Fatalities
Pct. Of Regional Fatalities


SERIOUS INJURIES IN BUS CRASHES
20
18
16
14
12
10
8
6
4
2
0
2.0%
1.5%
1.0%
0.5%
0.0%
1.3%
0.9%
0.7%
0.9%
0.3%
0.9%
0.6%
0.6%
0.5%
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18
11
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12
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10
7
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13
2013
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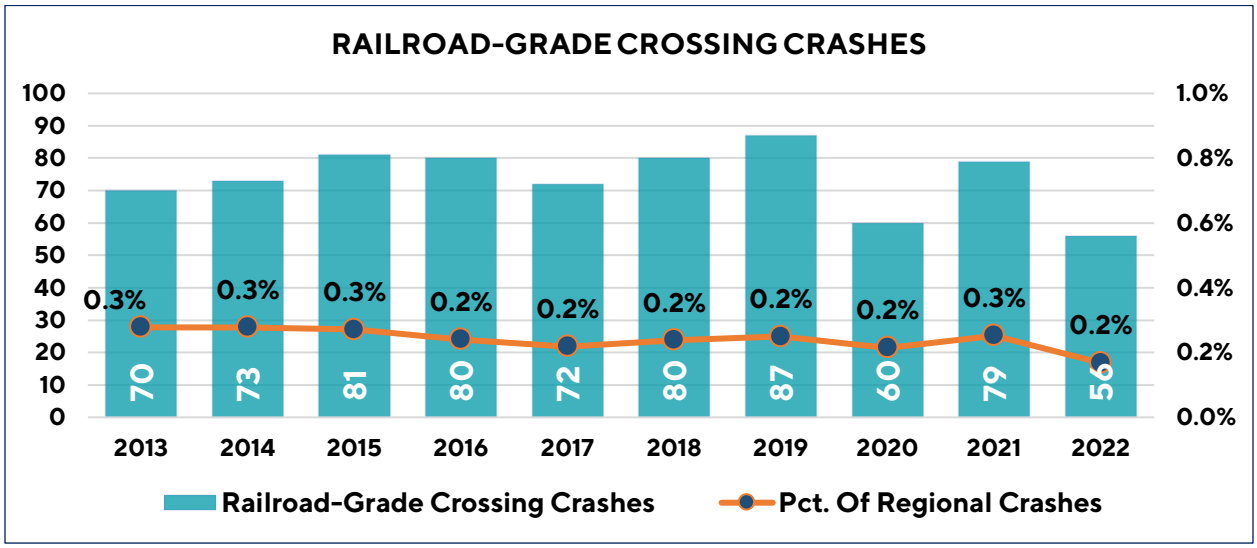
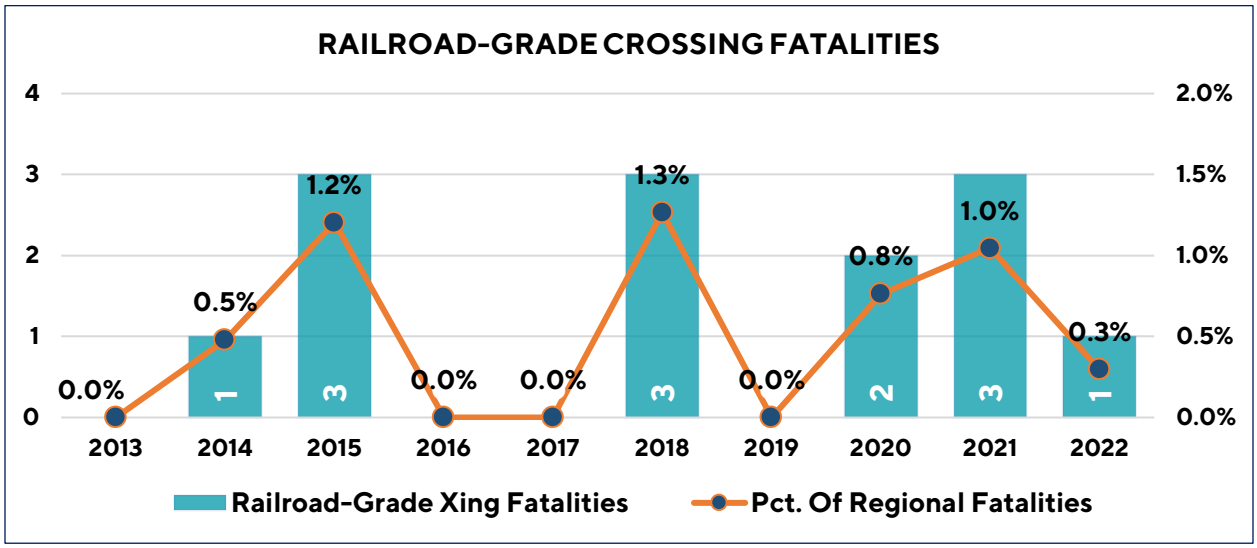
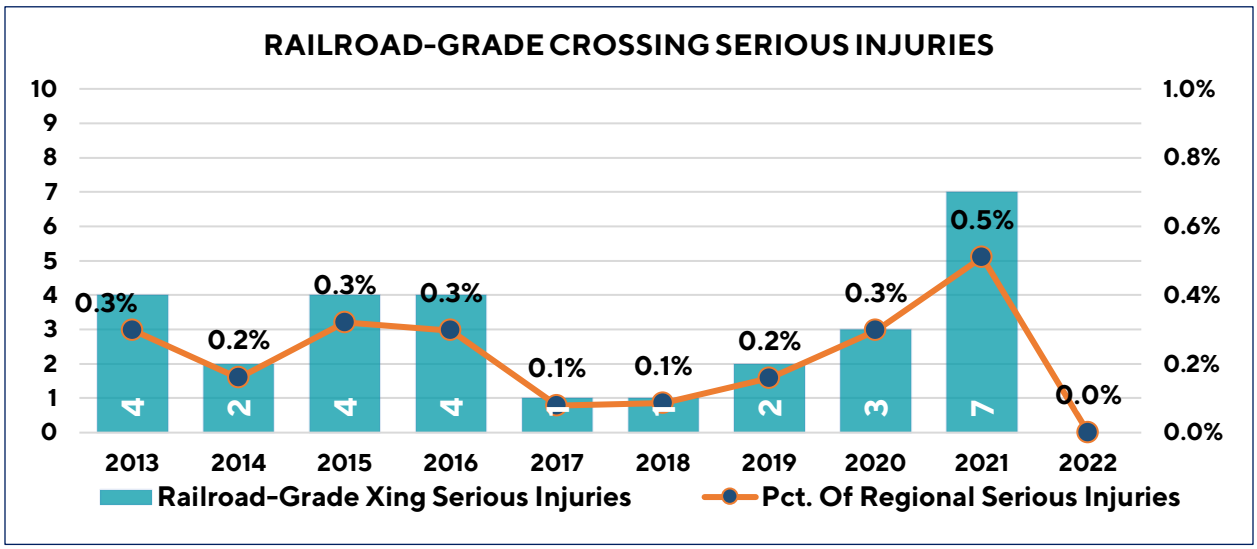
2022
Bus Crash Serious Injuries
Pct. Of Regional Serious Injuries

RAILROAD GRADE CROSSINGS







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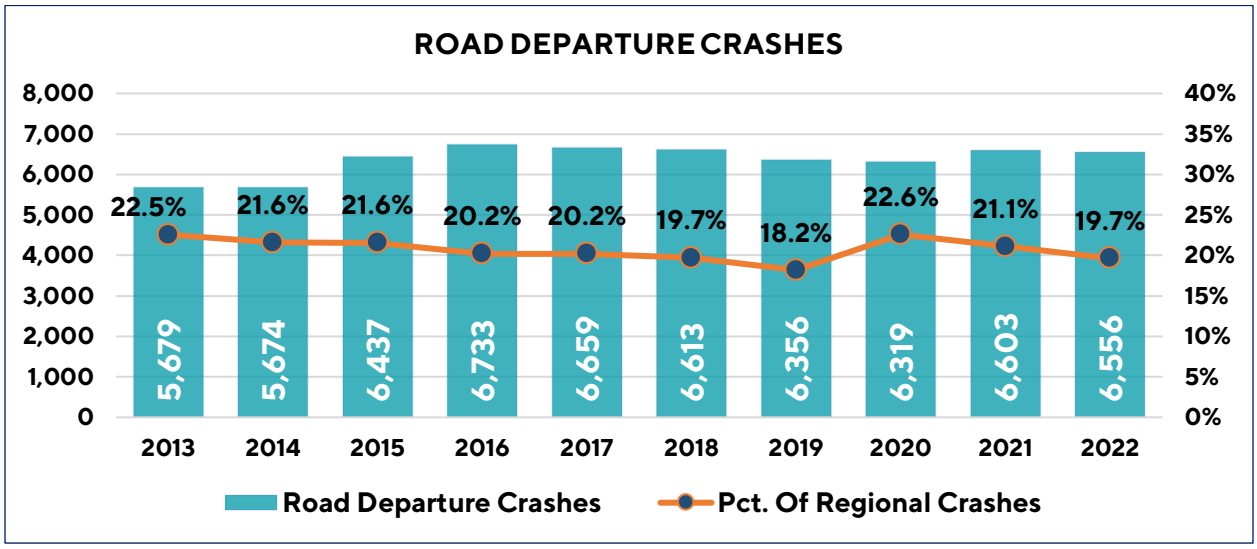

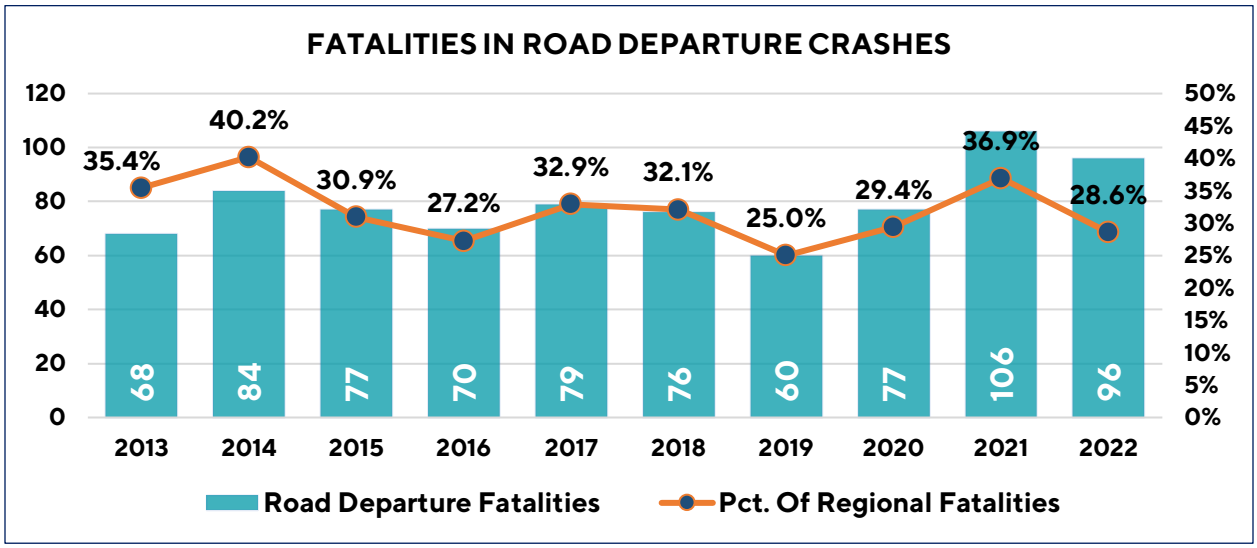

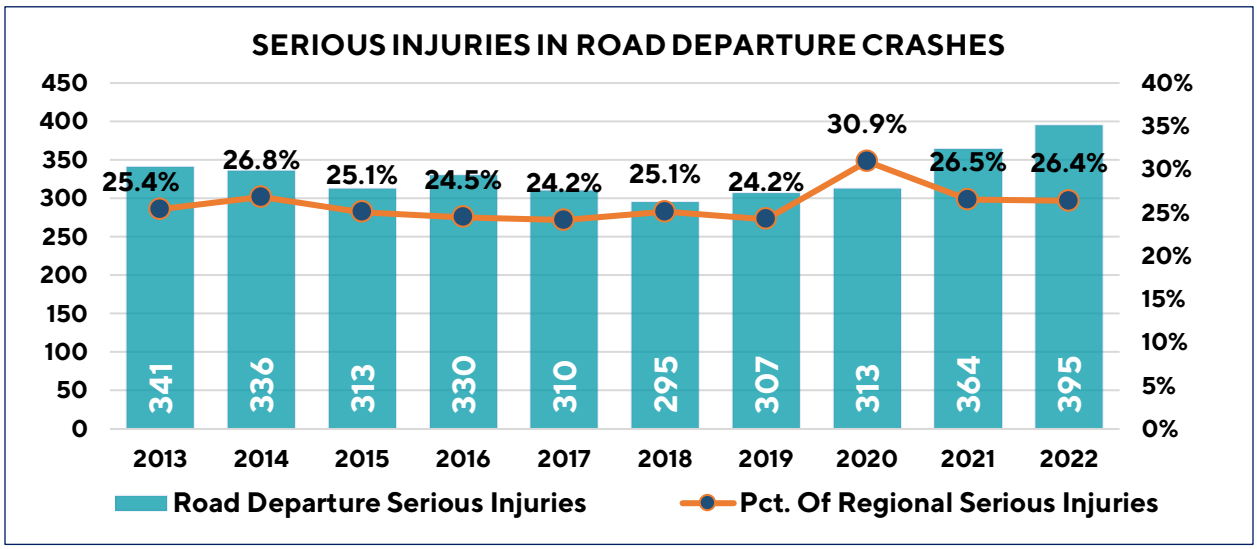

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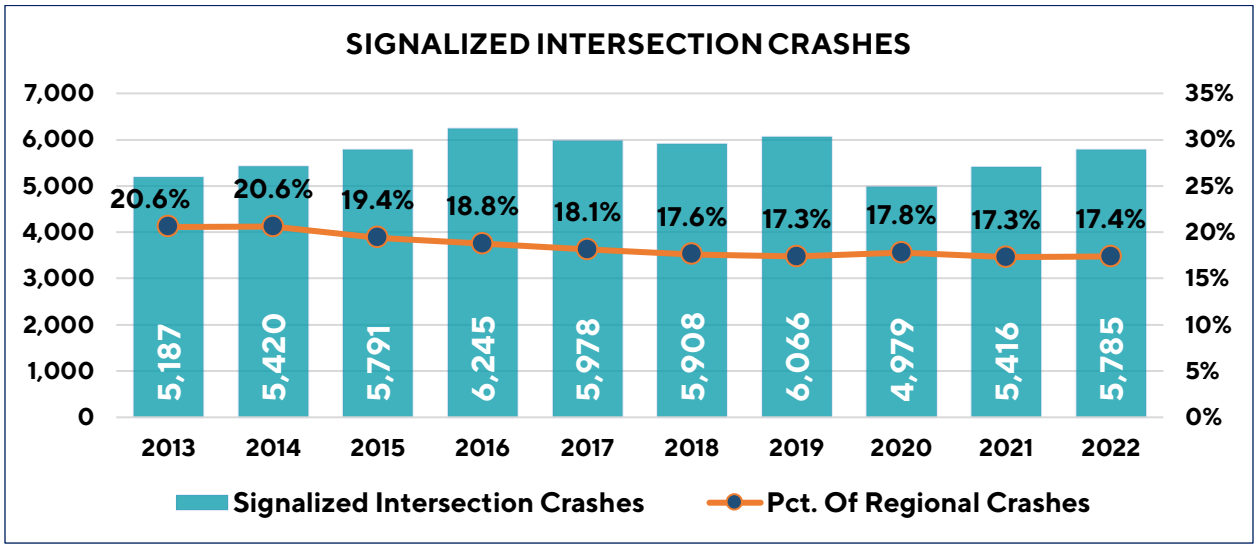

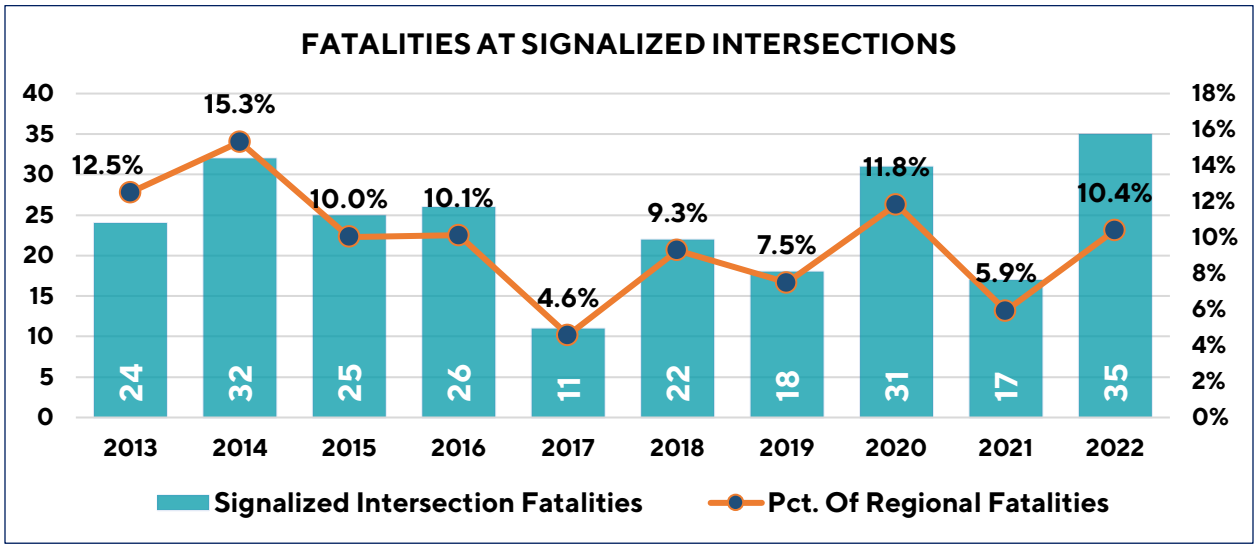

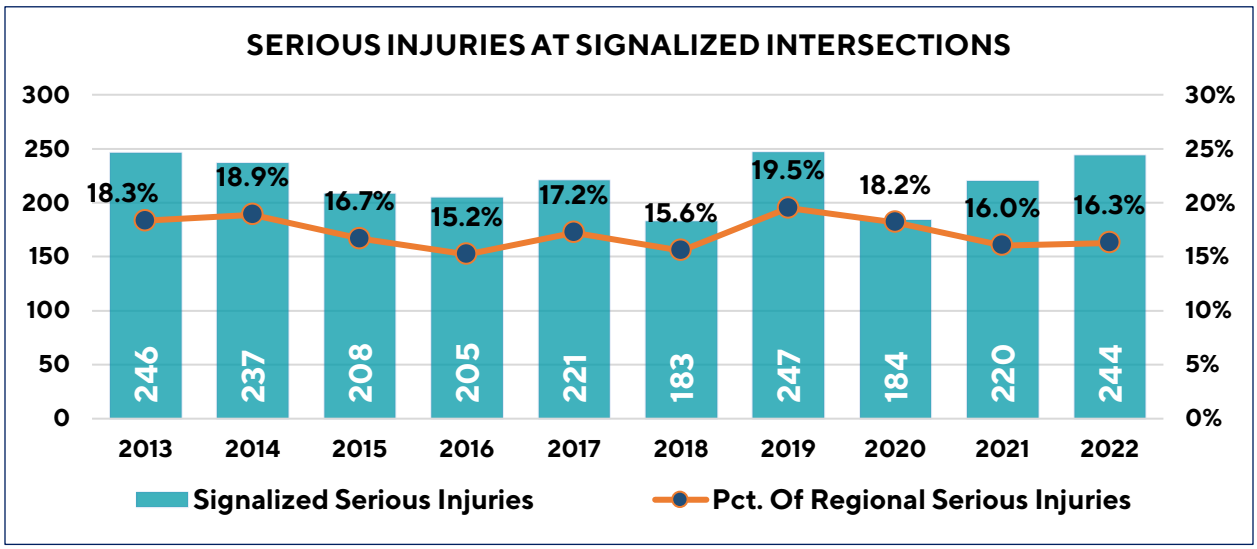

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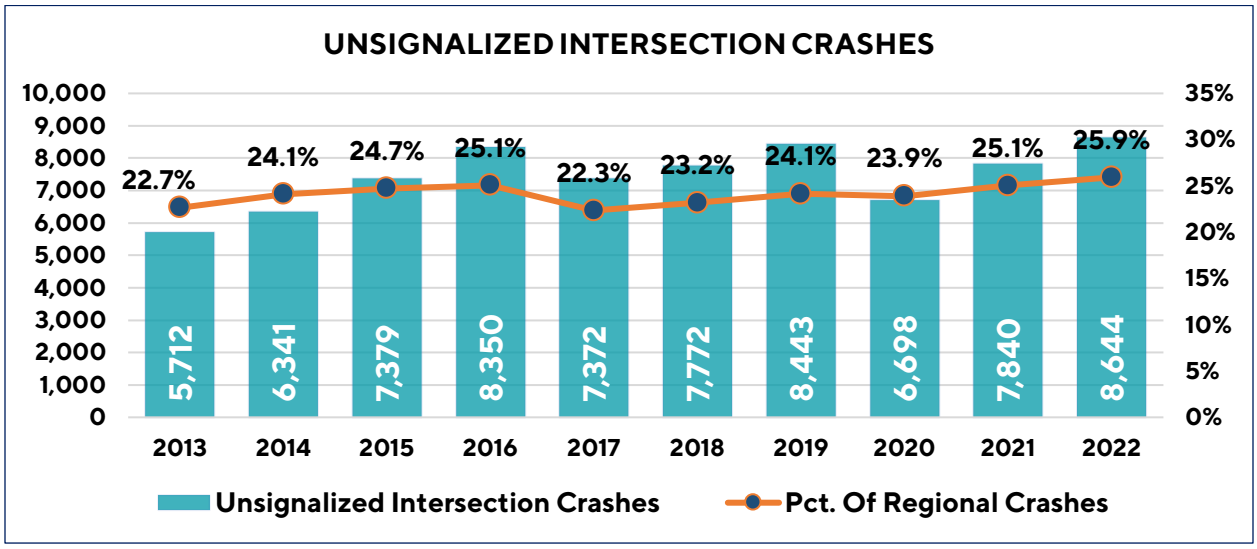
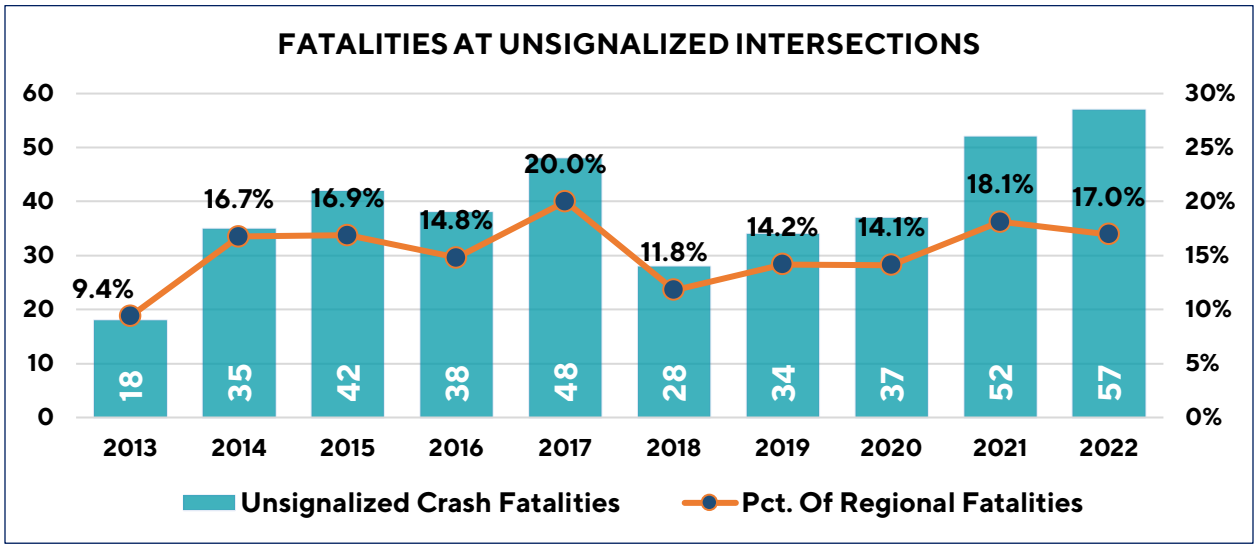
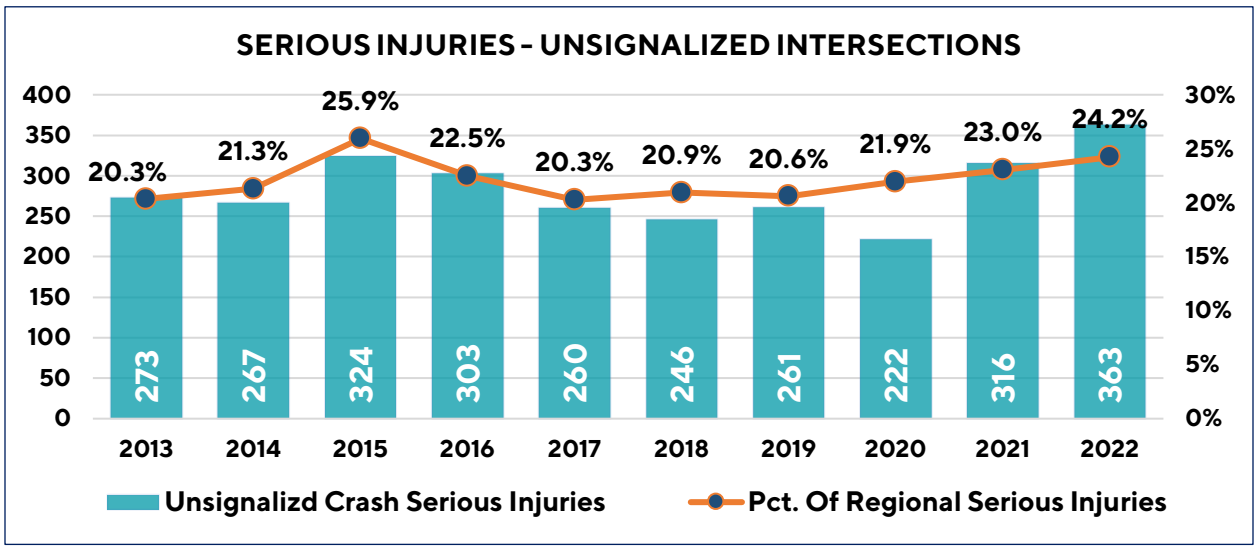
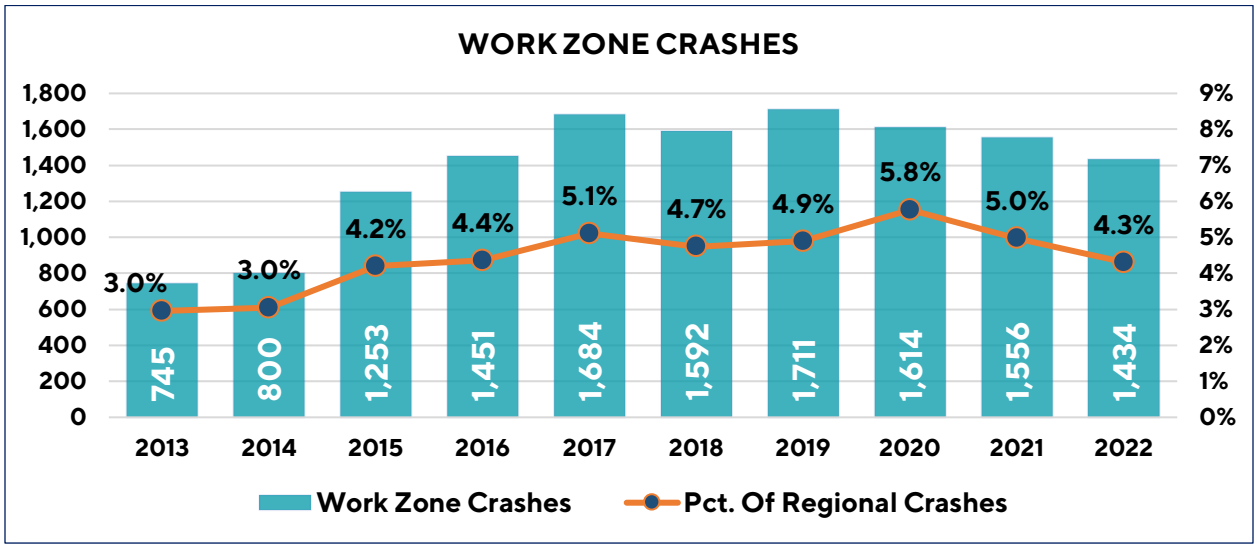






WORK ZONES


WORK ZONE CRASHES
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1,600
1,400
1,200
1,000
800
600
400
200
0
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
3.0%
3.0%
4.2%
4.4%
5.1%
4.7%
4.9%
5.8%
5.0%
4.3%
745
800
1,253
1,451
1,684
1,592
1,711
1,614
1,556
1,434
2013
2014
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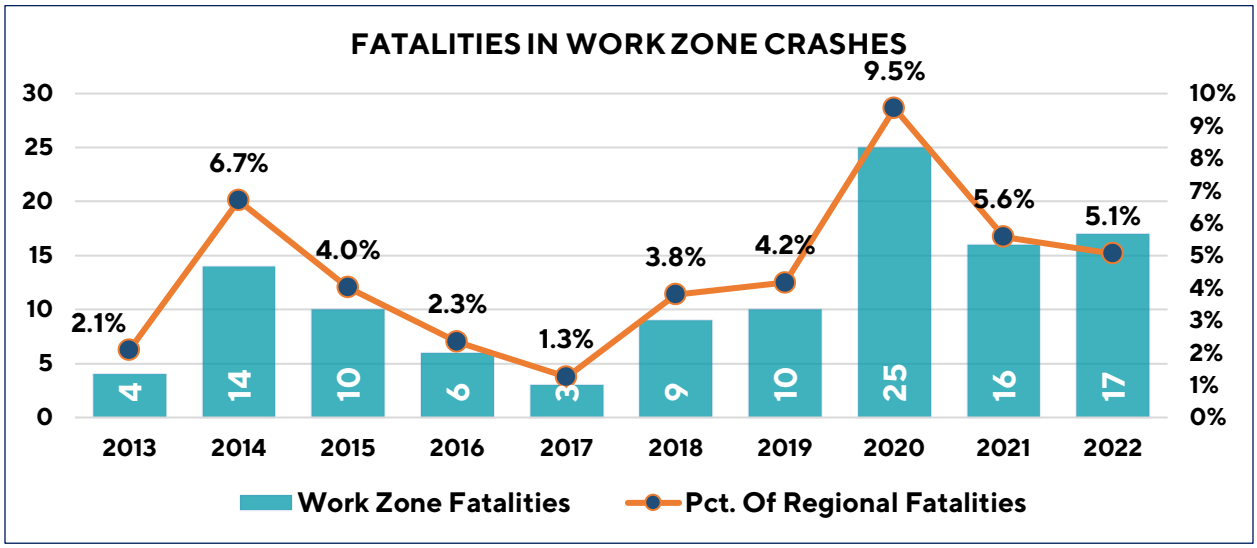
2021
2022
Work Zone Crashes
Pct. Of Regional Crashes


FATALITIES IN WORK ZONE CRASHES
30
25
20
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10
5
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10%
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8%
7%
6%
5%
4%
3%
2%
1%
0%
2.1%
6.7%
4.0%
2.3%
1.3%
3.8%
4.2%
9.5%
5.6%
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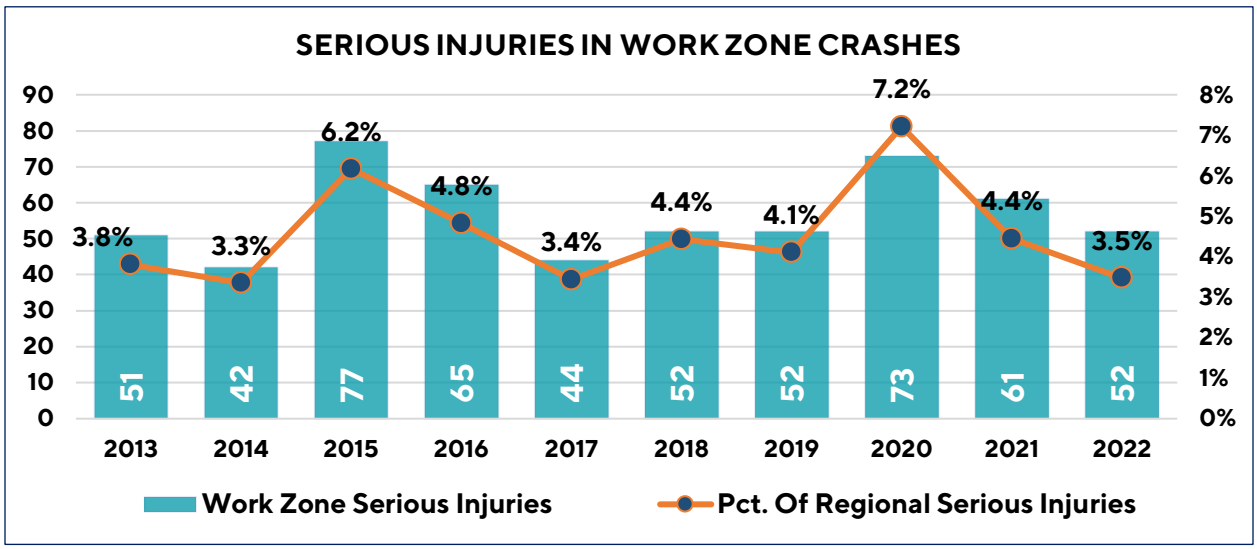
2021
2022
Work Zone Fatalities
Pct. Of Regional Fatalities


SERIOUS INJURIES IN WORK ZONE CRASHES
90
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70
60
50
40
30
20
10
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8%
7%
6%
5%
4%
3%
2%
1%
0%
3.8%
3.3%
6.2%
4.8%
3.4%
4.4%
4.1%
7.2%
4.4%
3.5%
51
42
77
65
44
52
52
73
61
52
2013
2014
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2016
2017
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2021
2022
Work Zone Serious Injuries
Pct. Of Regional Serious Injuries

Date:	October 16, 2023
Continued From:	N/A
Action Requested:	Information

To:	Technical Advisory Committee
From:	Mr. Jeff Kaufman, Texas Transportation Institute
Agenda Item:	8
Subject:	Presentation on CAMPO Congestion Management Process Update

RECOMMENDATION

None. This item is for information only.

PURPOSE AND EXECUTIVE SUMMARY

Mr. Kaufman will provide an overview and update of the Congestion Management Process (CMP) to the Technical Advisory Committee.

FINANCIAL IMPACT

None.

BACKGROUND AND DISCUSSION

Metropolitan Planning Organizations (MPO) are required to establish a Congestion Management Process (CMP) per 23 CFR 450.322, which serves to 1) monitor the state and extent of congestion on the transportation system, 2) identify alternative strategies to better manage the current transportation system and minimize the need for adding physical capacity, and 3) evaluate the effectiveness of implemented transportation projects, including management strategies.

CAMPO last provided an update to the TAC on the CMP at its March 2019 meeting. Due to pandemic-related delays and following changes in methodologies by INRIX, CAMPO staff along with partners at the Texas A&M Transportation Institute, are now able to provide an update to the TAC regarding the CMP.

SUPPORTING DOCUMENTS

Attachment A – *2021 CMP Update*
Attachment B – *CAMPO 2021 Network Results*

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

CENTRAL TEXAS

CONGESTION MANAGEMENT PROCESS UPDATE

Texas A&M Transportation Institute

AUGUST 2023

The preparation of this document was financed in part through grants from the U.S. Department of Transportation under Section 112 of the 1973 Federal Aid Highway Act and Section 8(d) of the Federal Transit act of 1964, as amended. The contents of this document do not necessarily reflect the official views or policy of the Federal Highway Administration, Federal Transit Administration, U.S. Department of Transportation, Texas Department of Transportation, or the Capital Area Metropolitan Planning Organization. Acceptance of this report does not in any way constitute a commitment on the part of any of the above agencies to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

TABLE OF CONTENTS

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INTRODUCTION

The following report is an update to the Congestion Management Process (CMP), which was adopted by the CAMPO Transportation Policy Board in May 2020 as part of the 2045 Regional Transportation Plan. The CMP is a systematic and regionally accepted approach for identifying, implementing, monitoring, and reporting on strategies for addressing congestion. A key focus of the CMP involves the assessment of alternative strategies (other than the provision of additional single-occupancy vehicle (SOV) capacity) for congestion management, to identify their effectiveness and to increase funding and implementation of those strategies found effective.

Federal regulations require metropolitan areas with population exceeding 200,000 (known as Transportation Management Areas (TMAs)), to develop a CMP for implementation and integration into the metropolitan transportation planning process.[1] Since EPA has not declared the Capital Area as a non-attainment area for emissions, the CAMPO's CMP will have fewer requirements than those MPOs located in non-attainment areas. However, with the continued growth of the region, and the looming possibility of the region surpassing allowable emissions levels, this CMP may require future modifications requiring the additional analysis of all projects prior to implementation.

The Congestion Management Process includes the following key components:

- Development of congestion management objectives
- Establishment of measures of multimodal transportation system performance
- Establishment of a congestion management network
- Collection of data and system performance monitoring to define the extent and duration of congestion and determine the causes of congestion
- Identification of congestion management strategies
- Implementation activities, including identification of an implementation schedule and possible funding sources for each strategy
- Evaluation of the effectiveness of implemented strategies

Contrary to some MPOs use of the CMP as a plan, which requires updating every few years, the CMP is actually a process used to monitor mobility in the region. The intent of the CMP is to use its results to assist in the planning process. The CMP can help MPOs identify poor-performing roadways needing improvement and recommend solutions that do not necessarily involve road widening and new construction. In addition, the CMP will provide information for implementers, policymakers and the general public about the state of congestion in the region.

REGIONAL CMP GOALS AND OBJECTIVES

Per federal regulation and guidance, the CMP requires a set of congestion management objectives that define what the region wants to achieve in regard to addressing congestion. The overarching intent for managing congestion through this process, expressed in both federal regulation and guidance, involves the implementation of congestion management strategies that can provide benefit without the need of adding capacity. Added capacity should be seen as

[1] US Department of Transportation, Federal Highway Administration, *Congestion Management Process: A Guidebook*, Page 1, April 2011

a last resort, and when implemented, efforts should be undertaken to integrate other strategies to enhance and optimize the effectiveness of the improvement.

In September 2019, CAMPO approved the Regional Transportation Demand Management (TDM) Plan, which identifies a series of strategies designed to reduce automobile trips, roadway congestion, and parking demand by redirecting travel towards other modes, times, and routes. The CMP ties into the TDM Plan, in that federal regulations require an assessment of implemented congestion management strategies, such as TDM, to evaluate their effectiveness. The results of the evaluation will help decision-makers identify which strategies to continue and which to perhaps terminate. Through the use of congestion management objectives and performance measures, the CMP provides a mechanism for ensuring that investment decisions are made with a clear focus on desired outcomes.

Based on the objectives of the TDM plan, and in conjunction with the goals and objectives of the 2045 Long Range Plan, the following objectives have been identified for addressing congestion in the region:

Objectives

- Identify and support TDM projects and strategies before capacity projects when developing corridor studies, long range plans, and other planning documents.
- Incorporate TDM measures into capacity expansion projects to maximize the roadway's effectiveness and extend the lifespan of the roadway.
- Improve the efficient transportation of goods to, from, and through the region to sustain its economic competitiveness.
- Enable mode choice and system management to keep people and goods moving and reduce lost hours of productivity.
- Improve safety on the region's roadways, not just to reduce fatalities, injuries, and property damage, but to reduce the non-recurring congestion that crashes cause.
- Incorporate technological solutions to enhance the management and operations of the transportation system.
- Implement projects that encourage everyday use of active transportation, such as walking and bicycling, for commuting or other trips.
- Reduce the number of single-occupant vehicles, through the promotion and availability of transit, carpools, and vanpools, to ensure efficient use of the roadway network.
- Educate interested employers and trip generators on options, including flex schedules and teleworking.
- Provide travelers with pre-trip traffic information and alternate route options for travelers to assess their travel options.

2021 UPDATE – A CMP BASELINE DATA RESET

A standard CMP Update would provide several reports reflecting 1) the change in congestion on the CMP network between monitoring years, and 2) an assessment of the change of a roadway's performance where an improvement was implemented between monitoring years. However, between the initial development of the CMP, based on 2017 data, and 2021, two major factors created challenges in conducting an accurate assessment of the state of congestion for the CAMPO region, as well as an assessment of benefits of completed projects.

Changes in INRIX Data Collection

The CMP utilizes traffic data from INRIX, which has been adopted nationally as a source for roadway speed data, utilizing vehicle probe data from GPS units, user apps, and other anonymized data from vehicles. INRIX, which began in 2005, initially used commercial fleet data as its predominant data source. However, in 2019, INRIX significantly increased the number of passenger vehicle probes contributing to its calculations. Passenger vehicles tend to operate at faster speeds than commercial vehicles, especially in slower speeds and stop-and-go conditions due to faster acceleration and stopping times compared to large trucks. In comparing 2017 to 2019 data, peak traffic volumes increased 11.8 percent. However, instead of an expected decrease in speed during congested periods, peak period average speeds improved. This created an issue in assessing project benefit, as it would be unclear if any recorded change was due to the project or the methodology change.

COVID-19 Impacts on Traffic

The second major factor affecting this assessment has been the impacts created by the COVID pandemic on traffic. COVID resulted in a near-shutdown of the economy in 2020, including the temporary shuttering of restaurants and stores, employees working from home, and restrictions on large gatherings. Traffic-wise, this resulted in the temporary disappearance of the commute, fewer vehicles on the road, and minimal congestion. By mid-2021, federal and state governments lifted many of its restrictions on travel and business. While these restraints were removed, and traffic began returning to pre-pandemic levels, many employees and employers did not instantaneously return to the office. The realization that one can be equally productive from home, along with the recognized expense of renting and maintaining office space, has resulted in a reduction in traditional commute-to-work travel. The combined effect of these two impacts resulted in overall fewer vehicle-miles traveled, faster speeds, and less congestion. Comparing traffic changes and attempting to assess project benefits between the 2017 baseline and the COVID-affected 2021 data would result in overall system performance improvements that have little to do with any actual improvement to the transportation system.

Taking these factors into consideration, CAMPO and Texas A&M Transportation Institute (TTI) staff determined that any comparisons conducted would not provide an accurate nor a meaningful understanding of the region's congestion nor the impacts that improvements had on the transportation system. It was decided that the updated information provided in the 2021 update would serve as a baseline reset for the CMP process. The next update should be conducted in 2025, utilizing 2023 data.

CMP DATA AND NETWORK DEVELOPMENT

Federal CMP guidance promotes the development of performance measures to track system performance to both measure that extent of congestion in the region, as well as to measure the benefits of congestion-reduction and mobility-enhancement strategies for people and goods.

The CMP's performance measures serve several key purposes. These measures help quantify the improvement or degradation of the transportation system as a whole over time. They also help MPOs and localities in identifying poorly performing roadways in need of improvement. Finally, and one of the most important reasons, these performance measures help MPOs

measure the benefits of instituted transportation improvements to identify approaches proven to reduce congestion and improve overall network performance.

Data Sources

The CMP revolves around data collection to calculate the level of congestion on the system, as well as the benefits of project implementations. While federal guidance provides a list of potential performance measures for consideration, some of the proposed measures require additional data collection, which may prove costly in terms of money and staff resources. In addition, some of the proposed measure have qualitative factors that may need addressing before their use in the CMP. The proposed performance measures utilize accessible, low-cost datasets that allow the MPO to conduct the required analysis without the time and money required to collect and process data:

- *Roadway Highway Inventory Network Offload (RHINO)* - TxDOT annually produces a roadway inventory of public roadways in the state. Key information used include miles, lane miles, daily vehicle miles of travel and daily truck vehicle mileage of travel.
- *INRIX Speed Data* - INRIX is a private company that captures and provides speed and travel time information from various sources including GPS, cell phones, and in-car navigation systems. The data includes average speeds in 15 minute increments for each section of its roadway network. INRIX data allow for use of actual speed information instead of estimates and reduce the need for physical travel time runs.
- *Crash Records Information System (CRIS)* – TxDOT provides crash record information from CRIS, which includes crash locations and severity, which when integrated in the CMP, can identify roadways in potential need of safety improvements.
- *Capital Metro Automatic Passenger Counter (APC) data* – Capital Metro collects ridership information, including boardings, and ridership at each stop. These data allow for the assignment of transit ridership by CMP roadway segment to estimate the percentage of transit usage for each segment.

Network Development

The CMP network consists of roadways within the CAMPO boundaries (Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson Counties) based on the following criteria:

INRIX Data Availability – As mentioned prior, the CMP relies on data collection to calculate congestion levels, measure improvement and degradation of the network, and to estimate the benefits of project implementations. As INRIX was identified as the most comprehensive dataset available for the cost and effort, segments on the CMP network must have corresponding INRIX data available in order to conduct the required calculations. As the geographic availability of INRIX data expands, CAMPO should modify the CMP network to incorporate additional segments.

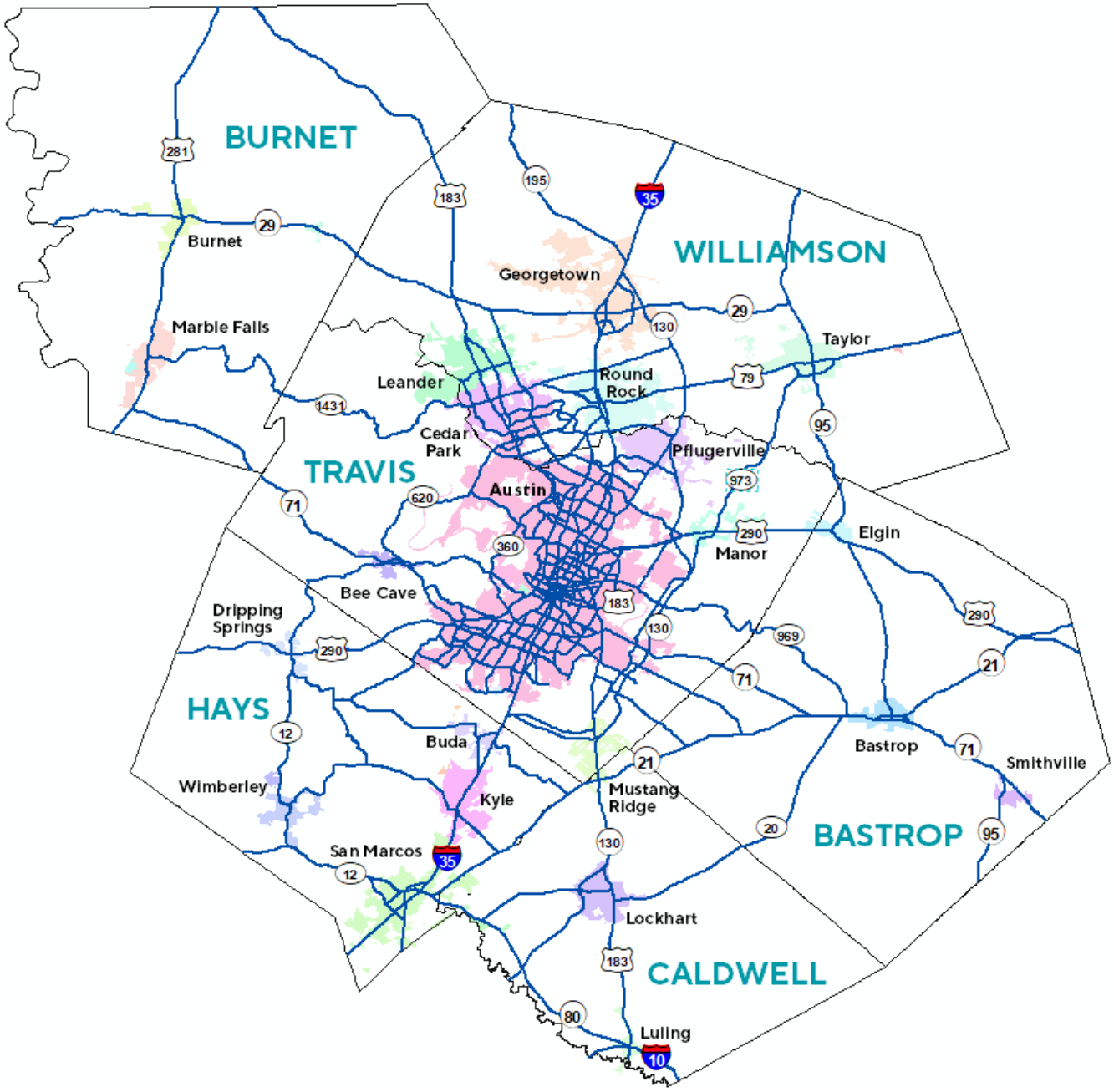
Functional Classification – Within the confines of INRIX data availability, the CMP network utilizes TxDOT's 2021 Roadway inventory, which contains volume information on regional roadways. The CMP network includes urban and rural interstates, freeways, expressways, toll roads, and arterials (both principal and minor). In addition, the CMP network includes major collectors with average annual daily traffic (AADT) of 5,000 vehicles per day, as reported in the Roadway Inventory.

Frontage Roads – While not available in the 2017 CMP network, the 2021 CMP network now includes frontage roads for the freeways and toll facilities within the region.

City of Austin Vehicle and Transit Priority Networks – The City of Austin, as part of its Strategic Mobility Plan, has identified Vehicle and Transit Priority Networks. The Vehicle Priority Network includes streets carrying over 10,000 vehicles per day and represents the higher-traveled streets on the system. The Transit Priority Network reflects Capital Metro's high-frequency service, along with planned expansions, which carry the larger share of transit riders on the system. The CMP network includes most of these facilities where INRIX data are available.

Based on the Figure 1 provides a map of the current CMP network.

Figure 1: CAMPO CMP Network



While this document identifies the above-mentioned data sources for current use, the MPO will continue to search for more comprehensive datasets, which may replace what is currently available. In addition, the MPO recognizes that datasets may improve and change over time, due to available technologies and improved methodologies. While these improvements might benefit the overall results, the MPO will need to be able to explain these changes in its reporting.

CMP PERFORMANCE MEASUREMENT

With CAMPO's decision to align its performance measures with the State's, this CMP update has been slightly modified to mirror the reporting approach and measures used in the 2022 Texas 100 Most Congested Road Sections Report (reflecting 2021 performance), a report mandated by the Texas Legislature, and developed by TTI to identify the top congested roadways in the State.[2] These measures provide a picture of system performance in terms of speeds, expected travel times, truck/goods-based travel, transit, and the level of safety. With additional data sources, other aspects of transportation performance can be added to the CMP. The key performance measures identified are as follows:

Segment Speeds

Speed data for this report come from INRIX. The report not only provides an average congested speed for each segment, but also provides breakdowns for average peak AM, PM, and low-volume (free-flow) speeds.

Congestion Index (TCI)

The Congestion Index (TCI) compares peak period (AM/PM) travel time to free-flow travel time, which usually occurs during off-peak nighttime hours. The Congestion Index (formally known as Travel Time Index - renamed to match the Texas Congestion Index nomenclature used by TxDOT and the Texas Legislature) compares the average amount of travel time required during peak travel periods compared to off-peak periods. For example, a TCI value of 1.50 indicates a 20-minute trip in the off-peak will take 30 minutes in the peak.

Planning Time Index (PTI95)

The Planning Time Index reflects how much total time a traveler should allow for ensuring on-time arrival in the event of an unexpected problem on the roadway. To keep consistent with the Top 100 methodology, the CMP update utilizes the 95th percentile travel time divided by the free-flow travel time (PTI95), which represents the average travel times on the worst travel day of the month. These speeds and travel times most likely occur due to a major event, such as extreme weather, a large-scale HAZMAT spill, or a traffic fatality. Responding agencies have minimal control over weather-related impacts. While operational improvements might have some impact in terms of shortening incident time, extreme incidents may still take several hours to clear.

Delay and Delay per Mile

The primary performance value for this CMP is the amount of delay being experienced by roadway users. The CMP separates delay into two variables – Person Delay and Truck Delay.

[2] Texas A&M Transportation Institute, Texas 100 Most Congested Road Sections, 2022, Released November 2022, https://mobility.tamu.edu/texas-most-congested-roadways/

Person delay measures the amount of delay that individual road users experience, including drivers and passengers. This variable is based on vehicle volumes on a facility from the RHINO network and congested travel time information from the INRIX data, combined with average vehicle occupancy estimates (1.5 persons per vehicle). Truck delay specifically looks at the amount of delay experienced by trucks on the system. While calculated similarly to person delay in terms of data sources, truck delay is calculated based on the truck – not on the number of people in the truck.

The primary ranking measure used in the CMP is Delay per Mile, which normalizes the data and provides a better indicator of the severity of the delay and the level of congestion being experienced. A roadway experiencing 100,000 hours of delay over three miles is far more congested than one experiencing 100,000 hours over ten miles.

Congestion Costs

Congestion Costs provide an estimated financial impact of delay on the region. The value of time per person was calculated at $22.00 per person per hour, based on the 2022 Edition of the Texas 100 Most Congested. Truck congestion costs are calculated to reflect the cost of delay for goods delivery. Unlike passenger vehicle costs, truck congestion costs take a variety of factors into account, including the cost of vehicle purchase/lease costs, insurance, maintenance, and operator wages. The value of truck delay per hour per the 2022 Report equaled $62.43 per hour.

In addition to the value of time, the Congestion Cost accounts for the estimated amount and value of fuel wasted due to congestion. The process calculates the amount of fuel consumed at congested speeds in comparison with the amount of fuel that would be consumed at free-flow/low-volume speeds. A monetary value can be calculated for wasted fuel by multiplying the amount of wasted fuel with the average cost of fuel for vehicle travel ($2.90/gallon) and truck travel ($3.18/gallon-diesel).

Transit Availability and Usage

The CMP should also identify and monitor other modes of transportation if the information is available. For transit usage, Capital Metro provides automated passenger count (APC) datasets on its infrastructure, including routes and stops throughout its system. To report on transit availability, the CMP reports on the number of transit stops per CMP segment, the number of boardings per segment, and the number of routes passengers have access to on the segment. This will allow for assessing of growth of transit usage along each segment.

CARTS provides commuter and local transit services in smaller communities throughout the region, including circulator routes in Georgetown, Bastrop, and San Marcos. CARTS currently does not have automated passenger count systems that allow for segment-based transit calculations. As data become available, they should be integrated into the analysis.

Safety Performance

Crash information comes from TxDOT's Crash Records Information System (CRIS), which provides information about crashes in the region. Crashes were assigned to their respective CMP segment for analysis. To promote alignment with FHWA Safety Performance measures, the CMP reports the following safety information:

- Fatalities (2020-2022)
- Fatality Rates (fatalities per 100 million vehicle miles traveled)

- Serious Injuries (2020-2022)
- Serious Injury Rates (serious injuries per 100 million vehicle miles traveled)
- Non-motorized (bicyclists/pedestrian) fatalities and serious injuries combined (2020-2022)

The use of three years of data helps to smooth out any anomaly years. Injury and fatality rates are calculated by averaging the three years of data (2020-2022) and dividing it by the number of annual vehicle miles traveled (expressed in crashes per 100 million vehicle miles traveled) for the year of analysis (2021).

CMP NETWORK PERFORMANCE

A major change in performance reporting in this report involves the switch from roadway reliability (previously determined by the 80th Percentile Planning Time Index - PTI80) to Delay per Mile. The PTI80 approach was used to identify roadways that have a low level of reliability based on worse-than-normal peak period speeds. While a useful measure, it does not fully show how commuters are impacted by those speeds. Using the Delay per Mile metric, as used in the Texas 100 Most Congested Road Sections, the CMP can better measure not just the level of delay but also the number of travelers impacted by the delay caused by those speeds.

Table 1 identifies the Top 25 most congested CMP segments in the region based on Delay per mile (a complete list of CMP segments and their corresponding delay figures can be found in Appendix A):

Table 1: Top 25 Most Congested Road Segments (Based on Delay per Mile)

Facility Name	Segment Limits	Hours Delay per Mile	Free Flow Speed	Average Speed	AM Speed	PM Speed	Congestion Index	Planning Time Index (PTI95 ≥ 1.50 Unreliable)
IH 35	MLK to Airport	1,466,431	61.1	36.2	52.7	22.3	2.46	4.32
IH 35	MLK to Cesar Chavez	1,253,496	60.3	34.3	50.4	20.9	2.31	3.69
IH 35	Cesar Chavez to Ben White	832,795	62.0	44.9	46.2	43.9	1.69	2.34
IH 35	Airport to US 183	427,920	63.0	46.4	50.2	42.8	1.51	2.17
IH 35	SH 45 to University/RM 1431	417,531	65.0	49.8	56.4	45.0	1.46	1.96
US 290	McCarty Lane to RM 1826	313,002	37.4	27.5	29.7	26.0	1.50	2.00
IH 35	Ben Whilte to Slaughter	282,674	65.0	49.6	52.3	47.0	1.49	2.23
MoPac	Lake Austin Blvd to Northland/2222	220,816	64.9	51.2	63.7	41.8	1.44	2.23
Parmer	IH 35 to MoPac	218,225	34.4	27.8	32.9	25.2	1.32	1.65
Cesar Chavez	S. 1st to IH 35	205,132	21.7	17.2	20.6	15.5	1.31	1.59
Cesar Chavez	S. 1st to Lamar	194,443	26.0	20.6	25.3	18.1	1.32	1.65
IH 35	Slaughter to SH 45	191,588	64.8	53.1	57.2	48.9	1.35	1.89
MoPac	Lake Austin Blvd to Cap. of Texas	185,537	64.4	54.3	63.5	47.9	1.33	1.82
SH 80	IH 35 to SH 21	163,362	32.5	28.1	31.1	26.6	1.21	1.48
Capital of Texas	Lamar to Bee Caves	140,628	49.7	41.6	42.6	40.9	1.25	1.57
S. Lamar	Ben White to Riverside	129,930	32.9	28.0	31.9	26.0	1.19	1.41
US 183	Whitestone to Lakeline Blvd	126,060	37.8	28.9	34.0	26.1	1.36	1.72
Whitestone	Parmer to US 183	125,396	36.5	30.4	34.3	28.3	1.24	1.48
Riverside	IH 35 to Pleasant Valley	117,386	25.2	21.8	24.5	20.4	1.17	1.35
Rundberg	Lamar to Dessau	116,058	22.0	17.8	17.8	17.8	1.25	1.46
US 183	MoPac to Spicewood Springs	111,349	65.0	55.7	61.3	51.6	1.23	1.63
Wonder World	IH 35 to SH 123	110,717	29.0	22.7	26.9	20.5	1.31	1.59
US 290	FM 973 to Parmer	103,688	46.0	36.5	40.1	34.4	1.30	1.62
US 79	IH 35 to FM 685	102,631	42.0	32.9	38.2	30.0	1.33	1.68
Lamar	US 183 to Braker	102,612	29.2	24.5	27.7	22.8	1.21	1.42

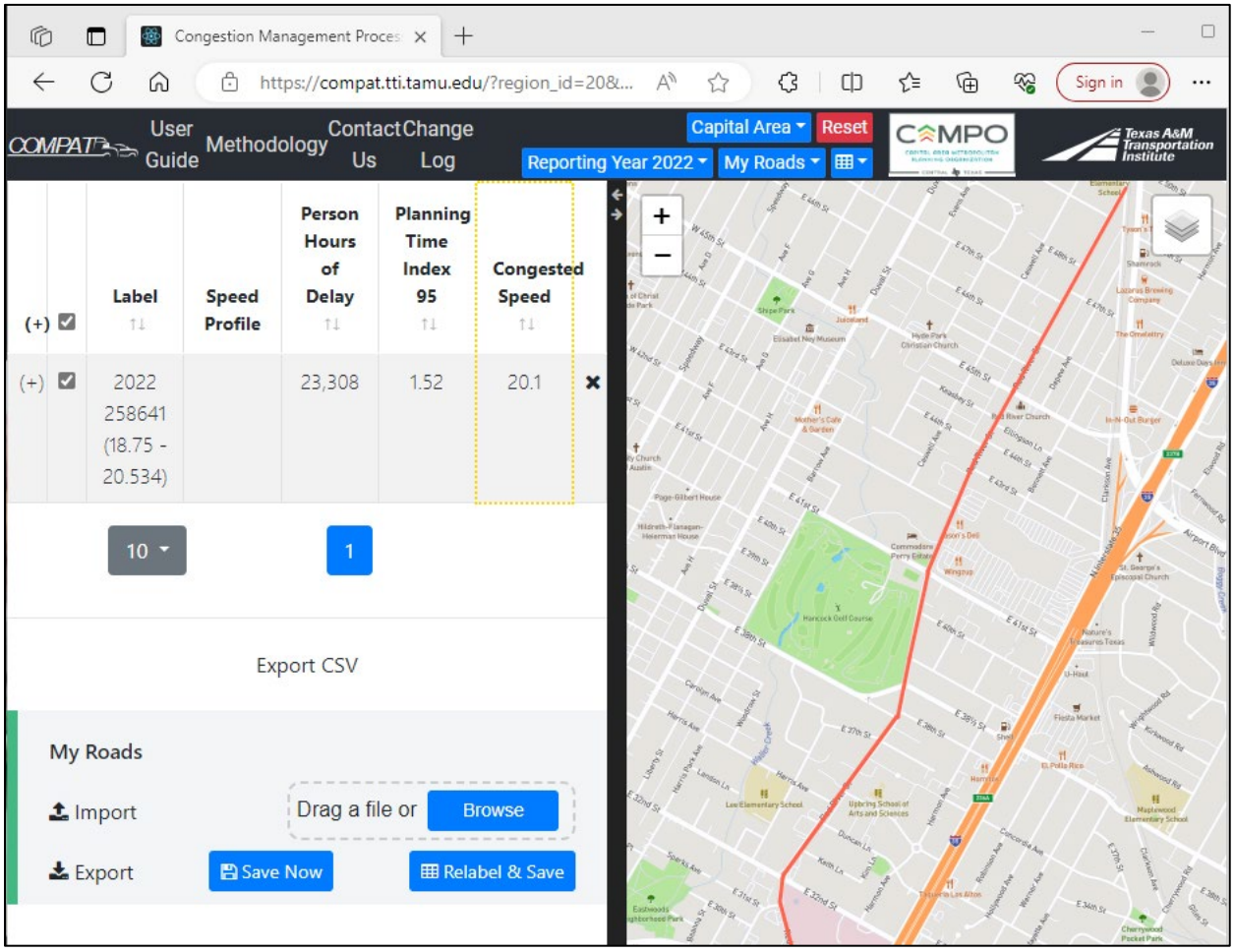
COMPAT TOOL

As part of the development of the CMP, TTI developed the Congestion Management Process Assessment Tool (COMPAT), an online tool to help identify performance of roadway segments specified by the user. While the CMP Network has specific segments that have been identified and are being monitored, a user may want to check the performance based on a larger or shorter segment of the roadway being monitored. This would allow for more exact measurement of a roadway's performance after a project has been completed.

To use COMPAT (Figure 2), users can select multiple roadway segments, that when combined, will provide a congestion performance dataset for the combined segment. For project before-after studies, a user can select the segment for a before construction year and after construction year to estimate the benefit recognized by the implemented project.

COMPAT, while initially developed for CAMPO, now has data for all of the MPOs in Texas. To see how the system works, please visit https://compat.tti.tamu.edu.

Figure 2: COMPAT Website



CONGESTION MANAGEMENT STRATEGIES

One of the key purposes of the CMP is to identify a set of recommended activities to effectively manage congestion without the need to build additional capacity. To that end, the CMP identifies a series of congestion management strategies to help reduce congestion. Many of these strategies come from CAMPO's Transportation Demand Management (TDM) Plan approved in September 2019. The list of strategies below has been split into four categories:

- Roadway improvements that include physical roadway modifications, access consolidation and control, intersection improvements, complete street development, and lane management.
- Public transit enhancements to make transit a more attractive and competitive mode for transportation.
- Bicycle and pedestrian improvements to promote active transportation modes and expand connectivity for those without access to motor vehicles.
- Operational and technology-based solutions to maximize the efficiency of the existing infrastructure and allow for better system management.

While this is a comprehensive set of options, the CMP does not restrict options not listed that may show a positive impact on congestion.

Roadway Improvements

Tolled Managed/Express Lanes	Tolled Managed Lanes or Express Lanes are a set of lanes separated from existing non-tolled lanes that are managed through congestion pricing to help ensure a more reliable travel option. These lane have technologies installed to increase tolls when traffic is heavy and lower them when traffic is light. This makes their usage less desirable during congested times and preserves faster speeds during peak travel periods. If desired by the system's operator and policy makers, these lanes can have tolls waived for public transit buses and registered van pools to promote multi-passenger vehicle usage.
High-Occupancy Vehicle/High-Occupancy Traffic (HOV/HOT) Lanes	HOV/HOT lanes are designated lanes primarily for use by transit and vehicles carrying at least two people. These lanes allow multi-passenger vehicles to travel faster and avoid congestion during peak periods. Since these lanes do not experience nearly the congestion of freeway lanes, the HOT component allows for single-occupancy vehicles to use the lanes for a charge.
Hard Shoulder Running	Hard shoulder running allows for the usage of a paved shoulder as a travel lane during peak travel periods. It can help alleviate increased travel demand by providing additional capacity during peak travel times without physically expanding the roadway.
Transit on Shoulder	Transit on Shoulder is a limited form of hard shoulder running, converting the paved shoulder into a dedicated transit lane during peak travel periods. This allows for faster, more reliable transit operability and enhances transit as a commuting option.

Access Management	Access management strategies provide congestion and safety benefits by reducing the number of potential conflict points on a facility. More driveways, intersections, and access points create more opportunities for turning traffic to interfere with the flow of a facility. In addition, more access points create more opportunities for crashes. Strategies include medians, turn lanes, side/rear access points between businesses, and shared access.
Bottleneck Removal	Bottleneck removals address short-distance capacity reductions, which can include main lane interactions with entrance/exit ramps, extreme roadway curves, substandard design elements, and other physical limitations that form a capacity constraint. Examples for addressing bottlenecks include extending acceleration/deceleration lanes, hard shoulder running during peak periods, entrance/exit reconfiguration, and adding lanes within the existing space, if available.
Intersection Reconfiguration	Intersections inherently contribute to congestion as traffic in one set of directions must stop to allow the other directions to flow. In addition, poorly designed intersections can restrict flow through them as traffic waiting to turn can interfere with through traffic. Improvements such as the installation of turn lanes, increasing turn lane bays, improved signal timing, and in some cases, innovative designs such as roundabouts, can reduce restrictions and increase throughput.
Grade Separations	Intersections with a high volume of traffic limit can create both a congestion and a safety problem. Traffic signals create flow interruptions, which can result in severe queueing during peak travel periods. In addition, the amount of traffic increases the opportunity for a crash. Grade-separating these locations allow an uninterrupted flow of traffic at least in one direction while significantly reducing the safety threat posed by trains, pedestrians, or other vehicles.

Transit and Other Multi-Passenger Transportation

Expanded Transit	The provision of expanded service through additional public transit routes, park-and-ride facilities in developing areas, connections to existing service routes and facilities, and additional buses on existing routes for increased frequency.
Bus Rapid Transit (BRT)	A higher-speed bus system using dedicated transit lanes that reduce reliance on congested general purpose lanes. In conjunction with fewer stops, prohibition of vehicles turning across BRT lanes, and signal priority, BRT systems can offer faster, more frequent, and more reliable transit service.

Vanpools	Vanpooling allows for 5-15 individuals with a similar commute trip where the participants share their own driving responsibilities, thereby covering the primary "cost" of operation. Vanpool users share operational costs, which may be partially or fully subsidized by employers, transit authorities, or other governmental entities. Vanpool users can also receive a pre-tax benefit for their share of costs.
Carpools	Carpooling allows for shared vehicle use with at least one additional person, reducing individual travel and fuel costs, as well as overall vehicles on the road. While carpool opportunities may be company-centric, several online carpool matching services, such as Waze Carpool and RideAmigos exist to connect travelers.
Transit Incentives	The provision of transit incentives by companies can give employees a discounted way to work while improving overall mobility in the region. While contributing to the reduction in congestion, promoting transit usage allows for employers to reduce their need and associated costs for parking provision.

Active Transportation

Pedestrian Facility Expansion and Improvement	Assuring a safe and connected pedestrian network allows for the promotion of walking over driving as an active travel option. This includes the addition of new sidewalks or walking paths to connect neighborhoods to workplaces and other commercial opportunities, the maintenance of existing sidewalks to ensure user safety, adding pedestrian accommodations at signalized intersections for all users, and the provision of lighting to add security during night-time use.
Bicycle Facility Expansion and Improvement	Assuring a safe and connected bicycle network allows for the safe use of bicycles for commuting over driving. This includes the construction and maintenance of bike lanes and trails, the connection of non-continuous bike lanes on a facility, and the installation of safety elements to provide a level of protection for bicycle network users.
Bike to Work	Bike to Work programs encourage active transportation usage for commuters by reducing barriers to using bike travel. Examples of implementation include options for transporting bicycles on buses and trains, the installation of onsite bike storage, and the provision of showers and lockers to help accommodate cyclists.
Bike Share	Bike share programs provide rental of a shared bike for a nominal fee, providing access to travelers who would like to utilize active transportation but do not want to pay to own, store, and maintain a personal bike. Bike share programs also offer a last-mile option for transit users who still have a distance to go after their stop.

Operational and Technology-Based Solutions

Dynamic Traveler Information	Dynamic traveler information provide real-time information to travelers to help find information about travel options. These tools, often provided through websites and smart phone apps, as well as on dynamic message signs on roadways, give users up-to-date information about roadway congestion, wait times for various modes, transit delays, and potential route variations and barriers. This helps users make informed decisions on travel including which routes or modes to take, and when is the best time to travel.
ITS Communication Networks	Creating an ITS communication network will allow for the installation of technologies, such as traffic signals, CCTV cameras, dynamic message signs, and traffic detection systems. These communications allow for real-time transmission of information to traffic management personnel and the traveling public. These networks can include fiber-based or wireless communications.
Traffic Signal Coordination and Centralization	Improvements in traffic signal technology has allowed for the communication and coordination of traffic signals along arterials to improve traffic flow. Communications to a centralized computer system can assess flow conditions and modify signal timing along a corridor to improve it. Also, a centralized system can also identify signal malfunctions, which potentially can be quickly addressed remotely from an operation center instead of sending out a maintenance crew to repair the signal.
Traffic Management Centers/System Monitoring Technology	Roadway system monitoring can provide information about system performance in real time. Radar and Bluetooth-detection units provide segment speeds and can identify roadway segments with abnormally low speeds. CCTV cameras allow for traffic management staff to monitor the system for incidents. Loops, radar, and certain camera systems can provide roadway vehicle volumes and classification information. The information from these systems often transmit to a Traffic Management Center (TMC), which houses staff that can initiate efforts to address any system breakdowns identified through these systems, including the dispatch of incident management personnel to address a crash or stall, or maintenance personnel to quickly repair an infrastructure issue contributing to congestion.
Parking Management	Parking management can impact congestion by informing the public about parking availability, influencing when travelers commute, and potentially influencing mode choice. Capturing real-time parking information to users and ensuring the availability of spaces to reduce circling around parking facilities. If parking options appear limited, travelers may choose to take transit or other modes of transportation to get to their destination. In addition, variable pricing of parking, based on demand, may also influence travelers to investigate alternative modes to avoid paying the elevated prices.

Incident Management	Incident management addresses non-recurring congestion stemming from crashes or disabled vehicles, which impede the flow of traffic. Efforts such as service patrols, towing programs, and coordinated response allow for the faster removal of vehicles from incident scenes allow for faster restoration of traffic flow.
Special Event Management	Special events, such as sporting events and festivals, create an increase in travel demand, usually at non-traditional peak travel times. Some events may require road closures, creating additional impacts on the rest of the transportation system. Special event management strategies, including pre-event traveler information, staging of responders, and increased transit operations, can allow for pre-event planning by travelers, quicker response to incidents, and alternatives for getting to the event.
Work Zone Management	While not a strategy to fund as a stand-alone approach, effective work-zone management helps minimize the congestion caused by maintenance and construction activities. It should be considered as a component for construction activities. Examples include pre-zone traveler information and queue warnings to inform travelers to consider other routes, and incident management plans to address crashes and stalls that can exacerbate an already-restrictive roadway.

Other Strategies

Flexible Work Hours	Flexible work schedules involve the shifting of workday start and end times, or the option of compressed work schedules (such as 4-10 hour workdays). This strategy allows for commutes that avoid peak hours of traffic, thus reducing the number of vehicles operating during peak hours.
Telecommuting/Teleworking	Telecommuting/teleworking allows employees to regularly work from home or some alternate location, reducing the number of vehicles in congested traffic or removing vehicles from the transportation system completely during peak travel times.
Flexible Emergency/ Guaranteed Ride Home Programs	Flexible Emergency/Guaranteed Ride Home (GRH) programs provide free rides home in case of emergency, illness, or unexpected circumstances, including unplanned overtime, for regular users of alternative modes of transportation. Providing access to emergency transportation reduces barriers for those interested in switching transportation modes or utilizing shared mobility services but choose to use personal vehicles in the event of an unexpected circumstance.
Car Sharing	Car sharing allows for travelers that might not need a car on a regular basis to share vehicles among multiple users without the cost of ownership. Usually a subscription-based program, subscribers pay a charge with each trip needed. For users of alternative modes, car sharing allows for continued use of those modes and provides a car only when needed.

EVALUATION OF CMP STRATEGIES

While the CMP promotes the usage of alternative strategies to addressing congestion outside of adding capacity, it also recognizes the importance of monitoring and analyzing the effectiveness of these strategies. FHWA guidance strongly promotes the evaluation of alternative strategies to determine the effectiveness of their implementation. Not only does the evaluation highlight the effectiveness of successful strategies, it also identifies strategies that may not provide much improvement in reducing congestion. The MPO, from these analyses, should take into consideration the level of success of each strategy in allocating funding for additional strategy implementation.

Prior to project selection, submitting agencies should have conducted an assessment of a proposed project using one of the many tools available to show potential benefits. These tools model how a project might improve roadway performance if implemented. However, the question that the CMP addresses is whether or not the project did actually improve roadway performance.

As part of the CMP, the MPO will conduct before-after analyses on implementations of alternative strategies to help identify their effectiveness. With the collection of the data that feed this process, the MPO will be able to report historical performance on facilities where projects will be implemented, as well as post-implementation performance with future data utilizing the same process. Questions for consideration include:

- Did congestion and travel reliability improve due to the project?
- Did transit usage increase on a segment with the implementation of a new route?
- Did the new bicycle/pedestrian path increase the number of bicyclists and pedestrians?
- Did fatalities and injuries decrease due to the implementation of the project?

The MPO should provide a report of these projects, on a regular basis, showing the levels of improvement actually recognized and quantified. While the purpose of these reports is to show the benefits of these implementations, they also serve to identify approaches that might not be providing the benefit originally assumed. The MPO and project submitters should look at these projects to see if any improvements could be made to these approaches to achieve the benefits originally proposed.

APPENDIX A: CMP SEGMENT CONGESTION BASED ON DELAY PER MILE

				VEHICLES									TRUCK/COMMERCIAL					TRANSIT			SAFETY				
Congestion Rank (Based on Delay per Mile)	Facility Name	Segment Limits	Segment Length (Miles)	VMT	Delay (person-hours)	Hours Delay per Mile	Annual Congestion Cost (Dollars)	Free Flow Speed	Average Speed	AM Speed	PM Speed	Congestion Index	Planning Time Index (PTI95 ≥ 1.50 Unreliable)	Truck VMT	Truck Delay (hours)	Annual Commercial Delay Cost (Dollars)	Truck Congestion Index	Truck PTI 95	Stops	Number of Routes	Weekday Average Boardings	Fatalities 2020–22	Fatality Rate (Regional Avg = 1.39)	Serious Injuries 2020–22	Serious Injury Rate (Regional Avg = 6.62)	Bike/Ped Fatalities & Serious Injuries 2020–22
1	IH 35	MLK to Airport	1.83	352,803	2,686,502	1,466,431	$ 68,393,057	61.1	36.2	52.7	22.3	2.46	4.32	37,215	189,918	$ 11,419,775	2.26	4.28	0	0	0	6	1.55	10	2.59	3
2	IH 35	MLK to Cesar Chavez	1.27	191,552	1,593,194	1,253,496	$ 41,273,774	60.3	34.3	50.4	20.9	2.31	3.69	22,652	131,426	$ 7,994,110	2.15	3.73	0	0	0	2	0.95	8	3.81	0
3	IH 35	Cesar Chavez to Ben White	3.31	555,055	2,759,050	832,795	$ 71,409,936	62.0	44.9	46.2	43.9	1.69	2.34	58,904	229,762	$ 13,909,085	1.67	2.37	0	0	0	4	0.66	19	3.13	1
4	IH 35	Airport to US 183	2.76	475,048	1,180,203	427,920	$ 30,080,762	63.0	46.4	50.2	42.8	1.51	2.17	52,683	93,789	$ 5,634,393	1.51	2.21	0	0	0	16	3.08	14	2.69	7
5	IH 35	SH 45 to University/RM 1431	5.52	916,903	2,306,025	417,531	$ 59,071,874	65.0	49.8	56.4	45.0	1.46	1.96	102,829	198,624	$ 11,741,063	1.46	2.03	0	0	0	5	0.50	23	2.29	2
6	US 290	McCarty Lane to RM 1826	1.76	101,942	550,257	313,002	$ 13,514,588	37.4	27.5	29.7	26.0	1.50	2.00	4,918	19,949	$ 1,210,507	1.49	2.07	0	0	0	0	0.00	7	6.27	0
7	IH 35	Ben Whilte to Slaughter	3.98	591,898	1,125,324	282,674	$ 29,311,530	65.0	49.6	52.3	47.0	1.49	2.23	82,162	111,170	$ 6,565,617	1.47	2.26	0	0	0	11	1.70	12	1.85	3
8	MoPac	Lake Austin Blvd to Northland/2222	4.28	640,763	943,988	220,816	$ 21,954,393	64.9	51.2	63.7	41.8	1.44	2.23	18,390	20,860	$ 1,244,366	1.39	2.32	0	0	0	2	0.29	8	1.14	0
9	Parmer	IH 35 to MoPac	2.00	121,656	435,576	218,225	$ 10,440,204	34.4	27.8	32.9	25.2	1.32	1.65	3,163	8,789	$ 534,298	1.28	1.94	1	1	1	2	1.50	14	10.51	5
10	Cesar Chavez	S. 1st to IH 35	0.71	21,054	146,259	205,132	$ 3,442,794	21.7	17.2	20.6	15.5	1.31	1.59	420	1,936	$ 112,858	1.22	1.82	6	1	129	0	0.00	9	39.04	4
11	Cesar Chavez	S. 1st to Lamar	0.33	14,666	64,575	194,443	$ 1,523,233	26.0	20.6	25.3	18.1	1.32	1.65	254	588	$ 34,729	1.19	1.77	2	5	120	0	0.00	3	18.68	1
12	IH 35	Slaughter to SH 45	4.15	555,283	794,898	191,588	$ 20,785,245	64.8	53.1	57.2	48.9	1.35	1.89	81,058	80,382	$ 4,747,912	1.33	1.93	0	0	0	5	0.82	10	1.64	2
13	MoPac	Lake Austin Blvd to Cap. of Texas	2.97	401,395	550,675	185,537	$ 12,855,490	64.4	54.3	63.5	47.9	1.33	1.82	12,126	13,280	$ 794,808	1.31	1.92	6	1	22	0	0.00	4	0.91	0
14	SH 80	IH 35 to SH 21	1.05	43,379	171,366	163,362	$ 4,197,504	32.5	28.1	31.1	26.6	1.21	1.48	2,470	5,797	$ 349,730	1.15	1.54	0	0	0	1	2.11	15	31.58	2
15	Capital of Texas	Lamar to Bee Caves	4.97	303,254	699,624	140,628	$ 16,518,394	49.7	41.6	42.6	40.9	1.25	1.57	6,514	12,307	$ 752,300	1.27	1.72	0	0	0	3	0.90	3	0.90	0
16	S. Lamar	Ben White to Riverside	3.12	147,881	405,628	129,930	$ 9,711,455	32.9	28.0	31.9	26.0	1.19	1.41	2,508	6,597	$ 398,717	1.21	1.76	27	4	810	2	1.24	16	9.88	7
17	US 183	Whitestone to Lakeline Blvd	2.76	129,781	347,674	126,060	$ 8,225,253	37.8	28.9	34.0	26.1	1.36	1.72	2,694	4,677	$ 284,869	1.26	1.86	0	0	0	2	1.41	7	4.93	1
18	Whitestone	Parmer to US 183	2.98	134,139	374,057	125,396	$ 9,084,966	36.5	30.4	34.3	28.3	1.24	1.48	5,873	10,674	$ 649,753	1.18	1.58	0	0	0	0	0.00	1	0.68	1
19	Riverside	IH 35 to Pleasant Valley	1.23	44,801	144,661	117,386	$ 3,512,331	25.2	21.8	24.5	20.4	1.17	1.35	1,430	4,015	$ 237,328	1.15	1.58	11	6	548	1	2.04	10	20.38	5
20	Rundberg	Lamar to Dessau	1.51	42,226	175,480	116,058	$ 4,169,907	22.0	17.8	17.8	17.8	1.25	1.46	1,406	3,213	$ 187,578	1.16	1.59	13	3	637	5	10.81	18	38.93	9
21	US 183	MoPac to Spicewood Springs	4.68	626,561	521,334	111,349	$ 12,162,754	65.0	55.7	61.3	51.6	1.23	1.63	18,804	15,046	$ 883,157	1.26	1.75	16	2	216	3	0.44	13	1.89	0
22	Wonder World	IH 35 to SH 123	1.06	27,520	116,917	110,717	$ 2,958,966	29.0	22.7	26.9	20.5	1.31	1.59	2,056	6,113	$ 368,738	1.24	1.74	0	0	0	2	6.64	3	9.96	1
23	US 290	FM 973 to Parmer	2.00	105,806	207,168	103,688	$ 4,989,842	46.0	36.5	40.1	34.4	1.30	1.62	6,498	6,830	$ 422,933	1.22	1.62	0	0	0	2	1.73	11	9.49	0
24	US 79	IH 35 to FM 685	7.00	281,883	718,213	102,631	$ 17,552,718	42.0	32.9	38.2	30.0	1.33	1.68	16,281	26,486	$ 1,624,077	1.25	1.72	0	0	0	2	0.65	18	5.83	5
25	Lamar	US 183 to Braker	2.87	92,129	294,702	102,612	$ 6,952,118	29.2	24.5	27.7	22.8	1.21	1.42	1,189	2,135	$ 127,527	1.13	1.53	25	3	1,783	6	5.95	26	25.77	10
26	Parmer	IH 35 to Dessau	2.35	99,698	230,140	98,141	$ 5,461,273	37.4	31.1	36.2	28.4	1.24	1.46	3,014	3,549	$ 218,301	1.14	1.56	0	0	0	2	1.83	13	11.91	2
27	FM 620	RM 2222 to Anderson Mill	3.96	160,355	362,621	91,687	$ 8,672,799	47.2	39.5	45.7	36.3	1.27	1.58	5,531	9,513	$ 586,281	1.22	1.71	0	0	0	2	1.14	11	6.26	0
28	SH 71	Bee Cave Parkway to Old Bee Caves	4.37	214,646	386,681	88,425	$ 9,617,957	48.8	42.8	44.2	42.1	1.17	1.39	10,477	19,497	$ 1,208,492	1.22	1.58	0	0	0	0	0.00	9	3.83	1
29	Cesar Chavez	IH 35 to Chicon	0.75	9,808	66,190	88,019	$ 1,591,238	20.4	16.6	18.9	15.4	1.26	1.48	434	1,926	$ 111,268	1.20	1.67	7	1	208	0	0.00	3	27.93	0
30	US 290/SH 71	Westgate to McCarty Lane	3.67	229,542	317,552	86,550	$ 7,767,839	61.8	57.2	56.8	57.5	1.19	1.57	13,423	14,700	$ 870,213	1.22	1.65	10	1	113	3	1.19	4	1.59	0
31	IH 35	SH 45 to Parmer	5.08	771,653	437,365	86,146	$ 11,029,201	65.0	58.2	63.1	54.9	1.15	1.34	84,032	36,705	$ 2,107,449	1.14	1.37	0	0	0	11	1.30	16	1.89	8
32	Parmer	FM 620 to Whitestone	4.34	175,453	361,039	83,285	$ 8,662,932	44.3	34.3	40.8	30.8	1.34	1.76	6,886	10,524	$ 649,762	1.27	1.90	0	0	0	1	0.52	2	1.04	0
33	Slaughter	IH 35 to Manchaca	2.43	79,841	200,135	82,259	$ 4,825,668	32.1	27.0	30.2	25.2	1.24	1.54	3,401	4,324	$ 262,651	1.15	1.59	17	4	325	1	1.14	12	13.73	5
34	IH-35 Frontage	MLK to Cesar Chavez	2.68	35,221	220,419	82,215	$ 5,314,103	27.0	19.6	24.9	16.8	1.47	1.90	1,338	5,532	$ 326,621	1.35	2.20	0	0	0	3	7.78	14	36.30	1
35	Anderson Mill	US 183 to FM 620	2.34	52,038	182,377	77,839	$ 4,447,310	32.6	27.8	29.5	26.8	1.22	1.47	1,661	5,508	$ 332,243	1.25	1.72	2	1	10	0	0.00	4	7.02	1
36	Lamar	Riverside to 15th Street	1.13	23,508	86,753	76,434	$ 2,086,313	27.6	23.0	27.1	20.8	1.24	1.63	595	1,817	$ 108,217	1.21	1.83	10	3	49	0	0.00	4	15.54	0
37	Howard	IH 35 to Wells Branch	1.90	27,090	137,478	72,509	$ 3,292,236	29.3	22.8	24.9	21.8	1.44	1.94	879	3,056	$ 182,042	1.38	2.11	1	1	1	2	6.74	4	13.48	0
38	Braker	Lamar to Dessau	1.40	32,754	100,480	71,771	$ 2,469,834	25.8	20.4	22.1	19.5	1.29	1.52	1,046	3,736	$ 220,244	1.36	1.94	13	1	95	0	0.00	6	16.73	1
39	US 183	IH 35 to MoPac	3.83	447,456	271,690	71,030	$ 6,530,646	63.9	57.1	56.6	57.6	1.14	1.37	23,260	13,622	$ 805,857	1.17	1.45	14	5	345	5	1.02	13	2.65	1
40	SH 71	Old Bee Caves to US 290	3.88	150,009	271,669	70,090	$ 6,844,205	48.2	43.4	45.2	42.4	1.17	1.32	8,270	15,806	$ 959,767	1.19	1.50	1	1	82	1	0.61	18	10.96	1
41	Capital of Texas	Spicewood Springs to Capital of Texas	1.43	82,874	98,535	68,906	$ 2,357,230	44.4	40.0	42.2	38.2	1.13	1.29	2,273	2,938	$ 179,710	1.15	1.44	1	1	12	0	0.00	7	7.71	2
42	Barton Springs	Congress to Lamar	0.77	10,181	52,749	68,684	$ 1,285,485	20.0	16.5	19.2	15.2	1.23	1.44	333	2,021	$ 117,030	1.28	2.07	5	1	22	0	0.00	2	17.94	0
43	Oltorf	IH 35 to Pleasant Valley	0.67	15,558	45,219	67,650	$ 1,092,852	21.9	18.9	21.2	17.8	1.17	1.35	490	1,359	$ 78,901	1.16	1.65	11	3	707	1	5.87	6	35.22	5
44	Wells Branch	IH 35 to MoPac	2.10	59,543	140,710	67,132	$ 3,371,054	31.1	26.3	29.2	24.6	1.30	1.64	1,902	2,810	$ 169,186	1.21	1.82	15	1	72	0	0.00	4	6.14	2
45	Capital of Texas	RM 2222 to Spicewood Springs	2.42	141,270	161,229	66,761	$ 3,847,216	54.3	47.0	51.9	44.3	1.21	1.55	3,811	4,497	$ 281,100	1.21	1.71	0	0	0	1	0.65	3	1.94	0
46	FM 620	RM 2222 to Colorado River	3.61	122,309	237,501	65,790	$ 5,748,877	50.7	42.7	49.8	38.7	1.34	1.77	4,680	8,112	$ 497,384	1.33	2.03	0	0	0	3	2.24	9	6.72	0
47	Ben White	IH 35 to Westgate	3.27	473,741	214,771	65,719	$ 5,190,261	64.8	60.2	60.0	60.4	1.09	1.26	22,887	12,302	$ 719,993	1.12	1.34	11	2	585	2	0.39	12	2.31	2
48	FM 620	Anderson Mill to US 183	1.99	67,291	130,152	65,272	$ 3,157,232	35.5	31.2	34.0	29.7	1.16	1.42	2,412	3,634	$ 222,385	1.13	1.49	0	0	0	0	0.00	10	13.57	1
49	Cameron	51st Street to US 183	1.90	33,723	120,730	63,554	$ 2,913,027	23.8	20.1	22.6	18.8	1.21	1.49	1,075	3,250	$ 190,110	1.18	1.79	21	5	915	4	10.83	15	40.62	6
50	Koenig/Allandale/Northland	Lamar to Balcones	2.16	62,938	136,715	63,235	$ 3,283,338	27.7	23.9	27.0	22.3	1.18	1.37	1,530	2,404	$ 144,116	1.13	1.52	17	1	177	0	0.00	5	7.26	1
51	University Blvd	IH 35 to SH 130	6.39	126,195	396,099	61,978	$ 9,902,020	42.4	34.8	37.1	33.4	1.26	1.47	11,552	18,992	$ 1,167,278	1.25	1.63	4	1	2	2	1.45	10	7.24	0
52	IH-35 Frontage	Cesar Chavez to SH 71/Ben White	6.50	95,004	402,781	61,957	$ 9,862,210	35.9	28.8	31.1	27.5	1.33	1.68	4,025	14,391	$ 870,195	1.40	2.17	0	0	0	1	0.96	19	18.26	8
53	IH-35 Frontage	Airport to MLK	3.69	46,361	223,806	60,570	$ 5,433,268	37.3	26.5	33.4	22.7	1.49	2.02	2,525	6,914	$ 414,874	1.28	2.07	0	0	0	2	3.94	5	9.85	3
54	IH-35 Frontage	University/RM 1431 to SH 45/Louis Henna	11.04	254,264	666,819	60,402	$ 16,578,832	40.5	34.1	36.8	32.6	1.26	1.64	9,844	31,027	$ 1,886,262	1.37	2.05	0	0	0	5	1.80	20	7.18	5
55	Whitestone	IH 35 to Parmer	5.66	225,163	340,395	60,172	$ 8,356,981	50.5	44.7	46.0	44.0	1.14	1.26	10,410	15,814	$ 979,431	1.18	1.44	0	0	0	3	1.22	1	0.41	0
56	Howard	Dessau to IH 35	2.48	74,715	146,402	59,128	$ 3,713,572	32.8	27.4	29.1	26.4	1.23	1.41	5,224	8,178	$ 496,850	1.21	1.53	2	2	30	0	0.00	20	24.45	2
57	Riverside	Pleasant Valley to Ben White	2.19	86,167	128,788	58,700	$ 3,173,215	31.3	28.8	30.4	27.9	1.09	1.20	4,237	4,424	$ 269,260	1.08	1.37	21	6	987	4	4.24	20	21.20	10
58	FM 620	SH 71 to Colorado River	9.22	342,898	540,231	58,562	$ 13,043,410	48.2	42.5	45.5	40.9	1.16	1.33	12,505	17,389	$ 1,074,904	1.16	1.50	0	0	0	4	1.07	21	5.59	3
59	Barton Springs	MoPac to Lamar	1.14	16,038	63,053	55,117	$ 1,513,504	28.1	24.1	27.5	22.3	1.20	1.44	512	1,666	$ 98,068	1.18	1.83	10	1	30	0	0.00	11	62.64	0
60	Burnet	US 183 to MoPac	2.55	97,937	140,439	55,009	$ 3,424,134	30.0	27.6	28.0	27.4	1.10	1.24	1,776	3,736	$ 224,684	1.17	1.56	11	5	264	2	1.86	17	15.85	6
61	Hopkins	Moore St. to IH 35	1.59	29,543	83,161	52,369	$ 2,009,670	24.5	22.0	24.1	20.9	1.14	1.35	1,193	2,238	$ 131,675	1.09	1.52	0	0	0	0	0.00	9	27.82	3
62	US 290	FM 973 to SH 95	9.07	333,330	464,997	51,273	$ 11,443,564	59.2	52.1	51.4	52.7	1.23	1.55	24,519	23,842	$ 1,425,784	1.25	1.60	0	0	0	5	1.37	22	6.03	0
63	Capital of Texas	Bee Caves to RM 2222	5.16	272,181	263,085	50,995	$ 6,272,784	55.3	49.0	53.1	46.8	1.16	1.42	7,706	8,437	$ 522,837	1.18	1.60	0	0	0	2	0.67	11	3.69	0
64	Parmer	FM 620 to McNeil	2.66	132,396	134,898	50,656	$ 3,334,186	45.7	39.8	40.9	38.9	1.16	1.33	4,635	6,963	$ 429,905	1.24	1.70	0	0	0	4	2.76	5	3.45	2
65	Dessau/FM 685	Parmer to SH 130	6.41	183,687	324,010	50,548	$ 8,055,336	37.4	33.0	35.5	31.8	1.15	1.32	6,945	14,803	$ 905,442	1.19	1.63	0	0	0	6	2.98	23	11.43	3
66	FM 620	SH 45 to IH 35	4.51	168,531	227,179	50,406	$ 5,753,478	39.7	36.4	37.7	35.8	1.10	1.26	9,464	14,093	$ 854,292	1.13	1.52	0	0	0	0	0.00	7	3.79	0
67	FM 1825/Pecan	Wells Branch to SH 130	5.53	134,560	276,273	50,004	$ 6,740,314	35.3	29.7	31.4	28.7	1.21	1.38	5,369	8,605	$ 524,733	1.19	1.60	0	0	0	2	1.36	15	10.18	4
68	Lamar	US 183 to 51st St.	1.94	43,725	96,248	49,604	$ 2,368,419	28.9	25.0	26.8	24.1	1.17	1.34	1,396	3,205	$ 193,083	1.20	1.63	25	8	1,555	0	0.00	12	25.06	4
69	38th Street/35th Street	MoPac to Guadalupe	1.25	20,171	60,700	48,677	$ 1,486,172	25.0	21.9	23.1	21.3	1.16	1.35	659	2,131	$ 125,802	1.21	1.73	14	5	270	0	0.00	2	9.05	0
70	US 290	SH 95 N to SH 95 S	1.92	60,643	90,997	47,493	$ 2,211,212	46.1	40.8	43.0	39.4	1.14	1.33	4,061	3,634	$ 226,522	1.11	1.33	0	0	0	2	3.01	9	13.55	0
71	SH 45 (Estimated)	MoPac to RM 1826	2.74	61,023	129,085	47,060	$ 3,220,024	28.8	25.9	25.9	25.9	1.11	1.37	2,435	5,022	$ 310,473	1.16	1.63	0	0	0	0	0.00	5	7.48	0
72	North Mays/Spur 379	IH 35 to CR 171	2.18	48,459	102,228	46,936	$ 2,494,507	28.0	24.5	24.7	24.3	1.16	1.36	1,094	2,900	$ 172,185	1.22	1.77	0	0	0	1	1.88	2	3.77	1
73	11th/Shoal Creek	Congress to Lamar	0.49	4,357	22,803	46,727	$ 562,413	13.6	12.0	11.1	13.0	1.17	1.46	191	1,030	$ 60,498	1.22	1.63	0	0	0	0	0.00	0	0.00	0
74	SH 29	IH 35 to SH 130	3.72	60,792	171,276	46,005	$ 4,061,538	34.7	30.1	33.4	28.4	1.21	1.45	1,993	2,518	$ 150,485	1.11	1.45	0	0	0	0	0.00	7	10.52	1
75	US 183	US 183A to SH 29	3.51	141,134	160,846	45,825	$ 4,081,343	52.1	44.9	45.3	44.8	1.18	1.37	9,719	10,423	$ 655,169	1.20	1.48	0	0	0	0	0.00	9	5.82	1
76	IH-35 Frontage	US 183 to Airport	5.45	91,004	249,530	45,760	$ 6,139,748	39.3	32.4	37.0	29.9	1.29	1.66	3,535	9,791	$ 596,009	1.32	2.08	0	0	0	3	3.01	22	22.08	4
77	Bee Caves	MoPac to Capital of Texas	3.66	108,816	165,709	45,288	$ 4,453,225	37.3	33.8	35.0	33.2	1.13	1.27	6,958	16,588	$ 1,010,408	1.24	1.81	0	0	0	1	0.84	11	9.23	2
78	Pleasant Valley	Oltorf to Colorado River	1.54	30,202	69,121	44,974	$ 1,698,997	28.6	25.8	27.7	24.8	1.13	1.33	1,065	2,518	$ 149,947	1.14	1.68	14	6	1,047	1	3.02	7	21.17	2
79	Montopolis/Grove Blvd	Burleson to Riverside	1.66	25,700	73,874	44,395	$ 1,815,461	23.2	19.9	20.1	19.8	1.20	1.49	821	3,003	$ 175,088	1.30	1.88	9	2	176	1	3.55	6	21.32	0
80	Airport	MLK to IH 35	1.58	40,645	70,045	44,388	$ 1,804,108	29.8	26.1	28.3	24.9	1.15	1.30	2,810	4,471	$ 270,265	1.14	1.51	9	5	148	1	2.25	8	17.97	2
81	MoPac	US 183 to Northland/RM 2222	2.70	353,346	119,406	44,152	$ 2,881,419	65.0	60.8	63.5	58.3	1.09	1.24	10,864	5,974	$ 349,888	1.13	1.40	0	0	0	1	0.26	6	1.55	0

APPENDIX A: CMP SEGMENT CONGESTION BASED ON DELAY PER MILE

				VEHICLES									TRUCK/COMMERCIAL					TRANSIT			SAFETY				
Congestion Rank (Based on Delay per Mile)	Facility Name	Segment Limits	Segment Length (Miles)	VMT	Delay (person-hours)	Hours Delay per Mile	Annual Congestion Cost (Dollars)	Free Flow Speed	Average Speed	AM Speed	PM Speed	Congestion Index	Planning Time Index (PTI95 ≥ 1.50 Unreliable)	Truck VMT	Truck Delay (hours)	Annual Commercial Delay Cost (Dollars)	Truck Congestion Index	Truck PTI 95	Stops	Number of Routes	Weekday Average Boardings	Fatalities 2020–22	Fatality Rate (Regional Avg = 1.39)	Serious Injuries 2020–22	Serious Injury Rate (Regional Avg = 6.62)	Bike/Ped Fatalities & Serious Injuries 2020–22
82	SH 123/Loop 82	Hopkins to RR 12	2.57	45,084	111,831	43,582	$ 2,816,369	31.9	26.8	28.1	26.0	1.21	1.43	3,128	6,051	$ 367,181	1.19	1.63	0	0	0	7	14.18	5	10.13	4
83	Braker	Jollyville to Burnet	1.77	38,441	76,001	42,987	$ 1,865,740	26.5	24.1	26.1	23.0	1.12	1.30	1,228	2,653	$ 157,327	1.13	1.57	11	3	194	0	0.00	11	26.13	0
84	FM 1626	Brodie to IH 35	3.27	53,352	139,475	42,666	$ 3,372,425	37.2	28.7	32.9	26.4	1.34	1.71	2,306	3,623	$ 222,879	1.22	1.84	0	0	0	1	1.71	5	8.56	0
85	US 290	RR 12 to RM 1826	12.77	467,535	544,048	42,587	$ 13,576,261	53.2	46.8	49.3	45.4	1.16	1.29	28,471	30,002	$ 1,888,730	1.17	1.42	0	0	0	5	0.98	24	4.69	3
86	IH-35 Frontage	SH 45/Louis Henna to Parmer	10.10	207,807	427,994	42,359	$ 10,378,241	42.0	35.4	39.6	33.1	1.25	1.55	7,677	13,762	$ 842,285	1.23	1.73	0	0	0	4	1.76	31	13.62	2
87	Aquarena Springs/University	IH 35 to Hopkins	2.02	54,424	85,483	42,277	$ 2,158,112	32.4	29.1	30.6	28.5	1.13	1.30	3,137	4,653	$ 281,267	1.12	1.48	0	0	0	1	1.68	10	16.78	1
88	5th Street	Congress to IH 35	0.49	3,173	20,529	41,981	$ 502,787	13.1	11.8	11.6	11.9	1.11	1.30	190	827	$ 48,557	1.08	1.43	0	0	0	0	0.00	2	57.56	1
89	S. Congress	Slaughter to Ben White	4.15	90,837	170,122	40,964	$ 4,065,367	33.5	28.9	32.1	27.3	1.18	1.37	1,558	3,059	$ 183,525	1.17	1.67	28	4	1,010	6	6.03	21	21.11	10
90	William Cannon	Manchaca to MoPac	2.19	57,323	89,335	40,867	$ 2,189,370	33.1	29.4	31.2	28.5	1.14	1.30	1,829	2,810	$ 172,578	1.14	1.54	13	2	229	1	1.59	5	7.97	0
91	US 183	US 183A (N. End) to Whitestone	6.24	166,514	250,653	40,137	$ 6,018,851	40.1	35.0	37.8	33.5	1.17	1.36	5,856	7,030	$ 429,007	1.15	1.58	1	1	39	2	1.10	11	6.03	2
92	Airport	7th Street to MLK	2.58	49,927	100,083	38,777	$ 2,415,071	33.2	28.3	30.6	26.8	1.19	1.38	1,205	2,161	$ 130,888	1.19	1.61	15	4	210	6	10.97	20	36.58	9
93	William Cannon	US 290 to MoPac	2.16	41,430	83,620	38,731	$ 2,072,390	31.7	28.2	29.9	27.3	1.15	1.30	1,280	3,310	$ 199,531	1.21	1.78	0	0	0	1	2.20	2	4.41	0
94	SH 29	US 183 to IH 35	11.27	283,399	433,105	38,444	$ 10,852,312	53.8	48.7	50.1	47.8	1.16	1.33	22,902	25,190	$ 1,533,496	1.15	1.42	0	0	0	9	2.90	27	8.70	0
95	IH 35	Parmer to US 183	5.16	751,212	197,878	38,334	$ 5,029,822	64.5	60.9	62.4	59.7	1.07	1.17	83,456	19,282	$ 1,081,338	1.07	1.18	0	0	0	10	1.22	11	1.34	5
96	RM 2222	Capital of Texas to FM 620	5.16	212,817	196,036	38,014	$ 4,723,676	48.8	45.0	46.3	44.3	1.10	1.21	4,565	6,351	$ 391,275	1.17	1.48	0	0	0	1	0.43	17	7.30	3
97	15th Street	IH 35 to Lamar	1.06	17,527	39,148	36,872	$ 961,481	23.7	21.2	22.4	20.6	1.14	1.30	562	1,532	$ 89,981	1.18	1.57	4	2	18	0	0.00	3	15.63	0
98	Dessau/Cameron	US 183 to Parmer	4.55	133,515	165,263	36,337	$ 3,991,267	37.2	33.1	34.0	32.7	1.14	1.32	4,261	4,583	$ 283,016	1.14	1.47	8	3	50	4	2.74	23	15.73	1
99	6th Street	Congress to IH 35	0.51	5,890	18,581	36,080	$ 443,298	16.9	16.5	16.8	16.4	1.03	1.09	188	460	$ 26,553	1.05	1.32	0	0	0	0	0.00	3	46.52	0
100	Lakeline	Parmer to Cypress Creek	3.99	95,210	142,974	35,842	$ 3,463,626	34.9	30.7	33.2	29.2	1.15	1.31	2,756	3,938	$ 239,775	1.13	1.52	4	1	8	0	0.00	8	7.67	0
101	Parmer	McNeil to MoPac	2.83	140,167	101,264	35,833	$ 2,440,000	45.7	41.7	42.7	40.9	1.11	1.21	3,954	3,583	$ 220,357	1.14	1.42	0	0	0	1	0.65	4	2.61	0
102	Berkman	Manor to 51st	0.59	4,858	20,994	35,795	$ 515,708	21.5	17.8	18.8	17.2	1.23	1.41	155	857	$ 49,993	1.34	2.20	6	2	191	0	0.00	0	0.00	0
103	Anderson Mill	Parmer to US 183	2.30	32,457	81,102	35,293	$ 1,989,758	36.0	30.3	29.2	31.5	1.22	1.52	993	2,876	$ 174,742	1.30	2.04	2	1	23	1	2.81	0	0.00	0
104	Burnet	Koenig to US 183	2.79	57,724	97,284	34,906	$ 2,405,464	32.3	29.5	31.4	28.4	1.10	1.21	1,841	3,537	$ 217,283	1.13	1.54	23	6	476	0	0.00	8	12.66	1
105	US 183 Frontage/Research-And	MoPac to IH-35	6.97	110,197	242,881	34,847	$ 6,096,648	35.6	31.9	33.9	30.8	1.18	1.44	5,062	12,926	$ 780,717	1.23	1.81	0	0	0	5	4.14	28	23.20	5
106	S. Mays/Hesters Crossing	IH 35 to CR 171	1.38	24,006	46,958	34,077	$ 1,154,552	29.1	25.7	27.5	24.7	1.14	1.32	615	1,579	$ 94,268	1.21	1.79	5	2	9	0	0.00	3	11.41	1
107	SH 45 Frontage/Louis Henna	MoPac to Schultz Lane	9.45	179,447	319,650	33,825	$ 8,866,522	38.0	33.9	34.8	33.7	1.17	1.42	19,735	37,923	$ 2,335,265	1.23	1.65	2	2	4	5	2.54	23	11.71	1
108	Slaughter	IH 35 to Bluff Springs	4.04	64,763	136,217	33,742	$ 3,291,041	38.0	31.1	35.2	28.9	1.26	1.55	2,237	3,544	$ 218,622	1.22	1.81	8	1	81	1	1.41	10	14.10	6
109	7th St.	IH 35 to Pleasant Valley	1.09	19,747	36,317	33,463	$ 890,252	25.1	22.9	23.4	22.7	1.10	1.20	636	1,170	$ 69,584	1.12	1.45	14	1	234	2	9.25	9	41.62	5
110	Manchaca	Slaughter to FM 1626	2.45	72,818	81,578	33,324	$ 1,935,936	38.3	34.6	36.9	33.5	1.12	1.24	1,241	1,502	$ 91,535	1.13	1.64	0	0	0	2	2.51	3	3.76	3
111	FM 973	SH 71 to SH 130	7.51	156,883	247,635	32,992	$ 6,147,391	49.9	41.8	43.2	41.0	1.30	1.62	8,645	12,351	$ 752,571	1.31	1.93	0	0	0	7	4.07	26	15.14	2
112	Koenig	IH 35 to Lamar	1.88	35,982	61,496	32,798	$ 1,592,605	26.3	23.9	25.0	23.2	1.13	1.33	1,336	4,454	$ 265,473	1.22	1.71	4	1	15	1	2.54	7	17.77	1
113	RR 12	Old RR 12 to IH 35	3.64	70,484	118,410	32,512	$ 2,893,532	44.9	40.3	42.6	39.2	1.18	1.39	3,506	4,133	$ 253,940	1.17	1.52	0	0	0	3	3.89	19	24.62	1
114	S. Congress	Ben White to Cesar Chavez	1.90	24,371	61,701	32,416	$ 1,497,822	23.5	21.4	22.4	20.9	1.11	1.29	775	1,895	$ 110,787	1.12	1.55	22	4	832	3	11.24	14	52.46	5
115	Loop 150	SH 71/21 to SH 71/95	3.12	39,492	100,939	32,384	$ 2,471,358	32.9	29.4	30.4	28.9	1.15	1.39	3,117	3,796	$ 226,105	1.11	1.51	0	0	0	0	0.00	5	11.56	1
116	FM 969	US 183 to SH 130	4.40	138,816	142,333	32,378	$ 3,574,175	39.4	35.3	36.0	34.8	1.16	1.37	9,221	7,823	$ 478,929	1.14	1.50	2	1	8	3	1.97	16	10.53	1
117	MLK	IH 35 to Airport	1.57	15,744	50,615	32,259	$ 1,275,107	21.6	18.5	19.1	18.0	1.19	1.37	764	2,987	$ 173,830	1.26	1.80	18	2	210	0	0.00	3	17.40	0
118	SH 71	SH 130 to SH 21	13.89	588,493	445,364	32,068	$ 11,483,240	62.5	57.3	58.3	56.7	1.12	1.29	63,431	41,924	$ 2,472,598	1.12	1.35	0	0	0	15	2.33	41	6.36	3
119	Braker	Burnet to Lamar	2.40	57,693	74,473	31,043	$ 1,848,268	31.7	28.6	30.1	27.8	1.12	1.26	2,118	2,845	$ 174,188	1.13	1.44	15	1	46	0	0.00	6	9.50	1
120	Anderson Lane	Lamar to MoPac	1.63	28,555	50,003	30,679	$ 1,260,978	28.2	25.9	26.9	25.3	1.10	1.23	947	2,614	$ 155,927	1.20	1.72	12	4	273	0	0.00	4	12.79	0
121	Lamar	Braker to Howard	2.46	40,618	74,731	30,383	$ 1,782,594	34.3	30.7	31.8	30.1	1.13	1.29	557	1,234	$ 74,412	1.20	1.68	13	2	170	3	6.75	10	22.48	4
122	Congress	Cesar Chavez to 11th Street	0.68	4,364	20,728	30,348	$ 505,588	12.1	11.1	11.8	10.8	1.10	1.29	146	761	$ 44,807	1.15	1.67	0	0	0	0	0.00	8	167.42	1
123	Whitestone/RM 1431	Bar K Ranch Road to US 183	11.48	288,657	346,830	30,222	$ 8,781,092	47.8	43.4	44.2	43.0	1.15	1.32	20,528	19,987	$ 1,242,334	1.16	1.43	10	1	0	4	1.27	24	7.59	3
124	US 183 Frontage/Research	Spicewood Springs/McNeil to MoPac	9.47	181,355	283,366	29,931	$ 7,336,903	38.2	35.1	36.6	34.4	1.12	1.32	7,720	20,508	$ 1,247,121	1.25	1.89	0	0	0	2	1.01	19	9.57	6
125	IH-35 Frontage	Willams/FM 2338 to SH 29	2.78	70,256	82,535	29,732	$ 2,050,139	45.7	43.1	43.6	42.9	1.08	1.24	2,595	3,936	$ 241,724	1.13	1.48	0	0	0	0	0.00	4	5.20	0
126	US 183	SH 71 to SH 130	9.68	277,554	287,544	29,699	$ 7,416,347	50.2	43.4	44.4	42.6	1.18	1.36	25,783	22,559	$ 1,404,293	1.18	1.47	0	0	0	13	4.28	48	15.79	3
127	Airport	IH 35 to Lamar	2.61	43,739	74,704	28,633	$ 1,880,665	26.8	24.5	25.2	24.2	1.10	1.24	1,438	3,734	$ 222,863	1.19	1.68	20	5	544	1	2.09	5	10.44	2
128	Guadalupe	MLK to 29th Street	0.97	11,596	27,337	28,241	$ 668,906	20.6	19.4	20.0	19.0	1.07	1.27	370	1,092	$ 63,272	1.11	1.60	10	13	2,198	0	0.00	1	7.88	1
129	51st Street	Lamar to IH 35	1.39	12,280	39,119	28,204	$ 949,420	20.5	18.4	18.8	18.2	1.13	1.33	392	1,360	$ 78,951	1.15	1.71	0	0	0	1	7.44	0	0.00	0
130	US 281	Blanco Cty to RM 1431	7.74	161,000	217,717	28,140	$ 5,488,294	51.0	48.0	48.8	47.6	1.09	1.19	11,441	12,054	$ 740,163	1.10	1.26	0	0	0	1	0.57	7	3.97	0
131	Wells Branch	IH 35 to Dessau	3.01	66,604	84,530	28,055	$ 2,111,009	35.3	31.8	32.3	31.4	1.14	1.32	2,181	4,102	$ 246,340	1.20	1.61	5	1	47	1	1.37	6	8.23	2
132	SH 71 Toll	SH 130 to Presidential Blvd	6.14	304,468	171,495	27,940	$ 4,535,554	58.8	56.1	57.1	55.4	1.07	1.24	20,158	17,033	$ 1,042,522	1.10	1.33	8	3	359	1	0.30	17	5.10	3
133	Brodie	Slaughter to Ben White	3.85	68,773	107,608	27,921	$ 2,667,963	33.0	30.2	31.8	29.4	1.10	1.23	2,197	4,360	$ 265,042	1.15	1.66	4	1	34	0	0.00	6	7.97	0
134	Hunter/Hopkins	RR 12 to Moore St.	1.56	13,049	43,491	27,915	$ 1,068,560	25.2	22.1	23.2	21.5	1.15	1.37	468	1,590	$ 93,671	1.20	1.72	0	0	0	0	0.00	6	41.99	0
135	Parmer	Dessau to US 290	5.21	143,048	145,358	27,900	$ 3,541,544	44.3	38.6	40.5	37.4	1.16	1.32	5,473	5,890	$ 362,654	1.17	1.46	0	0	0	7	4.47	23	14.68	3
136	SH 71	Bee Cave Parkway to Blanco Cty	13.33	442,231	368,436	27,638	$ 9,456,410	56.1	51.3	52.4	50.7	1.13	1.27	33,996	28,564	$ 1,761,742	1.16	1.43	0	0	0	6	1.24	19	3.92	2
137	MoPac Service Road	Merrilltown to Parmer	4.19	59,769	115,757	27,594	$ 2,989,694	38.6	32.0	32.0	32.5	1.23	1.52	2,935	8,302	$ 510,192	1.43	1.99	0	0	0	2	3.06	5	7.64	4
138	US 290	RR 12 to Blanco Cty. Line	9.53	149,806	262,963	27,593	$ 6,511,316	54.7	49.7	51.4	48.7	1.21	1.51	8,947	12,347	$ 754,811	1.18	1.57	0	0	0	6	3.66	10	6.10	1
139	Cesar Chavez	MoPac to Lamar	1.10	15,521	30,022	27,367	$ 738,769	37.9	34.3	37.0	32.8	1.15	1.33	558	1,106	$ 67,351	1.17	1.59	0	0	0	2	11.77	5	29.42	1
140	Metric	US 183 to Braker	1.76	27,615	47,378	26,858	$ 1,172,569	29.1	26.8	27.6	26.4	1.10	1.26	882	1,716	$ 104,324	1.14	1.47	10	2	74	0	0.00	7	23.15	1
141	38th Street/38-1/2 Street	Guadalupe to IH 35	1.25	15,082	33,304	26,707	$ 802,559	22.5	20.1	21.5	19.3	1.13	1.27	481	868	$ 50,696	1.12	1.49	7	1	42	1	6.06	5	30.28	1
142	RM 2222	Capital of Texas to Balcones	3.44	95,393	91,933	26,686	$ 2,225,789	41.7	39.6	39.9	39.4	1.06	1.16	2,367	3,210	$ 194,301	1.13	1.57	0	0	0	1	0.96	8	7.66	1
143	Manchaca	Slaughter to Ben White	4.46	99,594	117,712	26,381	$ 2,874,642	35.9	32.5	33.8	31.8	1.11	1.24	2,564	3,927	$ 238,532	1.14	1.61	39	2	530	3	2.75	21	19.26	5
144	William Cannon	IH 35 to Manchaca	1.95	49,354	51,292	26,271	$ 1,297,729	28.8	26.6	27.4	26.2	1.08	1.20	2,124	2,731	$ 164,817	1.11	1.49	21	5	581	0	0.00	17	31.46	3
145	Riverside	IH 35 to Congress	0.96	16,074	24,997	26,066	$ 626,014	28.2	25.1	27.6	23.8	1.14	1.31	613	1,125	$ 67,707	1.15	1.61	9	6	189	1	5.68	8	45.45	1
146	MoPac Frontage	US 183 to Railroad Tracks/Esparanza Xing	3.05	57,282	78,096	25,614	$ 1,932,871	42.9	40.2	41.9	39.4	1.08	1.22	1,733	3,498	$ 214,250	1.16	1.64	1	1	5	2	3.19	10	15.94	1
147	US 183 Frontage/Anderson-Ed E	IH-35 to Manor	5.55	69,292	141,468	25,485	$ 3,603,785	37.1	32.7	34.3	31.8	1.19	1.40	4,325	8,294	$ 507,359	1.20	1.61	0	0	0	4	5.27	31	40.86	1
148	IH-35 Frontage	Parmer to US 183	10.35	216,786	262,156	25,339	$ 6,548,612	41.2	37.0	38.0	36.5	1.13	1.31	8,418	13,564	$ 833,695	1.19	1.60	0	0	0	11	4.63	27	11.37	4
149	Manor	51st to US 183	2.04	26,846	50,412	24,766	$ 1,238,369	25.8	23.6	24.3	23.2	1.11	1.27	857	1,861	$ 110,129	1.14	1.59	16	4	700	0	0.00	5	17.01	3
150	FM 973	SH 130 to US 290	5.41	62,608	133,263	24,642	$ 3,288,603	43.4	38.2	39.9	37.2	1.24	1.52	3,569	5,463	$ 330,352	1.19	1.67	0	0	0	3	4.38	6	8.75	0
151	Cesar Chavez	Chicon to 7th	1.78	25,512	43,681	24,595	$ 1,073,329	27.2	24.8	25.4	24.4	1.10	1.24	840	1,528	$ 91,182	1.14	1.57	11	2	385	1	3.58	9	32.22	2
152	Rundberg	Lamar to Metric	1.62	16,287	38,902	23,954	$ 967,400	22.5	19.6	19.7	19.7	1.16	1.36	780	1,853	$ 108,196	1.18	1.62	15	6	891	1	5.61	5	28.04	2
153	St. John's	IH 35 to Lamar	0.93	6,672	22,311	23,913	$ 552,077	24.4	20.2	20.6	20.0	1.22	1.43	213	949	$ 55,580	1.32	2.31	6	1	214	0	0.00	5	68.44	2
154	MLK	Airport to US 183	2.33	51,663	55,651	23,844	$ 1,356,305	33.9	31.2	32.1	30.7	1.09	1.21	1,168	1,741	$ 105,674	1.13	1.51	12	1	65	1	1.77	10	17.68	3
155	8th Street	Guadalupe to IH 35	0.73	2,897	17,418	23,795	$ 436,849	13.0	11.2	11.1	11.3	1.17	1.33	114	995	$ 58,340	1.34	2.15	3	8	325	0	0.00	4	126.10	2
156	US 79	SH 130 to FM 397	8.56	218,774	202,942	23,705	$ 5,006,172	56.0	52.5	54.0	51.7	1.10	1.23	14,160	9,454	$ 578,908	1.08	1.27	0	0	0	5	2.09	20	8.35	3
157	Old Settlers/Sam Bass	IH 35 to Whitestone	4.49	79,893	104,911	23,360	$ 2,501,871	38.7	34.0	35.6	33.0	1.15	1.31	2,609	2,257	$ 138,623	1.11	1.42	0	0	0	0	0.00	3	3.43	1
158	St. John's	IH 35 to Cameron	0.86	6,252	20,052	23,289	$ 493,061	21.0	17.6	18.0	17.4	1.20	1.39	200	853	$ 49,505	1.28	2.03	10	2	329	1	14.61	6	87.64	3
159	US 290	US 183 to IH 35	2.06	129,497	47,660	23,159	$ 1,565,293	60.3	58.5	57.7	59.2	1.04	1.10	19,387	12,884	$ 792,599	1.07	1.20	0	0	0	3	2.12	0	0.00	3
160	MLK	Lamar to IH 35	1.38	17,592	32,031	23,129	$ 800,041	22.9	21.4	21.7	21.2	1.08	1.23	491	1,706	$ 99,621	1.17	1.68	5	8	52	0	0.00	2	10.38	1
161	Berkman	51st to US 290	1.36	14,705	31,368	23,099	$ 770,254	23.9	21.2	22.5	20.6	1.13	1.33	470	1,156	$ 67,882	1.16	1.66	13	1	246	0	0.00	1	6.21	1
162	Riverside	Congress to Lamar	0.81	4,448	18,614	22,867	$ 444,672	17.9	16.0	17.2	15.4	1.12	1.31	143	439	$ 25,679	1.11	1.56	2	8	119	0	0.00	2	41.06	0

APPENDIX A: CMP SEGMENT CONGESTION BASED ON DELAY PER MILE

				VEHICLES									TRUCK/COMMERCIAL					TRANSIT			SAFETY				
Congestion Rank (Based on Delay per Mile)	Facility Name	Segment Limits	Segment Length (Miles)	VMT	Delay (person-hours)	Hours Delay per Mile	Annual Congestion Cost (Dollars)	Free Flow Speed	Average Speed	AM Speed	PM Speed	Congestion Index	Planning Time Index (PTI95 ≥ 1.50 Unreliable)	Truck VMT	Truck Delay (hours)	Annual Commercial Delay Cost (Dollars)	Truck Congestion Index	Truck PTI 95	Stops	Number of Routes	Weekday Average Boardings	Fatalities 2020–22	Fatality Rate (Regional Avg = 1.39)	Serious Injuries 2020–22	Serious Injury Rate (Regional Avg = 6.62)	Bike/Ped Fatalities & Serious Injuries 2020–22
163	Ronald Reagan	SH 29 to Whitestone	7.68	173,986	175,261	22,809	$ 4,459,867	51.4	45.2	46.9	44.3	1.15	1.27	12,491	12,723	$ 782,255	1.18	1.47	0	0	0	1	0.52	0	0.00	0
164	IH-35 Frontage	SH 71/Ben White to Slaughter	7.97	120,887	177,997	22,342	$ 4,454,102	43.0	37.6	38.4	37.7	1.20	1.48	4,983	9,360	$ 572,301	1.24	1.78	0	0	0	5	3.78	24	18.13	7
165	Bee Caves	Capital of Texas to SH 71	7.57	238,052	168,944	22,324	$ 4,429,775	47.3	45.0	45.8	44.6	1.06	1.17	13,760	14,565	$ 902,186	1.11	1.41	0	0	0	3	1.15	20	7.67	1
166	MoPac Frontage	Parmer to Railroad Tracks/Esparanza Xing	3.98	53,486	88,016	22,143	$ 2,286,106	36.6	33.3	33.3	34.0	1.13	1.39	2,081	6,912	$ 413,399	1.32	2.25	0	0	0	1	1.71	6	10.24	2
167	Duval Rd	US 183 to MoPac	2.06	47,587	45,453	22,097	$ 1,137,704	31.8	29.4	28.5	30.5	1.09	1.24	1,244	2,068	$ 125,334	1.15	1.58	0	0	0	0	0.00	3	5.76	0
168	Southwest Parkway	MoPac to SH 71	6.84	198,444	148,809	21,756	$ 3,680,901	49.2	46.0	45.7	46.4	1.08	1.19	8,834	7,533	$ 463,745	1.11	1.35	0	0	0	2	0.92	6	2.76	1
169	MoPac	Slaughter to Capital of Texas	5.20	385,235	112,889	21,705	$ 2,796,025	64.7	61.6	64.3	59.2	1.08	1.27	16,131	7,672	$ 450,038	1.11	1.43	0	0	0	0	0.00	2	0.47	0
170	SH 95	US 79 to FM 397	3.23	47,508	69,505	21,539	$ 1,778,513	36.7	33.3	35.4	32.1	1.12	1.26	3,807	4,622	$ 282,267	1.11	1.42	0	0	0	0	0.00	3	5.77	2
171	7th Street	Guadalupe to IH 35	0.73	5,431	15,689	21,521	$ 377,409	15.0	14.5	14.5	14.6	1.04	1.16	207	440	$ 25,686	1.06	1.38	3	9	210	1	16.82	8	134.52	3
172	IH 35	FM 150 to Comal Cty Line	15.84	1,872,741	340,134	21,470	$ 9,515,333	65.0	63.8	65.0	63.1	1.03	1.19	338,535	57,032	$ 3,216,236	1.03	1.15	0	0	0	11	0.54	59	2.88	3
173	Pleasant Valley	Colorado River to Chestnut	1.11	10,920	23,799	21,402	$ 616,856	25.0	22.4	23.9	21.6	1.13	1.31	592	1,797	$ 105,552	1.20	1.84	11	4	867	1	8.36	5	41.81	2
174	SH 95	SH 71 to FM 2336	7.56	137,298	160,288	21,211	$ 4,109,157	54.2	48.5	49.6	47.9	1.14	1.29	14,703	12,816	$ 765,786	1.15	1.40	0	0	0	1	0.67	11	7.32	2
175	45th Street	Airport to Guadalupe	1.14	14,509	23,713	20,819	$ 588,879	25.3	23.5	24.3	23.1	1.09	1.23	463	1,047	$ 61,958	1.14	1.61	11	3	168	0	0.00	3	18.88	1
176	29th Street	Lamar to Guadalupe	0.39	1,474	7,943	20,471	$ 195,576	18.4	15.6	15.4	15.7	1.21	1.47	47	354	$ 20,612	1.38	2.27	0	0	0	1	61.96	0	0.00	0
177	6th Street	Lamar to Congress	0.70	5,266	14,309	20,354	$ 342,714	18.0	17.2	18.0	16.8	1.05	1.21	168	393	$ 22,705	1.06	1.41	4	9	90	0	0.00	5	86.70	3
178	Springdale	MLK to Manor	1.70	18,658	34,487	20,311	$ 852,049	31.3	27.3	28.2	26.8	1.16	1.30	596	1,234	$ 74,594	1.18	1.80	3	1	28	0	0.00	4	19.58	2
179	Lamar	29th Street to 51st Street	1.82	25,492	36,327	20,004	$ 926,392	28.7	26.2	28.0	25.2	1.11	1.26	1,043	2,039	$ 123,001	1.14	1.60	10	4	98	1	3.58	2	7.16	0
180	S. 1st	Ben White to Cesar Chavez	2.91	32,831	57,933	19,895	$ 1,457,568	26.7	23.9	25.3	23.2	1.13	1.33	1,004	2,890	$ 171,785	1.20	1.75	28	2	490	2	5.56	11	30.60	4
181	US 281	RM 1431 to SH 29	12.86	284,105	252,545	19,643	$ 6,283,319	55.7	53.2	54.0	52.8	1.07	1.18	17,755	12,788	$ 784,613	1.07	1.22	0	0	0	7	2.25	19	6.11	2
182	Slaughter	Manchaca to MoPac	3.32	86,047	65,081	19,614	$ 1,581,057	36.2	33.5	34.2	33.1	1.09	1.22	2,746	2,012	$ 124,943	1.09	1.36	6	2	45	1	1.06	2	2.12	2
183	5th Street	Lamar to Congress	0.72	4,482	14,017	19,494	$ 337,252	16.9	15.5	16.6	14.9	1.10	1.26	143	421	$ 24,429	1.11	1.49	5	8	349	0	0.00	8	163.02	1
184	US 183	US 290 to IH 35	1.86	80,692	36,034	19,383	$ 969,221	64.2	60.2	57.5	63.1	1.10	1.38	8,189	4,492	$ 265,247	1.14	1.43	0	0	0	3	3.40	7	7.92	1
185	Guadalupe	29th Street to Lamar	1.34	16,615	25,764	19,229	$ 636,396	27.8	25.5	26.7	25.0	1.10	1.23	530	931	$ 55,975	1.12	1.52	17	7	914	0	0.00	3	16.49	0
186	Dean Keeton	Guadalupe to Manor	1.22	10,620	23,491	19,220	$ 598,286	23.6	22.4	22.3	22.6	1.06	1.19	517	1,508	$ 88,520	1.13	1.57	15	11	1,590	0	0.00	0	0.00	0
187	Sam Bass	IH 35 to Old Settlers	2.19	18,730	41,755	19,084	$ 1,027,219	29.1	24.7	26.7	23.8	1.20	1.43	682	1,470	$ 88,231	1.20	1.71	0	0	0	0	0.00	4	19.50	1
188	SH 80/US 183	FM 86 to Guadalupe Cty Line	1.98	17,361	37,793	19,058	$ 964,433	38.5	35.1	36.2	34.3	1.14	1.41	2,230	2,453	$ 148,880	1.11	1.42	0	0	0	0	0.00	2	10.52	0
189	Oltorf	IH 35 to Lamar	2.04	26,772	38,838	19,008	$ 980,915	25.4	23.5	23.8	23.4	1.09	1.26	774	2,064	$ 122,088	1.18	1.81	17	1	780	0	0.00	12	40.93	5
190	IH 35	FM 150 to SH 45	9.17	1,116,223	172,866	18,849	$ 5,042,170	65.0	63.0	64.8	61.3	1.05	1.20	189,535	35,262	$ 1,972,943	1.06	1.22	0	0	0	3	0.25	26	2.13	1
191	Lakeline	Crystal Falls to Cypress Creek	5.00	102,722	94,067	18,832	$ 2,311,021	38.5	35.8	36.5	35.4	1.09	1.21	3,267	3,865	$ 237,413	1.12	1.50	0	0	0	1	0.89	5	4.45	1
192	Montopolis	US 183 to Grove	0.92	7,213	17,378	18,790	$ 469,050	26.9	23.4	24.4	22.8	1.17	1.42	528	1,809	$ 106,763	1.27	1.95	15	3	232	1	12.66	10	126.62	4
193	San Jacinto	MLK to 12th Street	0.57	2,698	10,642	18,769	$ 260,850	15.9	14.1	13.3	14.9	1.15	1.38	68	456	$ 26,698	1.29	2.04	4	9	180	0	0.00	1	33.85	0
194	Springdale	Cesar Chavez to MLK	2.77	23,103	51,866	18,711	$ 1,276,763	24.3	21.2	21.8	20.9	1.15	1.30	737	1,932	$ 113,571	1.18	1.77	19	3	474	0	0.00	10	39.53	4
195	24th Street	Lamar to Guadalupe	0.68	3,285	12,621	18,698	$ 308,753	16.9	15.6	16.2	15.1	1.11	1.33	105	511	$ 29,774	1.17	1.72	0	0	0	0	0.00	0	0.00	0
196	FM 150	IH 35 to SH 21	3.15	45,720	58,899	18,679	$ 1,443,478	41.8	37.1	37.7	36.9	1.15	1.33	2,770	2,303	$ 141,492	1.11	1.41	0	0	0	0	0.00	8	15.98	0
197	William Cannon	US 290 to Southwest Pkwy	1.63	28,418	30,187	18,576	$ 811,636	36.8	33.7	33.2	34.0	1.11	1.26	1,020	2,988	$ 180,920	1.34	2.24	0	0	0	0	0.00	6	19.28	1
198	Crystal Falls Parkway	Lakeline to Ronald Reagan	4.51	46,182	83,264	18,483	$ 2,096,928	32.9	28.3	29.7	27.6	1.19	1.37	1,898	4,209	$ 255,981	1.23	1.74	0	0	0	1	1.98	3	5.93	0
199	MoPac Frontage	US 183 to FM 2222/Northland	4.41	71,995	81,227	18,430	$ 2,411,906	40.7	38.8	39.7	38.3	1.07	1.23	3,215	14,421	$ 867,154	1.31	2.27	5	2	154	1	1.27	1	1.27	0
200	Burleson	Ben White to Oltorf	1.16	9,252	20,937	18,065	$ 520,433	27.4	23.8	22.8	24.5	1.16	1.38	296	868	$ 51,734	1.21	1.84	0	0	0	1	9.87	3	29.61	1
201	Guadalupe (Estimated)	MLK to 12th Street	0.49	3,824	8,759	17,767	$ 226,410	28.6	25.6	25.6	25.6	1.12	1.44	231	543	$ 33,723	1.18	1.76	3	13	386	0	0.00	1	23.88	0
202	Pleasant Valley/Todd Lane	William Cannon to Ben White	2.65	28,636	46,884	17,699	$ 1,201,025	27.3	24.5	24.3	24.8	1.12	1.30	1,165	2,942	$ 175,169	1.20	1.79	8	2	227	1	3.19	10	31.89	0
203	Lamar	15th Street to 29th Street	1.53	22,369	26,986	17,673	$ 664,324	32.4	29.9	32.3	28.6	1.10	1.26	714	914	$ 56,282	1.11	1.49	5	1	21	3	12.25	3	12.25	1
204	MoPac	US 183 to Parmer	3.71	373,185	64,496	17,380	$ 1,556,262	64.8	62.9	63.9	62.1	1.03	1.12	13,422	3,717	$ 215,214	1.05	1.24	0	0	0	2	0.49	11	2.69	5
205	Ben White	IH 35 to US 183	4.24	346,613	73,470	17,328	$ 1,919,948	64.8	62.8	63.6	62.1	1.04	1.17	23,354	8,078	$ 469,794	1.07	1.28	1	1	3	8	2.11	10	2.63	3
206	Great Hills Trail	Capital of Texas to Stonelake	1.45	9,650	24,820	17,121	$ 672,929	22.0	19.9	19.4	20.4	1.13	1.38	375	2,786	$ 163,000	1.45	2.64	4	3	191	0	0.00	2	18.93	1
207	Metric	Braker to Howard	3.18	53,542	53,973	16,989	$ 1,357,942	31.2	29.0	29.5	28.8	1.08	1.20	2,283	2,588	$ 157,715	1.11	1.43	24	3	259	3	5.12	10	17.06	2
208	US 183	SH 71 to Airport/7th St.	1.73	79,416	29,159	16,889	$ 742,885	61.7	59.0	59.2	58.8	1.06	1.17	5,686	2,448	$ 147,798	1.07	1.23	0	0	0	1	1.15	4	4.60	2
209	S. 1st	Slaughter to Ben White	4.20	54,982	70,335	16,762	$ 1,738,759	29.3	26.4	26.8	26.1	1.13	1.29	1,780	2,622	$ 158,657	1.15	1.51	34	1	634	0	0.00	17	28.24	2
210	Burleson	Ben White to US 183	4.01	73,475	66,927	16,698	$ 1,870,786	34.1	31.5	32.0	31.1	1.10	1.24	5,799	8,377	$ 510,512	1.13	1.49	3	1	23	2	2.49	15	18.64	2
211	FM 812	US 183 to SH 21	10.08	171,253	168,028	16,672	$ 4,311,127	51.1	47.5	47.6	47.6	1.09	1.26	10,933	12,273	$ 740,450	1.17	1.52	0	0	0	14	7.47	46	24.53	4
212	W. 2nd Street	US 79 to SH 95	1.55	29,530	25,919	16,668	$ 626,435	37.1	36.0	35.8	36.2	1.03	1.15	884	701	$ 43,218	1.04	1.23	0	0	0	1	3.09	0	0.00	0
213	McNeil	Parmer to US 183l	1.78	35,885	29,467	16,508	$ 775,601	32.8	30.5	31.4	30.1	1.09	1.17	1,421	2,371	$ 144,702	1.15	1.49	0	0	0	3	7.63	3	7.63	1
214	Springdale/Tuscany Way	US 183 to US 290	1.04	11,331	16,875	16,304	$ 429,247	23.1	21.3	20.8	21.8	1.09	1.26	376	1,058	$ 61,838	1.19	1.74	1	1	1	0	0.00	13	104.77	1
215	Oltorf	Pleasant Valley to Montopolis	1.39	14,399	22,524	16,239	$ 563,490	31.1	29.3	30.3	28.7	1.09	1.24	460	1,176	$ 70,134	1.17	1.73	10	2	73	0	0.00	0	0.00	0
216	SH 71/Ben White Frontage	IH-35 to South Lamar	5.67	41,128	91,831	16,209	$ 2,406,433	30.7	27.4	29.0	26.6	1.15	1.37	3,517	7,203	$ 434,581	1.15	1.66	2	2	87	9	19.98	13	28.87	9
217	FM 973	FM 812 to SH 71	4.13	71,687	66,420	16,067	$ 1,724,560	42.3	37.4	38.0	36.9	1.15	1.37	6,209	5,480	$ 334,911	1.14	1.55	3	1	56	2	2.55	6	7.64	0
218	US 183 Frontage/Research	Spicewood Springs/McNeil to Avery Ranch	6.84	85,587	109,853	16,053	$ 2,927,304	39.1	37.6	38.6	37.2	1.05	1.17	4,338	10,101	$ 613,861	1.15	1.62	0	0	0	3	3.20	13	13.87	2
219	IH 35	SH 29 to University/RM 1431	5.25	710,085	82,336	15,689	$ 2,293,039	65.0	63.9	64.7	63.4	1.02	1.14	84,974	14,189	$ 791,389	1.04	1.16	0	0	0	2	0.26	9	1.16	1
220	Spur 26/Austin Avenue	IH 35 to Williams@IH 35	3.01	23,981	47,135	15,644	$ 1,177,908	26.3	24.6	25.2	24.4	1.09	1.25	892	2,405	$ 142,068	1.16	1.81	0	0	0	1	3.81	8	30.46	1
221	US 290/SH 71 Frontage	MoPAC to Joe Tanner	7.53	70,205	117,726	15,638	$ 3,073,578	36.9	34.0	35.6	33.1	1.11	1.30	3,167	9,427	$ 573,386	1.25	1.90	3	1	3	1	1.30	8	10.41	0
222	William Cannon	IH 35 to McKinney Falls	3.40	72,933	52,679	15,498	$ 1,280,492	32.1	30.8	31.1	30.7	1.05	1.15	2,328	1,768	$ 105,568	1.06	1.33	13	4	396	1	1.25	10	12.52	3
223	6th Street	Lamar to MoPac	0.96	14,862	14,711	15,327	$ 383,001	30.8	29.5	30.5	29.0	1.05	1.15	477	1,031	$ 62,949	1.16	1.64	5	2	21	0	0.00	2	12.29	1
224	RM 967/Main Street	IH 35 to IH 35 (S. of Buda)	4.55	44,667	69,072	15,184	$ 1,708,447	31.2	28.6	29.5	28.1	1.11	1.25	1,959	2,683	$ 162,360	1.11	1.49	0	0	0	2	4.09	2	4.09	1
225	35th Street	Balcones to MoPac	0.71	7,074	10,525	14,929	$ 292,473	32.3	29.7	30.5	29.3	1.10	1.27	294	1,282	$ 77,287	1.36	2.29	1	1	2	0	0.00	0	0.00	0
226	11th Street	IH 35 to Congress	0.51	2,792	7,538	14,666	$ 187,926	15.1	14.5	14.4	14.6	1.05	1.28	89	407	$ 23,759	1.12	1.65	5	2	31	1	32.71	5	163.56	0
227	Manchaca	Ben White to Lamar	1.10	12,424	16,041	14,636	$ 427,158	28.3	26.3	27.1	25.8	1.09	1.20	397	1,412	$ 84,427	1.29	1.97	12	2	96	1	7.35	5	36.75	3
228	US 183	SH 130 to FM 20	3.40	64,571	49,525	14,553	$ 1,287,032	43.6	41.6	42.8	41.0	1.06	1.14	7,210	3,695	$ 229,147	1.06	1.21	0	0	0	3	4.24	5	7.07	1
229	45th Street	MoPac to Guadalupe	1.55	15,895	21,767	14,075	$ 561,073	23.0	21.4	21.7	21.4	1.08	1.21	540	1,575	$ 92,164	1.18	1.71	4	1	7	0	0.00	1	5.75	0
230	IH-35 Frontage	Slaughter to SH 45/FM 1327	8.02	83,387	112,683	14,050	$ 2,853,856	47.0	40.7	43.2	39.7	1.18	1.42	4,094	7,325	$ 450,157	1.25	1.80	0	0	0	3	3.29	8	8.76	3
231	Red River	Cesar Chavez to 15th	1.01	3,315	14,072	13,988	$ 352,467	12.0	10.9	10.4	11.5	1.11	1.28	121	775	$ 45,573	1.19	1.60	0	0	0	0	0.00	3	82.63	2
232	RM 2243/FM 1460	IH 35 to Inner Loop	2.03	44,076	28,385	13,969	$ 722,303	36.0	33.8	34.6	33.3	1.07	1.18	1,858	1,752	$ 107,148	1.10	1.41	0	0	0	0	0.00	2	4.14	0
233	Burnet/Medical Pkwy	Koenig to 38th Street	1.77	14,746	24,363	13,775	$ 611,607	26.6	24.6	26.0	23.8	1.09	1.22	470	1,223	$ 72,465	1.14	1.69	25	3	380	0	0.00	3	18.58	1
234	SH 123	RR 12 to Comal Cty Line	2.76	38,501	37,559	13,589	$ 973,464	51.7	45.8	46.7	45.3	1.13	1.27	3,756	2,936	$ 186,791	1.13	1.33	0	0	0	5	11.86	9	21.35	1
235	12th Street	IH 35 to Springdale	2.75	18,609	35,616	12,933	$ 895,715	25.3	23.0	23.7	22.6	1.11	1.24	594	1,822	$ 107,413	1.19	1.82	33	1	125	0	0.00	6	29.45	4
236	Steck	Burnet to MoPac	0.90	6,629	11,480	12,813	$ 300,245	24.0	21.9	22.0	21.8	1.11	1.28	211	945	$ 55,244	1.31	2.25	5	1	7	0	0.00	0	0.00	0
237	Jollyville/Arboretum	Great Hills Trail to US 183	3.27	35,433	41,884	12,805	$ 1,099,430	35.2	33.2	32.9	33.6	1.08	1.26	1,133	3,443	$ 207,912	1.25	2.15	5	3	4	1	2.58	3	7.73	1
238	MoPac Frontage	Capital of Texas to Barton Springs	5.77	58,377	73,668	12,763	$ 1,981,387	38.2	35.7	36.9	35.0	1.09	1.29	3,280	7,682	$ 460,411	1.17	1.73	0	0	0	0	0.00	2	3.13	1
239	US 290 Frontage	US 183 to IH-35	4.12	43,036	52,487	12,737	$ 1,489,364	38.4	36.1	37.2	35.6	1.08	1.22	2,974	7,174	$ 441,691	1.21	1.73	0	0	0	1	2.12	26	55.17	2
240	Avery Ranch	Great Oaks to US 183	4.41	71,882	55,363	12,540	$ 1,442,375	35.0	32.6	32.4	32.8	1.08	1.20	2,080	4,271	$ 260,319	1.21	1.77	0	0	0	1	1.27	1	1.27	1
241	5th Street	MoPac to Lamar	1.07	6,910	13,238	12,326	$ 341,154	23.3	21.7	23.0	21.0	1.09	1.27	224	976	$ 57,218	1.23	1.84	4	2	156	0	0.00	4	52.86	0
242	24th Street/Windsor	Lamar to MoPac	0.52	3,546	6,365	12,216	$ 169,481	22.8	21.5	21.3	21.7	1.07	1.22	109	624	$ 36,472	1.32	2.10	0	0	0	0	0.00	3	77.25	0
243	West Gate	US 290 to Slaughter	4.74	46,621	57,556	12,153	$ 1,467,312	30.2	28.1	28.5	28.1	1.08	1.22	1,486	3,430	$ 205,551	1.19	1.77	37	4	238	1	1.96	8	15.67	2

APPENDIX A: CMP SEGMENT CONGESTION BASED ON DELAY PER MILE

				VEHICLES									TRUCK/COMMERCIAL					TRANSIT			SAFETY				
Congestion Rank (Based on Delay per Mile)	Facility Name	Segment Limits	Segment Length (Miles)	VMT	Delay (person-hours)	Hours Delay per Mile	Annual Congestion Cost (Dollars)	Free Flow Speed	Average Speed	AM Speed	PM Speed	Congestion Index	Planning Time Index (PTI95 ≥ 1.50 Unreliable)	Truck VMT	Truck Delay (hours)	Annual Commercial Delay Cost (Dollars)	Truck Congestion Index	Truck PTI 95	Stops	Number of Routes	Weekday Average Boardings	Fatalities 2020–22	Fatality Rate (Regional Avg = 1.39)	Serious Injuries 2020–22	Serious Injury Rate (Regional Avg = 6.62)	Bike/Ped Fatalities & Serious Injuries 2020–22
244	51st Street	IH 35 to Manor	1.65	18,039	19,921	12,088	$ 510,450	25.9	24.6	25.6	24.1	1.06	1.18	783	1,255	$ 74,316	1.08	1.41	9	1	251	0	0.00	0	0.00	0
245	Manor	Dean Keeton to Airport	0.85	6,567	10,167	11,920	$ 258,707	26.1	23.9	24.7	23.5	1.10	1.24	209	591	$ 34,921	1.18	1.77	7	2	137	0	0.00	1	13.91	0
246	SH 71	SH 21 to SH 95	6.55	299,859	77,598	11,856	$ 2,040,238	64.2	62.7	63.9	61.8	1.04	1.22	29,255	8,801	$ 505,983	1.05	1.21	0	0	0	3	0.91	15	4.57	2
247	38th St/Anchor Ln	IH 35 to Manor	0.82	2,918	9,589	11,735	$ 237,649	18.3	15.6	14.5	16.7	1.21	1.56	134	487	$ 28,244	1.27	1.90	9	2	85	1	31.30	3	93.89	1
248	Howard/McNeil	MoPac to Parmer	2.81	60,100	32,717	11,639	$ 826,956	38.2	35.8	35.6	36.1	1.07	1.19	1,851	1,899	$ 116,876	1.11	1.35	2	4	104	2	3.04	7	10.64	0
249	IH-35 Frontage	SH 45/FM 1327 to FM 150	18.80	306,688	218,139	11,604	$ 5,669,231	46.1	43.6	44.3	43.4	1.07	1.19	14,688	17,365	$ 1,074,700	1.14	1.47	0	0	0	2	0.60	15	4.47	3
250	Lake Creek Pkwy	FM 620 West to Lakeline	3.30	23,976	38,208	11,589	$ 982,646	25.4	23.4	23.7	23.4	1.10	1.26	781	2,539	$ 149,609	1.21	1.84	14	1	96	0	0.00	9	34.28	0
251	IH-35 Frontage	SH 29 to University/RM 1431	10.50	91,999	121,408	11,558	$ 3,123,313	47.4	44.4	44.6	44.5	1.11	1.30	3,563	8,682	$ 533,261	1.31	1.88	0	0	0	1	0.99	3	2.98	0
252	MoPac Frontage	Southwest Parkway to Convict Hill	3.95	23,865	44,762	11,335	$ 1,110,004	39.5	36.1	38.2	35.0	1.15	1.38	1,026	2,122	$ 127,518	1.20	1.84	0	0	0	1	3.83	5	19.13	2
253	IH-35 Frontage	FM 150 to Comal Cty Line	31.82	271,114	358,977	11,280	$ 9,142,400	46.5	42.9	43.6	42.6	1.12	1.35	13,194	23,988	$ 1,472,523	1.21	1.67	0	0	0	3	1.01	30	10.11	4
254	SH 29	RM 243 to US 183	8.27	177,514	93,080	11,254	$ 2,461,275	53.7	50.5	50.6	50.6	1.08	1.17	17,929	9,096	$ 559,963	1.09	1.24	0	0	0	4	2.06	20	10.29	2
255	SH 21	SH 130 to SH 71	17.69	245,704	194,197	10,978	$ 5,049,026	58.9	52.8	53.4	52.5	1.13	1.24	31,907	19,359	$ 1,137,171	1.12	1.27	0	0	0	10	3.72	48	17.84	1
256	Bluff Springs/Old Lockhart	Slaughter to William Cannon	2.59	19,906	28,055	10,832	$ 694,161	35.0	32.2	32.7	32.0	1.10	1.28	636	1,204	$ 72,997	1.16	1.70	5	5	762	2	9.18	4	18.35	3
257	Lake Austin Blvd	MoPac to Enfield	1.59	12,302	17,173	10,821	$ 435,864	33.1	30.5	32.3	29.6	1.09	1.21	393	987	$ 59,995	1.19	1.82	12	2	178	0	0.00	0	0.00	0
258	Stassney	IH 35 to West Gate	2.97	25,772	32,122	10,808	$ 839,901	25.0	23.3	22.8	23.9	1.08	1.26	873	2,584	$ 151,914	1.20	1.78	26	2	541	1	3.54	12	42.52	2
259	FM 620 (SH45 Frontage)	US 183 to FM 620	4.01	34,071	42,169	10,513	$ 1,363,000	43.6	40.1	39.1	41.4	1.13	1.39	4,251	10,072	$ 623,602	1.32	2.00	0	0	0	2	5.36	3	8.04	1
260	RR 12	RM 32 to Old Oaks Ranch	7.90	84,311	81,779	10,356	$ 1,966,889	45.1	42.9	43.9	42.3	1.06	1.17	3,043	2,065	$ 126,760	1.06	1.27	0	0	0	1	1.08	6	6.50	0
261	Stassney	IH 35 to Burleson	3.49	36,284	35,894	10,297	$ 994,646	32.9	31.1	30.9	31.6	1.07	1.23	2,362	4,236	$ 256,896	1.15	1.57	20	3	445	6	15.10	12	30.20	3
262	Guadalupe	12th Street to Cesar Chavez	0.76	4,496	7,686	10,117	$ 198,222	17.0	15.8	16.6	15.4	1.08	1.18	169	616	$ 35,744	1.16	1.75	5	18	1,668	0	0.00	4	81.25	1
263	Brushy Creek	Great Oaks to Parmer	2.65	29,101	26,730	10,068	$ 724,163	38.1	36.4	37.0	36.0	1.06	1.21	1,827	2,897	$ 175,432	1.15	1.64	0	0	0	0	0.00	1	3.14	0
264	Bee Cave Parkway	Bee Caves to SH 71	2.45	23,742	24,644	10,038	$ 609,134	38.2	34.8	36.7	33.8	1.11	1.23	757	1,100	$ 68,021	1.15	1.65	0	0	0	1	3.85	5	19.23	1
265	US 290 Frontage	Parmer to US 183	12.54	143,970	124,378	9,918	$ 3,267,314	38.6	35.9	35.5	36.5	1.10	1.29	6,531	10,575	$ 646,265	1.20	1.70	1	1	2	4	2.54	37	23.47	0
266	RR 12	US 290 to Hamilton Pool	7.41	90,440	73,360	9,904	$ 1,752,121	52.9	49.2	49.8	48.9	1.10	1.24	2,444	2,073	$ 127,922	1.12	1.41	0	0	0	2	2.02	5	5.05	0
267	FM 2001	IH 35 to SH 21	8.93	96,852	88,148	9,874	$ 2,246,029	48.8	45.3	45.6	45.2	1.10	1.23	6,505	5,966	$ 364,930	1.12	1.34	0	0	0	2	1.89	18	16.97	0
268	Brodie	Slaughter to FM 1626	3.40	40,592	33,474	9,831	$ 838,848	36.9	34.0	35.7	33.1	1.10	1.23	1,452	1,737	$ 107,080	1.12	1.45	0	0	0	0	0.00	0	0.00	0
269	Old RR 12/Moore St.	RR 12 to Hopkins	2.84	24,608	27,847	9,798	$ 699,084	33.7	31.4	32.5	30.8	1.08	1.19	1,219	1,381	$ 83,935	1.10	1.44	0	0	0	3	11.13	13	48.25	1
270	Manor	Airport to 51st	0.95	5,775	9,072	9,597	$ 225,415	27.1	24.8	24.5	25.0	1.09	1.29	147	357	$ 21,327	1.19	1.86	13	3	193	1	15.81	1	15.81	0
271	US 183 Frontage	MLK/FM 1969 to Manor	4.28	30,693	40,922	9,572	$ 1,037,527	41.4	37.4	39.3	36.5	1.13	1.31	1,424	2,530	$ 154,123	1.17	1.71	0	0	0	1	2.98	7	20.83	1
272	S. 1st Street	Slaughter to FM 1626	2.08	16,433	19,840	9,543	$ 477,637	39.3	35.2	35.5	35.2	1.13	1.34	588	600	$ 36,878	1.12	1.49	3	1	126	0	0.00	0	0.00	0
273	US 183	Airport/7th to MLK	3.07	145,740	29,230	9,525	$ 785,851	64.8	63.6	63.0	64.3	1.02	1.07	14,120	4,043	$ 231,326	1.04	1.15	0	0	0	1	0.63	3	1.88	0
274	Trinity	Cesar Chavez to 11th Street	0.67	1,013	6,259	9,314	$ 153,139	10.0	8.9	8.9	8.9	1.12	1.27	32	234	$ 13,834	1.19	1.74	1	7	211	0	0.00	1	90.15	0
275	SH 29	US 281 to FM 243	5.93	96,960	54,550	9,197	$ 1,515,605	55.4	53.7	53.6	53.9	1.05	1.10	12,319	6,998	$ 425,264	1.07	1.19	0	0	0	4	3.77	12	11.30	2
276	11th Street/Rosewood	IH 35 to Chicon	0.86	4,449	7,786	9,064	$ 200,314	22.0	20.8	20.9	20.7	1.06	1.24	142	559	$ 32,819	1.17	1.73	13	3	117	1	20.53	2	41.06	0
277	Slaughter	RM 1826 to MoPac	2.39	23,405	21,590	9,041	$ 526,266	38.9	36.2	37.8	35.0	1.08	1.21	746	768	$ 47,190	1.10	1.49	2	1	0	0	0.00	1	3.90	0
278	Spicewood Springs	MoPac to Capital of Texas	2.24	24,161	20,117	8,969	$ 540,316	32.6	31.2	31.4	31.1	1.05	1.15	772	1,959	$ 119,443	1.19	1.73	0	0	0	0	0.00	2	7.56	1
279	15th Street/Enfield	Lamar to MoPac	0.92	10,636	8,242	8,930	$ 223,462	30.7	29.3	30.2	28.8	1.06	1.16	339	843	$ 51,138	1.18	1.75	4	1	23	0	0.00	1	8.59	0
280	CR 171	Howard to IH 35	4.53	57,237	40,293	8,895	$ 1,061,168	43.9	41.3	41.4	41.4	1.08	1.19	2,658	3,569	$ 217,678	1.17	1.56	2	1	1	0	0.00	5	7.98	0
281	51st Street	Manor to US 183	1.52	12,120	13,493	8,865	$ 346,787	28.8	26.9	27.0	26.9	1.07	1.20	532	838	$ 50,221	1.12	1.63	4	1	91	0	0.00	2	15.07	1
282	7th St.	Pleasant Valley to Airport/US183	0.98	7,687	8,602	8,773	$ 221,531	32.5	30.1	30.4	30.0	1.08	1.21	405	547	$ 33,576	1.12	1.47	5	1	97	2	23.76	4	47.52	3
283	SH 21	FM 1966 to SH 130	10.66	149,346	92,740	8,698	$ 2,642,137	54.4	50.5	51.1	50.2	1.09	1.17	19,310	13,525	$ 847,710	1.12	1.26	0	0	0	5	3.06	15	9.17	0
284	SH 71/Ben White Frontage	IH-35 to US 183	8.64	90,942	73,385	8,494	$ 2,019,825	41.8	39.2	40.0	38.7	1.08	1.19	5,332	8,781	$ 540,869	1.17	1.53	0	0	0	5	5.02	26	26.11	6
285	Escarpment	William Cannon to SH 45	4.28	41,451	35,668	8,334	$ 910,855	34.2	31.8	31.8	31.9	1.08	1.19	1,118	2,217	$ 134,008	1.19	1.88	4	1	3	0	0.00	1	2.20	0
286	SH 195	IH 35 to FM 487	13.57	282,176	110,951	8,179	$ 2,906,566	62.3	60.3	60.4	60.1	1.04	1.16	22,623	11,376	$ 683,239	1.06	1.23	0	0	0	11	3.56	18	5.83	0
287	US 183	Spicewood Springs to Lakeline Blvd	3.62	466,005	29,573	8,179	$ 756,568	64.7	64.0	63.6	64.4	1.01	1.15	14,607	2,799	$ 162,481	1.04	1.23	0	0	0	1	0.20	8	1.57	0
288	Brushy Creek	US 183 to Parmer	2.64	25,496	21,041	7,985	$ 528,753	38.4	36.3	35.9	36.7	1.07	1.19	661	1,167	$ 70,723	1.15	1.62	0	0	0	0	0.00	1	3.58	0
289	Lavaca	12th Street to MLK	0.29	1,362	2,278	7,949	$ 59,340	16.0	15.6	15.8	15.5	1.03	1.17	53	199	$ 11,570	1.13	1.55	4	12	310	0	0.00	1	67.05	0
290	FM 150	IH 35 to RM 3237	8.87	71,393	68,976	7,779	$ 1,744,212	48.7	45.8	46.2	45.6	1.10	1.21	4,490	4,368	$ 264,480	1.12	1.39	0	0	0	0	0.00	13	16.63	0
291	Hamilton Pool Road	RR 12 to SH 71	6.65	103,668	51,467	7,742	$ 1,232,923	53.3	50.4	50.5	50.4	1.06	1.12	2,529	1,710	$ 107,462	1.09	1.28	0	0	0	0	0.00	2	1.76	0
292	FM 1327	IH 35 to US 183	7.33	91,053	56,526	7,711	$ 1,477,419	53.4	49.9	49.9	50.0	1.07	1.15	6,328	5,248	$ 318,162	1.13	1.34	0	0	0	3	3.01	5	5.01	0
293	Stonelake	US 183 to Braker	1.13	4,129	8,608	7,645	$ 217,780	26.5	23.5	23.8	23.2	1.15	1.38	132	478	$ 28,245	1.27	2.26	2	2	8	0	0.00	0	0.00	0
294	SH 71	FM 20 to Colorado River	7.85	43,872	58,766	7,486	$ 1,428,597	40.1	37.8	39.4	37.0	1.07	1.27	2,095	1,891	$ 115,614	1.07	1.39	0	0	0	0	0.00	1	2.08	0
295	O'Connor	Great Oaks to SH 45	2.63	27,540	19,269	7,340	$ 502,880	39.1	36.9	36.6	37.1	1.07	1.20	1,003	1,604	$ 98,673	1.17	1.62	0	0	0	0	0.00	3	9.95	0
296	US 183A Frontage	RM 1431/Whitestone to Hero Way	10.34	77,374	75,863	7,335	$ 2,181,499	40.8	38.6	38.8	38.7	1.08	1.23	3,794	11,733	$ 709,131	1.30	2.01	0	0	0	3	3.54	4	4.72	0
297	US 183 Frontage	MLK/FM 1969 to Airport/Levander Loop	6.19	22,549	45,350	7,332	$ 1,141,016	34.7	30.9	30.8	31.0	1.12	1.49	1,041	2,132	$ 132,561	1.17	1.76	0	0	0	2	8.10	5	20.25	1
298	RR 12	US 290 to Old Oaks Ranch	10.84	94,444	76,282	7,038	$ 1,847,695	49.5	47.3	47.6	47.1	1.07	1.21	3,017	2,367	$ 146,434	1.10	1.33	0	0	0	3	2.90	11	10.64	0
299	RM 967	RM 1826 to Main St.	12.21	95,676	84,284	6,901	$ 2,077,644	45.5	40.7	41.6	40.3	1.15	1.37	4,447	3,887	$ 238,836	1.15	1.51	0	0	0	3	2.86	13	12.41	0
300	Windsor	Exposition to MoPac	0.60	2,951	4,093	6,799	$ 109,603	24.0	22.9	22.4	23.5	1.06	1.18	94	403	$ 23,600	1.23	2.06	0	0	0	0	0.00	2	61.89	0
301	Inner Loop-South	IH 35 to SH 29	3.94	21,120	26,151	6,641	$ 631,079	41.1	36.8	37.3	36.4	1.16	1.29	676	758	$ 46,553	1.17	1.45	0	0	0	2	8.65	6	25.94	0
302	FM 3177/Decker	FM 969 to US 290	4.46	41,020	29,613	6,634	$ 807,276	40.9	38.5	37.7	39.5	1.07	1.18	3,634	3,216	$ 199,563	1.10	1.38	3	2	35	4	8.91	10	22.26	2
303	San Jacinto	12th Street to Cesar Chavez	0.68	1,688	4,373	6,441	$ 116,975	9.0	8.7	8.9	8.6	1.05	1.17	55	440	$ 26,054	1.20	1.70	0	0	0	0	0.00	5	270.58	2
304	RM 1826	US 290 to SH 45	3.61	62,960	22,795	6,309	$ 540,614	47.3	45.8	46.2	45.6	1.04	1.09	634	586	$ 36,173	1.09	1.38	0	0	0	0	0.00	1	1.45	0
305	Chicon	Holly to Rosewood	0.93	3,016	5,878	6,306	$ 151,523	17.0	16.0	16.2	16.0	1.07	1.20	113	466	$ 27,087	1.16	1.80	14	1	87	0	0.00	3	90.85	0
306	Burleson/Elroy	US 183 to SH 130	3.16	32,785	19,469	6,159	$ 510,875	40.9	38.4	38.2	38.7	1.07	1.18	1,755	1,722	$ 105,383	1.10	1.42	0	0	0	1	2.79	2	5.57	0
307	SH 45	US 183 to IH 35	8.19	395,913	49,194	6,009	$ 1,245,406	63.8	63.5	63.5	63.5	1.01	1.18	20,084	3,297	$ 197,646	1.01	1.13	0	0	0	1	0.23	8	1.85	0
308	US 183A	Lakeline Blvd to US 183 N	10.20	611,743	61,118	5,991	$ 1,668,061	64.5	63.9	64.1	63.8	1.01	1.17	35,714	7,164	$ 423,969	1.02	1.12	0	0	0	3	0.45	13	1.94	0
309	FM 969	SH 130 to FM 1704	13.04	73,131	77,972	5,981	$ 1,955,953	51.3	47.1	45.8	48.3	1.15	1.40	5,526	4,330	$ 270,380	1.15	1.42	0	0	0	2	2.50	15	18.73	3
310	Trinity	11th Street to MLK	0.57	687	3,355	5,875	$ 88,597	16.6	14.0	12.8	15.4	1.21	1.58	51	322	$ 18,848	1.35	2.26	2	8	129	0	0.00	2	265.71	1
311	US 183	MLK to US 290	3.05	191,354	17,714	5,814	$ 472,503	65.0	64.6	64.3	64.8	1.01	1.04	16,264	2,359	$ 134,300	1.02	1.07	0	0	0	2	0.95	3	1.43	0
312	Great Oaks	Brushy Creek to FM 620	2.66	12,689	15,097	5,684	$ 391,557	27.2	25.4	25.1	25.8	1.08	1.25	454	1,061	$ 63,077	1.16	1.71	0	0	0	0	0.00	1	7.20	0
313	Lavaca	Cesar Chavez to MLK	0.76	2,596	4,242	5,596	$ 108,295	16.0	15.6	15.8	15.5	1.03	1.16	119	308	$ 17,897	1.07	1.42	9	19	1,337	0	0.00	6	211.06	3
314	US 183	SH 80 to Gonzales Cty Line	5.00	41,580	27,241	5,451	$ 906,582	49.8	47.8	48.7	47.4	1.06	1.15	8,598	7,158	$ 448,059	1.06	1.20	0	0	0	0	0.00	0	0.00	0
315	RM 1826	SH 45 to RM 150	8.46	92,494	46,022	5,438	$ 1,210,335	51.9	49.2	49.8	49.0	1.06	1.15	6,230	4,050	$ 255,727	1.08	1.27	0	0	0	4	3.95	14	13.82	0
316	Enfield	Lake Austin Blvd to MoPac	1.38	6,058	7,362	5,351	$ 215,952	26.6	25.5	26.1	25.3	1.05	1.17	297	1,224	$ 72,201	1.25	2.26	6	1	17	0	0.00	1	15.07	0
317	US 290 Toll	US 183 to Parmer	6.27	341,098	33,360	5,323	$ 916,775	64.6	64.1	64.3	63.9	1.01	1.18	20,936	4,893	$ 281,680	1.03	1.15	0	0	0	2	0.54	7	1.87	0
318	McKinney Falls Pkwy	William Cannon (Cotton Bluff Springs) to US 183	5.50	38,858	27,896	5,073	$ 698,460	43.5	40.5	39.8	41.4	1.08	1.20	1,384	1,607	$ 99,663	1.16	1.55	2	1	17	1	2.35	4	9.40	0
319	IH-35 Frontage	SH 130 to Williams/FM 2338	3.69	24,328	18,703	5,069	$ 561,476	45.9	44.8	44.7	45.0	1.04	1.15	1,148	3,506	$ 214,031	1.28	1.90	0	0	0	0	0.00	3	11.26	1
320	Duval	San Jacinto to North Loop	2.11	5,715	10,546	4,993	$ 263,553	21.2	19.8	19.6	20.1	1.07	1.24	188	565	$ 32,895	1.16	1.68	22	1	465	0	0.00	1	15.98	1
321	FM 535/Pearce	FM 973 to SH 21	7.84	36,074	38,971	4,971	$ 990,553	47.9	43.2	42.5	43.8	1.15	1.40	2,523	2,599	$ 159,322	1.18	1.62	2	1	48	4	10.13	10	25.32	2
322	SH 80	SH 21 to FM 20	6.91	78,732	34,013	4,921	$ 928,806	55.6	53.5	54.3	53.1	1.05	1.10	8,300	4,154	$ 252,801	1.08	1.22	0	0	0	4	4.64	5	5.80	1
323	Convict Hill	US 290 to Brodie	3.24	11,382	15,801	4,878	$ 396,404	29.9	27.5	28.4	27.3	1.10	1.30	363	734	$ 44,192	1.16	1.69	17	2	40	0	0.00	1	8.02	0
324	US 183	FM 86 to FM 20	12.48	164,049	60,650	4,861	$ 1,582,569	58.6	57.2	57.6	57.0	1.03	1.09	16,538	5,684	$ 341,100	1.04	1.13	0	0	0	3	1.67	17	9.46	1

APPENDIX A: CMP SEGMENT CONGESTION BASED ON DELAY PER MILE

				VEHICLES										TRUCK/COMMERCIAL					TRANSIT			SAFETY				
Congestion Rank (Based on Delay per Mile)	Facility Name	Segment Limits	Segment Length (Miles)	VMT	Delay (person-hours)	Hours Delay per Mile	Annual Congestion Cost (Dollars)	Free Flow Speed	Average Speed	AM Speed	PM Speed	Congestion Index	Planning Time Index (PTI95 ≥ 1.50 Unreliable)	Truck VMT	Truck Delay (hours)	Annual Commercial Delay Cost (Dollars)	Truck Congestion Index	Truck PTI 95	Stops	Number of Routes	Weekday Average Boardings	Fatalities 2020–22	Fatality Rate (Regional Avg = 1.39)	Serious Injuries 2020–22	Serious Injury Rate (Regional Avg = 6.62)	Bike/Ped Fatalities & Serious Injuries 2020–22
325	Exposition	Lake Austin Blvd to 35th St.	2.10	10,252	10,028	4,773	$ 270,512	28.9	26.8	26.0	27.6	1.09	1.29	327	985	$ 58,668	1.27	2.34	7	2	104	0	0.00	1	8.91	0
326	12th Street	Lavaca to Lamar	0.53	772	2,425	4,619	$ 58,848	15.2	13.8	13.9	13.8	1.11	1.28	24	88	$ 5,098	1.15	1.58	1	1	44	0	0.00	1	118.30	0
327	Inner Loop-North	IH 35 to SH 29	3.12	15,148	14,255	4,573	$ 353,839	37.1	34.0	34.1	33.9	1.10	1.25	487	653	$ 39,657	1.13	1.59	0	0	0	0	0.00	4	24.12	0
328	SH 142	SH 80 to US 183	11.14	92,384	50,122	4,501	$ 1,350,927	55.0	53.4	53.5	53.4	1.04	1.12	9,833	5,487	$ 330,076	1.06	1.21	0	0	0	1	0.99	1	0.99	1
329	Davis Lane	Escarpment to Brodie	2.57	20,327	11,394	4,440	$ 298,357	35.4	33.9	33.7	34.1	1.05	1.15	650	910	$ 55,927	1.12	1.57	0	0	0	0	0.00	1	4.49	1
330	US 79	W. 2nd to E. 4th	4.54	49,653	19,914	4,388	$ 541,542	59.2	56.7	57.0	56.3	1.05	1.11	6,024	2,447	$ 151,721	1.06	1.16	0	0	0	3	5.52	3	5.52	0
331	FM 973	US 79 to US 290	16.26	149,442	71,238	4,381	$ 1,749,107	59.0	56.1	56.1	56.1	1.06	1.14	10,348	4,223	$ 247,565	1.07	1.21	0	0	0	6	3.67	26	15.89	0
332	MoPac	SH 45 to Slaughter	2.29	53,895	9,801	4,285	$ 241,453	64.2	62.7	61.8	63.4	1.03	1.07	1,869	701	$ 41,047	1.06	1.20	0	0	0	3	5.08	2	3.39	0
333	RR 12	Old RR 12 to RM 32	7.32	108,739	30,583	4,180	$ 924,682	59.0	57.2	56.7	57.6	1.03	1.08	18,646	6,288	$ 384,813	1.05	1.14	0	0	0	3	2.52	8	6.72	1
334	Mesa	RM 2222 to Steck	2.66	10,346	10,850	4,080	$ 282,241	27.0	25.3	25.7	25.1	1.08	1.19	329	790	$ 46,890	1.17	1.92	6	1	24	1	8.83	4	35.31	2
335	Steck	MoPac to Mesa	0.95	3,967	3,851	4,050	$ 105,643	25.4	24.2	24.8	24.0	1.06	1.19	141	440	$ 25,924	1.19	1.86	10	1	38	0	0.00	0	0.00	0
336	FM 973	US 183 to FM 812	2.48	14,679	10,016	4,034	$ 301,705	47.1	44.0	44.7	43.7	1.08	1.27	2,687	1,916	$ 118,074	1.10	1.39	0	0	0	0	0.00	4	24.89	0
337	SH 95	US 290 to FM 2336	8.92	102,578	35,786	4,013	$ 1,023,221	62.5	60.8	61.1	60.6	1.03	1.09	20,349	6,241	$ 366,526	1.04	1.14	0	0	0	2	1.78	12	10.68	0
338	Chicon	Manor to Rosewood	0.98	2,246	3,847	3,929	$ 94,978	19.0	17.8	18.2	17.5	1.08	1.21	71	182	$ 10,550	1.12	1.63	14	1	49	0	0.00	1	40.66	0
339	SH 95	US 79 to US 290	14.96	118,719	53,655	3,588	$ 1,572,674	61.2	59.9	60.1	59.9	1.04	1.10	15,661	9,788	$ 580,294	1.06	1.18	0	0	0	3	2.31	12	9.23	2
340	E. 4th Street	SH 95 to US 79	1.68	13,125	5,798	3,459	$ 150,494	46.6	45.8	45.5	46.1	1.02	1.11	769	465	$ 28,912	1.06	1.25	0	0	0	0	0.00	4	27.83	1
341	SH 21	SH 80 to FM 1966	6.31	58,968	20,727	3,287	$ 603,468	56.1	54.5	54.4	54.5	1.03	1.09	8,427	3,654	$ 220,539	1.06	1.19	0	0	0	4	6.19	14	21.68	0
342	Balcones	RM 2222 to 35th	2.15	5,190	6,976	3,246	$ 185,800	25.9	24.2	24.0	24.4	1.08	1.27	166	652	$ 38,482	1.26	2.15	2	1	9	0	0.00	0	0.00	0
343	SH 29	Llano Cty Line to US 281	10.82	96,121	34,899	3,226	$ 1,121,465	55.0	53.9	54.0	53.7	1.03	1.10	16,584	8,743	$ 531,942	1.06	1.21	0	0	0	1	0.95	13	12.35	1
344	RM 32	RR 12 to Comal Cty Line	3.68	25,921	11,428	3,108	$ 328,812	57.3	55.1	54.9	55.2	1.05	1.12	3,182	1,863	$ 114,999	1.08	1.24	0	0	0	0	0.00	7	24.66	0
345	SH 95	FM 487 to FM 397	13.97	121,237	41,100	2,943	$ 1,134,520	59.4	58.1	58.1	58.1	1.03	1.09	15,025	5,765	$ 345,657	1.05	1.19	0	0	0	3	2.26	11	8.29	1
346	SH 130 Frontage/US 183	SH 45 South to US 183 in Lockhart	22.80	166,173	65,467	2,872	$ 1,634,839	60.0	58.0	57.8	58.4	1.04	1.12	8,099	4,631	$ 280,576	1.08	1.25	0	0	0	6	3.30	19	10.44	1
347	MoPac Toll Road	Parmer to SH 45	3.98	289,306	10,434	2,623	$ 269,581	65.0	65.0	65.0	65.0	1.00	1.05	12,364	1,111	$ 64,250	1.01	1.06	0	0	0	3	0.95	5	1.58	0
348	FM 969	FM 1704 to SH 71	9.09	45,328	22,228	2,444	$ 568,969	61.0	58.4	57.8	59.0	1.05	1.15	3,530	2,077	$ 122,444	1.09	1.24	0	0	0	4	8.06	7	14.10	0
349	US 281	SH 29 to Lampasas Cty Line	19.68	173,847	48,057	2,442	$ 1,315,356	61.3	60.1	60.0	60.4	1.03	1.17	26,230	5,993	$ 355,409	1.04	1.17	0	0	0	2	1.05	8	4.20	0
350	US 90	US 183 to Guadalupe Cty Line	3.52	8,974	8,200	2,329	$ 214,419	46.6	44.9	45.5	44.6	1.05	1.15	881	722	$ 43,044	1.07	1.25	0	0	0	2	20.35	5	50.88	0
351	RM 3237	FM 150 to RR 12	9.18	48,809	19,718	2,148	$ 516,107	55.1	53.6	53.1	54.1	1.03	1.12	2,906	1,873	$ 115,325	1.08	1.25	0	0	0	0	0.00	12	22.45	0
352	IH-35 Frontage	Bell County Line to SH 130	17.89	56,904	37,631	2,104	$ 988,164	47.3	45.4	44.9	45.9	1.05	1.21	2,639	3,360	$ 207,045	1.14	1.51	0	0	0	1	1.60	8	12.84	0
353	SH 21	Loop 150 to US 290	11.70	154,202	24,436	2,089	$ 684,433	62.6	61.6	61.4	61.9	1.02	1.06	20,050	4,049	$ 233,489	1.03	1.09	0	0	0	4	2.37	8	4.74	1
354	US 183	SH 29 to US 281	33.50	276,608	69,739	2,082	$ 1,974,779	63.5	61.8	61.4	62.2	1.03	1.11	34,039	11,942	$ 697,511	1.06	1.20	0	0	0	8	2.64	25	8.25	2
355	SH 29	SH 130 to SH 95	12.06	57,542	24,005	1,990	$ 648,222	55.6	53.6	53.4	53.7	1.04	1.12	5,580	2,653	$ 167,617	1.06	1.19	0	0	0	1	1.59	6	9.52	0
356	RM 1431	RM 1174 to US 281	12.22	75,629	24,220	1,982	$ 606,447	54.7	53.5	53.3	53.6	1.03	1.08	3,984	1,583	$ 97,615	1.04	1.17	0	0	0	2	2.42	8	9.66	0
357	FM 150	RR 12 to RM 3237	12.15	55,686	23,960	1,972	$ 663,490	52.2	50.8	50.8	50.8	1.03	1.10	3,280	2,985	$ 186,638	1.11	1.39	0	0	0	3	4.92	12	19.68	1
358	SH 71	US 281 to Blanco Cty Line	11.49	159,168	22,505	1,959	$ 817,985	64.4	63.9	63.7	64.2	1.01	1.10	33,163	9,044	$ 521,683	1.04	1.13	0	0	0	1	0.57	7	4.02	0
359	US 290	SH 21 to Lee Cty. Line	5.10	70,430	9,881	1,939	$ 297,738	64.8	64.0	63.9	64.2	1.02	1.06	10,188	2,378	$ 132,679	1.04	1.12	0	0	0	0	0.00	9	11.67	0
360	FM 20	SH 71 to FM 535	8.29	46,895	15,763	1,901	$ 417,138	60.5	59.6	59.7	59.6	1.02	1.07	4,023	1,803	$ 105,898	1.05	1.16	0	0	0	1	1.95	2	3.89	0
361	SH 95	SH 71 to Fayette Cty Line	10.00	31,675	18,427	1,842	$ 503,634	49.0	47.8	47.8	47.8	1.03	1.13	3,414	2,131	$ 131,593	1.05	1.23	0	0	0	0	0.00	0	0.00	0
362	FM 20	FM 535 to US 183	17.93	78,638	30,801	1,718	$ 840,030	57.8	56.4	56.4	56.5	1.03	1.11	6,937	4,094	$ 243,018	1.07	1.25	0	0	0	2	2.32	7	8.13	0
363	US 290	SH 95 South to SH 21	16.22	214,066	26,949	1,661	$ 781,822	64.4	63.4	63.3	63.5	1.02	1.09	25,621	5,399	$ 305,415	1.04	1.12	0	0	0	10	4.27	11	4.69	2
364	SH 80	SH 130 to US 183	11.49	74,082	18,042	1,571	$ 502,239	59.2	57.9	57.7	58.2	1.03	1.08	11,368	2,848	$ 164,302	1.04	1.12	0	0	0	2	2.47	8	9.86	0
365	IH 35	SH 130 to Bell Cty Line	12.44	1,094,924	19,409	1,560	$ 1,055,895	65.0	65.0	65.0	65.0	1.00	1.20	223,765	19,118	$ 1,049,501	1.01	1.06	0	0	0	8	0.67	20	1.67	1
366	IH 35	SH 29 to SH 130	4.17	391,069	5,943	1,425	$ 245,574	65.0	65.0	65.0	65.0	1.00	1.14	56,277	3,466	$ 191,028	1.01	1.06	0	0	0	2	0.47	16	3.74	1
367	SH 21	US 290 to Lee Cty Line	4.40	33,758	6,131	1,393	$ 184,693	63.4	62.5	62.7	62.3	1.02	1.09	5,895	1,319	$ 78,024	1.03	1.09	0	0	0	1	2.71	3	8.12	0
368	US 79	E. 4th St. to Milam Cty. Line	10.12	95,438	13,343	1,319	$ 382,876	62.4	61.6	61.4	61.8	1.02	1.06	11,879	2,307	$ 137,910	1.03	1.10	0	0	0	1	0.96	8	7.66	0
369	US 183 Frontage	Airport/Levander Loop to SH 71	2.73	1,779	2,845	1,043	$ 72,167	44.0	39.8	40.7	39.4	1.13	1.49	94	156	$ 9,705	1.16	1.67	1	1	28	1	51.33	1	51.33	1
370	RM 1431	RM 1174 to Bar K Ranch road	13.92	37,940	12,633	907	$ 314,561	54.3	53.0	53.1	53.0	1.02	1.09	1,572	775	$ 48,092	1.06	1.21	0	0	0	3	7.22	5	12.04	0
371	SH 45	IH 35 to SH 130	8.63	143,563	6,891	798	$ 348,832	65.0	64.9	65.0	64.9	1.00	1.15	57,397	5,869	$ 326,216	1.01	1.11	0	0	0	0	0.00	5	3.18	0
372	SH 130 Frontage	US 183 to Old Fentress	11.59	9,325	8,726	753	$ 213,972	53.6	49.0	48.0	50.0	1.11	1.39	323	418	$ 25,853	1.22	1.70	0	0	0	1	9.79	3	29.38	0
373	SH 71	SH 95 N. to SH 95 S.	10.21	249,162	6,312	618	$ 227,027	65.0	64.9	64.9	64.9	1.00	1.13	28,622	2,614	$ 145,661	1.01	1.10	0	0	0	3	1.10	22	8.06	0
374	SH 130	US 79 to SH 45	4.72	231,285	2,513	532	$ 85,879	65.0	65.0	65.0	65.0	1.00	1.17	21,078	897	$ 49,973	1.00	1.07	0	0	0	0	0.00	4	1.58	0
375	SH 130	SH 45/US 183 to US 183 S	11.15	160,282	5,432	487	$ 272,878	65.0	65.0	65.0	65.0	1.00	1.16	63,851	4,609	$ 254,761	1.01	1.11	0	0	0	2	1.14	5	2.85	0
376	SH 130	SH 45 to US 290	9.27	441,321	4,314	465	$ 165,766	65.0	64.9	65.0	64.9	1.00	1.12	40,413	2,105	$ 117,164	1.01	1.07	0	0	0	2	0.41	3	0.62	0
377	SH 45	IH 35 to SH 130	5.21	173,787	2,181	418	$ 65,720	65.0	65.0	65.0	65.0	1.00	1.12	8,862	498	$ 28,660	1.01	1.07	0	0	0	0	0.00	8	4.20	0
378	SH 130	IH 35 to US 79	11.76	342,944	4,786	407	$ 200,159	65.0	65.0	65.0	65.0	1.00	1.16	87,351	2,824	$ 156,548	1.00	1.14	0	0	0	1	0.27	9	2.40	0
379	SH 130	SH 71 to SH 45/US 183	9.72	309,059	3,704	381	$ 118,552	65.0	64.9	65.0	64.9	1.00	1.13	85,089	1,070	$ 60,104	1.00	1.12	0	0	0	3	0.89	21	6.21	1
380	SH 130	US 183 S to Comal Cty Line	13.61	108,978	2,352	173	$ 128,288	65.0	65.0	65.0	65.0	1.00	1.17	22,033	2,312	$ 127,405	1.02	1.08	0	0	0	0	0.00	4	3.35	0
381	SH 130	US 290 to SH 71	11.28	432,180	1,814	161	$ 100,467	65.0	65.0	65.0	65.0	1.00	1.15	45,566	1,806	$ 100,308	1.00	1.11	0	0	0	7	1.48	9	1.90	1
382	Business SH 195	SH 195 N to SH 195 S	4.45	74,571	385	87	$ 15,205	65.0	65.0	65.0	65.0	1.00	1.14	4,042	185	$ 10,798	1.01	1.12	0	0	0	0	0.00	5	6.12	0
383	SH 71	SH 95 to Fayette Cty Line	5.35	85,675	389	73	$ 20,431	65.0	65.0	65.0	65.0	1.00	1.11	11,891	346	$ 19,481	1.00	1.09	0	0	0	3	3.20	14	14.92	1