CHAPTER 5 – EXISTING TRANSPORTATION SYSTEM CONDITIONS

Cover page: The objective of a regional transportation plan is to provide a framework for the development, operation, and management of the transportation system within the larger context of the area's social, economic, mobility, and environmental goals.

CHAPTER 5

The Corpus Christi MPO's goal is to involve the public in how the funds they pay in taxes are invested in the transportation system. With this in mind, the Corpus Christi MPO undertook the outreach detailed in Chapter 2. Goals were identified for the regional transportation system during the concurrent planning processes, as detailed in Chapter 3: Goals and Performance Measures. Also, the IIJA lists national performance goals for Federal highway programs. There are six relevant national performance goals that also have a corresponding goal in this MTP, they are: Safety, Maintenance, Congestion, Reliability, Freight and Economics, and Environmental Sustainability.

The intent of each of these goals are summarized below:

- **Safety**: To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- **Maintenance**: To maintain the highway infrastructure asset system in a state of good repair.
- **Congestion**: To achieve a significant reduction in congestion on the National Highway System.
- **Reliability**: To improve the efficiency of the surface transportation system.
- **Freight and Economics**: To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- **Environmental Sustainability**: To enhance the performance of the transportation system while protecting and enhancing the natural environment.

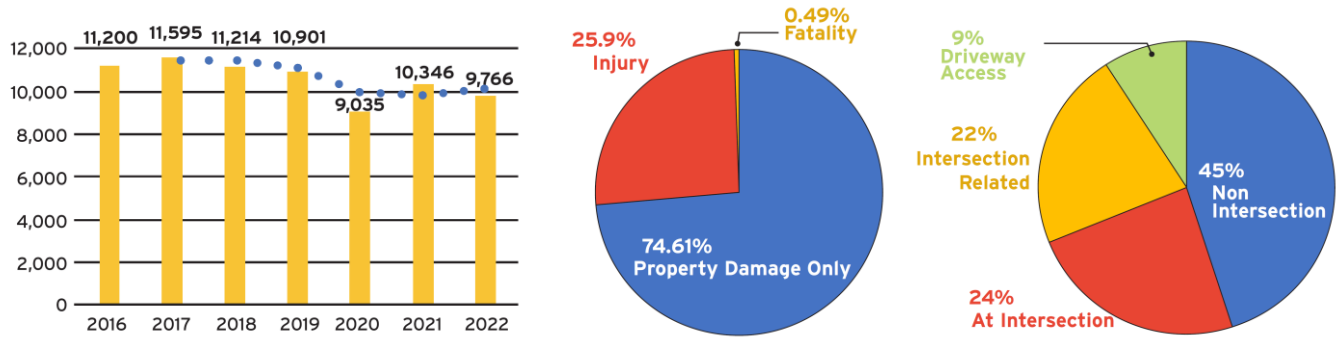
Maximizing the life and effectiveness of transportation systems requires careful management throughout the life-cycle of each part of the system. Pavement and bridge management extends the life of roads and bridges. System management preserves the operational capacity of roadways. Demand management improves the effectiveness of the transportation system by reducing the number of vehicle miles traveled (VMT). These three management strategies are discussed later in this chapter, and in following chapters.

The funding needed to meet all the goals for the regional transportation system is approximately $5 Billion. This is approximately $4 Billion more than the forecasted revenue available during this time frame. With insufficient funding available to meet all the needs, it is important that information regarding tradeoffs among which investments best meet the regional needs is used to inform decision-making.

IMPROVE SAFETY FOR ALL TRAVELERS

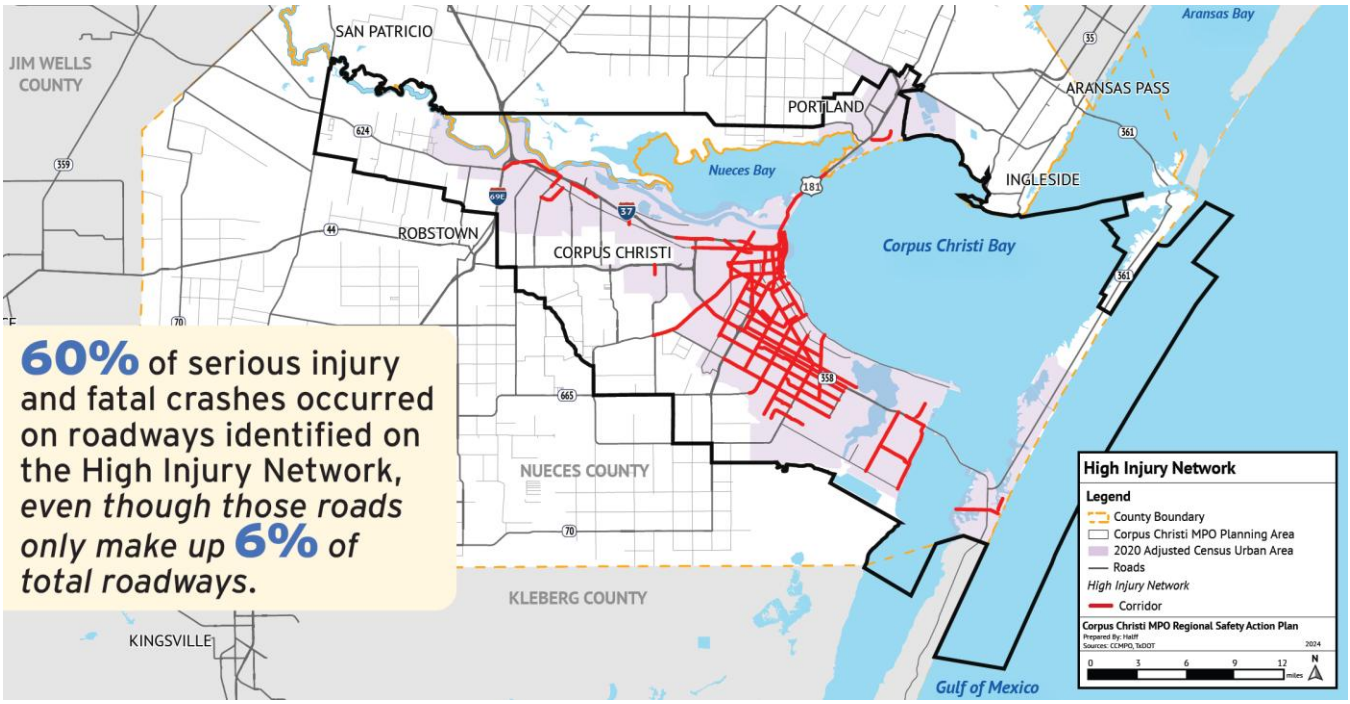
The Corpus Christi MPO developed a Regional Safety Action Plan during the 2045 MTP Update and updated the data for this 2045 MTP Update. Overall regional crashes and crashes on the National Highway System in the Corpus Christi MPO region are increasing over time. The regional safety analysis results in a geospatial identification of high-risk locations, also known as a High Injury Network (HIN), or equivalent. Additional safety needs are detailed in Chapter 10.

Exhibit 5-1 Regional Crash Summary, Severity, and Location



The development of a High Injury Network for the Corpus Christi MPO region used Texas-specific Safety Performance Functions (SPFs) to evaluate 2016-2022 Crash records for all arterial and freeway corridors within the MPO boundaries. A total of 74 segments totaling 153 centerline miles were identified to have severe (injury and fatal) crash frequencies greater than the crash frequencies of 80 percent of similar road segments statewide in Texas. This road network comprises roughly 6 percent of the MPO region's total road network but contains nearly 60 percent of its injury and fatal crashes.

Exhibit 5-2 Regional High Injury Network

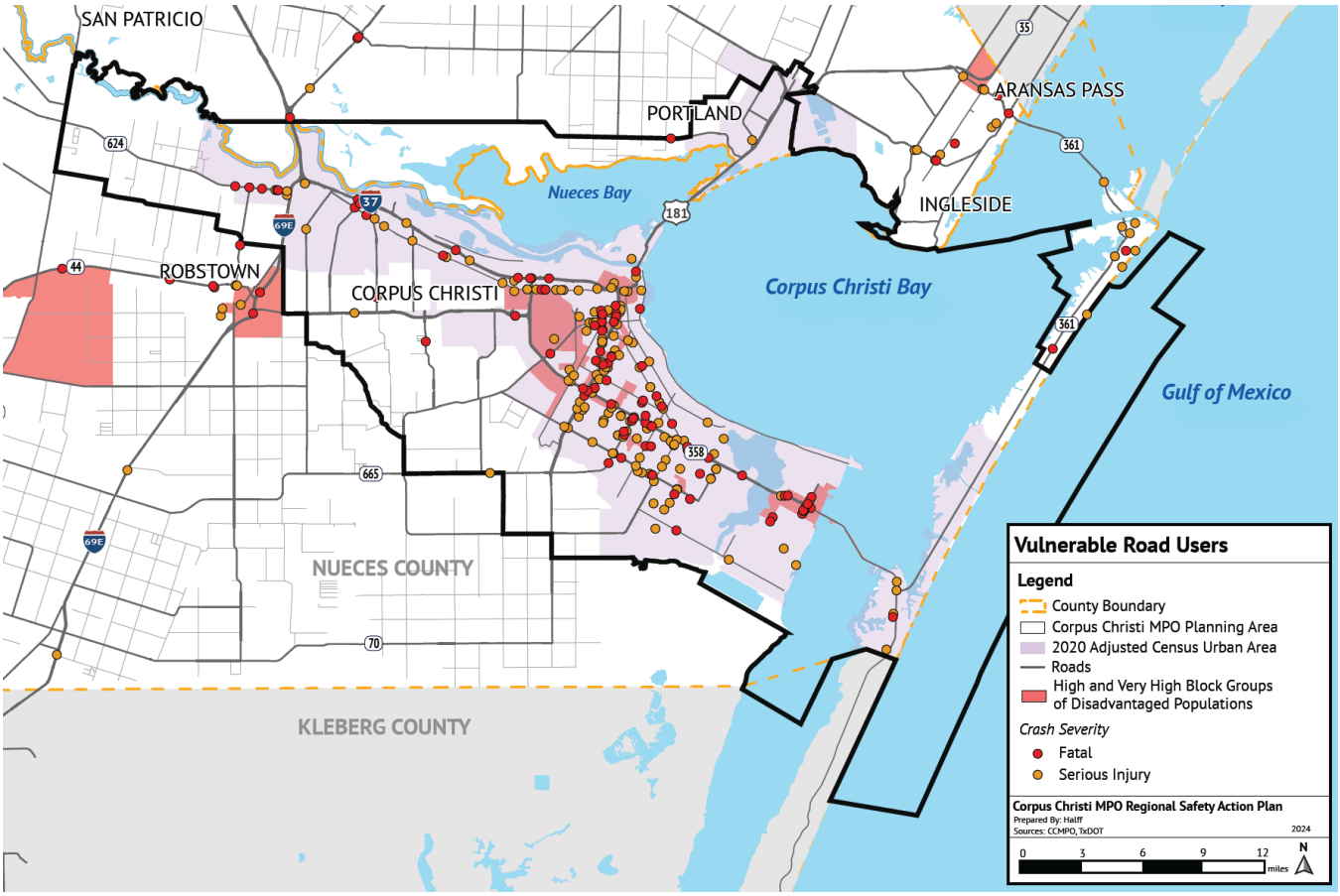


VULNERABLE ROAD USERS

Since 2017, pedestrian and bicyclist crash trends have increased both regionally and statewide. This signals the need for improvements related to non-motorized travel. Bicyclists and pedestrians account for less than one percent of travel mode statewide and are double that (2%) in total crashes statewide. However, bicyclists and pedestrians account for 11 percent of fatal crashes statewide. Within the Corpus Christi MPO region, between 2016 and 2022 crashes involving a pedestrian or bicyclist are similar to the statewide frequency, at just under two percent of all crashes in the Corpus Christi MPO Study Area. However, these regional crashes resulted in more than double the statewide percentage of fatalities, at approximately 28 percent of all crash fatalities. They also resulted in 14 percent of serious injury crashes.

The map of Vulnerable Road User Crashes shows high concentrations of pedestrian- and bicyclist-involved crashes in Census Block Groups that have been identified as areas with high numbers of disadvantaged populations. High concentrations of pedestrian- or bicyclist-involved crashes in these areas is likely attributed to large amounts of the population relying on the pedestrian and / or bicycle network for transportation due to low household income and low vehicle ownership.

Exhibit 5-3 Vulnerable Road User Fatalities and Injuries



MAINTAIN OR IMPROVE INFRASTRUCTURE CONDITION

Proper maintenance of existing transportation infrastructure is rapidly growing in importance. System preservation was repeatedly identified as a priority investment area throughout public and stakeholder outreach efforts and the IIJA/BIL places clear emphasis on the need to first maintain and preserve existing assets before adding new capacity. Road and bridge infrastructure deteriorate at known predictable rates, taking into account materials, craftsmanship, weather conditions, traffic type and volume, along with several other factors. As part of the 2045 MTP Update needs identification analyses, the Corpus Christi MPO defined existing conditions for both road and bridge assets in the region. Using this base-case condition information, an analysis was conducted to define funding levels needed to maintain existing conditions in the next 20 years. Adequately maintaining the transportation system is a major challenge for the Corpus Christi MPO region, the state of Texas, and the entire country.

The cost of neglecting maintenance is not limited to simply repairing roads and vehicles. Poorly maintained transportation systems cost the local economy by deterring private investment, creating unsafe conditions for travelers, adding unnecessary delays due to mechanical failure, and causing potential limitations for emergency vehicle services. The condition and aesthetic quality of the region's infrastructure is a reflection of regional values and community pride. Continuing to keep preservation of the transportation system as the top priority can mitigate these undesirable consequences of poor maintenance.

Preventive maintenance, if institutionalized, can extend the life of the infrastructure, pushing off major rehabilitation/reconstruction for a decade or more. Just as private cars deteriorate under heavy wear and tear

and many miles of service, so do transit vehicles and assets. However, the condition of transit assets has a much greater influence over the success of the transit system than the condition of the roads do on vehicular traffic. Compounding the issue is that vehicular deterioration, both public and private, is increased when the roads themselves are in poor condition.

Nearly $925 Million of investments are identified in the 2045 MTP Update for maintenance, rehabilitation, reconstruction of existing highways, bridges, and transit assets. Additional maintenance funding is needed to maintain a progressive approach to management of the region's transportation system and to continue improving its condition. Deferring this responsibility due to the increasingly tight fiscal environment is not a feasible option. Preservation of the existing system is fiscally responsible and will remain the basic tenet of the transportation planning and programming process.

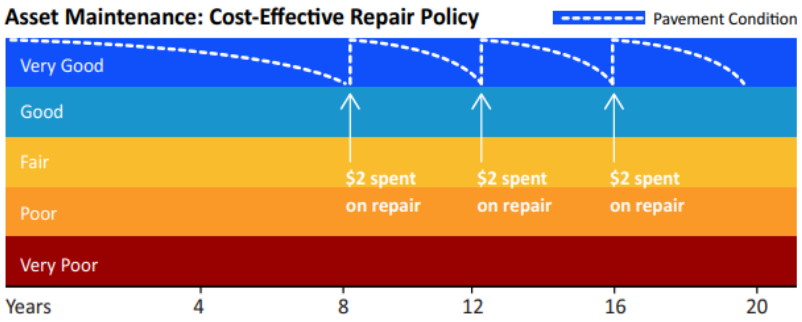
Pavement Maintenance

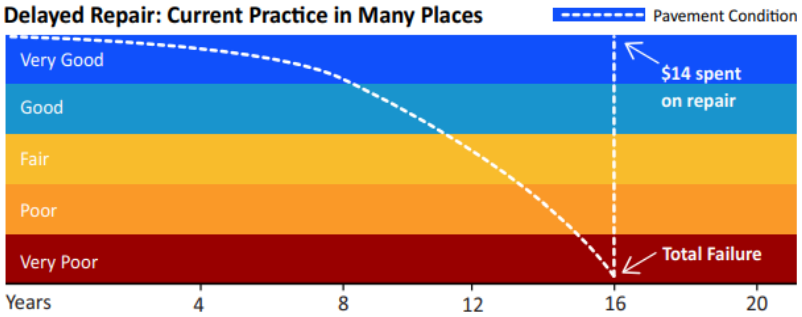
Pavements represent the largest capital investment in any modern roadway system. Maintaining and operating pavements typically involves complex decisions about how and when to resurface or apply other treatments to keep the highway performing and operating costs at a reasonable level. Neglecting the pavement preservation needs of the Corpus Christi MPO region is not a recommended policy choice; deferring maintenance due to fiscal pressure would necessitate spending substantially more on transportation investments in the future. As shown in Exhibit 5-1, the worse the condition of a roadway surface, the exponentially greater the cost to repair it.

Exhibit 5-4 Preferred vs Deferred Pavement Maintenance Life-Cyle

Pavement management uses a quantitative analysis approach to investment based on pavement life-cycle. It consists of three major components as shown below.

- A procedure to regularly collect highway condition data.
- A computer database to sort and store the collected data.
- An analysis program to evaluate repair or preservation strategies and suggest cost effective projects to maintain optimal highway conditions.



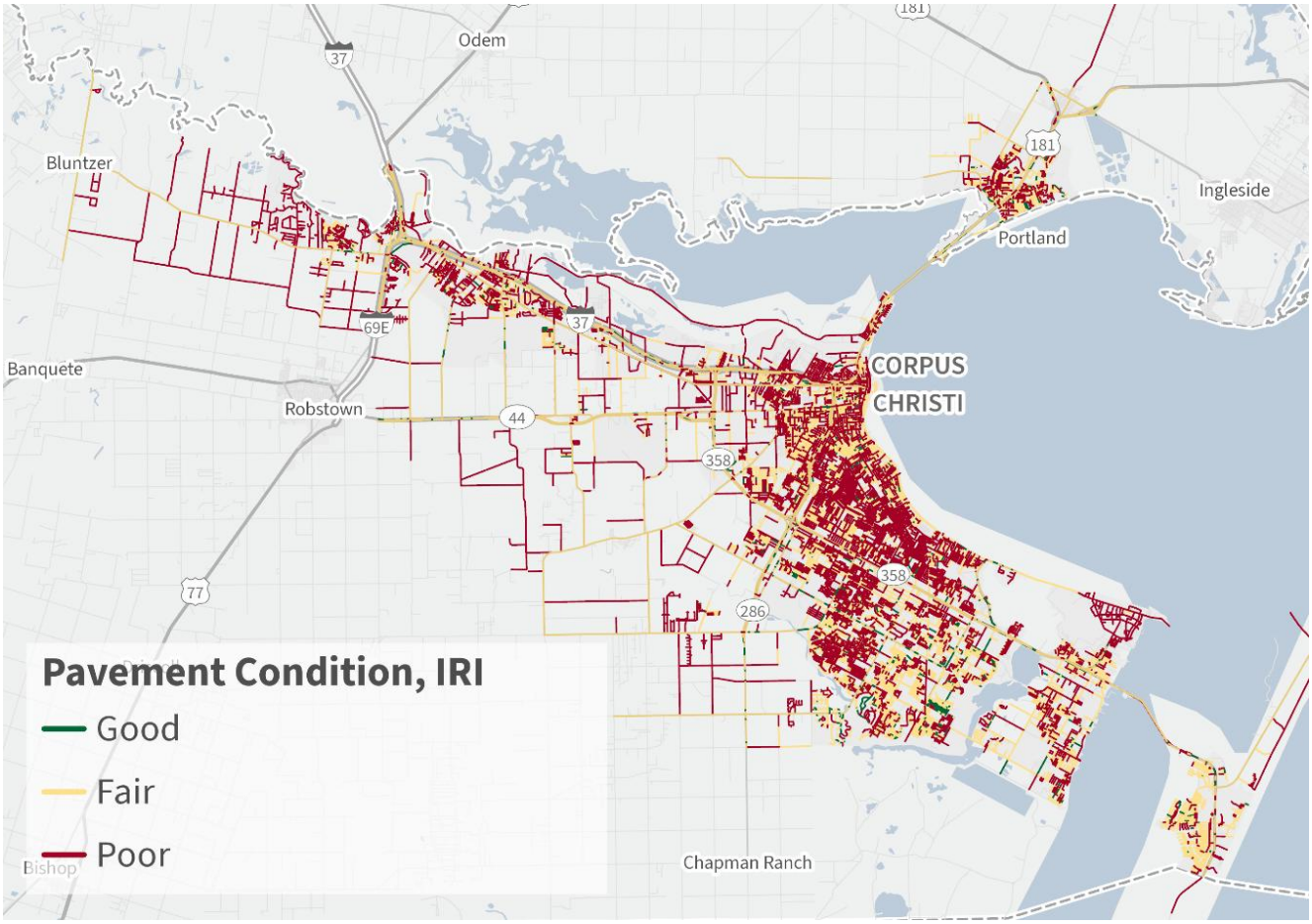


Pavement condition data was gathered from the City of Portland, City of Corpus Christi and the TxDOT-Corpus Christi District. Pavement condition for all facilities was given a Good, Fair or Poor rating. Exhibit 5-5 below illustrates the relative pavement conditions and associated scoring.

Because of past investment practices, pavements on the state-maintained highways in the region are in reasonably sound condition as of 2024, with approximately 25.5% of the TxDOT system pavement rated as good. In 2024, 11.1% of the roads in the City of Corpus Christi were rated in good condition while in 2024, 24.0% of the roads in the City of Portland were rated as good condition. This is attributed to a combination of deferred maintenance and the presence of expansive soils combined with extremes of drought and flood.

Exhibit 5-5 Regional Pavement Conditions

		Jurisdiction			
		Corpus Christi	Portland	TXDOT	Total
		Centerline	Centerline	Centerline	Centerline
		Miles	Miles	Miles	Miles
Scenario	IRI				
Base	Good	189	18	89	294
	Fair	592	35	242	870
	Poor	922	22	18	963
		1,703	75	349	2,127
		Percent of Miles			
Scenario	IRI				
Base	Good	11.1%	24.0%	25.5%	13.8%
	Fair	34.8%	46.7%	69.3%	40.9%
	Poor	54.1%	29.3%	5.2%	45.3%



Bridge Maintenance

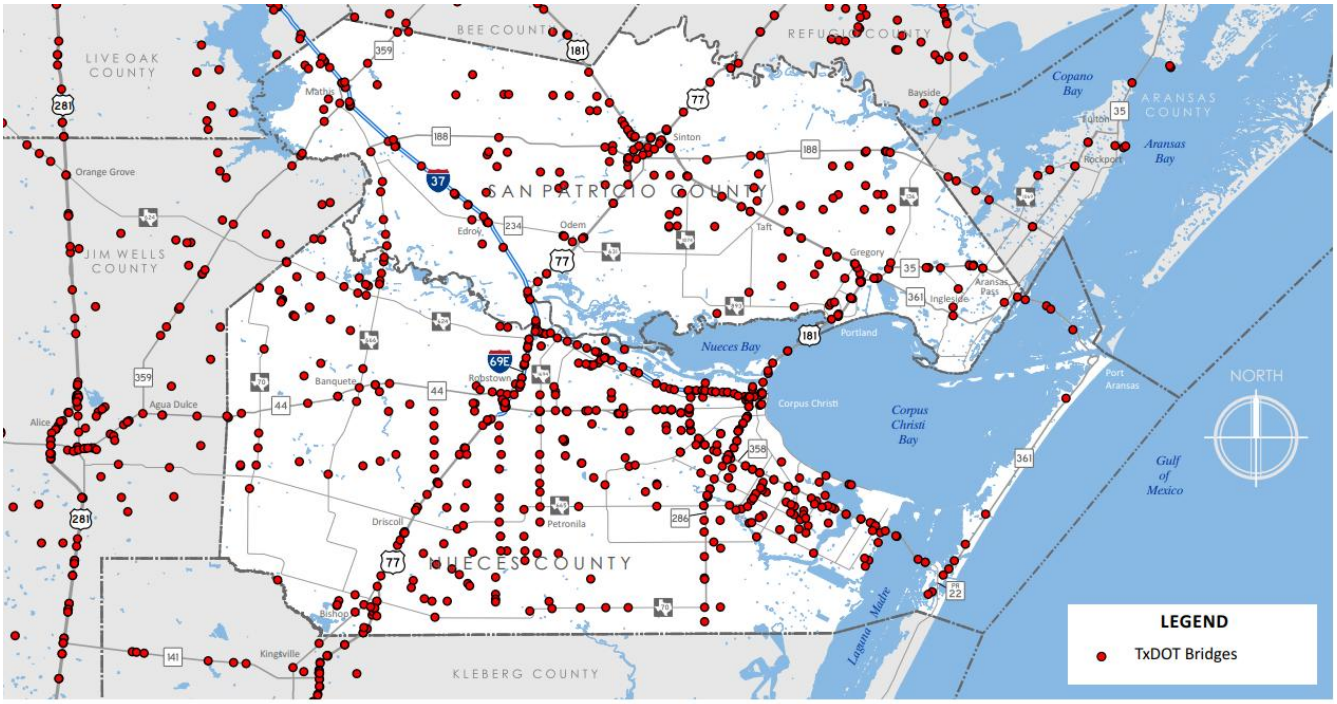
Bridges are another critical element of the transportation system that requires constant upkeep and maintenance. Current bridge conditions in the Corpus Christi MPO region are obtained from the TxDOT Bridges data. The Bridges dataset is from the Bridge Inspection Database. The Bridge Inspection Database contains a record for each Bridge Structure on public roadways in Texas. A bridge structure is at least 20 feet in length. This includes bridges maintained by TxDOT, Toll Authorities, Counties, Municipalities, and other jurisdictions. Bridge Inspection data is used to update the National Bridge Inspection File (NBI) in Washington DC.

Structural deficiencies are characterized by deterioration of significant bridge elements and reduced load-carrying capacity. Functional obsolescence refers to the geometrics of the bridge not meeting current design standards. Neither deficiency necessarily indicates that a bridge is unsafe; it refers to bridges that require significant maintenance and repairs to remain in service as designed.

A bridge is structurally deficient when the structural condition or weight- bearing capacity of the bridge is less than fully adequate. Elements of the bridge need to be monitored and may also need maintenance, rehabilitation, or replacement. Monitoring of the bridge's condition is accomplished by maintenance patrols. Structurally deficient bridges may have load restrictions to ensure their safe use.

A bridge is functionally obsolete when its size or geometric clearances are less than fully adequate. Bridges that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demands are categorized as functionally obsolete. Bridges used for water crossings that have inadequate openings for floodwaters are also categorized as functionally obsolete.

Exhibit 5-6. Map of Bridges Monitored by TxDOT



Similar to pavement conditions, data shows the region's dedication to preservation has begun to improve the condition of both state and locally maintained bridges. 16 percent of locally maintained bridges are deficient compared with 13% of state- maintained bridges. Exhibit 5-4 illustrates the location of bridges in the region that are maintained by TxDOT. Preservation of the local system is a particular challenge in today's fiscal environment, in which all local governments in the Corpus Christi MPO region are faced with extremely tight budgets, an aging system, and growing investment needs. A compounding factor is that older areas are experiencing a loss in tax base as development moves further away from the central core of the region. A limited amount of federal funds are made available through the Transportation Improvement Program. Local governments must compete against one another on a statewide basis for the relatively small amount of funds.

Given the great level of investment needs throughout local communities in the region, competition for the funding is intense.

FUNCTIONAL CLASS

Roads and highways are typically classified according to their intended function in providing traffic movement. These functional classifications carry a hierarchy as well as a set of design standards consistent with the type of service each facility is intended to provide. Criteria for designation of road and highway facilities include travel desires of the public, access requirements for adjacent land use, and continuity of the system. Classifications used in the Corpus Christi Metropolitan Area are illustrated in Exhibit 5-5. A detailed example of the downtown area is provided in Exhibit 5-6 Finally, the description of the functional class system is provided in Exhibit 5-7.

Area types - Area type is one characteristic used to assign network speeds and capacities to individual roadway links. The coded network speeds and capacities within a given roadway functional classification vary by area type. TxDOT computes area types for each traffic analysis zone based on a density measure calculated on the zone population, employment, and area in acres provided by the MPO. Typically, five area types are used: CBD (Central Business District), Urban, Urban Fringe, Suburban, and Rural. In some areas six area types are used, typically CBD, CBD Fringe, Urban, Suburban, Suburban Fringe, and Rural. Exhibit 5-8 illustrates the lanes miles for area types in the 2023.

Exhibit 5-7 Regional Federal Functional Class

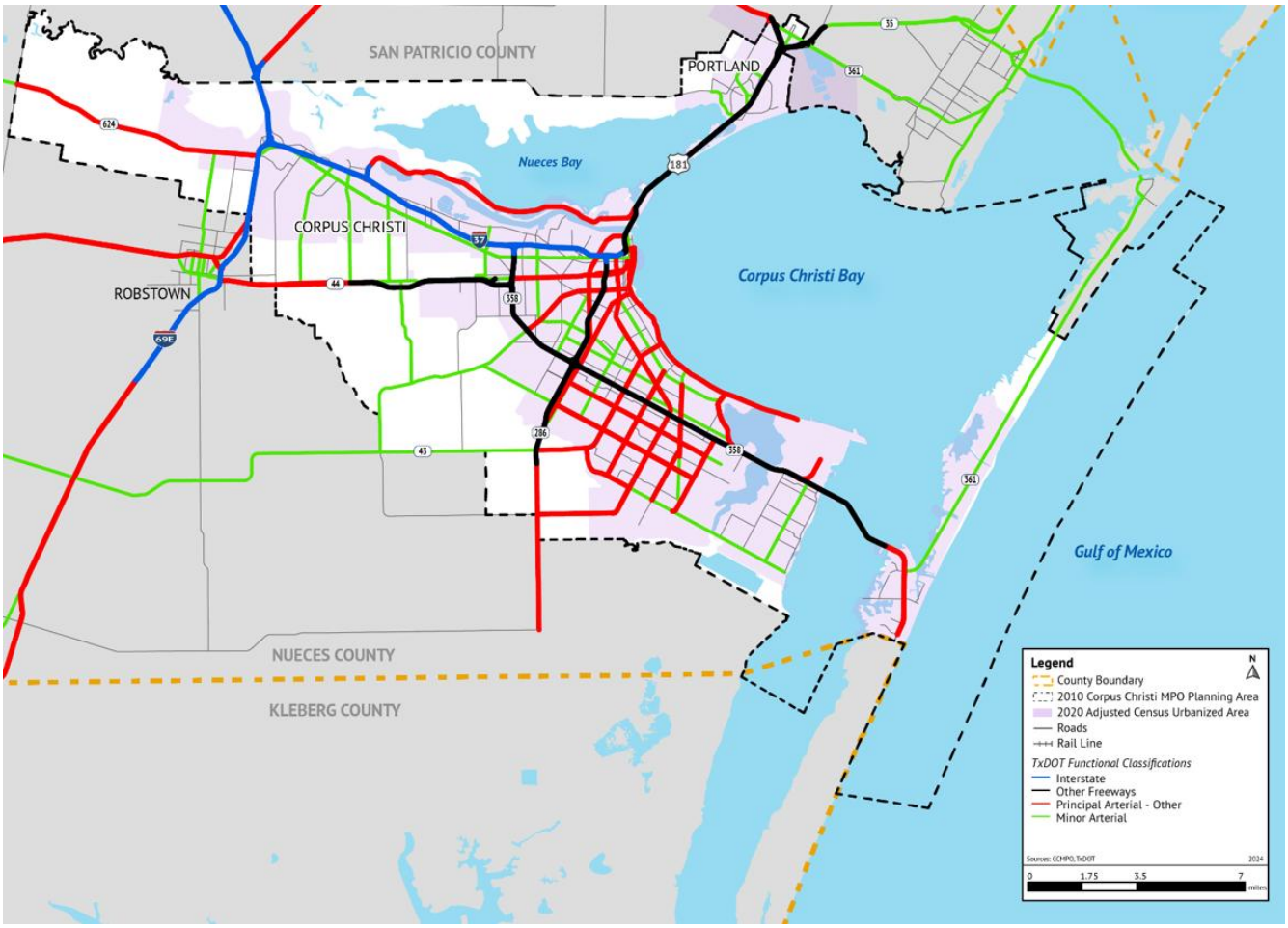


Exhibit 5-8 Region Federal Classification Mileage and Statistics

Federal Functional Classification	Existing Percentage of Lane Miles	Existing Percentage of VMT	Existing Number Lane Miles	Recommended Number Lane Miles
Interstate Highways	4.94%	20.33%	233.92	233.92
Freeways/Expressways	10.65%	45.85%	504.25	530.13
Principal Arterials	9.42%	14.14%	446.38	513.30
Minor Arterials	11.27%	10.94%	533.96	472.53
Major Collectors	12.83%	6.17%	607.70	642.83
Minor Collectors	0.39%	0.05%	18.30	26.29
Local Streets	50.51%	2.53%	2,392.40	2,317.91

Source: FHWA, Highway Functional Classification Concepts, Criteria, and Procedures, 2023 Edition. h 2023.pdf (dot.gov). Accessed May 8, 2023.

Non-motorized Transportation

Federal transportation programs increasingly stress the importance of nonmotorized transportation for all of the above reasons. A more thorough, detailed discussion of transportation funding programs is included in Chapter 6: Financial Plan and Chapter 12; Active Transportation System. Roadways are often designed using a preset list of cross-sections for each functional classification. These cross sections focus primarily on the mobility of motorized vehicles instead of the mobility of people, regardless of their mode choice. As regions grow and existing rights-of-way become more constrained, creating multimodal, user-based designs that accommodate a broader set of transportation system users is a priority of the Corpus Christi MPO. The Active Transportation Plan was adopted in December 5, 2024. The complete plan is provided as part of Appendix F. Exhibit 5-9 and Exhibit 5-10 illustrates the existing sidewalk and bicycle inventories within the Corpus Christi MPO.

Exhibit 5-9 Existing Sidewalk Network with School Walk Distance shown

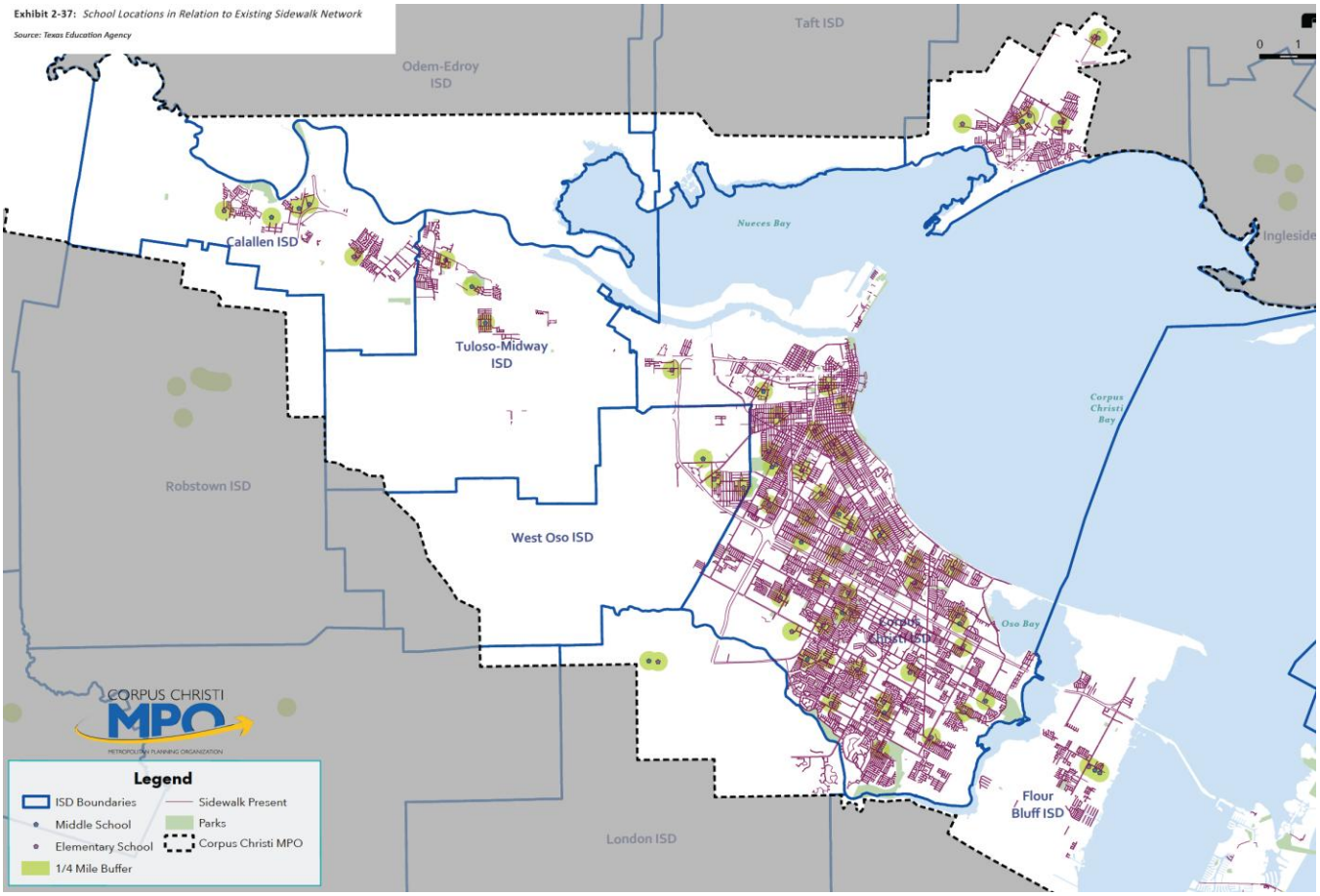
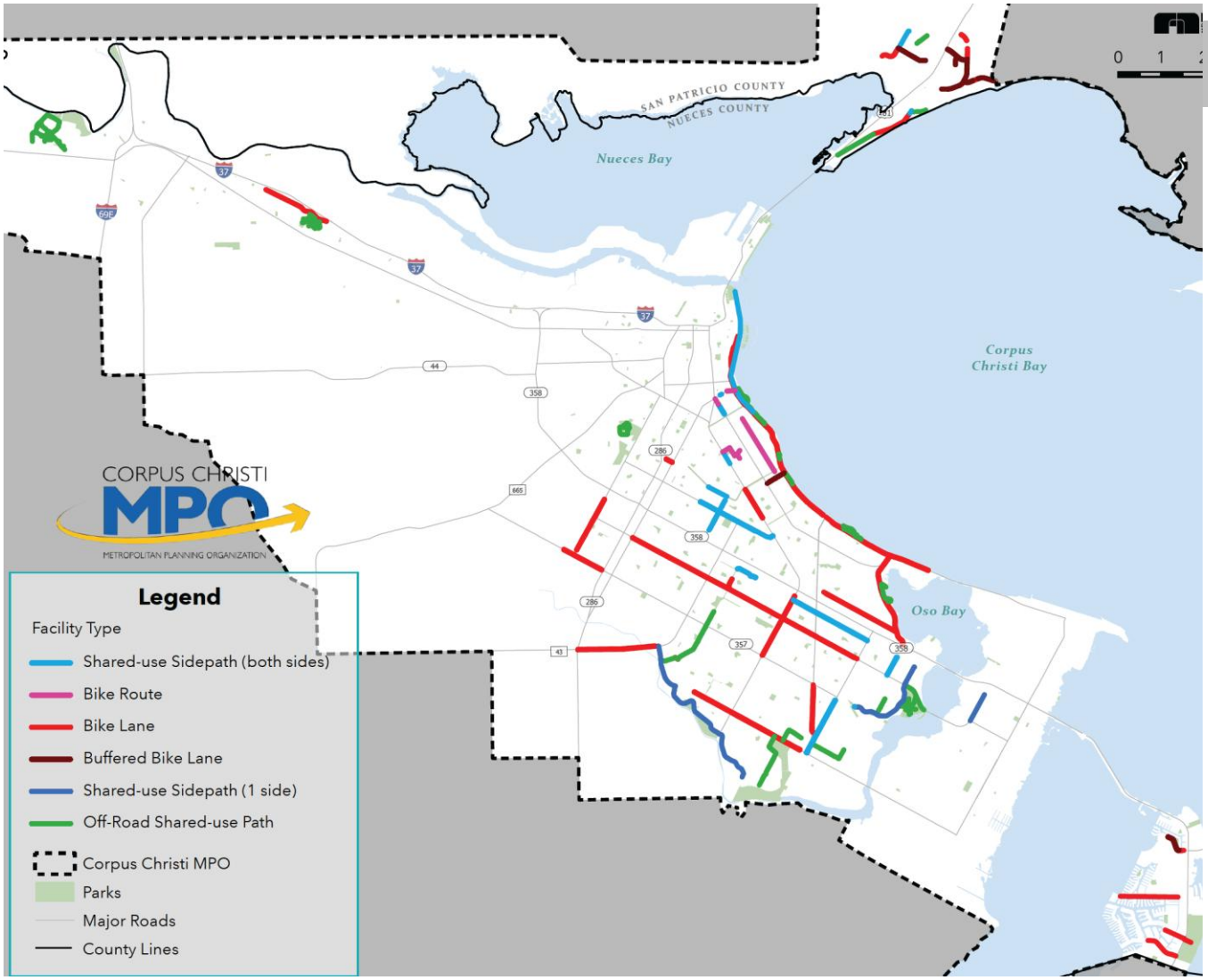


Exhibit 5-10 Existing Bicycle Network



Currently, the Corpus Christi MPO encompasses over 119 miles of on- and off-street bicycle facilities (see Exhibit 5-11). The City of Corpus Christi accounts for the majority of these dedicated bike facilities, comprising 90% of the total, while the City of Portland constitutes the remaining 10%. No other cities or unincorporated communities within the MPO planning area are known to have dedicated bicycle facilities. On-street bike lanes without a buffer comprise over half of the MPO planning area's existing bike facilities (54%). Bike routes, which are also on-street facilities, comprise just over 2% of the existing bike facilities.

Shared-use sidepaths adjacent to the street (16.95%) and shared-use paths away from streets (15.92%) provide paths that are wider than traditional sidewalks and serve both cyclists and pedestrians and comprise a large portion of the network. In a few locations, such as on the path adjacent to Oso Parkway, the path is signed for pedestrians only (no bicycles) due to its width of 7 to 8 feet.

Exhibit 5-12 On- and Off-Street Bicycle Facilities

INSERT Map of On- and Off-Street Bicycle Facilities

OPERATION OF TRANSPORTATION SYSTEM

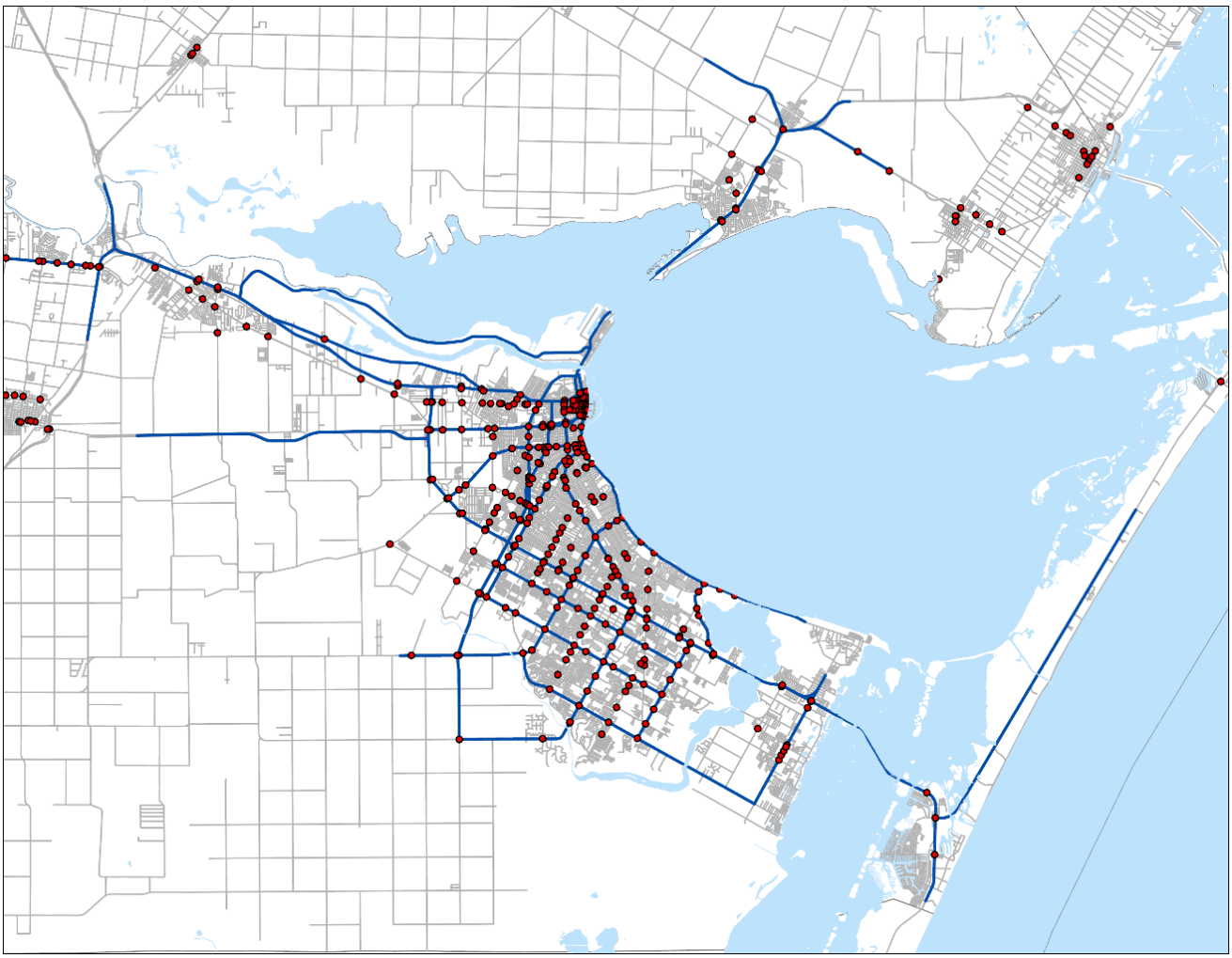
Additional information is in Chapter 8; Congestion and System Management. During outreach efforts for the 2045 MTP Update, the need to apply system operations strategies as cost-effective solutions to address congestion and mobility needs was emphasized by technical experts and the general public. Reducing congestion and improving regional mobility have consistently been identified as two of the highest priorities in the Corpus Christi MPO regional planning initiatives. Because the regional roadway system carries the largest share of trips made within the region, addressing congestion of the roadway system figures prominently in the identification and prioritization of transportation system needs.

Intelligent Transportation Systems

The safety and efficiency of transportation systems are being improved through innovative information and communication technologies. Intelligent Transportation Systems (ITS) can be applied to address issues in traffic management, incident detection/emergency response, and dissemination of traveler information. These technologies can also be applied to improve the safety and operational efficiencies across multiple modes of transportation including vehicular traffic on roads, freight, rail, and transit. For example, ITS could be used in urban areas to inform drivers of construction or emergency activities and provide information on an alternative route.

Exhibit 5-11 displays the ITS locations within the Metropolitan Planning Area. Most of the devices are located on state operated facilities. The types of facilities in the region include highway advisory radio signs and transmitters, road weather information systems, closed circuit television cameras, variable message signs, and data stations.

Exhibit 5-11. Traffic Signal Locations and Mobility Corridors



Roadway Congestion

In the Corpus Christi region, overall roadway congestion is defined by a volume to capacity ratio of 1.00 or greater. This corresponds to a level of service F for regionally significant roadways. Facilities with LOS D and E are designated as "approaching congestion" and contain V/C ratios with a range from 0.71 to 0.99. Facilities with a LOS A-C are not considered congested. Chapter 8 contains detailed information regarding the federally mandated Congestion Management Process (CMP) and regional approaches and definitions of congestion. Refer to Exhibits 8-17 and 8-18 for maps of the 2021 base year and 2045 Update forecast roadway congestion.

Exhibit 5-12 Average Traffic Density at 8:00am on Federally Classified Routes

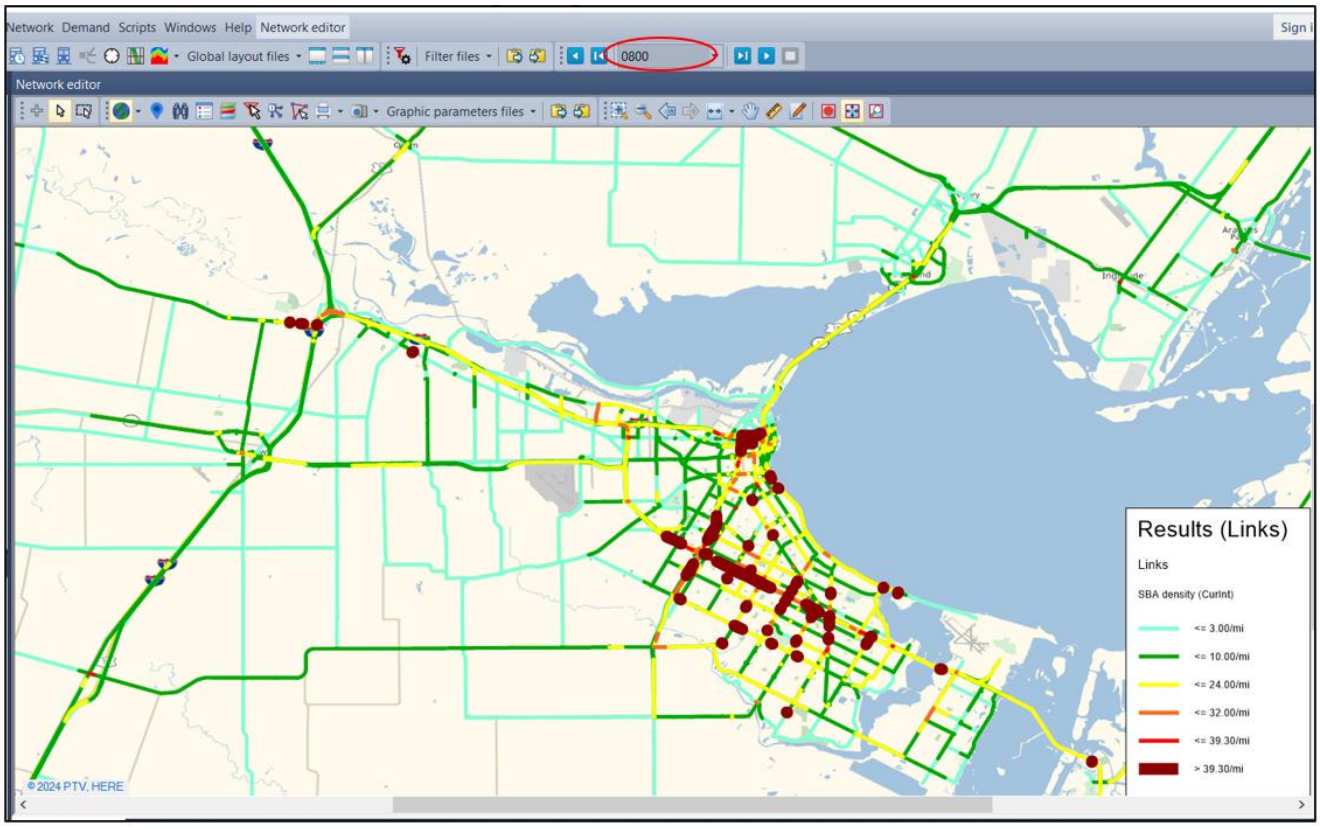


Exhibit 5-13 Average Traffic Queue Length at 8:00am on Federally Classified Routes

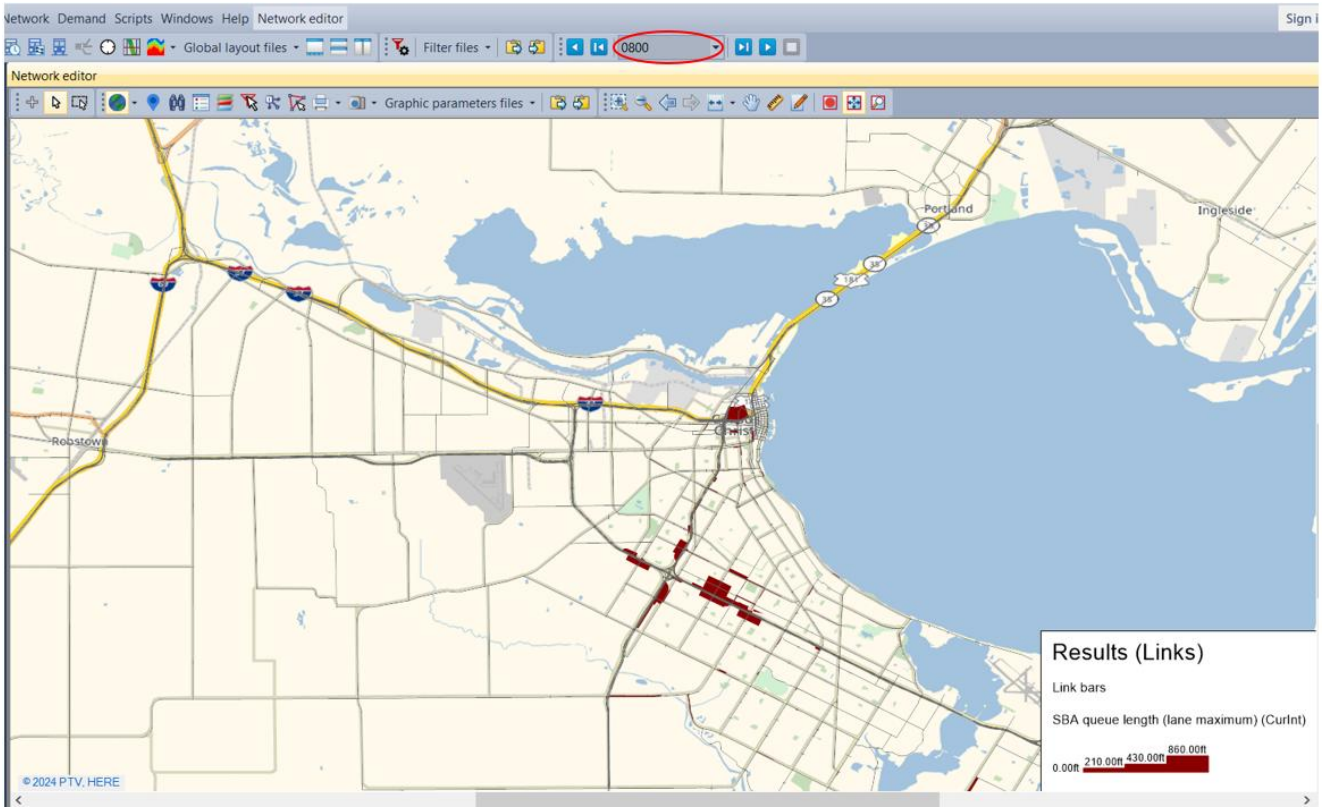


Exhibit 5-14 Average Travel Volumes by Time of Day in 2021

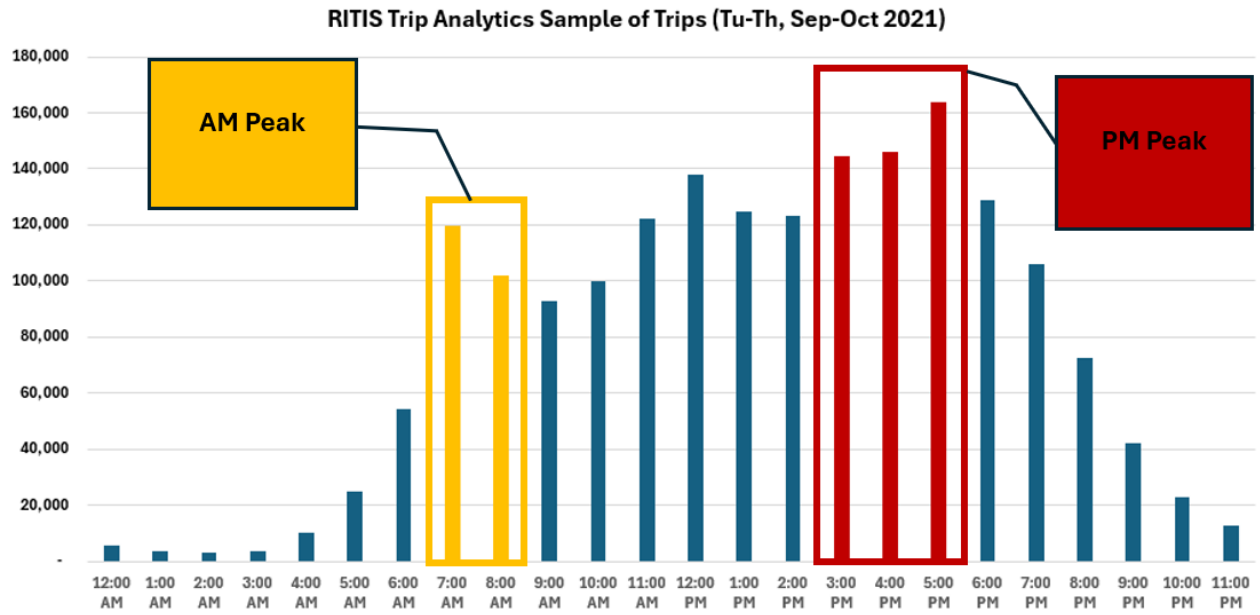
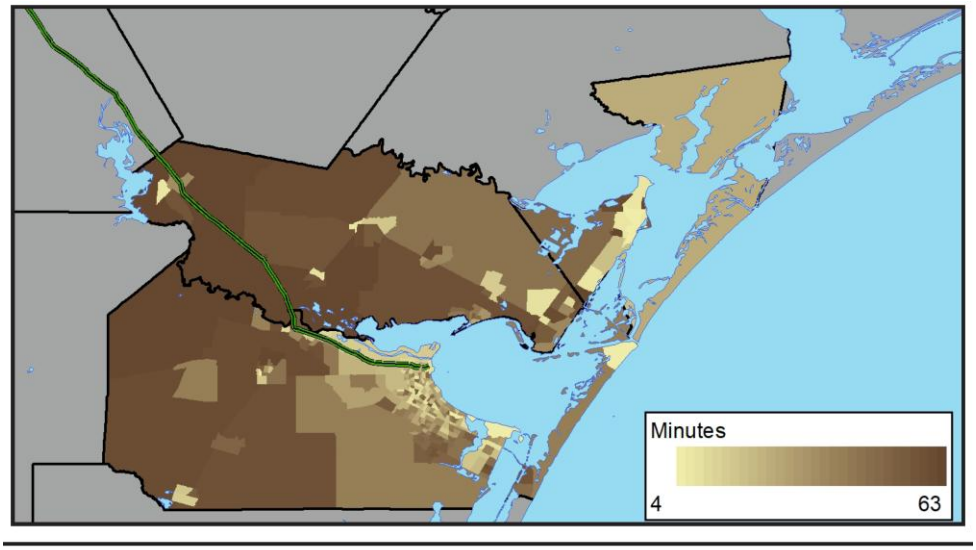


Exhibit 5-15 Average Travel Time to Work by Census Block Group



Sources: ACS, Moody's Analytics

PUBLIC TRANSPORTATION SYSTEM

The Corpus Christi Regional Transportation Authority (CCRTA), or "The B" as it is locally known, was established by referendum to develop, maintain and operate a public mass transportation system, principally within Nueces County, Texas and certain neighboring communities. CCRTA is the public transportation provider in the Corpus Christi Urbanized Area and is the Designated Recipient for FTA 5307 and 5310 funds allocated within the Corpus Christi Urbanized area. The CCRTA provides bus, paratransit, and other services to two of the three cities within the Corpus Christi Metropolitan Planning Area and to seven cities outside of the Corpus Christi Metropolitan Area.

The FTA 5307 funds for capital investments in bus and bus-related activities such as replacement, overhaul and rebuilding of buses, security equipment and construction of maintenance and passenger facilities; and capital investments in new rolling stock, overhaul and rebuilding of vehicles, station infrastructure, communications, and computer hardware and software planning, engineering, design and evaluation of transit projects and

other technical transportation-related studies. The 5307 funds can also be used for planning, engineering, design and evaluation of transit projects and other technical transportation-related studies. The Corpus Christi Urban Area and Metropolitan Planning areas area shown in Exhibit 5-15.

The CCRTA is also the designated recipient of Urban FTA 5310 funds. The 5310 funds are distributed to enhance the mobility of seniors and individuals with disabilities.

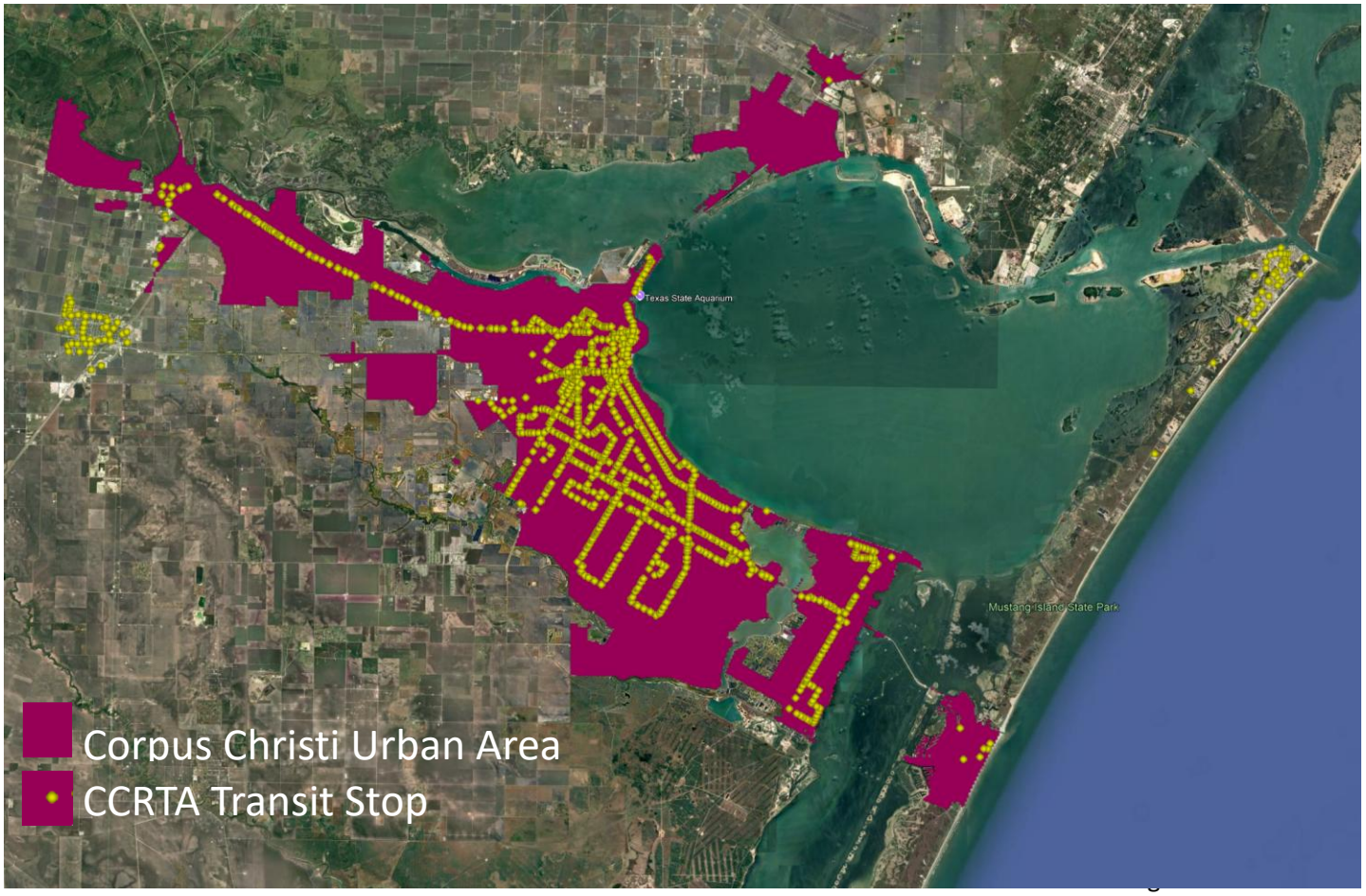
CCRTA collects 0.5% sales and use tax on certain transactions for transit purposes, including both capital improvement and operating expenses from the nine (9) participating cities and communities which include the cities of Corpus Christi, Agua Dulce, Banquete, Bishop, Driscoll, Gregory, Port Aransas, Robstown, San Patricio and the unincorporated areas of Nueces County.

System Ridership

Typically, CCRTA operates 34 fixed routes on weekdays, 27 fixed routes on Saturdays, and 19 fixed routes on Sundays. CCRTA's service standards classify fixed routes in the following typologies:

- Primary Transit Network (PTN): Frequent routes serve one or more CCRTA transfer stations and operate along primary arterial streets with high ridership demand.
- Standard Routes: Services operating in high to medium ridership demand areas and connect various areas with CCRTA transfer stations.
- Connector Routes: Services connecting outlying portions of service area with urban area at major CCRTA transfer stations. Connector routes may operate as demand response in outlying areas but have fixed stops within the urban area. Corpus Christi Regional Transportation Authority State of the System 2-2
- Local Circulators: Services operating within lower population and employment density areas with medium to low ridership demand.

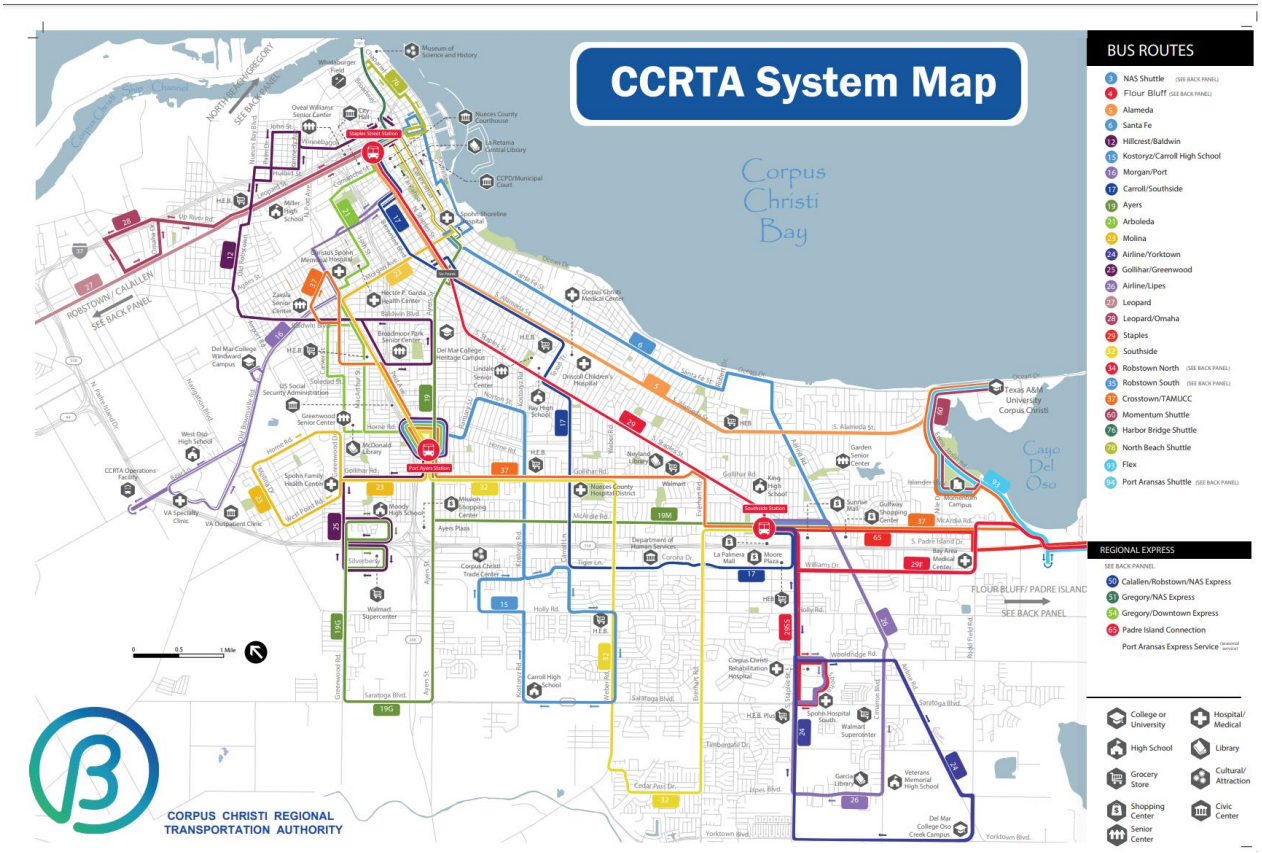
Exhibit 5-16 The Corpus Christi Urban Area, MPO Area and CCRTA Fixed Route Bus Stops



The CCRTA fleet includes 122 revenue vehicles, 65 of which are allocated to RTA operated fixed route services. MV Transportation, the agency's contracted paratransit Corpus Christi Regional Transportation Authority State of the System 2-4 operator, is assigned 53 vehicles for demand-response, paratransit, and some fixed route service. Port Aransas express and shuttle routes are assigned 4 vehicles.

Route Ridership varies significantly due to differences in headway, service span, and route length. CCRTA currently has 42 stops that average more than 30 boardings per weekday. Most of these are transfer centers, transfer points, or key destinations such as TAMU-CC, Walmart, HEB, or higher-density housing locations. Total system ridership is lower on weekend days. Saturday total ridership is 55% of weekday ridership, and Sunday total ridership is 35% of weekday ridership. Route 29 is the highest ridership route in the CCRTA system. Routes 19, 23, 27, and 29 have the greatest total ridership across every day of the week. These routes run every 20 to 30 minutes on weekdays and Saturdays, with Routes 23 and 27 dropping to every 60 minutes on Sundays.

Exhibit 5-17. Map of CCRTA Transit Route System

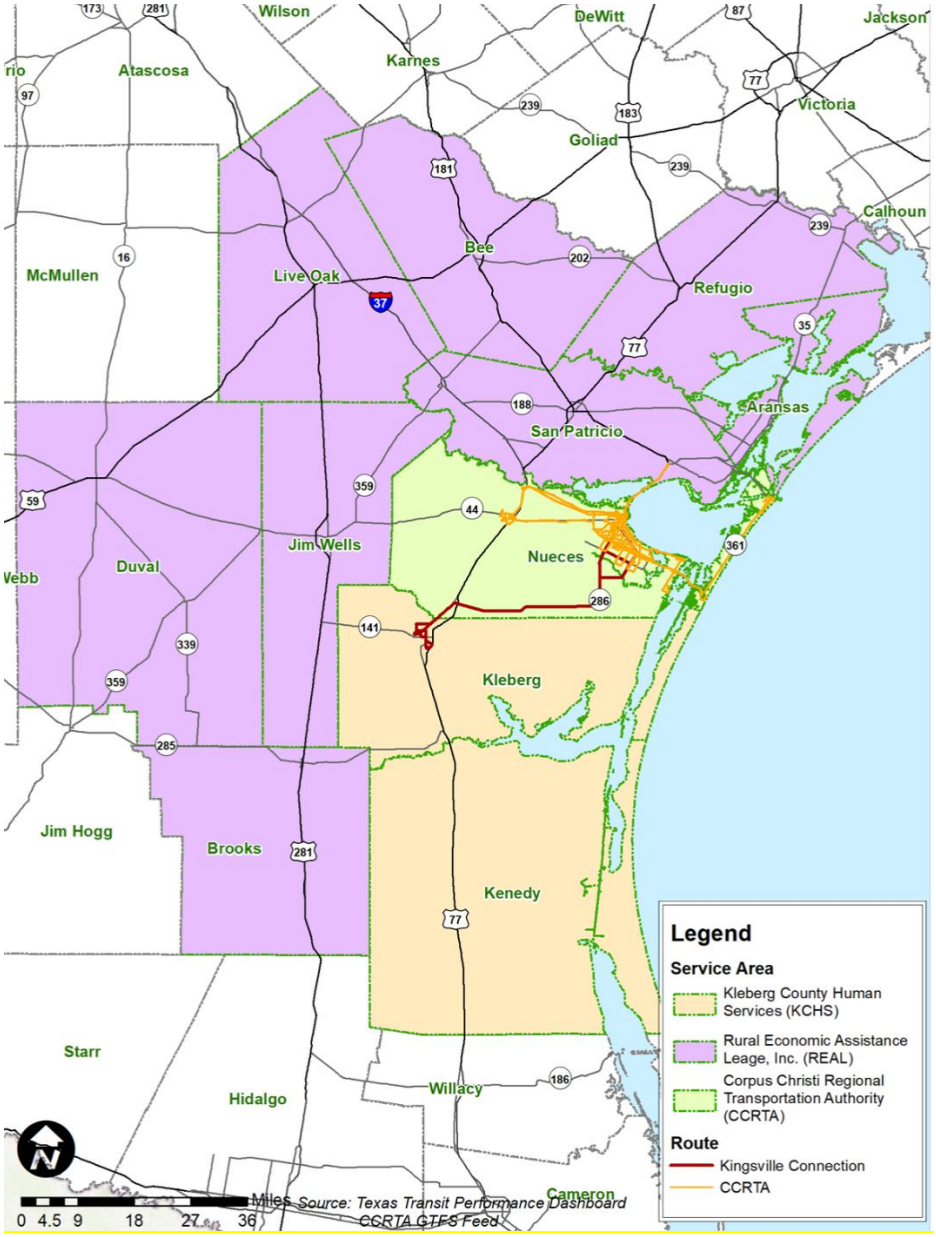


COORDINATED TRANSPORTATION

Human Service Agency (HSA) transportation services are a critical resource for seniors, persons with disabilities, individuals with low income, and veterans, filing gaps that are unserved or underserved by public transportation services or that require special assistance not typically provided by public transportation services. CCRTA, REAL Transit, and Kleberg County Human Services (KCHS) offer options for anyone traveling within the 11-County Coastal Bend Region. These public transit services include local fixed-route bus service and complementary Americans with Disabilities Act (ADA) paratransit service for CCRTA and general public dial-a-ride (demand-responsive transportation) for REAL and KCHS. CCRTA and KCHS also provide flex-route service, and CCRTA also provides ferry service and a vanpool program. HSA transportation programs in Corpus Christi MPO Area are provided by the Area Agency on Aging (AAA) of the Coastal Bend, Nueces County Senior

Community Services, and the Coastal Bend Center for Independent Living (CBCIL). There are several transportation providers that coordinate or purchase transportation from other providers. For example, CCRTA coordinates with REAL, Paisano Express, and CBCIL. The most recent Coordinated Plan was adopted in 2022 and is available as Appendix #.

Exhibit 5-18 - The 11-County Coastal Bend Regional Service Areas



CCRTA provides public transportation to Corpus Christi, Nueces County, and the cities of Gregory and San Patricio in San Patricio County. CCRTA is the only fixed-route transit service provider in the 11-County area. CCRTA's contractor, MV Transportation, operates several low-ridership routes that do not require a large bus or a driver with a CDL, including the route that serves Texas A&M University Corpus Christi (Route 93). In addition, the City of Port Aransas operates Route 94 and the one flex route in the system, called Flexi-B. MV Transportation also manages and operates CCRTA's ADA paratransit service, called the B-Line. CCRTA has partnerships with Del Mar College and Texas A&M–Corpus Christi. Both contribute financially to CCRTA in exchange for students, faculty, and staff riding fare-free.

B-Line Paratransit

CCRTA's ADA paratransit service is known as the B-Line. The transit agency contracts with MV Transportation for management and operation of a fleet of 38 vehicles. The ADA requires that a transit provider that operates fixed routes also provide complementary paratransit for people with disabilities who, because of their disabilities, cannot use or access the fixed routes. Agencies are required, at a minimum, to provide paratransit service where and when the fixed routes are operated within a ¾-mile radius. The B-Line service goes beyond this federal requirement and is provided throughout Nueces County. As with any ADA paratransit service, riders must first apply for eligibility to use the service. Once the rider is approved as eligible, the rider may call to book a trip 1–3 days in advance; same-day requests are also accommodated, but on a space available basis only. B-Line service is available Monday through Friday from 5:00 a.m.–10:00 p.m., Saturday from 5:00 a.m.–9:30 p.m., and Sunday from 8:00 a.m.–8:00 p.m. The fare for B-Line is $1.25, with a $2.00 surcharge for "premium" trips that begin or end beyond the ¾-mile fixed-route corridors. In 2020, 129,088 passenger trips were served on the B-Line at a cost of $42.31 per trip.

Coastal Bend Center for Independent Living

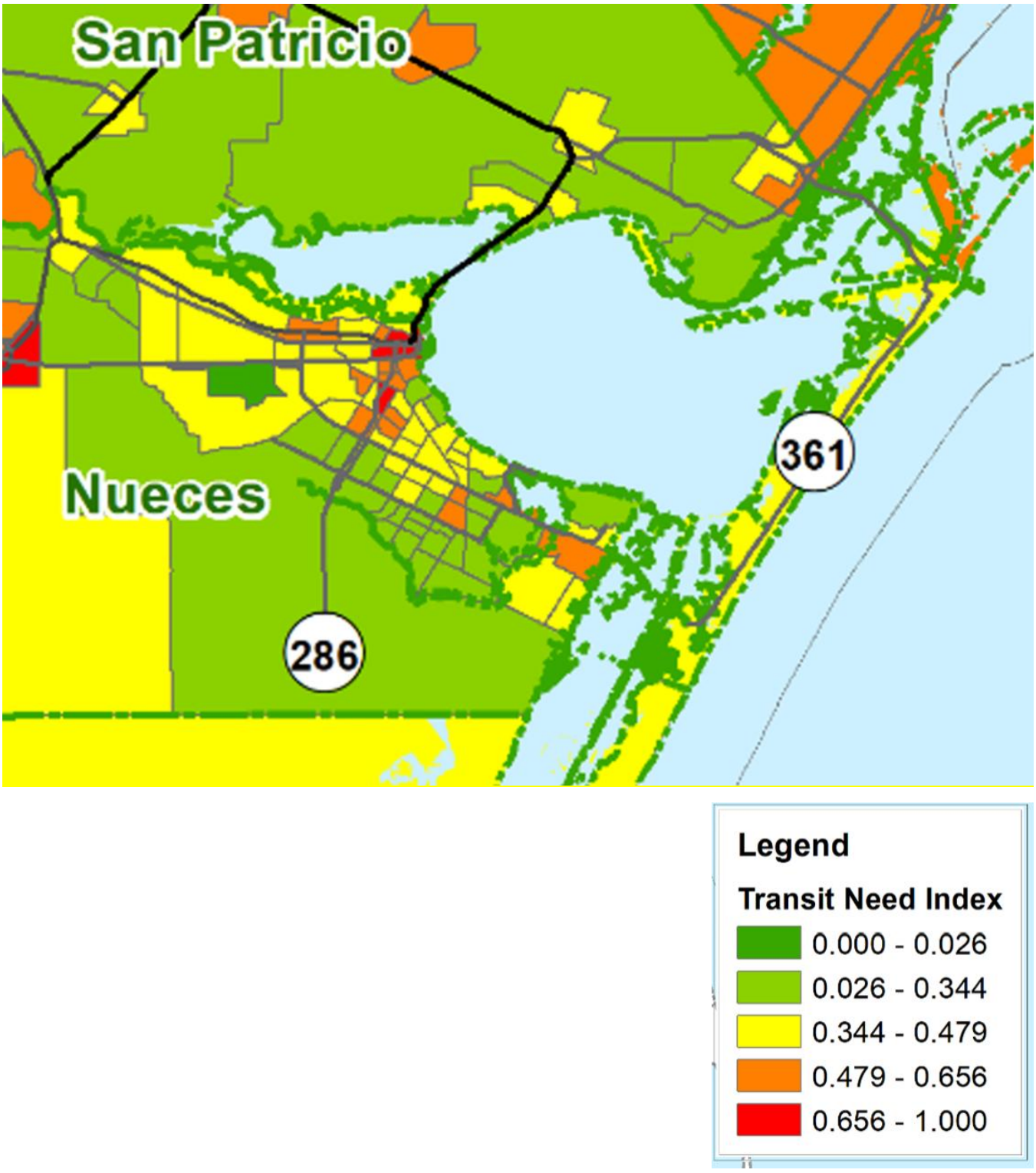
CBCIL provides services such as assistance with housing, employment, consumer rights, peer support, and transportation to individuals with disabilities. The Mobility Options Program is the on-demand transportation service available to seniors 65 years and older and individuals with disabilities. Eligible riders must register with CBCIL (an over-the-phone process during COVID-19) first before requesting a ride. Trip costs vary and are dependent on individual circumstances, with an emphasis on affordability for the customer. All trips must be scheduled 48 hours in advance. The service is available throughout the 11-county Coastal Bend Region. CBCIL utilizes Section 5310 funding from TxDOT for rural areas and Section 5310 funding from CCRTA to serve the urban areas. CBCIL contracts with several transportation providers, such as Feonix Mobility Rising, American Cab, and Medivan. CBCIL also utilizes funding from the Workforce Development Rehab Program (WDRP). In situations where Section 5310 funding is exhausted, funding from the WDRP is used to subsidize trips.

Transit Need Index

The Transit Need Index (TNI) analysis was used to map out the areas of need based on demographics that traditionally indicate the need for transportation services. Figure 5-XX depicts the TNI for the Corpus Christi MPO area. This analysis combined five key demographics to display a transit needs map for the region. All data for the TNI were from the U.S. Census Bureau American 55 Coastal Bend Regional Coordination Plan 2022 Community Survey and were the most recent data as of December 6, 2021—from the 2015–2019 ACS 5-Year Estimate. In effect, the TNI identified areas where transit need is more pronounced. The five key demographic characteristics used to create the TNI included the following, all weighed equally:

- Senior Population: Defined as people aged 65 and older, seniors have a higher need for public transportation due to an increasing inability to operate an automobile without the assistance of others.
- People with a Disability: The non-institutionalized population with a disability have a higher need for public transportation as a result of increased numbers of individuals who do not drive or own a motor vehicle. In addition, people with a disability tend to need trips more frequently for healthcare purposes, and overall have lower household incomes.
- Population below Poverty Level: Individuals below the poverty level have a higher need for public transportation due to not having the financial means of owning and maintaining a vehicle.
- No Vehicle Available: Households (also known as occupied housing units) with no vehicle available have a higher need for public transportation because residents do not have a vehicle available for means of transportation. As a result, public transportation becomes a more likely option.
- Veteran Population: Veterans are part of TxDOT's priority population demographic and are included in this TNI.

Exhibit 5-19 – Transit Needs Index in the Corpus Christi MPO Area



Passenger Facilities

Bus Stops

Existing bus stops range in amenities depending on ridership, available right-of-way, and adjacent land use and infrastructure. All bus stops are marked by a pole with signage displaying routes served and CCRTA branding. CCRTA installs shelters at bus stops with at least 30 average daily boardings.

Figure 6 - Bus Shelter

Shelters may also be installed at bus stops that have 10 or fewer average daily riders if they are at a frequent transfer point, are served by routes with higher wait times, or are located within ¼ mile of major employment centers, grocery stores, schools, apartments, social services offices, medical facilities, or senior centers.

Benches without shelters may be installed at lower ridership stops. A bus stop location with a minimum of 10 average daily boardings with adequate right-of-way warrants an advertising bench. Stop locations with 5-10 boardings warrant a standard bench. Stop locations below 5 daily boardings warrant small benches or similar products.

Figure 7 - Stop Amenities Guidelines

Avg Daily Boardings	Stop Amenities
5 or fewer	Pole and signage, potentially a small bench or similar
6 to 29	Bench, trash can, pole, signage
30 or more	Shelter, bench, trash can, pole, signage

Transfer Stations

CCRTA offers four transfer stations in Corpus Christi and Robstown. Each transfer station provides covered waiting areas and seating for customers. Transfer stations vary in terms of age, accessibility, capacity, and usage.

Staples Street Station

Figure 8 - Staples Street Station

Staples Street Station is the busiest transfer point for CCRTA routes, averaging 1,157 weekday boardings[1]. Staples Street Station, is located in Downtown Corpus Christi within one block of the intersection of Leopard and Staples. Staples Street Station is an off-street facility located within one block of Corpus Christi City Hall and Nueces County Courthouse. This location also houses the Greyhound Bus Station.

Southside Station

Figure 9 - Southside Station

Southside Station is the second busiest transfer station in terms of bus activity and third highest in terms ridership (456 average weekday boardings) after Staples Street and Port Ayers Station. Southside Station is an off-street facility conveniently located across the street from La Palmera Mall, the largest retail destination in the Coastal Bend.

Southside Station is approximately 6-7 miles from Staples Street Station, or about 30 minutes on Route 29.

Port Ayers Station

Port Ayers Station is the second highest ridership stop in the CCRTA system, averaging 562 weekday boardings. The station is not entirely off-street as buses access the facility from a bus pull-out on Ayers and an access lane on Port. One of the bus bays along Port is not currently ADA accessible, and pedestrian access to the station is hindered by high traffic volumes and multiple vehicular turn lanes.

Port Ayers Station is in the process of being replaced with a new 10-bay station. Construction is scheduled to begin Spring 2023 with an estimated completion of December 2023.

Avg Daily Boardings	Stop Name
1,157	Staples Street Station
562	Port Ayers Station
456	Southside Station
298	Texas A&M CC University
141	Islander Way @ Izzy
99	Avenue A @ 4th St. @ Robstown Station
67	Port @ Tarlton H.E.B. NS
57	Port @ Tarlton HEB
56	Staples @ Carmel
55	Compton @ Waldron
51	Office Depot in Six Points Area
46	77 Access Road @ Walmart MB
45	Port across from Post Office MB
44	Staples @ Laredo NS
43	5262 S Staples across Moore Plaza H.E.B.
40	Ennis Joslin @ La Joya Apts. FS
36	Northwest Blvd. @ Wildcat NS
35	Crecy @ Bldg 8 CCAD
32	Leopard @ Lantana NS
31	Staples between Elizabeth & Booty MB

INTERCITY BUS CARRIERS

The following eight specific intercity/international bus carriers operate services with stops and/or passing through the Coastal Bend region:

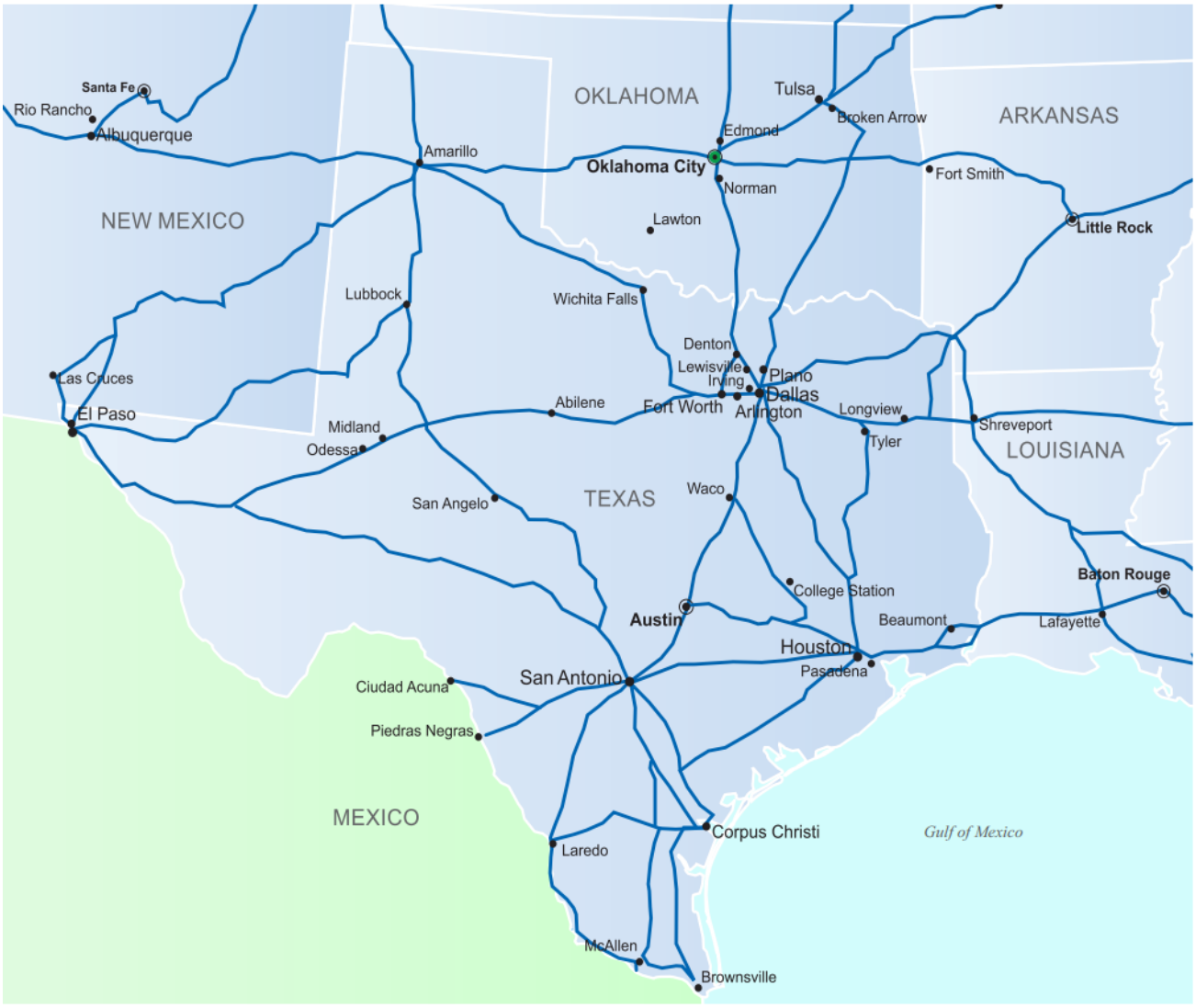
- Greyhound
- Valley Transit Company
- Americanos
- El Expreso Bus Company
- Tornado Bus Company
- Grupo Senda
- Omnibus de Mexico
- Megabus

Greyhound and its partners (such as Valley Transit and Americanos) provide the most intercity bus service to the region with 16 stations in the region. Greyhound has three routes traveling through the region: 490, 494, and 499.

Connecting the CCRTA system to other cities and regions is important for those residents that do not have a personal vehicle to use and need the mobility options. Additional connections are provided by the intercity bus

service (Greyhound) to the Texas cities as well as their bus systems and certain locations, rail service through AMTRAK. Although additional efforts are required for those transportation users, the system is connected so that these citizens can take advantage of services and activities throughout Texas and the United States.

Exhibit 5-18. Map of Greyhound Routes



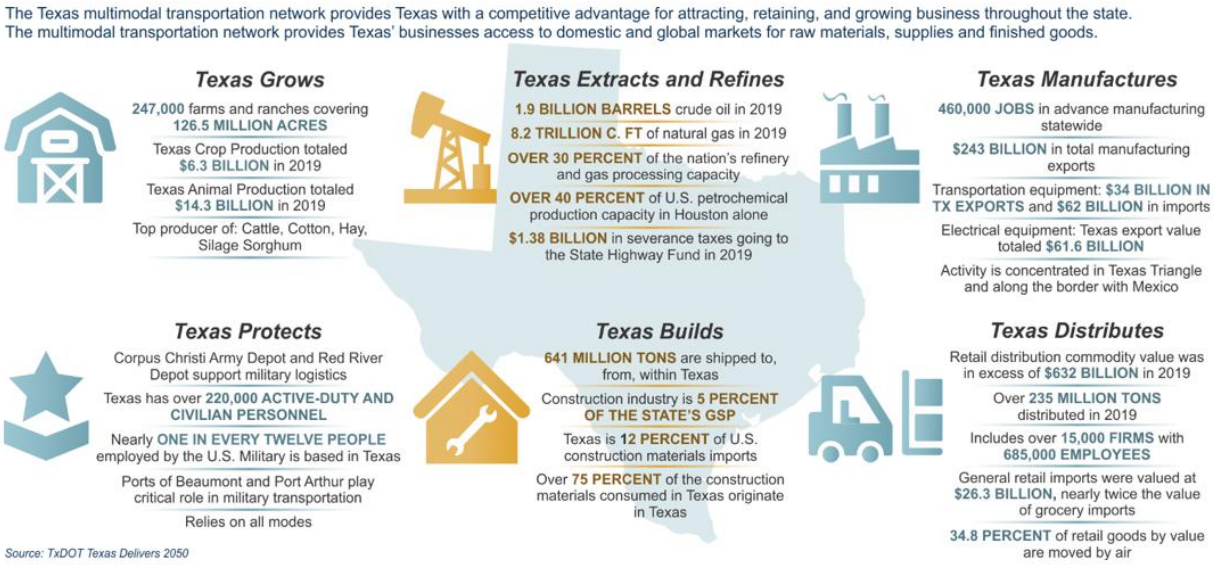
IMPROVE ECONOMIC VITALITY AND FREIGHT MOVEMENT

The Corpus Christi MPO region fulfills a role as an important link in the regional, statewide, and national transportation system. At the local level, intermodal planning activities and ongoing improvements that address freight and other needs help to maintain the region's economy and competitiveness. Greater detail regarding freight movement is found in **Chapter 9: Freight Planning** in this document.

FREIGHT MOVEMENT

The national, state, and local transportation network depends on railroads and trucking as the most efficient modes of transportation for the movement of freight and bulk cargo. The IIJA/BIL made a number of changes to improve the condition and performance of the national freight network and support investment in freight-related surface transportation projects. Specifically, it required the Secretary of Transportation to encourage each state to develop a comprehensive State Freight Plan and establish a State Freight Advisory Committee (SFAC) for surface transportation projects.

Texas Businesses And Consumers Depend On Safe And Reliable Multimodal Transportation Infrastructure and Supply Chains.



Movement of goods in the Corpus Christi MPO region relies on highways and roads for long-distance transport as well as for urban goods delivery (i.e. transport from warehouses or intermodal freight terminals to final destinations). Trucks are used on all state routes in the Corpus Christ region. They play a role not only in the distribution of local freight and deliveries, but also as an integral part of the intermodal logistics for the region and the state as a whole. Trucking logistic centers (where intermodal transfer occurs) are centered on all the major freight generators in the region including manufacturing, warehousing, distribution facilities, and rail yards. In terms of highways and roads in the region, the routes shown in Exhibit 5-16 are strategic freight corridors.

State Freight Advisory Committee (SFAC) Mission

Advise TxDOT on freight issues, priorities, projects, and funding needs for freight improvements, and elevate freight transportation as a critical component of the state's economic vitality and competitiveness.

SFAC Goals:

- Ensure the participation of private sector freight stakeholders in TxDOT's transportation planning process.
- Ensure that freight transportation needs are addressed in TxDOT's transportation planning, programming, investments, and implementation processes.
- Provide input into the development of the Statewide Freight Plan.
- Help TxDOT identify and target freight investments.
- Assist TxDOT in prioritizing freight investments by identifying high priority and strategic freight transportation projects that facilitate safe and efficient movement of freight throughout the state.
- Develop TxDOT's Freight Transportation Action Items on Key Freight Issues.

NATIONAL AND STATE PRIORITY HIGHWAY FREIGHT NETWORK

The federal FAST (Fixing America's Surface Transportation) Act established a new National Highway Freight Network (NHFN) as a way to "strategically direct federal resources and policies toward improved performance of highway portions" of the freight system. There are four components of the NHFN.

1. Primary Highway Freight System (PHFS): This is a network of the most critical highways including the interstate system.
2. Interstates not considered part of the Primary Highway Freight System.

3. Critical Urban Freight Corridors
4. Critical Rural Freight Corridors

The Texas Priority Freight Network (TPFN) identifies key freight movement corridors and gateways. Establishing this integrated and multimodal freight transportation system is a critical to facilitating efficient freight mobility in Texas.

The TPFN will be a statewide network of high priority highway, rail, and waterway transportation corridors connecting ports like the Port of Corpus Christi to inland ports such as Laredo and San Antonio. The TPFN objectives will include:

- Economic Competitiveness
- Efficiency
- Intermodal Connectivity, and
- Interregional Connectivity

The Texas Highway Freight Network Map is provided below as Exhibit 5-16. The TPFN will provide a vehicle for the National Freight Policy, Plan and Network to incorporate the needs of the Texas based TPFN. The projected Freight tonnage for the year 2045 is illustrated in Exhibit 5-17.

Exhibit 5-19. National and State Highway Freight Network in the Corpus Christi MPO Area

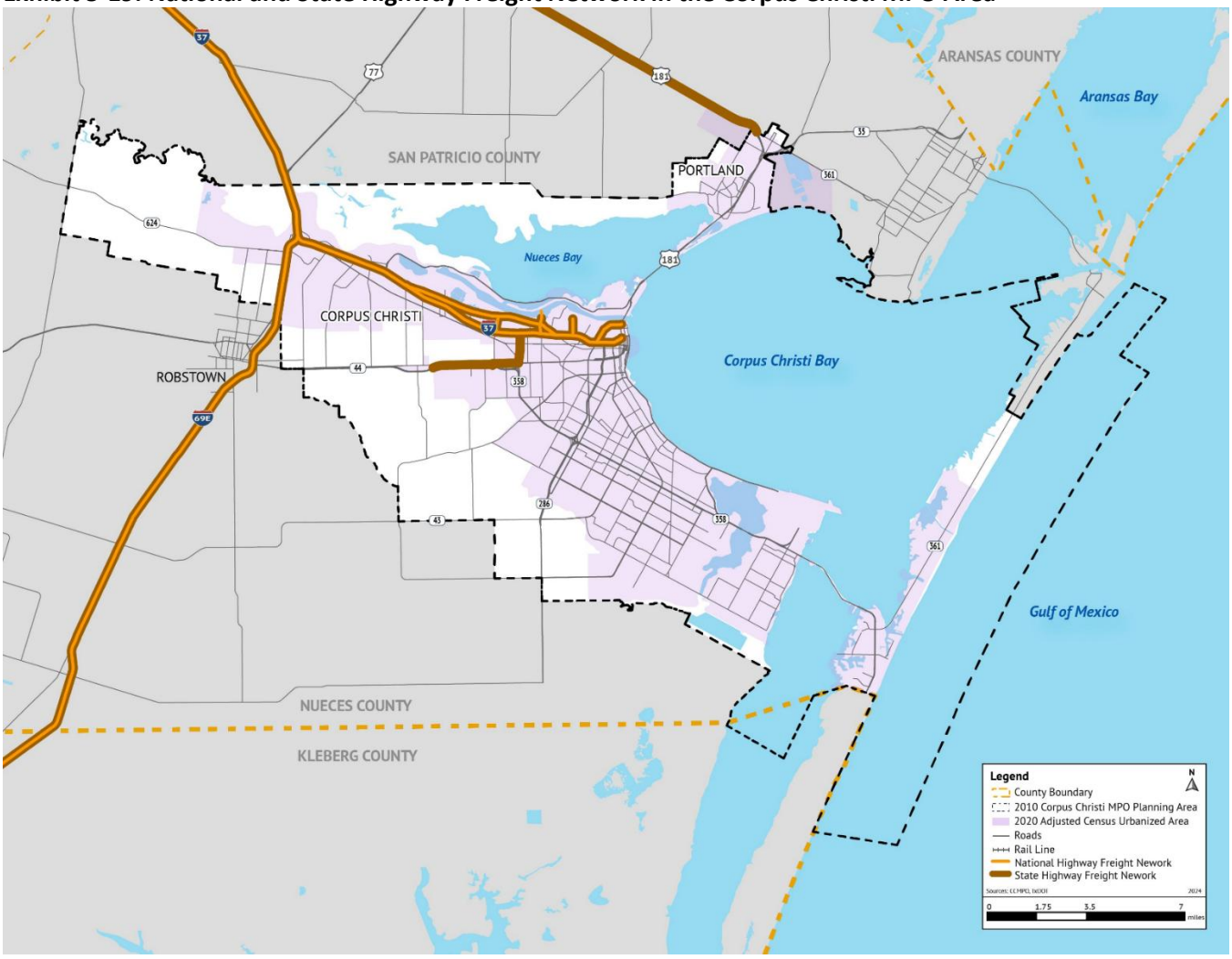
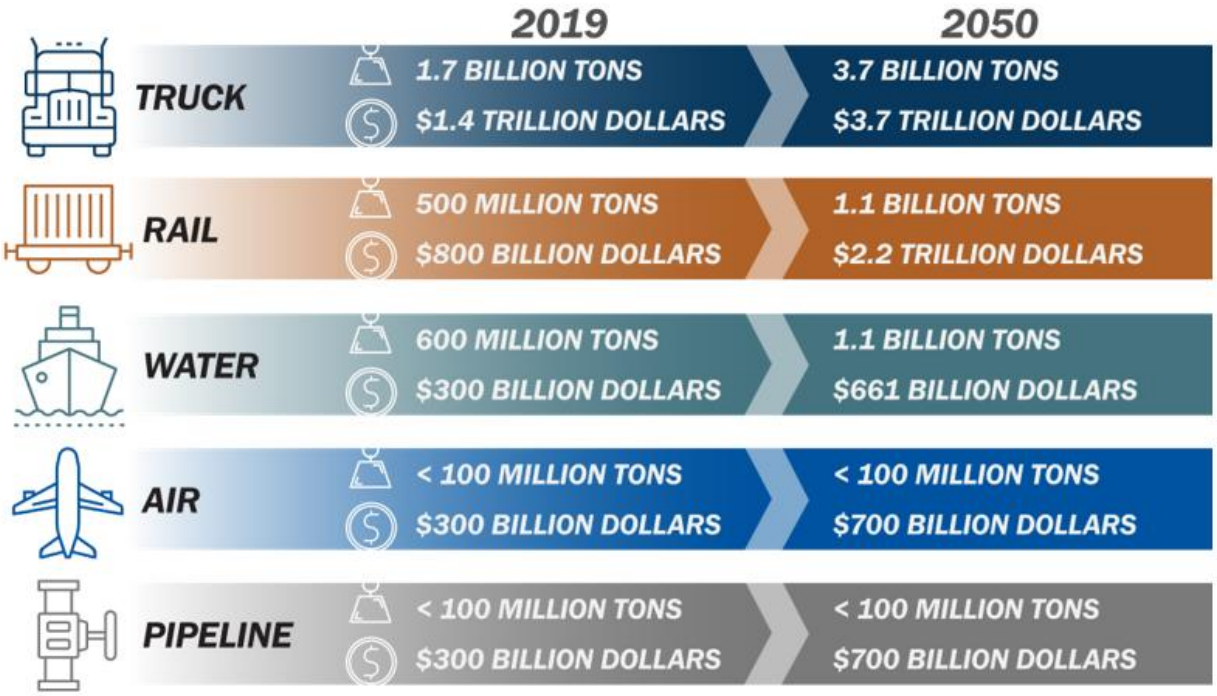
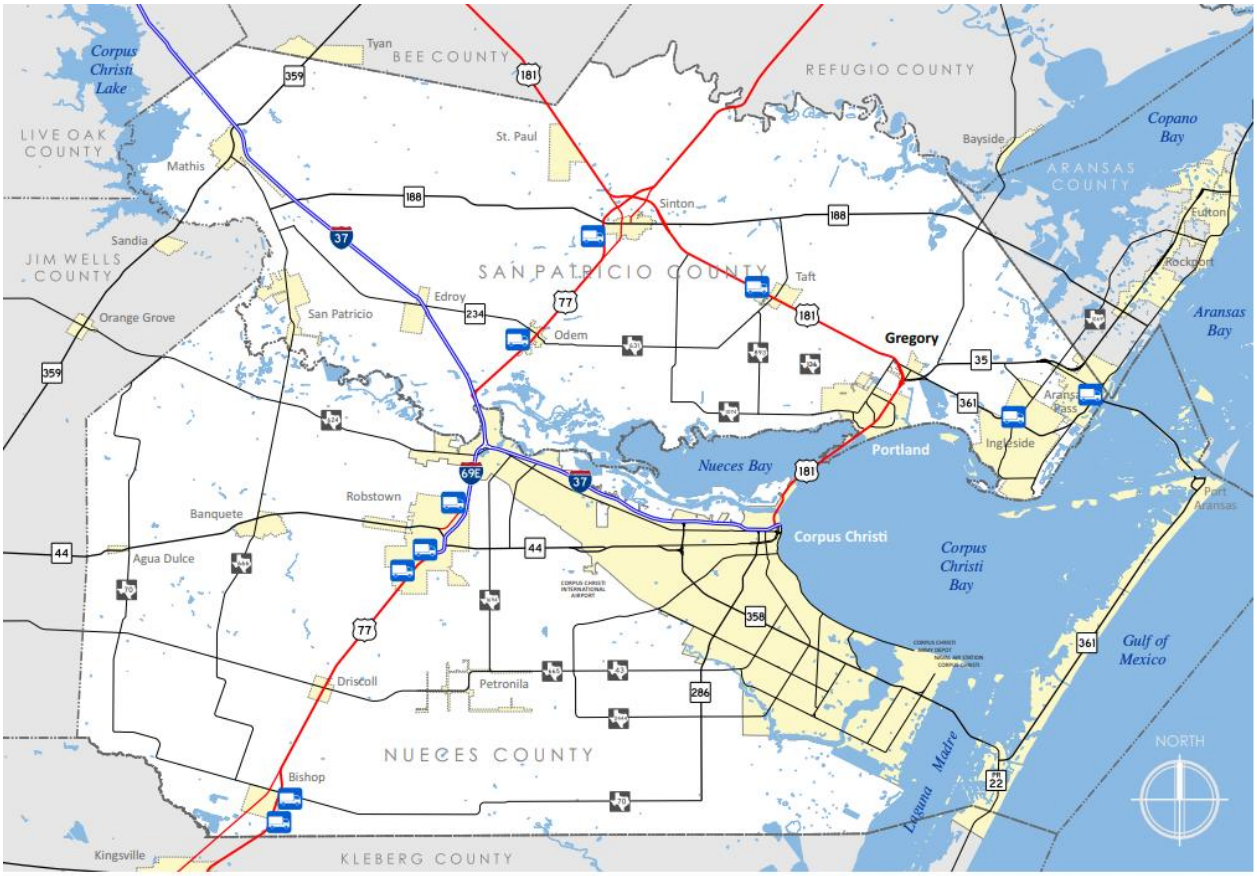


Exhibit 5-20. Map of TPFN Projected Freight Tonnage for 2050



Source: Transearch, Waybill, USA Trade Online, Enverus. Analysis by Cambridge Systematics.

Exhibit 5-21. Map of Truck Stop Parking Locations near the MPO



LOCAL GOODS DELIVERY

The rise of e-commerce has significantly increased local goods delivery in the Corpus Christi Metropolitan Planning Organization region. The region is currently served by major carriers Amazon, FedEx, UPS, and the USPS. The location of these facilities is shown in Exhibit 5-22. The existing delivery system functions well, but there are challenges related to infrastructure limitations and increasing delivery demands. Several Metropolitan areas in Texas are exploring new ways to meet these challenges using delivery robots that are airborne or that operate along sidewalks or bicycle sidepaths. Similar implementation in the Corpus Christi region requires additional investments.

Amazon: As a major e-commerce player, Amazon operates a complex network of delivery vehicles, including its own fleet and contracted drivers. Its focus on speed and efficiency presents unique challenges for urban planning.

FedEx and UPS: These carriers handle a wide range of packages, from small parcels to large freight. Their extensive networks and established infrastructure are vital to the region's logistics.

USPS: The USPS provides essential mail delivery services, including e-commerce packages. Its network of carriers and delivery routes is deeply integrated into the community.

Our local needs have been identified and should become part of the TPFN. They include the goals of:

1. Providing for the safe and efficient movement of trucks within the region.
2. Include the provision for safe and reliable truck parking locations throughout the region. Exhibit 5-18 as an illustration of current truck parking locations and amenities and the Texas Highway Freight Network in the Corpus Christi region.
3. Assuring that freight and trucking companies and other stakeholders are part of the regional coordination and planning efforts.
4. Identifying and enhancing routes and corridors that would provide connectivity for trucks particularly as it relates to critical freight facilities such as the La Quinta Trade Gateway, the Robstown Inland Port of the Americas, and the Joe Fulton International Trade Corridor (JFITC). The JFITC is shown in Exhibit 5-34.

MARINE FREIGHT SYSTEM

The marine freight system in the Corpus Christi region consists of the Gulf of Mexico and the Intercoastal Waterway. These waterways are strategic freight corridors. The marine system consists of waterways, ports, and intermodal landside connections that allow the road and rail systems to move freight to and from the water. The waterway portion of the marine system will be discussed first followed by marine ports. Other non-marine ports will be discussed as well given their importance to regional economic development.

PORT OF CORPUS CHRISTI (PCCA)

In the last several years and projected into the future decade, the volume of commodities accommodated by the Port of Corpus Christi Authority (PCCA) continues to grow. The PCCA has invested in capital projects and operational improvements to accommodate the future growth. Some of these projects are roadway and intersection improvements serving the PCCA's operations. The overview of the Port area is illustrated in the following Exhibits 5-19 and 5-20. These and other PCCA projects are presented in Exhibits 5-21 and5-27.

The PCCA developed a Strategic Plan 2026 to guide their future developments, and the Plan is guided by the following Strategic Goals:

- Foster Strategic Growth
- Be a Good Business and Community Partner
- Provide Facilities and Services to Meet Customer Needs
- Be an Environmental Leader

- Fund Our Vision
- Cultivate the Workforce and Tools of the Future

Exhibit 5-22. Port of Corpus Christi Authority Projects Overview

Port Priorities & Opportunities

PCCA is adapting to significant market shifts, focusing on expanding LNG and crude operations while exploring new markets in carbon neutrality and low-carbon hydrogen energy. Anticipating a crude market plateau in the late 2020s, PCCA is also expanding its LNG capacity and cultivating production of future fuels. PCCA has operated on 100% renewable electricity since 2017, has made strides in recycling and Carbon Capture and Storage (CCS) technology, and is transitioning to low-emission vehicles. These efforts, coupled with Green Marine and ISO-14001 certifications and beneficial use of dredge material, demonstrate PCCA's commitment to environmental responsibility alongside its growth.

Connectivity improvements are a priority for PCCA to address encumbrances like the I-37 walking bridge and the Nueces Bay Causeway. Projects are underway to enhance inland access, crucial for supporting PCCA's expanding operations and maintaining efficient transport routes.

ECONOMIC IMPACT

Annual Rail Cars
43,790

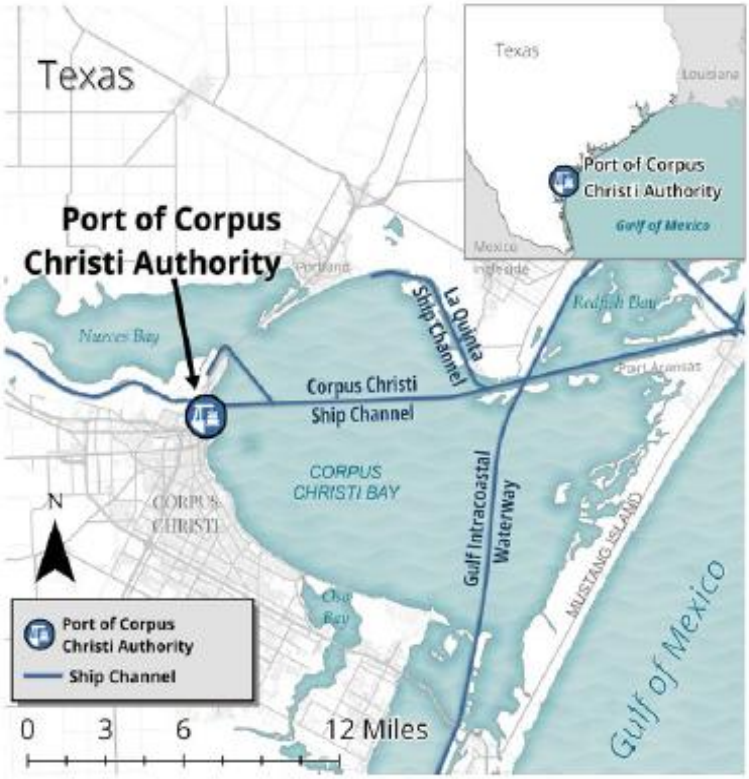
Direct Jobs
16,786

Tax Revenue
$49.6M

Port Projects

Project Name	Project Type	Total Project Cost
Ingleside Cargo Dock	Maritime Infrastructure	$129 Million
Ingleside Low Carbon Energy Terminal	Maritime Infrastructure	$288.5 Million
Inland Industrial Port Campus	Maritime Infrastructure	$81.5 Million
Mike Carrell Road Access Improvements	Seaport Connectivity	$4.6 Million
Corpus Christi Ship Channel Queuing Area Feasibility Study	Ship Channel	$3.0 Million
Corpus Christi Ship Channel Dock Deepening Project	Ship Channel	$330 Million
Corpus Christi Ship Channel Improvement Project	Ship Channel	$681.6 Million
La Quinta Channel Expansion Feasibility Study	Ship Channel	$4.5 Million

Exhibit 5-23. Port of Corpus Christi Authority Trading Partners Overview



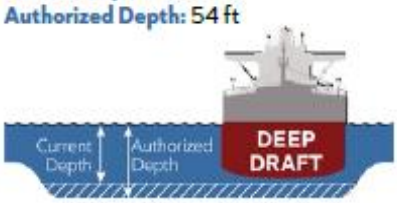
PORT FACILITIES

DOCKS & WHARVES
- 13 liquid docks
- 3 dry bulk docks
- 5 multi-purpose cargo docks
- General purpose high-speed bagging facility

STORAGE & LAND
- Over 700 acres available for lease or development
- Leases available at 40-acre Rincon Industrial Park
- 340,000 sf of covered storage
- 140+ acres of open storage

SHIP CHANNELS

Ship Channel Name: Corpus Christi Ship Channel
Current Depth: 47-54 ft
Authorized Depth: 54 ft



INTERMODALITY

ROAD
- Highway connections to US 181/ SH 35, I-37, SH 361, and I-69
- Access to Joe Fulton International Trade Corridor (JFC) from inner harbor

RAIL
- Port-owned Corpus Christi Rail Terminal switching railroad with connections to BNSF, Canadian Pacific Kansas City (CPKC), and Union Pacific

BARGE
- 13-mile sailing distance to GIWW (M-10, M-69)

AIR
- Commercial service to Corpus Christi International Airport

PIPELINE
- Connections available

CARGO CONNECTIONS

Top Trading Partners

EXPORTS
- Netherlands $13.7 Billion
- South Korea $9.0 Billion
- Singapore $5.7 Billion

IMPORTS
- Mexico $1.1 Billion
- Colombia $990 Million
- Singapore $519 Million

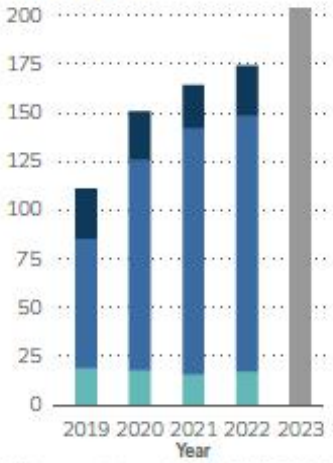
Data from USA Trade for 2023

Top Commodities

EXPORTS
- Petroleum
- Fertilizers & Chemicals
- Agriculture & Food
- Manufactured Goods
- Crude Materials

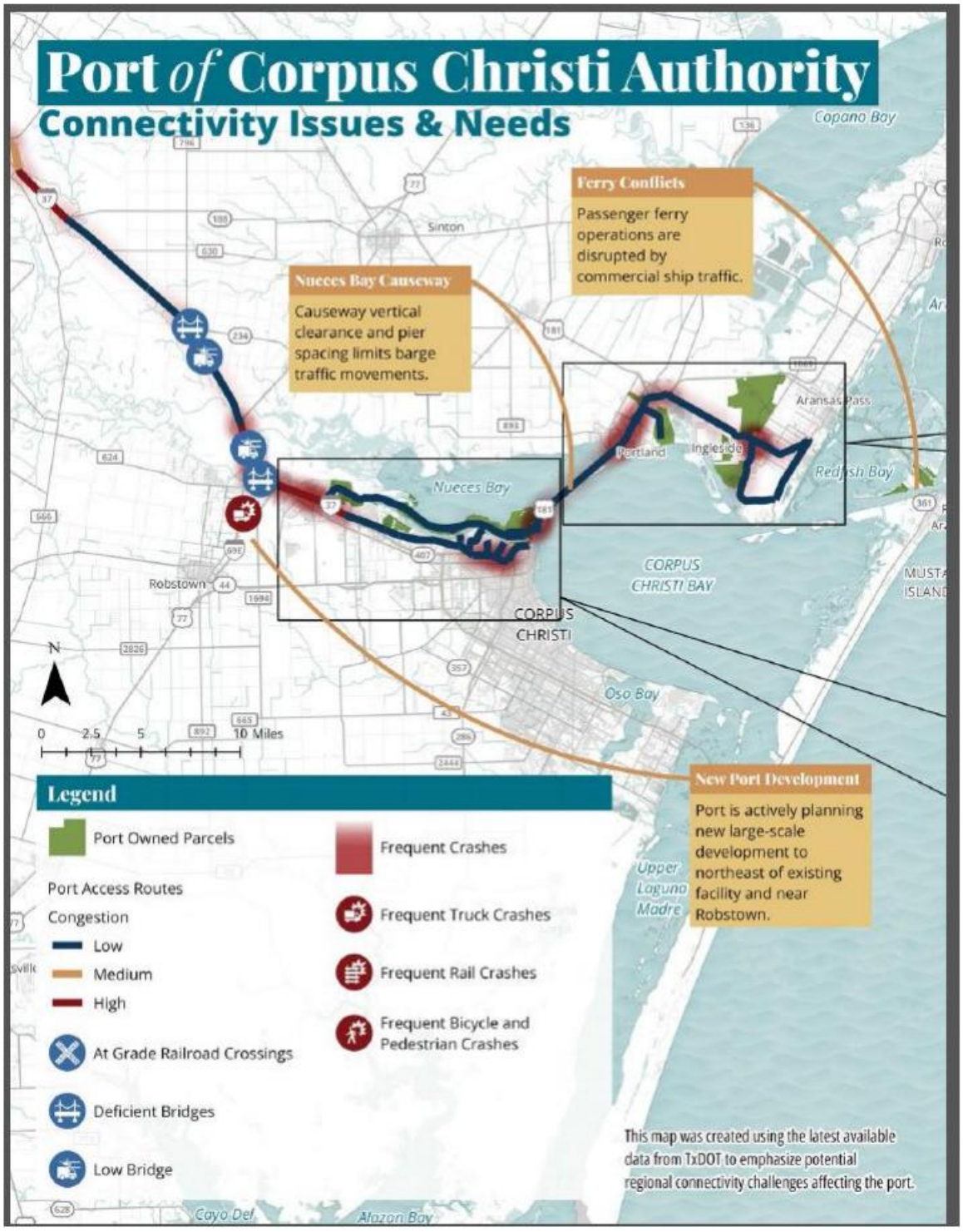
IMPORTS
- Petroleum
- Crude Materials
- Fertilizers & Chemicals
- Manufactured Goods
- Equipment & Machinery

Tonnage



2023 tonnage data provided by PCCA; 2019-2022 tonnage data from USACE Waterborne Commerce Statistics Center, 2024

Exhibit 5-24. Map of PCCA Issues and Needs



CORPUS CHRISTI INTERNATIONAL AIRPORT (CCIA)

Corpus Christi International Airport (CCIA) is owned and operated by the City of Corpus Christi. A full-service commercial airport, CCIA is served by American Airlines, Southwest Airlines, and United Airlines. CCIA is also home to two national Fixed Based Operators and a robust general aviation community. Capital improvements for Corpus Christi International Airport (CCIA) are developed in accordance with the Airport Master Plan and the Federal Aviation Administration (FAA) grant funding process. The Master Plan establishes a program for

improvement of existing facilities and the development of additional facilities over a twenty (20) years period. The current Airport Master Plan is in process and due for completion in the Spring of 2025.

Exhibit 5-25. Map of Corpus Christi International Airport and Airfreight Companies

Source: Google Earth and Hubpoint

Source: Google Earth and Hubpoint

Exhibit 5-26. Map of Nearby Public Airports relative to CCIA

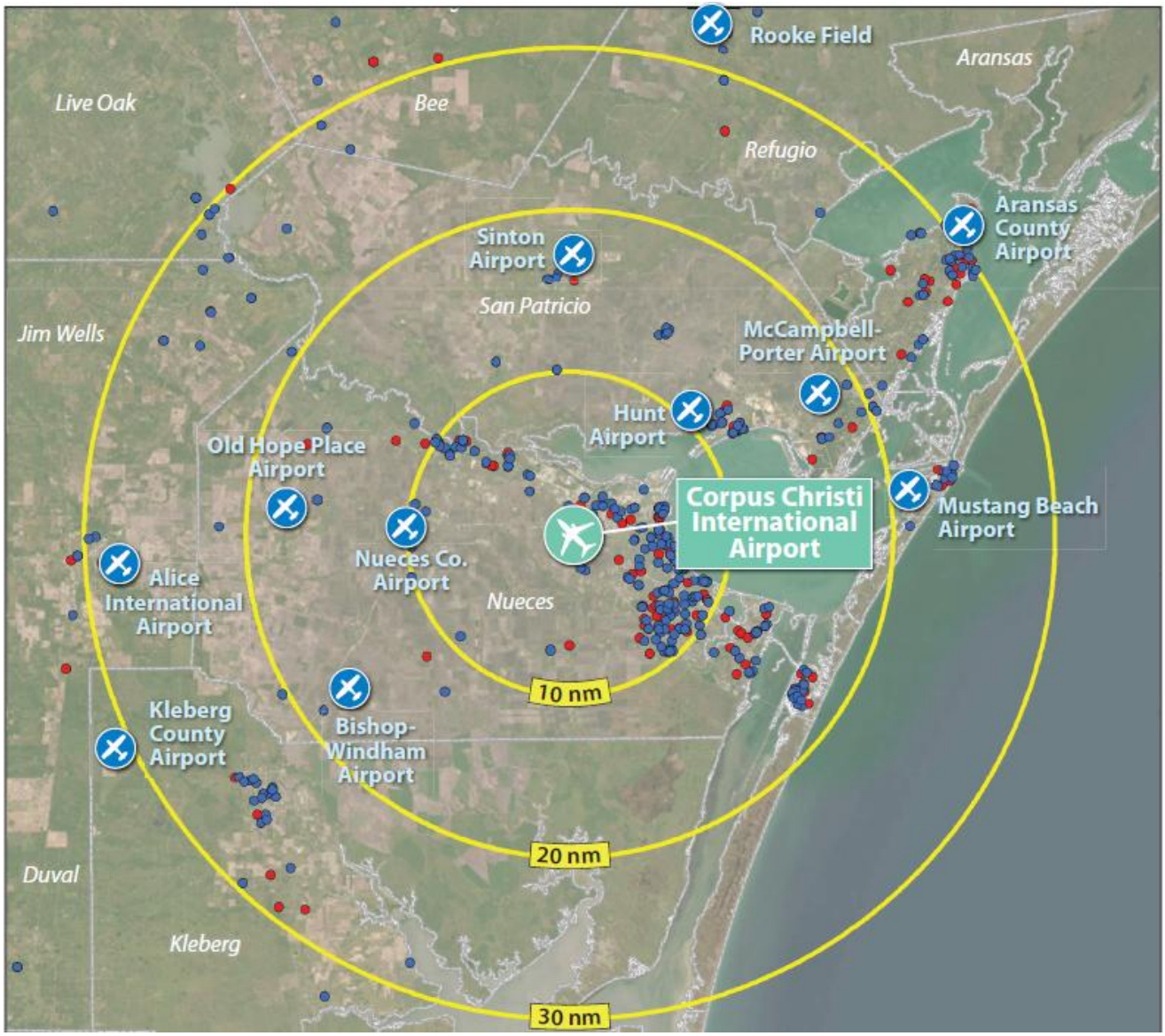
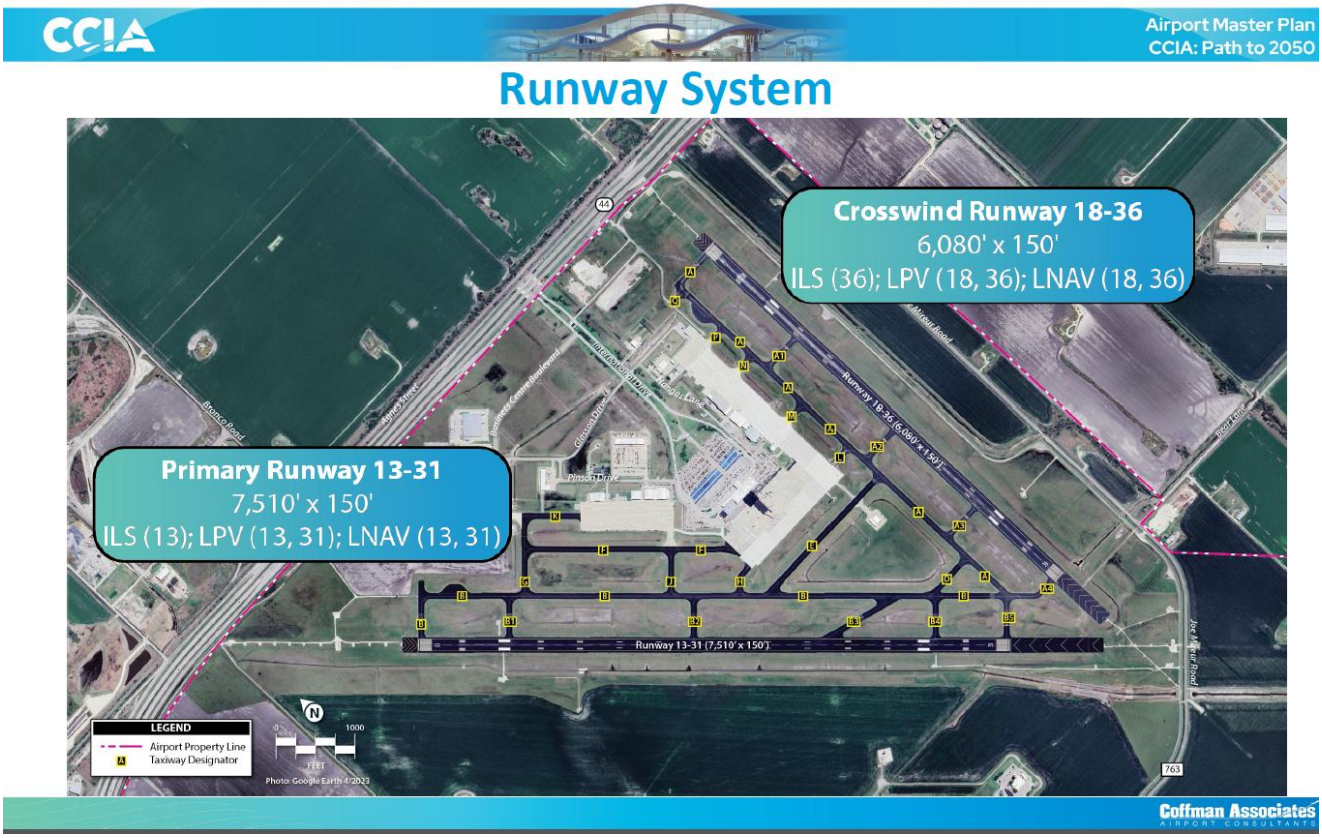


Exhibit 5-27. CCIA Services and Facilities

Exhibit 5-2825. CCIA Runway Configuration



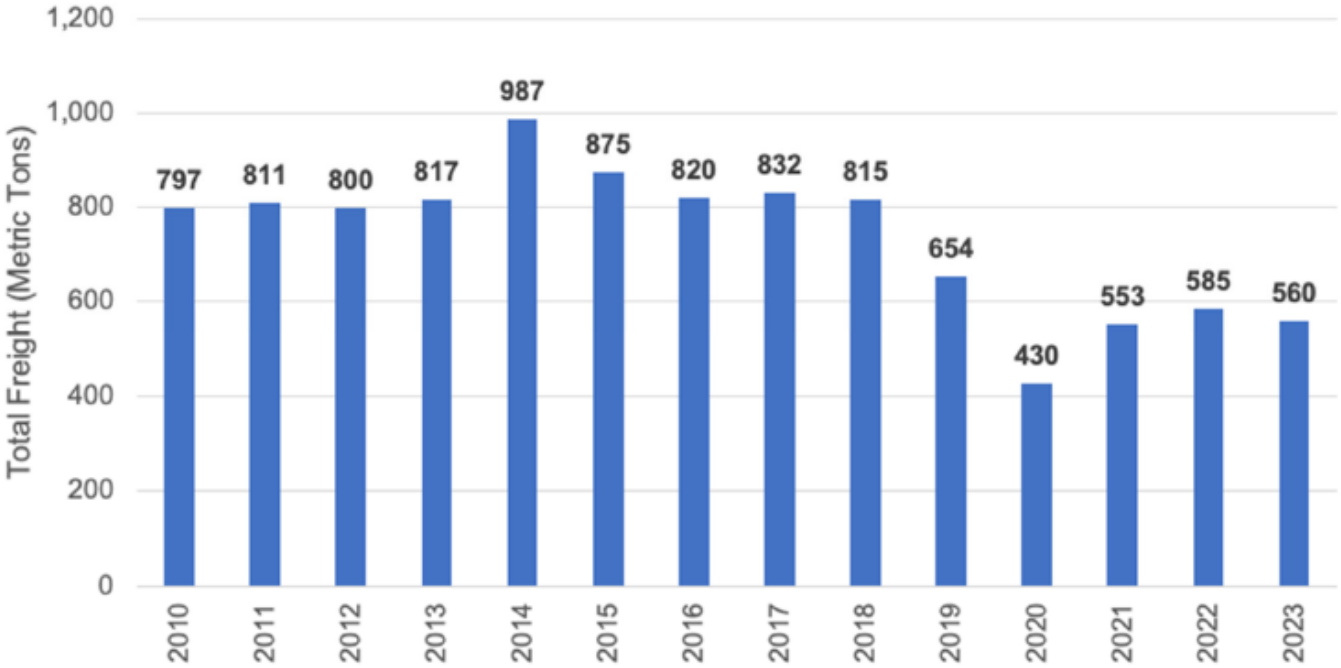
The statistics for the calendar year 2023 are the latest full year of information regarding air service at the CCIA. A summary chart (Exhibit 5-30) illustrates the activities at the airport. Each of the airlines contributes about an equal share of the market for air service to and from the airport. As the airport implements their short and long-term capital program, they will analyze the impacts to the air services at the airport and plan accordingly.

Exhibit 5-29 Summary of CCIA Operations by Year

Year	ITINERANT					LOCAL			Total Operations
	Air Carrier	Air Taxi	General Aviation	Military	Subtotal	Civil	Military	Subtotal	
2000	11,987	15,536	27,707	15,753	70,983	15,135	43,013	58,148	129,131
2001	8,719	16,054	29,318	11,656	65,747	11,701	46,110	57,811	123,558
2002	4,904	19,095	28,612	9,858	62,469	6,776	48,293	55,069	117,538
2003	4,616	16,327	26,347	10,274	57,564	7,791	55,676	63,467	121,031
2004	4,501	16,694	25,164	10,620	56,979	6,068	58,685	64,753	121,732
2005	4,193	18,479	24,905	9,976	57,553	3,990	47,323	51,313	108,866
2006	4,135	18,085	21,735	10,779	54,734	3,170	50,970	54,140	108,874
2007	4,143	18,377	19,760	15,196	57,476	2,160	40,343	42,503	99,979
2008	4,045	17,229	20,200	28,667	70,141	794	28,711	29,505	99,646
2009	4,787	16,921	19,354	24,081	65,143	1,560	30,772	32,332	97,475
2010	3,461	17,238	18,637	25,129	64,465	4,067	32,944	37,011	101,476
2011	3,337	16,820	17,894	29,094	67,145	2,382	30,983	33,365	100,510
2012	3,406	16,292	16,717	25,779	62,194	3,278	20,600	23,878	86,072
2013	4,224	15,105	15,933	18,210	53,472	2,384	16,098	18,482	71,954
2014	4,487	13,416	16,547	20,272	54,722	2,004	19,537	21,541	76,263
2015	5,574	10,761	14,907	17,849	49,091	1,452	15,456	16,908	65,999
2016	8,075	7,024	14,913	29,827	59,839	1,338	22,286	23,624	83,463
2017	7,559	7,423	15,846	29,868	60,696	2,006	34,324	36,330	97,026
2018	6,950	9,079	15,647	36,407	68,083	2,956	29,677	32,633	100,716
2019	7,531	8,818	15,874	43,081	75,304	1,233	23,592	24,825	100,129
2020	4,768	6,363	11,460	34,023	56,614	587	31,700	32,287	88,901
2021	6,334	8,106	12,963	30,020	57,423	407	21,859	22,266	79,689
2022	6,111	9,093	12,900	27,394	55,498	454	22,157	22,611	78,109
2023	9,084	6,745	13,686	31,481	60,996	326	8,135	8,461	69,457

Sources: FAA The Operations Network (OPSNET)

Exhibit 5-30 Summary of Air Cargo Tonnage by Year



Source: Hubpoint analysis of Corpus Christi International Airport General Activity Reports

Exhibit 5-31 FAA Forecasts of Enplanements at CCIA

	2023	2028	2033	2043
ENPLANEMENTS				
Air Carrier Enplanements	121,495	123,074	129,112	142,380
Commuter Enplanements	221,048	280,292	294,022	324,186
Total Enplanements	**342,543**	**403,366**	**423,134**	**466,566**
ANNUAL AIRCRAFT OPERATIONS				
Itinerant				
Air Carrier	8,581	12,736	13,186	14,164
Air Taxi/Commuter	6,918	6,182	6,497	7,177
General Aviation	13,361	16,063	16,063	16,063
Military	31,675	31,675	31,675	31,675
Total Itinerant	*60,535*	*66,656*	*67,421*	*69,079*
Local				
General Aviation	504	2,230	2,230	2,230
Military	14,446	14,446	14,446	14,446
Total Local	*14,950*	*16,676*	*16,676*	*16,676*
Total Annual Aircraft Operations	**75,485**	**83,332**	**84,097**	**85,755**
BASED AIRCRAFT	**54**	**54**	**54**	**54**

Source: FAA Terminal Area Forecast (January 2024)

RAILROADS

The state's rail vision was developed by the Texas Department of Transportation (TxDOT) as part of the 2024 Texas Rail Plan effort. This Texas Rail Plan is intended to express the state's vision for rail and identify opportunities for future improvement. The Texas Rail Plan was developed to be consistent with the previous Texas Rail Plans and the Texas Transportation Plan (TTP) 2050.

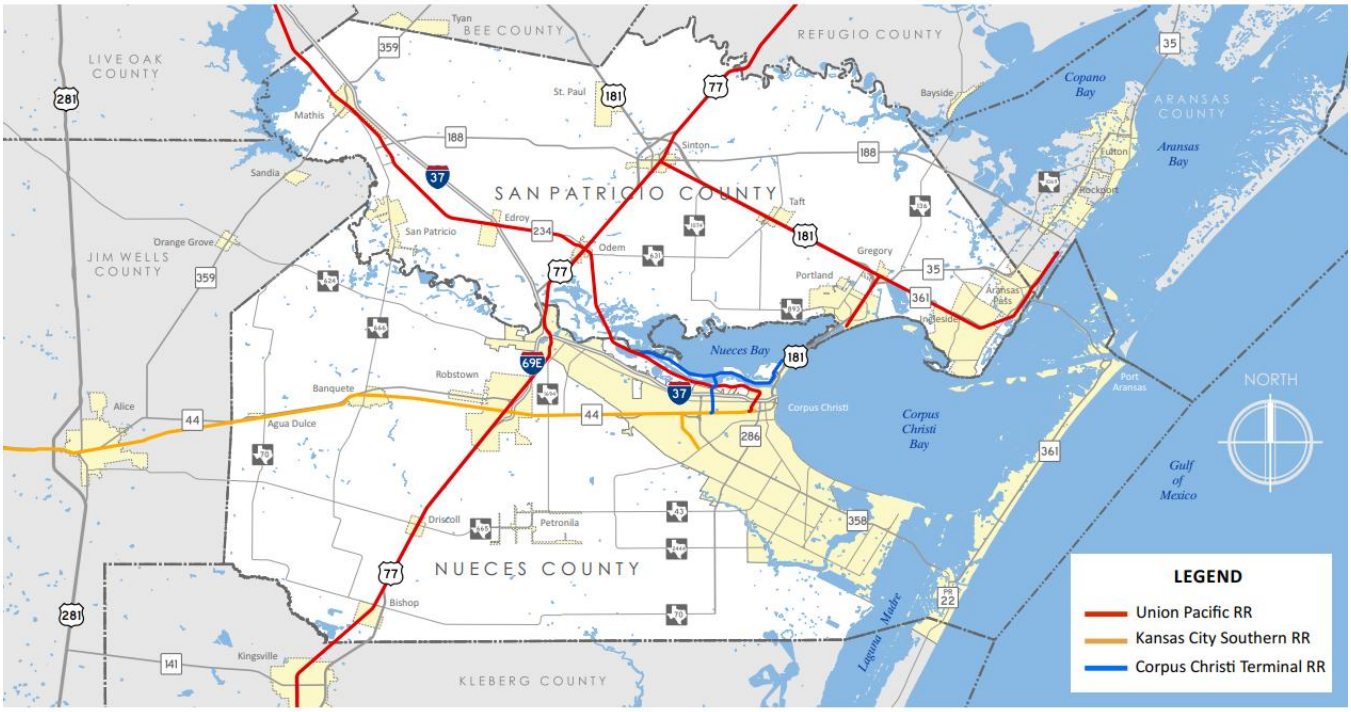
The rail network in Texas is a critical component of a thriving economy, safely connecting industries, ports, and people without congesting highways. The statewide planning context describes how public-private collaboration can benefit the predominantly private rail network. In addition, the plan describes how rail supports established goals and objectives for a multimodal transportation system. The rail plan summarizes recent achievements and future plans for the rail system.

This 2024 Texas Rail Plan was developed in a manner consistent with and inclusive of elements required under Chapter 227, Title 49, United States Code, applicable sections of the Federal Railroad Administration's (FRA) Final Guidance on State Rail Plans, and requirements of Title 6, Subtitle A, Chapter 201, Sections 6012-6013, Texas Transportation Code. Exhibit 5-33 illustrates the railroads in the Corpus Christi MPO planning area.

Joe Fulton International Trade Corridor

One of the unique freight delivery projects is the Joe Fulton International Trade Corridor, opened in 2011. Exhibit 5-34 illustrates the components of this remarkable project and the system continues to provide enhanced freight transportation services for the region, state, country, and international destinations.

Exhibit 5-32. Maps of Railroad System in the Texas and Corpus Christi MPO Region



Top 5 Rail Flows by Tonnage (in thousands), 2019		Top 5 Rail Flows by Value (in millions), 2019	
Commodity	**Tonnage**	**Commodity**	**Value**
Chemicals or Allied Products	92,500	Misc. Mixed Shipments	$256,769
Nonmetallic Minerals	55,863	Transportation Equipment	$198,639
Coal	52,427	Chemicals or Allied Products	$149,179
Misc. Mixed Shipments	50,434	Small Packaged Freight Shipments	$55,464
Farm Products	49,865	Food or Kindred Products	$38,375
Subtotal for Top 5	**301,089**	**Subtotal for Top 5**	**$698,426**
Total Tonnage	**485,711**	**Total Value**	**$849,978**

Source: Transearch with Waybill 2019-2050

Exhibit 5-33. Map of the Joe Fulton International Trade Corridor

Source: Port of Corpus Christi Authority

Exhibit 5-34. Map of the 1,300 Mile Gulf Intercoastal Waterway (GIWW)

Exhibit 5-35. Map of Gulf Intercoastal Waterway – Texas (GIWW-T)

CRITICAL INFRASTRUCTURE (RESILIENCY AND REDUNDANCY)

Resiliency is the ability of communities to rebound, adapt, and thrive amidst the challenges brought on by natural disasters and other hardships.

Greater detail regarding resiliency of the regional roadway system is found in the Transportation Network Resiliency section of Chapter 11: in this document.

Community Resiliency

- Provide a stable and sustainable source of funding in support of community adaptability to sudden shocks and stresses.
- Empower communities to develop and adopt resiliency practices and codes.
- Integrate risk awareness and risk management into standard development planning and practices.
- Leverage limited public funds for larger impact.
- Address the needs of disadvantage and hard to reach populations, most vulnerable to shocks and stresses.
- Support resiliency strategies that provide long term, lasting solutions.

The Corpus Christi MPO needs, in partnership with state, federal, and local agencies, to utilize the Statewide resiliency framework to assist in making long- term transportation investments that are more resilient to natural disasters.