TRANSIT PLAN 20/20

Final Report

September 2016

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1 EXECUTIVE SUMMARY

Introduction

In July 2015, the Corpus Christi Regional Transportation Authority (CCRTA) initiated a comprehensive analysis of its entire bus system, titled Transit Plan 20/20. The first element of the study was an Existing Conditions Report that evaluated population and employment characteristics, service design and ridership. The densities and distribution of population segments students, and employees was also examined. The report also included a review of peer transit agencies to identify deficiencies and opportunities for improvement. The primary intent of the existing conditions report was to highlight existing strengths and weaknesses of the CCRTA system and provide a foundation for service recommendations.

Key findings of the existing conditions report include:

Transit Demand

- Most areas of high transit demand have adequate service levels.
- Additional service is warranted along Leopard, Weber, Everhart, and Saratoga.

Service Design

- Several Westside Corpus Christi routes overlap and operate on neighborhood streets.
- Several routes have poor on-time performance due to detours and excessive route length.
- Service levels and coverage on Sunday are significantly less than weekdays and Saturdays.

Ridership

- Corridors with the highest ridership include Port, Staples, Ayers, Leopard, and Alameda
- Aside from transfer stations, the highest ridership stops include Texas A&M University-Corpus Christi, Del Mar College, H-E-B stores, and Walmart Supercenter stores.
- Sunday service is more productive than on Saturday and comparable to weekdays despite minimal service levels and coverage.

Fare Policy

- Fares and pass prices are among the lowest in the country.
- More consistent fare enforcement is needed.

Community Outreach

Transit Plan 20/20 also included extensive community outreach effort throughout the project to obtain feedback from riders, stakeholders and other members of the community. A project website was maintained to provide project updates, participation opportunities, and documents.

A Design Your Bus System survey was conducted at transit stations and also made available on the project website to better understand the priorities of the community. The survey generated similar feedback from riders and non-riders. Service improvement priorities included more frequent service, earlier/later service, service to new areas, increased Sunday service and more shelters at bus stops. An all-day open house was also held at CCRTA headquarters to solicit feedback on initial service concepts.

Stakeholders meetings were held and participated by representatives of governmental departments, social service organizations, health providers, educational institutions, and customer advocacy groups. Stakeholders conveyed transit needs and provided feedback on initial service improvement concepts.

Recommendations

Transit Plan 20/20 provides recommendations for short-term cost-neutral route and schedule improvements that are designed to improve operational reliability, customer satisfaction, and increase ridership. In addition, Transit Plan 20/20 includes a roadmap for service expansion priorities, service guidelines, performance standards and fare policies. Key recommendations of the service plan include:

- Upgraded Southside Service
- More Frequent Service on Leopard and Port
- Expanded Sunday Service
- More Direct Westside Service
- Downtown / North Beach Route Improvements
- Improved Directness and Frequency in Robstown
- Expanded Express service
- Consolidated Port Aransas Service
- Improved Speed and Reliability

Figure 1 Recommended Local Route Network

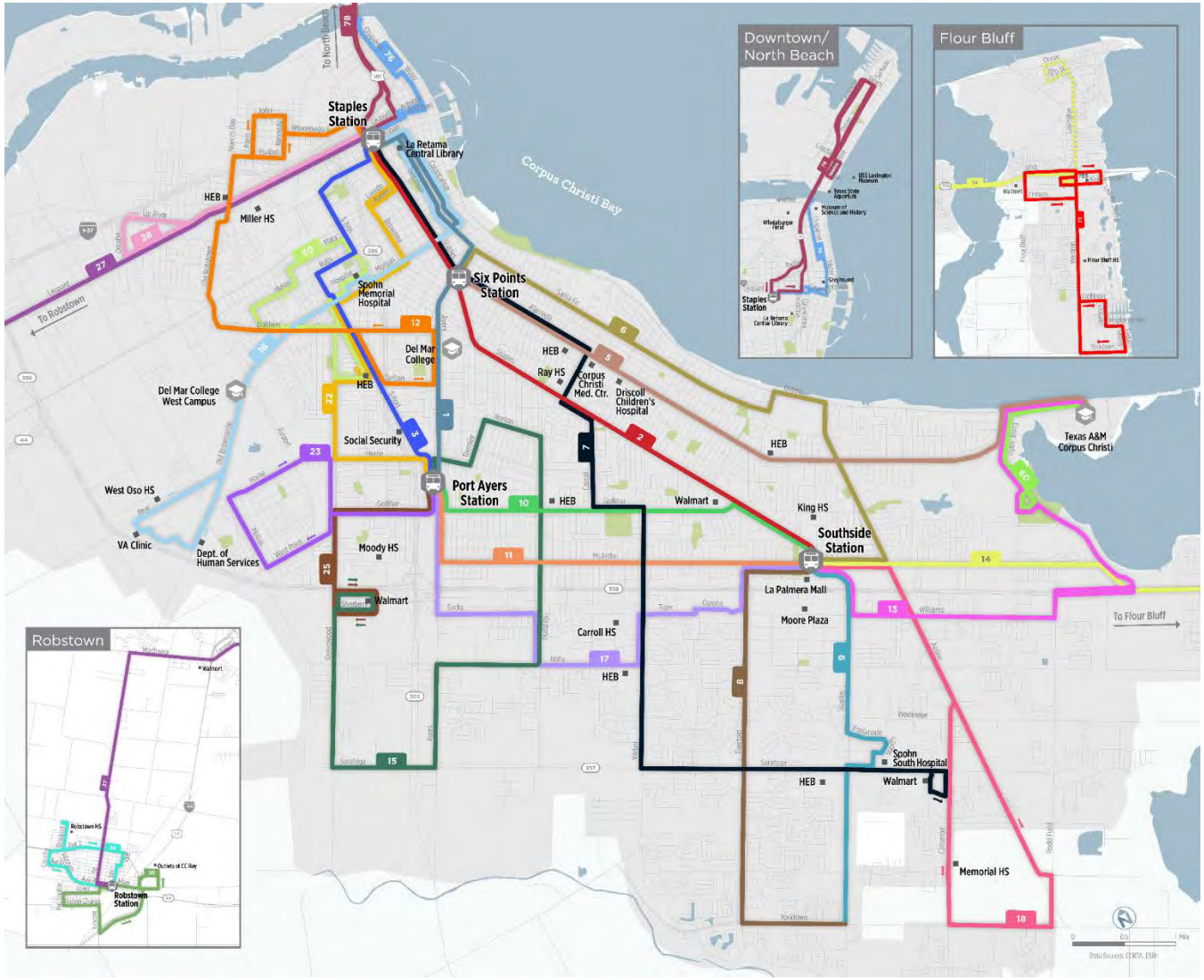
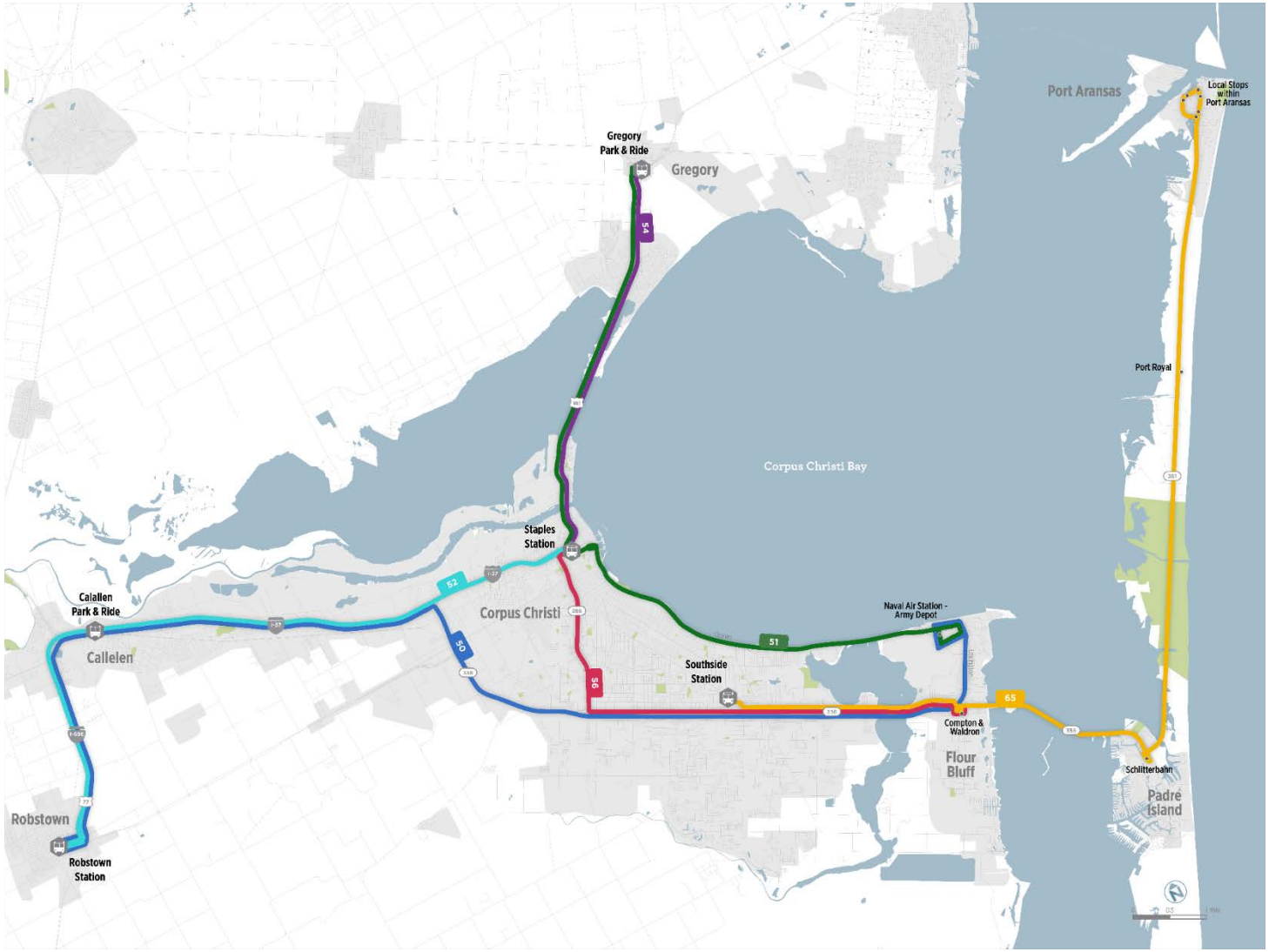


Figure 2 Recommended Express Route Network



2 EXISTING CONDITIONS

SUMMARY OF RELATED PLANS

This section summarizes planning documents that pertain to city and regional transportation and future Corpus Christi RTA system improvements. Plans reviewed include:

- CCRTA Long-Range System Plan
- City of Corpus Christi Plan CC Comprehensive Plan 2035
- City of Corpus Christi Integrated Community Sustainability Plan
- Corpus Christi Metropolitan Planning Organization 2015-2040 Metropolitan Transportation Plan

CCRTA Long-Range System Plan

The Corpus Christi RTA Long-Range System Plan, led by Nelson\Nygaard and published in 2012, evaluates the agency's existing transit services and determines how services can best be provided to serve the growing area over the next 25 years.

The plan presents a profile of the region and identifies areas where population and transit needs are expected to change in the next 25 years. The potential market for transit was found to be highest in Downtown Corpus Christi, east of Downtown, and in several outlying rural areas. The plan is careful to note that even if an area has a high transit propensity, which is based on several demographic and socio-economic densities, it may be impractical to operate transit there due to the low overall population and/or location.

The plan also provides an overview of transit services, passenger information, and passenger facilities provided by CCRTA, and a list of services provided by other regional transportation agencies in the area. It evaluates and proposes several long-term and short-term improvements for B-Line paratransit service.

An on-board passenger survey collected data on passengers' travel behaviors. A total of 1,938 surveys were completed. The transfer rate was found to be high, with 70% of riders transferring between buses to complete their trips. Riders were found to be dependent on transit, as 69% do not have regular access to a car. Sixteen percent of respondents said they would not make their trip if the bus were not available.

An online survey collected qualitative data on passenger's travel opinions. There were about 380 responses in total, including both CCRTA riders and non-riders. Current riders identified service to new destinations and later evening service as their highest priority for transit improvements.

Non-riders said that more direct and more frequent service would encourage them to ride transit. The lack of bus stop amenities and bus stop safety were also identified as important issues.

A series of stakeholder interviews were held in late 2011. The plan gathered input from 62 individuals representing a wide range of interest groups. Items or issues that were frequently mentioned were improving the image of CCRTA, and clarifying the mission and market for transit services in the Corpus Christi area. Stakeholders also suggested ways for CCRTA to improve financially, places where additional services were desired, ideas for capital improvements, and ways to increase intergovernmental collaboration.

A peer review analysis compared service characteristics among similar transit agencies in terms of population, geography, and system size. Peer transit providers included twelve city and regional agencies throughout the South and Southwest. Characteristics reviewed included revenue hours and miles, operating costs, ridership, and passenger revenues.

Key findings from the peer review were:

- CCRTA's fixed route and demand response services performed well in terms of service productivity and cost efficiency compared with its peers, but service efficiency was fairly low.
- CCRTA's farebox recovery was among the lowest of all peers. The peer review mentioned that despite high ridership, the low fares do not cover a substantial portion of the costs to operate service.
- Demand response service was found to have extremely high productivity. The peer review partially attributed this to CCRTA's policy of accepting non-ADA passengers on B-Line service.
- The operating costs of providing CCRTA's demand response service were high compared to its peers. Like many of its peers, the services are operated by a contractor, which may or may not have an effect on costs.

Plan CC Comprehensive Plan 2035

The City of Corpus Christi is in the process of finalizing CC Comprehensive Plan 2035. The Plan outlines a vision and guiding principles for growth and future land use in the City, goals, and policies that relate to various elements in the plan.

Plan CC's vision for transportation and mobility in the future is that people can get around the city by multiple modes of transportation – including excellent public transportation. Goals and underlying policies related to public transportation are:

- Corpus Christi has an efficient and safe transportation network, including bicycles, pedestrians, public transportation, aviation, shipping, trucks and automobiles; that is integrated with land uses and promotes transportation choice, healthy lifestyles, and sustainable development patterns.
  - Support a multimodal transportation network that is integrated with land uses.
  - Support compliance with transportation design standards.
  - Support the development of mode-choice corridors for bicycles, pedestrians and public transportation.
- Corpus Christi has a convenient and efficient public transportation system.

- Support continued implementation of the Corpus Christi Regional Transportation Authority Long- Range Strategic Plan to prioritize funding to increase ridership and reduce single-occupancy vehicle use.
- Support an operations plan to increase the efficiency and lower the life-cycle costs of the public transportation system.
- Support transit-oriented development (TODs) near public transportation stations.

The future land use plan calls for mixed-use areas which would provide concentrated population and activity centers that can support enhanced transit service. Mixed-use areas will be designated as either downtown, urban village, neighborhood village, or as "collegetown," a type of urban village. Areas that have been designated for mixed-use development are mainly located Downtown and along major corridors.

City of Corpus Christi Integrated Community Sustainability Plan

Adopted in 2010, the Integrated Community Sustainability Plan identifies strategies for improving mobility for people and goods within the community. The Plan explains that the City can achieve their mobility goals by designing and building complete streets, and outlines various mobility solutions that might be applied in Corpus Christi.

The primary recommendation pertaining to transit is a preliminary concept for a downtown transit circulator such as a streetcar. The aims of the new downtown circulator system are to:

- Provide effective linkage between activity centers/districts
- Create one or more "park once" districts / address event-driven parking
- Support redevelopment and infill opportunities
- Create a sense of place and a more vibrant Downtown district
- Enhance walkability

The plan proposes a 2.3-mile starter line with nine stations that would connect the Uptown and Downtown districts. It identifies important connections (Uptown Transit Hub on Staples Street, City Hall, County Courthouse, Library, and Historic Downtown) and a potential alignment. Proposed future extensions would travel 1.8 miles north to SEA Town. The plan estimates that funding for a downtown transit circulator would come from a combination of public and private investment. It identifies two key next steps: a) concept development and refinement, and b) planning and project development.

The plan also recognizes that access to transit can be improved through other mobility elements including bicycle and pedestrian treatments, ADA access, hike-bike trails, roundabouts, and road diets. The plan explains that these concepts should be considered and/or prioritized on roadways with high transit use. Concepts for improving multimodal access along four corridors are also presented in the plan, some of which are currently served by RTA transit routes:

- Leopard Street/Annaville
- Lipes Boulevard
- Ocean Drive
- Old Brownsville Road

The plan calls for coordination with RTA on future transit needs along these corridors, specifically mentioning pads for shelters or pull-out bays as potential design elements to consider.

Corpus Christi Metropolitan Transportation Plan 2015-2040

This document from the Corpus Christi MPO outlines the region's transportation policies and goals for the next 25 years. The plan states that developing responsive public transportation services in the area is essential to the social and economic health of the community. Objectives for public transportation in the region include:

- Provide frequent, direct, efficient, reliable, and safe transportation services to residents and visitors.
- Ensure financial resources are available to provide services and facilities to support mobility needs.
- Minimize vehicle impact on the metropolitan area's environment so that minimum acceptable NAQS air quality levels are maintained
- Coordinate with agencies to provide access to jobs for economically disadvantaged residents
- Encourage private nonprofit agencies to meet the mobility needs of elderly and disabled citizens

Alongside its public transportation goals, the plan emphasizes the promotion and encouragement of bicycling and walking in the region. Opportunities to integrate bicycle and pedestrian projects with public transportation that have been identified in the plan include:

- Encourage transit provisions for bicycle parking and improve bicycle access
- Include bike racks on all buses – CCRTA buses already have bicycle racks

The MPO sought public input on the region's transportation needs. In general, people are satisfied with connectivity but concerned about increasing congestion. A major area of consensus is that bicycle and pedestrian options in the region are inadequate. The plan recommends adopting a complete streets policy and prioritizing transportation projects that will make the street network better for drivers, transit users, pedestrians, and bicyclists.

MARKET ANALYSIS

The market analysis evaluates population and employment characteristics that typically support fixed-route transit operations using 2010 US Census and 2013 American Community Survey data. The demographic evaluation accounts for general population density, along with specific population segments that are more likely to ride transit, including: low-income households, zero-vehicle households, renter households, persons with disabilities, seniors, and young adults. Population densities of these groups are combined to calculate a Transit Propensity Index that identifies residential areas with the highest demand for transit service.

Home origins of Downtown Corpus Christi and Naval Air Station-Corpus Christi employees are mapped using Census Longitudinal Employer-Household Dynamics (LEHD) data. Home origins of Del Mar College and Texas A&M University-Corpus Christi students are also mapped. Altogether, this analysis aids in the evaluation of the system's ability to meet current transit needs and helps inform decisions for future service planning.

Demographic Evaluation

Population Density

Population density is among the most important factors influencing the viability of transit service. Higher density residential areas have more people within walking distance of streets that buses can operate along. Therefore, their areas are more likely to support frequent service than lower density areas. Data from the 2010 U.S. Census has been mapped at the block level to illustrate the distribution of population throughout the CCRTA service area.

Population densities vary significantly across the CCRTA service area. Several contiguous areas of high population density are present in Westside and Southside Corpus Christi, most notably La Armada (between Port and Ayers), Ruth between Port and 19th, the area around Weber and Holly, and Airline between Williams and Holly.

Moderate population densities can be found throughout neighborhoods within a mile of the Crosstown Expressway and Gollihar. Areas north of Alameda and south of Yorktown are mostly single-family neighborhoods with low population densities. New development east of Cimarron and Rodd Field is mostly low-density residential. Flour Bluff has scattered pockets of high population density along SPID, Waldron, and Glen Oak. Other areas of the Encinal peninsula are less populated or undeveloped. Similar residential development patterns are present in the Annaville and Calallen areas. Most of Robstown is contiguous with moderate population densities. Portland and Gregory have low to moderate population densities that are sharply divided by US 181. Aransas Pass, Port Aransas, and North Padre Island are each characterized by low population densities.

Population density within the CCRTA service area is depicted in Figure 3. Population density for the Corpus Christi area is depicted in Figure 4.

Low-Income Households

Low-income households are defined as those within 150% of the poverty line. Low-income households have less disposable income for transportation costs and therefore, are more likely to take transit. Household income is one of several indicators of transit need.

Areas with the highest population densities in Corpus Christi also have a high distribution of low-income households. Additional areas with a high concentration of low-income households include West Oso, Robstown, Everhart between Alameda and Staples, Leopard between Violet and McKinzie, Northside Corpus Christi, and Aransas Pass. Low-income household density within the CCRTA service area is depicted in Figure 5. Low-income household density for the Corpus Christi area is depicted in Figure 6.

Zero-Vehicle Households

Households without access to a personal vehicle are also more likely to access transit on a regular basis for a wide range of trip purposes, including employment, grocery shopping, education, and medical. Zero-vehicle households in isolated areas tend to rely on transit more so than those in urban areas and within walking distance to many destinations.

While vehicle ownership is relatively high throughout the CCRTA service areas, zero-vehicle households are highest near Port Ayers Station, the area around Ruth and Port, Texan Trail between Alameda and Staples, Airline between Williams and Holly, and Weber south of Holly. Zero-vehicle household density within the CCRTA service area is depicted in Figure 7. Zero-vehicle household density for the Corpus Christi area is depicted in Figure 8.

Renter Households

The highest concentration of renters is in Southside Corpus Christi, particularly east of Ray High School (Buccaneer and Regency Square Apartments), southwest of Weber and Holly (Paradise Bay and Waterford Apartments), and Airline and Holly (Lakewood Village, Autumn Sunrise, Treway Terrace, and Gulfway Apartments). Other areas with a high concentration of renters include the fast-growing Southside (south of SPID and east of Staples), Westside Corpus Christi (bounded by Crosstown, Baldwin, and Agnes), and portions of Annaville adjacent to Leopard. Renter household density within the CCRTA service area is depicted in Figure 9. Renter household density for the Corpus Christi area is depicted in Figure 10.

Persons with Disabilities

Persons with disabilities are more likely to take transit or paratransit services than able-bodied persons. While it is impossible to provide accessible fixed-route transit to all areas of the community, it is important to ensure that service is provided in areas with a high concentration of persons with disabilities. While paratransit service provides door-to-door service to customers, fixed-route bus service provides much more schedule flexibility.

Neighborhoods and areas within Corpus Christi with the highest concentration of persons with disabilities include Molina, west of Kostoryz between McArdle and Norton, 19th and Ruth, west of Six Points, east of Weber between Tiger and O'Day, Port and Tarlton, Texan between Staples and Alameda, and east of Greenwood between Gollihar and Horne. Communities outside of Corpus

Christi with the highest concentration of persons with disabilities include Robstown, Aransas Pass, Portland, and Ingleside.

The density of persons with disabilities within the CCRTA service area is depicted in Figure 11. The density of persons with disabilities for the Corpus Christi area is depicted in Figure 12.

Seniors

In Corpus Christi, seniors are more likely to reside in older neighborhoods north of SPID and south of Morgan than in newer subdivisions in the City's Southside. Flour Bluff, Annaville, and Portland have lower densities of seniors than Robstown. Major senior housing complexes include Trinity Towers and Holmgreen Center on Carancahua, Lulac Hacienda Apartments on Greenwood, El Paraiso Apartments on Gollihar, Gaslight Apartments on Kostoryz, and Cimmaron Senior Apartments. Senior densities are moderate in areas outside of Corpus Christi including coastal communities of North Padre Island, and Port Aransas. The density of seniors within the CCRTA service area is depicted in Figure 13. The density of seniors for the Corpus Christi area is depicted in Figure 14.

Young Adults

The highest concentrations of young adults (18 to 24 years old) can be found in Southside Corpus Christi, specifically Weber and Holly, Staples and Holly, Everhart and Middlecoff (Sandcastle Apartments), Airline and Holly, Ocean and Robert. High densities of young adults can also be found along Ennis Joslin between SPID and Ocean, which is home to many TAMU-CC students. The density of young adults within the CCRTA service area is depicted in Figure 15. The density of young adults for the Corpus Christi area is depicted in Figure 16.

Transit Demand

The Transit Propensity Index (TPI) is an indicator for overall transit demand. TPI is calculated based on combined density scores assigned to the specific population segments evaluated in this section (low-income households, zero-vehicle households, renters, persons with disabilities, seniors, and young adults). Based on the comparative density levels, each block group is assigned a score from one to five for each segment (for a total possible score of 30).

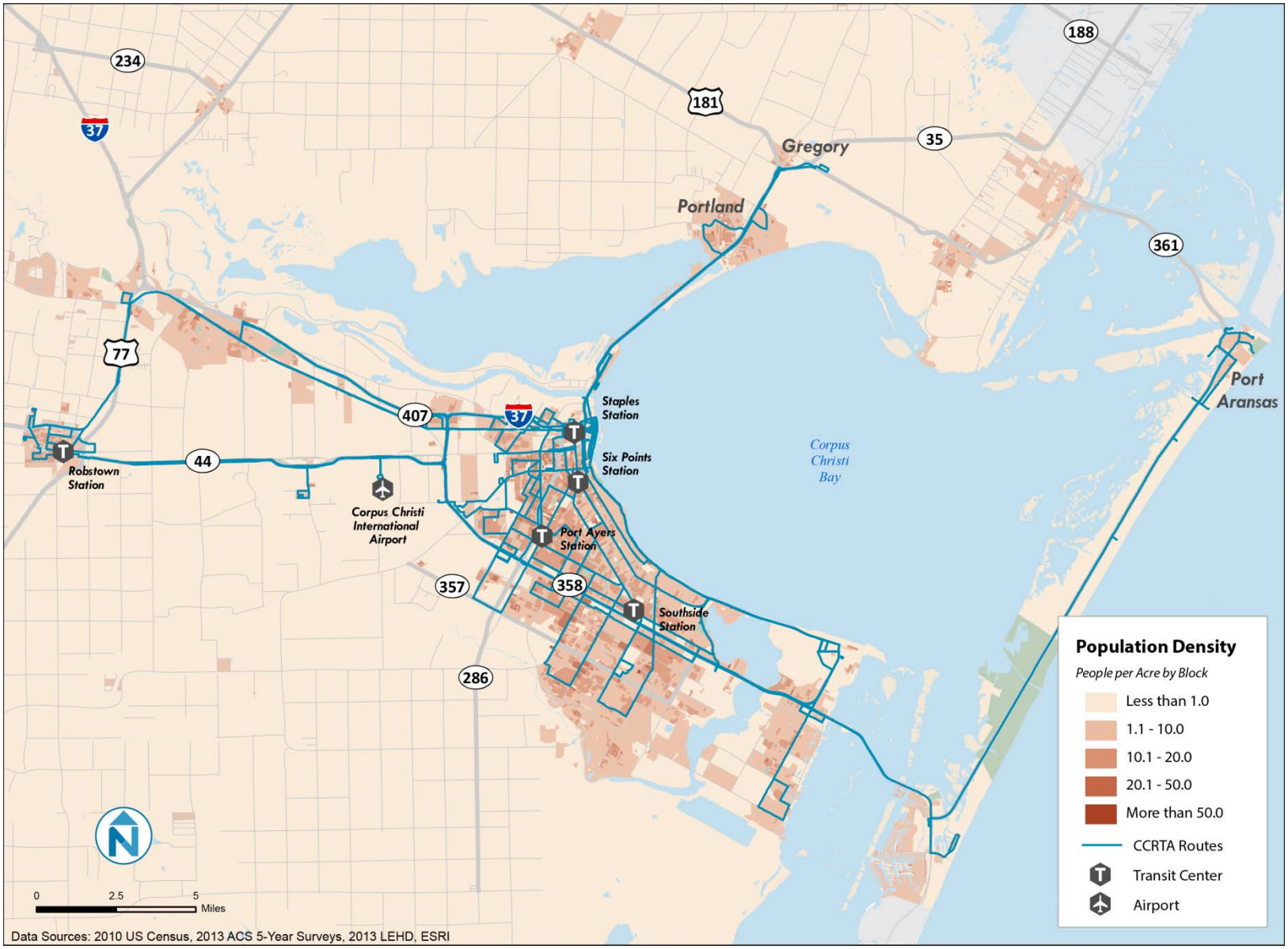
Areas scoring the highest are within the vicinity of:

- Port and Ayers
- 19th and Ruth
- Weber and Holly
- West Robstown
- Gollihar between Ayers and Kostoryz
- Port and Tarlton
- Molina neighborhood
- Brownlee west of Six Points
- Texan between Staples and Alameda

It should be noted that although the TPI anticipates demand for transit services based on certain demographic and socio-economic indicators, it does not account for trip generators such as employment, shopping destinations, and educational institutions.

Transit demand within the CCRTA service area is depicted in Figure 17. Transit demand for the Corpus Christi area is depicted in Figure 18.

Figure 3 Population Density (Service Area)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Corpus Christi Bay
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Corpus Christi International Airport
Port Ayers Station
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Southside Station
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Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, 2013 LEHD, ESRI
Population Density
People per Acre by Block
Less than 1.0
1.1 - 10.0
10.1 - 20.0
20.1 - 50.0
More than 50.0
CCRTA Routes
Transit Center
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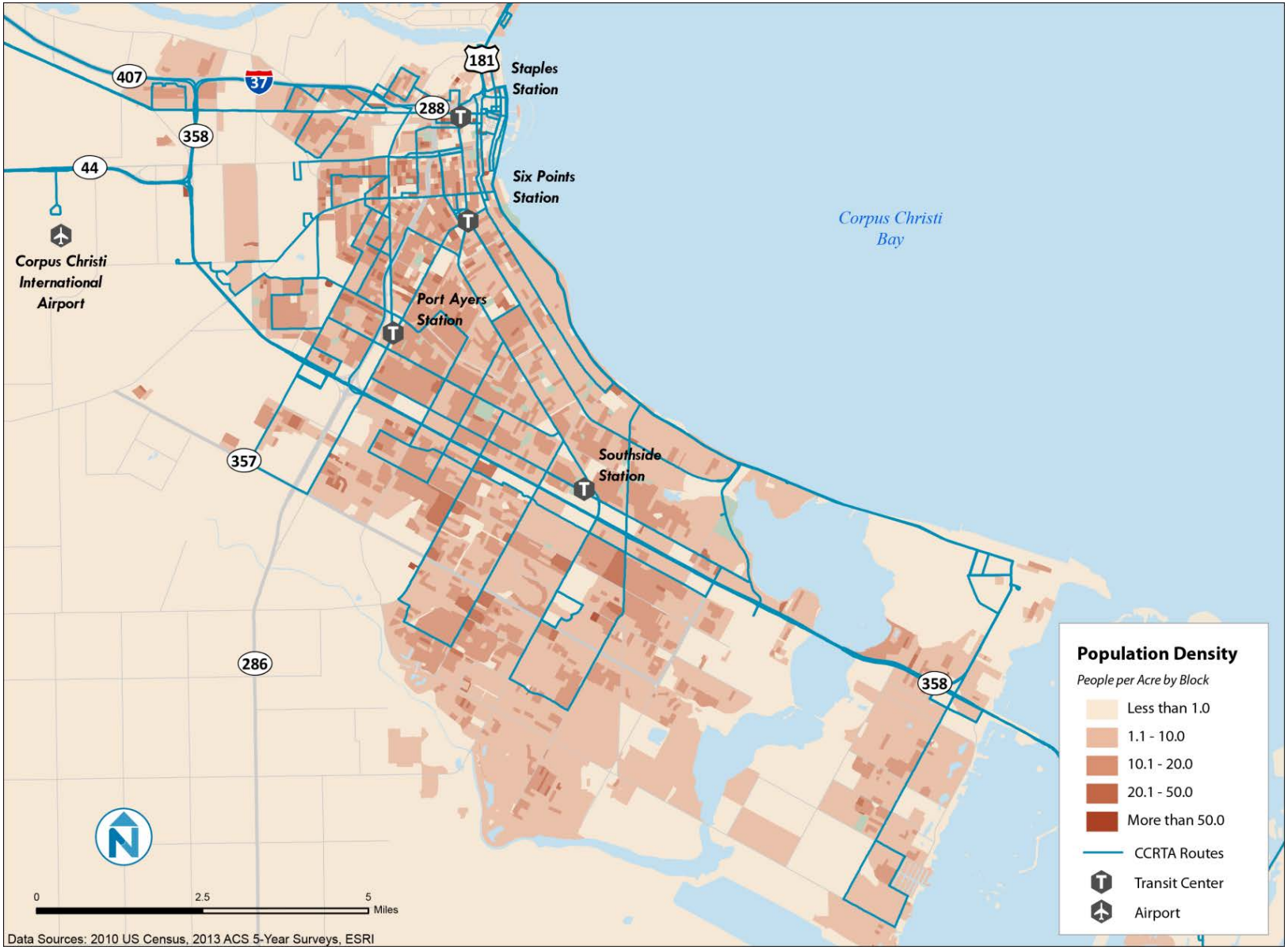
Figure 4 Population Density (Corpus Christi)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CCRTA Routes
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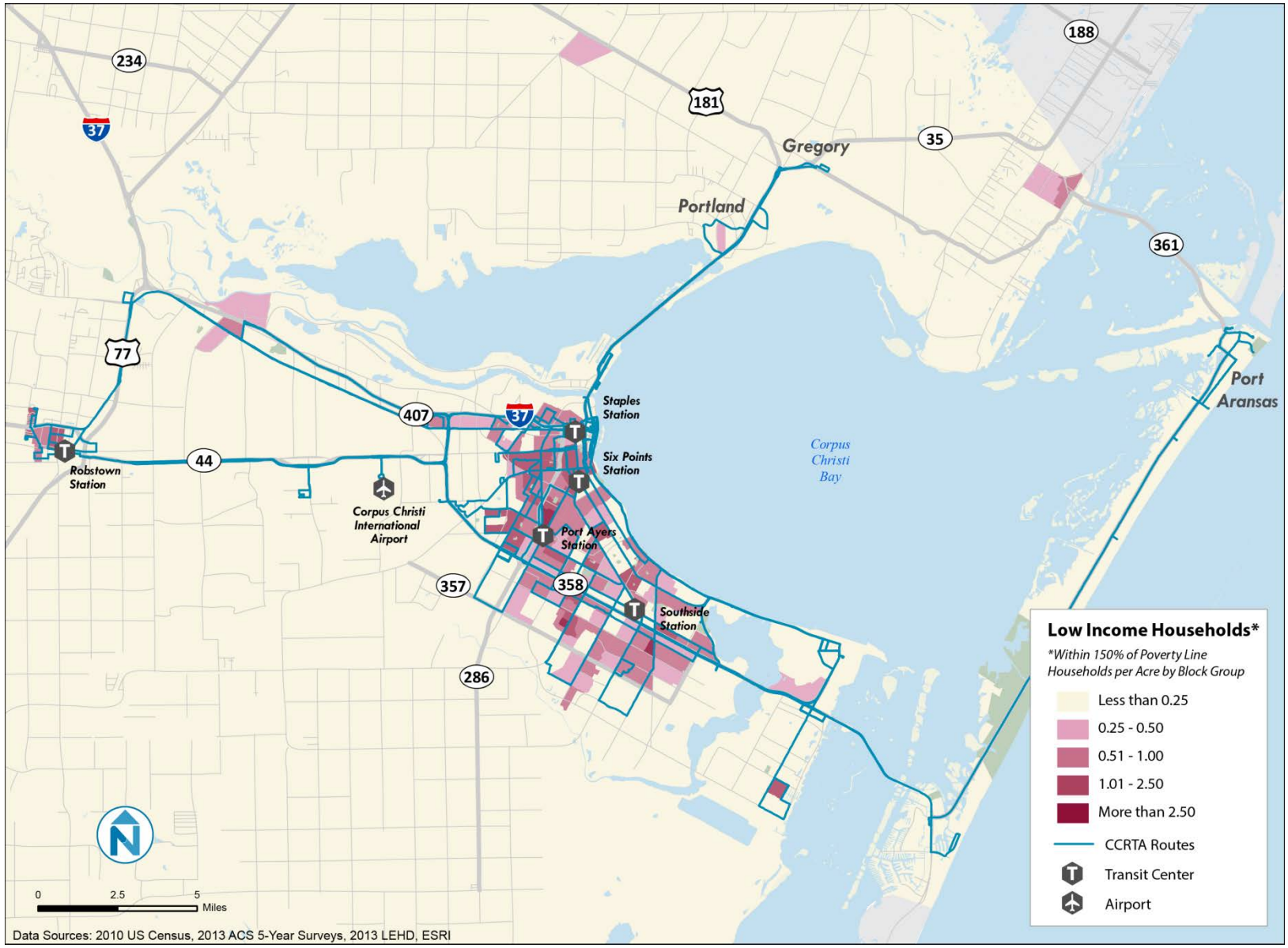
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Figure 5 Low-Income Households (Service Area)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Low Income Households*
*Within 150% of Poverty Line
Households per Acre by Block Group
Less than 0.25
0.25 - 0.50
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More than 2.50
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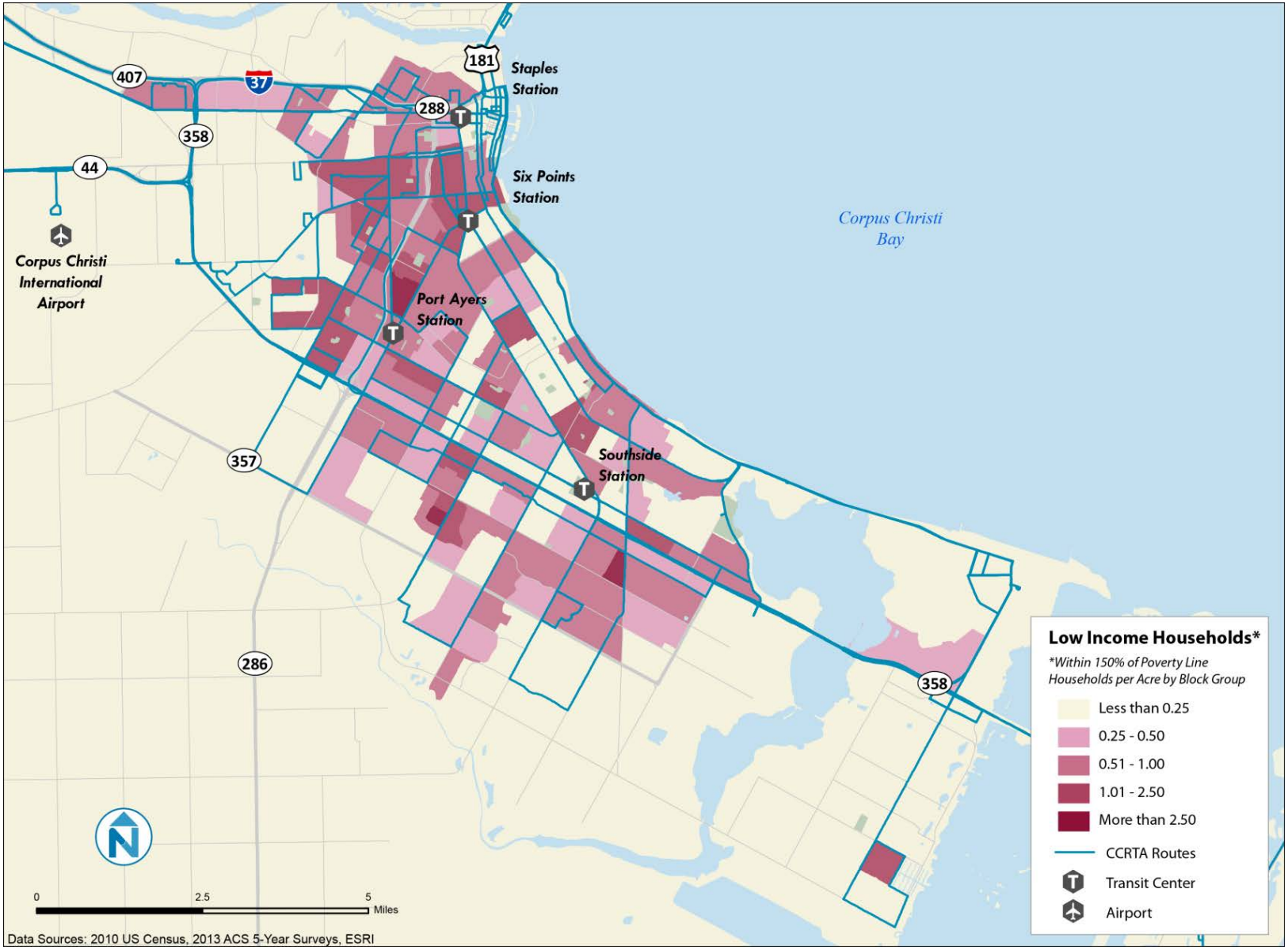
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, 2013 LEHD, ESRI

Figure 6 Low-Income Households (Corpus Christi)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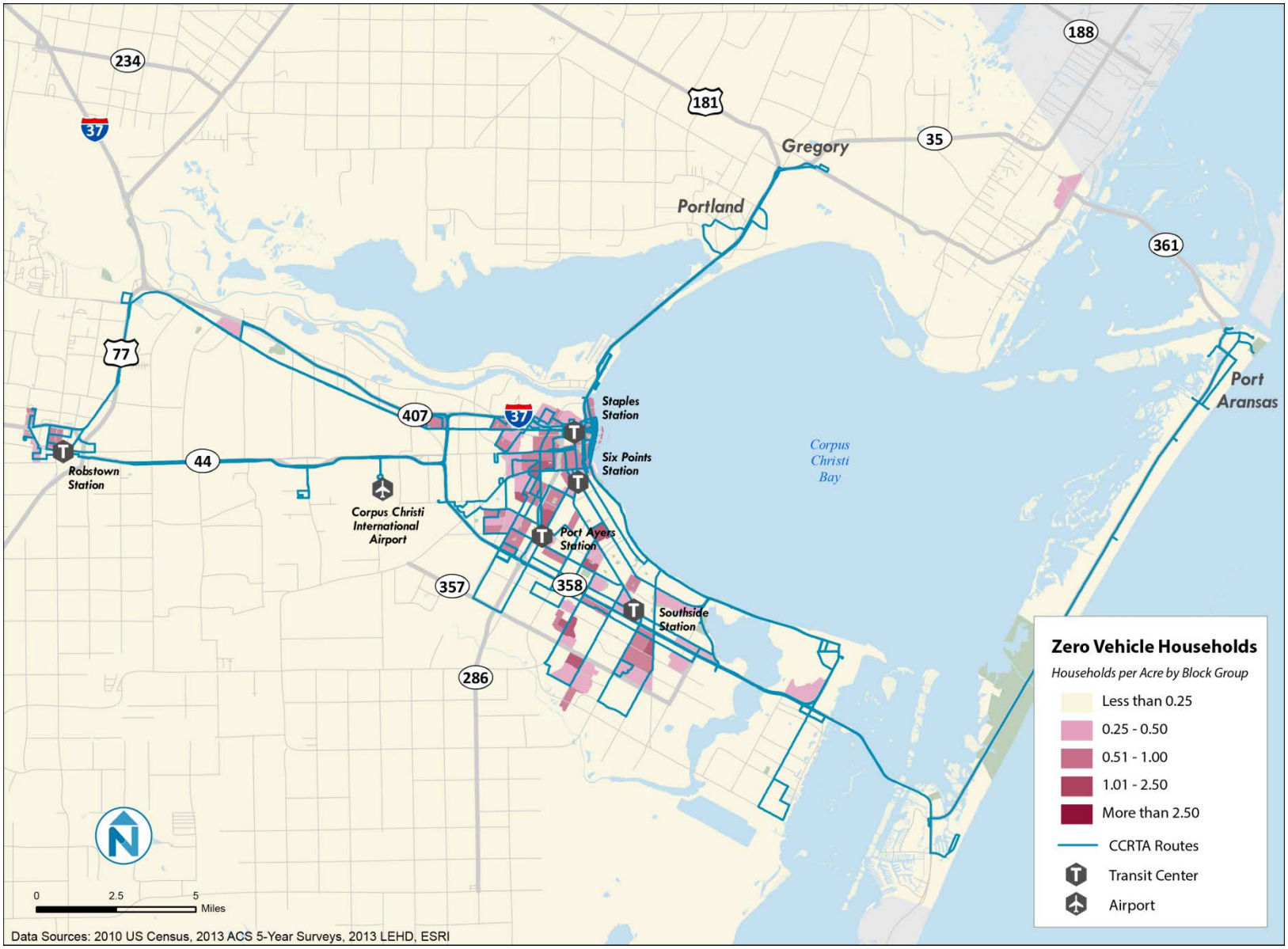
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Figure 7 Zero Vehicle Households (Service Area)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More than 2.50
CCRTA Routes
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Figure 8 Zero Vehicle Households (Corpus Christi)

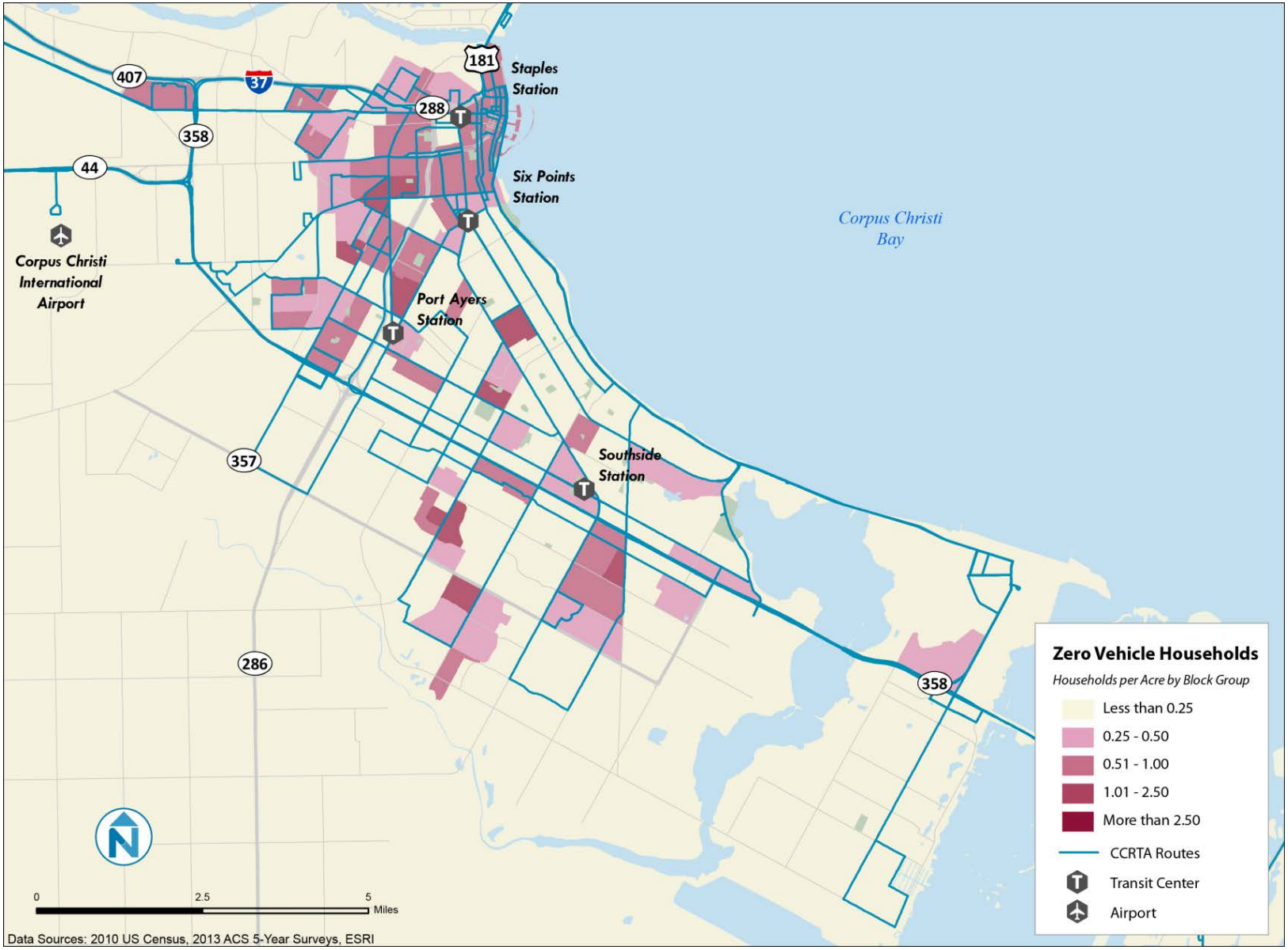
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Figure 9 Renter Households (Service Area)

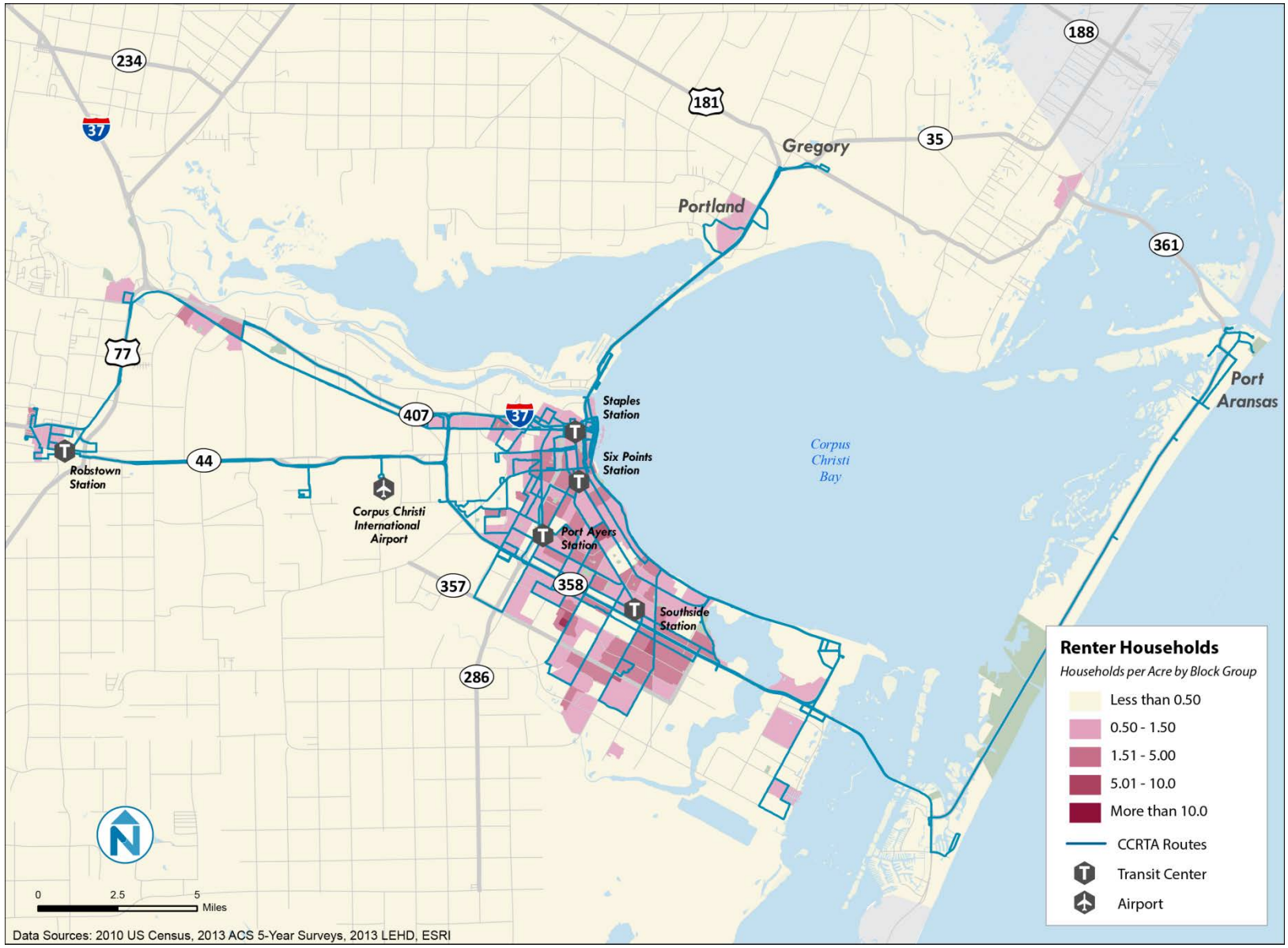
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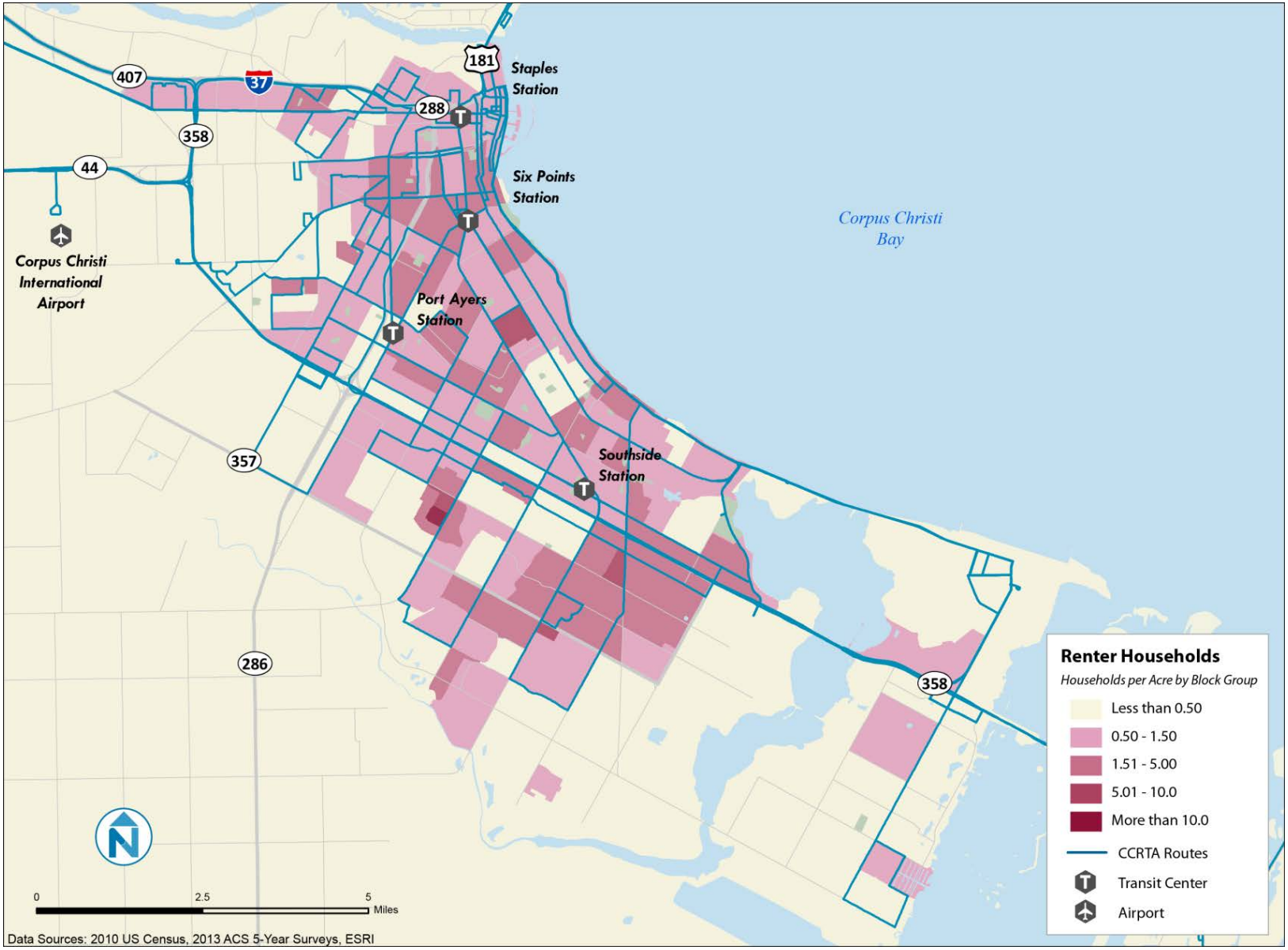
Figure 10 Renter Households (Corpus Christi)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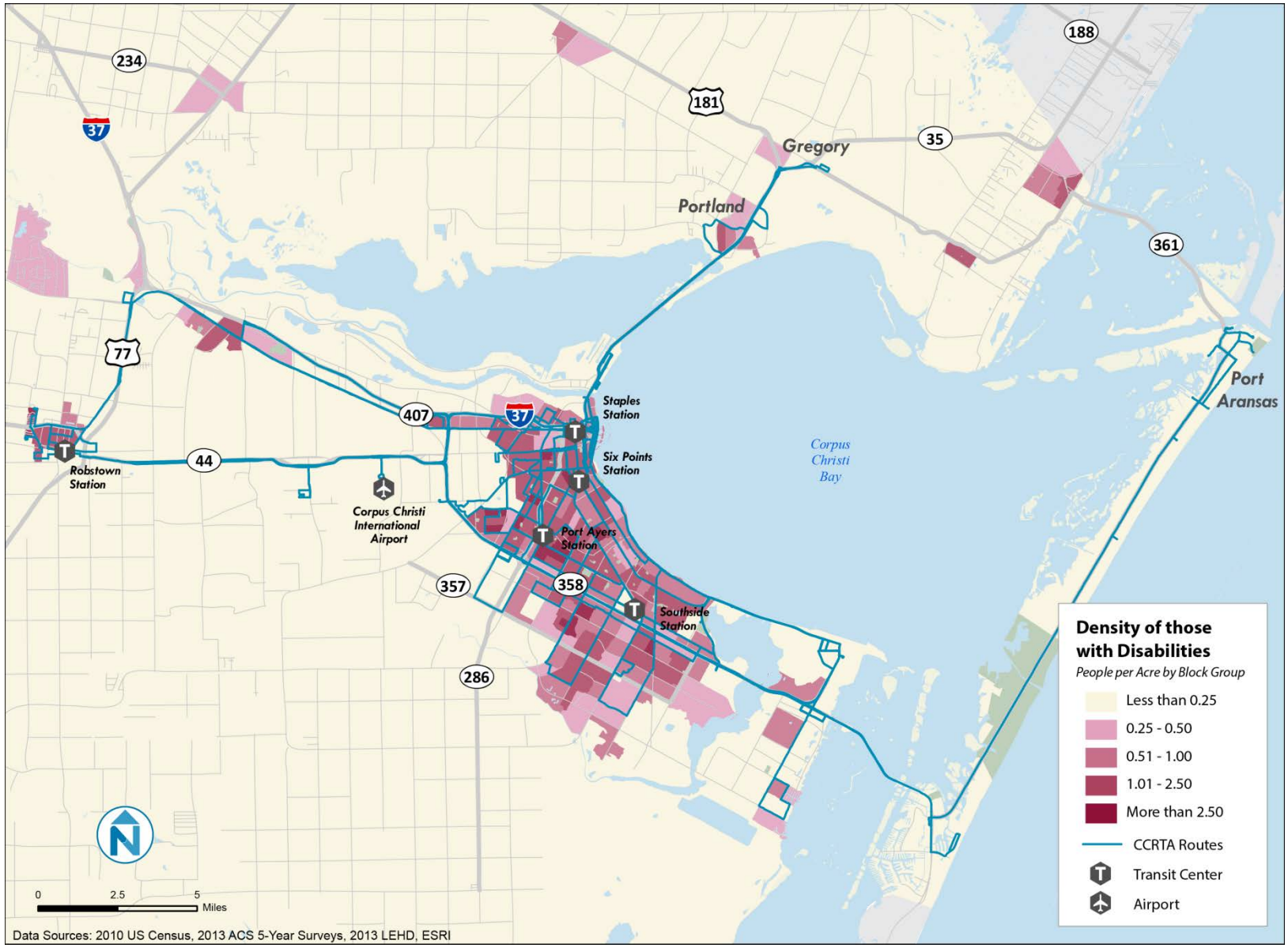
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Figure 11 Persons with Disabilities (Service Area)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Density of those
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CCRTA Routes
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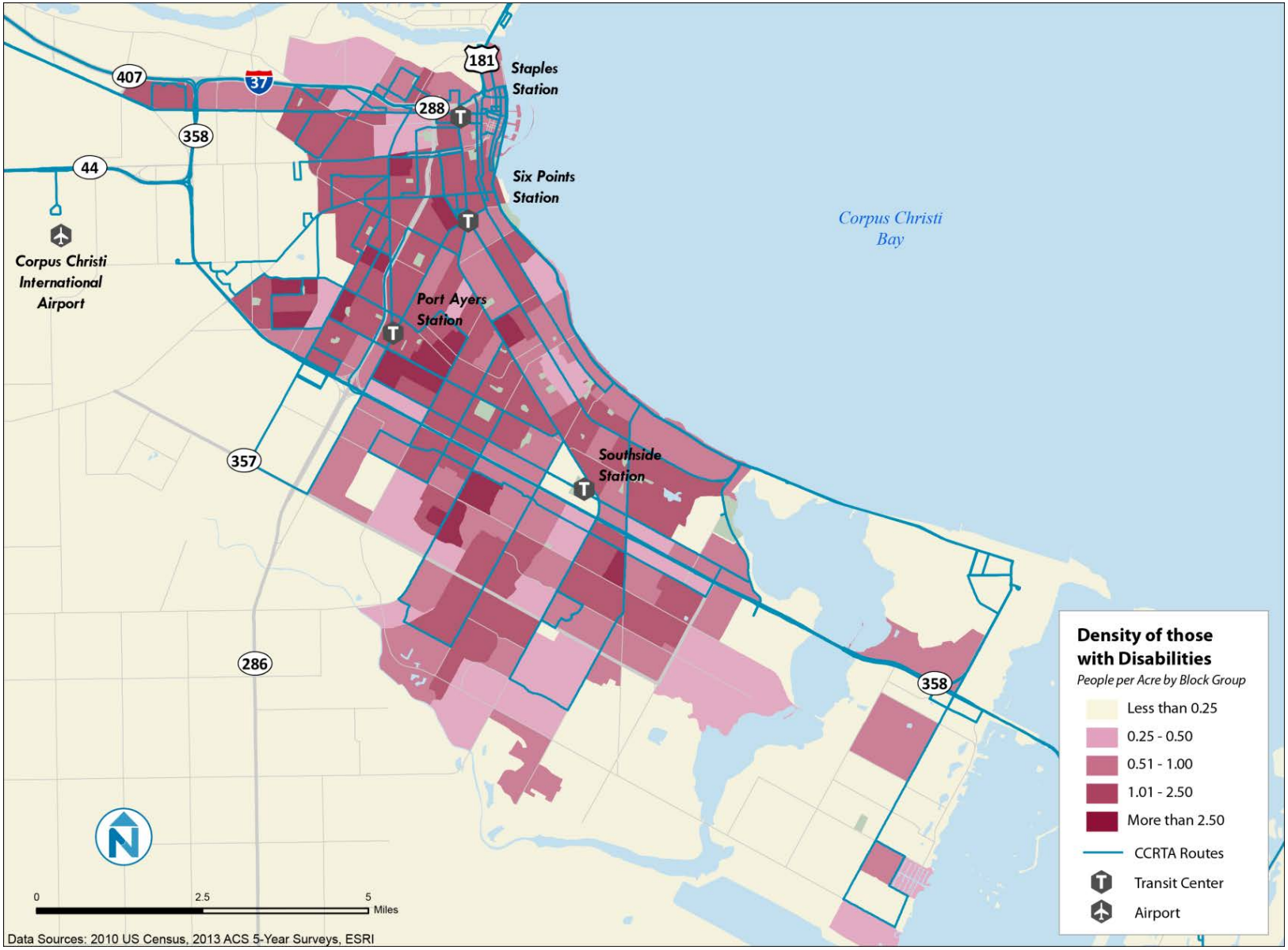
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, 2013 LEHD, ESRI

Figure 12 Persons with Disabilities (Corpus Christi)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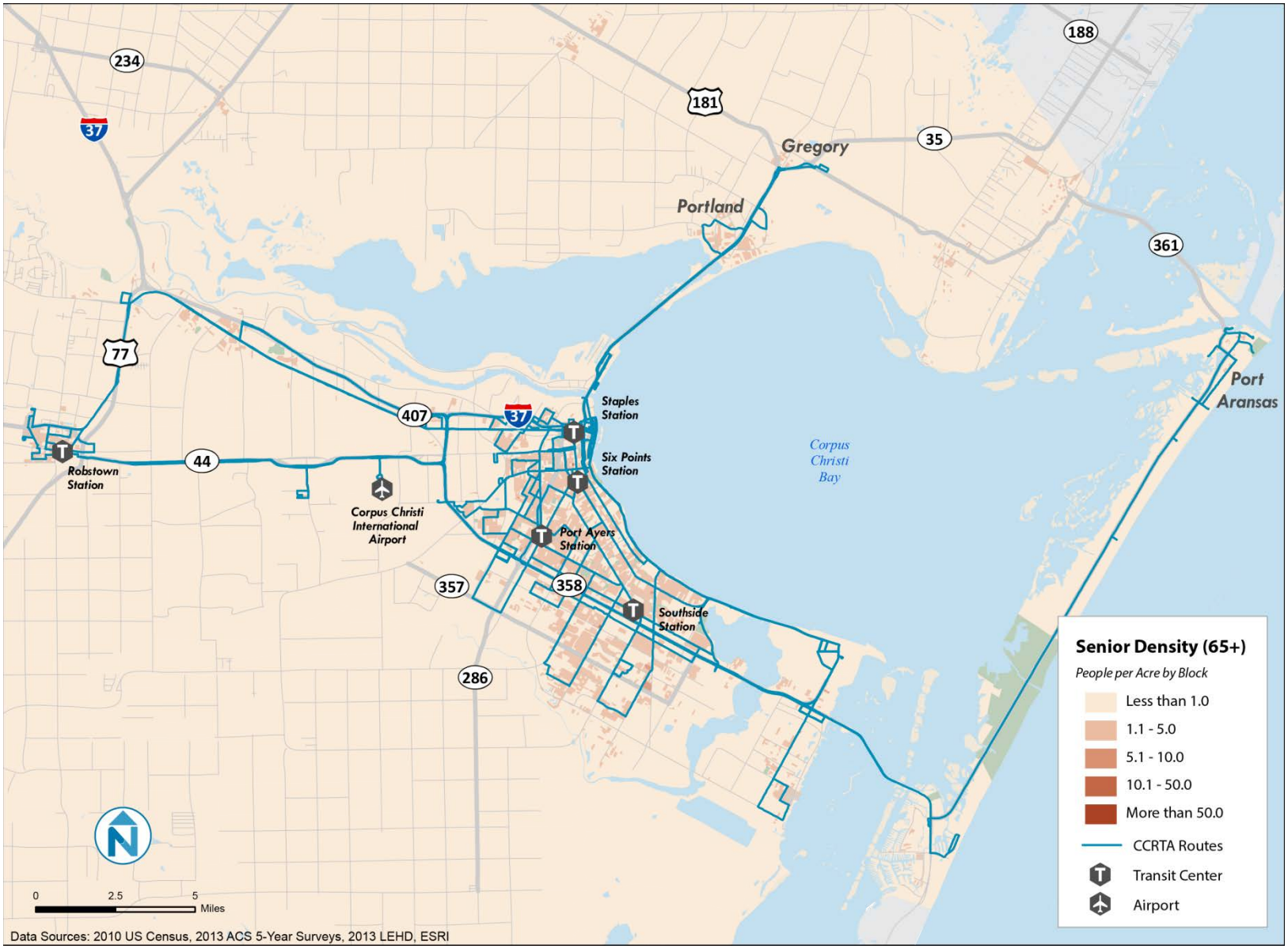
Less than 0.25
0.25 - 0.50
0.51 - 1.00
1.01 - 2.50
More than 2.50
CCRTA Routes
Transit Center
Airport
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Figure 13 Senior Density (Service Area)


234
37
181
188
35
Gregory
Portland
361
77
407
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Staples Station
Six Points Station
Port Aransas
Corpus Christi Bay
Robstown Station
44
Corpus Christi International Airport
Port Ayers Station
357
358
Southside Station
286
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, 2013 LEHD, ESRI
Senior Density (65+)
People per Acre by Block
Less than 1.0
1.1 - 5.0
5.1 - 10.0
10.1 - 50.0
More than 50.0
CCRTA Routes
Transit Center
Airport

Figure 14 Senior Density (Corpus Christi)

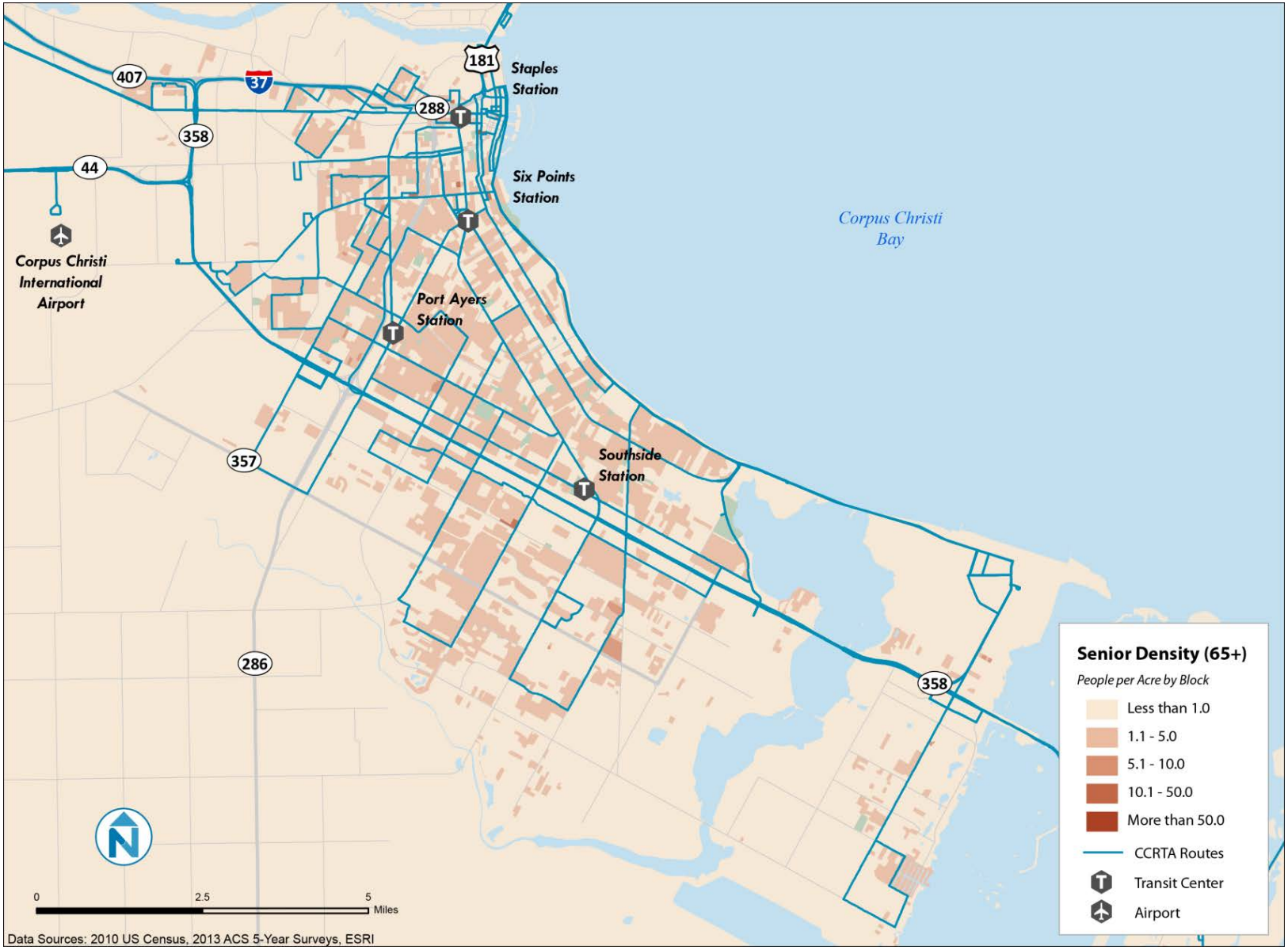
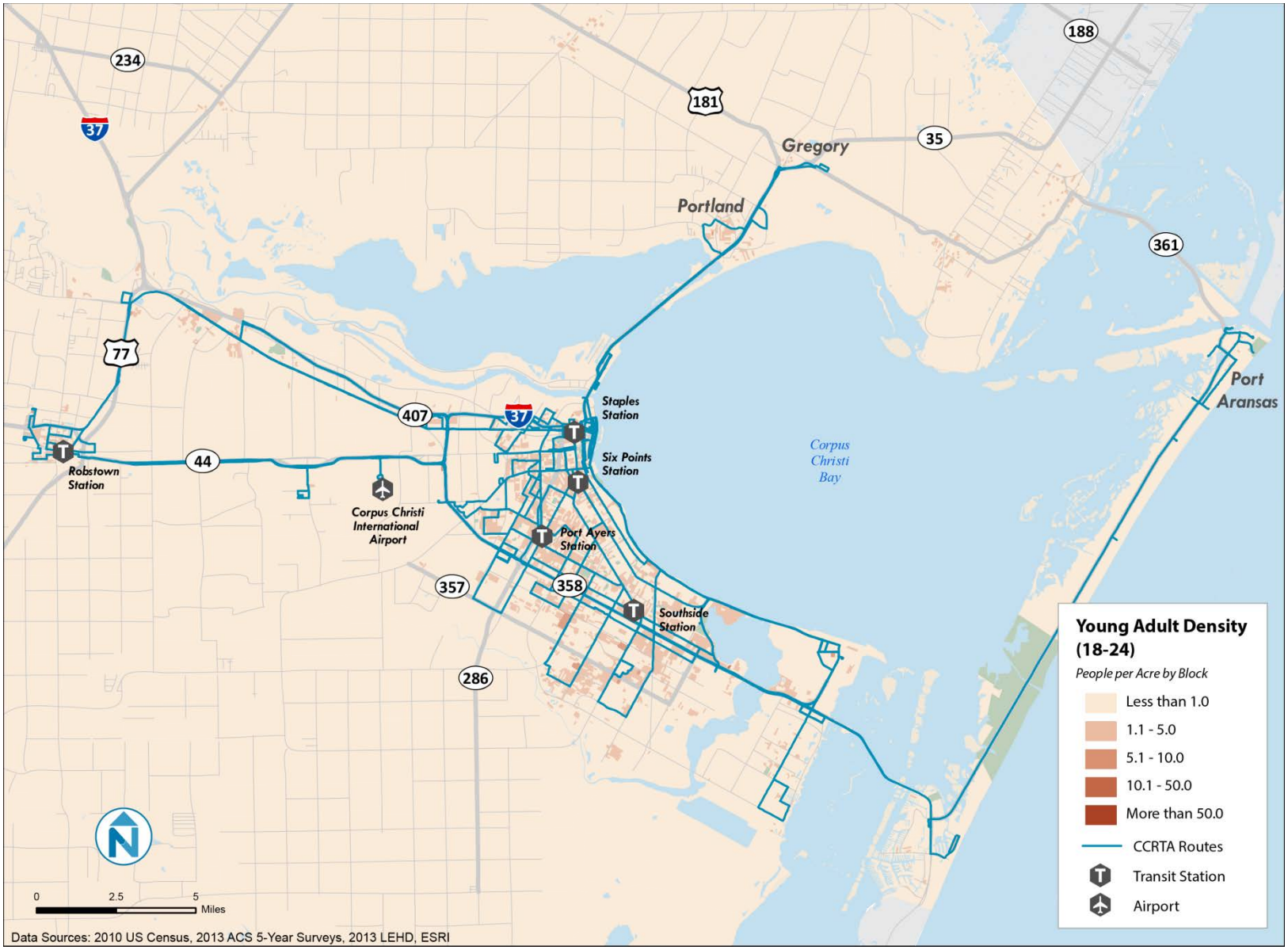

407
37
181
Staples Station
288
358
44
Six Points Station
Corpus Christi International Airport
Corpus Christi Bay
Port Ayers Station
357
Southside Station
286
358
Senior Density (65+)
People per Acre by Block
Less than 1.0
1.1 - 5.0
5.1 - 10.0
10.1 - 50.0
More than 50.0
CCRTA Routes
Transit Center
Airport
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Figure 15 Young Adult Density (Service Area)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361
77
407
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Gregory
Portland
Port Aransas
Staples Station
Six Points Station
Port Ayers Station
Southside Station
Robstown Station
Corpus Christi International Airport
Corpus Christi Bay
357
358
286
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, 2013 LEHD, ESRI
Young Adult Density (18-24)
People per Acre by Block
Less than 1.0
1.1 - 5.0
5.1 - 10.0
10.1 - 50.0
More than 50.0
CCRTA Routes
Transit Station
Airport

Figure 16 Young Adult Density (Corpus Christi)

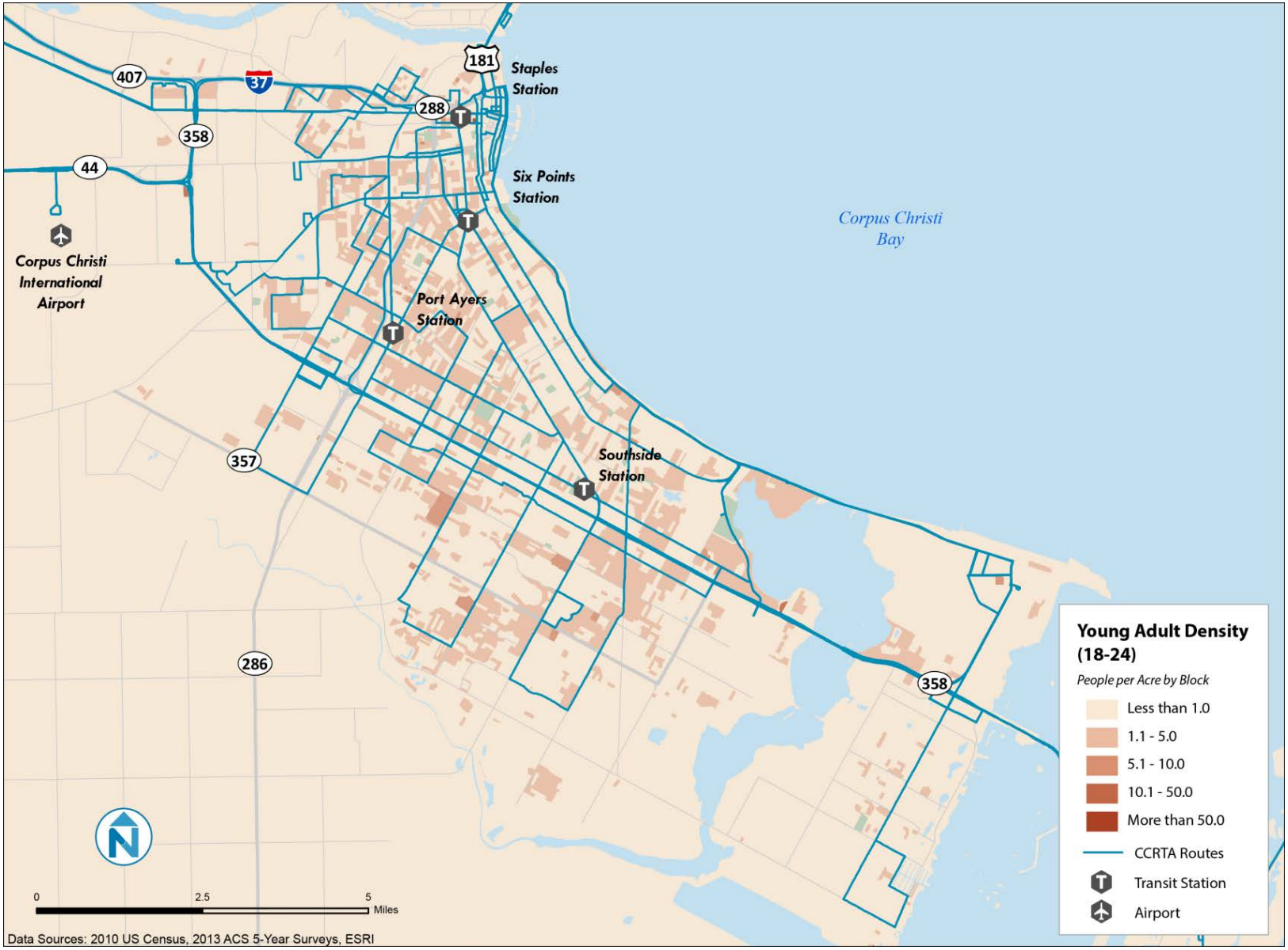
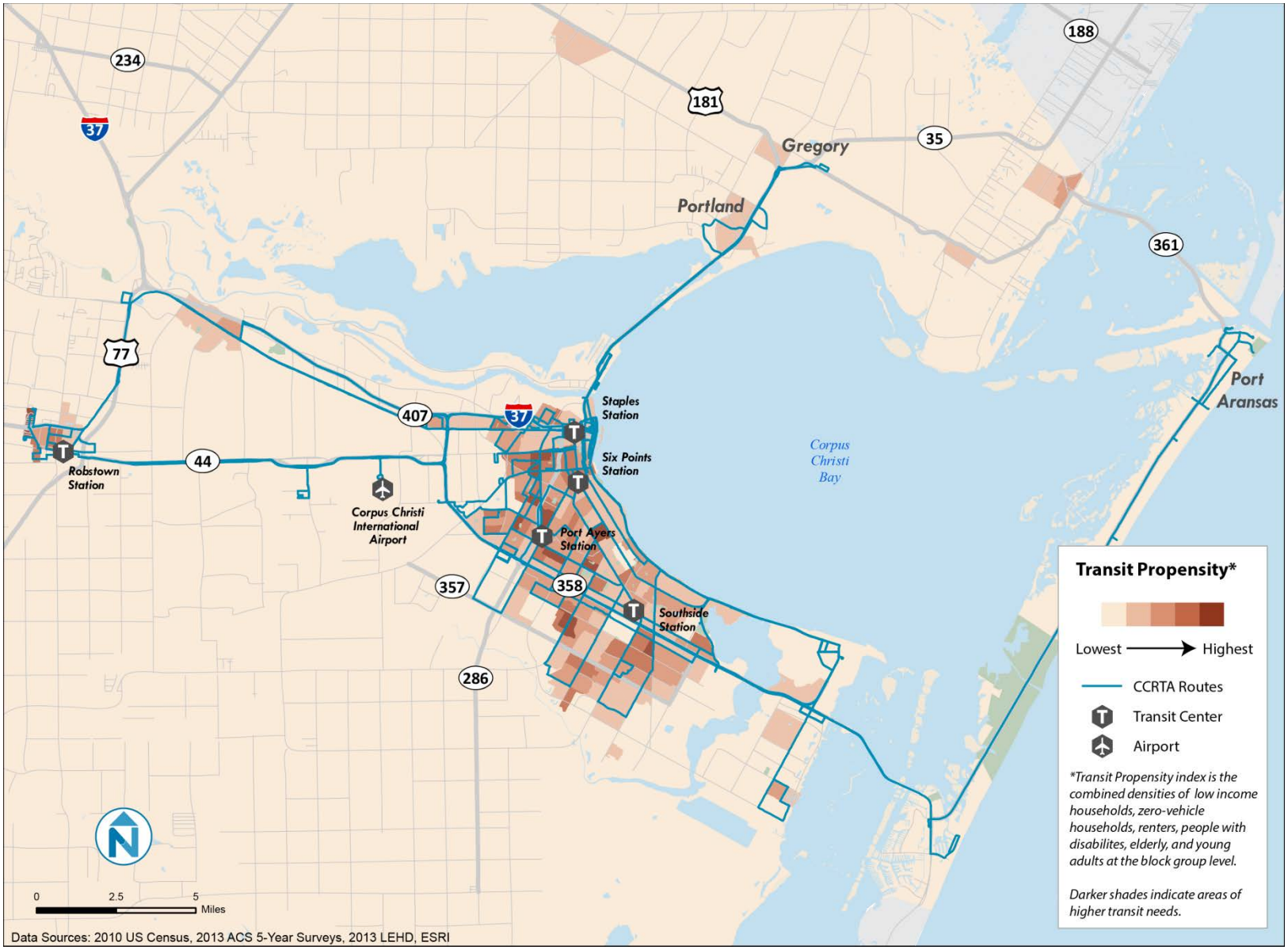

407
37
181
Staples Station
288
358
44
Six Points Station
Corpus Christi International Airport
Corpus Christi Bay
Port Ayers Station
357
Southside Station
286
358
Young Adult Density (18-24)
People per Acre by Block
Less than 1.0
1.1 - 5.0
5.1 - 10.0
10.1 - 50.0
More than 50.0
CCRTA Routes
Transit Station
Airport
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Figure 17 Transit Demand (Service Area)


234
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361
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407
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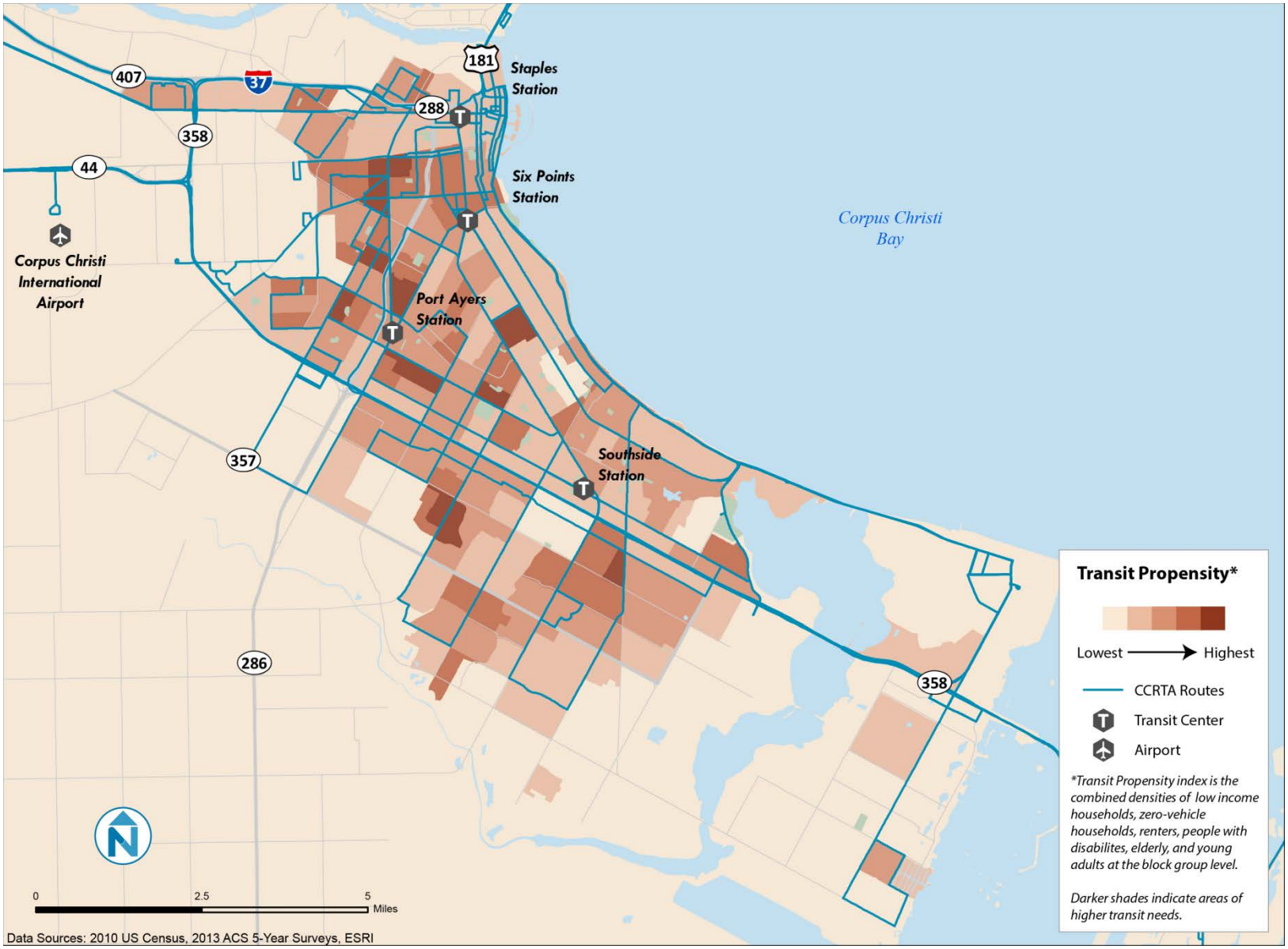
Gregory
Portland
Port Aransas
Corpus Christi Bay
Staples Station
Six Points Station
Port Ayers Station
Southside Station
Robstown Station
Corpus Christi International Airport
357
358
286
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, 2013 LEHD, ESRI
Transit Propensity*
Lowest
Highest
CCRTA Routes
Transit Center
Airport
*Transit Propensity index is the combined densities of low income households, zero-vehicle households, renters, people with disabilites, elderly, and young adults at the block group level.
Darker shades indicate areas of higher transit needs.

Figure 18 Transit Demand (Corpus Christi)


407
37
181
Staples Station
288
358
44
Six Points Station
Corpus Christi International Airport
Corpus Christi Bay
Port Ayers Station
357
Southside Station
286
358
Transit Propensity*
Lowest
Highest
CCRTA Routes
Transit Center
Airport
*Transit Propensity index is the combined densities of low income households, zero-vehicle households, renters, people with disabilites, elderly, and young adults at the block group level.
Darker shades indicate areas of higher transit needs.
0
2.5
5
Miles
Data Sources: 2010 US Census, 2013 ACS 5-Year Surveys, ESRI

Employment Patterns

Major employers in the CCRTA service area include Naval Air Station-Corpus Christi/Army Depot, Del Mar College, Texas A&M University-Corpus Christi, Bay Ltd., Sam Kane Beef Processors, and several refineries (Flint Hills Resources, Valero, and Citgo). Other major employers that are widespread geographically include Corpus Christi ISD, Christus Spohn Health Systems, H-E-B stores, City of Corpus Christi, Nueces County, and other independent school districts.

Job Density

High employment densities are present along both sides of SPID between Weber and Airline, an area with a significant amount of retail employment that includes La Palmera Mall, Moore Plaza, Gateway Shopping Center, and Sunrise Mall. Other zones with high employment densities include Five Points in Calallen (I-37 and US 77), medical facilities and retail in the vicinity of Alameda and Texan, South Staples between SPID and Saratoga, and Leopard between Navigation and Port.

Job densities within the CCRTA service area are depicted in Figure 19. Job densities within Corpus Christi are depicted in Figure 20.

Low-Income Job Density

Jobs with an annual income of less than $15,000 are most prevalent along both sides of SPID between Weber and Airline. The largest employment site in this zone is La Palmera Mall, which is walking distance from Southside Station. On the opposite side of the SPID highway is Moore Plaza, which is accessible by transit along Staples and Williams. A high concentration of low-income jobs is also present in Downtown Corpus Christi and at major retail stores including H-E-B and Walmart.

Low-income job densities within the CCRTA service area are depicted in Figure 21. Low-income job densities within the Corpus Christi area are depicted in Figure 22.

Downtown Corpus Christi and NAS-CC/CCAD Employees

Census Longitudinal Employer-Household Dynamics (LEHD) data was used to determine the home origins of two major employment areas, Downtown Corpus Christi and Naval Air Station-Corpus Christi.

The highest concentration of Downtown employees is in Southside Corpus Christi, Padre Island, Portland, and the Wood River neighborhood of Calallen. Home locations of Downtown workers are depicted in Figure 23.

The highest concentration of Naval Air Station-Corpus Christi/Corpus Christi Army Depot (NAS-CC/CCAD) employees can be found in Flour Bluff, and the fast-growing area between Airline and Oso Bay (south of Holly). Home locations of NAS-CC workers are depicted in Figure 24.

Figure 19 Job Density (Service Area)

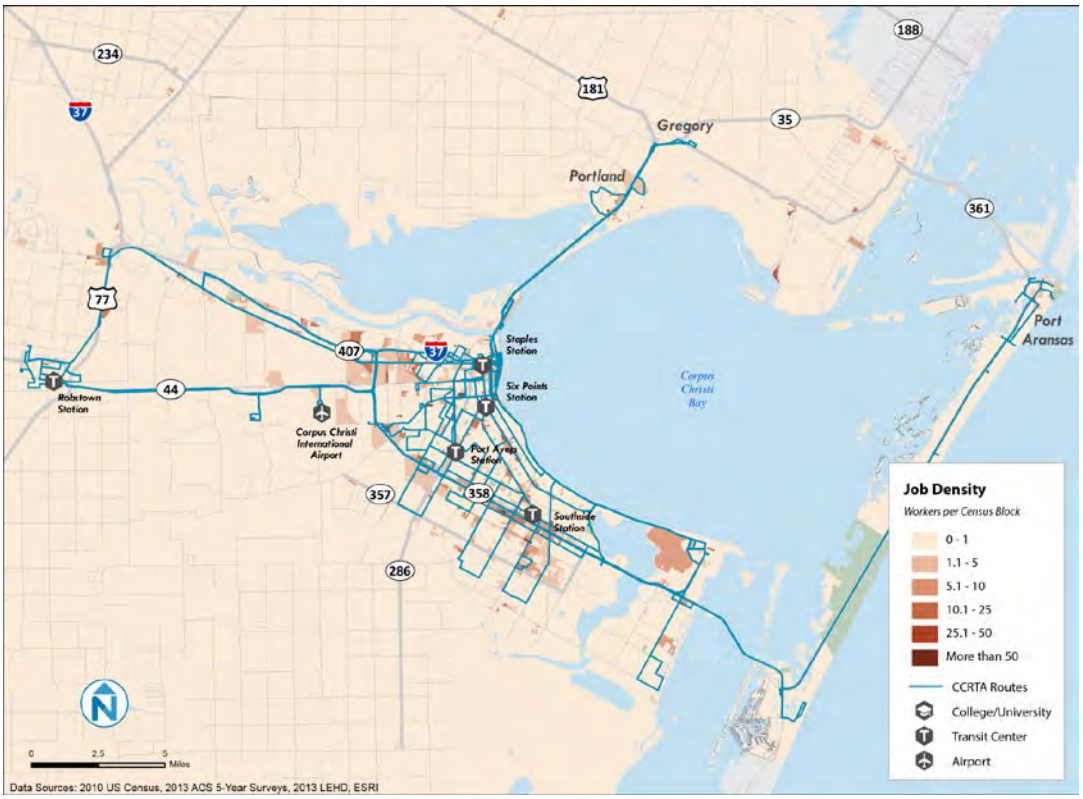


Figure 20 Job Density (Corpus Christi)

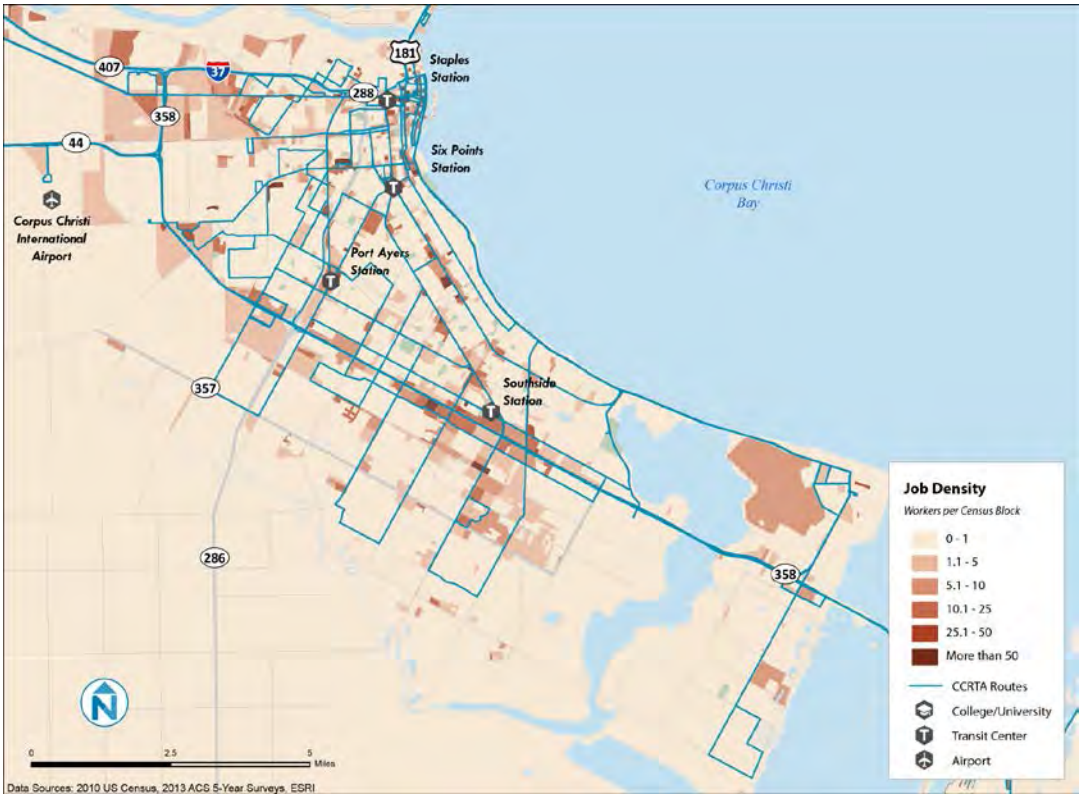


Figure 21 Low-Income Job Density (Service Area)

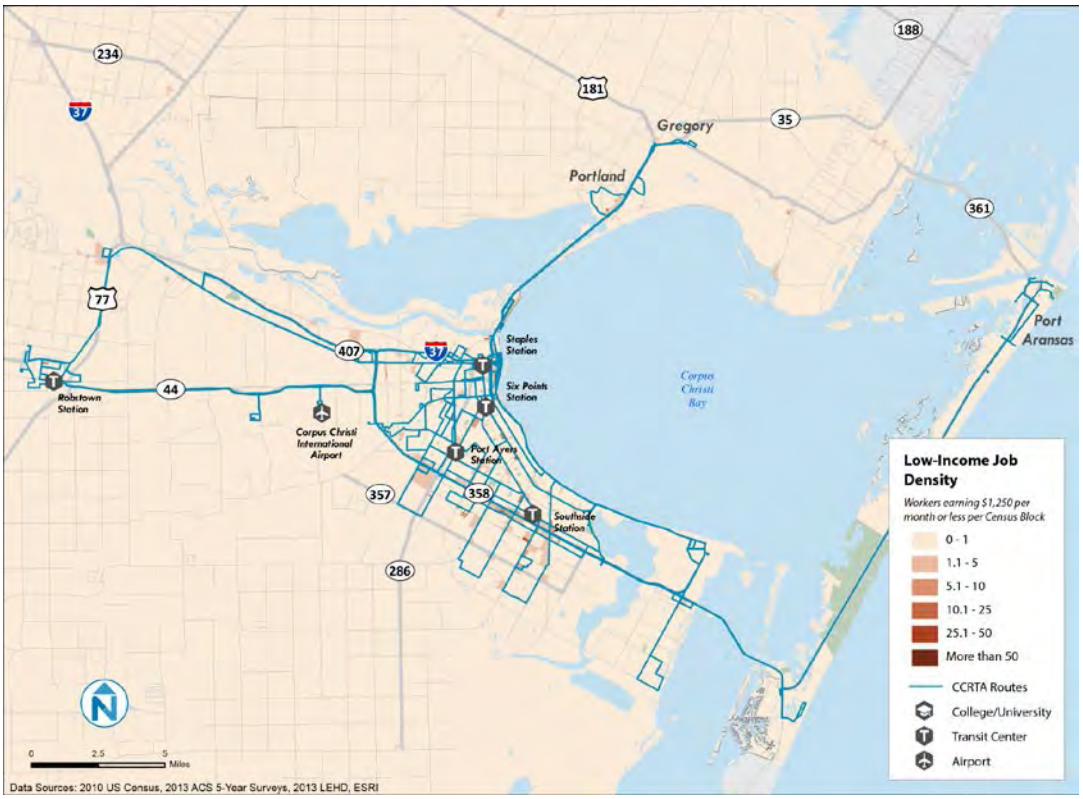


Figure 22 Low-Income Job Density (Corpus Christi)

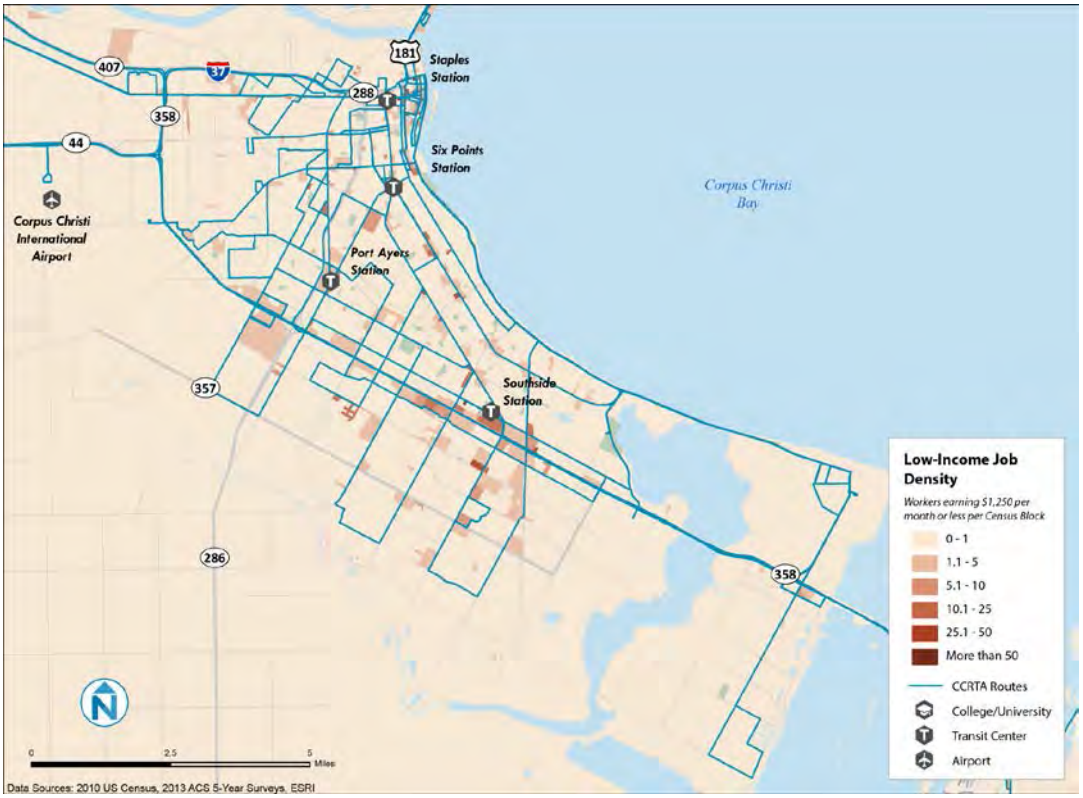


Figure 23 Home Locations of Downtown Workers

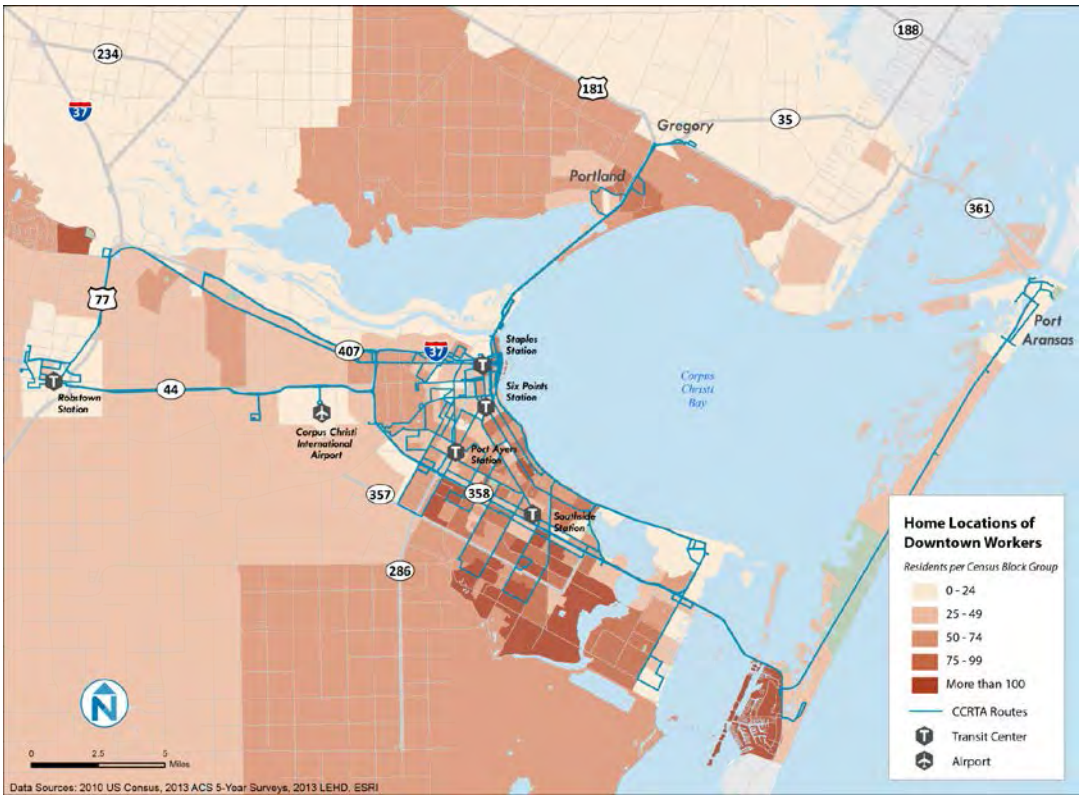
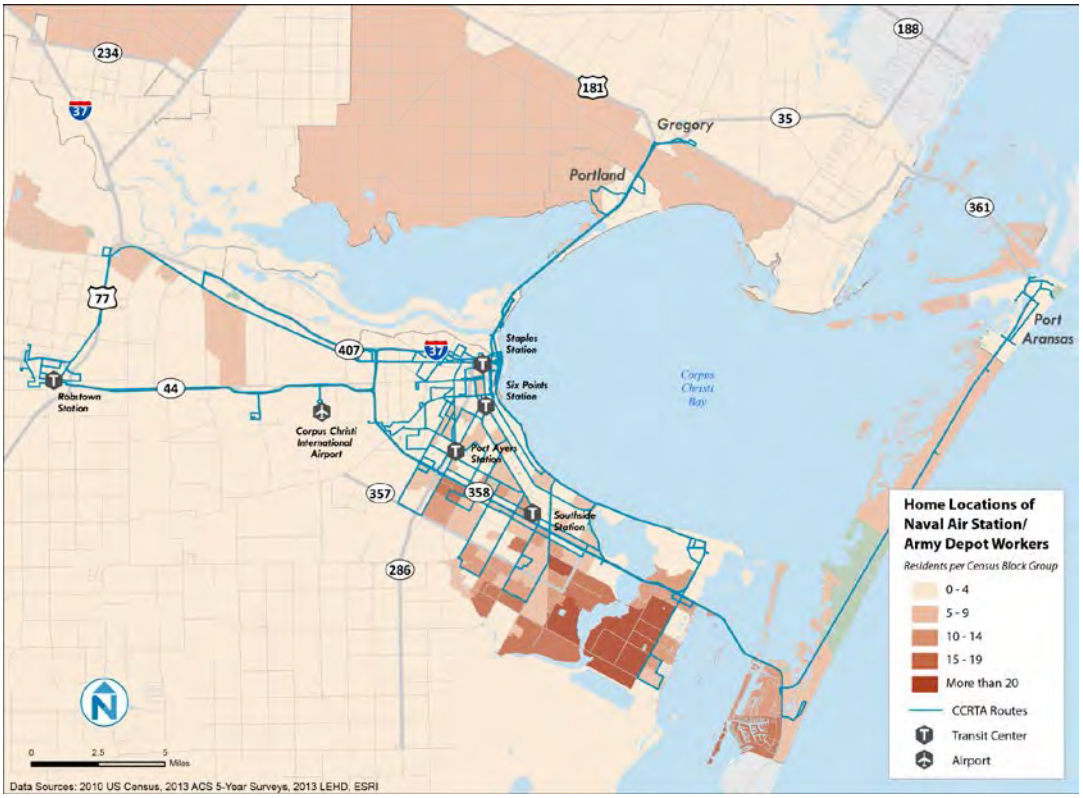


Figure 24 Home Locations of Naval Air Station-Corpus Christi Workers



Access to Higher Education

Convenient access to higher education by transit is an important resource to students and employees. CCRTA routes serving Del Mar College and Texas A&M University-Corpus Christi show corridors with a direct one-seat ride to each respective campus. Residential densities of students enrolled at Del Mar College and Texas A&M University-Corpus Christi were also mapped to identify potential opportunities for improved direct access to each campus.

Del Mar College

Routes serving Del Mar College are depicted in Figure 25. Del Mar College student origins are depicted in Figure 26. Areas with the highest concentration of students include neighborhoods along Alameda, Staples, Kostoryz, and Greenwood.

Texas A&M University–Corpus Christi (TAMU-CC)

Texas A&M University-Corpus Christi has grown significantly over the past two decades in terms of enrollment, programs, and facilities. As new development occurs on its land-locked island campus, student parking has become scarcer, increasing the importance of transit options serving the campus.

Routes serving TAMU-CC are depicted in Figure 27. TAMU-CC student origins are depicted in Figure 28. The most significant concentrations are within 3 miles of campus primarily along Ennis Joslin and McArdle.

Figure 25 Routes serving Del Mar College

Figure 26 Del Mar College Student Origins

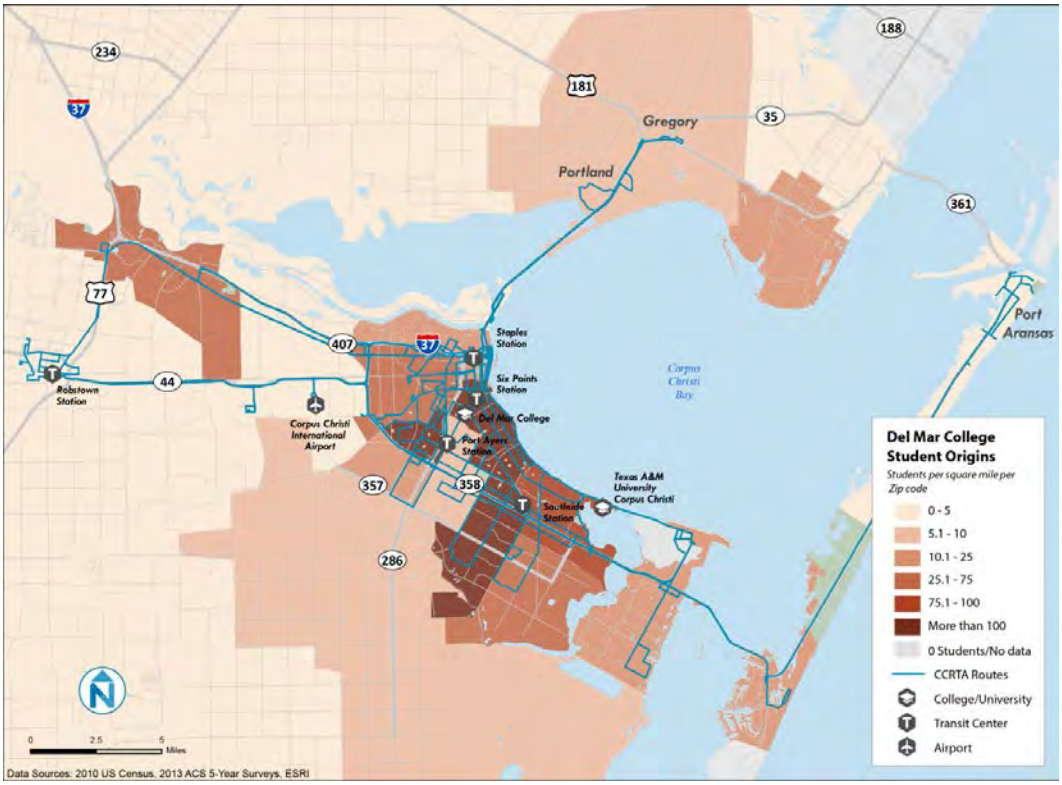
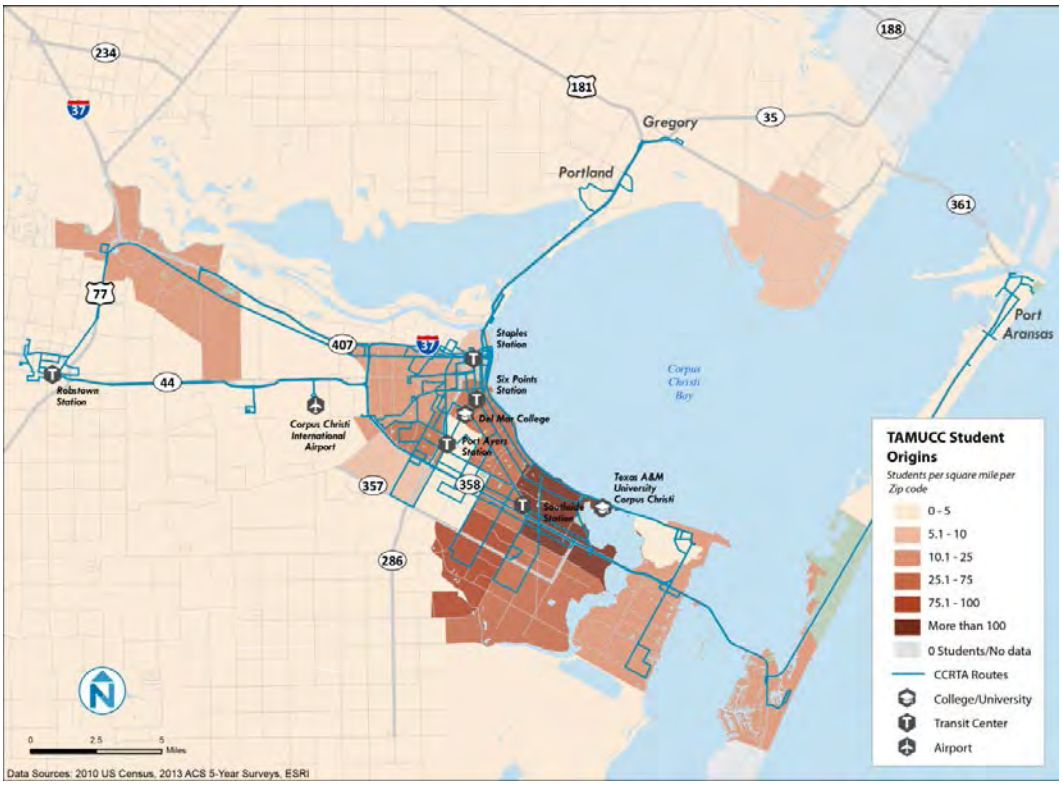


Figure 27 Routes serving Texas A&M University-Corpus Christi

Figure 28 Texas A&M University-Corpus Christi Student Origins



SYSTEM OVERVIEW

Service Types

The Corpus Christi Regional Transportation Authority provides safe, reliable, and affordable transportation options to the Corpus Christi, Port Aransas, Robstown, and Gregory areas. CCRTA offers a wide variety of service types to meet different transportation needs across participating jurisdictions within the Coastal Bend.

Fixed-Route Bus Service

CCRTA operates 31 fixed routes on weekdays, 24 routes on Saturdays, and 15 routes on Sunday. Information regarding service span, headways, peak vehicles, and vehicle assignments are included in this chapter.

B-Line Paratransit

B-Line Paratransit service is for people whose disabilities prevent them from using regular accessible fixed-route service. B-Line is an origin-to-destination transportation service provided to riders who have been determined eligible using the Americans with Disabilities Act (ADA) guidelines. People with disabilities who are not prevented from using fixed route bus service by their disability would not qualify for B-Line service.

Once determined eligible by the CCRTA Eligibility Process, certified riders wishing to use B-Line must call a day in advance of travel to schedule a trip. The B-Line provides service within ¾ of a mile of fixed-route bus service as required by the ADA.

B-Line Service is available on Monday-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. Service hours and holidays mirror those offered on fixed-route service.

Flexi-B Flexible Service

CCRTA operates one flexible route connecting Port Aransas with Corpus Christi branded as Flexi-B. The Port Aransas Flexi-B is a hybrid between express bus and demand-response service. Flexi-B has scheduled trips with specific destinations such as Del Mar College, Texas A&M University – Corpus Christi, La Palmera Mall, Texas State Aquarium, and USS Lexington Museum but is also able to "flex" so that customers can reach medical appointments. Customers must call at least one day in advance and no more than seven days in advance to schedule a trip.

Harbor Ferry

The Harbor Ferry is a seasonal waterborne pedestrian ferry that connects the Peoples Street T-Head, located along the Corpus Christi Bayfront, with the Texas State Aquarium in the North Beach area during the spring and summer periods. The Harbor Ferry is not budgeted for 2016, however, CCRTA staff is developing a business plan for future service.

FIXED-ROUTE SERVICE

Fixed-route services operated by CCRTA vary significantly based on route design, function, span of service (hours of operation), and headway (time between buses in minutes). A route classification system will aid the CCRTA in establishing service characteristics and comparing performance. As a result, the following route types are proposed:

- **Frequent routes** serve one or more transfer stations and operate throughout the day along primary arterial streets with high transit demand. Frequent routes have direct alignments with stops spaced every 2-4 blocks and headways of 15 minutes or better during peak hours. CCRTA currently refers to frequent Routes 19 and 29 as Primary Transit Network (PTN) routes.
- **Local routes** are similar to frequent routes in terms of service span and operating characteristics, however, their focus is corridors with moderate transit demand. As a result, local routes have headways of 20-30 minutes during peak hours.
- **Feeder routes** are typically shorter in length than frequent and local routes and typically serve one transfer station or a major on-street transfer point. The primary function of this route type is to connect lower-density areas with other CCRTA services.
- **Shuttle routes** are more specialized in design than other routes types and may serve different specific transit markets. Examples of this service type are shuttles that connect student housing with campus, limited-stop service to major employers, and routes than that link two disconnected areas.
- **Circulator routes** tend to have a less direct alignment than other route types and instead focus on providing coverage to a smaller, geographic area. Like feeder routes, circulator routes connect to other routes at a transfer station of major bus hub.
- **Express routes** operate primarily during peak hours along highways or other major corridors with a limited number of stops. Due to their convenience, express routes typically have a higher fare than other fixed-route services.

A table specifying service attributes for specific route types is provided in Figure 29.

Figure 29 Route Types

Route Type	Service Attributes		Routes in Operation		
	Span	Headway	Weekday	Saturday	Sunday
Frequent	All-Day	15 minutes or better	2	0	0
Local	All-Day	20-30 minutes	10	12	8
Feeder	All-Day	30-60 minutes	4	4	2
Shuttle/Circulator	All-Day	10-60 minutes	7	6	4
Express	a.m. and p.m. peak	Select trips	8	2	1
Total			31	24	15

Note: Local Routes 6 operates every 60 minutes and Local Route 17 operates every 40 minutes

Weekday Service

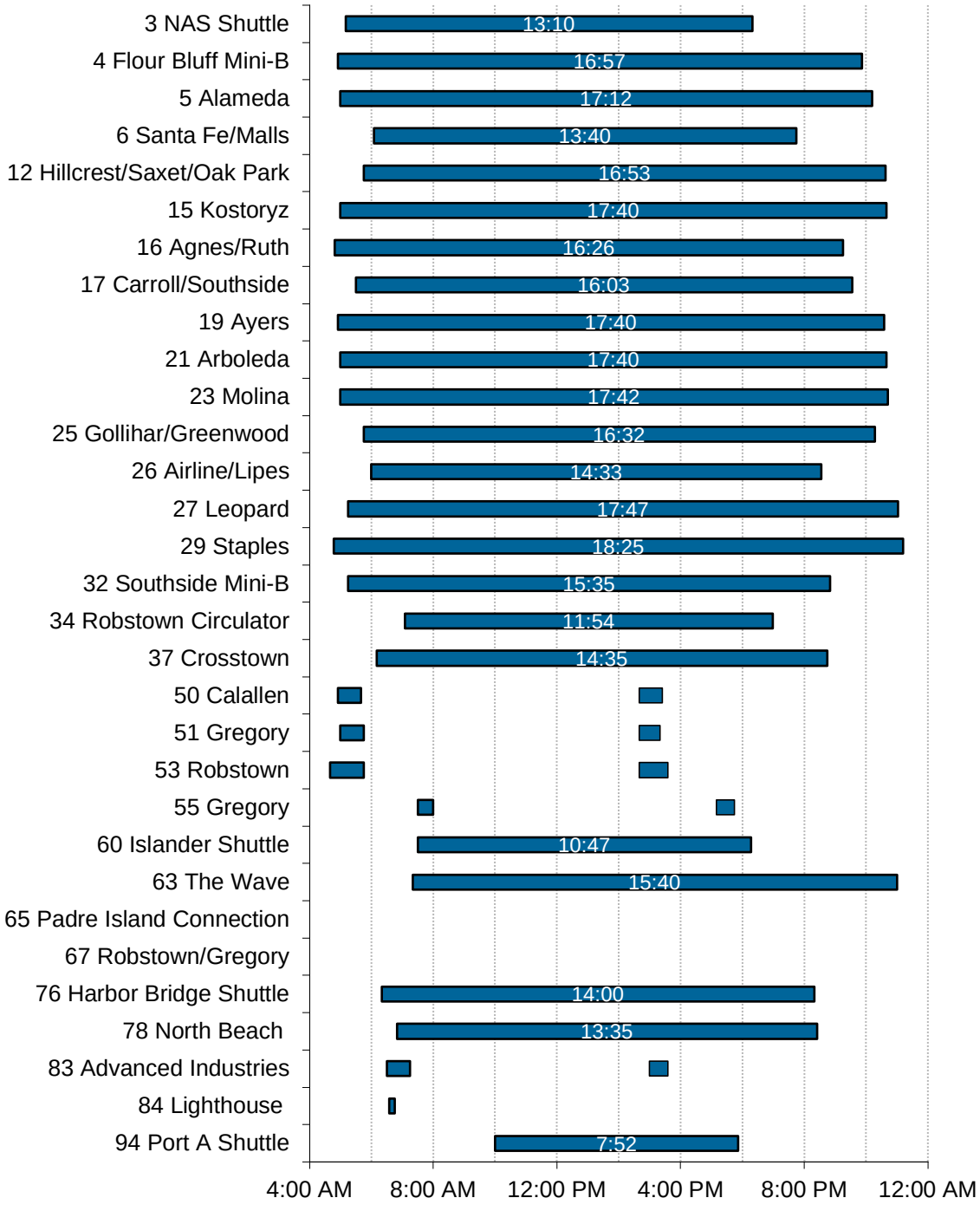
Weekday service is comprised of 31 routes that serve most urbanized areas of the greater Corpus Christi metropolitan area. The weekday fixed-route network is depicted in Figure 30. Weekday service levels are detailed in Figure 31. A graphic illustration of service span by route is provided in Figure 32.

Figure 30 Weekday Route Network

Figure 31 Weekday Service Levels

Route	Route Type	Span	Peak Headway	Off-Peak Headway
3 NAS Shuttle	Shuttle	5:10 a.m. - 6:20 p.m.	30	45
4 Flour Bluff Mini-B	Feeder	4:55 a.m. - 9:52 p.m.	25-35	60
5 Alameda	Local	5:00 a.m. - 10:12 p.m.	30	30
6 Santa Fe/Malls	Local	6:05 a.m. - 7:45 p.m.	60	60
12 Hillcrest/Saxet/Oak Park	Local	5:45 a.m. - 10:38 p.m.	30	30
15 Kostoryz	Feeder	5:00 a.m. - 10:40 p.m.	30	30
16 Agnes/Ruth	Local	4:49 a.m. - 9:15 p.m.	30	30
17 Carroll/Southside	Local	5:30 a.m. - 9:33 p.m.	40	40
19 Ayers	Frequent	4:55 a.m. - 10:35 p.m.	15	30
21 Arboleda	Local	5:00 a.m. - 10:40 p.m.	20	20
23 Molina	Local	5:00 a.m. - 10:42 p.m.	30	30
25 Gollihar/Greenwood	Feeder	5:45 a.m. - 10:17 p.m.	30	30
26 Airline/Lipes	Feeder	6:00 a.m. - 8:33 p.m.	60	60
27 Leopard	Local	5:15 a.m. - 11:02 p.m.	30	30
29 Staples	Frequent	4:47 a.m. - 11:12 p.m.	15	30
32 Southside Mini-B	Local	5:15 a.m. - 8:50 p.m.	60	60
34 Robstown Circulator	Circulator	7:05 a.m. - 6:59 p.m.	60	60
37 Crosstown	Local	6:10 a.m. - 8:45 p.m.	30	60
50 Calallen	Express	a.m. and p.m. peak	2 trips	-
51 Gregory	Express	a.m. and p.m. peak	2 trips	-
53 Robstown	Express	a.m. and p.m. peak	2 trips	-
55 Gregory	Express	a.m. and p.m. peak	2 trips	-
60 Islander Shuttle	Shuttle	7:30 a.m. - 6:17 p.m.	10	20
63 The Wave	Shuttle	7:20 a.m. - 11:00 p.m.	45	45
65 Padre Island Connection	Express	6:30 a.m. - 7:55 p.m.	60-75	-
67 Robstown/Gregory	Express	6:05 a.m. - 7:08 p.m.	160	160
76 Harbor Bridge Shuttle	Shuttle	6:20 a.m. - 8:20 p.m.	60	60
78 North Beach	Shuttle	6:50 a.m. - 8:25 p.m.	60	60
83 Advanced Industries	Express	a.m. and p.m. peak	2 trips	-
84 Lighthouse	Express	a.m. peak	1 trip	-
94 Port A Shuttle	Circulator	10:00 a.m. - 5:44 p.m.	60	60

Figure 32 Weekday Service Duration



Saturday Service

Select weekday express and shuttles routes are suspended on Saturday, however transit coverage in the core areas of Corpus Christi remain unchanged. Saturday service is comprised of 24 routes as depicted in Figure 33. Saturday service levels are detailed in Figure 34. A graphic illustration of service span by route is provided in Figure 35.

Figure 33 Saturday Route Network

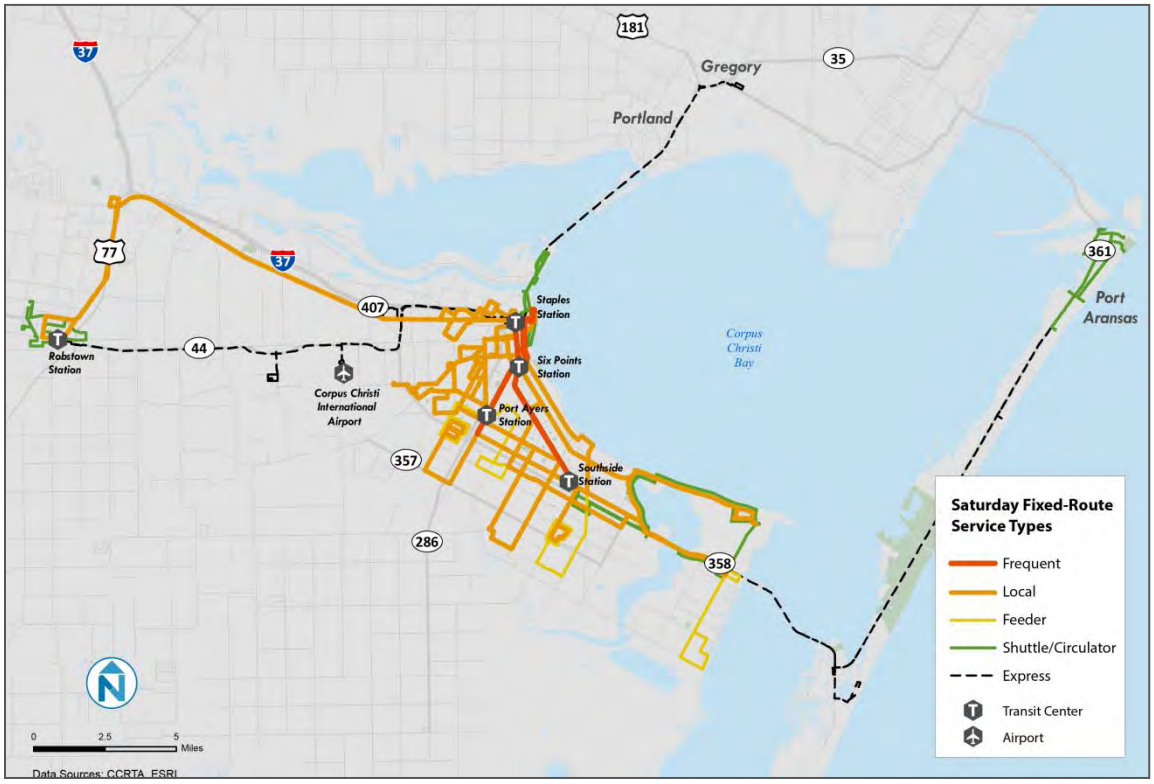
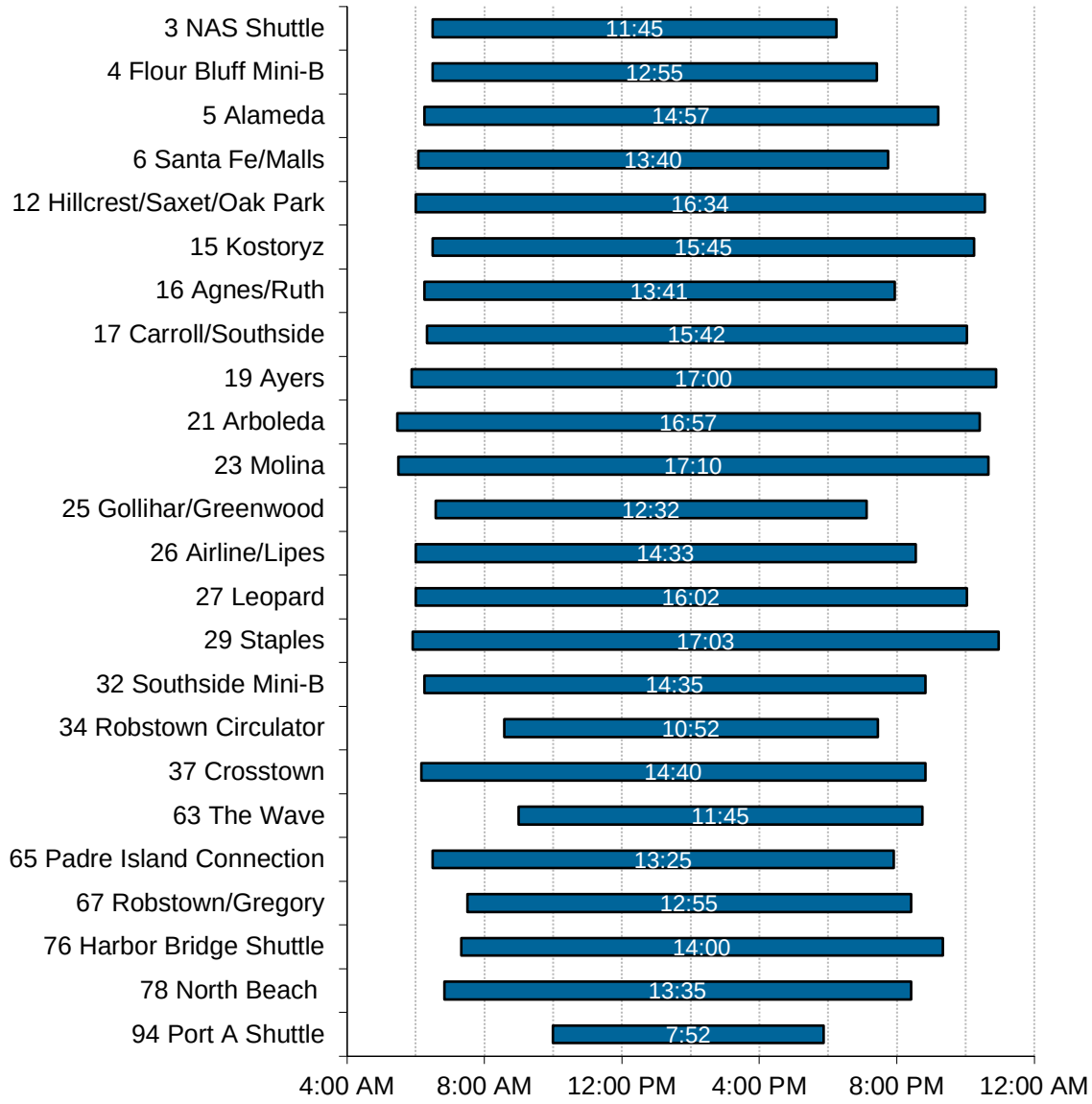


Figure 34 Saturday Service Levels

Route	Route Type	Span	Peak Headway	Off-Peak Headway
3 NAS Shuttle	Shuttle	6:30 a.m. - 6:15 p.m.	45	45
4 Flour Bluff Mini-B	Feeder	6:30 a.m. - 7:25 p.m.	60	60
5 Alameda	Local	6:15 a.m. - 9:12 p.m.	60	60
6 Santa Fe/Malls	Local	6:05 a.m. - 7:45 p.m.	60	60
12 Hillcrest/Saxet/Oak Park	Local	6:00 a.m. - 10:34 p.m.	30	60
15 Kostoryz	Feeder	6:30 a.m. - 10:15 p.m.	45	60
16 Agnes/Ruth	Local	6:15 a.m. - 7:56 p.m.	60	60
17 Carroll/Southside	Local	6:20 a.m. - 10:02 p.m.	45	45
19 Ayers	Frequent	5:53 a.m. - 10:53 p.m.	20	40
21 Arboleda	Frequent	5:28 a.m. - 10:25 p.m.	30	60
23 Molina	Local	5:30 a.m. - 10:40 p.m.	30	30
25 Gollihar/Greenwood	Feeder	6:35 a.m. - 7:07 p.m.	45	45
26 Airline/Lipes	Feeder	6:00 a.m. - 8:33 p.m.	60	60
27 Leopard	Local	6:00 a.m. - 10:02 p.m.	30	30
29 Staples	Frequent	5:55 a.m. - 10:58 p.m.	20	40
32 Southside Mini-B	Local	6:15 a.m. - 8:50 p.m.	60	60
34 Robstown Circulator	Circulator	8:35 a.m. - 7:27 p.m.	60	60
37 Crosstown	Local	6:10 a.m. - 8:50 p.m.	60	60
63 The Wave	Shuttle	9:00 a.m. - 8:45 p.m.	45	45
65 Padre Island Connection	Express	6:30 a.m. - 7:55 p.m.	60-75	-
67 Robstown/Gregory	Express	7:30 a.m. - 8:25 p.m.	160	160
76 Harbor Bridge Shuttle	Shuttle	7:20 a.m. - 9:20 p.m.	60	60
78 North Beach	Shuttle	6:50 a.m. - 8:25 p.m.	60	60
94 Port A Shuttle	Circulator	10:00 a.m. - 5:52 p.m.	60	60

Figure 35 Saturday Service Duration



Sunday Service

CCRTA operates a completely different route network on Sunday. Some Sunday routes mimic weekday/Saturday routes while others are consolidated versions of multiple routes. Transit coverage on Sunday is significantly less in terms of areas within walking distance of a bus stop. Sunday service is comprised of 15 routes as depicted in Figure 36. Sunday service levels are detailed in Figure 37. A graphic illustration of service span by route is provided in Figure 38.

Figure 36 Sunday Route Network

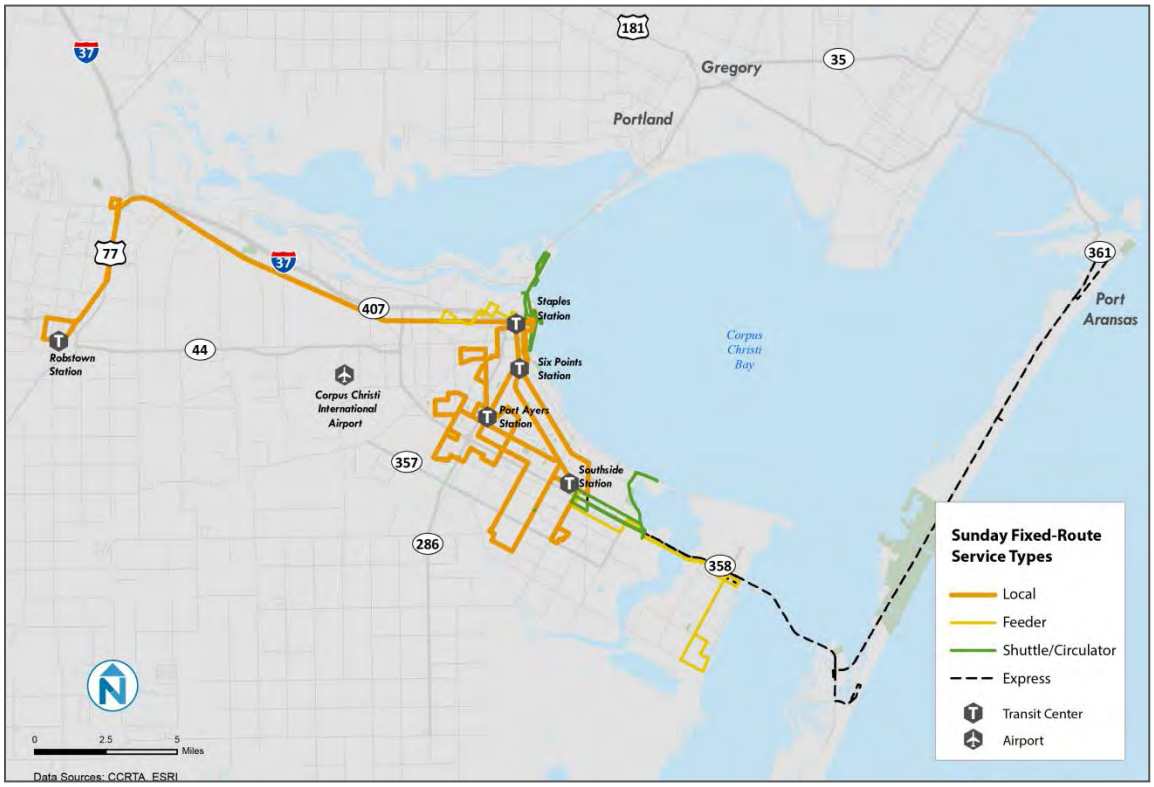
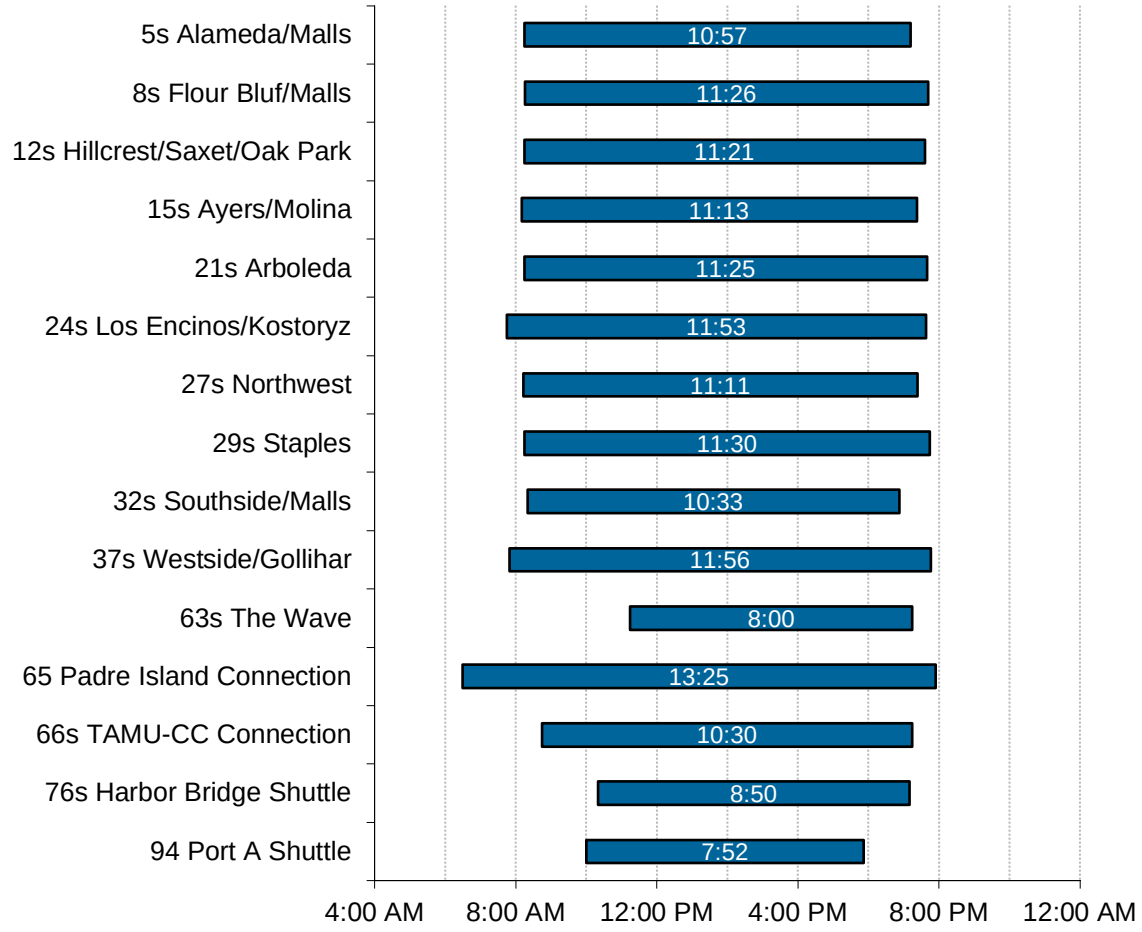


Figure 37 Sunday Service Levels

Route	Route Type	Span	Peak Headway	Off-Peak Headway
5s Alameda/Malls	Local	8:15 a.m. - 7:12 p.m.	60	60
8s Flour Bluff/Malls	Feeder	8:16 a.m. - 7:42 p.m.	60	60
12s Hillcrest/Saxet/Oak Park	Feeder	8:15 a.m. - 7:36 p.m.	60	60
15s Ayers/Molina	Local	8:10 a.m. - 7:23 p.m.	60	60
21s Arboleda	Local	8:15 a.m. - 7:40 p.m.	60	60
24s Los Encinos/Kostoryz	Local	7:45 a.m. - 7:38 p.m.	60	60
27s Northwest	Local	8:13 a.m. - 7:24 p.m.	60	60
29s Staples	Local	8:15 a.m. - 7:45 p.m.	60	60
32s Southside/Malls	Local	8:20 a.m. - 6:53 p.m.	60	60
37s Westside/Gollihar	Local	7:50 a.m. - 7:46 p.m.	60	60
63s The Wave	Shuttle/	11:15 a.m. - 7:15 p.m.	45	45
65 Padre Island Connection	Express	6:30 a.m. - 7:55 p.m.	60-75	-
66s TAMU-CC Connection	Shuttle	8:45 a.m. - 7:15 p.m.	60	60
76s Harbor Bridge Shuttle	Shuttle	10:20 a.m. - 7:10 p.m.	60	60
94 Port A Shuttle	Circulator	10:00 a.m. - 5:52 p.m.	60	60

Figure 38 Sunday Service Duration



Interlined Routes

Several CCRTA routes are interlined (or linked together at a common endpoint) to maximize efficiency. Interlined routes independently have irregular cycle times that would result in irregular headways such as 40, 75, or 80 minutes that are not memorable for customers or consistent with other routes. Interlining two routes with the same headway results in a combined cycle time that is divisible by clockface headways (e.g. 30 or 60 minutes). Interlined routes are listed in the following tables.

Figure 39 Weekday Interlined Routes

Route	Cycle Time	Combined Cycle Time	Peak Headway	Peak Vehicles
6 Santa Fe/Malls	80	120	60	2
78 North Beach	40			
15 Kostoryz	45	90	30	3
25 Gollihar	45			
26 Airline/Lipes	75	180	60	3
32 Southside Mini-B	105			

Figure 40 Saturday Interlined Routes

Route	Cycle Time	Combined Cycle Time	Peak Headway	Peak Vehicles
6 Santa Fe/Malls	80	120	60	2
78 North Beach	40			
15 Kostoryz	45	90	45	2
25 Gollihar	45			
26 Airline/Lipes	75	180	60	3
32 Southside Mini-B	105			

Figure 41 Sunday Interlined Routes

Route	Cycle Time	Combined Cycle Time	Peak Headway	Peak Vehicles
5s Alameda/Malls	60	120	60	2
12s Hillcrest/Saxet/Oak Park	60			
8s Flour Bluff/Malls	90	180	60	3
37s Westside/Gollihar	90			
15s Ayers/Molina	90	180	60	3
29s Staples	90			
32s Southside/Malls	150	180	60	3

66s TAMU-CC Connection	30			

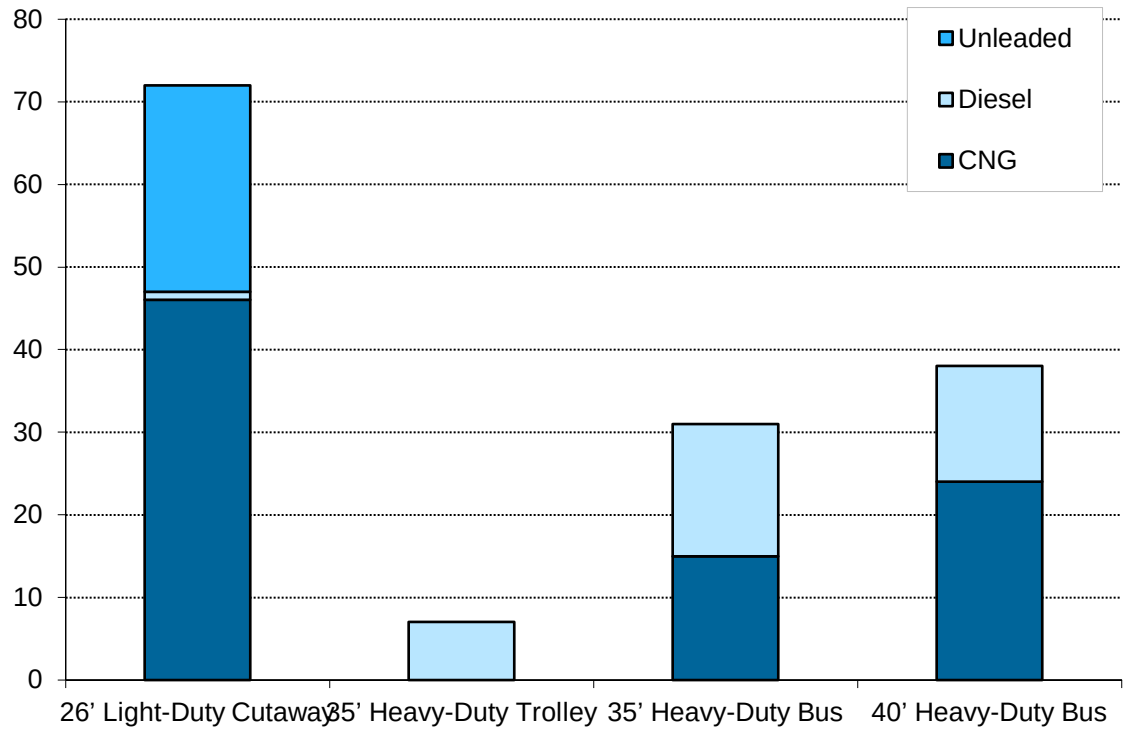
Vehicles

CCRTA maintains a fleet of 92 fixed-route vehicles (76 buses and 16 cutaways) and 56 paratransit vehicles. Most fixed routes are assigned 35' and 40' heavy-duty buses. Routes 3, 4, 34, 63, 67 and 94 are assigned light-duty cutaway vehicles. Vehicle characteristics are detailed in Figure 42. A breakdown of fuel types by vehicle type is shown in Figure 43.

Figure 42 Vehicle Summary

Type	Seating Capacity	Average Year	Fixed Route Vehicles	Paratransit Vehicles	Total Vehicles
25'-26' Light-Duty Cutaway	13-14	2012	16	56	72
35' Heavy-Duty Trolley	32	2008	7	0	7
35' Heavy-Duty Bus	29-32	2012	31	0	31
40' Heavy-Duty Bus	37-38	2012	38	0	38
Total			92	56	148

Figure 43 Fuel Type by Vehicle Type



Peak vehicles and typical vehicle assignments for each route and service level are listed in Figure 44 through Figure 46.

Figure 44 Weekday Peak Vehicles and Vehicle Type by Route

Route	Peak Vehicles	Vehicle Type
3 NAS Shuttle	2	26'
4 Flour Bluff Mini-B	2	26'
5 Alameda	2	35'
6 Santa Fe/Malls	1.33	35'
12 Hillcrest/Saxet/Oak Park	2	40'
15 Kostoryz	1.5	40'
16 Agnes/Ruth	2	35'
17 Carroll/Southside	3	35'
19 Ayers	7	40'
21 Arboleda	3	40'
23 Molina	3	40'
25 Gollihar/Greenwood	1.5	40'
26 Airline/Lipes	1.25	35'
27 Leopard	5	40'
29 Staples	9	35'
32 Southside Mini-B	1.75	35'
34 Robstown Circulator	1	26'
37 Crosstown	4	35'
50 Calallen	1	35'
51 Gregory	1	35'
53 Robstown	1	35'
55 Gregory	1	35'
60 Islander Shuttle	2	40'
63 The Wave	1	26'
65 Padre Island Connection	2	35'
67 Robstown/Gregory	1	26'
76 Harbor Bridge Shuttle	1	35'
78 North Beach	0.67	35'
83 Advanced Industries	1	35'
84 Lighthouse	1	35'
94 Port A Shuttle	1	25'
Total	67	-

Figure 45 Saturday Peak Vehicles and Vehicle Type by Route

Route	Peak Vehicles	Vehicle Type
3 NAS Shuttle	1	26'
4 Flour Bluff Mini-B	1	26'
5 Alameda	1	35'
6 Santa Fe/Malls	1.33	35'
12 Hillcrest/Saxet/Oak Park	2	40'
15 Kostoryz	1	40'
16 Agnes/Ruth	1	35'
17 Carroll/Southside	2	35'
19 Ayers	5	40'
21 Arboleda	2	40'
23 Molina	3	40'
25 Gollihar/Greenwood	1	40'
26 Airline/Lipes	1.25	35'
27 Leopard	5	40'
29 Staples	7	35'
32 Southside Mini-B	1.75	35'
34 Robstown Circulator	1	26'
37 Crosstown	2	35'
63 The Wave	1	26'
65 Padre Island Connection	2	35'
67 Robstown/Gregory	1	26'
76 Harbor Bridge Shuttle	1	35'
78 North Beach	0.67	35'
94 Port A Shuttle	1	25’

Figure 46 Sunday Peak Vehicles and Vehicle Type by Route

Route	Peak Vehicles	Vehicle Type
5s Alameda/Malls	1	35'
8s Flour Bluff/Malls	1.5	35'
12s Hillcrest/Saxet/Oak Park	1	40'
15s Ayers/Molina	1.5	35'
21s Arboleda	1	40'
24s Los Encinos/Kostoryz	1	35'
27s Northwest	2	40'
29s Staples	1.5	40'
32s Southside/Malls	2.5	35'
37s Westside/Gollihar	1.5	35'
63s The Wave	2	26'
65 Padre Island Connection	0.5	35'
66s TAMU-CC Connection	1	35'
76s Harbor Bridge Shuttle	1	35'
94 Port A Shuttle	1	25'

Figure 47 Peak Vehicle Summary by Vehicle Type and Service Level

Service Level	25'	26'	35'	40'	Total
Weekday	1	7	34	25	67
Saturday	1	5	21	19	46
Sunday	1	2	11.5	5.5	20

Fare Payment

The current CCRTA fares structure is detailed in Figure 48. CCRTA offers single ride fares, as well as a multitude of pass products. Transfers are free. A higher fare is charged for express services.

The fare structure offers significant discounts for eligible customers, which include senior citizens, individuals with disabilities, Medicare card holders, and students with a valid ID. Reduced fares vary by time of day. During peaks, a cash reduced fare is $0.25, whereas during off-peak times, it is only $0.10 per ride.

Pass prices are discounted over regular cash fares for regular and express services. The B-Line fare is only $1.25 per ride, which is less than what is allowed by the Americans with Disabilities Act.

Figure 48 Fare Structure

Fare Type	Price
Adult Single Fare	$0.75
Reduced Fare (Peak Hours)	$0.25
Reduced Fare (Off-Peak Hours and Weekends)	$0.10
Premium Service Fares (Express Routes)	
Adult Single Fare	$1.25
Reduced Fare	$0.25
#94 Port Aransas Shuttle	$0.25
B-Line Fares	
Regular Fare	$1.25
Surcharge outside ¾ mile ADA zone	$2.00
Passes	
Day Pass	$1.75
7 Day Pass	$7.50
31 Day Pass	$30.00
Reduced Fare 31 Day Pass	$11.00
Commuter 11 Trip Pass	$12.50
B-Line Pass	$50.00
Harbor Ferry Fares	
Round Trip	$3.00
Reduced Fare	$1.50

Peak Hours are defined as 6 a.m. to 9 a.m. and 3 p.m. to 6 p.m. on weekdays only

Off-Peak Hours are defined as 6 a.m., 9 a.m. to 3 p.m., after 6 p.m.

CCRTA allows free transfers on fixed-routes within two hours of the purchase of a regular or reduced fare. Due to the current practice of recording all transfers on fare boxes without designating the type of fare paid by the customer, it is not possible to calculate an accurate breakdown of fare types paid by all customers. However, it is possible to calculate the breakdown of initial fare types paid, as detailed in Figure 49.

Figure 49 Initial Fare Type Collected (January-November 2015)

Fare Type	Percent
Adult Single Fare	30%
Reduced Fare – Disabled/Medicare	11%
Reduced Fare – Senior Citizen	2%
Del Mar College Student/Faculty/Staff	5%
Texas A&M University-Corpus Christi Student/Faculty/Staff	11%
Reduced Fare – Other Student	9%
Day Pass	8%
7 Day Pass	5%
31 Day Pass	3%
Reduced Fare 31 Day Pass	10%
Other	6%

Service Hours

Nearly all transit systems offer more overall service on weekdays than weekends due to differences in activity and demand. Most systems provide less service on Sunday than Saturday for the same reasons. Fast-growing transit systems with a range of service types typically provide 30% less service on Saturdays (than weekdays) and 50% less service on Sunday. These figures are lower for systems that have not experienced significant increases in investment of service. Daily service hours for each route are shown in Figure 50 and Figure 51.

Figure 50 Weekday and Saturday Service Hours by Route

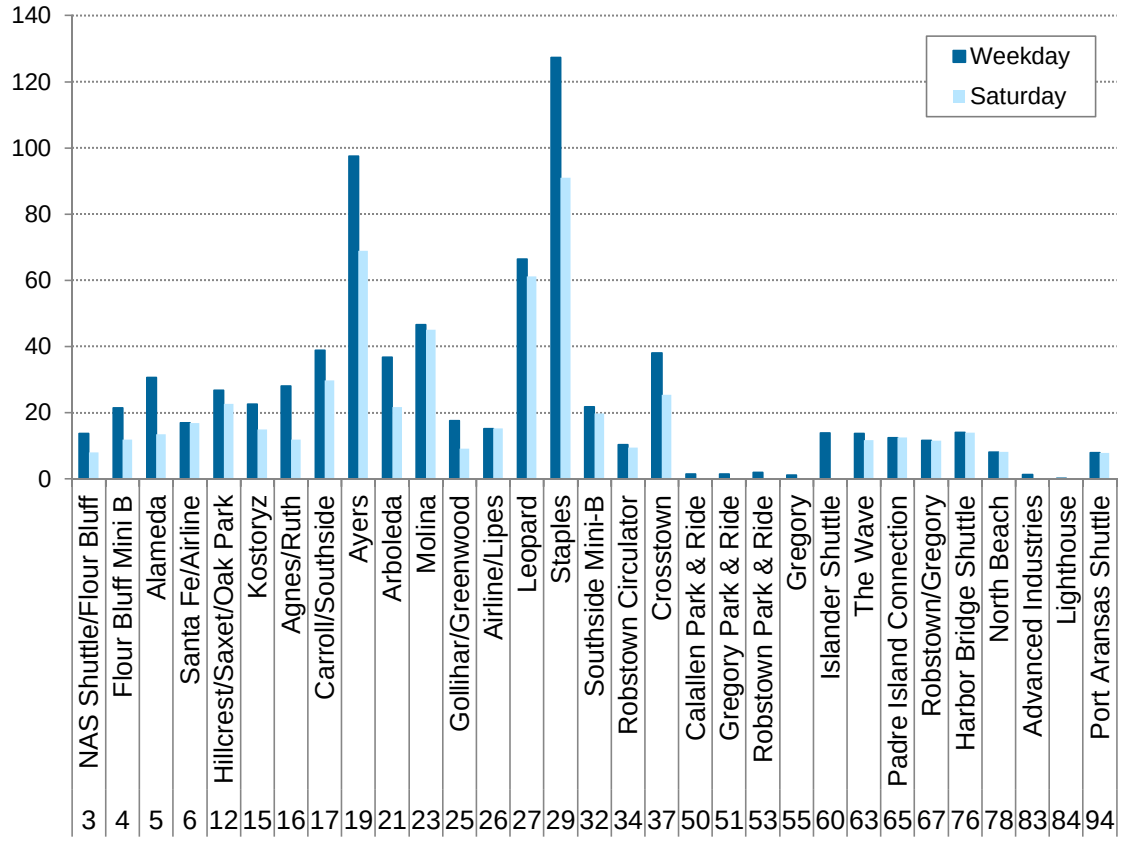
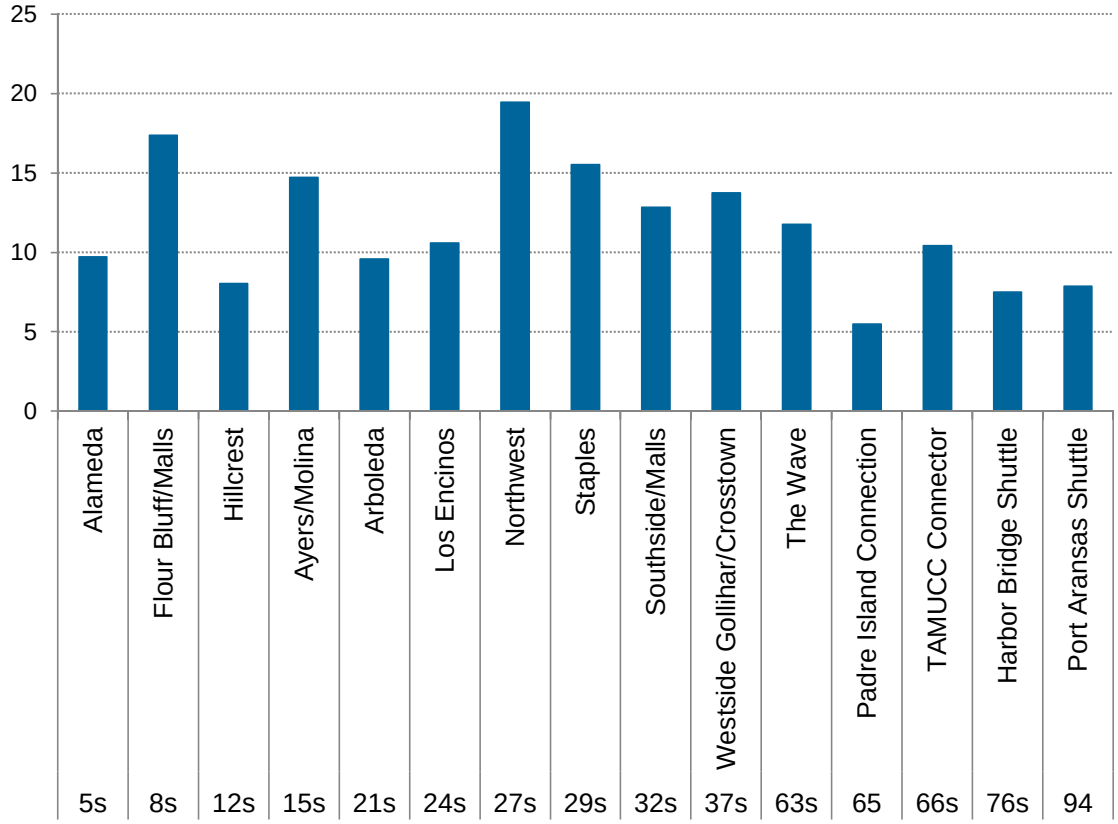


Figure 51 Sunday Service Hours by Route



Transfer Stations

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

Figure 52 Transfer Stations

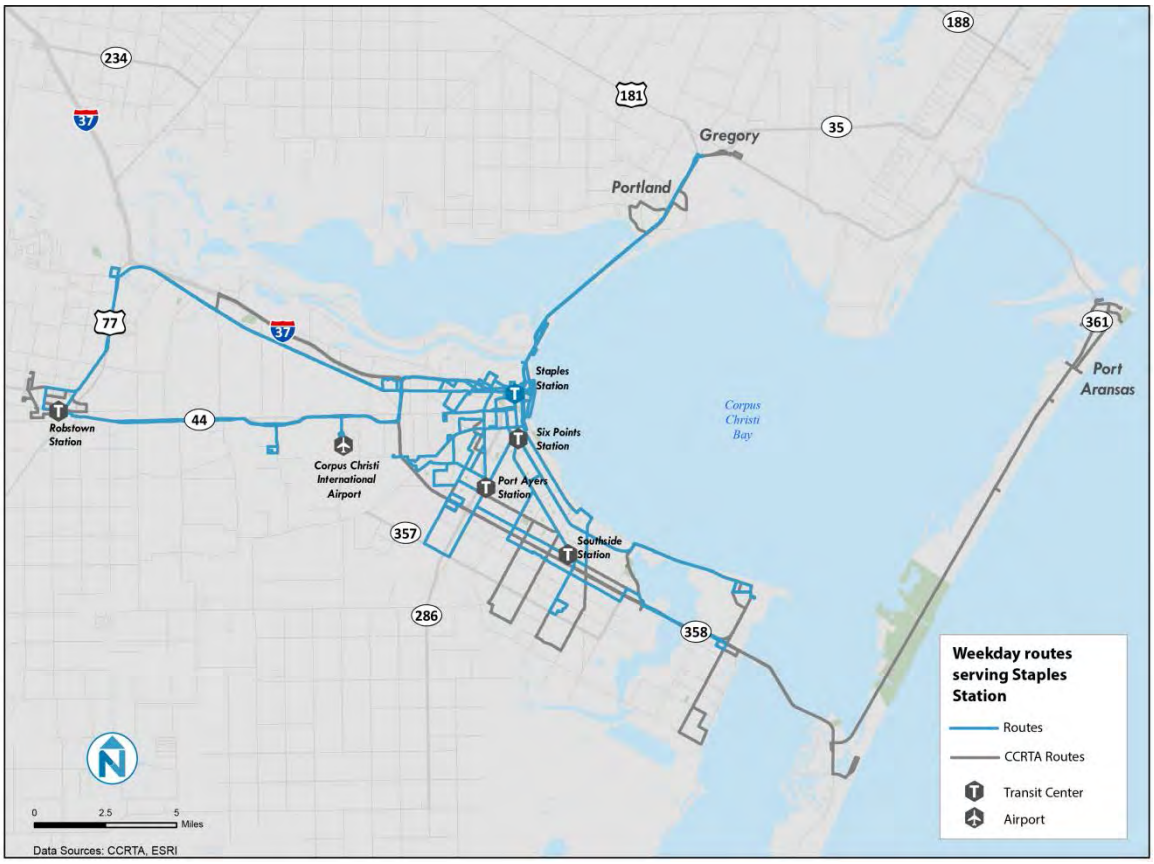
Station	Year Built	Bus Capacity	Park-and-Ride Capacity	Routes Served		
				Weekday	Saturday	Sunday
Staples Street Station	1994	9	N/A	14	13	7
Southside Station	2003	9	5	9	9	7
Port Ayers Station	1991	6	N/A	7	7	5
Six Points Station	Renovated 1991	3	N/A	4	4	3
Robstown Station	2014	2	33	3	3	1

Staples Street Station

Staples Street Station is the busiest transfer point for CCRTA routes serving 14 routes and averaging 591 weekday boardings. 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 conveniently located within one block of Corpus Christi City Hall and Nueces County Courthouse. The CCRTA recently completed constructing a new headquarters adjacent to Staples Street Station which will also has a new canopy and customer amenities for waiting passengers.

Figure 53 Staples Street Station

Figure 54 Routes serving Staples Street Station

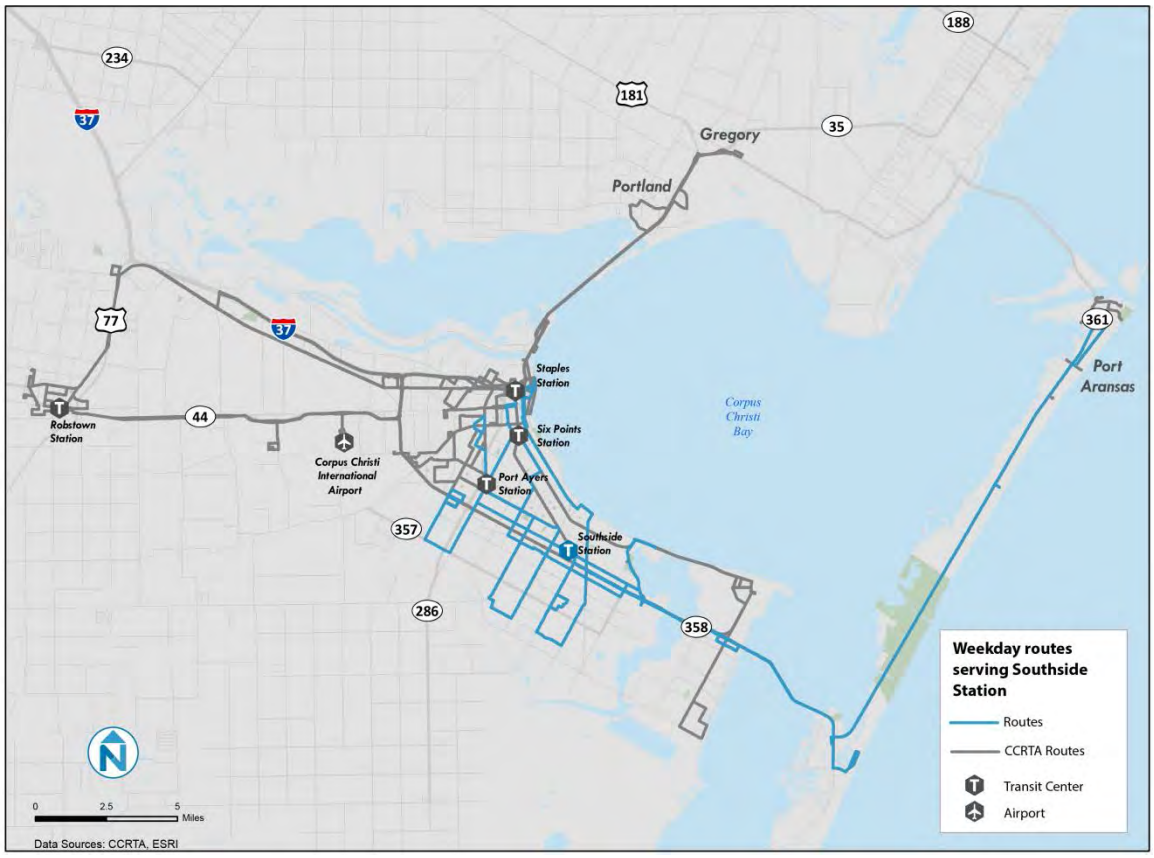


Southside Station

Southside Station is the second busiest transfer station in terms of bus activity and third highest in terms ridership (1,196 average weekday boardings) after Staples Street and Port Ayers Station. Southside Station is an off-street facility conveniently located across the street (McArdle) of La Palmera Mall, the largest retail destination in the Coastal Bend. Southside Station is approximately 7-8 miles from Staples Street Station (depending on street path), or 40-50 minutes in transit running time.

Figure 55 Southside Station

Figure 56 Routes serving Southside Station



Port Ayers Station

Port Ayers Station is the second highest ridership stop in the CCRTA system, averaging 1,492 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 less than ideal due to high traffic volumes and multiple vehicular turn lanes. Facility expansion may be feasible by purchasing a portion of the underutilized parking lot directly north of Port Ayers Station.

Figure 57 Port Ayers Station

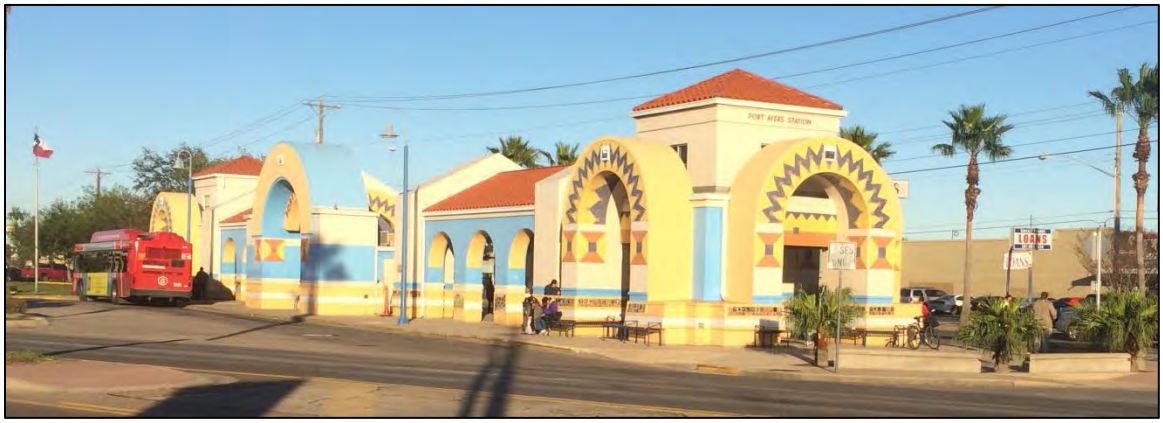


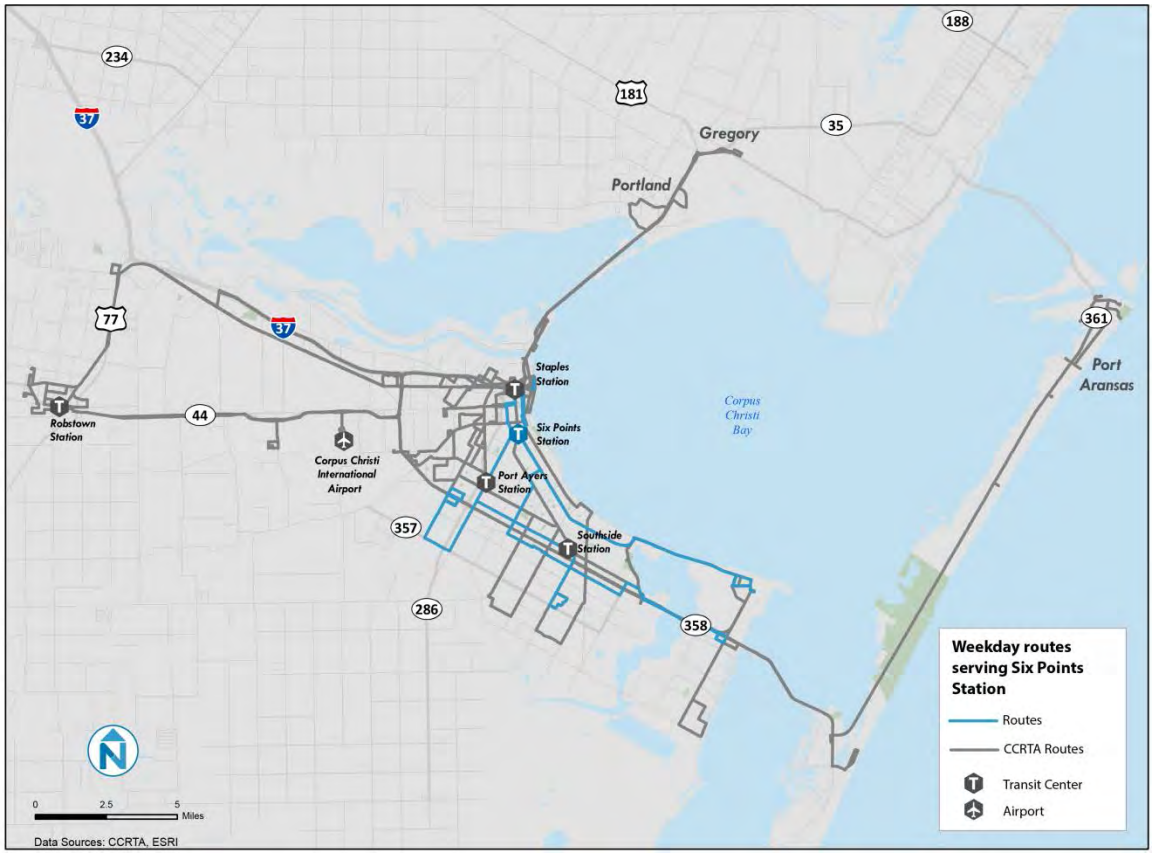
Figure 58 Routes serving Port Ayers Station

Six Points Station

Six Points Station is a small triangular on-street transfer station located 1.6 miles south of Staples Street Station. Currently, four weekday routes serve the station. Six Points Station is planned to close in 2016 due to City of Corpus Christi bond projects. A temporary station or re-routing of buses is needed prior to the temporary closure. Reconstruction of adjacent streets (Staples, Ayers, and Morgan) is anticipated to take two years to complete. It is imperative that the City of Corpus Christi coordinate with CCRTA to phase construction in a manner that minimizes impact on vital bus services.

Figure 59 Six Points Station

Figure 60 Routes serving Six Points Station



Robstown Station

Robstown Station is transfer station and park-and-ride that serves 3 routes and averages 137 weekday boardings. The facility occupies a quarter block in downtown Robstown and is adjacent to an H-E-B store. The facility includes an indoor waiting area and 2-bus bay.

Figure 61 Robstown Station

Figure 62 Routes serving Robstown Station

Figure 63 Weekday/Saturday Non-Express Routes Serving Transit Stations

Routes	Staples Street Station	Southside Station	Port Ayers Station	Six Points Station	Robstown Station
5 Alameda	✓			✓	
6 Santa Fe/Malls	✓	✓			
12 Hillcrest/Saxet/Oak Park	✓				
15 Kostoryz			✓		
16 Agnes/Ruth	✓				
17 Carroll/Southside	✓	✓		✓	
19 Ayers	✓	✓	✓	✓	
21 Arboleda	✓		✓		
23 Molina	✓		✓		
25 Gollihar/Greenwood			✓		
26 Airline/Lipes		✓			
27 Leopard	✓				✓
29 Staples	✓	✓		✓	
32 Southside Mini-B		✓	✓		
34 Robstown Circulator					✓
37 Crosstown		✓	✓		
63 The Wave		✓			
65 Padre Island Connection		✓			
67 Robstown/Gregory	✓				✓
76 Harbor Bridge Shuttle	✓				
78 North Beach	✓				
84 Lighthouse	✓				

Note: Route 84 does not operate on Saturday.

Figure 64 Sunday Routes Serving Transit Stations

Routes	Staples Street Station	Southside Station	Port Ayers Station	Six Points Station
5s Alameda/Malls	✓	✓		✓
8s Flour Bluff/Malls		✓		
12s Hillcrest/Saxet/Oak Park	✓			
15s Ayers/Molina	✓		✓	✓
21s Arboleda	✓		✓	
24s Los Encinos/Kostoryz			✓	
27s Northwest	✓			
29s Staples	✓	✓		✓
32s Southside/Malls		✓	✓	
37s Westside/Gollihar		✓	✓	
65 Padre Island Connection		✓		
66s TAMU-CC Connection		✓		
76s Harbor Bridge Shuttle	✓			

Park-and-Rides

CCRTA Park and Ride routes are specifically designed for riders commuting to and from the Corpus Christi Army Depot/Naval Air Station (CCAD/NAS). Each Park-and-Ride provides a "kiss-and-ride" drop-off area, lighting, and parking for automobiles and vanpools. Park and Rides are located in Gregory, Calallen, and Robstown serving the routes listed in Figure 65.

Figure 65 Park-and-Ride Services

Park-and-Ride	Location	Parking Spaces	Routes Served
Calallen Park-and-Ride	Leopard and Rehfeld	60	50 Calallen
Gregory Park-and-Ride	SH 35 and US 181	50 (approx.)	51 Gregory
Robstown Station	Avenue A and 4th Street	33	27 Leopard 34 Robstown Circulator 53 Robstown/Walmart

Stop Spacing

Average stop spacing varies across CCRTA routes. Frequent, local, feeder, and circulator routes have a combined average stop spacing of 0.20 miles, which is consistent with most systems across the country. Candidates for improved stop spacing include Routes 12 and 15.

Figure 66 Average Stop Spacing of Non-Express Routes

Route	Type	Distance (miles)	Stops	Average Stop Spacing (miles)
3 NAS Shuttle	Shuttle	11.7	70	0.17
4 Flour Bluff Mini-B	Feeder	11.7	60	0.20
5 Alameda	Local	25.6	111	0.23
6 Santa Fe/Malls	Local	17.7	108	0.16
12 Hillcrest/Saxet/Oak Park	Local	8.9	65	0.14
15 Kostoryz	Feeder	6.9	53	0.13
16 Agnes/Ruth	Local	13.6	70	0.19
17 Carroll/Southside	Local	19.8	104	0.19
19 Ayers (Southside)	Frequent	17.2	96	0.18
19 Ayers (Greenwood)	Frequent	21.6	89	0.24
21 Arboleda	Local	10.9	64	0.17
23 Molina	Local	15.8	100	0.16
25 Gollihar/Greenwood	Feeder	4.6	25	0.18
26 Airline/Lipes	Feeder	13.9	70	0.20
27 Leopard	Local	44.6	138	0.32
29 Staples (Spohn South)	Frequent	20.6	86	0.24
29 Staples (Flour Bluff)	Frequent	32.5	113	0.29
32 Southside Mini-B	Local	21.7	127	0.17
34 Robstown Circulator	Circulator	10.9	52	0.21
37 Crosstown	Local	26.2	143	0.18
60 Islander Shuttle	Shuttle	3.4	5	0.69
63 The Wave	Shuttle	13.9	24	0.58
76 Harbor Bridge Shuttle	Shuttle	14.4	47	0.31
78 North Beach	Shuttle	9.9	31	0.32
94 Port A Shuttle	Shuttle	14.4	19	0.76

Route Speed

Route speeds vary due to several factors, including stop spacing, speed limits, ridership activity, turning movements, traffic signals, and congestion. The average speeds of all-day fixed routes are detailed in Figure 66.

Figure 67 Average Speed of All-Day Fixed Routes

Route	Type	Distance (miles)	Cycle Time	Average Speed
3 NAS Shuttle	Shuttle	11.7	60	11.7
4 Flour Bluff Mini-B	Feeder	11.7	60	11.7
5 Alameda	Local	25.6	60	26.9
6 Santa Fe/Malls	Local	17.7	75	14.2
12 Hillcrest/Saxet/Oak Park	Local	8.9	60	8.9
15 Kostoryz	Feeder	6.9	45	9.2
16 Agnes/Ruth	Local	13.6	60	13.6
17 Carroll/Southside	Local	19.8	120	9.9
19 Ayers (Southside)	Frequent	17.2	105	9.8
19 Ayers (Greenwood)	Frequent	21.6	105	12.3
21 Arboleda	Local	10.9	60	10.9
23 Molina	Local	15.8	90	10.5
25 Gollihar/Greenwood	Feeder	4.6	45	6.1
26 Airline/Lipes	Feeder	13.9	65	12.8
27 Leopard	Local	44.6	150	17.8
29 Staples (Spohn South)	Frequent	20.6	135	9.2
29 Staples (Flour Bluff)	Frequent	32.5	135	14.4
32 Southside Mini-B	Local	21.7	95	13.7
34 Robstown Circulator	Circulator	10.9	60	10.9
37 Crosstown	Local	26.2	120	13.1
60 Islander Shuttle	Shuttle	3.4	20	10.2
63 The Wave	Shuttle	13.9	45	18.5
76 Harbor Bridge Shuttle	Shuttle	14.4	60	14.4
78 North Beach	Shuttle	9.9	35	17.0
94 Port A Shuttle	Shuttle	14.4	60	14.4

System Ridership

CCRTA system ridership increased by 11% from 2010 to 2011 and has remained fairly constant since 2011. Ridership typically peaks during August and reaches a low point between December and February. System ridership during 2015 is projected to be 3% lower than in 2014. Historical system ridership as collected by fare boxes is depicted in Figure 68. Current system ridership (from data collected in the fall of 2015) is shown for weekdays, Saturdays, and Sundays from Figure 69 to Figure 71.

Figure 68 Historical System Ridership

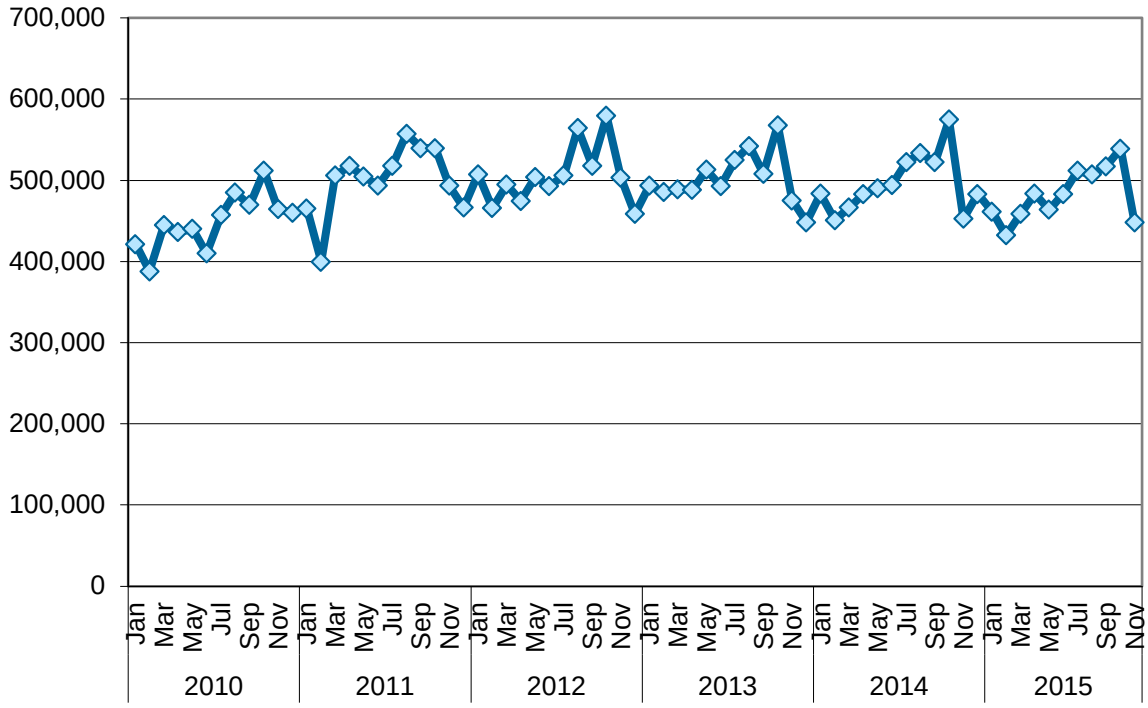


Figure 69 Weekday System Ridership

Figure 70 Saturday System Ridership

Figure 71 Sunday System Ridership

Route Ridership

Route ridership varies significantly due to differences in headway, service span, and route length. The two routes with the highest ridership (19 Ayers and 29 Staples) each have one trunk and two branch segments, resulting in more mileage than other routes operating all day. Service levels on these routes drop off on Saturday from 15 minutes during peak and 30 minutes during off-peak to 20 minutes during peak and 40 minutes during off-peak, which likely impacts ridership. Routes 3 Alameda, 17 Carroll/Southside, and 21 Arboleda also have headway reductions and significant ridership drop-offs from weekdays to Saturday.

The different Sunday route network makes it impossible to compare service with weekday/Saturday routes. While most routes are consolidated or shortened on Sunday, Route 27 maintains its alignment and as a result, is the highest ridership route.

Figure 72 Weekday and Saturday Boardings by Route

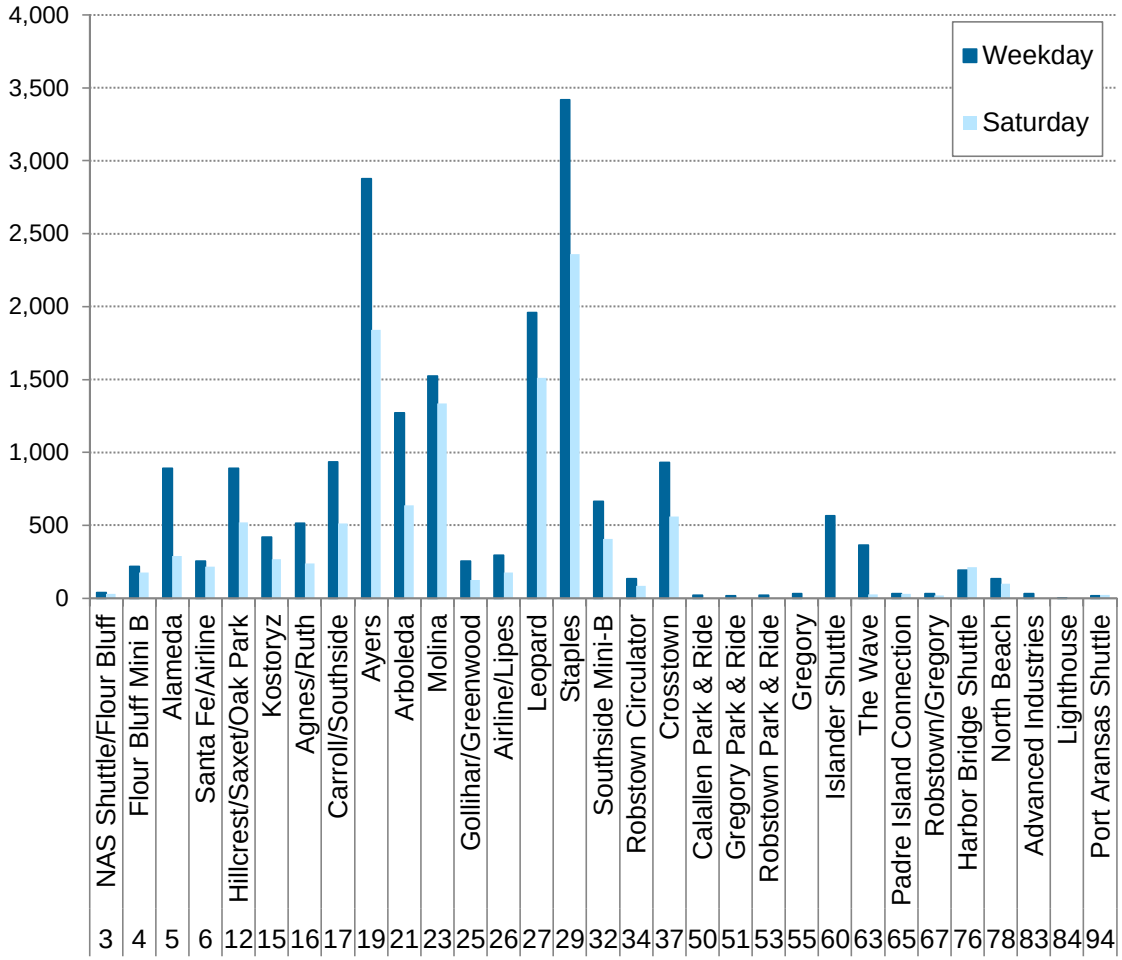
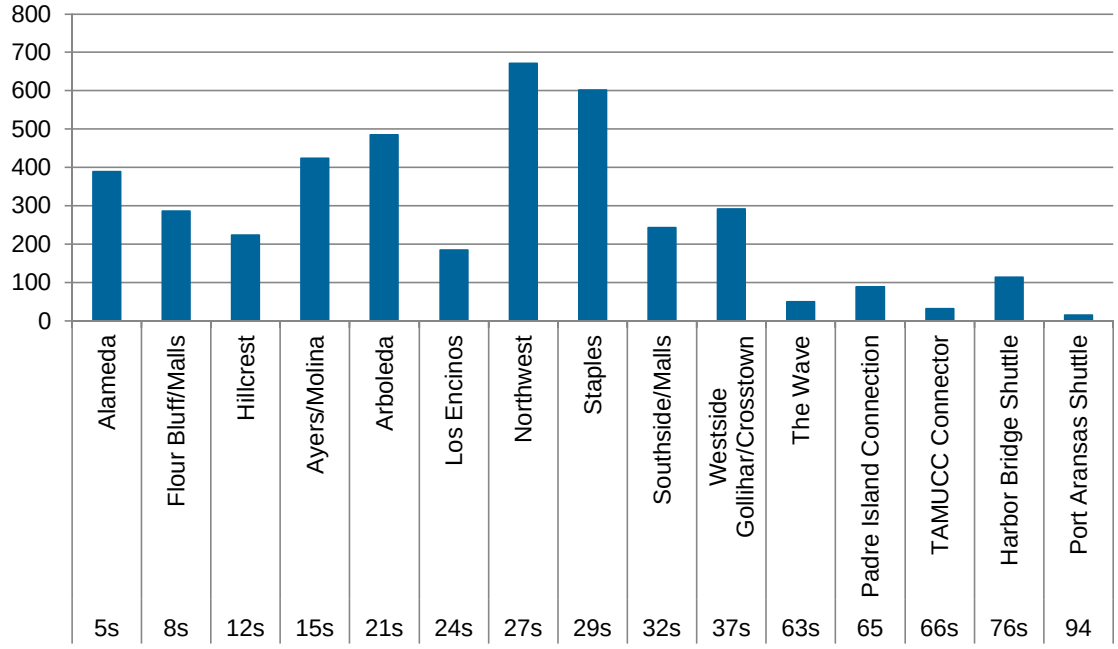


Figure 73 Sunday Boardings by Route



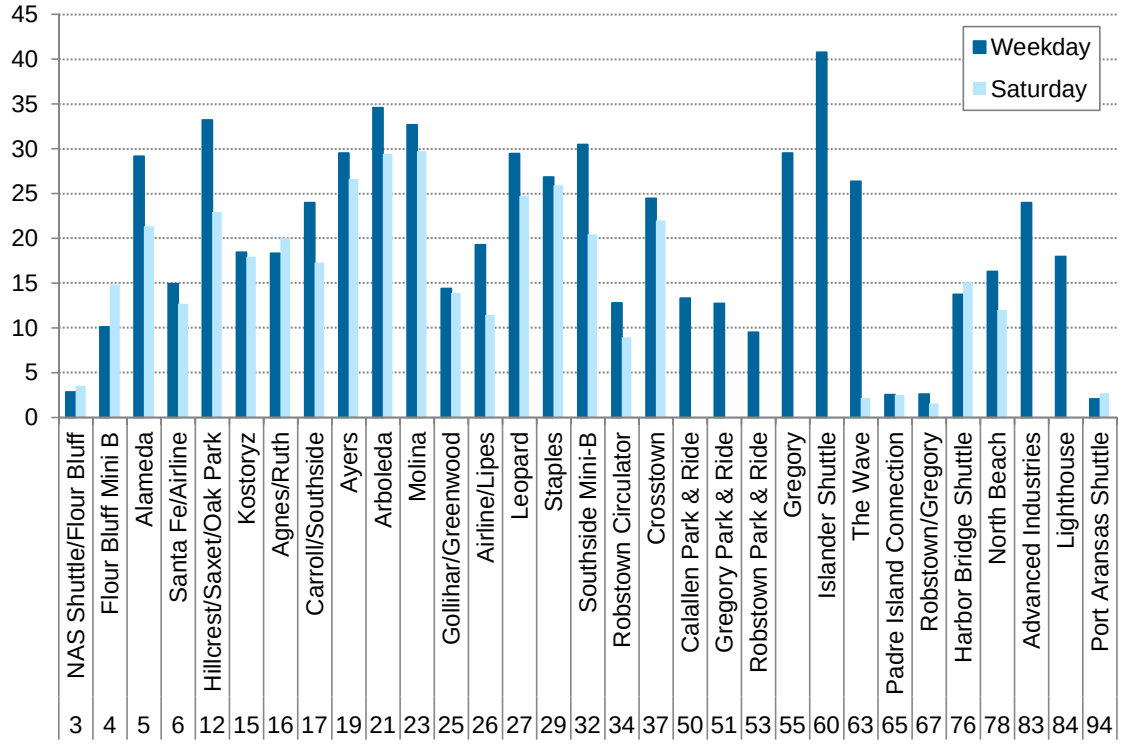
Route Ridership Productivity

Route ridership productivity is a performance metric calculated by dividing boardings by service hour (revenue hours minus layover time). This metric is appropriate for all routes types with the exception of express routes, which should be measured by boardings per trip.

The weekday route with the highest weekday ridership productivity, Route 60 Islander Shuttle, operates a much shorter distance than most routes operating the entire day and connects areas of high TAMU-CC student density with campus. The high productivity of this campus shuttle is consistent with similar routes serving universities. It should be noted that the next four routes in terms of weekday ridership productivity are not frequent routes. Routes 12 Hillcrest/Saxet/Oak Park, 21 Arboleda, 23 Molina, and 32 Southside Mini-B each average 30 or more boardings per service hour. Route 32 is unique in that it only operates every 60 minutes while the other three routes operate every 20-30 minutes, suggesting a need for increased service on Route 32. Frequent routes 19 Ayers and 29 Leopard are also strong performers; however, they also have long segments of lower ridership on one or more of their branches that bring down their average. Routes 5 Alameda and 27 Leopard also exhibit strong ridership productivity with over 29 boardings per service hour, respectively.

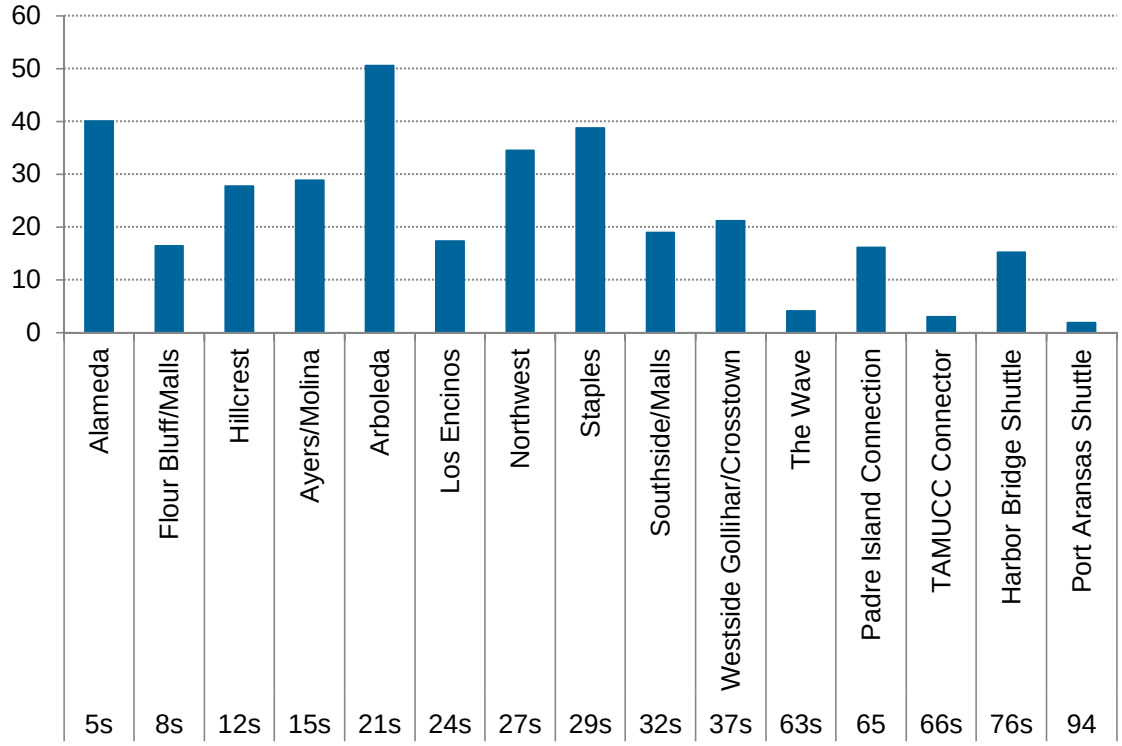
Routes 4 Flour Bluff Mini-B and 34 Robstown Circulator average fewer than 15 boardings per service hour but use smaller cutaway vehicles. Routes 3 NAS Shuttle and 94 Port Aransas Shuttle also operate with cutaway vehicles but generate only 2-3 boardings per service hour. Ridership productivity drops by an average of 15% from weekdays to Saturdays. Routes with the biggest drop-offs include Routes 5 and 12 while routes with that have higher productivity on Saturday include Routes 4 Flour Bluff Mini-B, 16 Agnes/Ruth, and 76 Harbor Bridge Shuttle.

Figure 74 Weekday and Saturday Ridership Productivity by Route



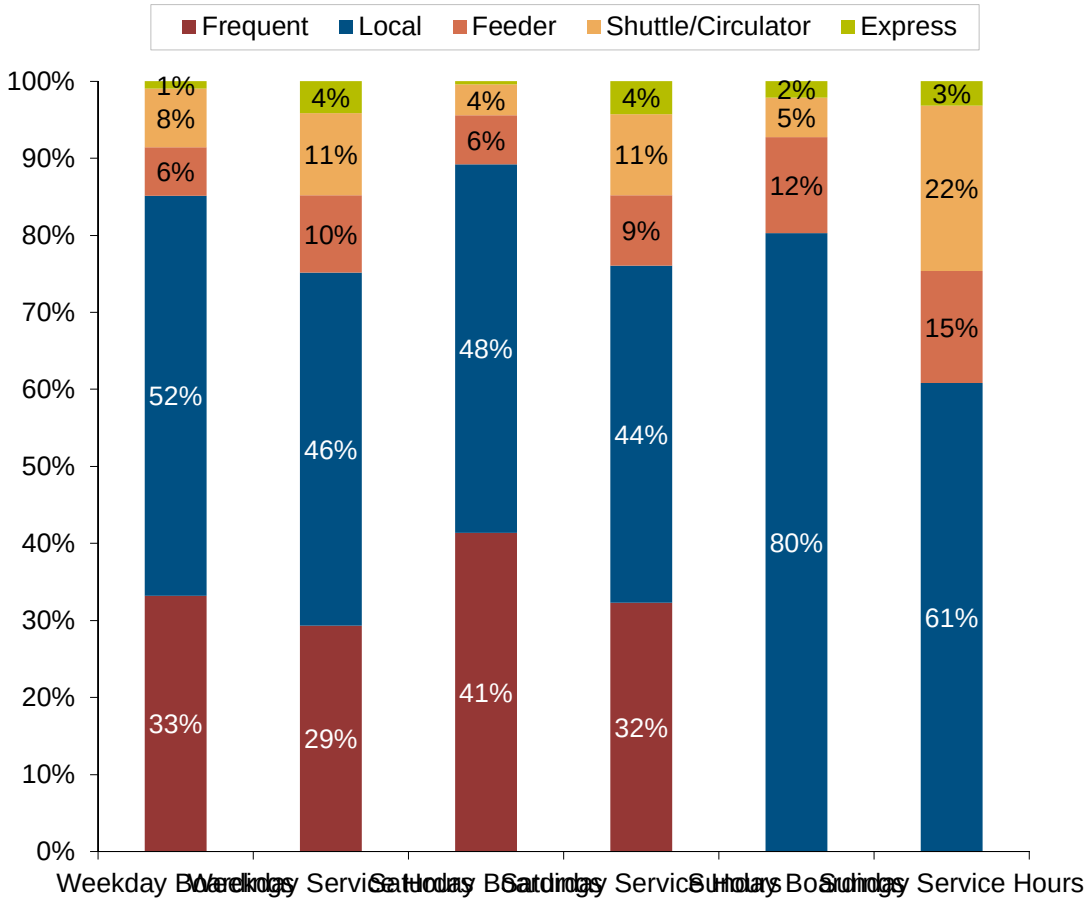
Several Sunday routes exhibit high ridership productivity. Route 21 Arboleda averages more than 50 boardings per service hours while Routes 3 Alameda, 29 Staples, and 27 Northwest each average over 35-40 boardings per service hour, respectively. Highly productive routes on Sunday are a direct result of the infrequent 60 minute headways, and suggest the need for more frequent service. The high levels of ridership coupled with the indirect and curtailed Sunday network indicate Sunday customers lack other transportation options and are willing to endure excessive waiting and travel time to reach their destination(s).

Figure 75 Sunday Ridership Productivity by Route



A comparison of system ridership and service hours by route type for each service level is depicted in Figure 76. This chart shows that frequent service comprises 29-32% of weekday and Saturday service hours while generating 33-41% of daily boardings, indicating a positive return on investment in terms of dedicating resources to convenient, frequent service.

Figure 76 Ridership and Service Allocation by Route Type



Passenger Loads

On weekdays, Routes 27 Leopard and 29 Staples are the only routes exhibiting passenger loads that exceed seating capacity, indicating a need for additional service during high ridership periods. Route 60 Islander Shuttle nears seating capacity on select trips. The first Route 27 Leopard trip on Saturday has standees, indicating a need for an earlier trip. On Sundays, Route 27s has three trips with standing loads. Average and max passenger loads by service level are depicted in Figure 77 to Figure 79.

Figure 77 Weekday Average and Max Passenger Loads

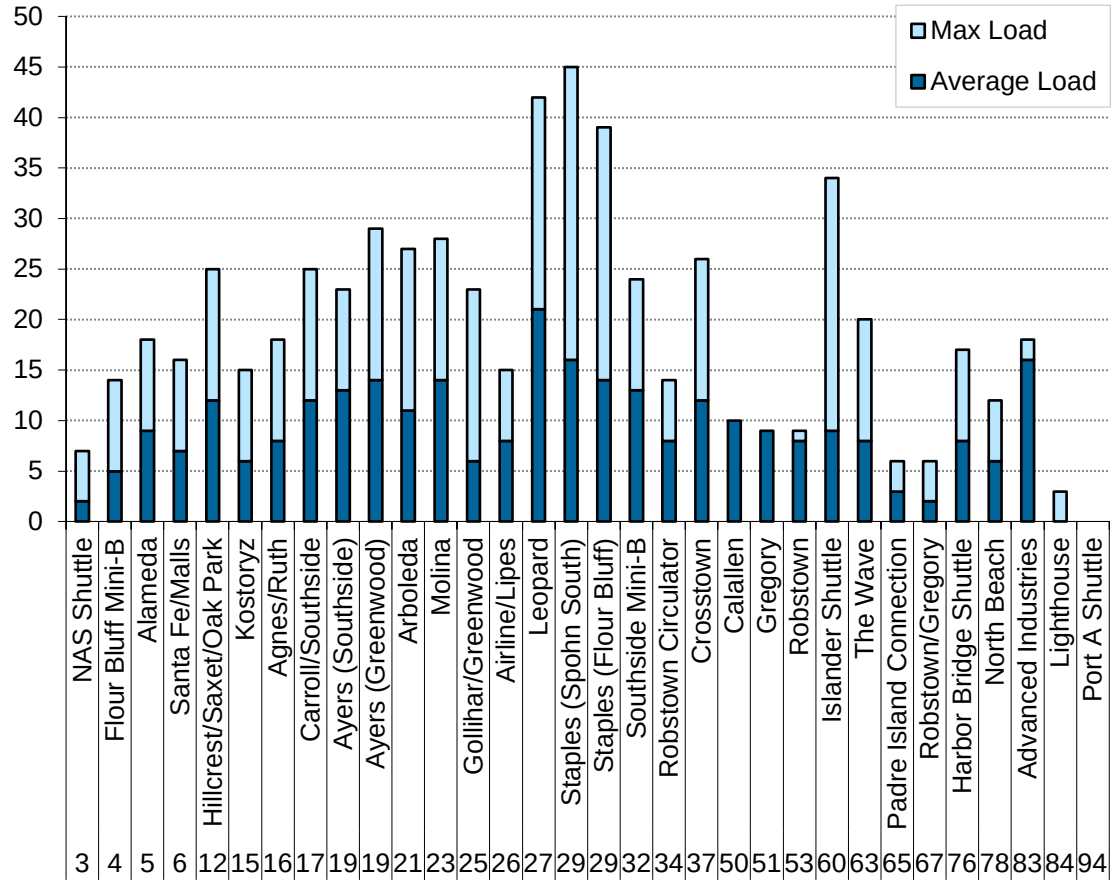


Figure 78 Saturday Average and Max Passenger Loads

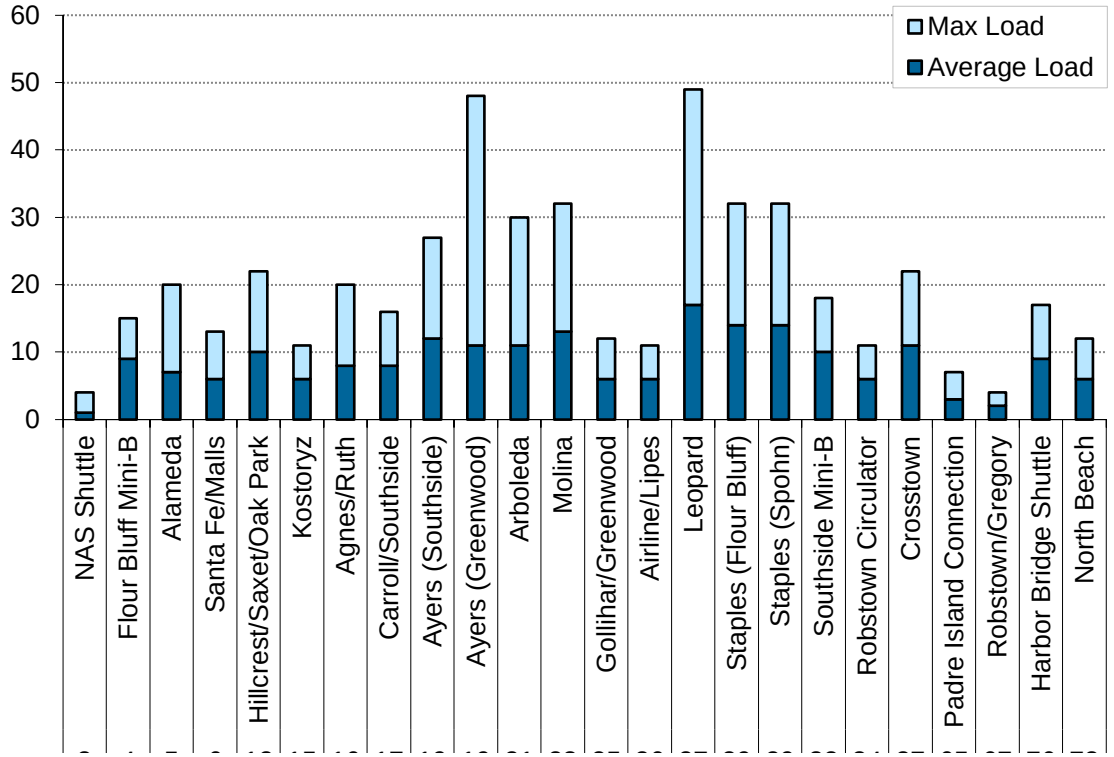
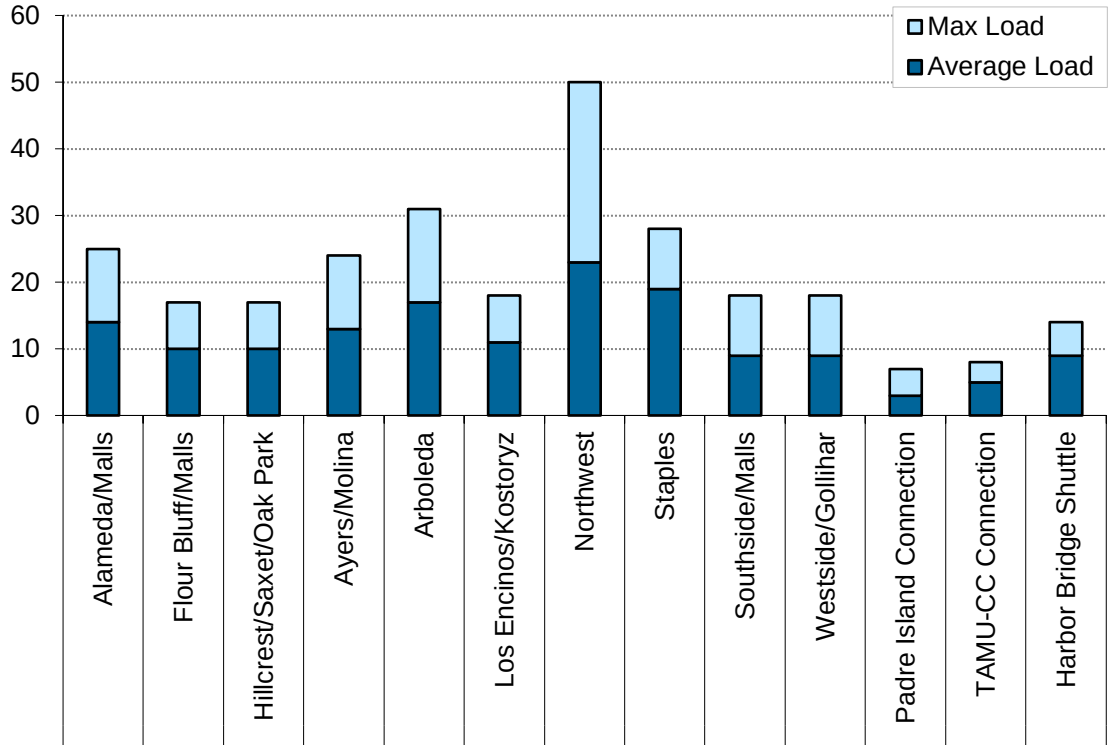


Figure 79 Sunday Average and Max Passenger Loads



Highest Ridership Stops

CCRTA has 27 stops averaging 60 or more weekday boardings, which is a figure that would easily be considered high-ridership by similar-sized transit systems. High ridership stops demand priority customer amenities such as shelters, seating, litter containers, direct lighting, and large boarding areas to accommodate multiple waiting (and potentially disembarking) passengers.

Figure 80 Highest Ridership Stops on Weekdays

Stop	Weekday Boardings
Staples Street Station	2,591
Port Ayers Station	1,492
Southside Station	1,196
6300 Ocean (TAMU-CC)	768
Six Points Station	673
Islander Way (TAMU-CC)	324
Alameda and Clifford (Six Points)	205
Compton and Waldron (Flour Bluff)	142
Robstown Station	137
Port Ayers Station	118
Leopard and Nueces Bay (H-E-B)	114
Staples and Kosar (Del Mar College)	98
Staples and Laredo	96
Port and Tarlton (H-E-B)	96
Staples and Barry (Walmart)	88
Port and Tarlton (H-E-B)	84
Ennis Joslin and La Joya Apts	80
Staples and Carmel (Walmart)	79
Ayers and Horne	78
Staples and SPID (Moore Plaza)	76
Leopard and Mexico	70
Leopard and Tulip	70
Alameda and McCall (H-E-B)	69
Ayers and Horne	66
Staples and Mussett	66
Santa Fe and Morgan (WellMed)	63
Staples and Barry (Walmart)	60

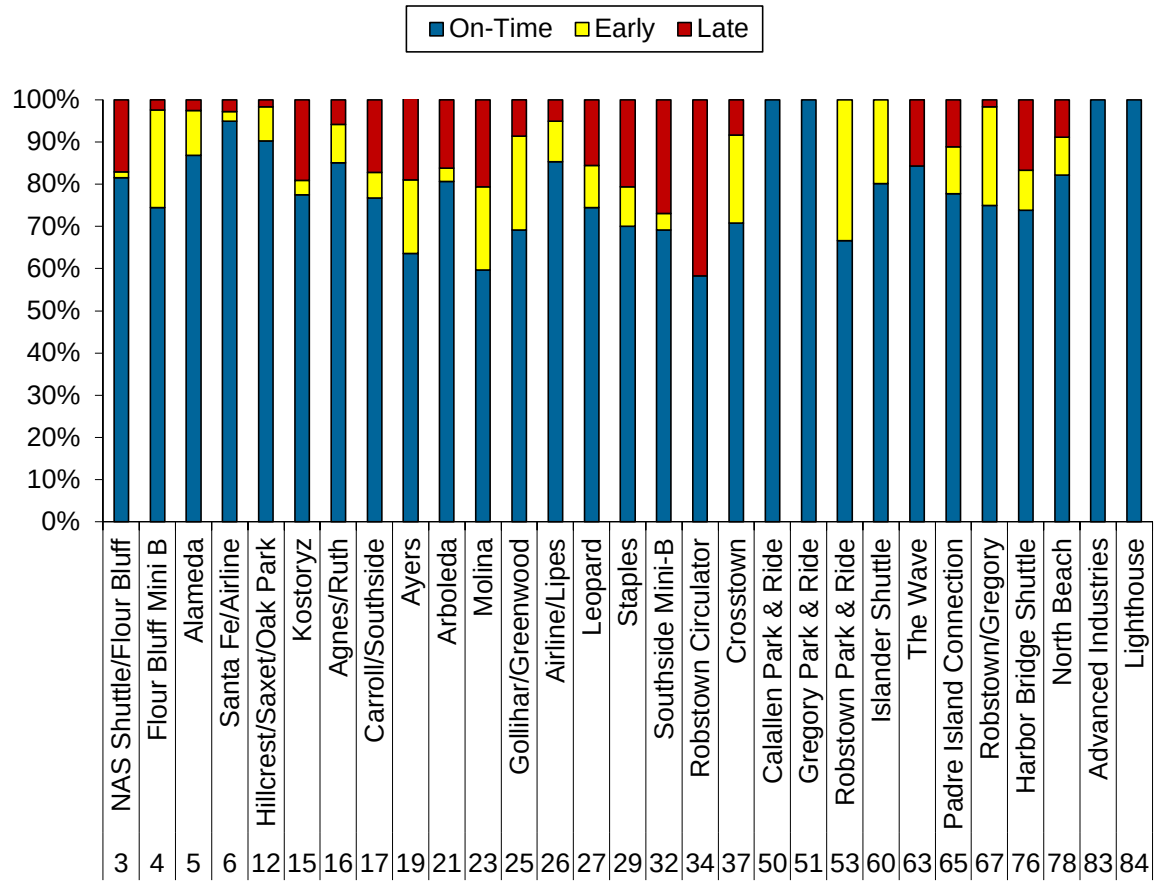
Schedule Adherence

For most transit systems, trips are considered on-time if they depart at a designated timepoint within 0-5 minutes of the schedule departure time. At the system level, CCRTA has poor on-time performance. Ongoing construction, indirect route design, and multiple transfer stations within a close geographic area are the primary causes for late arrivals/departures. A significant number of routes also depart designated timepoints early indicating a need to make schedule adjustments based on actual running times.

Routes with the best on-time performance on weekday and Saturdays include Routes 5 Alameda, 6 Santa Fe/Airline, and 12 Hillcrest/Saxet/Oak Park. Routes with the lowest on-time performance include Route 19 Ayers, which is has two branches, Route 23 Molina, and Route 34 Robstown Circulator. On Sundays, Routes 5s, 21s, 32s, and 37s are regularly on-time while Routes 15s, 27s, and 29s are on-time less than 50% of the time.

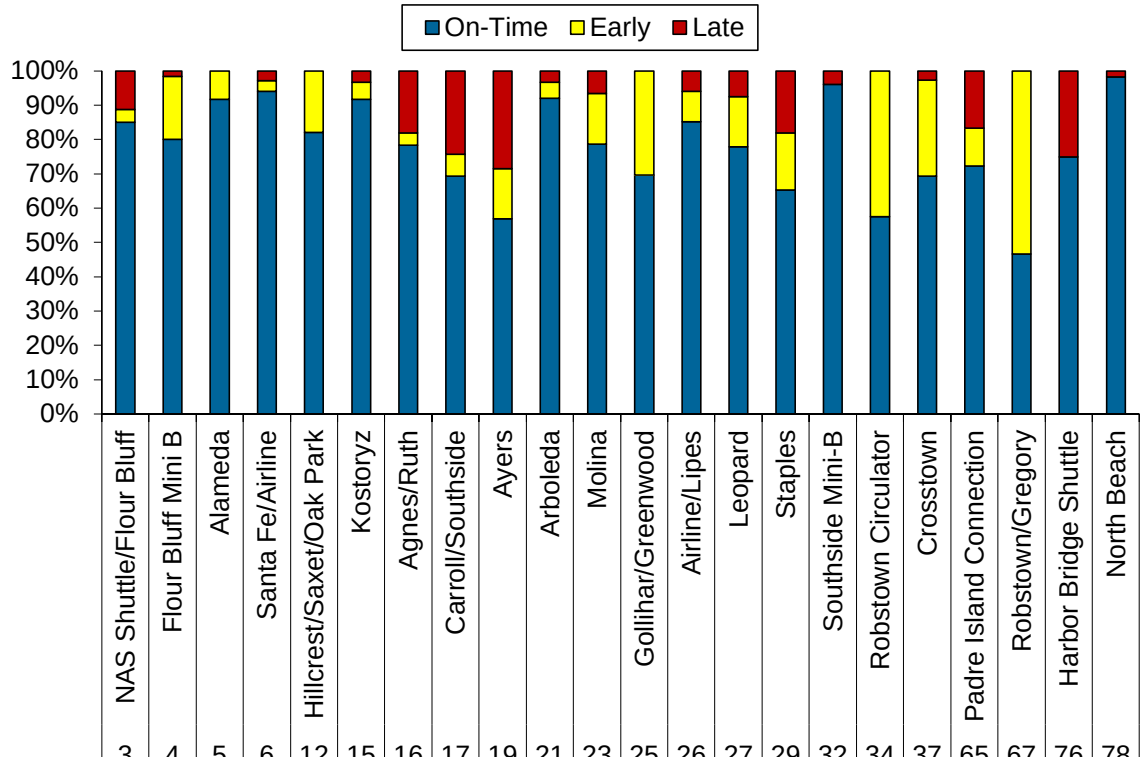
Schedule adherence by service level is depicted in Figure 81 to Figure 83.

Figure 81 Weekday Schedule Adherence by Route



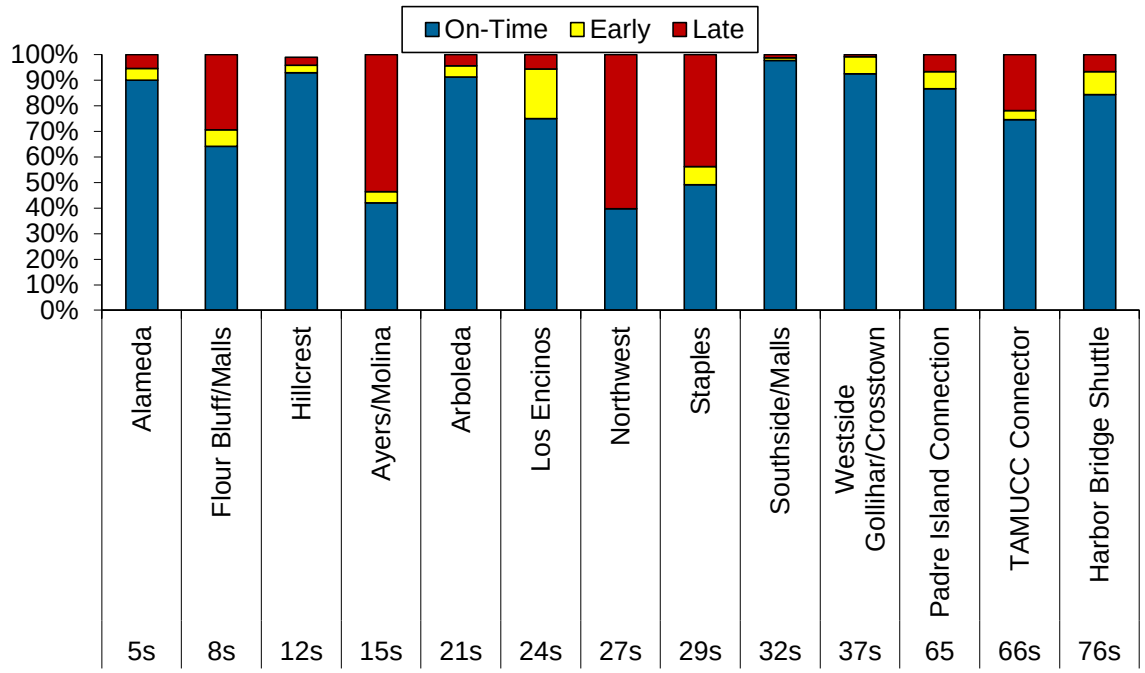
Note: Weekday schedule adherence data not collected for Routes 55 Gregory or 94 Port Aransas Shuttle.

Figure 82 Saturday Schedule Adherence by Route



Note: Weekday schedule adherence data not collected for Routes 63 The Wave or 94 Port Aransas Shuttle.

Figure 83 Sunday Schedule Adherence by Route



Note Weekday schedule adherence data not collected for Routes 63s The Wave or 94 Port Aransas Shuttle.

Construction-Related Detours

Completed and Ongoing Construction Projects

Several Corpus Christi Bond Projects impacted on-time performance during the period in which schedule reliability data was collected. Below is a summary of construction projects impacting CCRTA on-time performance.

Horne Road Construction between Port and Ayers

Detoured CCRTA routes for approximately one year (February 2015-January 25, 2016) and contributed to service time delays near the Port Ayers Station on 11 routes. These routes include: 15, 15s, 19, 21, 21s, 23, 24s, 32, 32s, 37 & 37s and constitute 25% of all CCRTA fixed routes. The project was completed on January 24, 2016.

McArdle Road between Whitaker Drive and Ennis Joslin Road

Since May 2014, Routes 8s, 29, 37 & 66s remain on detour from the McArdle Road project between Whitaker Drive and Ennis Joslin Road, originally a (24) month project. Completion of this project has been delayed as of February 2016.

Santa Fe Street between Hancock and Elizabeth

Other routes adversely impacted by City-wide Bond Projects include: 6, 15s, 19, & 23 with the Santa Fe overlay/resurfacing project between Hancock and Elizabeth, an 8 month project.

South Staples Street between Antelope and Comanche / Temporary RTA Staples Street Station

Initiated in June 2015, these two major projects adversely impact 20 routes daily or approximately 45% of all CCRTA routes. Routes included are the: 5, 5s, 6, 12, 12s, 16, 17, 19, 21, 21s, 23, 27, 27s, 29, 29s, 67, 76, 76s, 78 and 84. All of these routes are currently on detour because of this project. Phase 1 between Antelope and Comanche is scheduled to last 4 to 6 months with the completion to correspond with the completion of the new Staples Street Transfer Station and the reconstruction of Artesian Street, Mestina Street, and Waco Street. Phase 1 bond project is on schedule. Multiple phases are planned to follow.

Waldron Road between Glenoak and Carribbean

Since September 10, 2015, Routes 4 and 8s remain impacted by the Waldron Road project between Glenoak and Caribbean, a (7) month project. Project remains underway as of Feb. 2016.

Future Construction Projects

Other City Bond projects on the immediate horizon that will adversely impact bus routes, bus stops and proof problematic for time performance include:

Williams Drive between South Staples Street and Airline Road, a (15) month project originally planned to begin early September but has been moved to begin in late 2015 or early 2016. (Not yet begun as of Feb-2016).

Alameda Street between Ayers Street & Louisiana Avenue, a (15) month project was scheduled to begin in November of this year but now planned for late 2015. (Not yet begun as of Feb-2016).

Greenwood Drive between Gollihar Road & Horne Road is planned to be an (11) month project beginning in January 2016. (Not yet begun as of Feb-2016).

TRANSFER SURVEY

Based on 2015 farebox data, approximately 33% of all weekday and Saturday customers transfer between routes on a regular basis. On Sundays, approximately 20% of customer transfer between routes to reach their destination.

In September 2015, a transfer survey was conducted among CCRTA weekday riders. Respondents were asked to indicate if they had transferred, if they were planning to transfer, the route they were currently riding, and the routes they had transferred from and/or were planning to transfer to. Surveys were distributed in English and Spanish. A total of 1,206 surveys were collected. Approximately 54% of respondents indicated that they would transfer to or from another route to reach their final destination. One-sixth of those passengers indicated that they would transfer between two or more routes.

The routes that see the most (to and from) transfer activity include Routes 19 Ayers, 29 Staples, 23 Molina, 21 Arboleda, and 5 Alameda. Specific route pairs with high transfer activity include:

- Route 19 and Route 23
  - Both serve Staples Street and Six Points Stations
- Route 29 and Route 5
  - Both serve Staples Street and Six Points Stations
- Route 19 and Route 5
  - Both serve Staples Street and Six Points Stations
- Route 19 and Route 21
  - Both serve Staples Street and Port Ayers Stations
- Route 29 and Route 19
  - Both serve Staples Street, Six Points, and Southside Stations

One potential explanation for the relative high number of transfers involving Route 19 is that it does not directly serve an H-E-B store. Route 19 customers can transfer to Routes 21 and 23 at Port Ayers Station to reach the H-E-B store on Port or to Route 5 at Six Points Station to reach the H-E-B store on Alameda. The high number of transfers between Routes 21 and 23 to Route 19 may also indicate a strong travel pattern between from the Westside and Molina to employment and retail destinations along McArdle and the north side of SPID. The high number of transfers involving Route 5 may be a result of Route 19 and 29 customers transferring at Six Points Station to reach medical destinations along Alameda or Texas A&M University-Corpus Christi. A transfer matrix involving weekday routes serving transfer stations is provided in Figure 84.

Figure 84 Weekday Transfer Matrix

From Route / To Route	5- Alameda	6 - Santa Fe/Malls	12 - Hillcrest/ Saxet	15 - Kostoryz	16 - Agnes/Ruth	17 - Carroll / Southside	19 - Ayers	21 - Arboleda	23 - Molina	25 - Gollihar/Greenwood	26 - Airline/Lipes	27 - Leopard	29 - Staples	32 - Southside Mini-B	34 - Robstown Circulator	37 - Crosstown	76 - Harbor Bridge Shuttle	78 - North Beach	Total
5 - Alameda	-	0	2	1	2	9	15	3	3	1	1	0	11	1	0	2	0	0	51
6 - Santa Fe/Malls	3	-	2	0	2	0	6	0	0	1	2	2	1	0	0	0	0	0	19
12 – Hillcrest / Saxet / Oak Park	1	1	-	1	3	0	8	1	10	0	1	3	1	0	0	0	2	0	32
15 - Kostoryz	0	0	0	-	0	0	11	6	3	0	0	1	1	3	1	4	0	0	30
16 - Agnes/Ruth	2	1	2	0	-	0	3	6	1	0	0	2	4	0	0	1	1	0	23
17 - Carroll / Southside	3	0	1	0	1	-	5	0	1	0	1	1	1	4	0	0	2	0	20
19 - Ayers	10	0	3	8	5	3	-	10	26	5	1	6	11	8	0	3	4	3	106
21 - Arboleda	1	0	4	2	4	2	12	-	11	1	0	5	0	0	0	0	2	0	44
23 - Molina	0	1	7	3	0	0	10	4	-	2	1	2	2	6	0	0	0	1	39
25 – Gollihar / Greenwood	0	0	0	0	0	0	13	2	2	-	0	1	2	0	0	0	0	0	20
26 - Airline/Lipes	1	2	0	1	0	1	1	0	0	0	-	0	6	0	0	1	0	0	13
27 - Leopard	0	1	2	0	4	2	13	3	5	0	0	-	5	0	0	0	1	3	39
29 - Staples	18	4	2	0	7	0	10	6	7	0	6	4	-	9	0	0	2	2	77
32 - Southside Mini-B	1	0	1	3	1	4	9	4	10	1	4	3	9	-	0	4	0	0	54
34 - Robstown Circulator	0	0	0	0	0	0	0	0	0	0	0	1	0	0	-	0	0	0	1
37 - Crosstown	0	1	0	2	0	0	1	0	3	0	4	0	0	2	0	-	0	0	13
76 - Harbor Bridge Shuttle	0	1	2	0	2	1	2	4	0	0	0	1	2	0	0	0	-	1	16
78 - North Beach	0	0	0	0	1	0	1	0	1	0	0	1	2	0	0	0	0	-	6
Total	40	12	28	21	32	22	120	49	83	11	21	33	58	33	1	15	14	10	-

OPERATOR FEEDBACK

Nelson\Nygaard conducted informal interview sessions to capture feedback from CCRTA bus operators. Nelson\Nygaard conducted informal interview sessions to capture feedback from CCRTA bus operators on Tuesday, October 6, 2015 between 11:00 a.m. - 2:00 p.m. Interviews were held in operator break rooms and were initiated with open-ended questions regarding service issues, opportunities, and customer requests. Both one-on-one and group conversations produced a series of invaluable comments and suggestions. Operator feedback covered a variety of topics and several comments were echoed by multiple operators. Operator feedback was subsequently paraphrased and categorized. The following summary represents a sample of approximately 30 bus operators.

Schedule Adherence/On-Time Performance (OTP)

- Route 17 Carroll/Southside schedule is too tight with a 3 minute layover at Staples Street Station on Saturday.
- Route 21 Arboleda passes through several school zones and has high ridership. The current schedule does not account for the actual running time required. The route is often running late throughout the day and could use more time at Port Ayers Station.
- Route 23 Molina schedule has a tight schedule and could use another bus. Block 23-02 is frequently late.
- Route 26 Airline/Lipes schedule is very tight.
- Route 27 Leopard needs more time on Sunday. Currently, the round-trip running time is reduced from 150 minutes to 120 minutes. High ridership and wheelchair boardings on Sunday make it difficult for operators to maintain the schedule.
- Routes 17 Carroll/Southside and 29 Staples are typically behind schedule during the holidays due to traffic at the mall. Other routes serving Southside Station are exposed to mall traffic but Routes 17 and 29 are most impacted.
- Route 76 Harbor Bridge does not enough time on weekdays and is constantly 10-15 minutes behind schedule. On Saturdays, the route is sometimes 30 minutes late.
- Passengers asking questions upon boarding the bus at transit centers creates delays.

Service Span

- Route 32 Southside Mini-B needs to run later.
- Route 37 Crosstown needs later service to TAMU-CC.
- Route 63 The Wave needs to be extended to 9:45 p.m. departure from TAMU-CC (currently 9:30 p.m.).

Overcrowding/High Ridership

- Route 19 Ayers is always busy.
- Route 21 Arboleda needs more service on weekends.
- Routes 26 Airline/Lipes and 32 Southside Mini-B needs to operate more frequently and later in the evening. This is a common customer request.

- Route 27 Leopard has high ridership between Staples Street Station and Sam Kane. Consider adding a tripper for Sam Kane workers. Typically, 25-30 riders travel to Sam Kane on the 6:30 a.m. and the 7 a.m. routes.
- Route 27 Leopard needs to operate more frequently during peak hours between Staples Street Station and Navigation. Less service is needed in the Calallen and Robstown areas.
- Route 27 Express ridership has increased dramatically in the morning.
- Route 27 Leopard is overcrowded on Sundays, which negatively impacts the schedule.
- Route 27 Leopard needs to operate every 20 minutes.
- Route 29 Staples can be overcrowded in the afternoon. Riders are sometimes left behind due to capacity loads.
- Route 32 Southside Mini-B needs 30 minute service due to ridership.
- Route 37 Crosstown don't run frequently enough on Saturdays.

New Service Requests/Opportunities

- There are several group homes in south side neighborhoods that need service.
- Texas Department of Public Safety recently moved from Greenwood to Twin River Blvd in Annaville. The nearest Route 27 bus stop is over a mile away at Leopard and McKinzie.
- Customer requests for service along Saratoga to serve shopping and medical destinations.
- Service needed to Natatorium and John Paul II School.
- Route 15 Kostoryz needs to be extended to Saratoga to serve neighborhoods south of Holly.
- Route 29 Staples (Spohn South Branch) needs to be extended to serve the Walmart at Saratoga and Cimarron.

Operational/Safety concerns

- Route 16 Ruth/Agnes has a challenging left turn from Enterprize to Old Brownsville. All lanes need to be clear to make the turn and stop at the VA Outpatient Clinic. This is an unsafe movement most of the day due to high traffic volumes and no signal light.
- Route 16 Agnes/Ruth has a challenging crossing at Balboa and Baldwin. On certain times of the day, this isn't a problem, but when people getting out of school/work, it can take up to 2 minutes or more to get across the street.
- Route 21 Arboleda has challenging right turn from Port to Morgan.

Layover/Operator breaks

- Operators need at least 10 minute breaks as contract does not call for lunch breaks and straight shifts can last up to 12 hours.
- Route 16 Agnes/Ruth does not have operator break.

Detours

- Route 16 Ruth/Agnes does not have enough time to handle large groups of passengers at Staples Street Station due to detours.

- Route 21 Arboleda schedule is always tight due to current detour.
- Route 29 Staples is experiencing 3-4 minutes due to current detours.
- Detours are a challenge for customers, especially mobility impaired riders, who often have a difficult time finding detoured bus routes.
- Customers complain that detour information has not been well communicated.
- Adult daycares are affected by the detours, particularly along segments of Staples.
- Detours and road construction are a major challenge.
- Detours make it difficult to stay on schedule and make transfers. Layover time is needed at Staples Street Station.
- Riders traveling to Social security office must ride the bus all around due to construction work.

Bus Stops

- Route 5 Alameda has too many stops.
- Route 23 Molina has too many stops.
- Route 23 Molina has stops that are too close together.
- Route 27 Leopard needs more benches in Annaville.
- Route 29 Staples has no bus stops between Carroll and Weber. There needs to be more stops and improved access to the route.
- Route 32 Southside Mini-B needs more stops between SPID and Gollihar.
- Route 76 Harbor Bridge Shuttle needs a stop near the Greyhound Station.
- Port Ayers Station C Bay has no shelters and trash can on sidewalk makes it difficult for wheelchair passengers to load/unload.
- Far side stops (after the intersection) are preferred over nearside stop.
- Passengers complain about their stop being removed without notification.
- Bus stops are spaced every few blocks in some neighborhoods.
- Additional stops are needed along the north side of Staples near Hamlin Middle School and Hamlin Shopping Center.

Transfers/Connections

- Routes 27 Leopard and 29 Staples do not connect on their last Sunday trips.
- Most routes do not connect well on weekends.

Vehicle Assignments

- Route 4 Flour Bluff Mini-B needs a higher capacity vehicle, especially on trips with high student ridership. Some stops have multiple wheelchairs passenger boardings, leaving little room on that bus. Route 4 is the biggest complaint in Flour Bluff.

Route Design

- Route 8s (Sunday only route) should loop around H-E-B in each direction but should not loop around Compton twice.
- Route 12 Hillcrest/Saxet/Oak Park has low ridership along Cenizo and Up River Road and could be shifted to frontage road.
- Route 16 Agnes/Ruth is long and inconvenient for customers.
- Route 16 Agnes/Ruth should not serve CC State Living Center (low ridership) or First Data (closing soon).
- Route 23 Molina would be faster is it stayed on Molina rather than turning on Bloomington and Theresa.
- Route 29 Staples branching is confusing to customers:
  - 29SS South Staples
  - 29F Flour Bluff
- Route 19 Ayers branching is confusing to customers.
  - 19G Greenwood
  - 19M McArdle
- Routes 76 Harbor Bridge Shuttle and 78 North Beach are confusing for tourists.

Service Changes/Service Calendar

- Route 65 Padre Island Connection should operate year round to better serve employees on the island.
- Service changes are made too often.

Header signs

- Route 76 Harbor Shuttle header signs are confusing; should say “Harbor Bridge” or “Shoreline” after the bus passes Staples Street Station.

Customer Issues

- RTA does not have a policy for customers riding continuous trips; some passengers sleep for long periods of time, especially on Route 27 Leopard.

Transit Priority

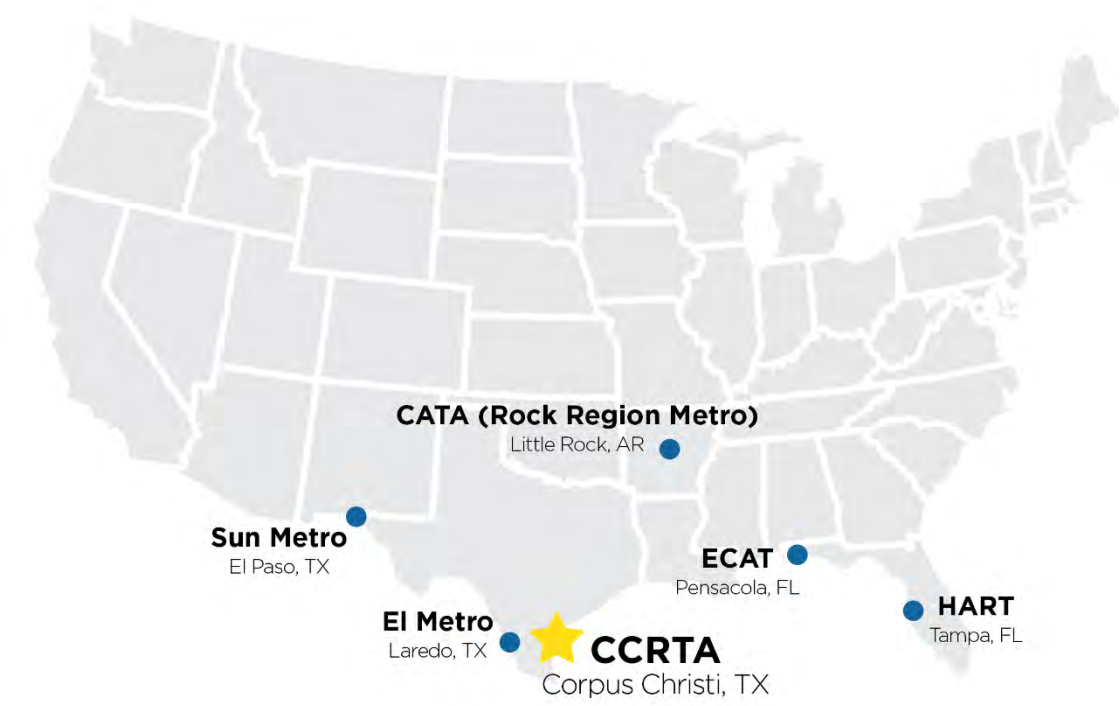
Consider adding bus lanes.

PEER SYSTEM REVIEW

Peer system reviews compare transit agencies with similar characteristics along various metrics in order to better understand strengths and opportunities.

This peer review compares characteristics of CCRTA with five other transit systems in Texas, Arkansas, and Florida: Central Arkansas Transit Authority (CATA or Rock Region Metro) in Little Rock; El Metro in Laredo; Escambia County Area Transit (ECAT) in Pensacola; Hillsborough Area Rapid Transit Authority (HART) in Tampa; and Sun Metro in El Paso. Figure 85 shows the location of each peer system, along with that of the CCRTA.

Figure 85 Peer System Locations



Peer systems were chosen based on similar characteristics, such as primary city population, ridership, geographic location, and system type. For reference,

Figure 86 lists basic information about service areas and ridership for the CCRTA as well as the five peer agencies.

Figure 86 Peer Review Agencies

System Name	Location	Service Area Population	Service Area Square Miles	Population Density (Persons per Sq. Mi.)	Annual Passenger Trips (Unlinked)	Annual Vehicle Revenue Hours
CCRTA	Corpus Christi, TX	342,412	841	407	6,016,375	296,654
CATA	Little Rock, AR	165,264	97	1,704	2,932,319	221,438
ECAT	Pensacola, FL	341,765	236	1,448	1,602,497	131,952
El Metro	Laredo, TX	236,091	89	2,653	3,296,485	175,610
HART	Tampa, FL	822,404	243	3,384	15,169,660	699,709
Sun Metro	El Paso, TX	803,086	251	3,200	12,710,270	712,932

Source: NTD 2013 Transit Agency Profiles

This review uses data from the National Transit Database (NTD)[1] to compare indicators among peers. Specifically, the indicators respond to four questions, from which several insights about CCRTA can be determined relative to its peers. Figure 87 lists these questions and the NTD-based indicators used to answer them.

Figure 87 Indicators Used to Evaluate CCRTA Relative to its Peers

Topic	Indicators
Availability	▪ Annual Vehicle Revenue Hours per Capita
Ridership	▪ Annual Passenger Trips (i.e. ridership) per Annual Vehicle Revenue Hour ▪ Annual Passenger Trips (i.e. ridership) per Capita ▪ Average Daily Passenger Trips (i.e. ridership) by Service Level
Operating Costs	▪ Annual Operating Cost per Annual Passenger Trip ▪ Annual Labor Operating Cost per Annual Revenue Vehicle Hour
Fares	▪ Base Single Ride Fares ▪ Farebox Recovery

[1] The federal government has required transit systems to report their operating data for many years. This data is available for nearly all United States systems in what is called the National Transit Database (NTD). Data used in this analysis is derived from NTD, with the most recent operational statistics coming from 2013.

The remainder of this section is organized along the topics specified in the table above: Availability, Ridership, Operating Costs, and Fares.

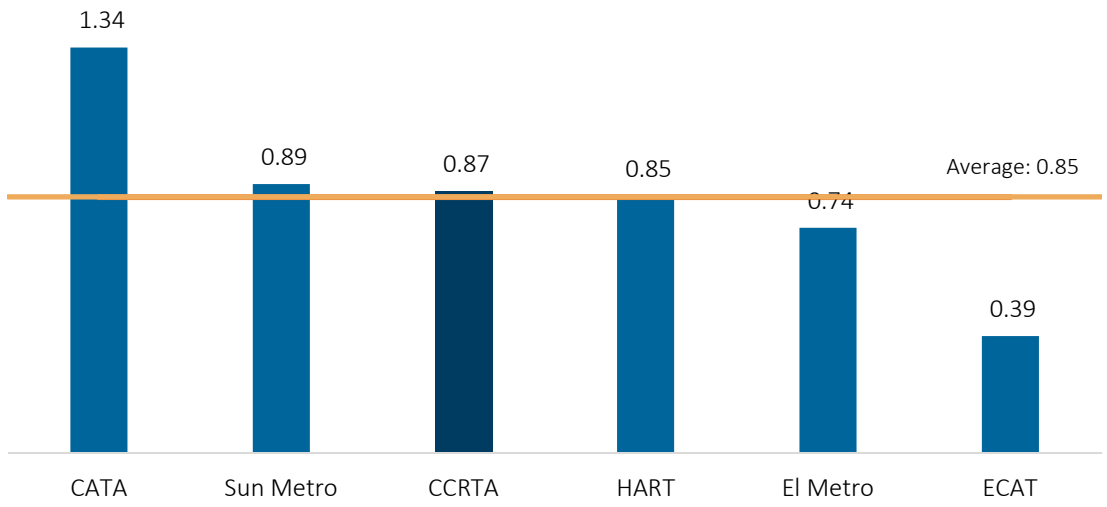
Availability

The availability of transit in a given jurisdiction can be measured by Annual Vehicle Revenue Hours (AVRH): the number of hours of service associated with all transit service vehicles over the course of a year.

Annual Vehicle Revenue Hours per Capita

On a per capita basis, Annual Vehicle Revenue Hours for the CCRTA are 0.87. This is close to the average of 0.85 amongst the five peers. The highest number of revenue hours per capita belongs to CATA, at 1.34, followed by Sun Metro, at 0.89. HART, El Metro, and ECAT trail CCRTA at 0.85, 0.74, and 0.39 respectively. Figure 88 presents Annual Vehicle Revenue Hours per Capita for CCRTA and the five peer systems.

Figure 88 Annual Vehicle Revenue Hours per Capita



Source: NTD 2013 Transit Agency Profiles

Ridership

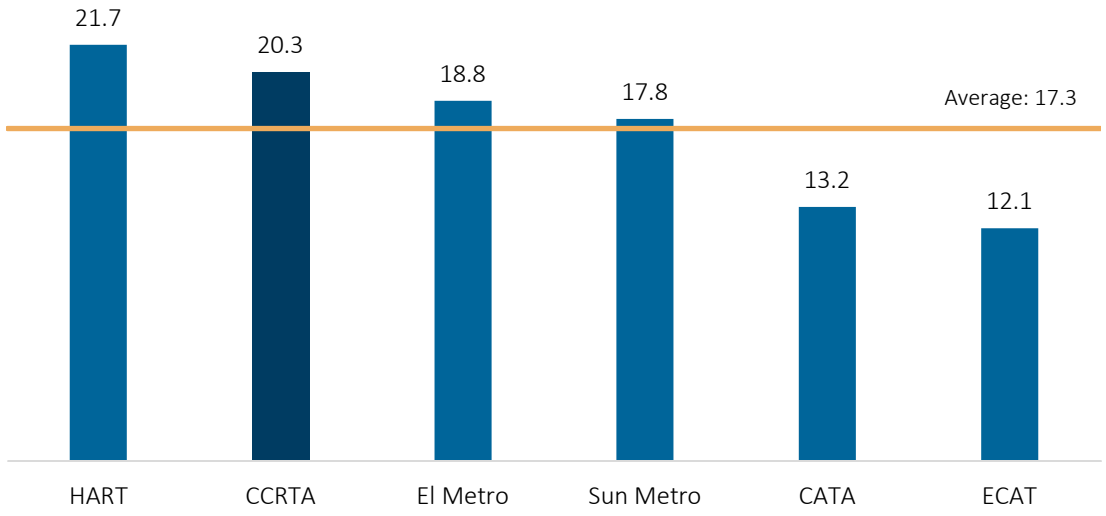
Annual Unlinked Passenger Trips measure ridership for a given transit agency. Three ridership indicators are useful to understand the extent to which people take transit: by Vehicle Revenue Hour, per capita, and by day of the week.

Annual Passenger Trips per Vehicle Revenue Hour

Annual Unlinked Passenger Trips per Vehicle Revenue Hour normalizes ridership by the operational size of a transit system. The number of trips per revenue hour for CCRTA is 20.3. This

is above the average of 17.3, and better than all but HART (21.7). Figure 89 presents this information for all six systems.

Figure 89 Annual Unlinked Passenger Trips per Vehicle Revenue Hour

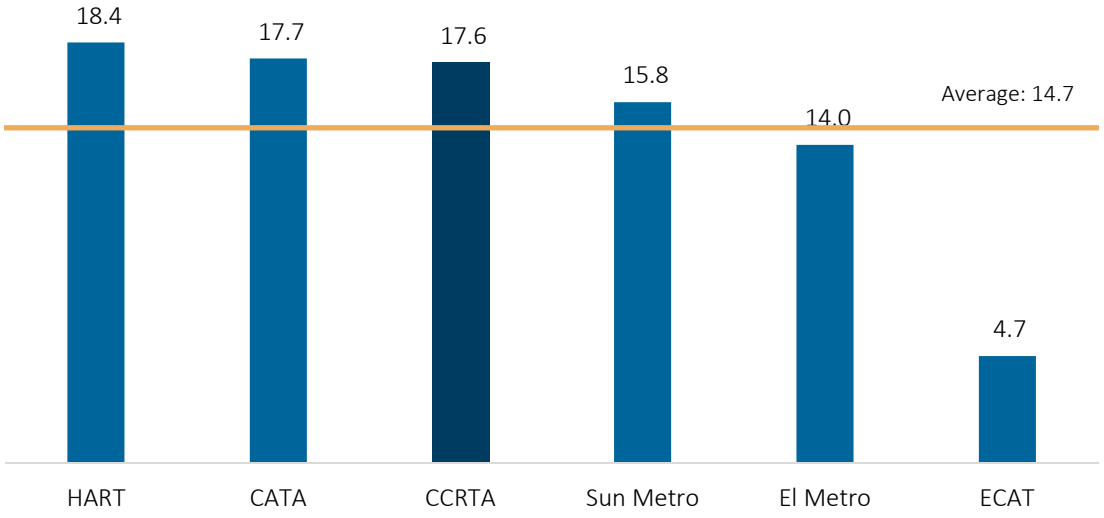


Source: NTD 2013 Transit Agency Profiles

Ridership per Capita

Annual Unlinked Passenger Trips per capita—or ridership per capita—measures how many transit trips are made by an individual, on average, in a given year. For CCRTA, ridership per capita is 17.6 trips, which is higher than average.

Figure 90 Annual Unlinked Passenger Trips per Capita



Source: NTD 2013 Transit Agency Profiles

Average Daily Passenger Trips by Service Level

Average Daily Unlinked Passenger trips measures ridership for an average day. Daily ridership is typically high during the week, drops on Saturdays, and then drops further on Sundays. For reference, Figure 91 presents average daily ridership by day of the week: weekday, Saturday, and Sunday. Numbers are not normalized on a per capita basis or by vehicle revenue hours.

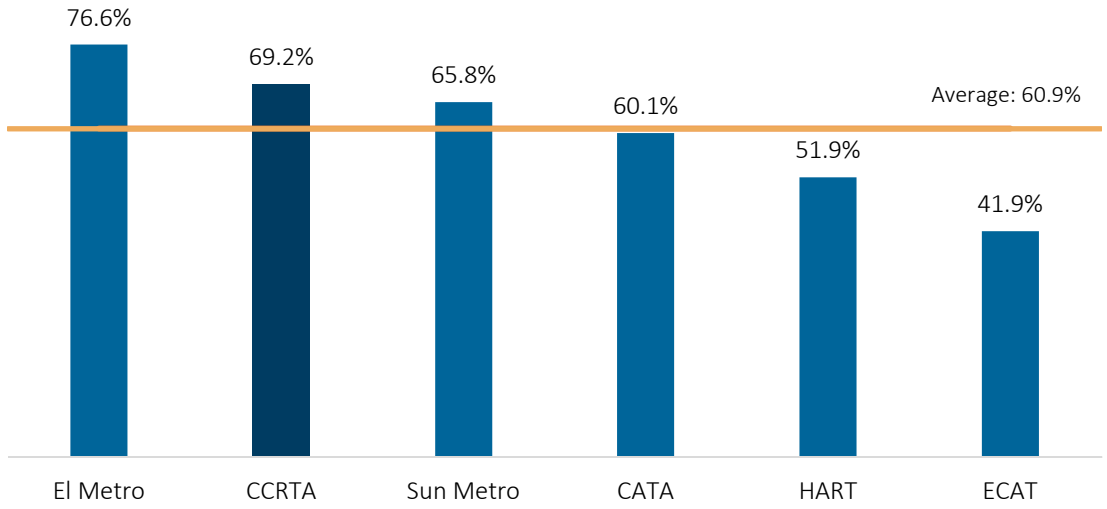
Figure 91 Average Daily Unlinked Passenger Trips by Service Level

Transit System	Location	Annual Passenger Trips	Average Weekday Passenger Trips	Average Saturday Passenger Trips	Average Sunday Passenger Trips
CCRTA	Corpus Christi, TX	6,016,375	19,953	13,803	5,260
CATA	Little Rock, AR	2,932,319	9,907	5,956	1,943
ECAT	Pensacola, FL	1,602,497	5,718	2,395	415
El Metro	Laredo, TX	3,296,485	10,435	7,988	3,691
HART	Tampa, FL	15,169,660	50,737	26,335	16,234
Sun Metro	El Paso, TX	12,710,270	43,155	28,410	11,658

Source: NTD 2013 Transit Agency Profiles

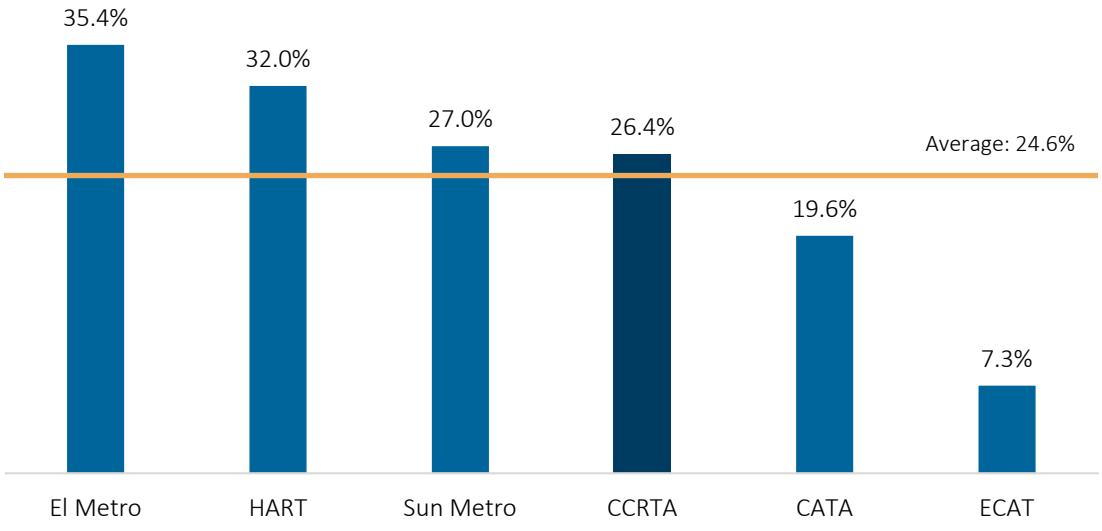
The average Saturday and Sunday ridership for an agency, relative to its average weekday ridership, measures the extent to which a transit system is used on weekends. For CCRTA, ridership on weekdays is 19,953 on average. This number drops to 13,803 on Saturdays (69.2% of average weekday ridership), and again to 5,260 on Sundays (26.4% of average weekday ridership). Its Saturday ridership as a percent of average weekday ridership is second only to El Metro (76.6%) among the peers. However Sunday ridership as a percent of average weekday ridership is 26.4%, or fourth out of the six agencies in this review. Saturday and Sunday ridership as a percent of average weekday ridership are presented in Figure 92 and Figure 93.

Figure 92 Saturday Ridership (% of Average Weekday Ridership)



Source: NTD 2013 Transit Agency Profiles

Figure 93 Sunday Ridership (% of Average Weekday Ridership)



Source: NTD 2013 Transit Agency Profiles

Operating Costs

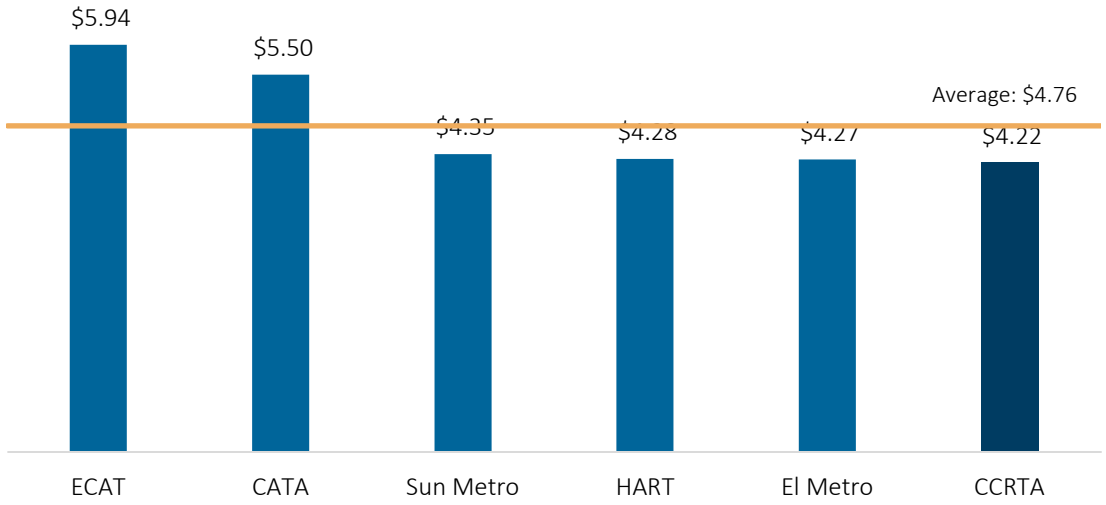
Operating costs are another important point of comparison between the six transit agencies. Two particularly useful indicators are: Total Operating Expenses per Unlinked Passenger Trip, and Total Operating Labor Hours per Vehicle Revenue Hour.

Total Annual Operating Expenses per Passenger

Total Operating Expenses per Unlinked Passenger Trip measures the operating costs associated with providing a single passenger trip. This number, measured in dollars, is almost always higher than fares, but typically within the same order of magnitude.

For CCRTA, operating expenses per passenger trip are the lowest among the six agencies in this review: $4.22. The average cost among the agencies reviewed is $4.76.

Figure 94 Total Annual Operating Expenses per Unlinked Passenger Trip

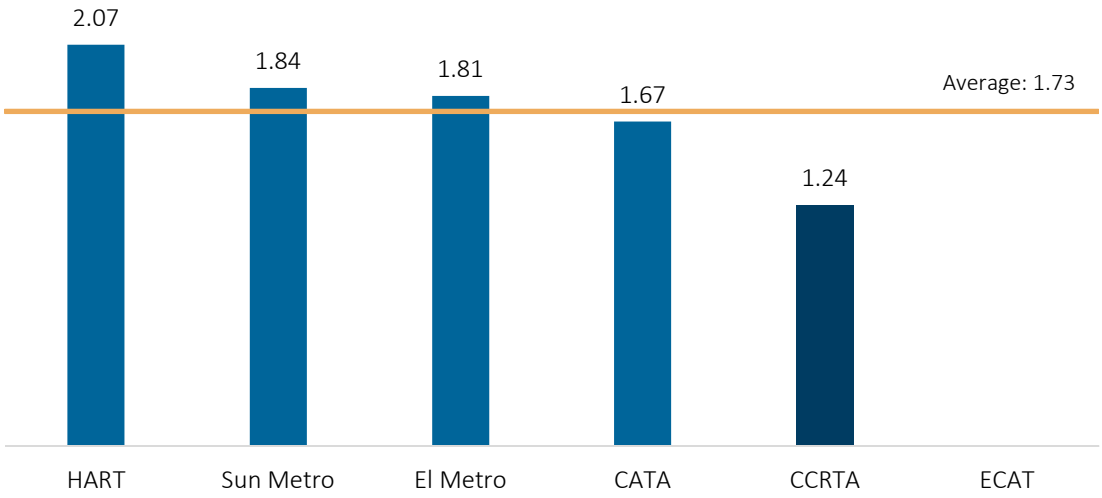


Total Operating Labor Hours per Vehicle Revenue Hour

Total Operating Labor Hours per Vehicle Revenue Hour measures the labor hours used, on average, to provide one vehicle hour of transit service. A low value can indicate either a high degree of automation, or, also, an understaffed system.

For CCRTA, labor hours per vehicle revenue hour are 1.24. This is lower than all other systems with the exception of ECAT, for which no data are available. The average amongst the remaining five systems is 1.73. HART has the highest value: 2.07 labor hours per vehicle revenue hour. Figure 95 presents the Total Labor Operating Cost per Vehicle Revenue Hour associated with the five systems for which data are available.

Figure 95 Labor Operating Labor Hours per Vehicle Revenue Hour



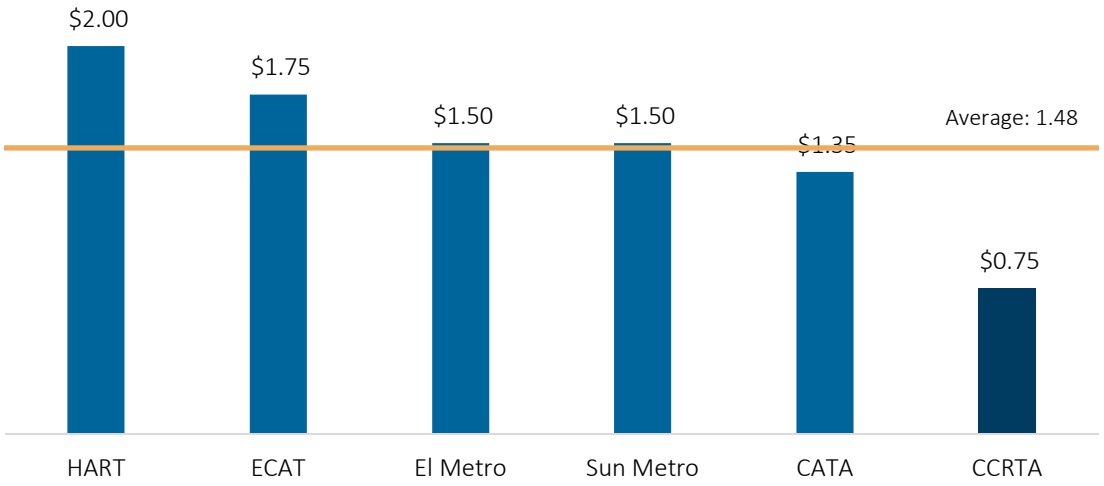
Fares

Finally, this peer system review compares fares. In addition to measuring fares themselves, it is useful to understand Farebox Recovery: the percent of operating expenses that are recovered by passenger fares.

Fare Comparison

CCRTA has the lowest single ride base fares ($0.75) relative to its peers ($1.48 on average). All other peers except for CATA ($1.35) charge at least double the CCRTA fare. HART has the highest fares, at $2.00 for a single ride. Figure 96 presents single ride base fares for all six transit systems.

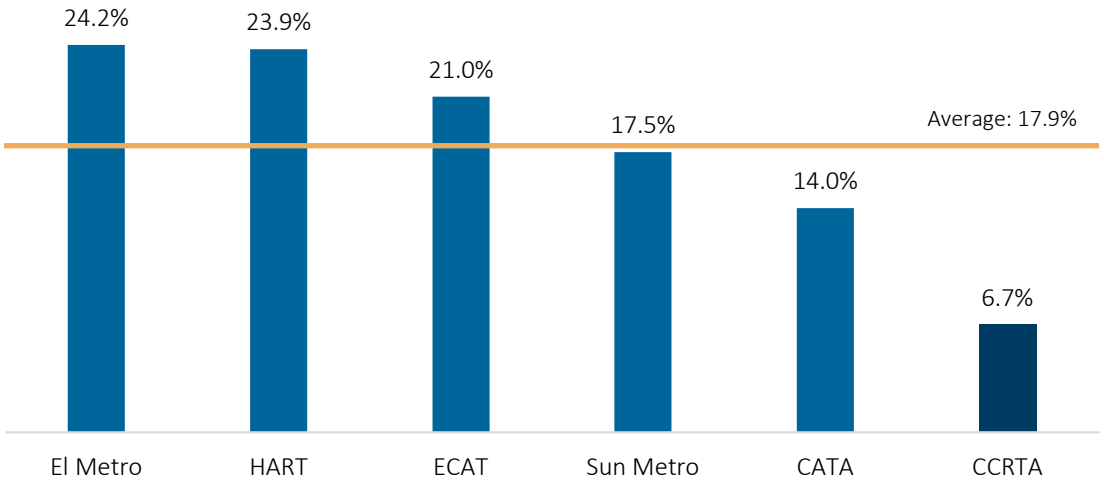
Figure 96 Single Ride Base Fare



Farebox Recovery

Farebox Recovery reveals the percent of operating expenses recovered by fare revenue. For CCRTA, this number is 6.7%—the lowest among the six agencies. The average Farebox Recovery for the six systems is 17.9%. Figure 97 presents the Farebox Recovery percentages for each system.

Figure 97 Farebox Recovery



Source: NTD 2013 Transit Agency Profiles

3 COMMUNITY FEEDBACK

DESIGN YOUR BUS SYSTEM SURVEY

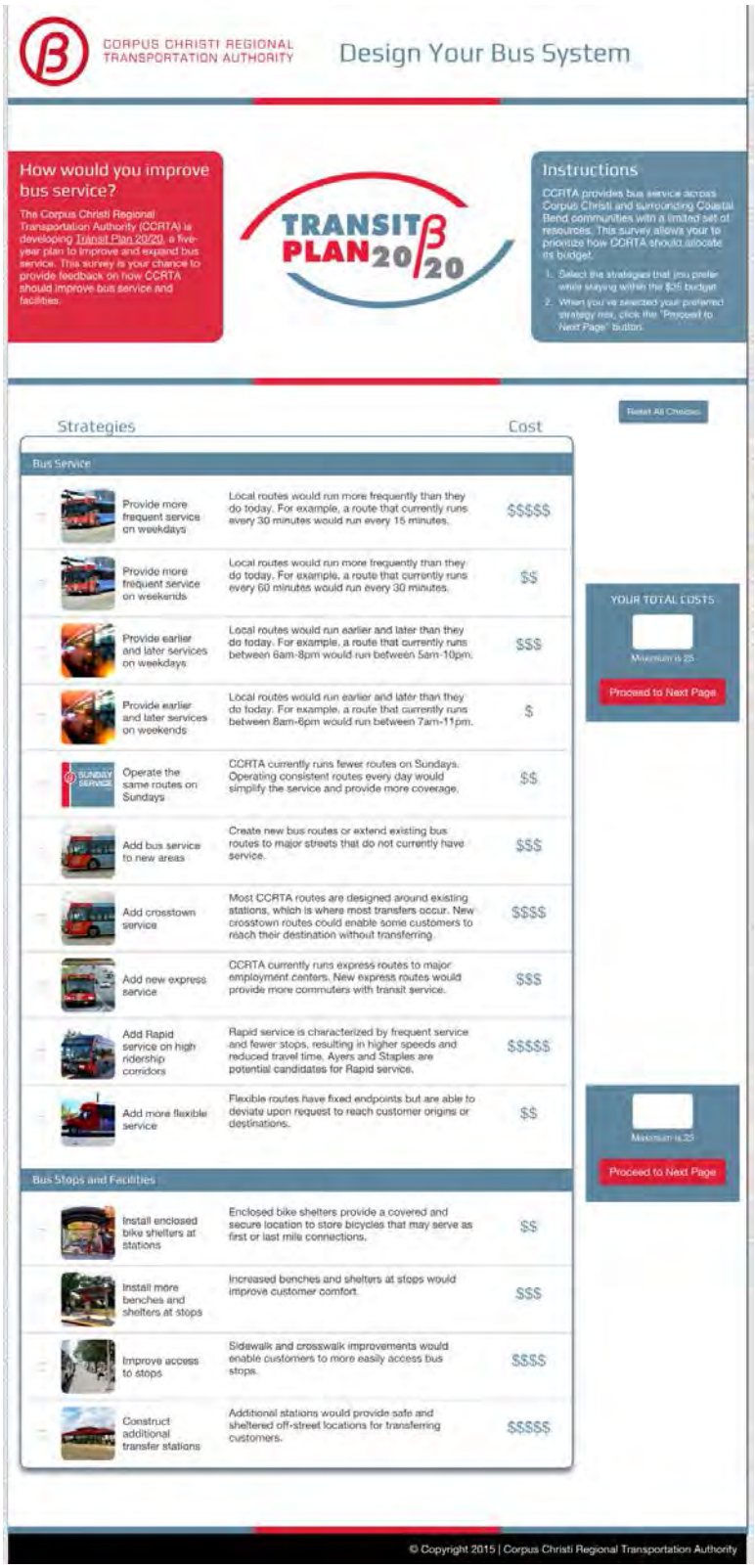
On September 24, 2015, a "Design Your Bus System" survey was launched on the project website and also made available in a paper format during an outreach campaign during late September and early October 2015 at the following locations:

- Texas A&M University-Corpus Christi – September 29, 10:00 a.m. – 2:00 p.m.
- Six Points Station – September 30, 2:30 - 5:30 p.m.
- Del Mar College – October 1, 11:00 a.m. - 2pm
- Robstown Station – October 2, 6:30 - 9:00 a.m.
- Staples Street Station – October 2, 2:30 - 5:30 p.m.
- Flour Bluff Transfer Point – October 6, 6:30 a.m. - 9:00 a.m.
- Southside Station – October 6, 2:30 - 5:30 p.m.
- Port Ayers Street Station – October 9, 2:30 - 5:30 p.m.

The survey provided respondents the ability to make hypothetical improvements to their transit system. Participants work with a fixed budget, and allocate resources based on the improvements they would prioritize. At the end of the survey, respondents were also asked to complete two demographic questions related to rider origins and frequency of transit use. A total of 190 online surveys and 131 paper surveys completed through mid-November 2015.

Figure 98 Design Your Bus System Outreach

Figure 99 Screenshot of Design Your Bus System Survey



Online Survey Initial Results

Among online survey respondents, the most requested improvement was for more benches and shelters at stops, followed by providing earlier and later service on weekends, more frequent service on weekends, earlier and later service on weekdays, and adding bus service to new areas. Among online respondents, 76% identified as regular riders, and 91% stated that they were residents of Corpus Christi.

Figure 100 Design Your Bus System Results - Online Surveys

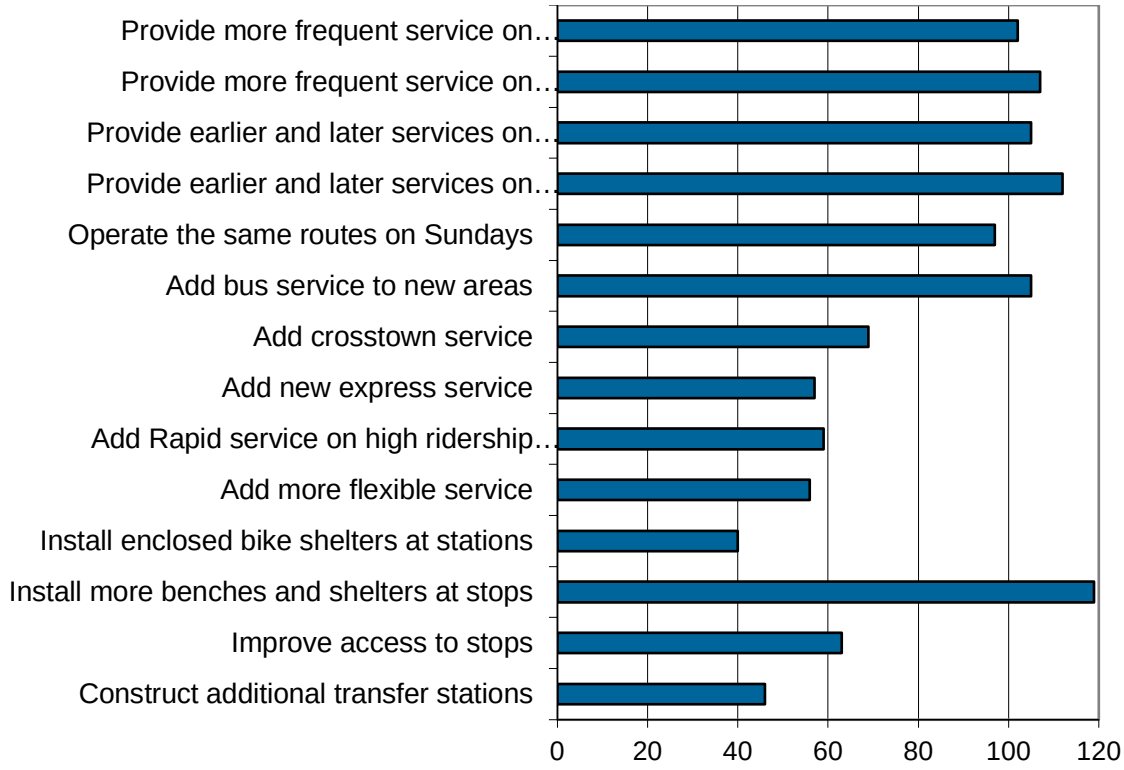


Figure 101 Rider Origins - Online Survey

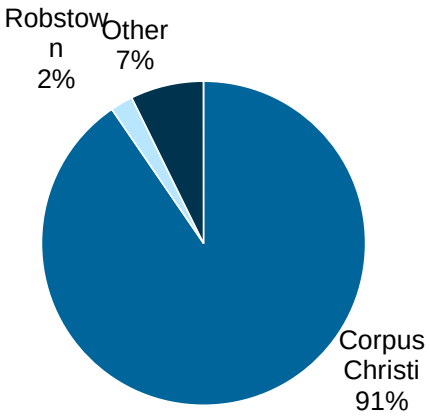
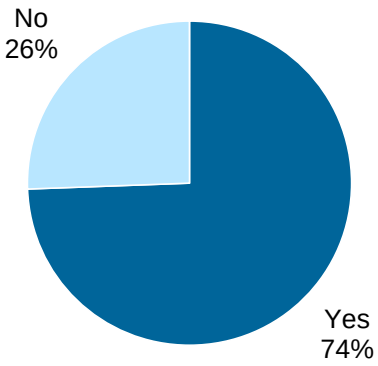


Figure 102 Regular Riders - Online Survey



Paper Survey Initial Results

Among paper survey respondents, the most requested improvement was to operate the same routes on Sunday that run on weekdays and Saturday, followed by installing more benches and shelters at stops, providing earlier and later service on weekdays and weekends, and providing more frequent service on weekdays and weekends. For both frequency and span improvements, respondents were slightly more likely to prioritize improvements on weekends. Among paper survey respondents, 98% identified as regular riders, and 85% said that their primary trips originate within Corpus Christi. Ten percent said their trips originate from Robstown (compared to only 2% among online respondents).

Figure 103 Design Your Bus System Results

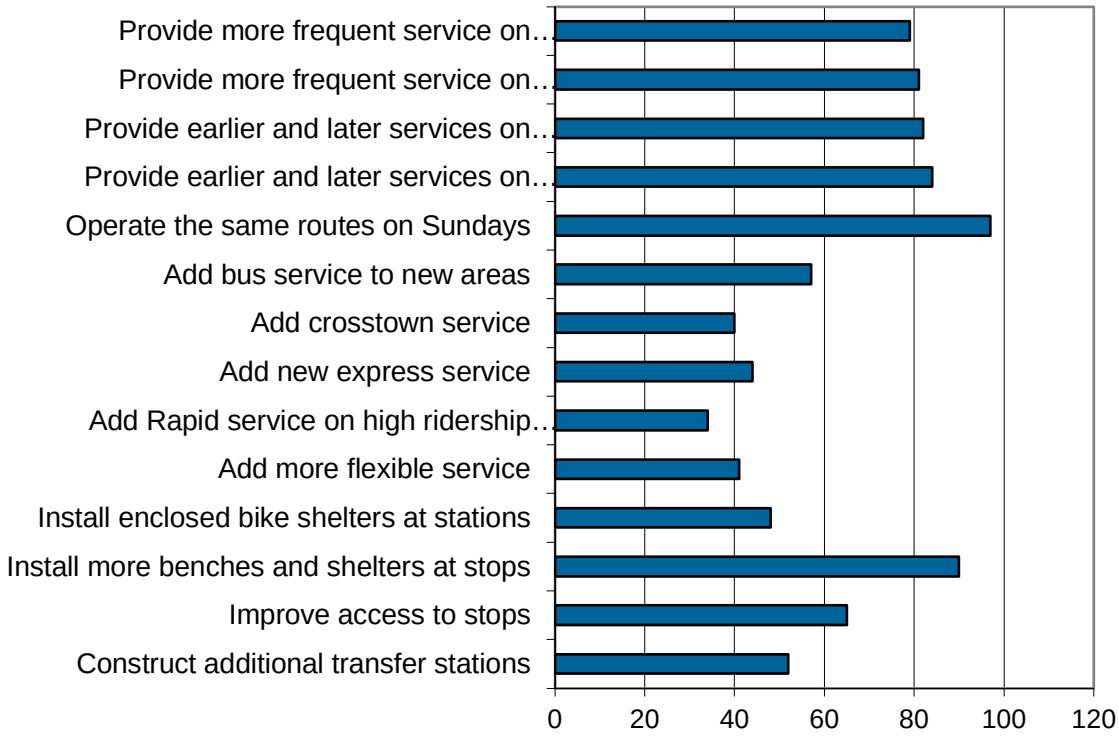


Figure 104 Rider Origins

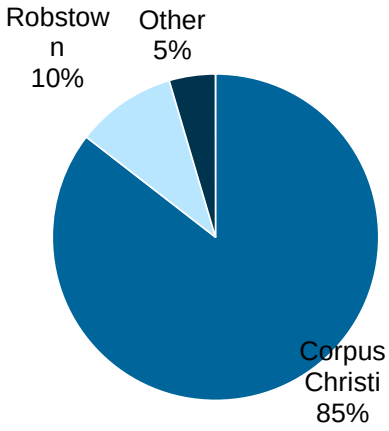
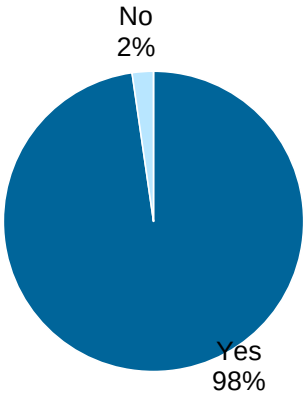


Figure 105 Regular Riders



STAKEHOLDER FEEDBACK

Initial Project Advisory Committee (PAC) Meeting Recap

The initial Transit Plan 20/20 Project Advisory Committee meeting was held on October 7, 2015 at CCRTA administrative offices. The meeting was attended by CCRTA planning staff, project consultants (Nelson\Nygaard and Kailo), and the following invited local stakeholders.

Figure 106 Project Advisory Committee Meeting #1 Participants

Participant	Organization
Tom Niskala	Chamber Infrastructure Committee, CCRTA Board of Directors
Michele Mora-Trevino	Christus-Spohn Health System
Elaine Black	City of Agua Dulce
Ninfa Acuna	City of Agua Dulce
Chris Hale	City of Corpus Christi Bond Project Manager
Lisa Oliver	City of Corpus Christi, Senior Services
John Aguilar	City of Driscoll
Herman Rodriguez	City of Robstown
Paulette Kluge	Corpus Christi Convention & Visitors Bureau
Iain Vasey	Corpus Christi Regional Economic Development Corporation
Melinda Aguilar	Del Mar College
Terry Sweeney	Downtown Management District
Dale Mecom	Flour Bluff ISD
Gary Allsup	Housing Authority of Corpus Christi
Jim Kunau	Hurricane Alley Waterpark/SEA District
Gregory Smith	Island Strategic Action Committee
John MacDougal	Naval Air Station/Corpus Christi Army Depot
Mike Rendon	RTA Committee on Accessible Transportation
Amanda Drum	Texas A&M University-Corpus Christi
Trent Thigpen	Texas A&M University-Corpus Christi
Diana Reyes	Texas Department of Assistive and Rehabilitative Services
Victor Vourcos	Texas Department of Transportation
Patrick Hernandez	Tuloso-Midway ISD

Meeting Summary

The meeting was divided into two parts. During the first part, Nelson\Nygaard provided a brief presentation summarizing the goals, objectives, and phases of Transit Plan 20/20.

The second part of the meeting consisted of a discussion regarding issues, challenges, strengths, weaknesses, and opportunities of CCRTA service. The remainder of this document summarizes feedback provided by PAC members organized by theme.

Increased/Improved Service

Stakeholders representing various interest groups (including employers and university representatives) agreed that service spans on weekdays and weekends need to be expanded to meet the commuting needs of workers and students. For workers specifically, the commuting needs of hotel workers, Port Aransas employees, and SEA District employees were cited. Stakeholders representing the interest of the university said that college students would benefit from service that runs until midnight and improved connectivity to Downtown.

Stakeholders also mentioned the need to better serve elderly and disabled riders through accessibility improvements and better connections to services and facilities (especially medical).

Suggested amenity improvements include real-time arrival information systems, additional park-and-ride facilities, and new buses geared toward service type (e.g. major vs. minor transit corridors).

Service to New Areas

Meeting participants also indicated locations where they would like to see new or improved service. Suggestions include express service along Shoreline, express airport service, service between Ocean Boulevard and North Beach, reinstatement of ferry service, and expanded Gulf Beach service (with shorter running times) during the summer. Additionally, a Del Mar College representative said there will be a new South Side campus that will eventually require service.

There was some discussion concerning the feasibility of providing service to Agua Dulce and Alice. Although CCRTA once provided service to Agua Dulce, there was insufficient ridership to justify the route. Several stakeholder seem interested in exploring opportunities to reinstate the service. One possibility mentioned was an interlocal agreement to provide service across jurisdictional boundaries.

Coordination

Several stakeholder expressed the need to coordinate current and future CCRTA operations with other local plans. Specifically, there should be coordination with the City to account for pavement conditions (and their accommodation for vehicle weight) when planning new routes or when improving roads on current routes. Additionally, CCRTA should coordinate with the City, businesses, and CCISD to minimize disruption during construction and to improve the provision of bus stops. Finally, there was an expressed need to coordinate with the Bicycle Mobility Plan.

Congestion and Air Quality

Many participants recognize the opportunity to reduce emissions and reduce congestion through CCRTA service. In addition to attracting ridership through public education campaigns, there were also suggestions to improve emissions through alternative fuel vehicles.

Second Project Advisory Committee (PAC) Meeting Recap

A second Transit Plan 20/20 project advisory committee meeting was held on March 30, 2016 at CCRTA administrative offices. The meeting was attended by CCRTA planning staff, project consultants (Nelson\Nygaard and Kailo), and the following invited local stakeholders.

Figure 107 Project Advisory Committee Meeting #2 Participants

Participant	Organization
Maria Ovalle	City of Agua Dulce
Ninfa Acuna	City of Agua Dulce
Joe Morales	City of Bishop
Daniel McGinn	City of Corpus Christi, Environmental & Strategic Initiatives
Francisca Nixon	City of Port Aransas
Herman Rodriguez	City of Robstown
Paulette Kluge	Corpus Christi Convention & Visitors Bureau
Jeff Pollack	Corpus Christi MPO
Iain Vasey	Corpus Christi Regional Economic Development Corporation
Anne Bauman	CCRTA RCAT
Terry Sweeney	Downtown Management District
Michelle Roddel	Greater Corpus Christi Hospitality Association
Jeff Wilkinson	Greater Corpus Christi Hospitality Association
Gary Allsup	Housing Authority of Corpus Christi
Jim Kunau	Hurricane Alley Waterpark/SEA District
Carrie Robertson-Meyer	North Beach Community Association
Amanda Drum	Texas A&M University-Corpus Christi
Trent Thigpen	Texas A&M University-Corpus Christi
Diana Reyes	Texas Department of Assistive and Rehabilitative Services
Victor Vourcos	Texas Department of Transportation
Gilda Ramirez	Westside Business Association

Meeting Summary

Nelson\Nygaard provided a project update, a summary of the existing conditions report and also presented initial service alternatives.

PAC members were encouraged to ask questions throughout the presentation. The following a summary of the group discussion.

Discussion

- Are bathroom being considered for stations?
  - For customers, no. For bus operators, yes.
- Does the study includes analysis of outlying rural Nueces County? (Bishop, Banquete, Agua Dulce)
  - CCRTA will set up an offline meeting to discuss rural service options.
- Outreach is needed to communicate Paisano transit services.
- North Beach hotel staff have difficulties getting to work due to limited service span.
- Make sure to document where service gaps are due to leaving neighborhood streets for faster routes.
- Address service gaps by improving pedestrian access.
- Business Park at Bear Lane has over 500 employees working 3 different shifts and will use transit. Extend service span to accommodate employees.
- Transit service availability can be a catalyst to jumpstart development for land use.
- Increased service on Southside is need to serve future Del Mar College campus at Rodd Field & Yorktown.
- Service is not currently frequent. Opportunity to attract more riders with frequency improvements.
- Service on Saratoga is needed and could alleviate traffic/Southside gridlock.
- Consider bus pullouts on Saratoga to minimize impact on auto traffic.
- When Yorktown detour service was in place, ridership increased.
- Northside service options will be affected by Harbor Bridge replacement.
- Why is Del Mar College the destination of proposed Route 12 instead of other transfer stations?
  - Route 12 will connect to other key routes at Morgan, Greenwood, and Port.
- There will be future opportunities on Northside with future development.
- Consider making Downtown Shuttle free.
- Does the Downtown Shuttle eliminate all other downtown routes?
  - Yes.
- Downtown Shuttle should service upgraded stop at Retama Park
- Consider Shoreline instead of Water Street
- Downtown Shuttle provides connection from hotels to American Bank Center for conventioneers.
- What happens to abandoned stops?

  - Concrete pads remain. Signs and amenities are removed.
- Consider Express service from Southside Park-and-Ride to Downtown.
  - Southside-Downtown express service was implemented recently and did not attract adequate ridership.
- Consider establishing Park-and-Ride for industrial corridor companies. These companies get a credit for getting cars off the road, so they can make it mandatory for employees to use service.
- Will proposed Beach Bus accommodate surfboards?
  - Probably not.
- Consider seasonal Bayfront Bus from Emerald Beach to Hurricane Alley
- Include stop at Momentum Campus for Beach Bus.
- Proposed water taxi from Solomon Ortiz dock to North Beach (USS Lexington/Texas State Aquarium) was tested years ago and approved by Homeland Security.
- Consider late-night entertainment bus (E-Bus) connecting TAMUCC students with downtown.
- Consider adding North Beach to downtown shuttle
- While transitioning to all CNG buses, be aware of high ozone days April-October. If possible, use diesel buses at off-peak times and keep out of ozone time rotation.
- Anne Bauman– Advises committee to get in bus – try out routes – they would learn a lot.
- Terry Sweeney/Jim Kunau – Want to coordinate meeting with Downtown Merchants – SEA District

SERVICE ALTERNATIVES FEEDBACK

Initial Service Alternatives Outreach

After the development of initial service alternatives, a second round of customer outreach campaign was conducted in early May at the following locations:

- Texas A&M University-Corpus Christi – September 29, 10:00 a.m. – 2:00 p.m.
- Six Points Station – September 30, 2:30 - 5:30 p.m.
- Del Mar College – October 1, 11:00 a.m. - 2pm
- Robstown Station – October 2, 6:30 - 9:00 a.m.
- Staples Street Station – October 2, 2:30 - 5:30 p.m.
- Flour Bluff Transfer Point – October 6, 6:30 a.m. - 9:00 a.m.
- Southside Station – October 6, 2:30 - 5:30 p.m.
- Port Ayers Street Station – October 9, 2:30 - 5:30 p.m.

A series of maps representing specific areas served by CCRTA depicting current and proposed route alignments were presented to riders in one-on-one or small group discussions. Riders were asked to vote on the option that best meets their needs. Area maps consisted of:

- Northside Corpus Christi
- Westside Corpus Christi
- Southside Corpus Christi
- Robstown
- Leopard/Annaville/Robstown
- Downtown Corpus Christi/North Beach
- Padre Island/Port Aransas

Feedback regarding the initial service alternatives was used to develop revised service alternatives that were shared with the community on June 1 at a public meeting held at the new CCRTA headquarters located adjacent to Staples Street Station.

Figure 108 Initial Service Alternatives Outreach

Revised Service Alternatives Outreach

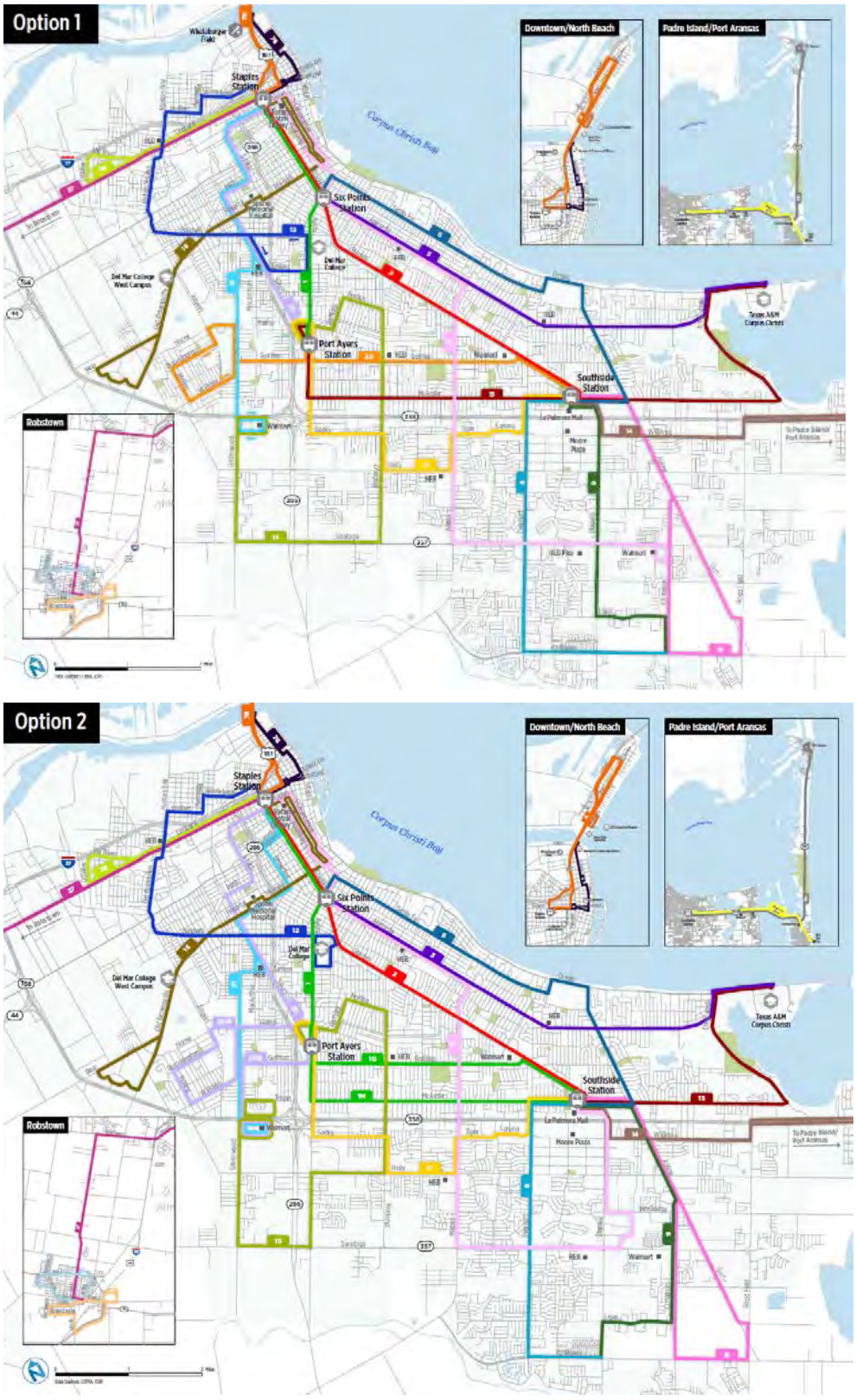
An open house public meeting was held on June 1 from 12:00 - 6:00 p.m. at the new CCRTA Headquarters adjacent to the new Staples Street Station. The open house event was well-attended by bus riders and interested members of the community. The open house included an overview of the Transit Plan 20/20 project and (goals/objectives, key findings, ridership graphics and a PowerPoint presentation) and two system maps depicting revised service alternatives.

The project team discussed presentation material with attendees. Feedback collected via direct conversation and written comment cards was reviewed by the consultant team and used to create a recommended route network and five-year service plan.

Figure 109 New Staples Street Station and CCRTA Headquarters

Figure 110 Revised Service Alternatives Outreach

Figure 111 Revised Service Alternatives System Maps



4 FIVE-YEAR SERVICE PLAN

A five-year service plan was developed to improve the design and allocation of service based on demonstrated ridership, customer feedback, and service planning best practices. Phases 1 and 2 focus on improving the CCRTA route network by reallocating resources from unproductive and inefficient services to corridors with higher transit demand and ridership potential. Implementation of the recommended route network will improve service for the majority of existing riders and attract new customers, while using the same amount of resources. Phases 3-5 build upon the improvements of the initial changes to expand service across the system. Several rounds of public feedback, including hundreds of comments from individuals, helped influence the scale and direction of service recommendations.

Themes of the service plan include:

Upgraded Southside Service

Residential and commercial growth in Southside Corpus Christi have outpaced CCRTA service growth. Increased Southside service is one of the most common customer requests. The majority of existing routes serving the Southside run every 40-60 minutes, which results in long wait times for riders traveling to or from the Southside. Recommendations include more frequent service on Weber and Everhart, more direct service to major destinations and a new crosstown route along Saratoga. The recommended route network also accommodates the future Del Mar College Southside campus.

More Frequent Service on Leopard and Port

CCRTA currently operates frequent service, in which a bus arrives every 15 minutes throughout the day, on Ayers and Staples corridors. Existing ridership and land use patterns suggest that the Leopard and Port corridors could also support frequent transit service. The recommended route network includes a new overlay route on the high ridership segment of Leopard, to alleviate overcrowding and scheduling delays on Route 27. Consolidation of high ridership segments of existing Routes 21 and 23 is recommended to create a new frequent route on Port between Staples Street and Port Ayers Stations.

Expanded Sunday Service

Currently, Sunday service levels are significantly lower than both weekday and Saturday service. Sunday service also consists of different route alignments and less geographic coverage than on weekdays and Saturday. Despite infrequent schedules and minimal coverage, ridership productivity on Sundays is comparable with weekdays, suggesting a need for increased service. The service plan recommends a reallocation of hours from Saturday to Sunday to extend Sunday hours of service and operate the same routes as on Saturday.

More Direct Westside Service

Westside Corpus Christi has a high level of bus service due to demonstrated ridership, transit supportive population characteristics, and the presence of medical facilities. Several Westside routes overlap and travel along neighborhood streets in one-way alignments that create indirect and slower rides for most passengers. Recommendations for the Westside include improved directness and a greater emphasis on arterials rather than neighborhood streets. The recommended network also includes improved route spacing, resulting in more intuitive service for new customers.

Downtown / North Beach Route Improvements

Downtown circulation is currently served by three routes. Route 29 makes a loop in downtown on every other trip, resulting in 30 minute service on weekdays and 40 minute service on Saturdays. Route 76 makes a loop downtown prior to crossing the Harbor Bridge to North Beach. Route 78 also serves downtown and North Beach, but operates a different alignment than Route 76. Each loop is confusing and adds out-of-direction travel time for riders not traveling to downtown. A more frequent downtown shuttle will better serve employees, visitors, and future residents of downtown Corpus Christi and the Sea District than existing routes. North Beach will also be better served by a unique route.

Improved Directness and Frequency in Robstown

Routes 27 and 67 provide regional connections from Robstown to select destinations within Corpus Christi, while Route 34 provides local circulation throughout Robstown and a direct connection with Route 27 at Robstown Station. Recommendations for Robstown include restructured local circulation in the form of two routes and upgraded express service to downtown Corpus Christi and NAS-CCAD.

Consolidated Port Aransas Service

Port Aransas is served by a local circulator, a limited stop route, and a flexible service. Each route is at or near the bottom of the system in terms of ridership productivity. Rather than segmenting local, regional, and flexible service, one route that provides all functions is recommended. A consolidated route will improve mobility for Port Aransas residents, employees and visitors by offering all-day, easy-to-understand service.

Expanded Express Service

An expanded express route network is recommended to improve regional mobility. Peak-hour express service to Staples Street Station is recommended from Robstown, Gregory and Flour Bluff. The addition of midday service to Padre Island and Port Aransas is also recommended.

Improved Speed and Reliability

The service plan employs several different strategies to improve speed, schedule reliability, and operational efficiency. Streamlined route alignments decrease the amount of travel on narrow, neighborhood streets to reduce customer travel time. The exposure of frequent service routes to

existing traffic bottlenecks is reduced to improve schedule reliability. Timed connections are introduced at major transit stations. Strategic interlining of routes improve operational efficiency.

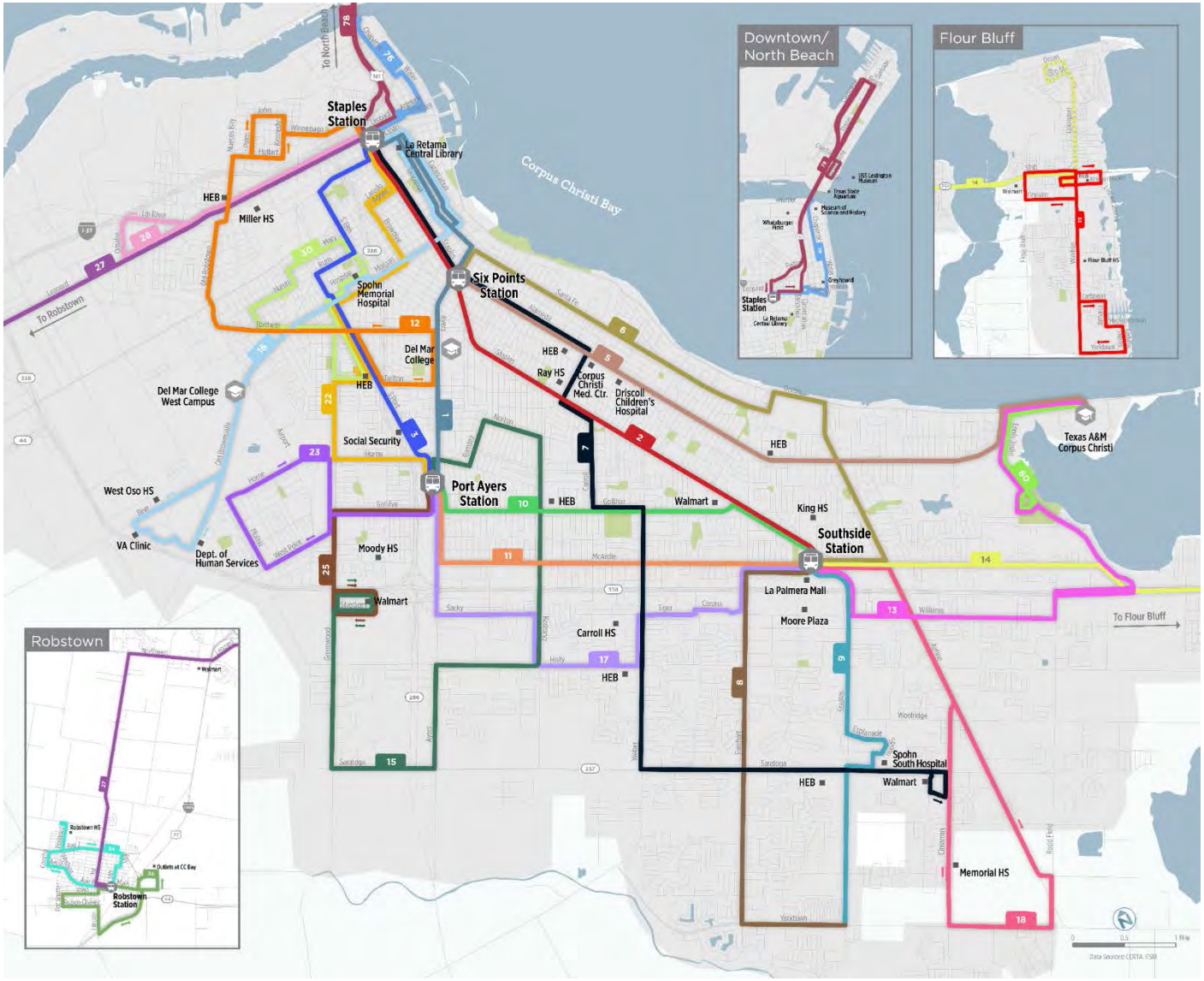
The recommended routes for Phases 1 and 2 are listed in Figure 112 and depicted in Figure 113.

Figure 112 Recommended Routes

Recommended Route	Action / Description
1 Ayers	New route replaces trunk segment of existing Route 19
2 Staples	New route replaces trunk segment of existing Route 29
3 Port	New route replaces segments of existing Routes 21 and 23
5 Alameda	Peak trips to NAS-CCAD eliminated and served by Route 14
6 Santa Fe	Shortened to Six Points Station
7 Saratoga	New route replaces segments of 17 and 32
8 Everhart	New route replaces segment of existing Route 32
9 South Staples	New route replaces segment of existing Route 29
10 Gollihar	New route replaces segment of existing Route 37
11 McArdle	New route replaces segment of existing Route 19
12 Baldwin	Extended to Del Mar College and Port H-E-B
13 Ennis Joslin	New route replaces segments of existing Routes 37 and 63
14 Flour Bluff	New route replaces segments of existing Routes 19 and 37
15 Kostoryz	Extend to Greenwood Walmart
16 Morgan	Realign from Agnes/Laredo to Morgan
17 Holly	Extend to Port Ayers Station; Carroll and Alameda served by Route 7
18 Airline	New route replaces segment of existing Route 26
22 Brownlee	New route replaces segment of existing Routes 17, 21, and 23
23 Molina	Shortened to Port Ayers Station; realign from Bloomington to Horne
25 Greenwood	Remove Trojan/Prescott deviation
27 Annaville	Realign from US 77 to FM 642 and FM 1889; rename route
28 Leopard	New route along Leopard between Staples Street Station and Omaha
30 Ruth	New route replaces segments of existing Routes 16 and 21
33 Waldron	New route replaces existing Route 4
34 Robstown North	New route replaces northern half of existing Route 34
35 Robstown South	New route replaces southern half of existing Route 34
50 Robstown/Calallen/NAS Express	Extend to Robstown Station; upgrade to 35' bus
51 Gregory/NAS Express	Downgrade to smaller bus
52 Robstown/Downtown Express	New route between Robstown Station and Staples Street Station
54 Gregory/Downtown Express	New route replaces segment of Route 67
55 Gregory/TPCO Express	Downgrade to smaller bus
56 Flour Bluff/Downtown Express	New route between Flour Bluff and Staples Street Station
60 Islander Shuttle	Improve afternoon headway
65 Padre Island/Port Aransas Express	Add midday service
76 Water Street	Realign to Water and Chaparral; Eliminate North Beach segment

78 North Beach	Eliminate downtown Corpus Christi segment
81 Beach Bus	New seasonal route connecting Southside Station, Flour Bluff, and Padre Island
83 Advanced Industries	No change
84 Lighthouse	Downgrade to smaller bus

Figure 113 Recommended Route Network



ROUTE AND SCHEDULE RECOMMENDATIONS

Frequent Routes

Route 1 Ayers

Route 19 Ayers is the second-highest ridership route in the CCRTA system. Route 19 has a primary trunk alignment between Staples Streets Station and the intersection of Ayers and McArdle. Along this segment, the route also serves Six Points Station, Del Mar College, Port Ayers Station. Route 19 splits at Ayers and McArdle to create two branches. One branch travels along McArdle and terminates at Southside Station. The other branch travels south along Ayers, Saratoga, and Greenwood, terminating at Walmart Supercenter. Route 19 operates every 15 minutes on its trunk and every 30 minutes on its branches on weekdays. On Saturdays, its headway drops to 20 minutes on the trunk and 40 minutes on the branches.

The McArdle branch generates significantly higher ridership than the Greenwood branch segment. The McArdle branch also has a longer running time, which results in imbalanced layover times at the outer route endpoints. Layover at Southside Station is 10 minutes while layover at the Greenwood Walmart is 2 minutes.

The trunk segment of Route 19 should be rebranded as Route 1 and maintain 15-minute weekday service between Staples Street and Port Ayers Stations.

On weekdays and Saturdays, Route 1 will interline with Route 10 along Gollihar and Route 11 along McArdle. Routes 10 and 11 will essentially operates as branches of Route 1, providing a one-seat ride from the Ayers corridor to Southside Station. However, unique numbers should be used to reduce rider confusion. The Greenwood branch of existing Route 19 will be served by Routes 15 and 17. Route 1 should operate independently on Sunday.

Figure 114 Recommended Route 1 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	4:45 a.m. – 10:30 p.m.	30	15	15	15	15	30	3
Saturday	6:00 a.m. – 9:00 p.m.	30		30		30		2
Sunday	8:00 a.m. – 8:00 p.m.	60		60		60		1

Figure 115 Recommended Route 1 Alignment

Route 2 Staples

Existing Route 29 Staples is the highest ridership route in the CCRTA system. Route 29, however, has scheduling and routing challenges that create operational issues such as on-time performance and crowding. Route 29 has a primary alignment between Staples Street Station and Southside Station. The route has an eastern branch that operates between Southside Station and Flour Bluff along McArdle and SPID and a southern branch that operates between Southside Station and Spohn South Hospital along South Staples.

Route 29 ridership is significantly higher on its trunk segment. The two branches have different lengths and running times. This results in Route 29 having buses spaced every 15 minutes in the outbound direction between Staples and Southside Stations, but having buses spaced every 10 or 20 minutes apart in the inbound direction. This uneven spacing results in overcrowding on the bus arriving 20 minutes after the previous bus and underutilization for the bus arriving 10 minutes after the previous bus.

The trunk segment of Route 29 should be rebranded as Route 2 and maintain 15-minute weekday service between Staples Street and Southside Stations. Span and frequency of Route 2 will be similar to the existing Route 29.

Three new routes provide service along discontinued branch segments of existing Route 29. The segment of Staples between McArdle and Saratoga will be served by Route 9. The segment of Williams between Staples and Rodd Field will be served by Route 13. Route 14 will provide the connection between Southside Station and Flour Bluff.

Figure 116 Recommended Route 2 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	4:45 a.m. – 11:15 p.m.	30	15	15	15	15	30	5
Saturday	6:00 a.m. – 9:00 p.m.	30		30		30		3
Sunday	8:00 a.m. – 8:00 p.m.	60		60		60		2

Figure 117 Recommended Route 2 Alignment

Route 3 Port

Existing Route 21 Arboleda and 23 Molina are the two of the most productive routes in the CCRTA system. The routes parallel each other, connecting Staples Street Station, Spohn Memorial Hospital, the Port H-E-B, and Port Ayers Station. In addition to serving several of the same destinations, the two routes also duplicate segments with Routes 6, 19, and 37.

Alignment challenges for Route 21 include a mid-route one-way segment along Greenwood and MacArthur, two streets that are separated by approximately 0.25 miles. While Greenwood is a collector street, MacArthur is a narrower neighborhood street. Route 23 has an extension to the Molina neighborhood that results in a mid-route layover at Port Ayers Station.

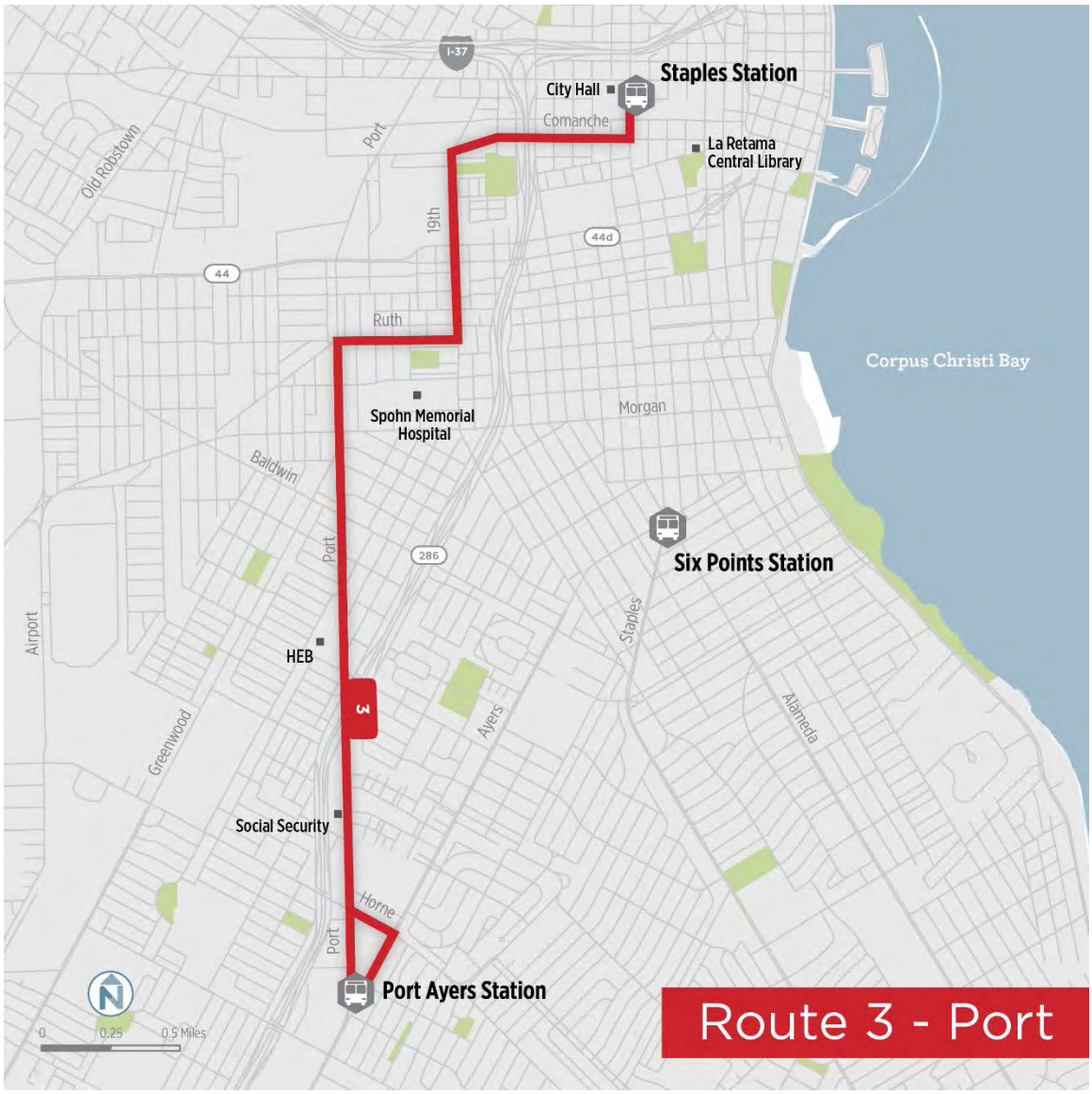
Route 21 and the segment of Route 23 north of Port Ayers Station should be consolidated and replaced by a new Route 3 that operates every 15 minutes on weekdays. Route 3 will use Comanche, 19th, Ruth, and Port to travel between Staples Street Station and Port Ayers. Route 3 will travel within 0.25 miles of Spohn Memorial Hospital. Direct, front-door service to Spohn will be provided by Route 16. Route 3 will provide more frequent and reliable service along some of the highest ridership corridors and neighborhoods in Corpus Christi.

On weekdays and Saturdays, Route 3 will be interlined with a shortened Route 23, which will connect the Molina neighborhood with Port Ayers Station and the Port H-E-B, and with Route 25, which will connect the Greenwood Walmart with Port Ayers Station. Unique route numbers should be used to minimize rider confusion. Route 3 should operate independently on Sunday.

Figure 118 Recommended Route 3 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	5:00 a.m. – 10:00 p.m.	30	15	15	15	15	30	3
Saturday	6:00 a.m. – 9:00 p.m.	30		30		30		2
Sunday	8:00 a.m. – 8:00 p.m.	60		60		60		1

Figure 119 Recommended Route 3 Alignment



Local Routes

Route 5 Alameda

Route 5 is a high ridership route that operates between Six Points Station with TAMUCC. Key destinations along Route 5 include two H-E-B stores and Corpus Christi Medical Center. A high number of boardings also occur at apartments north of Oso Beach Municipal Golf Course. Route 5 operates every 30 minutes on weekdays and every 60 minutes on Saturdays. Route 5 averages 29 boardings per service hour on weekdays which is slightly above the system average of 28.

Route 5 has one trip in the morning and one in the afternoon that extends to NAS-CCAD and downtown Corpus Christi. These trips should be discontinued due to low ridership. Service to NAS-CCAD will be available with a peak hour extension of Route 14 and a Route 51 Gregory/NAS. Route 5 will operate the same alignment on Sundays as on weekdays and Saturdays.

Figure 120 Recommended Route 5 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	5:00 a.m. – 10:00 p.m.	60	30	30	30	30	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 121 Recommended Route 5 Alignment

Route 6 Santa Fe

Route 6 is a local route that operates on weekdays and Saturdays between Staples Street and Southside Stations, mostly along Santa Fe and Airline. Route 6 has a one-way terminal loop on its northern end that circulates through downtown before serving the Staples Street Station. This loop adds travel time for riders traveling to Staples Street Station. Route 6 is less productive than most all-day routes in the CCRTA system in terms of ridership.

In order to reduce duplication of service with other more productive routes and free up resources, Route 6 should be truncated at Six Points Station. Six Points and Staples Street Stations will be connected by Routes 1, 2 and 7. Route 6 will continue to operate Monday-Saturday. Sunday service is not recommended due to low ridership.

Figure 122 Recommended Route 6 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 8:00 p.m.	-	60	60	60	60	-	1
Saturday	8:00 a.m. – 7:00 p.m.	60		60		60		1
Sunday	No Service							

Figure 123 Recommended Route 6 Alignment

Route 7 Saratoga

Route 7 is a new route that replaces the northern portion of Route 17. It will continue to provide a direct connection between Staples Street Station, Six Points Station and Corpus Christi Medical Center. Route 7 will also provide new east/west service on Saratoga, one of the most requested service additions by CCRTA riders. It will also provide direct service to H-E-B Plus and Super Walmart stores along Saratoga.

Unlike Route 17, Route 7 will not serve Brownlee between Laredo and Six Points. A portion of this segment will be served by the new Route 22. Route 7 also shifts off Carroll south of Gollihar to Weber. Development patterns along Weber suggest higher utilization than on Carroll between Gollihar and Tiger.

Route 7 will operate seven days a week, with service every 30 minutes on weekdays and hourly at all other times. The 30-minute weekday service is an improvement over the existing 40-minute service on Route 17. Route 7 has the potential to generate significant ridership due to its crosstown alignment and access to multiple grocery stores.

Figure 124 Recommended Route 7 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	4
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		2
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		2

Figure 125 Recommended Route 7 Alignment

Route 8 Everhart

Route 8 is a new route that improves both coverage and frequency of service to Southside riders. Route 8 replaces existing Southside Mini-B on Everhart between Cedar Pass and Southside Station. Route 8 will be interlined with Route 9 on Yorktown, so that any southbound Route 8 trip will continue as a northbound Route 9 trip and vice versa.

Route 8 will operate seven days a week at a 30-minute frequency on weekdays and hourly at other times. The 30-minute weekday service is an improvement over the existing 60-minute service on Route 32.

Figure 126 Recommended Route 8 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	3
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1.5
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1.5

Figure 127 Recommended Route 8 Alignment

Route 9 South Staples

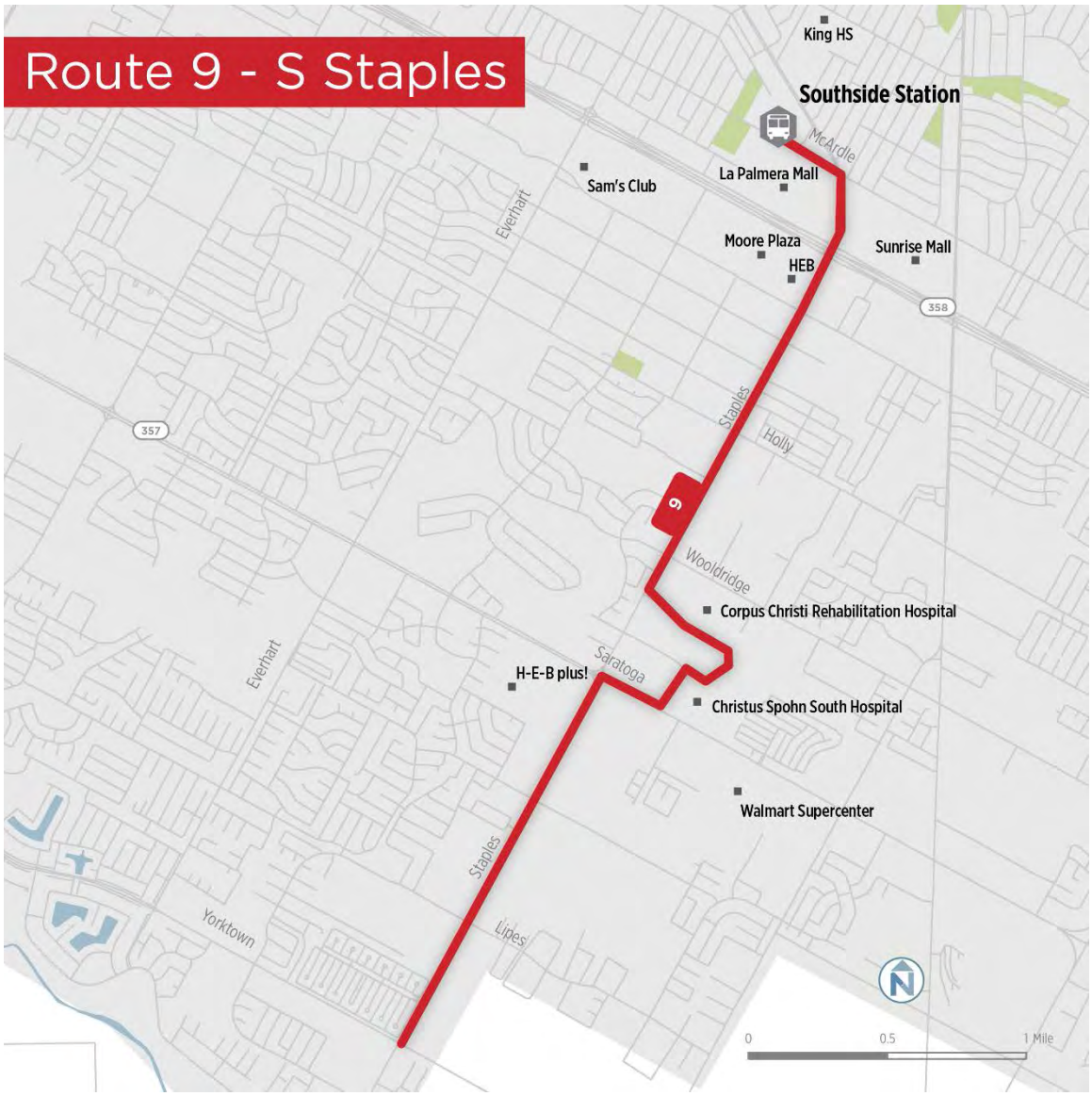
Route 9 replaces existing Route 29S service between Southside Station and Spohn South Hospital. Route 9 also extends service to Yorktown, where it will interline with Route 8.

Route 9 will operate seven days a week at a 30-minute frequency on weekdays and hourly at other times.

Figure 128 Recommended Route 9 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	3
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1.5
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1.5

Figure 129 Recommended Route 9 Alignment



Route 10 Gollihar

Route 10 replaces the segment of existing Route 37 between Port Ayers and Southside Stations. Along with Route 11, Route 10 should be interlined with Route 1, providing a one-seat ride between Ayers, Gollihar and Southside Station. In order to reduce the rider confusion that currently exists due to the Route 19 and 29 trunk/branch systems, Route 10 should have a unique route number.

Figure 130 Recommended Route 10 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	30	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 131 Recommended Route 10 Alignment

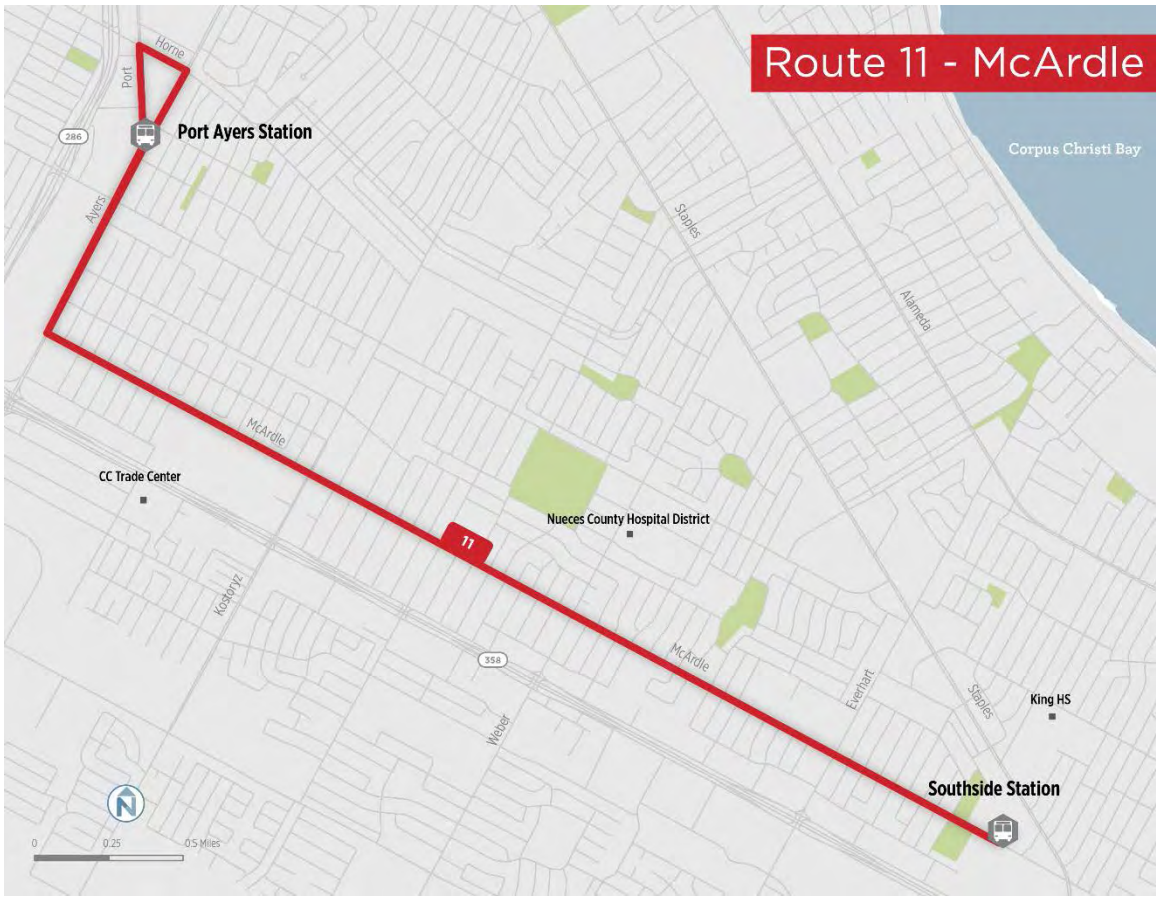
Route 11 McArdle

Route 11 replaces the segment of existing Route 19M branch between Port Ayers and Southside Stations. Along with Route 10, Route 11 should be interlined with Route 1, providing a one-seat ride between the Ayers, McArdle and Southside Station. In order to reduce the rider confusion that currently exists with Route 19 and 29 trunk/branch systems, Route 11 should have a unique route number.

Figure 132 Recommended Route 11 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	30	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 133 Recommended Route 11 Alignment



Route 12 Baldwin

Existing Route 12 is an isolated and circuitous route with the third-highest ridership productivity of all weekday routes. One of the major challenges that Route 12 riders face is indirect travel due to one-way loops, which increases trip travel times. With the exception of Route 27, Staples Street Station serves as the only connection point between Route 12 and other routes.

The western Route 12 loop should be modified to improve mobility for Northside residents. Route 12 should be extended south along Old Robstown Blvd and Baldwin to connect with Westside routes (1, 3, 16, 22, and 30), the Port H-E-B, and Del Mar College. This extension will improve access to jobs, educational opportunities, and shopping for Northside residents, as well as reduce the amount of time it takes for Northside residents to reach regional destinations.

Existing customers on Russell, Baldwin, and Villa would need to walk to either Leopard or Old Robstown Road to continue to access service. Existing customers on Leopard, Omaha, and Up River Road will be served by either existing Route 27 or the new Route 28.

Figure 134 Recommended Route 12 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 135 Recommended Route 12 Alignment

Route 13 Ennis Joslin

Route 13 is a new route intended to reduce route duplication on Ennis Joslin and Williams and provide a more frequent option for TAMUCC students traveling to campus, Moore Plaza and La Palmera Mall. Route 13 replaces existing Route 63 and a segment of Route 37. Route 13 also provides a weeknight and weekend link between TAMUCC and the Momentum Campus when Route 60 Islander Shuttle is not in operation.

Route 13 will operate along Ocean, Ennis Joslin, Rodd Field, Williams, Staples, and McArdle. The Momentum Campus will be served directly only when Route 60 is not in operation. Route 13 will not serve the Aspen apartments directly. Residents would have a ¼ mile walk to stops on the SPID frontage, but would have more frequent service on weekends and Sunday service.

Figure 136 Recommended Route 13 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	7:00 a.m. – 11:00 p.m.	-	30	30	30	60	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 137 Recommended Route 13 Alignment

Route 14 Flour Bluff

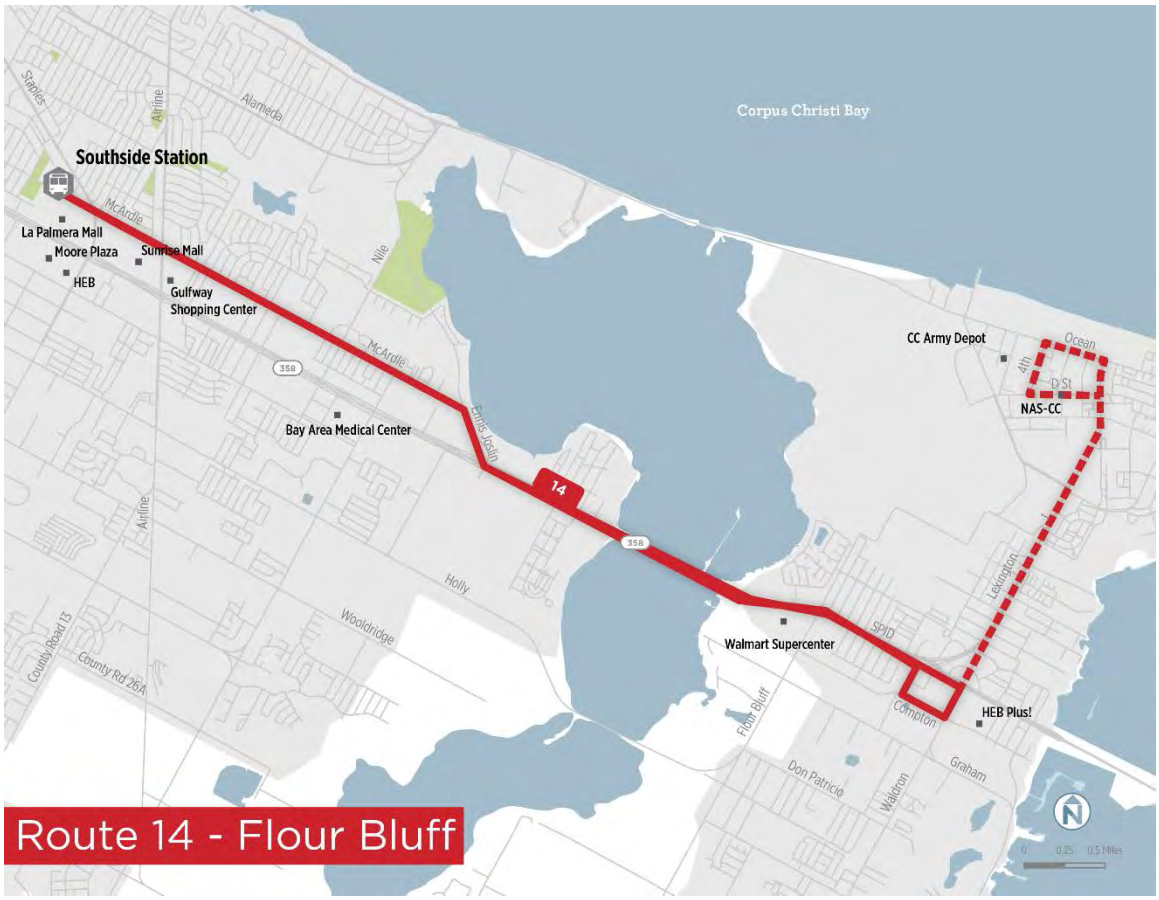
Route 14 replaces existing Route 37 service on McArdle between Southside Station and Ennis Joslin, and also replaces Route 29F service to Flour Bluff. The routing is more direct than the existing Route 29F, resulting in reduced travel times between Flour Bluff and Southside Station. While separating Route 14 from the Staples route will result in more transfers, on-time performance will be improved, which will improve connections at both Southside Station as well as in Flour Bluff.

During the morning and afternoon peaks, Route 14 should be extended to serve NAS-CCAD directly. This extension will replace both Route 3 and Route 5 service into NAS CCAD. Route 14 will operate seven days a week at a 30 minute frequency on weekdays and hourly at other times.

Figure 138 Recommended Route 14 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	3
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 139 Recommended Route 14 Alignment



Route 15 Kostoryz

Route 15 connects Port Ayers Station with the Kostoryz corridor. The primary destination on the route is the H-E-B at the corner of Kostoryz and Gollihar. One of the challenges of the existing alignment is the large terminal loop north of Holly at its southern end.

Route 15 should be extended from to the Greenwood Walmart via Holly, Ayers, Saratoga, and Greenwood to provide a major destination at the end of the route. Route 15 will replace the existing Route 19G service to the Greenwood Walmart. Span and frequency of Route 15 will remain similar to existing service levels.

Figure 140 Recommended Route 15 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:45 p.m.	-	30	30	30	60	60	3
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		3
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		2

Figure 141 Recommended Route 15 Alignment

Route 16 Morgan

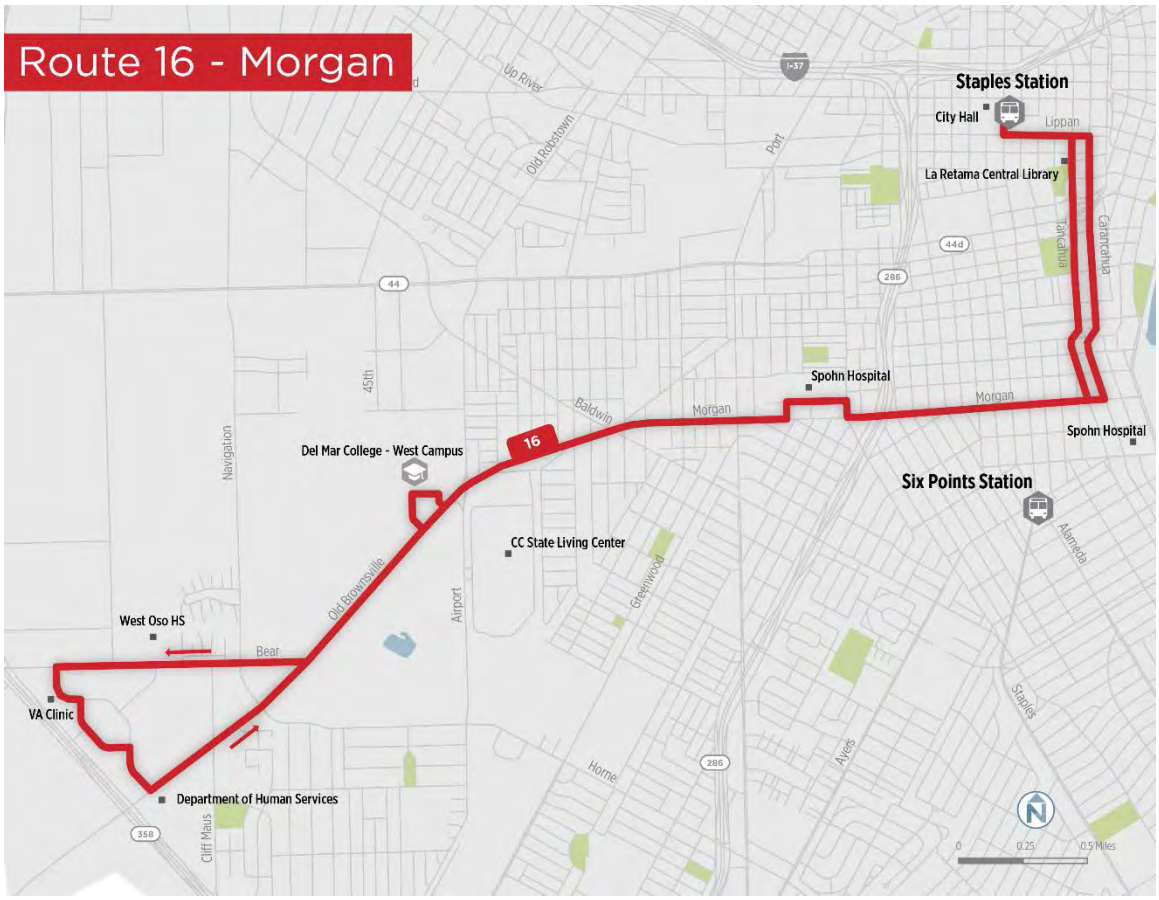
Route 16 currently provides a connection between downtown, Spohn Hospital, Del Mar College West Campus, the VA Clinic, and the Department of Human Services. The route has a long terminal loop, inconsistent routing in each direction and multiple segments operating along narrow neighborhood streets. The route also has several difficult turning movements. Accordingly, Route 16 is slow and has below average on-time performance.

Route 16 should be streamlined to be easier to understand and more direct. The alignment from Staples Street Station uses the following streets: Lipan, Carancahua/Tanacahua, Morgan, Old Brownsville, and a loop around Bear Lane and Enterprize Parkway back to Old Brownsville. Route 16 will serve both Spohn Hospital facilities on Morgan. Service to the CCRTA operations facility will be removed as customer service has relocated to Staples Street Station. The span and frequency of Route 16 will be similar to its current levels. Sunday service will be added.

Figure 142 Recommended Route 16 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 143 Recommended Route 16 Alignment



Route 17 Holly

The new Route 7 Saratoga will replace the northern half of existing Route 17. As a result, Route 17 should be extended to Port Ayers Station to provide access to commercial and residential destinations just south of SPID. Route 17 will also replace segments of existing Routes 15 and 19.

Route 17 will operate between Port Ayers and Southside Stations along Ayers, Sacky, Kostoryz, Holly, Weber, Tiger, Corona, Everhart, and McArdle. Route 17 will not serve Williams between Everhart and Staples to avoid the traffic congestions at the intersection of Staples and SPID. Route 17 will operate seven days a week, with service every 30-minutes during weekdays and hourly at all other times.

Figure 144 Recommended Route 17 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	60	60	2
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 145 Recommended Route 17 Alignment

Route 18 Airline

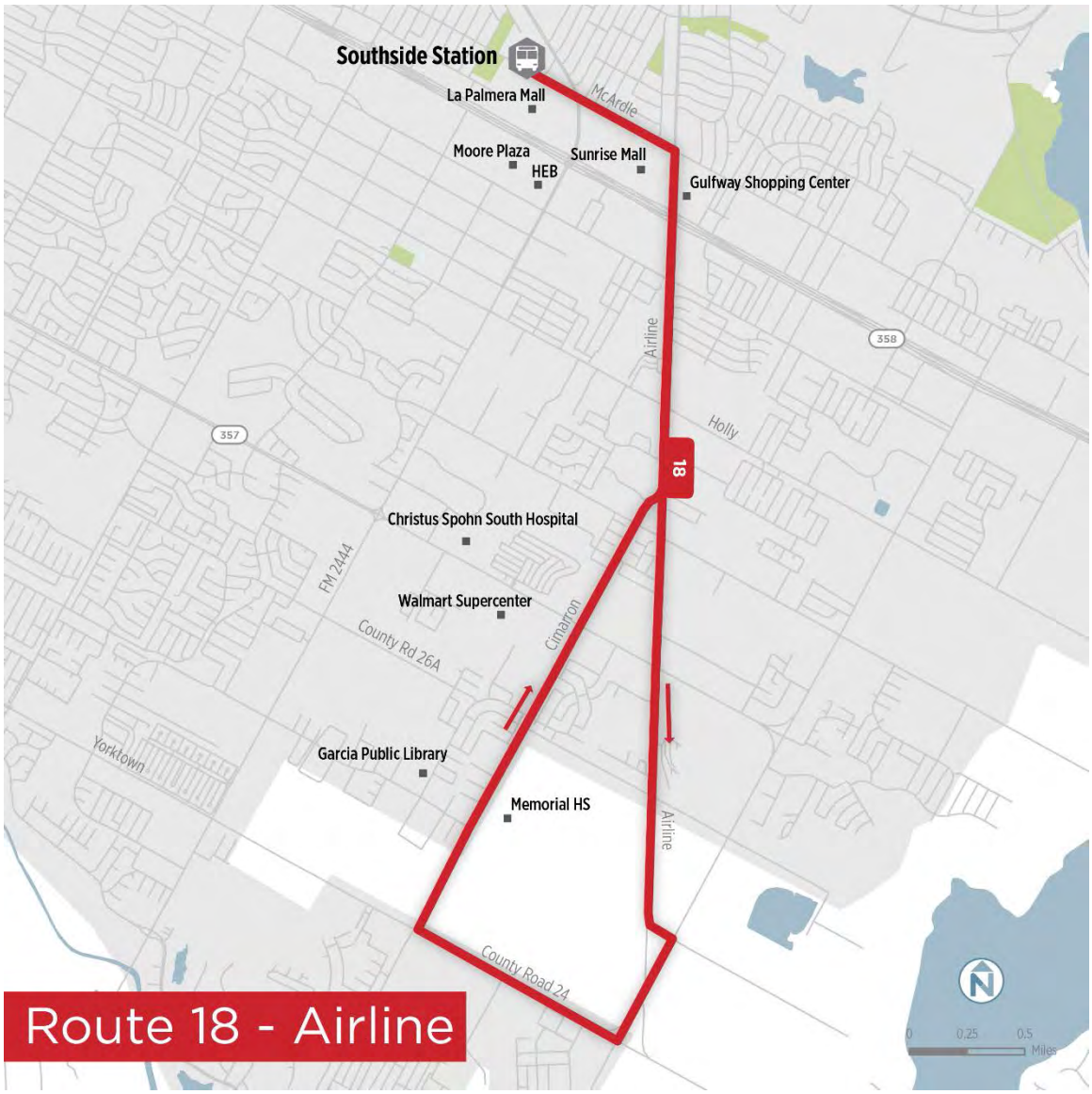
Existing Route 26 connects Southside Station and Spohn South Hospital with a hook-shaped route. Ridership is concentrated on Airline and Cimarron, with minimal ridership along Lipes.

Route 26 should be rebranded as Route 18 and be restructured to position CCRTA to provide service to the newly developing areas of the Southside, including Memorial High School and the proposed Del Mar College Southside campus at Rodd Field and Yorktown. The route will use McArdle, Airline, Rodd Field, Yorktown, Cimarron, and then return to Southside Station via Airline and McArdle. Route 18 will operate weekdays and Saturdays at a 60 minute frequency. Route 18 should be interlined with Route 6 Santa Fe.

Figure 146 Recommended Route 18 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 8:00 p.m.	-	60	60	60	60	-	1
Saturday	8:00 a.m. – 7:00 p.m.	60		60		60		1
Sunday	No Service							

Figure 147 Recommended Route 18 Alignment



Route 22 Brownlee

The consolidation of Routes 21 and 23 into Route 3 and realignment of Route 16 will result in frequent and direct service on the highest ridership corridors on the Westside. Westside route changes will also result in the removal of service from Laredo/Agnes, Brownlee, and segments of Greenwood. While these segments do not have high ridership, the walking distance to other routes may be beyond the abilities of many existing riders.

A new Route 22 will provide access to residents along Brownlee, Greenwood and Horne. The route will operate connect Staples Street and Port Ayers Stations, operating along Staples, Laredo/Agnes, Brownlee, Morgan, Port, Tarlton, Greenwood, Horne, and Port. Spohn Memorial Hospital and the Port H-E-B will be served by Route 22, which will operate hourly seven days a week.

Figure 148 Recommended Route 22 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:00 p.m.	-	60	60	60	60	60	1
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		1
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		1

Figure 149 Recommended Route 22 Alignment

Route 23 Molina

Route 23 is one of the most productive routes in the CCRTA system. Route 23 connects Staples Street Station, Spohn Memorial Hospital, the Port H-E-B, Port Ayers Station, and the Molina neighborhood. Route 23 also duplicates many segments also served by Route 21 and 37.

In order to create more frequent service along a consistent corridor, which will also attract more riders, the majority of Route 23 should be consolidated with the proposed Route 3. The segment of Route 23 south of Port Ayers Station will continue to serve Gollihar and the Molina neighborhood. Route 23 should be interlined with Route 3 to maintain the one-seat ride to H-E-B and Staples Street Station.

Figure 150 Recommended Route 23 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	30	60	1
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		0.5
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		0.5

Figure 151 Recommended Route 23 Alignment

Route 25 Greenwood

Route 25 is a feeder route operating on weekdays and Saturdays. The primary transfer point of the route is Port Ayers Station, which serves as its northern terminal point. The route also travels along Gollihar and Greenwood, with a deviation to Moody High School, and terminates at the Walmart at Greenwood and SPID.

Route 25 should be modified slightly to streamline the route. The Trojan/Prescott loop should be removed to allow for a more direct connection to the Greenwood Walmart and ensure that its running time is similar to Route 23.

Route 25 should be interlined with Route 3 at Port Ayers Station to provide a one-seat ride from the Ayers corridor to the Greenwood Walmart.

Figure 152 Recommended Route 25 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 10:00 p.m.	-	30	30	30	30	60	1
Saturday	7:00 a.m. – 9:00 p.m.	60		60		60		0.5
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		0.5

Figure 153 Recommended Route 25 Alignment

Route 27 Annaville

As the longest local route in the CCRTA system, Route 27 traverses a variety of land uses and operates at a range of speeds. The route can be characterized as three distinct segments. The highest ridership and most transit supportive land-use segments are between Staples Street Station and Up River Road. The middle segment of Route 27 adequately serves the Annaville and Calallen areas. The western segment of the route includes high ridership at Five Points in Calallen and Robstown Station. The route travels along US 77 between these locations.

Route 27 should be modified to serve additional commercial development along FM 624 (Northwest Blvd.). The route should use FM 1899, and 1st Avenue to access Robstown Station rather than US 77. Service span and headways will remain similar to the current schedule.

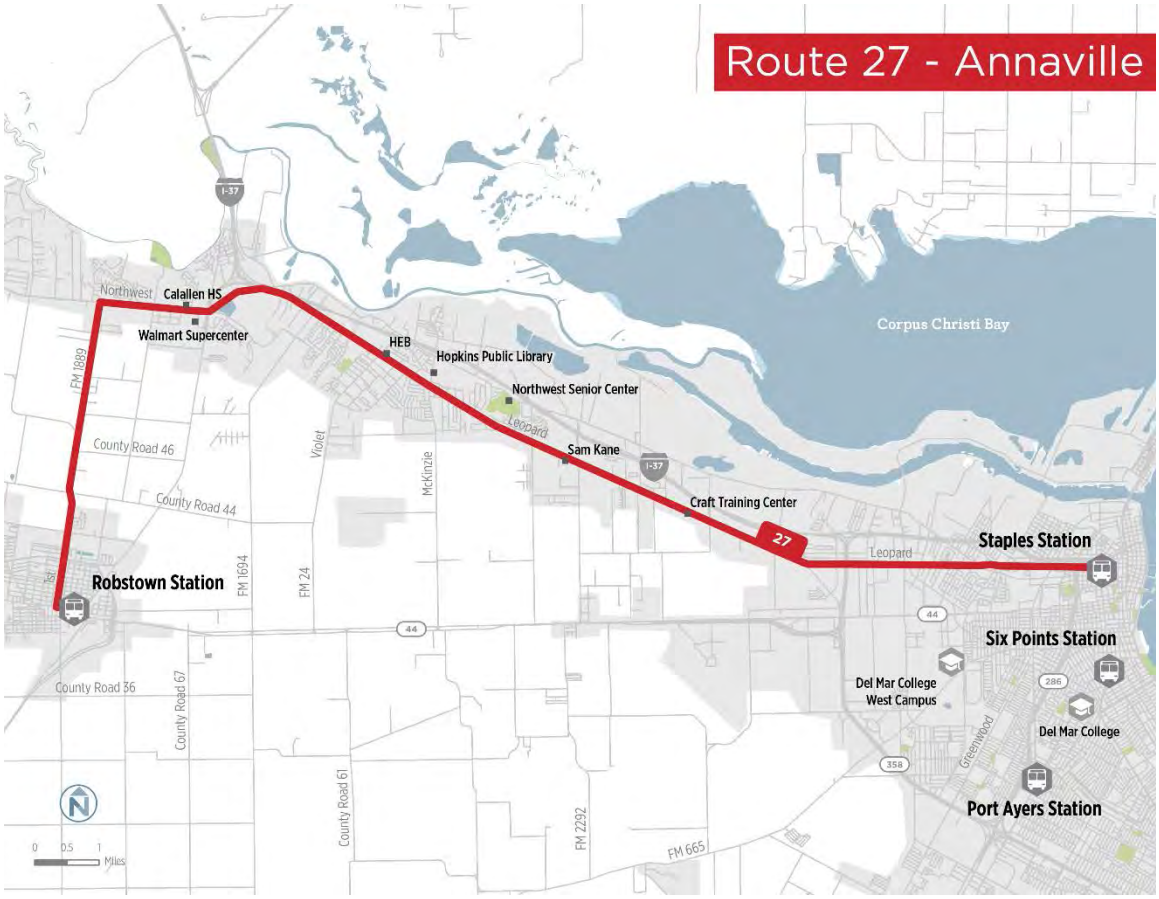
Currently, there are two Route 27 Express trips. These trips will be renamed Route 52 Robstown/Calallen/Downtown Express to provide a clearer definition of fares.

In order to address overcrowding and the need for additional service, a new Route 28 is recommended, which will result service every 15-minute frequency between Up River Road and Staples Street Station.

Figure 154 Recommended Route 27 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	5:00 a.m. – 11:00 p.m.	60	30	30	30	60	60	5
Saturday	6:00 a.m. – 9:00 p.m.	60		60		60		3
Sunday	8:00 a.m. – 7:00 p.m.	60		60		60		3

Figure 155 Recommended Route 27 Alignment



Route 28 Leopard

Route 27 has high ridership activity along Leopard between Navigation and Staples Street Station. Passenger loads and socio-economic characteristics along this segment indicate a demand for higher levels of service.

As a result, a new Route 28 is recommended to supplement Route 27 service between Staples Street Station and Omaha. Route 28 will use Omaha and Up River Road to turn around and return to Leopard. On weekdays, Route 28 will operate every 30 minutes. The schedule will be offset from the Route 27 schedule, to create combined 15-minute service along Leopard between Up River Road and Staples Street Station. Route 28 should operate every 60 minutes on Saturdays, creating effective 30-minute frequencies on the busiest segments of Route 27. On Saturdays, Route 28 will be interlined with Route 76. Route 28 not operate on Sundays.

Figure 156 Recommended Route 28 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	8:00 a.m. – 8:00 p.m.	-	30	30	30	30	-	1
Saturday	8:00 a.m. – 6:00 p.m.	-	60	60	60	-	-	0.5
Sunday	No service							

Figure 157 Recommended Route 28 Alignment

Circulator, Feeder and Shuttle Routes

Route 30 Ruth

Route 30 is a new service route designed to provide access for seniors and transit-dependent residents to medical destinations, grocery stores, and other services. Route 30 will operate a one-way loop starting at the Port H-E-B, and serving Tarlton, Greenwood, Baldwin, Hiawatha, Huron, Ruth, Duncan, Mary, 19th, Hospital, Morgan, and Port. Service will be operated by a smaller cutaway vehicle due to the narrow residential streets. Service will only operate on Monday, Wednesday and Friday between 8 a.m. and 5 p.m.

Figure 158 Recommended Route 30 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Mon/Wed/Fri	8:00 a.m. – 5:00 p.m.	-	30	30	30	-	-	1
Tue/Thu	No service							
Saturday	No service							
Sunday	No service							

Figure 159 Recommended Route 30 Alignment

Route 33 Waldron

The existing Route 4 is a circulator route providing service to Flour Bluff. Ridership is the lowest of all non-Express routes. There are several route design features that reduce ridership potential on Route 4. While there are segments with bi-directional service, Route 4 is scheduled to operate as a one-way loop, with a timed connection at the transfer stop once an hour. When two buses are operated on the route, they are not scheduled 30 minutes apart, but every 25 or 35 minutes apart. In addition, one of the highest ridership stops on Route 4, H-E-B Plus, only has service on select trips.

Route 4 should be rebranded as Route 33 and restructured to better provide service to Flour Bluff residents. Route 33 should continue to provide bi-directional service along most Waldron. The transfer point at Compton and Waldron, H-E-B Plus, and Walmart should be served in sequential order on each trip. Timed connections with Route 14 should occur at Compton and Waldron every 30 minutes on weekdays. This timed transfer will reduce both in-vehicle and transfer waiting times and improve connectivity between Flour Bluff and the rest of the CCRTA system. The round trip travel time for the route is 60 minutes. Route 33 should operate every 30 minutes on weekdays and hourly at all other times, seven days a week.

Figure 160 Recommended Route 33 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:00 p.m.	-	60	30	30	60	60	2
Saturday	8:00 a.m. – 8:00 p.m.	60		60		60		1
Sunday	9:00 a.m. – 6:00 p.m.	60		60		60		1

Figure 161 Recommended Route 33 Alignment

Route 34 Robstown North

Route 34 is a circuitous route that connects residential areas to the downtown commercial core, H-E-B, and Route 27. Route 34 is an hourly one-way loop, which means that any rider has significant out-of-direction travel time in one direction. Route 34 should be broken into two different loops that cover much of the same area.

Route 34 will cover the northern portions of Robstown, while Route 35 will over the southern portions of Robstown, including the new outlet mall. Routes 34 and 35 each will require 30 minutes round trip, so that connections with each Route 27 trip will be possible. In-vehicle travel time for all passengers will decrease by almost 30 minutes per day for most passengers. Routes 34 and 35 should operate every 30 minutes during weekday midday and hourly all other times.

Figure 162 Recommended Route 34 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:00 p.m.	-	60	30	30	60	60	1
Saturday	8:00 a.m. – 8:00 p.m.	60		60		60		0.5
Sunday	9:00 a.m. – 6:00 p.m.	60		60		60		0.5

Figure 163 Recommended Route 34 Alignment

Route 35 Robstown South

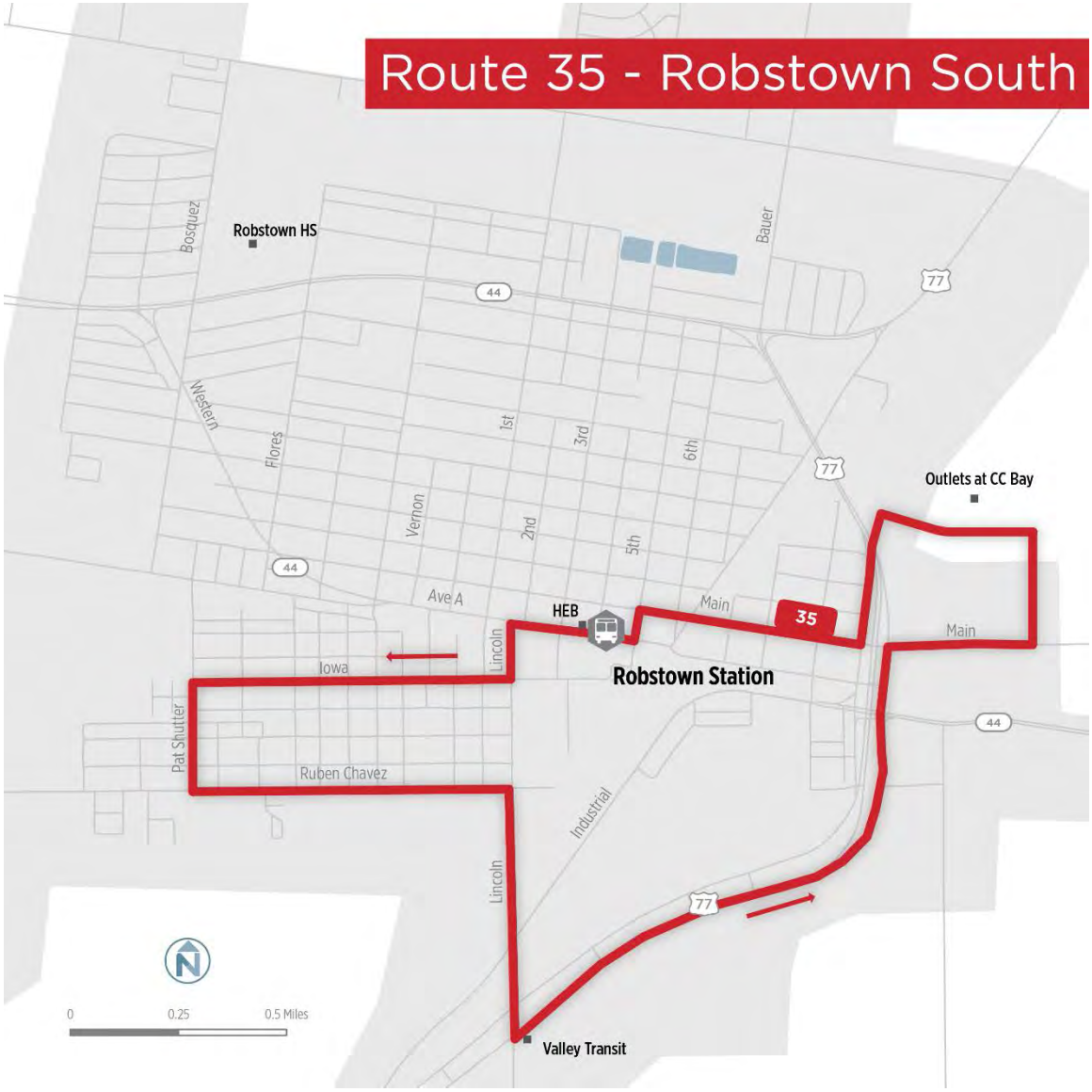
Route 34 is a circuitous route that connects residential areas to the downtown commercial core, H-E-B, and Route 27. Route 34 is an hourly one-way loop, which means that any rider has significant out-of-direction travel time in one direction.

Route 34 should be broken into two different loops that cover much of the same area. Route 34 will cover the northern portions of Robstown, while Route 35 will over the southern portions of Robstown, including the new outlet mall. Routes 34 and 35 each will require 30 minutes round trip, so that connections with each Route 27 trip will be possible. In-vehicle travel time for all passengers will decrease by almost 30 minutes per day for most passengers. Routes 34 and 35 should operate every 30 minutes during weekday midday and hourly all other times.

Figure 164 Recommended Route 35 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:00 p.m.	-	60	30	30	60	60	1
Saturday	8:00 a.m. – 8:00 p.m.	60		60		60		0.5
Sunday	9:00 a.m. – 6:00 p.m.	60		60		60		0.5

Figure 165 Recommended Route 35 Alignment



Route 60 Islander Shuttle

Route 60 is a shuttle route connecting the Ennis Joslin corridor, which has a high Texas A&M University-Corpus Christi student population. The route stops in front of major student housing complexes as well as the Momentum Campus Park-and-Ride. Route 60 averages 40.8 boardings per service hour, which is the highest of all weekday routes.

No routing changes are recommended for Route 60. Frequent, 10-minute service should continue for one additional hour until 2 p.m.

Figure 166 Recommended Route 60 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	7:00 a.m. – 6:00 p.m.	-	20	10/20	10	-	-	2
Saturday	No service							
Sunday	No service							

Figure 167 Recommended Route 60 Alignment

Route 76 Water Street

Existing Route 76 is a shuttle route operating between North Beach and Staples Street Station on weekdays and Saturdays with stops at Greyhound Station, the Texas State Aquarium, USS Lexington Museum, and Museum of Science and History. The route accesses the Harbor Bridge to cross the Corpus Christi Ship Channel. The alignment is very similar to existing Route 78.

Route 76 should be restructured to provide a bi-directional, easy to understand route connecting Staples Street Station with downtown and the SEA District. The restructured Route 76 will replace Route 29 and 78 service into downtown. Service will operate on Leopard, Antelope/Schatzel, Water, and Chaparral, and operate every 30 minutes during midday and evening periods and hourly at other times. Route 76 will operate seven days a week. On weekdays and Sundays, Route 76 will be interlined with the restructured Route 78, so that a one-seat ride from the Sea District and downtown hotels would still be possible to North Beach. CCRTA should consider running trolley-style vehicles on this route. On Saturdays, the second Route 76 bus will be interlined with Route 28 and Route 78 on alternating trips.

Figure 168 Recommended Route 76 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:00 p.m.	-	60	30	30	60	60	1
Saturday	8:00 a.m. – 8:00 p.m.	30		30		60		1.5
Sunday	9:00 a.m. – 7:00 p.m.	60		60		60		0.5

Figure 169 Recommended Route 76 Alignment

Route 78 North Beach

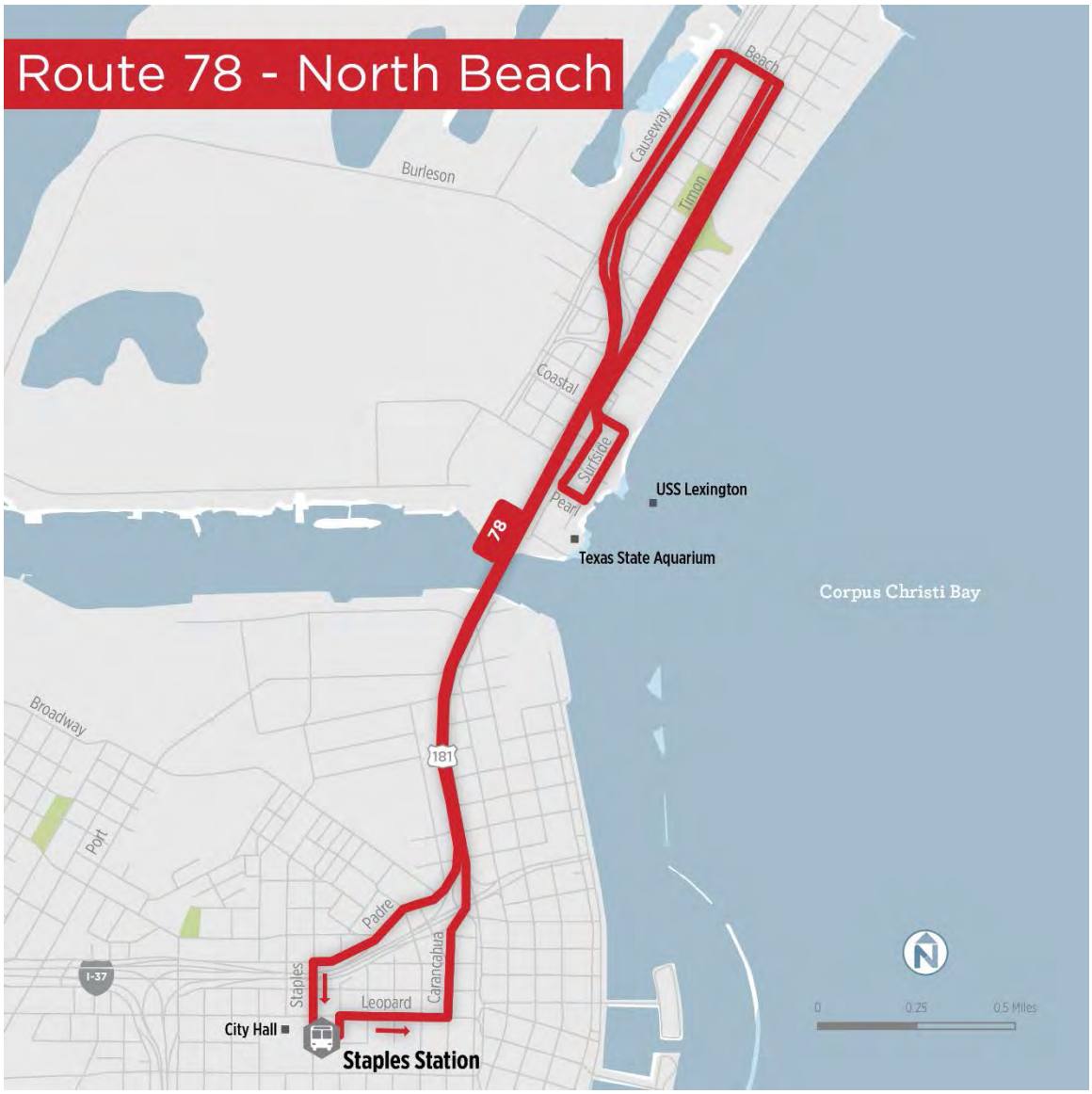
Route 78 is a shuttle route operating between North Beach and Staples Street Station on weekdays and Saturdays with stops at Greyhound Station, the Texas State Aquarium, USS Lexington Museum, and Museum of Science and History. The route accesses the Harbor Bridge to cross the Corpus Christi Ship Channel. The alignment is very similar to Route 76, which also serves portions of Shoreline and Ocean.

In conjunction with the Route 76 recommendations, Route 78 should be streamlined and straightened to provide a more direct, more understandable route between North Beach and Staples Street Station. The existing Route 76 service to North Beach will be consolidated with Route 78 to provide a consistent alignment. Route 78 will operate every 30 minutes during weekday midday and evening periods and hourly at other times. Route 78 will operate seven days a week. Route 78 will be interlined with the restructured Route 76, so that a one-seat ride from the Sea District and downtown hotels would still be possible to North Beach. CCRTA should consider running trolley-style vehicles on this route.

Figure 170 Recommended Route 78 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	6:00 a.m. – 9:00 p.m.	-	60	30	30	60	60	1
Saturday	8:00 a.m. – 8:00 p.m.	60		60		60		1
Sunday	9:00 a.m. – 7:00 p.m.	60		60		60		0.5

Figure 171 Recommended Route 78 Alignment



Express Routes

An expanded express route network is recommended to improve regional mobility. NAS-CCAD and downtown Corpus Christi (Staples Street Station) are the focal points of the regional express network. Routes 50 and 51 will continue to serve NAS-CCAD. Route 53 will be consolidated with Route 50. Routes 52, 54, and 56 are new routes connecting Robstown, Gregory and Flour Bluff with Staples Street Station. Route 65 is an all-day route linking Southside Station, Flour Bluff, Padre Island and Port Aransas. Detailed recommendations are described below.

Route 50 Calallen/NAS Express

Route 50 currently operates one trip from Calallen to NAS-CCAD in the morning and one in the afternoon. Approximately 10 passengers use Route 50 in each direction. Arrival times for Route 50 are approximately the same as Route 53, which also operates one trip from Robstown to NAS-CCAD in the morning and one in the afternoon. Route 52 also stops at the Greenwood Walmart. A total of 9 passengers use Route 53 in each direction.

Routes 50 and 53 should be consolidated. The consolidated Route 50 will be begin at the Robstown Transit Center, continue to the Calallen park-and-ride, and then continue to the NAS-CCAD. Travel times between Robstown and the NAS will not be appreciably longer than today, as the Greenwood Walmart stop would no longer be made.

Figure 172 Recommended Route 50 Service Levels

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	1	1	1

Route 51 Gregory/NAS Express

Route 51 is an express route connecting the Gregory Park-and-Ride with Naval Air Station-Corpus Christi (NAS-CC) on weekdays. The morning trip departs Gregory at 5:00 a.m. and the afternoon trip departs NAS-CC at 2:40 p.m. One minor change to Route 51 should be made. Route 51 should stop at Staples Street Station in both the in- and outbound direction to provide connectivity options to downtown Corpus Christi and options for nearby residents to access the NAS-CC. It will accommodate Route 5 passengers who currently travel to/from NAS-CC.

Figure 173 Recommended Route 51 Service Levels

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	1	1	1

Route 52 Robstown/Downtown Express

Route 52 is a new route replacing the existing Route 27 Express trips between Robstown and Staples Streets Stations. Morning trips will depart Robstown Station at 5:15 a.m. and 6:20 a.m. Afternoon trips will depart Staples Street Station at 4:30 p.m. and 5:30 p.m.

Recommended Route 52 Service Levels

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	2	2	2

Route 54 Gregory/Downtown Express

Route 54 is a new route connecting Gregory Park & Ride with Staples Street Station with one trip during each peak period. Morning trips should depart Gregory park-and-ride at 7:00 a.m. Afternoon trips should depart Staples Street Station at 5:00 p.m.

Recommended Route 52 Service Levels

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	1	1	1

Route 56 Flour Bluff/Downtown Express

Route 56 is a new route connecting Flour Bluff (Compton and Waldron) with Staples Street Station with one trip during each peak period. Morning trips should depart Compton and Waldron at 7:00 a.m. Afternoon trips should depart Staples Street Station at 5:00 p.m.

Recommended Route 51 Service Levels

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	1	1	1

Route 65 Padre Island/Port Aransas Express

Route 65 provides 3 morning and three afternoon bi-directional trips between Southside Station and Port Aransas. Route 65 does not travel far into Port Aransas, partially due to narrow streets. However, this limits the destinations that Route 65 passengers can access in Port Aransas.

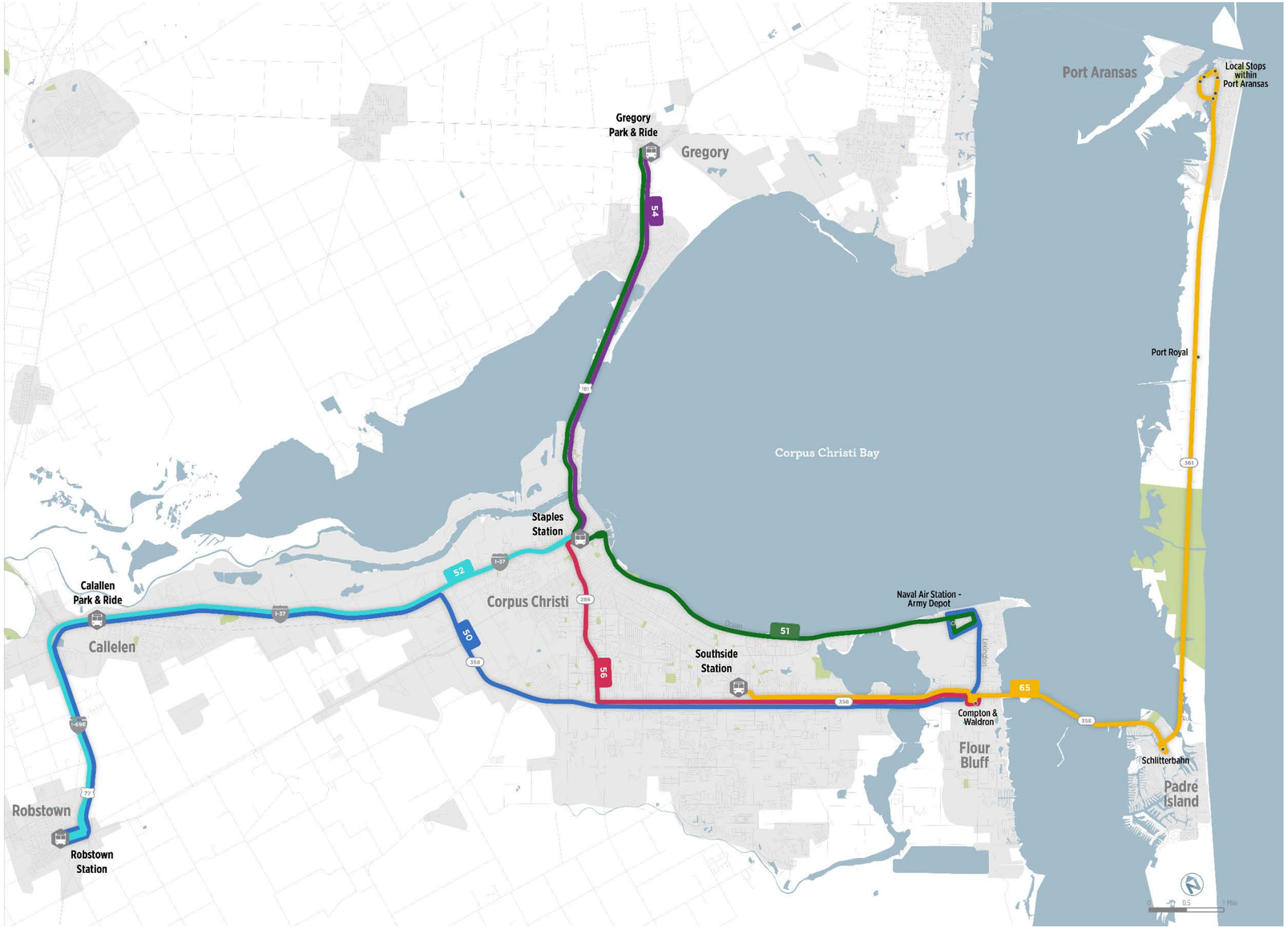
Route 65 should be restructured to provide all-day service between Southside Station, Padre Island, and Port Aransas. Stops will include Southside Station, Compton and Waldron in Flour Bluff, Schlitterbahn in Padre Island, Port Royal and local stops in Port Aransas. Service will operate hourly on weekdays and every two hours on Saturdays and Sundays.

Figure 174 Recommended Route 65 Service Levels

Service Level	Span	Headway						Peak Vehicles
		Early AM	AM Peak	Midday	PM Peak	Evening	Night	
Weekday	7:00 a.m. – 7:00 p.m.	-	60	60	60	120	-	2

Weekends	8:00 a.m. – 6:00 p.m.	120	120	120	1

Figure 175 Express Route Network



Special Routes

Route 55 TPCO Shuttle

Route 55 is a specialized express route connecting Portland with TPCO America (Tianjin Pipe Company) on weekdays and every other Sunday. On weekdays, the route picks up passengers at apartment complexes Portland beginning at 7:30 a.m. and returns from TPCO at 5:10 p.m. On Sunday, the route transports the same riders to Sam's Club and Southside Station in Corpus Christi. No changes are recommended.

Recommended Route 55 Service Levels

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	1	1	1

Route 81 Padre Island Beach Bus

In an effort to attract new riders, a new seasonal beach shuttle connecting Southside Station and Flour Bluff (Compton and Waldron) with Schlitterbahn and Padre Balli Park/Bob Hall Pier should be offered. The route should operate on Friday, Saturday and Sunday from Memorial Day weekend to Labor Day. CCRTA should consider negotiating with La Palmera or Sunrise Mall to provide additional parking for customers.

Figure 176 Recommended Route 81 Service Levels

Service Level	Span	Headways		Peak Vehicles
		9:00 a.m. – 2:00 p.m.	2:00 p.m. – 7:00 p.m.	
Friday, Saturday and Sunday during Summer	9:00 a.m. – 7:00 p.m.	60	30	4

Route 83 Advanced Industries

Route 83 is an express route that operates one trip during each peak period between Six Points Station and Naval Air Station-Corpus Christi. No changes are recommended.

Service Level	Trips		Peak Vehicles
	Morning	Afternoon	
Weekday	1	1	1

Route 84 Lighthouse

Route 84 is an express route that operates one trip during the morning peak period between Staples Street Station and Lighthouse for the Blind on 45h Street. No changes are recommended.

	Trips	

	Morning	Afternoon	
Weekday	1	1	1

Route 94 Port Aransas Shuttle

Due to low ridership during off-peak months, the Port Aransas Shuttle should operate daily from Memorial Day weekend to Labor Day. To minimize traffic delays, deviations to the Ferry Landing/Roberts Point Park, the University of Texas Marine Science Institute, Ross Ave, and Piper Blvd should be discontinued. The streamlined alignment should maintain consist of Northbound 11th Street, westbound Avenue G, northbound Cutoff Lane, eastbound Cotter, southbound Allister, deviation to Port Aransas Beach Park/Horace Caldwell Pier using Beach Street, southbound Allister to Piper Blvd, eastbound Access Road 1-A, back to 11th Street.

Recommended Route 94 Service Levels

Service Level	Span	Headway	Peak Vehicles
Daily during Summer	7:00 a.m. – 7:00 p.m.	40	1

Discontinued Routes

A list of discontinued routes is provided in Figure 177. A detailed explanation for each recommended route discontinuation is also provided in this section.

Figure 177 Discontinued Routes

Route	Action / Description
Weekday / Saturday Routes	
3 NAS Shuttle	NAS segment replaced by peak hour extension of Route 14
4 Flour Bluff	Replaced with Route 33
19 Ayers	Replaced with Route 1, 11 and 15
21 Arboleda	Replaced with Route 3 and 22
26 Airline/Lipes Connector	Replaced by Route 9 and 18
29 Staples	Replaced with Routes 2, 9 and 13
32 Southside Mini-B	Replaced with Routes 7, 8 and 10
37 Crosstown	Replaced with Routes 3, 10, 14 and 30
53 Robstown/NAS Express	Consolidated with Route 50
63 The Wave	Replaced with Route 13
67 Robstown/Gregory	Discontinued due to low ridership; replaced with Route 54
90 Port Aransas Flexi-B	Discontinued due to low ridership
94 Port Aransas	Discontinued during non-summer times. Service remains during the summer.
Sunday Routes	
5s Alameda/Malls	Replaced with Routes 5 and 6
8s Flour Bluff / Malls	Replaced with Routes 14 and 33
12s Hillcrest / Saxet / Oak Park	Replaced with Route 12
15s Ayers / Molina	Replaced with Routes 1 and 23
21s Arboleda	Replaced with Routes 3 and 30
24s Los Encinos / Kostoryz	Replaced with Routes 15 and 25
27s Northwest	Replaced with Routes 27 and 28
29s Staples	Replaced with Routes 2 and 9
32s Southside / Malls	Replaced with Routes 7, 8 and 11
37s Westside / Gollihar	Replaced with Routes 3, 10 and 30
63s The Wave	Replaced with Route 13
66s TAMU-CC Connection	Replaced with Routes 13 and 14
76s Harbor Bridge Shuttle	Replaced with Route 76

Route 3 NAS Shuttle

Existing Route 3 is a route connecting Flour Bluff with NAS-CCAD and TAMUCC. With the exception of some peak hour trips, ridership on Route 3 are uniformly low. Route 3 is one of the lowest-ridership routes operated by CCRTA. One of the challenges of Route 3 is that NAS-CCAD regulations prohibit customers from riding through the base. Due to low ridership, Route 3 should be discontinued. A peak hour connection between Southside Station, Flour Bluff, and NAS CCAD will continue to be provided by Route 14.

Route 4 Flour Bluff

Route 4 should be rebranded as Route 33 (circulator routes numbered as 30-39) and restructured to better provide service to Flour Bluff residents.

Route 19 Ayers

Route 19 is one of the higher ridership routes in the CCRTA system. South of Port Ayers Station, Route 19 splits into two branches (Greenwood and McArdle). The McArdle branch has a longer running time, which results in imbalanced layover times at the outer route terminus. Layover at Southside Station is 10 minutes while layover at the Greenwood Walmart is 2 minutes. On-time performance and imbalanced route spacing in the inbound direction are one of results of the unbalanced times. Route 19 should be rebranded as Route 1. Equally long branches should be created with different route numbers.

Route 26 Airline/Lipes Connector

Route 26 connects Southside Station and Spohn South with a hook shaped route. Ridership is concentrated on Airline and Cimarron, with comparatively little ridership on Lipes and at Spohn South. Route 26 should be rebranded as Route 18 and operate along McArdle, Airline, Rodd Field Road, Yorktown, Cimarron, and then return to Southside Station via Airline and McArdle. Route 18 would operate seven days a week at a 60 minute frequency.

Route 29 Staples

Route 29 is one of the highest ridership routes in the CCRTA system. Route 29, however, has scheduling and routing challenges that create operational issues such as on-time performance and crowding. Route 29 has two uneven branches (South Staples and Flour Bluff). The branches have different lengths, and accordingly, the running times are different. This results in Route 29 having buses spaced every 15 minutes in the outbound direction between Staples and Southside Stations, but having buses spaced every 10 or 20 minutes apart in the inbound direction. This uneven spacing results in overcrowding and late running on the bus that comes 20 minutes after the previous bus and underutilization for the bus that comes 10 minutes after the previous bus.

Route 29 should be rebranded as Route 2 and truncated so that it will operate only between Staples and Southside Station. This will ensure that a steady and reliable 15-minute frequency can be maintained, which will better serve the majority of existing and potential customers. Route 29 would operate seven days a week with span and frequency be similar to existing Route 29. A new Route 14 would serve Flour Bluff, Route 13 would serve the segment of Williams east of Southside Station, and a new Route 9 would serve Spohn South.

Route 32 Southside Mini-B

The Southside Mini-B connects Port Ayers and Southside Station via a circuitous alignment in the Southside. The Southside Mini-B duplicates the existing Route 37 on Gollihar, but overall, productivity of the Southside Mini-B suggests that higher service levels could be supported on Weber and Everhart. The Southside Mini-B should be replaced by several new routes that improve weekday frequency from 60 minute service to 30 minute service, including:

- The segments would be served by the new Route 10, which would operate every 30 minutes on weekdays.
- The segments on Weber between Gollihar and Saratoga would be served by the new Route 7, which would operate every 30 minutes on weekdays.
- The segment on Everhart between Cedar Pass and Southside Station would be served by a new Route 8, which would operate every 30 minutes on weekdays.

Route 37 Gollihar

Route 37 is a crosstown route connecting the Eastside with Southside Station and TAMUCC. The highest ridership segment is between Southside Station and TAMUCC. The segments between Port Ayers and Baldwin duplicate Routes 21 and 23, and are lower in ridership.

Route 37 should be replaced by a series of new routes:

- Routes 2 and 22 will serve existing Route 37 segments north of Port Ayers Station.
- Route 10 will serve existing Route 37 segments between Port Ayers and Southside Stations.
- Route 14 will serve existing Route 37 segments between Southside Station and Ennis Joslin.
- Route 13 will serve existing Route 37 service between McArdle and TAMUCC.

Route 53 Robstown/NAS Express

Route 53 currently operates one trip from Robstown to NAS-CCAD in the morning and one in the afternoon. Route 53 also stops at the Greenwood Walmart. A total of 9 passengers use Route 52 daily from Robstown, with 7 of them having a destination at NAS-CCAD.

Routes 50 and 53 should be consolidated. Travel times between Robstown and the NAS will not be appreciably longer than today, as the Greenwood Walmart stop would no longer be made. The connection to Calallen will reduce the need for two vehicles to serve NAS almost back to back.

Route 63 The Wave

Route 63 currently provides service between TAMUCC, Momentum Campus, Aspen Apartments, and Southside Station. Service on Williams between Staples and Airline is provided in the eastbound direction only. Between Momentum Campus and TAMUCC, Route 63 supplements Route 60 service. Route 63 also duplicates Route 37 service between McArdle and TAMUCC.

In order to reduce the amount of service duplication and improve frequency, Routes 63 and 37 should be consolidated into a new Route 13. Route 13 will connect Southside Station, Momentum Campus, and TAMUCC via McArdle, Staples, Williams, Rodd Field, SPID, Ennis Joslin and

Ocean. Route 13 will not serve the Aspen apartments directly. Route 13 would operate every 30 minutes on weekdays and hourly at other times.

Route 67 Robstown/Gregory

The ridership count indicated that Route 67 carries less than five passengers in Robstown. Overall route productivity of Route 67 is low, at less than 3 passengers per hour, which is one of the least productive routes operated by CCRTA. Due to low productivity, Route 67 should be deleted. Existing Robstown passengers may continue to travel to/from Corpus Christi via Route 27.

Route 90 Flexi-B Port Aransas

Route 90 is a flexible service that requires a reservation made at least a day in advance. On Thursday, three trips are provided from Port Aransas to medical, shopping, and educational destinations in Corpus Christi. One afternoon return trip is scheduled. On Fridays and Saturdays, there are less trips. Ridership is the lowest of all CCRTA routes with only 1-2 boardings per hour. Routes 90 should be consolidated into Route 65.

SERVICE PLAN SUMMARY

Figure 178 Annual Hours and Peak Vehicles by Route

Route	Phase	Total Hours	Peak Vehicles	Vehicle Size
1 Ayers	2	15,459	3	40'
2 Staples	2	23,810	5	40'
3 Port	1	15,076	3	40'
5 Alameda	2	9,649	2	40'
6 Santa Fe	2	4,347	1	35'
7 Saratoga	2	17,769	4	35'
8 Everhart	2	8,884	2	35'
9 South Staples	2	8,884	2	35'
10 Gollihar	2	9,394	2	40'
11 McArdle	2	9,394	2	40'
12 Baldwin	1	8,884	2	35'
13 Ennis Joslin	2	8,884	2	35'
14 Flour Bluff	2	10,754	3	35'
15 Kostoryz	2	14,411	3	35'
16 Morgan	1	8,884	2	35'
17 Holly	2	8,884	2	35'
18 Airline	2	4,347	1	35'
22 Brownlee	1	5,399	1	35'
23 Molina	1	4,697	1	40'
25 Greenwood	1	4,697	1	40'
27 Annaville	1	25,109	5	40'
28 Leopard	1	3,230	1	40'
30 Ruth	2	1,454	1	26'
33 Waldron	2	7,480	2	26'
34 Robstown North	1	3,273	1	26'
35 Robstown South	1	3,273	1	26'

Annual Hours and Peak Vehicles by Route (Continued)

Route	Phase	Total Hours	Peak Vehicles	Vehicle Size
50 Robstown/Calallen/NAS Express	1	1,020	1	35'
51 Gregory/NAS Express	1	859	1	26'
52 Robstown/Calallen/Downtown Express	1	1,530	2	26'
54 Gregory/Downtown Express	1	680	1	26'
55 Gregory/TPCO Express	1	638	1	26'
56 Flour Bluff/Downtown Express	1	680	1	26'
60 Islander Shuttle	2	3,024	2	40'
65 Padre Island/Port Aransas Express	1	7,881	2	35'
76 Water Street	2	4,010	1	Trolley
78 North Beach	2	4,010	1	Trolley
81 Beach Bus	2	1,472	4	40'
83 Advanced Industries	-	765	1	35'
84 Lighthouse	1	213	1	26’
94 Port Aransas Circulator	1	1,287	1	26'
Totals		274,465	75	-

Figure 179 Vehicle Requirements

Vehicle	Peak	Total	Spare
26'	13	16	19%
Trolley	2	7	71%
35'	29	31	6%
40'	31	38	18%
Total	75	92	18%

Figure 180 Service Span and Headways

	Weekday Span and Headway							Saturday Span and Headway				Sunday Span and Headways			
Route	Span	Early AM	AM Peak	Midday	PM Peak	Evening	Night	Span	Morning	Midday	Night	Span	Morning	Midday	Night
1 Ayers	4:45 a.m. - 10:30 p.m.	30	15	15	15	15	30	6:00 a.m. - 9:00 p.m.	30	30	30	8:00 a.m. - 8:00 p.m.	60	60	60
2 Staples	4:45 a.m. - 11:15 p.m.	30	15	15	15	15	30	6:00 a.m. - 9:00 p.m.	30	30	30	8:00 a.m. - 8:00 p.m.	60	60	60
3 Port	5:00 a.m. - 10:00 p.m.	30	15	15	15	15	30	6:00 a.m. - 9:00 p.m.	30	30	30	8:00 a.m. - 8:00 p.m.	60	60	60
5 Alameda	5:00 a.m. - 10:00 p.m.	60	30	30	30	30	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
6 Santa Fe	6:00 a.m. - 8:00 p.m.	-	60	60	60	60	-	8:00 a.m. - 7:00 p.m.	60	60	60	No service			
7 Saratoga	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
8 Everhart	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
9 South Staples	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
10 Gollihar	6:00 a.m. - 10:00 p.m.	-	30	30	30	30	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
11 McArdle	6:00 a.m. - 10:00 p.m.	-	30	30	30	30	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
12 Baldwin	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
13 Ennis Joslin	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
14 Flour Bluff	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
15 Kostoryz	6:00 a.m. - 9:45 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
16 Morgan	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
17 Holly	6:00 a.m. - 10:00 p.m.	-	30	30	30	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
18 Airline	6:00 a.m. - 8:00 p.m.	-	60	60	60	60	-	8:00 a.m. - 7:00 p.m.	60	60	60	No service			
22 Brownlee	6:00 a.m. - 9:00 p.m.	-	60	60	60	60	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
23 Molina	6:00 a.m. - 10:00 p.m.	-	30	30	30	30	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
25 Greenwood	6:00 a.m. - 10:00 p.m.	-	30	30	30	30	60	7:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
27 Annaville	5:00 a.m. - 11:00 p.m.	60	30	30	30	60	60	6:00 a.m. - 9:00 p.m.	60	60	60	8:00 a.m. - 7:00 p.m.	60	60	60
28 Leopard	8:00 a.m. - 8:00 p.m.	-	30	30	30	30	30	8:00 a.m. - 8:00 p.m.	60	60	-	No service			
30 Ruth	8:00 a.m. - 6:00 p.m.	-	30	30	30	-	-	No service							
33 Waldron	6:00 a.m. - 9:00 p.m.	-	60	30	30	60	60	8:00 a.m. - 8:00 p.m.	60	60	60	9:00 a.m. - 6:00 p.m.	60	60	-
34 Robstown North	6:00 a.m. - 9:00 p.m.	-	60	30	60	60	60	8:00 a.m. - 8:00 p.m.	60	60	60	9:00 a.m. - 6:00 p.m.	60	60	-
35 Robstown South	6:00 a.m. - 9:00 p.m.	-	60	30	60	60	60	8:00 a.m. - 8:00 p.m.	60	60	60	9:00 a.m. - 6:00 p.m.	60	60	-

Service Span and Headways (Continued)

	Weekday Span and Headway							Saturday Span and Headway				Sunday Span and Headways			
Route	Span	Early AM	AM Peak	Midday	PM Peak	Evening	Night	Span	Morning	Midday	Night	Span	Morning	Midday	Night
50 Robstown/Calallen/NAS Express	-	-	1 trip	-	1 trip	-	-	No service							
51 Gregory/NAS Express	-	-	1 trip	-	1 trip	-	-	No service							
52 Robstown/Downtown Express	-	-	2 trips	-	2 trips	-	-	No service							
54 Gregory/Downtown Express	-	-	1 trip	-	1 trip	-	-	No service							
55 Gregory/TPCO Shuttle	-	-	1 trip	-	1 trip	-	-	No service				-	1 trip	1 trip	-
56 Flour Bluff/Downtown Express	-	-	1 trip	-	1 trip	-	-	No service							
60 Islander Shuttle	7:00 a.m. - 6:00 p.m.	-	10	10	20	-	-	No service							
65 Padre Island/Port A Express	7:00 a.m. - 7:00 p.m.	-	60	60	60	120	-	8:00 a.m. - 6:00 p.m.	120	120	-	8:00 a.m. - 6:00 p.m.	120	120	-
76 Water Street	6:00 a.m. - 9:00 p.m.	-	60	30	30	60	60	8:00 a.m. - 8:00 p.m.	30	30	60	9:00 a.m. - 7:00 p.m.	60	60	60
78 North Beach	6:00 a.m. - 9:00 p.m.	-	60	30	30	60	60	8:00 a.m. - 8:00 p.m.	60	60	60	9:00 a.m. - 7:00 p.m.	60	60	60
81 Padre Island Beach Bus	9:00 a.m. - 7:00 p.m.	-	-	60	30	30	-		60	30	-	9:00 a.m. - 7:00 p.m.	60	30	-
83 Advanced Industries	-	-	1 trip	-	1 trip	-	-	No service							
84 Lighthouse	-	-	1 trip	-	1 trip	-	-	No service							
94 Port Aransas Circulator	7:00 a.m. - 7:00 p.m.	-	40	40	40	40	-	7:00 a.m. - 7:00 p.m.	40	40	-	7:00 a.m. - 7:00 p.m.	40	40	-

IMPLEMENTATION PLAN

Figure 181 Phase 1 Service Recommendations

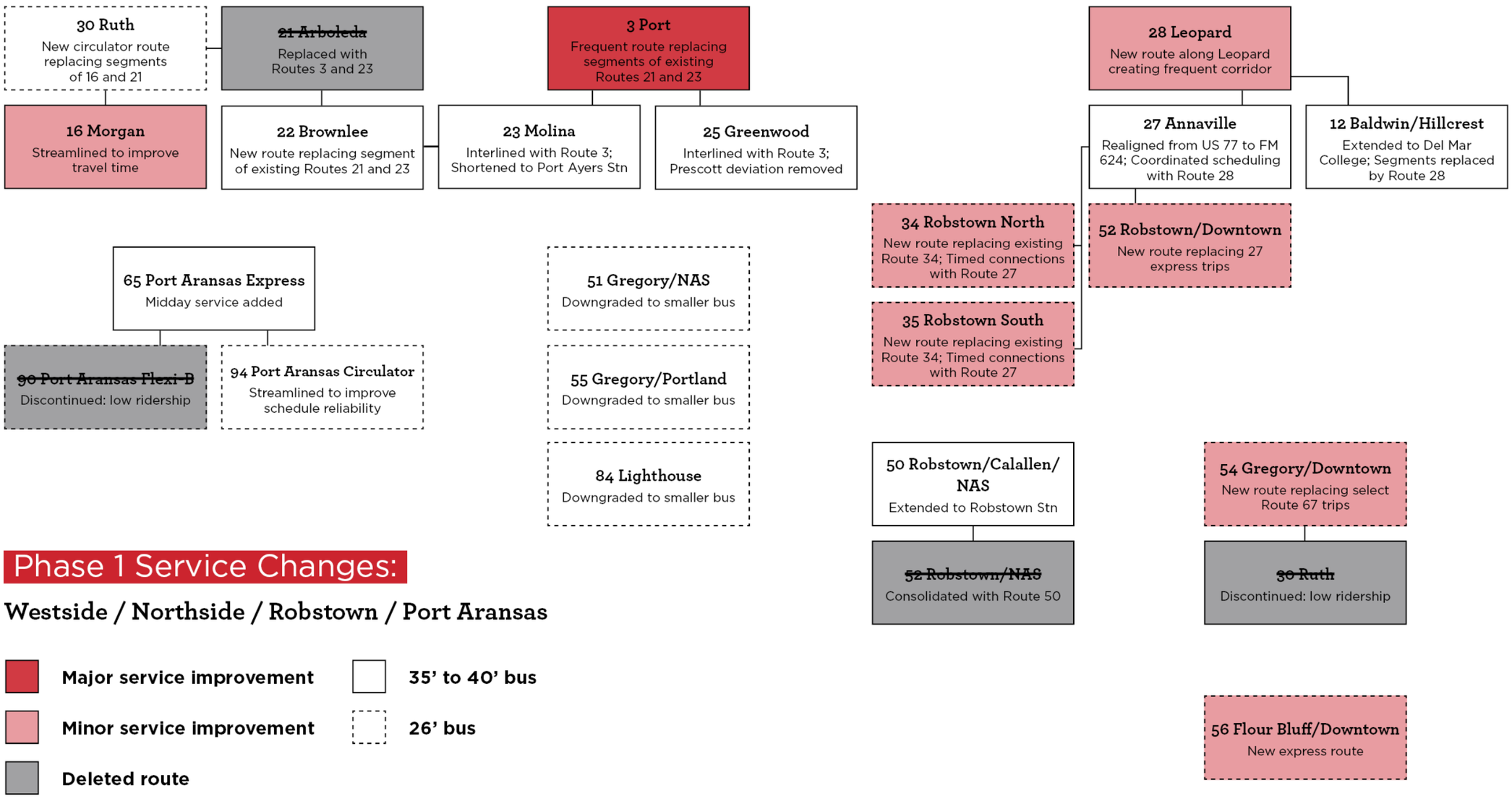
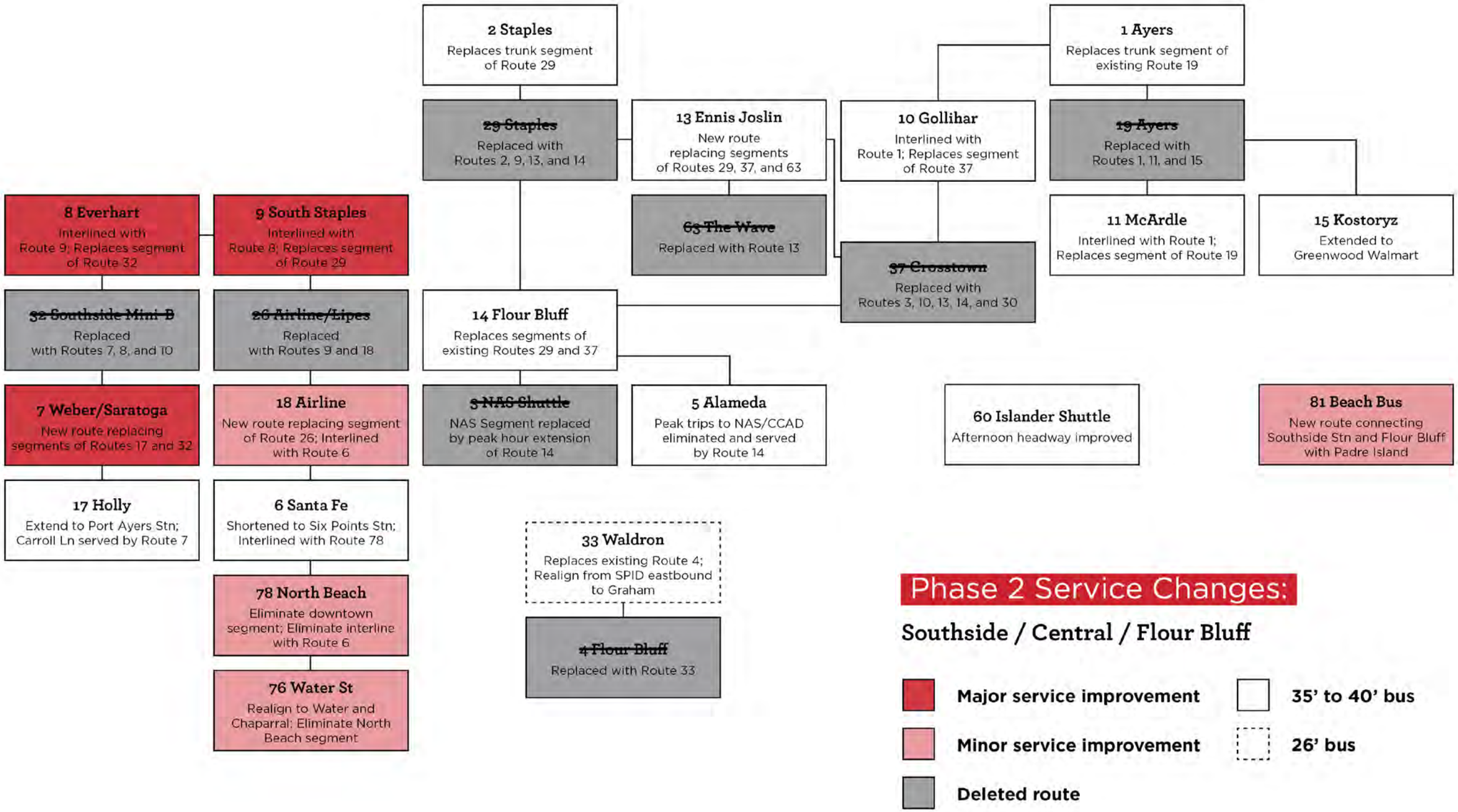


Figure 182 Phase 2 Service Recommendations



Station Departure Times by Route

Strategic scheduling is necessary to implement timed connections and avoid exceeding the maximum bus capacity at transit stations. Figure 183 lists the recommended peak hour departure times for terminating routes laying over at Staples Street, Southside, and Port Ayers Stations by 15-minute interval.

Figure 183 Station Departure Times by Route

Routes	Peak Headway	Staples Street Station (9 bays)				Southside Station (9 bays)				Port Ayers Station (6 bays)			
		0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45
1 Ayers	15	1	1	1	1					1	1	1	1
2 Staples	15	1	1	1	1	1	1	1	1				
3 Port	15	1	1	1	1					1	1	1	1
6 Santa Fe	60						1						
7 Saratoga	30	1		1									
8 Everhart	30					1		1					
9 South Staples	30					1		1					
10 Gollihar	30					1		1		1		1	
11 McArdle	30						1		1		1		1
12 Baldwin	30	1		1									
13 Ennis Joslin	30					1		1					
14 Flour Bluff	30					1		1					
15 Kostoryz	30										1		1
16 Morgan	30		1		1								
17 Holly	30					1		1		1		1	
18 Airline	60						1						
22 Brownlee	60	1								1			
23 Molina	30									1		1	
25 Greenwood	30										1		1
27 Annaville	30	1		1									
28 Leopard	30		1		1								
65 Padre Island Connection	60						1		1				
76 Harbor Bridge Shuttle	30	1		1									
78 North Beach	30	1		1									
Buses Laying Over	-	9	5	8	5	7	5	7	3	6	5	5	5

Routes by Station

Figure 184 All-Day Routes Serving Transit Stations

Routes	Staples Street Station	Southside Station	Port Ayers Station	Six Points Station	Robstown Station
Bus Bays	9	9	6	3	2
1 Ayers	T		T	PT	
2 Staples	T	T		PT	
3 Port	T		T		
5 Alameda				T	
6 Santa Fe		T		T	
7 Saratoga	T			PT	
8 Everhart		T			
9 South Staples		T			
10 Gollihar		T	T		
11 McArdle		T	T		
12 Baldwin	T				
13 Ennis Joslin		T			
14 Flour Bluff		T			
15 Kostoryz			T		
16 Morgan	T				
17 Holly		T	T		
18 Airline		T			
22 Brownlee	T		T		
23 Molina			T		
25 Greenwood			T		
27 Annaville	T				T
28 Leopard	T				
34 Robstown North					T
34 Robstown South					T
65 Padre Island Connection		T			
76 Harbor Bridge Shuttle	T				
78 North Beach	T				
Terminating Routes	11	11	9	2	3
Pass-Through Routes	0	0	0	3	0

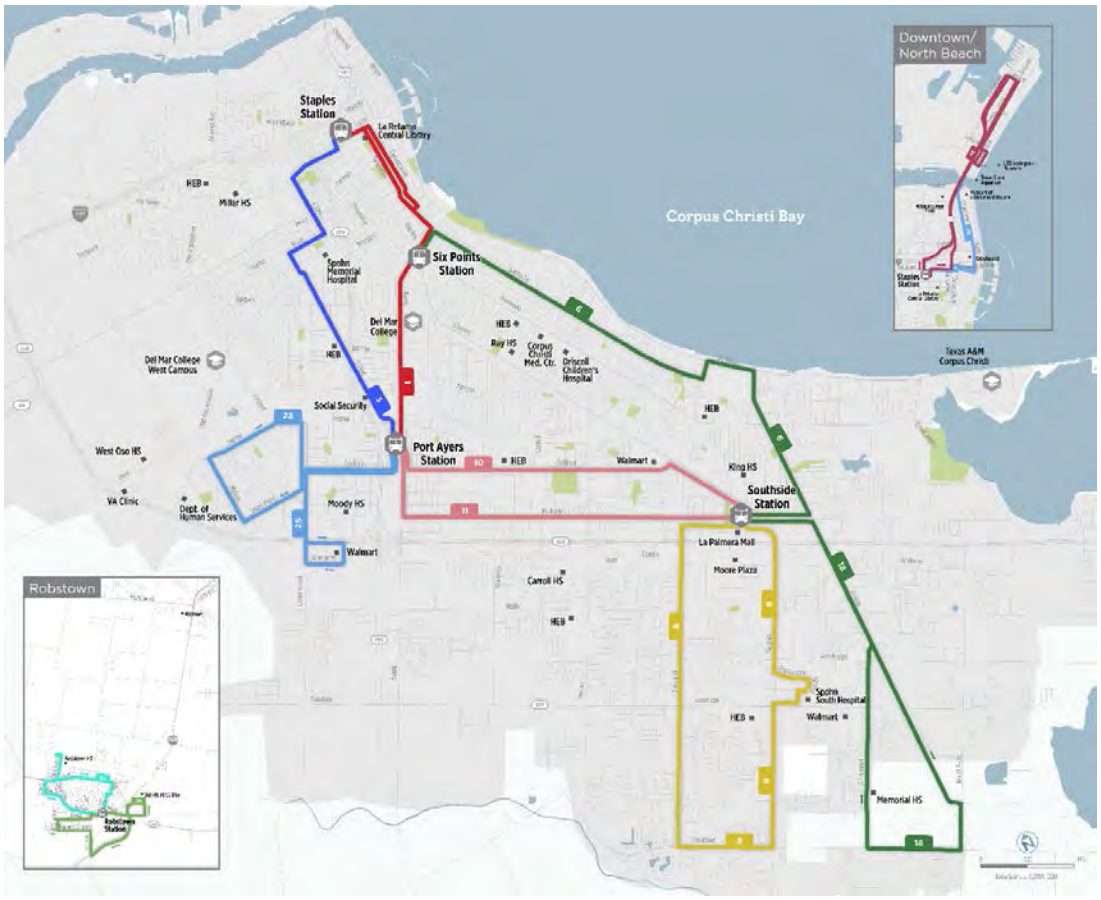
Interlined Routes

In an effort to maximize operational efficiency and reduce passenger transfers between buses, specific routes should be interlined. Interlined route combinations, which includes two trunk/branch systems, are listed in Figure 185. Interlined routes are depicted in Figure 186.

Figure 185 Interlined Routes

Interlined Routes	
1 Ayers (trunk)	10 Gollihar (branch)
	11 McArdle (branch)
3 Port (trunk)	23 Molina (branch)
	25 Greenwood (branch)
6 Santa Fe	18 Airline
8 Everhart	9 Staples South
34 Robstown North	35 Robstown South
76 Water Street	78 North Beach

Figure 186 Interlined Routes



The following diagrams provide a graphic representation of bus spacing for the Ayers/Gollihar/McArdle and Port/Molina/Greenwood trunk/branch systems.

Figure 187 Ayers/Gollihar/McArdle Bus Spacing

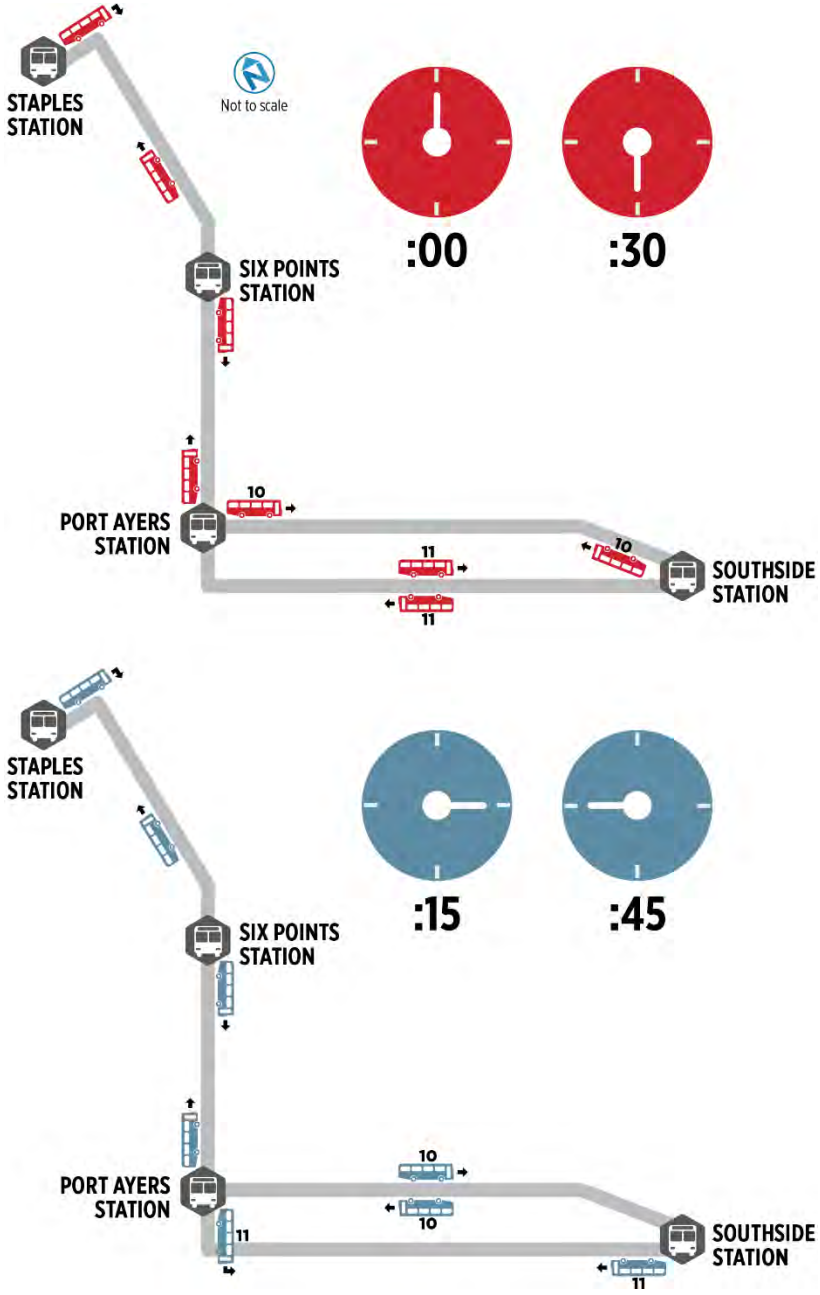
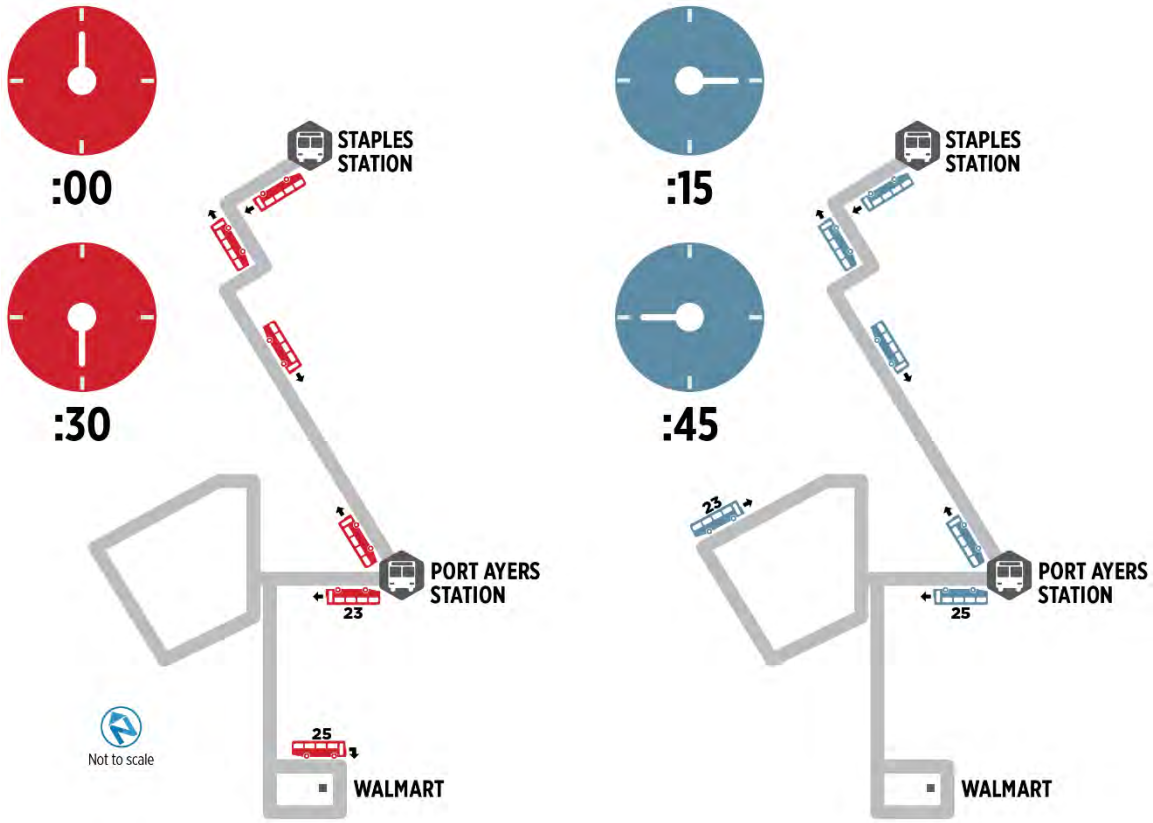


Figure 188 Port/Molina/Greenwood Bus Spacing



SERVICE EXPANSION

Phases 3-5 build upon the service improvements of Phases 1 and 2. Phase 3 improves weekday headways of routes operating hourly and adds Tuesday/Thursday service to Route 30. Phase 4 increases service levels on routes with high ridership potential. Phase 5 increases weekend service to reduce customer wait times and improve connections.

Figure 189 Service Expansion Summary

Route	Route	Expansion	Hours	Vehicles	Vehicle Type
3	6 Santa Fe	Upgrade weekday headway to 30 minutes	3,500	1	35'
	18 Airline	Upgrade weekday headway to 30 minutes	3,500	1	35'
	22 Brownlee	Upgrade weekday headway to 30 minutes	3,000	1	35'
	30 Ruth Circulator	Add Tuesday and Thursday service	1,000	0	26'
Phase 3 Additional Resources			11,000	3	
4	5 Alameda	Upgrade to 15 minutes during peak	6,500	2	40'
	76 Water Street	Upgrade to 15 minutes on weekdays	3,500	1	Trolley
	50 Robstown/Calallen/NAS	Add trips	1,000	1	35'
Phase 4 Additional Resources			11,000	4	-
5	5 Alameda 7 Saratoga 8 Everhart 9 South Staples 10 Gollihar 11 McArdle 12 Baldwin 15 Kostoryz 16 Morgan 17 Holly 23 Molina 25 Greenwood 27 Annaville	Improve Saturday headway to 30 minutes	6,000	-	-
	1 Ayers 2 Staples 3 Port 7 Saratoga 27 Annaville	Improve Sunday headway to 30 minutes	4,000	-	-
Phase 5 Additional Resources			10,000	0	-

5 GUIDELINES AND STANDARDS

SERVICE DESIGN GUIDELINES

Service design guidelines are planning tools that are used to expand service to new areas or modify existing routes. CCRTA strives to serve as many local area residents, students, workers, and visitors as they can with their available resources. Service features that attract one type of rider to transit can deter other riders, requiring a balance these types of competing demands. However, there are certain service design principles that will improve service for nearly all riders. This section describes practices that will attract the most riders and balance competing demands.

Service Planning Principles

For people to use transit, service should be designed so that it is easy to understand. In this way, current and potential riders can grasp and use the transportation options available to take them where and when they want to go with ease. Most of the guidelines in this section are aimed at making service intuitive, logical, and easy to understand. Most transit networks are very complicated, and simplification is a key value in creating networks that people can navigate easily to make many kinds of trips.

Route Directness

Routes should be designed to operate as directly as possible to maximize average speed for the bus and minimize travel time for passengers while maintaining access to service. Fast and direct routes tend to be useful to more people than circuitous routes. Even if a trip requires transferring between two routes, it is likely to be faster than a trip using a circuitous route.

Travel times and directness of service can be affected by a series of factors that are a function of the environment in which service operates. Some of these factors include:

- Traffic congestion
- Street geometry and turning movements
- Presence and operations of traffic signals
- Accessibility of streets from adjacent areas
- Stops with high ridership or mobility-impaired customers

Route Alignment

Routes should operate along the same alignment in both directions to make it easy for riders to know how to return to their trip origin location. Exceptions can be made in cases where such operation is not possible due to one-way streets, turn restrictions, or near the end of a route

where the bus must turn around. In those cases, routes should be designed so that the opposite directions parallel each other as closely as possible. Other exceptions include shuttle and circulator routes.

While routes that include large loops or several deviations maximize transit coverage, they also result in out-of-direction travel that is not intuitive or attractive to potential customers.

Route Deviations

Routes should not deviate from the most direct alignment unless there is a compelling reason. Potential destinations to deviate service include major shopping centers, employment sites, schools, etc.

In these cases, the benefits of operating the route off of the main route must be weighed against the inconvenience caused to passengers already on board. Additional considerations include the impact on overall route productivity, the increase time added as a result of the deviation, and the schedule coordination with connecting services. In most cases, where route deviations are provided, they should be provided on an all-day basis. Exceptions include early morning or late night trips to schools or employment centers with limited hours.

Arterial Streets

All frequent local and local routes should operate on major roadways. The operation of bus service along arterials makes transit service faster and easier for riders to understand and use. Current and potential riders typically have a general knowledge of an area's arterial road system and use that knowledge for geographic points of reference.

Schedule Simplicity

A consistent pattern to the schedule is strongly recommended. While headways may vary during the day according to demand, it should not vary with apparent randomness from one trip to the next. Whenever possible, routes should also have clockface headways that divide evenly into an hour, such as every 15, 30, or 60 minutes.

Clockface headways are easier for passengers to remember and can help facilitate better transfer connections between routes. Whenever possible, headways should be set at regular clock-face intervals. However, there are two key exceptions:

- Where individual trips must be adjusted away from clock-face intervals to meet shift times, work times, transfer connections, or other special circumstances
- Where the desired headway of service causes round trip recovery time to exceed 20% of the total round trip vehicle time, leading to inefficient service

Clockface headways also offer greater ease in scheduling timed connections between routes that occur consistently in each hour.

PERFORMANCE METRICS

Performance metrics will maximize the effective use of limited resources by creating a rational and transparent evaluation process. This process will assist CCRTA in determining priorities when allocating funds and programming future transit investments. Performance metrics describe the methodology by which services are evaluated. Four metrics are proposed to measure each route.

Ridership Productivity

Ridership productivity measures route performance based on a unit of service. Routes are evaluated based on passengers per revenue hour, which is calculated by dividing the total number of boardings by the total number of vehicle revenue hours.

Average Daily Boardings ÷ Daily Revenue Hours

Passenger Loads

While passengers per revenue hour and passengers per trip are the important measures of overall route performance, they do not provide insight into conditions along specific segments of the route. Managing passenger loads is crucial in maintaining customer satisfaction, schedule reliability, and safe operations. Automated passenger counting systems (APC's) provide the capability to record the size of the maximum load on each trip in the system. All future CCRTA bus purchases should include APC's.

Passenger load data will highlight where capacity issues are creating routine standing loads or pass-by situations, and where seating capacity is going unused. Service level modifications or vehicle assignment modifications may be appropriate when the peak loads approach or exceed seating capacity. Similarly, routes or trips with minimal passenger loads may warrant a closer examination of the alignment or schedule. It is generally acceptable for some frequent and local route passengers to be expected to stand for part of the trip. Load factors reflect the ratio of passengers to total seated capacity. Average peak load factor is the average of all peak loads divided by the average seated capacity of buses employed on a route.

Average Peak Load ÷ Seating Capacity

Schedule Reliability

Schedule reliability is a measure of how well a particular route adheres to its schedule. It suggests whether a customer can count on a bus being there when the schedule says it will be. For most systems, buses are considered on-time if they depart a designated timepoint between zero and 5 minutes later than the scheduled departure time. Buses should never depart a timepoint ahead of schedule unless operators are given explicit permission to do so.

Potential impacts on on-time performance include inadequate running times, traffic conditions, or constructions. A high number of boardings on a particular trip or at a specific stop may also affect schedule reliability if recovery time is insufficient to absorb the added time.

Trips Departing Between Zero and Five Minutes of Scheduled Time ÷ Total Daily Trips

Schedule Efficiency

Schedule efficiency can sometimes be improved by reducing layover at the end of a route or deadhead (time spent traveling to/from the garage or another route), thereby allowing a larger percentage of total service hours to be devoted to revenue time.

Schedule efficiency is measured by calculating the ratio of revenue hours to total platform hours (deadhead, layover, and revenue hours). Schedule efficiency ratios that are higher than those of peer services may point to operating issues such as schedules that cannot be cost-effectively broken into vehicle assignments or routes with distant or inefficient terminal points.

While schedule efficiency does not consider actual ridership, it is suggested because it so often points to major inefficiencies in current scheduling practices. Schedules with a high percentage of non-service time are expensive. If that ratio can be improved, cost savings can be achieved, often with minimal impact on riders. The schedule efficiency of interlined routes should be calculated as a group rather than individually.

Total Revenue Hours ÷ Total Platform Hours

Recommended Performance Standards

Recommended performance standards are detailed in Figure 190. Standards are based on recent ridership and on-time performance trends and best practices for similar services. Ridership productivity is evaluated based on specific route classification (Figure 192). Performance standards should be re-evaluated biennially.

Figure 190 Recommended Performance Standards

Service Level	Route Classification	Minimum Ridership Productivity	Maximum Load	Schedule Reliability	Schedule Efficiency
Weekday	Frequent routes	25 boardings per hour	120%	85%	80%
	Local routes	20 boardings per hour	120%	85%	80%
	Feeder routes	15 boardings per hour	100%	85%	80%
	Express routes	15 boardings per trip	100%	85%	80%
	Special routes	No minimum	100%	85%	80%
Weekends	Local routes	15 boardings per hour	120%	90%	80%
	Feeder routes	10 boardings per hour	100%	90%	80%
	Express routes	10 boardings per trip	100%	90%	80%
	Special routes	No minimum	100%	90%	80%

Ridership Productivity

Routes performing below 75% of the peer group average (low-performing routes) may require corrective action such as schedule adjustments, route modifications, or consolidation. At the opposite end of the scale, ratings above 125% (high-performing routes) of the peer group average may indicate the demand for additional service in the form of improved headways or peak hour supplemental trips. A sample ridership productivity assessment is provided in Figure 191.

Figure 191 Sample Ridership Productivity Assessment

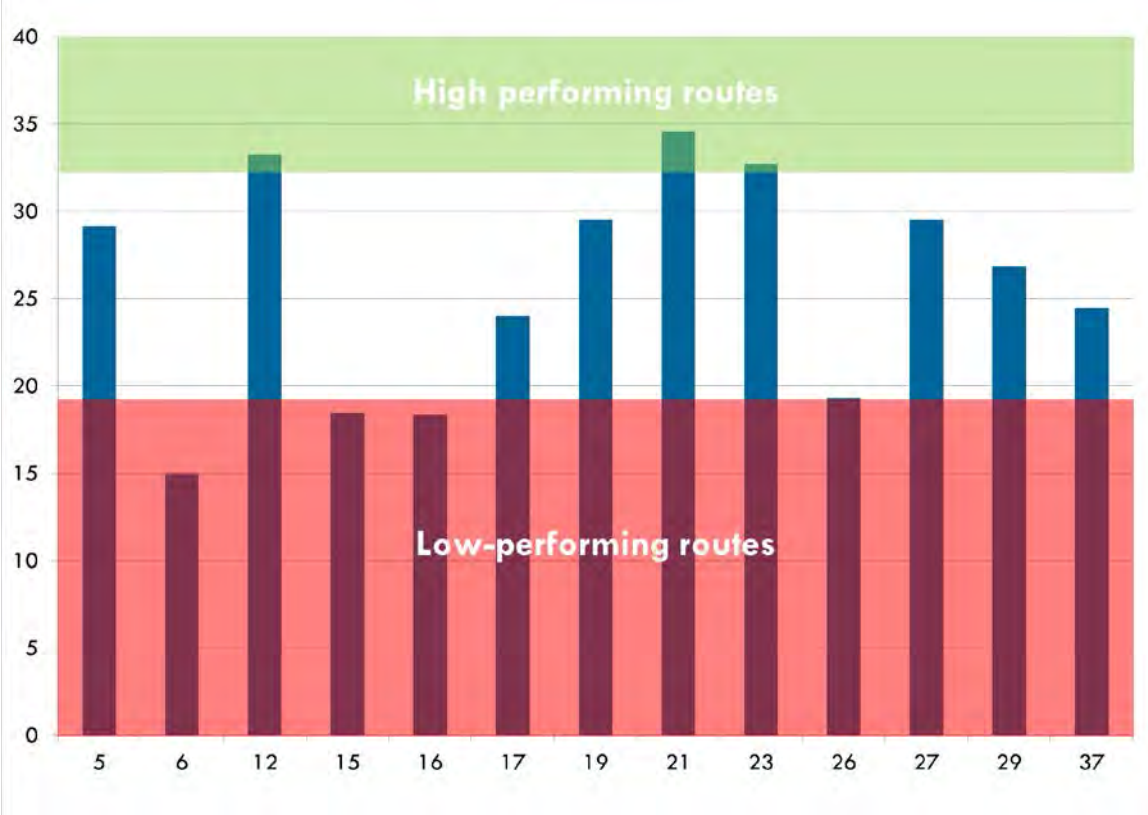


Figure 192 Route Classification

Route	Route Classification
1 Ayers	Frequent
2 Staples	
3 Port	
5 Alameda	Local
6 Santa Fe	
7 Saratoga	
8 Everhart	
9 South Staples	
10 Gollihar	
11 McArdle	
12 Baldwin	
13 Ennis Joslin	
14 Flour Bluff	
15 Kostoryz	
16 Morgan	
17 Holly	
18 Airline	
22 Brownlee	
27 Annaville	
28 Leopard	
23 Molina	Feeder
25 Greenwood	
33 Waldron	
34 Robstown North	
35 Robstown South	
78 North Beach	
50 Robstown/Calallen/NAS Express	Express
51 Gregory/NAS Express	
52 Robstown/Downtown Express	
54 Gregory/Downtown Express	
55 Gregory/TPCO Express	
56 Flour Bluff/Downtown Express	
65 Padre Island/Port Aransas Express	
30 Ruth	Special
60 Islander Shuttle	
76 Water Street	
81 Beach Bus	
83 Advanced Industries	
84 Lighthouse	
94 Port Aransas Circulator	

6 CAPITAL RECOMMENDATIONS

Bus stops and transfer stations are important components to the customer experience of existing, new and potential transit riders. In addition to spending time planning their trip and riding the bus, each transit user spends an amount of time waiting at a bus stop or connecting at a transit station. While individuals have differing attitudes towards comfort, safety, and convenience, it is possible to maximize the customer experience by applying best practices and identifying opportunities for improvements in respect to existing CCRTA passenger facilities. This chapter includes bus stops guidelines, transit station capital improvement priorities and fleet recommendations.

BUS STOP ACCESSIBILITY

CCRTA currently maintains over 1,400 active bus stops. Approximately 800 stops are compliant with the American with Disabilities Act, which states that stops must include a landing pad measuring 5' x 8' that is free of street furniture and a direct and impervious path to adjacent sidewalks. The CCRTA Board of Directors has instructed staff to achieve 100% ADA compliance within a seven-year timeframe.

CCRTA staff averages 100-200 stop upgrades each year with a focus on stops along high ridership routes. New and recently improved stops exceed ADA requirements with larger landing pads (typically 8' x 30') to accommodate front and back doors and eliminate the need for future expansion.

CCRTA coordinates with the City of Corpus Christi to improve stops in conjunction with Bond projects. This process minimizes construction impacts and reduces overall costs. TxDOT requires CCRTA to apply for each bus stop improvement along TxDOT right-of-way, which includes several urban corridors.

Due to the high cost of upgrading bus stops, CCRTA should limit accessibility improvements to 250' from each stop.

BUS STOP PLACEMENT

Stop placement guidelines describe the considerations that are involved in making decisions regarding new or relocated bus stops. The proper location of bus stops is critical to the safety of passengers, pedestrians, and motorists, as well as the safe and efficient operation of buses. New stop requests submitted by current or potential customers should be evaluated by CCRTA staff and if approved, upgraded to Americans with Disabilities Act (ADA) accessibility standards.

The initial step of determining placement of a new or relocated bus stop involves its proximity to the intersection. The placement of each bus stop can be classified as one of the following:

- Near-side—immediately prior to an intersection
- Far-side—immediately after an intersection
- Mid-block—between two intersections

Bus stops are generally located at street intersections to maximize pedestrian accessibility from both sides of the street and provide connectivity to intersecting bus routes. Bus turning movements, driveways, and dedicated turn lanes sometimes restrict the placement of stops at or near an intersection and necessitate a mid-block stop. Mid-block stops may also be considered when destinations are a significant distance from intersections.

Bus Stop Placement Considerations

Each new or relocated bus stop must be examined on a case-by-case basis to determine their exact location. The following list details bus stop placement considerations related to customer convenience and comfort, accessibility, operational safety, and adjacent land use:

- Customer Convenience and Comfort
  - Proximity to expected trip generators
  - Visibility of bus stop zone and presence of street illumination
  - Connections to intersecting bus routes
- Accessibility
  - Adequate right-of-way to ensure the bus stop meets the Americans with Disabilities Act (ADA) accessibility standards
  - Presence and conditions of sidewalks leading to trip generators
  - Marked crosswalks and curb ramps at street intersections or midblock crossings
- Operational Safety
  - Volume and turning movements of other vehicles including bicycles
  - Adequate curb space to accommodate multiple buses, if necessary
  - Adequate sight distance to/from adjacent streets, intersections, and driveways
  - Proximity to rail crossings
- Adjacent Land Use
  - Ridership potential to support the investment of new stops
  - Adequate right-of-way to prevent encroachment onto private property

Key advantages and disadvantages of each bus stop placement option are described in Figure 193.

Figure 193 Bus Stop Placement Considerations

	Advantages	Disadvantages
Near-side stops	Shortest distance from bus door to a crosswalk, which encourages riders to use crosswalks	Most exposure to traffic delays. May require more than one traffic cycle Increases conflict with right-turning vehicles May block travel lane with queuing buses May obscure motorists' view of traffic control devices and crossing pedestrians
Mid-block stops	Typically improves access to destinations on large tracts	May require bus pullout on high-speed streets Encourages riders to cross street mid-block Motorists typically do not expect mid-block crossing pedestrians
Far-side stops	Encourages riders to use nearby crosswalks Reduces delay as operators have better chance of avoiding red light Allows additional right-turning capacity before intersection	May restrict travel lanes on far-side of intersection

Bus Stop Placement Best Practices

The following situations are common determinants of bus stop placement:

- If the route alignment turns left at an intersection, the preferred location for the stop is the far-side of the intersection after the bus turns.
- If the route alignment turns right at the intersection, the preferred location for the stop should be on the far-side of the intersection after the bus turns.
- If there is a high volume of vehicles turning right at an intersection, the preferred location for a stop is on the far-side of the intersection after the turn.
- At intersections with complex, multi-phased traffic signals or dual turn lanes, far-side stops are preferred.
- When the route alignment requires the bus to make a left turn and it is not feasible or desirable to locate the bus stop on the far-side of the intersection after the bus turns, a mid-block stop may be warranted.
- Mid-block bus stops prior to left turns should be located a distance from the intersection that allows the bus to easily maneuver into the proper lane to turn left (a minimum of 100-150 feet for each lane change, depending on street speeds).
- When connections between two bus routes show a strong directional pairing (e.g., passengers connecting from eastbound to southbound route), placing one bus stop on the nearside and the other on the far-side can reduce pedestrian crossings at the intersection.
- Bus pullouts are only recommended at high ridership stops with significant dwell times or route terminal points.

Parking Restrictions

The lack of parking restrictions can negatively impact bus service by limiting sight distances and passenger access. Potential issues that may arise include:

- Buses not being able to accessing the curb/sidewalk area to pick or drop off passengers
- Passengers forced to maneuver between parked vehicles when they board or alight
- Buses blocking travel lanes due to inability to access the curb

In an effort to maximize safety and customer convenience while reducing conflicts with automobile traffic, CCRTA should work with the City of Corpus Christi to install no parking restrictions at bus stops. Ideal curb striping would consist of 20’ before the bus zone, 40’ for the bus zone, and 10’ after the bus zone.

BUS STOP AMENITIES

This section provides guidance on the installation and placement of bus stop amenities. Amenities enhance the customer experience by improving comfort and convenience. Consequently, transit systems with well-designed and maintained amenities have the potential to attract and retain riders. Bus stop amenities also influence the community's image perception of CCRTA.

Existing Bus Stop Characteristics

Currently, each CCRTA stop has a unique identification number and signage installed on a square pole. Signage consists of a "B" logo, routes served and unique identification number. Bus stops range in size, scale and amenities due to differences in ridership, adjacent land use, right-of-way, and associated pedestrian infrastructure.

Current amenities include:

- Trash receptacles
  - Metal powder-coated trash receptacles
  - New stainless steel trash receptacles
  - Expanded metal with plastic lid
- Benches
  - Concrete and wood benches with advertisements
  - Metal powder-coasted benches
- Shelters
  - Metal powder-coated shelters
  - Custom metal and glass enclosed shelters

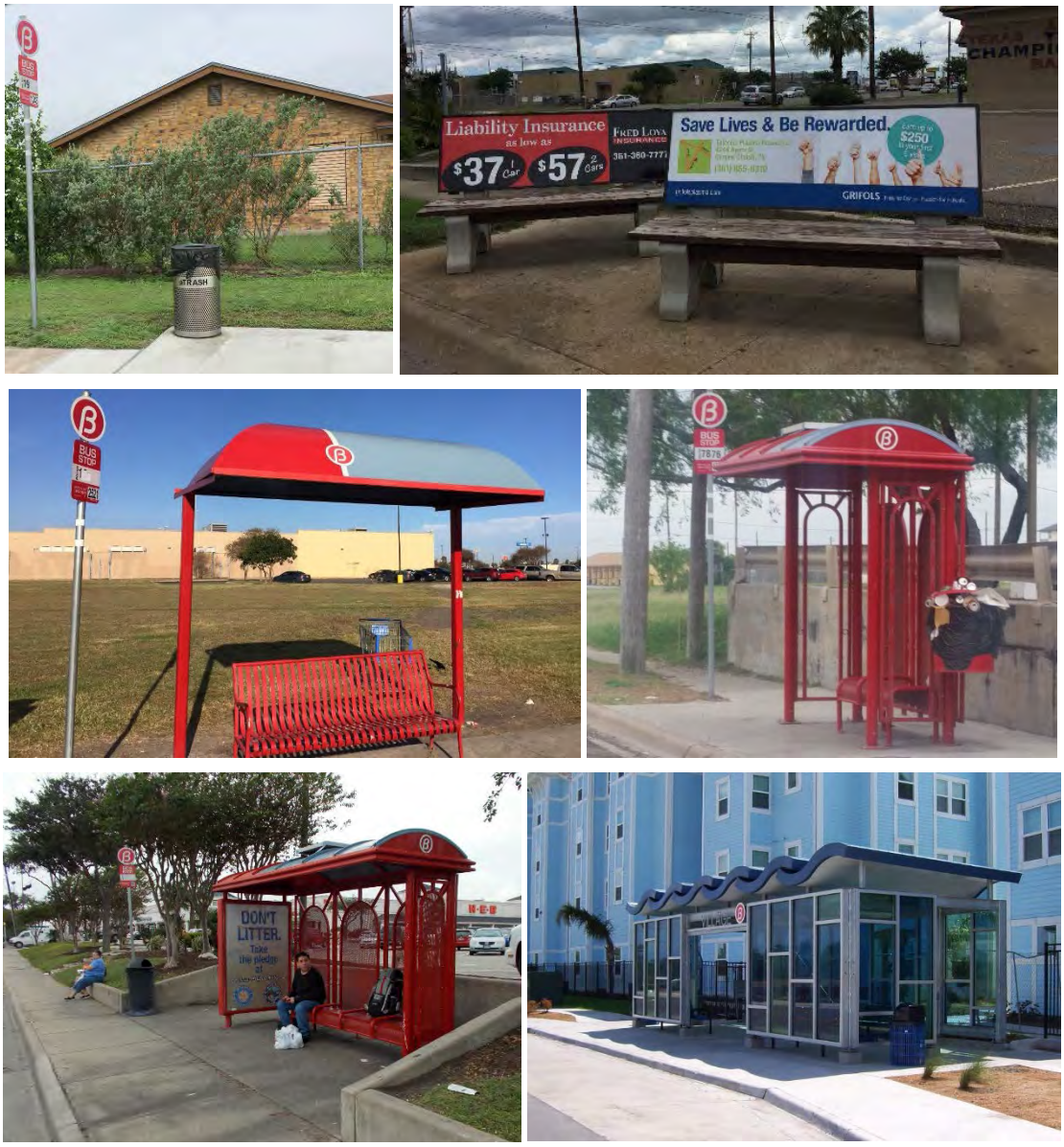
Stainless steel trash receptacles perform better in areas near the coast than metal powder-coated trash receptacles have rust issues. Stainless steel and expanded metal trash receptacles also provide more capacity than powder-coated trash receptacles.

Most old concrete benches do not have supportive anchor bolts attached to the sidewalk, creating a hazard for customers and pedestrians. However, new concrete benches do include anchor systems. CCRTA staff is also working on a prototype to anchor down old concrete benches. While concrete benches are bulky and incompatible with shelters, they generate advertisement revenues. CCRTA should consider phasing out concrete benches over time in favor of metal benches which provider a higher level of comfort and are more adaptable.

CCRTA installs small and medium-sized metal power-coated shelters at high ridership bus stops. Custom metal and glass enclosed shelters are present at select high-activity stops.

CCRTA has historically installed shelters at stops with 25 or more average daily boardings. Benches have been installed on stops generating a minimum of 10 average daily boardings or located along major, high-visibility corridors. CCRTA currently manages a detailed bus stop database with photos, coordinates, accessibility status and amenities inventory. Photos of varying CCRTA bus stops is provided in Figure 194.

Figure 194 CCRTA Bus Stops



Bus Stop Amenities Criteria

A formal bus stop amenities criteria will provide additional guidance for the selection and installation of bus stop amenities. As a result, three tiers of amenities are proposed for CCRTA bus stops and described below.

Basic Bus Stop

Bus stops generating fewer than 15 boardings per day are classified as basic stops and should only include a pole and signage.

Bus Stop with Seating

Bus stops generating at least 15 boardings per day qualify for a bench and appropriate trash receptacle.

Bus Stop with Shelter

Bus stops generating at least 30 daily boardings qualify for a shelter, seating, and an appropriate trash receptacle. In addition, stops that generate at least 10 daily boardings and meet one of the following criteria also qualify for a shelter:

- Medical, senior, social service, public or special needs facilities within ¼ mile
- Major grocery stores within ¼ mile
- Apartments, dorms, or senior housing with 100+ units within ¼ mile
- High schools, colleges, or universities within ¼ mile

Circumstances that might preclude installation of shelters, seating, or trash receptacles at a particular stop meeting recommended thresholds are as follows:

- Amenities would compromise pedestrian or operational safety
- Adequate right-of-way is not available
- Installation costs are excessive
- Plans are in place to relocate or close the stops

Work Order System

In an effort to improve the ongoing maintenance, installation, replacement, and update of bus stops, a rigorous multi-department work order should be implemented. Similar systems employed by peer agencies improve internal coordination and asset management practices. Work orders should be generated by Planning and assigned to Capital Projects, Facilities Maintenance, Safety, Operations, Dispatch, and Information Technology.

Each work order should include the action and specific responsibilities for each department. Departments without specific responsibilities should still be notified. Bus stop identification number and/or detailed location information should be provided along with action deadlines. Typical actions include temporary closures, permanent closures, relocation, new installation and

amenities upgrade. Actions are typically triggered by construction, service changes, stop consolidation, increased ridership, safety concerns, theft or auto-related accidents.

STATION IMPROVEMENTS

Strategic improvements at existing and potential transit stations will improve customer satisfaction and comfort, as well as operational safety and efficiency. The top transit station priorities for CCRTA include:

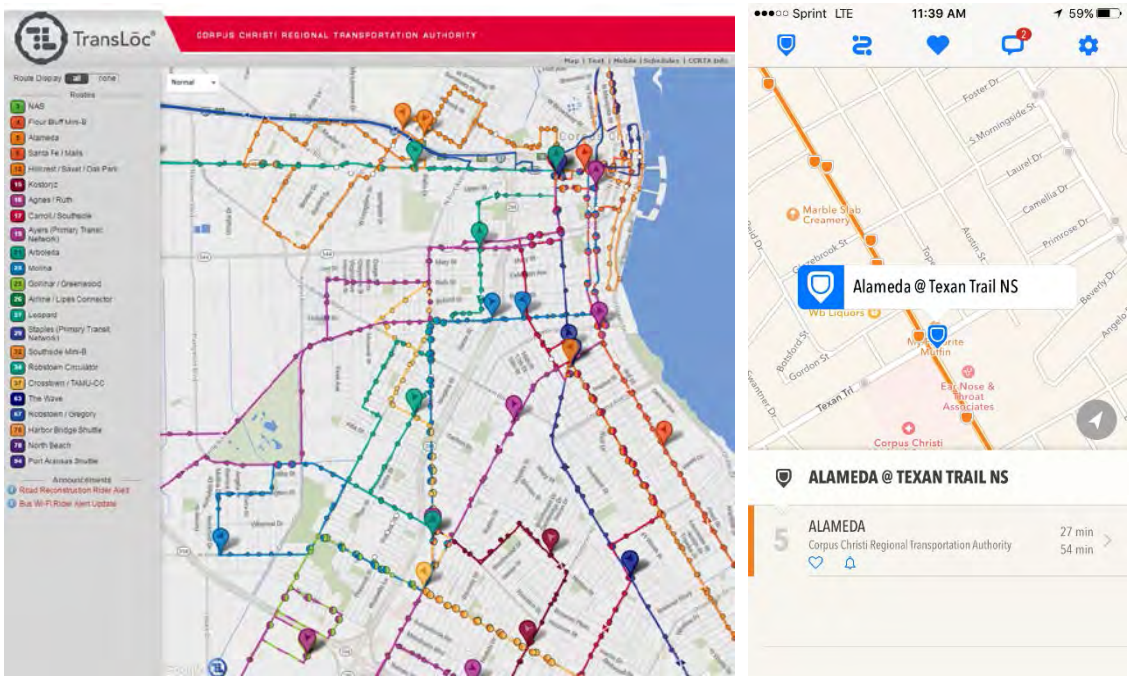
- Expansion of Port Ayers Station to accommodate additional bus bays and expand the passenger waiting area
- Construction of a Flour Bluff transfer point in the vicinity of Compton and Waldron with improved customer amenities including larger shade structures and a route/schedule information kiosk
- Renovation/redesign of Six Points Station to upgrade the customer waiting area
- Pavement, lighting and sidewalk connectivity improvements at Calallen Park & Ride
- Sidewalk extension at Gregory Park & Ride

Figure 195 Six Points Station Customer Waiting Area

REAL–TIME ARRIVAL INFORMATION

CCRTA currently provides a bus tracking application on its website that is also available for download on Android and iOS devices. Screen shots of the desktop and mobile versions are shown in Figure 196.

Figure 196 Bus Tracking Applications



CCRTA also provides real-time information at Staples Street Station, as shown in Figure 197. Real-time arrival information should also be made available at all transit stations to improve customer satisfaction, reduce the need for printed materials and minimize the number of schedule-related calls to customer service.

Figure 197 Staples Street Station Real-Time Arrival Information

AUTOMATIC PASSENGER COUNTERS

Managing passenger loads is crucial in maintaining customer satisfaction, schedule reliability, and safe operations. Automated passenger counting systems (APC's) provide the capability to record the size of the maximum load on each trip in the system. All future CCRTA bus purchases should include APC's. Passenger load data will highlight where capacity issues are creating routine standing loads or pass-by situations, and where seating capacity is going unused. Depending upon individual circumstances, service level modifications or vehicle assignment modifications may be appropriate when the peak loads approach or exceed seating capacity. Similarly, routes or trips with minimal passenger loads may warrant a closer examination of the alignment or schedule.

TRANSPORTATION NETWORK COMPANY

Providing transit service to low-density suburban areas is one of the most challenging environments for transit. Typically, the housing density is such that frequent fixed-route bus service cannot be operated efficiently. Because demand for service into less-dense areas continues to grow, finding a more cost effective solution than fixed-route service or demand response type service is necessary.

Multiple agencies, including Pinellas SunCoast Transit (St. Petersburg, FL area), have developed partnerships with the private sector to provide more cost-effective transportation to low-density suburban areas. The programs are, in essence, an extension of a traditional user side subsidy program, which is used by transit systems nationwide to partner with taxi-cab companies, and extends this partnership to Transportation Network Companies (TNC) such as Uber or Lyft.

CCRTA should examine the possibility for partnerships with TNC's. Some things to consider when developing a partnership:

- Accessible vehicles must be available – whether it is a taxicab or TNC
- The option to use a taxi-cab allows for the use of a non-smart phone and cash to book a trip. Most TNC's require a smartphone and some sort of credit card, which some existing CCRTA riders may not have.
- TNC service zones should be established. TNC service should feed existing service, typically at a transit station or major stop. Longer-distance trips should be discouraged.
- The size of the zone will impact the amount of ridership and thus the subsidy that CCRTA provides. Likewise, the time of operations may increase costs.
- Fares for passengers may be either flat or vary based on distance travelled. A distance based fare more equitably correlates to cost of the trip, but a flat-based fare allows riders to accurately predict trip costs.

Specific areas where CCRTA could examine the applicability of a TNC partnership include:

- Southside (particularly east Rodd Field and south of Yorktown)
- Corpus Christi International Airport
- Late evening service after fixed-route service has ceased on weekdays and weekends

AUTONOMOUS SHUTTLES

An alternative solution to the challenge of serving lower-density areas cost-effectively are driverless shuttles. Electric driverless shuttles are being tested throughout the world as viable short-trip solutions to connect people to mass transit.

While certain legislative challenges remain, a local test of the technology could be possible in off-public street locations such as TAMU-CC. A driverless shuttle could cost-effectively connect residential, classroom, and parking uses with weather-sheltered frequent service.

CCRTA should look for opportunities for partnerships with autonomous shuttles that would allow for a local demonstration of this technology.