Collier Area Transit

Comprehensive Operational Analysis

February 2013

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Prepared for:

Collier County Metropolitan Planning Organization

Collier Area Transit

Prepared by:

CDM Smith

DRAFT Collier County Comprehensive Operational Analysis

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Executive Summary

Public transportation services for the over 333,000 citizens living in Collier County, Florida are provided through Collier Area Transit (CAT). CAT currently operates ten fixed-route bus routes (shown in **Figure ES.1**) as well as paratransit service within unincorporated Collier County, the City of Naples, Marco Island, and Immokalee. Since inception in 2001, CAT's annual ridership has increased from just fewer than 100,000 trips in 2001 to over 1.2 million trips in FY 2012. Over roughly the same time period, from 2000 to 2010, the population in the county has grown by approximately 28 percent. Given these large population and ridership changes, it is essential to periodically review the services CAT offers and provide a meaningful assessment of how this service may be organized to most efficiently and effectively address the needs of citizens in the County. One way that transit agencies address these changing dynamics affecting transit service provision is by conducting a Comprehensive Operational Analysis (COA).

The Collier County Alternative Transportation Modes (ATM) Department is responsible for planning, operating, and managing CAT public transportation services through a contract operator, Keolis Transit America (KTA). The ATM Department is also responsible for the direction of CAT services and, as such, has initiated this COA to evaluate existing fixed-route services to identify short term (five-year) recommendations for maximizing route efficiencies and service in Collier County and the surrounding areas. Because times and dynamics have changed over the last five years, the Collier County Alternative Transportation Modes (ATM) Department and CAT requested that the Collier MPO jointly conduct this review of current public transportation services through the COA process.

Medium-sized transit agencies typically conduct a COA process approximately every five years, depending upon fluctuation in agency revenues and requests for service. CAT may want to consider adding this detailed analysis as an additional task while conducting the required annual updates for the Transit Develop Plan. The analyses conducted through a COA provides the transit agency with a wealth of objective information for use in business planning, including use of services provided and how those services meet the needs of the customers. This purpose of the COA is therefore to identify the strengths and weaknesses of transit operations in the County, including those services that are the best performing and those that need attention. This, in turn, is used to define actions that the agency can take to improve productivity and service efficiency over a five year period.

This COA was designed to effectively review and incorporate the findings of recent studies, analyze the CAT system and provide an early and continuous public involvement process. The study design involved staff and public participation, background data collection and analysis of existing service characteristics, site visits, conducting actual on-site reviews of the major characteristics of each of the routes provided (known as a "ride check" data), and performing on-board surveys with existing CAT passengers.

ES.1 Study Design

This COA was designed to effectively review and incorporate the findings of recent studies, analyze the CAT system and provide an early and continuous public involvement process. This study design involved staff and public participation, background data collection tasks, and development of ride check and on-board survey data.

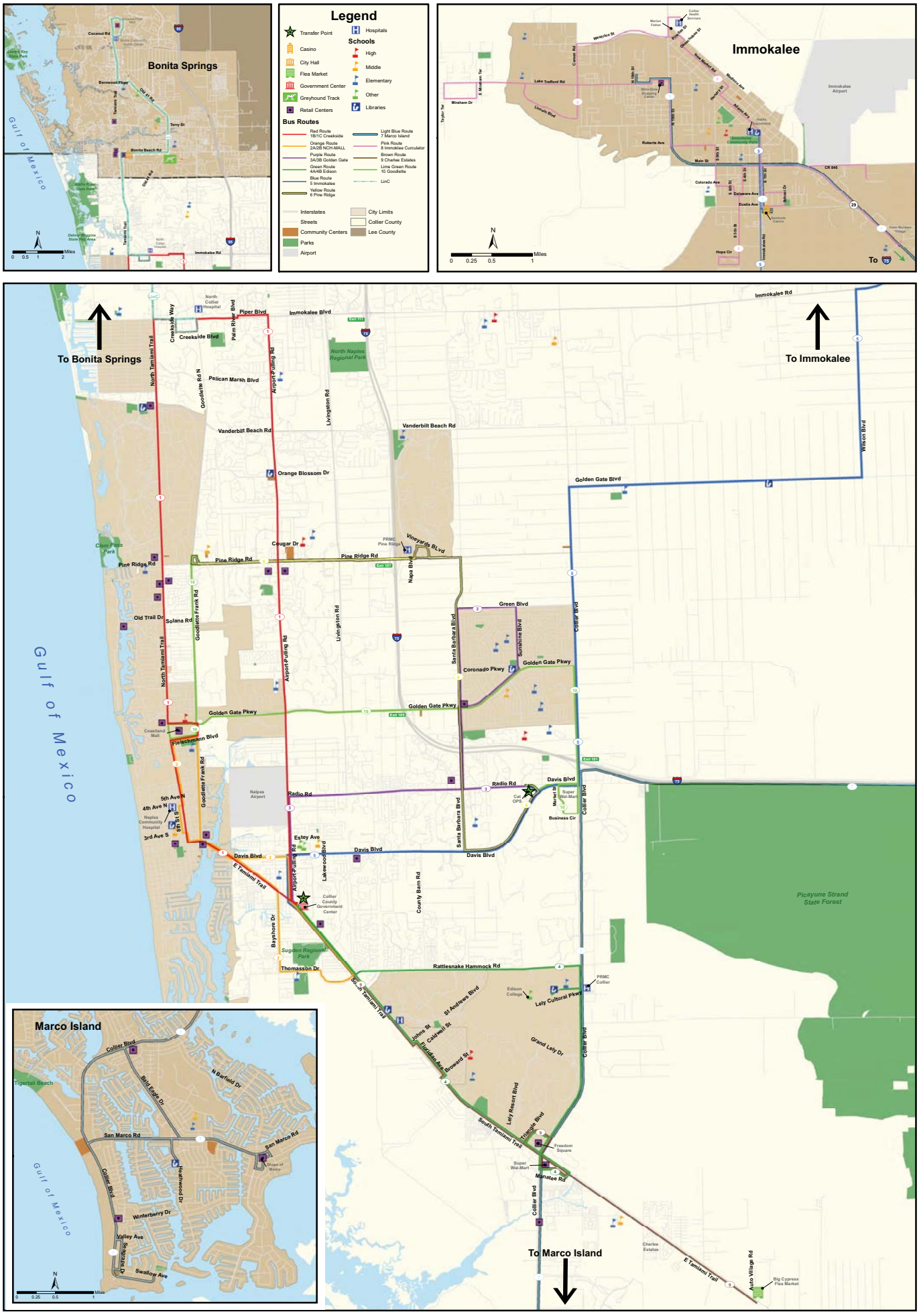

Figure ES.1 - Collier Area Transit + LinC

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ES.1.1 Public Involvement

Public involvement was critical in identifying qualitative data on the existing services. At the start of this study, 60 stakeholders were identified as suggested points of contact. These stakeholders included elected officials, city and county management staff, as well as members of the Chamber of Commerce, other planning agencies, the local coordinating board (LCB), and technical advisory committee (TAC) and citizens advisory committee (CAC) members. All stakeholders were provided with background information on this study and its purpose, information on scheduled meetings and interview times and dates to facilitate public input, and points of contact for providing or requesting additional information on this study. In coordination with agency staff, 14 stakeholders representing a cross section of elected officials, agency leaders, and community representatives were identified to conduct one-on-one interviews for additional detailed feedback on community desires. These stakeholder meetings and interviews, combined with field investigations of existing routes, driver interviews, ride check and survey data, and a public open house meeting formed a starting point for identifying strengths and weaknesses of the existing system and defining appropriate goals and objectives for the COA.

ES.1.2 Background Data

Data collection activities were also undertaken at the start of this project and included a review of previous studies and collection of current operational data sets as well as coordination with concurrent studies. Documents reviewed as part of this process included the most recently adopted Transit Development Plan (TDP) and Transportation Disadvantaged Service Plan (TDSP). Current operational data was obtained from the National Transit Database (NTD) and Collier County staff. In addition, coordination was sought with Collier staff to provide additional information on capital equipment and vehicle information, additional service area and fare data, previous rider surveys conducted, and other data that could assist the project team in analyzing the existing system and making meaningful recommendations on short term service improvements. Finally, a number of plans are being conducted concurrently with this study and were reviewed. The Collier Long Range Transportation Plan (LRTP) was reviewed to ensure consistency between the short range improvement plan provided in this COA with longer term recommendations in the LRTP. The Collier County Master Mobility Plan is also being conducted concurrently with this COA and all relevant and available documents from that study were reviewed as well.

ES.1.3 Collected Data

In addition to background data, a ride check survey and on-board survey were conducted for this COA. A 100 percent ride check was conducted on each of CAT's routes. The ride check was conducted over a three-day period from March 23-25, 2012 and included total boardings, alightings, and on-board passengers at each stop for each trip operated on a Friday, Saturday, and Sunday throughout CAT's hours of operation. In addition, surveyors counted the number of bicycle ons and offs and passengers who used wheelchairs. This data provided a representative sampling of the service provided by CAT. An on-board passenger survey was conducted on May 4-6, 2012 to examine travel behavior and demographic characteristics of existing CAT riders. The survey also identified opportunities to improve bus service for current riders and to make it a viable choice for those who currently drive a car or use other travel options. A total of 2,500 surveys were distributed in English, Spanish and Creole. Every passenger over the age of 15 received a survey. A total of 1,033 completed surveys were analyzed, which equaled a response rate of 41 percent, which exceeded the projected response rate of 25 percent.

ES.2 Key Analysis Findings

Public transit agencies develop route alignments and schedules similar to the development of the roadway transportation network alignments. The end result is to provide residents with the most direct routes to/from their destinations. All roads cannot be arterial roads or highways. Smaller feeder roads such as collector and local streets coordinate mobility with the other higher volume roadways. Transit agencies have this same philosophy. The busiest and primary bus routes will likely be the most efficient and operate along high activity corridors, which are usually arterial roads. Many small neighborhood and service routes feed into the busier route and allow passengers transfer opportunities.

A series of primary themes have been distilled from the various data analyzed and field observations:

- **Low Frequency** – The low frequencies of CAT routes reduce the spontaneous use of the system. Service frequencies must be increased and complex route patterns removed to encourage more spontaneous use of the system and also draw potential riders to use transit more regularly.

- **Route Productivity** – The ride check analysis completed for this COA shows good route productivity on a system-wide level, averaging over 17 passenger trips per hour. Routes 3, 1, and 2 perform best, with Routes 9 and 4 scoring next highest. Not surprisingly, these routes also report the most transfer activity. These five top-performing routes carry 75 percent of total system-wide ridership.

- **Bus Stops**– The ride check analysis completed for this COA indicates that the highest stop level ridership is occurring at Government Center, Wal-Mart (Collier Boulevard and U.S. 41), Fleischmann Boulevard near Coastland Mall, Creekside Transfer Center, and the Radio Road Operations Center. These locations coincide well with major transfer points listed in Collier County's Transit Development Plan (TDP) and should be given highest priority in developing passenger amenity improvements. Other locations in Immokalee that exhibit high boardings and alightings may be considered as well, including Farm Workers Way and the Immokalee Health Department. Bus stop shelter and shade were listed as a service quality concern in the customer survey conducted as part of this study. Although ranked by customers as meeting service quality standards, continued improvements to shelter and other amenities is a priority for improving customer service quality.

- **Operating Ratios** –The routes with the best operating ratios correspond closely with the highest levels of ridership.

- **On-Time Performance** – Field analysis indicated there are on-time performance challenges, particularly during peak season.

- **Route Alignment Names** – There are many routes, such as Route 1B, 2A, 2B, etc. that create passenger confusion. The existing schedules/maps do not differentiate the routes, or the direction of travel. Passengers are required to understand the differences in route patterns to understand the schedules.

- **Route Connectivity** – The CAT system provides route connectivity through a number of transfer points identified on the route schedule as well as at any location within the system where two routes connect. Focused efforts to enhance transfer locations at major activity

generators within the County are recommended to improve route connectivity and create a seamless, efficient and more connected system. Currently, the only major transfer locations require passengers to travel to the Government Center or Transit Operations Building. Transfer centers are also located at Coastland Center, Walmart at SR 951 and US 41, and Creekside. Additional transfer locations should be available. While population and employment densities and street topography strongly support CAT's transit network, several factors point to supplementing this core system with other services. First, the suburban communities continue to grow in both residential and commercial densities, meaning riders need to connect to more places than just the Government Center. Future networks should seek to provide more cross town opportunities to allow riders to connect quickly from one part of the county to another.

- **Rider Demographics** – The ridership base tends to be highly transit-dependent. Four out of five riders live in households with zero or one vehicles earning less than $30,000 annually. The majority of patrons ride the bus four days or more each week, primarily for work trips.

- **Accessibility Issues** – CAT fixed-route services need to continue to be accessible to more of the community. Accessibility, particularly as it relates to transit service, can mean many things. It can imply geographic coverage to reach more of the population, or the extent to which services meet the needs of certain population segments. Accessibility in transit has also come to be associated with meeting the disabled community's needs. As the Collier County area expands beyond the current limits of transit service, CAT must seek to push its service area to new areas where demand for transit may exist, or increase service in some existing areas. Some of these areas are ripe for commuter services and others would benefit greatly from introducing or increasing the level of local service provided. Expanded geographic coverage, increased service frequencies, and longer service spans were top concerns of both riders and non-riders. In particular, evening service and 90-minute service frequencies are a concern. This is an inadequate level of service to attract a significant ridership base.

There is much that current CAT fixed-route service is doing right, and future recommendations seek to preserve those elements. Namely, CAT maintains a weekday system-wide average of over 17 passenger trips per revenue-hour, a good value for a key performance indicator. Productivity in some of the key corridors, like U.S. 41 and Airport Pulling Road are also extremely high. But underscoring the myriad of data and analysis are the demographics of CAT's riders that represent a ridership base that is highly transit dependent. This base is less sensitive to deficiencies in service levels or reliability, especially when it comes to work trips.

Non-riders are not so immune. Many of them have a choice in transportation options, and CAT simply does not provide service that is direct enough, frequent enough, or close enough to make it competitive, even though most non-riders say they are willing to try transit under the right circumstances. In order to attract new riders to CAT and increase usage among current riders, CAT must continue to increase service as revenues become available and maintain its current strengths.

ES.3 Service Change Recommendations

In order to determine the community's transportation needs, data was gathered from a number of sources including an on-board survey of bus passengers, discussions with drivers who interact with customers daily, and discussions with CAT staff and supervisors about where service can be improved. The following factors were evaluated from the data for each route as part of the service analysis:

ridership patterns, span of service, frequency of service, transfers, schedule adherence, and overall route productivity, efficiency and effectiveness. Based on this analysis, service operation recommendations were made. The recommendations were created to meet both passenger needs and address CAT operational needs.

The following primary assumptions were made as part of the service recommendations:

1. The level of resources for CAT services will remain stable for the duration of this plan, Year 1-5.
2. Service expansion would require additional revenues. The time period for this plan is for the immediate future, defined as the next five years. Decreasing the existing headways from 90 minutes to a minimum of 60 minutes is a primary goal for CAT.

ES.3.1 New Route Names and Establishing Service Tiers

There are many routes, such as Route 1B, 2A, 2B, etc. that create passenger confusion. The existing schedules/maps do not differentiate the routes, or the direction of travel. Passengers are required to understand the differences in route patterns to understand the schedules. Based on the analysis of CAT's existing service and needs observed during the COA, it is recommended that CAT immediately focus existing and new resources in the future toward a hierarchy of four clear levels of transit service and begin renumbering existing routes as such. These service tiers will allow for a renumbering of all existing CAT routes as well, and include both existing and potential future services:

- **Local Service** (Route 1 – 99) – CAT local bus service will be the backbone of the Collier County transit system. The next steps for CAT are to build from the local services to a higher and more frequent level of service. Local service will support future growth in the county. CAT will need to increase service frequencies to become a viable alternative to the single occupant vehicle.

- **Rapid Transit Service** (R-500 series used for route numbers) – Rapid transit service for Collier County is for service along primary corridors with frequent bus service and transit vehicle preemption. CAT does not have this type of service today. However, a viable rapid transit service along Highway 41 would be a likely example in the future.

- **Express Service** (100 series used for route numbers) – CAT currently operates express service to Marco Island. Other future services will play a key role in the future of transporting commuters from outlying communities to employment centers across the county.

- **Flexible Service** (200 series used for route numbers) – Flexible routes consist of several types of service for local residents and visitors. These may include deviated routes, Call-A-Ride service, or checkpoint service. Several areas within the low density Collier county area, such as Everglades City and Ave Maria areas, would be viable candidates for this type of service in the future (outside of the five-year service plan). Given their current geography and service needs, this flexible service would be more efficient than typical fixed-route transit service.

Hand-in-hand with the CAT service tiers is the type of development occurring in Collier County to support these different modes of transit. The above service tiers will have different characteristics to accommodate the different types of markets served within the community. Future seasonal routes should use a 300 series for route names, and any special event and/or tripper services are recommended to follow the 400 series for route names. Existing routes are proposed to be renamed in accordance with these new service tiers, as shown in **Table ES.1**.

Table ES.1: Recommended Route Name Changes

Existing Route	New Route Name
1B	Route 1, Red Route, Tamiami Trail North
1C	Route 11, Gold 11 Airport-Pulling Road North
2A	Route 2, Orange, NCH-Coastland Mall
2B	Route 12, Teal, Bayshore-Coastland Mall
3A	Route 3, Purple, Golden Gate City
3B	Route 13, Gray, Golden Gate City
4A	Route 4, Green, Rattlesnake-Hammock/Edison College
4B	Route 14, Magenta, Tamiami Trail South/Manatee
5	Route 5, Blue, Golden Gates Estates/Immokalee
6	Route 6, Yellow, Pine Ridge/Collier Boulevard South.
7	Route 7, Light Blue, Marco Island
7 Express	Route 107, Silver, Marco Island Express
8A	Route 8, Pink, Immokalee Circulator North
8B	Route 18, Burgundy, Immokalee Circulator South
9	Route 9, Brown, Tamiami Trail South/Charlee Estates
10	Route 10, Lime Green, Goodlette Frank via Golden Gate Parkway

ES.3.2 Enhance Route Frequencies

Decreasing the existing headways from 90 minutes to a minimum of 60 minutes is a primary goal for CAT. The following individual route recommendations, shown in **Table ES.2**, indicate several routes to increase frequency of service. Service frequencies to optimize headways are outside of the five year plan of this COA, but should nevertheless be pursued as funds become available.

Table ES.2: Service Frequency Recommendations

Change from 60 to 30 Minute Headways	Change from 90 to 60 Minute Headways
Routes 2A,2B	Routes 1B, 1C, 3A, 3B, 4A, 6, 8A, 8B, 9, 10

**Please Note: These recommendations represent long term recommendations outside of the COA five year financial plan.*

The estimated cost for each of these improvements is approximately $164,000 per route, moving from 90 to 60 minute headways. This cost does not include the acquisition of a new vehicle for the schedule improvements. The estimated cost for a schedule change from 60 minutes to 30 minutes is approximately $328,000 per route. This cost does not include the acquisition of a new vehicle. These cost estimates are based upon 12 hours of year round service, 7 days per week, with an operating cost of $75 per revenue hour.

ES.3.3 Proposed Route Changes

A summary of the individual route change recommendations are depicted graphically in **Figure ES.2**. The following route modifications are proposed based on demographic needs, ridership trends, the boardings and alightings analysis, and other input garnered from drivers and public surveys. The proposed recommendations do not increase the existing operating budget or annual revenue hours of service.

- **Route 4 (Green Route):** Running times for Route 4 have approximately 20 minutes built into the existing schedule. Route recommendations for 4A include an expansion to Edison College. Route 4B would extend south of Wal-Mart, continue south on Hwy 41, Tamiami Trail East, turn right (west) on Manatee Road to Collier Boulevard, then Collier Boulevard, to Wal-Mart.

- **Route 5 (Blue Route)**: Route 5 is an average performing route for CAT. Recommendations to improve performance include service through the growing northeast areas of Collier County. The following realignment recommendations include utilizing Immokalee Road north to Oil Well Road, turn right, go to Everglades Boulevard North, turn left (North), back to Immokalee Road and continue route as normal.

  Census data for the new service area covered by this recommendation show a higher transit dependent population, in addition to increased population projections. In the future (outside of this five year recommended service plan), an additional flex route for Golden Gate Estates should be considered, as revenues become available. This service would complement the new Route 5. Other considerations could be to implement a fixed-route service which could serve the Creekside-Immokalee Road corridor in place of the flex route. The purpose of the route would be to expand cross town service for Immokalee Road to Collier, then south.

- **Route 6 (Yellow Route):** Route 6 is the lowest performing route for CAT. Modifications need to be made to this route to bring the performance of the route higher. Suggested reasons for the poor performance are a result of where the route originates and ends, without major activity in either location.
    - Route 6 recommendations include changing the route to operate from Golden Gate Library (instead of the CAT Operations Center), follow the same route as today along Santa Barbara Boulevard and Pine Ridge Road to Goodlette Road, and extending service north to the transfer area at Creekside.
    - An alternate route consideration for the longer term (outside of this five year, cost neutral plan) includes extending the route south on Collier Boulevard to Wal-Mart near Collier Boulevard and U.S. 41 via Edison College. The service benefit is to include portions of South Collier Boulevard not currently served. The new route encourages fixed-route ridership from Aventine at Naples apartment community (325 units, Forest Glen, Heritage Meadows and Cedar Hammock subdivisions, Sierra Meadows and College Park Apartments, (additional 400 plus units). The route provides additional connector service from Golden Gate City to PRMC/Collier Boulevard, Edison College, and direct connections to Marco Island service. The disadvantage of this alternative for Route 6 is that headways would increase from 90 to 120 minutes. To maintain 90 minute headways, an additional bus would be needed to operate this service. The estimated cost for this longer term improvement is $164,000 and does not include any capital costs that may be needed for an additional vehicle.

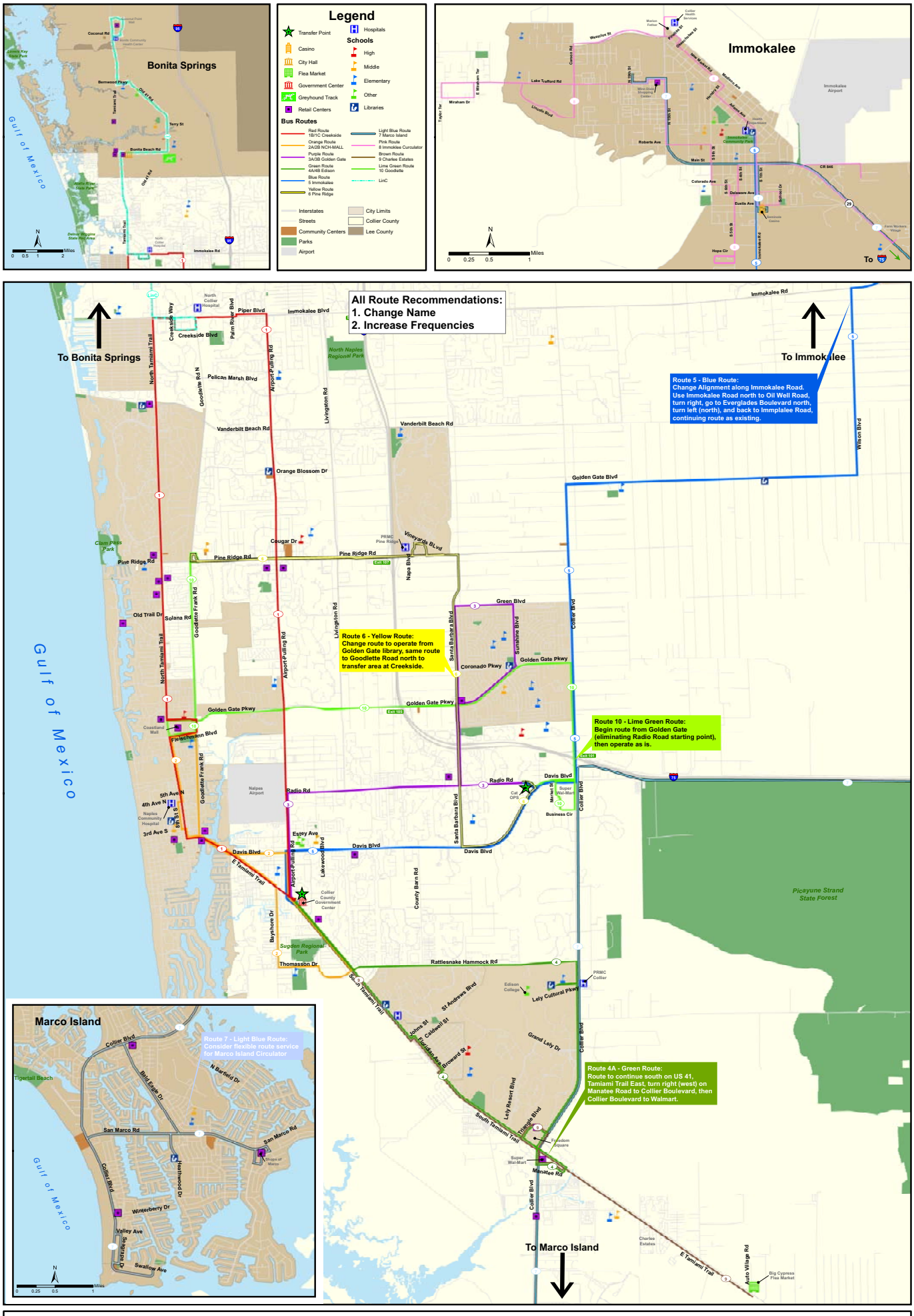

Figure ES.2 - Collier Area Transit + LinC

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- **Route 7 (Light Blue Route):** Route 7 is one of the lower performing routes for CAT. The service on Marco Island is valuable to many residents, workers, and employers in the area. This route should continue to be monitored.
    - Service on the island may be more successful if supporting land use and parking requirements are implemented. A marketing plan specifically for the major employers should be implemented for continuing success. Route 7 is a viable candidate for Call-A-Ride service. Residents and visitors would call in to schedule rides and be picked up curbside. Appropriate technologies would need to be in place prior to implementing the service.

- **Route 10 (Lime Green Route):** Route 10 is one of the lower performing routes for CAT. Modifications need to be made to this route to bring the performance of the route higher. Suggested reasons for the poor performance are a result of where the route originates and ends, without major activity in either location. Route 10 recommendations include beginning the service from the library in the Golden Gate area and continue the existing route on Golden Gate Parkway for direct east/west connections across Naples.

While developing the proposed route changes, the study team continuously asked the question whether the changes were the most efficient for CAT. Each year during the required Transit Development Plan updates, CAT staff evaluates existing services and constantly looks for ways in which to lower the number of miles traveled and ways to fill the buses with as many riders as possible in the shortest time possible. CAT also continues to keep the number of vehicles as small as possible in order to reduce costs of purchasing and maintaining too many vehicles. The CAT transit routes provide service to over 70 percent of Collier County, some areas more populated than other areas, which does result in some buses running at less than full capacity for some of the legs of their journeys; thus, some buses may not be completely full when they arrive at CAT transfer centers.

CAT staff is often asked why smaller buses are not used for those areas where not many passengers are picked up. While it would seem more efficient to use a small bus where there are fewer bus riders and a larger bus where there are more riders, when we look at the big picture, there are more pieces to the add to the equation. Because a bus services more than one area of Collier County, that bus may have a full load during certain parts of the day, but not so full at another. In that case, it would take two buses if we assigned buses based strictly on capacity, where we can do the job with one bus even if it isn't always full. Having the driver switch to a different bus is not a viable option either because there simply is not enough time to take one bus back to the Operations Center to get another. CAT would lose efficiency in the travel to and from the garage as well. If only one bus on one route is considered, it may look appear that it could be done better with smaller vehicles; however, when the entire CAT transit network of 10 routes is consider, switching vehicles during lower demand times does not improve the overall efficiency of the system and adds additional capital vehicle costs.

Vehicles are expensive. The most cost effective buses are those vehicles that can be used for many purposes. Versatility is the key to keeping the number of CAT buses at a minimum. The way to hold down vehicle purchase costs and maintenance costs is to keep the number of vehicles needed low. So, while running a larger bus for a few passengers may seem inefficient, it is more efficient than keeping two vehicles on hand. The miles per gallon gained by using a smaller bus is not enough to make up for the cost of purchasing and maintaining that second bus. In these tough economic times, CAT continues to be diligent in providing efficient and cost effective service.

ES.4 Financial and Implementation Plan

The COA includes service recommendations for the next five years, which do not increase the existing operating budget or annual revenue hours of service. The recommended changes reflect the reallocation of resources from unproductive service to areas where service needs have been identified. The service recommendations do not increase the existing operating budget, but do include a small increase of two percent as a result of inflationary factors, which is consistent with the adopted 2011 Transit Development Plan. The route recommendations address only operational costs. Cost estimates have been provided where possible throughout this report. Additional capital costs for improved accessibility to existing and new bus stops, shelters, buses, sidewalks, curb cuts, and other capital improvements are not included in these recommendations.

The greatest investment proposed in the long term is to improve service headways, which will continue to improve ridership, produce additional farebox revenues, and attract more choice riders to the system. However, financial constraints do not allow for this to be included in the financial and implementation plan for this five year plan. As funding becomes available, this represents a priority investment for the CAT system.

Since service levels remain relatively low with 60 and 90 minute headways, system-wide ridership is expected to remain relatively stable over the next few years. **Table ES.3** presents the proposed budget and ridership projections for the next five years. The budget and ridership projections shown below indicate a two percent increase each year. The budget inflation factor of two percent is consistent with Collier County's adopted Transit Development Plan (TDP) and is based on historical consumer price index data. Projected ridership is assumed at two percent and is based on ridership changes from 2010 to 2011 (the most recently available annual data comparison). Specific route modifications are discussed in detail in Section 6 of this report.

Table ES.3: Financial Plan

Year	Existing Budget (1)	Projected Ridership (2)
Base Year	$4,785,000	1.21M
1	$4,881,000	1.23M
2	$4,979,000	1.26M
3	$5,079,000	1.28M
4	$5,181,000	1.31M
5	$5,285,000	1.36M

(1) Assumed Budget: 2% inflation, consistent with the adopted Collier County Transit Development Plan and based on historical trends in the Consumer Price Index (CPI).

(2) Projected ridership: 2% annually, based upon CAT 2010 to 2011 percent of ridership change.

The implementation plan for CAT includes making the route modifications to existing services and making changes to the nomenclature of the route names. These changes provide CAT the opportunity to promote existing and new service areas. **Table ES.4** provides the implementation plan to initiate responsibilities and duties for the change.

Table ES.4: Implementation Plan

YEAR 1	
Task	
1	CAT staff to develop specific times for new scheduled services, including transfer times, and major time points for schedule.
2	CAT staff review existing and new bus stop locations for new services.
3	Ensure MPO Board and BCC support for future changes.
4	ATM/MPO/CAT to develop RFP for design of new bus schedules. Approximate cost $75,000. (1)
5	ATM/MPO/CAT to develop Transit Advisory Group (TAG) to prepare names for new routes.
6	ATM/MPO/CAT to develop RFP for marketing of new services or determine whether providing in-house staffing for this role is more appropriate. Approximate cost for marketing firm to conduct marketing of new services $250,000. (1). Approximate cost for full time staff member in similar role to be determined.
YEAR 2	
Task	
1	CAT staff to finalize new schedules, driver assignments, bus stop locations.
2	Hire firm for development of bus schedules.
3	Hire firm for marketing of new services/outreach or hire a new full-time employee to undertake these efforts.
4	Develop timeline for 'go live' for new services w/ ATM/CAT/MPO and new marketing firm.
5	Assign local staff to be champion for change and coordinate directly with marketing firm.
6	Hold public meetings for feedback on proposed route changes and names.
7	Ensure MPO Board and BCC support for future changes.
8	Go live with new services.
9	CAT/ATM/MPO staff to provide assistance at transfer stations during first few weeks of service for excellent customer service.
10	CAT/ATM staff to closely monitor all CAT routes.
YEARS 3-5	
Task	
1	Develop marketing plan for years 3-5 and assign responsibilities through the new FTE position or hire marketing firm to assist. Approximate cost $100,000 for a new marketing firm. (1)
2	CAT/ATM staff to closely monitor all CAT routes.
3	Continue to inform MPO Board and BCC of CAT progress.
4	Conduct onboard and ride check survey to check route progress. Approximate cost $50,000. (1)
Note: (1) Estimate based upon CDM Smith project experience in other locations. Costs may range from $40K on the lower end for only design services to $300k on the highest end, including printing. This estimate is based on national trends and may be adjusted for actual quotes in Collier County.	

ES.5 Future Considerations

An additional list of improvements was identified in the planning process to be considered for future planning purposes. These are not feasible in the short-term, five year period due to lack of available resources or other limitations. These future considerations are consistent with mid- and long range planning documents such as the Transit Development Plan and Long Range Transportation Plan. In particular, future updates of the TDP should look to this COA and continuing service monitoring to update these future considerations and steer the course for the CAT system into the future. Future considerations and priorities identified in this COA process include the following:

- New flexible route service for the eastern portions of Collier County, incuding Everglades City and Ave Maria. The flexible route services allow CAT to expand service areas and meet paratransit needs with one service. CAT must have the Intelligent Transportation Systems (ITS) infrastructure in place prior to implementing service. The primary reason for the ITS to be in place for CAT is to provide accurate, real-time trip data to transit riders and CAT staff. The ITS infrastructure will improve productivity, reduce data entry costs, provide the ability for same-day service, provide better monitoring of operators and contractors, collect accurate data for future planning and improve quarterly and annual required reports. Although not feasible at this time given cost constraints, the estimated annual operating cost for a flexible route service is approximately $328,000 based on operating one vehicle. This cost does not include the capital cost required to purchase a new vehicle. These cost estimates are based upon 12 hours of service, seven days a week, with year round service, with an operating cost of $75 per revenue hour.

- Increasing service frequency and span of service should be the primary priority for CAT in the future. As discussed throughout the above recommendations, the minimum standard for local service routes should be 60 minutes for all core routes. Additional revenues are needed to provide this service.

- Express route services should be implemented from north of Naples and south of Naples. The service would be available to residents and visitors to major destinations and activity centers within Collier County. The cost per route is approximately $246,000 per year, which includes peak morning and afternoon service, with approximately 9 revenue hours of service, 7 days a week.

- Additional services should be planned for north and east of Naples to meet the expected growth. Section 2 of this report discusses in detail high growth areas for Collier County, which will also impact the demand of CAT services.

- New satellite transfer stations should be planned for the north east area of the county and for south Collier County in the future. The transfer stations would provide opportunities for riders to transfer to multiple routes and get to their desired destinations. This will likely require some restructuring of route design toward a more corridor-based service that would encourage timed transfers.

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Section 1 Introduction

1.1 Why a COA?

Public transit, like any business, can be efficient and effective only if it understands the markets it serves, the needs of its customers, and how well it is doing in matching its products to the markets. Unlike many retail operations, transit does not receive detailed information each time a purchase is made. While a transit operator can determine from farebox records how many people have boarded a bus in a day, those records do not reveal anything about the characteristics of the customer, the specific trip for which the bus was used (e.g. origin, destination, purpose) or the quality of service that was provided. While new technologies are gradually being adopted by the transit industry to better track both customer activity and the services provided (e.g. smart-card based fare collection, Automatic Vehicle Location, Automatic Passenger Counters), these systems are still not in wide use. Developing information about services provided and services used requires special studies to collect and process data.

In the past three years, CAT received Congestion Management System grant funds for the implementation of technology solutions for the transit network. Phase I of the project included:

- Electronic Passenger Information Display Signs
- Automated Annunciation System (AAS)
- Computer Aided Dispatch & Automated Vehicle Locators (CAD/AVL)
- Fixed-route Scheduling Software
- Automated Passenger Counters (APC)
- Electronic Fareboxes

Phase II includes enhancing public access to transit information by implementing advanced Real Time Information Systems (RTI), GIS-based route planning through Google Planning, and Interactive Voice Response (IVR).

The data collected and the analyses conducted through a Comprehensive Operational Analysis (COA) provides transit agencies with a wealth of objective information for use in business planning, including use of services provided and how those services meet the needs of the customers. Medium-sized transit agencies typically conduct a COA process approximately every five years, depending upon fluctuation in agency revenues and requests for service. CAT may want to consider adding this detailed analysis as an additional task while conducting the required annual updates for the Transit Develop Plan. The COA identifies the strengths and weaknesses of the operations, including those services that are the best performing and those that need attention. This, in turn, helps define actions that the agency can take to improve efficiency and effectiveness.

Collier Area Transit (CAT) initiated this Comprehensive Operational Analysis to evaluate existing CAT fixed-route services, with the outcome being practical recommendations for maximizing route efficiencies and service in Collier County and the surrounding areas. As times and dynamics have changed over the last five years, ATM and CAT requested that the Collier MPO jointly conduct an overlook of the current CAT services. This COA provides a thorough analysis of the fixed-route service and recommendations designed to improve productivity and service efficiency.

The purpose of the study is to analyze the existing transit services, identify deficiencies in route structure, service schedules, and identify areas in the community without transit service. The ultimate outcome of this process will be the development of short-term recommendations over the next five years to best meet the vision for public transportation in Collier County. Any future route modification recommendations will support CAT goals and objectives and enhance service for local residents and visitors.

1.1.1 Understanding the Data

Once the transit agency has data for describing the markets, they can begin to assess if available resources are being correctly deployed, or if alternative strategies would result in a more effective service. Transit is, by nature, a conservative industry. Over time, the residents of the community served by transit develop patterns of activity and travel based on the transit service provided. Decisions about where to live, purchase a car, medical facilities, favored shops, etc. are made based on the transit operations.

People grow to depend on specific services. As markets shift over time, the transit operator may find that services that were once well-used are attracting fewer riders, and that needs are developing in other locations for services. Shifting resources to target the new markets may seem appropriate. However, instituting a change in services will almost always reduce the quality of service for some existing riders, though it improves service in areas where new riders are anticipated. The riders for whom service will change can be quite vocal in their objections, while the hoped for new riders will be silent. Undertaking changes in service patterns must therefore be done with recognition of this reality. Change must be introduced incrementally. When feasible, new services should be introduced and new markets established before older services are reduced or terminated. Change must not be seen as a zero-sum game in which the new markets are served at the expense of old. Nonetheless, transit agencies cannot continue to provide inefficient services. Agencies must be willing to make changes when sound data has been collected and proper studies have been conducted to demonstrate that change is required to maintain the efficiency of the overall transit system.

A COA is a process developed in the transit industry to support the business planning function of transit agencies. Regular, periodic COAs permit transit agencies to not only understand the current use and performance of their system but also to understand how the performance and use of the system is changing over time. Where necessary, corrective actions can then be identified and implemented that respond to changing conditions, that work to strengthen poorly performing services, and that target resources to developing markets.

1.2 System Overview

CAT provides public transit services to a service area of over 1,500 square miles and servicing a population of over 333,000. Collier County has a total of 2,025 square miles. The Alternatives Transportation Modes (ATM) Department within the Collier County Public Services Division is responsible for the direction of these services. Service is provided seven days a week, depending upon

the route, through a private contractor providing bus planning, operations, and administration services. Currently, CAT operates ten routes, including: six routes within the Naples area; a fixed route service from Immokalee and the Golden Gate Estates area to Naples; the Immokalee circulator; and the Marco Island Express/Circulator. Service operational times are between approximately 4:00 a.m. and 8:00 p.m., depending upon the route and day of the week.

Since inception in 2001, CAT's annual ridership has increased from just fewer than 100,000 trips in 2001 to over 1.2 million trips in FY2012. Over roughly the same time period, from 2000 to 2010, the population in the county has grown by approximately 28 percent. Given these large population and ridership changes, it is essential to periodically review the services CAT offers and provide a meaningful assessment of how this service may be organized to most efficiently and effectively address the needs of citizens in the County.

1.3 Mission and Vision

A clear vision statement and well-defined project goals and objectives are important for identifying and analyzing reasonable short-range service improvements. They serve as the primary criteria used to develop, evaluate, select, and prioritize service improvements. A strong mission and vision statement with clear study goals and objectives is essential to gaining community support and advancing public transportation service improvements. As the existing conditions analysis is completed and a range of potential service improvements are identified, these goals and objectives will help decision makers and the public compare different service improvements against associated impacts. The following presents the proposed vision and mission statements for the CAT System, as defined in the Transit Development Plan (TDP).

CAT PUBLIC TRANSIT MISSION

To provide an accessible, sustainable, safe, efficient, and affordable public transportation network that provides multimodal choices, promotes livable neighborhoods and communities, increases quality of life, and enhances the economic and social well-being of Collier County's residents and visitors.

CAT PUBLIC TRANSIT VISION

To be an integral part of Collier County's transportation network operated effectively and efficiently to improve economic and environmental benefits while providing all residents an alternative to the automobile.

1.4 Goals and Objectives

Project focus areas, goals, and objectives for this short-term improvements analysis have been identified based on the overall vision and mission for the CAT system, as well as from field visits and interviews with community stakeholders. The focus areas, goals, and objectives represent repeated comments heard from all stakeholders, and together provide cohesive and community-supported areas for analyzing the Cat system. The five targeted focus areas for development of CAT short-term improvements include:

- Transit Dependent Populations (low-income, elderly and disabled populations)
- Accessibility to Employment Opportunities

- Making Efficient Connections
- Reduction of Delays and Improvement of Service Reliability
- Safe, Attractive, and Easy to Use Services

The following provides detailed goal statements and objectives developed from the public involvement process to guide this COA. These goals and objectives have been reviewed by CAT staff and will be provided to the Steering Committee for this project for comment and approval.

1.4.1 Goal 1: Identify priority problems and short-term needs.

- **Objective 1A** – Solicit public input to understand a full array of transit service needs.
- **Objective 1B** – Solicit input from CAT drivers/riders to identify major issues/travel patterns.
- **Objective 1C** – Collect a comprehensive set of customer, land use, employment, and demographic data.
- **Objective 1D** – Collect a comprehensive set of future transit demand information.

1.4.2 Goal 2: Identify current and future transit service opportunities.

- **Objective 2A** – Identify gaps in existing and future transit.
- **Objective 2B** – Identify efficiencies in route timing, scheduling, and headways.
- **Objective 2C** – Identify major hubs/park-n-rides/transfer areas to streamline connectivity.
- **Objective 2D** – Determine main corridors to serve the highest number of riders efficiently.
- **Objective 2E** – Determine circulator or other flexible service options and locations to optimize service.

1.4.3 Goal 3: Refine CAT's service to maximize the use of public funds.

- **Objective 3A** – Identify the potential to deliver the same or additional transit service for lower cost.
- **Objective 3B** – Identify service standards and performance measures for ongoing monitoring on the efficiency of the CAT service.
- **Objective 3C** – Identify service plan and funding recommendations for CAT.
- **Objective 3D** – Implement the preferred service plan.

1.5 Study Design

This COA was designed to effectively review and incorporate the findings of recent studies, analyze the CAT system and provide an early and continuous public involvement process. This study design involved staff and public participation, background data collection tasks, and development of ride check and on-board survey data, as described in further detail below. Public involvement summaries for this COA are provided in **Appendix A**.

1.5.1 Staff and Public Participation

Providing public involvement opportunities early and continuously throughout this project allows the community values to flow to the top and ensures that the specific opportunities and challenges to the implementation of the public transportation system in Collier County are evaluated through this COA.

Collier Metropolitan Planning Organization (MPO) and Collier ATM **staff coordination** was undertaken early on in this process to identify day-to-day operational issues in existence and to

provide key insights on the project outcomes desired from this study. To provide continuous community participation throughout this study, the MPO's technical and citizens advisory committees were selected to act as the **Steering Committee** throughout this study. Study information is being provided to the steering committees at key milestones throughout this process during regularly scheduled monthly TAC and CAC meetings. Two presentations to the Collier Metropolitan Planning Organization (MPO) board have also been scheduled throughout the study and a Board of County Commissioners' Workshop was conducted in September to educate board members on CAT services and performance. To facilitate early involvement by key stakeholders within the community, project fact sheets and communications were provided to an array of community members. In addition, interviews with elected officials, the business community, and other agency and interested community members were conducted in April 2012. The results and recommendations from this COA will also be presented to the MPO Board and Board of County Commissioners (BCC) for their final approval.

At the start of this study, **60 stakeholders** were identified as suggested points of contact for the study. These stakeholders included elected officials, city and county management staff, as well as members of the Chamber of Commerce, other planning agencies, the local coordinating board (LCB), and TAC and CAC members. All stakeholders were provided with background information on this study and its purpose, information on scheduled meetings and interview times and dates to facilitate public input, and points of contact for providing or requesting additional information on this study. In coordination with agency staff, 14 stakeholders representing a cross section of elected officials, agency leaders, and community representatives were identified to conduct one-on-one interviews.

As part of the early community outreach efforts, a field visit was conducted from April 11-13, 2012. The field visit was complemented by a variety of public involvement and outreach efforts, including the following:

Stakeholder Interviews: Stakeholder interviews were conducted in person with key members of the community, including elected officials and agency and business leaders, to identify service needs and community values for this COA. Follow-up telephone interviews were conducted with these key stakeholders to accommodate scheduling conflicts and to maximize stakeholder involvement at the outset of the project.

Stakeholder Open House: A Stakeholder Open House was held on April 12, 2012 from 10:00 a.m. to 12:00 p.m. to provide an opportunity for stakeholders to review maps and other materials and offer input at their convenience. A total of 60 stakeholders were identified for participation in this Open House and all stakeholders were informed of the opportunity to provide input in this forum via e-mail invitations and distribution of study fact sheets.

Public Kick-Off Open House: A public Open House meeting was conducted on April 12, 2012 from 5:00 to 7:00 p.m. at the Golden Gate Community Center. Study fact sheets, maps, and comment forms were made available to all attendees to facilitate input on how services could be improved over the five year study period. These meetings were conducted in concert with current long range transportation planning (LRTP) efforts to coordinate these studies and provide the public with an opportunity to comment on both short term and long term improvements for CAT services.

Driver Interviews: Driver Interviews were conducted in person with CAT staff to obtain input on service needs and improvements. Driver interviews provided a unique opportunity to meet with staff that drive this system every day and have insights into key performance issues and opportunities. These interviews were conducted at the CAT Transfer Facility on Radio Road from April 11-13, 2012. Three driver outreach visits were conducted to obtain feedback from drivers on all shifts of the CAT system: morning, mid-day, and evening.

Route Shadowing: Field visits were undertaken over a three-day period by consultant and CAT staff to obtain first hand information on routes, stops, schedules and on time performance, and to identify route issues and opportunities.

Detailed information and summaries of the public involvement activities undertaken and findings generated from interviews and site visits are included in **Appendix A**. These findings served to form the basis for the development of goals and objectives for this study, and provided key insights to be reviewed during the quantitative data analysis process of this study.

1.5.2 Background Data

Data collection activities were undertaken at the start of this project and included a review of previous studies and collection of current operational data sets as well as coordination with concurrent studies, as described below.

1.5.2.1 Previous Studies

Previous studies provide the planning background and context necessary for conducting an effective COA. A review was undertaken of recently completed studies related to the public transportation system, as part of the data collection process. Documents reviewed as part of this process included the most recently adopted Transit Development Plan (TDP) and Transportation Disadvantaged Service Plan (TDSP). This data provided planned future improvements, as well as a review of existing performance review standards and evaluation measures.

1.5.2.2 Current Operational Data

Current operational data was obtained from the National Transit Database (NTD) and Collier County staff. In addition, coordination was sought with Collier staff to provide additional information on capital equipment and vehicle information, additional service area and fare data, previous rider surveys conducted, and other data that could assist the project team in analyzing the existing system and making meaningful recommendations on short term service improvements.

1.5.2.3 Concurrent Studies

The Collier Long Range Transportation Plan (LRTP) is being conducted concurrently with this COA. This plan details long range plan for public transportation in Collier County. To ensure consistency between the short range improvement plans that will be part of this study and the longer term improvements and needs identified through the LRTP process, the study team obtained needed data regarding these improvements during this COA. This included a request for recent transit modeling data from the LRTP process pertaining to route changes, any other operational planning documents for CAT services, and other city documents with specific transit requests. In addition, the Collier County Master Mobility Plan is also being conducted concurrently with this COA and all relevant and available documents from that study were reviewed as well.

1.5.3 Collected Data

In addition to background data, a ride check survey and on-board survey were conducted for this COA. Detailed information on the results of these surveys are provided later in this document and served to inform the evaluation of current services.

1.5.3.1 Ride Check Survey

A 100 percent ride check was conducted on each of CAT's routes. The ride check was conducted over a three-day period from March 23-25, 2012 and included total boardings, alightings, and on-board passengers at each stop for each trip operated on a Friday, Saturday, and Sunday throughout CAT's hours of operation. In addition, surveyors counted the number of bicycle ons and offs and passengers who used wheelchairs. This data provided a representative sampling of the service provided by CAT. The ride check data provides the needed information to identify specific route segments that are being heavily used or underused and also allows the route structure to be built to serve the demand efficiently.

1.5.3.2 On-Board Survey

An on-board passenger survey was conducted on May 4-6, 2012 to examine travel behavior and demographic characteristics of existing CAT riders. The survey also identified opportunities to improve bus service for current riders and to make it a viable choice for those who currently drive a car or use other travel options.

The on-board survey included local service routes as well as CAT's Marco Express, Marco Circulator, and Immokalee circulator routes. A total of 2,500 surveys were distributed in English, Spanish and Creole. Every passenger over the age of 15 received a survey. A total of 1,033 completed surveys were analyzed, which equaled a response rate of 41 percent, which exceeded the projected response rate of 25 percent.

Twenty-one trained surveyors were utilized to conduct the survey. Forty-five percent of the surveyors were bi-lingual and fluent in Spanish or Creole. Surveyors wore identification badges denoting whether they were bilingual. Surveyors were assigned to ride all local routes. Five surveyors were assigned to five key CAT transfer centers, which also served as survey distribution points. At each transfer center, "Survey Today" posters were displayed in English, Spanish and Creole. The survey was conducted on a Friday, Saturday and Sunday on 100 percent of CAT's routes. The survey was conducted during the a.m. peak (6:00 a.m. – 10:00 a.m.), midday (11:00 a.m. – 2:00 p.m.), and p.m. peak (4:00 p.m. to 6:00 p.m.), along with early and late express and circulator routes. Approximately fifty percent of the trips on each route were surveyed.

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Section 2 Community Assessment

Demographic factors play an important role in understanding the context of a community and inherent or arising needs. Population characteristics, including demographics indicative of potential transit dependence and seasonal population trends help to identify priority areas for improvements. In addition, services tend to be more feasible when population and housing densities are supportive of such investments and can produce substantial ridership gains to offset costs of new or improved services. Employment also plays a crucial role in understanding the needs of a public transportation system. An understanding of the job market in an area, commuting patterns, and other major destinations help to identify where the greatest needs are for residents and employees who are potential users of the public transportation system. The following sub-sections provide further details on these demographic factors. The final sub-section then provides a summary of key observations yielded from this analysis. Taken together with ridership statistics, survey data, and other system performance characteristics, these factors serve to further inform and prioritize potential service improvements over the short-term five year planning horizon.

2.1 Population Characteristics

2.1.1 Population

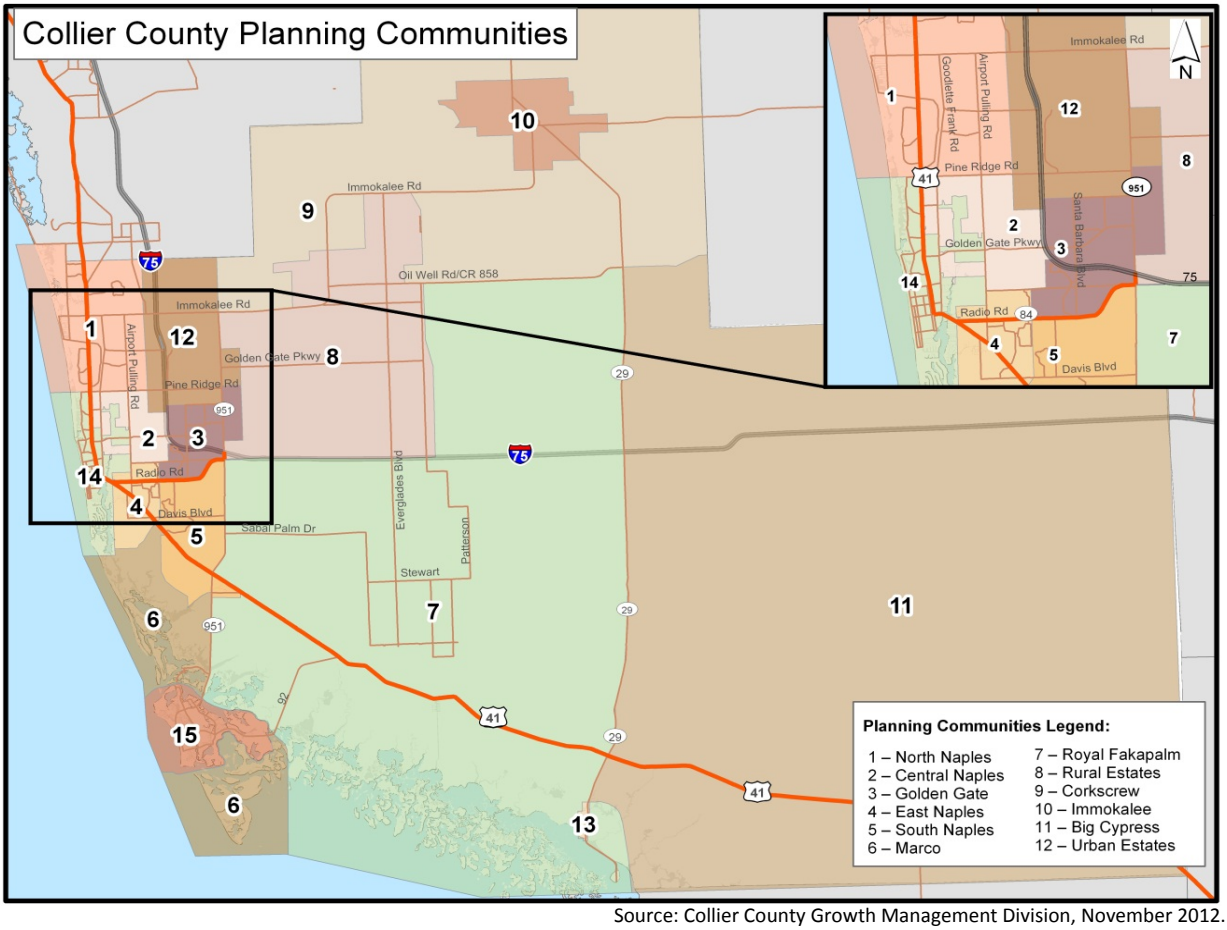
Table 2.1 provides details on population within the planning community areas from the 2000 and 2010 U.S. Census as well as the 2000 planning community estimates and population projections from the Collier County Planning Department through the year 2015. **Figure 2.1** displays the unincorporated planning communities identified in this table.

In terms of overall total population, there are four areas within Collier County that make up more than 10 percent of the County's population each and which are expected to continue as the largest communities within the County through the 2015 planning horizon. These include:

- North Naples (17%) – (map reference community 1), located approximately from the Lee/Collier County Line to Pine Ridge Road and extending east from the Gulf of Mexico to roughly the Livingston Road area.
- Golden Gate (14%) - (map reference community 3), located east of I-75, approximately just south of Pine Ridge Road and just north of Davis Boulevard.
- Urban Estates (12%) - (map reference community 12), approximately located from the Lee/Collier County line to Green Boulevard in the south and from roughly Livingston Street to just east of CR C.R. 951.
- Rural Estates (11%) - (map reference community 8), approximately located north of I-75 (Alligator Alley), from just east of CR C.R. 951 to just east of Everglades Boulevard and extending north to Immokalee Road.

Combined, these communities constitute approximately 54 percent of the total population in the County. As such, they remain priority areas for transit planning purposes.

Figure 2.1: Planning Communities, Collier County, Florida



Source: Collier County Growth Management Division, November 2012.

Table 2.1: Collier County Historical Population and Population Projections, 2000-2015

Collier County Communities	2000	2010	2012	2013	2014	2015	Change 2000-2010	Change 2010-2015
Corkscrew	1,019	4,550	6,705	8,055	9,425	10,815	346.52%	137.69%
Big Cypress	190	233	236	239	242	245	22.63%	5.15%
Central Naples	18,323	18,845	18,933	19,001	19,070	19,139	2.85%	1.56%
East Naples	24,385	22,320	22,346	22,370	22,394	22,355	-8.47%	0.16%
Golden Gate	35,325	44,925	45,189	45,380	45,574	45,771	27.18%	1.88%
Immokalee	21,845	24,154	25,608	24,765	24,925	25,087	10.57%	3.86%
Marco Island (unincorporated)	1,350	1,219	1,224	1,225	1,227	1,228	-9.70%	0.74%
North Naples	47,657	55,041	55,534	55,904	56,280	56,662	15.49%	2.95%
Royal Fakapalm	7,811	11,797	12,821	13,446	14,081	14,724	51.03%	24.81%
Rural Estates	18,815	34,739	34,887	34,996	35,107	35,219	84.63%	1.38%
South Naples	21,610	28,689	29,643	30,267	30,900	31,542	32.76%	9.94%
Urban Estates	16,713	38,658	39,266	39,709	40,158	40,614	131.30%	5.06%

Collier County Communities	2000	2010	2012	2013	2014	2015	Change 2000-2010	Change 2010-2015
South Naples	21,610	28,689	29,643	30,267	30,900	31,542	32.76%	9.94%
Urban Estates	16,713	38,658	39,266	39,709	40,158	40,614	131.30%	5.06%
Incorporated Places	**2000**	**2010**	**2012**	**2013**	**2014**	**2015**	**Change 2000-2010**	**Change 2010-2015**
City of Naples	20,976	19,537	19,691	19,934	20,179	20,428	-6.86%	4.56%
City of Marco Island	14,879	16,413	16,755	17,067	17,378	17,690	10.31%	7.78%
Everglades City	479	400	409	412	415	418	-16.49%	4.50%
COUNTYWIDE TOTALS	251,377	321,520	329,247	332,770	337,355	341,937	27.90%	6.35%

Source: Collier County Planning Department, Business and Economic Profile, 2003 and 2012.

Growth factors in recent years also have an important impact on identifying fast growing communities and where needs are arising. Between 2000 and 2010, the fastest growing area in Collier County is in the area of Corkscrew in the northeastern section of the County (map reference community 9). During this ten-year time period, the population grew by almost 350 percent and is expected to grow by another 138 percent between 2010 and 2015. In addition, the Rural Estates (85%) - (map reference community 8) and Urban Estates (131%) - (map reference community 12) areas grew considerably between 2000 and 2010, although these areas are expected to grow much slower through 2015 as the areas near build out. The area just south of I-75 and east of U.S. 41, Royal Fakapalm (map reference community 7), grew by over 50 percent between 2000 and 2010; the area is also expected to continue to see rapid growth by 2015, with an additional 1,900 people expected to be added between 2010 and 2015. Although this area is expected to make up approximately four percent of the total population in the County, its continued rapid growth denotes the need for future planning to address needs as they arise.

2.1.2 Youth Population

Youth populations, particularly those under the age of 16, rely upon others and alternative modes such as public transportation to meet their mobility needs. According to 2010 U.S. Census data, people less than 18 years of age make up 19.2 percent of the population. The percent of this younger population is represented by census tract in **Figure 2.2**. This percentage is somewhat lower than that the state as a whole (21 percent). Although a number of locations within the county are home to these potentially transit dependent populations, there are four areas where this population exceed 30 percent of the total population within certain census tracts. The concentrations of younger population are found near U.S. 41/Tamiami Trail and Collier Boulevard/C.R. 951 as well as those living in Naples Manor, just south of Rattlesnake Hammock Road near U.S. 41/Tamiami Trail. High percentages of younger populations are located throughout the Golden Gate Area, with the greatest concentrations located between Green Boulevard to the north and south of Golden Gate Parkway. In addition, the population living in Immokalee comprises a large portion of the population that is under the age of 18.

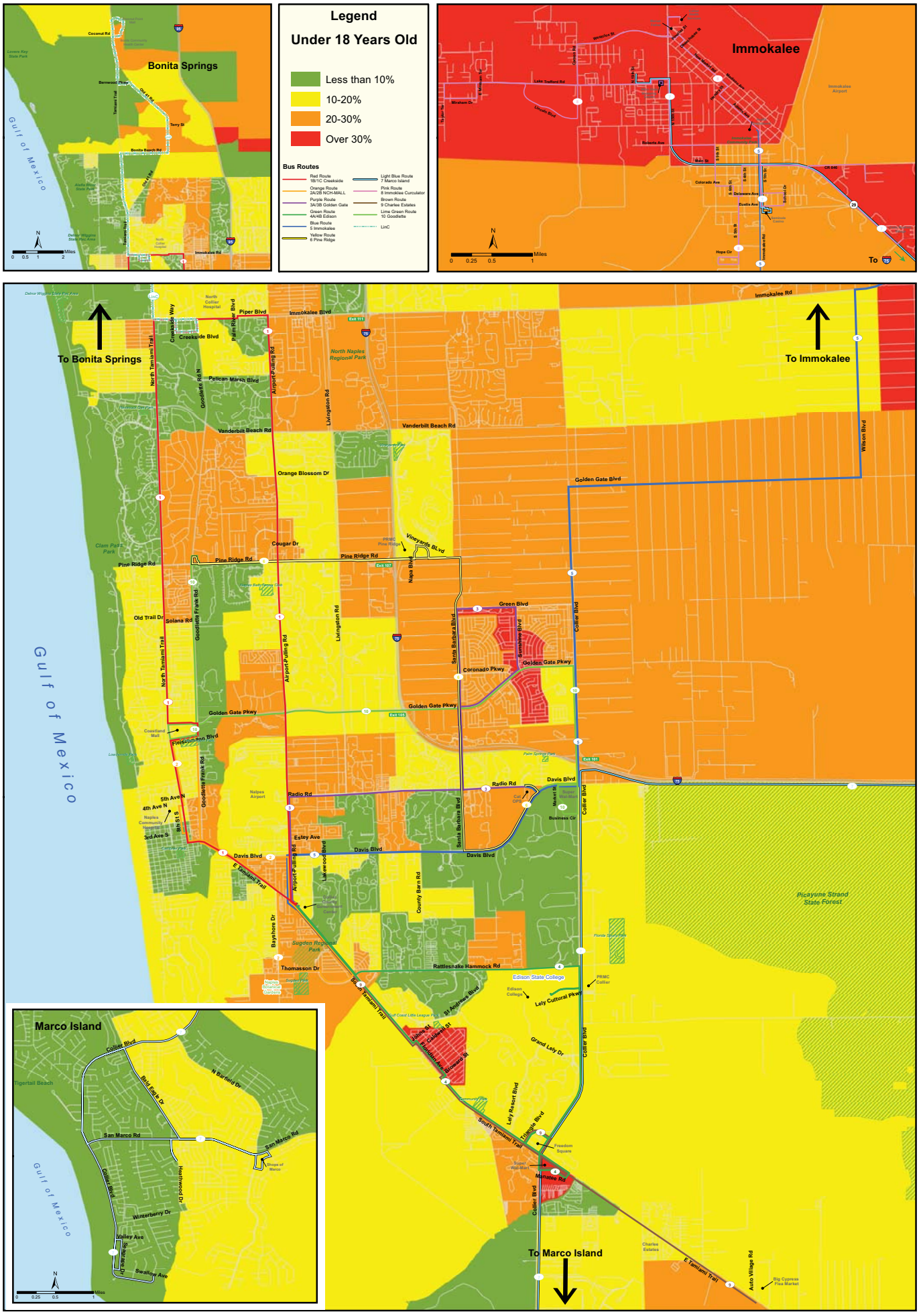


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Figure 2.2 - Population Under 18

2.1.3 Senior Population

As people age, transportation challenges can increase due to an inability to drive, mobility issues, and other factors. At the same time, transportation needs may become more critical in providing opportunities for meeting essential needs such as medical and shopping trips as well as overall socialization needs. According to 2010 U.S. Census data, those over 65 years of age make up 27.2 percent of the population. The percent of older population is represented by census tract in **Figure 2.3**. This percentage is much higher than that of the state as a whole (17.6 percent). Locations for this senior population are throughout the county; however, in certain areas like east and west of U.S. 41/Tamiami Trail, these populations make up over 30 percent of the population. These rates are much lower looking east of I-75 and into Immokalee, where the population tends to be below this age threshold.

2.1.4 Low-Income Population

Low income populations have special transportation challenges as well. The overall median income in Collier County, $58,106, is considerably higher than that of the state as a whole ($47,661). Data was collected from the 2010 U.S. Census American Community Survey (ACS) data by census tract to identify concentrated areas of poverty within the county, as shown in **Figure 2.4**. In most areas of the county, the percentage of the population in poverty is less than 10 percent. The greatest concentrations of poverty are located in the communities of Naples Manor and Lely along U.S. 41/Tamiami Trail, between south of Rattlesnake Hammock Road and Collier Boulevard/C.R. 951. In addition, communities and mobile home parks near U.S. 41/Tamiami Trail and Collier Boulevard/C.R. 951 towards the Marco Island area also experience greater poverty concentrations. The other major concentration for high percentages of low-income populations is in Immokalee. In addition, specific areas within Golden Gate City also experience high overall percentages of poverty.

2.1.5 Minority Population

Minority populations, in combination with low-income statistics, help to identify areas where people may experience potential disproportionate impacts, more appropriately defined as environmental justice communities. According to 2010 U.S. Census data and shown in **Figure 2.5**, minority populations (non-white) make up approximately 26 percent of the population within the County. This is somewhat higher than the approximately 22 percent of the population in the state as a whole that are defined as minority. Minority populations are spread throughout the county, with particular geographic clusters in the eastern portion of the County and in Immokalee. Combining low income and minority population data indicates that higher concentrations of low-income, minority populations in the county may be found near U.S. 41 and Collier Boulevard/C.R. 951, as well as in Immokalee.

2.1.6 Vehicle Availability

Zero car households represent another demographic of transit dependency. ACS data was used to identify major locations within the County where zero car households may be found, as shown in **Figure 2.6**. It should be noted that this data provides information at the tract level only, and therefore certain areas where a number of commercial activities also exist may be over representative of the actual total numbers in these areas. For instance, areas near the Naples Airport, along Golden Gate Parkway east of I-75, and certain areas within Marco Island are identified as locations of higher zero car households; however, the majority of the census tract area is used for commercial activity and therefore the overall number of transit dependent citizens in this area is considerably less.

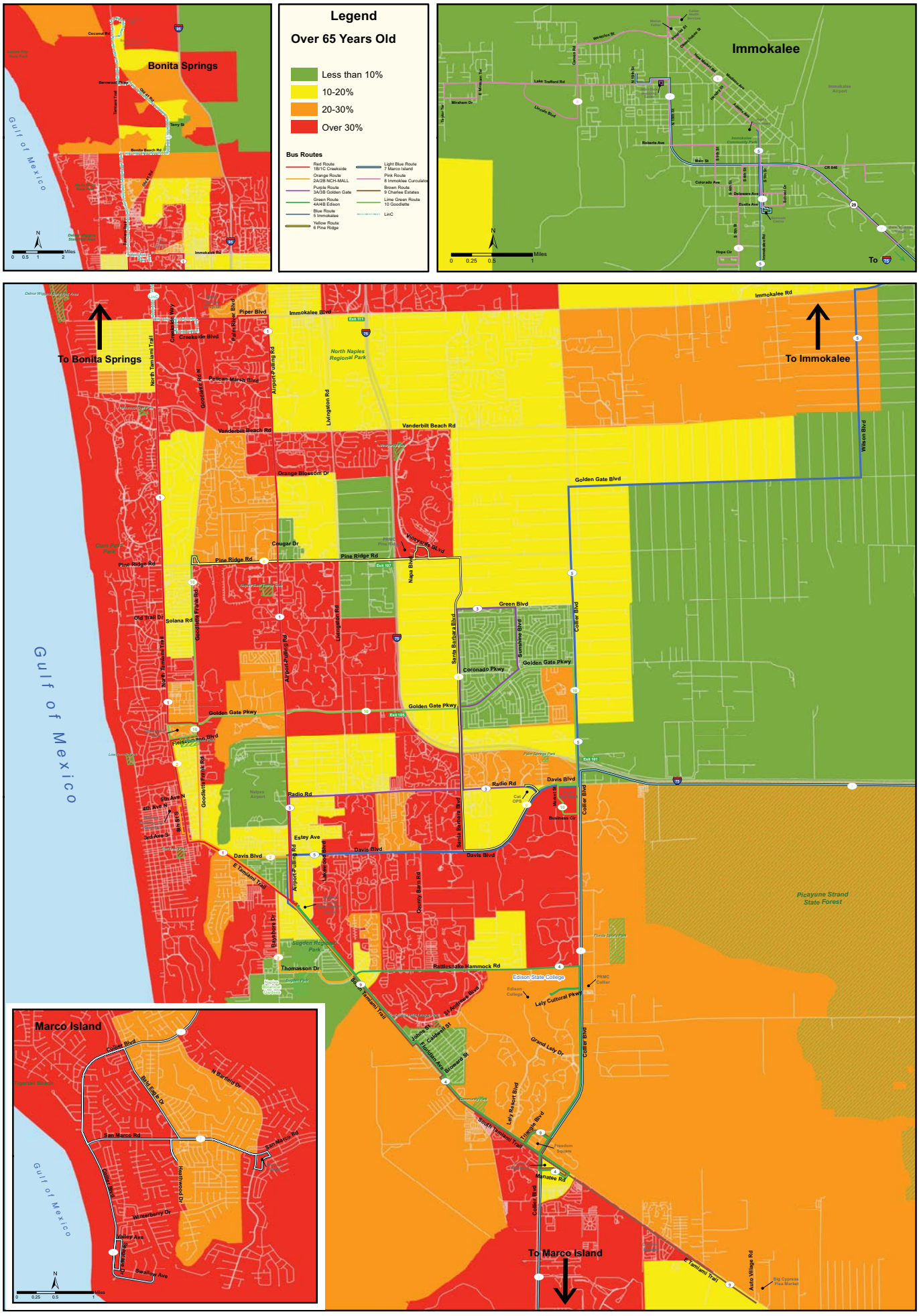

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Figure 2.3 - Population Over 65

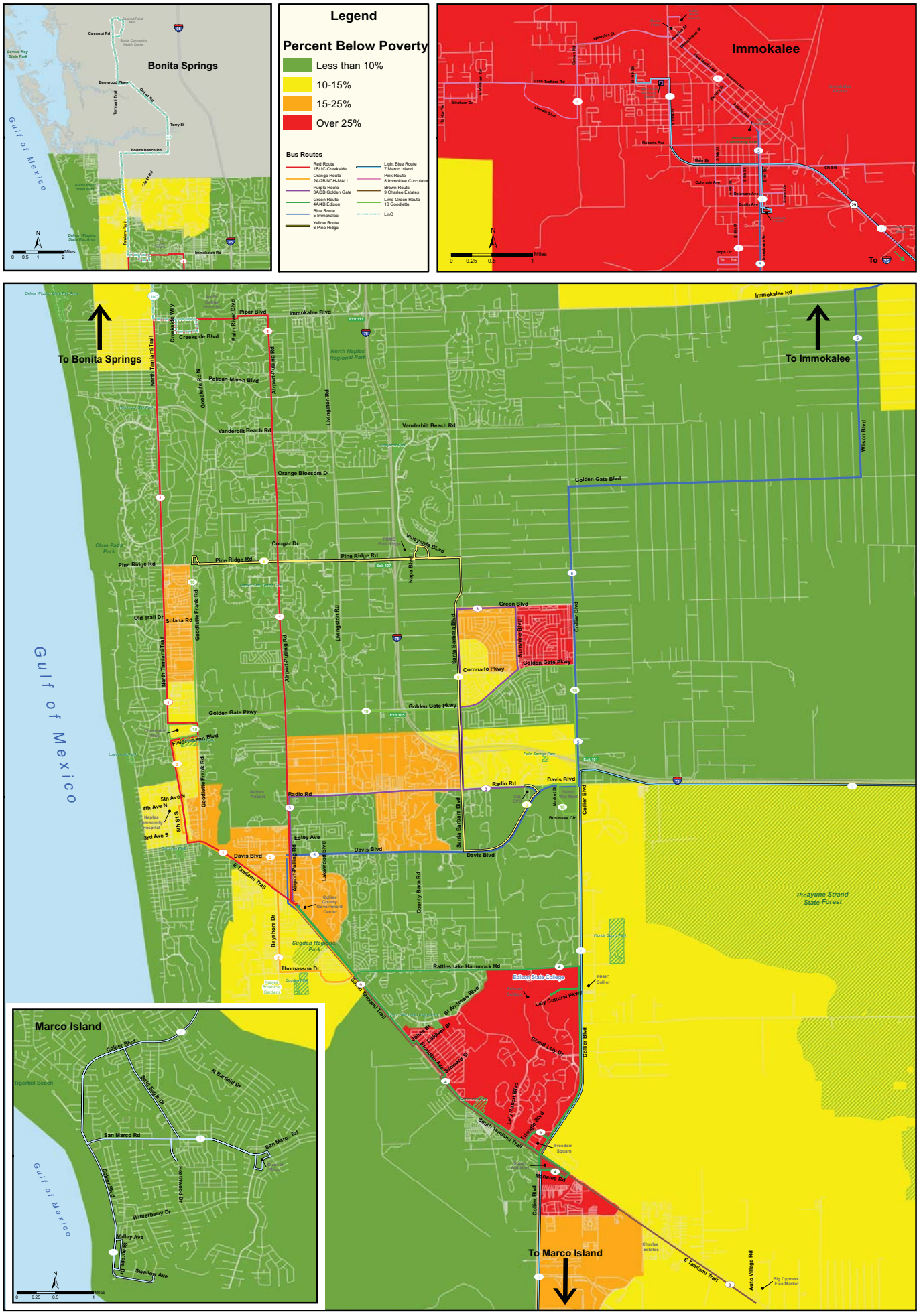

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Figure 2.4 - Percentage of Households Below Poverty

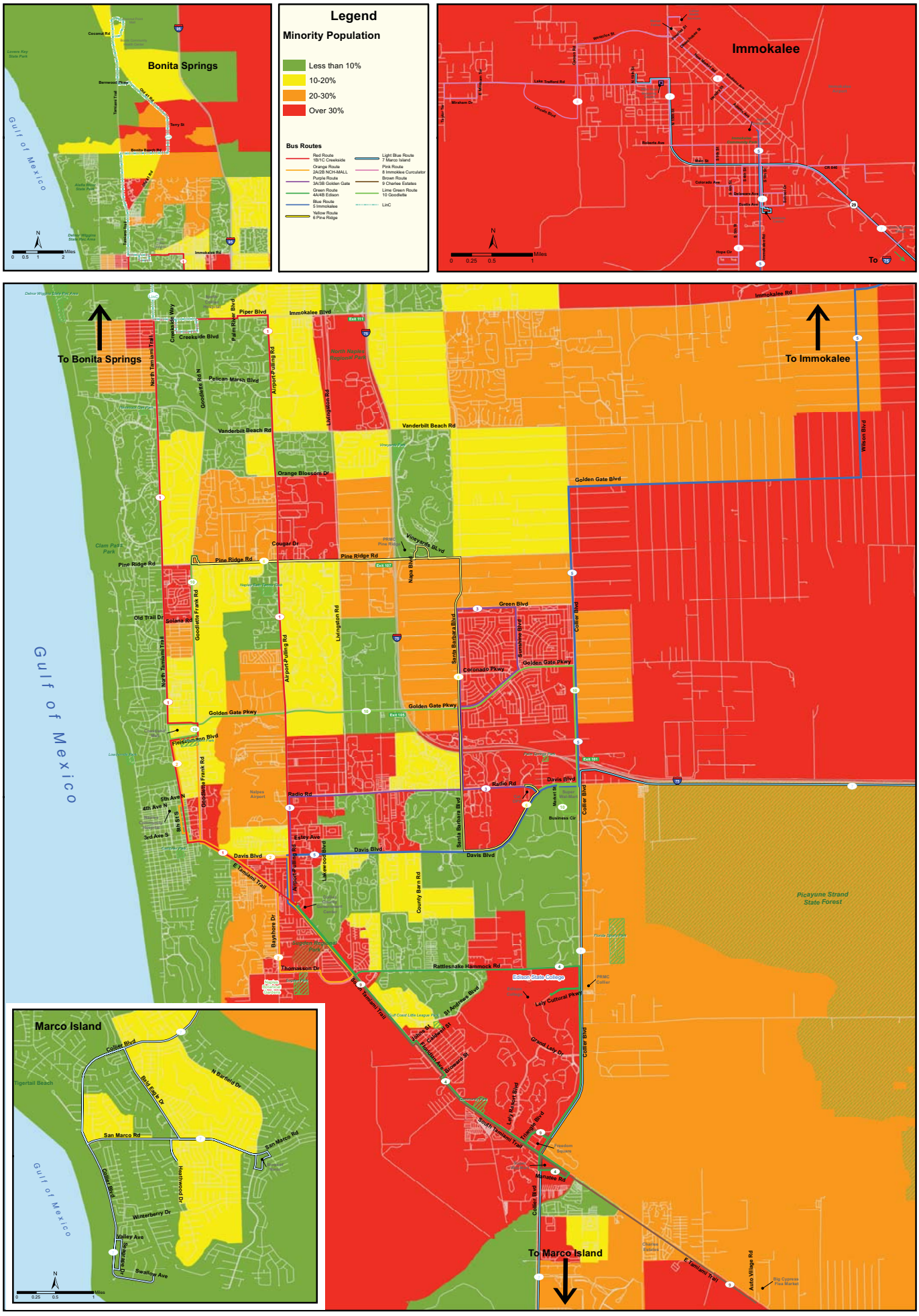

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Figure 2.5 - Percentage of Minority Population

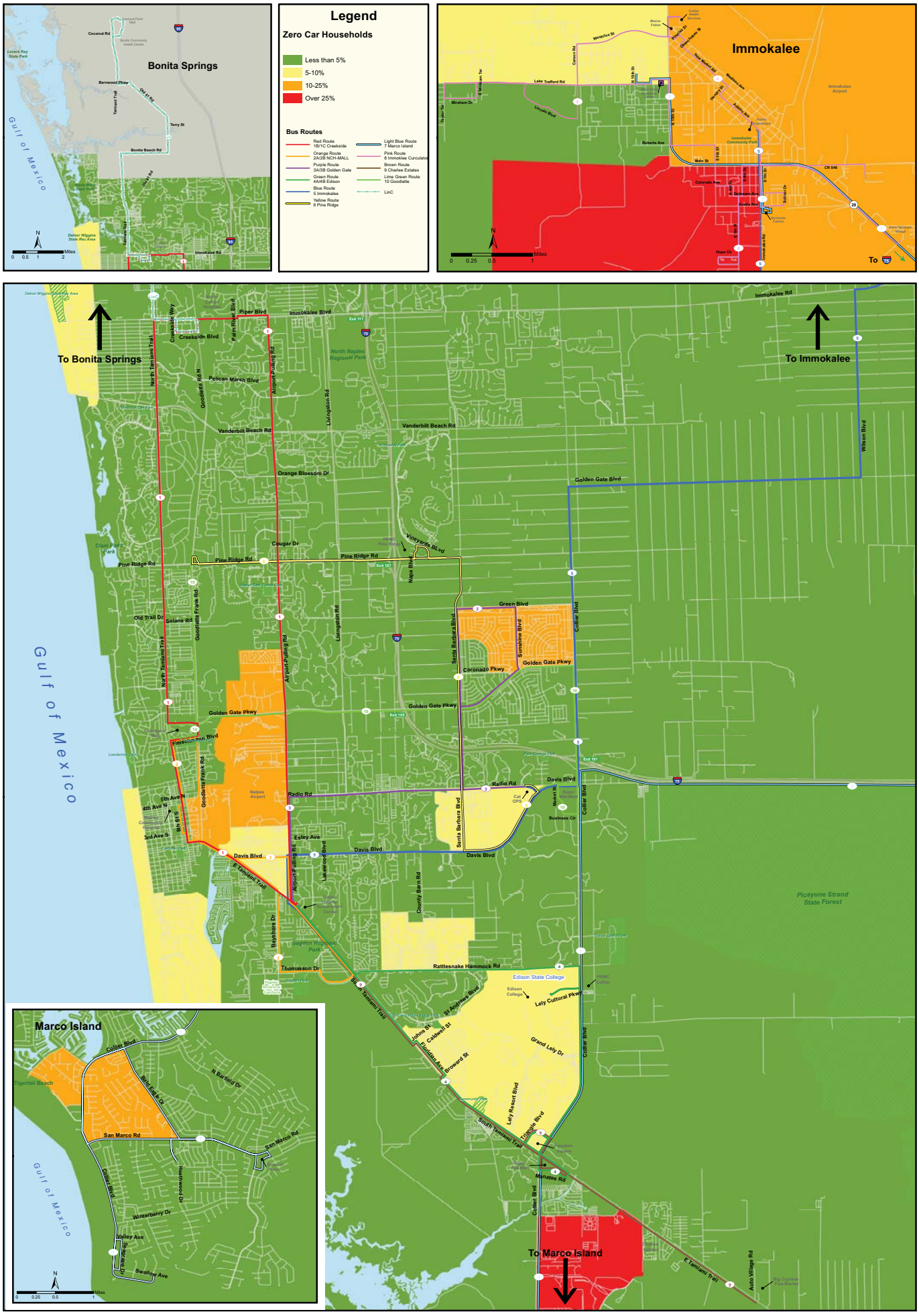

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Figure 2.6 - Percentage Zero Car Households

There are two main locations where zero car households are most prevalent: in Immokalee, as well as in a number of predominantly mobile home parks near Collier Boulevard/C.R. 951 and U.S. 41. Smaller concentrations of zero car households may be found near Naples Manor and Lely Resort, near U.S. 41 and Davis Boulevard and near Davis Boulevard and Santa Barbara Boulevard. These areas are also locations of more rental and workforce housing. Overwhelmingly, the data indicates that most households have access to at least one vehicle within the county. However, in many cases, access to one vehicle is not sufficient to serve the transportation needs of multiple household members, particularly for work and medical trips. In these cases, CAT transit service provides additional mobility to households.

2.2 Seasonal Population Variances

Given the great number of amenities within Collier County and its prime location near the Gulf of Mexico, a number of residents to the area are seasonal in nature. During season, which is generally considered as October through May each year, the population increases by as much as one-third. According to the most recent data from the Collier County Comprehensive Planning Department, the seasonal population from October through May 2010 brought 65,663 additional people to the area. As shown in **Table 2.2**, this seasonal population is expected to continue to increase in the future. These seasonal populations, with tourists from other areas of the country and throughout the world, present a potential opportunity for attracting choice riders to the system and may present other opportunities for service adjustments to reflect seasonal ridership changes.

Table 2.2 Seasonal Population Totals

Area	2010	2015	2020	2025
Unincorporated	343,593	367,730	404,827	440,714
Incorporated	43,590	46,552	49,687	52,869
Population Total	387,183	414,282	454,514	493,583
*Incorporated areas include Naples, Marco Island, and Everglades City.				

Source: Collier County Comprehensive Planning Department, June 2012.

2.3 Population and Housing Densities

Transportation systems and land use patterns influence each other. Roads, transit, and other transportation elements shape land development, while the distribution and types of land uses affect travel patterns and transportation facilities. A dispersed pattern of low-density development relies almost exclusively on cars as the primary mode for transportation.

Alternatively, denser urban centers can combine different land uses in closer proximity, encouraging:

- Walking
- Biking
- Transit
- Other forms of travel

Like many planning issues, the link between land use and transportation is extremely complex. Many options have been proposed for strengthening the transportation and land use connection. Incorporating elements of Smart Growth offer a choice of transportation options. Traffic volumes and choices of mode of travel are influenced by the location, density, and mixture of land uses. Land use planning and transportation infrastructure need to work together.

Communities should plan for the future and be aware of how their land use plans will affect the levels of traffic, appearance, and points of congestion on highways. Connected sidewalks, attractive walking environments, and pedestrian crosswalks in compact settlements:

- Encourage alternative modes of transportation
- Decrease reliance on existing transportation infrastructure
- In the long-run, save money for the community
- Give residents travel options and improve livability

A change in conventional land use and transportation patterns often requires action by the local government to encourage smart growth developments. Taken together, a package of simple measures can help create communities that are more livable and offer travel choices. Examples of policies include:

- Change zoning codes to allow for mixed-use developments
- Change ordinances and design guidelines to alter setback requirements
- Require developers to implement sidewalks, bus stops, bike paths, street trees, and pedestrian amenities to encourage alternative modes of transportation
- Change minimum parking requirements to reduce the amount of unused space between two points
- Alter ordinances to change building size, height, and orientation to encourage pedestrian friendly environments
- Implement bonuses that allow developers to exceed zoning requirements
- Transportation facilities that cross city and county lines often lack coordinated planning, construction, and maintenance. Cooperative planning partnerships among local jurisdictions can help address problems, and county governments can work with cities to coordinate improvements to major roads.

Population and household densities, expressed in terms of people living and households per square acre within a specified geographic area, is an important measure in planning for transit investments. Fixed-route public transit service works best when there is a sufficient concentration of persons desiring to make trips between two given points. Conversely, it is more difficult to connect many disparate points of origin and destination.

Similarly, density of land development is one key factor to determine the type of transit used within a community. A report by the Transit Cooperative Research Program, titled *Transit Capacity and Service Quality Manual*, identifies minimum population density thresholds in order for public transportation to adequately serve an area.

- A minimum of three dwelling units per acre or four jobs per acre is cited as a goal to have a "Transit Supportive Area" where hourly bus service is likely to be feasible
- In addition, the Institute of Traffic Engineers, recommends a minimum of 9 dwelling units per acre or 3,550 employees per 1,000 square feet of office space (which for this analysis equates to about 24 jobs per acre) for public transit to adequately serve an area.

- Other suggested density information for successful and effective public transportation service follows:[1]
  - For 30-minute bus service, a minimum level of seven dwelling units per acre, or 5,000-6,000 people per square mile, gross density. Floor space should range from 8,000,000 to 20,000,000 square feet.
  - For 10-minute bus service, a minimum level of 15 dwelling units per acre, or 8,000-10,000 people per square mile, gross density. Floor space should range from 20,000,000 to 50,000,000 square feet.
  - For light rail transit (LRT) service, a minimum level of 9-12 dwelling units per acre. Floor space should range from 35,000,000 to 50,000,000 square feet.
  - For commuter rail service, a high-speed infrequent service with station spacing at greater distances suitable for low density, a minimum level of 1-2 dwelling units per acre, or 100,000,000 or more square feet of floor space.
  - Generally Bus Rapid Transit (BRT) service characteristics typically fall between fixed-route bus and light rail service. It may be assumed that a BRT density threshold would consist of seven dwelling units per acre and eight employees per acre (the latter in light of the fact that BRT could operate in a lower density environment than LRT).

2.3.1 Population Density

Population density based on U.S. Census 2010 data is shown on **Figure 2.7**. This data indicates that much of the county still has lower population densities. As such, existing service provides public transportation over longer trips. In specific areas, however, population densities have grown and may be supportive of more frequent services, should ridership levels and other data support these improvements. These areas include the southeastern portion of the county near Naples Manor south of Rattlesnake Hammock Road on U.S. 41/Tamiami Trail, along Airport Pulling Road and Davis Boulevard, and east of I-75 in the Golden Gate area between Santa Barbara Road and Collier Boulevard/C.R. 951 between roughly Golden Gate Parkway and Green Boulevard. In addition, a number of concentrations of population are located within Immokalee.

2.3.2 Housing Density

Housing density was also reviewed based on U.S. Census 2010 data and is shown on **Figure 2.8**. This data indicates that the majority of the county retains low housing densities. Housing densities indicate a number of locations throughout the county are considered transit supportive areas in that their densities have a minimum of three dwelling units per acre. As growth and development occur in these areas, monitoring of changes in densities may provide further insights on any improvements to headways and service provision in these areas that are further supported by ridership and other data.

As discussed in the above sections and shown in the following maps, many areas throughout Collier County have low population and housing densities. Despite these existing low density challenges, CAT service has performed well over the past decade. In part, the service quality offered by the CAT system may be attributed to the net densities within the County; that is, concentrations of destinations within large developments such as shopping, housing and jobs. Detailed service information is presented in Section 3 of this report.

[1] A Toolbox for Alleviating Traffic Congestion, ITE, 1989. http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/10803.pdf

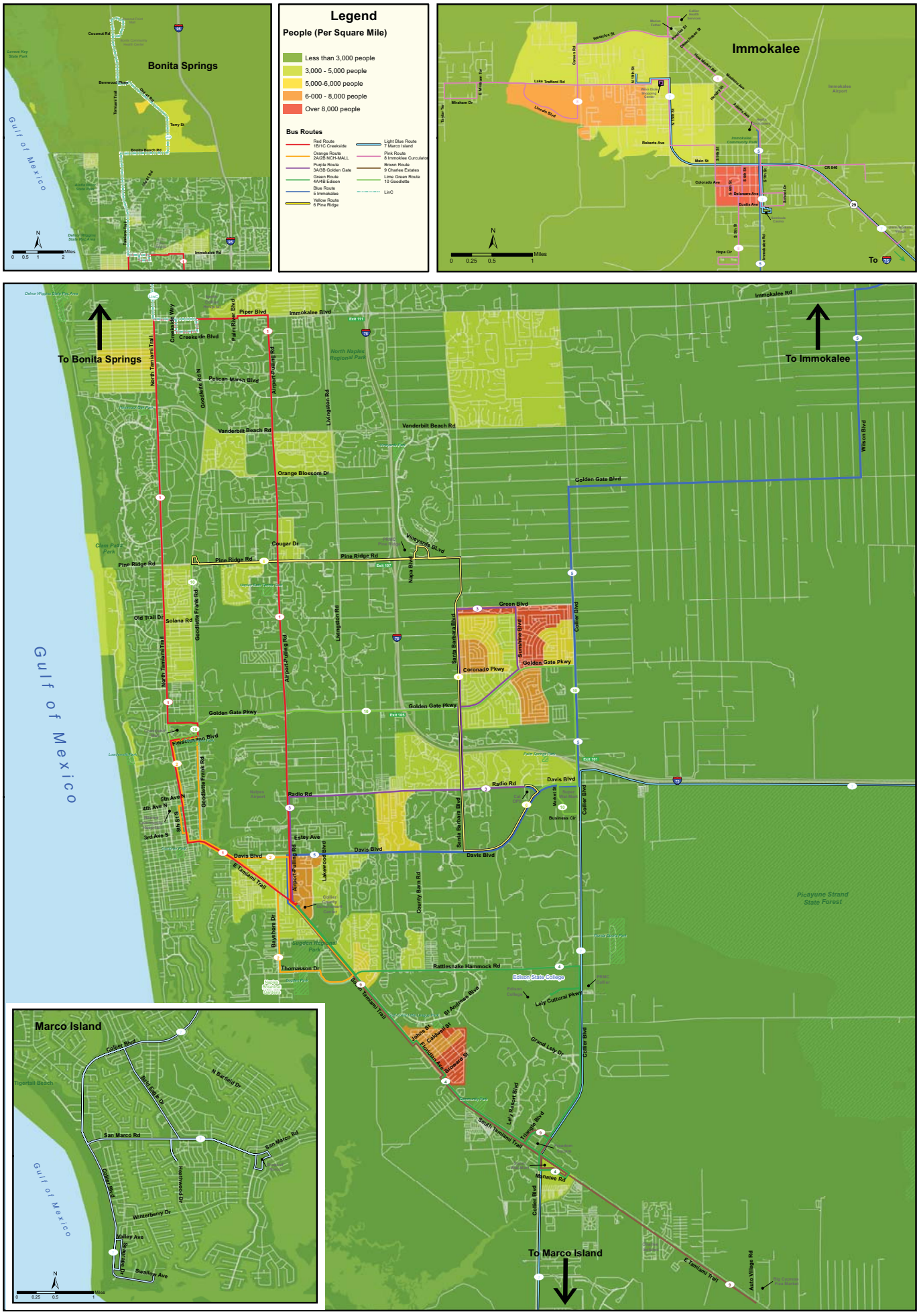

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Figure 2.7 - Population Density

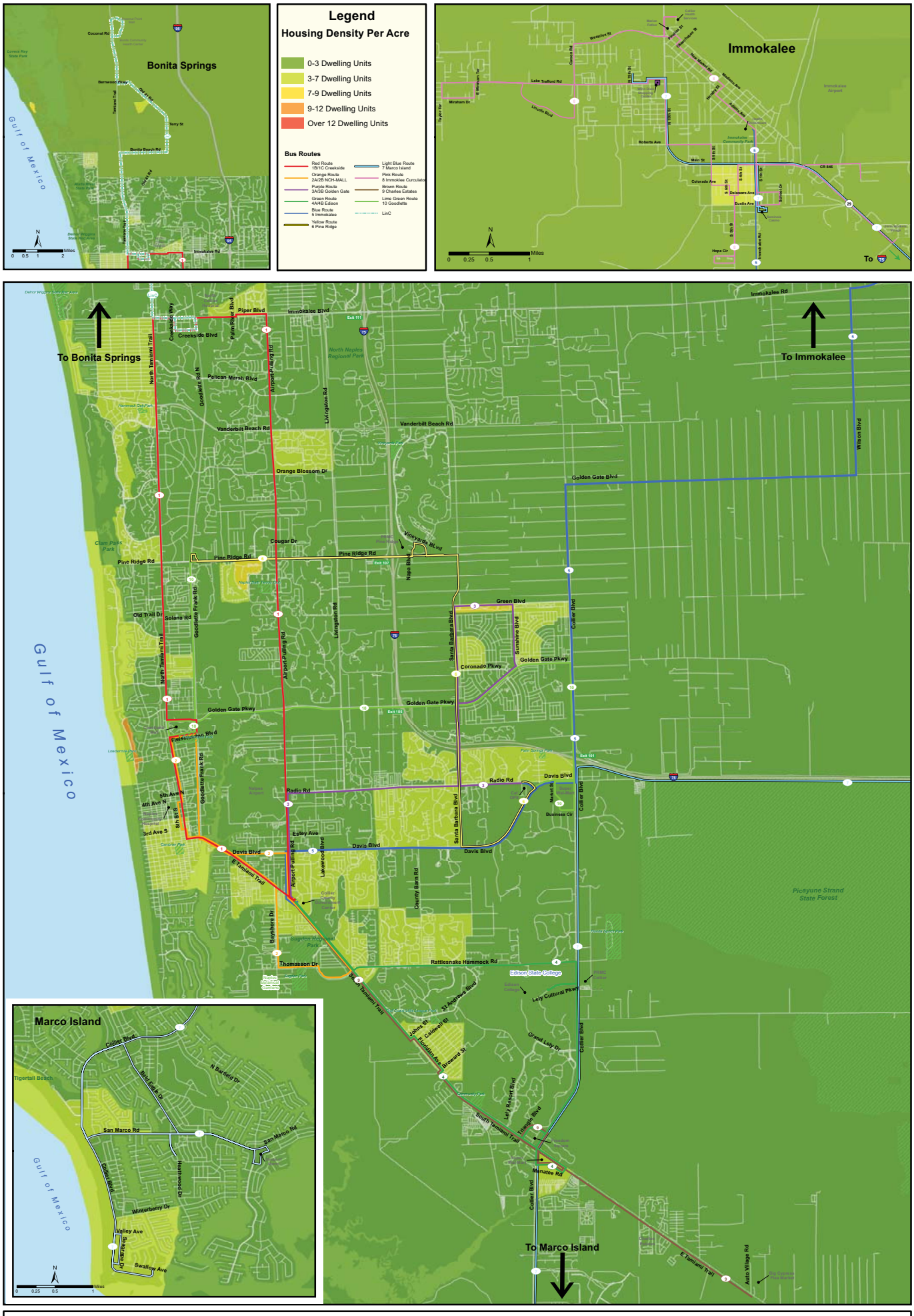


Figure 2.8 - Housing Density

2.4 Employment Trends

2.4.1 Employment

Enterprise Florida 2010 notes that the labor force makes up approximately 45 percent of Collier County's population. The most recent available 2010 data from Collier County's Business and Economic Development profile provides information on the top 25 employers in Collier County, as shown in **Table 2.3**. The Naples Community Hospital remains the largest employer in the area, with a number of retail and hospitality businesses as well as other health care providers comprising major employment in Collier County.

Table 2.3 Top 25 Largest Employers in Collier County

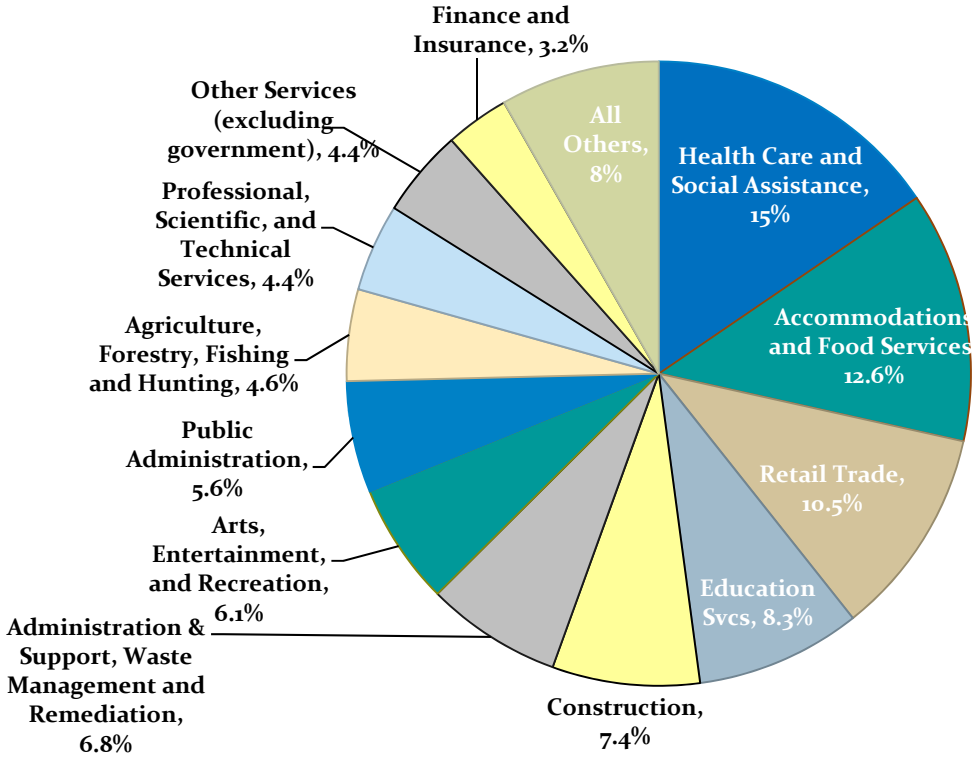
Rank	Company	Employees
1	Naples Community Hospital	4,000
2	Ritz-Carlton Naples	1,110
3	Garguilo, Inc.	1,110
4	Arthrex, Inc.	1,056
5	Collier County Sheriff's Office	1,029
6	Home Team Inspection Service	900
7	Publix Super Markets	800
8	Marriott	700
9	Naples Grande Beach Resort	700
10	Downing Frye Realty	550
11	Gulf Bay Group Co.	500
12	Moorings Park – Home Health	500
13	Continental Transportation Service	500
14	Bentley Village	470
15	John R. Wood Realtor	400
16	U.S. Post Office	380
17	Finnegan Team	375
18	Naples Beach Hotel and Golf Club	350
19	Wal-Mart	325
20	Cemex	301
21	Home Depot	300
22	Naples Lake Country Club	300
23	Nordstrom	300
24	Seminole Casino Immokalee	300
25	Commercial Concrete System	290

Source: Collier County Business and Economic Development Profile and Demographic Information, June 2012. Taken from ReferenceUSA, December 2010.

U.S. Census longitudinal data indicates jobs by sector. As shown in **Figure 2.9**, the largest single category of employment in the county is health care and social assistance. Following this, and perhaps more noteworthy, are the second and third top employment industries – accommodations/food services, and retail. Combined, these two categories of service employment make up over 23 percent

of the employment in the county. Information in **Table 2.4** also provides additional insights into the average wages by these major industry types. Accommodations and food services are the second lowest paying industries in the county and retail services are the fourth lowest paying industry. With these jobs making up a considerable percentage of overall employment in the County and given lower wages, public transit may be in higher demand for these industries.

Figure 2.9: Collier County Employment by Sector



Source: U.S. Census Longitudinal Employer-Household Dynamics, Collier County Labor Market Home Area Profile, 2010.

Table 2.4: Collier County Employment by Sector

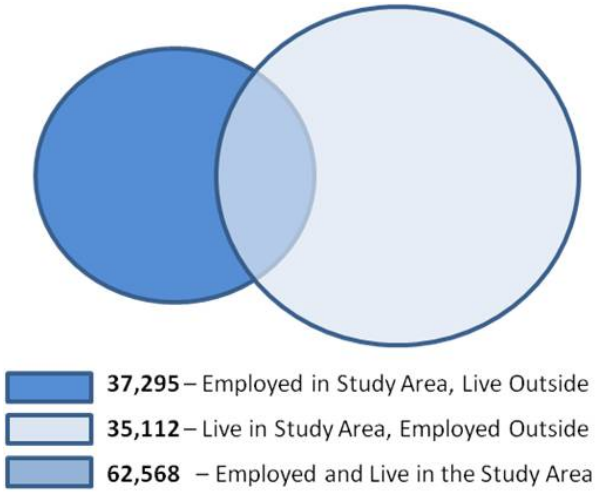
Industry	Collier County Average Wage
Agriculture, Fishing, Forestry, Hunting	$14,444
Accommodations and Food Services	$18,443
Other Services (non-governmental)	$22,866
Retail Trade	$23,919
Art, Entertainment and Recreation	$26,288
Administrative Support/Waste Management and Remediation Services	$27,178
Construction	$35,165
Health Care and Social Assistance	$35,679
Professional, Scientific and Technical Services	$49,587
Finance and Insurance	$63,555

Source: Collier County Comprehensive Planning Department, June 2012. Taken from Florida Agency for Workforce Innovation: Quarterly Census of Employment and Wages, 2009.

2.4.2 Inflow/Outflow Patterns

Inflow and outflow employment patterns provide key information on how many employees work and live in the county versus those that either live or work outside of the county. U.S. Census 2010 Longitudinal Employer-Household Dynamics information was used to identify inflow and outflow patterns, as shown in **Figure 2.10** below.

Figure 2.10: Inflow and Outflow Employment Patterns



	Count	Share
Employed in Study Area	99,863	100%
Employed in Study Area but Living Outside	37,295	37.3%
Employed and Living in Study Area	62,568	62.7%
Living in Study Area	97,680	100%
Living in Study Area but Employed Outside	35,112	35.9%
Living and Employed in Study Area	62,568	64.1%

Source: U.S. Census Longitudinal Employer-Household Dynamics, Collier County Inflow-Outflow Patterns, 2010.

The information derived from the U.S. Census indicates that overwhelmingly employment is made up of employees who both live and work in Collier County. Approximately 63 percent of those working the county and roughly 64 percent of those living in the county are employed within the county boundary.

2.4.3 Worker Origins and Destinations

Understanding where the majority of workers live and work is important to understanding commuting patterns. In a typical public transportation system, work commuting trips tend to make up a significant portion of trip purposes. Therefore, identifying where workers live and work may offer key insights into priority investments that more efficiently meet the transportation needs of these commuters. 2010 LEHD data from the US Census provides details on where workers live and work by census tract, and are shown in **Figures 2.11** and **2.12**. The greatest concentrations of workers tend to live east of Airport Pulling Road. In addition, many workers are found in the large communities east of I-75 and into Immokalee. Comparatively, worker employment tends to be concentrated along just a few major roadways within Collier County. The number of shopping and other retail centers along U.S. 41 from roughly Immokalee Boulevard to north of Davis Boulevard make that area as a whole a large draw for employment in the County. The most concentrated areas for employment, however, are located in the southern portion of the county east of Airport Pulling Road between U.S. 41 and Government Center to the north and just south of Golden Gate Parkway. In addition to the location of the private airport and Government Center nearby, a number of commerce and industrial parks are also located in this area and contribute to the concentration of employment in this area.

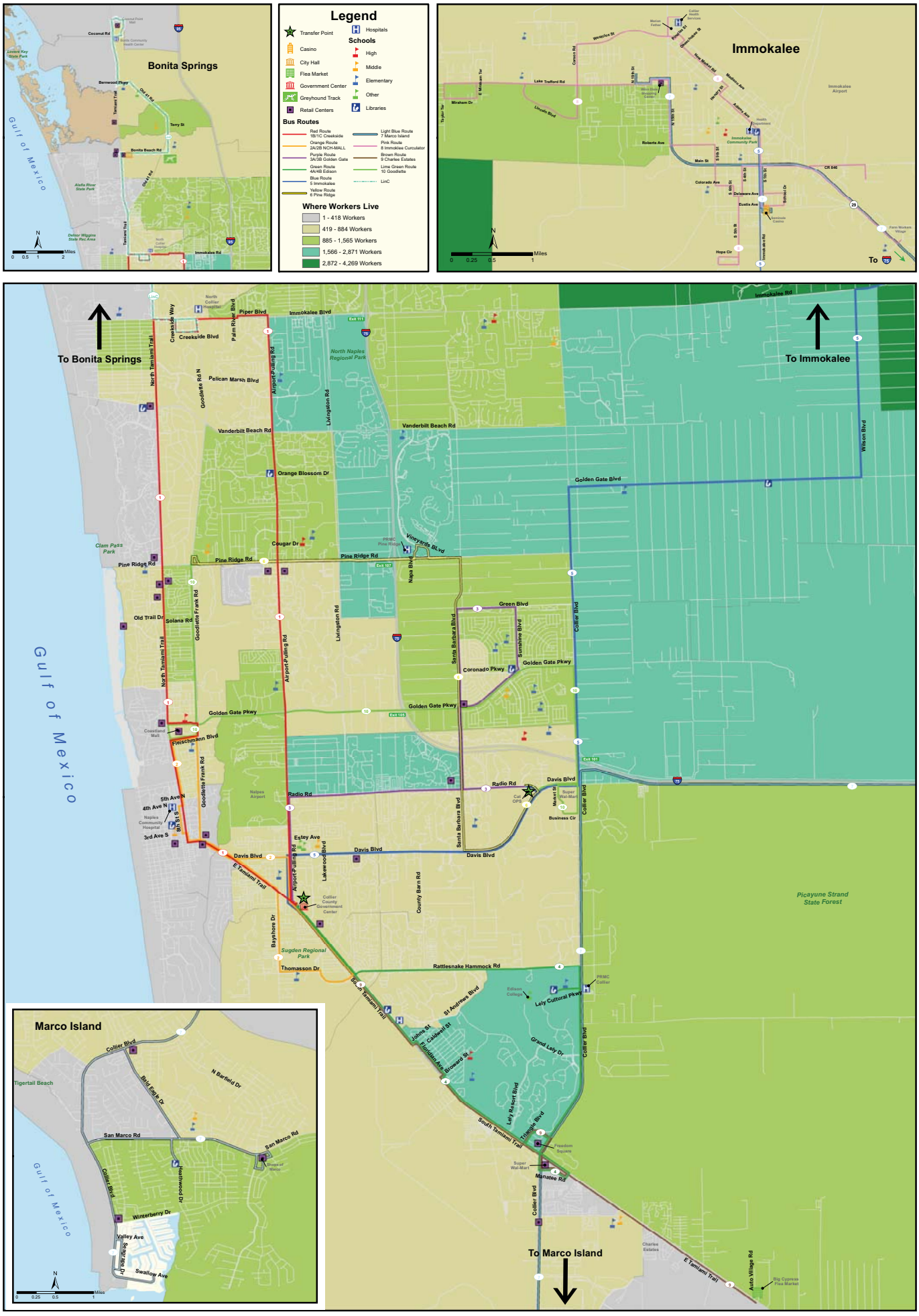


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Figure 2.11 - Where Workers Live

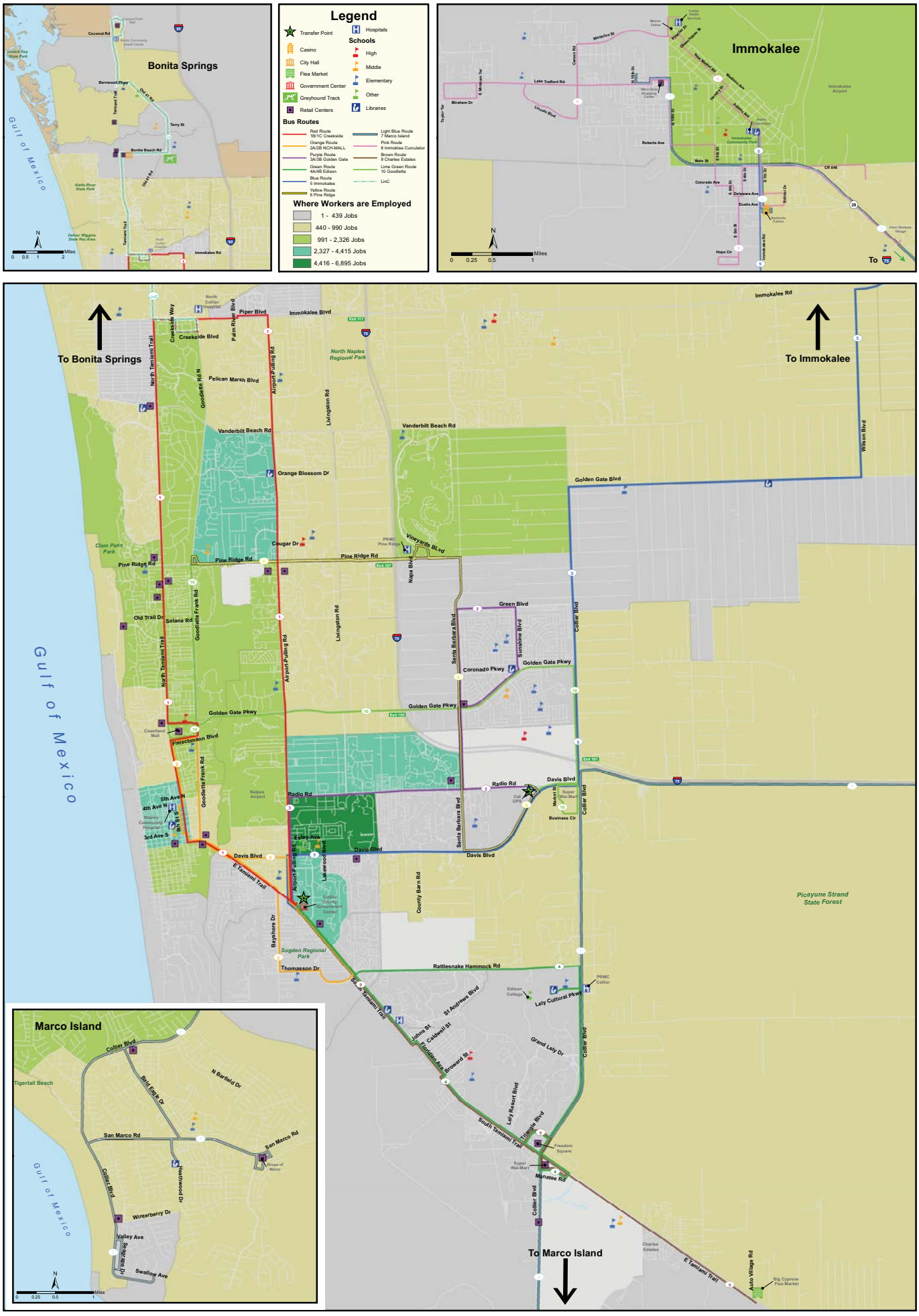


Figure 2.12 - Where Workers are Employed

Other areas of heavier employment are located in Marco Island, Immokalee, and between I-75 and C.R. 951/Collier Boulevard (between Pine Ridge Road and Vanderbilt Beach Road). These areas are home to tourism sites in Marco Island, the casino and airport in Immokalee, and are prime industrial park locations near I-75.

2.5 Major Destinations

2.5.1 Health Care Generators

Health care providers constitute a large employer within Collier County and are a major destination for residents. **Table 2.5** identifies the major hospital locations within the study area. In addition, medical parks and site specific health care offices are located throughout the county.

Table 2.5 Collier County Hospitals

Hospital Name	Address	City	Operator
The Willough at Naples	9001 Tamiami Trail East	Naples	Ogelthorpe, Inc.
Physicians Regional Medical Center – Collier Boulevard	8300 Collier Boulevard	Naples	Health Management Associates
Naples Community Hospital (NCH) Downtown Naples Hospital	350 7th Street	Naples	NCH Healthcare System
Physicians Regional Medical Center – Pine Ridge	6101 Pine Ridge Road	Naples	Health Management Associates
NCH North Naples Hospital	11190 Health Park Boulevard	Naples	NCH Healthcare System

Source: Florida Geographic Data Library (FGDL). University of Florida GeoPlan Center, Florida Hospitals, May 2011.

2.5.2 Hotels and Retail Centers

The number of hotels and retail centers act as both employment generators in Collier County and as major destinations for residents and visitors alike. Hotels abound along U.S. 41/Tamiami Trail and 5th Avenue in Naples, and a number of luxury resort and golf hotels near the Gulf of Mexico and in northern Naples act as major employers for the surrounding communities. These include The Ritz-Carlton Beach and Golf Resort and the Waldorf-Astoria Naples, amongst others. A number of hotels and resorts are also located on Marco Island, including the Marriott Crystal Shores, Marriott Island Beach Resort, Golf Club and Resort, and the Hilton Marco Island Beach Resort and Spa, among others.

Major retail centers in the area also predominantly border U.S. 41/Tamiami Trail and include Mercato, Coastland Center Mall, Naples Prime Outlets, and The Waterside Shops of Naples. In addition, major shopping destinations in Marco Island include the Esplanade Shops of Marco and Marco Town Center, amongst others.

2.5.3 Industrial and Commerce Parks

According to the most recent Collier County business and economic development information, there are 24 industrial or commerce parks located throughout the County. These parks are a source of employment to Collier County and incentivize clustered economic development strategies. The County also provides special zoning criteria to support such economic development strategies by allowing properties of 19 acres or greater to be zoned as research and technology parks. **Table 2.6** provides a summary of the major industrial and commerce parks located within the County.

Table 2.6 Collier County Industrial and Commerce Parks

Industrial Business and Commerce Parks by Location	
North Naples:	
Creekside Commerce Park	North Naples Research and Technology Park
Jaeger Industrial Park	Pine Ridge Industrial Park
J&C Industrial Park	Railhead Industrial Park
North Collier Industrial Park	Trade Center Way of Naples
North Naples Industrial Park	
Golden Gate:	
City Gate Industrial Park	Tollgate Commercial Center
Gator Gate Industrial Park	White Lake Corporate Park
South Naples:	
ASGM Business Center of Naples	East Naples Industrial Park
Collier County Production Park	Naples Big Cypress Industrial Park
Collier Park of Commerce	Naples Production Park
Corporate Square	
East Collier County/Immokalee:	
Tradeport Technology Park	Florida Tradeport
Eastover Industrial Park	

Source: Collier County Comprehensive Planning Department, June 2012.

2.5.4 Colleges and Universities

A number of colleges and universities are located within Collier County or in neighboring communities. **Table 2.7** shows the names and locations for these universities.

Table 2.7 Collier County Colleges and Universities

Institution Name	Address	Area
Ave Maria University	5050 Ave Maria Boulevard	Ave Maria
Barry University	8099 College Parkway	Ft. Myers
Edison State University	7007 Lely Cultural Parkway	Naples
Florida Gulf Coast University	10501 FGCU Boulevard	Ft. Myers
Hodges University	2655 Northbrooke Drive	Naples
Nova Southeastern University	8951 Bonita Springs Road	Bonita Springs

In addition to these colleges and universities, the County is also home to a number technical institutes and training programs. Adult and workforce education is provided through Collier County Public Schools and encompasses the secondary technical training schools of Lorenzo Walker Institute of Technology (LWIT) and Bethune Education Center (BEC). In addition, Immokalee Technical Institute (iTECH) is a new technical training center in Florida focusing on art career and technical educations programs for high school students and adults. The center also offers Adult Basic Education (ABE), General Education Development (GED), and adult literacy programs.

2.5.5 Other Community Activity Centers

A number of cultural, leisure and environmental activity centers are located within Collier County which act as additional activity generators in the area, as shown in **Figure 2.13**.

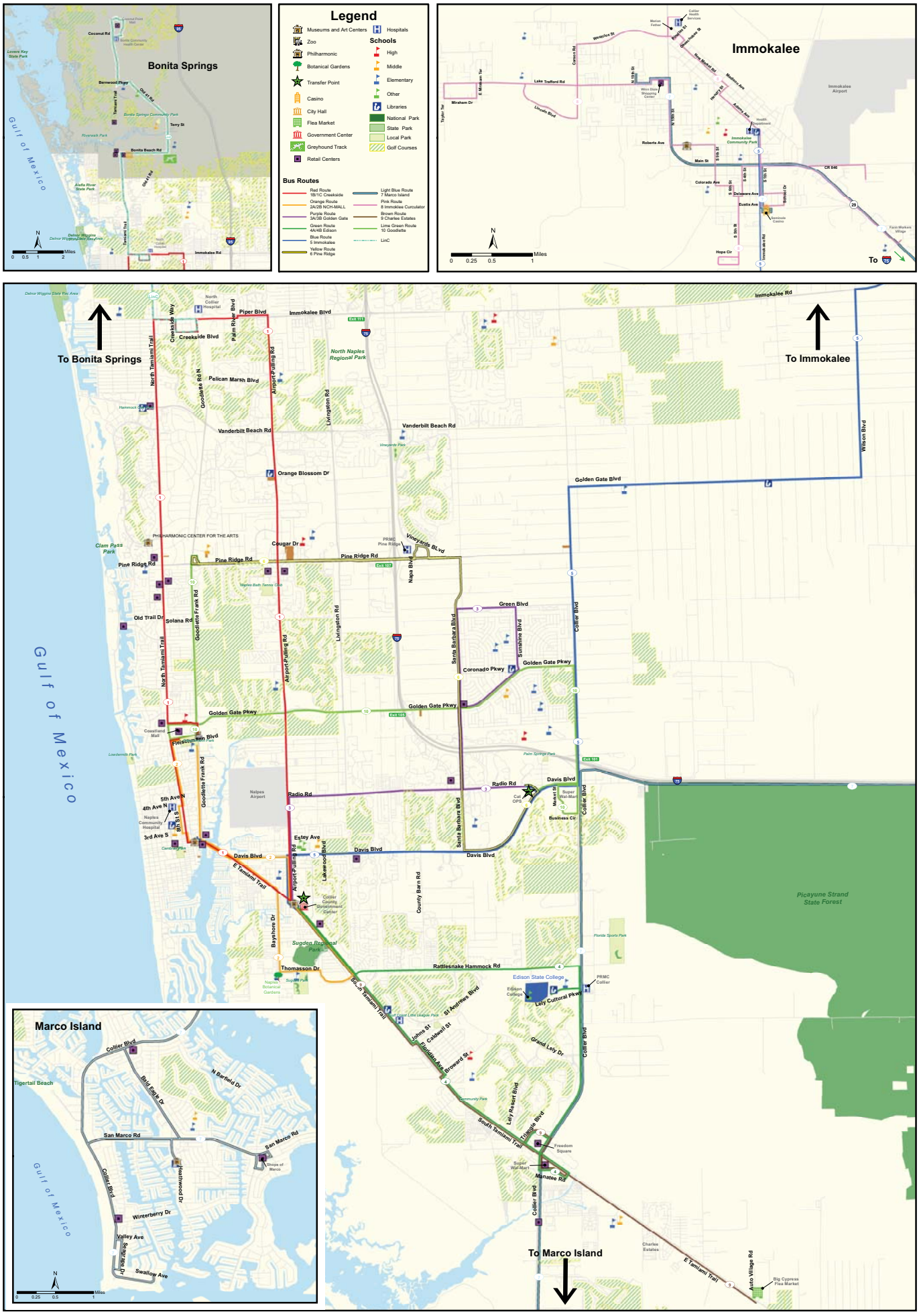


Figure 2.13 - Activity Centers

These include approximately 17 miles of beaches along the Gulf of Mexico, over 100 golf courses, the Seminole Casino in Immokalee, and the Philharmonic Center for the Arts in Naples. There are also five museums located in Naples, Everglades City and Immokalee that act as additional activity generators for tourists and residents alike. The Germain Arena also hosts a number of events throughout the year, including the East Coast Hockey League's Florida Everblades games, arena football, Ringling Brothers Circus, and a variety of music concerts. These activity generators provide unique and seasonal transportation opportunities and challenges.

In addition, the rich environmental attractions within the County make it an ideal location for a number of reserves and botanical gardens. These include the Naples Botanical Gardens, covering approximately 170 acres, the Conservancy Nature Center of Southwest Florida, and Rookery Bay National Estuarine Research Reserve. There are also five national parks, four state parks, three regional parks and twelve community parks in the county. Two BMX skate parks and five fitness center parks provide additional recreational opportunities in the county.

2.6 Key Findings

The results of the demographic analysis in this section, combined with the service and needs assessments conducted as part of this COA, will help to identify a range of potential service changes over the short term five year horizon to improve service performance and efficiency.

Population growth in recent years has created further development in the northeastern portion of Naples and into the Immokalee areas. These areas therefore represent areas where future development of the public transportation may be expected and where needs may increase over time. That stated, in the short term there remain four major unincorporated community areas of population concentration where approximately 54 percent of the total population in Collier County live and these represent priority areas for review in identifying short term service improvements. These include (please refer to the map on **Figure 2-1** in Section 2.1 for further detail):

- North Naples (17%), located approximately from the Lee/Collier County Line to Pine Ridge Road and extending east from the Gulf of Mexico to roughly the Livingston Road area.
- Golden Gate (14%), located east of I-75, approximately just south of Pine Ridge Road and just north of Davis Boulevard.
- Urban Estates (12%), approximately located from the Lee/Collier County line to Green Boulevard in the south and from roughly Livingston Road to just east of CR 951.
- Rural Estates (11%), approximately located north of I-75 (Alligator Alley), from just east of CR 951 to just east of Everglades Boulevard and extending north to Immokalee Road.

Any service changes based on population trends and ridership needs should also be sensitive to seasonal population variations. In Collier County, seasonal growth is estimated to increase the population during October through May each year by roughly one third. Further analysis of seasonal ridership patterns is needed to identify areas where these seasonal fluctuations may warrant service changes, if any. Although population and housing densities remain low in the area, the system provides suitable service throughout the county. The areas of Golden Gate and southeastern Collier County, as well as in Immokalee, have experienced concentrated population growth and may also warrant further investigation of ridership and other service performance evaluation measures to identify areas where increased headways may be warranted and supported.

In addition, a series of transit dependency population characteristics were analyzed to identify areas where concentrations of people who depend upon public transportation may be further investigated. In particular, it was noted that a number of areas in southeastern Collier County, Immokalee and several other small pockets of the county contain larger percentages of low income populations as well those without access to a vehicle. Service improvements or efficiencies may be reviewed in these areas to support the needs of these transit dependent populations.

Worker commuting patterns also provide key insights into the needs of workers in Collier County and were analyzed to help identify any concentrations or priority areas within the County that might be needed to support commuter needs. In many systems, these types of trips constitute a large portion of the total ridership and therefore are essential to providing efficient service delivery. According to this analysis, workers live throughout the county with a particular orientation to the east of I-75. At the same time, employment concentrations tend to be more aggregated along the major corridors within the county: U.S. 41/Tamiami Trail and Airport-Pulling Drive running north and south, and Pine Ridge Road, Radio Road and Davis Boulevard running east to west. The most concentrated areas of employment are near these two north and south corridors in the western portion of the county. These locations are also near a number of activity generators, including hospitals, retail stores and hotels, and cultural centers within the county. Service improvements in these areas may be investigated to better connect residential to employment locations and better serve this commuting population.

Section 3 Existing CAT Services

The Collier County Department of Alternative Transportation Modes (ATM) operates Collier Area Transit (CAT) as a Department of the Collier County Public Services Division. The Collier County ATM Department is responsible for planning, operating, and managing CAT public transportation services through a contract operator, Keolis Transit America (KTA). The Collier County ATM Department is also responsible for the direction of CAT services. CAT operates fixed-route bus service and paratransit service within unincorporated Collier County, the City of Naples, Marco Island, and Immokalee. The system is linked by one major hub at the Collier County Government Center, which currently serves seven of the ten CAT routes and two other major transfer centers:

- Radio Road Transit Operations Center – Four routes travel to the Transit Operations Center
- Creekside Transfer Center - The Red Route (Route 1) and the recently initiated LinC operated by LeeTran serve this location

The CAT service area includes more than 1,500 square miles and serves a population of 326,658 residents. CAT has been in operation since 2001 and currently provides over 1.2 million one-way trips per year. **Figure 3.1** presents the CAT transit system.

3.1 System Characteristics

3.1.1 Span of Service

The CAT system runs 10 fixed routes within Collier County, including one fixed-route from Immokalee and the Golden Gate Estates area to Naples; the Immokalee Circulator; and the Marco Island Express/Circulator. CAT provides service seven days per week, generally from 6:00 a.m. to 7:00 p.m., depending upon the route. The express services operate from 4:00 a.m. to 8:00 p.m.

3.1.2 Service Frequencies

CAT services are solely a bus-based system. The CAT headways are primarily every 90 minutes, except for Route 2 – Orange route, which has 60 minute headways, as shown in **Table 3.1.**

Table 3.1 CAT Headways

Route	Peak Headway	Non-Peak Headway
1 – Red Route – Creekside	90 minute	90 minute
2 – Orange Route – NCH-Mall	60 minute	60 minute
3 – Purple Route – Golden Gate	90 minute	90 minute
4 – Green Route – Edison	90 minute	90 minute
5 – Blue Route – Immokalee	60 minute	90+ minute
6 – Yellow Route – Pine Ridge	90 minute	90 minute
7 – Light Blue Route – Marco Island	n/a	Express – 1 trip AM/PM Circulator – 90 minute
8 – Pink Route – Immokalee Circulator	90 minute	90 minute
9 – Brown Route – Charlee Estates	90 minute	90 minute
10 – Lime Green Route – Goodlette	90 minute	90 minute

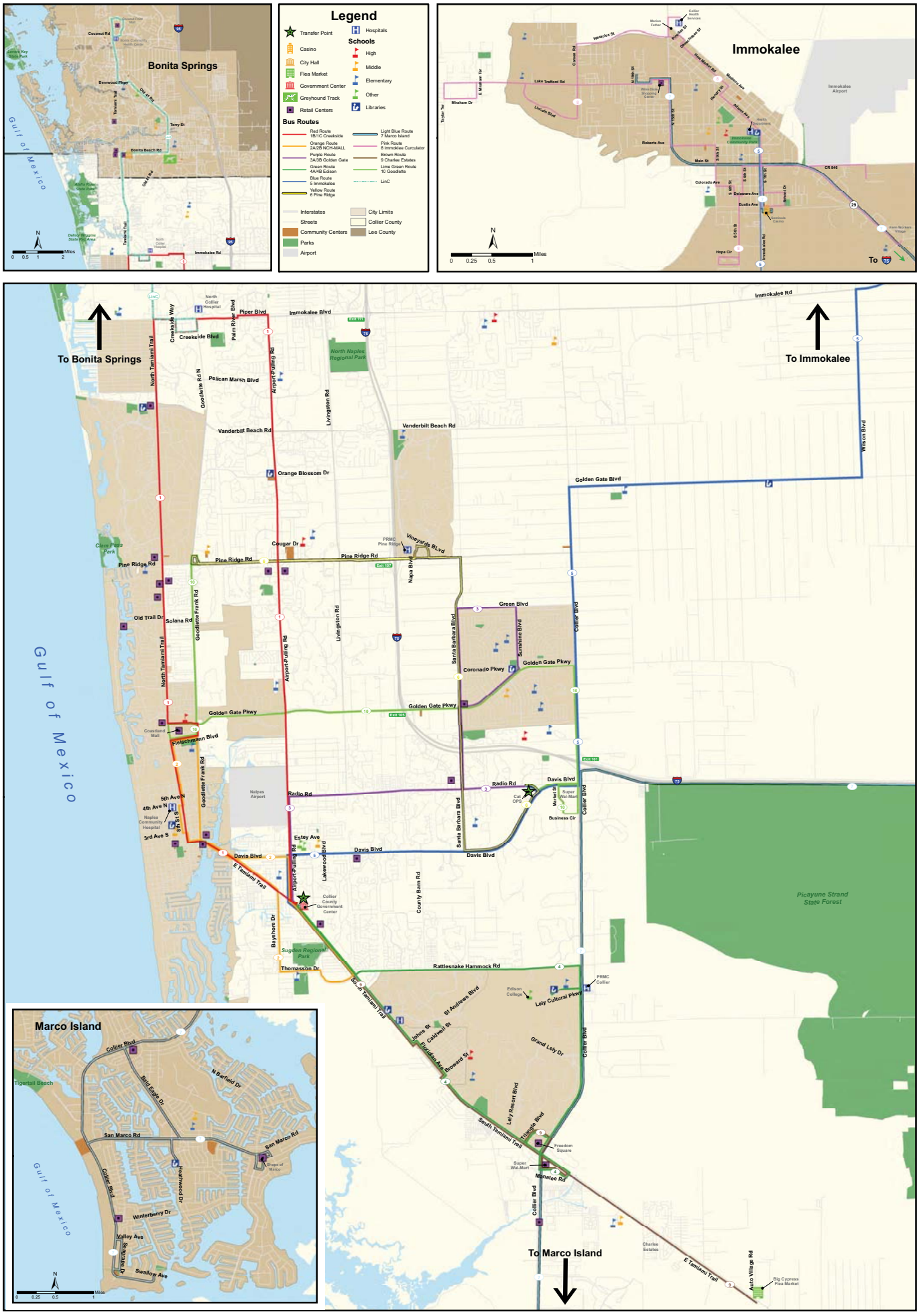


Figure 3.1 - Collier Area Transit + LinC

Collier County &
Lee County, Florida

3.2 CAT Route Descriptions

3.2.1 Red Route 1B/1C

Red Route 1B, shown on **Figure 3.2**, commences at Collier County Government Center, the CAT Transfer Center. The route travels along U.S. 41 with stops located across from the Naples Community Hospital, in addition to the Coastland Mall. It continues to travel further north to the Creekside transfer location, where passengers are able to transfer to/from Red Route 1C, as well as connecting to Lee Tran's Route 600 LinC. To complete the loop after the transfer at Creekside it travels southbound on U.S. 41 with stops located at Naples Community Hospital.

Red Route 1C, shown on **Figure 3.2**, commences at Collier County Government Center and primarily travels Airport Pulling Road, with a stop located at the North Collier Hospital, continuing to the Creekside transfer location. Passengers are able to transfer to/from Red Route 1B, as well as connecting to Lee Tran's Route 600 LinC.

3.2.2 Orange Route 2A/2B

Orange Route 2A, shown on **Figure 3.3**, commences at Collier County Government Center, then travels westbound traveling on Davis Boulevard to U.S. 41, southbound to the Naples Community Hospital, as well as traveling to Coastland Mall, Fleishmann Park, and Naples Zoo. Route 2A travels inbound via Goodlette Frank Road to U.S. 41, turning on Bayshore Drive to Naples Botanical Garden, continuing the inbound trip on U.S. 41 westbound to Collier County Government Center.

Orange Route 2B, shown on **Figure 3.3**, commences at Government Center and travels eastbound on U.S. 41 to Thomasson Drive then to Naples Botanical Garden. The route continues eastbound on Goodlette Frank Road with stops located at the Naples Zoo, Fleishmann Park, and Coastland Mall. Route 2B travels inbound via U.S. 41 to Naples Community Hospital, then east to the Government Center.

3.2.3 Purple Route 3A/3B

Purple Route 3A, shown on **Figure 3.4**, commences at CAT Operations Center then travels westbound to Collier County Government Center, where transfers can be made with Routes 1B, 1C, 4A, 4B, 5, and 9. From there, Route 3A will travel northbound on Airport Pulling Road, and eastbound on Radio Road toward CAT Operations. Transfers can be made with Route 5, 6, and 10. Route 3A continues northbound on Santa Barbara Boulevard into Golden Gate City. The route will perform a clock wise loop traveling on Green Boulevard, Sunshine Boulevard and Golden Gate Parkway.. Once the loop has been completed, the vehicle returns to Santa Barbara Boulevard and travels to CAT Operations Center. Passengers are able to transfer with Routes 5, 6, and 10. The route continues to the CAT Transfer Center via Radio Road and Airport Pulling Road.

Purple Route 3B, shown on **Figure 3.4**, commences at the CAT Operations Center, travels westbound to Collier County Government Center where transfers can be made with Routes 1B, 1C, 4A, 4B, 5, and 9. From there, the route travels northbound on Airport Pulling Road and eastbound on Radio Road toward the CAT Operations Center. Transfers can be made with Route 5, 6, and 10. The route continues northbound on Santa Barbara Boulevard into Golden Gate City. The route makes a counter clock wise loop traveling on Golden Gate Parkway, Sunshine Boulevard and Green Boulevard, then returns to Santa Barbara Boulevard to the CAT Operations Center. Transfers are available for Route 5,

6, and 10. The vehicle finishes the route traveling back to Government Center via Radio Road and Airport Pulling Road.

3.2.4 Green Route 4A/4B

Green Route 4A, shown on **Figure 3.5**, commences at Collier County Government Center. The Route travels primarily on Rattlesnake Hammock Boulevard. Once it arrives to the intersection Rattlesnake Hammock Boulevard and Collier Boulevard, the bus travels southbound via Collier Boulevard to Physician Regional Medical Center, as well as Edison State College, and to Wal-Mart Super Center. The route travels northbound on East Tamiami Trail to Freedom Square, the Naples Manor via Floridian Avenue, then to the CAT Transfer Center.

Green Route 4B, shown on **Figure 3.5**, commences at Collier County Government Center, traveling southbound primarily on East Tamiami Trail, as well as deviating into the Naples Manor via Floridian Avenue. It will then continue traveling on East Tamiami Trail towards Freedom Square. Once it has departed Freedom Square it will travel to Wal-Mart Supercenter on Collier Boulevard. The route then travels northbound via Collier Boulevard to Physician Regional Medical Center and Edison State College. Then it will travel westbound on Rattlesnake Hammock Boulevard.

3.2.5 Blue Route 5

Blue Route 5, shown on **Figure 3.6**, commences at CAT Transfer center traveling northbound to Immokalee City, with stops at CAT Operations building. Passengers are able to transfer to Routes 1B, 1A, 2A, 2B, 3A, 3B, 4A, 4B, 6, 9, and 10. While traveling outbound, Route 5 stops at Estates Library, as well as the Seminole Casino once it arrives into Immokalee City. Transfers are available with the Immokalee Circulator 8A and 8B at the Immokalee City Health Department. The bus then travels southbound to Naples, stopping at the CAT Operation Building then continuing to CAT Transfer Center.

3.2.6 Yellow Route 6

Yellow Route 6, shown on **Figure 3.7**, commences at CAT Operations Building traveling primarily northbound on Santa Barbara Boulevard to Pine Ridge Road. The bus heads westbound to Physician Regional Medical Center, as well as the Sweetbay Supermarket on the corner of Pine Ridge and Goodlette Frank Road. Passenger are able to transfer with Route 10. The bus then travels eastbound on Pine Ridge Road towards Santa Barbara Boulevard, then south to the CAT Operations Center. Passengers are able to transfer to Routes 5, 3A, 3B, and 10.

3.2.7 Light Blue Route 7

Light Blue Route 7, shown on **Figure 3.8**, commences in Immokalee City with key stops at Farm Workers Village, Winn Dixie, and the Seminole Casino. The first trip of the day is an express route to Marco Island traveling via Interstate I-75. Upon arriving to Marco Island, the bus has various stops on the island, with a primary stop at the Marco Island Marriott. The second trip of the day is the Marco Island Circulator. The route travels southbound on the Collier Boulevard and Bald Eagle Drive with stops located at Shops of Marco, Marco Island Historical Museum and Marco Island Library. The bus travels northbound on Collier Boulevard to the Wal-Mart Supercenter, where passengers are able to transfer to Route 4A and 4B. The last trips of the day are an Express Route to Immokalee City with a primary stop at Marco Island Marriott. The vehicle travels via I-75 to Immokalee, with key stops at Farm Workers Village, Winn Dixie, and the Seminole Casino.

3.2.8 Pink Route 8A/8B

Pink Route 8A and 8B, shown on **Figure 3.9**, are circulator routes that perform reverse routing from one another. The route travels through key areas at Farm Workers Village, Lake Trafford, New Market Road and East Delaware. The route also serves a variety of locations, such as Collier Health Services, Marion Fether, Immokalee Health Department, Seminole Casino, and Winn Dixie. The route travels in the Immokalee Health Department where passengers are able to transfer to Route 5, the bus to coastal Collier County.

3.2.9 Brown Route 9

Brown Route 9, shown on **Figure 3.10**, commences at the Government Center primarily traveling on East Tamiami Trail. The route travels to Naples Manor via Floridian Avenue, as well as Wal-Mart Supercenter and Charlie Estates. The outbound trip concludes at Big Cypress Flea Market where it will travel northbound on East Tamiami Trail. The bus route has stops at the Wal-Mart Supercenter, Freedom Square on East Tamiami Trail, Naples Manor, then to the Government Center. Passengers are able to transfer to Routes 1B, 1C, 2A, 2B, 4A, 4B, and 5.

3.2.10 Lime Green Route 10

Lime Green Route 10, shown on **Figure 3.11**, commences at the CAT Operations Center traveling eastbound to Wal-Mart Supercenter on Davis Boulevard, then northbound on Collier Boulevard to Golden Gate Parkway. Once it has reached Golden Gate Parkway, it then travels westbound to Coastland Center Mall. To complete the outbound trip it travels northbound on Goodlette Frank Road to Pine Ridge Road where passengers are able to transfer to Route 6. The return trips travels southbound on Goodlette Frank Road to Golden Gate Parkway. Upon reaching Golden Gate Parkway it then travels eastbound to Collier Boulevard and Wal-Mart Supercenter on CR 951, then westbound to CAT Operations Center where passengers are able to transfer to Routes 3A, 3, B, 5, and 6.

3.2.11 LinC

LeeTran, the transit agency operating out of Lee County, began service into northern Collier County in late 2011. The project was identified as a priority by the Metropolitan Planning Organizations of both counties several years ago. The LinC, shown on **Figure 3.12**, operates every 90 minutes from its southernmost transfer center at U.S. 41 and Bonita Beach Road, to Collier County's northern transfer point at U.S. 41 and Immokalee Road. The LinC route connects with Red Route 1B/1C. The route operates seven days per week and averages approximately 7,700 one-way trips per month, which is equivalent to approximately 92,400 trips per year.

The base fare is $1.25 per one-way trip, which is the base fare for LeeTran services. To transfer to a CAT bus, a $1.50 trip fare or $4 pass is needed. Those with CAT bus passes must pay the $1.25 or buy a Lee pass to ride the LinC and any other LeeTran buses. The operating cost for the LinC is $480,553 annually. Collier County and the Collier MPO contributed capital costs of providing a bus for this route. Other funding partners for operational expenses are provided through the Florida Department of Transportation, Lee County, and Bonita Springs.

Figure 3.2 - Red Route
1B/1C Creekside
Collier County, Florida

CDM Smith

N

0 0.25 0.5 1 Miles

Figure 3.3 - Orange Route
2A/2B NCH-Mall
Collier County, Florida

CDM Smith

N

0 0.125 0.25 0.5 Miles

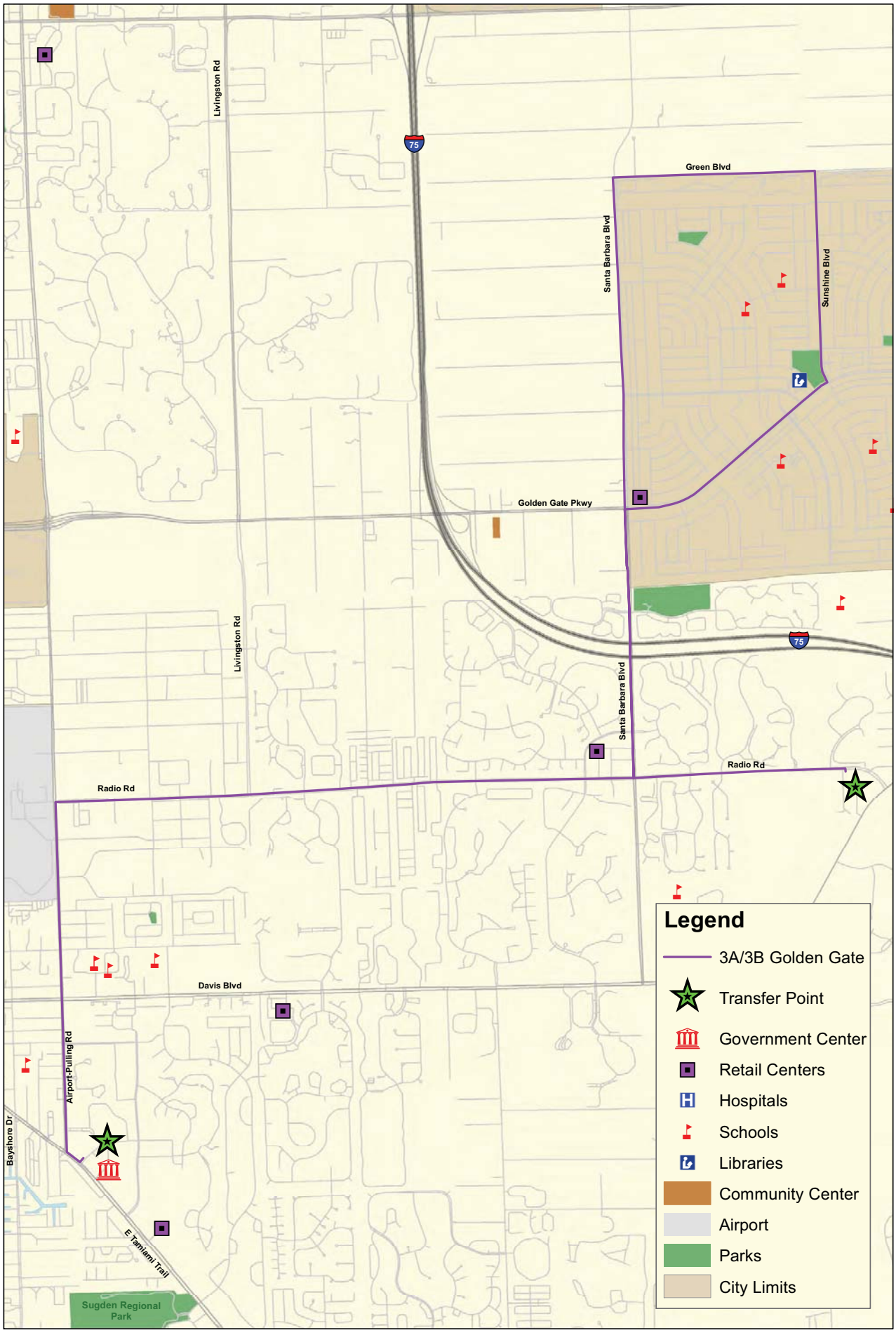


Figure 3.4 - Purple Route
3A/3B Golden Gate
Collier County, Florida

CDM Smith

N

0 0.25 0.5 1 Miles

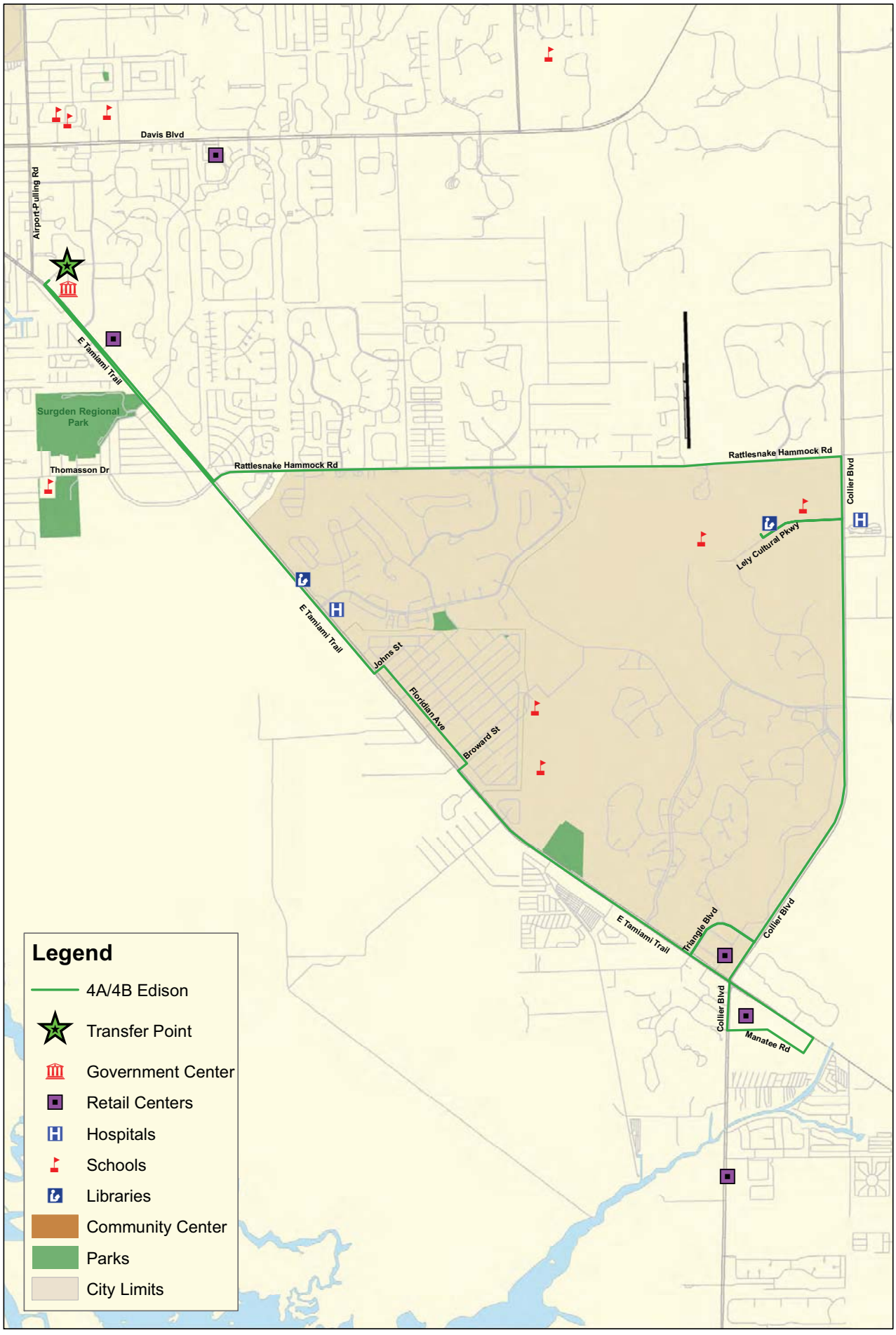


Figure 3.5 - Green Route
4A/4B Edison
Collier County, Florida

CDM Smith

N

0 0.25 0.5 1 Miles

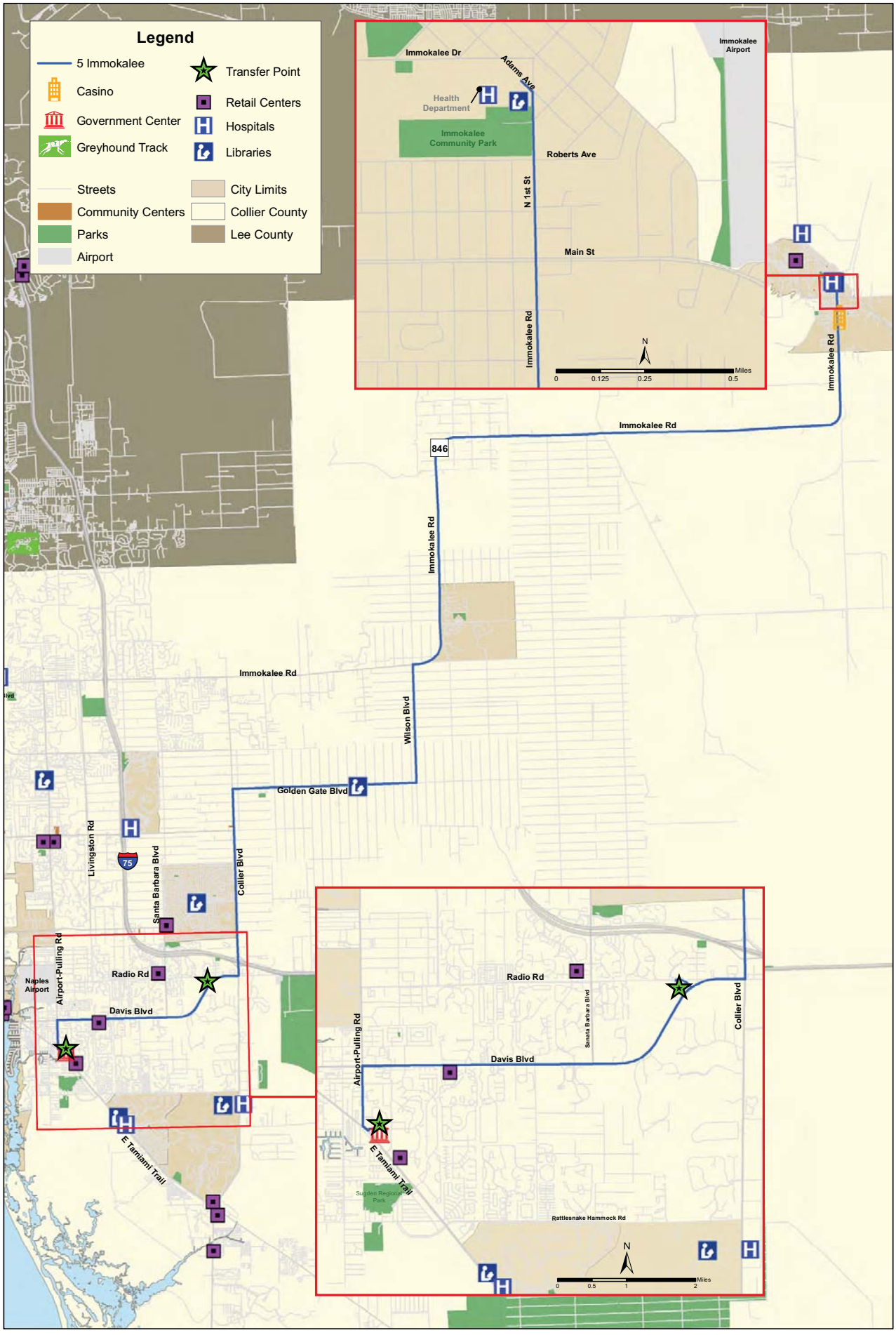


Figure 3.6 - Blue Route
5 Immokalee
Collier County, Florida

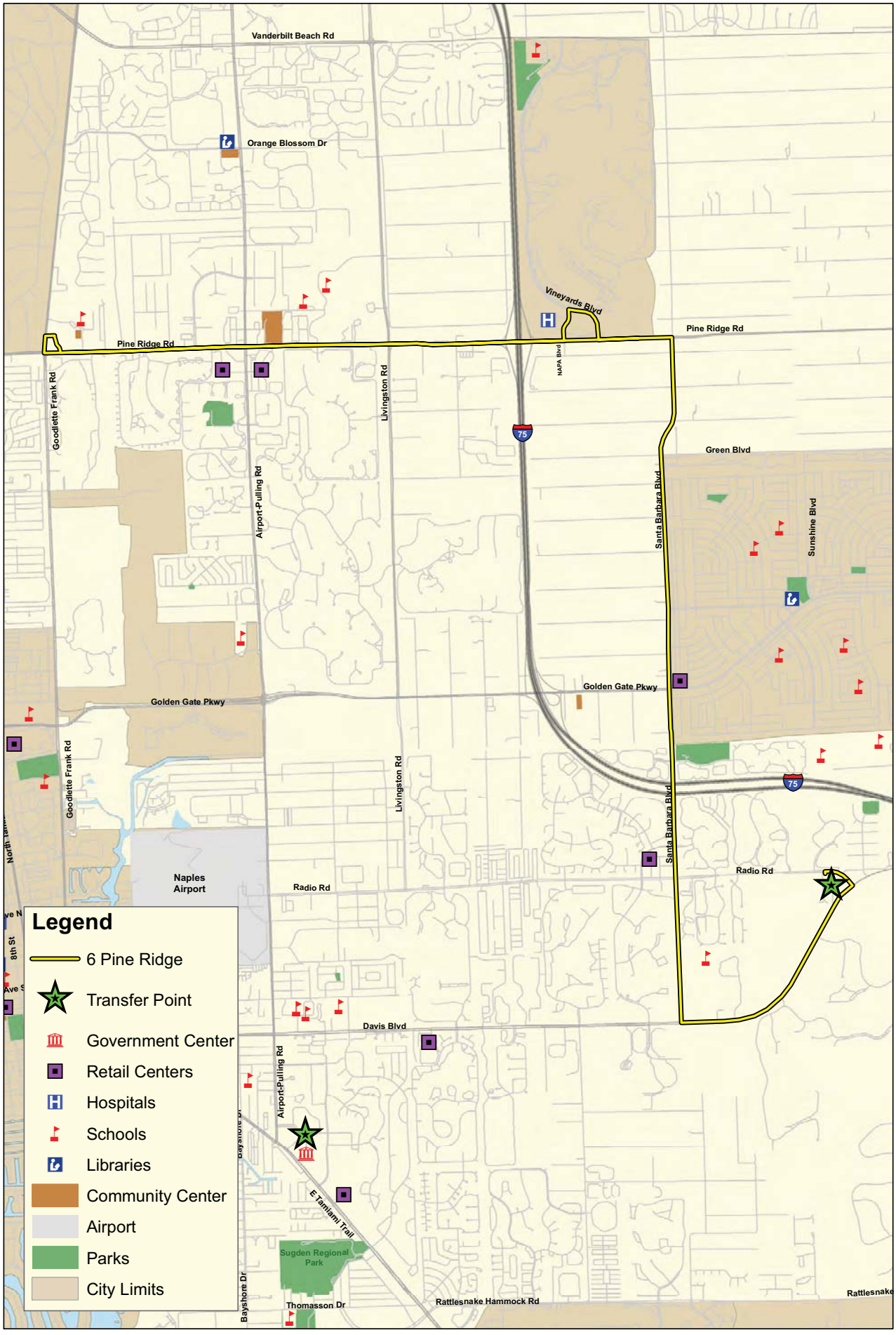


Figure 3.7 - Yellow Route
6 Pine Ridge
Collier County, Florida

CDM Smith

N
0 0.25 0.5 1 Miles

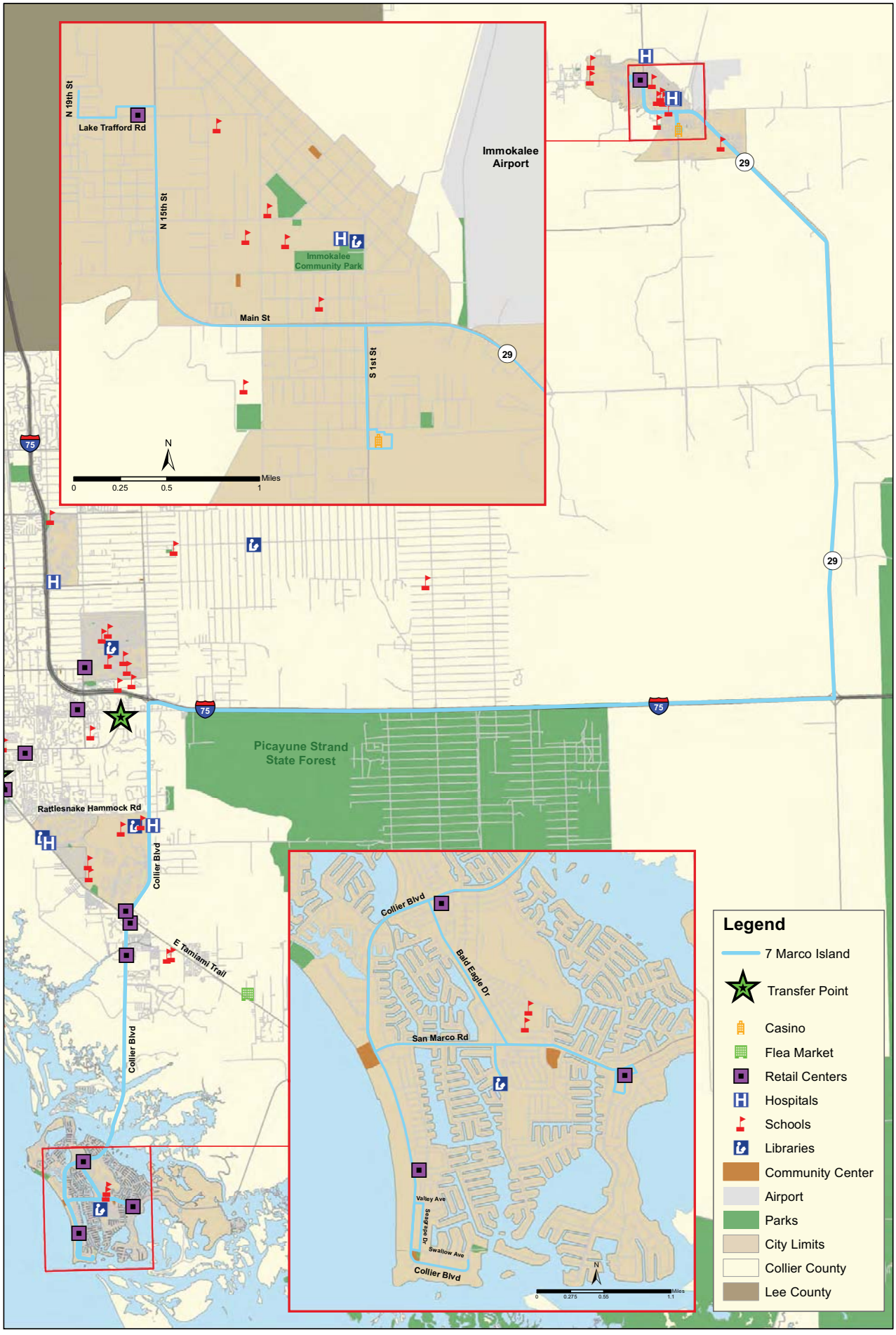


Figure 3.8 - Light Blue Route
7 Marco Island
Collier County, Florida

CDM Smith

N
0 1 2 4 Miles

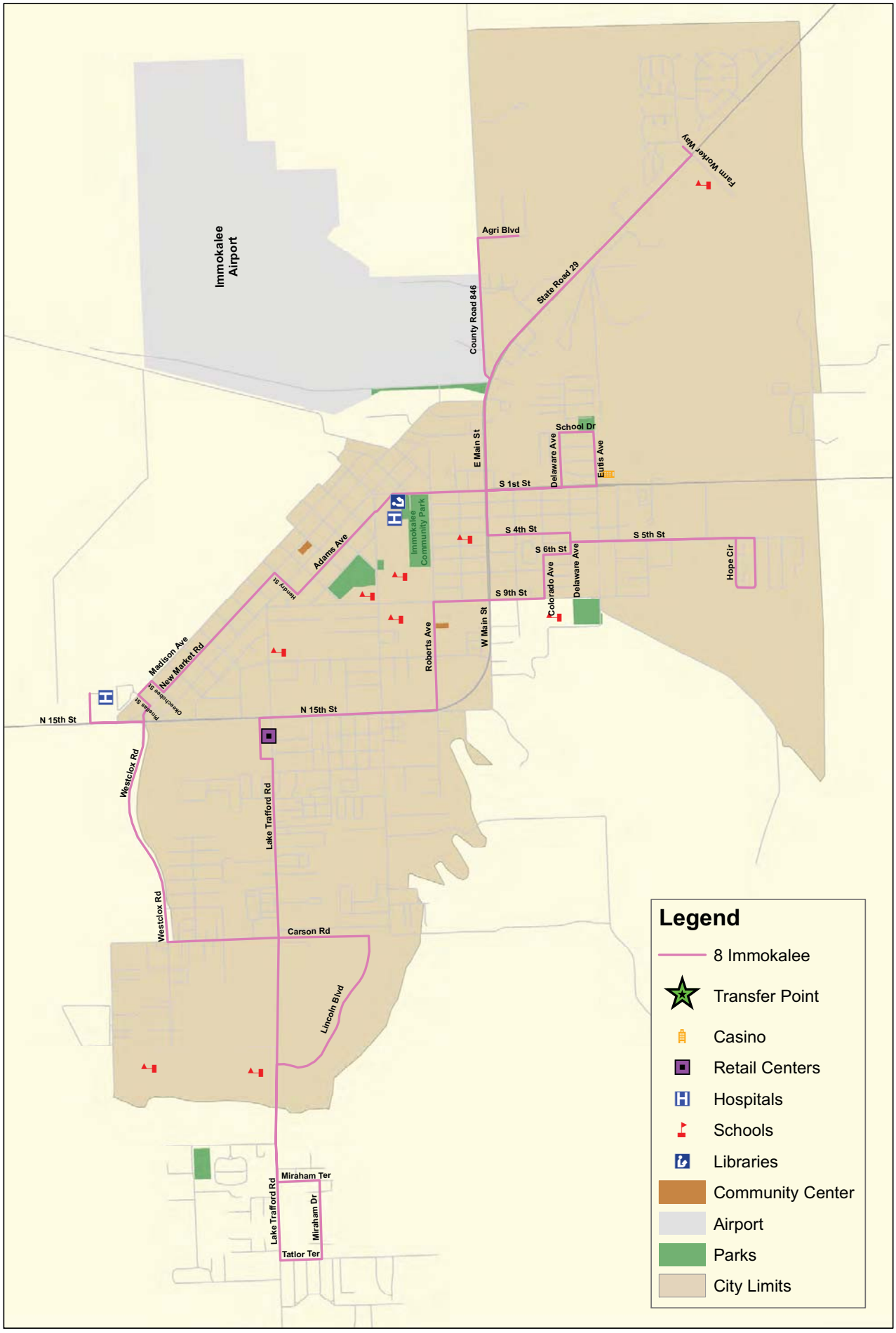


Figure 3.9 - Pink Route
8 Immokalee Circulator
Collier County, Florida

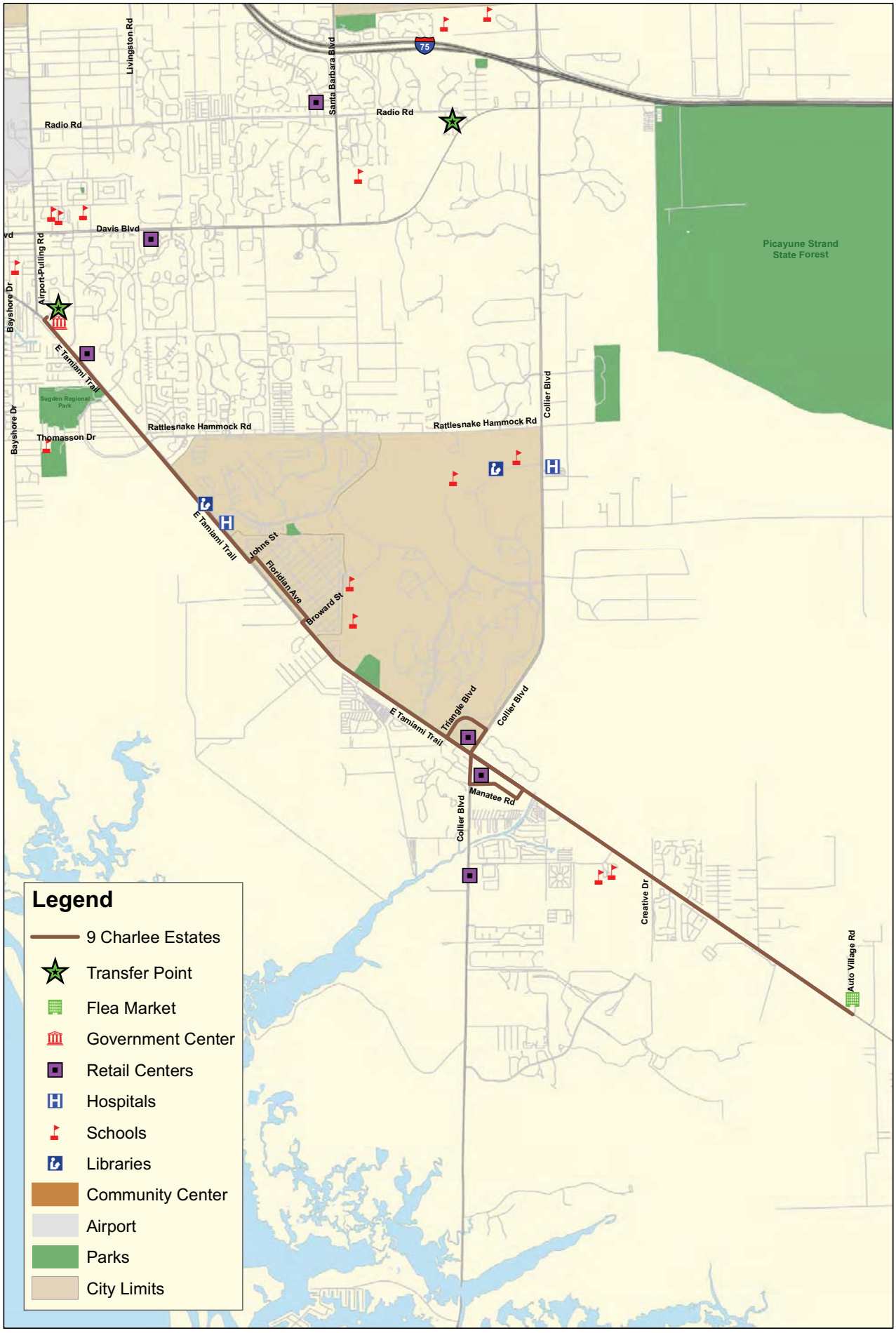


Figure 3.10 - Brown Route
9 Charlee Estates
Collier County, Florida

CDM Smith

N

0 0.25 0.5 1 Miles

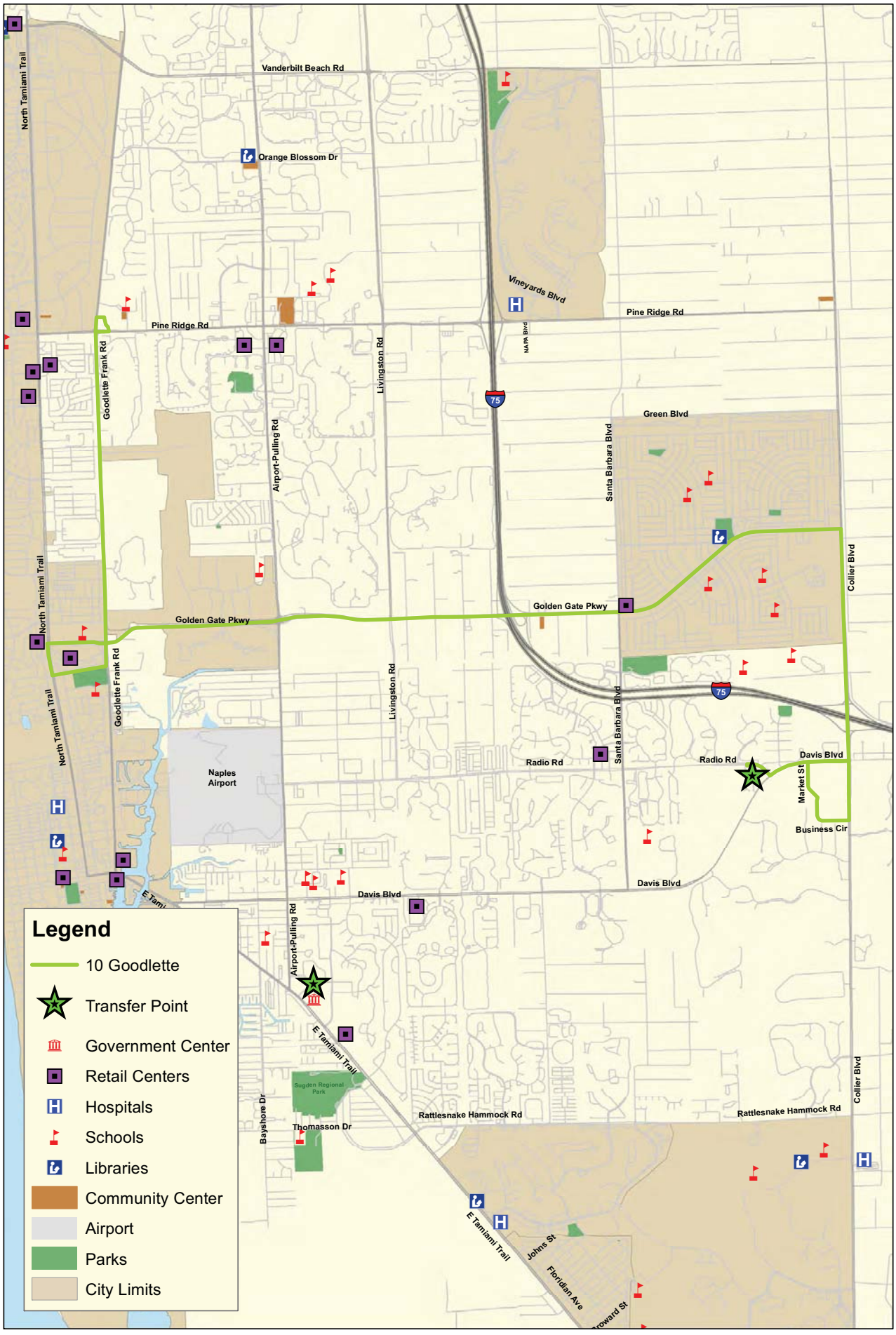


Figure 3.11 - Lime Green Route
10 Goodlette
Collier County, Florida

CDM Smith

N

0 0.25 0.5 1 Miles

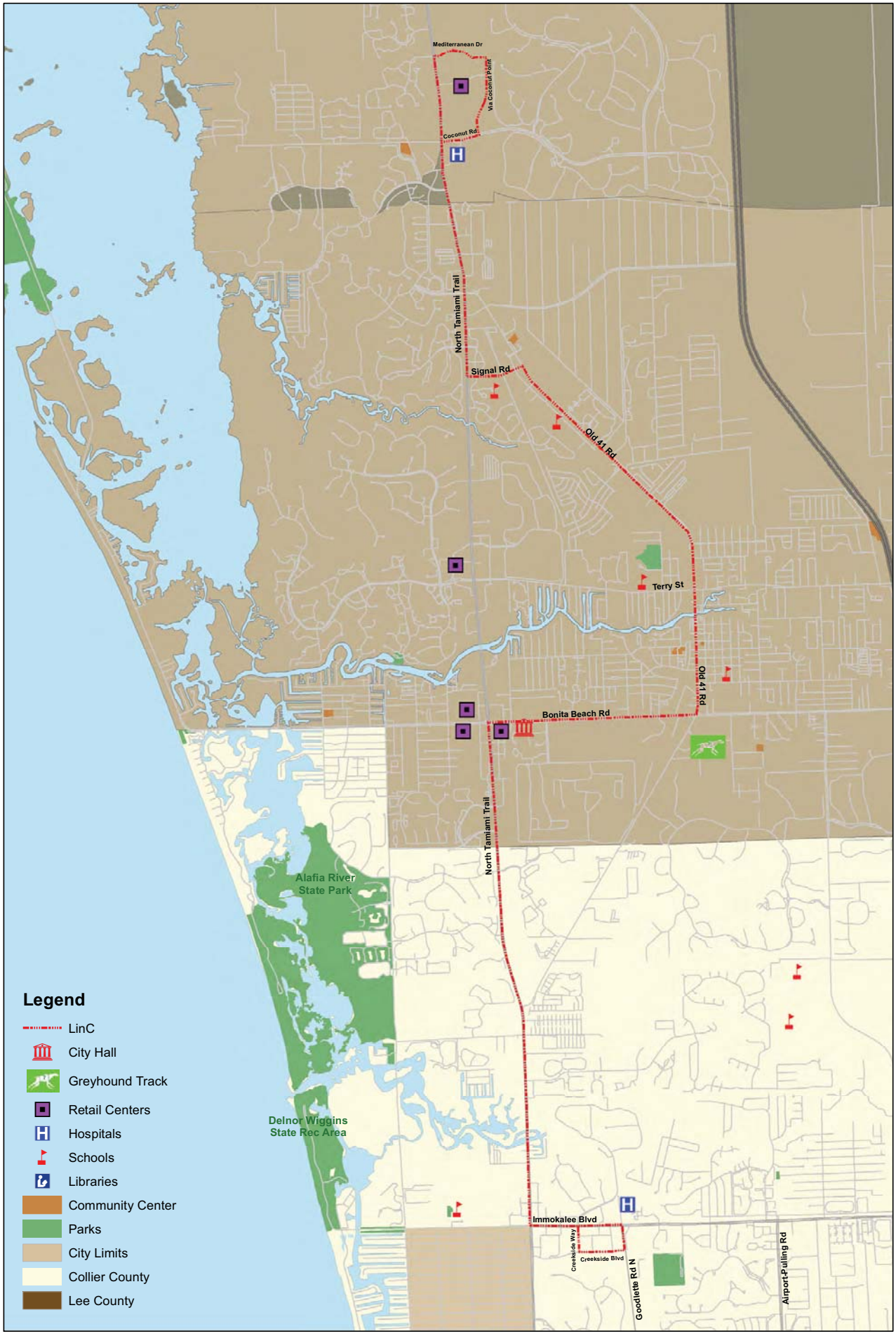


Figure 3.12 - LinC

Collier County &
Lee County, Florida

CDM Smith

N

0 0.25 0.5 1 Miles

3.3 Systemwide Ridership

A crucial element in assessing CAT services is to understand how customers use the transit system. Ridership and operating performance data were obtained for all CAT bus routes for the last fiscal year, FY2011 (Oct 2010 – Sept 2011). In addition, all CAT routes were surveyed to assess weekday, Saturday, and Sunday service. **Table 3.2** shows the overall daily fixed-route ridership for FY2011.

Table 3.2 CAT System wide Daily Ridership, FY2011

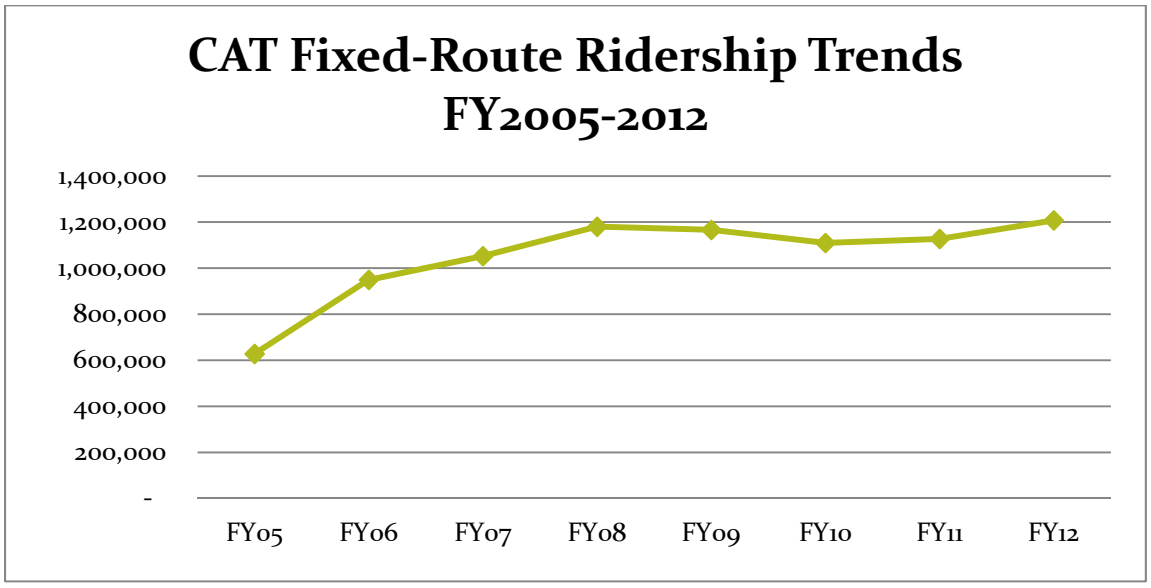
	March 2011	Sept 2011
Weekday Average Daily Ridership	3,623	3,482
Saturday Average Daily Ridership	3,222	3,221
Sunday Average Daily Ridership	1,493	1,467

The data indicate Weekday and Saturday ridership are similar in the number of daily riders. National trends for transit agencies typically have Saturday ridership as half of their weekday ridership. As indicated in the above table, CAT Saturday ridership is just slightly lower than the average weekday, indicating CAT operates similar service six days per week verses five days per week, as many agencies across the nation.

Sunday ridership is just under 50 percent of average Weekday and Saturday daily ridership. The national trend for Sunday ridership is approximately 25 percent of the average weekday. CAT ridership is much higher on Sunday than the national trend, despite the fewer number of routes operating that day.

Annual ridership over the last several years is displayed in **Figure 3.13**. As shown, ridership experienced a steady increase until FY2008. Since then, ridership has plateaued with a slight decrease in FY2010 and small increases in 2011 and 2012 to just over 1.2million annual trips.

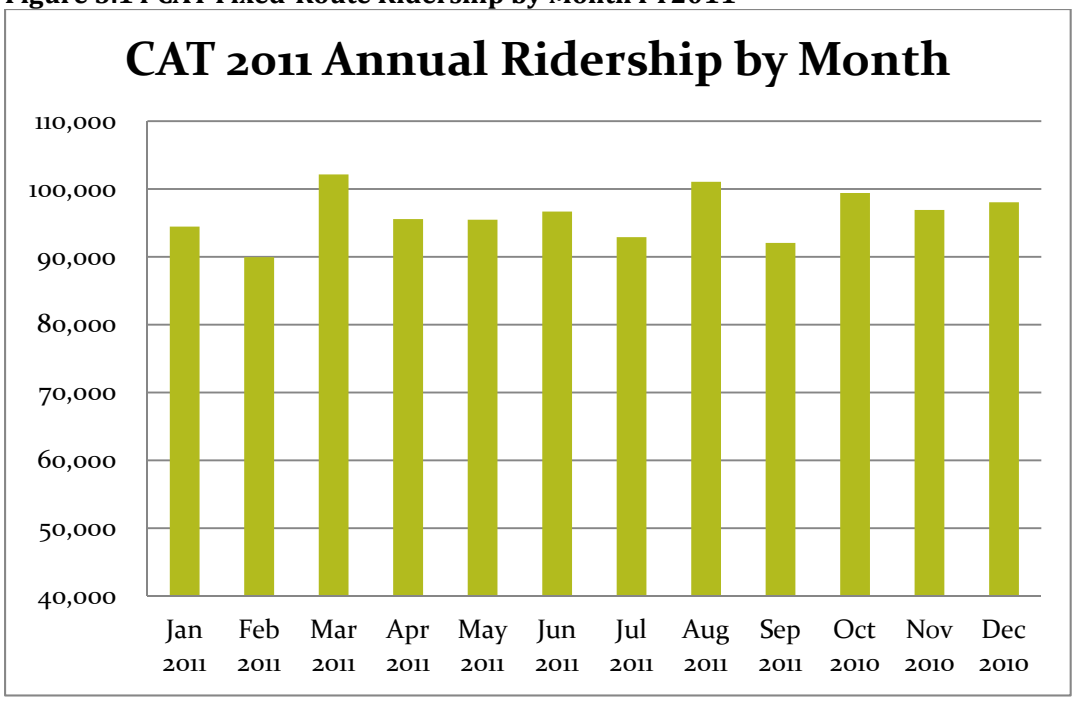
Figure 3.13 CAT Fixed-Route Ridership Trends FY2005-2012



Monthly ridership for FY2011 is displayed in **Figure 3.14** for all CAT fixed-routes. As noted, ridership was highest in March 2011 with approximately 102,000 one-way trips, and lowest in February 2011 with approximately 90,000 one-way trips.

Fluctuations in route ridership can be expected. Ridership trends may indicate seasonal events, such as holidays or, in the case of the Collier County community, seasonal employment trends due to the influx of winter residents. CAT does experience a small variation in ridership due to these factors. The small variance may illustrate the high number of transit dependent riders who rely on CAT services year-round for employment, medical, and other necessary trips. As additional services are implemented in the future to attract choice riders, ridership will likely show more fluctuation throughout the year.

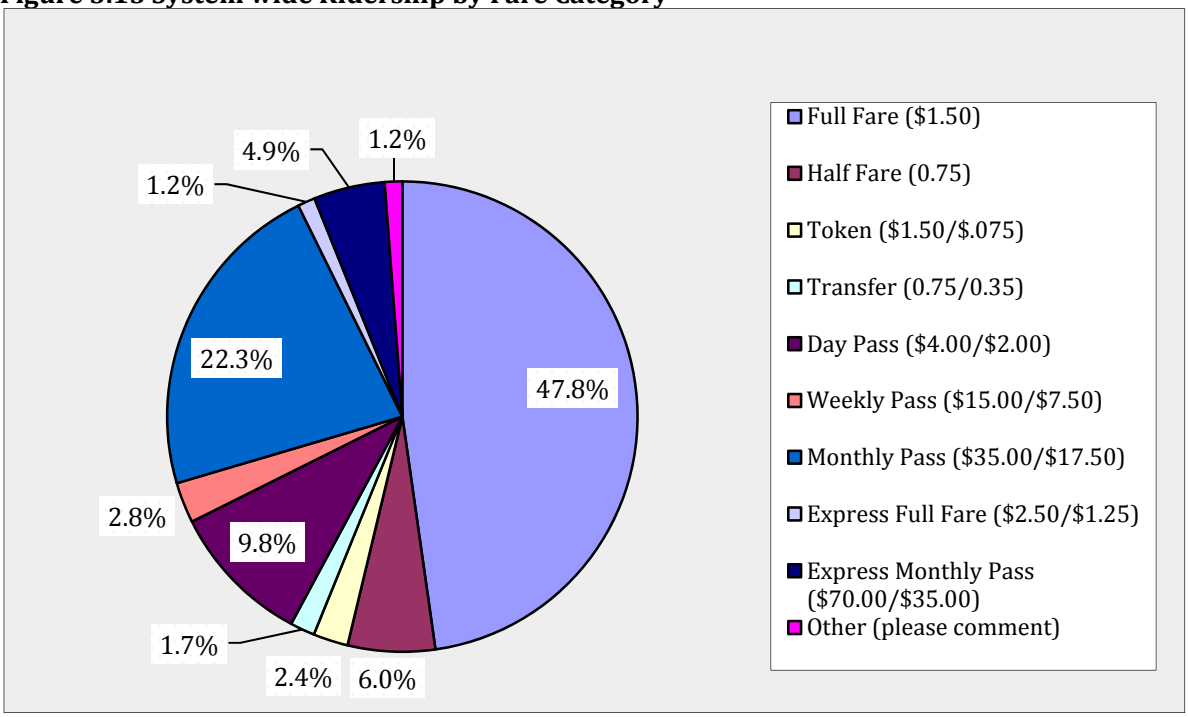
Figure 3.14 CAT Fixed-Route Ridership by Month FY2011



3.4 Fare Category

Farebox data was also reviewed to determine fare category and transfer characteristics by route. **Figure 3.15** presents system wide ridership by fare category. Approximately two percent of all boardings are paid for by transfer. By far, the largest fare category was the standard cash fare of $1.50 with approximately 48 percent of all daily boardings. The second most used fare method with approximately 22 percent of total boardings is the $35 Monthly Pass. By contrast, senior and special needs fares account for approximately six percent of total boardings.

Figure 3.15 System wide Ridership by Fare Category



As part of the COA, a ride check survey was conducted on CAT's fixed-route service. The objective of the survey was to compile boarding and alighting information by bus stop and by trip for all 10 CAT routes for Weekday, Saturday, and Sunday service. Various summaries from this survey were developed for use in evaluating the effectiveness and efficiency of the existing service.

Preparation for the surveys was completed in April 2012. The field work was conducted on May 4-6, 2012. The manual method was used to collect the survey data. This method basically consisted of preparing "surveyor packets" for a surveyor to tabulate boardings and alightings by stop, by route. The surveyor attached the packet to a clipboard and recorded the information as he/she rode the bus. The information was then keyed, edited, and summarized.

3.5 Route Level Ridership

Public transit agencies develop route alignments and schedules similar to the development of the roadway transportation network alignments. The end result is to provide residents with the most direct routes to/from their destinations. All roads cannot be arterial roads or highways. Smaller feeder roads such as collector and local streets coordinate mobility with the other higher volume roadways. Transit agencies have this same philosophy. The busiest and primary bus routes will likely be the most efficient and operate along high activity corridors, which are usually arterial roads. Many small neighborhood and service routes feed into the busier route and allow passengers transfer opportunities.

CAT ridership by route for the past three years is shown in **Figure 3.16**. In FY2011, Route 1 and Route 3 were the routes with highest ridership with approximately 239,000 and 228,000 annual one-way trips respectively. Route 10 – Lime Green, Goodlette, the newest route, has the lowest annual ridership of approximately 27,400 one-way trips in 201, as shown in **Figure 3.17**.

Figure 3.16 CAT Route Performance FY2009-2011

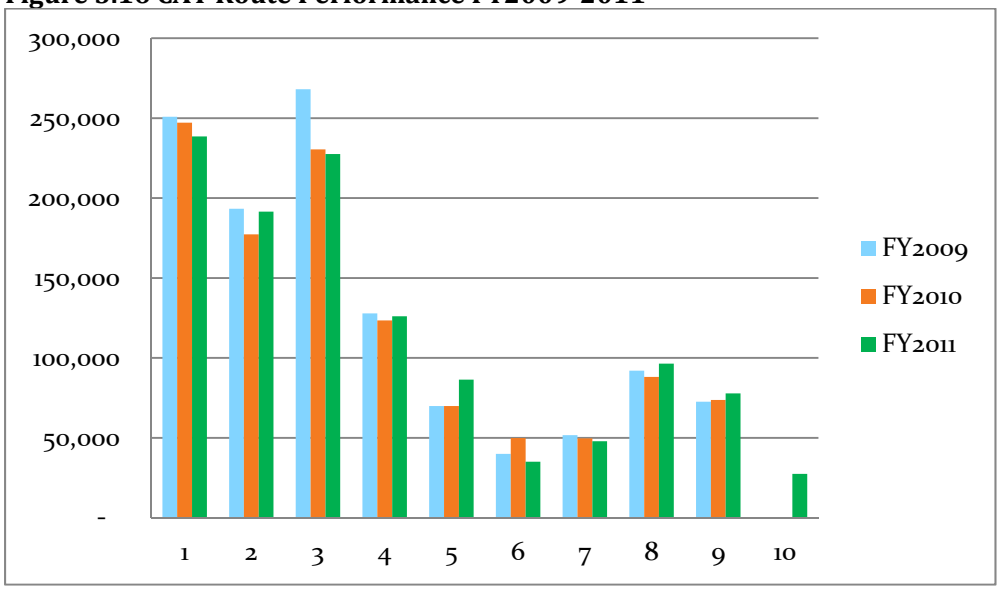
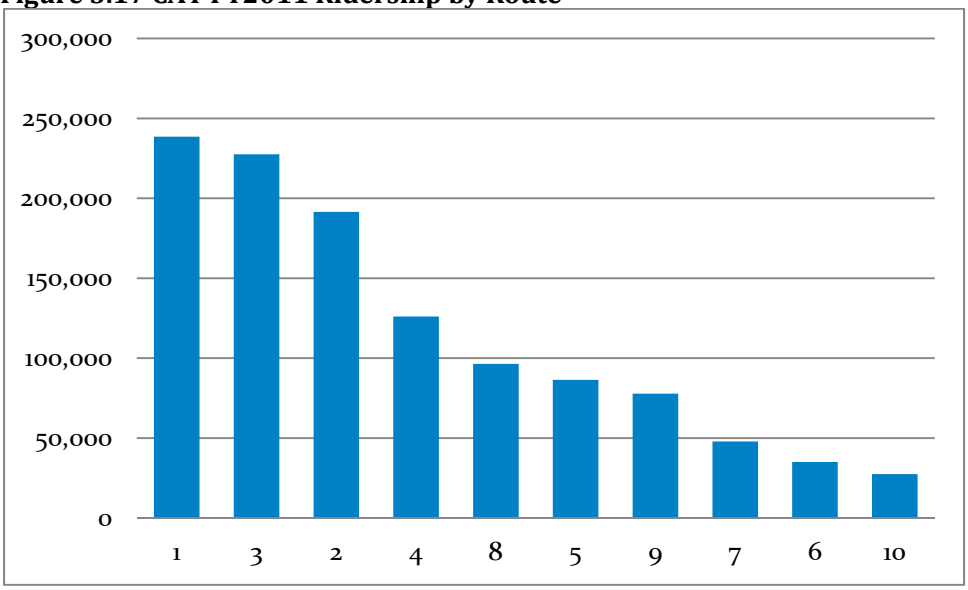


Figure 3.17 CAT FY2011 Ridership by Route



3.6 Temporal Analysis

The system wide daily boardings for CAT were analyzed by various times of the day by route. **Table 3.3** shows the total boardings broken down by time period and route. The number of passengers by time period determines the boarding patterns during various times of the day, which helps determine peak load times, peak-hour vehicle allocations, and schedules. The temporal analysis divides the total daily boardings into the following five time periods:

- Before 9:00 a.m.
- Between 9:00 and 12:00 p.m.

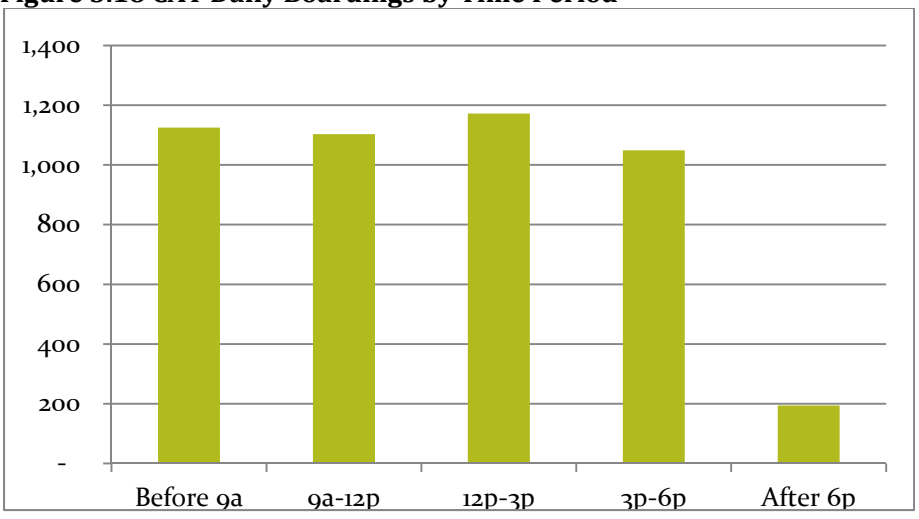
- Between 12:00 and 3:00 p.m.
- Between 3:00 and 6:00 p.m.
- After 6:00 p.m.

Figure 3.18 illustrates the total daily boardings for various times of the day. As depicted, the time period from 12:00 p.m. to 3:00 p.m. had the highest number of boardings, representing approximately 25 percent of total boarding counts. This is closely followed by all other time periods, except for services after 6:00 p.m. The significant drop of boardings after 6:00 p.m. is due to the minimal service currently offered after that time period. As service hours are extended beyond 6:00 p.m. in the future, the percentage of daily boardings will also increase.

Table 3.3 CAT Daily Boardings by Time Period

Route	Before 9a	9a-12p	12p-3p	3p-6p	After 6p
1B	116	121	119	138	37
1C	119	107	88	132	27
2A	40	98	91	98	36
2B	53	110	129	86	-
3A	170	144	181	136	45
3B	125	64	64	83	-
4A	62	47	62	59	11
4B	35	48	59	55	-
5	87	64	72	54	25
6	23	27	31	35	-
7	48	30	63	22	-
8A	107	87	43	29	8
8B	42	67	55	22	5
9	62	61	78	57	-
10	36	28	37	43	-
Total Boardings	1,125	1,103	1,172	1,049	194
% of Boardings	24%	24%	25%	23%	4%

Figure 3.18 CAT Daily Boardings by Time Period



As shown above, CAT boardings remain fairly stable throughout the day. This pattern is different from many transit agencies across the nation that have more of a bell shaped curve with boardings – meaning ridership is high in the morning during peak hours and high in the afternoon when riders are going home. This bell shaped curve is also a typical pattern reflected in roadway design and usage. Roadways, just as transit routes, are designed to meet peak activity, which is usually in the afternoon peak hours from 3:00 to 6:00 p.m.

The trend with CAT riders of consistent ridership throughout the day likely reflects the high number of transit dependent riders that have service jobs that do not end at 5:00 or 6:00 in the evening, but likely close at 9:00 p.m. or later in the evening. Many CAT riders may also have second jobs to supplement their household income. These jobs may be a second shift job, which allow CAT to provide bus service to their work, but CAT service does not operate to the end of their shift; thus, relying on coworkers for a ride, bike, walk, or friends and family pick them up. With survey data indicating that approximately 78 percent of riders walk to catch the bus, this lack of service in the evening time means that riders are forced to walk long distances to reach home after their work shifts, creating a number of safety issues.

CAT staff report the transit service operates at approximately 60 percent capacity, based upon average daily ridership and daily revenue hours. This calculation is similar to data reported by the 2011 Collier County Annual Update and Inventory Report, which indicates the roadways operate at 58 percent capacity. These capacities are not surprising in light of typical standards for designing roadways and transit routes to meet peak hour needs. It is common for roadways to be congested in the early morning peak hours and in the afternoon peak hours. This trend is also true for transit.

CAT currently has steady ridership throughout the day until 6:00 p.m. Because of this current trend, transit schedules should continue existing planning of bus routes operating all day. Peak hour services will likely be needed in the future; however, at this time, current scheduling meets the existing transit demand.Systemwide Performance Measures

3.7 Systemwide Performance Measures

As part of the evaluation of service, it is important to assess ridership performance. Performance indicators may include cost per passenger trip, cost per mile, passenger per revenue hour, passenger per mile, farebox recovery ratio, and others. The National Transit Database requires reporting by four categories: passenger per revenue mile, passenger per revenue hour, cost per passenger trip, and farebox recovery. While this is reported to the NTD on an annual basis, it is important that this data be reported on a route-by-route basis monthly. This gives CAT the ability to not only track the actual performance of each route, but to identify trends and make any route modifications.

An essential function of the COA is to thoroughly evaluate the performance of the routes making up a transit system. By examining the CAT system from a variety of different angles—economic, historic trends, ridership, etc.—it is possible to isolate both the best and poorest performing routes. This information is invaluable in making decisions on how to improve CAT service. In a climate where every resource available to a transit agency is precious, CAT must find ways to increase support for the most successful services, which will have the largest impact on its riders, and ways to improve the underperforming services to minimize their potential drain on the system.

In any transit system, there will be routes that are winners and losers in both financial and ridership terms; not every route can operate at a high level of productivity with a strong farebox recovery, nor

should it. Robust system service coverage often means offering routes capable of connecting riders to less popular destinations. This evaluation of route performance in the COA provides the information necessary to strike the appropriate balance between the needs of riders, operational concerns, and funding restraints to maximize the efficiency and effectiveness of the bus system. CAT system wide performance measures are shown in **Table 3.4**.

Table 3.4 CAT FY2011 System wide Performance Measures

Route	Ridership	Rev Hours	Rev Miles	Cost per Route	Pass/Hr	Pass/ Mile	Cost/Trip	Farebox Recovery	Subsidy per Pass Trip
1	238,507	10,117	167,020	$738,586	23.6	1.43	$3.10	33%	$2.07
2	191,523	8,183	110,034	$597,361	23.4	1.74	$3.12	30%	$2.17
3	227,560	9,376	155,142	$684,491	24.3	1.47	$3.01	31%	$2.06
4	126,035	8,235	115,038	$601,187	15.3	1.10	$4.77	19%	$3.86
5	86,471	6,735	206,528	$491,695	12.8	0.42	$5.69	19%	$4.61
6	35,045	4,046	70,152	$295,376	8.7	0.50	$8.43	12%	$7.42
7	47,919	4,477	126,721	$326,841	10.7	0.38	$6.82	17%	$5.67
8	96,390	8,666	155,106	$632,675	11.1	0.62	$6.56	13%	$5.70
9	77,823	4,117	66,982	$300,531	18.9	1.16	$3.86	23%	$2.97
10	27,429	2,828	53,200	$206,457	9.7	0.52	$7.53	13%	$6.57
System	1,154,702	66,779	1,225,923	$4,875,200	17.3	0.94	$4.22	23%	$3.25

Several performance measures were used to rank how well the system is operating from a financial standpoint. These measures were used to analyze individual route performance. This allowed for a ranking of the routes by each of the measures.

- Passengers per Revenue-Hour
- Passengers per Revenue-Mile
- Farebox Recovery Ratio
- Subsidy per Revenue-Hour
- Subsidy per Passenger Trip
- Operating Cost per Passenger Trip

Table 3.5 Passengers/Revenue Hour and Mile

Passengers/Revenue Hour

Route	Pass/Hr	Rank
3 – Purple	24.3	1
1 – Red	23.6	2
2 – Orange	23.4	3
9 – Brown	18.9	4
4 – Green	15.3	5
5 – Blue	12.8	6
8 – Pink	11.1	7
7 – Light Blue	10.7	8
10 – Lime Green	9.7	9
6 – Yellow	8.7	10
System	17.3	

Passengers/Revenue Mile

Route	Pass/Mile	Rank
2 – Orange	1.74	1
3 – Purple	1.47	2
1 – Red	1.43	3
9 – Brown	1.16	4
4 – Green	1.10	5
8 – Pink	0.62	6
10 – Lime Green	0.52	7
6 – Yellow	0.50	8
5 – Blue	0.42	9
7- Light Blue	0.38	10
System	0.94	

As shown in **Table 3.5**, the passengers per revenue hour have a system wide average of 17.3. The routes displayed above the bold line rank above the system wide average. The second performance measure of passengers per revenue mile has a system wide average of 0.94. The table illustrates five routes ranking above the system wide average score.

Table 3.6 illustrates the cost per passenger trip and farebox recovery ratio. CAT has a system wide average of $4.22 cost per passenger trip. Four routes have a lower cost per passenger trip than the average. In addition, the system wide farebox recovery ratio for CAT is 23 percent. Four routes have a higher than the system wide average farebox recovery ratio.

The subsidy per revenue hour and subsidy per passenger trip were also calculated for CAT services, as shown in **Table 3.7**. System wide subsidy per revenue hour is $56.25. Four routes had a lower subsidy than the average – Route 1, 3, 2, and 9. The average subsidy per passenger trip for the system is $3.25. The same four routes had subsidies lower than the average score.

Table 3.6 Cost/Trip and Farebox Recovery

Route	Cost/Trip	Rank
3 - Purple	$3.01	1
1 – Red	$3.10	2
2 – Orange	$3.12	3
9 – Brown	$3.86	4
4 – Green	$4.77	5
5 – Blue	$5.69	6
8 – Pink	$6.56	7
7 – Light Blue	$6.82	8
10 – Lime Green	$7.53	9
6 – Yellow	$8.43	10
System	$4.22	

Route	Farebox Recovery	Rank
1 – Red	33%	1
3 – Purple	31%	2
2 – Orange	30%	3
9 – Brown	23%	4
4 – Green	19%	5
5 – Blue	19%	6
7 – Light Blue	17%	7
8 – Pink	13%	8
10 – Lime Green	13%	9
6 - Yellow	12%	10
System	23%	

Table 3.7 Subsidy per Revenue Hour and Passenger Trip

Route	Subsidy/ Rev Hour	Rank
1 – Red	$48.84	1
3 – Purple	$50.06	2
2 – Orange	$50.78	3
9 – Brown	$56.08	4
4 – Green	$59.09	5
5 – Blue	$59.12	6
7 – Light Blue	$60.72	7
8 – Pink	$63.38	8
10 – Lime Green	$63.74	9
6 – Yellow	$64.24	10
System	$56.25	

Route	Subsidy/ Pass Trip	Rank
3 – Purple	$2.06	1
1 – Red	$2.07	2
2 – Orange	$2.17	3
9 – Brown	$2.97	4
4- Green	$3.86	5
5 – Blue	$4.61	6
7 – Light Blue	$5.67	7
8 – Pink	$5.70	8
10 – Lime Green	$6.57	9
6 – Yellow	$7.42	10
System	$3.25	

The above performance measures were used to evaluate each route and develop a composite score based upon system wide averages. Each of these indicators was expressed as a percentage of system average. The scores for each measure were expressed as either greater than 100 percent of system average, at system average, or a percentage below system average. Then, each of the five scores were added and divided by five to calculate a final composite score for each route. The composite score gives the route a ranking, meaning CAT routes with the highest percentage scores in relation to system average are the best performers and the lower ranking routes are, from a productivity perspective, poorer performing routes. **Table 3.8** provides a sketch of the entire system and helps to define the route network for purposes of the COA.

Table 3.8 Composite CAT System wide Performance Measures

Rte	Riders	Rev Hours	Rev Miles	Cost/ Route	Pass /Hr	Pass/ Mile	Cost/ Trip	Farebox Recovery	Subsidy / Rev Hour	Subsidy / Pass Trip	Comp Score	Rank
2	191,523	8,183	110,034	$597,361	23.4	1.7	$3.12	30%	$50.78	$2.17	142	1
3	227,560	9,376	155,142	$684,491	24.3	1.5	$3.01	31%	$50.06	$2.06	140	2
1	238,507	10,117	167,020	$738,586	23.6	1.4	$3.10	33%	$48.84	$2.07	139	3
9	77,823	4,117	66,982	$300,531	18.9	1.2	$3.86	23%	$56.08	$2.97	110	4
4	126,035	8,235	115,038	$601,187	15.3	1.1	$4.77	19%	$59.09	$3.86	91	5
5	86,471	6,735	206,528	$491,695	12.8	0.4	$5.69	19%	$59.12	$4.61	65	6
8	96,390	8,666	155,106	$632,675	11.1	0.6	$6.56	13%	$63.38	$5.70	51	7
7	47,919	4,477	126,721	$326,841	10.7	0.4	$6.82	17%	$60.72	$5.67	48	8
10	27,429	2,828	53,200	$206,457	9.7	0.5	$7.53	13%	$63.74	$6.57	38	9
6	35,045	4,046	70,152	$295,376	8.7	0.5	$8.43	12%	$64.24	$7.42	36	10
System	1,154,702	66,779	1,225,923	$4,875,200	17.3	0.9	$4.22	23%	$56.25	$3.25		

3.8 Route Transfers

The May 2012 onboard surveys included the question of whether passengers transferred to/from another bus for their specific trip. Approximately 15 percent of all recorded trips did not include a transfer. Route 1 and Route 3 had the highest response for transferring to another route.

3.9 Major Hubs, Park-n-Rides, and Transfer Facilities

The CAT system currently provides route connectivity at major locations identified on the route schedule as well as at any location within the system where two routes intersect. Identifying major hubs, park-n-rides, and transfer areas is an essential element to consider in future planning efforts that can serve to streamline connectivity between transit routes and offer enhanced connectivity to major passenger origins and destinations. The existing CAT system provides a major transit hub at the Collier County Government Center, serving seven of CAT's ten routes. Other major transfer points in the county have been identified in the Collier Transit Development Plan (TDP), and include:

- Radio Road Operations Center – Serving Routes 3,5, and 10
- Creekside Transfer Center – Serving one CAT route (Route 1) and the LinC (operated through LeeTran)
- Wal-Mart Plaza (U.S. 41 and Collier Boulevard) – Serving Routes 4,7, and 9
- Sweet Bay Plaza (Goodlette Frank Road and Pine Ridge Road) – Serving Routes 6 and 10

- Coastland Center – Serving Routes 1, 2, and 6
- Collier County Health Department (Immokalee) – Serving Routes 5 and 8

Three other priority locations for desired implementation of park-n-rides are identified in Collier County's latest TDP Major Update: Collier Boulevard at Immokalee Road, Immokalee Road at Gulf Shore Drive, and I-75 at the Lee County Line. These locations are planned outside of the short-term planning horizon of this COA and agreements are currently not in place for these facilities; however, they may be monitored for ridership and other criteria that may warrant additional capital and operational improvements at these locations as funding becomes available.

For the purposes of this COA, reviewing boardings and alightings at all bus stop locations in the system was undertaken to identify areas that should be given highest priority in developing operational route modifications to streamline system connectivity. These findings may also serve CAT staff in identifying priority locations for capital improvements outside of the purview of this operational analysis to enhance passenger amenities in areas of high transit demand, and may be compared with existing plans and priority improvements as future plans emerge.

3.9.1 Ridership Activity by Bus Stop

As noted earlier, a ride check survey of the fixed-route system was conducted as part of this study's work effort. Stop level ridership (boardings and alightings) recorded for each route was aggregated to develop a system wide assessment of ridership activity by stop. The survey was conducted on a Friday, Saturday, and Sunday on 100 percent of CAT's routes. The survey was conducted during the morning peak (6:00 a.m. – 10:00 a.m.), midday (11:00 a.m. – 2:00 p.m.), and afternoon peak (4:00 p.m. to 6:00 p.m.) hours, along with early and late express and circulator routes. Approximately 50 percent of the trips on each route were surveyed.

Boarding and alighting activity was highest at the Government Center and at Wal-Mart, near Collier Boulevard and Eagle Creek Drive. Ridership activity at the Government Center accounts for 26 percent of total boardings. Other high activity bus stop locations included major shopping, medical, and educational destinations in the area. CAT has approximately 530 designated bus stops in the Collier County service area. **Table 3.9**, shown in the following table, presents the busiest bus stop boarding locations for CAT fixed-route services. These are the key stop locations that should be given highest consideration for passenger amenities (passenger shelters, benches and sidewalk access).

The majority of these high boarding and alighting stops coincide well with CAT's identified major transfer points in the TDP. Two exceptions to this were noted for locations at the Collier County Health Department in Immokalee and Sweet Bay at Goodlette-Frank Road and Pine Ridge Road. Although the Health Department location in Immokalee is not listed in the top 20 boarding locations, in reviewing overall stop activity (both boardings and alightings), this location is one of the top 20 locations in the county. Reviewing ride check boardings and alightings at Sweet Bay, it was found that this location shows up poorly in comparison to other more prominent stop locations in the system.

Stop level ridership (boardings and alightings) recorded for each route was aggregated to develop a system wide assessment of ridership activity by stop. **Figures 3.19** and **3.20** illustrate system wide ridership activity by stop. Full system wide tables of boardings, alighting and total activity, as well as individual boarding and deboarding route maps for weekday, Saturday, and Sunday are provided in **Appendix B**.

Table 3.9 Busiest Bus Stops

	Street Name	Nearest Cross Street	Total Daily Boardings
1	Espinal Boulevard (Govt Ctr)	Espinal Boulevard	761
2	Collier Boulevard (Wal-Mart)	Eagle Creek Drive	119
3	Fleischmann Boulevard (Near Fleischmann Park) – Eastbound	Goodlette-Frank Road North	65
4	Immokalee Road (Creekside Transfer)	Creekside Trail	59
5	Fleischmann Boulevard (Coastland Ctr) - Westbound	Goodlette-Frank Road North	47
6	Radio Road	Cat Ops Center	45
7	Farm Worker Way	Alexander Cir	42
8	Tamiami Trail North (U.S. 41 @ Courthouse Shadows)	Osceola Avenue	34
9	Airport Pulling Road South	Glades Boulevard	33
10	Airport Pulling Road South	Great Blue Drive	29
11	Bayshore Drive	Tamiami Trail East	29
12	Radio Road	San Marcos Boulevard	28
13	Airport Pulling Road South	Tamiami Trail East	27
14	Tamiami Trail North (U.S. 41)	Immokalee Road	24
15	Floridan Avenue	Hardee Street	23
16	Broward Street	Floridan Avenue	23
17	Golden Gate Parkway	Tropicana Boulevard	23
18	Bayshore Drive	Tamiami Trail East	22
19	Tamiami Trail East (U.S. 41)	Palm Drive	22
20	Sunshine Boulevard	Golden Gate Parkway	22

Figure 3.19 - Collier Area Transit
Total Weekday Boardings by Stop

Figure 3.20 - Collier Area Transit
Total Weekday Alightings by Stop

3.10 Rider Demographics

The onboard survey conducted for this COA includes data to determine origins and destinations, trip purpose, and demographics of CAT's rider base. Understanding these qualities of existing riders are key elements in the assessment of current route strengths, weaknesses and service performance. Surveyors were on the buses, handing out and collecting survey instruments.

A total of 2,500 surveys were distributed in English, Spanish and Creole. Every passenger over the age of 15 received a survey. A total of 1,033 completed surveys were analyzed, which equaled a response rate of 41 percent, which exceeded the projected response rate of 25 percent.

3.10.1 Trip Purpose

Riders were asked where they started and ended their trip. Roughly 60 percent of riders began their trip at home, while another 35 percent ended at work. The remaining riders began or ended their trip at a shopping, school, medical/dental, or other destination. **Figure 3.21** and **Figure 3.22** describes these results.

Figure 3.21 Where did you start your trip?

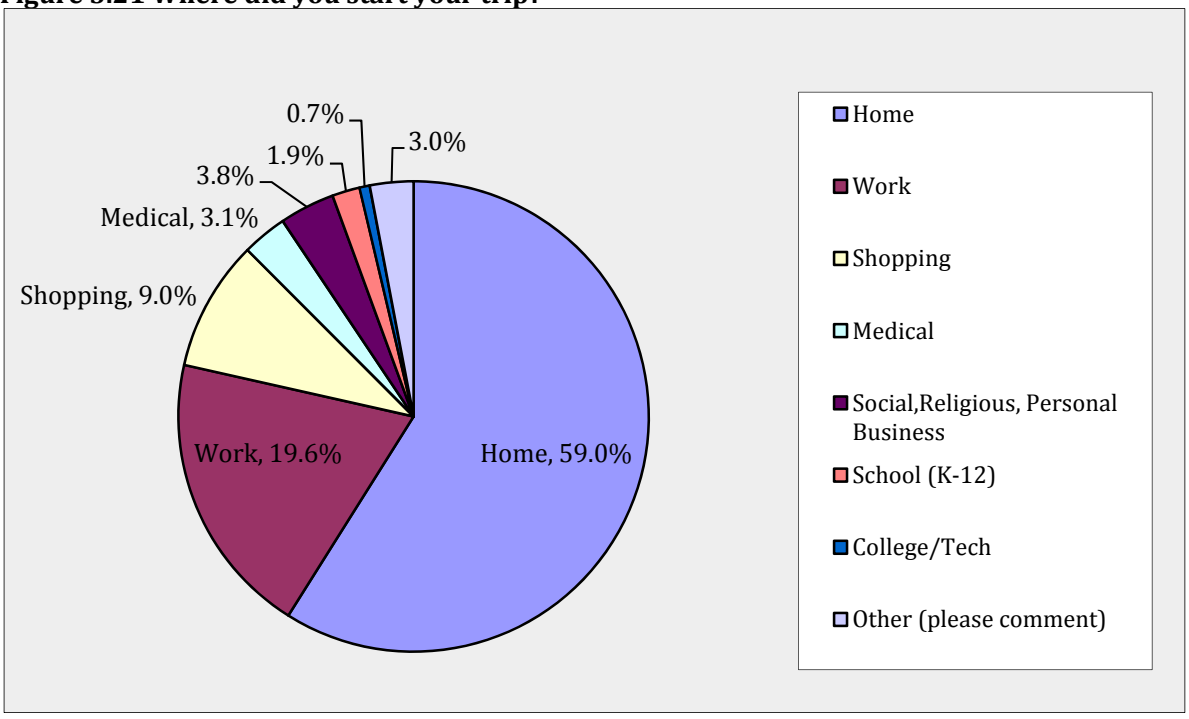
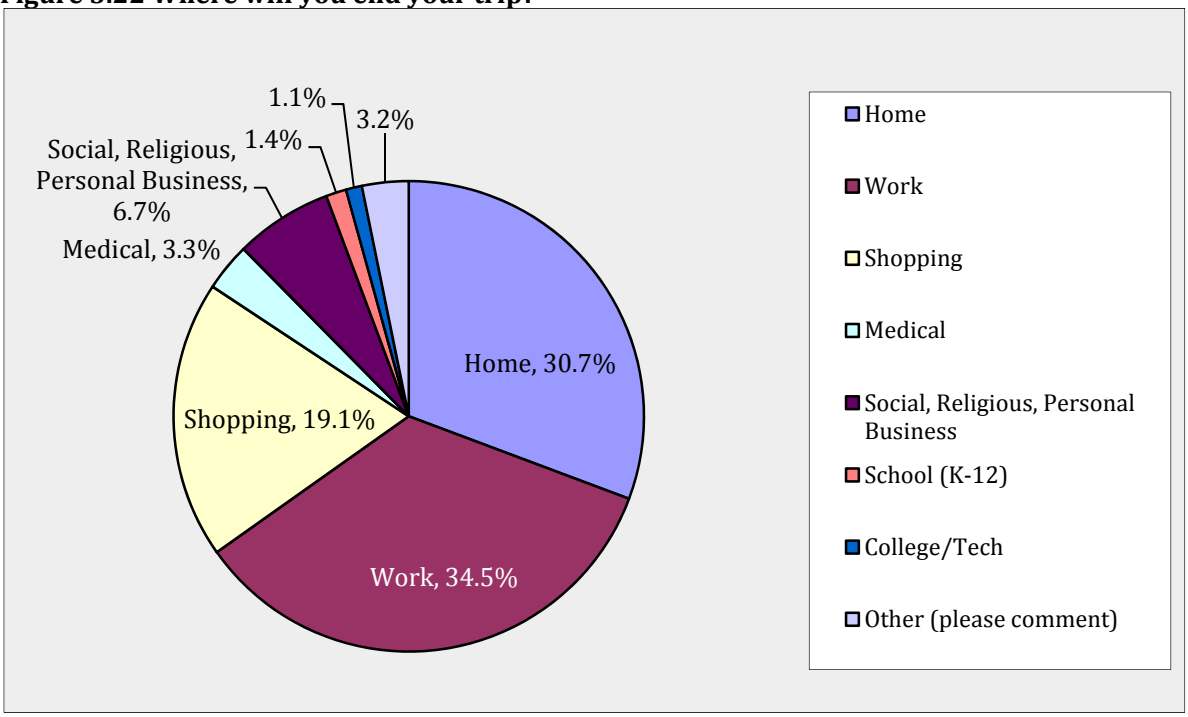


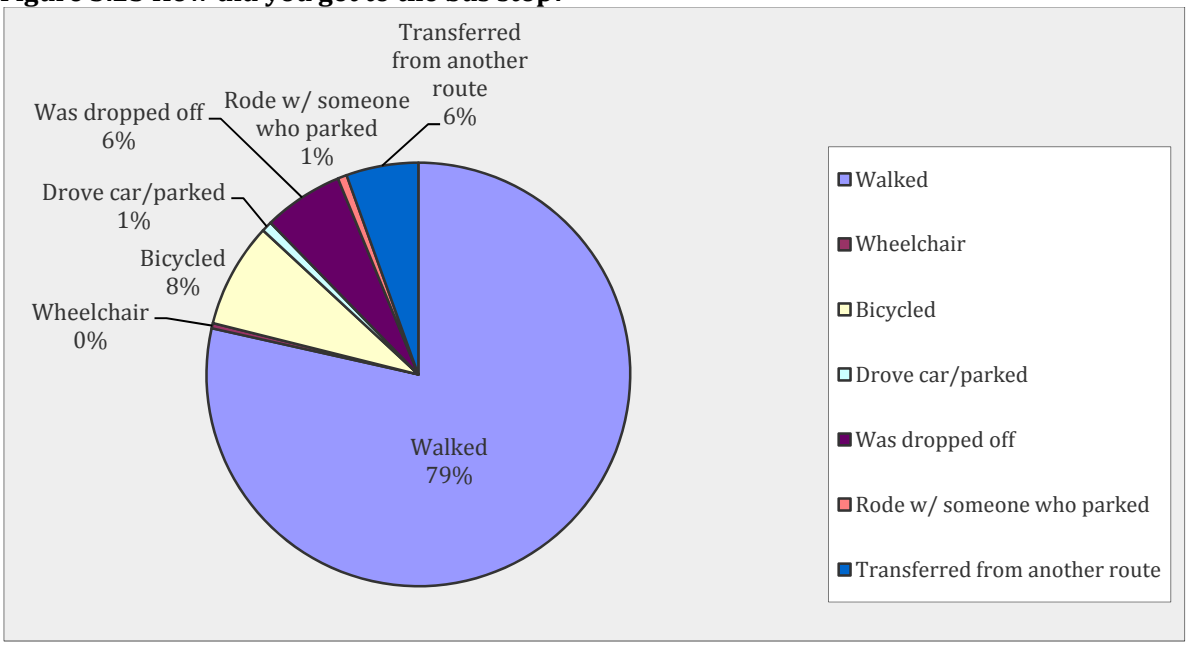
Figure 3.22 Where will you end your trip?



3.10.2 Mode of Access and Egress

The vast majority of riders (78%) walked from their trip origin to where they boarded a bus and walked from where they deboarded the bus to their final destination. The next highest response was from those using bicycles, followed by riders who were dropped off at their bus stop. **Figure 3.23** describes these results.

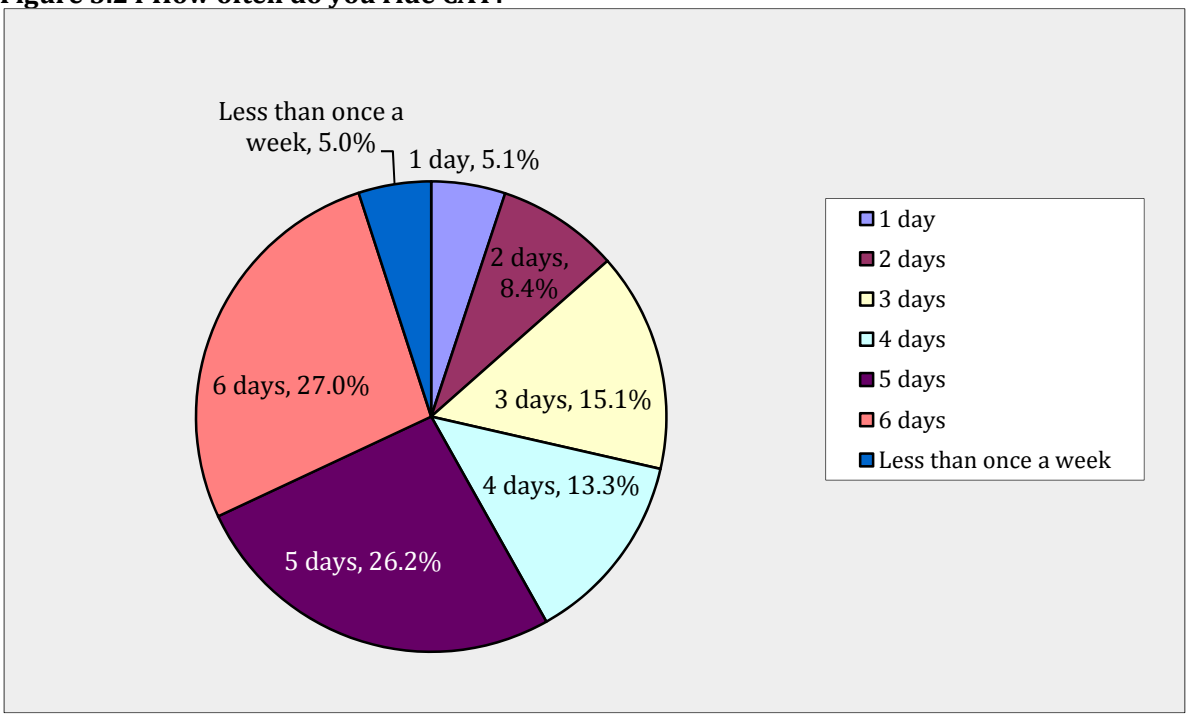
Figure 3.23 How did you get to the bus stop?



3.10.3 Transit Usage

Riders were asked other questions related to how they used transit, as seen below in **Figure 3.24**. As discussed earlier, approximately half of all riders paid for their trip with using the $1.50 cash base fare. Approximately 53 percent of all patrons ride the bus 5 or more days each week, and another 18 percent ride 3 or 4 days a week. These indicate the vast majority of riders are transit dependent.

Figure 3.24 How often do you ride CAT?



3.10.4 Rider Demographics

Riders were asked basic demographic questions related to age, gender, valid driver's license, and income, as shown in **Figures 3.25**, **3.26**, and **3.27**. A slight majority of riders were female and most likely to fall in the 25-to-34 age range, though age is evenly distributed. Most telling is that just less than half of CAT riders do not have a licensed driver in their household. Approximately 80 percent have one or no licensed drivers in their household.

3.10.5 Household Characteristics

Approximately 90 percent of all riders live in households earning less than $30,000 annually. Almost 62 percent of riders have no vehicles available in their household, with another 31 percent having one vehicle available. These data indicate that the vast majority of CAT riders are transit-dependent.

Figure 3.25 What is your gender?

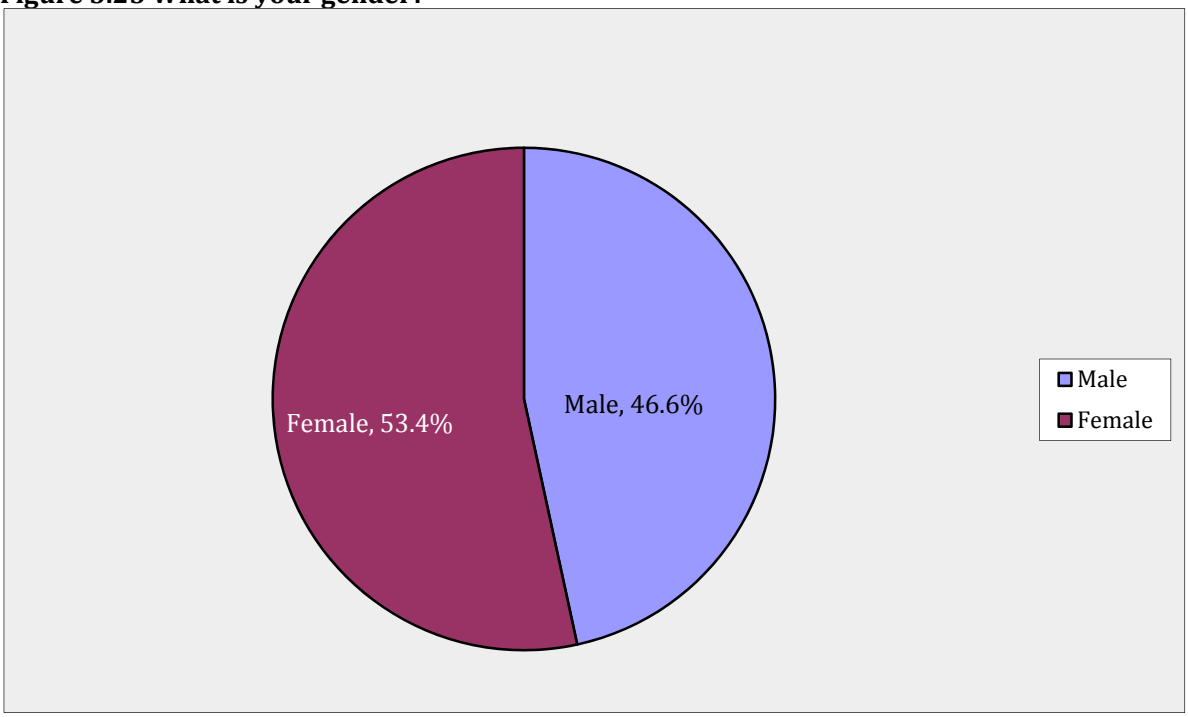


Figure 3.26 How many licensed drivers are in your area?

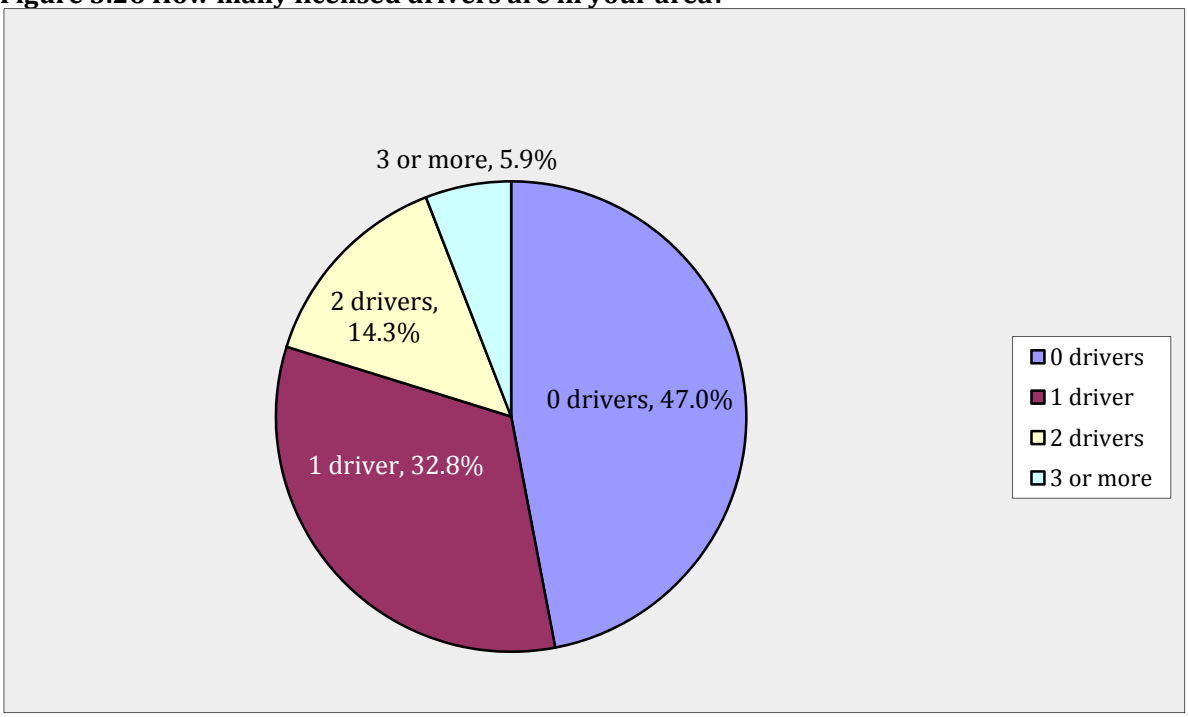
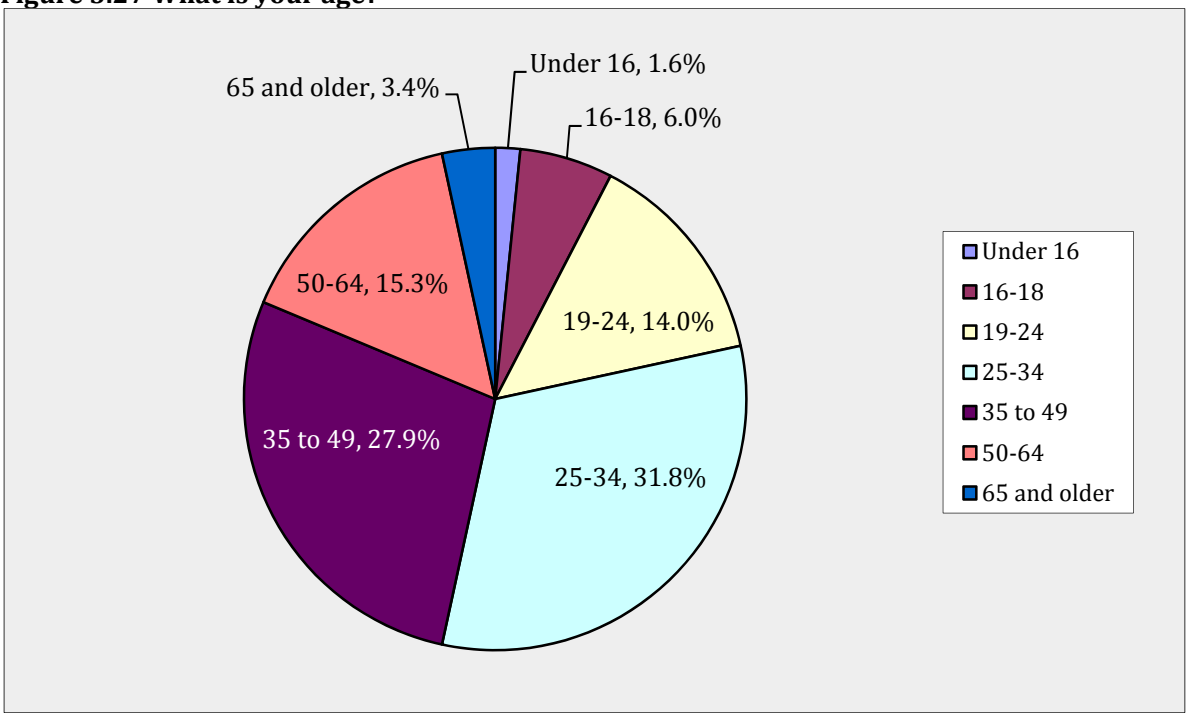


Figure 3.27 What is your age?



3.11 Service Quality

Passengers were asked to rate the quality of service provided by CAT on the 2012 onboard survey, as shown in **Table 3.10**. The response options were very poor (1), poor (2), fair (3), good (4), and very good (5). Each category was given a numerical value from one to five, and the average response was then calculated for each attribute. An average score of 3.0 or higher indicates meeting or exceeding service quality perceptions for that particular attribute. The base year information collected for this COA can be used to compare future customer satisfaction survey responses and establish longitudinal information on service quality perceptions. Customers ranked all of these attributes as meeting or exceeding service quality perceptions, ranking driver courteousness, bus cleanliness and appearance, and overall satisfaction as highest measures of service satisfaction. The lowest performing attribute dealt with the quality of the shelter or shade provided at bus stops. CAT continues to invest in bus shelter amenity improvements and will continue to monitor these provisions as an indicator of service quality excellence.

Table 3.10 Quality of Service

	Customer Satisfaction - Onboard Survey Questions	2012 Avg Score
1	How often the buses run on this schedule	3.7
2	How courteous was the bus driver during your trip	4.2
3	How directly does this route go to your destination	4.0
4	How is the length of time your trip takes	3.8
5	How on-time is this bus running today	4.1
6	How safe did you feel today while waiting for your bus	4.1
7	How was the shade or shelter where you waited	3.3
8	How clean was this bus today	4.2
9	Your overall satisfaction with CAT	4.2

3.12 Key Findings

A series of primary themes have been distilled from the various data analyzed and field observations:

- The low frequency of CAT routes reduces the spontaneous use of the system. Service frequencies must be increased and complex route patterns removed to encourage more spontaneous use of the system and also draw potential riders to use transit more regularly.

- Bus Stops– The ride check analysis completed for this COA indicates that the highest stop level ridership is occurring at Government Center, Wal-Mart (Collier Boulevard and U.S. 41), Fleischmann Boulevard near Coastland Mall, Creekside Transfer Center, and the Radio Road Operations Center. These locations coincide well with major transfer points listed in Collier County's Transit Development Plan (TDP) and should be given highest priority in developing passenger amenity improvements. Other locations in Immokalee that exhibit high boardings and alightings may be considered as well, including Farm Workers Way and the Immokalee Health Department. Bus stop shelter and shade were listed as a service quality concern in the customer survey conducted as part of this study. Although ranked by customers as meeting service quality standards, continued improvements to shelter and other amenities is a priority for improving customer service quality.

- Route Productivity – The ride check analysis completed for this COA shows good route productivity on a system wide level, averaging over 17 passenger trips per hour. Routes 3, 1, and 2 perform best, with Routes 9 and 4 scoring next highest. Not surprisingly, these routes also report the most transfer activity. These five top-performing routes carry 75 percent of total system wide ridership.

- The routes with the best operating ratios correspond closely with the highest levels of ridership.

- On-Time Performance – Field analysis indicated there are on-time performance challenges, particularly during peak season.

- Route Alignment Names – There are many routes, such as Route 1B, 2A, 2B, etc. that create passenger confusion. The existing schedules/maps do not differentiate the routes, or the direction of travel. Passengers are required to understand the differences in route patterns to understand the schedules.

- Route Connectivity – The CAT system provides route connectivity through a number of transfer points identified on the route schedule as well as at any location within the system where two routes connect. Focused efforts to enhance transfer locations at major activity generators within the County are recommended to improve route connectivity and create a seamless, efficient and more connected system. Currently the only major transfer points provided require passengers to travel to the Government Center or Transit Operations Building. Other transfer hubs are located at Coastland Mall, Walmart at SR 951 and US 41, and Additional transfer locations and amentities should be available at stops with the highest boardings and alightings. While population and employment densities and street topography strongly support CAT's transit network, several factors point to supplementing this core system with other services. First, the suburban communities continue to grow in both

residential and commercial densities, meaning riders need to connect to more places than just the Government Center. Future networks should seek to provide more cross-town opportunities to allow riders to connect quickly from one part of the county to another.

- Rider Demographics – The ridership base tends to be highly transit-dependent. Four out of five riders live in households with zero or one vehicles earning less than $30,000 annually. The majority of patrons ride the bus four days or more each week, primarily for work trips.

- CAT fixed-route services need to continue to be accessible to more of the community. Accessibility, particularly as it relates to transit service, can mean many things. It can imply geographic coverage to reach more of the population, or the extent to which services meet the needs of certain population segments. Accessibility in transit has also come to be associated with meeting the disabled community's needs. As the Collier County area expands beyond the current limits of transit service, CAT must seek to push its service area to new areas where demand for transit may exist, or increase service in some existing areas. Some of these areas are ripe for commuter services and others would benefit greatly from introducing or increasing the level of local service provided. Expanded geographic coverage, increased service frequencies, and longer service spans were top concerns of both riders and non-riders. In particular, evening service and 90-minute service frequencies are a concern. This is an inadequate level of service to attract a significant ridership base.

There is much that current CAT fixed route service is doing right, and future recommendations seek to preserve those elements. Namely, CAT maintains a weekday system wide average of over 17 passenger trips per revenue-hour, a good value for a key performance indicator. Productivity in some of the key corridors, like U.S. 41 and Airport Pulling Road are particularly performing well. But underscoring the myriad of data and analysis are the demographics of CAT's riders that represent a ridership base that is highly transit dependent. This base is less sensitive to deficiencies in service levels or reliability, especially when it comes to work trips.

Non-riders are not so immune. Many of them have a choice in transportation options, and CAT simply does not provide service that is direct enough, frequent enough, or close enough to make it competitive, even though most non-riders say they are willing to try transit under the right circumstances. In order to attract new riders to CAT and increase usage among current riders, CAT must continue to increase service as revenues become available and maintain its current strengths.

Section 4

Route Profiles

Section 4 provides the individual route profiles for all CAT routes. Each analysis contains a route description, route characteristics, and statistical analysis (ridership, frequency, service span and other detail). Data for the detailed Route Profiles are based on a FY2010-2011 ridership and May 2012 on-board survey counts that represents a snapshot of service.

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Route 1 – Red Route

Route	Days	Hours
1B	Mon-Sat Sun	6:00 a.m.– 7:20 p.m. 7:30 a.m.—5:50 p.m.
1C	Mon-Sat Sun	6:00 a.m.—7:15 p.m. 7:30 a.m.– 5:45 p.m.

Major Destinations:

Government Center
US 41
Airport Pulling Road
Naples Community Hospital (NCH)
Creekside Transfer Center
LinC (Lee County)

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 10,117

2011 Annual Revenue Miles: 167,020

Route Performance:

2011 Annual Boardings: 238,507

2011 Passengers/Revenue Hour: 23.6

2011 Passengers/Revenue Mile: 1.43

2011 Cost/Passenger: $ 3.10

2011 Annual Operating Cost: $ 738,586

Daily Boardings:

Day	1B	1C	Total
Weekday	531	473	1,004
Saturday	318	363	681
Sunday	247	186	433

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	1B	1C	Total
6 to 9 a.m.	116	119	235
9 a.m. to Noon	121	107	228
Noon to 3 p.m.	119	88	207
3 to 6 p.m.	138	132	270
After 6 p.m.	37	27	64

Saturday Boardings by Time:

Time of Day	1B	1C	Total
6 to 9 a.m.	58	45	103
9 a.m. to Noon	78	82	160
Noon to 3 p.m.	60	73	133
3 to 6 p.m.	93	128	221
After 6 p.m.	29	35	64

Sunday Boardings by Time:

Time of Day	1B	1C	Total
6 to 9 a.m.	27	17	44
9 a.m. to Noon	61	44	105
Noon to 3 p.m.	66	55	121
3 to 6 p.m.	93	70	163

Top 10 Weekday Boarding Locations:

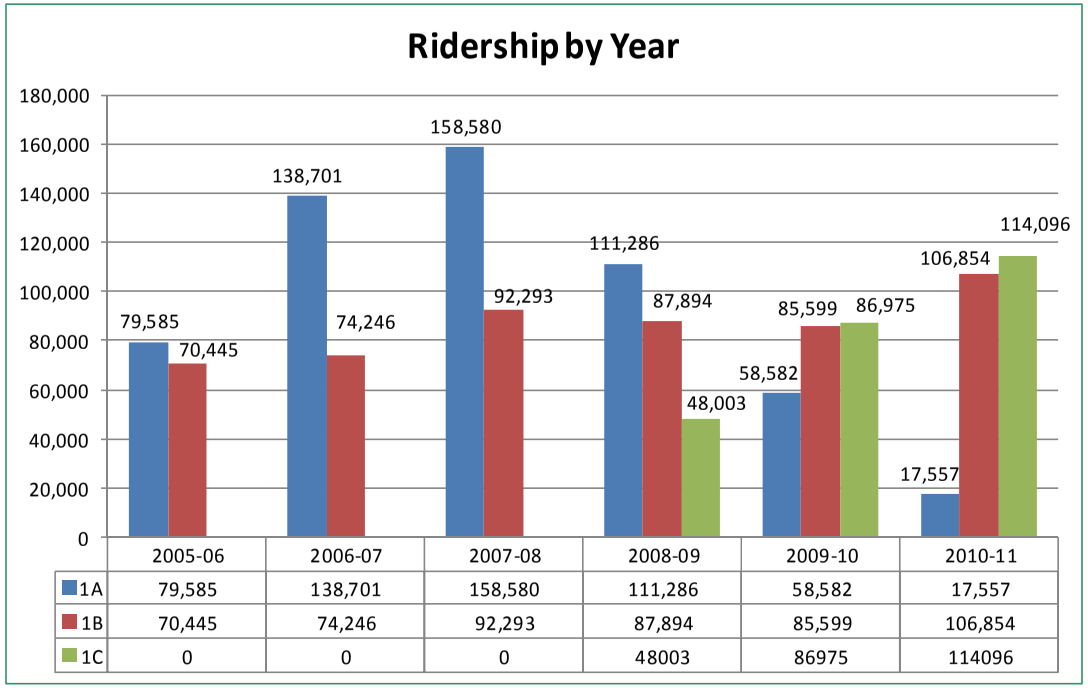
Based on Actual One-Day Ride Check Counts performed in March 2012.

Route 1B:

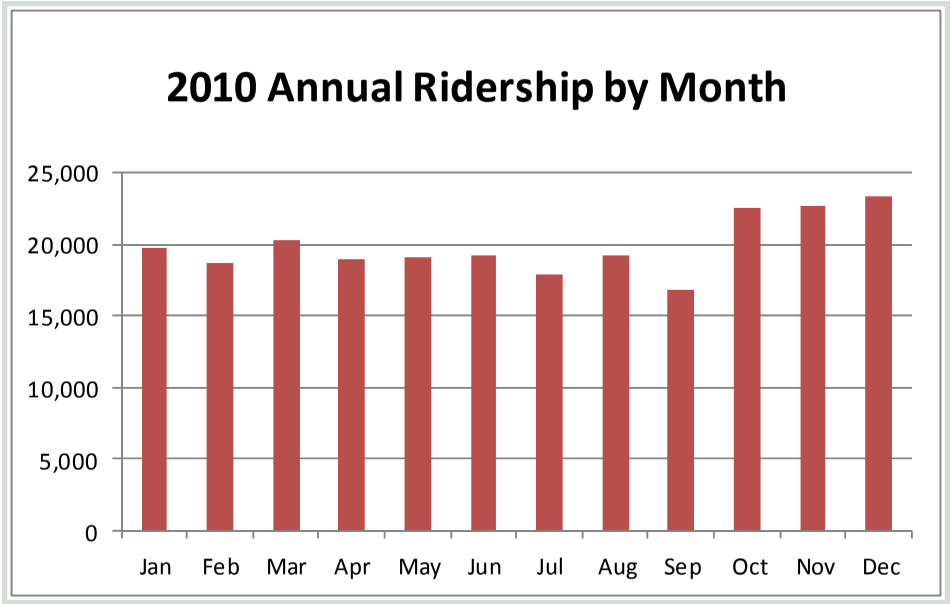
STOP DESCRIPTION
GOVERNMENT CENTER
CREEKSIDE TRANSFER CENTER
AIRPORT RD / PINE RIDGE RD
IMMOKALEE RD / AIRPORT RD
AIRPORT RD / GOV CENTER
IMMOK ALEE RD/ NCH NORTH
AIRPORT RD / HERON APTS
AIRPORT RD / @ OASIS APTS
AIRPORT RD / GLADES
AIRPORT RD / GREY OAKS BLVD

Route 1C:

STOP DESCRIPTION
GOVERNMENT CENTER
CREEKSIDE TRANSFER CENTER
US 41 / 110TH AVE N
3115 TAMIAMI TRAIL / GLADES MOTEL
US 41 / 5TH AVE N.
US 41 / 93RD AVE N
US 41 / 104TH AVE N
US 41 / SHADOWLAWN
US 41 / VANDERBILT
US 41 / GOLDEN GATE PKWY



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
1A	79,585	138,701	158,580	111,286	58,582	17,557
1B	70,445	74,246	92,293	87,894	85,599	106,854
1C	0	0	0	48003	86975	114096



Route 2 – Orange Route

Route	Days	Hours
2A	Mon-Sat Sun	6:00 a.m.– 6:46 p.m. 7:00 a.m.—5:46 p.m.
2B	Mon-Sat Sun	6:30 a.m.—6:19 p.m. N/A

Major Destinations:

Government Center
Airport/Davis Blvd
Naples Community Hospital (NCH)
Coastland Mall
US 41/Bayshore Dr
Thomasson Dr/US 41

Route Characteristics:

Weekday Frequency: 60 Minutes

2011 Annual Revenue Hours: 8,183

2011 Annual Revenue Miles: 110,034

Route Performance:

2011 Annual Boardings: 191,523

2011 Passengers/Revenue Hour: 23.4

2011 Passengers/Revenue Mile: 1.74

2011 Cost/Passenger: $ 3.12

2011 Annual Operating Cost: $ 597,361

Daily Boardings:

Day	2A	2B	Total
Weekday	**333**	**378**	**711**
Saturday	**N/A**	**314**	**N/A**
Sunday	**287**	**N/A**	**287**

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	2A	2B	Total
6 to 9 a.m.	40	53	**93**
9 a.m. to Noon	98	110	**208**
Noon to 3 p.m.	91	129	**220**
3 to 6 p.m.	98	86	**184**
After 6 p.m.	36	N/A	**36**

Saturday Boardings by Time:

Time of Day	2A	2B
6 to 9 a.m.	N/A	35
9 a.m. to Noon	N/A	123
Noon to 3 p.m.	N/A	71
3 to 6 p.m.	N/A	85
After 6 p.m.	N/A	N/A

Sunday Boardings by Time:

Time of Day	2A	2B	Total
6 to 9 a.m.	23	N/A	**23**
9 a.m. to Noon	56	N/A	**56**
Noon to 3 p.m.	86	N/A	**86**
3 to 6 p.m.	122	N/A	**122**

Top 10 Weekday Boarding Locations:

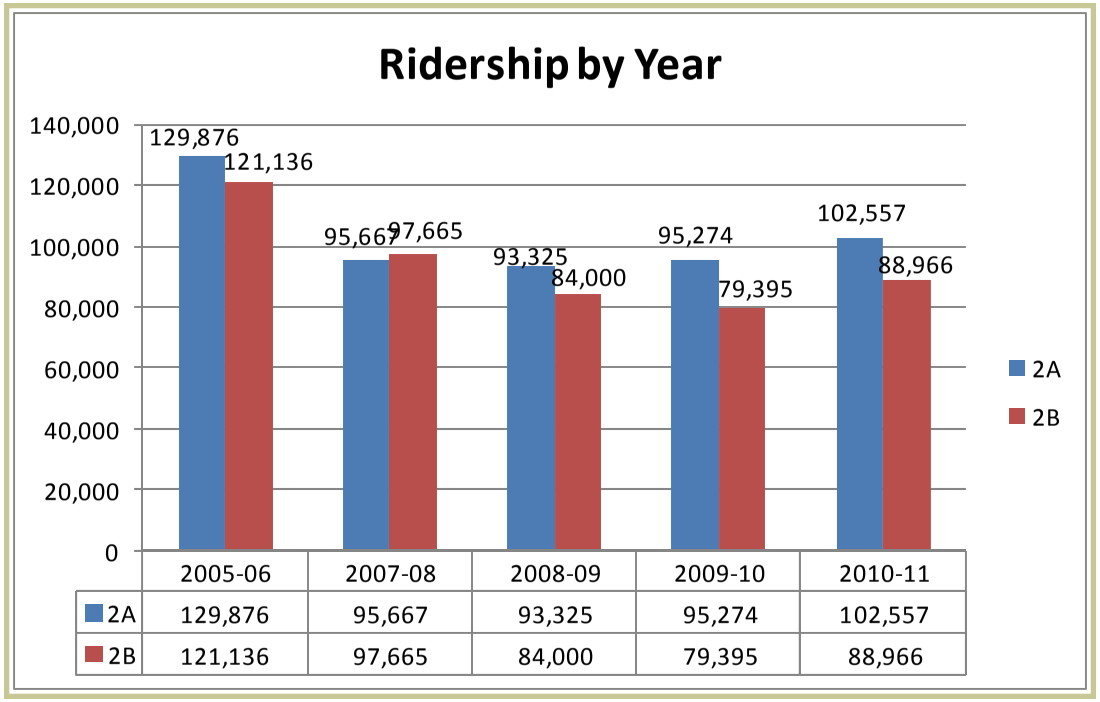
Based on Actual One-Day Ride Check Counts performed in March 2012.

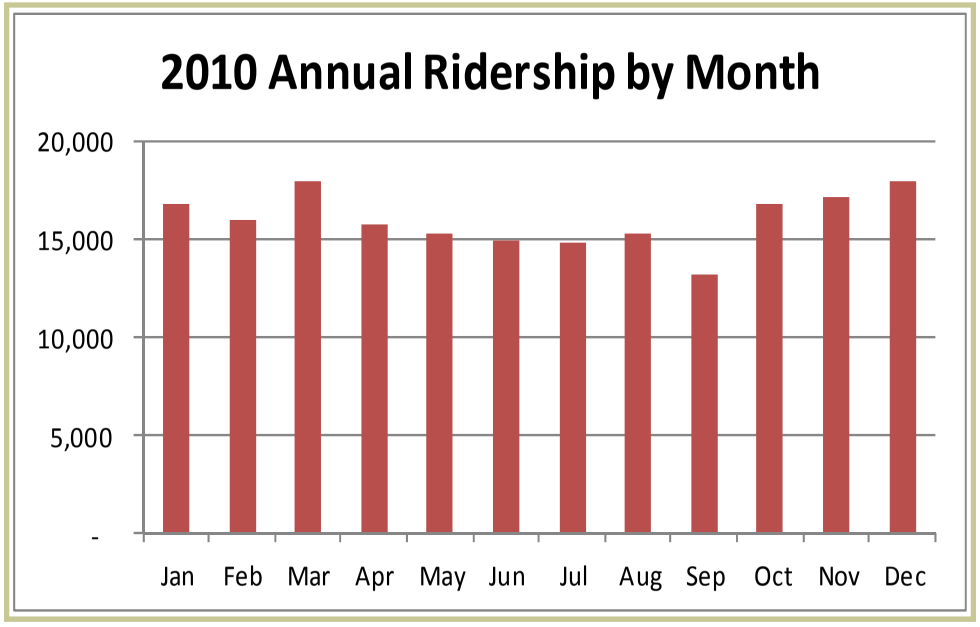
Route 2A:

STOP DESCRIPTION
COASTLAND MALL / FLEISCHMANN PARK
GOVERNMENT CENTER
BAYSHORE / US 41
GOODLETTE / 5TH AVE. N.
DAVIS BLVD. / OFF OF AIRPORT
AIRPORT RD / HERON PARK
THOMASSON / DELL'S STORE
GOODLETTE / GRAND CENTRAL STREET
FLEISCHMANN / 10TH STREET N.
DAVIS BLVD. / SHADOWLAWN

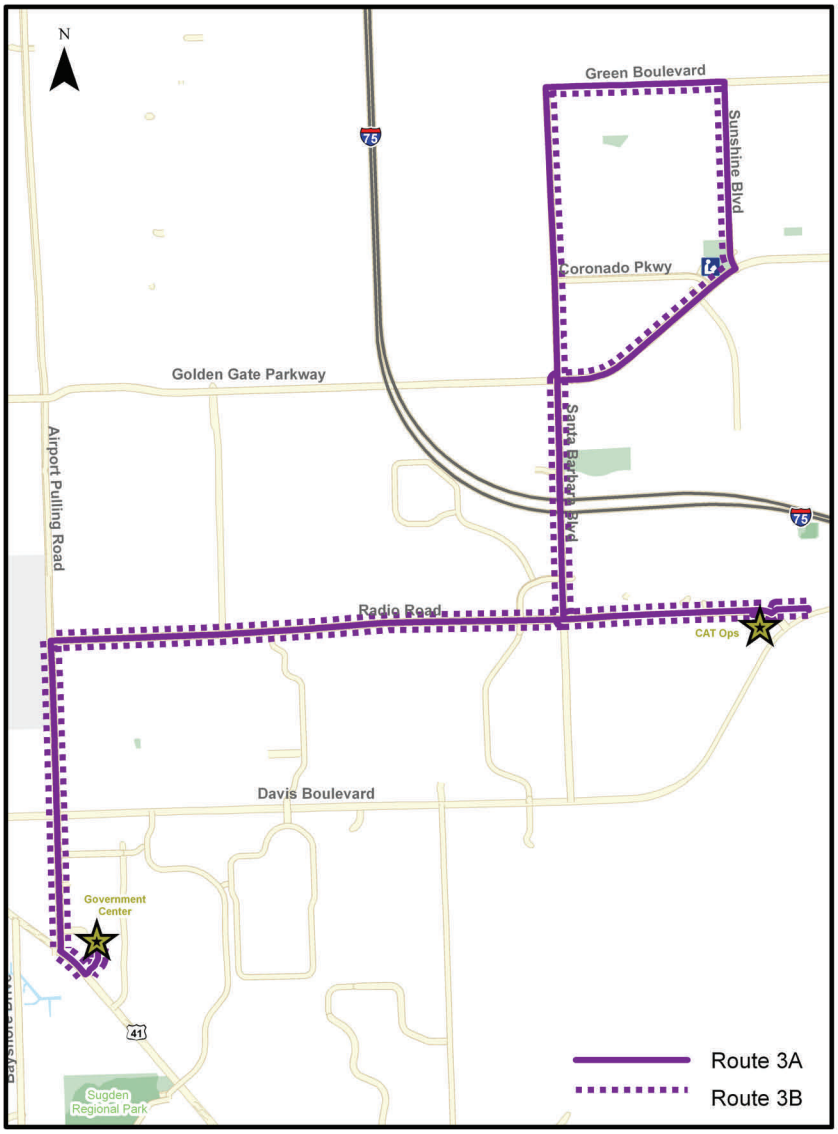
Route 2B:

STOP DESCRIPTION
GOVERNMENT CENTER
FLEISCHMANN PARK / COASTLAND MALL
BAYSHORE / VAN BUREN
THOMASSON / BAYSHORE
AIRPORT RD / COURTHOUSE SHADOWS
BAYSHORE / US 41 AT TEXACO
US 41 / 10TH STREET
US 41 / 3RD AVE.S. (LEMON TREE)
US 41 / THOMASSON
THOMASSON / LOMBARDY





Route 3 – Purple Route



Route	Days	Hours
3A	Mon-Sat Sun	5:35 a.m.– 6:51 p.m. 6:51 a.m.—5:21 p.m.
3B	Mon-Sat Sun	4:35 a.m.—5:49 p.m. 7:19 a.m.—5:49 p.m.

Major Destinations:

Government Center
Airport/Radio Rd
Cat Operations Center
Santa Barbara Blvd/Green Blvd
Sunshine Blvd
Golden Gate Pkwy

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 9,376

2011 Annual Revenue Miles: 155,142

Route Performance:

2011 Annual Boardings: 227,560

2011 Passengers/Revenue Hour: 24.3

2011 Passengers/Revenue Mile: 1.47

2011 Cost/Passenger: $ 3.01

2011 Annual Operating Cost: $ 684,491

Daily Boardings:

Day	3A	3B	Total
Weekday	**676**	**336**	**1,012**
Saturday	**534**	**287**	**821**
Sunday	**289**	**138**	**427**

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	3A	3B	Total
6 to 9 a.m.	170	125	**295**
9 a.m. to Noon	144	64	**208**
Noon to 3 p.m.	181	64	**245**
3 to 6 p.m.	136	83	**219**
After 6 p.m.	45	N/A	**45**

Saturday Boardings by Time:

Time of Day	3A	3B	Total
6 to 9 a.m.	44	98	142
9 a.m. to Noon	136	58	194
Noon to 3 p.m.	124	64	188
3 to 6 p.m.	102	67	169
After 6 p.m.	128	N/A	128

Sunday Boardings by Time:

Time of Day	3A	3B	Total
6 to 9 a.m.	32	17	**49**
9 a.m. to Noon	67	38	**105**
Noon to 3 p.m.	96	44	**140**
3 to 6 p.m.	94	39	**133**

Top 10 Weekday Boarding Locations:

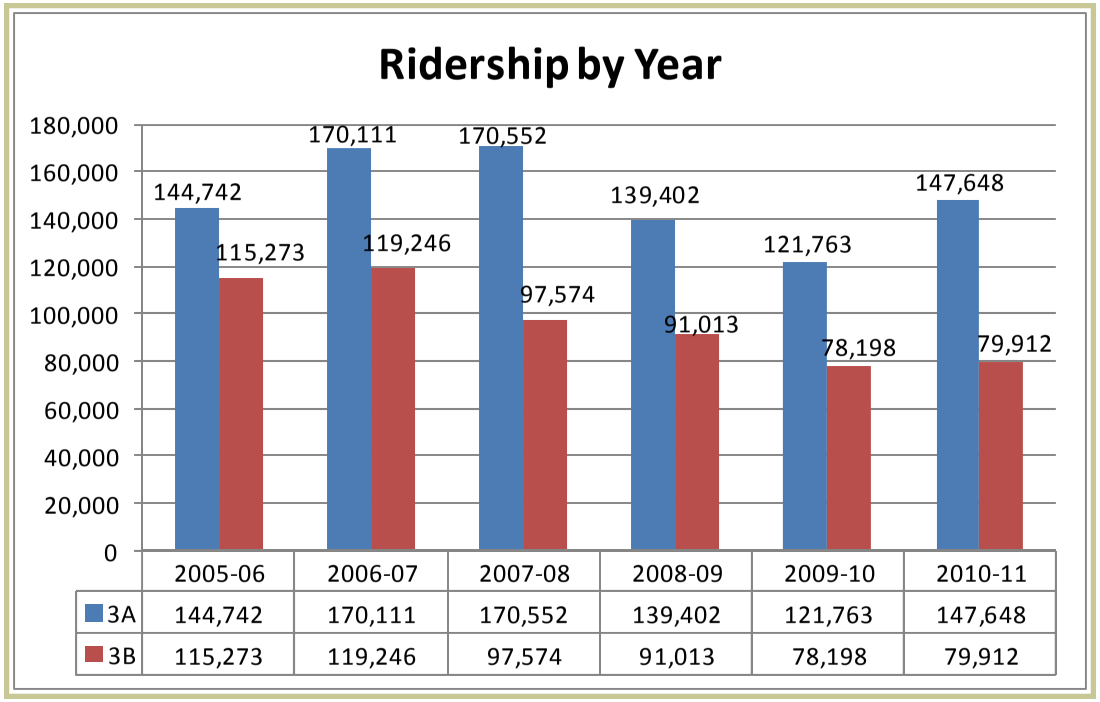
Based on Actual One-Day Ride Check Counts performed in March 2012.

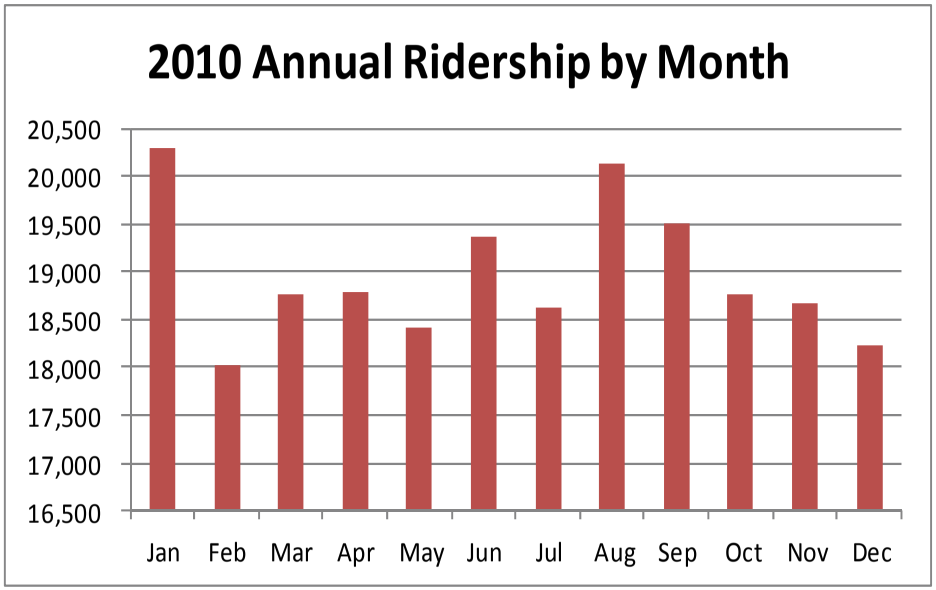
Route 3A:

STOP DESCRIPTION
CAT OPS CENTER
SUNSHINE / 18TH COURT SW
SUNSHINE / 17TH AVE SW
GOLDEN GATE @ BURGER KING
RADIO / SAN MARCOS BLVD
SUNSHINE / LUCERNE
RADIO/ENDLESS SUMMER PARK
RADIO LANE STOP
SANTA BARBARA / HUNTER
SUNSHINE / 20TH PLACE SW

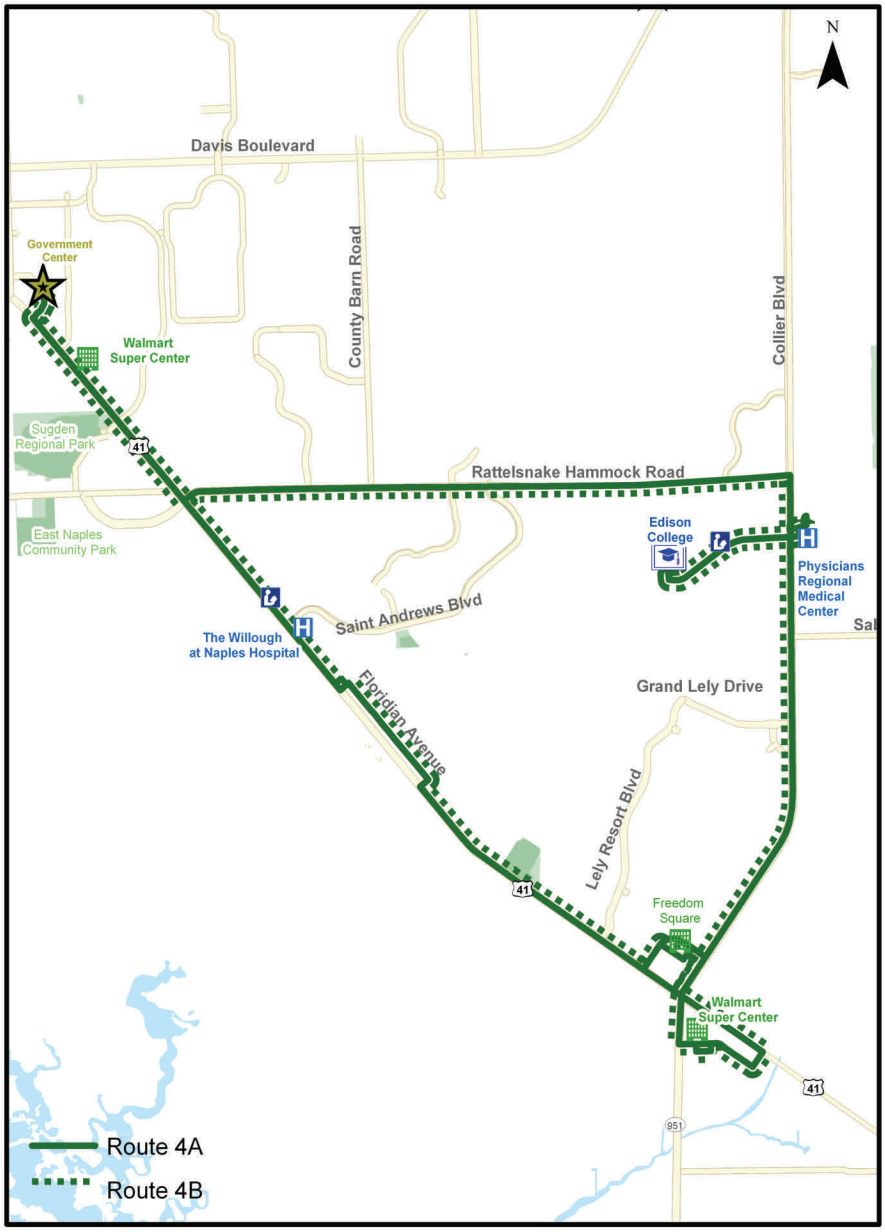
Route 3B:

STOP DESCRIPTION
GOVERNMENT CENTER
SUNSHINE BLVD / GOLDEN GATE PKWY
CAT OPS CENTER
RADIO / SAN MARCOS BLVD
RADIO / SAN MARCOS BLVD
GOLDEN GATE PKWY / 50TH ST SW
SUNSHINE / 16TH PL SW
SANTA BARBARA / 16TH PL SW
AIRPORT RD / GOV. CENTER
AIRPORT / GLADES





Route 4 – Green Route



Route	Days	Hours
4A	Mon-Sat Sun	6:00 a.m.– 6:57 p.m. 7:30 a.m.—5:45 p.m.
4B	Mon-Sat Sun	6:30 a.m.—6:15 p.m. N/A

Major Destinations:

Government Center
US 41/Rattelsnake
Rattelsnake/Collier Blvd
Edison College
PRMC Collier
Walmart
Freedom Square
Floridian Avenue

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 8,235

2011 Annual Revenue Miles: 115,038

Route Performance:

2011 Annual Boardings: 126,035

2011 Passengers/Revenue Hour: 15.3

2011 Passengers/Revenue Mile: 1.10

2011 Cost/Passenger: $ 4.77

2011 Annual Operating Cost: $ 601,187

Daily Boardings:

Day	4A	4B	Total
Weekday	**241**	**197**	**438**
Saturday	**210**	**180**	**390**
Sunday	**138**	**N/A**	**138**

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	4A	4B	Total
6 to 9 a.m.	62	35	**97**
9 a.m. to Noon	47	48	**95**
Noon to 3 p.m.	62	59	**121**
3 to 6 p.m.	59	55	**114**
After 6 p.m.	11	N/A	**11**

Saturday Boardings by Time:

Time of Day	4A	4B	Total
6 to 9 a.m.	36	26	62
9 a.m. to Noon	74	39	113
Noon to 3 p.m.	42	47	89
3 to 6 p.m.	45	68	113
After 6 p.m.	13	N/A	13

Sunday Boardings by Time:

Time of Day	4A	4B	Total
6 to 9 a.m.	13	N/A	**13**
9 a.m. to Noon	39	N/A	**39**
Noon to 3 p.m.	44	N/A	**44**
3 to 6 p.m.	42	N/A	**42**

Top 10 Weekday Boarding Locations:

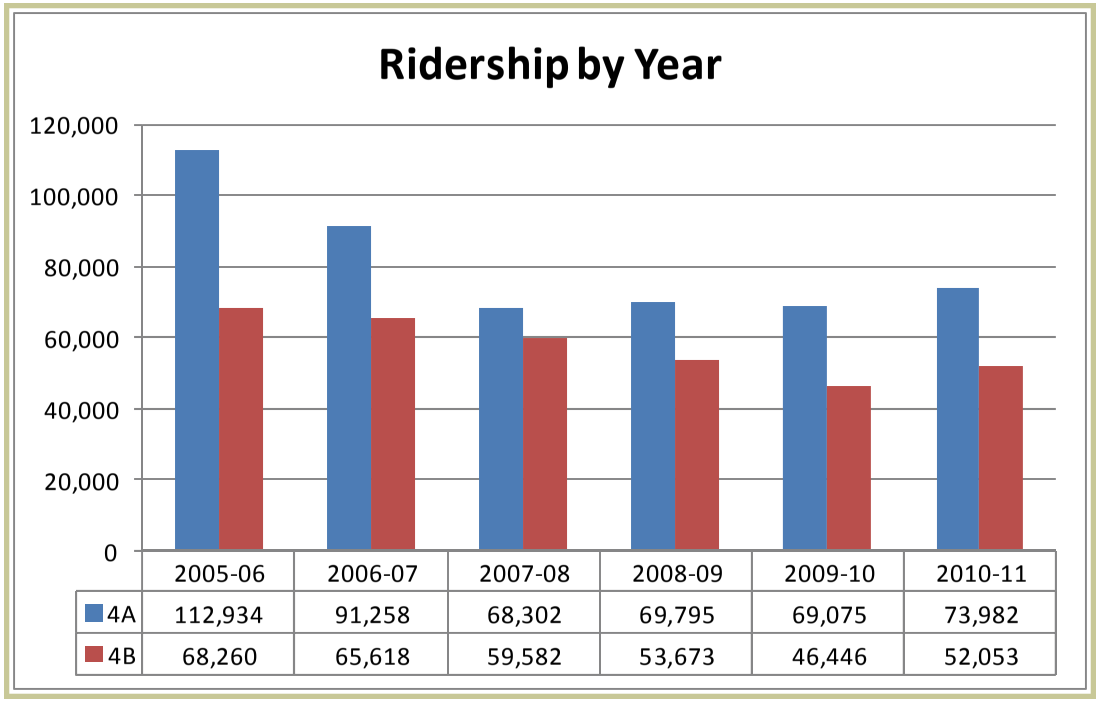
Based on Actual One-Day Ride Check Counts performed in March 2012.

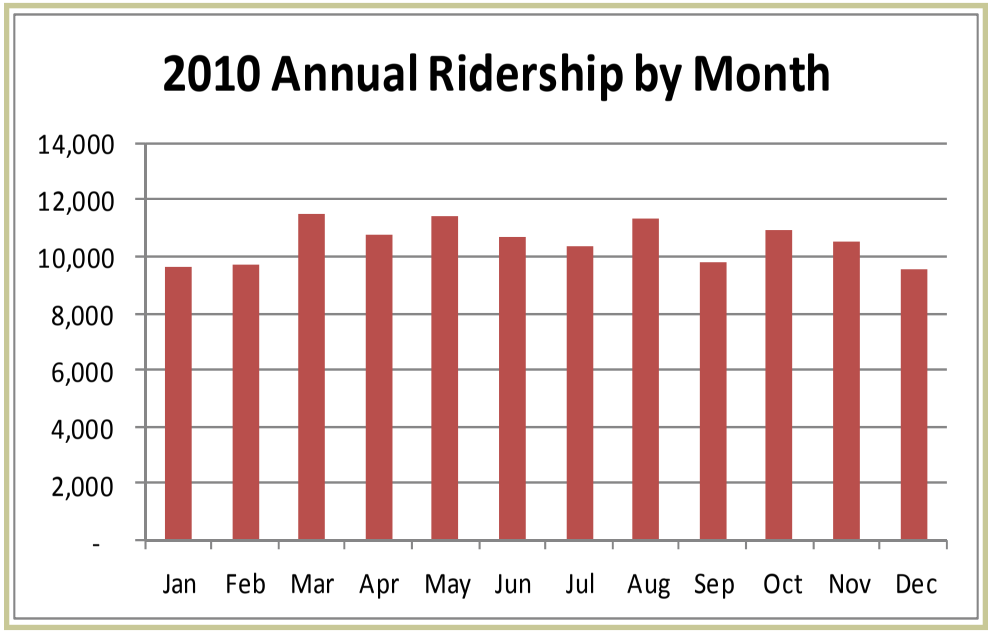
Route 4A:

STOP DESCRIPTION
GOVERNMENT CENTER
BROWARD/US 41
WALMART
WHISTLERS COVE
COLLEGE PARK APTS.
FLORIDIAN/HARDEE
FLORIDIAN/JOHNS
K-MART (FREEDOM SQUARE)
US 41/RATTLESNAKE
EDISON COLLEGE

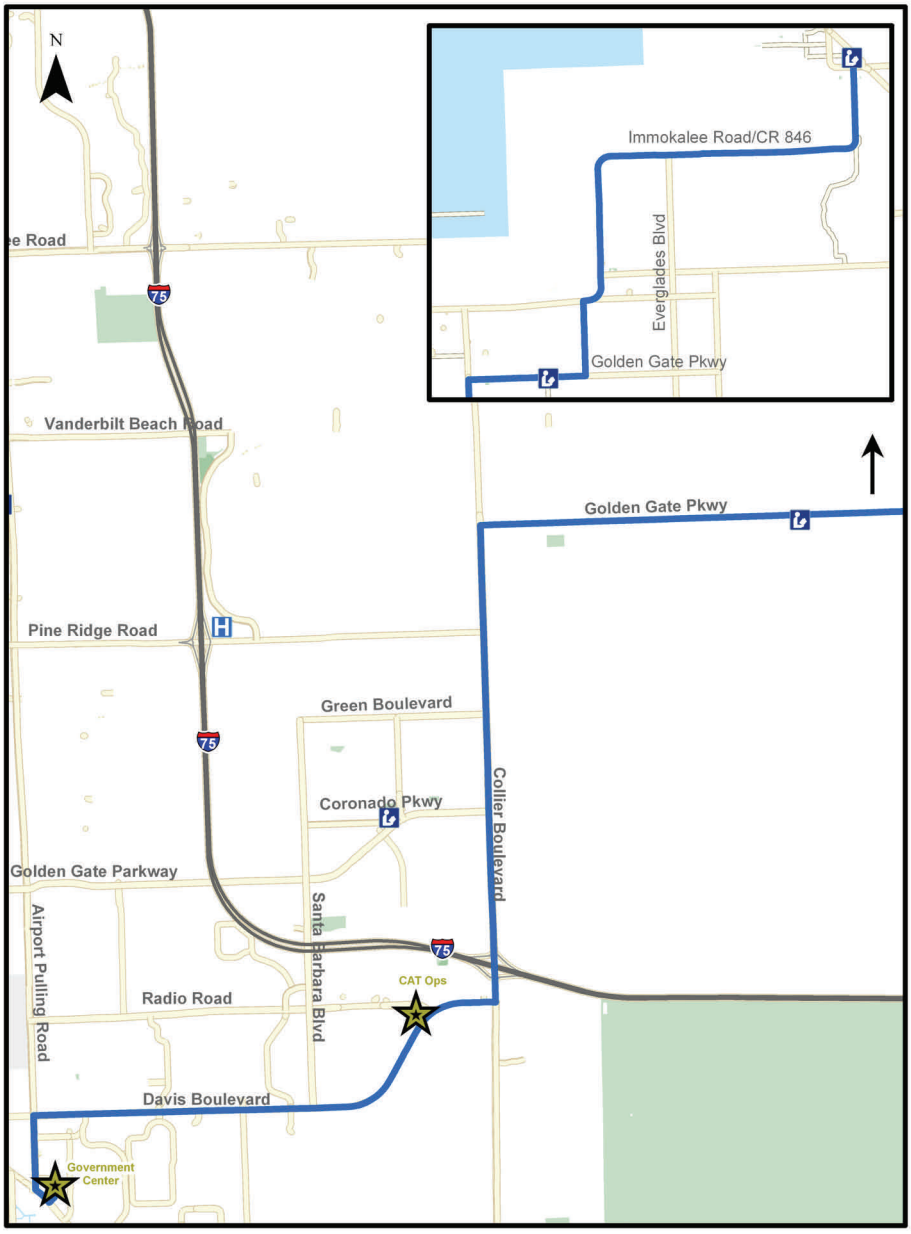
Route 4B:

STOP DESCRIPTION
GOVERNMENT CENTER
WALMART
US 41/COURTHOUSE SHADOWS
EDISON COLLEGE
US 41/PALM
US 41 / TREVISO BAY
US 41/AVALON
JOHNS/FLORIDIAN
PRMC - COLLIER
FLORIDIAN/BROWARD





Route 5 – Blue Route



Route	Days	Hours
5	Mon-Sat	3:45 a.m.– 8:08 p.m.
	Sun (a.m.)	7:15 a.m.—9:25 a.m.
	Sun (p.m.)	5:00 p.m.—7:25 p.m.

Major Destinations:

Government Center
CAT Operations Center
Wilson/Golden Gate Blvd
Immokalee Road
Immokalee Health Department
Immokalee Library
Golden Gate Estates Library

Route Characteristics:

Weekday Frequency: 60-150 Minutes

2011 Annual Revenue Hours: 6,735

2011 Annual Revenue Miles: 206,528

Route Performance:

2011 Annual Boardings: 86,471

2011 Passengers/Revenue Hour: 12.8

2011 Passengers/Revenue Mile: 0.42

2011 Cost/Passenger: $ 5.69

2011 Annual Operating Cost: $ 491,695

Daily Boardings:

Day	Total
Weekday	302
Saturday	278
Sunday	63

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	87
9 a.m. to Noon	64
Noon to 3 p.m.	72
3 to 6 p.m.	54
After 6 p.m.	25

Saturday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	55
9 a.m. to Noon	50
Noon to 3 p.m.	95
3 to 6 p.m.	57
After 6 p.m.	21

Sunday Boardings by Time:

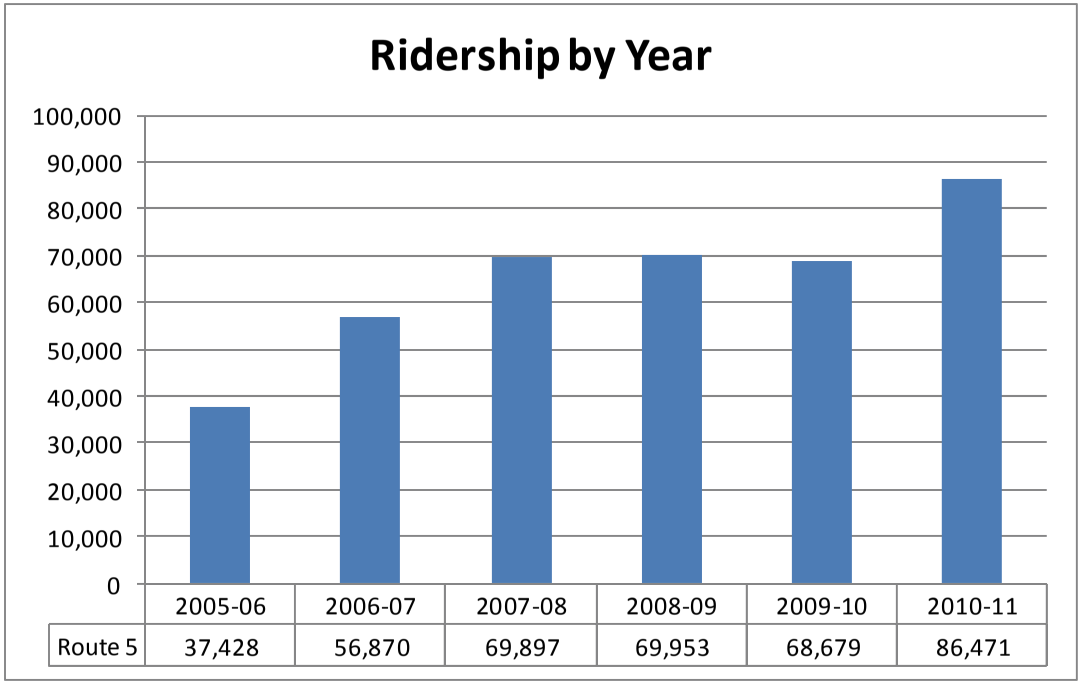
Time of Day	Total
7:15 a.m.—9:25 a.m.	12
5:15 p.m.—7:25 p.m.	51

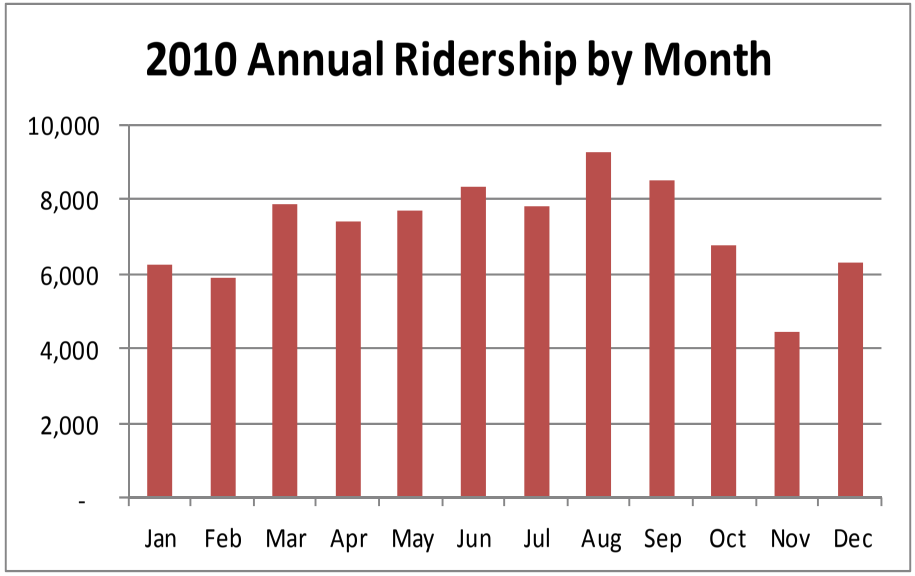
Top 10 Weekday Boarding Locations:

Based on Actual One-Day Ride Check Counts performed in March 2012.

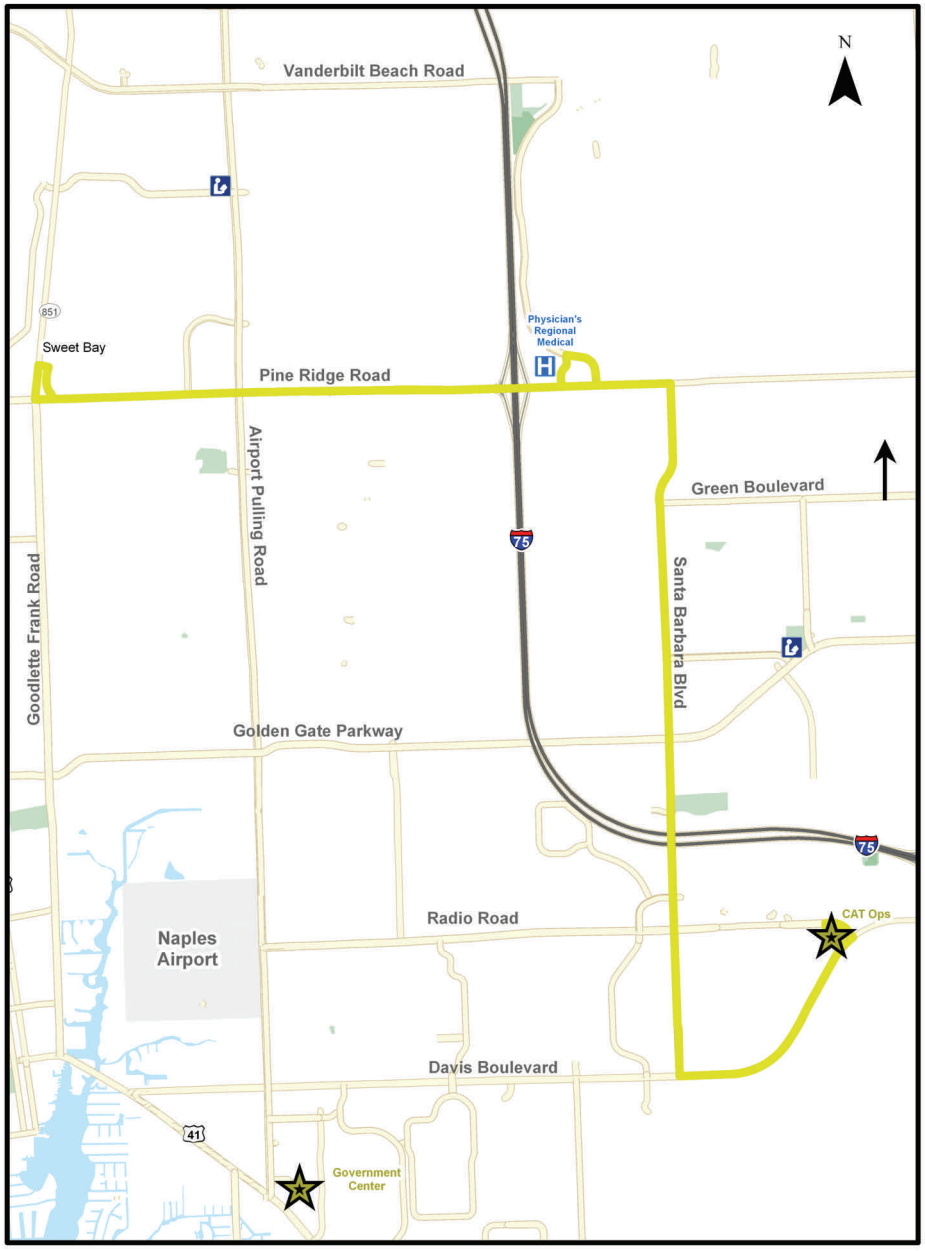
Route 5:

STOP DESCRIPTION
GOVERNMENT CENTER
CR 951 / 17TH AVE S.W.
IMMOKALEE ROAD / OILWELL ROAD
DAVIS / THE ENCLAVE
INBOUND TO NAPLES
CAT OPS CENTER
CR 951 / CITYGATE BLVD NORTH
AIRPORT / GOV CENTER
DAVIS / LAKEWOOD
IMMOKALEE / IN FRONT OF FIREHOUSE





Route 6 – Yellow Route



Route	Days	Hours
6	Mon-Sat	6:00 a.m.– 5:44 p.m.
	Sun (a.m.)	9:00 a.m.—11:44 a.m.
	Sun (p.m.)	1:30 p.m.—2:44 p.m.

Major Destinations:

CAT Operations Center
Davis/Santa Barbara
Santa Barbara/Golden Gate
PRMC Napa
Pine Ridge/Airport
Pine Ridge/Sweetbay

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 4,046

2011 Annual Revenue Miles: 70,152

Route Performance:

2011 Annual Boardings: 35,045

2011 Passengers/Revenue Hour: 8.7

2011 Passengers/Revenue Mile: 0.50

2011 Cost/Passenger: $ 8.43

2011 Annual Operating Cost: $ 295,376

Daily Boardings:

Day	Total
Weekday	116
Saturday	95
Sunday	12

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	23
9 a.m. to Noon	27
Noon to 3 p.m.	31
3 to 6 p.m.	35
After 6 p.m.	N/A

Saturday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	12
9 a.m. to Noon	36
Noon to 3 p.m.	15
3 to 6 p.m.	32
After 6 p.m.	N/A

Sunday Boardings by Time:

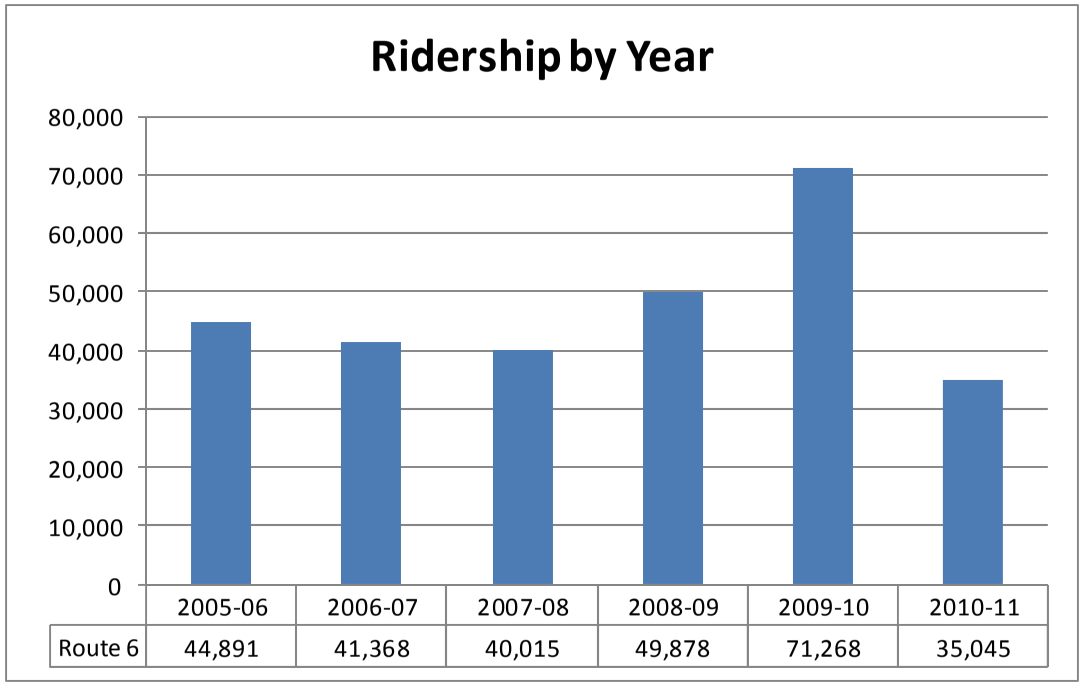
Time of Day	Total
9:00 a.m.—11:44 a.m.	8
1:30 p.m.—2:44 p.m.	4

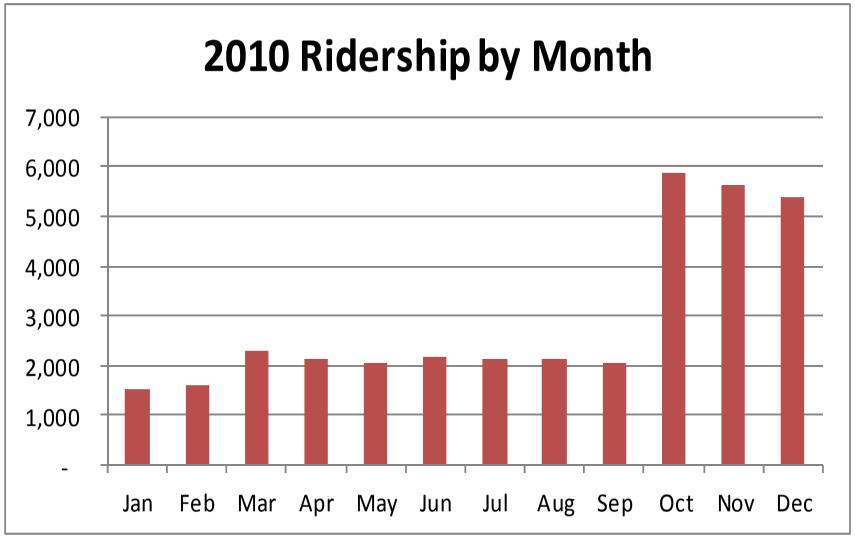
Top 10 Weekday Boarding Locations:

Based on Actual One-Day Ride Check Counts performed in March 2012.

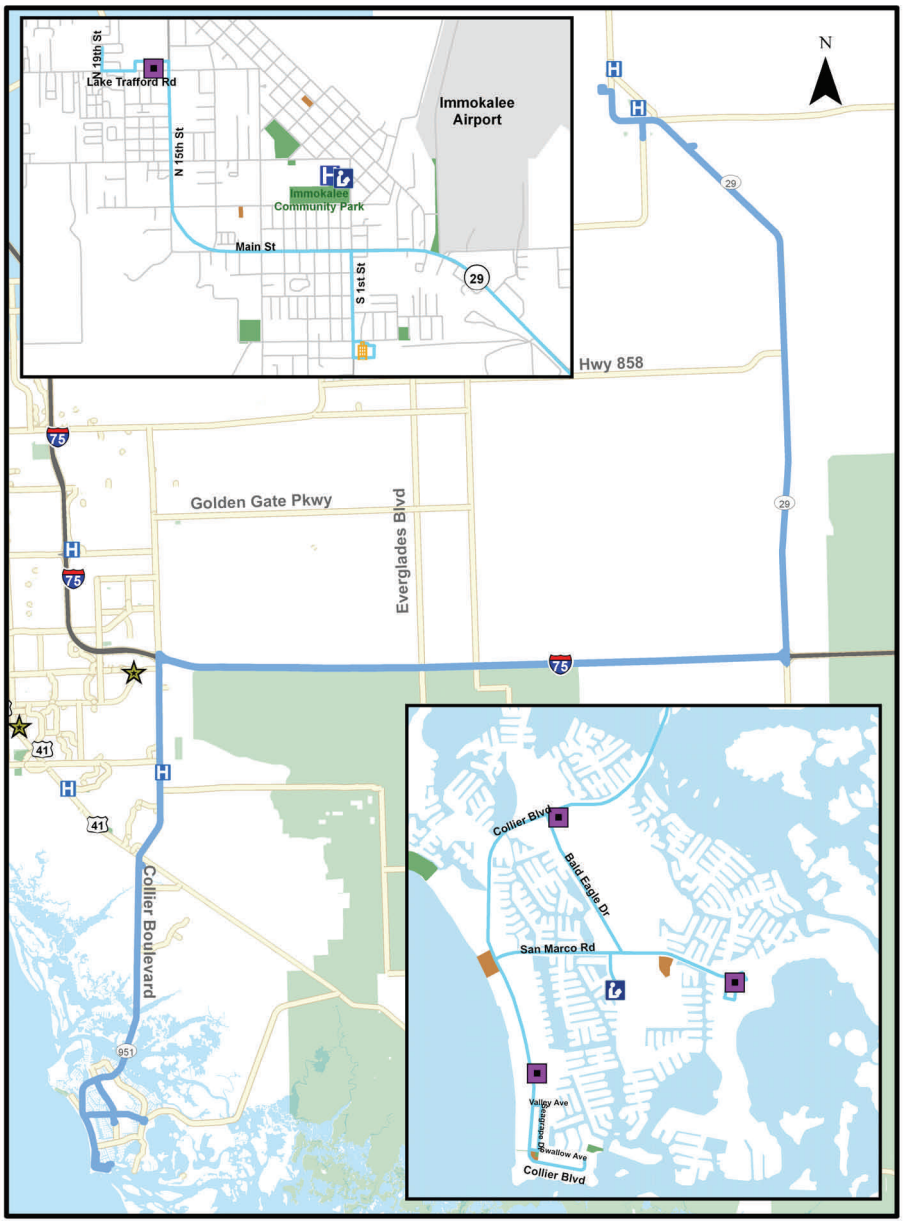
Route 6:

STOP DESCRIPTION
PINE RIDGE / SWEETBAY
CAT OPS
PINE RIDGE / HOME DEPOT
PINE RIDGE / CARILLON PLAZA
PINE RIDGE / KENSINGTON
PINE RIDGE / WHIPOORWILL
SANTA BARBARA / 17TH AVE SW
SANTA BARBARA / RADIO
SANTA BARBARA / RECREATION
SANTA BARBARA / GOLDEN GATE PKWY





Route 7 – Light Blue Route



Route	Days	Hours
7 Exp	Mon-Sun	6:00 a.m.– 7:30 a.m. 4:55 p.m.—6:30 p.m.
7 Circ	Mon-Sun	7:40 a.m.—4:55 p.m.

Major Destinations:

Shops of Marco
Hilton Resort Marco
Marriott Resort Marco
Caxambas Court
Marco Library
Walmart/CR 951
Bald Eagle Drive

Route Characteristics:

Weekday Frequency: 70 to 100 Min

2011 Annual Revenue Hours: 4,477

2011 Annual Revenue Miles: 126,721

Route Performance:

2011 Annual Boardings: 47,919

2011 Passengers/Revenue Hour: 10.7

2011 Passengers/Revenue Mile: 0.38

2011 Cost/Passenger: $ 6.82

2011 Annual Operating Cost: $ 326,841

Daily Boardings:

Day	7 Exp	7 Circ	Total
Weekday	32	122	154
Saturday	36	106	142
Sunday	38	87	125

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	7Ex	7Cir	Total
6 to 9 a.m.	23	33	63
9 a.m. to Noon	N/A	30	30
Noon to 3 p.m.	N/A	46	46
3 to 6 p.m.	9	13	22
After 6 p.m.	N/A	N/A	N/A

Saturday Boardings by Time:

Time of Day	7Ex	7Cir	Total
6 to 9 a.m.	18	21	29
9 a.m. to Noon	N/A	37	37
Noon to 3 p.m.	N/A	39	39
3 to 6 p.m.	18	9	27
After 6 p.m.	N/A	N/A	N/A

Sunday Boardings by Time:

Time of Day	7Ex	7Cir	Total
6 to 9 a.m.	22	16	38
9 a.m. to Noon	N/A	27	27
Noon to 3 p.m.	N/A	35	35
3 to 6 p.m.	16	9	25

Top 10 Weekday Boarding Locations:

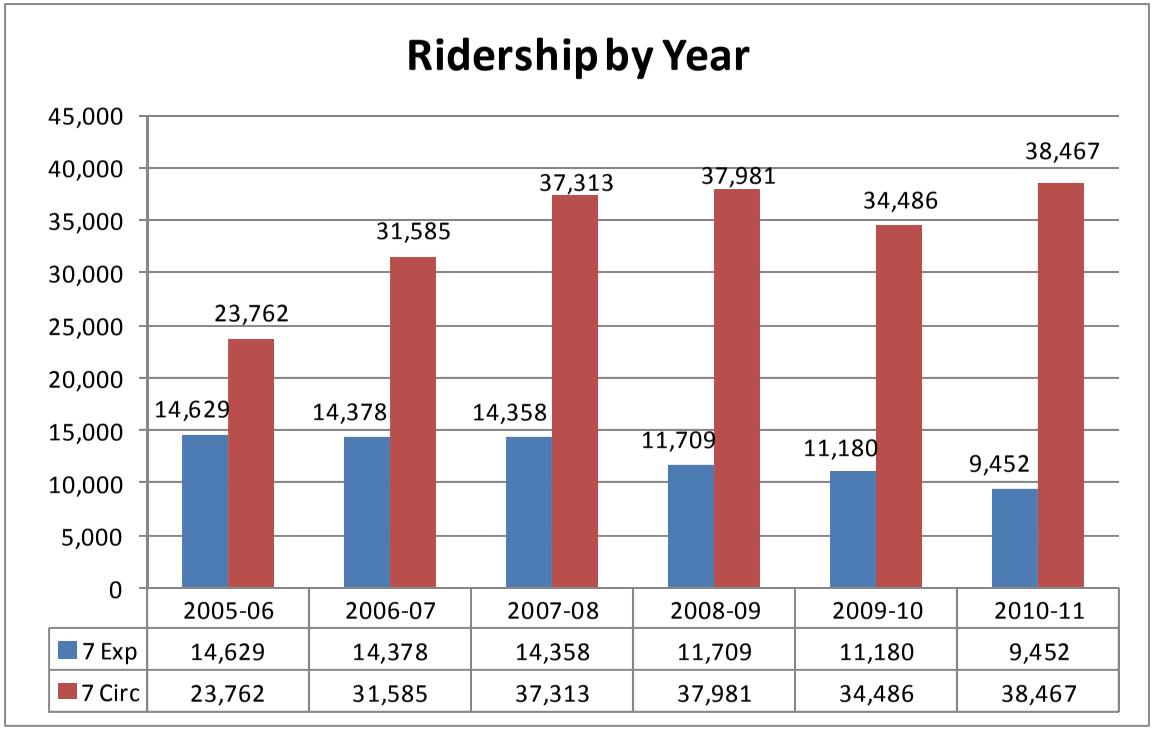
Based on Actual One-Day Ride Check Counts performed in March 2012.

Route 7 Express:

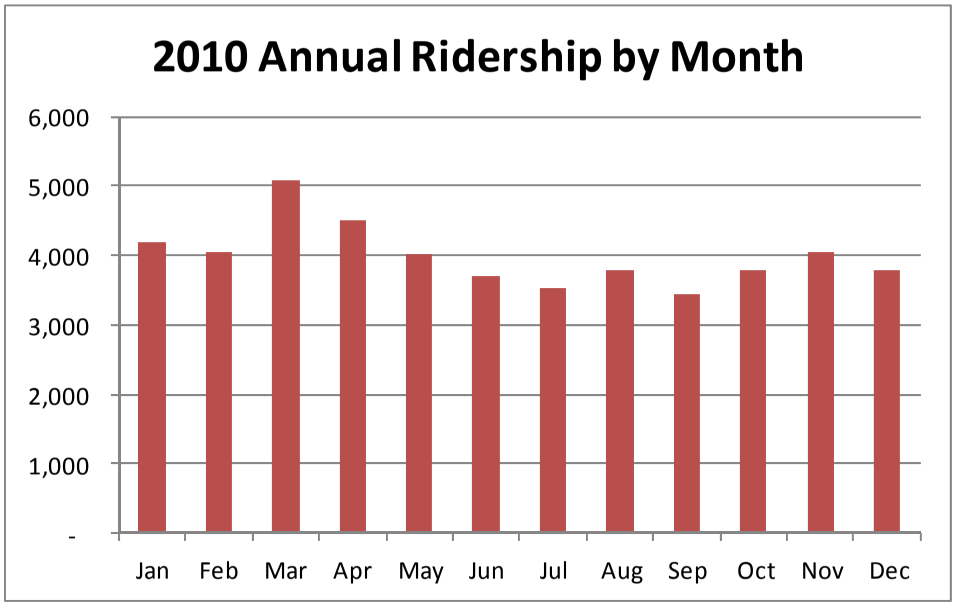
STOP DESCRIPTION
FWV
951/ACROSS FROM MARRIOTT HOTEL
1ST/ CARVER
1ST/BOSTON AVE.
FWV
LAKE TRAFFORD/19THST
951/MANATEE RD.
CAXAMBAS PARK
951/BALD EAGLE DR.
951/ELKCAM CIR.

Route 7 Circulator:

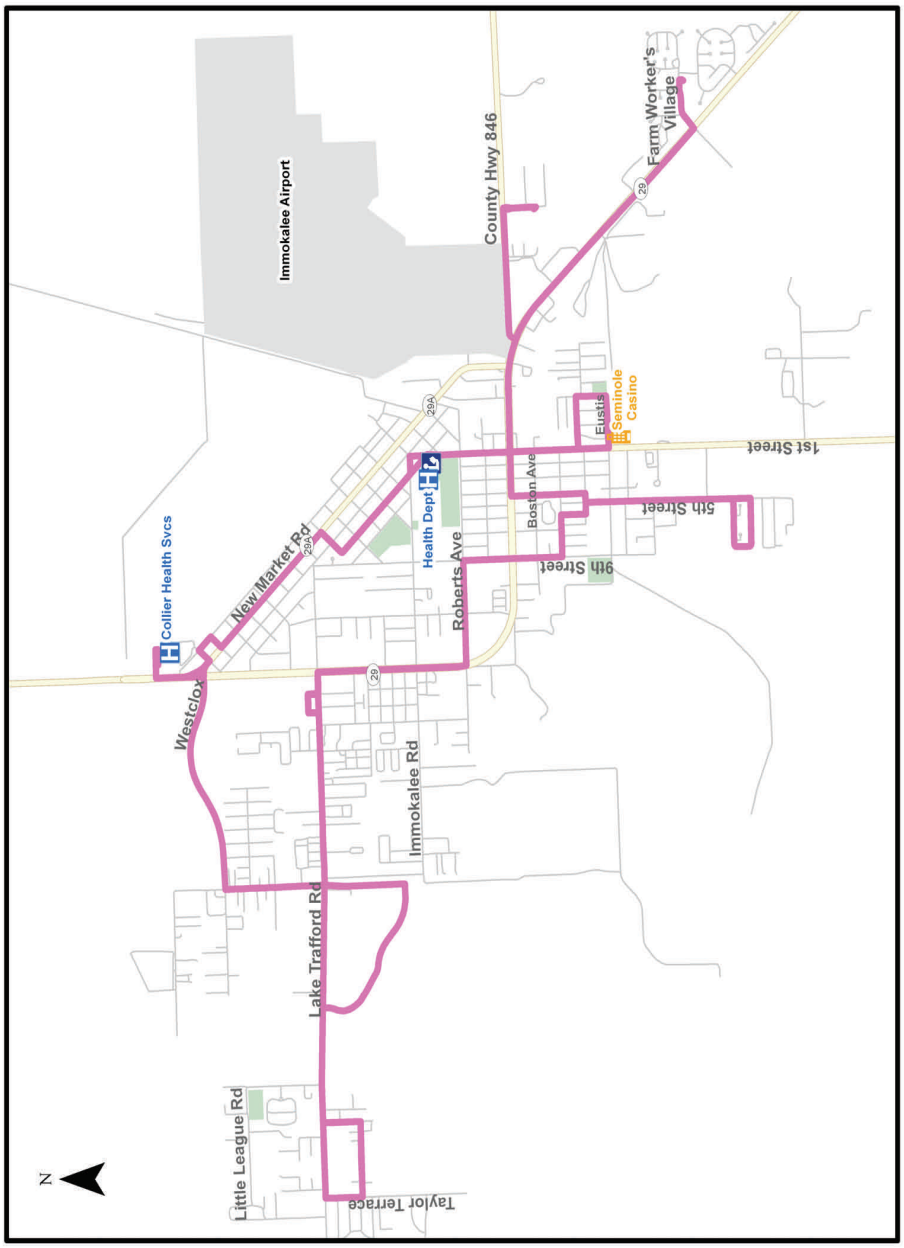
STOP DESCRIPTION
WALMART
951/ELKCAM CIR.
951 / W ELKCAM CIR.
951/BALD EAGLE DR.
BALD EAGLE DR/ELKCAM CIR (@CHEVRON)
951/SATURN
SAN MARCO RD/SANDHILL ST (@YMCA)
CAXAMBAS PARK
951/MANATEE RD.
951/@MARRIOTT HOTEL



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
7 Exp	14,629	14,378	14,358	11,709	11,180	9,452
7 Circ	23,762	31,585	37,313	37,981	34,486	38,467



Route 8 – Pink Route



Route	Days	Hours
8A	Mon-Sat Express	7:00 a.m.– 6:55p.m. 5:50 a.m. and 7:00 p.m.
8B	Mon-Sat Express	7:30 a.m.—7:25 p.m. 6:20 a.m., 7:30 p.m.

Major Destinations:

Government Center
Farm Workers Village
Collier Health Dept
Career Center
Roberts Center
Lake Trafford Rd
Commerce Avenue
Winn Dixie

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 8,666

2011 Annual Revenue Miles: 155,106

Route Performance:

2011 Annual Boardings: 96,390

2011 Passengers/Revenue Hour: 11.1

2011 Passengers/Revenue Mile: 0.62

2011 Cost/Passenger: $ 6.56

2011 Annual Operating Cost: $ 632,675

Daily Boardings:

Day	8A	8B	Total
Weekday	**274**	**197**	**471**
Saturday	**128**	**101**	**229**
Sunday	**N/A**	**N/A**	**138**

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	8A	8B	Total
6 to 9 a.m.	107	34	**141**
9 a.m. to Noon	87	67	**154**
Noon to 3 p.m.	43	55	**98**
3 to 6 p.m.	29	22	**51**
After 6 p.m.	8	19	**197**

Saturday Boardings by Time:

Time of Day	8A	8B	Total
6 to 9 a.m.	35	3	38
9 a.m. to Noon	55	50	105
Noon to 3 p.m.	18	24	42
3 to 6 p.m.	14	13	27
After 6 p.m.	6	11	17

Top 10 Weekday Boarding Locations:

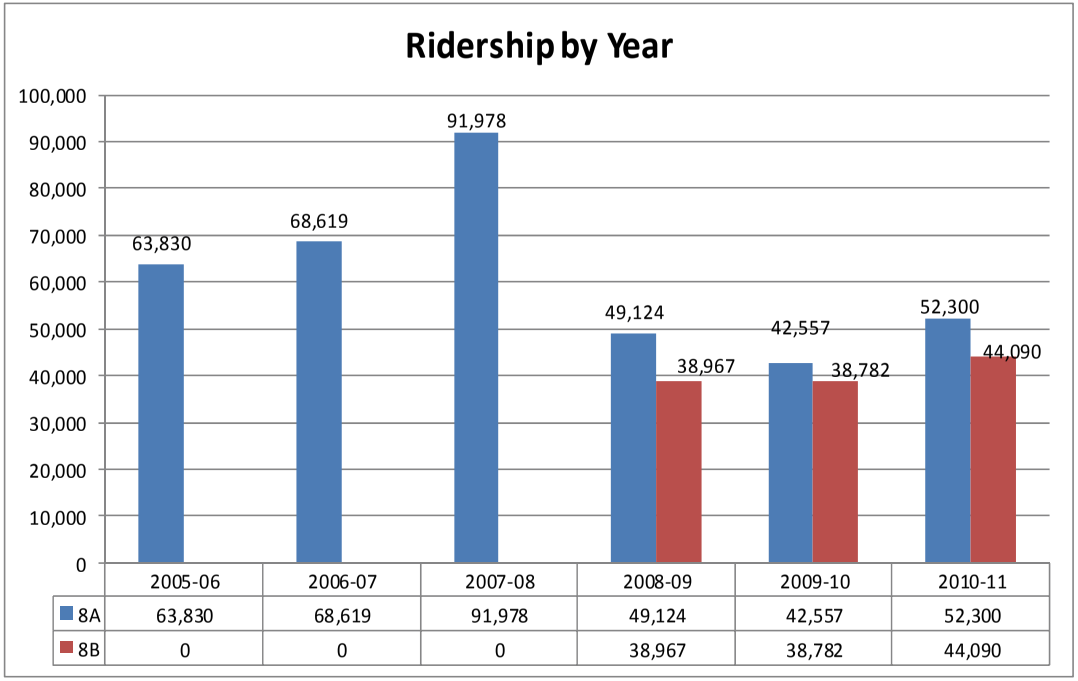
Based on Actual One-Day Ride Check Counts performed in March 2012.

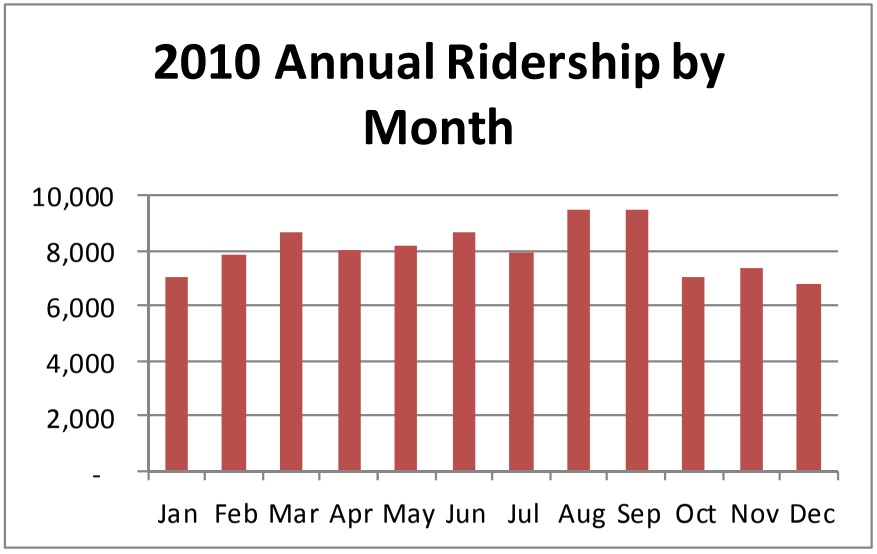
Route 8A:

STOP DESCRIPTION
HEALTH DEPT
GOVERNMENT CENTER
HOPE CIR (NORTH SIDE)
WINN DIXIE
RT. 29 / IN FRONT OL L.C.E.C.
FWV / RT 29
ADAMS / GLADES ST
550 HOPE CIR / WILLIE MAY HARPER DR.
FWV
CARSON RD / LAKE TRAFFORD

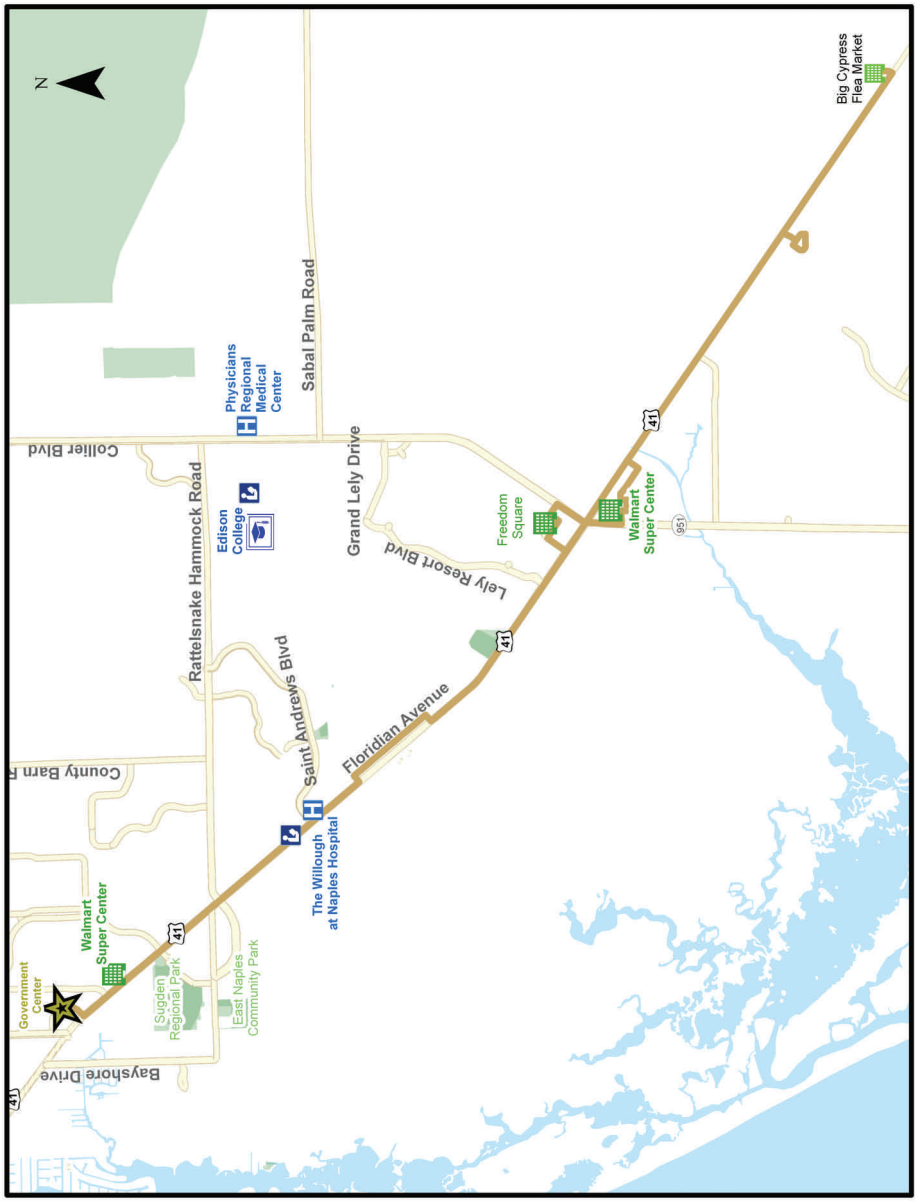
Route 8B:

STOP DESCRIPTION
FWV
HEALTH DEPT
S 9TH ST / GUADALUPE CATH. CHURCH
WINN DIXIE
160 N 1ST STREET
WESTCLOX STREET / OFF OF CARSON
MIRAHAM DR OFF OF MIRAHAM TERR
CARSON / EDEN
SOUTH 9TH ST / MAIN ST HANDY STORE
CCSO / GOV CENTER





Route 9 — Brown Route



Route	Days	Hours
9	Mon-Sat Sun	7:00 a.m.– 6:44 p.m. 8:30 a.m.—5:14 a.m.

Major Destinations:

Government Center
US 41/Rattelsnake
Johns St/ US 41
Charlee Estates
Big Cypress Flea Market
Walmart
Freedom Square
US 41/Walmart

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 4,117

2011 Annual Revenue Miles: 66,982

Route Performance:

2011 Annual Boardings: 77,823

2011 Passengers/Revenue Hour: 18.9

2011 Passengers/Revenue Mile: 1.16

2011 Cost/Passenger: $ 3.86

2011 Annual Operating Cost: $ 300,531

Daily Boardings:

Day	Total
Weekday	258
Saturday	221
Sunday	258

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	62
9 a.m. to Noon	61
Noon to 3 p.m.	78
3 to 6 p.m.	57
After 6 p.m.	N/A

Saturday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	30
9 a.m. to Noon	65
Noon to 3 p.m.	86
3 to 6 p.m.	40
After 6 p.m.	N/A

Sunday Boardings by Time:

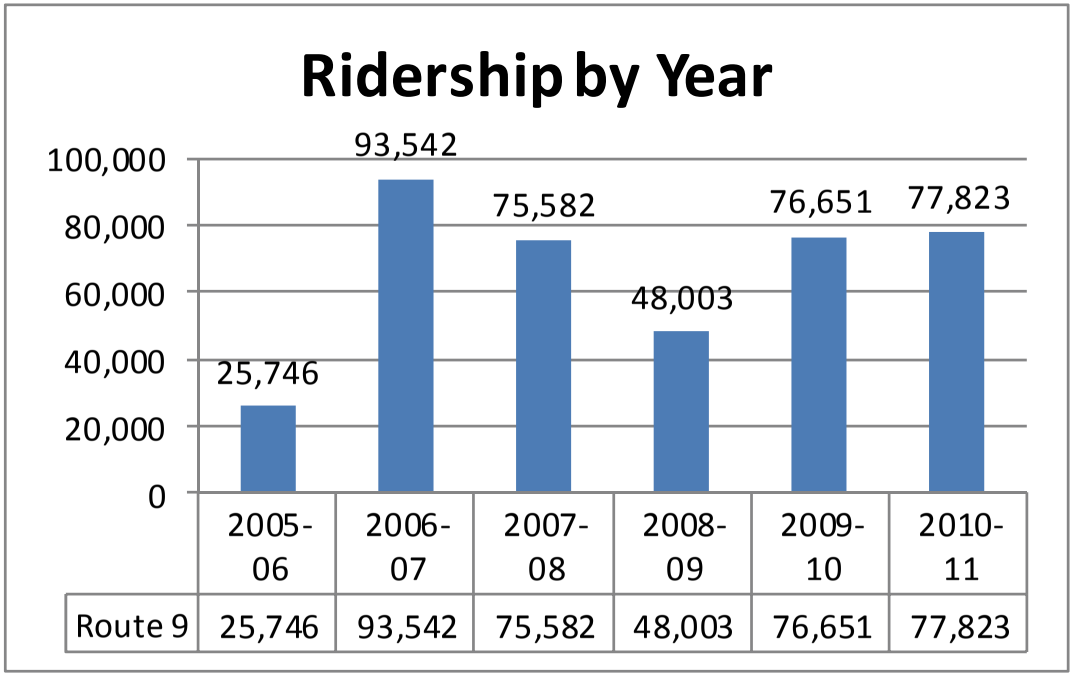
Time of Day	Total
6 to 9 a.m.	47
9 a.m. to Noon	68
Noon to 3 p.m.	104
3 to 6 p.m.	39

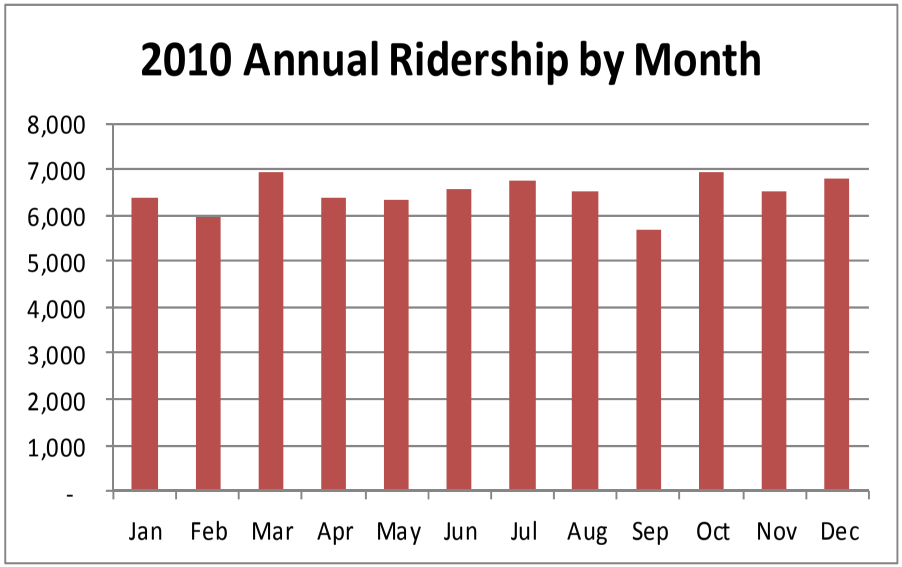
Top 10 Weekday Boarding Locations:

Based on Actual One-Day Ride Check Counts performed in March 2012.

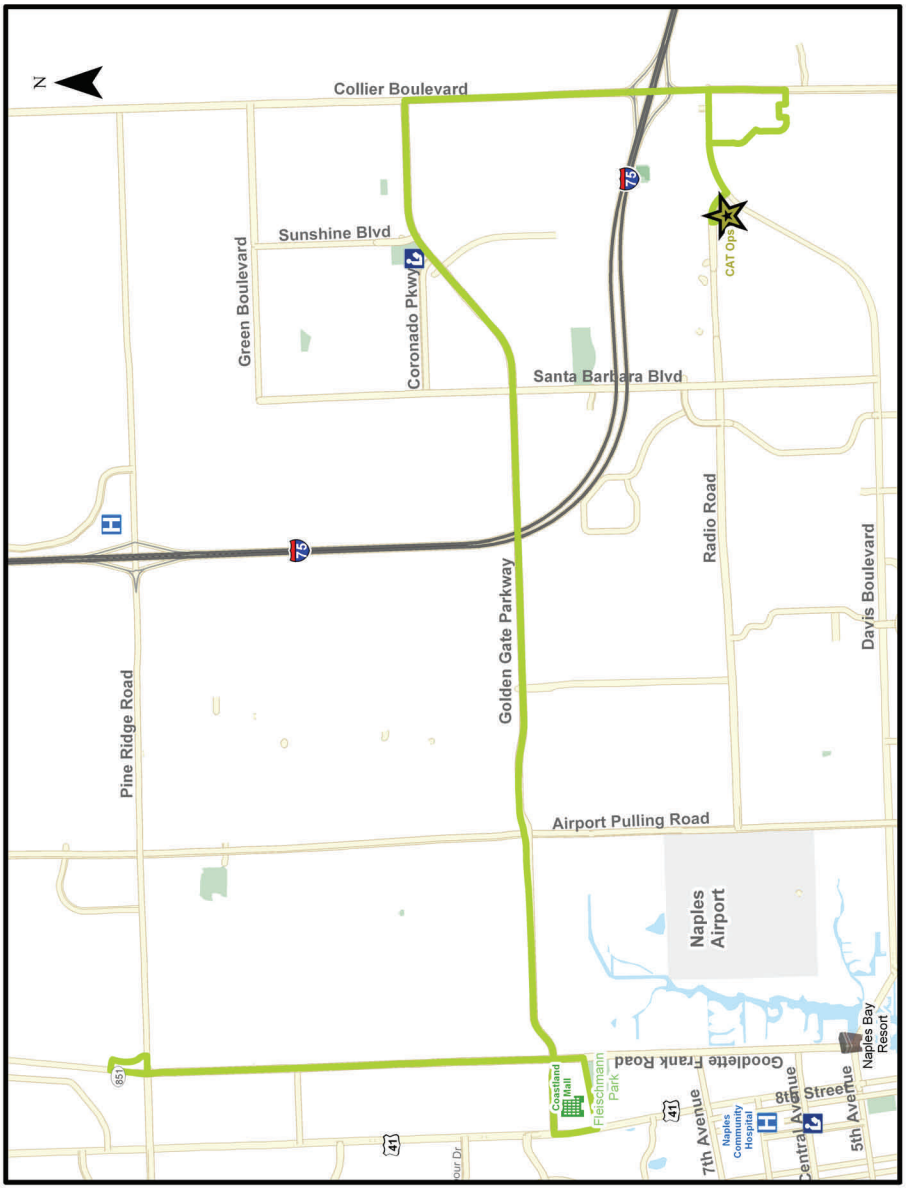
Route 9:

STOP DESCRIPTION
GOVERNMENT CENTER
WALMART
FLORIDIAN / HARDEE
K-MART
WHISTLERS COVE
BROWARD/US 41
US 41/@WAL-MART
US 41/COURTHOUSE SHADOWS
US 41/PALM
FLORIDIAN/HOLLAND





Route 10 – Lime Green Route



Route	Days	Hours
10	Mon-Sat Sun	6:00 a.m.– 5:50 p.m. 12:00 p.m.—1:20 p.m. 3:00 p.m.—4:20 p.m.

Major Destinations:

CAT Ops Center
Walmart
CR 951/Golden Gate
Golden Gate/Santa Barbara
Coastland Mall
Sweet Bay/Pine Ridge
Goodlette/Golden Gate

Route Characteristics:

Weekday Frequency: 90 Minutes

2011 Annual Revenue Hours: 2,828

2011 Annual Revenue Miles: 53,200

Route Performance:

2011 Annual Boardings: 27,429

2011 Passengers/Revenue Hour: 9.7

2011 Passengers/Revenue Mile: 0.52

2011 Cost/Passenger: $ 7.53

2011 Annual Operating Cost: $ 206,457

Daily Boardings:

Day	Total
Weekday	144
Saturday	281
Sunday (Two Trips)	64

Sunday Boardings by Time:

Time of Day	Total
12:00 p.m. -1:20 p.m.	35
3:00 p.m.—4:20 p.m.	29

Boardings by Time of Day:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Weekday Boardings by Time:

Time of Day	Total
6 to 9 a.m.	36
9 a.m. to Noon	28
Noon to 3 p.m.	37
3 to 6 p.m.	43
After 6 p.m.	N/A

Saturday Boardings by Time:

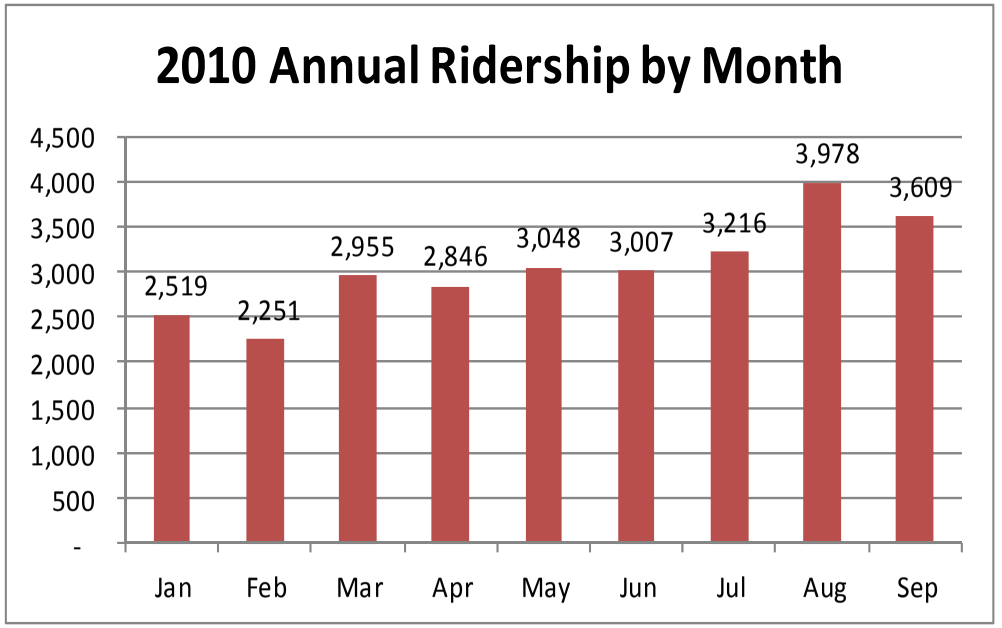
Time of Day	Total
6 to 9 a.m.	20
9 a.m. to Noon	77
Noon to 3 p.m.	129
3 to 6 p.m.	55
After 6 p.m.	N/A

Top 10 Weekday Boarding Locations:

Based on Actual One-Day Ride Check Counts performed in March 2012.

Route 10:

STOP DESCRIPTION
CAT OPS
GOLDEN GATE PKWY / SUNSHINE PLAZA
GOLDEN GATE PKWY / BURGER KING
GOLDEN GATE PKWY / 43RD ST
GOODLETTE / SWEETBAY
GOLDEN GATE PKWY / GOLDEN EAGLE
GOLDEN GATE PKWY / NAPLES H.S.
GOLDEN GATE PKWY / 50TH ST
GOODLETTE / 22ND ST
WALMART



Section 5 Service Improvement Discussion

Like many American communities, Collier County is attempting to cope with the impacts of two very contradictory market forces. The first impact is continuing suburbanization that is expanding the footprint of urban development, with population densities declining, which in turn creates longer travel distances to work, shopping and school. Because potential customers need to travel farther in order to accomplish their daily routines, the natural disparities between auto travel and transit are becoming ever more apparent. This puts local transit services at a disadvantage relative to auto travel. However, auto travel is becoming more difficult and travel times are increasing due to increasing congestion.

At the same time, a second market trend, the growing desire for alternative travel options across the country, including Collier County, is placing pressure on CAT to initiate transit service in auto-oriented neighborhoods that are ill-suited to traditional transit solutions. These contradictory trends are often given voice by two complaints,

- "*Why don't you have a bus that serves my neighborhood*?" and
- "*Your buses are always empty*."

As CAT has discovered, providing cost-effective transit services to suburban neighborhoods can be extraordinarily challenging. CAT has worked to adapt to a larger service area by designing and operating non-loop routes and express routes that link suburban neighborhoods with relatively distant employment sites. Such services depend upon reaching a critical mass of employees, generally at one location, depending upon the availability of free parking. When the question is posed regarding bus service in my neighborhood, CAT staff review the request for service and determine if the neighborhood has existing services or a bus route is nearby. If additional resources are needed to expand to that area, the cost would be determined and discussed at the advisory boards.

A second common question relates to empty transit buses being driven around and why so. As discussed earlier in this report, CAT staff continuously looks for ways in which to lower the number of miles traveled and ways to fill the buses with as many riders as possible in the shortest time possible. CAT also continues to keep the number of vehicles as small as possible in order to reduce costs of purchasing and maintaining too many vehicles.

The CAT transit routes provide service to over 70 percent of Collier County, some areas more populated than other areas, which does result in some buses running at less than full capacity for some of the legs of their journeys; thus, some buses may not be completely full when they arrive at CAT transfer centers.

CAT staff is often asked why smaller buses are not used for those areas where not many passengers are picked up. While it would seem more efficient to use a small bus where there are fewer bus riders and a larger bus where there are more riders, when we look at the big picture, there are more pieces to the add to the equation. Because a bus services more than one area of Collier County, that bus may have a full load during certain parts of the day, but not so full at another. In that case, it would take two buses if we assigned buses based strictly on capacity, where we can do the job with one bus even if it isn't always full. Having the driver switch to a different bus is not a viable option either because there simply is not enough time to take one bus back to the Operations Center to get another. CAT

would lose efficiency in the travel to and from the garage as well. If only one bus on one route is considered, it may appear that it could be done better with smaller vehicles; however, when the entire CAT transit network of 10 routes is considered, switching vehicles during lower demand times does not improve the overall efficiency of the system and adds additional capital vehicle costs.

Vehicles are expensive. The most cost effective buses are those vehicles that can be used for many purposes. Versatility is the key to keeping the number of CAT buses at a minimum. The way to hold down vehicle purchase costs and maintenance costs is to keep the number of vehicles needed low. So, while running a larger bus for a few passengers may seem inefficient, it is more efficient than keeping two vehicles on hand. The miles per gallon gained by using a smaller bus is not enough to make up for the cost of purchasing and maintaining that second bus. In these tough economic times, CAT continues to be diligent in providing efficient and cost effective service.

Across the country, transportation planners and public officials are facing these same issues. While none have yet identified a "silver bullet" that will create full buses in suburban neighborhoods, communities that have experienced the greatest success generally seem to include three elements in their planning processes.

- First, they work to get the most potential out of the markets that exist. They link the places where people live with places they want to go. In doing this, they don't necessarily try to have a bus route on every street. Instead, they pick their streets very carefully.

- Next, they rely on innovation. Arterial fixed-route transit service was developed as a way of serving traditional downtowns where most residents worked and shopped. This traditional type of hub and spoke service began prior to the flight to the suburbs that is prevalent in many communities today, including Collier County. By providing multiple transfer locations for passengers, CAT has been moving away from the traditional hub and spoke transit model, which is appropriate for low density developments occurring in Collier County. There will likely be future opportunities for transit locations for CAT as revenues become available to expand the services area.

- Finally, they identify their expectations for each of the services they operate. They also consider what measures are appropriate if a service does not meet those expectations and are then willing to follow through. One of the hardest things most transportation planners must do is take away a highly unproductive service from someone who has grown to depend upon that service. That is why thoughtful planning before the service goes into effect is so important.

Through conversations with CAT's management team, operators and customers, the project team has identified several issues that impact the system's overall design philosophy and affect several routes in the way they are answered. This opening section offers a general discussion of those issues that is supplemented by the detailed short-term route recommendations that are presented later in this report.

5.1 Service to Emerging Neighborhoods

As noted previously in Section 2, Collier County's dynamic growth is placing new service demands on the system, often from neighborhoods that were designed with little thought to public transportation services. One example includes neighborhoods with one entrance, which provides little option for a

public transit vehicle to maneuver through a neighborhood or to adequately turn around. Another example includes gated communities with limited pedestrian pathways to/from the local shopping center or to service workers searching for employment. Population growth in recent years shows development in the northeastern portion of Naples and into the Immokalee areas. These areas represent areas where future development of the public transportation may be expected and where needs may increase over time. Other areas include four major unincorporated community areas of population concentration where approximately 54 percent of the total population in Collier County includes:

- North Naples (17%), located approximately from the Lee/Collier County Line to Pine Ridge Road and extending east from the Gulf of Mexico to roughly the Livingston Road area.
- Golden Gate (14%), located east of I-75, approximately just south of Pine Ridge Road and just north of Davis Boulevard.
- Urban Estates (12%), approximately located from the Lee/Collier County line to Green Boulevard in the south and from roughly Livingston Street to just east of CR 951.
- Rural Estates (11%), approximately located between Immokalee Road to I-75, from just east of CR 951 to just east of Everglades Boulevard.

5.2 Clockface Headways

Virtually every CAT route currently operates on either a 60 or 90 minute headway. The reason for the existing schedules is to provide a more extended service area to Collier County residents. The study team recommends that a major focus for CAT is to begin the institution of clockface headways to a minimum of 60 and 30 minutes. Section 6 provides more detailed information by route for frequency improvements. In some cases, existing routes and vehicle commitments may allow more frequent service without adding resources. One example may be for Route 2 to drop the south service loop, which would be picked up by another route, and increase frequencies to 30 minutes in the future. However, more commonly, routes will need to be shortened or vehicle commitments will need to be increased in order to achieve a clockface operation.

5.3 Integrated Transportation System

Transit and automobiles are two prominent modes making up the entirety of the transportation network. In attempting to improve service of the transit system, it is important to consider how transit can best work with automobiles to provide viable alternatives for meeting transportation demands. If done efficiently, transit can ultimately serve to extend the capacity of the roadway by providing a truly multimodal network for commuters who utilize the network the most. In some cases this integration can be best accomplished by providing park-n-ride services at key nodes where large commuter populations live or work. In other cases, improving transit service itself to provide competitive travel times between transit and automobiles may also be considered.

Many transit agencies attempt to provide travel times that are no more than twice what a person would incur via private automobile. As Collier County continues to grow, this will prove increasingly difficult. Trips that are from one side of the metropolitan area to the other likely require a transfer or layover at a transfer center. The travel times required on transit pose significant barriers to transit use and illustrate CAT's challenges when it attempts to serve outlying neighborhoods. Some measures that CAT can take to reduce some travel times include mid-route layovers be eliminated in order to reduce

end-to-end travel times on major routes. One example is the existing Route 4, which has an extra 15 minutes built into the schedule. CAT is looking at expansion areas for this route to eliminate the additional layover minutes. In addition, it recommends that, whenever possible, layovers at the transfer stations should be limited to five minutes.

5.4 Transfer Coordination

Collier Area Transit operators attempt to coordinate transfers at each of the existing transfer points. Given the region's dispersed travel demands, outlying transfer centers are appropriate. It is unrealistic to expect CAT to make timed transfers at all transfer centers. However, the busiest destinations such as Government Center and Creekside should be prioritized.

5.5 Proposed Service Performance Measures

A transit system like CAT must be able to respond to constant change, whether there is ridership and operational growth or a decline in service funding. While it is normal to experience fluctuations in ridership and service delivery, data must be available in order to objectively justify any system modifications. This data, commonly referred to as "service performance measures," is essential to understanding and communicating the performance of the system and individual routes.

Effective service performance measures, and accompanying agency-identified service performance standards and goals, ensure that:

- Stakeholders and riders have a clear understanding of what the performance goals for the system, a route, or a 'family' of routes (service types).
- Precise information is collected on the performance of the system and routes which is more informative than just ridership numbers.
- Technical staff is provided with the guidance when evaluating the system or routes.
- Changes to the system or routes utilize objective standards which justify and support the changes.
- Protect the interests of the transit provider from subjective requests for system or route changes that may not have a justifiable reason.

5.5.1 Performance Points of View

Service performance measures are evaluated from many points of view, as customers, the community, and the transit agency may value the various measures in different manners.

5.5.1.1 Customer

For customers, important service performance measures fall under one of two categories: 1) transit service or 2) comfort and convenience. The availability of transit service and the relative comfort and convenience of the service must satisfy the needs of customers before transit is considered as an option for a given trip.

Transit Service

Transit service is, at its most basic level, the availability (or unavailability) of service and includes the following:

- Spatial availability – Where is service provided? How do customers access the service?
- Temporal availability – What days and hours is the service provided?
- Information availability – Do customers know about the service provided? Do customers know how to use the service provided?
- Capacity availability – Is passenger space available on the service provided?

Comfort and Convenience

Acceptable comfort and convenience levels may differ between customers, and includes the following items (that are fully or partially under the control of the transit agency):

- Service delivery – How well does the agency provide service on a regular basis? Is the agency meeting customer expectations?
- Travel time – How long does a transit trip take? How does this travel time compare to other modes?
- Safety and security – Do passengers feel adequate lighting and bus stop amenities are provided at major bus stop locations? Do passengers feel safe exiting the bus and traveling to their final destination?
- Maintenance – Does the agency have spare buses available to maintain service levels if a transit vehicle breaks down? Are the vehicles clean and free of vandalism?

5.5.1.2 Community

Service performance measures evaluated by the community may be identified as either 1) benefits or 2) impacts. Most benefits are directly related to accompanying impacts, so it is up to individual communities to identify acceptable trade-offs between the various benefit and impacts.

Benefits

Benefits are typically measured as they relate to the provision of transportation to persons within the community; especially community members without ready access to a private automobile (seniors, persons with disabilities, etc) include the following:

- Reduction of air pollution
- Travel when an automobile is not available
- Parking congestion mitigation
- Reduction of traffic congestion
- Job accessibility for those who are economically disadvantaged

Impacts

Impacts are typically measured by relation to the negative aspects of providing transportation to persons with the community. Impacts, which may be easier to quantify than benefits, include the following:

- The amount of taxes directly or indirectly paid for transit service
- The visual attractiveness or unattractiveness of public facilities
- Loud noise or diesel fumes from buses
- The perception of waste or inefficiency of bus service
- Empty buses

5.5.1.3 Agency

Service performance measures evaluated by the agency include those that are important to customers and the community, along with others that identify the success (or lack of success) of the agencies mission—fundamentally to provide transit service and be an asset to customers and the community, and include the following:

- Operational efficacy – Is the agency doing the right thing to meet the demand for transit service?
- Operational efficiency – Is the agency doing things correctly to provide transit service given system constraints (staff, budget, etc)?
- Organizational performance – How well is the service working? What improvements are desirable? What actions should be taken to improve the service?

5.5.2 Suggested Performance Measures

Based on conversations with customers, community members, key stakeholders, and agency staff, and a review of industry standards and the ability of CAT to quantifiably measure their performance in these areas in comparison to their transit agency peers (as defined in the TDP), the following service performance measures are recommended for CAT. These performance measures were chosen with the end goal of providing a safe, efficient, and attractive system that will increase ridership by more efficiently and effectively serving major activity centers concentrations of residential and employment locations within the County. The measures provide an ability to evaluate how well the agency is performing and tie investment decisions in the CAT system to improvements in performance that serve passengers and community needs. These improvements to performance will also equate to improvements in cost effectiveness and efficiency in the system, with greater ridership gains, increased farebox recovery potential, and safer, more streamlined services that both connect people to their destinations in the most cost effective manner possible and encourage use of fixed-route services over more costly provisions of paratransit service for disabled users.

These performance measures represent both national standards for efficiency and effectiveness and evaluation of the system in comparison to CAT's peer transit agencies (defined in the TDP). Although performance measures are defined individually in the following sections, it should be understood that these performance measures are interrelated. As such, descriptions have been provided as

appropriate within each of these descriptions to indicate how other performance measures listed may be impacted by changes in one specific performance measure. In particular, ways of relating these measures back to agency performance measures of cost effectiveness and efficiency are provided wherever possible to address Board of County Commissioners (BCC) concerns about tying performance to costs.

Benchmarks established represent proposed improvements and recommendations included in this COA, and should not be construed as static factors. As transportation, funding, and route demands are dynamic factors, it is recommended that these performance measures and benchmarks be reviewed on an annual basis for any needed updates based on current conditions and national, state and local trends. Periodic monitoring of these factors should be established in coordination with the proposed Transit Advisory Group (TAG) and reported at least annually to the BCC to ensure transparency, accountability and to justify proposed operational and capital improvements that may be needed to meet these performance targets.

It should be noted that the recommended service performance measures will only be effective if they are:

- Clear and understandable
- Reliable and credible
- Include a variety and number of quantitative and qualitative measures (inter-related)
- Directly linked to agency and community goals
- Developed with customer, community, key stakeholder, and agency staff input

Passenger

1. **Service Coverage –** Service coverage is one of the most important factors in evaluating transit service. This performance measure targets how well the transit system serves the community by evaluating the percentage of the community served (service area coverage compared to total county area). The Transit Capacity and Quality Level of Service Manual provides nationally recognized performance measures to evaluate service coverage based a quantifiable A through F rating scale, as shown in **Table 5.1** below.

   The existing coverage is 74 percent today, equating to LOS C. It should be noted that given the large service area to be covered, conservation boundaries, and the existing land use densities and distances between major origins and destinations in the County, the CAT system is currently performing quite well in terms of this measure. The ability to provide service coverage is heavily dependent on land uses that either make transit easier or more difficult to serve, and therefore establishing a Benchmark of LOS C for the CAT system provides a blueprint for the future that can reasonably be accommodated given existing land uses and conservation boundaries. Given the number of conservation areas within the County, this benchmark represents the highest LOS that can reasonably be achieved along existing major roadways while retaining the integrity of conservation boundaries.

This service measure may be used by CAT staff in concert with other measures of land use and capital investment that affect the ability to meet and improve upon this performance target. Some of the land use and capital investment factors that may affect the ability of CAT to meet or improve this performance benchmark and which should be monitored in reviewing this performance measure include:

- The measure of the population in the county that is located within a quarter-mile of transit. This distance is a general rule of thumb for reasonable walking distance to transit. Sidewalk accessibility also lends to the walkability to transit service, as does lighting availability and general topography and weather conditions.

- Level of connectivity to and from transit routes to bicycle and pedestrian pathways. The Federal Transit Administration has identified that suitable bicycle connections to transit are generally within three to five miles. Other considerations are whether bicycle facilities are provided at major origins and destinations and on buses to support bicycles accessing transit.

- The location of areas within the County that contain densities which are transit supportive. This is generally considered to be three dwelling units per acre. CAT staff may also consider reviewing net densities in areas of concentrated growth where origins and destinations may be clustered given the land use designations within Collier County.

- Where access to transit by walking or bicycling is not feasible due to land use configurations, collocating of park-n-rides to better serve potential customers. These facilities should be carefully identified and based on existing ridership, population, and areas of heavy congestion where transit may serve to support the existing roadway capacity by providing additional mobility options.

Table 5.1 Service Coverage Target Performance Measures

LOS	% Transit Service Area Covered	Comments
A	90.0-100.0%	Virtually all major origins & destinations served
B	80.0-89.9%	Most major origins & destinations served
C	70.0-79.9%	About ¾ of higher-density areas served
D	60.0-69.9%	About two-thirds of higher-density areas served
E	50.0-59.9%	At least ½ of the higher-density areas served
F	<50.0%	Less than ½ of higher-density areas served

Source: *Transit Capacity and Quality of Service Manual, 2nd Edition.*

Existing CAT Service and Proposed Benchmarks	
CAT Service Area	1,500 square miles
Collier County	2,025 square miles
Existing Coverage	**74% of total square miles**
	LOS C
BENCHMARK	**LOS C (70-79.9%)**

2. **Service Frequency –** How often service is offered and the wait time for passengers is also one of the most important factors determining whether someone will use transit service and has a direct effect on ridership and the economic vitality of the County since the CAT system is largely responsible for providing service to passengers that use it for access to their jobs. Targets for service headways are also provided in the Transit Capacity and Quality Level of Service Manual and provide quantifiable measures of how well the CAT system is performing.

Currently, CAT operates at headways of 60 to 90 minutes, with the majority of routes operating at 90 minutes or longer. The average headway for the system as a whole is therefore currently 83 minutes, or LOS F. Reaching a system wide average of 30 to 60 minutes (LOS E) is a long term performance goal and an increase in operating revenues will be the primary impetus for this performance measure to be met. More realistically, making incremental improvements to service headways as funding becomes available, particularly prioritizing high performing routes with higher ridership demands will be the most reasonable path for justifying these improvements in service over time.

CAT goals for the system wide headway average is 77 minutes or less in the short-term, and 60 minutes or less for the long-term. The short term target of 77 minutes is based on a comparison of the existing system wide frequency average (83 minutes) and the proposed system wide average (70 minutes) should increases to service frequencies be made to the top four performing CAT routes as proposed in this COA. Understanding that increasing the frequency on these routes is dependent upon available increases in funding, this benchmark of 77 minutes represents the system wide average should increases in frequency be made to just two of the top four performing routes in the short term. The long term benchmark of 60 minutes is again based upon available funding for increased operational costs to enhance frequencies, and is based on the national standard for improving CAT's LOS by one grade to LOS E in the long term. **Table 5.2** below provides further information on these national standards as well as proposed route level increases to frequency recommended for the short term and long term and benchmarks for those time periods.

Table 5.2 Service Frequency Target Performance Measures

LOS	Avg. Headway (min)	veh/h	Comments
A	<10	>6	Passengers do not need schedules
B	10-14	5-6	Frequent service, passengers consult schedules
C	15-20	3-4	Maximum desirable time to wait if bus/train missed
D	21-30	2	Service unattractive to choice riders
E	31-60	1	Service available during the hour
F	>60	<1	Service unattractive to all riders

Source: *Transit Capacity and Quality of Service Manual, 2nd Edition.*

Route	Peak Headway	Existing	Short-term	Long-term
1 – Red Route – Creekside	90 minute	90	60	30
2 – Orange Route – NCH-Mall	60 minute	60	60	30
3 – Purple Route – Golden Gate	90 minute	90	60	30
4 – Green Route – Edison	90 minute	90	60	30
5 – Blue Route – Immokalee	60 minute	60	60	60
6 – Yellow Route – Pine Ridge	90 minute	90	90	60
7 – Light Blue Route – Marco Island	n/a			
8 – Pink Route – Immokalee Circulator	90 minute	90	90	60
9 – Brown Route – Charlee Estates	90 minute	90	60	60
10 – Lime Green Route - Goodlette	90 minute	90	90	60
Bench Mark	**Avg headway - 83 minute**	**83**	**70**	**47**
Target Performance Measure			**<= 77 minute**	**<= 60 minute**
Note: Shading indicates recommended priority headway route changes should additional revenues become available.				

There are no objective national measures available that will provide a defined measure of ridership gains that can be expected from improving frequency. This is because each transit system has unique economic and demographic factors shaping the community profile, and as such, different levels of transportation demands. That being said, one of the ways in which CAT can monitor how effective increasing frequencies is on their routes is to closely monitor how the changes in service frequency impact agency productivity performance measures (discussed later in this action) such as passenger trips per mile and passenger trips per hour and cost efficiency and effectiveness targets. This comparative measure will allow CAT to not only review increases in ridership gained from frequency increases, but also how these ridership gains are impacting service effectiveness and cost efficiency. When route frequencies are enhanced along routes where there is greater potential for serving a number of major activity generators and concentrated residential communities, the greatest increases in service productivity and cost efficiency are expected as a result of the increases frequency.

In addition, to justify increases in service frequency there should be a correlation between the proposed improvement and ridership demand thresholds. Reviewing service frequency enhancements in relation to ridership demands and benchmarks (discussed later in this section) on a periodic basis (quarterly) can help establish baselines for making such recommendations. Additional justification for improvements to service frequency may also involve periodic driver questionnaires or

on-board surveys that help substantiate whether the needed improvement on high performing routes is increased frequency or increased service spans (times of day and hours of day the service runs).

3. **Service Span** – The service span measures the number of hours in the day that a service is offered and directly relates to meeting passenger demands and how likely it is that someone will use the service. Enhancing frequency and span of service share the benefit of providing system flexibility and promote use of the transit system. The more choices customers have in selecting travel times at times of day that they need, the greater the potential for utilizing the transit service as a viable alternative transportation mode.

   The Transit Service and Quality Level of Service Manual provides LOS performance measures for span of service. Currently, the CAT system wide average is a LOS D, or averaging a span of service of 13 hours per day. Benchmarks are proposed on a route by route basis as shown in **Table 5.3**. These benchmarks are based on the findings of the COA on top performing routes (Routes 1, 2, 3, and 9), maintaining or enhancing existing span of service hours for routes accordingly, and the desire to increase service spans on high performing routes to meet Federal Transit Administration thresholds of 14 or more hours per day (LOS C or better) for additional competitive grant funding (e.g. Very Small Starts Program) applicability. Given these factors, the LOS Benchmarks for the top four performing routes (1, 2, 3 and 9) are proposed at LOS C. Currently, Route 3 is the only route which meets this standard. Incremental improvements prioritizing span of service enhancements to these top performing routes are recommended as funding becomes available and as service is determined to be warranted by ridership, on-board surveys, and other service evaluation justifications. Maintaining span of service LOS on all other routes is proposed without increased benchmarks; however, regular monitoring of the system over time may warrant updating this performance measure to reflect increasing transit demands on these routes.

Table 5.3 Service Span Target Performance Measurements

LOS	Hours of Service	Comments
A	19-24	Night or “owl” service provided
B	17-18	Late evening service provided
C	14-16	Early evening service provided
D	12-13	Daytime service provided
E	4-11	Peak hour service only or limited midday service
F	0-3	Very limited or no service

Source: *Transit Capacity and Quality of Service Manual, 2nd Edition.*

Route	Schedule	Existing Daily Hrs	Existing LOS	LOS Benchmark
1 – Red Route – Creekside	6a-7:20p	13.25	D	C
2 – Orange Route – NCH-Mall	6a-6:46p	12.75	D	C
3 – Purple Route – Golden Gate	4:35a-6:51p	14.5	C	C
4 – Green Route – Edison	6a-6:57p	13	D	C
5 – Blue Route – Immokalee	3:45a-8:08p	16.5	B	B
6 – Yellow Route – Pine Ridge	6a-5:44p	12	D	D
7 – Light Blue Route – Marco Island	6a-6:30p	12.5	D	D
8 – Pink Route – Immokalee Circulator	5:50a-8:28p	14.5	C	C
9 – Brown Route – Charlee Estates	7a-6:44p	11.75	E	C
10 – Lime Green Route - Goodlette	6a-5:50p	12	D	D

4. **Stop Accessibility** – This measure is a qualitative assessment of Americans with Disabilities Act (ADA) compliance and modal access to stops (bicycle, pedestrian, and automobile). Increasing stop accessibility may better serve existing riders in providing a safe and accessible system. It may also help to convert more costly paratransit trips to more cost effective fixed route services. The CAT system currently has 553 bus stops within the system. An assessment of ADA accessibility is needed to identify existing and benchmark targets for accessibility and should be a priority to better monitor service provision and provide safe and accessible stops in the County. Once established, benchmarks for this performance measure may be set to improve stop accessibility over time.

   Although no national standards are provided for stop accessibility, a similar LOS standard to other measures within the Transit Capacity and Quality Level of Service Manual are provided in **Table 5.4** and can serve to frame existing coverage and any proposed improvements that are needed to enhance how well CAT is meeting stop accessibility grades.

Table 5.4 Stop Accessibility Target Performance Measures

LOS	% Accessible Bus Stops	Comments
A	90.0-100.0%	Virtually all bus stops are accessible
B	80.0-89.9%	Most bus stops are accessible
C	70.0-79.9%	About ¾ of bus stops are accessible
D	60.0-69.9%	About two-thirds of bus stops are accessible
E	50.0-59.9%	At least ½ of the bus stops are accessible
F	<50.0%	Less than ½ of bus stops are accessible

Note: Based on and consistent with other similar performance targets listed in the Transit *Capacity and Quality of Service Manual, 2nd Edition.*

5. **On-time performance** – Probably the most universally used measure of transit service reliability is on-time performance (OTP). Whether early or late, service that does not consistently retain on time performance will negatively influence both customer perceptions

about the system and the effectiveness and efficiency of the system as a whole. In Collier County, other related factors may also include variations in traffic conditions resulting from seasonal populations during the winter months. **Table 5.5** provides LOS standards for on-time performance. Based on estimates from staff, CAT currently operates at an OTP of 95%, or LOS A. The goal for this performance measure should be to retain this LOS A rating over time. New technologies that CAT is installing, like mobile data terminals, will allow for more regular monitoring of this performance measure (quarterly review).

It should be noted that this measure of OTP may be influenced by a number of other related factors, including traffic conditions, vehicle reliability, scheduling issues (too little or too much time factored into a route), or staffing issues. As CAT continues to monitor their OTP, examining reasons for OTP performance issues and proposed improvements to address these issues will be needed to ensure the usefulness of this performance measure. This may include reviewing and revising this performance measure to account for seasonal population fluctuations and increased traffic congestion, and identifying any transportation systems management investments (such as transit signal priority) that could help to better meet on-time performance standards.

Table 5.5 On-Time Target Performance Measures

LOS	On-Time Percentage	Comments*
A	95.0-100.0%	1 late transit vehicle every 2 weeks (no transfer)
B	90.0-94.9%	1 late transit vehicle every week (no transfer)
C	85.0-89.9%	3 late transit vehicles every 2 weeks (no transfer)
D	80.0-84.9%	2 late transit vehicles every week (no transfer)
E	75.0-79.9%	1 late transit vehicle every day (with a transfer)
F	<75.0%	1 late transit vehicle at least daily (with a transfer)

Source: *Transit Capacity and Quality of Service Manual—2nd Edition*

NOTES:

(1) Rankings apply to all routes with a published timetable, particularly to those with headways longer than 10 minutes.
(2) "On-time" is considered 0 to 5 minutes late, and can be applied to either arrivals or departures, as appropriate for the situation being measured. Early departures are considered on-time only in locations where no passengers would typically board (e.g., toward the end of a route).

* Individual's perspective, based on 5 round trips per week.

6. **Customer Satisfaction –** Customer satisfaction can be measured through a variety of indicators, and is typically measured through on-board survey instruments. For the purposes of this COA, passengers were provided an on-board survey and asked to rate the quality of service provided by CAT. The response categories included very poor (1), poor (2), fair (3), good (4), and very good (5). Each category was given a numerical value from one to five, and the average response was then calculated for each attribute. An average score of 3.0 or higher would indicate meeting or exceeding service quality perceptions for that particular attribute. The base year findings conducted for this COA may be used to compare with future customer satisfaction survey responses. This information may also be used to identify service quality improvements that can help achieve this performance measure. As such, a benchmark of 4.0 or greater has been set for

maintaining and enhancing service quality in the future. As illustrated through the existing survey data, improvements warranted to meet these benchmarks could include improvements to on time performance, bus frequency, and bus shelters and amenities.

Table 5.6 Customer Satisfaction Target Performance Measures

	Customer Satisfaction - Onboard Survey Questions	2012 Avg Score	Target
1	How often the buses run on this schedule	3.7	**>=4.0**
2	How courteous was the bus driver during your trip	4.2	**>=4.0**
3	How directly does this route go to your destination	4.0	**>=4.0**
4	How is the length of time your trip takes	3.8	**>=4.0**
5	How on-time is this bus running today	4.1	**>=4.0**
6	How safe did you feel today while waiting for your bus	4.1	**>=4.0**
7	How was the shade or shelter where you waited	3.3	**>=4.0**
8	How clean was this bus today	4.2	**>=4.0**
9	Your overall satisfaction with CAT	4.2	**>=4.0**

Community

7. **Activity Generators** – Providing transit services within an acceptable walking distance of major activity generators within the Community is an important measure of how well the service is meeting community service needs. These activity generators include major retail centers, hospitals as well as colleges and universities. The Transit Capacity and Quality Level of Service measures for service coverage apply to these more specific points of location as well and are used to evaluate service access in the community to these important destinations and establish benchmarks for performance. **Table 5.7** provides LOS rankings for reaching these major destinations and existing and established benchmarks for performance. Existing access to these destinations was determined using geographic information systems (GIS) data to identify whether bus stops are located within a quarter-mile radius of major destinations. This radius is a national standard rule of thumb for acceptable walking distances to transit, entailing an approximate distance equal to a five minute walk.

It should be noted that in some cases, reaching all major destinations is not possible. Reasons for this may include increased costs for establishing new or extended services and land uses that do not currently support enhanced transit services due to distances between major points of interest or lack of sufficient ridership gains to support costs of service enhancements. As this performance is monitored, it is recommended that as specific locations are identified that are not served by transit stops, CAT staff review and outline the reasons that services have not been established in these areas. When activity center locations are identified which do meet transit supportive land use densities and which are currently not served, CAT staff should develop cost estimates for extending service to these locations. Working with the TAG, a recommendation should be made for supporting extensions of service to the MPO Board and BCC for review and approval of these requests along with reasonable data for the support of the request. As updates to the TDP occur, CAT staff may also consider modifying ridership surveys to include important destinations where the need for extensions of service can be further justified. This will help CAT staff to identify existing rider priorities for extensions of service and help monitor newly arising activity generators for proactive planning of the transit system. Other activity generators not included at this time, such as serving regional parks, may be considered as future updates to performance measures are made. The addition of these measures will need to be reviewed by CAT staff to identify priority parks to be served based on local knowledge and community desires. For instance, currently CAT services do not extend to beach parks. The desirability of this service

should be reviewed with representatives for communities within the County and with consideration to future marketing plans for the CAT service.

Table 5.7: Thresholds and Benchmarks for Activity Generator Proximity

LOS	% Bus Stops Accessible (.25 Miles)	Comments
A	90.0-100.0%	Virtually all major origins & destinations served
B	80.0-89.9%	Most major origins & destinations served
C	70.0-79.9%	About ¾ of higher-density areas served
D	60.0-69.9%	About two-thirds of higher-density areas served
E	50.0-59.9%	At least ½ of the higher-density areas served
F	<50.0%	Less than ½ of higher-density areas served

Activity Generator	Total County	Stops Total Within .25 Mi	% Stop Coverage	Existing LOS	Benchmark LOS
Major Retail	24	23	96%	A	A
Hotels	76	41	54%	E	E
Major Hospitals	7	7	100%	A	A
Major Libraries	10	9	90%	A	A
Colleges/Universities	4	2	50%	E	E

Comments regarding the existing coverage noted above include:

- **Major Retail:** The only major retail center not served near transit is Venetian Bay. This center is located near the beaches west of U.S. 41. Desire for service in this area has not been noted through public input and this center currently serves the surrounding community living in this area well. It should be noted that existing retail centers are based on available GIS data, and that currently this data does not include some newer major retail developments, including the Target Shopping Center at Immokalee Road and I-75 and 5th Avenue retail. As this performance measure is reviewed at the next periodic update, it is recommended that CAT staff coordinate with County Growth Management Division staff to assist in developing a locally derived major retail generators GIS file.

- **Major Hotels:** Hotel data was determined using June 2011 GIS data from Florida Geographic Data Library (FGDL). Providing access to hotels may be an important long term strategy for CAT to coordinate with tourism in the County to attract choice riders. Although only currently providing bus stops within a quarter-mile of approximately 54 percent of the hotels in the county, the CAT system provides access to all major hotels along major roadways in the county, particularly U.S. 41. There are some clusters of hotels near the beach that are outside of the quarter mile walking distance and located near smaller, local roadways that are not conducive to transit buses. In addition, some areas along Immokalee Road and near I-75 are

currently not served. However, these areas are outside of concentrated activity generator areas that would most likely attract choice riders to use the system. As staff continues to review this performance measure, consideration may be given to establishing priority roadways where hotel service is most likely to help serve this choice rider market. Marketing to hotels and providing materials, such as bus schedules, at these locations may help support this initiative and be used to identify priority areas where service is most desirable for tourists.

- **Major Hospitals:** All major hospitals contain a stop within a quarter mile of existing transit service.

- **Major Libraries:** Library coverage was determined using the most recent Collier County GIS data on libraries in the county. The only library not covered at this time is located in Everglades City. The distance from existing services as well as limited funding to expand service are reasons this location is not planned for service in the near future.

- **Colleges/Universities:** Colleges and Universities were determined using a combination of County and statewide GIS data. There are two colleges not currently accessible using transit in the County. These include Ave Maria and Hodges University. Both are outside of the existing CAT service limits, and both distance and limited funding constrain the ability to serve these areas. Hodges University (located north of Immokalee Road near I-75) does exhibit enrollment above 1,000 students and surveys to monitor the need for service in this area may be conducted as a longer term strategy to target this activity generator. Ave Maria contains enrollment of over 300 students and may be monitored should service improvements be recommended in the long term to extend service to this area. At this time, no service improvements are recommended due to costs versus potential ridership to be gained by extending service to Ave Maria.

  Finally, it should be noted that this coverage only provides performance measures for colleges and universities within the county. Future considerations for this performance measure may include reviewing important college and university connections from a more regional perspective and considering destinations outside of the Collier County boundary. Working with other service providers, such as LeeTran, has been successful in the past for making greater regional connections and should continue, as appropriate, in identifying extensions of service that would make these connections feasible.

Agency

8. **Vehicle Reliability –** CAT bus riders have high expectations that the vehicles providing service for them will operate each day. The performance measure used to assess vehicle reliability is derived from the number of mechanical system failures occurring at the agency. The mechanical system failures must be recorded and reported to the National Transit Database (NTD).

Several factors affect the number of major mechanical system failures incurred by a transit agency including local operating conditions, types of vehicles operated, and effectiveness of the maintenance program. The NTD includes two variables that can be used to assess the mechanical reliability of revenue vehicles. The first is the number of major mechanical system failures. Mechanical failures prevent the vehicle from completing a scheduled revenue trip or from starting

the next scheduled revenue trip because actual movement is limited or because of safety concerns. Examples of major bus failures include breakdowns of air equipment, brakes, doors, engine cooling system, steering and front axle, rear axle and suspension and torque converters.

The second variable reports some other mechanical element of the revenue vehicle that, because of local agency policy, prevents the revenue vehicle from completing a scheduled revenue trip or from starting the next scheduled revenue trip, even though the vehicle is physically able to continue in revenue service. An example may be a shortage of available drivers or a special community event that prevents transit service operating during a particular day.

This performance measure also uses the number revenue vehicle miles; therefore, allowing CAT to develop goals of not to exceed a particular number of miles in between breakdowns or mechanical failures.

Peer comparisons are used to identify how well the CAT system as a whole is performing in comparison to like systems. In relationship to its peers, CAT is exceeding the peer average benchmark of 10,550 average miles between the number of vehicle system failures. CAT is currently operating approximately 19,000 miles between every failure, which is a good reflection on the condition of the CAT vehicles and maintenance performed on the vehicles (as shown in **Table 5.8**). CAT should continue the current maintenance program, including preventative maintenance and replacement of buses, as needed to continue this high performance.

Table 5.8 Vehicle Reliability Target Performance Measures

Peer Counties	No. of Revenue Vehicle System Failures	Revenue Vehicle Miles	Avg Miles between System Failures	Vehicles Operating at Maximum Service
Collier	131	2,499,362	19,079	46
Escambia	168	1,802,221	10,728	32
Pasco	227	1,637,351	7,213	27
Sarasota	543	4,007,634	7,381	43
Space Coast	156	4,124,518	26,439	59
PEER AVERAGE/BENCHMARK	**309**	**3,256,501**	**10,550**	**43**

Note: Data were not available for all peers - Lakeland and Manatee; thus not included in review.
Source: *2011 NTD data.*

9. **Ridership –** Ridership is one of the most common performance measures used across the nation at multiple levels -- transit agencies, state DOTs, local and county governments, MPOs, etc. Ridership refers to the number of passenger trips provided by a particular agency. No national standards exist for ridership due to the subjective native of what type of service is provided, along with how much service is provided based upon available revenues. As such, the accepted transit practice standard for reviewing this measure is to compare ridership to historical trends and to review against peer transit agencies and averages. Peer transit agencies for Collier County are defined in the County's TDP and are updated periodically to identify systems with enough similar performance characteristics to warrant useful comparisons. **Table 5.9** provides peer transit agency information from the 2011 National Transit Database (NTD). Peer averages

indicate that an appropriate short term benchmark for ridership is approximately 1,830,000 passenger trips.

In addition to ridership, the service area population was used as a secondary factor to develop an understanding of passenger trips provided. Collier County is slightly above the average service area population, but well below the peer average for passenger trips per service area population. This is likely a result of the current headways for most of the routes as 90 minutes. As discussed throughout this report, as revenues become available, CAT should continue to decrease the existing headways, which will result in additional ridership.

Table 5.9 Ridership Target Performance Measures

Peer Counties	Ridership	Service Area Population	Passenger Trips per Service Area Population
Collier	1,127,273	333,032	3.4
Escambia	1,374,387	340,067	4.0
Lakeland	1,558,035	110,000	14.2
Manatee	1,605,642	103,000	15.6
Pasco	914,818	464,697	2.0
Sarasota	3,055,085	393,826	7.8
Space Coast	2,460,926	554,354	4.4
PEER AVERAGE/BENCHMARK	**1,828,149**	**327,657**	**8.0**

Source: *2011 NTD data.*

10. Productivity – The productivity performance measure focuses primarily on internal utilization of resources and related efficiency. The following vehicle utilization measures are used for Collier County:

- Passenger trips per revenue vehicle hour, and
- Passenger trips per revenue vehicle mile.

These measures are commonly used across the nation as a basis to understand how productive the transit agency routes and system are working. The accepted transit practice standard for reviewing this measure is to compare the system-wide performance measures against peer transit agencies and averages. Peer transit agencies for Collier County are defined in the TDP and are updated periodically to identify systems with enough similar performance characteristics to warrant useful comparisons. **Table 5.10** provides peer transit agency information from the 2011 National Transit Database (NTD). Peer averages indicate that an appropriate short term benchmark for evaluating cost efficiency is 17.0 passengers per hour and 1.1 passengers per revenue mile.

Table 5.10 Productivity Target Performance Measures

Peer Counties	Passengers per Rev Hour	Passengers per Rev Mile
Collier	17.03	0.94
Escambia	12.5	0.91
Lakeland	19.2	1.22
Manatee	18.4	1.15
Pasco	13.1	0.77
Sarasota	15.7	1.04
Space Coast	22.9	1.22
PEER AVERAGE/BENCHMARK	**17.0**	**1.1**

Source: *2011 NTD data.*

Individual route targets were set for the CAT routes, based upon the existing CAT averages and rules of thumb used by transportation professionals across the nation for transit agencies. It is a generally held rule of thumb that a productivity measure over 10 passengers per hour is an approximate threshold for running fixed-route service. CAT Routes 7 and 8 are on the threshold and need to be continually monitored. Routes 10 and 6 are below this threshold. In the past, marketing of CAT services has been limited due to funding constraints. As discussed within this report, marketing of the transit system is a critical component for all transit agencies across the county – Marketing must be continuous and an ongoing effort, year after year. Resources must be dedicated to inform Collier residents and visitor about the CAT system. The proposed route recommendations within this report are the first step for improving route performance for these two routes.

Table 5.11 Productivity Target Performance Measures

Route	Pass/Hr	Rank
3	24.3	1
1	23.6	2
2	23.4	3
9	18.9	4
4	15.3	5
5	12.8	6
8	11.1	7
7	10.7	8
10	9.7	9
6	8.7	10
System	**17.3**	

Route	Pass/Mile	Rank
2	1.74	1
3	1.47	2
1	1.43	3
9	1.16	4
4	1.10	5
8	0.62	6
10	0.52	7
6	0.50	8
5	0.42	9
7	0.38	10
System	**0.94**	

11. **Cost Efficiency –** Cost efficiencies refer to costs per unit of service and is often measured in terms of cost per revenue hour and cost per revenue mile. No national standards exist that would identify optimal ratios for these measures since cost widely varies based on service areas covered and variations in service provider costs. As such, the accepted transit practice standard for reviewing this measure is to compare these performance measures against peer transit agencies and averages. Peer transit agencies are defined in the County's TDP and are updated

periodically to identify systems with enough similar performance characteristics to warrant useful comparisons. **Table 5.12** provides peer transit agency information from the 2011 National Transit Database (NTD). Peer averages indicate that an appropriate short term benchmark for evaluating cost efficiency is $75.27 per revenue hour and $4.64 per revenue mile.

Since this 2011 NTD was released, Collier County has effectively reduced their costs per revenue hour from $79.30 reported for 2011 to $73.00 according to the most recent financial data collected. In addition, system wide averages for cost per revenue mile have also decreased since the 2011 data was reported, from $4.32 in 2011 to $ 3.98 currently. This indicates strong cost efficiency for the CAT in terms of peers and the peer average and should be monitored as natural increases in pricing occur or as these costs no longer meet or exceed the peer average.

The table below also provides similar existing performance measures by route. As evidenced in the table, the cost per revenue hour remains stable at $73.00 and is consistent with the contract rate from the service provider. In addition to this contract rate, there are two factors affecting the total cost per revenue mile for CAT. The first is the number of revenue hours operated, which determines total costs per route. The second factor is revenue miles, which relates to the length of the route. Monitoring these measures therefore requires a balancing of meeting community transit needs and the costs of providing those services. Increases in services will increase costs and this is the very reason that peer group averages provide useful information in determining how much cost is determined to be too much for improving transit service in a community. However, if investments are made with attention to making shorter, more efficient trips by creating greater system connectivity (e.g. hubs, park-n-rides, enhanced route integration), greater cost efficiency may be realized.

Table 5.12 Cost Efficiency Target Performance Measures

Peer Counties	Cost/Rev Hr	Cost/Rev Mi
Collier	$79.30	$4.32
Escambia	$67.88	$4.96
Lakeland	$97.91	$6.21
Manatee	$77.71	$4.85
Pasco	$63.37	$3.74
Sarasota	$69.97	$4.64
Space Coast	$70.75	$3.77
PEER AVERAGE/BENCHMARK	**$75.27**	**$4.64**

Source: 2011 National Transit Database.

Route	Ridership	Rev Hours	Rev Miles	Cost Per Route	Cost/ Hr	Cost/Rev Mi
1	238,507	10,117	167,020	$738,586	73.00	4.42
3	227,560	9,376	155,142	$684,491	73.00	4.41
8	96,390	8,666	155,106	$632,675	73.01	4.08
4	126,035	8,235	115,038	$601,187	73.00	5.23
2	191,523	8,183	110,034	$597,361	73.00	5.43
5	86,471	6,735	206,528	$491,695	73.01	2.38
7	47,919	4,477	126,721	$326,841	73.00	2.58
9	77,823	4,117	66,982	$300,531	73.00	4.49
6	35,045	4,046	70,152	295,376	73.00	4.21
10	27,429	2,828	53,200	$206,457	73.00	3.88
System Totals	**1,154,702**	**66,780**	**1,225,923**	**$4,875,200**	**73.00**	**3.98**

12. **Cost Effectiveness –** Cost effectiveness measures provide a measure of how well a system is performing given operational costs. This is largely related to two factors: costs per route (dealing with contract rates for revenue hours and the number of hours routes operated each year) and ridership. Again, these measures are relative to the areas served and types of service provided, and as such peer comparisons are used to identify how well the CAT system as a whole is performing in comparison to like systems. In relationship to its peers, CAT is exceeding the peer average benchmark of $4.48, providing a currently providing a rate of $4.22 cost/trip (as shown in **Table 5.13**). Costs per trip by route are also provided here for additional detailed data on the CAT system. Because these variations are largely related to the route specific services offered, no benchmarks are made by route.

As with cost efficiency measures, this measure has two dynamic variables that must be considered in evaluating performance. Enhancements to service will require additional operational costs; however, are also expected to increase ridership. The question to be answered in considering how to improve performance for this measure will therefore require a balancing between how much ridership is anticipated to be gained from improvements to services versus the additional costs anticipated for the improvement.

Justifying demands for services include identification of underserved markets where ridership gains may be greatest. Ridership projections during major TDP updates may be the most efficient way to determine these potential gains given that the Florida Department of Transportation's (FDOT) Transit Boardings Estimation and Simulation Tool (TBEST[2]) ridership modeling can be conducted to provide additional information on how much ridership gains can be expected by particular improvements. One caution to this approach is that modeling efforts such as TBEST are only representative of expected gains, and cannot be taken as exact measures. That stated, this monitoring does allow for a magnitude related measure of ridership gains versus additional costs anticipated to operate the service.

[2] The Florida Department of Transportation has established the TBEST tool and requires transit agencies to utilize this modeling tool as part of their major transit development plan updates every five years.

Table 5.13 Cost Effectiveness Target Performance Measures

Peer Counties	Cost/Trip
Collier	$4.22
Escambia	$5.43
Lakeland	$5.09
Manatee	$4.23
Pasco	$4.85
Sarasota	$4.45
Space Coast	$3.09
PEER AVERAGE/BENCHMARK	**$4.48**

Route	Ridership	Cost per Route	Cost/Trip
1	238,507	$738,586	$3.10
2	191,523	$597,361	$3.12
3	227,560	$684,491	$3.01
4	126,035	$601,187	$4.77
5	86,471	$491,695	$5.69
6	35,045	$295,376	$8.43
7	47,919	$326,841	$6.82
8	96,390	$632,675	$6.56
9	77,823	$300,531	$3.86
10	27,429	$206,457	$7.53
System	1,154,702	$4,875,200	$4.22

5.5.3 Summary of Proposed Performance Measures

Overall, using the proposed service performance measures included in Section 5.5.2 above, the CAT system is performing reasonably well. The CAT service currently covers 74% of the total square miles in the county. According to national performance standards, this equates to a LOS C. Given the distances between specific locations within the County where service is not currently provided (such as Everglades City) and conservation boundaries within the county, this performance is considered to be meeting its target. The benchmark set for service coverage in the county is therefore set at LOS C, or coverage of up to 80 percent of the county. This target may be monitored to determine whether transit supportive densities exist, to identify rapidly growing areas emerging in the county, to review land use configurations and capital investments that may be needed to better serve the covered areas, and as funding allows for service improvements to extend coverage.

Service frequency and span of service (or times of day) when transit service are offered also impacts how effective the service is in attracting riders. The major recommendation from this COA is to prioritize improving service frequency from 90 to 60 minutes on the best performing routes, and from 60 minutes to 30 minutes for Routes 1 through 4 in the long term. The average headway (frequency) for the system overall is 83 minutes, a LOS F, and targets to improve service include a long term goal of improving this service performance to LOS E, or less than 60 minutes. This will depend upon available funding and demands for service, and can best be achieved through incremental upgrades to

service frequency on the best performing routes in the CAT system. Span of service for the system is currently averaging 13 hours per day, or LOS D, and may also be reviewed periodically to determine ways to improve this performance measure incrementally on high performing routes. Achieving a benchmark of 14 hours of service per day for the system as a whole (LOS C) is a long term goal for the CAT system, and was determined based on LOS and FTA criteria for service spans that can help CAT obtain additional funding into the future to improve services.

Stop accessibility, measured in terms of ADA compliance, ensures a more efficient fixed route service and can serve to attract riders from more costly paratransit services to the CAT system. At this time, CAT is currently preparing a scope of work and RFP to identify bus stop accessibility to the over 500 bus stops in the CAT system. As the existing stop accessibility is determined, CAT staff, with input from the TAG, will establish acceptable benchmarks for any improvements needed to existing bus stops in terms of amenities, shelters, and other capital improvements needed such as sidewalks. Establishing priorities for improvements to this performance measure can also help improve customer satisfaction measures that are measured as part of periodic on-board surveys.

On time performance measures service reliability and is currently reported as operating on time 95 percent of the time (LOS A). It is recommended that this service performance be maintained and monitored for fluctuations during peak seasons. The implementation of ITS improvements will help CAT staff to better monitor this performance measure effectively and regularly.

Customer satisfaction with the service, mentioned earlier, is measured through regular on-board surveys. At this time, CAT service is meeting or exceeding customer perceptions of service (measured as a 3.0 or better). Future benchmarks have established a performance target of 4.0 or better (customers perceptions averaging as “good” or “very good”) to improve customer perception of the CAT system. Based on existing data, greatest gains in this measure may be achieved through enhanced bus shelter amenities (shade and shelter), and improving on-time performance and service frequencies.

Ensuring that the CAT system services major activity generators in the county is an important measure of meeting community needs for the service. This includes reviewing accessibility to bus stops within a quarter mile to attractors such as major retail centers, hotels, hospitals, libraries, and colleges. In most cases, CAT services are offered at over 90 percent of these identified locations (LOS A). Improvements to major hotels and colleges (both at LOS E) may be reviewed and priorities for improvements established over time to determine where resources can best be expended to meet community demands and offer service where riders can most utilize transit service. It is recommended that this performance be reviewed in coordination with future marketing plans and economic and land use plans in the county that will impact decisions on where service enhancements are needed in the future. In addition, working with the the Collier County Growth Management office to establish local GIS files for major retail centers and coordinating with the Collier County Tourism Department are recommended to improve monitoring of this performance measure over time.

Agency performance measures review how well the CAT organization, including agency staff and the contractor, are performing and are based on a number of measures: vehicle reliability, ridership, system productivity, and cost effectiveness and efficiency. Peer comparisons are used to identify how well the agency is performing compared with like transit agencies and because transit system sizes and services vary tremendously across the nation. In terms of vehicle reliability, CAT is exceeding their peer average benchmark, reflecting the good condition of the CAT vehicles and maintenance

performed on those vehicles. Continuing maintenance programs and schedules for replacements of buses is recommended to maintain this good performance.

With regard to ridership performance, CAT is performing slighting above average in terms of the average service area population that is being served but below average on the number of passenger trips per service area population. This is likely the result of current headways for most of the CAT routes being at 90 minutes or above. As revenues become available, CAT should continue to decrease existing headways, which will result in additional ridership gains.

How well CAT utilizing its existing resources, through measures of passenger trips per revenue hour and revenue mile, help identify how productive the existing system is performing. Peer averages for these measures indicate that passengers served per revenue mile is meeting the peer average benchmark, while the passengers served per revenue mile are slighting below peer averages. This is likely due to the distances traveled between destinations in the county and existing land uses. Streamlining services to enhance connectivity between routes and developing more localized hubs in growing areas of the county (such as the Golden Gate Library) may provide ways of maximizing this performance measure over time. Route modification recommendations in this report are consistent with this point of view and have re-routed routes as appropriate to help address this performance measure and increase overall route productivity.

Finally, cost effectiveness and cost efficiency measures have been established to monitor how well the CAT system is performing in comparison to its peer transit agencies and to establish targets for improvements. Average peer comparisons for costs per revenue hour indicate that $75.27 per revenue hour is a reasonable benchmark for the CAT system. CAT has improved on this performance over time to now to operate at $73.00 per revenue hour, above the peer average standard. In terms of cost per revenue mile, CAT is also exceeding the peer benchmark of $4.64 per revenue mile, currently operating at $3.98 per revenue mile. In terms of cost effectiveness, Collier's average cost per trip for the system is $4.22, slightly above the peer average of $4.48.

Section 6 Service Recommendations

6.1 Methodology

In order to determine the community's transportation needs, data was gathered from a number of sources including an on-board survey of bus passengers, discussions with drivers who interact with customers daily, and discussions with CAT staff and supervisors about where service can be improved. The following factors were evaluated from the data for each route as part of the service analysis: ridership patterns, span of service, frequency of service, transfers, schedule adherence, and overall route productivity, efficiency and effectiveness. Based on this analysis, service operation recommendations were made. The recommendations were created to meet both passenger needs and address CAT operational and passenger needs.

The primary assumptions were made as part of the service recommendations.

1. The level of resources for CAT services will remain stable for the duration of this plan, Year 1-5.

2. Service expansion would require additional revenues. The time period for this plan is for the immediate future, defined as the next five years. Decreasing the existing headways from 90 minutes to a minimum of 60 minutes is a primary goal for CAT, although the costs for this service are not included in the financially constrained plan.

The following individual route recommendations indicate several routes to increase frequency of service as funds become available. The estimated cost for each of these improvements is approximately $164,000 per route, moving from 90 to 60 minute headways. This cost does not include the acquisition of a new vehicle for the schedule improvements. The estimated cost for a schedule change from 60 minutes to 30 minutes is approximately $328,000 per route. This cost does not include the acquisition of a new vehicle. These cost estimates are based upon 12 hours of year round service, 7 days per week, with an operating cost of $75 per revenue hour.

A summary of the individual route change recommendations is shown in **Table 6.1** below. This Section fully describes the recommendations for CAT fixed-route services.

6.2 Red Route – 1B and 1C

Route 1B and 1C share a common route and interrelated schedule. Accordingly, they are treated together within this study.

- Routes 1B and 1C operate on virtually the same geographic route. It is recommended new names be assigned to the routes to eliminate confusion for potential transit riders.

- No route change recommendations due to existing high performance of routes.

- As new revenues are received by CAT, headways for Routes 1B and 1C should be changed to 60 minutes.

Table 6.1 Route Change Recommendations

Route		Recommendation		Within Existing Budget	Additional Resources	Suggested Route Change
Red	1B	1	Change name	X		Route 1, Red Route, Tamiami Trail North
		2	Increase frequency		X	Change to 60 minute headway
Red	1C	3	Change name	X		Route 11, Gold 11 Airport-Pulling Road North
		4	Increase frequency		X	Change to 60 minute headway
Orange	2A	5	Change name	X		Route 2, Orange, NCH-Coastland Mall
		6	Increase frequency		X	Change to 30 minute headway - long-term
Orange	2B	7	Change name	X		Route 12, Teal, Bayshore-Coastland Mall
		8	Increase frequency		X	Change to 30 minute headway - long-term
Purple	3A	9	Change name	X		Route 3, Purple, Golden Gate City
		10	Increase frequency		X	Change to 60 minute headway
Purple	3B	11	Change name	X		Route 13, Gray, Golden Gate City
		12	Increase frequency		X	Change to 60 minute headway
Green	4A	13	Change name	X		Route 4, Green, Rattlesnake-Hammock/Edison College
		14	Increase frequency		X	Change to 60 minute headway
		15	Expand route	X		Extend route to Edison College
Green	4B	16	Change name	X		Route 14, Magenta, Tamiami Trail South/Manatee
		17	Route Change	X		Route to continue south on Hwy 41, Tamiami Trail East, turn right (west) on Manatee Road to Collier Boulevard, and Collier Boulevard to Wal-Mart.
Blue	5	18	Change name	X		Route 5, Blue, Golden Gates Estates/Immokalee
		19	Route change	X		change alignment - Immokalee Road north to Oil Well Road, turn right, go to Everglades Boulevard North, turn left (North), back to Immokalee Road & continue route as normal.
Yellow	6	20	Change name	X		Route 6, Yellow, Pine Ridge
		21	Increase frequency		X	Change to 60 minute headway
		22	Route change	X		change route to operate from Golden Gate library, extend north to Creekside
Light Blue	7	23	Change name	X		Route 7, Light Blue, Marco Island
		24	Route change	X		Consider flexible route service for Marco Island Circulator
Light Blue	7X Exp	25	Change name	X		Route 107, Silver, Marco Island Express
Pink	8A	26	Change name	X		Route 8, Pink, Immokalee Circulator North
		27	Increase frequency		X	Change to 60 minute headway
Pink	8B	28	Change name	X		Route 15, Burgundy, Immokalee Circulator South
		29	Increase frequency		X	Change to 60 minute headway
Brown	9	30	Change name	X		Route 9, Brown, Tamiami Trail South/Charlee Estates
		31	Increase frequency		X	Change to 60 minute headway
Lime Green	10	32	Change Name	X		Route 10, Lime Green, Goodlette Frank via Golden Gate Parkway
		33	Route change	X		Begin route from Golden Gate, then as normal
		34	Increase frequency		X	Change to 60 minute headway
		35	Other	X		Needs to be monitored closely

6.3 Orange Route – 2A and 2B

Route 2A and 2B share a common route and interrelated schedule. Accordingly, they are treated together within this study.

- Routes 2A and 2B operate on virtually the same geographic route. It is recommended new names be assigned to the routes to eliminate confusion for potential transit riders.
- No route change recommendations due to existing high performance of routes.
- As new revenues are received by CAT, headways for Routes 2A and 2B should be changed to 30 minutes during peak afternoon and evening hours.

6.4 Purple Route – 3A and 3B

Route 3A and 3B share a common route and interrelated schedule. Accordingly, they are treated together within this study.

- Routes 3A and 3B operate on virtually the same geographic route. It is recommended new names be assigned to the routes to eliminate confusion for potential transit riders.
- No route change recommendations due to existing high performance of routes.
- As new revenues are received by CAT, headways for Routes 3A and 3B should be changed to 60 minutes.

6.5 Green Route – 4A and 4B

- Running times for Route 4 have approximately 20 minutes built into the existing schedule. Route recommendations for 4A include an expansion to Edison College. Route 4B would extend south of Wal-Mart, continue south on Hwy 41, Tamiami Trail East, turn right (west) on Manatee Road to Collier Boulevard, then Collier Boulevard, to Wal-Mart. **Figure 6.1** shows the revised route.
- Route 4 is an average performing route for CAT. There is sufficient time to expand the route to the neighborhoods immediately south of Wal-Mart on Hwy 41 and to Edison College. The densities within this area are slightly higher and existing boardings are also high in this area.
- As new revenues are received by CAT, headways for Routes 4 should be changed to 60 minutes.

6.6 Blue Route – 5

- Route 5 is an average performing route for CAT.
- Route 5 recommendations include service through the growing northeast areas of Collier County. The following realignment recommendations include taking Immokalee Road north to Oil Well Road, turn right, go to Everglades Boulevard North,

turn left (North), back to Immokalee Road and continue route as normal. **Figure 6.2** shows the revised route.

- Census data for the new service area covered by this recommendation show a higher transit dependent population, in addition to increased population projections. In the future, an additional flex route for Golden Gate estates should be considered, as revenues become available. This service would complement the new Route 5. Other considerations could be to implement a fixed-route service, which would serve the Creekside-Immokalee Road corridor in place of the flex route. The purpose of the route would be to expand cross-town service for Immokalee Road to Collier, then south.

6.7 Yellow Route – 6

- Route 6 is the lowest performing route for CAT. Modifications need to be made to this route to bring the performance of the route higher. Suggested reasons for the poor performance are a result of where the route originates and ends, without major activity in either location.

- Route 6 recommendations include changing the route to operate from Golden Gate Library, follow the same route as today along Santa Barbara Boulevard and Pine Ridge Road to Goodlette Road, and extending service north to the transfer area at Creekside. **Figure 6.3** shows the revised route.

- An alternate route consideration for the longer term (outside of this five year, cost neutral service plan) includes extending the route south on Collier Boulevard to Wal-Mart near Collier Boulevard and U.S. 41 via Edison College. The service benefit is to include portions of South Collier Boulevard not currently served. The new route encourages fixed-route ridership from Aventine at Naples apartment community (325 units, Forest Glen, Heritage Meadows and Cedar Hammock subdivisions, Sierra Meadows and College Park Apartments, (additional 400 plus units). The route provides additional connector service from Golden Gate City to PRMC/Collier Boulevard, Edison College, and direct connections to Marco Island service. The disadvantage of this alternative for Route 6 is that headways would increase from 90 to 120 minutes. To maintain 90 minute headways, an additional bus would be needed to operate the service. The estimated cost for this longer term extension of service is $164,000 and does not include capital costs for any additional vehicle that may be needed for operating this service extension.

6.8 Light Blue Route – 7

- Route 7 is one of the lower performing routes for CAT. The service on Marco Island is valuable to many residents, workers, and employers in the area. This route should continue to be monitored.

- Service on the island may be more successful if supporting land use and parking requirements are implemented. A marketing plan specifically for the major employers should be implemented for continuing success.

- Route 7 is a viable candidate for Call-A-Ride service. Residents and visitors would call in to schedule rides and be picked up curbside. Appropriate technologies would need to be in place prior to implementing the service.

6.9 Pink Route – 8

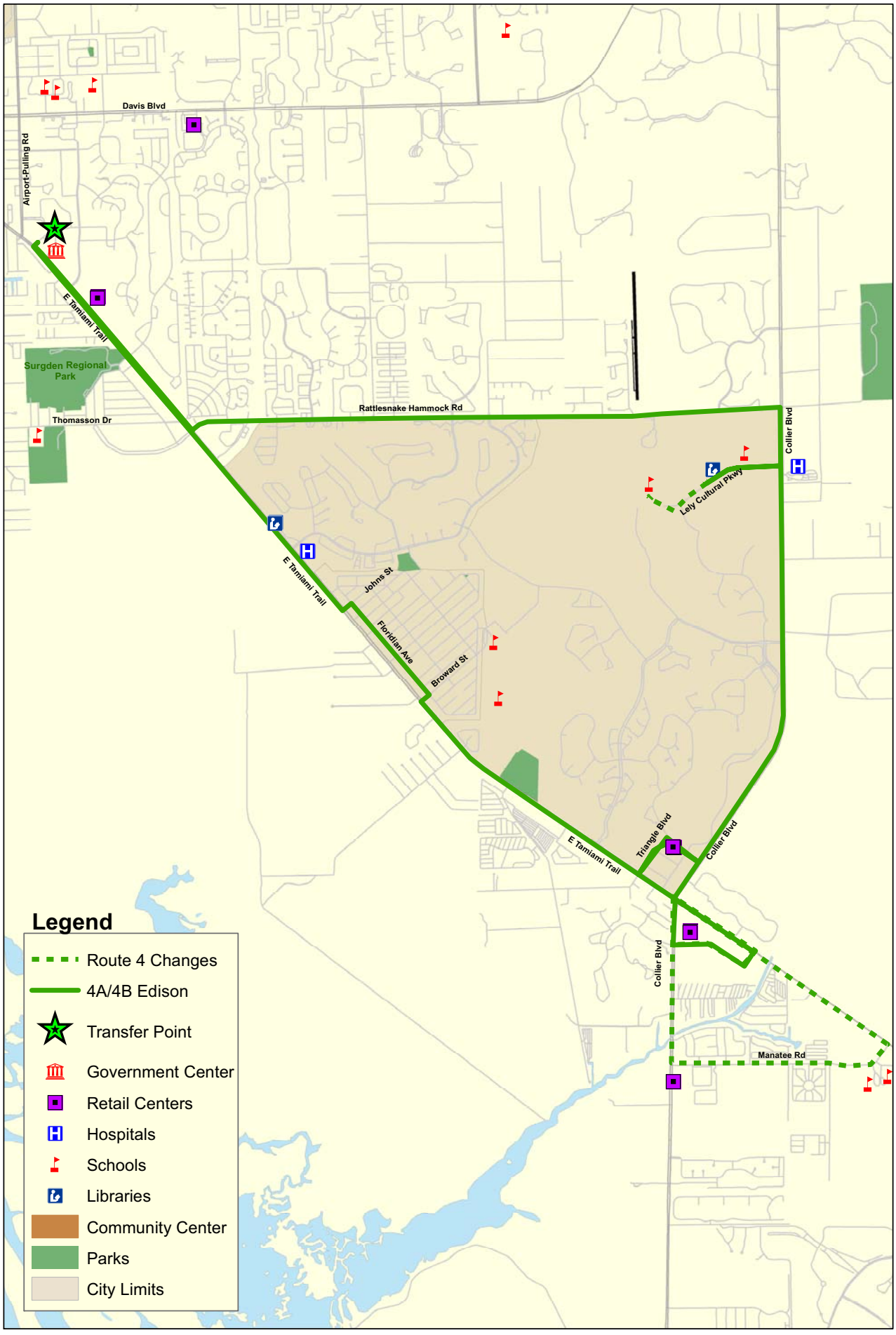
- Route 8 is an average performing route for CAT. The service for Immokalee is valuable to many residents, workers, and employers in the area. The Census reports the Immokalee area as a high transit dependent area, specifically relating to no vehicle households, low income and minority population.
- No route recommendations are suggested at this time.
- As new revenues are received by CAT, headways for Routes 8 should be changed to 60 minutes.

6.10 Brown Route – 9

- No route change recommendations for Route 9 due to existing high performance of routes.
- As new revenues are received by CAT, headways for Routes 9 should be changed to 60 minutes.

6.11 Lime Green Route – 10

- Route 10 is one of the lower performing routes for CAT. Modifications need to be made to this route to bring the performance of the route higher. Suggested reasons for the poor performance are a result of where the route originates and ends, without major activity in either location.
- Route 10 recommendations include beginning the service from the library in the Golden Gate area and continue the existing route on Golden Gate Parkway for direct east/west connections across Naples. The revised route is shown in **Figure 6.4**.



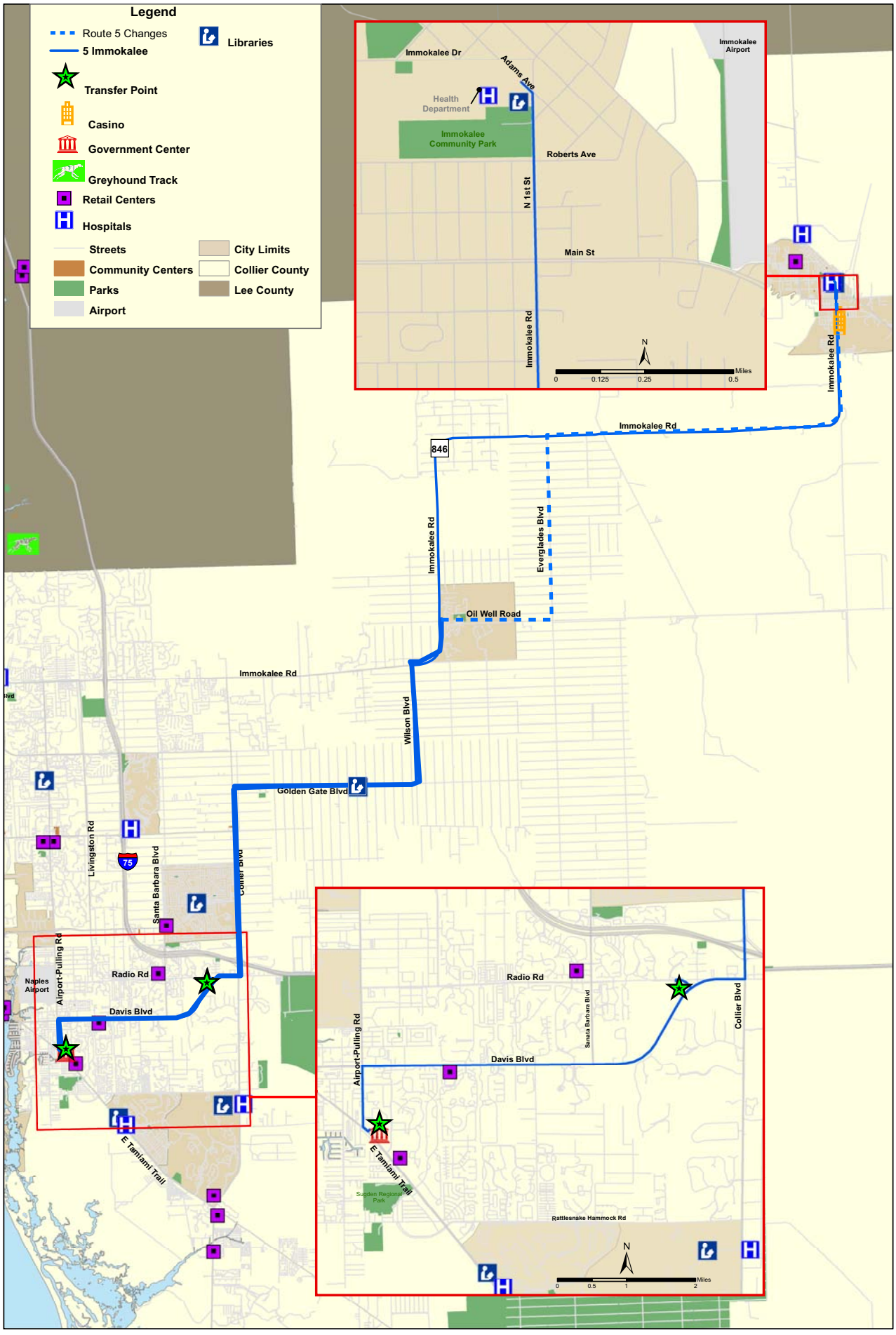
CDM Smith

Figure 6.1 - Green Route - Modified Route 4A/4B Edison

Collier County, Florida

N

0 0.25 0.5 1 Miles



CDM Smith

Figure 6.2 - Blue Route - Modified Route 5 Immokalee

Collier County, Florida

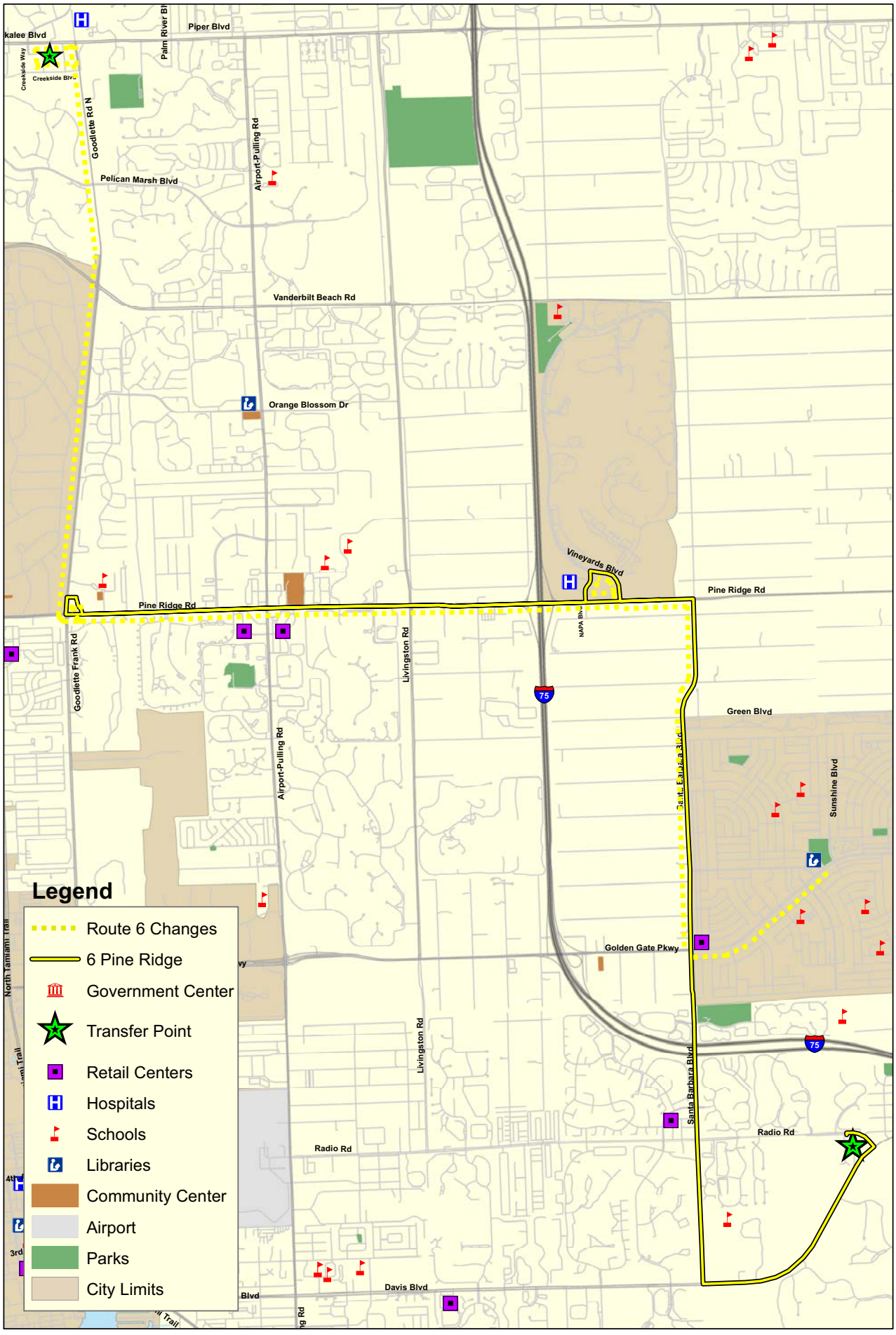
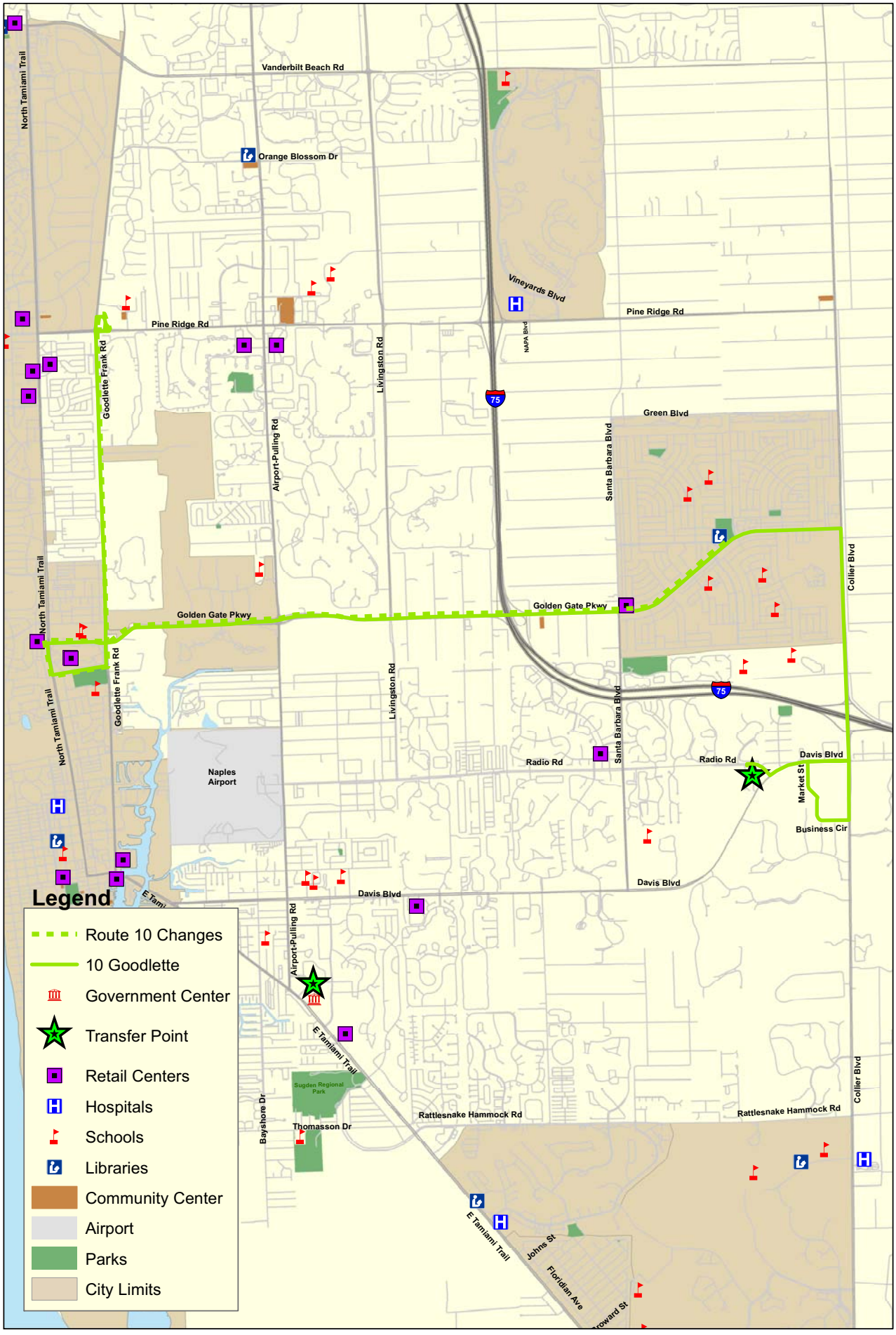


Figure 6.3 - Yellow Route - Modified Route 6 Pine Ridge Road

Collier County, Florida

N

0 0.25 0.5 1 Miles



CDM Smith

Figure 6.4 - Lime Green Route 10 Goodlette

Collier County, Florida

N

0 0.25 0.5 1 Miles

6.12 Future Considerations

An additional list of improvements was identified in the planning process to be considered for future planning purposes. These are not feasible in the short-term, five year period due to lack of available resources or other limitations. They include the following:

- New flexible route service for the eastern portions of Collier County, including Ave Maria, Everglades, and surrounding communities. The flexible route services allow CAT to expand service areas and meet paratransit needs with one service. CAT must have the ITS infrastructure in place prior to implementing service. Although not feasible at this time given cost constraints, the estimated annual operating cost for a flexible route service is approximately $328,000 based on operating one vehicle. This cost does not include the capital cost required to purchase a new vehicle. These cost estimates are based upon 12 hours of service, seven days a week, with year round service, with an operating cost of $75 per revenue hour.

- Increasing service frequency and span of service should be the primary priority for CAT in the future. As discussed throughout the above recommendations, the minimum standard for local service routes should be 60 minutes for all core routes. Additional revenues are needed to provide this service.

- Express route services should be implemented from north of Naples and south of Naples. The service would be available to residents and visitors to major destinations and activity centers within Collier County.

- Additional services should be planned for north and east of Naples to meet the expected growth. Section 2 of this report discussed in detail high growth areas for Collier County, which will also impact the demand of CAT services.

- New satellite transit stations should be planned for the north east area of the county and for south Collier County in the future. The transit stations would provide opportunities for riders to transfer to multiple routes outside of downtown Naples and get to their desired destinations. This will likely require some restructuring of route design toward a more corridor-based service that would encourage timed transfers.

6.13 Marketing of New Services

The marketing of CAT services throughout the community is a goal for the agency and never-ending. Current staff has very little time to market CAT service with current job responsibilities. This COA recommends several marketing components:

- Marketing plan

- Design of New Schedules

- Marketing of New Route Changes

The MPO/ATM/CAT staff have several options to complete the marketing components. One option is to hire a full-time employee to assist in public outreach and marketing of all transit services. This would also include coordination among local agencies, major employers, and citizens groups. This

position would provide assistance to existing staff, with a focus on community outreach. A second alternative is to develop an RFP and have the marketing components completed by consultants. Whichever option CAT decides to move ahead with, these components are critical and must be completed for successful changes to the system. At the end of the day, if no one knows about CAT, then residents and visitors will not use the system.

Community outreach programs are used to provide vital information about the transit system and to educate the community on how to use the system and the benefits of public transit. CAT may work directly with community social service agencies to provide seminars, assist with the development of classes, and create marketing material to achieve these goals, some of which may be specific to transit dependent populations, such as seniors or disabled persons. General increased marketing efforts may also be part of the program, where advertisements are projected through newspapers, radio and local television stations.

According to the American Public Transit Association, transit agencies typically budget between 0.75 and 3.0 percent of their gross budget on marketing promotions (excluding salaries), with the majority around 2 percent. It is recommended for CAT to consider this recommendation for the future.

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Section 7 CAT Service Tiers

Public transit needs within Collier County will continue to rise in the future. In order to be prepared for the increasing demand and the growing community, CAT will continue to direct its investments strategically to where it benefits residents and visitors the most. In the future, the CAT transit network will need to be a complete system of transit services that coalesce to form an interconnected service network providing cost- and time-effective options. In addition to the short-term route recommendations, enhancing service quality and identifying key transit corridors are essential in developing the future CAT system.

Based on the analysis of CAT's existing service and needs observed during the COA, it is recommended that CAT immediately focus existing and new resources in the future toward a hierarchy of four clear levels of transit service:

- **Local Service** (Route 1 – 99) – CAT local bus service will be the backbone of the Collier County transit system. The next steps for CAT are to build from the local services to a higher and more frequent level of service. Local service will support future growth in the county. CAT will need to increase service frequencies to become a viable alternative to the single occupant vehicle.

- **Rapid Transit Service** (R-500 series used for route numbers) – Rapid transit service for Collier County is for service along primary corridors with frequent bus service and transit vehicle preemption. CAT does not have this type of service today. However, a viable rapid transit service along Highway 41 would be a likely example in the future.

- **Express Service** (100 series used for route numbers) – CAT currently operates express service to Marco Island. Other future services will play a key role in the future of transporting commuters from outlying communities to employment centers across the county.

- **Flexible Service** (200 series used for route numbers) – Flexible routes consist of several types of service for local residents and visitors. These may include deviated routes, Call-A-Ride service, or checkpoint service. Several areas within the low density Collier county area, such as Everglades City and Ave Maria, would be viable candidates for this type of service. This flexible service would be more efficient than typical fixed-route transit service in these areas.

Hand-in-hand with the CAT service tiers is the type of development occurring in Collier County to support these different modes of transit. The above service tiers will have different characteristics to accommodate the different types of markets served within the community. Future seasonal routes should use a 300 series for route names, and any special event and/or tripper services should follow the 400 series for route names. Collier County continues to have a low density automobile-centric pattern of development for residential and employment sites. The development is occurring in dispersed nodes, rather than along major corridors, which support public transportation.

Understanding these trends in Collier County allows CAT to continue to work with the County and Cities in the region in support of transit-oriented development projects. Just as the name indicates, a TOD provides a denser environment to support other modes of travel, rather than just the automobile.

The existing primary core area for CAT services is along Hwy 41 to the Government Center. This spine of activity allows the public transit service to operate effective and efficiently bus service.

Table 7.1 presents CAT tier service levels and accommodating environments to support public transit.

Table 7.1 CAT Tier Service Levels

Criteria	Local	Rapid Transit	Express	Flexible
Intensity	Medium to high ridership per route mile	High ridership per route miles	Varies	Medium to low ridership per route mile
Roadway type	Major/secondary arterials	Major arterials/dedicated row	Maximize non-stop travel	Local and neighborhood
Part of Network	Backbone of service	Fastest/high volume all day/major destinations	Commuter service	Neighborhoods/special trips
Market	All day	High volume/ all day	Commuter service	Neighborhoods/special trips
Mode	Local bus	BRT	Fixed-route bus	Flexible route bus/van
Service speed	10% improvement over today	20%+ faster than local	Few stops	None
Signal priority	Delay points	Maximum priority	Delay points	None
Transit lanes	Bypass lanes at major congestion points	Priority transit on key corridors	Bypass lanes at major congestion points	None
Stop spacing	1/2-mile	1/2-mile	Minimum stops	Local bus 1/2-mile or demand response service
Passenger facilities	Enhanced major stops	Stations, bike storage	Park & ride, enhanced facilities	Enhanced major stops
Passenger access	Enhanced major stops/pedestrian investment	Level platform boarding/high pedestrian corridors & investment	Enhanced major stops/pedestrian investment	Enhanced major stops/pedestrian investment
Vehicle type	Standard or small bus	BRT branded vehicle	Standard or high capacity bus	Standard/small bus or van
Service Frequency (peak)	15 minute	10 minute	15 minute	60 minute
Span of Service	6a-10p	At least 18-24 hrs	Peak periods/mid day	6am-7pm

7.1 Service Warrants

CAT often receives request for new service or service changes. Service warrants provide a way to evaluate service requests, as well as monitor their performance after implementation. Service warrants take into account many of the issues commonly associated with transit ridership, service area coverage, density, service levels, equity, and market needs. These factors assist in the determination of probable service performance, which will be evaluated against performance of other similar existing routes.

7.2 Evaluating New Services

When a new CAT route is implemented, performance monitoring indicates whether it is reaching its goal. A time frame, within at least six months, should be specified to meet the minimum performance

standards. Six months is the shortest amount of time used to assess new or modified services. CAT should monitor new services at six months and one year.

- Six months
    - Route does not meet 35 percent of productivity standards. Remedial actions include changes in service levels or additional marketing.
    - Route meets 70 percent of minimum productivity standards. The route appears to be on track to meet minimum standards at the one year mark.
- One Year
    - Route does not meet minimum performance standards. Remedial action includes changes to route alignment, service levels, marketing, and/or reduction or discontinuation.
    - Route meets minimum standards and continues operation, unless changes are proposed to enhance its already accessible performance.

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Section 8 Financial and Implementation Plan

Section 8 provides the financial summary and implementation plan for CAT for the next five years. As mentioned in the previous chapters, the revised route recommendations were developed with the understanding of no additional significant revenues for CAT in the near future. Under the current economic climate in Collier County and across the country, it is not feasible for CAT to implement expanded services. Existing sources of funding are not sufficient to cover an upgrade to service in Collier County. However, as discussed in the previous chapter, modifications can be made to services while remaining within the existing budget. The short-term revised route recommendations do not require additional resources.

8.1 Financial Plan

The COA includes service recommendations for the next five years, which are cost constrained and reflect the reallocation of resources from unproductive service to areas where service needs have been identified. Costs for improving service have been estimated to remain constant without additional funding, and assume only increased costs as a result of inflationary factors. In addition, it should be noted that these recommendations only address operational costs. Cost estimates have been provided where possible throughout the report and additional capital costs for improved shelters, buses, sidewalks or other capital improvements are not included in these recommendations.

The greatest investment proposed in the long term is to improve service headways which will continue to improve ridership gains, produce additional farebox revenue ratios and attract more choice riders to the system. However, financial constraints do not allow for this to be included in the financial and implementation plan. As funding becomes available, this represents a priority investment for the CAT system.

Since service levels remain relatively low with 60 and 90 minute headways, system wide ridership is expected to remain relatively stable over the next few years. **Table 8.1** presents the proposed budget and ridership projections for the next five years. The existing budget and ridership projections shown below indicate a two percent increase each year. Budget inflation was assumed at two percent for consistency with assumptions in the Collier County Transit Development Plan (TDP) and are based on historical consumer price index data. Projected ridership is assumed at a two percent increase based on ridership trends from 2010 to 2011 (most recent available annual data comparisons). Specific route modifications are discussed in detail in Section 6 of this report.

Table 8.1 Financial Plan

Year	Existing Budget	Projected Ridership
Base Year	$4,785,000	1.21M
1	$4,881,000	1.23M
2	$4,979,000	1.26M
3	$5,079,000	1.28M
4	$5,181,000	1.31M
5	$5,285,000	1.36M
Assumed Budget: 2% inflation consistent with the Collier County Transit Development Plan and based on historical trends in the Consumer Price Index (CPI). Projected ridership: 2% annually, based upon CAT 2010 to 2011 percent of ridership change.		

8.2 Implementation Plan

The implementation plan for CAT includes making the route modifications to existing services and making changes to the nomenclature of the route names. These changes provide CAT the opportunity to promote existing and new service areas. **Table 8.2** provides the implementation plan to initiate responsibilities and duties for the change.

Table 8.2 Implementation Plan

YEAR 1	
	Task
1	CAT staff to develop specific times for new scheduled services, including transfer times, and major time points for schedule.
2	CAT staff review existing and new bus stop locations for new services.
3	Ensure MPO Board support for future changes.
4	ATM/MPO/CAT to develop RFP for design of new bus schedules. Approximate cost $75,000. (1)
5	ATM/MPO/CAT to develop Transit Advisory Group (TAG) to prepare names for new routes.
6	ATM/MPO/CAT to develop RFP for marketing of new services. Approximate cost $250,000. (1)
YEAR 2	
	Task
1	CAT staff to finalize new schedules, driver assignments, bus stop locations.
2	Hire firm for development of bus schedules.
3	Hire firm for marketing of new services/outreach or hire a new full-time employee to undertake these efforts.
4	Develop timeline for 'go live' for new services w/ ATM/CAT/MPO and new marketing firm.
5	Assign local staff to be champion for change and coordinate directly with marketing firm.
6	Hold public meetings for feedback on proposed route changes and names.
7	Ensure MPO Board support for future changes.
8	Go live with new services.
9	CAT/ATM/MPO staff to provide assistance at transfer stations during first few weeks of service for excellent customer service.
10	CAT/ATM staff to closely monitor all CAT routes.

YEARS 3-5	
	Task
1	Develop marketing plan for years 3-5 and assign responsibilities through the new FTE position or hire marketing firm to assist. Approximate cost $100,000 for a new marketing firm. (1)
2	CAT/ATM staff to closely monitor all CAT routes.
3	Continue to inform MPO Board of CAT progress.
4	Conduct onboard and ride check survey to check route progress. Approximate cost $50,000. (1)

Note:

(1) Estimate based upon CDM Smith project experience in other locations. Costs may range from $40K on the lower end for only design services to $300k on the highest end, including printing. This estimate is based on national trends and may be adjusted for actual quotes in Collier County.

The table above provides a series of tasks to be undertaken in the next five years to support efficient and effective service and regular monitoring. The following major tasks are described in greater detail below to provide justification and proposed benefits of the COA Implementation Plan.

- Establishing a Transit Advisory Group (TAG): This committee is recommended to be added to provide additional public input on transit services provided and to ensure timely review and monitoring of CAT services through the performance measures detailed in Section 5.5.2 of this COA. In establishing this committee, it is recommended that CAT staff reach out to members of other portions of the county, particularly the Growth Management Division, Tourism Department and other entities that can tie transit investments to land use and economic development plans. Finally, it is also recommended that the TAG annually review these performance measures for their efficiency in addressing transit needs and service in the community and update the performance measures as needed with support of the MPO Board.

- Design/Implement New Bus Schedules: One of the major recommendations from this COA is to improve the clarity and understanding of CAT routes by developing more understandable route names and service tiers. In addition, a number of route modifications are proposed to improve service on underperforming routes. To implement these changes, it will be necessary to update the existing schedules. Based on national experience, expected costs for designing the new bus schedules is $75,000 and may be adjusted as actual quotes for a company to provide this service in Collier County are identified by CAT staff.

- Continue Implementation of ITS Infrastructure: In the past three years, CAT received Congestion Management System grant funds for the implementation of technology solutions for the transit network. Phase I of the project included:
  - Electronic Passenger Information Display Signs
  - Automated Annunciation System (AAS)
  - Computer Aided Dispatch & Automated Vehicle Locators (CAD/AVL)
  - Fixed-route Scheduling Software
  - Automated Passenger Counters (APC)
  - Electronic Fareboxes

Phase II includes enhancing public access to transit information by implementing advanced Real Time Information Systems (RTI), GIS-based route planning through Google Planning, and Interactive Voice Response (IVR).As improvements to ITS infrastructure are made, they provide an exceptional opportunity to improve service monitoring of passenger needs, including origins and destinations. In addition, as future operational analyses are completed these ITS improvements provide intensive data collection savings for CAT and provide more regular ability to monitor service performance.

- Ensuring MPO/BCC Board Support: The most effective way to ensure MPO and BCC Board support for transit investments into the future will be to provide a transparent, accountable monitoring of services periodically so that board members understand performance issues, how staff is working to address those issues, and needs that may arise as staff attempts to provide a safe, attractive, efficient system. Performance measures outlined in Section 5.5.2 of this report provide several consistent and objective measures that can be used to communicate performance to board members on a regular basis. This will be further supported through input from the proposed Transit Advisory Group and will provide a way to regularly apprise MPO Board members of changes in the transit system and performance and provide additional confidence in CAT's ability to serve the community well.

- Improve ADA Bus Stop Accessibility: CAT staff are currently working to establish an ADA Study that will provide a complete review of the existing CAT bus stops (over 500) and propose improvements that will enhance accessibility and amenities provided at bus stops. As provided in this COA, there are a number of existing stops that represent the highest locations of boardings and alightings in the system. As funding is available to improve stops, it is recommended that these top locations serve as priority areas for improvements. Providing a safe and accessible system through improved bus stop accessibility is recommended to both enhance the overall system efficiency of CAT and will serve as a cost effectiveness investment that is expected to both improve ridership potential and make the fixed-route system a viable alternative to more costly transportation disadvantaged services.

- Develop and Implement a Marketing Service Plan: The marketing of CAT services throughout the community is a goal for the agency and never-ending. Current staff have very little time to market CAT service with current job responsibilities. This COA recommends several marketing components:
    - Marketing plan
    - Design of New Schedules
    - Marketing of New Route Changes

  The MPO/ATM/CAT staff have several options to complete the marketing components. One option is to hire a full-time employee to assist in public outreach and marketing of all transit services. This would also include coordination among local agencies, major employers, and citizens groups. This position would provide assistance to existing staff, with a focus on community outreach. A second alternative is to develop an RFP and have the marketing components completed by consultants. Whichever option CAT decides to move ahead with, these components are critical and must be completed for successful changes to the system. At

the end of the day, if no one knows about CAT, then residents and visitors will not use the system.

Community outreach programs are used to provide vital information about the transit system and to educate the community on how to use the system and the benefits of public transit. CAT may work directly with community social service agencies to provide seminars, assist with the development of classes, and create marketing material to achieve these goals, some of which may be specific to transit dependent populations, such as seniors or disabled persons. General increased marketing efforts may also be part of the program, where advertisements are projected through newspapers, radio and local television stations.

According to the American Public Transit Association, transit agencies typically budget between 0.75 and 3.0 percent of their gross budget on marketing promotions (excluding salaries), with the majority around two percent. It is recommended for CAT to consider this recommendation for the future.

8.3 COA Summary

This COA is an in-depth study of CAT's transit network designed to identify strengths and weaknesses, and develop recommendations for improvement. The COA process provides a thorough look inside the CAT system to determine which aspects perform well, which need improvement, and how premium service can chart a course for the future. The impetus for the CAT COA was for several reasons, to:

- Determine next steps and the future of CAT services in Collier County – what is the appropriate level of transit service for the county?
- Understand CAT best performing routes – are existing services operating effectively and efficiently?
- Determine locations of low performing routes and adjust service to become more efficient.
- New contractor for service has improved on-time performance and management relationships among CAT, ATM, and the MPO.

The purpose of the COA is to answer the above statements. In summary, the short answer to whether the CAT transit operation is efficient and operating effectively is:

- Yes, is the answer. Each year, CAT is required by the State to complete a major or minor update to their Transportation Development Plan.[3] In the last update, CAT, compared to its peer Florida transit agencies, is doing well. No "smoking gun" of rampant inefficiencies was found.
- In addition, this COA provides detailed information regarding system wide and individual route performance, depicting the strong areas of service and those areas that need to be monitored.

[3] http://www.colliermpo.com/index.aspx?page=73

- There is a mixed bag of support from key stakeholders for transit service within Collier County. Some see CAT as an important community amenity, while others do not support alternate modes of transportation.

- Section 2 of this reports illustrates demographic data for Collier County and shows CAT transit routes are serving the areas with a high concentration of transit dependent residents. This includes households without vehicles, residents who are economically disadvantaged, as well as older citizens (people who are 65 years of age and older).


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