LEE COUNTY MPO

2030 TRANSPORTATION PLAN

for the

FORT MYERS-CAPE CORAL
METROPOLITAN AREA

TRANSIT ELEMENT

Adopted December 7, 2005

Amended June 15, 2007

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Chapter 1: Introduction

Population growth and the associated travel demand continue to place pressures on the transportation system in Lee County. In response to this growth, the Lee County Metropolitan Planning Organization (MPO) facilitated a transportation visioning process to guide the development of the MPO's 2030 Long Range Transportation Plan (LRTP). More than 1,600 citizens, elected officials, and visitors participated in the visioning process, which resulted in the vision and mission statements provided in Figure 1. These statements, along with the associated goals and objectives, were used to guide the development of the 2030 Transit Element.

Consistent with the vision and as the community looks to the future, it is clear that roadway expansion cannot be the only solution to the myriad of transportation problems throughout the region. Transportation alternatives will need to play an increasingly important role, not only to meet the needs of traditional transit patrons, but also to offer viable alternatives to those currently traveling via the single-occupant automobile.

Figure 1-1
Vision and Mission, Lee County MPO 2030 Long Range Transportation Plan

Vision Statement

Communities, neighborhoods, and commercial districts with unique character, desirable quality of life, and a safe, mobile, and accessible transportation system for existing and future residents, visitors, and businesses.

Mission Statement

To provide a safe and efficient transportation system that promotes multi-modalism (roads, transit, sidewalks, bicycles, etc.), support projected growth, and addresses social, economic, and environmental impacts through effective planning/policy and local/regional coordination.

PROJECT SUMMARY

This project was conceived by the MPO to support the development of the Transit Element for the 2030 LRTP. The project was organized into a series of five major tasks, including:

- Task 1: Background Review
- Task 2: Review of Existing Public Transportation Services
- Task 3: 2030 Transit Needs Assessment
- Task 4: 2030 Financially Feasible Transit Element
- Task 5: Meetings and Presentations

OVERVIEW OF TRANSIT ELEMENT DOCUMENT

The Transit Element document first presents the "Transit Needs Assessment." The focus of the transit needs assessment is to project transit demand and mobility needs in Lee County through 2030. These needs are defined without consideration of financial constraints.

Presented subsequent to the needs assessment is the 2030 Financially Feasible Transit Plan, which identifies the projected transit revenues and then prioritizes transit needs to determine a financially feasible transit plan for Lee County.

Including this introduction, this technical document is organized into 10 chapters. The remaining chapters are summarized below.

Chapter 2 provides a **Background Review** of recent transit planning activities and other relevant metropolitan planning activities conducted in Lee County. This chapter also reviews the vision, mission, goals, and objectives resulting from the MPO's visioning process facilitated in 2004.

Chapter 3 documents the **Existing Transit Services** operated in Lee County. Documentation is provided for fixed-route bus services, paratransit services, and the commuter assistance program. Transit facilities also are inventoried and summarized.

Chapter 4 presents **Existing and Future Conditions** to document the existing and projected future operating environment for transit services in Lee County. This assessment will include:

- Existing and future demographics, travel behavior, and land use
- Transit market assessment (demand and mobility needs)
- Implications for the 2030 Transit Element

Chapter 5 summarizes the **Transit Feasibility Assessment of the Seminole Gulf Railway (SGLR) Corridor**. The feasibility of implementing various transit technologies and services along the SGLR corridor is assessed and recommendations are offered in this chapter.

Chapter 6 presents the **Bus Rapid Transit (BRT) Feasibility Assessment.** This chapter includes a general overview of BRT and its components, the identification and evaluation of potential BRT corridors in Lee County, an assessment of right-of-way availability, and the prioritization of corridors in terms of BRT implementation feasibility. The chapter concludes with recommendations for BRT's role in the 2030 LRTP.

Chapter 7 presents the **Waterborne Transit Feasibility Assessment**. This feasibility assessment includes an inventory of existing services, a preliminary analysis, and a routing analysis. Operating models for waterborne transit services also are summarized along with potential funding sources. Recommendation are provided as it relates to the potential role of waterborne transit services in the 2030 LRTP.

Chapter 8 presents the **Expansion of Existing Transit Services** that are needed through 2030. The

evaluation identifies improvements to fixed-route bus and paratransit services, the commuter assistance program, and the facilities to support the overall public transportation operation through 2030.

Chapter 9 presents the **2030 Transit Needs Plan** for Lee County. A service summary is presented for all transit modes, including:

- Fixed-route bus service
- Paratransit service
- Commuter assistance program
- Seminole Gulf Railway
- Bus rapid transit
- Waterborne transit

The transit service summary of needs for 2030 is followed by a discussion of capital needs to support the expansion of transit services over this time period. Capital needs include vehicles, administrative/maintenance facilities, transfer centers, and other transit infrastructure.

This chapter concludes with a review of cost projections for the 2030 Transit Needs Plan. The presentation of costs is organized by operating and capital.

Chapter 10 presents the **2030 Financially Feasible Plan** for Lee County. The Financially Feasible Plan is based on:

- Needs Plan improvement priorities
- Input from Lee County MPO and LeeTran staff
- Revenue projections provided by the MPO and LeeTran through 2030

A review of the process used to prioritize the financially feasible projects is presented in this chapter. This is followed by the 2030 Financially Feasible Plan improvements, a description of the revenue projections used to prepare the Financially Feasible Plan, an assessment of potential funding sources for the unmet transit needs, and an investigation into the application of additional ad valorem tax revenue to fund the unmet transit needs. This chapter also includes the capital acquisition plan needed to facilitate the Financially Feasible Plan. In addition, the cost and revenue projections and assumptions for the Financially Feasible Transit Plan projects and a brief summary of the costs and revenues are presented, as well.

Chapter 2: Background Review

As part of the Lee County Metropolitan Planning Organization's 2030 Long Range Transit Element (LRTE) update, a background review of recent transit planning documents and other relevant metropolitan planning activities conducted by the Florida Department of Transportation (FDOT), Lee County, and the Lee County MPO was completed.

The purpose of this review is to identify future transit planning strategies in existing documents, plans, and activities already developed as part of Lee County's transit planning process for incorporation into the LRTE update. This chapter provides a summary of this background review, as well as a review of the vision, mission, goals, and objectives adopted in 2004 as a result of the MPO's transportation visioning process.

The visioning process was facilitated by the MPO to guide the development of the MPO's 2030 LRTP, of which the LRTE is a part. The vision, mission, goals, and objectives were developed based on input from over 1,600 citizens, elected officials, and visitors of Lee County. As such, the primary purpose of these statements is to guide the development of the Lee County LRTP update, including the update of the LRTE.

STATE PLANNING

Florida 2020 Transportation Plan

FDOT provides policy guidance to local jurisdictions through the Florida Transportation Plan. As part of this Plan, the State is committed to reducing congestion through the promotion of public transportation. To help achieve this goal, FDOT provides funds to local public transportation systems in the form of block grants. The vision, mission, goals, and objectives from the current 2020 Transportation Plan are presented in the following sections.

Mission Statement

FDOT will provide a safe, interconnected statewide transportation system for Florida's citizens and visitors that ensures the mobility of people and goods, while enhancing economic prosperity and sustaining the quality of our environment.

Goals & Objectives

Goal 1: Safe transportation for residents, visitors, and commerce.

Objectives

- Reduce the rate of motor vehicle crashes, fatalities, and injuries and bicycle and pedestrian fatalities and injuries on highways.
- Improve intermodal safety where modes intersect, such as highway or railroad bridges over waterways and highway-railroad crossings.
- Improve the safety of commercial vehicles, rail facilities, public transportation vehicles and facilities, and airports.
- Improve emergency preparedness and response.

Goal 2: Protection of the public's investment in transportation.

Objectives

- Preserve the State Highway System.
- Reduce the number of commercial vehicles that exceed legal weight limits on the State Highway System.
- Protect the public investment in aviation, transit, and rail facilities.

Goal 3: A statewide interconnected transportation system that enhances Florida's economic competitiveness.

Objectives

- Place priority on completing the Florida Intrastate Highway System.
- Complete a Statewide High Speed Rail System.
- Improve major airports, seaports, railroads, and truck facilities to strengthen Florida's position in the global economy.
- Improve connections between seaports, airports, railroads, and the highway system for efficient interregional movement of people and goods.
- Manage and preserve designated transportation corridors in cooperation with local governments and through advance acquisition of right-of-way.

Goal 4: Travel choices to ensure mobility, sustain the quality of the environment, preserve community values, and reduce energy consumption.

Objectives

- Reduce dependency on the single occupant vehicle.
- Provide accommodation for transit vehicles, bicyclists, and pedestrians wherever appropriate on state highways.
- Increase public transportation ridership.
- Expand public and specialized transportation programs to meet the needs of the transportation disadvantaged.
- Minimize the impact of transportation facilities on the environment.

The Florida 2020 Transportation Plan will serve as one of the key guides for ensuring that the State's transportation policies are considered during the Lee County LRTE update. FDOT is currently in the process of updating the Florida Transportation Plan and any changes identified regarding this update during the LRTE update will be reviewed and incorporated as appropriate.

TRANSIT PLANNING

LeeTran 2003 Major Transit Development Plan Update

Lee County Transit, known as LeeTran, provides fixed-route transit and paratransit service to residents and visitors of Lee County. As part of the system's transit planning process, LeeTran is required to complete a major update of its Transit Development Plan (TDP) every three years, with minor updates in the interim years.

The most recent major update of the TDP was completed in 2003, providing a strategic guide for public transportation in Lee County for a 10-year period, from FY 2004 through FY 2013. This TDP assesses the performance of existing services, reviews demographic and travel behavior characteristics of the service area, summarizes local transit policies, develops proposed transit enhancements, and prepares a 10-year implementation plan. The TDP concludes with a 10-year financial plan (projected costs and revenues) through the year 2013 that provides guidance for LeeTran during and beyond the 10-year planning horizon, along with the capital and operating costs and revenues required to successfully execute the implementation plan.

The TDP is divided into five chapters to strategically plan for the continuing development, improvement, and expansion of LeeTran.

Chapter One is a compilation of base data, including demographics of Lee County, population distribution and forecasts, on-board survey results, etc.

Chapter Two provides a summary of the goals and initiatives from the 2003 TDP. These goals and initiatives help guide LeeTran's overall planning process and are presented below.

Goals & Initiatives

Goal 1: Make transit a tool for community livability, economic development, and accessibility with transit products and services that respond to the mobility needs of residents and visitors.

Initiatives

- Develop a Vision Statement for Transit.
- Continue implementing service improvements to the LeeTran regional network based on annual revenue hour recommendations from the previous TDP update.
- Create a system of timed transfers for specific hours of the day at transfer centers.
- Develop community level services to supplement access to the regional fixed-route network.
- Increase service levels for the seasonal demands of the tourist market and employment opportunities during high season.

Goal 2: Increase market share for transit.

Initiatives

- Intensify marketing efforts to youths.
- Intensify marketing efforts to seniors.
- Intensify marketing efforts to employers and employees.
- Intensify marketing efforts to one-vehicle households.
- Intensify marketing efforts to the tourist market.

Goal 3: Exceed Customer expectations with quality customer service, information, and technology improvements.

Initiatives

- Collect performance data from the Telephone Information Unit.
- Incorporate transit design and amenities into new residential and commercial developments.
- Incorporate transit design and amenities into road improvements.
- Establish a Passenger Amenities Program with design elements that promote community identity, accommodate new development, and incorporate public participation in the design process.
- Expand retail outlets for purchasing fare media.

Goal 4: Secure long-term growth of the transit system to implement the moderate growth scenario adopted in the 2020 Long Range Transportation Plan.

Initiative

- Examine alternative governing structures for LeeTran.

Goal 5: Add value to the community beyond core mission.

Initiatives

- Provide transportation services to community events.
- Provide community service transportation services.
- Coordinate with adjacent counties to provide linkages between Lee County and new start systems in Collier and Charlotte Counties.

Goal 6: Construct a New Operations and Administrative Center for LeeTran and utilize new technologies for the provision of transit services.

Initiatives

- Acquire land and construct a new operations and administrative center for LeeTran.
- Utilize technology/intelligent transportation systems (ITS) to improve LeeTran operations and customer services.
- Explore the possibility of adding alternative fuel infrastructure and buses to the LeeTran fleet.

Chapter Three presents a performance evaluation of LeeTran using the National Transit Database, an annual report required by the Federal Transit Administration. The evaluation measures used in this performance review are both operational and financial. Operational measures include vehicle, employee, service, general financial, and efficiency measures. Financial measures convey the overall costs and revenues associated with LeeTran's operations. The purpose of the performance evaluation is to measure the productivity and effectiveness of transit operations, as well as the cost efficiency of the system, with the goal of providing more efficient and effective transit service in Lee County.

Chapter Four provides an estimation of the ridership demand on LeeTran over the 10-year planning horizon of the TDP, as well as an assessment of mobility needs in Lee County and a brief evaluation of the alternate methods for increasing mobility to meet the determined needs. This estimation is necessary in order to plan for the future transit needs of Lee County, as well as the development of potential transit alternatives. Using the methodology outlined in the TDP, it is estimated that LeeTran's ridership will increase from 2.24 million riders in 2002 to 2.71 million riders by 2008. A peer group evaluation also is another approach used as part of the process for determining the extent of future transit demand in Lee County.

Chapter Five is an assimilation of the data and information contained in the first four chapters and consists of two major elements: (1) a Ten-Year Transit Services Plan, and (2) a capital and operation plan. The Ten-Year Transit Services Plan outlines the recommended projects and policies over the next 10 years that are aimed towards the development of a mobility network designed to meet the needs of the community. In order to ensure that the services and improvements identified the Transit Services Plan are adequately funded, the annual capital and operating costs and revenues necessary to achieve the planned services and improvements for the 10-year period are identified.

The purpose of the TDP is to serve as the County's planning and policy tool for transit. As such, the TDP will serve as one of the primary planning tools to support the development of the 2030 LRTE update.

Transit Development Plan Minor Updates, 2004 & 2005

As previously mentioned, LeeTran is required to submit an annual minor update of the TDP in the years between the major updates. Minor updates of the TDP were completed in both 2004 and 2005, following the completion of the major update in 2003. Similar to the major update, the goal of the minor updates is to provide a strategic guide for public transportation in Lee County; the 2004 minor update represents the five-year planning period of FY 2005 through FY 2009, and the 2005 minor update is for FY 2006 through 2010.

Each minor update includes an update of the goals and initiatives, capital and operating financial plan, and performance measures. Recommendations from the 2004 and 2005 minor updates are implemented in 2005 and 2006, respectively. Any changes resulting from the minor updates to the 2003 TDP will be reviewed and incorporated into the LRTE update as appropriate.

LeeTran 2003 Transportation Disadvantaged Service Plan Update

Similar to the TDP, a Transportation Disadvantaged Service Plan (TDSP) is developed as part of the transit planning process in Lee County. A cooperative effort between the MPO, the Local Coordinating Board for the Transportation Disadvantaged, and the County's Community Transportation Coordinator, the TDSP focuses on the transportation disadvantaged (TD) services provided to the citizens of Lee County.

The most recent update of the TDSP was completed in 2003, providing a strategic guide for transportation disadvantaged persons in Lee County for a five-year period, from FY 2004 through FY 2008.

The TDSP is a policy planning document that consists of four parts: (1) the Development Plan, (2) the Service Plan, (3) a Quality Assurance Plan, and (4) a Contingency Plan. The two major components, the Development Plan and the Service Plan, drive the policy and planning aspect of TD service in Lee County. The Development Plan assesses the performance of existing TD services, reviews demographic and travel behavior characteristics of the service area, outlines the TD goals and objectives, and identifies the five-year implementation plan. The Service Plan focuses on the operations elements of providing the most efficient and effective TD service possible. The TDSP will be used to support the development of the TD component for the 2030 LRTE.

METROPOLITAN PLANNING

Lee County 2020 Long Range Transportation Plan & Long Range Transit Element

The Lee County MPO's 2020 Long Range Transportation Plan is a fundamental planning tool developed by the MPO to address the future multimodal transportation needs of the Lee County area. The LRTP is a comprehensive planning document that coordinates and guides the transportation improvement programs at the state, county, and municipal level.

The development and execution of the LRTP is overseen by the MPO Board and its Technical and Citizens Advisory Committees. The purpose of the LRTP is to address a multimodal transportation system, with each aspect of transportation represented by a separate element, i.e., bicycle and pedestrian, highway network, commercial freight, public transportation, etc.

Three long-range transit scenarios were identified and evaluated in the 2020 LRTE, including: (1) maintain status quo, (2) a moderate growth scenario, and (3) an aggressive growth scenario. Based on the evaluation of these growth scenarios, a Needs Plan was developed outlining all of the public transportation services and projects expected to be needed by the year 2020.

Following the development of the Needs Plan, a review was undertaken of the projected transit revenues available during the identified time frame. A comparison of the available transit revenues with the total cost of the Needs Plan was made to determine whether the Needs Plan was affordable given the projected transit revenues. Since the cost of the services and projects identified in the Needs Plan exceeded the available revenue, the services and projects were prioritized and included in the County's Cost Affordable Transit Plan based on priority. This process will be used in the development of the 2030 LRTE, with the 2020 LRTE serving as a guide to develop the updated transit plan.

Lee County Comprehensive Plan

All units of local government in the State of Florida are required to adopt comprehensive plans pursuant to Chapter 163 of the Florida Statutes. Lee County's Comprehensive Plan, also known as the Lee Plan, was last amended in December 2004. Similar to other comprehensive plans, the Lee Plan is driven by the adoption of a series of goals, objectives, and policies for a series of elements, i.e., transportation, future land use, capital improvements, etc.

The goals and objectives within the adopted comprehensive plan serve as guiding principles for the everyday public and private activities within Lee County. Further, the plan represents the County's vision of what it will or should look like by the end of the planning horizon. The 12 goals and objectives within the Lee Plan's current Transportation Element serve as the guiding principles for transportation projects and improvements over a future 20-year planning horizon while addressing a number of transportation-related issues, such as traffic circulation, mass transit, and ports, aviation, and related facilities. Within the Transit Element, the Lee Plan has two goals that specifically address transit service and planning in Lee County. The objectives associated with these goals focus on increasing ridership, promoting access to transit as part of new development, utilizing efficient operating policies, coordinating service planning, and continuing the development and implementation

of the TDP. The goals pertaining to transit in Lee County are presented below.

Goal 43: Mass Transit Service

Provide public transit service to residents and visitors (especially the transportation-disadvantaged population) in and between the concentrated population centers of Lee County, and ensure that this service is integrated with other modes of transportation.

Goal 44: Transit Development Plan

To continue the development of a Transit Development Plan for the county.

The goals and objectives within the Transportation Element regarding transit will be closely utilized during the LRTE update.

Lee County MPO Transportation Improvement Program (2006–2010)

The purpose of the Transportation Improvement Program (TIP) is to identify all transportation improvements, or projects, included in the five-year work program for Lee County. Projects are reflected for all modes of transportation, including roadways, public transit, bicycle facilities, and sidewalks, among others. The transportation improvement projects in both the previous and current TIPs were reviewed as part of the preparation of the LRTE Update for Lee County.

Lee Vision Goals and Objectives

Lee County has experienced significant growth in population and employment over the last several years and, as a result, transportation issues have become more and more important to the community and its citizens. To help address these issues, the Lee County MPO has developed a vision statement, mission statement, goals, and objectives to guide the development of the 2030 LRTP for Lee County.

Critical to developing the vision statement, mission statement, goals, and objectives is input from the citizens and elected officials of Lee County and its municipalities regarding their vision for future transportation and land development in Lee County. To obtain this input, the Lee County MPO facilitated an extensive public outreach process. More than 1,600 citizens, elected officials, and visitors participated in the public involvement process for developing a 2030 transportation vision for Lee County through stakeholder interviews, a community survey, community outreach meetings, and focus groups.

The vision, mission, goals, and objectives developed based on the extensive public input are provided below and will serve as the guiding principles for the MPO's 2030 LRTP update.

Vision Statement

Communities, neighborhoods, and commercial districts with unique character, desirable quality of life, and a safe, mobile, and accessible transportation system for existing and future residents, visitors, and businesses.

Mission Statement

To provide a safe and efficient transportation system that promotes multi-modalism (roads, transit, sidewalks, bicycles, etc.), supports projected growth, and addresses social, economic, and

environmental impacts through effective planning/ policy and local/regional coordination.

Goals & Objectives

Goal 1: Provide a transportation system that is multi-modal and facilitates the movement of and connections among people, jobs, goods, and services.

Objectives

- Reduce congestion on roadways and at intersections.
- Provide efficient, frequent, and convenient transit service.
- Provide more sidewalks and bicycle facilities.
- Provide infrastructure to support transit riders, pedestrians, and bicyclists.
- Improve multi-modal connectivity and access to intermodal facilities (airport, transit centers, Greyhound, rail, passenger ferries, etc.) and activity centers.
- Provide efficient truck routes.
- Optimize freight delivery by integrating alternative modes such as rail and waterways.
- Maximize the continuity of transportation facilities and services.
- Provide multi-modal options consistent with local government comprehensive plans.
- Evaluate the feasibility of water-based transportation.

Goal 2: Provide a transportation system that is safe for existing and future residents, visitors, and businesses.

Objectives

- Reduce overall crash rates at intersections and along corridors.
- Reduce crash rates involving transit buses.
- Reduce crash rates involving pedestrians and bicyclists.
- Reduce crash rates at railroad crossings.
- Increase safety and security at bus stops and intermodal stations and connections.
- Foster the application of design standards that improve transportation safety.

Goal 3: Provide a transportation system that facilitates emergency response and evacuation.

Objectives

- Minimize emergency response time.
- Provide efficient emergency evacuation routes.
- Improve accessibility to hurricane evacuation shelters.

Goal 4: Provide a transportation system that is aesthetically pleasing and sensitive to socio-cultural effects and environmental impacts.

Objectives

- Enhance aesthetics and the character of neighborhoods, communities, and commercial districts.
- Minimize adverse impacts on minority and low-income populations.
- Minimize the disruption of neighborhoods, communities, and commercial districts.
- Enhance the mobility and accessibility of elderly populations.
- Enhance the mobility and accessibility of persons with disabilities.
- Minimize adverse environmental impacts, including noise.

Goal 5: Provide a transportation system that enhances economic growth and development.

Objectives

- Reduce congestion on roadways and at intersections.
- Provide efficient, frequent, and convenient transit service.
- Improve multi-modal connectivity and access to intermodal facilities (airport, transit centers, Greyhound, rail, passenger ferries, etc.) and activity centers.
- Provide efficient truck routes.
- Optimize freight delivery by integrating alternative modes such as rail and waterways.

Goal 6: Provide a transportation system that is maintained, optimized, and expanded using the best available technologies and innovations.

Objectives

- Maintain the existing transportation system (roads, buses, bicycle facilities, sidewalks, truck routes, intermodal facilities, etc.).
- Identify and implement the best available technologies and innovations to improve the operation and efficiency of the transportation system.
- Identify and reserve corridors and right-of-way (on roadways, railways, and waterways) for future transportation facilities and services.
- Reduce congestion on roadways and at intersections.
- Provide more transportation corridors connecting major activity centers.
- Reduce peak period travel through the use of Transportation Demand Management measures (e.g., carpooling, vanpooling, telecommuting, flexible work hours, etc.).
- Increase mixed-use development and densities along major transit corridors.

Goal 7: Provide a transportation system that is financially-feasible.

Objectives

- Maximize transportation funding from all sources, including toll revenues and other user fees.
- Maximize Lee County's share of state and federal transportation funding resources.
- Optimize the use of available transportation funding.

Goal 8: Provide a transportation system that is regionally coordinated and based on effective transportation and land use planning.

Objectives

- Foster coordination of transportation and land use.
- Facilitate local and regional coordination.
- Increase the number of connections between transportation modes.
- Apply transportation and land use planning techniques that support intermodal connections and coordination.

SUMMARY

In summary, this background review was conducted to enhance the understanding of existing plans and programs that are relevant to public transportation in Lee County. In addition to providing guidance for the long-range transit element, the background review also helped identify relevant data and information available from existing sources. This guidance and information have been used to support the development of the 2030 LRTE.

Chapter 3: Existing Transit Services

This chapter provides an overview of existing public transportation services and facilities in Lee County. Transportation services in the County are composed of LeeTran, the County's fixed-route bus system, a transportation disadvantaged program that includes door-to-door paratransit services and ADA transportation services, and a commuter assistance program. In addition, LeeTran provides a park-and-ride service to and from beach areas in the Town of Fort Myers Beach via a connecting trolley service, called The Trollee. This chapter includes sections describing each of these transportation systems and services and includes a section dedicated to summarizing LeeTran's major capital facilities.

FIXED-ROUTE BUS SERVICE

Lee County Transit, known as LeeTran, is operated by Lee County and is responsible to the Lee County Board of County Commissioners. The County assumed official ownership of the transit service in February of 1977. At that time, the system consisted of several fixed-route bus lines connecting the City of Cape Coral, the City of Fort Myers, and the unincorporated County. Since the beginning of transit service operations in Lee County, many improvements and service expansions have been implemented that have assisted in improving the public transportation services provided within the County.

LeeTran currently operates 17 bus routes. Sixteen of the bus routes operate on a scheduled fixed-route system at least six days per week. Routes 15, 50, 100, 120, and 140 operate on Sundays. The final route, Route 160, provides limited express bus service to Pine Island on Thursdays only. LeeTran provides trolley service, branded as The Trollee, along Fort Myers Beach and also provides two park-and-ride trolleys that connect to the Fort Myers Beach trolley. One of the park-and-ride lots is located at Summerlin Square to the north of Estero Island (Fort Myers Beach) and the other is in Bonita Springs to the south of Estero Island. All three

trolley systems operate during the peak season. During the off-peak season the three routes are combined into one.

Regular bus service is available to anyone for $1.00 each time a passenger boards a bus. Half-fares are available to youths (under 17 years) and to Seniors and persons with disabilities. The bus service is marketed to riders of all age groups. Passengers must be able to board, disembark, and carry their own packages on and off the vehicles. Most routes operate between 5:00 a.m. and 9:45 p.m., Monday through Saturday, with limited corridor service and service to the beach areas on Sundays between 6:00 a.m. until 9:45 p.m., as well as service to the Southwest Florida International Airport. Headways are generally between 30 minutes to an hour on all routes except routes 40, 110, and 160, which have headways of two hours or more. In addition, early morning and late evening express service is available on several routes for travel in the direction of major employment centers only.

The bus routes operated by LeeTran are illustrated in Map 3-1. Also illustrated on the map are the ¼-mile and ¾-mile buffer service areas. The ¼-mile buffer represents the maximum distance that riders are typically willing to walk to get on the bus. The ¾-mile buffer indicates the service area where complementary ADA paratransit service must be provided.

Route Level Characteristics

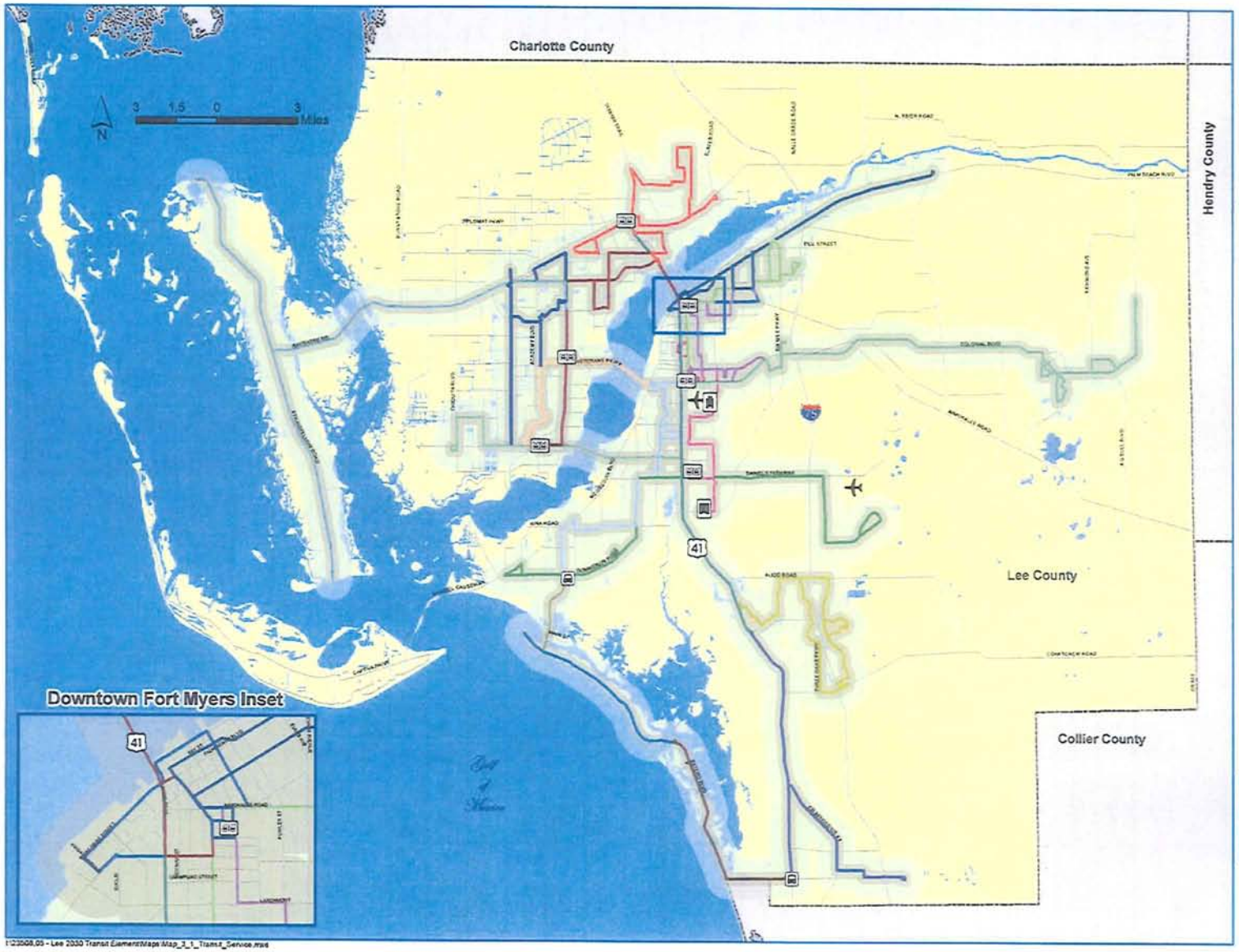
All of LeeTran's fixed bus routes are listed in Table 3-1. The table includes ridership statistics for FY 2002 through FY 2004 for each route on the bus system. As indicated in the table, ridership has increased on most routes. Routes 15, 130, and 490 all have experienced increases in ridership of over 50 percent. Important to note is the significance of Route 140 on US 41, which carries the largest proportion of total passenger trips and serves as the backbone of the system. Four of the bus routes, Routes 80, 160, and 1000, have experienced decreases in ridership of more than 10 percent during the noted time period. Overall, the fixed-route bus system has experienced an increase in ridership of 14 percent between FY 2002 and FY 2004.

Table 3-2 summarizes route-level performance statistics for FY 2004. Bus routes are ordered in the table by route number. Routes with the highest number of trips in FY 2004 include 10, 70, 100, the Fort Myers Beach Trolley, and Route 140, which totaled 839,060 passenger trips in FY 2004. Route 140 also had the highest operating cost during FY 2004. Total operating costs for the fixed route system during FY 2004 were $11,349,998, while farebox revenues for that same period were $1,217,352.

Tables 3-3 and 3-4 include statistics for FY 2004 operating cost per passenger trip by route and passenger trips per vehicle hour by route. Routes are ranked best to worst in each table based on each route's corresponding performance statistic value. The Summerlin Square Park-and-Ride Trolley and the Fort Myers Beach Trolley were the most cost-effective routes in terms of passenger trips. Both of these trolley routes scored best over all the other routes in terms of number of passenger trips per vehicle hour.

System-Wide Characteristics & Trends

Several system-wide performance characteristics were selected in order to detail transit system operational trends from FY 2000 through FY 2003. These selected system-wide performance indicators



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Lee County Transit System

Route Number

10	100
15	110
20	120
30	130
40	140
50	150
60	160
70	400
80	450
90	490

- 1/4-Mile Service Area
- 3/4-Mile Service Area
- Major Transfer Center
- Park-and-Ride Lot
- Lee Tran Administration Facility
- Lee Tran ADA Administration Facility
- Airport

MPO

Tindale-Oliver & Associates, Inc.
Planning and Engineering

2030 Long Range Transportation Plan

Map 3-1
Lee County Transit & Transit Service Areas

Created 06.06.05 Edited 06.12.05 By: RRP

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Table 3-1
LeeTran Fixed-Route Ridership by Fiscal Year

Route #	Route Name	Annual Ridership			% Change (2002-04)
		2002	2003	2004	
10	Dunbar	117,845	136,482	155,177	31.68%
15	Broadway Avenue/Tice	42,227	57,208	63,366	50.06%
20	MLK Boulevard	107,228	112,400	110,764	3.30%
30	Cape Coral Parkway	85,479	81,756	85,811	0.39%
40	Santa Barbara Boulevard	30,257	30,808	34,275	13.28%
50	Daniels Parkway/Summerlin Road	85,591	78,566	84,186	-1.64%
60	San Carlos Park	13,920	15,838	17,809	27.94%
70	Del Prado Boulevard	133,007	132,634	144,253	8.46%
80	Metro Parkway	20,241	18,146	18,047	-10.84%
90	North Fort Myers	89,787	88,915	93,209	3.81%
100	Palm Beach Boulevard	255,083	295,578	195,789	-23.24%
110	Lehigh Acres	59,062	60,539	61,976	4.93%
120	Veterans Parkway/Country Club Boulevard	38,548	44,852	53,784	39.52%
130	South Fort Myers	62,833	88,554	98,637	56.98%
140	US 41	700,977	704,482	839,060	19.70%
150	Bonita Springs	2,558	1,484	11,480	348.79%
160	Pine Island	1,494	850	730	-51.14%
400	Fort Myers Beach Trolley	260,959	266,642	284,817	9.14%
450	Bonita Trolley	16,442	17,893	18,521	12.64%
490	Summerlin Square Park-and-Ride	65,481	70,737	113,372	73.14%
999	Special Trips	10,445	12,767	19,044	82.33%
1000	Lee Association of Retarded Citizens	6,140	3,627	4,300	-29.97%
SYSTEM TOTALS		**2,205,604**	**2,320,758**	**2,508,407**	**13.73%**

Table 3-2
LeeTran FY 2004 Performance Statistics by Route

Route #	Route Name	Passenger Trips	Total Vehicle Hours	Farebox Revenue	Annual Operating Costs
10	Dunbar	155,177	9,020	$69,988	$593,134
15	Broadway Avenue/Tice	63,366	5,471	$32,535	$359,801
20	MLK Boulevard	110,764	8,495	$56,451	$558,639
30	Cape Coral Parkway	85,811	9,220	$48,584	$606,328
40	Santa Barbara Boulevard	34,275	4,221	$21,220	$277,555
50	Daniels Parkway/Summerlin Road	84,186	9,926	$47,825	$652,711
60	San Carlos Park	17,809	4,566	$10,091	$300,268
70	Del Prado Boulevard	144,253	9,719	$80,888	$639,114
80	Metro Parkway	18,047	3,574	$8,625	$235,015
90	North Fort Myers	93,209	9,561	$42,699	$628,718
100	Palm Beach Boulevard	195,789	12,523	$118,902	$823,516
110	Lehigh Acres	61,976	4,940	$38,949	$324,838
120	Veterans Parkway/Country Club Boulevard	53,784	5,294	$29,804	$348,128
130	South Fort Myers	98,637	7,963	$62,415	$523,663
140	US 41	839,060	46,717	$461,932	$3,072,100
150	Bonita Springs	11,480	2,475	$1,178	$162,723
160	Pine Island	730	472	$568	$31,060
400	Fort Myers Beach Trolley	284,817	12,304	$69,497	$809,098
450	Bonita Trolley	18,521	1,824	$4,506	$119,915
490	Summerlin Square Park-and-Ride	113,372	3,308	$3,067	$217,518
999	Special Trips	19,044	633	$7,573	$41,595
1000	Lee Association of Retarded Citizens	4,300	374	$54	$24,562
SYSTEM TOTALS		2,508,407	172,597	$1,217,352	$11,349,998

Table 3-3
LeeTran FY 2004 Operating Cost per Passenger Trip

Route #	Route Name	Oper. Cost per Trip
490	Summerlin Square Park-and-Ride	$ 1.92
999	Special Trips	$ 2.18
400	Fort Myers Beach Trolley	$ 2.84
140	US 41	$ 3.66
10	Dunbar	$ 3.82
100	Palm Beach Boulevard	$ 4.21
70	Del Prado Boulevard	$ 4.43
20	MLK Boulevard	$ 5.04
110	Lehigh Acres	$ 5.24
130	South Fort Myers	$ 5.31
15	Broadway Avenue/Tice	$ 5.68
1000	Lee Assocation for Retarded Citizens	$ 5.71
120	Veterans Parkway/Country Club Boulevard	$ 6.47
450	Bonita Trolley	$ 6.47
90	North Fort Myers	$ 6.75
30	Cape Coral Parkway	$ 7.07
50	Daniels Parkway/Summerlin Road	$ 7.75
40	Santa Barbara Boulevard	$ 8.10
80	Metro Parkway	$ 13.02
150	Bonita Springs	$ 14.17
60	San Carlos Park	$ 16.86
160	Pine Island	$ 42.55
SYSTEM TOTAL		**$ 4.52**

Table 3-4
LeeTran FY 2004 Passenger Trips per Vehicle Hour

Route #	Route Name	Pass. Trips per Hour
490	Summerlin Square Park-and-Ride	$ 34.27
999	Special Trips	$ 30.11
400	Fort Myers Beach Trolley	$ 23.15
140	US 41	$ 17.96
10	Dunbar	$ 17.20
100	Palm Beach Boulevard	$ 15.63
70	Del Prado Boulevard	$ 14.84
20	MLK Boulevard	$ 13.04
110	Lehigh Acres	$ 12.55
130	South Fort Myers	$ 12.39
15	Broadway Avenue/Tice	$ 11.58
1000	Lee Assocation for Retarded Citizens	$ 11.51
120	Veterans Parkway/Country Club Boulevard	$ 10.16
450	Bonita Trolley	$ 10.16
90	North Fort Myers	$ 9.75
30	Cape Coral Parkway	$ 9.31
50	Daniels Parkway/Summerlin Road	$ 8.48
40	Santa Barbara Boulevard	$ 8.12
80	Metro Parkway	$ 5.05
150	Bonita Springs	$ 4.64
60	San Carlos Park	$ 3.90
160	Pine Island	$ 1.55
SYSTEM TOTAL		**$ 14.53**

provide a good representation of overall transit system performance. The performance indicators are divided into three groups. Each measure in the first group, performance measures, reports absolute data in the selected categories. Effectiveness measures refine the data further and indicate the extent to which various service-related goals are being achieved. Efficiency measures involve reviewing the level of resources required to achieve a given level of output.

Table 3-5 notes trends for the selected performance indicators from FY 2000 through FY 2003. Overall, the first category of performance indicators, system performance measures, has remained stable over the selected time period. Of these performance measures, only operating costs experienced a relatively large increase of 31 percent. Consistent with these operating cost increases, operating expense per passenger trip, per revenue mile, and per revenue hour have increased by up to 34 percent. Because FY 2004 data are not yet available for all performance indicators, the increases in FY 2004

Table 3-5
LeeTran Selected Fixed-Route Performance Indicators

Selected Performance Indicator	FY 2000*	FY 2001*	FY 2002**	FY 2003**	% Change 2000-2003
Performance Measures					
Service Area Population***	426,463	440,890	475,639	373,498	-12%
Passenger Trips	2,271,574	2,318,340	2,240,545	2,335,842	3%
Revenue Miles	2,821,520	2,819,730	3,018,296	2,902,945	3%
Vehicle Miles	3,006,564	3,015,688	3,208,256	3,079,394	2%
Revenue Hours	182,064	175,825	186,290	178,104	-2%
Operating Expense	$ 7,171,082	$ 8,010,679	$ 8,263,434	$ 9,380,579	31%
Effectiveness Measures					
Vehicle Miles per Capita	7.05	6.84	6.75	8.24	17%
Passenger Trips per Capita	5.33	5.26	4.71	6.25	17%
Passenger Trips per Revenue Mile	0.81	0.82	0.74	0.80	-0.1%
Passenger Trips per Revenue Hour	12.48	13.19	12.03	13.12	5%
Efficiency Measures					
Operating Expense per Passenger Trip	$ 3.16	$ 3.46	$ 3.69	$ 4.02	27%
Operating Expense per Revenue Mile	$ 2.54	$ 2.84	$ 2.74	$ 3.23	27%
Operating Expense per Revenue Hour	$ 39.39	$ 45.56	$ 44.36	$ 52.67	34%

* Source: 2003 TDP.
** Source: 2002 & 2003 NTD Report.
*** 2003 Service Area Population based on 1/4-mile buffer of existing fixed route-service.

ridership noted in Table 3-2 are not reflected in the selected effectiveness and efficiency measures shown in Table 3-5.

PARATRANSIT SERVICE

Transportation Disadvantaged

Consistent with Florida Statute 427, coordinated TD services are provided throughout Lee County through cooperative efforts with a designated Community Transportation Coordinator (CTC).

The TD program provides door-to-door paratransit services to individuals who need assistance in accessing daily needs such as day care, congregate meals, nutrition sites, medical facilities, as well as providing trips for social, employment, and recreational appointments.

The current CTC for the County is Good Wheels, Inc. Under the TD program, all agencies and transportation operators that receive federal, state, or local government TD funds are required to contract with the CTC for transportation services. The CTC conducts all operational planning, administration, and coordination of transportation disadvantaged

trips in the Lee County designated TD service area. By taking reservations and scheduling TD trips, the CTC also serves as a broker for trips for all contracted transportation operators. Transportation operators that contract with Good Wheels, Inc., include the following.

- Agency for Health Care Administration
- The Dr. Ella Piper Center, Inc.
- Developmental Services
- LeeTran
- The Senior Friendship Foundation
- Visually Impaired Persons
- Pine Village Care Center

Oversight of the TD program is provided through the Designated Official Planning Agency (DOPA) and the Local Coordinating Board (LCB). In Lee County, the Lee County MPO serves as the DOPA for the County. The LCB is composed of TD service users and local agency healthcare agency representatives and is responsible for providing guidance and advice to the CTC as well as serving as the forum for any grievances or complaints on the part of TD service users.

Table 3-6
FY 2004 TD Trips by Purpose, Lee County

Purpose	Number of Trips	Percent
Medical	99,894	41%
Employment	14,729	6%
Education/Training/Daycare	71,850	30%
Nutritional	8,013	3%
Life Sustaining/Other	48,139	20%
Total	242,625	100%

During FY 2004, 242,625 trips were provided through the County's TD program. Table 3-6 includes the breakdown of TD trips by trip type. As shown in the table, the largest and smallest portion of TD trips during FY 2004 were made for medical reasons and nutritional reasons, respectively.

In addition to the trip type breakdown noted in Table 3-6, additional performance measures were compiled to detail paratransit operational trends for FY 2000 through FY 2004. Table 3-7 includes a similar analysis to the trend analysis performed for the fixed-route bus service. Performance, efficiency, and effectiveness measures are included for the noted time period and percent changes are calculated based on the change between FY 2000 and FY 2004.

Based on this analysis, the largest percent change during the selected analysis period was in total operating costs. Operating costs increased 61 percent, while revenues increased 56 percent. Consequently, there is also an increase among all the efficiency measures during the given time period.

ADA Paratransit Service

The Americans with Disabilities Act (ADA) requires that operators of federally-subsidized fixed-route transit service also provide complementary door-to-door paratransit service for people living within ¾-mile of fixed bus routes who are unable to use the fixed-route service due to a disability. To meet the requirements of the ADA, LeeTran has created Passport, LeeTran's ADA paratransit service. This service is available to ADA-eligible persons in Lee County during regular fixed bus route service hours seven days a week . Passport is used to complement the fixed-route system by serving ADA-eligible elderly and disabled persons who live within ¾ of a

Table 3-7
LeeTran Selected TD Service Performance Indicators

Selected Performance Indicator	2000	2001	2002	2003	2004	% Change 2000-04
Performance Measures						
TD Population	179,909	181,776	185,879	190,074	190,074	5.7%
Passenger Trips	231,364	239,572	251,904	228,837	242,625	4.9%
Revenue Miles	1,296,537	1,161,413	1,672,220	N/A	1,948,416	50.3%
Vehicle Miles	1,573,738	1,219,697	2,011,440	1,909,041	2,242,827	42.5%
Operating Revenue	$ 2,689,494	$ 2,858,189	$ 3,226,871	$ 3,555,222	$ 4,203,264	56.3%
Operating Expense	$ 3,023,116	$ 2,759,298	$ 3,524,569	$ 3,711,170	$ 4,856,539	60.6%
Effectiveness Measures						
Vehicle Miles per Capita	8.75	6.71	10.82	10.04	11.80	34.9%
Passenger Trips per Capita	1.29	1.32	1.36	1.20	1.28	-0.7%
Passenger Trips per Revenue Mile	0.18	0.21	0.15	N/A	0.12	-30.2%
Passenger Trips per Revenue Hour	0.09	0.08	0.08	0.06	0.06	-32.9%
Efficiency Measures						
Operating Expense per Passenger Trip	$ 13.07	$ 11.52	$ 13.99	$ 16.22	$ 20.02	53.2%
Operating Expense per Revenue Mile	$ 2.33	$ 2.38	$ 2.11	N/A	$ 2.49	6.9%
Operating Expense per Vehicle Mile	$ 1.92	$ 2.26	$ 1.75	$ 1.94	$ 2.17	12.7%

Source: LeeTran & Annual Operating Reports (2000-2004).
Note: FY 2003 revenue miles are not reported in the 2003 Annual Operating Report.

mile from a fixed bus route. The ¾-mile service area is illustrated in Map 3-1.

Up until February 2005, LeeTran met its provision of the complementary paratransit service by subcontracting it out to a series of different contractors. The last of these was the County's CTC, Good Wheels, Inc., which had been operating the ADA service since July 2003.

In February 2005, LeeTran began managing its own ADA program trips. LeeTran now takes reservations, schedules, and provides its own transportation for all ADA-related trips.

Table 3-8
LeeTran ADA Trips by Year

Year	Service Area (sq. mi)	Passenger Trips	Vehicle Revenue Miles
1995	189	35,640	253,954
1996	189	42,054	443,632
1997	189	46,928	449,681
1998	189	56,730	538,315
1999	189	72,530	634,338
2000	189	82,542	684,175
2001	189	103,956	640,648
2002	189	115,602	753,352
2003	121	130,641	925,628

Table 3-8 notes the number of ADA trips provided by the ADA service by year for the years 1995 through 2003.

COMMUTER ASSISTANCE PROGRAM

In addition to fixed-route and paratransit services, LeeTran also operates a Commuter Assistance Program (CAP). The first CAP Work Plan was prepared by the County in 1999. In March 2003, LeeTran and the Florida Department of Transportation entered into a Joint Participation Agreement in accordance with the State Commuter Assistance Program for the continued implementation of LeeTran's Commuter Assistance Program. The agreement provides 50-percent matching funds in the amount of $235,000. By entering into that Agreement, LeeTran was able to expand the ride-sharing and vanpool programs already in service.

The LeeTran Commuter Assistance Program, recently renamed "Connexus," focuses on reducing the number of single occupant commuter trips. Connexus provides brokerage services to employers and individuals for carpools and vanpools. Connexus offers free employee focus groups, educates employers and employees on ride-sharing tax incentives, and provides employers assistance in resolving transportation-related problems.

As part of the commuter assistance program, Connexus has identified specific performance, marketing, and educational goals and measures to further improve the existing service. These goals and measures have guided various marketing and education efforts undertaken by the agency. To date, Connexus has:

- developed a program logo/brand to be used in advertising;
- purchased new vanpool vehicles;
- established seven vanpools;
- initiated a public education and marketing campaign;
- carried out a newspaper and radio advertising campaign;
- contacted 100 of the largest employers in Lee County; and
- performed marketing presentations to several area employers.

Vanpool performance statistics are noted in Table 3-9. Total trips provided by the vanpool service increased between 1999 and 2002. A drop in total trips was experienced in 2003.

Table 3-9
LeeTran Vanpool Performance Indicators

Year	Service Area	Total Passenger Trips	Vehicle Revenue Miles
1999	189	2,533	26,192
2000	189	2,385	23,895
2002	189	11,805	56,165
2003	121	7,957	27,450

The current contract with FDOT extends the life of the commuter assistance program through March 2006. As the County continues to grow, LeeTran plans to continue expanding its commuter assistance services.

FACILITIES

LeeTran operates its transit services through the use of several administrative, maintenance, and

operations capital facilities. These facilities consist of major transfer stops and hubs, an intermodal center, two park-and-ride facilities, administrative offices, and a vehicle maintenance facility. Map 3-1 notes the location of each of these facilities. Facilities have been grouped into three categories: transfer stops and hubs, park-and-ride facilities, and the administrative and maintenance office. Each of these categories is discussed individually in the subsections below.

Transfer Stops & Hubs

The LeeTran transit system provides bus riders opportunities to connect to other bus routes through the provision of several major transit transfer stops and hubs. The transfer points have been strategically located and designed to allow bus riders the capability of travel throughout the County solely on the existing LeeTran fixed-route bus system. Bus riders can connect to the beach, both airports, and to major shopping outlets throughout the County. Major transfer centers include the Intermodal Center in Downtown Fort Myers and Edison Mall. Major transfer stops and hubs are noted in Table 3-10, which also lists the bus routes that serve each particular stop.

Table 3-10
LeeTran Major Transfer Stops

Location	Routes Served
Merchants Crossing	90, 140
Intermodal Center	10, 15, 20, 70, 100, 140
Edison Mall	10, 15, 80, 100, 110, 120, 130, 140
Bell Tower	30, 50, 80, 100, 140
Coralwood Mall	40, 70, 120
Cape Transfer Center	30, 40, 70, 120

LeeTran's Intermodal Center is located in Downtown Fort Myers, providing connections to most parts of Lee County.

Park-and-Ride Facilities

LeeTran provides trolley service along and to Fort Myers Beach all year long. During the peak-season, December through April, three trolley routes operate. Two trolley routes connect park-and-ride lots to the Fort Myers Beach Trolley. These park-and-ride lots are located at Summerlin Square and the Bonita K-Mart Plaza. During the off-peak season, two trolleys operate the combined beach trolley and park-and-ride routes connecting Bonita Beach and Fort Myers Beach to the mainland. Connections to Downtown Fort Myers and the Fort Myers-Southwest Florida International Airport are available at the Summerlin Square Park-and-Ride.

Administration & Maintenance Facility

LeeTran's administration and maintenance facilities can be found near the Page Field Airport on Landing View Road. Management offices, vehicle storage and repair bays, and all other agency departments are

located at this same location. An ADA administrative facility can be found on Independence Circle in South Fort Myers.

Chapter 4: Operating Conditions & Market Assessment

This chapter presents a review and evaluation of operating conditions and a market assessment for transit services in Lee County. The evaluation is organized into four major categories, including:

- Existing conditions assessment
- Future conditions assessment
- Transit market assessment (demand and mobility needs of market segments)
- Implications for the 2030 Transit Element

The flowchart in Figure 4-1 illustrates the operating conditions and transit market assessment for Lee County.

EXISTING CONDITIONS ASSESSMENT

This section includes a review and evaluation of existing and historical population, demographic, and commuting characteristics in Lee County. Included in the review are the following:

- Population and employment trends
- Demographic and commuting characteristics
- Major activity centers
- Regional transit coordination

Population & Employment Trends

The population of Lee County increased from 440,888 in 2000 to 514,295 in 2004, an increase of 17 percent. In addition, projections for the LRTP indicate a county population projection of 852,200 by the year 2030.

Table 4-1 shows selected population and employment characteristics for Lee County. The data are compiled using 2000 Census of Population and Housing, as well as Enterprise Florida (eFlorida), a public-private partnership responsible for leading Florida's statewide economic development efforts.

Figure 4-1
Operating Conditions & Market Assessment

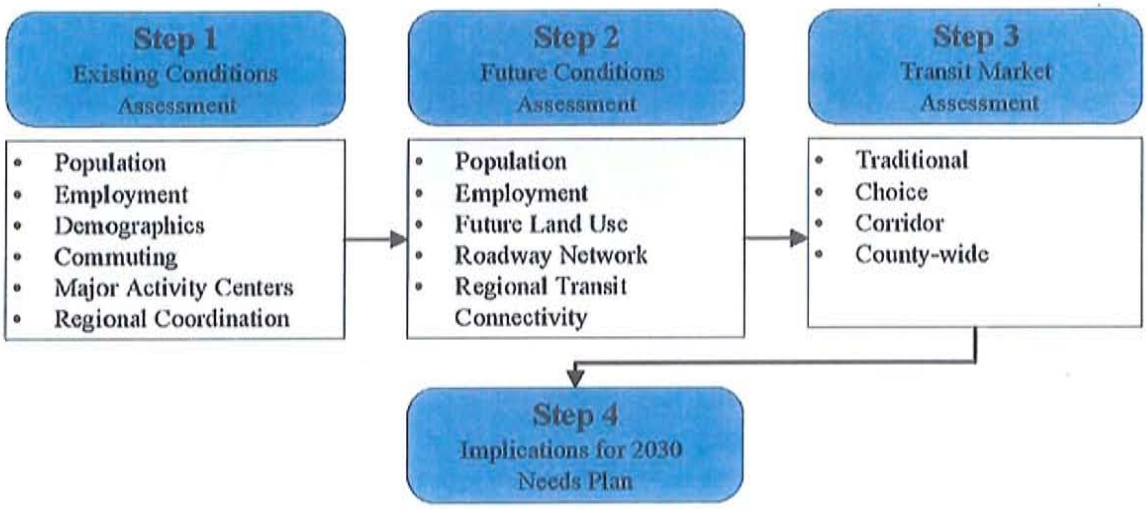


Table 4-1
Lee County Population & Employment Trends (1990, 2000, & 2004)

Category	1990	2000	2004	% Change (1990-2004)
Persons	335,113	440,888	514,295	53.5%
Households	189,051	245,405	N/A	29.8%*
Number of Workers	151,410	186,417	227,288	50.1%
Land Area (square miles)	804	804	804	0.0%
Person per Household	177.3%	179.7%	N/A	2.4%*
Workers per Household	80.1%	76.0%	N/A	(4.1%)*
Persons per Square Mile of Land Area	417	548	640	53.5%
Workers per Square Mile of Land Area	188	232	283	50.1%

Source: 1990 and 2000 Census, Enterprise Florida.
*Indicates percent change from 1990 to 2000.

Demographic & Commuting Characteristics

Tables 4-2 and 4-3 reflect 1990 and 2000 demographic and journey-to-work characteristics for Lee County. Characteristics that change significantly (based on subjective assessment) from 1990 to 2000 are shaded in the tables.

Table 4-4 summarizes the commuter flows for workers living in Lee County. The analysis of these 2000 Census data indicates that 89 percent of the workers residing in Lee County also work in Lee County. The remaining 11 percent of workers commute to neighboring counties. While the overall number of commuters has increased since 1990, the number of persons commuting to work within Lee County also has increased. In addition, Collier County is the most common destination for workers commuting to destinations outside Lee County (nearly 8 percent in 2000).

Table 4-5 reflects commuting flows where Lee County is the destination. Over 7 percent of the work trips terminating in Lee County originate outside the County, an increase from the 5.6 percent that was observed in 1990. Collier County (nearly 3 percent) makes up the largest portion of the workers in Lee County commuting from other counties.

Major Activity Centers

Major employers are listed in Table 4-6 and major activity centers are illustrated in Map 4-1. Included in the map are:

- Major employers
- Regional shopping malls
- Regional shopping malls proposed or under construction
- Major shopping centers
- hospitals
- schools

This information is used later in this transit plan to help evaluate the potential for future transit improvements that add or improve connections among the major activity centers.

Regional Transit Coordination

Collier County operates a relatively new bus system that has shown rapid growth in transit ridership over the past few years. Charlotte County does not operate fixed-route bus service at this time. Although there has been some discussion of regional transit issues among the counties of Lee, Collier, and Charlotte, no fixed-route bus connections currently operate across county lines.

FUTURE CONDITIONS ASSESSMENT

The future conditions assessment provides a review of future population and employment in Lee County, as well as future land use and potential regional transit connectivity.

Population & Employment Projections

Population and employment densities for 2030 are illustrated in Maps 4-2 and 4-3, respectively. This information is used to support the transit market assessment (later in this chapter) and subsequent feasibility assessments of transit services in Lee County through 2030.

Future Land Use

A future land use map for Lee County is illustrated in Map 4-4 and is available to support the evaluation of BRT and other transit corridors.

Table 4-2
Lee County Demographic Characteristics (1990 & 2000)

Demographic Characteristic	% in 1990	% in 2000	Change (1990-2000)
Gender			
Male	48.3%	48.9%	0.6%
Female	51.7%	51.1%	-0.6%
Ethnic Origin			
White	87.4%	87.7%	0.3%
Black	6.3%	6.6%	0.3%
Other	6.2%	4.2%	-2.0%
Hispanic Origin by Race			
Not of Hispanic Origin	95.5%	90.5%	-5.0%
Hispanic Origin	4.5%	9.5%	5.0%
Age			
<15 Years	21.4%	16.4%	-5.0%
15 to 34 Years	27.7%	19.9%	-7.8%
35 to 64 Years	23.7%	38.3%	14.6%
65+ Years	27.1%	25.4%	-1.7%
Education Level (persons over 18)			
<12th Grade	23.1%	17.7%	-5.4%
High School Grad	33.8%	32.5%	-1.2%
Some College	21.0%	22.6%	1.7%
College Grad	22.1%	27.1%	5.0%
Household Income			
Under $10,000	11.4%	7.5%	-3.9%
$10,000 to $14,999	9.7%	6.2%	-3.5%
$15,000 to $24,999	21.9%	14.7%	-7.2%
$25,000 to $34,999	18.9%	15.4%	-3.5%
$35,000 to $49,999	18.4%	19.6%	1.2%
$50,000 to $74,999	12.2%	20.1%	7.8%
$75,000 to $99,999	3.4%	8.4%	5.0%
$100,000 to $149,999	2.3%	6.2%	3.9%
$150,000 to $199,999	1.7%	1.8%	0.2%
Median Household Income	$28,448	$40,319	41.7%
Poverty Status			
Below Poverty Level	9.0%	12.4%	3.3%
Age by Work Disability Status			
65 years and over			
With work disability	33.5%	33.3%	-0.1%
No work disability	66.5%	66.7%	0.1%
Vehicles Available in Household			
None	5.8%	5.8%	0.0%
One	45.5%	46.1%	0.6%
Two	37.5%	38.0%	0.5%
Three or more	11.2%	10.1%	-1.1%

Source: 1990 and 2000 Census.

Table 4-3
Lee County Commuting Characteristics (1990 & 2000)

Journey-to-Work Characteristic	% in 1990	% in 2000	Change (1990-2000)
Means of Transportation to Work			
Drive Alone	77.4%	78.7%	1.3%
Carpool	15.3%	13.7%	-1.6%
Public Transit	0.9%	0.8%	-0.2%
Walk/Worked at home	4.3%	4.9%	0.7%
Other	2.1%	1.9%	-0.2%
Travel Time to Work			
< 10 Minutes	15.0%	12.4%	-2.6%
10 to 19 minutes	32.0%	30.8%	-1.2%
20 to 29 minutes	22.0%	23.1%	1.1%
30 to 44 minutes	17.0%	21.4%	4.4%
45+ minutes	12.0%	12.4%	0.4%
Departure Time to Work			
6 a.m. to 9 a.m.	70.0%	69.7%	-0.3%
Other times	30.0%	30.3%	0.3%
Private Vehicle Occupancy			
Drive Alone	77.0%	78.7%	1.7%
2 person carpool	12.0%	10.6%	-1.4%
3 person carpool	2.0%	2.0%	0.0%
4+ person carpool	1.0%	1.2%	0.2%
Other means	7.0%	7.6%	0.6%

Source: 1990 and 2000 Census.

Table 4-4
Summary of Commuting from Lee County, 1990 & 2000

County of Residence		County of Work						
		Lee County	Hendry County	Collier County	Charlotte County	Glades County	Other	Total
Lee County (2000)	Number of Workers	161,939	698	14,374	1,447	51	4,072	182,581
	% Distribution	88.7%	0.4%	7.9%	0.8%	0.0%	2.2%	100.0%
Lee County (1990)	Number of Workers	129,226	345	8,401	1075	59	2,860	141,966
	% Distribution	91.0%	0.2%	5.9%	0.8%	0.0%	2.0%	100.0%
Percent Change (1990 - 2000)		25.3%	102.3%	71.1%	34.6%	-13.6%	42.4%	28.6%

Source: Analysis of 2000 Census commuter flow data and Center for Urban Transportation Research, Demographic and Commuting Trends in Florida, February 1994.

Table 4-5
Summary of Commuting to Lee County, 1990 & 2000

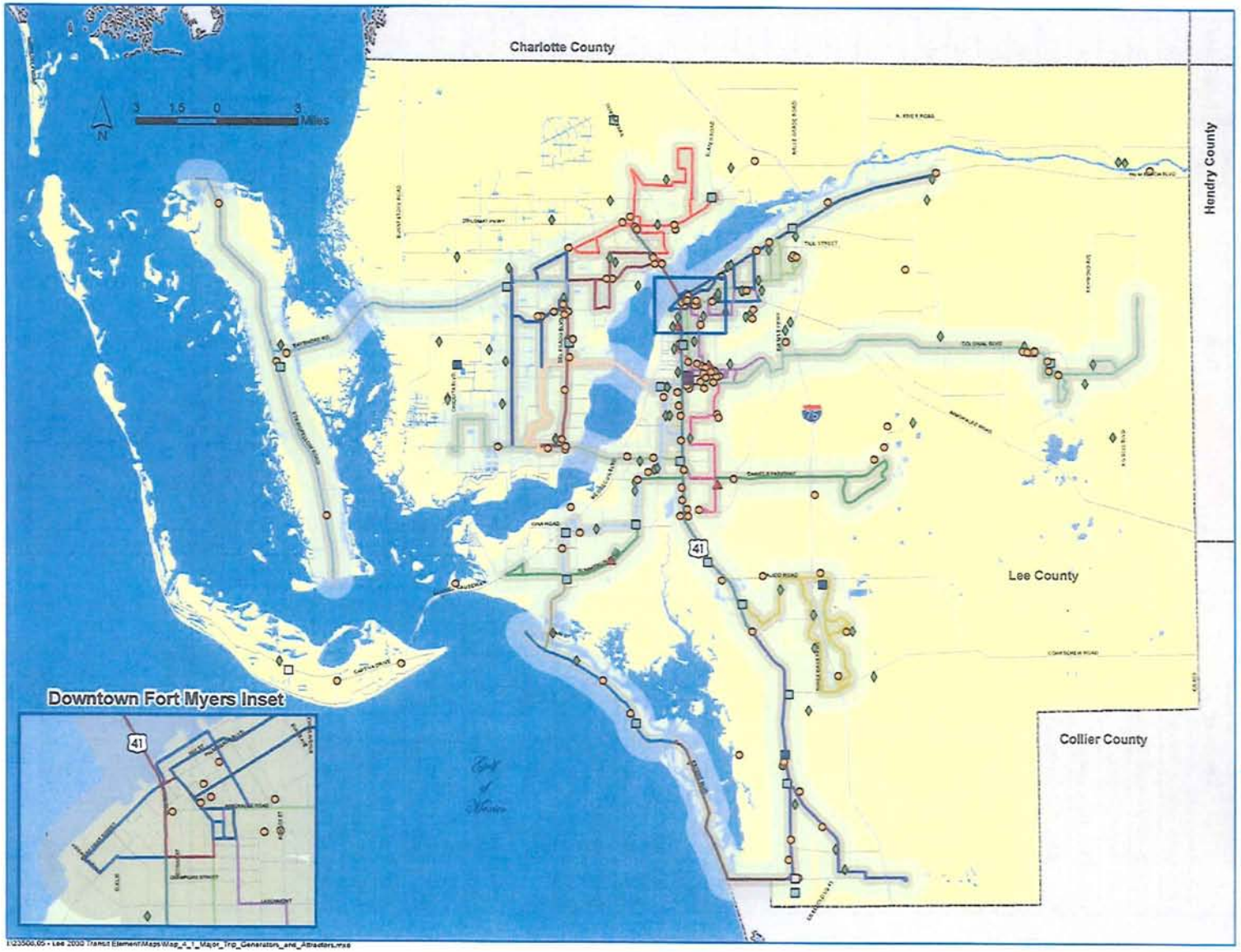
County of Work		County of Residence						
		Lee County	Hendry County	Collier County	Charlotte County	Glades County	Other	Total
Lee County (2000)	Number of Workers	161,939	1,164	5,068	3,646	275	2,595	174,687
	% Distribution	92.7%	0.7%	2.9%	2.1%	0.2%	1.5%	100.0%
Lee County (1990)	Number of Workers	129,226	734	2,072	2350	23	2,515	136,920
	% Distribution	94.4%	0.5%	1.5%	1.7%	0.0%	1.8%	100.0%
Percent Change (1990 - 2000)		25.3%	58.6%	144.6%	55.1%	1095.7%	3.2%	27.6%

Source: Analysis of 2000 Census commuter flow data and Center for Urban Transportation Research, Demographic and Commuting Trends in Florida, February 1994.

Table 4-6
Largest Employers in Lee County (2005)

Employer	Type	Employees
Lee County School District	Public Schools	8,558
Lee Memorial Health System	Non-profit hospital/healthcare system	5,285
Publix Super Markets	Grocer, retail	2,737
Wal-Mart Corporation	General merchandise-retail	2,518
Lee County Administration	County government	2,050
SWFL Regional Medical Center	Hospital/healthcare system	1,500
City of Cape Coral	Resorts, call center	1,376
WCI Communities	Real estate developer, residential builder	1,366
Bonita Bay Group	Land developer	1,300
U.S. Postal Service	Postal service	1,220
Florida Gulf Coast University	State university	1,185
Lee County Sheriff's Office	Public safety, sheriff	1,160
City of Fort Myers	City government	934
Interstate Hotels & Resorts	Resorts, call center	893
Sprint	Telephone communications, local service, wireless/PCS	850
Gulf Coast Center	State resident., med., thera., voc. for adults	695
Chico's FAS, Inc.	Corporate headquarters for women's apparel	610
The News-Press	Newspaper, daily	588
Shell Point Retirement Community	Life care facility	573
Yoder Brothers	Flower grower	564
Raymond Building Supply Corp.	Lumber & millwork, trusses, storm panels, windows	540
Sanibel Harbour Resort	Resort	515
Edison College	Community college	512
Sam Galloway Ford, Inc.	Auto dealership	510
CallTech Communications, LLC	Outsource provider for customer service	495
Hyatt Regency Coconut Point	Resort hotel	480
Sony Electronics	Customer service & P.C. technical support	470
Hope Hospice	Care/services for people at the end of life	455
Radiology Regional Center	Medical Office	444
Johnston & Johnston LLC	Umbrella company for Sunshine Masonry	430
Bank of America	Financial institution	421
Pall Aeropower Corporation	Aviation components, mach. & equip. hydraulic filters	420
LYNX Services	Insurance claims processing center	405

Source: Lee County Economic Development Office, 2005.



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Lee County Transit System

Route

10	100
15	110
20	120
30	130
40	140
50	150
60	160
70	400
80	450
90	490

- Major Employer
- Community Shopping Center
- Neighborhood Shopping Center
- Regional Shopping Center
- Regional Mall Proposed or Under Construction
- Hospital
- School

1/4-Mile Service Area

3/4-Mile Service Area

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Map 4-1 Major Trip Generators and Attractors

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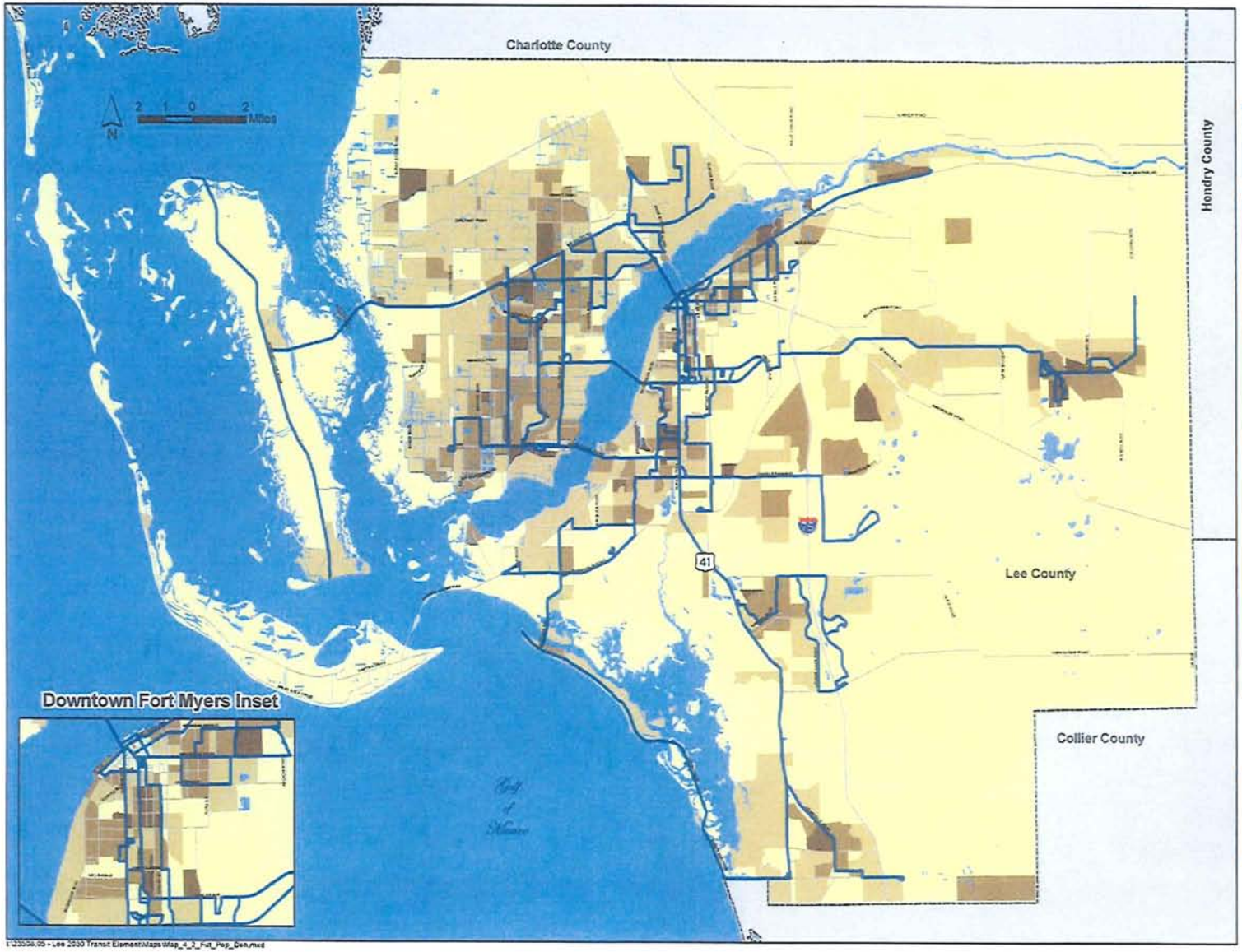

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Lee County Transit System

Future Population Density (Persons per Square Mile)

- < 1,500
- 1,500 - 3,500
- 3,501 - 7,000
- 7,001 - 16,000
- > 16,000
- Existing Bus Routes

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Map 4-2 Future Population Density (2030)

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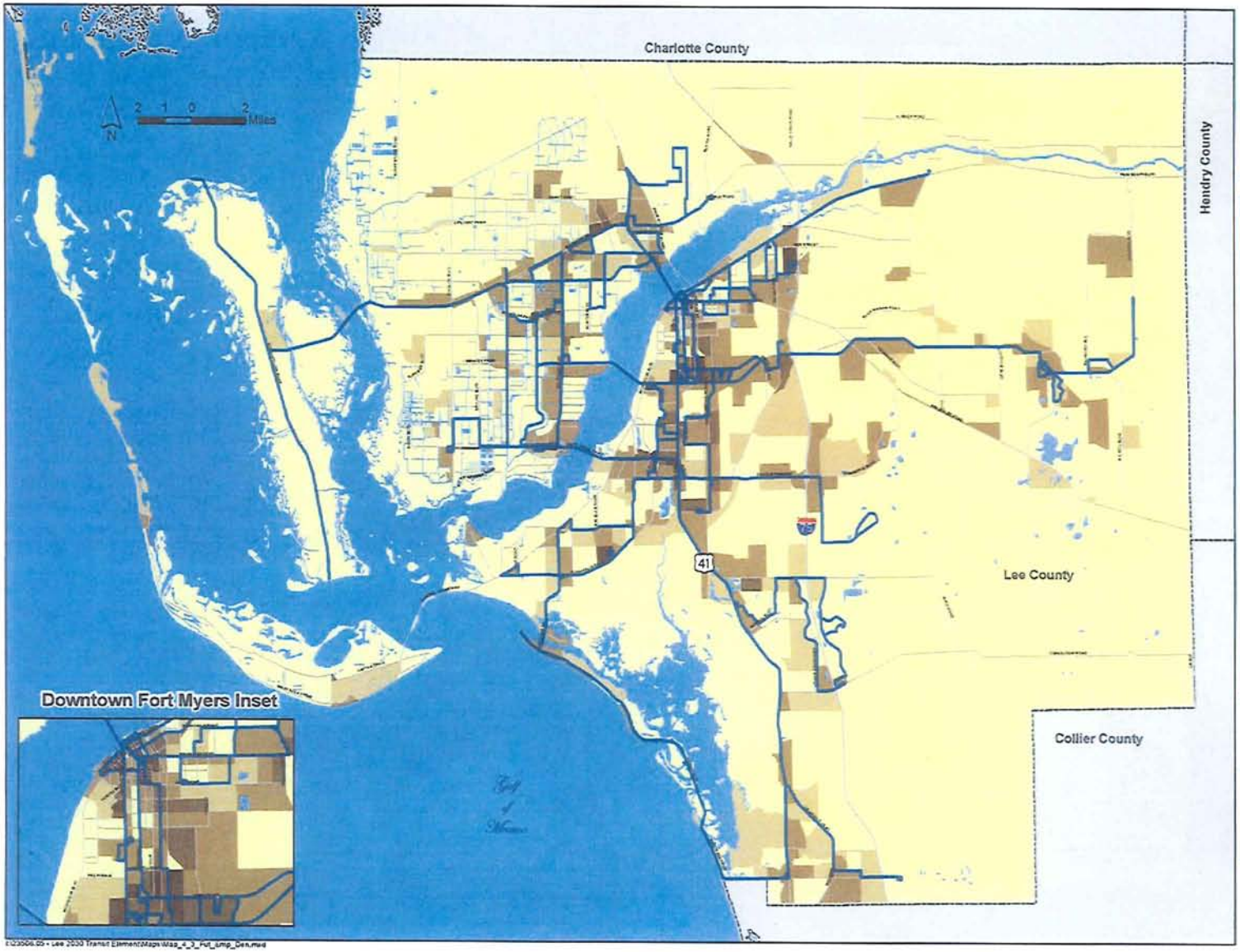

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Lee County Transit System

Future Employment Density (Employees per Square Mile)

- < 500
- 500 - 1,000
- 1,001 - 5,000
- 5,001 - 10,000
- > 10,000
- Existing Bus Routes

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Map 4-3 Future Employment Density (2030)

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Roadway Network

Information about the major roadway network in Lee County was compiled to support the 2030 transit evaluation. The following information was referenced as needed to support the transit evaluation.

- Existing number of lanes
- Existing roadway level of service
- 2030 Needs Plan number of lanes
- Roadway improvements in the 2030 Needs Plan
- Future roadway level of service
- Aerials of major roadway network

Regional Transit Connectivity

The MPO's 2030 vision for Lee County reflects the need and support for inter-county transit connections within the 2030 planning horizon. Regional transit connections are identified and evaluated as part of this long-range transit planning effort. Subsequent chapters of this plan include the results of these efforts.

TRANSIT MARKET ASSESSMENT

The transit market assessment for Lee County includes an evaluation of markets from four major perspectives. These include:

- **Traditional market** - potential for traditional transit users, including elderly, youth, low-income, no vehicle

- **Choice market** - potential riders living in higher density areas of the county and choosing to use transit as a commuting alternative

- **Corridor markets** - potential for markets within defined corridor service areas (density and demographic characteristics within corridors)

- **County-wide market assessment** - potential county-wide demand for transit as a proportion of total travel

The first two perspectives reflect specific market segments from demographic and density perspectives. In contrast, the third and fourth perspectives relate to levels of geography, including corridor and county-wide levels of assessment. The results of each market assessment are presented below.

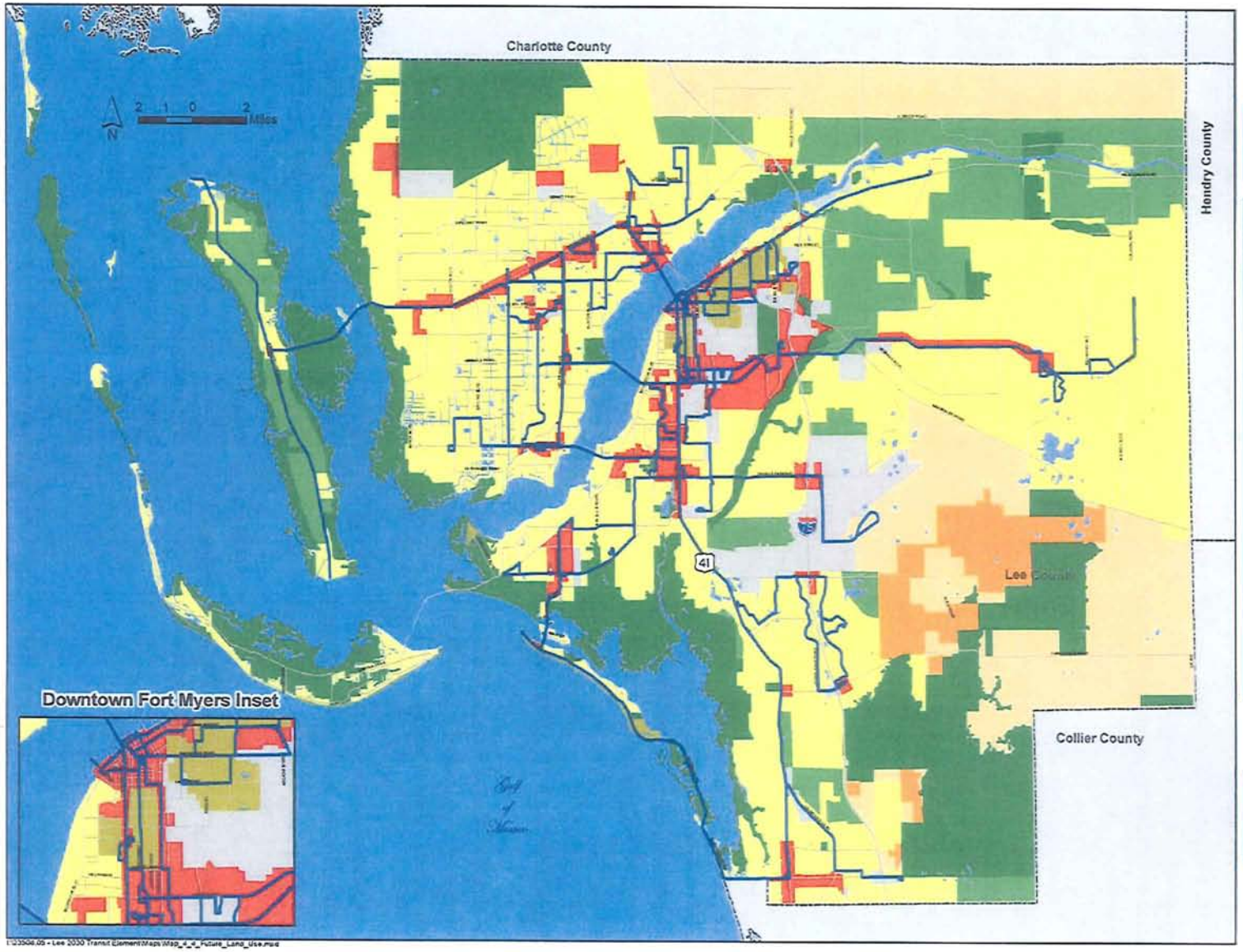
Traditional Market

As indicated previously, the traditional transit market refers to population segments that have historically had a higher propensity to use transit. These segments include:

- Elderly population
- Youth population
- Low-income population
- Zero-vehicle households
- High population density

Using data from the 2000 Census, a Transit Orientation Index (TOI) was developed for Lee County. The five segments identified previously were used to develop an index that identifies areas of the county with higher concentrations of transit-oriented population relative to other areas in the county.

The results of the Lee County Transit Orientation Index are illustrated in Map 4-5. The map illustrates locations throughout the County where the



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Lee County Transit System

2020 Future Land Use

- Commercial
- Residential - Single-Family
- Residential - Multi-Family
- Agricultural
- Mining
- Industrial
- Preserve
- Conservation
- Water
- Unknown
- Existing Bus Routes

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Map 4-4 Future Land Use (2020)

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proportion of the transit-oriented population is very high, high, medium, low, and very low. The orientation index provides a starting point for understanding where transit needs are concentrated throughout the county.

The existing bus route network operated by LeeTran is overlaid on the TOI to determine the extent to which transit services are being provided to areas with the greatest ridership potential for this market.

Areas with a high and very high transit orientation are served by existing bus routes. It should be noted, however, that the frequency and span of service are not necessarily at the appropriate levels given the results of the TOI. For example, while the Lehigh area offers higher transit orientation, the bus service is limited with service frequencies ranging from 40 minutes to over 155 minutes.

The results of the TOI are used in subsequent chapters to assist in projecting transit demand from this traditional transit market.

Choice Market

The choice market includes potential riders living in higher density areas of the county and choosing to use transit as a commuting alternative. As density increases, areas generally become more and more supportive of transit.

To illustrate this relationship, a Density Threshold Assessment (DTA) was conducted based on industry standard relationships between density and varying levels of transit investment.

Table 4-7 presents the density thresholds (dwelling units per acre and employees per acre) for when to consider the following transit modes:

- Fixed-route bus
- Bus rapid transit
- Automated guideway/light rail/diesel multiple unit
- Heavy rail
- Commuter rail

Using the 2030 dwelling unit and employment projections by zone, areas of Lee County that meet either or both of these thresholds for a particular modal level are illustrated in Map 4-6. The existing and future (2030 Needs) bus route network is overlaid on the DTA to determine the extent to which areas meeting various thresholds are served with existing and/or future fixed-route bus service.

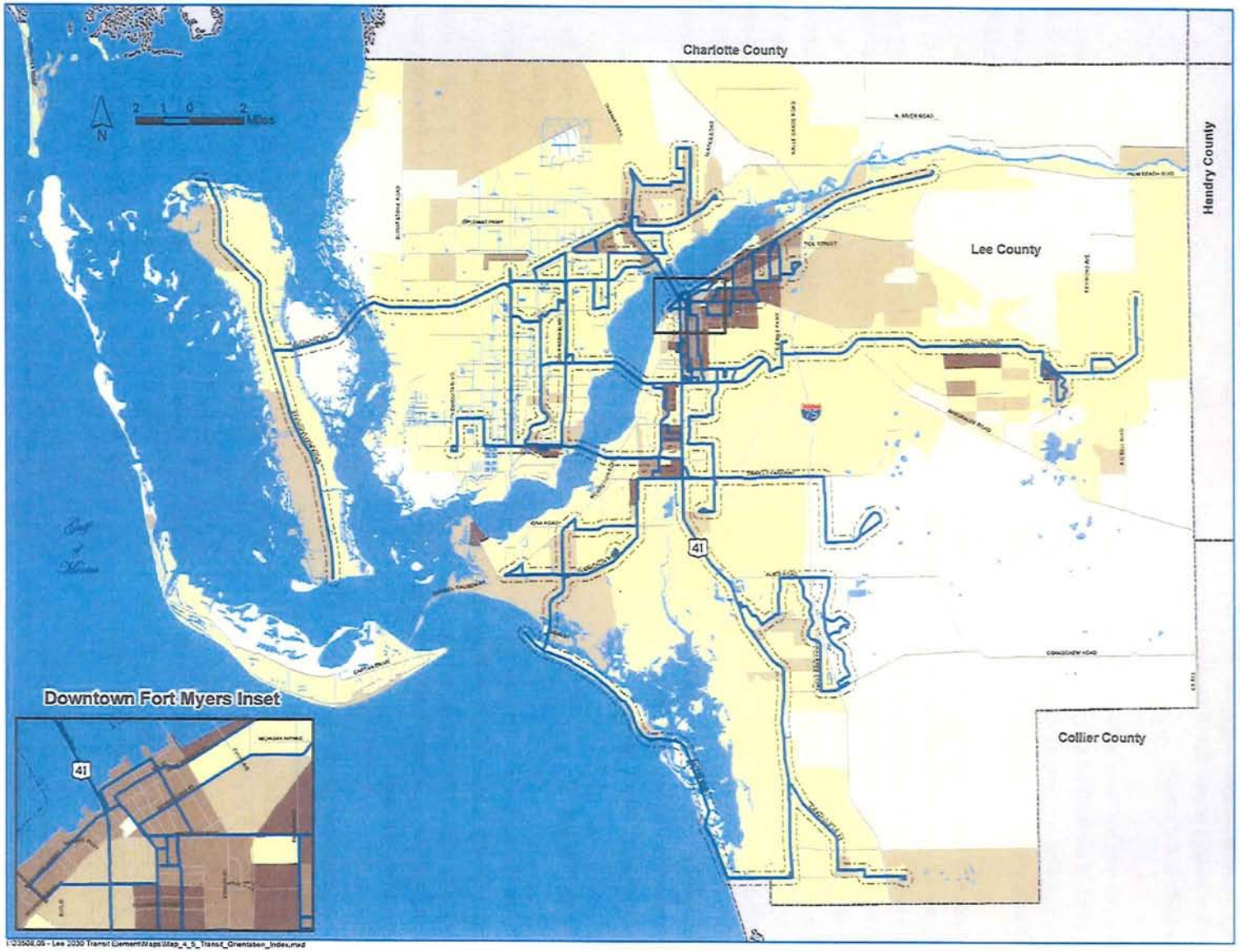
Similar to the traditional market, the results of the choice market assessment are used in subsequent chapters to support the identification of transit needs, whether it be new routes, increased frequencies, or more substantial investments in other mode types.

Corridor Markets

The evaluation of corridor markets involves the assessment of population and demographic characteristics for defined corridor service areas. Corridors can then be prioritized in terms of their potential to generate transit demand. This evaluation considers both the traditional and choice markets within each corridor service area.

Transit Corridor Analysis

A Transit Corridor Analysis is performed and involves the selection of major corridors (which may or may not have current transit service) to be evaluated in terms of their potential to support transit service. Once corridors are selected, ¼-mile buffers are generated for each corridor since this is the



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Lee County Transit System

Transit Orientation
- Very High
- High
- Medium
- Low
- Very Low*
- Existing Bus Routes
- 1/4-Mile Service Area

* Population density below 100 persons per square mile.

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Map 4-5
Transit Orientation (2000) and Existing Routes

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Table 4-7
Density Thresholds by Transit Mode

Transit Mode	Population Density Threshold[1]	Employment Density Threshold[2]
Bus (Minimum to Enhanced Service)	3 - 5 dwelling units/acre	4 employees/acre
Bus Rapid Transit	6 - 7 dwelling units/acre	5 - 6 employees/acre
Guideway/Light Rail/Diesel Multiple Unit	8 - 10 dwelling units/acre	7 - 9 employees/acre
Heavy Rail	11+ dwelling units/acre	10+ employees/acre
Commuter Rail[3]	5 - 7 dwelling units/acre	4 - 5 employees/acre

Sources: FDOT, TRB, National Research Council TCRP Report 16, Volume 1 (1996).

(1) TRB, National Research Council, TCRP Report 16, Volume 1 (1996), *Transit and Land Use Form;* November 2002, MTC Resolution 3434 TOD Policy for Regional Transit Expansion Projects.

(2) Based on a review of recent research on the relationship between transit technology and employment densities, thresholds were established for Lee County.

(3) Additionally, the commuter rail service must connect with one or more large employment centers.

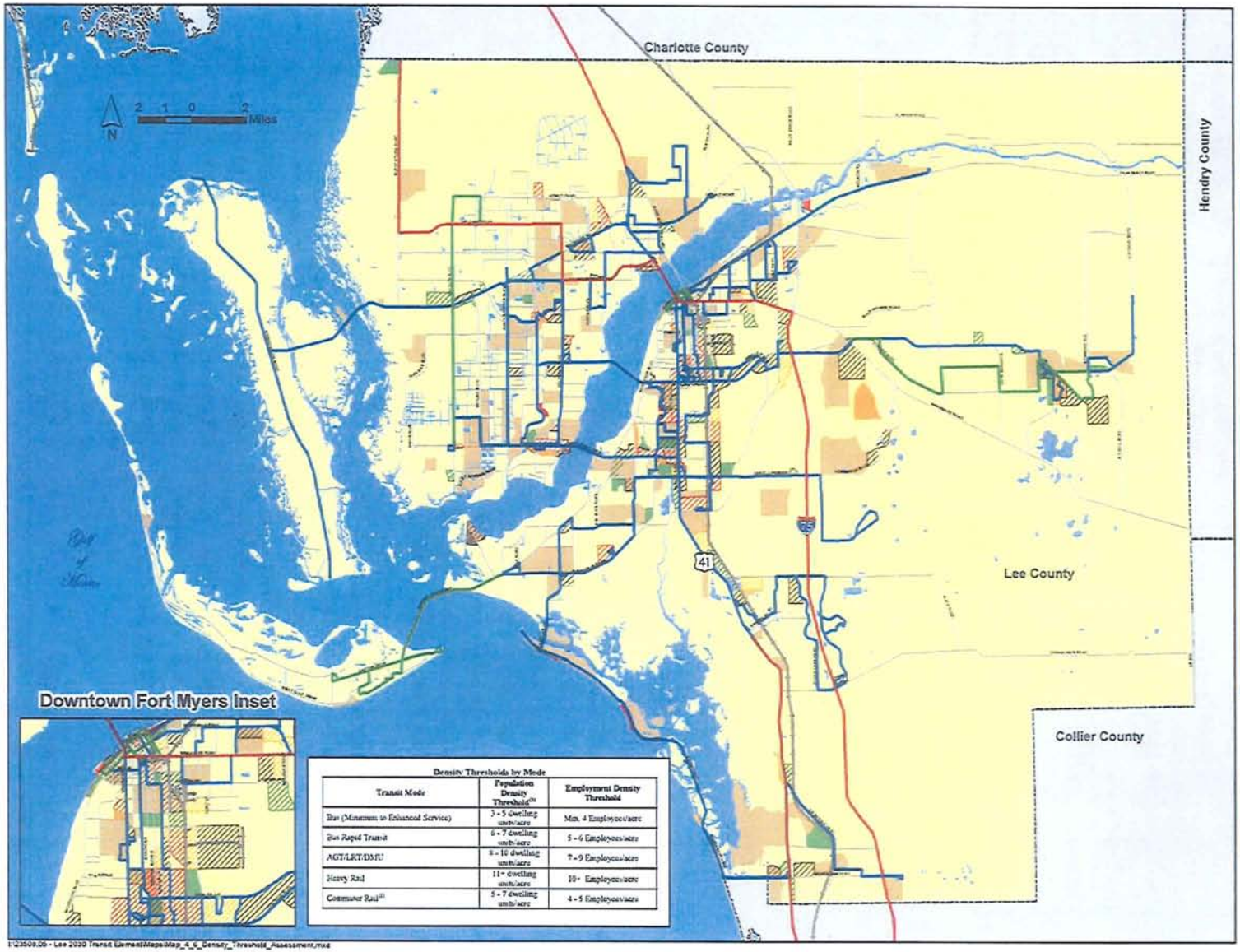
industry standard walking distance for local bus service.

Using a geographic information system (GIS) procedure, the potential service area population, density, and demographic characteristics are estimated for 2005 for each corridor. In addition, the service area population and density also are projected for 2030 using socioeconomic data projections developed by the MPO. Of particular importance is the estimated population density for the ¼-mile buffer service area of each corridor.

Using population density, a cursory estimate of potential corridor level ridership is developed. This process uses a ratio of potential riders per mile of service that can be expected for new service areas based on the population density estimated for that area. Estimated riders per mile by population density are provided in Table 4-8. Based on existing bus routes, an overall assessment of major corridors, field observations, and input from MPO/LeeTran staff, 36 corridors were selected for the analysis. These corridors are illustrated in Map 4-7, along with a ¼-mile buffer representing the service area for each corridor.

Table 4-8
Riders per Mile by Population Density

Population Density (persons per square mile)	Riders per Revenue Mile
< 500	0.25
500 to 999	0.50
1,000 to 1,249	0.63
1,250 to 1,499	0.75
1,500 to 1,749	0.88
1,750 to 1,999	1.00
2,000 to 2,499	1.20
2,500 to 2,999	1.63
>2,999	2.05



Density Thresholds by Mode

Transit Mode	Population Density Threshold[1]	Employment Density Threshold
Bus (Minimum to Enhanced Service)	3 - 5 dwelling units/acre	Min. 4 Employees/acre
Bus Rapid Transit	6 - 7 dwelling units/acre	5 - 6 Employees/acre
AGT/LRT/DMU	8 - 10 dwelling units/acre	7 - 9 Employees/acre
Heavy Rail	11+ dwelling units/acre	10+ Employees/acre
Commuter Rail[2]	5 - 7 dwelling units/acre	4 - 5 Employees/acre

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Lee County Transit System

Population Density Threshold (DU/per Acre)

- Bus
- BRT
- AGT/LRT/DMU
- Heavy Rail

Employment Density Threshold (Employees/per Acre)

- Bus
- BRT
- AGT/LRT/DMU
- Heavy Rail

- Existing Local Route
- Future Local Route
- Future Express Route

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Map 4-6 Density Threshold Assessment

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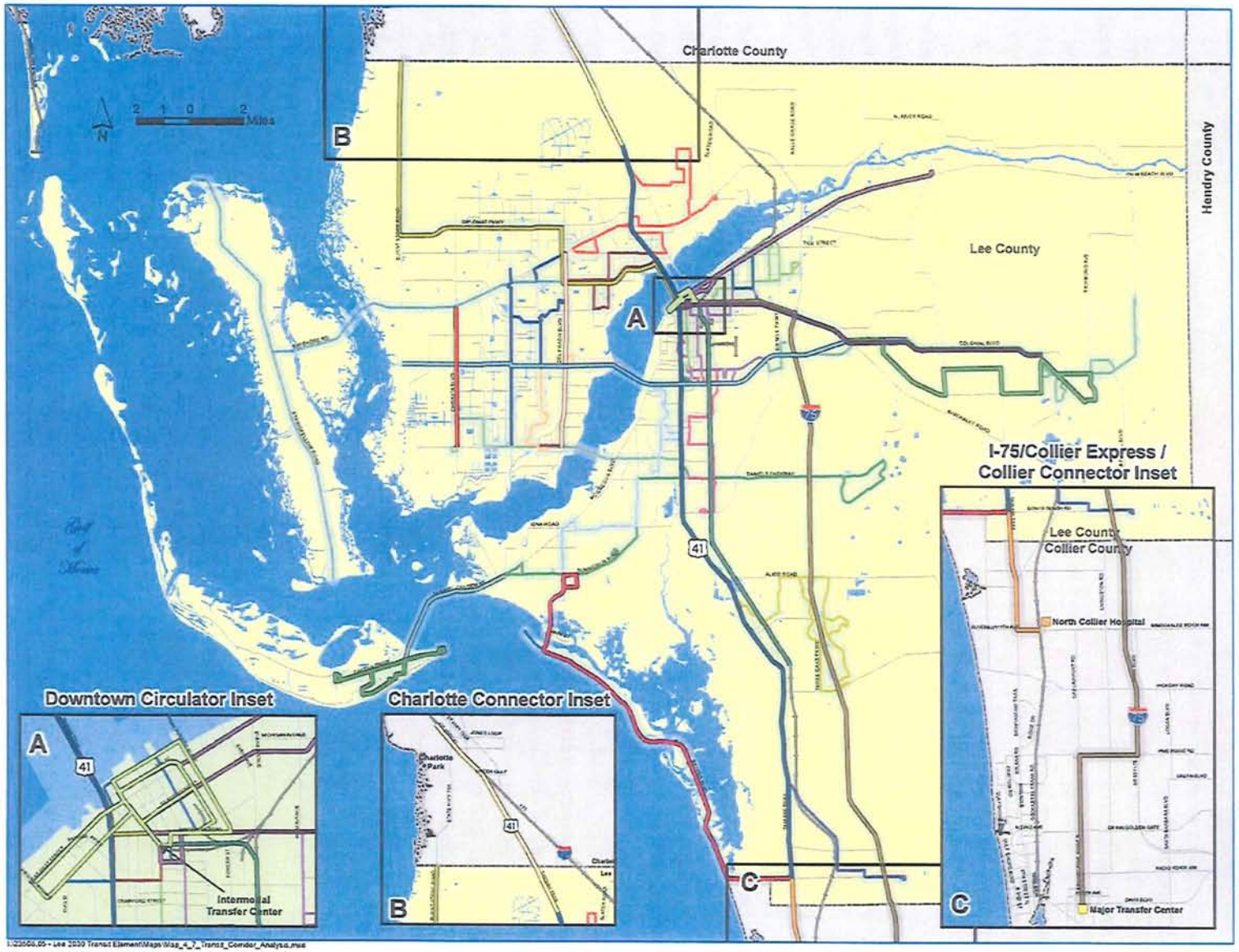

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Lee County Transit System

Existing Routes

10	70	140
15	80	150
20	90	160
30	100	400
40	110	450
50	120	490
60	130	

Alternatives

- MLK/Lehigh Acres BRT
- Cape Coral Circulator
- Charlotte Connector
- Collier Connector
- Downtown Circulator
- Lehigh Circulator
- Sanibel Circulator
- Sanibel Connector
- SGLR Study Area
- US 41 BRT
- Colonial Boulevard BRT
- Fort Myers Beach BRT
- Palm Beach Boulevard BRT
- Del Prado Boulevard BRT
- Burnt Store Express
- I-75/Collier Express
- Seminole Gulf Railway
- 1/4-Mile Service Area

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Map 4-7 Transit Corridor Analysis

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Traditional Markets

The corridors are ranked for each of the demographic characteristics according to their potential to support the traditional transit market. For example, the corridor service area with the greatest proportion of elderly population is assigned the highest ranking, while the remaining corridors are assigned an appropriate score based on their comparative proportional ranking. This same procedure is performed for five attributes that target the traditional transit market. These attributes include:

- Population density
- Percent elderly population (age 60 and over)
- Percent youth population (age 15 and under)
- Percent low-income population (below poverty level)
- Percent zero-vehicle households

Table 4-9 presents the 36 corridors, along with selected demographic characteristics for the service area of each corridor. For each of the characteristics, the corridors are ranked from high to low and assigned a score based on the number of corridors in each category of corridors, including existing fixed route, new fixed route, and new BRT/SGLR. The rankings are then summed to develop a total score for each corridor. The total corridor scores are then ranked from high to low to provide a quantitative assessment of corridor priorities for transit service.

Traditional & Choice Markets

Table 4-10 extends the analysis to estimate annual ridership for 2005, based on the riders per mile from the service guidelines provided previously. This analysis focuses solely on the impact of population density on the demand for transit service. In addition, Table 4-11 presents this same analysis using 2030 population densities.

County-Wide Market Assessment

The county-wide market assessment is used to evaluate potential county-wide demand for transit as a proportion of total travel. In this assessment, transit includes all forms of public transportation, including fixed-route bus, ADA paratransit, and TD services.

This market assessment involves the extraction of person trip data from the Southwest Florida Regional Planning Model, as provided by MPO staff. Person trip travel from the 2000 validation and 2030 Needs Plan are used to evaluate total travel in Lee County.

To evaluate potential transit ridership, a range of transit mode splits was applied to the total person trips generated by the model from 2005 to 2030. Transit mode splits from 0.05 percent to 2.0 percent were applied to total person trips in numerous percentage increments. The resulting 2000 transit trips range from a low of 1,139 average daily transit trips (0.05% mode split) to a high of 45,576 daily transit trips (2% mode split). For 2030, these same numbers range from a low of 2,270 daily transit trips to a high of 90,794 daily transit trips. The results of this procedure are summarized in Table 4-12.

This procedure also was extended to project the number of daily and annual transit trips from 2000 to 2030 by transit mode split. Figure 4-2 presents the projected daily transit trips for selected mode split assumptions, while Figure 4-3 presents the same information for annual transit trips. Each line in the figures represents a given mode split assumption. In 2003, LeeTran and Good Wheels provided 2,680,236 transit passenger trips in Lee County.

Table 4-9
Transit Corridor Analysis - Rankings Based on Demographics (2000)

Corridor Ranking	Corridor	2000 Population Density	% 0-Vehicle Households	% Below Poverty	% Youth	% Elderly	% Work Trips 30+ Minutes	Total Score
Existing Fixed-Route Corridor								
1	Route 20	2,985	27.68%	34.98%	29.24%	14.16%	32.68%	95
2	Route 15	2,922	21.52%	26.97%	29.20%	13.91%	33.07%	88
3	Route 100	2,225	18.84%	26.42%	27.16%	14.15%	37.75%	85
4	Route 10	2,384	25.81%	32.04%	29.16%	13.49%	28.81%	81
5	Route 110	1,180	9.70%	9.45%	20.83%	29.11%	44.38%	76
6	Route 90	1,527	7.37%	15.93%	17.64%	36.11%	33.00%	72
7	Route 130	2,969	10.00%	12.39%	15.67%	30.13%	25.99%	71
8	Route 140	1,868	11.94%	12.88%	15.40%	29.45%	29.37%	69
9	Route 120	2,476	7.66%	8.57%	14.94%	33.59%	27.31%	62
10	Route 150	1,160	4.12%	10.12%	16.97%	29.27%	34.53%	59
11	Route 70	2,001	7.93%	9.19%	17.20%	28.18%	27.22%	58
11	Route 80	1,630	12.61%	11.61%	16.31%	28.25%	20.58%	58
13	Route 30	2,380	7.68%	7.54%	13.29%	36.19%	27.20%	56
14	Route 40	2,215	5.29%	7.78%	20.23%	25.20%	32.49%	55
15	Route 60	1,139	2.27%	5.73%	24.94%	15.04%	38.23%	50
15	Route 400	750	5.94%	7.75%	7.74%	45.17%	34.37%	50
17	Route 160	589	2.88%	7.57%	18.95%	26.94%	34.68%	47
18	Route 490	569	5.95%	9.88%	5.45%	53.78%	26.76%	45
19	Route 50	926	7.54%	7.14%	9.38%	49.85%	23.47%	42
20	Route 450	509	1.81%	1.96%	8.18%	44.26%	37.94%	41
New Fixed-Route Corridor								
1	I-75/Collier Express	446	17.73%	24.09%	25.99%	22.77%	61.85%	42
3	Downtown Circulator	1,941	27.90%	15.57%	13.07%	20.49%	60.35%	39
4	Burnt Store Express	701	8.32%	8.43%	18.99%	22.85%	55.96%	32
1	Lehigh Acres	947	9.80%	10.73%	22.97%	29.09%	71.29%	42
5	Cape Coral	980	1.43%	8.47%	24.50%	14.47%	34.17%	29
6	Sanibel Circulator	356	1.37%	2.83%	11.25%	42.82%	60.91%	25
7	Charlotte Connector	133	3.31%	6.86%	3.20%	77.97%	33.18%	23
8	Sanibel Connector	310	3.04%	5.11%	4.82%	65.82%	30.22%	21
9	Collier Connector	325	1.62%	2.47%	8.37%	42.47%	28.24%	17
New BRT/SGLR Corridor								
1	MLK/Lehigh Acres BRT	1,165	21.78%	27.90%	28.79%	17.30%	35.22%	30
1	Palm Beach BRT	1,927	17.56%	22.53%	24.04%	15.93%	39.20%	30
1	SGLR	1,264	11.28%	14.52%	21.14%	22.54%	57.19%	30
4	Del Prado BRT	2,178	4.08%	7.27%	17.79%	29.56%	54.00%	24
5	US 41 BRT	1,431	9.11%	11.30%	13.92%	35.53%	29.81%	23
6	Colonial BRT	1,053	6.11%	7.34%	20.57%	22.32%	29.00%	16
7	Fort Myers BRT	638	4.47%	6.27%	7.22%	47.32%	34.45%	15

Table 4-10
Transit Corridor Analysis - Rankings Based on Density/Ridership (2005)

Corridor Ranking	Corridor	Estimated 2005 Population	Population Density	Riders Per Mile	Estimated Route Miles	Peer Rev. Miles per Route Mile	Estimated Annual Miles	Estimated Annual Ridership
Existing Fixed-Route Corridor								
1	Route 15	16,847	2,992	1.61	20.57	4,274	87,919	141,770
2	Route 130	21,923	2,979	1.61	29.75	4,274	127,156	205,039
3	Route 20	9,803	2,953	1.61	13.93	4,274	59,539	96,007
4	Route 40	22,812	2,569	1.61	28.47	4,274	121,685	196,218
5	Route 120	14,213	2,511	1.61	22.58	4,274	96,511	155,623
6	Route 30	15,451	2,508	1.61	27.38	4,274	117,027	188,705
7	Route 10	14,458	2,402	1.20	23.42	4,274	100,101	120,121
8	Route 100	16,840	2,355	1.20	8.26	4,274	35,305	42,365
9	Route 70	19,063	2,099	1.20	29.89	4,274	127,755	153,306
10	Route 140	16,860	1,835	1.00	35.88	4,274	153,357	153,357
11	Route 80	10,527	1,663	0.88	26.72	4,274	114,206	99,930
12	Route 90	13,978	1,603	0.88	26.55	4,274	113,479	99,294
13	Route 110	18,031	1,413	0.75	52.57	4,274	224,693	168,519
14	Route 150	10,789	1,292	0.75	33.37	4,274	142,629	106,972
15	Route 60	9,830	1,180	0.63	22.18	4,274	94,801	59,251
16	Route 50	10,795	1,001	0.63	38.93	4,274	166,393	103,996
17	Route 400	3,312	849	0.50	15.08	4,274	64,454	32,227
18	Route 160	11,222	711	0.50	62.66	4,274	267,819	133,909
19	Route 490	1,581	685	0.50	8.69	4,274	37,142	18,571
20	Route 450	2,262	522	0.50	16.88	4,274	72,148	36,074
New Fixed-Route Corridor								
1	Downtown Circulator	2,320	1,918	1.00	4.86	4,274	20,772	20,772
2	Cape Coral	3,396	1,217	0.63	10.36	4,274	44,280	27,675
3	Lehigh Acres	9,542	1,203	0.63	32.60	4,274	139,338	87,086
4	Burnt Store Express	10,057	974	0.50	40.00	4,274	170,966	85,483
5	I-75/Collier Express	10,061	484	0.25	82.40	4,274	352,191	88,048
6	Sanibel Circulator	1,553	402	0.25	23.00	4,274	98,306	24,576
7	Collier Connector	836	324	0.25	9.56	4,274	40,861	10,215
8	Sanibel Connector	839	287	0.25	10.88	4,274	46,503	11,626
9	Charlotte Connector	1,122	145	0.25	30.16	4,274	128,909	32,227
New BRT/SGLR Corridor								
1	Del Prado BRT	9,044	2,368	1.20	14.42	4,274	61,633	85,054
2	Palm Beach BRT	12,472	2,068	1.20	22.47	4,274	96,040	132,536
3	US 41 BRT	22,139	1,453	0.75	59.99	4,274	256,407	221,151
4	SGLR	9,816	1,293	0.75	14.77	4,274	63,129	54,449
5	MLK/Lehigh Acres BRT	8,876	1,240	0.63	27.96	4,274	119,506	85,895
6	Colonial BRT	11,286	1,134	0.63	39.14	4,274	167,291	120,240
7	Fort Myers BRT	6,614	704	0.50	35.96	4,274	153,699	88,377

Table 4-11
Transit Corridor Analysis - Rankings Based on Density/Ridership (2030)

Corridor Ranking	Corridor	Estimated 2030 Population	Population Density	Riders Per Mile	Estimated Route Miles	Peer Rev. Miles per Route Mile	Estimated Annual Miles	Estimated Annual Ridership
Existing Fixed-Route Corridor								
1	Route 40	38,544	4,341	2.05	28.47	4,274	121,685	249,455
2	Route 15	18,815	3,342	2.05	20.57	4,274	87,919	180,235
3	Route 30	19,389	3,148	2.05	27.38	4,274	117,027	239,904
4	Route 130	22,281	3,027	2.05	29.75	4,274	127,156	260,670
5	Route 100	21,487	3,005	2.05	8.26	4,274	35,305	72,374
6	Route 20	9,265	2,791	1.61	13.93	4,274	59,539	96,007
7	Route 120	15,206	2,687	1.61	22.58	4,274	96,511	155,623
8	Route 70	23,534	2,592	1.61	29.89	4,274	127,755	206,004
9	Route 110	32,897	2,578	1.61	52.57	4,274	224,693	362,317
10	Route 10	14,975	2,488	1.20	23.42	4,274	100,101	120,121
11	Route 90	17,295	1,983	1.00	26.55	4,274	113,479	113,479
12	Route 150	16,302	1,952	1.00	33.37	4,274	142,629	142,629
13	Route 80	11,563	1,827	1.00	26.72	4,274	114,206	114,206
14	Route 140	15,346	1,670	0.88	35.88	4,274	153,357	134,187
15	Route 60	11,556	1,387	0.75	22.18	4,274	94,801	71,101
16	Route 50	14,868	1,379	0.75	38.93	4,274	166,393	124,795
17	Route 400	5,241	1,344	0.75	15.08	4,274	64,454	48,341
18	Route 160	20,869	1,322	0.75	62.66	4,274	267,819	200,864
19	Route 490	2,919	1,264	0.75	8.69	4,274	37,142	27,857
20	Route 450	2,551	589	0.50	16.88	4,274	72,148	36,074
New Fixed-Route Corridor								
1	Lehigh Acres	19,722	2,487	1.20	32.60	4,274	139,338	167,205
2	Cape Coral	6,707	2,404	1.20	10.36	4,274	44,280	53,136
3	Burnt Store Express	24,170	2,342	1.20	40.00	4,274	170,966	205,160
4	Downtown Circulator	2,177	1,799	1.00	4.86	4,274	20,772	20,772
5	I-75/Collier Express	13,979	672	0.50	82.40	4,274	352,191	176,095
6	Sanibel Circulator	2,449	634	0.50	23.00	4,274	98,306	49,153
7	Collier Connector	823	319	0.25	9.56	4,274	40,861	10,215
8	Charlotte Connector	1,599	206	0.25	30.16	4,274	128,909	32,227
9	Sanibel Connector	514	176	0.25	10.88	4,274	46,503	11,626
New BRT/SGLR Corridor								
1	Del Prado BRT	12,659	3,314	2.05	14.42	4,274	61,633	185,786
2	Palm Beach BRT	16,731	2,775	1.61	22.47	4,274	96,040	230,710
3	MLK/Lehigh Acres BRT	11,545	1,612	0.88	27.96	4,274	119,506	155,399
4	US 41 BRT	23,780	1,560	0.88	59.99	4,274	256,407	337,318
5	Colonial BRT	15,307	1,538	0.88	39.14	4,274	167,291	217,536
6	SGLR	10,920	1,439	0.75	14.77	4,274	63,129	72,009
7	Fort Myers BRT	9,752	1,039	0.63	35.96	4,274	153,699	143,760

Table 4-12
Transit Mode Split Range & Projected Daily Transit Trips (2000 & 2030)

% Transit Mode Split	2000 Person Trips	2000 Transit Trips	2030 Person Trips	2030 Transit Trips	Percent Difference (2000-2030)
0.05%	2,278,777	1,139	4,539,694	2,270	99.22%
0.10%	2,278,777	2,279	4,539,694	4,540	99.22%
0.15%	2,278,777	3,418	4,539,694	6,810	99.22%
0.20%	2,278,777	4,558	4,539,694	9,079	99.22%
0.25%	2,278,777	5,697	4,539,694	11,349	99.22%
0.30%	2,278,777	6,836	4,539,694	13,619	99.22%
0.35%	2,278,777	7,976	4,539,694	15,889	99.22%
0.40%	2,278,777	9,115	4,539,694	18,159	99.22%
0.45%	2,278,777	10,254	4,539,694	20,429	99.22%
0.50%	2,278,777	11,394	4,539,694	22,698	99.22%
0.55%	2,278,777	12,533	4,539,694	24,968	99.22%
0.60%	2,278,777	13,673	4,539,694	27,238	99.22%
0.65%	2,278,777	14,812	4,539,694	29,508	99.22%
0.70%	2,278,777	15,951	4,539,694	31,778	99.22%
0.75%	2,278,777	17,091	4,539,694	34,048	99.22%
0.80%	2,278,777	18,230	4,539,694	36,318	99.22%
0.85%	2,278,777	19,370	4,539,694	38,587	99.22%
0.90%	2,278,777	20,509	4,539,694	40,857	99.22%
0.95%	2,278,777	21,648	4,539,694	43,127	99.22%
1.00%	2,278,777	22,788	4,539,694	45,397	99.22%
1.05%	2,278,777	23,927	4,539,694	47,667	99.22%
1.10%	2,278,777	25,067	4,539,694	49,937	99.22%
1.15%	2,278,777	26,206	4,539,694	52,206	99.22%
1.20%	2,278,777	27,345	4,539,694	54,476	99.22%
1.25%	2,278,777	28,485	4,539,694	56,746	99.22%
1.30%	2,278,777	29,624	4,539,694	59,016	99.22%
1.35%	2,278,777	30,763	4,539,694	61,286	99.22%
1.40%	2,278,777	31,903	4,539,694	63,556	99.22%
1.45%	2,278,777	33,042	4,539,694	65,826	99.22%
1.50%	2,278,777	34,182	4,539,694	68,095	99.22%
1.55%	2,278,777	35,321	4,539,694	70,365	99.22%
1.60%	2,278,777	36,460	4,539,694	72,635	99.22%
1.65%	2,278,777	37,600	4,539,694	74,905	99.22%
1.70%	2,278,777	38,739	4,539,694	77,175	99.22%
1.75%	2,278,777	39,879	4,539,694	79,445	99.22%
1.80%	2,278,777	41,018	4,539,694	81,714	99.22%
1.85%	2,278,777	42,157	4,539,694	83,984	99.22%
1.90%	2,278,777	43,297	4,539,694	86,254	99.22%
1.95%	2,278,777	44,436	4,539,694	88,524	99.22%
2.00%	2,278,777	45,576	4,539,694	90,794	99.22%

Figure 4-2
Transit Use Trend Line by Mode Split, Projected Daily Transit Trips

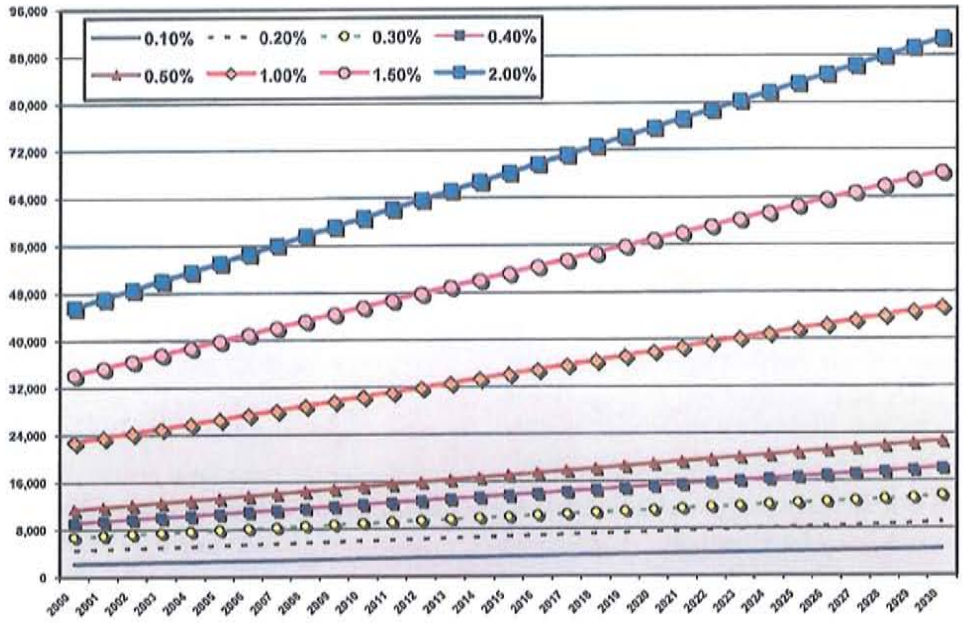
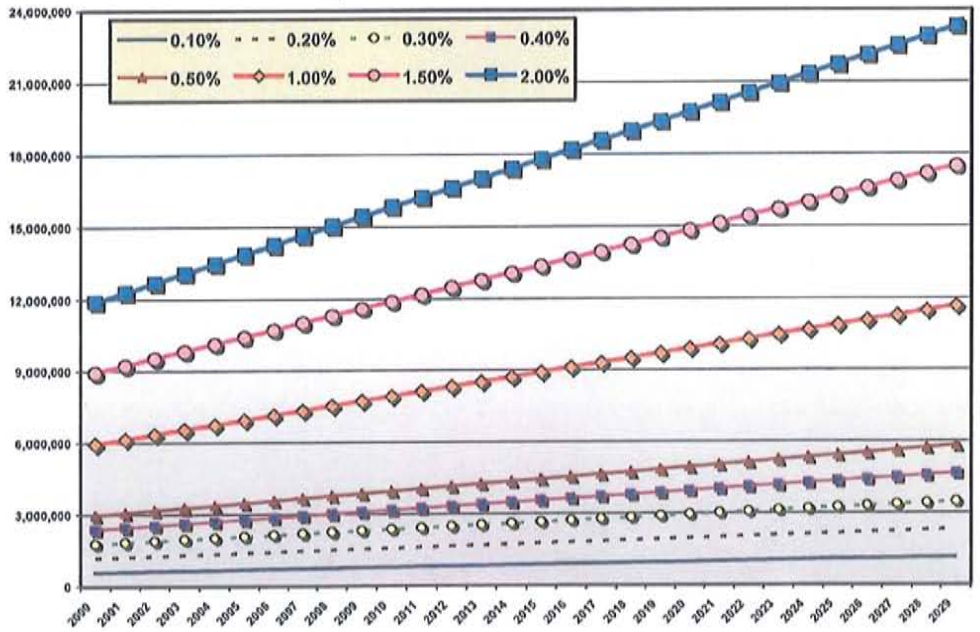


Figure 4-3
Transit Use Trend Line by Mode Split, Projected Annual Transit Trips



This includes fixed-route bus (2,320,758 person trips), ADA paratransit (130,641 person trips), and TD services (228,837 person trips). Taxicab and other privately-operated transit services are excluded from this assessment.

Using the number of passenger trips and the data compiled previously, the transit mode split in 2004 is estimated at 0.41 percent (2,680,236 transit trips/653,770,731 total person trips). This suggests that, if 2004 transit levels of service were maintained, a 0.41 percent transit mode split can be used to conservatively project transit demand in the future.

Annual transit trip estimates/projections from 2005 through the year 2030 are provided in Table 4-13 for the transit mode split of 0.41 percent. The resulting total number of annual transit trips increases from the 2,841,516 transit trips provided in 2005 to a projected 4,857,521 transit trips in the year 2030.

Table 4-13 also provides an additional scenario where the transit mode split increases gradually from 0.41 percent to a mode split objective of 2 percent. This objective is selected based on the transit mode split observed in communities with characteristics similar to what is projected for Lee County by 2030.

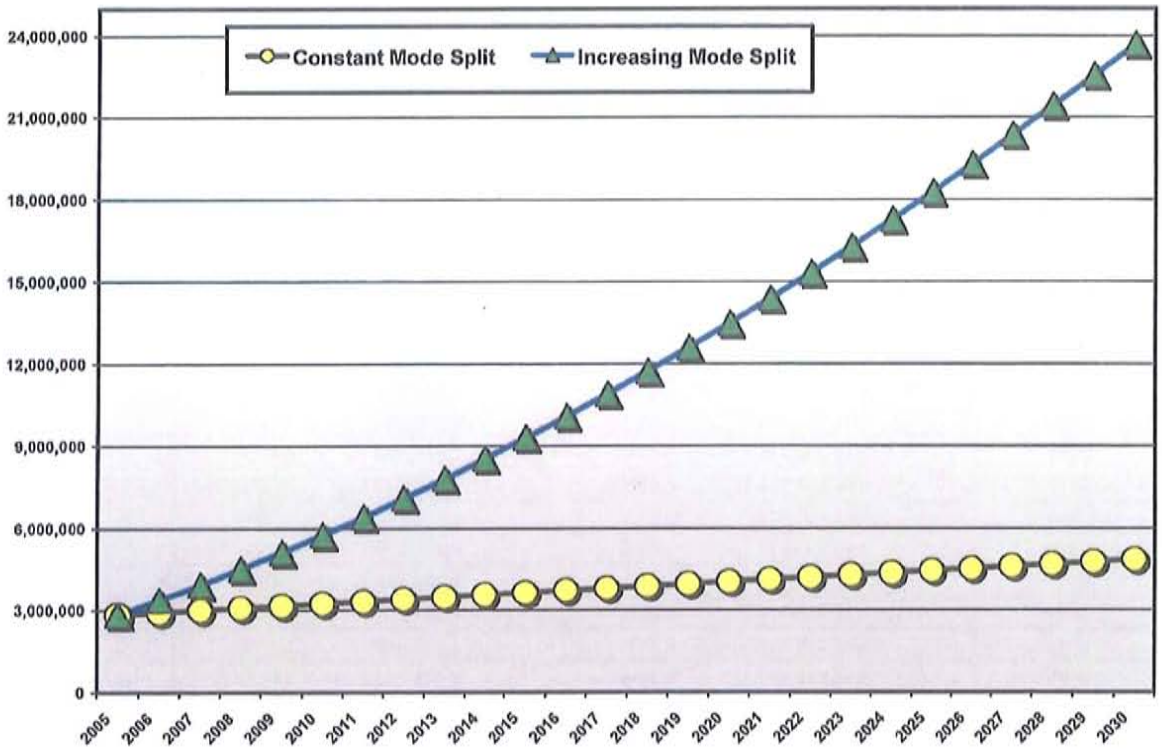
The gradual increase in transit mode split results in an increase in the number of annual transit trips from 2,841,516 trips in 2005 to 23,697,203 trips in 2030. Figure 4-4 presents the transit use trend lines for the two scenarios, including the constant mode split and the increasing mode split.

Achieving this second scenario would require a significantly greater local commitment to public transportation. This is explored further in subsequent chapters as part of the development of the 2030 Transit Needs Plan.

Table 4-13
County-Wide Transit Demand Projections (2005-2030)

Year	Total Person Trips	Transit Mode Split	Total Transit Trips	Transit Mode Split	Total Transit Trips
2005	693,110,687	0.41%	2,841,516	0.41%	2,841,516
2006	712,780,664	0.41%	2,922,157	0.47%	3,375,495
2007	732,450,642	0.41%	3,002,797	0.54%	3,934,494
2008	752,120,620	0.41%	3,083,437	0.60%	4,518,514
2009	771,790,598	0.41%	3,164,077	0.66%	5,127,555
2010	791,460,576	0.41%	3,244,717	0.73%	5,761,616
2011	811,130,554	0.41%	3,325,357	0.79%	6,420,698
2012	830,800,532	0.41%	3,405,998	0.86%	7,104,801
2013	850,470,510	0.41%	3,486,638	0.92%	7,813,925
2014	870,140,488	0.41%	3,567,278	0.98%	8,548,069
2015	889,810,466	0.41%	3,647,918	1.05%	9,307,235
2016	909,480,443	0.41%	3,728,558	1.11%	10,091,420
2017	929,150,421	0.41%	3,809,198	1.17%	10,900,627
2018	948,820,399	0.41%	3,889,839	1.24%	11,734,855
2019	968,490,377	0.41%	3,970,479	1.30%	12,594,103
2020	988,160,355	0.41%	4,051,119	1.36%	13,478,372
2021	1,007,830,333	0.41%	4,131,759	1.43%	14,387,662
2022	1,027,500,311	0.41%	4,212,399	1.49%	15,321,972
2023	1,047,170,289	0.41%	4,293,039	1.55%	16,281,303
2024	1,066,840,267	0.41%	4,373,680	1.62%	17,265,655
2025	1,086,510,245	0.41%	4,454,320	1.68%	18,275,028
2026	1,106,180,222	0.41%	4,534,960	1.75%	19,309,421
2027	1,125,850,200	0.41%	4,615,600	1.81%	20,368,836
2028	1,145,520,178	0.41%	4,696,240	1.87%	21,453,270
2029	1,165,190,156	0.41%	4,776,880	1.94%	22,562,726
2030	1,184,860,134	0.41%	4,857,521	2.00%	23,697,203

Figure 4-4
County-Wide Transit Demand Projections, Projected Annual Transit Trips (2005-2030)



Chapter 5: SGLR Corridor - Transit Feasibility Assessment

This chapter examines the potential feasibility of implementing an alternative transit modal technology within the existing Seminole Gulf Railway (SGLR) corridor. An overview of various transit technologies is provided. Then, an evaluation methodology is used to assess the potential and practicality of each mode for implementation within the railway within the timeframe of the 2030 LRTE. Based on this analysis, recommendations for the potential introduction of alternative transit modal technologies within the SGLR corridor are offered.

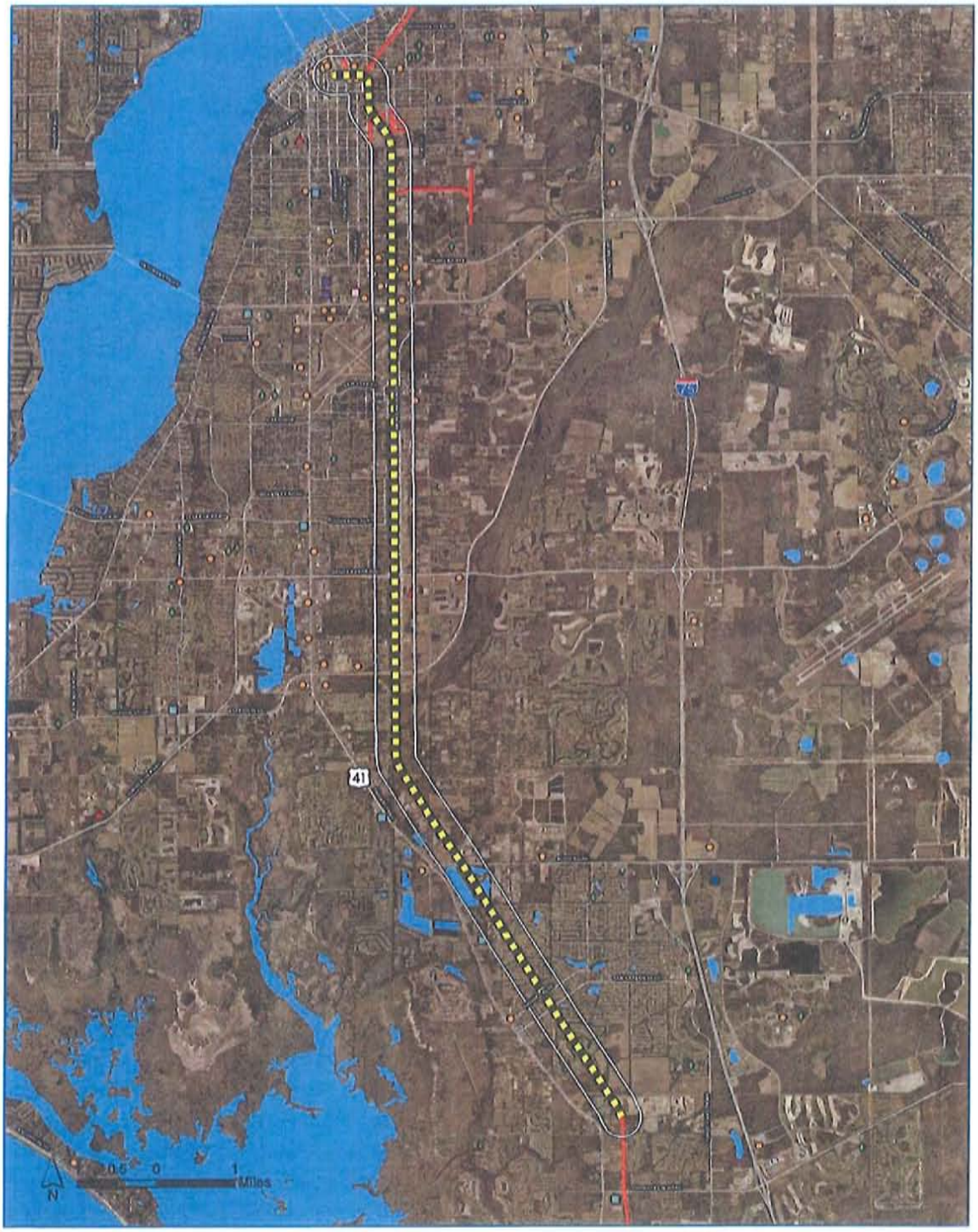
SEMINOLE GULF RAILWAY

Seminole Gulf Railway (SGLR) is a short-line regional railroad in Southwest Florida that began operation in November 1987, after it purchased 118 miles of trackage from CSX Transportation. The trackage includes two lines: the Sarasota Line, which runs from Oneco in Manatee County to Venice in Sarasota County, and the Fort Myers Line, which runs from Arcadia in DeSoto County to North Naples in Collier County. The lines connect with the national rail system (via CSX) at the Oneco and Arcadia stations.

As the only freight railroad in Southwest Florida, the SGLR carries much of the region's building materials, steel, newsprint, plastics, liquid propane gas, sugar, stone, and recycled materials, among other commodities. In January 1991, the railroad began operating a dinner train and daytime excursion trains. The dinner train, now known as The Dinner Train Theater, has hosted more than 350,000 patrons attending over 35 new murder mystery productions.

For purposes of this study, only the SGLR's Fort Myers Line has been considered. The portion of this line that was examined extends from Downtown Fort Myers to Corkscrew Road for a total length of approximately 15 miles. The study corridor includes a quarter-mile buffer on both sides of the railroad track for analysis purposes. This buffer zone is used to represent the potential rider catchment area for a

Lee County Transit System



2030 Long Range Transit Element (LRTE)

- SGLR Corridor
- SGLR Study Area
- 1/4-Mile Study Area Buffer
- Major Employer
- Community Shopping Center
- Neighborhood Shopping Center
- Regional Shopping Center
- Future/Proposed Shopping Center
- Hospital
- School

Map 5-1
Seminole Gulf Railway Study Area

Tindale-Oliver & Associates, Inc.
Planning and Engineering

Created: 08.10.05 Edited: 08.10.05 By: RRP

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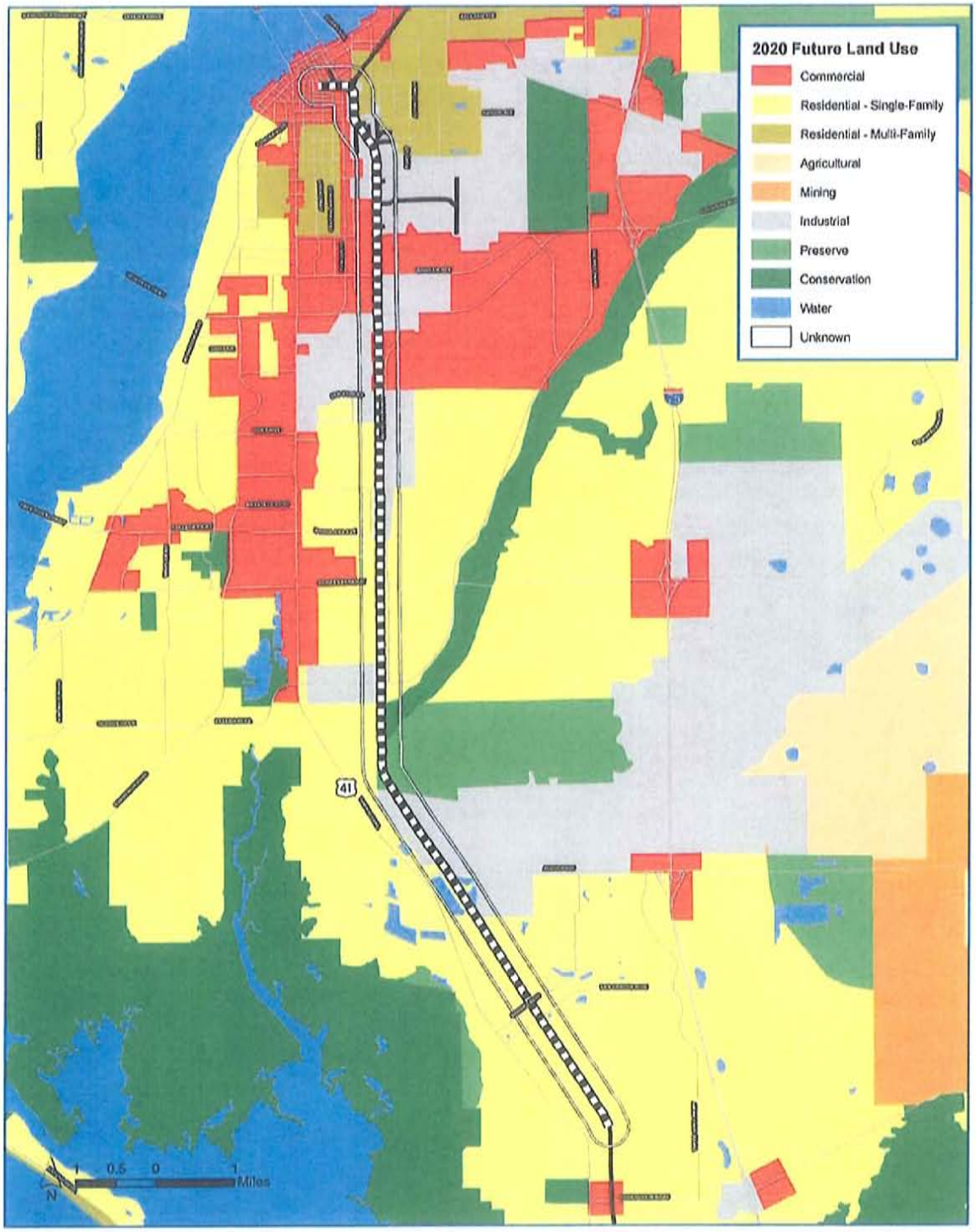
Lee County Transit System



2030 Long Range Transit Element (LRTE)

SGLR Study Area
1/4-Mile Study Area Buffer
SGLR Corridor

Map 5-2
Seminole Gulf Railway
Future Land Use

Tindale-Oliver & Associates, Inc.
Planning and Engineering

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rail corridor and is based on information from Table ES-1 in the Transportation Cooperative Research Program (TCRP) Report H-1, *Commuter and Light Rail Transit Corridors: The Land Use Connection.* Map 5-1 presents the extents of the study area along the SGLR corridor with aerial photography of Lee County in the background. Map 5-2 presents Lee County's 2020 Future Land Uses along the SGLR study corridor, a useful tool for helping evaluate the corridor's potential ridership base.

METHODOLOGY

A preliminary, sketch-level assessment of the existing SGLR corridor was conducted to determine the feasibility of implementing some form of potential transit service in the corridor within the 2030 timeframe. Specifically, this examination considered available right-of-way, future population and employment density, and existing physical characteristics and constraints of the railway corridor.

Figure 5-1 presents a flowchart that illustrates a summary of the assessment methodology for the SGLR corridor, including the general steps taken in determining the potential future feasibility of transit technologies by 2030 within the corridor.

IDENTIFICATION OF POTENTIAL TRANSIT TECHNOLOGY

Heavy Rail

Heavy rail is the transit technology with the highest performance and capacity. Heavy rail is a

Figure 5-1
SGLR Corridor Transit Feasibility Assessment

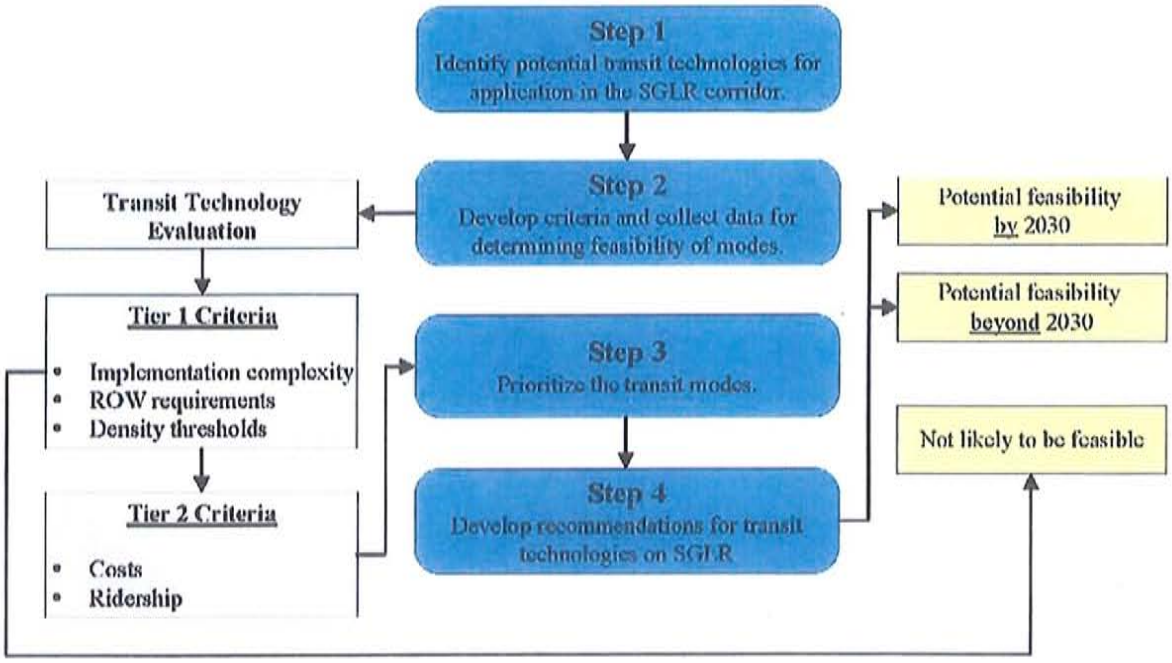


Figure 5-2
Heavy Rail Transit - MARTA (Atlanta)

specialized, electrically-powered rail system carrying passengers within, or between urban areas and suburbs. The rail system is characterized by its exclusive tracks that are fully grade-separated. The operational and capacity features of heavy rail transit (HRT) are listed below. In addition, Figure 5-2 presents a photograph of the heavy rail transit system in Atlanta, Georgia, operated by Metropolitan Atlanta Regional Transit Authority (MARTA).

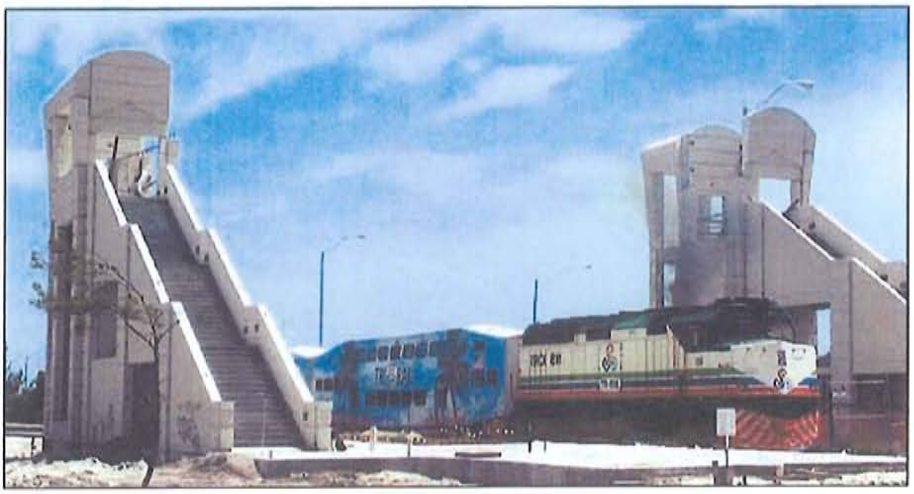
- Exclusive segregated right-of-way
- Passenger rail cars operating singly or in multi-car trains on fixed rails, with sophisticated signaling and high platform loading
- Reductions of surface traffic congestion and travel time (typical speeds of between 60-80 miles per hour)
- An increase in transport capacity (approximately 170 passengers with 80 seated)
- System capacity at 60,000 persons/hour/direction
- Station spacing typically one mile apart or more

Commuter Rail

Commuter rail is a transit technology employing an electric- or diesel-propelled railway for urban passenger train service consisting of local, short distance travel operating between one or more central business districts (CBD) and adjacent suburbs. The transit service utilizes diesel-electric or electrically-propelled trains, operating over existing railway trackage on the same rights-of-way used by intercity railway freight and/or passenger trains. The operational and capacity features of commuter rail are provided below. Figure 5-3 presents a photograph of the commuter rail transit system operated by Tri-Rail (South Florida Regional Transit Authority), transporting passengers between Miami, Fort Lauderdale, and West Palm Beach in Southeast Florida.

- Multi-trip tickets with specific station-to-station fares

Figure 5-3
Commuter Rail Transit - Tri-Rail (Southeast Florida)



- Only one or two stations in the central business district (requires substantial passenger-trip origins in outlying suburban areas with destinations into the CBD)
- Railway track is shared with intercity freight, thus normally requires neither the acquisition of new right-of-way nor the construction of new main-line trackage (if railway track already exists)
- Service frequency is typically every 30 minutes in peak travel direction during weekday peak travel periods, with midday, evening, and weekend service frequencies varying from one to three hours where such non-peak service is operated at all

Light Rail Transit

Light rail transit (LRT) is a technology that encompasses lightweight passenger rail cars operating singly or in short, usually two-car trains, on fixed rails in exclusive or semi-exclusive rights-of-way. LRT vehicles are powered by an overhead electric line via a trolley or a pantograph. This overhead power collection features enables LRT systems to be integrated with other at-grade transportation modes and pedestrians. LRT can operate in mixed traffic on tracks embedded in the street (like streetcar), on an at-grade right-of-way with street and pedestrian crossings, or on fully-segregated, exclusive rights-of-way. The operational and capacity features of light rail are listed below. Figure 5-4 presents a photograph showing the light rail transit system operated by New Jersey Transit in Camden.

- Available for shared or exclusive right-of-way, requires turning radius of 150 to 200 feet
- Headway dependent upon traffic conditions, or with exclusive right-of-way can be as short as 3 minutes
- System capacity is approximately 20,000 pphpd (ranging from 15,000 to 30,000 depending upon system configuration)

Figure 5-4
Light Rail Transit - Camden, New Jersey

Automated Guideway Transit

Automated guideway transit (AGT) is an electric railway (single- or multi-car trains) of guided transit vehicles operating automatically on guideways with exclusive rights-of-way, generally on a loop or as a shuttle within airports, central business districts, or other high activity centers. Service may be on a fixed schedule or in response to a passenger-activated call button.

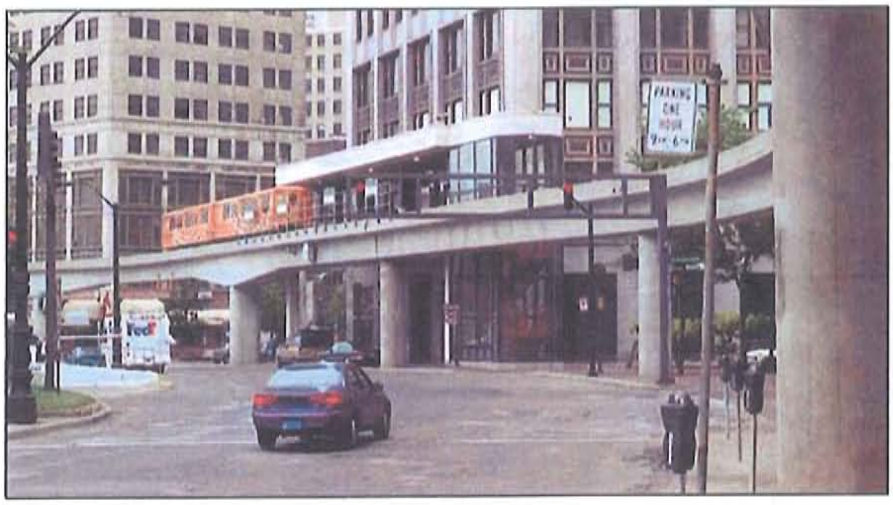
AGT systems are characterized by electric propulsion, full automation, and exclusive (and typically elevated) rights-of-way. Automated guideway systems can be found in Detroit, MI; Indianapolis, IN; Jacksonville, FL; Las Colinas, TX; Miami, FL; and Morgantown, WV. AGT systems include three distinct categories based on vehicle size and resulting system capacity, which in turn tends to determine the nature of trips for which each system is best suited. These three categories are listed below in addition to their respective passengers per vehicle and speed.

- Personal Rapid Transit (PRT), typically 2 to 6 passengers per vehicle with an approximate speed of 30 miles per hour
- People Mover, typically 30 to 100 passengers per vehicle with an approximate speed of 30 miles per hour
- Advanced Rapid Transit (ART), typically 75 to 135 passengers per vehicle with an approximate speed of 50 miles per hour

The following bullets list some of the major characteristics associated with AGT. In addition, Figure 5-5 presents a photograph of the people mover system in Detroit that transports riders throughout the Downtown CBD.

- Highly integrated technology that is fully automated

Figure 5-5
Automated Guideway - Detroit People Mover



- Vehicle capacity of approximately 100 passengers
- Flexible system design operating on exclusive right-of-way
- Stations can be integrated with building structures

Diesel Multiple Units

Diesel multiple units (DMU) are rail car units that contain both passenger accommodations and an on-board propulsion system (i.e., a diesel engine). These units are usually operated in a multiple-car system, with a combination of diesel-powered locomotives operating under the control of one engine driver. DMU systems can be subdivided into three basic transmission categories, as listed below.

- Diesel Mechanical Multiple Units (mechanical transmission)
- Diesel Hydraulic Multiple Units (hydraulic transmission)
- Diesel Electrical Multiple Units (electrical transmission)

Diesel multiple units have been widely used throughout Europe, specifically in the United Kingdom and Poland. Listed below are key characteristics associated with the DMU. Additionally, Figure 5-6 depicts a DMU system concept vehicle produced for the Colorado Railcar system.

- DMU systems have no need to run overhead electric lines or electrified track, which can result in lower system construction costs
- DMU systems can be safely operated within freight corridors, although Federal Railway Administration (FRA) regulations and scheduling concerns require that separate tracks be used for both rail uses (commuter and freight movement)

Figure 5-6
Diesel Multiple Unit - Colorado Railcar

- Recently, the Colorado Railcar system has manufactured a concept vehicle that meets the FRA 49 CFR Part 238 compliance code

Bus Rapid Transit

Bus Rapid Transit (BRT) has been defined by the American Planning Association's Transportation Planning Division as, "flexible, rubber-tired rapid transit mode that combines stations, vehicles, service, running-ways, and Intelligent Transportation Systems (ITS) elements into an integrated system with a strong positive identity and a unique image." BRT, though comparable to light rail systems, allows for greater operational flexibility in implementing such a system. BRT can facilitate the integration of exclusive rights-of-way and still operate in mixed city traffic to bring passengers directly to desired locations in the CBD.

BRT systems were developed to reduce overall bus travel times, increase bus frequency and reliability (e.g., exclusive lanes reduce traffic-related delays), and provide enhanced amenities for passengers. The major components of BRT are listed below and Figure 5-7 illustrates a transit station on the Pittsburgh BRT System.

- Running ways
- Stations
- Vehicles
- Fare collection
- Intelligent transportation systems
- Bus operation and service
- Route structure
- Branding

Bus/Trolley Systems

Transit Bus technology can be defined as a self-propelled, rubber-tired road vehicle designed to carry a substantial number of passengers that is commonly operated on main arterial streets and highways in mixed traffic subject to the inherent delays due to

Figure 5-7
Bus Rapid Transit - Pittsburgh Busway

Figure 5-8
Bus System - Boston (MBTA)

Figure 5-9
Trolley System - HART In-Town Trolley (Tampa)

roadway traffic. Bus service and trolley service are quite similar in nature; although, as noted below, certain aesthetic features of the trolley service make it unique. Some of the features of a transit bus system are listed below and an example of a motorbus vehicle is shown in Figure 5-8. Figure 5-9 presents a photograph of the In-Town Trolley Service vehicle, operated by the Hillsborough Area Regional Transit Authority in Downtown Tampa.

- Low cost, proven technology (Bus and Trolley)
- Available for shared or exclusive rights-of-way (Bus and Trolley)
- Approximate capacity per bus varies with size, with large buses holding 100 passengers with approximately 45 to 60 seated (Bus and Trolley)
- Headway is dependent on traffic conditions (Bus and Trolley)
- Feasible technology for establishing a transit-oriented community within a new area previously without transit service (Bus and Trolley)
- Provides connections to certain key tourist destinations and within CBDs with a "classical bus theme" (Trolley)

TIER 1 CRITERIA SCREENING & RESULTS

The Tier 1 screening process for assessing the potential feasibility of the respective transit technologies summarized previously for future application within the SGLR corridor included a determination of feasibility as well as the subsequent assigning of a score for each criterion. The criteria were intended to provide a balanced assessment of each technology's practicality for application within the corridor. The three criteria that were used to evaluate each technology are as follows:

- Implementation complexity
- Density threshold assessment
- Right-of-way requirements

As shown previously in Figure 5-1, three rating categories (not likely to be feasible, potentially feasible beyond 2030, and potentially feasible by 2030) were used for each criterion. For scoring purposes, the ratings correspond numerically to "1" (not likely to be feasible), "2" (potentially feasible beyond 2030), and "3" (feasible by 2030). It is important to note that the technology ratings are strictly based on the particular standards set for each criterion. Thus, specific assignment of scores for each criterion is based on the information provided in each respective analysis table, as well as on general knowledge of the transit technologies being evaluated.

Implementation Complexity

Further review of the potential transit modal technologies includes a review of the physical characteristics associated with the implementation of each technology. The implementation requirements for each technology were evaluated with prime consideration given to the current conditions (track condition, transit accessibility) along the SGLR corridor to provide the primary basis for determining feasibility and assigning scores. Table 5-1 presents the physical infrastructure characteristics (right-of-way requirements, minimum curve radius, maximum grade percentage, station design, station spacing, and platform length) of each technology. In addition, also shown in the table is whether each technology is feasible for application based on the quantitative and qualitative review of its respective infrastructure characteristics, and the assigned score for each mode for this particular criterion.

Table 5-1
Potential Transit Mode Physical Infrastructure Comparison

Mode	Right-of-Way	Min. Curve Radius (ft.)	Maximum Grade (%)	Station Design	Station Spacing (miles)	Platform Length (feet)	Feasibility	Mode Score
Heavy Rail	Dedicated	150	3	Floor Level Platform	N/A	N/A	No	1
Commuter Rail	Shared or Exclusive	50	3-4	Floor Level Platform	3.0-5.0	200-300	No	1
Light Rail	Shared or Exclusive	100	7	On street or platform	1.0-2.0	200-400	No	1
AGT	Dedicated	75	10	Floor Level Platform	N/A	N/A	No	1
DMU	Dedicated	80	N/A	On street or platform	3.0-5.0	200-400	No	1
BRT	Shared or Exclusive	50	10	On street stop	0.5 - 2.0	40-60	Yes	3
Bus/Trolley	Shared or Exclusive	50	10	On street stop	0.5	N/A	Yes	3

Heavy rail requires dedicated right-of-way tracks that are fully grade-separated with high platform loading and sophisticated signaling. Full grade-separation ensures safety with third-rail power distribution and the high level of operational reliability achievable only with traffic-free alignment. The presence along the SGLR corridor of many traffic and pedestrian crossings realistically prohibits this sort of rail technology. Given this requirement, this technology is not considered feasible along the SGLR corridor by 2030 based on this criterion.

Commuter rail can operate on existing railway trackage on the same right-of-way used by railway freight. Thus, the major requirement for implementing this technology is an upgrade to the existing track or construction of a new track to accommodate the operating speeds for commuter rail (Tri-Rail operates between 84 to 100 miles per hour). In addition, FRA regulations must be met for specific elements such as track safety, signal system, grade crossing signal system, and passenger equipment safety standards. Given these requirements, this technology is not considered feasible along the SGLR corridor by 2030 based on this criterion.

Light rail can operate on existing railway trackage on the same right-of-way used by railway freight. However, similar to the case for the commuter rail mode, the existing trackage would need to be upgraded and a new track would need to be constructed (since double tracking is preferred for LRT). Most LRT systems are powered by overhead electric wires. Along the SGLR corridor, LRT with longitudinally-separated right-of-way could be applied with a limited number of vehicle and pedestrian grade crossings. However this would require a re-configuration of the local roadway network to re-route traffic and pedestrian flows around existing crossing locations. In addition, at this time, no light rail vehicle in the United States meets FRA-compliance for operating within the general railroad environment. To do this, an FRA waiver is needed. This waiver requires a temporal separation of the light rail service from the existing freight service. Given these considerations, this technology is not considered to be feasible along the SGLR corridor by 2030 based on this criterion.

AGT requires a separated, elevated guideway with exclusive rights-of-way. Given the presence of at-grade crossings along the SGLR corridor and the fact

that AGT is a driverless technology, safety requirements in compliance with FRA regulations would require an elevated guideway. Additionally, the elevated system would require that high platform stations be implemented, which require further planning and design for identifying appropriate locations. Given this major requirement, this technology is not considered feasible along the SGLR Corridor by 2030 based on this criterion.

DMU can operate on existing railway trackage on the same right-of-way used by railway freight if time separation has been programmed. Similar to commuter rail, the major requirement for implementing this technology is an upgrade to the existing track and/or construction of a new track. Recent developments in DMU technology, such as the Colorado Railcar concept, meet the FRA 49, CFR Part 238 compliance code for trackage sharing between commuter and freight rail. However, since these vehicles have not been applied to date in any new start rail program, the implications and potential challenges of implementing this technology has not been tested in the United States. Given these requirements and issues, this technology is not considered feasible along the SGLR Corridor by 2030 based on this criterion.

BRT can operate either in mixed-use traffic or in an exclusive lane. It is possible that the existing railway trackage could be maintained for freight movement, while an exclusive BRT lane is constructed. An exclusive BRT lane requires less design and mitigation requirements than does a rail application. In addition, the operational flexibility of BRT can facilitate the implementation of the service as a precursor to a light rail application when future transit demand needs arise. Given this requirement, this technology is considered feasible along the SGLR Corridor by 2030 based on this criterion.

Bus/Trolley can operate either in mixed-use traffic or within an exclusive right-of-way. The existing railway trackage could be maintained for freight

Table 5-2
Density Threshold Assessment

Mode	Population Density Thresholds (du/acre)[1]	Feasibility	Employment Density Thresholds (employees/acre)[2]	Feasibility	Mode Score
Bus (Minimum to Enhanced Service)	3 - 5	No	4	Yes	2
BRT	6 - 7	No	5 - 6	Yes	2
AGT/LRT/DMU	8 - 10	No	7 - 9	No	1
Heavy Rail	11+	No	10+	No	1
Commuter Rail[3]	5 - 7	No	4 - 5	Yes	2

Sources: FDOT, TRB, National Research Council TCRP Report 16, Volume 1 (1996).
(1) TRB, National Research Council TCRP Report 16, Volume 1 (1996), *Transit and Land Use Form;* November 2002, MTC Resolution 3434 TOD Policy for Regional Transit Expansion Projects. The SGLR Corridor has 1.33 dwelling units per acre and 5.8 employees per acre.
(2) Based on a review of recent research on the relationship between transit technology and employment densities, thresholds were established for Lee County.
(3) Additionally, the commuter rail service must connect with one or more large employment centers.

movement, while either an exclusive bus lane is constructed or an existing parallel roadway lane is used. An exclusive bus lane requires less design and mitigation requirements than do rail applications. In terms of implementation complexity, Bus/Trolley is quite similar to BRT; however, the enhanced amenities at BRT stations increase the level of infrastructure required for implementing such a transit technology. Given these findings, this technology is considered feasible along the SGLR Corridor by 2030 based on this criterion.

Density Threshold Assessment

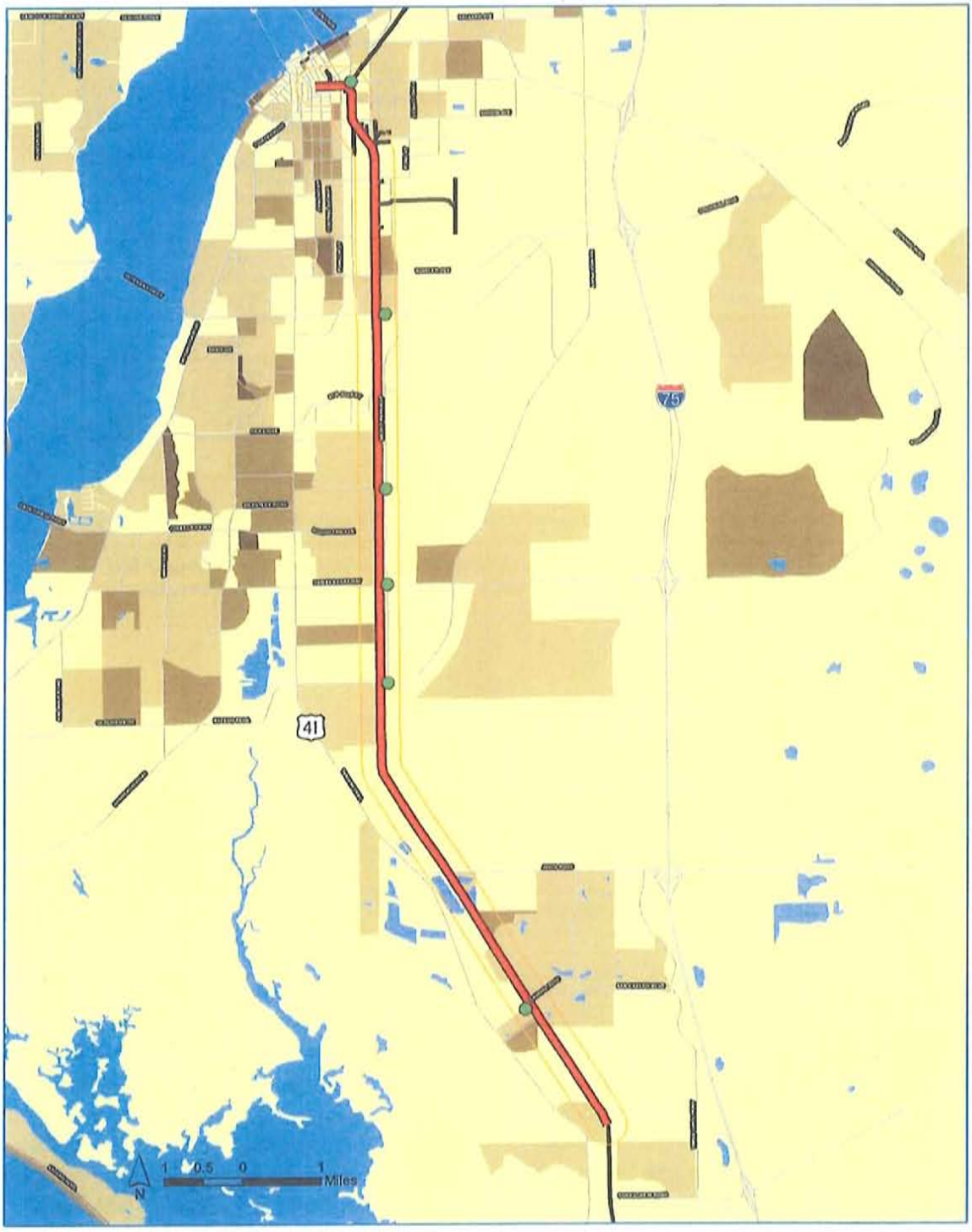
A review of the projected residential and employment densities (2030) associated with the respective rider catchment areas resulting from the implementation of each technology provides an indirect measure of potential transit ridership. A transit corridor with a high concentration of population and employment within walking access distance will have higher ridership potential than one without. Table 5-2 presents the results of a review of federal research and alternatives evaluation studies that indicate varying minimum levels of residential and employment densities that would support the implementation of various transit modes. The Density Threshold Assessment compares the 2030 residential and employment density of the SGLR corridor with the minimum levels of residential and employment density suggested in the research for each of the modes. In this way, then, the anticipated future residential and employment density of the corridor's rider catchment area can be used to determine any feasible transit technology that could be recommended based on this criterion. In addition to a review of the density of the entire corridor, potential station/stop locations were identified and a ¼-mile buffer was used to project the residential and employment densities at these stops. The DTA was applied to these locations, as well, to determine whether these station locations met the density thresholds for any of the transit technologies. Map 5-3 presents these potential stop locations along the corridor along with the 2030 population density levels.

Table 5-3
SGLR Corridor - Potential Stop Locations

Stop Location	Dwelling Units per Acre(1)	Feasibility	Employees per Acre (2)	Feasibility
Colonial Road @ Metro Parkway	1.23	No	7.24	Yes
Iris Road @ Sanibel Boulevard	2.36	No	1.23	No
Metro Parkway @ Crystal Road	0.81	No	6.24	Yes
Metro Parkway @ Daniels Parkway	0.63	No	5.47	Yes
Metro Parkway @ Six Mile Cypress Parkway	0.23	No	2.87	No
MLK Boulevard @ Evans Avenue	1.04	No	11.24	Yes

(1) and (2) Based on 2030 SE Data.

Lee County Transit System



2030 Long Range Transit Element (LRTE)

Domestic Units per Acre

- < 2
- 2 - 4
- 4.1 - 8
- 8.1 - 16
- > 16

- SGLR Study Area
- 1/4-Mile Study Area Buffer
- SGLR Corridor
- Potential SGLR Stations

Map 5-3
Seminole Gulf Railway Study Area Stations

Tindale-Oliver & Associates, Inc.
Planning and Engineering

Created: 08 10 05 Edited: 08 10 05 By: RRP

I:\3508.05 - Lee 2030 Transit Element\Maps\Map_5_3_SGLR_Station_Densities.mxd

Table 5-4
Right-of-Way Requirements

Mode	ROW Available[1]	Estimated ROW Requirements[2]	Feasibility	Mode Score
Heavy Rail	100 feet	50 - 60 feet	Yes	3
Commuter Rail	100 feet	50 - 60 feet	Yes	3
Light Rail	100 feet	50 - 60 feet	Yes	3
AGT	100 feet	40 - 50 feet	Yes	3
DMU	100 feet	50 - 60 feet	Yes	3
BRT	100 feet	50 - 80 feet	Yes	3
Bus/Trolley	100 feet	50 - 80 feet	Yes	3

(1) Source: SGRR Freight Operations Staff.
(2) Note: Assumes bi-directional operation with double tracking for rail applications and two lanes in each direction for bus application. Station rights-of-way and appropriate right-of-way clearances are included in the estimated right-of-way requirements. Also assumes that existing SGLR is discontinued and replaced in each case by the alternative modal technologies; although, in some cases, it may be possible to accommodate multiple modes within the available right-of-way.

Table 5-5
Total Technology Feasibility Score Ranges

Total Mode Score	Timeline Feasibility
3 - 5	Not likely to be feasible in the foreseeable future
6 - 7	Feasible beyond 2030
8 - 9	Feasible by 2030

Based on a review of the DTA minimum thresholds, Bus, BRT, and Commuter Rail are considered to be feasible by 2030 for application along the SGLR corridor based on the DTA criterion. The potential station location density analysis (2030 residential and employment density within a ¼-mile of each projected station location) was conducted to confirm the corridor-wide average densities.

Table 5-3 presents a list of potential station locations along with their respective 2030 residential and employment densities (measured in dwelling units per acre and employees per acre, respectively, to be consistent with the DTA). As shown in the table, four of the six potential stop locations meet the minimum density threshold to support future transit services based employees per acre; however, all locations fail to meet the dwelling units per acre threshold for residential density.

Table 5-6
Tier 1 Results of SGLR Analysis

Mode	Density Threshold Assessment	Implementation Complexity	Right-Of-Way Requirements	Total Mode Score	Rank
Bus/Trolley	2	3	3	8	1
BRT	2	3	3	8	1
Commuter Rail	2	1	3	6	3
Light Rail	1	1	3	5	4
AGT	1	1	3	5	4
DMU	1	1	3	5	4
Heavy Rail	1	1	3	5	4

Right-of-Way Requirements

In addition to the implementation complexity for each technology presented in Table 5-1, the available right-of-way along the SGLR corridor was reviewed. A review of parcel data and aerial images from the Lee County Property Appraiser's Office indicated that there is approximately 100 feet of available right-of-way along the study portion of the SGLR corridor. This level of available right-of-way along the corridor was verified visually during one of the study site visits, and via information from SGLR staff. Table 5-4 presents a comparison by transit modal technology of the available right-of-way, the estimated right-of-way requirements for each technology, implementation considerations, and a determination of whether the mode is feasible by 2030 based on this criterion.

Selection of Feasible Transit Modes

Table 5-5 presents the total technology score ranges for determining the overall feasibility of a particular modal technology by 2030. These ranges ensure that technologies that are feasible by 2030 meet all of the criteria for implementation within that planning horizon. In addition, the ranges provide a framework for identifying the timeline feasibility of all transit technologies reviewed as a part of this assessment.

Based on the characteristics of the potential modes reviewed, including the Implementation Complexity, Density Threshold Assessment, and the Right-of-Way Requirements, a prioritization of transit technologies that would be feasible within the SGLR corridor by 2030 was conducted.

Each mode was assigned a total mode score that was used to determine the feasibility horizon of each technology. Table 5-6 presents the results, showing that BRT and Bus/Trolley are feasible within the study corridor by 2030. These two modes will be examined in more detail in the Tier 2 analysis, where demand projections and cost estimates are considered. It also is important to note that the Commuter Rail mode's score indicates that this technology may be feasible beyond the 2030 timeframe.

Table 5-7
Capital and Operating Cost

Mode	SGLR Corridor Length[1]	Capital Cost Per Mile[2]	Capital Cost Per Vehicle	Annual Operating Cost Per Passenger Mile[3]	Total Capital Cost[4]	Mode Score	Rank
Bus/Trolley[5]	14.76	$7,500,000	$225,000	$0.94	$110,700,000	3	1
BRT[6]	14.76	$7,500,000	$400,000 - $1,000,000	$1.84	$110,700,000	2	2

(1) Segment of SGLR included in the corridor study area.
(2) Source: TCRP Report 90 - *Bus Rapid Transit, Volume 2: Implementation Guidelines*, 2003.
(3) Source: An average operating cost per passenger mile for 6 BRT systems listed in "Bus Rapid Transit Shows Promise," GAO, September 2001.
(4) Capital cost per mile (Item 2) multiplied by SGLR corridor length (Item 1).
(5) Although the capital cost per mile for Bus/Trolley assumes an independent, at-grade busway, the actual costs will be somewhat less than that of BRT since the level of infrastructure required at stations will be lower.
(6) Capital cost per mile assumes an independent, at-grade busway.

Table 5-8
Ridership Projections Adjustment Factor

City	% Gain in Ridership	Time Frame (years)	% Gain in Ridership per year	% of Ridership (New Transit Trips)	New Ridership/Gain in Ridership (%)
Los Angeles*	40.00%	3	13.33%	30.00%	4.00%
Miami*	70.00%	5	14.00%	50.00%	7.00%
Brisbane*	50.00%	2	25.00%	30.00%	7.50%
Vancouver, BC*	30.00%	2	15.00%	25.00%	3.75%
Adelaide[1]	76.00%	10	7.60%	N/A	N/A
Leeds[2]	50.00%	2.5	20.00%	N/A	N/A
Curitiba[3]	375.00%	19	19.74%	N/A	N/A
Ottawa[4]	6.00%	1	6.00%	N/A	N/A
Boston*	100.00%	1.5	66.67%	30.00%	20.00%
Oakland*	60.00%	0.83	72.29%	N/A	N/A
City Average	85.70%		**15.08%**		**8.45%**

* Source: National Bus Rapid Transit Institute presentation by the Center for Urban Transportation Research, Pasco County MPO, September 9, 2004.
(1) Source: Table A-11 in TCRP Report 90 - *Bus Rapid Transit, Volume I, Case Studies in Bus Rapid Transit*, ridership grew from 4.2 million in 1986 to 7.4 million in 1996.
(2) Source: Table A-11 in TCRP Report 90 - *Bus Rapid Transit, Volume I, Case Studies in Bus Rapid Transit*, ridership grew 50% in 2.5 years.
(3) Source: Table A-11 in TCRP Report 90 - *Bus Rapid Transit, Volume I, Case Studies in Bus Rapid Transit*, ridership grew from 400,000 daily trips to 1,900,000 in 2001, reducing automobile trips by 27 million annually.
(4) Source: Table A-11 in TCRP Report 90 - *Bus Rapid Transit, Volume I, Case Studies in Bus Rapid Transit*, ridership grew by 6% between 1998 and 1999.

TIER 2 CRITERIA SCREENING & RESULTS

The Tier 2 assessment process examines the transit technologies that were deemed potentially feasible in the Tier 1 analysis for implementation by 2030 along the SGLR corridor.

Two additional criteria were selected for further evaluation of these technologies in order to provide a balanced assessment of each mode's costs and the projected future demand for their services along the corridor. As such, two criteria were selected to conduct the Tier 2 evaluation of each mode: (1) capital and operating costs and (2) ridership.

Capital & Operating Costs

Conceptual costs were developed for each transit technology based on a review of recent literature on financial estimations for existing and proposed systems. Some information from LeeTran also was utilized in this analysis.

Specifically for BRT services, the capital cost per lane mile is based on the implementation of an exclusive lane. Table 5-7 presents the estimated capital cost per mile, capital cost per vehicle, and estimated annual operating cost per revenue mile.

Ridership

Ridership counts indicate the amount of transit service use and are a critical component in transit planning. For these reasons, ridership projections for the feasible transit technologies from the Tier 1 analysis were prepared. Ridership is estimated using the results from the transit corridor analysis along with an adjustment factor accounting for the increase in transit level of service (reliability, speed, and frequency) typically associated with BRT services. The adjustment factor was developed using ridership growth resulting from the implementation of BRT services for eight existing systems in North America, Australia, Europe, and South America. Table 5-8 presents the percent gain in ridership experienced by each system, the time frame in which that growth occurred, as well as the percent of the new trips associated with new transit riders. The adjustment factor for predicting BRT ridership is 1.15 (average gain in ridership per year); it is expected that these annual increases in ridership will continue over a three-year period in response to the initial implementation and maturation of BRT service resulting in a 52 percent increase in ridership over the three-year period. Based on the data, it is projected that about 8 percent of the 15 percent annual increase in ridership due to BRT services will be the result of new transit rider usage.

Table 5-9 presents ridership projections for both Bus/Trolley and BRT services along the SGLR corridor for 2030 using this method of estimation.

Table 5-9
Ridership Projections

Mode	2030 Ridership Projection
Bus/Trolley[1]	47,347
BRT[2]	72,009

(1) Ridership forecasts are based on TransCAD analysis using 2030 socioeconomic data.

(2) Source: Table 4-11, BRT ridership projections after 3 years of operation.

RECOMMENDATIONS

The SGLR corridor is characterized as a potential "new market" for transit services in Lee County.

The assessment of the possible range of transit modal technologies suggests that, in such an emerging market, the higher capacity rail modes such as heavy rail, AGT, and DMU all require a more significant base of transit-oriented riders and/or substantially greater densities to be feasible within the planning period. The initial introduction of such high capacity, fixed-guideway modes of transit in an area where transit services have not previously been in place could lead to low ridership levels and an overall under-utilization of the significant expenditure of fixed-capital funds that would be associated with such technology implementation. As the transit feasibility assessment indicated by 2030, BRT and fixed-route service appear to be the most feasible (and practical) transit technologies for potential implementation within the SGLR corridor.

Nevertheless, the presence of mixed land uses (commercial, industrial, and residential) along much of the SGLR corridor, continuing growth and development within its vicinity, and the burgeoning growth of congestion along major north-south corridors in the County, such as US 41 and I-75, all suggest the corridor's potential for the future application of high speed transit technology at some point in the more distant future than the 2030 timeframe. As such, it would be prudent for the County to consider the preservation of the SGLR corridor right-of-way for future use in this manner. In addition, the encouragement of additional commercial and residential density along the corridor will help accelerate the rail transit-readiness of the corridor, while also providing more potential ridership demand for any bus and/or BRT applications implemented in the interim.

Given the sketch-level nature of this analysis, further study is required to more appropriately review the application of any bus and/or BRT transit technology to the SGLR corridor in the next 25 years. Based on the analysis presented herein, it is apparent that the corridor may have some beneficial application as a busway for local bus, express bus, and/or BRT services during the timeframe of the 2030 LRTE, especially to help deal with the continued growth of traffic congestion along the US 41 and I-75 corridors. As such, the MPO may want to consider such an assessment for the corridor in the near future to better identify an initial bus transit application and its operating characteristics, potential operating and capital costs, and implementation timeframe.

In summary, following are the general findings and recommendations from this analysis.

- The results of the transit feasibility assessment identify BRT and Express Busway as potentially feasible transit technologies by 2030. In order for these technologies to maximize ridership potential it is advised that feeder bus service and park-and-ride lots be included as part of any future implementation plan since the projected 2030 residential density along the corridor is still quite low.

- Depending on what occurs with the existing SGLR service, the County may decide to convert the entire corridor into an exclusive BRT transit way with stations and single travel lanes in each direction. In this case, the removal of the track would provide sufficient right-of-way for the BRT improvements needed at the stations. In particular, additional right-of-way would be needed to accommodate designated BRT stations with long platforms, large waiting areas for passengers, limited parking facilities, and bus pull-out bays.

- If it is determined that the SGLR service is to remain, an alternative to the exclusive transit way option is a shared right-of-way concept (existing freight track and single BRT travel lanes in each direction), potentially with shared stations. This alternative also would require additional right-of-way for the stations. Based on a visual inspection of the SGLR corridor through aerials and field work, the positioning of the railway track along the corridor and, therefore, the available right-of-way on each side of the track varies. Along certain segments of the track, the available right-of-way is approximately equal on each side, while along others it is significantly larger on one side than the other. Thus, for any shared right-of-way concept, either the track would need to be re-aligned along certain segments of the corridor or at least one of the BRT lanes would need to cross over the railway tracks in those areas where the track is significantly off-center within the available right-of-way.

- The results of the assessment show that beyond 2030, commuter rail may become a viable technology for the SGLR corridor. However, it is important to recognize that, for the implementation of this rail technology mode, it will be necessary to plan for and implement the upgrade of the existing SGLR trackage to accommodate the required speeds of these modes. In addition, appropriate action also will need to be taken to meet any Federal Rail Administration safety requirements for this technology.

- The results of the assessment indicate that heavy rail, AGT, DMU, and LRT are not likely to be feasible in the foreseeable future. However, it should be noted that the implementation of a bus-related transit mode within the SGLR corridor sometime during the 2030 timeframe may help spur a sufficient amount of commercial and/or residential development along the corridor such that one of the rail modes (especially LRT or commuter rail) may become a more viable alternative sometime after the 2030 planning timeframe.

- It would be prudent for a transit-oriented development policy to be developed and applied along the SGLR corridor to facilitate high-density growth with commercial and residential developments.

- It also would be prudent to consider the preservation of the SGLR corridor right-of-way to accommodate the implementation of a transit technology in the future.

- Finally, it is evident that additional, more in-depth analysis and planning efforts for the SGLR corridor will be necessary to develop a viable implementation plan for either the BRT or Express Busway mode if there is a specific desire to implement one of these transit technologies within the timeframe of the 2030 planning period.

Chapter 6: Bus Rapid Transit Feasibility Assessment

This chapter provides an analysis of BRT options for Lee County. An overview of bus rapid transit characteristics, system components, and performance is provided. Additionally, several real world examples of BRT systems are included in this chapter that provide insight into the working operations of this type of transit service. An evaluation methodology for prioritizing potential BRT corridors in Lee County is presented. Based on that analysis, several corridors are identified, evaluated, and prioritized for future BRT transit services in Lee County.

BUS RAPID TRANSIT OVERVIEW

BRT has been defined by the Federal Transit Administration as "a rapid mode of transportation that can provide the quality of rail transit and the flexibility of buses." In many respects, BRT is rubber-tired light rail transit, but with greater operating flexibility and generally lower costs. BRT combines a variety of physical and operating elements into an integrated system that displays a distinct identity and high quality image. These elements include transit stations, vehicles, running ways, and advanced technologies. The implementation of BRT improves speed, reliability, and identity of transit services, increasing the likelihood of transit system usage. BRT was developed as a transit mode that allows for flexibility in its application and can be tailored to fit a particular set of travel markets. The major components of BRT are listed below:

- Running ways
- Stations
- Vehicles
- Fare collection
- Intelligent transportation systems
- Bus operation and service
- Route structure
- Branding

Each of these system components provides insight into the physical and operational parallels between BRT and light rail and conventional bus transit systems.

Components of Bus Rapid Transit

The BRT system components are illustrated and summarized in Figure 6-1. Each component is described separately in more detail below.

Running Ways

Running ways describe the types of travel lanes utilized by a BRT system and are the major determinants of BRT speed and reliability. Running ways have three primary characteristics related to BRT applications.

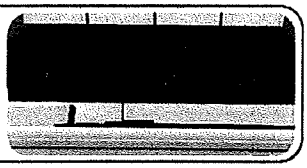
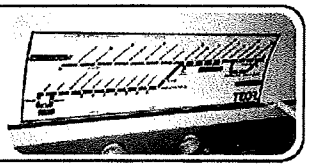
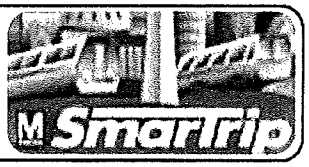
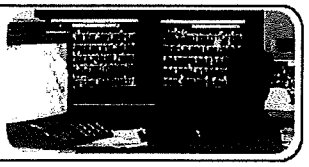
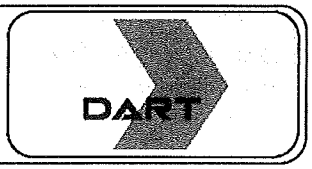
- Degree of Segregation - level of separation from other traffic that can influence the travel time savings and reliability.
- Running Way Marking - differentiation in appearance that identifies the presence of BRT services such as pavement markings, lane delineators, alternate pavement texture, alternate pavement color, and separate rights-of-way.
- Lateral Guidance - controls the side-to-side movement of the vehicles along the running way removing human error associated with a vehicle operator.

Stations

Stations represent a critical link between the BRT system, riders, and other public transit services (fixed-route, express) offered in the area. Given that BRT systems are structured for service in high demand corridors and have only a limited number of stops, there are typically more riders at a BRT station than at a conventional bus stop. As such, amenities such as real-time passenger information, newspaper kiosks, coffee bars, availability of parking, pass/ ticket sale booths, and level boarding are likely to be available (although there is extensive variance across systems). BRT stations tend to have the following characteristics.

- Basic Station Type - Stations can vary in size and complexity such as simple stops, enhanced stops, designated stations, and intermodal transit centers.
- Platform Height - Platform height affects the ability of many persons with disabilities to board the vehicle. Traditionally, passengers board transit vehicles by stepping from a low curb up to the first step on the vehicle, then proceeding to climb additional steps. Recent innovations to enhance the passengers' riding experience and avoid inconveniences have led to widespread adoption of low-floor vehicles that help reduce dwell times.
- Platform Layout - Platform layout describes the length and extent of berthing assignment. This affects how many vehicles can simultaneously dock at the station and, thus, the volume of passengers that can be positioned to board a given service.
- Passing Capability - Passing capability describes the layout of the station in terms of the number of passing lanes available. A station designed for passing capability reduces delays caused by

Figure 6-1
Bus Rapid Transit Components

Running Ways	BRT vehicles operate primarily in fast and easily identifiable exclusive transitways or dedicated bus lanes. Vehicles may also operate in general traffic.	
Stations	BRT stations, ranging from enhanced shelters to large transit centers, are attractive and easily accessible. They are also conveniently located and integrated into the community they serve.	
Vehicles	BRT uses rubber-tired vehicles that are easy to board and comfortable to ride. Quiet, high-capacity vehicles carry many people and use clean fuels to protect the environment.	
Services	BRT's high-frequency, all-day service means less waiting and no need to consult schedules. The integration of local and express service can reduce long-distance travel times.	
Route Structure	BRT uses simple, often color-coded routes. They can be laid out to provide direct, no transfer rides to multiple destinations.	
Fare Collection	Simple BRT fare collection systems make it fast and easy to pay, often before passengers even get on the bus. They allow multiple door boarding, reducing time in stations.	
Intelligent Transportation Systems	BRT uses advanced digital technologies that improve customer convenience, speed, reliability, and operations safety.	
Branding	BRT uses distinct color schemes, logos, and design features to distinguish it from other parts of the transit system. An identity separate from other transit modes qualifies BRT as a premium service, thus increasing its appeal to potential users.	

dense running ways and permits vehicles to operate in quick succession.

Vehicles

Conventional standard and articulated diesel buses are widely used for BRT operations. However, there has been a recent trend towards innovations in the design of vehicles. These innovations include the use of "clean vehicles" (i.e., low-sulfur diesel fuel, diesel-electric hybrids, and compressed natural gas [CNG]), dual mode (diesel-electric) operations through tunnels, low-floor buses, more and wider (and, for some applications, dual-side) doors, and the use of dedicated BRT vehicles to help create a distinct "branding" image. Given that vehicles are the component of BRT where passengers spend the most time, the impression of the BRT system will be based primarily on the on-board experience. There are four primary attributes that define BRT vehicles, as discussed below.

- Vehicle Configuration - The physical configuration of BRT vehicles combining the size, floor height (low floor or conventional), and body type (standard 40-foot or articulated 60-foot).

- Aesthetic Enhancement - Aesthetic treatments such as the paint scheme and body styling influence the appearance and identity associated with the BRT system. Additional on-board amenities such as personal lighting and climate control further influence the perception of comfort and demonstrate the higher-level quality of service.

- Passenger Circulation Enhancement - Enhancements to passenger circulation include the provision of additional and/or wider door channels and aisles, more customer-friendly seating configurations, and adequate door spacing (generally one door channel for every 10 feet of vehicle length).

- Propulsion - The propulsion system determines the acceleration, maximum speed, and fuel consumption characteristics of the BRT vehicle. In North America, extensive consideration has been given to the use of environmentally friendly vehicles such as those using alternative fuels (CNG or hybrid) and those that reduce noise pollution.

Fare Collection

Fare collection systems for BRT can be electronic, mechanical, or manual. The key objective is to support an efficient method of collecting fares that reduces boarding delays related to fare collection. In determining whether an on-board or off-board method of fare collection is appropriate, considerations such as the volume of boardings at stations, the variance in ridership during the day (peak and off-peak), and costs (operating and capital) should be evaluated. On-board fare collection systems are favorable when there are low-volume stations; likewise, off-board collection favors major boarding points, especially during peak periods. The benefits of having an off-board fare collection system prior to passenger boarding include reduction of passenger service times, station dwell times, and bus travel times. Three primary design attributes of a BRT fare collection system are listed below.

- Fare Collection Process - The fare collection process is the method by which the fare is physically paid, processed, and verified. The

selected process can influence fare evasion and enforcement procedures, operating costs, and capital costs.

- Fare Media - The fare media accommodates the transactions associated with a given fare collection process. The choice of fare transaction media includes the equipment, technologies, and fare collection process.

- Fare Structure - There are two types of fare structures that BRT systems can select. Flat fares are constant regardless of the time of day of the travel, while differentiated fares vary by time of day.

Intelligent Transportation Systems

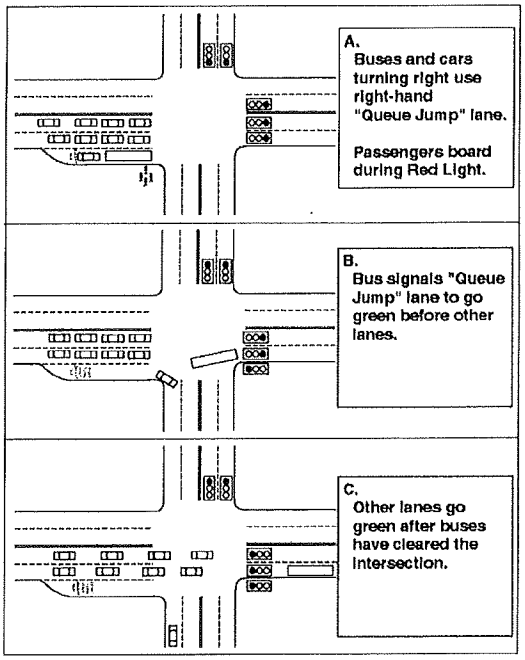
ITS applications serve to greatly enhance BRT systems. ITS applications are essential complements to many of the previous BRT components such as running ways, stations, vehicles, and overall bus operations. ITS applications are used to convey passenger information in a multitude of venues, to monitor and/or control bus operations, to provide priority at signalized intersections, to enhance safety and security on board vehicles and at stations, and to provide guidance for BRT vehicles (lateral guidance in running ways). The main ITS applications used for BRT systems are listed below.

- Automatic Vehicle Location and Control (AVLC) - AVLC is an ITS application that uses global positioning system (GPS) technology for pinpointing bus location on the street network. This information is conveyed in real-time to facilitate the control of bus headways and to transmit real-time information to passengers at stops and via the Internet on computers, personal digital assistants (PDA), and cell phones about the bus schedule. AVLC also improves adherence to the bus schedule and enables the ability to direct maintenance crews in the event of a vehicle breakdown.

- Passenger Information Systems (PIS) - PIS technology includes methods used to inform the public about the service. Traveler information can be transmitted to riders either statically (e.g., transit schedule, fares, and routes) or dynamically (e.g., delays and real-time departure/arrival information). This information is delivered to users using timetable-dispensing kiosks, telephones, and displays for static information as well as via radio and television broadcasts, the Internet, and other dynamic information devices. PIS also can be a source of revenues through advertising time and space being sold on information screens.

- Bus Preferential Treatment (BPT) - Bus preferential treatments give buses traveling through busy intersections varying levels of priority over other vehicles. Three basic types of BPT include transit signal priority (TSP), queue bypass lanes, and queue jump operations. TSP is an ITS application that gives buses preference at signals when they arrive at an intersection. Given that bus delays at traffic signals account for 10 to 20 percent of overall bus travel times and 50 percent or more of delays, this technology has a significant effect on the level of service being provided to riders. TSP also can be conditional (e.g., bus is late and/or full) so not every bus gets priority at every signal. The adjustment of signal timing to expedite BRT can be implemented with minimal impacts to cross-street traffic. Queue bypass lanes allow buses to

Figure 6-2
Queue Jump Illustration



use bus-only lanes or right-turn only lanes to "skip" queued traffic and travel through congested intersections quickly. Queue jump operations combine queue bypass lanes and TSP. Buses in the bypass lane are given a few seconds of early green on a separate bus-only signal head so that the bus can progress through the intersection and merge back into the through lanes on the far side of the intersection ahead of other vehicles.

- Automatic Passenger Counters (APC) - APCs count passengers automatically as they board and alight buses. These systems help to keep track of accurate ridership information at both the stop and route-level and assist in planning support service changes, especially for headway improvements during peak and off-peak periods.

- Electronic Fare Collection Cards - The method of fare collection as discussed previously has a significant effect on the overall success of BRT operations and efficiency. This ITS-based application allows transit agencies the flexibility in establishing fares, reduces the costs associated with fare collection, and reduces fare evasion.

- Vehicle Guidance – This ITS application can be employed along the entire running way or just at stations. Vehicle guidance assists transit operators with precision docking at stations to reduce any delays associated with errors in docking. Vehicle guidance also assists with level boarding at stations. Passengers can quickly board and disembark vehicles when station waiting areas or platforms are at the same level as vehicle boarding areas. The types of guidance systems currently in use in BRT operations include mechanical guidance (use of a steering mechanism connected to wheels and a type of curb that guides the vehicle's path), optical guidance (uses machine vision cameras to read the location of a painted marker on the pavement), magnetic guidance (uses magnets embedded in the surface of the guideway), and wire guidance (use of wire implanted in the pavement and electric current to guide vehicle).

BRT Operations & Service

BRT service design should be structured to meet the needs of existing customers as well as attract new riders to the transit system. Service span along major arterial streets should extend all day (typically 18 to 24 hours), with feeder services in off-peak hours and express services during peak. The coordination of feeder services with BRT scheduling facilitates full length trips with transfers into the BRT line and should be incorporated into the

planning process. Service frequencies are to be tailored to the specific market demand although BRT trunk line service should range from 10 to 12 minutes during daytime hours, with peak frequencies of about 5 minutes being an ideal.

Route Structure

BRT route structures are simple, easy to understand, direct, and operationally efficient. Routes should be designed to give riders the opportunity for no transfer, one-seat trips. Similar to light-rail line operations, simple route structures give BRT system users point-to-point service without the complexity of interlaced local bus routes. The three route structure types discussed below provide higher levels of overlapping with existing transit networks. Unlike rail lines, this overlapping offers the opportunity for the efficient reallocation of transit services if necessary.

- Single Route - This is the simplest service pattern and offers the advantage of being easiest to understand since only one type of service is available at any given BRT station. This route structure works best in corridors with many activity centers that would attract and generate passengers at stations all along the route.

- Overlapping Route with Express Variations - This type of routing offers the advantage of express service to passengers traveling between particular origins and destinations. This route structure works best with passing lanes at stations. Including a high number of routes may cause confusion on platforms for infrequent riders and may cause congestion at stations.

- Integrated Systems (includes Local BRT, Express, and Combined Feeders) - This routing structure provides the most comprehensive array of transit services and the most options to passengers for one-seat rides. However, it can result in passenger confusion and vehicle congestion pulling into and out of stations.

Branding

"Branding" provides a cohesive and consistent image for transit services. An important objective for BRT is to establish an image and identity separate from local bus operations. An identity separate from other transit services can characterize BRT as a premium service, thus increasing appeal to potential system users. The use of logos, color schemes, graphics, and slogans all play a major role in creating an identity for the system. Through branding, marketing efforts can be employed that highlight system benefits for users. Disseminating public information about the BRT system is made easier when system users can quickly identify circulated advertisements containing consistent and recurring representations. Branding assists not only in identifying the BRT system, but also in improving the overall image of the transit system.

Opportunities for branding can be found at stations, along running ways, on vehicles and vehicle configurations, on fare transaction media, and through aesthetic enhancements. Implementation of a brand consists of at least three activities, as indicated below.

- Implementation of BRT System Elements - Elements that most support the brand are key to presenting an attractive product to which potential customers may respond.

- Changing Internal Business Processes - Critical to a successful product is an organization that

believes in the product it is presenting to the customer and delivers the product efficiently and effectively. This often involves reorganization of internal processes, structures, and delivery approaches.

- Marketing - A good product with a good delivery mechanism is reinforced by an effective marketing campaign. This involves brand identifiers such as distinctive product names, logos, color schemes, and slogans as well as advertising through visual and other media.

Bus Rapid Transit Performance

BRT systems exhibit a high degree of performance that separates them from conventional bus systems. By implementing various, or all, BRT system components, improvements in travel time, ridership, and other transit performance measures are possible. Improvements in performance are a key marketing point to potential users. Described below are several BRT performance measures that characterize the efficiency and effectiveness of BRT systems implemented in appropriate operating environments and travel markets.

Travel Times

Travel time may be the most important attribute of transit service for customers. The use of signal prioritization, exclusive travel lanes, and ITS technologies can contribute to a substantial improvement in travel times for BRT routes versus conventional local bus routes. Conventional bus routes are hampered because they must maneuver through traffic and unfriendly street and intersection geometries. Additionally, BRT systems use more efficient fare collection systems and sophisticated station designs to allow users to quickly board and disembark BRT vehicles, thus reducing the amount of dwell time at each transit station. All of these components add up to savings for passengers in the amount of time spent traveling.

Service frequencies for BRT routes are generally kept between 5 and 10 minutes. Reduced running speeds and station dwell times make BRT services more attractive for all types of customers, especially riders with other transportation choices.

Reliability

To keep existing users and to draw other potential users, transit systems must be dependable and on time. Systems that do not operate at a consistent level and quality of service have difficulty in retaining riders who have other transportation choices. Several of the same BRT system features that contribute to shorter travel times also contribute to improved reliability. ITS improvements assist in locating and quickly addressing vehicle breakdowns; exclusive travel lanes allow BRT vehicles to bypass congested traffic conditions and crash incidents. In addition, speedy boarding and alighting technologies and designs allow for shorter station dwell times. All of these factors add up to improved on-time performance and ultimately contribute to a positive perception of transit services.

System Capacity

System capacity is significantly affected by the same BRT elements that improve travel times. By providing quick and reliable service, a BRT system can easily move large amounts of passengers. Five- to 10-minute service frequencies keep any queuing of passengers at stations at minimum levels. BRT station and vehicle design and efficient fare collection technologies also keep passengers moving

quickly. All of these characteristics contribute to increases in system capacity. Although capacity is not a critical issue for most transit agencies, it is important to note that if demand begins to exceed capacity, system reliability tends to suffer and transit speeds begin to decrease. BRT system characteristics address these potential problems.

Costs

One of the major benefits of BRT systems is their ability to accommodate relatively low capital costs. BRT can achieve significant performance improvements without large capital expenditures. Depending on existing transit market and/or actual physical constraints and conditions, it may not be necessary to construct a dedicated transitway for BRT. In addition, because vehicles are rubber-tired and not on fixed guideways, simple realignments in routes are possible, thus providing the flexibility for changing service if initial efforts are not successful.

Table 6-1 includes capital costs for selected BRT systems that have been implemented across the world.

Table 6-1
Selected BRT Capital Costs

City/Facility	Miles	Cost (millions)	Cost/Mile (millions)
Bus Tunnels			
Boston	4.1	$ 1,350.0	$ 329.0
Seattle	2.1	$ 450.0	$ 214.0
Busways			
Pittsburgh	16.1	$ 432.0	$ 80.0
Miami	8.2	$ 59.0	$ 7.0
Ottawa	37	$ 293.0	$ 8.0
Hartford	9.6	$ 100.0	$ 10.0
Arterial Street Median Busways			
Cleveland	7	$ 220.0	$ 29.0
Quito, Ecuador	10	$ 57.6	$ 6.0
Mixed Traffic/Curb Bus Lanes			
Los Angeles	42	$ 8.3	$ 0.2
Vancouver	11	$ 9.0	$ 1.0
Richmond	9.8	$ 44.0	$ 4.1

Source: TCRP Report 90, *Bus Rapid Transit, Volume 1: Case Studies in Bus Rapid Transit.*

Case Studies in Bus Rapid Transit

TCRP Report 90, *Bus Rapid Transit, Volume I, Case Studies in Bus Rapid Transit*, reviews characteristics of BRT systems in 26 cities (12 in the United States, 2 in Canada, 3 in Australia, 3 in Europe, and 6 in South America). These systems provide a basis for examining the conditions that favor the success of a BRT system and the lessons to be learned from the implementation of the various BRT components discussed previously.

Table 6-2 lists selected case study examples from the TCRP report along with demographic and transit system characteristics for each. Two sets of BRT case study examples are presented. The first set of BRT systems, Historical Trend, were selected because they reveal the progression of BRT practices and technologies over the last 30 years. The second set of BRT systems, Urbanized Area Population, were selected because of their similar urbanized area populations to that of Lee County.

System Characteristics

The oldest BRT system noted under the historical trend system set in Table 6-2 is in Pittsburgh. Pittsburgh initially integrated express bus service into its existing bus transit system along three major corridors. Over time, the system has incorporated

Table 6-2
Selected BRT Case Study Examples

Relevance	City	Urbanized Area Population	Central Business District Employment	BRT Status/Year Opened	System Overview
Historical Trend	Pittsburgh	1.7	140,000	1977	Busways offer all-stop and express service
	Seattle	1.8	120,000	1990	Bus tunnel is used by articulated dual-mode trolley and diesel buses
	Vancouver	2.1	130,000	1996	Limited-stop service using distinctive low-floor articulated buses
	Miami	2.3	50,000	1996	Busway along abandoned railroad line connects to rail system
	Quito (Ecuador)	1.5	N/A	1996	Median busway system uses articulated, all-electric, trolley buses and high platform stations with fare pre-payment
	Boston	3.0	365,000	2002	Includes bus tunnel and has articulated dual-mode trolley and CNG-powered buses
	Cleveland	2.0	100,000	Under Construction	Median busway will have articulated hybrid diesel-electric buses
Urbanized Area Population	Runcorn (U.K.)	0.1	N/A	1973	"Figure 8" busway system is integrated with development in planned New Town
	Ottawa	0.7	86,500	1983	Extensive Busway system with attractive stations offer all-stop and express service
	Rouen (France)	0.4	N/A	2001	Three-route optically guided "train-like" buses
	Hartford	0.8	52,000	Under Construction	Busway and stations along unused railroad busway

ITS technologies and additional passing lanes along the BRT routes. Many of the buses continue to operate on diesel fuel and station locations can be found along the sides of roadway corridors.

More sophisticated BRT concepts were implemented in the 1990s. Seattle implemented a dedicated bus tunnel for its rapid transit system. Articulated vehicles allow level boarding and alighting for passengers along the sides of the roadway. The City of Miami recycled an unused railroad corridor to create a dedicated running way with ITS technologies along a route in south Dade County (15 stations). Newer systems, such as the Boston and Cleveland BRT systems, are integrating other BRT components such as pre-payment fare collection technologies at stations and more sophisticated propulsion technologies for vehicles.

The second set of BRT systems in Table 6-2 includes systems of similar urbanized area population size to Lee County. The city with the smallest urbanized area population, Runcorn, also has the oldest BRT system in the case study report. This system consists of a simple "figure 8" route that has been integrated into local development patterns. Systems within the same category that have been more recently established include those in Ottawa,

Canada, and Rouen, France. The more modern Rouen system uses optically-guided buses to improve vehicle operation and docking.

Improvements in BRT systems have continued to improve their overall comparability to their rail system counterparts. These improvements, coupled with the capital cost savings when compared to rail options, have more transit agencies considering implementing various components of BRT into their existing bus service. Selected characteristics for all of the noted BRT systems are presented in Table 6-3.

Table 6-4 notes the estimated travel time savings for three of the selected BRT systems. The table illustrates how systems using both simple and complex BRT components have experienced savings in travel time. Of the three systems noted, the Pittsburgh BRT has experienced the greatest percent reduction in travel time and the greatest travel time savings per mile.

Implications For Lee County

The TCRP report lists several implications from the case studies reviewed that may apply to Lee County if the County pursues BRT transportation alternatives in the future. These implications are summarized below.

- Support from elected officials and citizens is essential. Community leaders and the general public must understand the operation and purpose of BRT, as well as the benefits associated with BRT service.

- State, regional, and local agencies should work together in planning, designing, and implementing BRT. This involves communication between agency departments, such as traffic engineering and planning, as well as state transportation planning agencies and MPOs.

- Incremental development of BRT is desirable. Staged development allows system users and decision-makers the opportunity to see the potential benefits while still enabling system expansion and possible upgrading.

- BRT should serve demonstrated transit markets. Corridors with sufficient ridership demands should be considered to allow frequent all-day service. In addition, maximum peak-hour buses should meet ridership demand.

- BRT must be rapid. This is achieved by operating on exclusive rights-of-way wherever possible and maintaining wide spacing between stations. Separate rights-of-way can enhance speed, reliability, and identity. In situations where BRT service is operated in mixed traffic, travel time savings must be achieved through other mechanisms, such as signal priority and/or queue jumps at selected signalized intersections.

- Land use planning around stations should be integrated as early as possible. This would include setback, building orientation, and possibly shared parking issues associated with any nearby development. It may be desirable to manage downtown parking in order to encourage the use of available parking around BRT stations.

- Vehicle design, station design, and fare collection procedures should be well coordinated. Ample circulation space should be

Table 6-3
Selected BRT System Characteristics

City	Station Characteristics							Vehicle Characteristics			ITS	Weekday Passenger Volumes
	Number of Stations	Average Station Spacing (feet)	Location	Length in Feet or (# of Buses)	Passing Lanes	Platform Height	Fare-Collection (Pre-Payment)	Vehicle Type	Propulsion	Level Boarding		
Pittsburgh	21	4,200	Side	120-140	Yes	Low	No	Articulated/ Standard	Diesel	Some	Yes	48,000
Seattle	3	3,870	Side	(2)	Yes	Low	No	Articulated	Dual-Mode Trolley/Diesel	Yes	N/A	46,000
Vancouver	14	4,190	Side	N/A	Traffic Lanes	Low	No	Articulated	Diesel	Yes	Yes	40,000
Miami	15	2,890	Side	(2-3)	Yes	Low	No	Articulated/ Standard	CNG, Diesel	Some	Yes	12,000
Quito (Ecuador)	32	1,640	Side, Center	(1)	No	High	Yes	Articulated Trolley	Diesel	High-Platform	N/A	N/A
Boston	10	2,160	Side, Tunnel, Curb, Surface	220	Selected Tunnel Stations	Low	In Tunnel	Articulated	Dual-Mode Trolley & CNG	Yes	Yes	78,000*
Cleveland	30	1,230	Median CBD, Side Elsewhere	(2)	In CBD	Low	Possibly	Articulated	Diesel-Electric Hybrid	Yes	Yes	29,500*
Runcorn (U.K.)	56	1,320	Curb	(2)	Yes	Low	No	Regular	Diesel	N/A	N/A	N/A
Ottawa	28	6,980	Side	180	Yes	Low	No	Articulated/ Standard	Diesel	Some	Yes	200,000
Rouen (France)	61	2,470	Curb or Island	Limited	Yes	Low	Some	Articulated	Hybrid-Diesel Electric	Yes	Yes	N/A
Hartford	12	4,220	Side	(2)	Yes	Low	No	N/A	N/A	N/A	Yes	20,000

*Estimated

Table 6-4
Selected BRT Travel Time Savings

City	Facility	Travel Time (minutes)			Travel Time Savings	
		Before	After	% Reduction	Total (Min)	Min/Mile
Pittsburgh	East Busway	51-54	30	41-44	21-24	3.1-3.5
Seattle	Bus Tunnel	15	10	33	5	2.4
Cleveland	Euclid Ave	41	32.75	20	8.25	1.2
Hartford	Hartford Busway	34.6	20.1	42	14.5	1.5

provided for fare payment and passengers boarding and disembarking vehicles.

- Coordinated traffic engineering and transit service planning is essential for BRT system design. This is critical in establishing signal priorities, applying traffic controls, and locating bus stops and turn lanes.

EVALUATION OF BUS RAPID TRANSIT OPPORTUNITIES IN LEE COUNTY

A feasibility assessment of Bus Rapid Transit opportunities in Lee County was completed using existing fixed-route bus corridors and the existing Seminole Gulf Railway corridor as the field of potential BRT candidates. Figure 6-3 is a flow chart showing the steps taken to complete the BRT feasibility assessment.

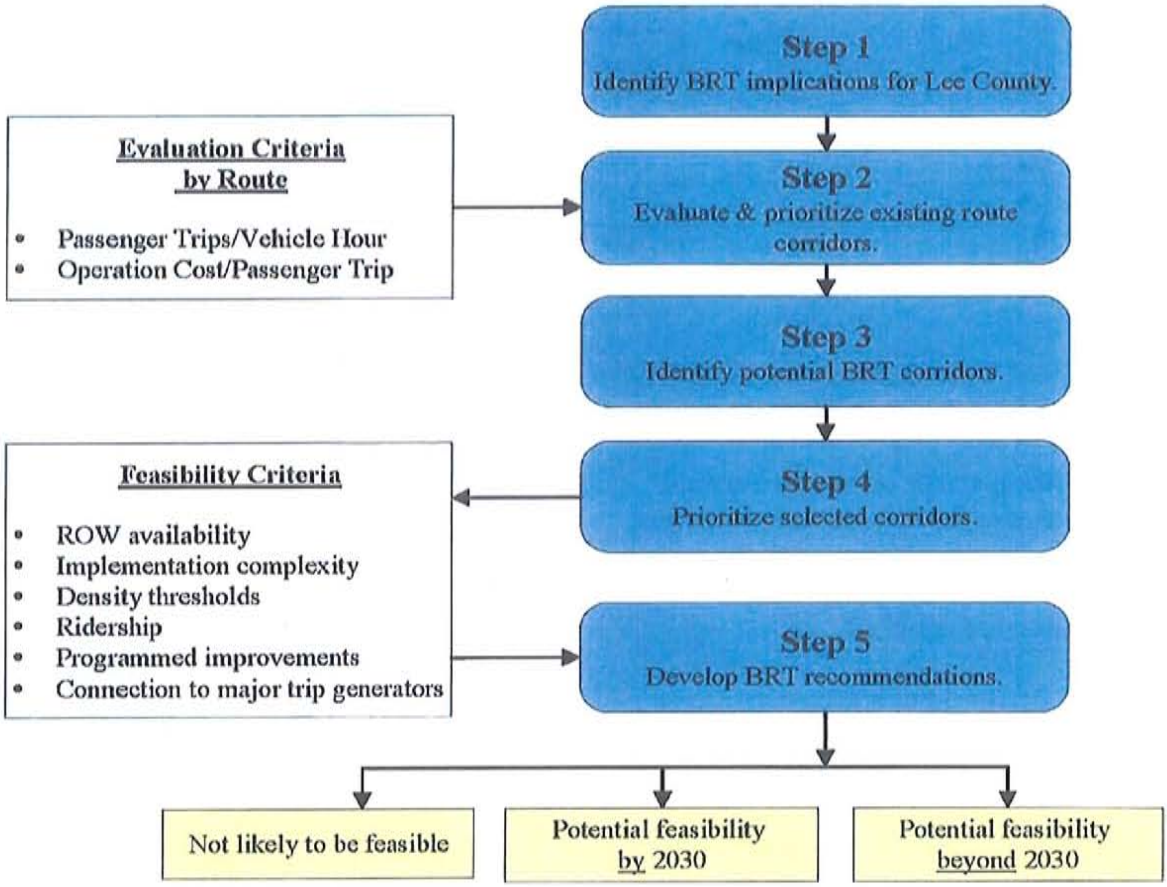
Identification of Potential BRT Corridors

Step 1 in Figure 6-3 consists of the overview of BRT components, case studies, and Lee County BRT implications included in the first part of this chapter. The next step taken to assess BRT opportunities was to select candidate corridors for further analysis. Not all fixed-route corridors operate at the required performance levels necessary for BRT consideration. In order to select from among the existing fixed bus routes in the LeeTran system, two performance measures were selected by which routes were ranked. A composite ranking score for each fixed-route bus corridor was obtained by summing the rankings for each performance measure by corridor. The two performance measures utilized in Step 2 were:

- Passenger trips per vehicle hour
- Operating cost per passenger trip

Table 6-5 includes the fixed route corridor rankings based on the composite ranking score. Corridors with the lowest composite score are ranked first and those corridors with the highest composite score are ranked last. Based on this ranking, two of the beach trolley routes, the Summerlin Square Park-and-Ride Trolley and the Fort Myers Beach Trolley, ranked highest overall. The lowest ranking routes include Route 160, Pine Island, and Route 60, San Carlos Park. Besides the trolleys, other routes that ranked high on the list include US 41 and several downtown Fort Myers routes: Routes 10, 20, and 15.

Figure 6-3
Bus Rapid Transit Feasibility Assessment



Based on the rankings in Table 6-5, six fixed bus routes were selected for further analysis. The six bus routes are:

- Route 490 - Summerlin Square Park-and-Ride Trolley
- Route 400 - Fort Myers Beach Trolley
- Route 140 - US 41
- Route 20 - Martin Luther King, Jr. Boulevard
- Route 70 - Del Prado Boulevard
- Route 100 - Palm Beach Boulevard

One bus route that ranked high in the Step 2 evaluation but was not considered for further evaluation is a downtown Fort Myers route, Route 10, Dunbar. This route was removed from further consideration because of its limited service area and because of its close proximity to other bus routes that had the more simple route structures required for BRT.

For the purpose of the feasibility analysis, Route 490, the Summerlin Square Park-and-Ride Trolley

Table 6-5
Fixed Bus Route Performance Evaluation Ranking

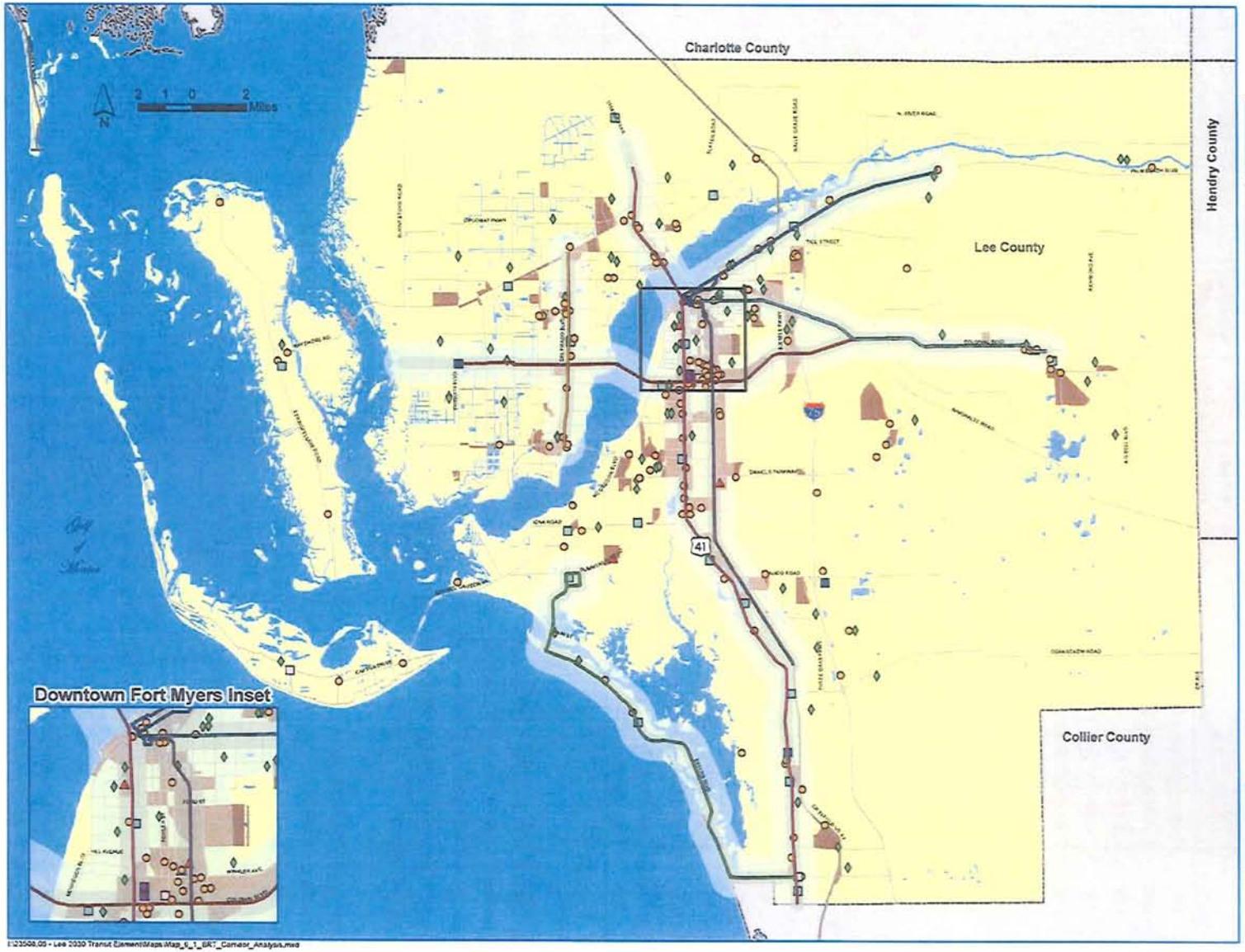
Route #	Description	Trips/ Hour	Cost/Trip	Trips/Hour Rank	Cost/Trip Rank	Sum of Rankings	Final Ranking
490	Summerlin Square Park-and-Ride	34.27	$1.92	1	1	2	1
400	Fort Myers Beach Trolley	23.15	$2.84	2	2	4	2
140	US 41	17.96	$3.66	3	3	6	3
10	Dunbar	17.20	$3.82	4	4	8	4
100	Palm Beach Boulevard	15.63	$4.21	5	5	10	5
70	Del Prado Boulevard	14.84	$4.43	6	6	12	6
20	MLK Boulevard	13.04	$5.04	7	7	14	7
110	Lehigh Acres	12.55	$5.24	8	8	16	8
130	South Fort Myers	12.39	$5.31	9	9	18	9
15	Broadway Avenue/Tice	11.58	$5.68	10	10	20	10
120	Veterans Parkway/Country Club Boulevard	10.16	$6.47	11	11	22	11
450	Bonita Trolley	10.16	$6.47	12	12	24	12
90	North Fort Myers	9.75	$6.75	13	13	26	13
30	Cape Coral Parkway	9.31	$7.07	14	14	28	14
50	Daniels Parkway/Summerlin Road	8.48	$7.75	15	15	30	15
40	Santa Barbara Boulevard	8.12	$8.10	16	16	32	16
80	Metro Parkway	5.05	$13.02	17	17	34	17
150	Bonita Springs	4.64	$14.17	18	18	36	18
60	San Carlos Park	3.90	$16.86	19	19	38	19
160	Pine Island	1.55	$42.55	20	20	40	20

and Route 400, the Fort Myers Beach Trolley, were grouped to create one BRT corridor. In addition, bus routes were adjusted in terms of their limits and alignments in order to create simple linear corridors for the analysis.

Two other corridors were added to the list of candidate corridors based on discussions with Lee County staff. The first additional corridor consists of Route 110, Lehigh Acres, and Route 120, Veterans Parkway, along Colonial Boulevard. Although these two routes did not rank among the highest performing corridors in Table 6-5, County staff indicated that the high levels of traffic congestion along Colonial Boulevard warrant the consideration of transportation alternatives other than roadway capacity improvements. The second corridor added to the list of BRT candidate corridors is the Seminole Gulf Railway corridor. A transit feasibility assessment for this corridor is presented in Chapter 5 of this report. All candidate BRT corridors are described separately below and illustrations can be found in Map 6-1.

Beach Trolley

The Beach Trolley BRT corridor connects both park-and-ride lots on the LeeTran fixed-route bus



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Lee County Transit System

- Colonial BRT
- Del Prado BRT
- Fort Myers Beach BRT
- MLK/Lehigh Acres BRT
- Palm Beach BRT
- SGLR
- US 41 BRT
- Major Employer
- Community Shopping Center
- Neighborhood Shopping Center
- Regional Shopping Center
- Future/Proposed Regional Shopping Center
- Hospital
- School
- BRT Supportive Area
- 1/4-Mile Service Area
- 3/4-Mile Service Area
- Seminole Gulf Railway

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2030 Long Range Transportation Plan

Map 6-1 BRT Corridor Analysis

Created: 06.23.05 Edited: 06.23.05 By: RRP

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network. The route would travel south from the Summerlin Square Park-and-Ride along San Carlos Boulevard to Estero Drive in the Town of Fort Myers Beach and then connect in the south county to Bonita Beach Road. This route includes travel over several bridges that provide connections to the Town of Fort Myers Beach. This corridor is a combination of all three existing trolley routes in the LeeTran bus system. The corridor is characterized by high volumes of traffic along the Fort Myers Beach section of Estero Boulevard. Existing bus routes along this corridor operate at some of the highest performance levels in the LeeTran fixed-route system. In addition, existing capital infrastructure, in the form of two existing park-and-ride lots at both ends of the corridor, and LeeTran's current use of an exclusive bus running way make this a good initial candidate for BRT.

The park-and-ride and beach trolley services provide an important transportation service, especially during the peak tourist season.

US 41

For the purposes of this feasibility assessment, most of the US 41 corridor within Lee County will be examined. Similar to the trolley routes, this route operates at some of the highest performance levels in the LeeTran fixed-route system. The current fixed-route service in the corridor makes connections to several major transfer hubs throughout the county and is structured in a simple north/south linear geometry, which makes it ideal for further analysis. Because of the significant amount of development planned for the southern portion of the corridor, the extent of the corridor analyzed stretches to the Lee County/Collier County border.

Martin Luther King, Jr. Boulevard/ Lee Boulevard

LeeTran has indicated a need for transit services connecting Lehigh Acres and the City of Fort Myers. This candidate corridor would provide a direct BRT connection between these areas of the County. The corridor east/west limits are the downtown Fort Myers Intermodal Center to the west and Lehigh Regional Medical Center to the east. This route would travel between these points by taking Martin Luther King, Jr. Boulevard., SR 82, and Lee Boulevard into Lehigh Acres. Corridor characteristics can be roughly divided into three roadway categories:

- Martin Luther King, Jr. Boulevard - Urban section consisting of three-lane and five-lane segments of roadway bordered by medium-density commercial and industrial development.
- SR 82 - Primarily undeveloped, unbuilt areas between the City of Fort Myers and Lehigh Acres.
- Colonial Boulevard - Wide six-lane divided sections of roadway bordered by suburban residential and strip commercial development.

Del Prado Boulevard

The Del Prado Boulevard corridor would provide north/south BRT connections through the City of Cape Coral. Del Prado Boulevard is a heavily traveled north/south roadway and is bordered by typical suburban development consisting of strip commercial and limited access residential areas. An underpass can be found at the intersection with Veterans Parkway. Several bridges dot the boulevard, which allow travel over the canal system in the area. For the purpose of this feasibility analysis, the limits of the BRT corridor on Del Prado Boulevard have been set at Pine Island Drive to the north and the Cape Transfer Center to the south. The route would connect to one other major transfer hub in the county, the Carolwood Mall.

Palm Beach Boulevard

Route 100, Palm Beach Boulevard, ranked fifth in terms of the performance measures examined in Step 2 of this feasibility analysis. In order to create a straight-line geometry for the BRT corridor analysis, the route has been slightly realigned near the Downtown Fort Myers area to follow First Street into downtown and then connect to the Intermodal Center. The BRT route would not continue south as Route 100 does, but would end at the Intermodal Center. The western limit of the corridor determined for the analysis is the library at the intersection of Palm Beach Boulevard and Buckingham Olga Road. Similar to the Martin Luther King, Jr. Boulevard/ Lehigh Acres BRT corridor candidate, this corridor also experiences urban, medium-density commercial development in the Fort Myers area with longer stretches of undeveloped land appearing as the route moves east towards Riverdale. As the route approaches the Downtown Fort Myers area, there are complicated intersections, overpasses, and one-way streets that the BRT would have to travel on and/or navigate through.

Colonial Boulevard/Veterans Parkway

The Colonial Boulevard/Veterans Parkway BRT corridor would combine two existing fixed bus routes, Route 110, Lehigh Acres, and Route 120, Veterans Parkway, and would serve as the primary east/west BRT route through Lee County. Although the two fixed bus routes did not rank high in the Step 2 performance evaluation, County staff indicated that the heavily congested Colonial Boulevard and Veterans Parkway corridors connecting the City of Fort Myers and the City of Cape Coral were in need of congestion mitigation treatments other than roadway capacity improvements. The route would begin in Lehigh Acres and travel west through the southern part of the City of Fort Myers and then continue over the river and extend into the western part of the City of Cape Coral to the future Shops at Surfside regional mall. For analysis purposes, the corridor has been extended to Surfside Boulevard in the west. The Colonial Boulevard/Veterans Parkway BRT route would share a transfer point with the US 41 BRT route at Edison Mall. Travel on a bridge connection over the Caloosahatchee River and overpasses at Del Prado Boulevard, McGregor Boulevard, and US 41 would need to be prepared for BRT buses and running ways. A toll booth is located on the Cape Coral side of the river. The corridor is a good initial candidate for further analysis because of its location, straight-line alignment, its connection to two major transfer hubs, and because it could provide connection to a candidate BRT route on US 41.

Seminole Gulf Railway

A BRT feasibility analysis for this corridor is included in the SGLR transit feasibility assessment completed in Chapter 5 of this report. The SGLR corridor is considered as a new market for transit services. For this reason, BRT and Express Bus alternatives appear to be the most feasible transit alternatives for this corridor initially.

Feasibility Evaluation of Selected BRT Corridors

Subsequent to the selection of candidate BRT corridors, a BRT feasibility analysis was performed on each corridor. Candidate corridors were evaluated based on a series of six criteria.

- Density thresholds
- 2030 ridership projections
- Connectivity
- Right-of-way availability
- LRTP roadway improvements
- Ease of implementation

Each criterion and its related performance evaluation methodology is discussed below.

Density Thresholds

Density threshold measures are based on the Choice Market Analysis presented in Chapter 4 of this report. BRT-supportive areas were determined to be those areas that were projected to have a density of six or more dwelling units per acre in 2030. BRT supportive areas are illustrated in Map 4-8.

Traffic analysis zones (TAZ) that were considered to be BRT-supportive in 2030 were selected by corridor. The sum of the areas of these BRT-supportive TAZs by corridor were divided by the total ¾-mile service area for each corresponding BRT corridor. The ¾-mile service area was selected because it provides a wide catchment area for potential transit customers planning to use park-and-ride facilities at BRT stations. The percent coverage of BRT-supportive areas for each BRT candidate corridor is shown in Table 6-6. BRT corridors were ranked in terms of the percent coverage. The percent

Table 6-6
BRT-Supportive Areas by BRT Corridor

BRT Corridor	3/4-Mile Buffer Area (sq. mi.)	Total Area of BRT-Supportive Areas in 3/4-Mile Buffer	% Coverage by BRT-Supportive Areas	Density Threshold Ranking
SGLR	23.49	7.31	31.1%	1
US 41	43.82	7.96	18.2%	2
Del Prado	11.56	1.65	14.3%	3
Colonial/Veterans	28.03	3.67	13.1%	4
MLK/Lee	22.12	2.79	12.6%	5
Palm Beach	15.35	1.45	9.4%	6
Beach Trolley	13.89	0.77	5.6%	7

of ¾-mile buffer area covered by BRT-supportive areas for BRT candidate corridors ranged between 5.6 percent and 31.1 percent.

2030 Ridership Projections

2030 ridership projections for each BRT corridor were developed using 2030 fixed-route ridership projections and applying a BRT annual ridership factor of 1.15. This factor was developed using a trend in ridership increases based on the experience of other BRT systems. A detailed discussion on the development of this BRT ridership factor can be found in Chapter 5 of this report. The year 2028 was identified as the BRT implementation year. Fixed-route ridership projections for that year were then multiplied by the BRT ridership factor for each year through 2030 to obtain 2030 BRT ridership projections. Each candidate BRT corridor was ranked based on forecasted BRT ridership in 2030. Table 6-7 includes the ridership rankings based on this analysis.

Connectivity

Connectivity was utilized in this analysis to assess the connectivity provided by each candidate BRT corridor to the major trip generators and attractors illustrated in Figure 4-3 of this report. Trip generators and attractors include schools, shopping centers, hospitals, government offices, and several other key facilities.

A ¼-mile buffer was created for each candidate BRT corridor. The number of trip generators and attractors that fell within that ¼-mile buffer were counted. The total number of generators and attractors for each corridor were then divided by the one-way route length in order to normalize the number of generators and attractors between candidate BRT corridors. The connectivity ranking for each candidate BRT corridor is shown in Table 6-8.

Right-of-Way Availability

A general estimation of available right-of-way was calculated for each corridor using two methods. The first was a review of 2002 aerial photography for Lee County overlayed by property appraiser parcel data. The second step was to conduct a field review of targeted areas. Because of the detail involved with actual right-of-way determination, a general percent calculation was estimated for the corridor based on visibly available unpaved or unused roadway shoulders within estimated right-of-way widths. A field review then assisted in clarifying any blurred locations in the aerial photography. Table 6-9 notes the right-of-way availability ranking based on this analysis.

LRTP Roadway Improvements

The Lee County 2020 Financially Feasible Highway Plan was reviewed to identify future roadway capacity improvements along the candidate BRT corridors. Future roadway improvements offer the opportunity to leverage BRT improvements in conjunction with planned transportation projects. A general percent estimate was determined for each corridor based on the planned improvements and the extent of each BRT corridor. Table 6-10 notes the estimated percent of each corridor that has a planned improvement in the 2020 Financially Feasible Plan.

Ease of Implementation

This criterion relates to the on-road difficulties associated with the implementation of BRT system components. Issues such as vehicle traffic and

Table 6-7
Annual BRT Corridor Ridership

BRT Corridor	2005 Fixed Route Ridership	2030 Fixed Route Ridership	2028 BRT Implementation Year Fixed Route Ridership	BRT Factor	2028 BRT Ridership	2029 BRT Ridership	2030 BRT Ridership	Ridership Ranking
US 41	192,305	224,356	221,792	1.15	255,061	293,320	337,318	1
Palm Beach	115,248	154,865	151,696	1.15	174,450	200,618	230,710	2
Colonial/Veterans	104,557	146,379	143,033	1.15	164,489	189,162	217,536	3
Del Prado	73,960	126,348	122,157	1.15	140,481	161,553	185,786	4
MLK/Lee	74,691	104,567	102,177	1.15	117,504	135,129	155,399	5
Beach Trolley	76,849	96,062	94,525	1.15	108,703	125,009	143,760	6
SGLR	47,347	47,347	47,347	1.15	54,449	62,616	72,009	7

Table 6-8
BRT Corridor Connectivity

BRT Corridor	Number of Generators & Attractors Within 1/4-Mile Buffer	Route Length (miles)	Generators & Attractors per Route Mile	Connectivity Ranking
Del Prado	15	7.2	2.08	1
US 41	47	30.0	1.57	2
Palm Beach	18	13.3	1.35	3
SGLR	19	14.8	1.29	4
MLK/Lee	15	14.3	1.05	5
Colonial/Veterans	15	19.6	0.77	6
Beach Trolley	8	18.9	0.42	7

narrow bridges pose challenges for the implementation of various BRT elements. For this criterion, a series of five true and false statements were developed that each address a potential implementation complexity. The five true and false statements are as follows.

- There are no queue jump opportunities along this corridor.
- There are congested traffic conditions along this corridor.
- There are overpasses and/or railroad crossings at various intersections along this corridor.
- There are intersections with poor geometry along this corridor.
- There are bridges along this corridor.

The validity of each statement was checked for each candidate BRT corridor. True statements by corridor were assigned zero points. False statements were assigned one point. All points were then summed and corridors were ranked based on total number of points received. Table 6-11 includes the point totals and rankings for this analysis.

Summary of BRT Feasibility Analysis Results

In order to obtain final rankings for the feasibility analysis, rankings for each criterion by corridor were summed. A final BRT feasibility ranking was developed based on the summed ranking totals. Those candidate BRT corridors with the lowest total rank score were ranked highest. Table 6-12 shows the results of the feasibility analysis.

Corridors that ranked the highest based on this feasibility analysis include US 41 and Martin Luther King, Jr. Boulevard/Lee Boulevard. US 41 ranked

Table 6-9
Right-of-Way (ROW) Availability

BRT Corridor	% Corridor w/ ROW Availability	ROW Ranking
SGLR	100%	1
MLK/Lee	75%	2
Beach Trolley	60%	3
Palm Beach	60%	3
Colonial/Veterans	60%	3
US 41	50%	6
Del Prado	10%	7

Table 6-10
Roadway Improvement Rankings

BRT Corridor	% Corridor w/ LRTP Roadway Improvements	Roadway Improvements Ranking
MLK/Lee	40%	1
ColonialVeterans	20%	2
US 41	15%	3
Beach Trolley	10%	4
Palm Beach	0%	5
Del Prado	0%	5
SGLR	0%	5

Table 6-11
Ease of Implementation Rankings

BRT Corridor	No Queue Jump Opportunities	Congested Traffic Conditions	Overpasses/ Railroad Crossings	Poor Intersection Geometry	Bridges	Total False Statements	Ease of Implementation Ranking
MLK/Lee	True	True	False	False	False	3	1
US 41	False	True	True	False	True	2	2
Palm Beach	True	True	False	True	False	2	2
Del Prado	True	True	True	False	False	2	2
Colonial/Veterans	False	True	True	False	True	2	2
SGLR	True	False	True	True	False	2	2
Beach Trolley	True	True	False	True	True	1	7

high in several of the six criteria categories, including density threshold and ridership. Consistent with related BRT research and implications outlined for Lee County earlier in this chapter, these two criteria are good indicators of potential BRT markets. In addition, the US 41 corridor ranked second in terms of connectivity to major activity centers. Because this route traverses one of the more developed corridors through Lee County, it provides connections to various commercial and employment centers as well as connections to Downtown Fort Myers.

The Martin Luther King, Jr. Boulevard/Lee Boulevard corridor ranked high in three of the six BRT feasibility criteria. This corridor's high ranking in criteria such as right-of-way and roadway improvements can be attributed to the length of the evaluated corridor. Much of this corridor east of the City of Fort Myers is undeveloped and contains wide

Table 6-12
Final BRT Feasibility Rankings

BRT Corridor	Connectivity Ranking	Density Threshold Ranking	Ridership Ranking	ROW Ranking	Roadway Improvements Ranking	Ease of Implementation Ranking	Ranking Total
US 41	2	2	1	6	3	2	16
MLK/Lee	5	5	5	2	1	1	19
Colonial/Veterans	6	4	3	3	2	2	20
SGLR	4	1	7	1	5	2	20
Palm Beach	3	6	2	3	5	2	21
Del Prado	1	3	4	7	5	2	22
Beach Trolley	7	7	6	3	4	6	33

medians and/or ample right-of-way. Conversely, the corridor ranks low in three important evaluation criteria (i.e., ridership, connectivity, and BRT supportive densities).

Corridors that did not rank high based on this analysis include the SGLR corridor and the Beach Trolley. These two corridors experienced low rankings in the ridership and ease of implementation criteria.

Important to note is that a low ranking based on this feasibility analysis does not preclude a corridor from BRT treatments in the future. The advantage of BRT is that it offers the opportunity to implement low-cost service improvements incrementally without risking the cost of large capital investments. Keeping this in mind, all candidate BRT corridors can benefit from the integration of certain aspects of BRT operations.

In addition, when split into shorter segments of road, particular segments along the extent of some of the candidate corridors may be considered BRT-ready prior to 2030. Without a more detailed analysis of intersection geometries, signal synchronization, vehicle travel lanes, and other roadway dynamics, BRT cannot be ruled out as an option for any of the identified corridors. For this reason, all corridors are considered BRT feasible.

BRT RECOMMENDATIONS FOR LEE COUNTY

Based on this general assessment of potential BRT corridors, the US 41 corridor is considered the most feasible candidate for BRT applications during the LRTE planning period. Improved transit operations would assist in alleviating some of the congested traffic conditions experienced along this corridor. The County may want to consider a more detailed assessment for the corridor in the near future to better identify specific BRT applications, their operating and capital costs, and an implementation timeframe.

BRT-related recommendations for Lee County are summarized below.

- One or two corridors from among the candidate BRT corridors should be selected for a more in-depth operational analysis. It is recommended that the initial corridor selection include two corridors so that it will be possible to establish an initial network of one North-South route and one East-West route. Additionally, further study and a detailed implementation plan with revised capital and operating cost estimates unique to each corridor is recommended.

- The initial North-South candidate corridor should be the US 41 corridor. US 41 is considered the most feasible candidate for BRT applications during the LRTE planning period. While right-of-way constraints along much of the corridor suggest the initial utilization of mixed-traffic BRT operations, it is possible that there may be some opportunities for exclusive-lane BRT operations in the future. Another north-south alternative would be the SGLR corridor, where it would be possible to implement an exclusive busway. Although the exclusive nature of such a running way would allow it to have overall greater travel time and on-time performance benefits than a similar mixed-traffic BRT operation along US 41, the initial implementation capital costs of the busway would be significantly higher than the US 41 BRT service option.

- The East-West candidate BRT corridor should include a combination of the Martin Luther King, Jr. Boulevard/Lee Boulevard corridor and the Colonial Boulevard/Veterans Parkway corridor.

- Certain segments of the remaining candidate corridors identified in this analysis can potentially be considered BRT-ready by 2030. A more detailed analysis of each corridor is necessary to specify segment limits and identify potential BRT treatments.

- It is recommended that Lee County take a phased, incremental approach to integrating BRT into its existing transit services. Integrating low-cost BRT elements initially, such as shorter headways and queue jump opportunities, can lead the way for future applications of more advanced and expensive BRT components (e.g., exclusive BRT running ways and stations, advanced fare collection systems, and ITS technologies).

- Either through the completion of in-depth corridor studies, or through a separate but related study, a framework plan for instituting BRT elements into the existing traffic and transit circulation systems in Lee County should be developed. This framework plan would identify preliminary BRT design criteria related to service, facilities, and preferential treatments, as well as identify branding opportunities.

- Lee County should take steps to preserve right-of-way along the recommended BRT corridors in order to accommodate BRT components such as exclusive running ways and stations in the future.

- Although the market assessments do not indicate a need for full-scale BRT operations in many areas within Lee County in the near term, the existing fixed-route system would benefit from the integration of various BRT-related elements, such as increased frequencies, queue jumps, and transit signal priority.

- To further support the potential future implementation of BRT service, Lee County should examine land uses along the potential corridors and promote more transit-supportive uses and development. To this end, consideration should be given to integrating future land use planning and BRT service planning, especially along the identified BRT corridors and around potential BRT stations.

- An education plan should be developed for elected officials and the public, as well as for municipal and county government departments, that potentially could be involved in the implementation of BRT. City and county engineers and planners need to understand the various BRT elements, how these elements are applied, and what relationship the elements have with each respective departments' operations. For example, it may beneficial to organize and conduct an ITS workshop focusing on transit signal priority and bus preferential treatments.

Chapter 7: Waterborne Transit Feasibility Assessment

This chapter provides an overview of existing passenger vessel operations in Lee County, preliminary analysis of potential waterborne transit terminals, assessment of the most promising routes, discussion of possible operating models, description of potential sources of funding for both capital and operating costs, and recommendations for further planning and implementation.

The following definitions are used throughout this section.

- Excursion Vessel – A vessel carrying passengers on a fixed schedule to one or more destinations on single day tour. Passengers on excursions are required to depart each port of call at a given time and generally make all passages on the same vessel.

- Ferry – A vessel carrying either passengers or vehicles and passengers on a fixed schedule between two destinations. Fares are generally collected at a terminal prior to boarding the vessel and terminals are typically dedicated intermodal transportation centers.

- Water Bus – A small passenger vessel, up to 150 passengers, serving three or more destinations on a fixed schedule. Water bus operations are very similar to transit bus operations in that fares are generally collected on-board and make use of low-impact terminal facilities. Water bus stops are generally piers or fixed docks designed to minimize their community and environmental impacts. Water bus stops also can include marinas, boat launches, and waterfront parks.

- Water Taxi – A small vessel providing passenger-only service on an on-call basis to the passenger's choice of destination. Water taxis typically have a capacity of between 6 and 25 passengers. Water taxis are privately operated and usually serve multiple-use piers and docks.

INVENTORY OF EXISTING SERVICES

The existing ferry and water taxi services within Lee County all serve the islands in the north end of Pine Island Sound, including North Captiva Island, Cabbage Key, Useppa Island, and Boca Grande. All are privately operated and primarily serve the tourist and seasonal resident markets. None of the services carry vehicles except Island Charters, which has barges available for charter that can carry cars, trucks, and miscellaneous supplies. These services are described below and shown in Map 7-1.

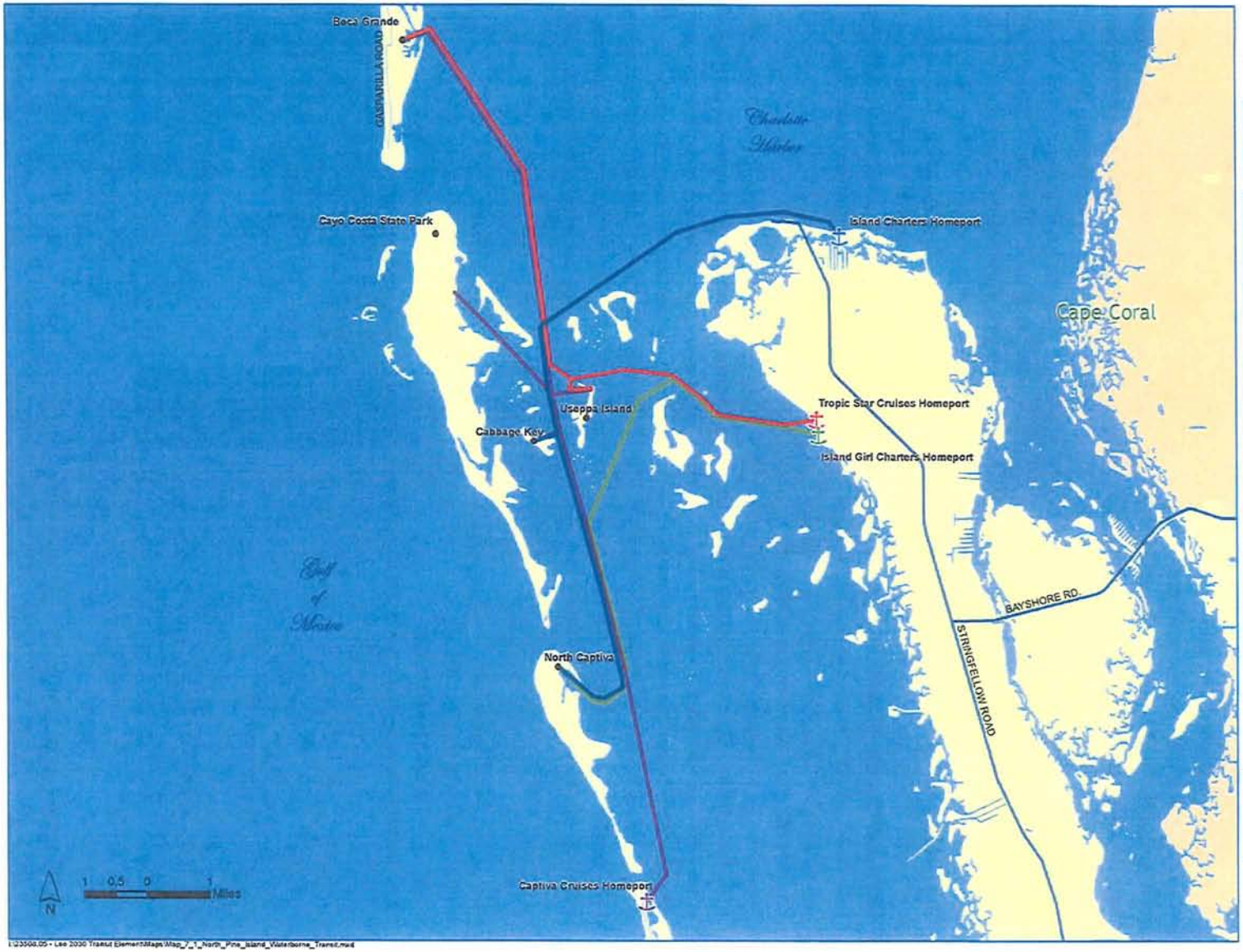
- Island Girl Charters – Island Girl Charters is the only scheduled ferry service to North Captiva and offers scheduled service from Pineland on Pine Island, with 6 round trips per day, September 1st to February 14th. From February 15th through April 30th, there are two additional round trips on Fridays and Saturdays. The distance from Pineland to North Captiva is approximately 8.5 nautical miles. During the peak season, the busiest day of the week is Saturday, when weekly visitors depart and arrive. At these times, Island Girl Charters carries up to 300 passengers per day. The one-way fare is $20 and the round trip fare is $35.[1]

  Island Girl Charters operates two monohull vessels, the ISLAND GIRL IV, a 34' Crusader, and a 31' Morgan. The Crusader was recently acquired to provide a comfortable, all-weather boat to maintain the set schedule. She has a cruising speed of 25 knots and a capacity of 26 passengers. Both vessels are powered by outboard motors to minimize their draft. Service is very occasionally disrupted by bad weather and also can be disrupted by very low water conditions, which can occur when a full moon is accompanied by strong winds out of the northeast.[2]

- Tropic Star Cruises – Tropic Star Cruises is the licensed concessionaire to provide ferry service to Cayo Costa State Park and offers scheduled excursions to Useppa Island, Cabbage Key, Boca Grande, and North Captiva from their homeport in Pineland. Their vessels are also available as both excursion and water taxi charters. The fare

Figure 7-1
North Captiva Ferry,
ISLAND GIRL IV

Figure 7-2
Cayo Costa State Park Ferry,
CAYO COSTA STAR



lee tran

Lee County Transit System

- Captiva Cruises Route
- Island Charters Route
- Island Girl Charters Route
- Tropic Star Cruises Route
- Existing Local Route
- Future Local Route
- Future Express Route

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Map 7-1 North Pine Island Sound Waterborne Transit

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for a day trip to Cayo Costa State Park is $23 for adults and $17 for children under 8 years old.[3] The distance from Pineland to Cayo Costa is approximately 5.5 nautical miles.

- Island Charters – Island Charters operates a reservation-only water taxi service from Bokeelia at the north end of Pine Island.[4]

- Captiva Cruises – Captiva Cruises offers excursions to Cabbage Key, Useppa Island, Cayo Costa State Park, and Boca Grande.[5]

All of these services are privately owned and operated. Ridership declined significantly in the last year as a result of hurricane damage, but it is expected to rebound. Prior to last year's hurricane season, ridership had been increasing year to year and that trend is expected to resume over the next couple of years.

In addition to the services described previously, the following passenger vessel operators also are based in Lee County.

- Key West Express – Key West Express operates two excursion vessels from Fort Myers Beach and Key West. The high speed catamaran from Fort Myers Beach takes approximately 2-1/2 hours to make the one-way trip. Both vessels offer gambling while the vessels are outside the territorial waters of the United States (i.e., 3 miles offshore).[6]

- Edison-Ford Estates Electric Launch – Electric launches take visitors to the Edison-Ford Estates museum on a tour of the Caloosahatchee River. The tours take approximately one hour and the vessels cruise along the Fort Myers shoreline as far as the Edison Bridge. This tour costs $5.50 in addition to admission to the museum.[7]

PRELIMINARY ANALYSIS

Route Evaluation Criteria

The viability of waterborne transit can be measured in the same way as any other form of transit. Nearly always, the cost of waterborne transit is higher due to greater fuel consumption and higher labor costs. These costs can be controlled by careful definition of the vessel requirements. Although high speed vessels are attractive for reducing travel time, the fuel consumption rates tend to rise with the square of the speed of the vessel. So increasing the speed by 25 percent will result in the consumption of 56 percent more fuel. With fuel prices expecting to continue to increase for the foreseeable future, specifying the appropriate speed is very important to the financial success of the route.

Farebox Recovery Ratio & Subsidy per Passenger

The farebox recovery ratio for waterborne transit tends to be comparable to that of bus and rail transit because fares tend to be higher. However, when comparing subsidy per passenger, the higher operating costs for vessels results in a larger subsidy.

For example, if it costs $10 to carry a ferry passenger and the average fare is $5, the recovery ratio is 50 percent, with a subsidy of $5 per passenger. For fixed-route bus, the fare may be $1 and the recovery ratio 25 percent, but the subsidy is only $3 per passenger.

Congestion Relief

In highly congested areas, such as the bridges to Sanibel and Fort Myers Beach, ferries can provide an alternative mode of transportation; however, unless very large ferries are used, they do not have a significant impact on congestion. They can help keep congestion from getting worse, but the implementation of a new ferry service should not be expected to substantially affect vehicle travel times.

Increased Mobility

For those members of the community who are dependent on transit for mobility, waterborne transit can provide a more direct and viable connection between destinations. For example, while it is possible to take a bus from Fort Myers Beach to St. James City on Thursdays, it is not practical because of the number of transfers required and the time it would take. But a water bus connecting Fort Myers Beach, Sanibel Island, and St. James City would make for a relatively short trip with no transfers.

Provision of Alternative Mode of Transportation

According to statistics compiled by the Lee County Convention and Visitors Bureau, over 30 percent of peak season visitors had complaints about congestion and overcrowding. Some of this dissatisfaction can be reduced by providing an alternative means of transportation that is accessible to tourists and seasonal visitors.

Operating Environment

The waters of the Caloosahatchee River, San Carlos Bay, and Estero Bay are well protected, falling into the U.S. Coast Guard (USCG) classification of Lakes, Bays, and Sounds. The tidal range in the area is typically less than four feet and the tidal currents will not be significant for typical ferry or water bus operations. Outside of the main channels the water can be very shallow, particularly during spring tides and when there are strong winds from the northeast. To avoid damaging propulsion systems, either outboard motors or waterjets are recommended.

Thunderstorms frequently come up in the afternoon and, although they produce locally heavy rain, they do not generally raise seas that would present a safety or comfort issue for a 25- to 50-passenger water bus or ferry.

Weather in the area during the peak season tends to be mild and current ferry services in Pine Island Sound are rarely disrupted by foul weather. In cases of hurricanes and extreme weather, ferry and water bus service would be suspended well in advance of the storm's arrival in order to secure the vessels and, if they survive the storm's passing, they could be put into service very quickly for damage assessment and disaster relief. Ferries have been used for emergency relief services after earthquakes in San Francisco, CA, and terrorist attacks in New York, NY. The inherent flexibility of ferries and water buses frequently means that they can get to destinations on the water long before cars or other vehicles could arrive.

The most significant factor affecting waterborne transit in this region is the presence of manatees and the need for slow speed operations in manatee protection zones. On the Caloosahatchee River, the speed limit is 25 miles per hour outside the manatee protection zones. In the manatee zones, vessels are required to travel at a no-wake speed, which for the

purposes of this report was assumed to be seven miles per hour. The manatee slow zones affecting waterborne transit are located from the Caloosahatchee Bridge to the Edison Bridge, around the Midpoint and Cape Coral Bridges, around Redfish Point downriver from the Cape Coral Bridge, and around Shell Point at the mouth of the Caloosahatchee River.

Evaluation of Potential Landing Sites

The following potential terminal sites were evaluated using site surveys, aerial photographs, transit maps (current and future), and local demographics (current and predicted). Each site is evaluated for the suitability of the existing facility, required modifications, proximity to other modes of public transit, and proximity of hotels, tourist attractions, high-density residential districts, and employment centers.

- *San Carlos Bay Landing Sites*
  - Sanibel Island
    - Foot of Ferry Street
    - Lighthouse Point Park
  - Pine Island/St. James City
    - Oleander Street
  - Fort Myers Beach
    - Bowditch Point Park
    - Foot of Old San Carlos Boulevard
    - Lovers Key State Park Boat Launch
- *Estero Bay Landing Sites*
  - Lovers Key State Park
  - Coconut
- *Caloosahatchee River Landing Sites*
  - Fort Myers
    - City Pier
    - Centennial Park (NE and SW of the Caloosahatchee Bridge)
  - Cape Coral
    - Cape Coral Yacht Club Park
    - Downtown Cape Coral Community Redevelopment Area (CRA)
    - Bikini Basin, Downtown CRA
    - Club Square, Downtown CRA
    - Bimini Basin, Downtown CRA
    - Tarpon Point (Mixed-Use Development)
    - Meta (Mixed-Use Development)

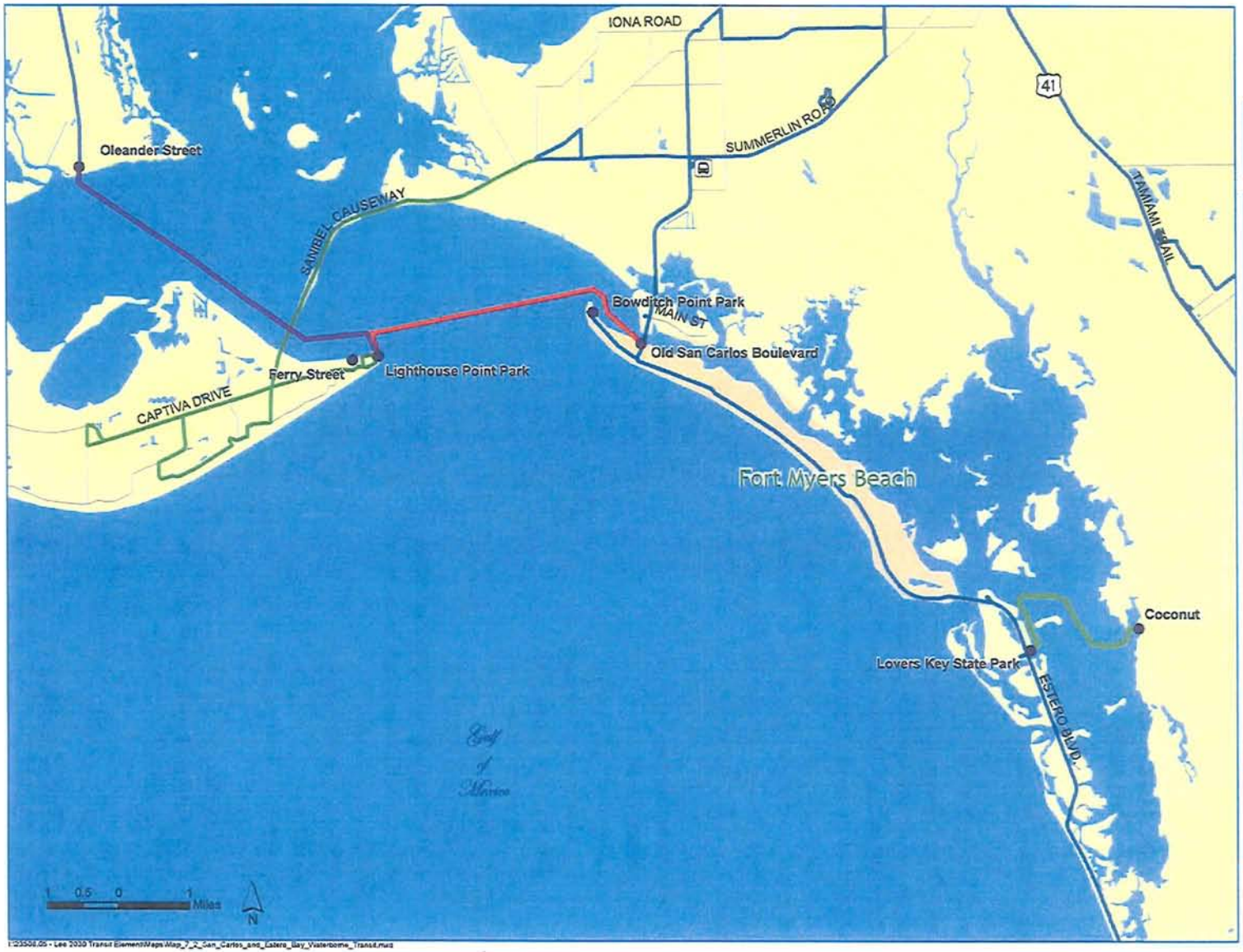
San Carlos Bay Landings

The landing sites around San Carlos Bay, shown in Map 7-2, serve areas with a large number of seasonal residents and tourists and the landings are fairly close to one another. A water bus stopping on Pine, Sanibel, and Estero Islands would be able to make a one-way trip in less than one hour.

The driving time to make an equivalent trip would be much longer, even during off-peak periods when traffic volumes are low. For example, the trip from St. James City to Sanibel Island would take approximately an hour by car, at best, but a trip by water would take less than 30 minutes. Traveling from Fort Myers Beach to Sanibel in good traffic would take about 30 minutes, the same time a ferry would take to make the crossing. The difference is that the ferry would not be affected during peak traffic periods, when driving can take well over an hour.

<u>Sanibel Island – Ferry Street</u>

Although there likely was a ferry landing at the foot of Ferry Street on Sanibel Island, there is no longer suitable access from the main road or from San Carlos Bay at this point. There are a number of private piers along the north shore of Sanibel Island east of the Sanibel Causeway, but acquiring landing



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Lee County Transit System

- Sanibel Island/ Pine Island Connector
- Sanibel Island/ Fort Myers Beach Connector
- Coconut/Estero Connector
- Existing Local Route
- Future Local Route
- Future Express Route
- Park-and-Ride Lot

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Map 7-2
San Carlos and Estero Bay Waterborne Transit

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rights and providing transit connections would be difficult at best.

Sanibel Island – Lighthouse Point Park

There is a public fishing pier on the north shore of Lighthouse Point Park on Sanibel Island that could be adapted to use as a ferry or water bus landing without diminishing its current utility. It extends into water of adequate depth for most candidate vessel types and is only a short distance from Periwinkle Way, which is a loop road through the park. Periwinkle Way also should be considered as a good turn-around for the planned Sanibel Island circulator. A good connection between waterborne and terrestrial transit is critical to provide passengers with access to the rest of lower Sanibel Island.

Modifications required to accommodate a ferry would include installing a gangway and boarding float near the end of the existing pier. These new elements could be installed near the outer end of the pier, but still inside the "T" section that is used for fishing.

To accommodate tidal fluctuations, the gangway would have to be no more than 30 feet long and the boarding float should be designed to accommodate a ferry load of passengers while another load of passengers disembarks.

Figure 7-3
Fishing Pier at Lighthouse Point Park

Pine Island – St. James City

The most suitable site for a water bus landing in St. James City is along Oleander Street just north of First Street. The existing docks in this location could serve as a landing for a water bus or ferry and the nearest current bus route is approximately ¼-mile to the north, an acceptable distance for an intermodal transfer. Currently, transit service is provided only on Thursdays, but future service additions would improve connectivity with the rest of the system.

Figure 7-4
Entrance to St. James City Lagoons

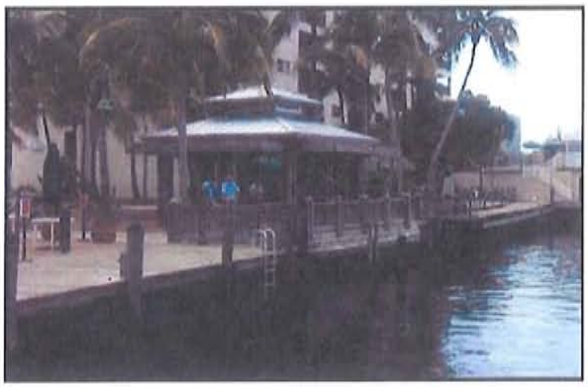
Fort Myers Beach – Bowditch Point Park

Bowditch Point Park, at the western end of Estero Island, is a popular destination and is served by the existing LeeTran beach trolley service. However, there are currently no shoreline structures suitable for a water bus or ferry landing.

Based on the length and construction of nearby private piers, a water bus or ferry landing could be installed after a thorough design and permitting process. Landing at Bowditch Point would require the shortest possible transit of the Estero Bay slow speed zone, thereby reducing the transit time to any other landing site.

Figure 7-5
Bowditch Point Park

Figure 7-6
Ft. Myers Beach,
Park at Foot of Old San Carlos Boulevard



Fort Myers Beach – Foot of Old San Carlos Boulevard

The northern end of Old San Carlos Boulevard has been developed into a "pocket park" with a small gazebo and boardwalk. The existing seawall could be adapted to serve a small water bus, as could the marinas on either side of the park. Although both small marinas appear to be privately owned, the adjacent businesses are restaurants, so they may be willing to host a water bus stop that brings customers to their doorstep.

This location also was once served by the beach trolley, but the route was changed after modifications to the intersection made it difficult for the buses to make the turn. Partial removal of these modifications would be required to restore the trolley service and create an efficient intermodal transfer center. Although both the Summerlin Square and Fort Myers Beach trolleys currently turn around at Bowditch Point Park, both routes could be changed to turn around on Old San Carlos Boulevard, 1st Street, and Crescent Street, in which case the existing street-end park could provide the connection between the two trolley routes and a water bus service. It would be possible to schedule all three services to arrive at the transfer center at the same time, simplifying connections for all riders.

Estero Bay Landings

Fort Myers Beach/Black Island – Lovers Key State Park Boat Launch

The existing boat launch on Black Island in Lovers Key State Park is convenient to the new developments in Coconut, across Estero Bay. Due to the bathymetry of Estero Bay, the route between the boat launch and Coconut Point, as shown in Map 7-2, is a bit circuitous and would have to be navigated at relatively slow speeds.

Transit access to the boat launch also is close enough to the beach trolley route for riders to walk between the bus and the ferry.

Figure 7-7
Lovers Key State Park Boat Launch

Southern Lee County – Coconut

The new developments at Coconut may eventually become a viable destination for waterborne transit service with connections to Coconut Point Town Center.

If transit service to this destination is implemented, landing rights could be obtained at the marina to connect to a water bus. The vessel serving this landing must have a very shallow draft or the channel will need to be dredged in order to provide reliable service during extreme low tides.

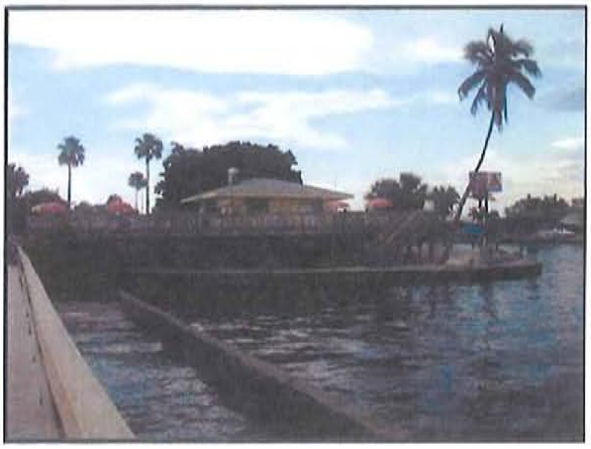
Caloosahatchee River Landings

Cape Coral – Cape Coral Yacht Club Park

The potential landing sites in Cape Coral are shown on Map 7-3. The existing facilities at Cape Coral Yacht Club Park would require few modifications in order to accommodate water bus service. The existing parking lot could provide a turn-around for transit service. The existing dock serves the convenience store and fuel service and is large enough to accommodate a 50-passenger water bus with no modifications. Because the park is at the end of the Cape Coral canal system, the time spent at low speeds would be minimized. Although the existing infrastructure and location of Cape Coral Yacht Club Park make it a candidate for a water bus or ferry landing, there is no current or planned transit service to the park and it is surrounded by low-density residential development. There is only limited parking at the park and it is frequently full. Service from this location should be considered only if new transit service is also provided.

Figure 7-8
Lovers Key State Park Boat Launch

Figure 7-9
Cape Coral Yacht Club Park (from Fishing Pier)



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Lee County
Transit System

- Potential Port
- Community Redevelopment Area
- Existing Local Route
- Future Local Route
- Future Express Route
- Major Transfer Center

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Map 7-3
Cape Coral Community
Redevelopment Area

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Cape Coral – Downtown Cape Coral Community Redevelopment Area

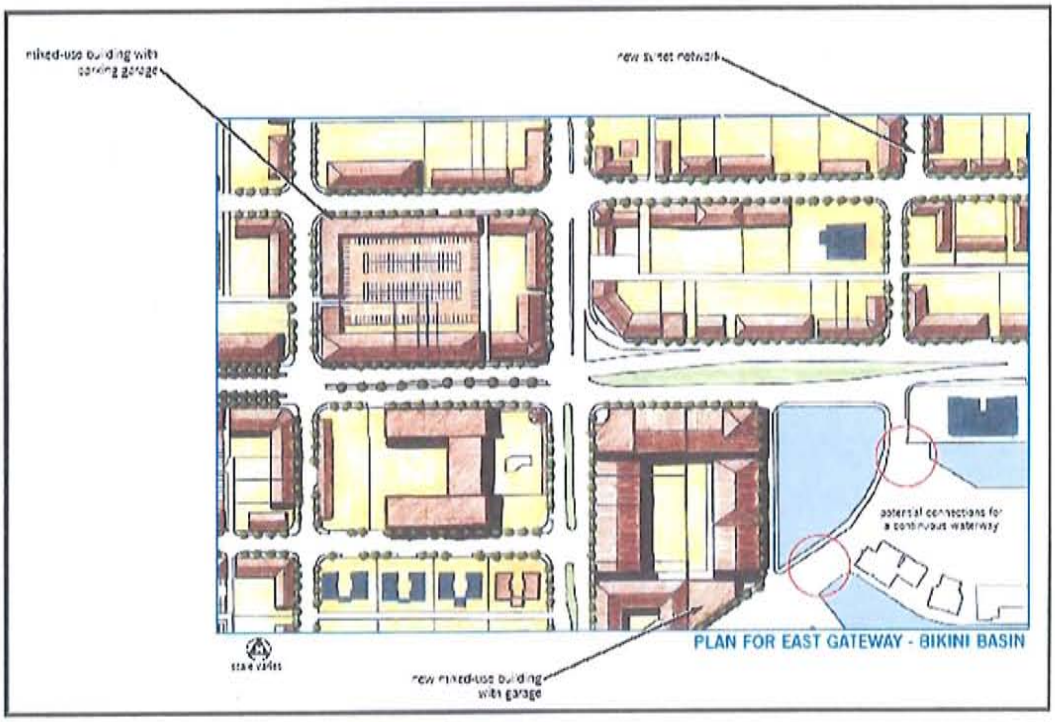
The redevelopment plans for Downtown Cape Coral include connecting a new lagoon, Bikini Basin, to the existing Bikini Canal and possibly closing Waikiki Court Road to allow larger vessels access to the basin from the Caloosahatchee River. In either scenario, Bikini Basin would provide a logical site for a water bus or ferry landing connecting the new downtown to other points on the river. As this plan moves forward, consideration should be given to incorporating a public ferry landing into the design of Bikini Basin for connections to Downtown Fort Myers and other places along the river.

At the other end of the Downtown Cape Coral Community Redevelopment Area, Bimini Basin could be considered for a waterborne connection to Sanibel Island or Fort Myers Beach. Although Bimini Basin is located farther inside the Cape Coral canal system, it is on the downriver side of the Redfish Point speed zone. Two other developments that may justify future consideration are the Tarpon Point and Meta mixed-use developments currently under construction in south Cape Coral.

Fort Myers – City Pier

The three potential landing sites serving Downtown Fort Myers are shown in Map 7-4. The City Pier in Fort Myers was built to support the operation of a

Figure 7-10
Downtown Cape Coral, Bikini Basin Plan[8]



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Lee County
Transit System

- Potential Port
- Community Redevelopment Area
- Future Express Route
- Future Local Route
- Existing Local Route
- Major Transfer Center

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Transportation Plan

Map 7-4
Fort Myers Community Redevelopment Area

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Figure 7-11
Fort Myers City Pier (River Side)

Figure 7-12
Fort Myers City Pier (Street Side)

high-speed ferry to Key West, but the speed limits on the Caloosahatchee River added too much time to the trip and the proposed service moved to the Miami area (note that the existing Key West ferry service from Fort Myers Beach is provided by a different operator and has been in existence for many years). It is still a very good facility and the surrounding apron and piers are well suited to larger ferries. Some minor repair work is all that would be needed to make it a suitable landing for a small water bus or ferry.

Fort Myers – Centennial Park

There are two feasible locations within Centennial Park for a water bus or ferry landing, one on either side of the Caloosahatchee Bridge. To the southwest of the bridge, the existing pier and seawall both could accommodate a small water bus or ferry. The potential landing sites are adjacent to a commercial marina and public landing facilities so signage would be required to prevent boaters from tying up at the water bus or ferry site. The drawback to a landing on this side of the park is its distance from the attractions of Downtown Fort Myers and transit service.

Figure 7-13
Centennial Park (Southwest Side)

Figure 7-14
Centennial Park (Northeast Side Pier)

On the northeast side of the Caloosahatchee Bridge, there is an existing public fishing pier that also could accommodate a small landing. The height of this pier would require a longer gangway to serve a water bus dock. This location is within sight of the convention center and closer to downtown than the west side location. Because is it located farther up river in a slow speed zone, its use would add a couple of minutes to the trip time for any service down river.

Preliminary Route Analysis

Based on the review of current operators, site visits, and analysis of potential terminals, three potential operating areas for waterborne transit were assessed: San Carlos Bay, Estero Bay, and the Caloosahatchee River. Connector service between the river and barrier island landings are constrained by the need to transit several slow speed zones. The North Pine Island Sound destinations are all well served by private operators; however, if any of the current operators were to stop service, there could be a role for public transit in maintaining service to these destinations.

San Carlos Bay

St. James City, Sanibel Island, and Fort Myers Beach would all be served by routes in San Carlos Bay and across its entrance from the Gulf of Mexico, as illustrated previously on Map 7-2. All routes are inside the COLREGS Demarcation Line and would be subject to the USCG Lakes, Bays, and Sounds regulations. The concentration of hotels, beaches, and other tourist attractions, combined with the current congestion on the bridges in the area, make these destinations the most likely to support a successful waterborne transit system. To succeed, the waterborne routes must be well integrated with the existing beach trolley service and the planned Sanibel Island circulator.

<u>Fort Myers Beach to Sanibel Island</u>

This is the most promising of all the routes analyzed. Although there is currently no transit on Sanibel Island, the planned circulator route will provide the critical connection for a viable ferry service. The ferry transit time and off-peak driving time are comparable; however, during peak hours, when

traffic is backed up on both bridges, a ferry has a distinct time advantage. The terminal-to-terminal time for this route is shown in Table 7-1.

Allowing for a five-minute turnaround, a single ferry could complete a round trip in one hour, departing at the same time every hour. Hourly departures increase ridership because it's easy for riders to remember when the boat leaves and they can work their schedules accordingly.

Sanibel Island to Pine Island

The time savings of a route connecting Sanibel and Pine Islands is significant, even during off-peak hours. It is 48 miles from the hotels on East Gulf Drive on Sanibel Island to St. James City, a trip that would be expected to take nearly 1½ hours with no traffic. However, the primarily residential nature of Pine Island is such that there is likely to be low demand for this service.

There is transit service to St. James City on Pine Island, but it currently runs only on Thursdays. If this service were expanded to five or even seven days a week, there may be more demand for a waterborne connector to Sanibel Island. The terminal-to-terminal time for this route is shown in Table 7-2.

Estero Bay

Lovers Key State Park to Coconut

A ferry connecting the existing and planned development at Coconut to Lovers Key State Park, along the route shown in Map 7-2, would be competitive in terms of travel time, but it would require a good transit or shuttle bus connection on the Lovers Key side for passengers to get to the nearby points of interest on the Key, such as the beach, hiking trails, picnic areas, or canoe livery, or to get to Fort Myers Beach. This location is already served by the beach trolley, also known as the Trollee, which could meet the ferry at the Lovers Key landing with a small route deviation. Though more development at Coconut would make this service more viable, it is possible that some initial

Table 7-1
Ferry Transit Time, Fort Myers Beach to Sanibel Island

Old San Carlos Boulevard to Lighthouse Point Park Route Schedule				
		Distance	Speed	Time
Old San Carlos Boulevard	Departure Maneuver			0:03:00
Departure Maneuver	Clear FMB Slow Zone	1.2	7.0	0:10:17
Clear FMB Slow Zone	Approach Lighthouse Point Pier	2.8	25.0	0:06:43
Arrival Maneuver	Lighthouse Point Pier			0:04:00
	Total Distance / Time	4.0		0:24:00
	Average Speed		10.0	

Table 7-2
Ferry Transit Time, Sanibel Island to Pine Island

Lighthouse Point Park to Oleander Street Route Schedule				
		Distance	Speed	Time
Lighthouse Point Park	Departure Maneuver			0:03:00
Departure Maneuver	Clear Sanibel Island Slow Zone	0.2	7.0	0:01:43
Clear Sanibel Island Slow Zone	Enter Pine Island Slow Zone	4.2	25.0	0:10:05
Enter Pine Island Slow Zone	Enter Lagoon Channel	0.3	7.0	0:02:34
Enter Lagoon Channel	Arrival Maneuver	0.2	4.0	0:03:00
Arrival Maneuver	Oleander Street Landing			0:03:00
	Total Distance / Time	4.9		0:23:22
	Average Speed		12.6	

demand could be generated by persons seeking an alternative method of access to Fort Myers Beach from the mainland. Either a new park-and-ride lot in the vicinity of the Coconut landing or a new transit connection between the landing site and an inland park-and-ride lot would help generate demand for this route. The terminal-to-terminal time for this route is shown in Table 7-3.

Caloosahatchee River

Downtown Cape Coral to Downtown Fort Myers

If the redevelopment efforts underway in Downtown Fort Myers and Downtown Cape Coral are successful, there is potential for a waterborne connection between the two districts, as shown in

Table 7-3
Ferry Transit Time, Lovers Key to Coconut

Lovers Key State Park to Coconut Route Schedule				
		Distance	Speed	Time
Lovers Key State Park	Departure Maneuver			0:03:00
Departure Maneuver	Arrival Maneuver	2.7	7.0	0:23:09
Arrival Maneuver	Coconut			0:03:00
	Total Distance / Time	2.7		0:29:09
	Average Speed		5.6	

Map 7-5. The two downtown districts currently are connected directly by LeeTran Route 70, which takes just under one hour to run between the Cape Transfer Center and the Fort Myers Intermodal Center. Route 70 runs the length of Cape Coral and comes across the Caloosahatchee River Bridge into Fort Myers. Transit riders looking for a more direct route must make a transfer at Edison Mall. Driving time between the two districts is approximately 25 minutes. As shown in Table 7-4, a ferry connecting the two downtown districts is competitive with driving and half the time of existing transit. Bikini Basin, the proposed landing within Cape Coral, does not yet exist but is one of the cornerstones of the Community Redevelopment Area.

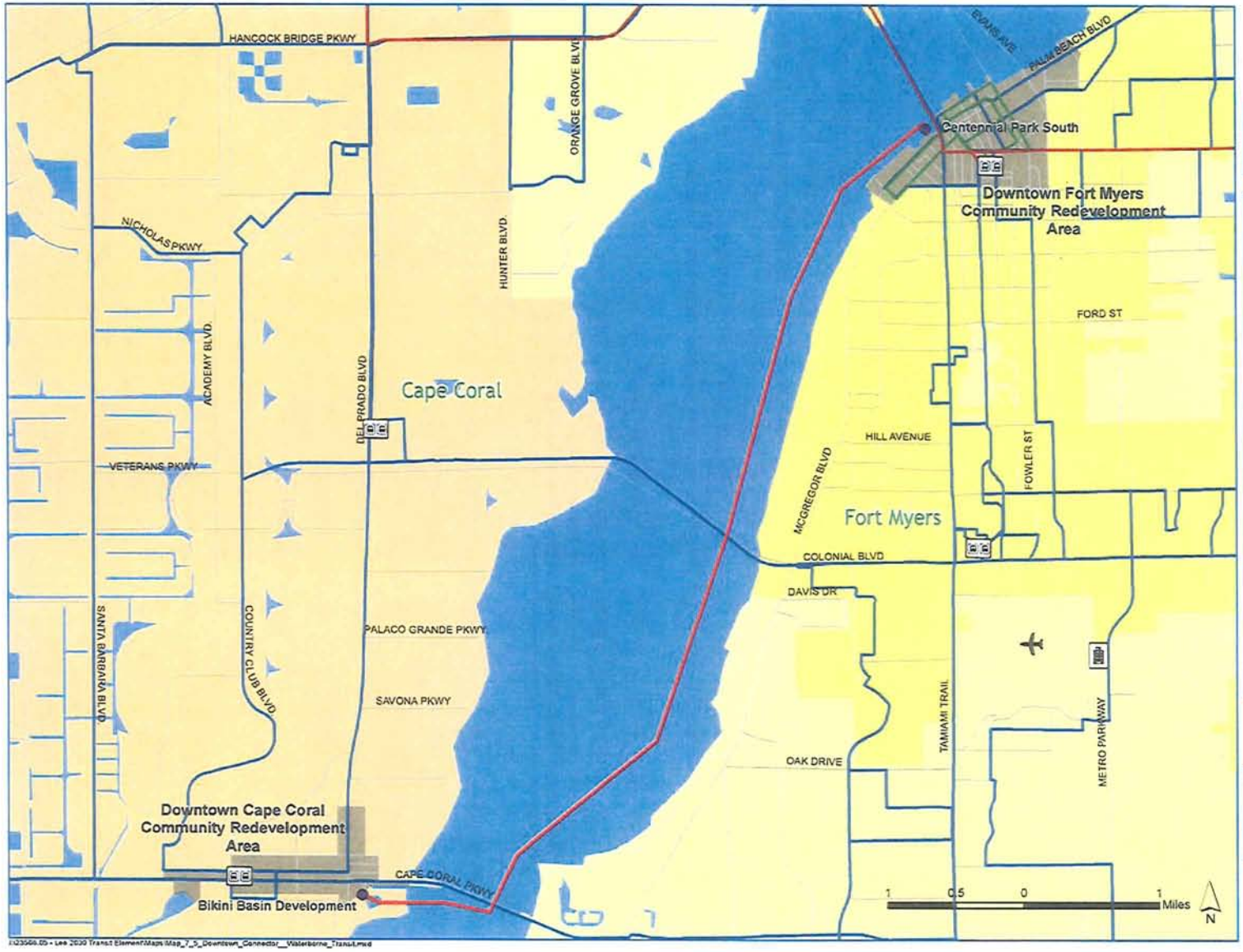
It is anticipated that connections between Cape Coral and Fort Myers would be used by commuters and local travelers more than by tourists. The City of Cape Coral is planning to undertake a survey of drivers crossing the Caloosahatchee River bridges and may include a query regarding the driver's destination. The data from this survey may be useful in helping quantify the potential ridership on waterborne routes connecting Cape Coral and Fort Myers.

Downtown Fort Myers to Fort Myers Beach

This is the longest route investigated and the slow speed zones at the bridges, Redfish Point, and Shell Point make the travel time uncompetitive with driving. As estimated in Table 7-5, it would take nearly an hour and 15 minutes to make the one-way trip. For most people traveling to Fort Myers Beach, it is much more efficient to drive to the Summerlin Square Park-and-Ride and then take the beach trolley service out to Fort Myers Beach. If landings at both ends were developed to accommodate small ferries serving other routes, this particular route may be attractive to a private operator as an excursion service, with narration along the way.

Table 7-4
Ferry Transit Time, Downtown Cape Coral to Downtown Fort Myers

Downtown Cape Coral (Bikini Basin) to Downtown Fort Myers (West Centennial Park) Route Schedule				
		Distance	Speed	Time
Bikini Basin	Departure Maneuver			0:03:00
Departure Maneuver	Approach Cape Coral Bridge	0.3	7.0	0:02:34
Approach Cape Coral Bridge	Clear Cape Coral Bridge	0.2	7.0	0:01:43
Clear Cape Coral Bridge	Approach Midpoint Bridge	2.8	25.0	0:06:43
Approach Midpoint Bridge	Clear Midpoint Bridge	0.3	7.0	0:02:09
Clear Midpoint Bridge	Arrival Maneuver	2.9	25.0	0:06:58
Arrival Maneuver	Centennial Park (West)			0:03:00
	Total Distance / Time	6.5		0:26:07
	Average Speed		14.8	



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Lee County Transit System

- Cape Coral/Fort Myers Connector
- Future Express Routes
- Future Local Route
- Existing Local Route
- Community Redevelopment Area
- Potential Port
- Major Transfer Center
- LeeTran Administration Facility
- Airport

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Map 7-5 Downtown Connector Waterborne Transit

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Table 7-5
Ferry Transit Time, Downtown Fort Myers to Fort Myers Beach

Downtown Fort Myers (W. Centennial Park) to Fort Myers Beach Route Schedule				
		Distance	Speed	Time
Centennial Park (West)	Departure Maneuver			0:03:00
Departure Maneuver	Approach Midpoint Bridge	2.9	25.0	0:06:58
Approach Midpoint Bridge	Clear Midpoint Bridge	0.3	7.0	0:02:09
Clear Midpoint Bridge	Approach Cape Coral Bridge	2.8	25.0	0:06:43
Approach Cape Coral Bridge	Clear Cape Coral Bridge	0.3	7.0	0:02:09
Clear Cape Coral Bridge	Enter Redfish Point Zone	1.0	25.0	0:02:20
Enter Redfish Point Zone	Exit Redfish Point Zone	0.8	7.0	0:06:41
Exit Redfish Point Zone	Enter Shell Point Zone	2.7	25.0	0:06:24
Enter Shell Point Zone	Exit Shell Point Zone	1.1	7.0	0:09:21
Exit Shell Point Zone	Approach Sanibel Bridge	2.1	25.0	0:04:58
Approach Sanibel Bridge	Clear Sanibel Bridge	0.3	7.0	0:02:09
Clear Sanibel Bridge	Enter Ft Myers Beach Channel	2.8	25.0	0:06:46
Enter Ft Myers Beach Channel	Arrival Maneuver	1.2	7.0	0:10:02
Arrival Maneuver	Old San Carlos Boulevard			0:03:00
	Total Distance / Time	18.0		1:12:38
	Average Speed		14.9	

Demand Estimates

Commuter Demand

Because most of the residential development in Lee County is relatively low density, there are not currently any high-density developments of the sort that are needed to support waterborne transit. However, as Downtown Cape Coral and Downtown Fort Myers continue their redevelopment efforts, there could be sufficient demand for a downtown connector, for commuters during the peak hours, business people during the day, and residents going out for the evening. For such a service to succeed, the landings should be well connected to the rest of the downtown zones, particularly the business and restaurant/nightlife/theater districts.

As noted previously, data on the destination of drivers crossing the Caloosahatchee River bridges may be collected by the City of Cape Coral as part of a survey planned for late 2005 or early 2006. If collected, this information will help to provide beneficial insight into the potential demand for

waterborne commuter service across the Caloosahatchee River.

The traffic congestion on the Sanibel Island and Fort Myers Beach bridges begins with the morning commute of hotel, restaurant, and other service employees. The Fort Myers Beach-to-Sanibel passenger ferry service could help to mitigate this congestion by allowing workers to drive to the Summerlin Square Park-and-Ride, then take the beach trolley service to the ferry, which ultimately would provide connectivity to the Sanibel Circulator service. However, the number of connections associated with this commute limits the likely demand. Additionally, there may be a demand for service from Bimini Basin in Cape Coral to Sanibel Island; the data from the City of Cape Coral's planned bridge travel survey could help estimate the ridership on this route, too.

Tourist Demand

Based on data provided by the Lee County Convention and Visitors Bureau, congestion is the number one complaint by tourists visiting during peak months. As a result of this frustration, and the desire of visitors to Fort Myers Beach to visit Sanibel Island, a well-marketed island connector service, including ferries and circulator bus routes, could prove to be very popular during the peak season. Getting on the water is inherently attractive to tourists who watch boats go by all day and the time savings is significant. Although the cost for four persons to ride a ferry will be higher than the toll for a single vehicle, the bridge toll is high enough that many people will at least look for an alternative. Once they hear, or experience, how bad traffic is, they are likely to be very open to taking an alternative mode.

Figure 7-15
Battery-Powered Monohull

Figure 7-16
Diesel Monohull (Long Beach Transit Aquabus)

Figure 7-17
High Speed Catamaran (Gold Coast Yachts)

Figure 7-18
Modern Hovercraft

The estimated ridership for the three beach trolley routes in 2005 is 86,872 trips, based on population density. However, in 2004, 416,710 people used the Trollee service, indicating that the vast majority of the riders are either tourists or seasonal residents rather than permanent residents. If 5 percent of these riders were to use a waterborne connector between Estero and Sanibel Islands, those riders could generate up to $104,000 annually at an average fare of $5. If a similar proportion of riders also could be attracted from the planned Sanibel Circulator route, the number of riders would increase substantially and a farebox recovery ratio of 35 percent could be achieved. The subsidy per passenger, assuming a 5 percent capture rate, would be $9.30. If 10 percent of the Trollee and Sanibel Circulator riders rode the connecting ferry, the recovery ratio would be 70 percent and the subsidy per passenger would be $2.15. In addition to riders transferring from the beach trolley service, there also is potential for a significant walk-up market in Fort Myers Beach.

Vessel Types

There are a large number of vessel types that may be suitable for one or more of the routes described previously. Nearly all existing passenger-only ferry services use one of the following vessel types: battery-powered electric monohull, diesel-electric hybrid monohull, diesel monohull, diesel catamaran, or hovercraft. Each type has benefits and drawbacks that make it suitable for some services, but not others.

The factors affecting the selection of a vessel type include anticipated demand, water depth, navigational restrictions, and speed required. In general, electric monohull vessels are best suited for short, high frequency trips in weather-protected waters. Larger vessels reaching 60 feet or more will be needed in the Manatee River and Sarasota Bay due to weather and tidal circumstances. From a travel time/frequency of service perspective, it is preferred that selected vessels are able to maneuver under drawbridges without requiring them to open.

Battery-power electric monohulls are the only zero-emission marine vehicle currently on the market. They are clean and quiet, but also rather slow and small. Some of the largest such vessels available currently in service are at the Edison-Ford Estates in Fort Myers. These are 32½ feet long, carry 25 passengers, and cruise at 5.5 knots. They are well suited for well-protected waters and short runs. They typically are limited to around 10 hours between charges, so multiple vessels are needed for a single route for service durations of greater than 10 hours. With limited power available from the batteries, battery-powered vessels can not provide air conditioning nor have any significant range.

Diesel-electric hybrid monohulls produce very little emissions and are quite fuel efficient. By using a diesel generator to charge the vessel's batteries as needed, they can operate for much longer before needing to be refueled. The Fort Lauderdale Water Taxi is a good example of this type of vessel. These vessels carry up to 72 passengers in climate-control

cabins. The weight of the propulsion system limits the size and speed of hybrid vessels so the new Fort Lauderdale water taxis are the largest of this type of vessel available with existing technology.

Diesel monohulls can be rather large and are most efficient at low to medium speeds. The newest diesel engines are very clean and can be fitted with selective catalytic reduction systems to achieve emission levels comparable to those of buses and heavy trucks. At low speeds, monohulls are very fuel efficient; however, as vessel speed increases, the amount of fuel required increases dramatically. Above 20 to 25 knots, almost all ferries are catamarans. Based on feedback from charter boat operators in the region, a larger vessel in the 60- to 65-foot range, such as a diesel monohull or catamaran, will be needed in the mouth of the Manatee River or Sarasota Bay due to tides and frequently challenging weather conditions.

Diesel catamarans are the most common passenger ferries for services requiring medium to high speeds and carrying large volumes of passengers. Catamarans typically have more complex hulls and machinery, and are, therefore, somewhat more expensive to build than monohulls of comparable capacity. As with all hull types, the final capital cost is highly dependent on the final outfit and level of finish.

Hovercraft are well-suited for areas where water depth or ice prevent the reliable operation of displacement craft. The noise traditionally associated with hovercraft has been reduced by the use of diesel instead of turbine engines. However, the maneuverability of hovercraft can be a challenge in areas of high winds, especially cross winds. Because there is no hull in the water, a head wind reduces vessel speed by the speed of the wind and a cross wind requires the operator to run at high "crab" angles to maintain the desired track. Hovercraft machinery also tends to require more maintenance than traditional propulsion systems. Hovercraft are currently undergoing somewhat of a resurgence, with designers in the U.S. and Europe developing new propulsion and lift systems to improve vessel performance and reduce maintenance costs. These new designs are just coming off the drawing boards and, if they are successful, they will be very good candidates for operations in manatee zones.

Regardless of the vessel type chosen, the propulsion system should be designed to minimize the risk of waterborne transit operations to the local manatee population. This can be done by specifying either fully ducted propellers or waterjets. At speeds below 12 knots or so, ducting increases the thrust generated by the propeller, increasing its efficiency.

At higher speeds, the drag caused by the duct, or nozzle, offsets the increased thrust, negating the benefit. At speeds above 20 knots, waterjets become economically competitive. Because all of a waterjet's rotating machinery is located within the hull, there is no chance of the propeller striking a manatee.

The characteristics of existing vessels of each type are summarized in Table 7-6.

COMPLETE ROUTE ANALYSIS

Service Characteristics

Sanibel Island – Fort Myers Beach Ferry

Of the routes identified previously, the Sanibel-Fort Myers Beach route appears to be the most viable in the foreseeable future without the need for major

Table 7-6
Typical Vessel Characteristics

Vessel Type	Capital Cost High	Capital Cost Low	Service Life Years	Route Location	Length ft	Beam ft	Draft ft	Cruising Speed knots	Installed Power HP	Est. Fuel Consumption GPH	Builder
25 Pax Electric	$ 125,000	$ 100,000	20	Edison-Ford Museum	32' 6"	8' 6"	2' 3"	5.5	4	0	Electric Launch Co
72 Pax Hybrid	$ 300,000	$ 250,000	20	Ft. Lauderdale	42' 0"	11' 6"	3' 0"	8	100	4	Canal Boats, Inc.
49 Pax Monohull	$ 250,000	$ 175,000	20	Long Beach - AquaBus	39' 11"	11' 10"	3' 5"	14	180	7	Willard Marine
30 Pax Cat	$ 500,000	$ 350,000	20	Caribbean	45' 0"	16' 0"	1' 2"	24	400	25	Gold Coast Yachts
50 Pax Hovercraft			20	Griffin 3000TD			0' 6"	37	2 x 525	40	Kvichak-Griffon / 3000TD
80 Pax Diesel	$ 1,500,000	$ 1,250,000	20	Long Beach - AquaLink	67' 3"	23' 8"	3' 0"	28	2 x 600	46	Kvichak Marine Industries
75 Pax Diesel	$ 2,500,000	$ 2,000,000	20	NY Water Taxi	53' 4"	19' 0"	4' 0"	25	2 x 600	46	Derecktor Shipyard
150 Pax Diesel	$ 2,500,000	$ 1,750,000	20	NY Waterway	78' 6"		2'-6"	28	4 x 600	92	Allen Marine

upland infrastructure. All of the other routes are dependent upon significant development taking place to increase residential, tourist, and/or employment density. A route between Fort Myers Beach and Sanibel addresses three of the four criteria identified previously and stands a good chance of producing a high farebox recovery ratio and a low subsidy per passenger.

Integration of the waterborne transit mode with other modes is critical to the success of this route. The route schedule should be closely coordinated with that of the beach trolley service and the Sanibel Island circulator route, and a ferry ticket should be made valid for both bus routes. Because the route is relatively short, a single vessel could depart one landing at the top of each hour and the other landing at the bottom of the hour. Two vessels on the route could provide a departure every half hour. With such frequent departures, coordinating the schedule with that of the beach trolley or the Sanibel circulator would be fairly simple.

Because most ridership on the Island Connector service is expected to be tourists and seasonal residents, the peak demand will occur during the day rather than morning and afternoon rush hours. There is likely to be some early and late demand so a long service day should be provided. With two vessels, the service could start with a single vessel during the early morning hours and the second vessel could start in the late morning and run until early evening. With two shifts of operators on the first vessel, it could run until relatively late. By using three shifts of operators in this fashion, a long service day can be provided with higher service levels during the peak demand times.

To keep initial operating costs low, a vessel with a capacity of 49 passengers or less should be used. This size of vessel can be operated by a crew of one, provided the operator can safely recover an overboard passenger without any assistance. This determination will be made by the local USCG Marine Safety Office, which should be consulted as soon as the vessel acquisition process is started. A catamaran with a capacity of 49 passengers and a cruising speed of 25 knots can be expected to burn approximately 25 to 30 gallons of fuel per hour. A conservative estimate of the total hourly operating

cost, including labor, fuel, maintenance, insurance, and overhead, would be approximately $200 per hour.

The service characteristics described in Table 7-7 are provided as a starting point only. The actual performance of the system could vary significantly and is highly dependent on the success of a marketing program for the service, integration with other transit modes, future development on both islands, and continued traffic congestion.

As shown in Table 7-7, if every seat on every run were full, the service would net over $6,000 per day. That is an unlikely scenario, however. More probable, given the volume of visitors and seasonal residents, is the 25-percent capacity scenario, in which case the system requires a subsidy of just over $1,600 per day, or $3.16 per passenger. If the service levels are maintained over the shoulder season, the ridership could drop to 10 percent of capacity, requiring even more subsidy.

If the service were maintained all year, the route could be served by a single vessel with the characteristics of Vessel 2. Because demand will be lower during the off-season, demand could be less than 100 passengers per day, or 10 percent of capacity. In this scenario, the daily subsidy would be $1,000 per day, or $15.41 per passenger. Because congestion is not nearly as bad during the off-peak season, demand could be even lower since the time savings is marginal.

The likely annual performance of the service is summarized in Table 7-8. If the service were to be provided all year, it would require a subsidy of over $500,000. If it were offered only during the peak two months plus one month on either side of the peak, the required subsidy would be just under $300,000.

The market for the island connector service will be closely linked to the market for the beach trolley and the Summerlin Square Shuttle services. Assuming that the number of visitors riding the Trollee grows in proportion to the expected ridership described elsewhere in this report, if only 5 percent of Trollee riders and 2.5 percent of the Sanibel Circulator riders also ride the connector ferry, this would result in over 40,000 trips per year, generating $200,000 in annual revenue at $5 per round-trip ticket.

Another key market for the island connector route is visitors staying within walking distance of the Fort Myers Beach landing. In 2030, it is estimated that there will be 1,296 hotel rooms with a 99-percent occupancy rate. Assuming two visitors per room, capturing 5 percent of this market would produce 130 trips per day, or $650 per day of farebox revenue. These riders would not likely utilize the Trollee service. As with Trollee riders, this is a very seasonal market and should not be included in off-peak season ridership estimates.

With a well-designed marketing campaign, sufficient ridership could be drawn from the Trollee, the Sanibel Circulator, and nearby visitors to make the island connector competitive with other transit routes in Lee County in terms of farebox recovery and subsidy per passenger.

Coconut – Lovers Key Ferry

A second route with some potential is a ferry connecting the new developments at Coconut to Lovers Key State Park and the Trollee service. The preliminary characteristics of this service are shown

Table 7-7
Sanibel Island to Fort Myers Beach Ferry Service Characteristics

	Vessel 1	Vessel 2	Fleet
Start of Service	8:00	10:00	
End of Service	22:00	17:00	
Service Hours/Day	14:00	7:00	
Hourly Rate	$ 200	$ 200	
Daily Cost	$ 2,800	$ 1,400	$ 4,200
Vessel Capacity	49	49	
One-Way Trips/Day	28	14	42
Fare	$ 5.00	$ 5.00	
Percent of Capacity			**100%**
Passengers	1,372	686	2,058
Fare Revenue	$ 6,860	$ 3,430	$ 10,290
Recovery Ratio	245%	245%	245%
Subsidy per Passenger	$ (2.96)	$ (2.96)	$ (2.96)
Percent of Capacity			**50%**
Passengers	686	343	$ 1,029
Fare Revenue	$ 3,430	$ 1,715	$ 5,145
Recovery Ratio	123%	123%	1.23
Subsidy per Passenger	$ (0.92)	$ (0.92)	$ (0.92)
Percent of Capacity			**25%**
Passengers	343	172	$ 515
Fare Revenue	$ 1,715	$ 858	$ 2,573
Recovery Ratio	61%	61%	0.61
Subsidy per Passenger	$ 3.16	$ 3.16	$ 3.16
Percent of Capacity			**10%**
Passengers	137	69	$ 206
Fare Revenue	$ 686	$ 343	$ 1,029
Recovery Ratio	25%	25%	25%
Subsidy per Passenger	$ 15.41	$ 15.41	$ 15.41

Table 7-8
Sanibel Island – Fort Myers Beach Ferry Seasonal & Annual System Summary

	Peak	Shoulder	Off-peak	Annual	Peak + Shoulder
Average Daily Passengers	515	206	69	164	
Duration (Days)	60	60	245	365	120
Total Passengers	30,870	12,348	16,807	60,025	43,218
Total Fares	$ 154,350	$ 61,740	$ 84,035	$ 300,125	$ 216,090
Daily Operating Cost	$ 4,200	$ 4,200	$ 1,400		
Total Cost	$ 252,000	$ 252,000	$ 343,000	$ 847,000	$ 504,000
Total Subsidy				$ 546,875	$ 287,910
Farebox Recovery Ratio				35%	43%
Subsidy per Passenger				$ 9.11	$ 6.66

in Table 7-9. A smaller and slower vessel was used in this analysis because of the draft and speed restrictions on the route. As a result, the hourly cost and capacity are both lower and the farebox recovery ratio and subsidy per passenger are similar to the Sanibel Island-to-Fort Myers Beach ferry. The initial demand for this service is likely to be driven almost entirely by visitors staying in Coconut and making day trips to Lovers Key State Park and Estero Island. To facilitate this market, seamless intermodal connections will be critical at the landing in Coconut. The annual performance of this service is summarized in Table 7-10.

Capital Costs

The cost to purchase new water taxis, water buses, and ferries is shown in Table 7-6. Used vessels may be available at lower cost and are best located using a knowledgeable broker specializing in passenger ferries and water taxis. The capital budget for the vessels used to develop the cost scenario discussed previously should be between $1,000,000 and $1,500,000 per vessel.

The cost to create new landings depends upon the existing infrastructure and the modifications and additions required. Because of the relatively small tidal range in the area, ADA-compliant gangways do not have to be particularly long. Boarding floats should be specified to match the freeboard of the vessels being served and are generally available from local dock suppliers. To install a new boarding float and gangway in a location with an existing pier, the total cost will be between $100,000 and $250,000. If new piles are required, there will be additional costs for permitting and pile driving.

Operating Costs

Labor

The size of the crew required is dependent on the number of passengers carried and the vessel's

Table 7-9
Coconut to Lovers Key Ferry Service Characteristics

	Vessel 1	Vessel 2	Fleet
Start of Service	8:00	10:00	
End of Service	22:00	17:00	
Service Hours/Day	14:00	7:00	
Hourly Rate	$ 125	$ 125	
Daily Cost	$ 1,750	$ 875	$ 2,625
Vessel Capacity	25	25	
One-Way Trips/Day	28	14	42
Fare	$ 5.00	$ 5.00	
Percent of Capacity			**100%**
Passengers	700	350	1,050
Fare Revenue	$ 3,500	$ 1,750	$ 5,250
Recovery Ratio	200%	200%	200%
Subsidy per Passenger	$ (2.50)	$ (2.50)	$ (2.50)
Percent of Capacity			**50%**
Passengers	350	175	$ 525
Fare Revenue	$ 1,750	$ 875	$ 2,625
Recovery Ratio	100%	100%	1.00
Subsidy per Passenger	$ -	$ -	$ -
Percent of Capacity			**25%**
Passengers	175	88	$ 263
Fare Revenue	$ 875	$ 438	$ 1,313
Recovery Ratio	50%	50%	0.50
Subsidy per Passenger	$ 5.00	$ 5.00	$ 5.00
Percent of Capacity			**10%**
Passengers	70	35	$ 105
Fare Revenue	$ 350	$ 175	$ 525
Recovery Ratio	20%	20%	20%
Subsidy per Passenger	$ 20.00	$ 20.00	$ 20.00

Table 7-10
Coconut – Lovers Key Ferry Seasonal & Annual System Summary

	Peak	Shoulder	Off-peak	Annual	Peak + Shoulder
Average Daily Passengers	263	105	35	84	
Duration (Days)	60	60	245	365	120
Total Passengers	15,750	6,300	8,575	30,625	22,050
Total Fares	$ 78,750	$ 31,500	$ 42,875	$ 153,125	$ 110,250
Daily Operating Cost	$ 2,625	$ 2,625	$ 875		
Total Cost	$ 157,500	$ 157,500	$ 214,375	$ 529,375	$ 315,000
Total Subsidy				$ 376,250	$ 204,750
Farebox Recovery Ratio				29%	35%
Subsidy per Passenger				$ 12.29	$ 9.29

configuration. Prior to issuing a Certificate of Inspection, which is required to carry passengers, the local USCG Marine Safety Office must approve the vessel's manning plan. It is strongly recommended that they be consulted early in the process to ensure the proposed plan will be acceptable. The following discussion is based on current operations and is provided as general guidance only.

For vessels with fewer than 50 passengers operating within protected waters, only one operator is generally required. The Long Beach AquaBus is a good example of this sort of operation. The route is relatively short and protected, there are four stops, each with a unique attraction, and the system is accessible for people with disabilities. For budgetary purposes, the rate for the operator of this size vessel should be about $20 to $22 per hour, exclusive of benefits.

For larger vessels, up to 150 passengers, a master plus at least one mate/deckhand per deck is the usual complement. The licensing requirements for the master on larger vessels are more stringent and a rate of $24 to $27 per hour should be used for budgeting. Deckhands do not need formal training and should be budgeted at $10-$12 per hour. If a crew of three is required, the operating budget should include $16 per hour for a mate/mechanic.

Fuel & Oil

The cost of fuel becomes a more significant factor in the overall operating cost as vessel size and speed increase. For most vessels, doubling the speed will result in quadrupling the fuel consumed, if such speeds are even possible. For pure displacement hulls, such as the electric and diesel-electric hybrids discussed previously, there is a speed, known as the "hull speed," that cannot be exceeded by an appreciable amount regardless of the power applied. As long as the vessel is operated somewhat below hull speed, the rate of fuel consumption will be

relatively low. Marine diesel is budgeted at $2.00 per gallon.

Maintenance

Machinery

For the purposes of this feasibility analysis, the machinery maintenance costs are estimated as a function of the amount of fuel consumed. This cost includes both regular maintenance, such as changing the oil and filters, and annual maintenance, which requires taking the vessel out of service. While the vessel is out of service, the annual inspection required by the USCG also is conducted. For a 49-passenger, 8-knot vessel, annual maintenance cost is estimated at $10,000 per year. For the 24-knot, 30-passenger catamaran shown previously, the annual maintenance cost is estimated at $30,000 per year.

Hull & Outfit

Hull and outfit maintenance costs are based on the number of passengers carried and includes daily and weekly maintenance, as well as any work done during the annual haul-out, such as cleaning and painting the underside of the hull. For an 80-passenger vessel operating 3,000 hours per year, the annual hull and outfit maintenance budget will be approximately $7,200.

Terminals

To ensure high quality service, all of the terminals within the system will require periodic cleaning and maintenance. Regular cleaning of the terminals likely will be done by the same personnel who clean the other transit stops within the system and will have a negligible impact on that budget. Annual maintenance of the terminal piers, gangways, and floats will primarily consist of painting and minor maintenance, with an annual budget of $2,500 per terminal per year.

Moorage

The annual operating budget should include the cost of overnight moorage for the vessels. For this study, a budget of $200 per month was assumed for each vessel.

Insurance

The three types of insurance required for vessel operations are hull and machinery insurance, liability insurance, and pollution insurance. Hull and machinery insurance is based on the replacement cost of the vessel and generally costs 7¢ per $1,000 of value. For an 80-passenger, diesel catamaran with a replacement cost of $1.5 million, the hull and machinery insurance will cost about $10,500 per year.

Liability insurance is a function of the number of passengers carried annually and is a fixed amount for the initial $1 million in coverage, a somewhat smaller amount for each additional $1 million in coverage up to $5 million in total coverage, and yet another amount for each $1 million above $5 million. This liability insurance does not cover passengers before they enter the boarding facility or after they depart. For a system carrying approximately 50,000 passengers per year, $5 million in total coverage will cost about $13,000 per year.

Pollution insurance is required to cover the cost of any accidental fuel, oil, or other hazardous material spills. It is not required for electric boats. The amount of pollution insurance required is a function

of the size of the vessel and the amount of fuel carried.

Management & Administration

The operation of a waterborne transit system will require some support from personnel on shore. This shore-based staff will be responsible for managing the crews, scheduling maintenance, and ordering supplies. In addition, customer service and/or marketing support may be required, depending on the relationship between the waterborne service and the rest of the transit system administration.

For a system comprised of two or fewer vessels, the maintenance planning can be performed by the Chief Master, in which case only a general manager will be required. For a fleet of three vessels or more, a general manager, port captain, and an administrative assistant would be recommended. The annual budget for a General Manager should be $65,000; for Port Captain, $50,000; and for an administrative assistant, $25,000. Benefits will add an additional 25 to 30 percent to these rates.

Overhead

Overhead costs include dock access fees, rents, utilities, license fees, etc. In addition to the administrative offices, a small workshop for vessel maintenance and parts storage is recommended. The total overhead costs are estimated at 12 percent of all other operating costs.

Revenues

Fares for the service most likely would fall within the $4 to $8 range. For comparison, the toll for the Sanibel Bridge is $6 and the Fort Lauderdale water taxi service charges $5 per day for unlimited rides. The fare should be set so that a reasonable amount of operating costs can be recovered relative to any public funding commitment for ongoing waterborne transit operations.

The fare structure can help create a more seamless system between water taxis and the existing public transportation system. Fort Lauderdale's system allows patrons who purchase a 31-day or 7-day bus pass for Broward County Transit to use the same bus pass for the water bus system. Because there would be a large discrepancy in fares between the beach trolley service at $0.25 and the ferry at $4 to $8, the trolley service should be free with a ferry ticket. For the island connector service, the beach trolley, the Sanibel circulator, and the ferry will have to be carefully integrated to succeed and a single fare covering all modes will go a long way towards achieving that goal.

Private contributions from advertising, in-kind contributions, and developer-incentives from other jurisdictions also should be considered as viable funding sources. In addition, the vessels could be made available for private charter or used for special events to generate additional revenue. During the off-season, opportunities may be available elsewhere for one of the vessels.

OPERATING MODELS

Specific operating models are discussed in this section, presented in order of the risk to the operating agency associated with each model.

Publicly Owned & Operated

The Golden Gate Ferries in San Francisco Bay are a prime example of this type of operation. The ferry service is integrated into the rest of the Golden Gate

Bridge, Highway, and Transportation District (GGBH&TD), with synchronized bus links at the Marin County ferry terminals. The Ferry Division is responsible for buying new vessels, maintaining the vessels and terminals, setting the ferry schedules, and operating the vessels. By taking on all of the responsibility for the service, GGBH&TD has control over the service levels, fares, and schedules. It also takes all of the risk of economic downturns and demographic shifts that cause ridership to decline. In most situations, the operating cost for public-operated services tends to be higher than that for private services.

Contracted Operations

Under the Contracted Operations model, the local transit agency contracts with a private operator to provide the service. There are two variations on this model, with the vessels being provided by either the contracting agency or by the operator. In either case, the terminal facilities are provided by the local agency. This model reduces the cost of operation by having the service provided by the private sector, but the risks associated with the service are generally still carried by the contracting agency. The contract for service can be written with incentives for the operator to increase ridership, either by providing higher service levels, marketing the service, or providing other incentives. The operator also can be given the flexibility to charter the vessels or use them during off-peak hours to provide service to special events. The Vallejo Baylink ferry operates under this model.

Public Infrastructure, Private Operation

Because the capital costs of starting a ferry service tend to be high, it is frequently not feasible for a private operator to implement a new service, even though there may be demand. In these cases, a local government can help get the service started by providing the necessary infrastructure, such as piers, gangways, and docks. Allowing a private service to call on public facilities with low or no landing fees also can provide an incentive for a private operator to start a service. In this model, the risk is shared between the operator and the local agency, with the operator taking on the risk associated with the vessels and the local agency taking the risk associated with the landing facilities. Depending on the nature of the agreement between the agency and the operator, the operator will have considerable latitude in setting schedules and service levels. The passenger-only ferries operating between the Kitsap Peninsula and Downtown Seattle, WA, are examples of this type of agreement.

Concession

North Captiva Island and Cayo Costa State Park both have contracts with concessionaires to provide service. Under these agreements, the concessionaire is given exclusive rights in return for a guarantee to provide a certain level of service. Generally, the agency letting a concession contract will receive a portion of the revenue or income generated by the service.

Private Operation

Privately-operated ferries generally serve longer routes that do not play a role in the local transit system. On these routes, all of the risk is taken by the operator and the only governmental role is in ensuring safe operations. The ferry from Fort Myers Beach to Key West is a good example of a purely private ferry operation.

POTENTIAL FUNDING SOURCES

Funding for waterborne transportation can come from various sources, potentially including grant assistance from the Federal Highway Administration's Ferry Boat Discretionary (FBD) program and other congressional earmarks. In the transportation legislation enacted this past year, funding for the FBD program was increased from $38 million last year to $55 million this year. Over the next three years, funding levels will increase to $60 million, $65 million, and $68 million.

In addition to these amounts, the law permits Congress to provide additional funds ("such sums as necessary" is the phrase used in the statute) for the grant program in a particular year. The current program allows grants to be used for capital costs of vessels, terminals, and landside approaches. Allowable uses under the new legislation include the capital cost of vessels, terminals, landside approaches, and maintenance facilities.

Priority in the award of grants is to be given to those ferry systems that (1) provide critical access to areas not well-served by other modes of surface transportation; (2) carry the greatest number of passengers and vehicles, or (3) carry the greatest number of passengers in passenger-only service. There must be a source of local matching funds that contributes at least 20 percent of the project cost. In addition, to be eligible for a grant, an entity must be either a publicly-owned and -operated ferry or must be a private ferry operator in a "partnership" with a public entity.

Originally, applicants for grants responded annually to the Secretary of Transportation's solicitation of proposals, and the receiving entities were selected from the pool of applicants. Over time, Congress began intervening, "earmarking" funds for specific projects in the annual transportation appropriation bills. It is reasonable to expect that future successful applicants will seek help from their respective state's Congressional delegation, as well as submitting applications to the Department of Transportation.

There likely will be a need for local funding to cover development costs associated with the initiation of water taxi service, and to cover operating costs not covered by passenger fares, fees, or advertising revenue. Revenue from fares typically cover up to 50 percent of operating costs for commuter-oriented service, and a higher percentage of operating costs for recreational service. The reason for this difference is that recreational travelers generally are more willing to pay a higher fee for a one-time trip, whereas commuter service fares must be low to attract frequent riders to the service.

RECOMMENDATIONS

Fort Myers Beach to Sanibel Island Passenger-Only Ferry

Based on the analysis to date, the most promising waterborne transit route would connect Fort Myers Beach to Sanibel Island. This route will likely become viable once the proposed circulator bus route is implemented on Sanibel Island. Three percent of the visitors to the beaches of Fort Myers and Sanibel utilizing the ferry would produce the ridership levels used in the planning scenario described previously. Given the current land use and demographics on the two islands, this level of ridership may be difficult to achieve. However, one to two percent of visitors utilizing the service should be possible with a well-designed marketing campaign and coordination with other transit modes. As the number of visitors grows, the percent required to make the service

feasible will decrease and congestion on the bridges will increase, which should further encourage use of the ferry service. The following actions and developments would be required for a passenger-only ferry connecting Sanibel Island and Fort Myers Beach to be feasible.

- Implementation of the circulator bus route on Sanibel Island.
- Development of a landing site in Fort Myers Beach in close proximity to the current beach trolley route. The existing pocket park at the foot of Old San Carlos Boulevard would be a good location for this landing.
- Development of a landing site on Sanibel Island in close proximity to the planned circulator bus route. The existing pier at Lighthouse Point Park would be a good location for this landing.
- Continued growth in the numbers of visitors to the beaches of Fort Myers and Sanibel.
- Implementation of a well-designed marketing campaign to create awareness of the ferry service and the benefits it provides.
- Identification of funds for capital improvements.
- Allocation of operating funds.
- Determination of acceptable risk and selection of an operating model.

Prior to implementation, detailed market surveys and route analyses should be completed to confirm the assumptions made herein. *Funding for at least three years of service* should be allocated to give residents and visitors time to get familiar with the service.

Coconut to Lovers Key State Park Passenger-Only Ferry

There also may be sufficient demand at some point during the 2030 time frame for a ferry to Lovers Key State Park from Coconut, especially as more development occurs in Coconut. Although there is more risk associated with this service because the time savings are not as significant and there are only limited attractions on Lovers Key, as opposed to Fort Myers Beach or Sanibel Island, it is possible that the service could be used as an additional connector (in conjunction with the existing beach trolley service) to Fort Myers Beach and Bonita Springs. However, it is important to note that there also is the challenge of water depth in the channel to the marinas at Coconut, which would limit operations to relatively small vessels. Because there is already adequate infrastructure on both ends for a small ferry, a commercial operator could start this service as soon as sufficient demand was present. The other factor that may drive demand on this route is congestion on Bonita Beach Road getting onto and off of the islands. If congestion makes the travel time on the ferry competitive, it is anticipated that there will be more demand for the service.

Downtown Connector Ferry

The plans for the community redevelopment areas in Downtown Cape Coral and Downtown Fort Myers call for increased density and more jobs within the downtown areas. If these plans achieve their goals, there may be enough demand for a shuttle ferry connecting the two downtown areas. Because both plans are relatively new, it remains to be seen how much density will be achieved. This will be the critical factor in the success of this service. The progress made in both areas should be assessed every five years or so to determine if and/or when there is enough demand to try a demonstration connector ferry service.

ENDNOTES

[1] Web site
[2] Telephone interview, 23 August 2005
[3] http://www.tropicstarcruises.com/
[4] http://www.islandcharters.com IslandCharterIntro1.html
[5] http://www.captivacruises.com/
[6] http://www.keywestshuttle.com/
[7] http://www.edison-ford-estate.com/
[8] Cape Coral Community Redevelopment Agency, "Design Downtown Cape Coral – Community Redevelopment Master Plan," March 2002

Chapter 8: Expansion of Existing Transit Services

This chapter presents the framework for determining future expansions to transit services in Lee County. The resulting determinations are subsequently included in the 2030 Transit Needs Plan for the County. Evaluation criteria utilized to prioritize local and express service needs, Bus Rapid Transit corridors, and potential transit improvements along the SGLR corridor are identified and defined in this chapter. In addition, service expansions to paratransit services, the commuter assistance program, and capital facilities are presented and discussed.

EVALUATION METHODOLOGY

Figure 8-1 illustrates the method used to evaluate the transit service improvements to be included in the 2030 LRTE Needs Assessment. These steps include:

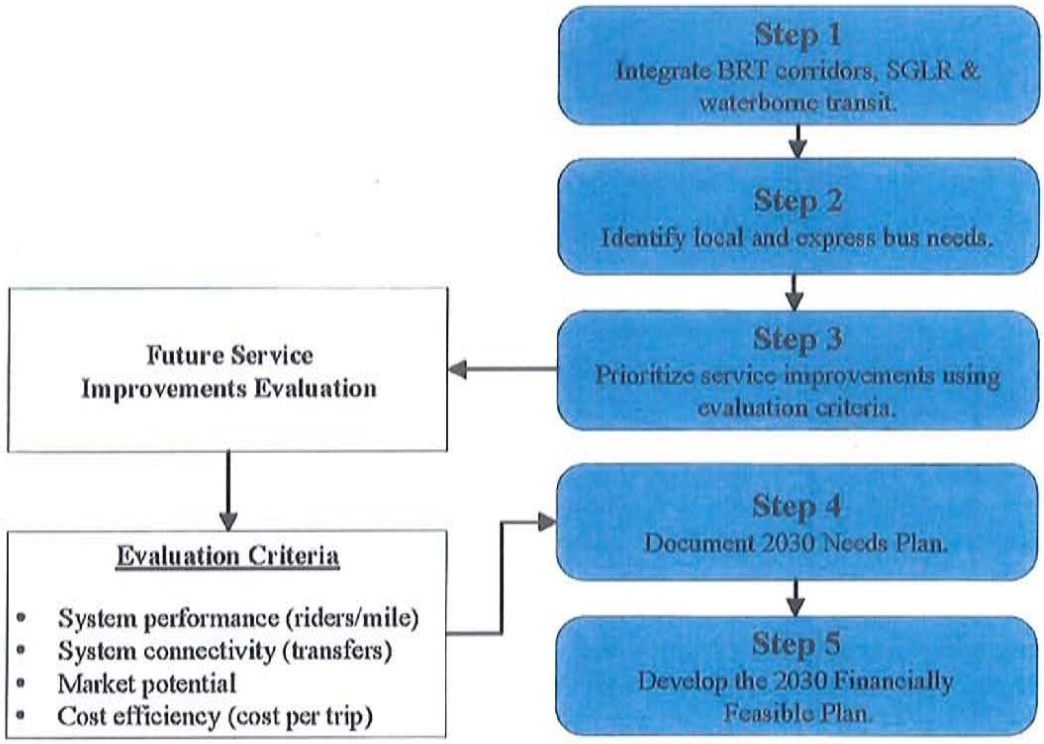
- Identify potential service improvements from the transit corridor analysis, existing fixed-route services, the SGLR and BRT corridor assessments, and the waterborne transit assessment.
- Evaluate service improvements using alternatives evaluation methodology.
- Select LeeTran service improvements through 2030.
- Develop recommendations for implementation of service improvements through 2030.

Evaluation Criteria & Weights

This section identifies and defines evaluation criteria utilized in prioritizing and selecting transit service improvements for the 2030 LRTE Needs Assessment. These five evaluation criteria include:

- Transit system performance
- System development
- Market potential
- Cost efficiency
- Planned improvement

Figure 8-1
Expansion of Existing Transit Services



Some criteria may be determined to be more important than others. As a result, the evaluation includes an opportunity to assign weights to each of the five criteria, potentially for future prioritization efforts in the transition from the Needs Plan to the Financially Feasible Plan. For the purpose of the initial evaluation, all criteria are weighted equally. The criteria included in the evaluation are discussed below. For each transit alternative, a score was determined either through the computation of some selected measure or through the educated judgment of the analyst. Potential scores include 1, 4, 7, or 10, depending upon the relative comparison of a given transit alternative with other transit alternatives as it relates to a given criterion. A higher score is consistent with a higher ranking for a given alternative for the criterion being evaluated.

Transit System Performance

This criterion addresses ridership potential by identifying the number and size of residential and destination concentrations to be served by proposed service alternatives. It most directly addresses the provision of quality transportation services for disadvantaged individuals, the general public, and visitors, as well as employment-related transportation needs. This criterion was measured

through the projection of ridership and revenue miles of service for each transit alternative; that is, a riders-per-mile measure was used. The results of the market demand assessment, especially the transit corridor analysis (see Chapter 4), were relied upon to assist in projecting ridership for new routes.

System Development

System development addresses the potential for coordination and integration across different modes and with neighboring transit systems. This criterion is measured by quantifying the number of transfer or connection opportunities with other existing routes. In addition, regional connectivity was incorporated into this criterion for alternatives that provide connecting service to neighboring counties such as Charlotte and Collier. These connection opportunities are estimated for each of the transit alternatives as appropriate.

Market Potential (Transit Orientation Index & Density Threshold Assessment)

The market potential criterion includes a combination of the TOI and DTA. The TOI addresses the potential for alternatives to provide service to traditional transit riders; specifically, the ability of the system to provide service to populations with a greater transit orientation, including elderly, youth, below-poverty population, and households with no vehicle ownership. As a result, the TOI is used to estimate the extent to which areas with a high transit orientation are being served by a given transit alternative, i.e., proportion of route miles passing through Census block groups with a "high" or "very high" transit-oriented population.

The DTA is based on the relationship between residential and employment densities and different types of transit services. As shown previously in Table 4-7, minimum population density thresholds for dwelling units per acre (based on 2030 residential density projections) and employment density thresholds measured as employees per acre (based on 2030 employment density projections) were used to determine the propensity of a corridor to sustain different types of transit service. The DTA helps measure the ability of the system to provide service to choice riders, who are expected to be attracted to the system by 2030.

The average of both the TOI and DTA scores was used to determine the market potential score. Since market potential is not only a measure for providing service to "year-round" traditional and choice riders, the presence of seasonal riders (tourists) in Lee County was incorporated into this criterion. Alternatives anticipated to attract tourist riders were given a bonus to supplement their scoring (e.g., moving from a score of 4 to a score of 7 if the average score initially warranted a 4).

Cost Efficiency

Cost forecasts are important to assess the financial feasibility and efficiency of a transit system. The cost efficiency of each alternative was evaluated using estimated operating costs and ridership projections. A cost-per-trip measure, which provides a relative comparison across alternatives for assessing whether the transit investment will be a financially viable option, was used to assign scores.

Planned Improvements

The planned improvement criterion addresses the previous level of importance assigned to a particular alternative. The 2004-2013 Lee County TDP included a priority list of service improvements that

ere included in the 2030 Preliminary Transit Needs Assessment. These service improvements, along with the 2024 Vehicle Plan (which outlines planned service frequency improvements) that was provided by LeeTran staff, served as a framework for determining enhancements to existing services, as well as for identifying new areas for transit service. Scores were assigned to each alternative based on the following scoring guide.

- Planned TDP Improvement, 2004-2008 (10)
- Planned TDP Improvement, 2009-2013 (7)
- 2024 Vehicle Plan (4)
- Not included in TDP or 2024 Peak Vehicle Requirements (1)

Summary & Evaluation Results

The five criteria provide a solid basis for comparing and evaluating transit alternatives. The criteria were selected based on the need for evaluating transit improvements in the 2030 LRTE Needs Assessment. Table 8-1 provides the scoring guide used to assign scores for each criterion, the ranges were determined based on the means and standard deviations of the measures (riders per mile, cost per trip, number of transfers/connections, market potential) used in the evaluation. In the next chapter, this evaluation will provide a framework for prioritizing needs during the process to develop the 2030 LRTE Financially Feasible Plan.

An evaluation matrix was produced summarizing criteria scores and the total score for each alternative. The results of the evaluation are presented in Table 8-2 and are prioritized in terms of the highest score to the lowest score.

Table 8-1
Transit Alternatives Evaluation Scoring Guide

Score Guide	Range	Score
Transit System Performance (Riders/Mile)	0.0	1
	0.3	4
	0.6	7
	0.9	10
System Development (Number of Transfers/Connections)	0.0	1
	2.1	4
	5.8	7
	9.0	10
Market Potential (% Serving TOI)	0.0%	1
	20.1%	4
	45.8%	7
	71.6%	10
Implementation Costs (Cost/Trip)	$0.00	10
	$8.05	7
	$19.70	4
	$31.36	1
Market Potential (Density Threshold Analysis)	0.00	1
	1.80	4
	5.37	7
	8.94	10
Market Potential (Combined Market Potential Score)	0.0	1
	2.5	4
	5.5	7
	8.5	10
Planned Improvement (either in TDP or 2024 Plan from LeeTran)	0	10
	2008	7
	2013	4
	2024	1

Table 8-2
Transit Alternatives Evaluation Results

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
1	1.34	Route 140 - Add frequency and extend route from San Carlos Plaza to new mall near Bonita Springs	2006	4	10	10	10	10	8.80
2	1.36	Route 140 - Add frequency from 15 minutes to 10 minutes	2022	7	10	10	10	4	8.20
2	2.4	Downtown Circulator	2011	10	7	10	7	7	8.20
4	1.1	Route 10 - Add frequency from 60 minutes to 40 minutes	2008	4	10	10	7	7	7.60
4	1.3	Route 10 - Add frequency from 30 minutes to 20 minutes	2020	7	10	10	7	4	7.60
4	1.35	Route 140 - Add frequency from 20 minutes to 15 minutes	2015	7	10	10	7	4	7.60
4	3.1	North-South BRT Corridor (US 41 or SGLR)	2027	10	10	10	7	1	7.60
8	1.31	Route 130 - Add frequency from 60 minutes to 40 minutes	2008	4	10	7	7	7	7.00
8	1.2	Route 10 - Add frequency from 40 minutes to 30 minutes	2016	4	10	10	7	4	7.00
8	1.6	Route 20 - Add frequency on weekdays and Saturdays (currently 30 minutes, adjust to 20 minutes)	2007	4	4	10	7	10	7.00
8	1.17	Route 70 - Add frequency from 60 minutes to 40 minutes	2006	4	10	4	7	10	7.00
12	1.7	Route 30 - Add frequency on weekdays and Saturdays (currently 50 minutes, adjust to 30 minutes)	2009	4	7	7	7	7	6.40
12	1.18	Route 70 - Add frequency from 40 minutes to 30 minutes	2011	4	10	4	7	7	6.40
12	1.41	Route 400 - Add revenue hours and frequency during peak season or weekdays, Saturdays and Sundays	2007	4	1	7	10	10	6.40
12	1.33	Route 130 - Add frequency from 30 minutes to 20 minutes	2020	4	10	7	7	4	6.40
16	2.5	Lehigh Circulator	2009	7	1	4	10	7	5.80
16	2.8	Burnt Store Road Express	2018	7	7	4	10	1	5.80
16	1.32	Route 130 - Add frequency from 40 minutes to 30 minutes	2012	1	10	7	4	7	5.80
16	4.1	Waterborne Service - Sanibel Island to Ft. Myers Beach	2012	10	1	7	10	1	5.80

Table 8-2 (continued)
Transit Alternatives Evaluation Results

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
16	2.1	La Belle Express	2029	7	7	4	10	1	5.80
16	1.42	Route 400 - Add frequency from 12 minutes to 10 minutes	2014	7	1	7	10	4	5.80
16	3.2	East-West BRT Corridor (Colonial Boulevard or MLK Boulevard)	2028	10	7	4	7	1	5.80
23	2.9	I-75/Collier Express	2022	1	10	4	10	1	5.20
23	1.25	Route 100 - Add frequency from 40 minutes to 30 minutes	2021	4	4	7	7	4	5.20
23	2.1	Cape Coral Circulator	2010	7	1	1	10	7	5.20
23	2.11	Skyline Road	2010	10	1	4	10	1	5.20
27	2.6	Sanibel Circulator	2009	1	1	7	7	7	4.60
27	1.4	Route 15 - Add frequency on weekdays and Saturdays (currently 40 minutes, adjust to 30 minutes)	2017	1	10	7	1	4	4.60
27	1.26	Route 110 - Add frequency from 75 minutes to 50 minutes	2010	1	7	4	4	7	4.60
27	1.29	Route 120 - Add frequency from 40 minutes to 30 minutes	2012	1	10	4	1	7	4.60
27	1.19	Route 70 - Add frequency from 30 minutes to 25 minutes	2019	1	10	4	4	4	4.60
32	1.23	Route 90 - Add frequency from 60 minutes to 40 minutes	2012	1	1	4	7	7	4.00
32	1.8	Route 30 - Add frequency (30 minutes, adjust to 25 minutes)	2020	1	4	7	4	4	4.00
32	1.9	Route 30 - Add frequency (25 minutes, adjust to 20 minutes)	2023	1	4	7	4	4	4.00
32	1.13	Route 50 - Add frequency from 60 minutes to 30 minutes	2011	1	4	4	4	7	4.00
32	1.14	Route 50 - Add frequency from 30 minutes to 20 minutes	2019	1	4	4	7	4	4.00
32	1.3	Route 120 - Add frequency from 30 minutes to 25 minutes	2021	1	10	4	1	4	4.00
32	4.2	Waterborne Service - Lovers Key State Park to Coconut	2015	10	1	4	4	1	4.00

Table 8-2 (continued)
Transit Alternatives Evaluation Results

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
39	1.1	Route 40 - Add frequency from 120 minutes to 60 minutes	2007	1	1	4	1	10	3.40
39	1.2	Route 80 - Add frequency from 120 minutes to 60 minutes	2013	1	7	4	1	4	3.40
39	1.21	Route 80 - Add frequency from 60 minutes to 40 minutes	2014	1	7	4	1	4	3.40
39	1.22	Route 80 - Add frequency from 40 minutes to 30 minutes	2023	1	7	4	1	4	3.40
39	1.27	Route 110 - Add frequency from 50 minutes to 40 minutes	2014	1	7	4	1	4	3.40
39	1.28	Route 110 - Add frequency from 40 minutes to 30 minutes	2018	1	7	4	1	4	3.40
39	2.3	Collier Connector	2026	1	1	4	10	1	3.40
39	2.11	Immokalee Express	2030	1	1	4	10	1	3.40
47	1.15	Route 60 - Add frequency from 80 minutes to 40 minutes	2008	1	1	4	1	7	2.80
47	1.37	Route 150 - Add frequency from 60 minutes to 40 minutes	2010	1	1	4	1	7	2.80
47	2.2	Charlotte Connector	2030	1	1	1	10	1	2.80
47	1.24	Route 90 - Add frequency from 40 minutes to 30 minutes	2016	1	1	4	4	4	2.80
47	1.39	Route 160 - Add revenue hours & frequency to operate Monday to Friday will all-day service at approx. 120 minutes	2013	1	4	4	1	4	2.80
47	1.4	Route 160 - Add revenue hours & frequency to operate Monday to Friday will all-day service at approx. 60 minutes	2018	1	4	4	1	4	2.80
53	1.11	Route 40 - Add frequency from 60 minutes to 40 minutes	2013	1	1	4	1	4	2.20
53	1.12	Route 40 - Add frequency from 40 minutes to 30 minutes	2017	1	1	4	1	4	2.20
53	1.16	Route 60 - Add frequency from 40 minutes to 30 minutes	2016	1	1	4	1	4	2.20
53	1.38	Route 150 - Add frequency from 40 minutes to 20 minutes	2021	1	1	4	1	4	2.20
53	2.7	Sanibel Connector	2014	1	1	4	4	1	2.20

Notes: Criterion scores are assigned as 1, 4, 7, or 10 based on computation or judgement, depending upon the criteria.

FIXED-ROUTE BUS SERVICE

As a result of the evaluation of transit alternatives, the 2030 Transit Needs Assessment will include two categories of improvements listed below. These alternatives will be discussed in greater detail in the Needs Plan.

- Frequency improvements (reduction in headway times)
- New fixed-route service

It is important to note that, even though this priority ranking of alternatives provides guidance for developing the 2030 Financially Feasible Plan, certain alternatives are structured to be implemented in conjunction with each other. For instance, the Sanibel Circulator is ranked 20th, while the Sanibel Connector is ranked 44th. These two services need to operate in conjunction since the connector will serve as a feeder service for the circulator service on Sanibel Island. Thus, the phasing and selection of the financially feasible alternatives will utilize this priority ranking, although practical logic and knowledge of transit planning also will need to be used to develop the 2030 Plan.

PARATRANSIT SERVICE

Transportation Disadvantaged

Population forecasts for Lee County indicate a continuing increase in people moving to the Lee County area through 2030. Population increases will require transportation disadvantaged (TD) program service expansions in order to meet the needs of the expected additional TD population in Lee County. TD population forecasts for selected years, as well as forecasts for the horizon year for this plan, 2030, are included in Table 8-3. The 2030 TD population forecast is estimated to be 325,928.

With increases in the TD population, demand for TD trips also will increase accordingly. Table 8-4 notes the expected demand for TD trips in selected years. According to these projections, the demand for TD trips is expected to increase by over 60 percent by 2030.

Table 8-3
Forecasts of TD Population in Lee County

Year	2004	2008	2010	2030
Projected TD Population	194,360	214,526	224,434	325,928

Table 8-4
TD Forecasted Trip Demand

Year	2004	2008	2010	2030
Projected TD Trips	364,919	399,668	416,843	590,577

To meet future needs, the Lee County 2005 Transportation Disadvantaged Service Plan (TDSP) outlines several goals and objectives. These goals are listed below.

- Coordination of services
- Provision of cost-effective services
- Service quality
- Service marketing
- Resource management
- Safety

The TDSP also notes a five-year vehicle replacement plan. This vehicle replacement plan, noted in Table 8-5, indicates the replacement of at least 15 vehicles through FY 2009/10 using Section 5310 capital funding.

Lee County plans to continue support of its TD program by assisting the County's current Community Transportation Coordinator, Good Wheels, Inc., in obtaining Section 5310 and 5311 capital and operations funding, providing staff support to the Designated Official Planning Agency and Local Coordinating Board, and coordinating grant applications to the Florida Commission for the Transportation Disadvantaged office.

Passport

LeeTran's complementary ADA service, Passport, also will need to be expanded in order to support the future fixed-route bus service expansions outlined earlier in this section. Recent trends indicate that ADA trips have increased at a faster rate than fixed-route trips. Table 8-6 shows how ADA trips increased as a percentage of total fixed-route trips between 2000 and 2003. During that same period, the cost of one TD trip increased from $13.43 to $16.22.

Managing demand for ADA paratransit is a critical component of minimizing cost increases in the future. LeeTran will pursue opportunities to encourage ADA-eligible riders to use fixed-route bus services. One such opportunity is a travel training program for both Passport and TD riders.

Lee County should continue to support TD services. The forecasted increase in the County TD population and the increase in demand for the complementary ADA service indicate that there will be a substantial need for these services through 2030. Besides providing transportation to those not able to transport themselves, TD services present opportunities for improving the mobility of the County, as a whole.

Table 8-5
5-Year TD & Capital Improvement Program

Implementation Date	Description of Purpose	Funding Source
FY 2005-06	3 Wide Body Vehicles	5310
FY 2006-07	3 Wide Body Vehicles	5310
FY 2007-08	3 Wide Body Vehicles	5310
FY 2008-09	3 Wide Body Vehicles	5310
FY 2009-10	3 Wide Body Vehicles	5310

Table 8-6
ADA & Fixed-Route Passenger Trips

Year	ADA Passenger Trips	Fixed-Route Passenger Trips	% ADA Trips	Cost per TD Trip
2000	82,542	2,271,574	3.6%	$ 13.43
2001	103,956	2,318,340	4.5%	$ 11.87
2002	115,602	2,240,545	5.2%	$ 14.23
2003	130,641	2,335,842	5.6%	$ 16.22

COMMUTER ASSISTANCE PROGRAM

Connexus

FDOT recently decided to regionalize commuter assistance programs and their funding, rather than support local programs with funds and oversight. It is uncertain at this time what impact this decision ultimately may have on local commuter assistance efforts. Currently, it is expected that LeeTran will continue operation of its commuter assistance program, Connexus. However, as more information about this decision becomes available and FDOT district offices move forward with their programming efforts, it is possible that future changes within the program may be necessary in order to complement the commuter assistance that will be provided by FDOT.

Nevertheless, as the County continues to grow and develop, the need for the educational programs and ride-sharing options offered by a program such as Connexus also will continue to grow. Transportation planners and decision-makers are beginning to adopt, in concept, some of the congestion mitigation options marketed by commuter assistance programs. The continued development and implementation of education and marketing efforts carried out by Connexus will assist in promoting these options to policy-makers and the public. As such, LeeTran has outlined several goals related to the evolution of Connexus in its CAP work program. These goals are provided in the following list.

- Updating the marketing plan
- Marketing strategies to businesses
- Identifying and establishing new vanpools
- Educating LeeTran staff
- Promoting the CAP to policy makers
- Tracking the CAP's progress
- Promoting Transportation Demand Management (TDM) initiatives

TDM strategies encourage more efficient travel behavior and can help manage the demand that is placed on the transportation system. TDM initiatives currently being implemented through Connexus are described below.

- Ride sharing – This includes carpooling, vanpooling, and/or buspooling. Ridesharing is structured where commuters share all or at least a significant portion of their trip with other people, thereby helping to decrease the number of vehicles on the road.

- Public Transit – TDM programs often seek enhancements that will make transit more attractive for commuters. By improving bus stops, improving route coverage and connectivity, and improving bus frequency, transit can become a more viable alternative for potential users. To improve the appeal of transit, Connexus will be pursuing the promotion and distribution of discounted transit passes.

- Alternative Work Hours – This technique involves staggering employee shifts to reduce the number of employees that arrive and leave a worksite at the same time. Staggering work hours helps spread peak period travel demand. Other variations of this technique include allowing employees to work flexible hours instead of the traditional 8-to-5 workday and compressed work schedules. Compressed work schedules allow employees to work their regular number of work hours for a week or pay period, but in fewer days.

- Bike and Pedestrian Transportation – Similar to public transit, TDM strategies related to bicycle and pedestrian transportation aim to improve biking and walking conditions in order to make these modes more appealing. For example, more and improved sidewalks and cross-walks would benefit pedestrians and designated bike lanes and bike/transit integration programs would enhance the bicycling mode.

- Priority/Preferential Parking for Ride Share – Transportation decisions are often based, in part, on the cost, accessibility, and availability of parking. Because of this, issues related to parking have a considerable impact on the transportation environment. The availability of abundant and accessible parking in a downtown area that is either free or heavily subsidized by employers makes it relatively easy for commuters to choose to drive alone in their own vehicles. Some of the techniques that are utilized to this help discourage the use of single-occupant vehicles include parking restrictions, regulatory policies and measures, facility placement and design, and pricing structure. A parking management program also can work in conjunction with other TDM strategies to help effect change (e.g., the development and implementation of bicycle parking facilities).

- Telecommuting programs – Telework includes all of the various programs and activities that substitute telecommunications (telephone, fax, Internet, e-mail, etc.) for physical travel. The most widely-known telework program is telecommuting, where employees are able to work from home or some other remote site closer to home for one or more days each week to reduce commute travel.

Two additional TDM strategy categories that LeeTran plans to integrate into its CAP by 2030 are:

- Guaranteed Ride Home – A guaranteed ride home program provides persons who utilize alternative transportation modes with a guaranteed ride home in emergency situations. It is typically implemented in conjunction with some alternative mode program, like ridesharing, since being able to get back home in an emergency situation is one of the most common objections to the use of alternative transportation.

- Market and Pricing Reforms – This category of TDM strategies involves a variety of both positive and negative incentives that attempt to encourage more efficient travel patterns through financial means. Some of the positive incentives that can be offered include free or discounted transit fares, premium parking for car/vanpoolers, pay-as-you-drive vehicle insurance, and location-efficient mortgages. Conversely, negative incentives include congestion pricing, distance-based fees, increased fuel taxes, and parking pricing.

County-to-County Travel Patterns

County-to-county trip statistics from the 1990 and 2000 Census indicate a rise in commute trips between Lee County and all adjacent counties. Table 8-7 notes the number of inter-county commute trips between Lee County and its neighboring counties (Collier County, Charlotte County, and Hendry County) for 1990 and 2000.

The highest number of commute trips to Lee County in 2000 came from Collier County. In addition,

Table 8-7
County-to-County Work Trips (1990 & 2000)

		Commutes From Lee County	Commutes to Lee County
1990	Collier County	8,401	2,072
	Charlotte County	1,075	2,350
	Hendry County	345	734
2000	Collier County	14,374	5,068
	Charlotte County	1,447	3,646
	Hendry County	698	1,164

Source: 1990 and 2000 Census.

commute trips from Lee County to Collier experienced the largest increase, 5,973 trips, between 1990 and 2000. In 2000, the largest number of out-of-county trips by Lee County residents is to Collier County.

Future expansions to the commuter assistance program in Lee County should be coordinated with comparable commuter assistance efforts in Collier County, and eventually Charlotte County to the north, in order to alleviate congested travel conditions that may be attributed to inter-county work trips. Long distance commutes are often good travel markets for vanpooling.

Important to note is FDOT's recent decision to regionalize CAPs. Funding would be available through District offices rather than through local programs. This change will assist LeeTran in its plans to provide inter-county travel options through its CAP through 2030. Through Connexus, and with the aid of FDOT, LeeTran plans to continue to educate and market to businesses and the public, implement TDM strategies and initiatives as appropriate, and identify vanpool opportunities serving inter-county commuters.

FACILITIES

LeeTran is currently growing at a pace where existing facilities soon will not be capable of providing efficient and cost-effective operations. The projected vehicle and service needs and additional staffing resources needed to meet the identified needs have prompted LeeTran to pursue expansion or replacement of the existing administrative and operations center.

LeeTran recently undertook a Transit Facility Program & Budget Study to determine how much space and funding will be necessary to meet the service expansion outlined in the TDP. The results of that assessment resulted in the building size and site area requirements noted in Table 8-8.

In addition to identifying space and funding requirements, recommendations from the study also identified two potential locations for the new facility.

Table 8-8
Recommended Facility & Space Requirements

Year	2014	2025
Approximate Size of Buildings (total s.f.)	53,000	62,000
Site (total acres)	15.91	20.79

One location is in the area of the existing LeeTran administrative and operations facility near Page Field Airport and the second location is in the area of Hanson/Evans Street. At the time this report was being prepared, the location of the new facility had not been determined.

The County currently has $3,000,000 budgeted in State Infrastructure Bank (SIB) funds in their FY 2006/10 Transportation Improvement Program (TIP) for this project. LeeTran has indicated a goal of January 2006 for purchase of a piece of property for the new facility and construction to begin sometime in the middle of 2007. The estimated completion date is late 2009.

In addition to the new administrative and operations center, LeeTran has indicated a need for new facilities for three transfer stations. The stations identified for new facilities include the Edison Mall station, the Bell Tower station, and Summerlin Square. LeeTran is currently working on obtaining FDOT Intermodal grant funding to pursue some of these facility improvements. Park-and-ride facilities also have been identified as a need for LeeTran, especially along the I-75 and US 41 corridors. The locations and sizes of new park-and-ride facilities are currently being developed in coordination with FDOT.

Capital facilities will need to be expanded by 2030 if LeeTran expects to meet 2030 transit service demands. Continuing plans to expand and/or refurbish existing facilities have been integrated into LeeTran's TDP and are currently being integrated into this update of the Long Range Transportation Plan.

Chapter 9: 2030 Transit Needs Plan

This chapter presents the 2030 Transit Needs Plan for Lee County. Annual service improvements designed to meet public transportation demand in Lee County through the year 2030 are outlined in this chapter. Additionally, a transit capital acquisition plan has been prepared to meet the requirements of the service plan improvements. Each section of this chapter addresses a public transportation mode, or service, assessed in the previous chapters of this report. This chapter is divided into the following sections.

- Fixed-route bus service
- Paratransit service
- Commuter assistance program
- Seminole Gulf Railway
- Bus rapid transit
- Waterborne transit

FIXED-ROUTE BUS SERVICE

As presented in Chapter 4, four market assessment tools were used to guide the development of the 2030 Transit Needs Plan. The four tools are as follows.

- Transit orientation index
- Transit corridor analysis
- Density threshold assessment
- System-wide transit demand projections

In addition, LeeTran staff provided guidance on future service areas as well as on service improvements (reduction in headways) to existing routes. This input, along with the analysis results from the utilization of the market assessment tools, was used to develop the 2030 Transit Needs Plan, which is summarized below.

Expand Frequency of Service on Bus Routes

In the 2030 Transit Needs Plan, all fixed routes will have increased frequencies. Frequency improvements to existing fixed routes are as follows:

- Routes 15, 40, 60, 80, 90, 110, and 130 will see phased frequency improvements to 30 minutes.
- Routes 70, 100, and 120 will see phased frequency improvements to 25 minutes.
- Routes 10, 20, 30, 50, and 150 will see phased frequency improvements to 20 minutes.
- Route 140 will see phased improvements to 10 minutes.
- During peak season (December to April), Route 400 will operate more frequent service at 10-minute headways.
- Route 160 will operate Monday through Friday with 60-minute headways.

New Local Service

Several new bus routes are proposed in the 2030 Needs Plan. The following new local bus service was identified to meet the market assessments and demand projections utilized in the development of the Plan.

- A total of six new local bus routes are identified for the 2030 Needs Plan.
- By 2010, two new routes will be implemented that will provide service in Lehigh Acres and the City of Sanibel. The Sanibel Circulator will provide service to major locations on the island for both residents and visitors.
- Beyond 2010, new local service will include two bus routes in Cape Coral, one each along Skyline and Chiquita Boulevards to help support a planned new regional mall and provide more service within the City, a circulator within the Downtown Fort Myers area, and a connector route to Sanibel Island serving as a feeder route for the Sanibel Circulator.
- The Route 140 will be extended south from its current terminus at San Carlos Plaza to the new regional mall planned in Bonita Springs.

New Express Service

In addition to increasing service frequencies on existing routes and implementing new local service, new express service is being proposed by the year 2030. A phased approach to implementing new express services is recommended, as noted below.

- In 2018, express bus services will be provided along Burnt Store Road connecting Downtown Fort Myers to Charlotte County.
- In 2022, planned express service includes a connection with Collier County via either the I-75 or SGLR corridors into Downtown Fort Myers.
- In 2026, an additional express route will connect the Coastland Center Mall in Collier County with San Carlos Boulevard in southern Lee County via either the US 41 or SGLR corridors.
- In 2029, express bus services will be provided along Palm Beach Boulevard between Downtown Fort Myers and La Belle in Hendry County.
- In 2030, the Charlotte Connector will connect northern Lee County with Charlotte Park in Charlotte County via US 41 and express service also will be provided along Immokalee Road from Lee Road to Immokalee in Collier County.
- In addition, inter-county express service to Southwest Florida International Airport, Florida Gulf Coast University, and Ave Maria University should be explored in the future.

Express services on each of these routes is assumed to consist of bi-directional express service with two round-trips in the morning and two round-trips in the evening, Monday through Friday.

The 2030 Transit Needs Plan is summarized in Table 9-1 and illustrated in Map 9-1.

Table 9-1
2030 Transit Needs Plan - Existing Routes, Route Improvements and Future Routes (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# Current Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
10	Maintain Existing	North-south Corridors of Fowler and Palmetto and east-west of Edison Ave	2005	60	60	29.67	29.67	0.00	23.42	Mon-Sat	9,109	2	0	$580,854
10A	Expand/ Improve	Add frequency (60 minutes, adjust to 40 minutes)	2008	40	40	15.50	15.50	0.00	23.42	Mon-Sat	4,759	3	1	$283,585
10B	Expand/ Improve	Add frequency (40 minutes, adjust to 30 minutes)	2016	30	30	15.06	15.06	0.00	23.42	Mon-Sat	4,623	4	1	$275,534
10C	Expand/ Improve	Add frequency (30 minutes, adjust to 20 minutes)	2020	20	20	15.06	15.06	0.00	23.42	Mon-Sat	4,623	5	1	$275,534
15	Maintain Existing	Service from Tice area through Dunbar to downtown and to Edison Mall via Broadway	2005	40	40	30.62	30.62	10.00	20.57	Mon-Sat	9,920	2	0	$632,612
15B	Expand/ Improve	Add frequency (40 minutes, adjust to 30 minutes)	2017	30	30	15.31	15.31	0.00	20.57	Mon-Sat	4,700	3	1	$280,108
20	Maintain Existing	Service to Intermodal Transfer Center and Downtown Ft. Myers	2005	30	30	30.33	30.33	0.00	13.93	Mon-Sat	9,311	2	0	$593,775
20A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 30 minutes, adjust to 20 minutes)	2007	20	20	15.50	15.50	0.00	13.93	Mon-Sat	4,759	3	1	$283,585
30	Maintain Existing	Service from Bell Tower on US 41 and Daniels Pkwy to Camelot Isles in Cape Coral on Chiquita and Cape Coral Pkwy	2005	45	45	30.33	30.33	9.00	27.38	Mon-Sun	9,779	2	0	$623,619
30A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 50 minutes, adjust to 30 minutes)	2009	30	30	15.00	15.00	0.00	27.38	Mon-Sat	4,605	3	1	$274,436
30B	Expand/ Improve	Add frequency (30 minutes, adjust to 25 minutes)	2020	25	25	15.11	15.11	0.00	27.38	Mon-Sat	4,639	4	1	$276,449
30C	Expand/ Improve	Add frequency (25 minutes, adjust to 20 minutes)	2023	20	20	15.11	15.11	0.00	27.38	Mon-Sat	4,639	5	1	$276,449
40	Maintain Existing	Service to Cape Coral High School, Sun Splash, North High Tech, Cape Coral Hospital, Cape Coral City Hall and the Kash N' Karry at Cape Coral Pkwy and Leonard Street	2005	120	120	15.08	15.08	0.00	28.47	Mon-Sat	4,630	1	0	$295,223
40A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 120 minutes, adjust to 60 minutes)	2007	60	60	16.75	16.75	0.00	28.47	Mon-Sat	5,142	2	1	$306,454
40B	Expand/ Improve	Add frequency on weekdays and Saturdays (60 minutes, adjust to 40 minutes)	2013	40	40	15.00	15.00	0.00	28.47	Mon-Sat	4,605	3	1	$274,436
40C	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2017	30	30	15.61	15.61	0.00	28.47	Mon-Sat	4,792	4	1	$285,597
50	Maintain Existing	Service from Summerlin Square to Bell Tower continuing to SW Florida International Airport	2005	60	60	46.66	46.66	13.83	38.93	Mon-Sun	15,044	3	0	$959,330
50A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 30 minutes)	2011	30	30	15.00	15.00	0.00	38.93	Mon-Sat	4,605	4	1	$274,436
50B	Expand/ Improve	Add frequency on weekdays and Saturdays (30 minutes, adjust to 20 minutes)	2019	20	20	15.42	15.42	0.00	38.93	Mon-Sat	4,734	5	1	$282,121
60	Maintain Existing	Service from San Carlos Plaza to Florida Gulf Coast University	2005	85	85	15.28	13.70	0.00	22.18	Mon-Sat	4,609	1	0	$293,900
60A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 80 minutes, adjust to 40 minutes)	2008	40	40	16.42	16.42	0.00	22.18	Mon-Sat	5,041	2	1	$300,417
60B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2016	30	30	15.85	15.85	0.00	22.18	Mon-Sat	4,866	3	1	$289,988

Table 9-1
2030 Transit Needs Plan - Existing Routes, Route Improvements and Future Routes (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# Current Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [2]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
70	Maintain Existing	Service from Downtown Cape Coral to Downtown Ft. Myers via Del Prado, Hancock Bridge Pkwy, Orange Grove Blvd, Pondella, and US 41	2005	60	60	31.97	31.97	0.00	29.89	Mon-Sat	9,815	2	0	$625,881
70A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 40 minutes)	2006	40	40	15.50	15.50	0.00	29.89	Mon-Sat	4,759	3	1	$283,585
70B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2011	30	30	14.00	14.00	0.00	29.89	Mon-Sat	4,298	4	1	$256,141
70C	Expand/ Improve	Add frequency on weekdays and Saturdays (30 minutes, adjust to 25 minutes)	2019	25	25	15.37	15.37	0.00	29.89	Mon-Sat	4,719	5	1	$281,206
80	Maintain Existing	Service from the Publix at South Trail to Edison Mall and then to Bell Tower	2005	110	110	13.58	13.58	0.00	26.72	Mon-Sat	4,169	1	0	$265,858
80A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 120 minutes, adjust to 60 minutes)	2013	60	60	15.00	15.00	0.00	26.72	Mon-Sat	4,605	2	1	$274,436
80B	Expand/ Improve	Add frequency on weekdays and Saturdays (60 minutes, adjust to 40 minutes)	2014	40	40	14.29	14.29	0.00	26.72	Mon-Sat	4,387	3	1	$261,446
80C	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2023	30	30	14.29	14.29	0.00	26.72	Mon-Sat	4,387	4	1	$261,446
90	Maintain Existing	Service to North Ft. Myers area, including Pondella Rd, Business 41, Mariana Ave, Bayshore Rd. and into the Suncoast Community	2005	60	60	31.45	31.45	0.00	26.55	Mon-Sat	9,655	2	0	$615,701
90A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 40 minutes)	2012	40	40	15.00	15.00	0.00	26.55	Mon-Sat	4,605	3	1	$274,436
90B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2016	30	30	15.48	15.48	0.00	26.55	Mon-Sat	4,752	4	1	$283,218
100	Maintain Existing	Service from Riverdale along Palm Beach Blvd, Marsh Ave, Michigan Ave, and Palmetto to Downtown Ft. Myers	2005	30	30	69.67	31.17	11.92	24.55	Mon-Sun	20,007	5	0	$1,275,801
100A	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2021	25	25	13.93	13.93	13.93	24.55	Mon-Sun	5,001	6	1	$298,029
110	Maintain Existing	Service from Edison Mall to Lehigh Acres	2005	75	75	30.00	30.00	0.00	52.57	Mon-Sat	9,210	2	0	$587,314
110A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 75 minutes, adjust to 50 minutes)	2010	50	50	15.00	15.00	0.00	52.57	Mon-Sat	4,605	3	1	$274,436
110B	Expand/ Improve	Add frequency on weekdays and Saturdays (50 minutes, adjust to 40 minutes)	2014	40	40	15.33	15.33	0.00	52.57	Mon-Sat	4,706	4	1	$280,474
110C	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2018	30	30	15.33	15.33	0.00	52.57	Mon-Sat	4,706	5	1	$280,474
120	Expand/ Improve	Service from Downtown Cape Coral to Edison Mall	2005	40	40	31.50	31.50	9.92	22.58	Mon-Sun	10,186	2	0	$649,575
120A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 40 minutes, adjust to 30 minutes)	2012	30	30	15.00	15.00	0.00	22.58	Mon-Sat	4,605	3	1	$274,436
120B	Expand/ Improve	Add frequency on weekdays and Saturdays (30 minutes, adjust to 25 minutes)	2021	25	25	15.50	15.50	0.00	22.58	Mon-Sat	4,759	4	1	$283,585
130	Maintain Existing	Service between Edison Mall and Summerlin Square Shopping Center	2005	60	60	28.50	13.92	0.00	29.75	Mon-Sat	7,991	2	0	$509,602
130A	Expand/ Improve	Add frequency on weekdays (currently 60 minutes, adjust to 40 minutes) and Saturdays (currently 120 minutes, adjust to 60 minutes)	2008	40/60	40/60	15.75	15.75	0.00	29.75	Mon-Sat	4,835	3	1	$288,158

Table 9-1
2030 Transit Needs Plan - Existing Routes, Route Improvements and Future Routes (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# Current Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
130B	Expand/ Improve	Add frequency on weekdays (40 minutes, adjust to 30 minutes) and Saturdays (currently 60 minutes, adjust to 40 minutes)	2012	30/40	30/40	15.00	15.00	0.00	29.75	Mon-Sat	4,605	4	1	$274,436
130C	Expand/ Improve	Add frequency on weekdays and Saturdays (60/40 minutes, adjust to 30/20 minutes)	2020	30/20	30/20	14.81	14.81	0.00	29.75	Mon-Sat	4,547	5	1	$270,961
140	Maintain Existing	Service to Merchants Crossing, North Shore Shopping Center, Downtown Ft. Myers, Edison Mall, Bell Tower, San Carlos Plaza, and San Carlos Park via US 41	2005	20	20	130.17	130.17	39.25	35.88	Mon-Sun	42,003	8	0	$2,678,511
140A	Expand/ Improve	Route extension from the current southern terminus of San Carlos Plaza to the new mall opening near Bonita Springs	2006	20	20	33.00	33.00	0.00	35.88	Mon-Sat	10,131	10	2	$603,760
140B	Expand/ Improve	Add frequency on weekdays and Saturdays (20 minutes, adjust to 15 minutes)	2015	15	15	32.63	32.63	0.00	35.88	Mon-Sat	10,017	12	2	$596,990
140C	Expand/ Improve	Add frequency on weekdays and Saturdays (15 minutes, adjust to 10 minutes)	2022	10	10	32.63	32.63	0.00	35.88	Mon-Sat	10,017	14	2	$596,990
150	Maintain Existing	Service in the Bonita Springs area along US 41, Old US 41, Dean St, and Bonita Beach Rd	2005	60	60	14.00	0.00	0.00	33.37	Mon-Sat	3,570	1	0	$227,656
150A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 40 minutes)	2010	40	40	15.00	15.00	0.00	33.37	Mon-Sat	4,605	2	1	$274,436
150B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 20 minutes)	2021	20	20	14.50	14.50	0.00	33.37	Mon-Sat	4,452	3	1	$265,289
160	Maintain Existing	Service to Bokeelia, St. James City, then Matlacha, continuing along Pine Island Rd to Santa Barbara	2005	N/A	N/A	9.83	0.00	0.00	62.66	Thursday	501	1	0	$31,969
160A	Expand/ Improve	Add revenue hours and frequency to operate Monday to Friday with all day service at approximately 120 minutes	2013	N/A	N/A	15.00	0.00	0.00	62.66	Mon-Fri	3,825	1	0	$227,952
160B	Expand/ Improve	Add revenue hours and frequency to operate Monday to Friday with all day service at approximately 60 minutes	2018	60	60	16.00	16.00	0.00	62.66	Mon-Fri	4,912	2	1	$292,732
400[2]	Maintain Existing	Ft. Myers Beach Trolley, service on Estero Boulevard in Ft. Myers Beach from Bowditch Park to Grandview	2005	15	15	50.16	50.18	49.33	15.08	Mon-Sun	17,965	5	0	$1,145,634
400A[2]	Expand/ Improve	Add frequency during peak season on weekdays, Saturdays, and Sundays	2007	12	12	14.00	14.00	14.00	15.08	Mon-Sun	1,834	6	1	$109,298
400B	Expand/ Improve	Add frequency on weekdays and weekends (12 minutes, adjust to 10 minutes)	2014	10	10	12.61	12.61	0.00	15.08	Mon-Sat	3,871	7	1	$230,710
450	Maintain Existing	Bonita Springs Trolley - operates from Grandview to the K-Mart Plaza along Estero Boulevard	2005	60	60	13.92	13.92	13.92	16.88	Mon-Sun	1,824	1	0	$116,284
490	Maintain Existing	Park-and-Ride operates between Summerlin Square and Bowditch Park	2005	30	30	23.49	23.49	23.49	8.69	Mon-Sun	3,077	1	0	$196,230
N/A	Maintain Existing	Paratransit/ADA Services	2005	N/A	N/A	N/A	N/A	N/A	N/A	Mon-Sat	N/A	N/A	N/A	$3,154,211
N/A	Maintain Existing	TD Services[3]	2005	N/A	N/A	N/A	N/A	N/A	N/A	Mon-Fri	N/A	N/A	N/A	$4,272,398
N/A	New Local	Lehigh Circulator- weekdays connecting residential neighborhoods to activity centers in Lehigh Acres	2009	60	60	15.00	0.00	0.00	28.58	Mon-Fri	3,825	0	1	$227,952
N/A	New Local	Sanibel Circulator-service on the island connecting residents and visitors to the regional system	2009	60	60	15.00	15.00	0.00	11.42	Mon-Sat	4,605	0	1	$274,436
N/A	New Local	Cape Coral Circulator- connecting residential neighborhoods to shopping/employment centers in Cape Coral	2010	60	60	15.00	15.00	15.00	20.48	Mon-Sun	5,385	0	1	$320,921

Table 9-1

2030 Transit Needs Plan - Existing Routes, Route Improvements and Future Routes (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# Current Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
N/A	New Local	Downtown Ft. Myers- service connecting major employment and activity centers in Downtown	2011	N/A	N/A	14.00	0.00	0.00	4.94	Mon-Fri	3,570	0	1	$212,755
N/A	New Local	Skyline Road Circulator	2010	60	60	15.00	15.00	0.00	11.14	Mon-Sat	4,605	0	1	$274,436
N/A	New Express	Charlotte Connector	2030	60	60	1.52	0.00	0.00	30.16	Mon-Fri	386	0	2	$23,027
N/A	New Express	Collier Connector	2026	60	60	4.56	0.00	0.00	40.70	Mon-Fri	1,163	0	1	$69,321
N/A	New Local	Sanibel Connector	2014	60	60	15.00	15.00	0.00	10.88	Mon-Sat	4,605	0	1	$274,436
N/A	New Express	Burnt Store Express	2018	60	60	9.14	0.00	0.00	40.78	Mon-Fri	2,331	0	2	$138,915
N/A	New Express	I-75/Collier Express	2022	60	60	6.60	0.00	0.00	82.46	Mon-Fri	1,682	0	2	$100,251
N/A	New Express	La Belle Express	2029	60	60	6.80	0.00	0.00	60.63	Mon-Fri	1,733	0	1	$103,267
N/A	New Express	Immokalee Express	2030	60	60	6.02	0.00	0.00	53.72	Mon-Fri	1,535	0	1	$91,497
N/A	New BRT	North-South Corridor (US 41 or SGLR)	2027	10	10	15.00	15.00	0.00	39.34	Mon-Sat	27,630	0	6	$1,646,619
N/A	New BRT	East-West Corridor (MLK Blvd/Lee Blvd/Colonial Blvd/Veterans Parkway)	2028	10	10	15.00	15.00	0.00	39.14	Mon-Sat	27,630	0	6	$1,646,619
N/A	New Waterborne	Sanibel Island to Ft. Myers Beach [3]	2012	N/A	N/A	14.00	14.00	14.00	N/A	Mon-Sun	10,976	0	2	$1,907,080
N/A	New Waterborne	Lovers Key State Park to Coconut	2015	N/A	N/A	14.00	14.00	14.00	N/A	Mon-Sun	10,976	0	2	$552,931
N/A	New Exclusive Bus Lane	Estero Boulevard - Town of Ft. Myers Beach [4]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	TBD
Buses												85	30	
Spare Buses												N/A	N/A	
TOTAL BUSES												N/A	N/A	
Vans												N/A	N/A	
Spare Vans												N/A	N/A	
TOTAL VANS												N/A	N/A	
TOTAL			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$40,334,595

(1) The annual operating cost reflects a "net" cost due to the inclusion of an offset from anticipated farebox revenues for all service improvements (new routes, expansion of existing service, new BRT). The anticipated farebox revenues are 6.55 percent of the total operating cost for each improvement (based on a service elasticity of 0.61 multiplied by the FY 2004 farebox recovery ratio of 10.73 percent).

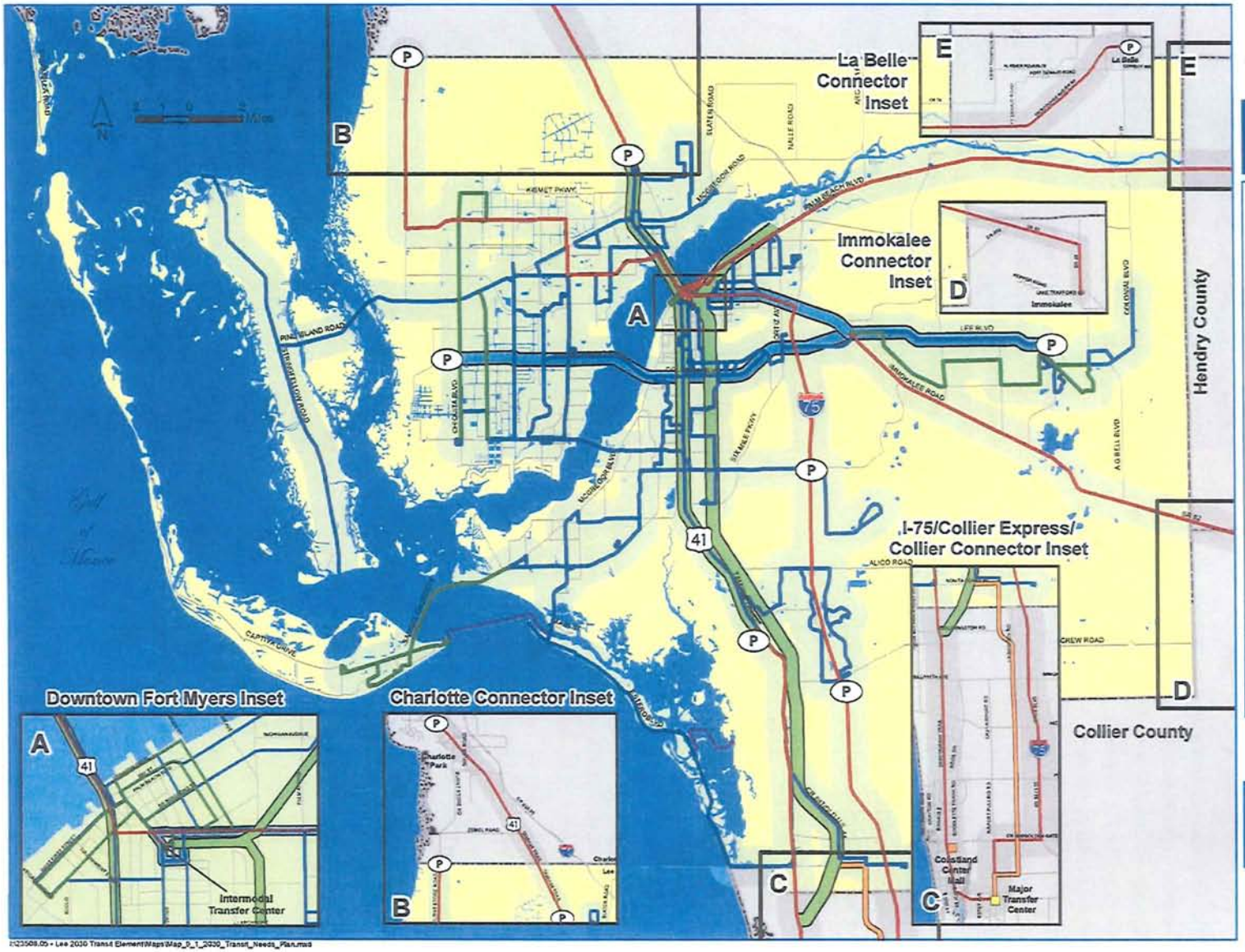
(2) The Ft. Myers Beach route operates in-season headways of 15 minutes; however, in the off-season the headways are 65 minutes.

(3) The projected headway improvement is to 12 minutes subject to LeeTran's discussions with Ft. Myers Beach officials.

(4) TD service is assumed to be fully-funded by local and federal revenue sources.

(5) Ferry service will operate two vessels during peak season for four months with one vessel operating 14 hours per day and the other 7 hours per day. During off-peak season for eight months one vessel will operate 14 hours per day. The annual operating cost reflects a "net" cost due to the inclusion of an offset from anticipated farebox revenues for this new service. The assumed utilization is 10 percent of the vessel's capacity.

(6) Estero Boulevard Transit Lane Feasibility Study currently underway; upon completion of the study, the cost estimates, operating concepts, and preferred alternatives will be available.



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Lee County Transit System

- Existing Local Route
- Future Local Route
- Future Express Route
- Future E/W BRT Corridor
- Future N/S BRT Corridor
- Future CAT Route
- Waterborne Transit Route
- 3/4-Mile Service Area
- (P) Potential Park-and-Ride Location

Tindale-Oliver & Associates, Inc.

2030 Long Range Transportation Plan

Map 9-1 2030 Transit Needs Plan

Created: 08.12.05 Edited: 08.12.05 By: RRP

Amended June 15, 2007

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PARATRANSIT SERVICE

Transportation disadvantaged population projections indicate a greater need for TD services by 2030. Lee County will need to continue its participation in the oversight of TD services in order to meet the TD needs of that population. Additionally, as the fixed-route service continues to extend into newly developed areas of the County, LeeTran's complementary ADA service, Passport, will need to meet ADA requirements in support of these new service areas. Map 9-1 also illustrates the ADA ¾-mile service area for proposed 2030 bus routes. Two major responsibilities for Lee County paratransit services are listed as follows.

- Lee County will continue to participate in the oversight of TD services in the County.
- LeeTran will continue operation of its complementary ADA service, Passport, in support of fixed bus route service operations.

To support planned fixed-route service expansion, the Passport service will require 37 new paratransit vehicles through 2030. In addition, based on a five-year replacement cycle, Lee County will need to replace a total of 293 paratransit vehicles. The total estimated capital cost of the paratransit vehicle acquisition is $14,685,000 by 2030 (in 2005 dollars).

COMMUTER ASSISTANCE PROGRAM

FDOT recently decided to regionalize commuter assistance programs and their funding, rather than support local programs with funds and oversight. It is uncertain at this time what impact this decision ultimately may have on local commuter assistance efforts. Currently, it is expected that LeeTran will continue operation of its commuter assistance program, Connexus. However, as more information about this decision becomes available and FDOT district offices move forward with their programming efforts, it is possible that future changes within the program may be necessary in order to complement the commuter assistance that will be provided by FDOT.

Nevertheless, as the County continues to grow and develop, the need for the educational programs and ride-sharing options offered by a program such as Connexus also will continue to grow. Transportation planners and decision-makers are beginning to adopt, in concept, some of the congestion mitigation options marketed by commuter assistance programs. The continued development and implementation of education and marketing efforts carried out by Connexus will assist in promoting these options to policy-makers and the public. At this time, it is assumed that the following activities will be conducted by and/or coordinated with the local commuter assistance program through 2030.

- Continue expanding educational and marketing programs.
- Capture new opportunities for various ride-sharing services in order to alleviate the strain on the roadway system.
- Coordinate closely with neighboring counties with the aim of promoting inter-county commuter travel options.
- Implement TDM strategies as appropriate.

Given the uncertainty of the impact of FDOT's decision on the County's existing commuter service program, at this time, it is assumed that the program's existing vanpool program may be phased out, as provided by Connexus, over the next five years. As a result, the Needs Plan does not include any cost information related to the vanpool program.

SEMINOLE GULF RAILWAY CORRIDOR

The SGLR transit feasibility assessment presented in Chapter 5 concluded that the corridor may have some beneficial application as a busway for local bus, express bus, and/or BRT services during the timeframe of the 2030 LRTE, especially to help deal with the continued growth of traffic congestion along the US 41 and I-75 corridors. As such, it is recommended that a more in-depth analysis be conducted to better identify an initial bus transit application for this corridor and that planning efforts be geared towards the development of a viable implementation plan for such an application if there is a specific desire to implement one of these transit technologies in the SGLR corridor within the 2030 planning period.

Following are other general findings and recommendations that resulted from the transit feasibility assessment of the SGLR corridor.

- The results of the transit feasibility assessment identified BRT and Express Busway as potentially feasible transit technologies by 2030. In order for these technologies to maximize ridership potential it is advised that feeder bus service and park-and-ride lots be included as part of any future implementation plan since the projected 2030 residential density along the corridor is still quite low.

- Depending on what occurs with the existing SGLR service, the County may decide to convert the entire corridor into an exclusive BRT transit way with stations and single travel lanes in each direction. In this case, the removal of the track would provide sufficient right-of-way for the BRT improvements needed at the stations. In particular, additional right-of-way would be needed to accommodate designated BRT stations with long platforms, large waiting areas for passengers, limited parking facilities, and bus pull-out bays.

- If it is determined that the SGLR service is to remain, an alternative to the exclusive transit way option is a shared right-of-way concept (existing freight track and single BRT travel lanes in each direction), potentially with shared stations. This alternative also would require additional right-of-way for the stations. Based on a visual inspection of the SGLR corridor through aerials and field work, the positioning of the railway track along the corridor and, therefore, the available right-of-way on each side of the track varies. Along certain segments of the track, the available right-of-way is approximately equal on each side, while along others it is significantly larger on one side than the other. Thus, for any shared right-of-way concept, either the track would need to be re-aligned along certain segments of the corridor or at least one of the BRT lanes would need to cross over the railway tracks in those areas where the track is significantly off-center within the available right-of-way.

- The results of the assessment show that beyond 2030, commuter rail may become a viable technology for the SGLR corridor. However, it is important to recognize that, for the implementation of this rail technology mode, it will be necessary to plan for and implement the upgrade of the existing SGLR trackage to accommodate the required speeds of these modes. In addition, appropriate action also will need to be taken to meet any Federal Rail Administration safety requirements for this technology.

- The results of the assessment indicate that heavy rail/rapid rail, AGT, DMU, and LRT are not likely to be feasible in the foreseeable future. However, it should be noted that the implementation of a bus-related transit mode within the SGLR corridor sometime during the 2030 timeframe may help spur a sufficient amount of commercial and/or residential development along the corridor such that one of the rail modes (especially LRT or commuter rail) may become a more viable alternative sometime beyond the 2030 planning timeframe.

- It would be prudent for a transit-oriented development policy to be developed and applied along the SGLR corridor to facilitate high-density growth with commercial and residential developments.

- It also would be prudent to consider the preservation of the SGLR corridor right-of-way to accommodate the implementation of a transit technology in the future.

- Finally, it is evident that additional, more in-depth analysis and planning efforts for the SGLR corridor will be necessary to develop a viable implementation plan for either the BRT or Express Busway mode if there is a specific desire to implement one of these transit technologies within the timeframe of the 2030 planning period.

BUS RAPID TRANSIT CORRIDORS

The Bus Rapid Transit feasibility assessment recommends a more in-depth analysis of candidate BRT corridors in order to identify specific BRT applications, their operating and capital costs, and an implementation timeframe. Initially, corridor selection should include two corridors so that it will be possible to establish an initial network of one North-South route and one East-West route. In addition, a framework plan for instituting BRT elements into the existing traffic and transit circulation systems in Lee County should be developed. This framework plan would identify branding opportunities and preliminary BRT design criteria related to service, facilities, and preferential treatments.

Following are other general findings and recommendations that resulted from the transit feasibility assessment of the BRT corridors.

- The initial North-South candidate corridor should be the US 41 corridor. US 41 is considered the most feasible candidate for BRT applications during the LRTE planning period. While right-of-way constraints along much of the corridor suggest the initial utilization of mixed-traffic BRT operations, it is possible that there may be some opportunities for exclusive-lane BRT operations in the future. This possibility should be considered as part of an overall incremental approach to implementing BRT service. To accommodate this option, it would be prudent for the County to take advantage of any opportunities that may arise to preserve right-of-way along this corridor for such a purpose. Another north-south alternative would be the SGLR corridor, where it would be possible to implement an exclusive busway. Although the exclusive nature of such a running way would allow it to have overall greater travel time and on-time performance benefits than a similar mixed-traffic BRT operation along US 41, the initial implementation capital costs of the

busway would be significantly higher than the US 41 BRT service option. The East-West candidate BRT corridor should include a combination of the Martin Luther King, Jr. Boulevard/Lee Boulevard corridor and the Colonial Boulevard/Veterans Parkway corridor. As shown previously in Table 9-1, both the North-South and the East-West candidate BRT corridors have been included in the 2030 Needs Plan. Further study and a detailed implementation plan with revised capital and operating cost estimates unique to each corridor is recommended.

- It is recommended that Lee County take a phased, incremental approach to integrating BRT into its existing transit services. Integrating low-cost BRT elements initially, such as shorter headways and queue jump opportunities, can lead the way for future applications of more advanced and expensive BRT components (e.g., exclusive BRT running ways and stations, advanced fare collection systems, and ITS technologies).

- Although the market assessments do not indicate a need for full-scale BRT operations in many areas within Lee County in the near term, the existing fixed-route system would benefit from the integration of various BRT-related elements, such as increased frequencies, queue jumps, and transit signal priority.

- To further support the potential future implementation of BRT service, Lee County should examine land uses along the potential corridors and promote more transit-supportive uses and development. To this end, consideration should be given to integrating future land use planning and BRT service planning, especially along the identified BRT corridors and around potential BRT stations.

- An education plan should be developed for elected officials and the public, as well as for municipal and county government departments, that potentially could be involved in the implementation of BRT. City and county engineers and planners need to understand the various BRT elements, how these elements are applied, and what relationship the elements have with each respective department's operations. For example, an ITS workshop focusing on transit signal priority and bus preferential treatments can be organized.

WATERBORNE TRANSIT

The waterborne transit feasibility assessment presented in Chapter 7 of this report concludes that there are several opportunities for waterborne public transportation in Lee County. Specifically, a passenger-only ferry connecting Fort Myers Beach and the City of Sanibel is considered the most feasible waterborne travel opportunity by 2030. The success of a waterborne route between these two cities is contingent on several factors. These factors are summarized below.

- Implementation of the circulator bus route on Sanibel Island.
- Development of a landing site in Fort Myers Beach in close proximity to the current beach trolley route. The existing pocket park at the foot of Old San Carlos Boulevard would be a good location for this landing.
- Development of a landing site on Sanibel Island in close proximity to the planned circulator bus route. The existing pier at Lighthouse Point Park would be a good location for this landing.

- Implementation of a well-designed marketing campaign.

The other waterborne transit route with potential feasibility within the 2030 timeframe is the Coconut-to-Lovers Key State Park Passenger-Only Ferry. Though demand may not be initially as high for this service, additional development in Coconut along with the marketing of this route as an alternative connection (in conjunction with the beach trolley) to Fort Myers Beach will help improve its viability, especially if island access via Bonita Beach Road continues to be impacted by increasing congestion. In addition to these two potential services, one other candidate waterborne route was identified in the analysis: the Downtown Connector Ferry. The feasibility of this waterborne route should be reassessed in the next edition of this plan update. The potential future viability of this waterborne transportation alternative will be a function of the success of community redevelopment plans in the cities of Cape Coral and Fort Myers.

TRANSIT CAPITAL ACQUISITION PLAN

A Transit Capital Acquisition Plan (TCAP) was developed as part of the 2030 LRTE. Capital needs were determined based on service requirements, and through information received from and discussions held with LeeTran staff. Key assumptions for the TCAP are summarized in Table 9-2, while major capital categories are summarized below.

Vehicles

A Vehicle Replacement Plan, which included an updated vehicle inventory, was provided by LeeTran staff. This inventory provided a starting point for updating the vehicle replacement and expansion plan. The vehicle replacement and expansion plan includes buses, paratransit vans, commuter vans, and support vehicles.

Based on the Needs Plan, 216 new buses will be added to the existing fixed-route fleet by 2030, these will include 158 replacement vehicles and 58 new vehicles. New buses (15 by 2010, 30 by 2015, 44 by 2020, and 58 by 2025) will be added to accommodate service expansion planned in each of the respective years. The vehicle replacement plan assumes a life cycle of 12 years and a unit cost of $250,000 (in 2005 dollars) for regular buses and a unit cost of $225,000 (in 2005 dollars) for trolleys.

There also will be expansion related to the provision of paratransit services through 2030 to accommodate the planned fixed-route service expansion . As discussed previously and as shown in the vehicle replacement and expansion schedule, existing vehicles will be replaced based on the assumed life cycle of five years for vans and new vans will be purchased as needed to support new fixed-route services. A vehicle replacement and expansion schedule is provided in Table 9-3.

Bus Rapid Transit Capital & Operating Costs

Capital costs used to prioritize BRT corridors are based on BRT component costs noted in the FTA *Characteristics of Bus Rapid Transit for Decision-Making* manual. Costs for BRT capital elements are itemized in Table 9-2. The noted capital cost estimates include all costs associated with facility development and construction.

BRT capital costs were applied to two alternative BRT corridors, a North/South corridor, consisting of either the US 41 corridor or the Seminole Gulf Railway corridor, and an East/West corridor, consisting of the combined Martin Luther King Jr.

Table 9-2
Transit Capital Categories and Assumptions (in 2005 dollars)

Type	Life Span (years)	Unit Cost	Source
Bus[1]	12	$250,000	Lee Transit Consensus Building Study
Fully Equipped Bus[1]	12	$307,000	Lee Tran Staff
Trolley	12	$225,000	Lee Tran Staff
Bus Rapid Transit	12	$350,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
Paratransit Van	5	$55,000	2003 Lee TDP Major Update
Commuter Van	5	$25,000	2003 Lee TDP Major Update
Support Vehicles	5	$20,000	2003 Lee TDP Major Update
Waterborne Vessel	20	$1,250,000	Arthur Anderson and Associates
BRT Queue Jump Lane Cost Per Mile (East-West Corridor)	N/A	$580,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT Transit Signal Priority Cost Per Mile (East-West Corridor)	N/A	$10,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT Enhanced Station Cost Per Mile (East-West Corridor)	N/A	$35,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT ROW Acquisition Cost Per Mile (North-South Corridor)	N/A	$3,234,000	Lee County ROW Value Areas Map
BRT Running Ways Const. Cost Per Mile (North-South Corridor)	N/A	$6,500,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT Designated Station Cost Per Mile (North-South Corridor)	N/A	$150,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
New Administrative Facility (Land Acquisition)	50	$8,454,320	Lee Tran Transit Facility Study
New Administrative Facility (Phase I Construction)	50	$9,000,000	Lee Tran Transit Facility Study
New Administrative Facility (Phase II Construction)	50	$11,217,643	Lee Tran Transit Facility Study
Park-and-Ride Lots (excluding ROW acquistion)	20	$150,000	Lee Tran Staff
Automatic Passenger Counter	N/A	$12,000	Lee Tran Staff
Indoor Kiosk	N/A	$20,000	Lee Tran Staff
Outdoor Kiosk	N/A	$25,000	Lee Tran Staff
On-Board Camera	N/A	$8,000	Lee Tran Staff
Annunciators	N/A	$6,000	Lee Tran Staff
AVL Unit	N/A	$7,200	Lee Tran Staff
Nextbus Equipment	N/A	$2,750	Lee Tran Staff
Nextbus Display	N/A	$6,375	Lee Tran Staff
Shelter Acquisition and Installation	20	$15,000	Lee Tran Staff
AVL Equipment (Bus Arrival and Display Product)	N/A	$57,545	2005 Lee Tran TDP Minor Update
Bench Acquisition and Pad Installation	N/A	$1,000	Lee Tran Staff
Benches (per mile)	N/A	4.0	Lee Tran Staff
Shelters (per mile)	N/A	0.1	Lee Tran Staff

(1) Fully equipped buses are vehicles acquired after 2015 that will be equipped with on-board cameras, annunciators, radios, head signs, fareboxes, interior passenger information displays, and AVL technology. "Bus" refers to the standard designation for the Gillig and New Flyer Low Floor vehicles that will be purchased prior to 2015 without these additional features.

Table 9-3

Needs Plan Vehicle Replacement and Expansion Schedule (in 2005 dollars)

Year	Buses		BRT Vehicles		Paratransit Vans		Support Vehicles		Waterborne		Vehicle Costs
	Replace	New	Replace	New	Replace	New	Replace	New	Replace	New	
2011	4	3	0	0	2	2	15	1	0	0	$2,295,000
2012	4	3	0	0	4	2	1	1	0	2	$4,320,527
2013	10	2	0	0	15	1	4	1	0	0	$3,985,000
2014	7	4	0	0	9	3	3	2	0	0	$3,520,000
2015	0	2	0	0	18	1	6	1	0	2	$3,618,135
2016	0	3	0	0	4	2	15	1	0	0	$1,576,000
2017	0	2	0	0	4	1	1	0	0	0	$909,000
2018	4	4	0	0	15	3	4	2	0	0	$3,576,000
2019	10	2	0	0	9	1	3	1	0	0	$4,319,000
2020	3	3	0	0	25	2	12	1	0	0	$3,592,000
2021	27	3	0	0	4	2	15	1	0	0	$9,865,000
2022	4	4	0	0	4	3	1	2	0	0	$2,911,000
2023	7	2	0	0	15	1	4	0	0	0	$3,723,000
2024	7	0	0	0	9	0	3	0	0	0	$2,704,000
2025	12	0	0	0	34	0	17	0	0	0	$5,894,000
2026	12	1	0	0	2	0	15	0	0	0	$4,401,000
2027	2	0	0	6	4	0	4	0	0	0	$6,914,000
2028	3	0	0	6	21	0	4	0	0	0	$8,156,000
2029	2	1	0	0	9	0	3	0	0	0	$1,476,000
2030	8	3	0	0	34	2	17	1	0	0	$5,722,000
Totals	**126**	**42**	**0**	**12**	**241**	**26**	**147**	**15**	**0**	**4**	**$83,476,662**

Boulevard/Lee Boulevard corridor and the Colonial Boulevard/Veterans Parkway corridor. Corridor-specific capital costs were selected for each of the alternatives.

Costs associated with the development of full-scale BRT operations were applied to the North/South BRT alternative in order to estimate an accurate cost if the SGLR corridor were used as an exclusive BRT transit way. The cost for at-grade BRT transit ways is estimated at $6.5 million per mile and the cost for designated BRT stations with extended platforms, station enclosures, and pedestrian access is $150,000 each. A standard of one station per mile was used to estimate the number of needed stations for BRT operations along the SGLR corridor.

For the East/West BRT alternative, costs that addressed BRT operations in mixed-traffic conditions were utilized to estimate total capital costs for that corridor. Queue jump lane costs are estimated at $290,000 per queue jump lane section. Two queue jump lane sections are assumed for each intersection. Transit signal priority technology is estimated at $10,000 per intersection. A total of 24 signalized intersections were identified along the candidate East/West BRT alternative corridor. A total of 34 enhanced stations, which include enhanced shelters and BRT system branding elements, were used to estimate total station costs for this BRT alternative.

Operating costs for both potential BRT corridors are based on providing service from Monday through Saturday from 6 a.m. to 9 p.m. with 10-minute headways.

Shelters/Benches

Based on the planned transit improvements, Lee County will purchase shelters and benches annually from 2006 through 2030. A standard of 4 benches per mile and 0.1 shelters per mile was assumed to estimate the number of passenger amenities needed for new fixed-route services included in the Needs Plan. The unit costs for the acquisition and installation of shelters and benches are $15,000 and $1,000, respectively. In addition, for replacement purposes, a useful life of 20 years was assumed for shelters.

Park-and-Ride Lots

Lee County will construct park-and-ride lots to serve as complementary facilities for transit use, primarily for the new express routes (Charlotte Connector, I-75/Collier Express, Collier Connector, Burnt Store Road Express, La Belle Express, and Immokalee Express). From 2006 through 2030, as regional connections are implemented, six lots are proposed to be built within the county. In addition, Lee County will need to coordinate with Charlotte, Collier, and Hendry Counties on the placement and implementation of the corresponding park-and-ride lots in those counties. For costing purposes, these facilities have an assumed average unit construction cost (excluding the cost of land acquisition) of $150,000 per lot. To address the cost of land acquisition, zonal land-cost-per-square-foot information was obtained from the Lee County MPO and it was assumed that the average parcel size needed to implement one lot is two acres.

Table 9-4
Capital Facilities and Amenities Acquisition Plan and Costs

Year	Park-and-Ride Lots		Benches		Shelters		On-Board Cameras		Annunciators		Next Bus Equipment		Next Bus Display		Indoor Kiosks		Outdoor Kiosks		Advanced Technologies				New Facilities		BRT Implementation Cost		Total Cost	Total Cost (2005$)
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	AVL Units	AVL Cost	APC Units	APC Cost	New Facilities	New Facility Cost	Units	Cost		
2011	0	$0	20	$24,301	0	$0	3	$29,162	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$13,871,284	$13,924,747	$11,460,020
2012	0	$0	0	$0	0	$0	3	$30,124	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$15,062	0	$0	N/A	$14,329,036	$14,374,222	$11,452,020
2013	0	$0	0	$0	0	$0	2	$20,745	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$14,801,894	$14,822,640	$11,432,020
2014	0	$0	44	$58,933	1	$20,091	4	$42,860	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$15,290,357	$15,412,240	$11,507,020
2015	0	$0	0	$0	8	$166,029	0	$0	87	$722,227	0	$0	0	$0	1	$27,672	4	$138,358	87	$866,672	0	$0	0	$0	N/A	$15,794,938	$17,715,896	$12,804,420
2016	0	$0	0	$0	8	$171,508	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$20,363,764	$20,535,272	$14,368,020
2017	0	$0	0	$0	8	$177,168	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$17,717	0	$0	N/A	$21,035,768	$21,230,653	$14,380,020
2018	0	$0	0	$0	8	$183,014	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$21,729,948	$21,912,963	$14,368,020
2019	0	$0	0	$0	8	$189,054	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$22,447,037	$22,636,091	$14,368,020
2020	0	$0	0	$0	7	$170,881	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$23,187,789	$23,358,670	$14,353,020
2021	0	$0	0	$0	7	$176,520	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$77,547,851	$77,724,372	$46,233,000
2022	2	$4,454,646	0	$0	7	$182,345	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	2	$41,679	0	$0	N/A	$80,106,930	$84,785,600	$48,822,120
2023	0	$0	0	$0	7	$188,363	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$82,750,459	$82,938,822	$46,233,000
2024	0	$0	0	$0	7	$194,579	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$85,481,224	$85,675,803	$46,233,000
2025	0	$0	0	$0	7	$201,000	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$88,302,105	$88,503,105	$46,233,000
2026	1	$2,880,757	0	$0	7	$207,633	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$3,460,547	$6,548,938	$3,311,800
2027	0	$0	0	$0	7	$214,485	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	2	$49,025	0	$0	N/A	$3,574,745	$3,838,255	$1,879,000
2028	0	$0	0	$0	7	$221,563	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$3,692,712	$3,914,275	$1,855,000
2029	0	$0	0	$0	7	$228,874	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A		$228,874	$105,000
2030	1	$1,907,089	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	N/A	$0	$1,907,089	$846,960
Totals	4	$9,242,492	64	$83,234	111	$2,893,107	12	$122,891	87	$722,227	0	$0	0	$0	1	$27,672	4	$138,358	87	$866,672	6	$123,483	0	$0	N/A	$687,768,390	$621,988,525	$372,244,480

Overview of Capital Acquisition Plan

Table 9-4 summarizes the capital facilities and amenities acquisition plan in detail for the 2030 Transit Needs Plan.

COST PROJECTIONS

Table 9-5 presents the transit cost projections for the 2030 Transit Needs Plan. A number of assumptions were made to support forecasting of public transportation costs for the time period from 2011 through 2030 in the LRTE. These assumptions, made for operating and capital costs for fixed-route, paratransit, and commuter assistance services, are based on those used in the previous TDP and discussions with LeeTran staff. These assumptions are summarized in the following section.

Assumptions

- Operating cost per hour for existing fixed-route services and future operating enhancements is assumed to be $63.77.
- Consistent with the adopted 2004-2013 Lee County TDP, unit costs for the purchase of vehicles included $250,000 for a regular bus, $225,000 for a trolley bus, $55,000 for a paratransit van, $25,000 for a commuter van, and $20,000 for a support vehicle.
- LeeTran desires a fixed-route fleet coverage standard of 10 percent for the implementation of automatic passenger counters (APC). To meet this standard initially, in 2007, six APC units will be purchased. Thereafter, acquisition of additional APC units will be on an as-needed basis to maintain this standard through the 2030 planning horizon.
- Automatic vehicle location (AVL) and annunciator units will be purchased for the fixed-route fleet in 2015.
- On-board security cameras will be purchased for the fixed-route fleet in 2007.
- Since LeeTran's fixed-route fleet will be equipped with on-board security cameras, annunciators, and AVL technology by 2015. All buses purchased after this time will be ordered already equipped with these features, in addition to radios, head signs, fareboxes, and interior passenger information displays. These buses are classified as "fully-equipped buses."
- Real-time passenger information equipment and displays will be purchased in two phases. Phase I in 2007 will include installation of equipment on seven vehicles and displays at six locations. Phase II in 2010 will include installation of equipment on another nine buses and displays at six more locations.
- In 2015, one indoor and four outdoor kiosks will be installed.
- Between 2015 and 2019, it is assumed that 8 shelters per year will need to be replaced based on a useful life of 20 years. Thereafter, 7 shelters per year will need to be replaced between 2020 and 2029.
- An annual growth rate of 3.3 percent was used for all operating cost projections for fixed-route service. For paratransit services, an annual growth rate of 15 percent was used for the first five years of the plan, and then 5 percent was utilized thereafter.
- An inflation factor of 3.3 percent was used to project vehicle costs for both fixed-route and paratransit services. In addition, this inflation factor also was used to project all other fixed costs. This factor is based on input from MPO staff and guidance from FDOT.

Table 9-5
Transit Cost Projections, Lee County MPO 2030 Long Range Transit Element (in 2005 dollars)

Year	Operating Costs					Total Operating Costs	Capital Costs													Total Capital Costs
	Fixed-Route	Paratransit/ADA	Waterborne Transit	Community Service Events	Marketing and Communications		Buses		Paratransit Vehicles		Support Vehicles		Waterborne Transit	Bus Rapid Transit	BRT Facility Development Capital Cost	Other Capital	Fixed-Route Capital Cost	Paratransit/ADA Capital Cost	Total BRT Capital Cost	
							New	Replacement	New	Replacement	New	Replacement	New	New						
2011	$18,028,559	$4,767,267	$0	$24,000	$100,000	$22,919,826	$750,000	$1,000,000	$110,000	$110,000	$25,000	$300,000	$0	$0	$11,416,020	$369,000	$1,750,000	$220,000	$11,416,020	$13,755,020
2012	$18,851,868	$4,845,722	$1,907,080	$24,000	$100,000	$25,728,670	$750,000	$1,000,000	$110,000	$220,000	$25,000	$20,000	$2,195,527	$0	$11,416,020	$81,000	$1,750,000	$330,000	$11,416,020	$15,772,547
2013	$19,628,693	$4,925,467	$1,907,080	$24,000	$100,000	$26,585,240	$500,000	$2,500,000	$55,000	$825,000	$25,000	$80,000	$0	$0	$11,416,020	$121,000	$3,000,000	$880,000	$11,416,020	$15,417,020
2014	$20,675,759	$5,006,525	$1,907,080	$24,000	$100,000	$27,713,364	$1,000,000	$1,750,000	$165,000	$495,000	$50,000	$60,000	$0	$0	$11,416,020	$201,000	$2,750,000	$660,000	$11,416,020	$15,027,020
2015	$21,272,749	$5,088,917	$2,460,011	$24,000	$100,000	$28,945,677	$500,000	$0	$55,000	$990,000	$25,000	$120,000	$1,928,135	$0	$11,416,020	$1,533,400	$500,000	$1,045,000	$11,416,020	$16,422,555
2016	$22,121,489	$5,172,665	$2,460,011	$24,000	$100,000	$29,878,165	$921,000	$0	$110,000	$220,000	$25,000	$300,000	$0	$0	$14,248,020	$445,000	$921,000	$330,000	$14,248,020	$15,944,020
2017	$22,687,195	$5,257,791	$2,460,011	$24,000	$100,000	$30,528,997	$614,000	$0	$55,000	$220,000	$0	$20,000	$0	$0	$14,248,020	$152,000	$614,000	$275,000	$14,248,020	$15,289,020
2018	$23,399,316	$5,344,318	$2,460,011	$24,000	$100,000	$31,327,645	$1,228,000	$1,228,000	$165,000	$825,000	$50,000	$80,000	$0	$0	$14,248,020	$250,000	$2,456,000	$990,000	$14,248,020	$17,944,020
2019	$23,962,642	$5,432,269	$2,460,011	$24,000	$100,000	$31,978,922	$614,000	$3,070,000	$55,000	$495,000	$25,000	$60,000	$0	$0	$14,248,020	$205,000	$3,684,000	$550,000	$14,248,020	$18,687,020
2020	$24,785,585	$5,521,668	$2,460,011	$24,000	$100,000	$32,891,264	$921,000	$921,000	$110,000	$1,375,000	$25,000	$240,000	$0	$0	$14,248,020	$370,000	$1,842,000	$1,485,000	$14,248,020	$17,945,020
2021	$25,632,487	$5,612,537	$2,460,011	$24,000	$100,000	$33,829,035	$921,000	$8,289,000	$110,000	$220,000	$25,000	$300,000	$0	$0	$46,128,000	$430,000	$9,210,000	$330,000	$46,128,000	$56,098,000
2022	$26,329,728	$5,704,902	$2,460,011	$24,000	$100,000	$34,618,641	$1,228,000	$1,228,000	$165,000	$220,000	$50,000	$20,000	$0	$0	$46,128,000	$2,764,120	$2,456,000	$385,000	$46,128,000	$51,733,120
2023	$26,867,624	$5,798,788	$2,460,011	$24,000	$100,000	$35,250,423	$614,000	$2,149,000	$55,000	$825,000	$0	$80,000	$0	$0	$46,128,000	$185,000	$2,763,000	$880,000	$46,128,000	$49,956,000
2024	$26,867,624	$5,894,218	$2,460,011	$24,000	$100,000	$35,345,853	$0	$2,149,000	$0	$495,000	$0	$60,000	$0	$0	$46,128,000	$165,000	$2,149,000	$495,000	$46,128,000	$48,937,000
2025	$26,867,624	$5,991,219	$2,460,011	$24,000	$100,000	$35,442,854	$0	$3,684,000	$0	$1,870,000	$0	$340,000	$0	$0	$46,128,000	$445,000	$3,684,000	$1,870,000	$46,128,000	$52,127,000
2026	$26,936,945	$6,089,816	$2,460,011	$24,000	$100,000	$35,610,772	$307,000	$3,684,000	$0	$110,000	$0	$300,000	$0	$0	$1,750,000	$1,861,800	$3,991,000	$110,000	$1,750,000	$7,712,800
2027	$28,583,564	$6,190,035	$2,460,011	$24,000	$100,000	$37,357,610	$0	$614,000	$0	$220,000	$0	$80,000	$0	$6,000,000	$1,750,000	$209,000	$614,000	$220,000	$7,750,000	$8,793,000
2028	$30,230,184	$6,291,904	$2,460,011	$24,000	$100,000	$39,106,099	$0	$921,000	$0	$1,155,000	$0	$80,000	$0	$6,000,000	$1,750,000	$185,000	$921,000	$1,155,000	$7,750,000	$10,011,000
2029	$30,333,451	$6,395,449	$2,460,011	$24,000	$100,000	$39,312,911	$307,000	$614,000	$0	$495,000	$0	$60,000	$0	$0	$0	$165,000	$921,000	$495,000	$0	$1,581,000
2030	$30,447,975	$6,500,699	$2,460,011	$24,000	$100,000	$39,532,685	$921,000	$2,456,000	$110,000	$1,870,000	$25,000	$340,000	$0	$0	$0	$1,211,960	$3,377,000	$1,980,000	$0	$6,568,960
Total	**$494,511,061**	**$111,832,176**	**$45,081,416**	**$480,000**	**$2,000,000**	**$653,904,653**	**$12,096,000**	**$37,257,000**	**$1,430,000**	**$13,255,000**	**$375,000**	**$2,940,000**	**$4,123,662**	**$12,000,000**	**$364,210,200**	**$11,349,280**	**$49,353,000**	**$14,685,000**	**$376,210,200**	**$455,721,142**

- Based on the information in the 2005 TDP Minor Update, the annual paratransit operating cost will be $3,154,211 in 2006. This was used as a starting point for projecting paratransit operating costs through the 2030 planning horizon.
- Commuter assistance program vanpool costs are not reflected in the capital tables because it is assumed that this program will be phased out over the next five years in response to FDOT's proposed changes to CAP funding and operation.

SUMMARY OF COSTS

This section presents the Needs Plan for the Lee County 2030 LRTE. Table 9-6 presents a summary of transit costs for the 2030 Transit Needs Plan. The summary table also reflects the costs broken down by four distinct time periods: 2011 to 2015, 2016 to 2020, 2021 to 2025, and 2026 to 2030. All costs are reported in 2005 dollars. As shown in the table, the Transit Needs Plan for the Lee County 2030 LRTE exceeds $1.34 billion.

TRANSIT PLANNING ACTIVITIES

Lee County will need to continue preparation of required transit planning documents in order to continue receiving federal transit aid. Integration of transit planning components into the MPO's LRTP and updates of the County's TDP should be prepared during the required state and federal timeframes.

In addition to the LRTP and the TDP, additional studies identified in this report as part of the recommendations should be conducted as needed, as well. The additional studies relate to individual components of Lee County's public transportation system. Preparation of the listed reports will assist Lee County in identifying and budgeting at a higher level of detail future transit system enhancements.

Seminole Gulf Railway – A detailed assessment of the SGLR corridor should be conducted in order to more appropriately review the application of any Express Busway and/or BRT transit technology to the SGLR corridor in the next 25 years. This assessment will better identify an initial bus transit application and its operating characteristics, potential operating and capital costs, and implementation timeframe.

Bus Rapid Transit Corridor Analyses – This assessment will identify specific BRT applications, their operating and capital costs, and an implementation timeframe. A separate corridor analysis should be conducted for each of the BRT candidate corridors identified in this report.

Bus Rapid Transit Framework Plan – This plan will be utilized as a guide for implementing service, facility, and preferential treatment improvements for Lee County's BRT operations as BRT service concepts are integrated into available transit services. In addition, this effort would assist in the identification of branding marketing strategies and opportunities.

Waterborne Transit Way Market Survey and Route Analysis – A detailed market survey and route analysis needs to be performed before implementation of any waterborne transit service. This study would assess market demand for waterborne transit, estimate potential ridership, identify stop locations, and also identify funding sources for the waterborne services.

Table 9-6
Summary of Costs, 2030 Lee County Transit Needs Plan
(in 2005 dollars)

Category	2011-2015	2016-2020	2021-2025	2026-2030	Total (2006-2030)
Operating Costs					
Fixed-Route/BRT	$98,457,628	$116,956,227	$132,565,087	$146,532,119	$494,511,061
Waterborne	$8,181,251	$12,300,055	$12,300,055	$12,300,055	$45,081,416
Paratransit Services	$24,633,898	$26,728,711	$29,001,664	$31,467,903	$111,832,176
Commuter Assistance Program	$0	$0	$0	$0	$0
Marketing and Communications	$500,000	$500,000	$500,000	$500,000	$2,000,000
Community Service Events	$120,000	$120,000	$120,000	$120,000	$480,000
TD Services	$50,993,712	$55,330,107	$60,035,259	$65,140,527	$231,499,605
Total Operating Costs	**$182,886,489**	**$211,935,100**	**$234,522,065**	**$256,060,604**	**$885,404,258**
Capital Costs					
Fixed-Route Capital	$9,750,000	$9,517,000	$20,262,000	$9,824,000	$49,353,000
BRT Capital	$57,080,100	$71,240,100	$230,640,000	$17,250,000	$376,210,200
Waterborne Capital	$4,123,662	$0	$0	$0	$4,123,662
Paratransit Services Capital	$3,135,000	$3,630,000	$3,960,000	$3,960,000	$14,685,000
Commuter Assistance Program Capital	$0	$0	$0	$0	$0
Other Capital (Facilities, Support Vehicles, and Infrastructure)	$2,305,400	$1,422,000	$3,989,120	$3,632,760	$11,349,280
Total Capital Costs	**$76,394,162**	**$85,809,100**	**$258,851,120**	**$34,666,760**	**$455,721,142**
Total Costs					
Total Capital and Operating Costs	**$259,280,651**	**$297,744,200**	**$493,373,185**	**$290,727,364**	**$1,341,125,400**

Park-and-Ride Study – This study will assist in identifying the size, location, and cost of park-and-ride facilities throughout the county. Consideration of specific connections to existing and proposed transit services would be included. At this time, FDOT has proposed conducting such a study for the area.

Alternative Fuels Study – This study will explore the need for and feasibility of moving LeeTran towards an alternative fuel technology for its motorbus vehicle fleet. Such a study would include a determination of the most cost-effective fuel alternative for use in Lee County. Alternative fuel technologies would be assessed in terms of integrating the technology into existing and proposed transit services, as well as based on potential impacts to system facilities and maintenance practices.

Estero Boulevard Transit Lane Feasibility Study – A detailed study is underway to determine the feasibility of providing a dedicated transit lane or lanes on Estero Boulevard in Fort Myers Beach. The study is tasked with achieving the following list of tasks presented below.

- Develop a transit route and operating concepts.
- Identify the necessary changes to the roadway network resulting from the transit route.
- Develop cross sections and alignments for the transit priority lane (s) and include accommodation for bicycle and pedestrian facilities.
- Identify right-of-way acquisition needs and develop a timeline for construction and implementation.
- Identify drainage, utilities, and permitting issues associated with construction of the exclusive bus lane.
- Develop cost estimates for the project.

Chapter 10: 2030 Financially Feasible Transit Plan

This chapter presents the 2030 Financially Feasible Transit Plan for Lee County. The Financially Feasible Plan is based on:

- Needs Plan improvement priorities
- Input from Lee County MPO and LeeTran staff
- Revenue projections provided by the MPO and LeeTran through 2030

The process of prioritizing the transit improvements presented in the Needs Plan is a critical step in developing the listing of projects that are cost feasible and can be financed through the year 2030. A review of the process used for prioritizing the financially feasible projects is presented in this chapter. This is followed by the 2030 Financially Feasible Plan improvements, a description of the revenue projections used to prepare the Financially Feasible Plan, an assessment of potential funding sources for the unmet transit needs, and an investigation into the application of additional ad valorem tax revenue to fund the unmet transit needs.

This chapter also includes the capital acquisition plan needed to facilitate the Financially Feasible Plan, which includes the replacement of existing vehicles. In addition, the cost and revenue projections and assumptions for the Financially Feasible Transit Plan projects and a brief summary of the costs and revenues are presented, as well.

SUMMARY OF TRANSIT NEEDS PRIORITIES

The process used for prioritizing the transit needs identified for the 2030 LRTE was presented and discussed previously in Chapter 8. The prioritization methodology evaluated transit service improvements using the steps listed below (see Figure 8-1).

- Integrate BRT and SGLR feasibility assessments, and waterborne transit needs.
- Identify local and express bus needs.
- Develop the 2030 Transit Needs Plan.

- Evaluate/prioritize service improvements using evaluation criteria.
- Apply revenue projections to the prioritized 2030 Transit Needs Plan.
- Develop the 2030 Financially Feasible Transit Plan.

The following section applies the revenue projections to the prioritized list of transit project needs and determines the extent to which the 2030 Transit Needs Plan is financially feasible. Table 10-1 presents the list of priority transit needs. It should be noted that the list of projects in this table includes transit improvements programmed for the period from 2006 to 2010 (highlighted in gray).

FINANCIALLY FEASIBLE PLAN

Revenue Projections

Revenue projections for the 2030 LRTE were developed and provided by MPO and LeeTran staff. These projections include revenues from federal, state, and local sources. The operating revenue projections for fixed-route transit services are summarized in Table 10-2, while capital revenue projections are summarized in Table 10-3.

The following assumptions were made by the MPO and LeeTran in developing the transit revenue projections for the 2030 Financially Feasible Transit Plan.

- FTA Section 5303 - Planning Funds are assumed to increase by $8,000 per year through 2030 based on historical increases. There is a match requirement of 10 percent from FDOT and 10 percent from local sources to leverage the federal funds (80 percent). This funding source is used for labor costs associated with transit planning activities. As a result, it is assumed to be an operating cost funding source associated with fixed-route and paratransit services.

- FTA Section 5307 - Capital Funds are assumed to increase by $200,000 per year through 2030 based on historical increases. This funding source is assumed to be used for capital costs associated with fixed-route and paratransit (ADA) services, although certain provisions exist for these funds to be used for some operating expenses (ADA and capitalized maintenance). Section 5307 funds may be used to fund ADA operating costs within a 10 percent cap of the total fund apportionment. It is important to note that LeeTran does not currently utilize the full 10 percent to fund ADA services, although future growth in paratransit services reflects the need to make this assumption in the 2030 Financially Feasible Transit Plan. In addition to ADA expense, LeeTran uses a maximum of $150,000 per year for preventative maintenance expenses determined to be an eligible expenditure for Section 5307.

- FTA Section 5311 - Since the 2000 Census, Lee County has experienced a reduction in rural areas within the county, thus the apportionment levels assumed reflect this trend. Rural Operating Funds are assumed to decline by $14,000 in each five-year period (2011-2015, 2016-2020, 2021-2025, and 2026-2030). This funding source is assumed to be used for operating costs associated with fixed-route and paratransit services.

- Surface Transportation Program (STP) Flex Funding projected in 2011 and 2012 will be used for the purchase of buses. This funding source is assumed to be used for capital costs specifically

Table 10-1
2030 Transit Priorities

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
N/A	N/A	Maintain Existing Services (Fixed-Route)	2005	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	Maintain Existing Services (Paratransit)	2005	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	Maintain Existing Services (TD Services)	2005	N/A	N/A	N/A	N/A	N/A	N/A
1	1.34	Route 140 - Add frequency and extend route from San Carlos Plaza to new mall near Bonita Springs	2006	4	10	10	10	10	8.80
2	1.36	Route 140 - Add frequency from 15 minutes to 10 minutes	2022	7	10	10	10	4	8.20
2	2.4	Downtown Circulator	2011	10	7	10	7	7	8.20
4	1.1	Route 10 - Add frequency from 60 minutes to 40 minutes	2008	4	10	10	7	7	7.60
4	1.3	Route 10 - Add frequency from 30 minutes to 20 minutes	2020	7	10	10	7	4	7.60
4	1.35	Route 140 - Add frequency from 20 minutes to 15 minutes	2015	7	10	10	7	4	7.60
4	3.1	North-South BRT Corridor (US 41 or SGLR)	2027	10	10	10	7	1	7.60
8	1.31	Route 130 - Add frequency from 60 minutes to 40 minutes	2008	4	10	7	7	7	7.00

Table 10-1
2030 Transit Priorities

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
8	1.2	Route 10 - Add frequency from 40 minutes to 30 minutes	2016	4	10	10	7	4	7.00
8	1.6	Route 20 - Add frequency on weekdays and Saturdays (currently 30 minutes, adjust to 20 minutes)	2007	4	4	10	7	10	7.00
8	1.17	Route 70 - Add frequency from 60 minutes to 40 minutes	2006	4	10	4	7	10	7.00
12	1.7	Route 30 - Add frequency on weekdays and Saturdays (currently 50 minutes, adjust to 30 minutes)	2009	4	7	7	7	7	6.40
12	1.18	Route 70 - Add frequency from 40 minutes to 30 minutes	2011	4	10	4	7	7	6.40
12	1.41	Route 400 - Add revenue hours and frequency during peak season or weekdays, Saturdays and Sundays	2007	4	1	7	10	10	6.40
12	1.33	Route 130 - Add frequency from 30 minutes to 20 minutes	2020	4	10	7	7	4	6.40
16	2.5	Lehigh Circulator	2009	7	1	4	10	7	5.80
16	2.8	Burnt Store Road Express	2018	7	7	4	10	1	5.80
16	1.32	Route 130 - Add frequency from 40 minutes to 30 minutes	2012	1	10	7	4	7	5.80
16	4.1	Waterborne Service - Sanibel Island to Ft. Myers Beach	2012	10	1	7	10	1	5.80
16	2.10	La Belle Express	2029	7	7	4	10	1	5.80
16	1.42	Route 400 - Add frequency from 12 minutes to 10 minutes	2014	7	1	7	10	4	5.80

Table 10-1
2030 Transit Priorities

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
16	3.2	East-West BRT Corridor (Colonial Boulevard or MLK Boulevard)	2028	10	7	4	7	1	5.80
23	2.9	I-75/Collier Express	2022	1	10	4	10	1	5.20
23	1.25	Route 100 - Add frequency from 40 minutes to 30 minutes	2021	4	4	7	7	4	5.20
23	2.1	Cape Coral Circulator	2010	7	1	1	10	7	5.20
23	2.11	Skyline Road	2010	10	1	4	10	1	5.20
27	2.6	Sanibel Circulator	2009	1	1	7	7	7	4.60
27	1.4	Route 15 - Add frequency on weekdays and Saturdays (currently 40 minutes, adjust to 30 minutes)	2017	1	10	7	1	4	4.60
27	1.26	Route 110 - Add frequency from 75 minutes to 50 minutes	2010	1	7	4	4	7	4.60
27	1.29	Route 120 - Add frequency from 40 minutes to 30 minutes	2012	1	10	4	1	7	4.60
27	1.19	Route 70 - Add frequency from 30 minutes to 25 minutes	2019	1	10	4	4	4	4.60
32	1.23	Route 90 - Add frequency from 60 minutes to 40 minutes	2012	1	1	4	7	7	4.00
32	1.8	Route 30 - Add frequency (30 minutes, adjust to 25 minutes)	2020	1	4	7	4	4	4.00
32	1.9	Route 30 - Add frequency (25 minutes, adjust to 20 minutes)	2023	1	4	7	4	4	4.00

Table 10-1
2030 Transit Priorities

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
32	1.13	Route 50 - Add frequency from 60 minutes to 30 minutes	2011	1	4	4	4	7	4.00
32	1.14	Route 50 - Add frequency from 30 minutes to 20 minutes	2019	1	4	4	7	4	4.00
32	1.30	Route 120 - Add frequency from 30 minutes to 25 minutes	2021	1	10	4	1	4	4.00
32	4.2	Waterborne Service - Lovers Key State Park to Coconut	2015	10	1	4	4	1	4.00
39	1.10	Route 40 - Add frequency from 120 minutes to 60 minutes	2007	1	1	4	1	10	3.40
39	1.20	Route 80 - Add frequency from 120 minutes to 60 minutes	2013	1	7	4	1	4	3.40
39	1.21	Route 80 - Add frequency from 60 minutes to 40 minutes	2014	1	7	4	1	4	3.40
39	1.22	Route 80 - Add frequency from 40 minutes to 30 minutes	2023	1	7	4	1	4	3.40
39	1.27	Route 110 - Add frequency from 50 minutes to 40 minutes	2014	1	7	4	1	4	3.40
39	1.28	Route 110 - Add frequency from 40 minutes to 30 minutes	2018	1	7	4	1	4	3.40
39	2.3	Collier Connector	2026	1	1	4	10	1	3.40
39	2.11	Immokalee Express	2030	1	1	4	10	1	3.40
47	1.15	Route 60 - Add frequency from 80 minutes to 40 minutes	2008	1	1	4	1	7	2.80

Table 10-1
2030 Transit Priorities

Rank	Alternative Number	Routes/Corridors	Year of Implementation	Criteria and Weights					
				Transit System Performance	System Development	Market Potential	Implementation Costs	Planned Improvement	Total
				20.00%	20.00%	20.00%	20.00%	20.00%	100.00%
47	1.37	Route 150 - Add frequency from 60 minutes to 40 minutes	2010	1	1	4	1	7	2.80
47	2.2	Charlotte Connector	2030	1	1	1	10	1	2.80
47	1.24	Route 90 - Add frequency from 40 minutes to 30 minutes	2016	1	1	4	4	4	2.80
47	1.39	Route 160 - Add revenue hours and frequency to operate Monday to Friday will all day service at approximately 120 minutes	2013	1	4	4	1	4	2.80
47	1.40	Route 160 - Add revenue hours and frequency to operate Monday to Friday will all day service at approximately 60 minutes	2018	1	4	4	1	4	2.80
53	1.11	Route 40 - Add frequency from 60 minutes to 40 minutes	2013	1	1	4	1	4	2.20
53	1.12	Route 40 - Add frequency from 40 minutes to 30 minutes	2017	1	1	4	1	4	2.20
53	1.16	Route 60 - Add frequency from 40 minutes to 30 minutes	2016	1	1	4	1	4	2.20
53	1.38	Route 150 - Add frequency from 40 minutes to 20 minutes	2021	1	1	4	1	4	2.20
53	2.7	Sanibel Connector	2014	1	1	4	4	1	2.20

Table 10-2
Fixed-Route and Paratransit Transit Operating Revenue Projections, 2030 Long Range Transit Element
(all revenues are in constant FY 2005 dollars)

Year	Federal					State					Local					Farebox	Total Operating Revenue
	Section 5307-ADA Apportionment	Section 5307-Preventative Maintenance	Section 5303	Section 5311	Total	FDOT Block Grant	FDOT 5303 Match	FDOT Urban Corridor Funds	State Discretion	Total	Lee County General Fund	Local Option Gas Tax	Other Local (Cities & Universities Contribution)	Other Local (Advert. & Misc. Revenue)	Total	Farebox	
2011	$450,000	$150,000	$178,000	$228,000	$1,006,000	$1,535,000	$22,000	$1,200,000	$0	$2,757,000	$8,183,000	$754,000	$679,000	$977,000	$10,593,000	$2,014,000	$16,370,000
2012	$470,000	$150,000	$186,000	$228,000	$1,034,000	$1,535,000	$23,000	$800,000	$0	$2,358,000	$8,183,000	$769,000	$700,000	$987,000	$10,639,000	$2,120,000	$16,151,000
2013	$490,000	$150,000	$194,000	$228,000	$1,062,000	$1,535,000	$24,000	$1,400,000	$0	$2,959,000	$8,183,000	$784,000	$721,000	$997,000	$10,685,000	$2,231,000	$16,937,000
2014	$510,000	$150,000	$202,000	$228,000	$1,090,000	$1,535,000	$25,000	$1,400,000	$0	$2,960,000	$8,183,000	$800,000	$742,000	$1,007,000	$10,732,000	$2,348,000	$17,130,000
2015	$530,000	$150,000	$210,000	$228,000	$1,118,000	$1,535,000	$26,000	$1,400,000	$0	$2,961,000	$8,183,000	$816,000	$765,000	$1,017,000	$10,781,000	$2,472,000	$17,332,000
2016	$550,000	$150,000	$218,000	$214,000	$1,132,000	$1,535,000	$27,000	$1,400,000	$0	$2,962,000	$8,183,000	$832,000	$788,000	$1,027,000	$10,830,000	$2,602,000	$17,526,000
2017	$570,000	$150,000	$226,000	$214,000	$1,160,000	$1,535,000	$28,000	$1,400,000	$0	$2,963,000	$8,183,000	$848,000	$811,000	$1,038,000	$10,880,000	$2,738,000	$17,741,000
2018	$590,000	$150,000	$234,000	$214,000	$1,188,000	$1,535,000	$29,000	$1,400,000	$0	$2,964,000	$8,183,000	$865,000	$835,000	$1,048,000	$10,931,000	$2,882,000	$17,965,000
2019	$610,000	$150,000	$242,000	$214,000	$1,216,000	$1,535,000	$30,000	$1,400,000	$0	$2,965,000	$8,183,000	$882,000	$861,000	$1,058,000	$10,984,000	$3,033,000	$18,198,000
2020	$630,000	$150,000	$250,000	$214,000	$1,244,000	$1,535,000	$31,000	$1,400,000	$0	$2,966,000	$8,183,000	$900,000	$886,000	$1,069,000	$11,038,000	$3,192,000	$18,440,000
2021	$650,000	$150,000	$258,000	$200,000	$1,258,000	$1,535,000	$32,000	$1,400,000	$0	$2,967,000	$8,183,000	$918,000	$913,000	$1,080,000	$11,094,000	$3,360,000	$18,679,000
2022	$670,000	$150,000	$266,000	$200,000	$1,286,000	$1,535,000	$33,000	$1,400,000	$0	$2,968,000	$8,183,000	$936,000	$940,000	$1,090,000	$11,149,000	$3,536,000	$18,939,000
2023	$690,000	$150,000	$274,000	$200,000	$1,314,000	$1,535,000	$34,000	$1,400,000	$0	$2,969,000	$8,183,000	$955,000	$969,000	$1,101,000	$11,208,000	$3,722,000	$19,213,000
2024	$710,000	$150,000	$282,000	$200,000	$1,342,000	$1,535,000	$35,000	$1,400,000	$0	$2,970,000	$8,183,000	$974,000	$998,000	$1,112,000	$11,267,000	$3,917,000	$19,496,000
2025	$730,000	$150,000	$290,000	$200,000	$1,370,000	$1,535,000	$36,000	$1,400,000	$0	$2,971,000	$8,183,000	$993,000	$1,028,000	$1,124,000	$11,328,000	$4,123,000	$19,792,000
2026	$750,000	$150,000	$298,000	$186,000	$1,384,000	$1,535,000	$37,000	$1,400,000	$0	$2,972,000	$8,183,000	$1,013,000	$1,058,000	$1,135,000	$11,389,000	$4,340,000	$20,085,000
2027	$770,000	$150,000	$306,000	$186,000	$1,412,000	$1,535,000	$38,000	$1,400,000	$0	$2,973,000	$8,183,000	$1,033,000	$1,090,000	$1,146,000	$11,452,000	$4,567,000	$20,404,000
2028	$790,000	$150,000	$314,000	$186,000	$1,440,000	$1,535,000	$39,000	$1,400,000	$0	$2,974,000	$8,183,000	$1,054,000	$1,123,000	$1,158,000	$11,518,000	$4,807,000	$20,739,000
2029	$850,000	$150,000	$322,000	$186,000	$1,508,000	$1,535,000	$40,000	$1,400,000	$0	$2,975,000	$8,183,000	$1,075,000	$1,157,000	$1,169,000	$11,584,000	$5,060,000	$21,127,000
2030	$870,000	$150,000	$330,000	$186,000	$1,536,000	$1,535,000	$41,000	$1,400,000	$0	$2,976,000	$8,183,000	$1,096,000	$1,191,000	$1,181,000	$11,651,000	$5,325,000	$21,488,000
Total	**$12,880,000**	**$3,000,000**	**$5,080,000**	**$4,140,000**	**$25,100,000**	**$30,700,000**	**$630,000**	**$27,200,000**	**$0**	**$58,530,000**	**$163,660,000**	**$18,297,000**	**$18,255,000**	**$21,521,000**	**$221,733,000**	**$68,389,000**	**$373,752,000**

Table 10-3

Fixed-Route and Paratransit Transit Capital Revenue Projections, 2030 Long Range Transit Element

(all revenues are in constant FY 2005 dollars)

Year	Federal			County	Total Capital Revenue
	Section 5307	STP Flex Funding	Total	County General Fund Capital	
2011	$3,900,000	$1,500,000	$5,400,000	$222,000	$5,622,000
2012	$4,080,000	$2,000,000	$6,080,000	$222,000	$6,302,000
2013	$4,260,000	$0	$4,260,000	$222,000	$4,482,000
2014	$4,440,000	$0	$4,440,000	$222,000	$4,662,000
2015	$4,620,000	$0	$4,620,000	$222,000	$4,842,000
2016	$4,800,000	$0	$4,800,000	$222,000	$5,022,000
2017	$4,980,000	$0	$4,980,000	$222,000	$5,202,000
2018	$5,160,000	$0	$5,160,000	$222,000	$5,382,000
2019	$5,340,000	$0	$5,340,000	$222,000	$5,562,000
2020	$5,520,000	$0	$5,520,000	$222,000	$5,742,000
2021	$5,700,000	$0	$5,700,000	$222,000	$5,922,000
2022	$5,880,000	$0	$5,880,000	$222,000	$6,102,000
2023	$6,060,000	$0	$6,060,000	$222,000	$6,282,000
2024	$6,240,000	$0	$6,240,000	$222,000	$6,462,000
2025	$6,420,000	$0	$6,420,000	$222,000	$6,642,000
2026	$6,600,000	$0	$6,600,000	$222,000	$6,822,000
2027	$6,780,000	$0	$6,780,000	$222,000	$7,002,000
2028	$6,960,000	$0	$6,960,000	$222,000	$7,182,000
2029	$7,500,000	$0	$7,500,000	$222,000	$7,722,000
2030	$7,680,000	$0	$7,680,000	$222,000	$7,902,000
Total	**$112,920,000**	**$3,500,000**	**$116,420,000**	**$4,440,000**	**$120,860,000**

associated with fixed-route bus replacement based on input from LeeTran staff.

- Block Grant Operating Funds are assumed to remain constant based on information provided by the FDOT District 1 Office. This funding source is assumed to be used for operating costs associated with fixed-route services.

- Urban Corridor Grant Funds are assumed to remain constant based on actual programmed funds from FDOT. This funding source is assumed to be used for operating costs for Route 140 along the US 41 Corridor.

- The Five-Cent Local Option Gas Tax Revenues are assumed to increase on an annual basis by two percent based on historical distribution of these funds. This funding source is assumed to be used for operating costs associated with fixed-route and paratransit services.

- County General Fund Capital and Operating Funds are assumed to remain constant based on the FY 2006 budget of $8,183,000. This funding source is assumed to be used for capital and operating costs associated with fixed-route and paratransit services. Capital funds are to be used for the purchase of buses and capital amenities.

- Cities and Universities Contributions are assumed to increase by three percent annually based on FY 2006 budget figures and historical data. This funding source is assumed to be used for operating costs associated with fixed-route and paratransit services.

- Advertisements (bus wrapping, bus interior and shelter advertisements) and Miscellaneous Revenues are assumed to increase by one percent annually based on FY 2006 budget figures and historical data. This funding source is assumed to be used for operating costs associated with fixed-route and paratransit services.

- Based on the 2003 TDP's 5.25 percent annual ridership increase, the farebox revenues are projected using a historical average fare of $0.53 per rider.

- All revenue figures are presented in current fiscal year 2005 dollars.

Methodology

The list of priority transit needs was evaluated based on the capital and operating costs for each improvement. These needs include maintenance of the existing fixed-route and paratransit system in addition to frequency improvements (on all existing routes), new local and express routes, phased BRT implementation (North-South and East-West Corridors), and two waterborne routes (Sanibel to Fort Myers Beach and Lovers Key State Park to Coconut). Based on the availability of projected capital and operating revenues, a list of cost feasible projects was developed. This list of projects comprises the 2030 Financially Feasible Plan for Lee County.

Transit Priorities

The evaluation of revenue sources through 2030 and the priority project rankings were used to develop the 2030 Financially Feasible Plan, which is summarized in Table 10-4 and illustrated in Map 10-1. The improvements can be summarized as follows.

Table 10-4
2030 Financially Feasible Transit Plan - (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# Current Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
10	Maintain Existing	North-south corridors of Fowler and Palmetto and east-west of Edison Ave	2005	60	60	29.67	29.67	0.00	23.42	Mon-Sat	9,109	2	0	$580,854
15	Maintain Existing	Service from Tice area through Dunbar to Downtown Ft. Myers and to Edison Mall via Broadway	2005	40	40	30.62	30.62	10.00	20.57	Mon-Sat	9,920	1	0	$632,612
20	Maintain Existing	Service to Intermodal Transfer Center and Downtown Ft. Myers	2005	30	30	30.33	30.33	0.00	13.93	Mon-Sat	9,311	2	0	$593,775
30	Maintain Existing	Service from Bell Tower on US 41 and Daniels Pkwy to Camelot Isles in Cape Coral on Chiquita and Cape Coral Pkwy	2005	45	45	30.33	30.33	9.00	27.38	Mon-Sun	9,779	2	0	$623,619
40	Maintain Existing	Service to Cape Coral High School, Sun Splash, North High Tech, Cape Coral Hospital, Cape Coral City Hall, and the Kash N' Karry at Cape Coral Pkwy and Leonard Street	2005	120	120	15.08	15.08	0.00	28.47	Mon-Sat	4,630	1	0	$295,223
50	Maintain Existing	Service from Summerlin Square to Bell Tower continuing to SW Florida International Airport	2005	60	60	46.66	46.66	13.83	38.93	Mon-Sun	15,044	2	0	$959,330
60	Maintain Existing	Service from San Carlos Plaza to Florida Gulf Coast University	2005	85	85	15.28	13.70	0.00	22.18	Mon-Sat	4,609	1	0	$293,900
70	Maintain Existing	Service from Downtown Cape Coral to Downtown Ft. Myers via Del Prado, Hancock Bridge Pkwy, Orange Grove Blvd, Pondella Road, and US 41	2005	60	60	31.97	31.97	0.00	29.89	Mon-Sat	9,815	2	0	$625,881
80	Maintain Existing	Service from the Publix at South Trail to Edison Mall and then to Bell Tower	2005	110	110	13.58	13.58	0.00	26.72	Mon-Sat	4,169	1	0	$265,858
90	Maintain Existing	Service to North Ft. Myers area, including Pondella Rd, Business 41, Mariana Ave, Bayshore Rd, and into the Suncoast Community	2005	60	60	31.45	31.45	0.00	26.55	Mon-Sat	9,655	2	0	$615,701
100	Maintain Existing	Service from Riverdale along Palm Beach Blvd, Marsh Ave, Michigan Ave, and Palmetto to Downtown Ft. Myers	2005	30	30	69.67	31.17	11.92	24.55	Mon-Sun	20,007	5	0	$1,275,801
110	Maintain Existing	Service from Edison Mall to Lehigh Acres	2005	75	75	30.00	30.00	0.00	52.57	Mon-Sat	9,210	2	0	$587,314
120	Expand/ Improve	Service from Downtown Cape Coral to Edison Mall	2005	40	40	31.50	31.50	9.92	22.58	Mon-Sun	10,186	2	0	$649,575
130	Maintain Existing	Service between Edison Mall and Summerlin Square Shopping Center	2005	60	60	28.50	13.92	0.00	29.75	Mon-Sat	7,991	2	0	$509,602
140	Maintain Existing	Service to Merchants Crossing, North Shore Shopping Center, Downtown Ft. Myers, Edison Mall, Bell Tower, San Carlos Plaza, and San Carlos Park via US 41	2005	20	20	130.17	130.17	39.25	35.88	Mon-Sun	42,003	8	0	$2,678,511
150	Maintain Existing	Service in the Bonita Springs area along US 41, Old US 41, Dean St, and Bonita Beach Rd	2005	60	60	14.00	0.00	0.00	33.37	Mon-Sat	3,570	1	0	$227,656
160	Maintain Existing	Service to Bokeelia, St. James City, then Matlacha, continuing along Pine Island Rd to Santa Barbara	2005	N/A	N/A	9.83	0.00	0.00	62.66	Thursday	501	1	0	$31,969

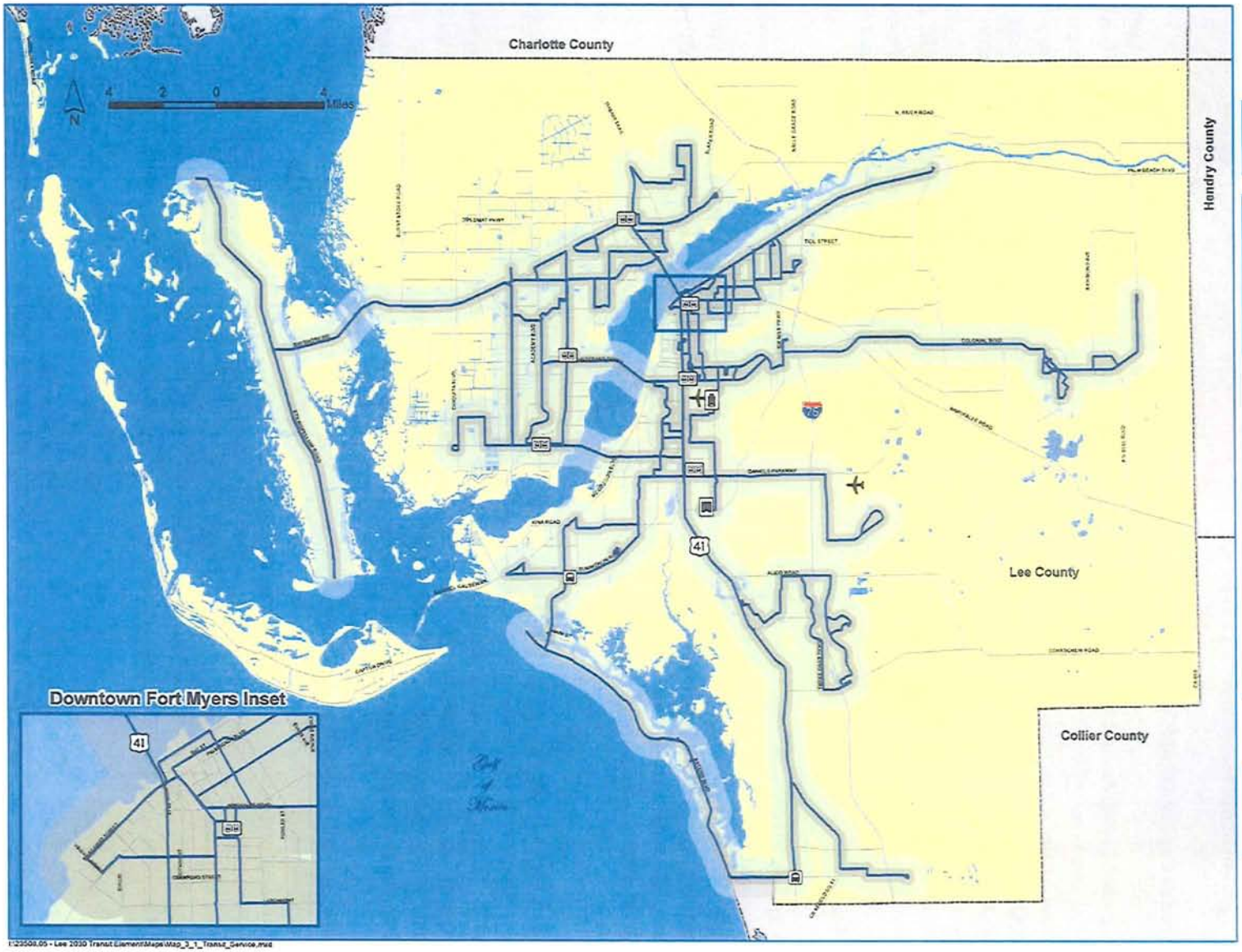
Table 10-4
2030 Financially Feasible Transit Plan - (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# Current Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
400[2]	Maintain Existing	Ft. Myers Beach Trolley - service on Estero Boulevard in Ft. Myers Beach from Bowditch Park to Grandview	2005	15	15	50.16	50.18	49.33	15.08	Mon-Sun	17,965	5	0	$1,145,634
450	Maintain Existing	Bonita Springs Trolley - operates from Grandview to the K-Mart Plaza along Estero Boulevard	2005	60	60	13.92	13.92	13.92	16.88	Mon-Sun	1,824	1	0	$116,284
490	Maintain Existing	Park-and-Ride operates between Summerlin Square and Bowditch Park	2005	30	30	23.49	23.49	23.49	8.69	Mon-Sun	3,077	1	0	$196,230
N/A	Maintain Existing	Paratransit/ADA Services	2005	N/A	N/A	N/A	N/A	N/A	N/A	Mon-Sat	N/A	N/A	N/A	$3,154,211
N/A	Maintain Existing	TD Services[3]	2005	N/A	N/A	N/A	N/A	N/A	N/A	Mon-Fri	N/A	N/A	N/A	$4,272,398
Buses												N/A	N/A	
Spare Buses												N/A	N/A	
TOTAL BUSES												N/A	N/A	
Vans												N/A	N/A	
Spare Vans												N/A	N/A	
TOTAL VANS												N/A	N/A	
TOTAL			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$20,331,940

(1) The annual operating cost reflects a "net" cost due to the inclusion of an offset from anticipated farebox revenues for all service improvements. The anticipated farebox revennes are 6.55 percent of the total operating cost for each improvement (based on a service elasticity of 0.61 multipled by the FY 2004 farebox recovery ratio of 10.73 percent).

(2) The Fort Myers Beach route operates in-season headways of 15 minutes; however, in the off-season the headways are 65 minutes.

(3) TD service is assumed to be fully-funded by local and federal revenue sources.



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Lee County Transit System

- Existing Routes
- 1/4-Mile Service Area
- 3/4-Mile Service Area
- Major Transfer Center
- Park-and-Ride Lot
- Lee Tran Administration Facility
- Lee Tran ADA Administration Facility
- Airport

MPO

Tindale-Oliver & Associates, Inc.
Planning and Engineering

2030 Long Range Transportation Plan

Map 10-1 2030 Financially Feasible Plan

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- Maintain existing fixed-route service.
- Maintain existing paratransit service assuming a growth of five percent from 2011 to 2030.

Transit Capital Acquisition Plan

A Transit Capital Acquisition Plan (TCAP) was developed as part of the 2030 Financially Feasible Plan. Similar to the Needs Plan, capital needs were determined based on service requirements and information received through discussions with LeeTran staff. Key assumptions for the TCAP are summarized in Table 10-5, while major capital categories are summarized below.

Vehicles

A Vehicle Replacement Plan, which included an updated vehicle inventory, was provided by LeeTran staff. This inventory provided a starting point for updating the vehicle replacement and expansion plan. The vehicle replacement and expansion plan includes buses, paratransit vans, and support vehicles.

Based on the Needs Plan, 84 buses will be acquired to replace vehicles in the existing fixed-route fleet by 2030. The vehicle replacement plan assumes a life cycle of 12 years and a unit cost of $250,000 (in 2005 dollars) for regular buses and a unit cost of $225,000 (in 2005 dollars) for trolleys.

There also will be expansion related to the provision of paratransit services through 2030 . As discussed previously and as shown in the vehicle replacement and expansion schedule, existing vehicles will be replaced based on the assumed life cycle of five years for vans, and new vans will be purchased as needed to support new fixed-route services. A vehicle replacement and expansion schedule is provided in Table 10-6.

Shelters/Benches

Based on the planned transit improvements, LeeTran will purchase shelters and benches annually from 2011 through 2030. A standard of 4 benches per mile and 0.1 shelters per mile was assumed to estimate the passenger amenities needed for new fixed-route services included in the Financially Feasible Plan. The unit costs for the acquisition and installation of shelters and benches are $15,000 and $1,000, respectively. In addition, for replacement purposes, a useful life of 20 years was assumed for shelters.

Overview of Capital Acquisition Plan

Table 10-7 summarizes the capital facilities and amenities acquisition plan for the 2030 Transit Financially Feasible Plan.

Cost Projections

Table 10-8 presents the transit cost projections for the 2030 Financially Feasible Transit Plan. A number of assumptions were made to support the forecasting of public transportation costs for the time period from 2011 through 2030 in the LRTE. Similar to the Needs Plan, the assumptions made for operating and capital costs for fixed-route and paratransit services are based on those utilized in the TDP and on discussions with LeeTran staff.

Summary of Costs and Revenues

Table 10-9 presents a summary of transit costs and revenues for the 2030 Financially Feasible Transit

Table 10-5
Assumptions for Transit Capital Acquistion Plan (in 2005 dollars)

Type	Life Span (years)	Unit Cost	Source
Bus[1]	12	$250,000	Lee Transit Consensus Building Study
Fully Equipped Bus[1]	12	$307,000	Lee Tran Staff
Trolley	12	$225,000	Lee Tran Staff
Bus Rapid Transit	12	$350,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
Paratransit Van	5	$55,000	2003 Lee TDP Major Update
Commuter Van	5	$25,000	2003 Lee TDP Major Update
Support Vehicles	5	$20,000	2003 Lee TDP Major Update
Waterborne Vessel	20	$1,250,000	Arthur Anderson and Associates
BRT Queue Jump Lane Cost Per Mile (East-West Corridor)	N/A	$580,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT Transit Signal Priority Cost Per Mile (East-West Corridor)	N/A	$10,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT Enhanced Station Cost Per Mile (East-West Corridor)	N/A	$35,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT ROW Acquisition Cost Per Mile (North-South Corridor)	N/A	$3,234,000	Lee County ROW Value Areas Map
BRT Running Ways Const. Cost Per Mile (North-South Corridor)	N/A	$6,500,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
BRT Designated Station Cost Per Mile (North-South Corridor)	N/A	$150,000	Characteristics of Bus Rapid Transit for Decision-Making, FTA 2004
New Administrative Facility (Land Acquisition)	50	$8,454,320	Lee Tran Transit Facility Study
New Administrative Facility (Phase I Construction)	50	$9,000,000	Lee Tran Transit Facility Study
New Administrative Facility (Phase II Construction)	50	$11,217,643	Lee Tran Transit Facility Study
Park-and-Ride Lots (excluding ROW acquistion)	20	$150,000	Lee Tran Staff
Automatic Passenger Counter	N/A	$12,000	Lee Tran Staff
Indoor Kiosk	N/A	$20,000	Lee Tran Staff
Outdoor Kiosk	N/A	$25,000	Lee Tran Staff
On-Board Camera	N/A	$8,000	Lee Tran Staff
Annunciators	N/A	$6,000	Lee Tran Staff
AVL Unit	N/A	$7,200	Lee Tran Staff
Nextbus Equipment	N/A	$2,750	Lee Tran Staff
Nextbus Display	N/A	$6,375	Lee Tran Staff
Shelter Acquisition and Installation	20	$15,000	Lee Tran Staff
AVL Equipment (Bus Arrival and Display Product)	N/A	$57,545	2005 Lee Tran TDP Minor Update
Bench Acquisition and Pad Installation	N/A	$1,000	Lee Tran Staff
Benches (per mile)	N/A	4.0	Lee Tran Staff
Shelters (per mile)	N/A	0.1	Lee Tran Staff

(1) Fully equipped buses are vehicles acquired after 2015 that will be equipped with on-board cameras, annunciators, radios, head signs, fareboxes, interior passenger information displays, and AVL technology. "Bus" refers to the standard designation for the Gillig and New Flyer Low Floor vehicles that will be purchased prior to 2015 without these additional features.

Table 10-6

Financially Feasible Plan Vehicle Replacement and Expansion Schedule (in 2005 dollars)

Year	Buses		Paratransit Vans		Support Vehicles		Vehicle Costs
	Replace	New	Replace	New	Replace	New	
2011	4	0	2	2	15	1	$1,545,000
2012	4	0	4	2	1	1	$1,375,000
2013	10	0	15	1	4	1	$3,485,000
2014	7	0	9	3	3	2	$2,520,000
2015	0	0	18	1	6	1	$1,190,000
2016	0	0	4	2	15	1	$655,000
2017	0	0	4	1	1	0	$295,000
2018	1	0	15	3	4	2	$1,427,000
2019	7	0	9	1	3	1	$2,784,000
2020	0	0	25	2	12	1	$1,750,000
2021	24	0	4	2	15	1	$8,023,000
2022	0	0	4	3	1	2	$455,000
2023	4	0	15	1	4	0	$2,188,000
2024	4	0	9	0	3	0	$1,783,000
2025	10	0	34	0	17	0	$5,280,000
2026	8	0	2	0	15	0	$2,866,000
2027	0	0	4	0	4	0	$300,000
2028	0	0	21	0	4	0	$1,235,000
2029	0	0	9	0	3	0	$555,000
2030	1	0	34	2	17	1	$2,652,000
Totals	**84**	**0**	**241**	**26**	**147**	**15**	**$42,363,000**

Table 10-7
Capital Facilities and Amenities Acquisition Plan and Costs

Year	Benches		Shelters		On-Board Cameras		Annunciators		Next Bus Equipment		Next Bus Display		Indoor Kiosks		Outdoor Kiosks		Advanced Technologies				New Facilities		Total Cost	Total Cost (in 2005 dollars)
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost	AVL Units	AVL Cost	APC Units	APC Cost	New Facilities	New Facility Cost		
2011	20	$24,301	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$24,301	$20,000
2012	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$15,062	0	$0	$15,062	$12,000
2013	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$0	$0
2014	44	$58,933	1	$20,091	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$79,023	$59,000
2015	0	$0	8	$166,029	0	$0	57	$473,183	0	$0	0	$0	1	$27,672	4	$138,358	57	$567,820	0	$0	0	$0	$1,373,061	$992,400
2016	0	$0	8	$171,508	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$171,508	$120,000
2017	0	$0	8	$177,168	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$17,717	0	$0	$194,885	$132,000
2018	0	$0	8	$183,014	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$183,014	$120,000
2019	0	$0	8	$189,054	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$189,054	$120,000
2020	0	$0	7	$170,881	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$170,881	$105,000
2021	0	$0	7	$176,520	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$176,520	$105,000
2022	0	$0	7	$182,345	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	2	$41,679	0	$0	$224,024	$129,000
2023	0	$0	7	$188,363	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$188,363	$105,000
2024	0	$0	7	$194,579	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$194,579	$105,000
2025	0	$0	7	$201,000	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$201,000	$105,000
2026	0	$0	7	$207,633	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$207,633	$105,000
2027	0	$0	7	$214,485	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	2	$49,025	0	$0	$263,510	$129,000
2028	0	$0	7	$221,563	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$221,563	$105,000
2029	0	$0	7	$228,874	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$228,874	$105,000
2030	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	$0	$0
Totals	64	$83,234	111	$2,893,107	0	$0	57	$473,183	0	$0	0	$0	1	$27,672	4	$138,358	57	$567,820	6	$123,483	0	$0	$4,306,856	$2,673,400

Table 10-8
Transit Cost Projections, Lee County MPO 2030 Long Range Transit Element (in 2005 dollars)

Year	Operating Costs				Total Operating Costs	Capital Costs									Total Capital Costs
	Fixed-Route	Paratransit/ADA	Community Service Events	Marketing and Communications		Buses		Paratransit Vehicles		Support Vehicles		Other Capital	Fixed-Route Capital Cost	Paratransit/ ADA Capital Cost	
						New	Replacement	New	Replacement	New	Replacement				
2011	$12,905,331	$4,767,267	$24,000	$100,000	$17,796,598	$0	$1,000,000	$108,097	$108,097	$24,568	$294,810	$339,378	$1,000,000	$216,194	$1,555,572
2012	$12,905,331	$4,845,722	$24,000	$100,000	$17,875,053	$0	$1,000,000	$107,783	$215,566	$24,496	$19,597	$56,093	$1,000,000	$323,349	$1,379,442
2013	$12,905,331	$4,925,467	$24,000	$100,000	$17,954,798	$0	$2,500,000	$53,735	$806,026	$24,425	$78,160	$102,585	$2,500,000	$859,761	$3,462,346
2014	$12,905,331	$5,006,525	$24,000	$100,000	$18,035,856	$0	$1,750,000	$160,737	$482,211	$48,708	$58,450	$166,158	$1,750,000	$642,948	$2,559,106
2015	$12,905,331	$5,088,917	$24,000	$100,000	$18,118,248	$0	$0	$53,423	$961,622	$24,283	$116,560	$1,133,244	$0	$1,015,045	$2,148,289
2016	$12,905,331	$5,172,665	$24,000	$100,000	$18,201,996	$0	$0	$106,537	$213,073	$24,213	$290,554	$434,767	$0	$319,610	$754,377
2017	$12,905,331	$5,257,791	$24,000	$100,000	$18,287,122	$0	$0	$53,114	$212,454	$0	$19,314	$151,314	$0	$265,568	$416,882
2018	$12,905,331	$5,344,318	$24,000	$100,000	$18,373,649	$0	$307,000	$158,878	$794,390	$48,145	$77,032	$245,177	$307,000	$953,268	$1,505,445
2019	$12,905,331	$5,432,269	$24,000	$100,000	$18,461,600	$0	$2,149,000	$52,806	$475,250	$24,003	$57,606	$201,609	$2,149,000	$528,056	$2,878,665
2020	$12,905,331	$5,521,668	$24,000	$100,000	$18,550,999	$0	$0	$105,304	$1,316,304	$23,933	$229,755	$358,688	$0	$1,421,608	$1,780,296
2021	$12,905,331	$5,612,537	$24,000	$100,000	$18,641,868	$0	$7,368,000	$104,999	$209,997	$23,863	$286,360	$415,223	$7,368,000	$314,996	$8,098,219
2022	$12,905,331	$5,704,902	$24,000	$100,000	$18,734,233	$0	$0	$157,040	$209,387	$47,588	$19,035	$195,623	$0	$366,427	$562,050
2023	$12,905,331	$5,798,788	$24,000	$100,000	$18,828,119	$0	$1,228,000	$52,195	$782,921	$0	$75,920	$180,920	$1,228,000	$835,116	$2,244,036
2024	$12,905,331	$5,894,218	$24,000	$100,000	$18,923,549	$0	$1,228,000	$0	$468,389	$0	$56,774	$161,774	$1,228,000	$468,389	$1,858,163
2025	$12,905,331	$5,991,219	$24,000	$100,000	$19,020,550	$0	$3,070,000	$0	$1,764,329	$0	$320,787	$425,787	$3,070,000	$1,764,329	$5,260,116
2026	$12,905,331	$6,089,816	$24,000	$100,000	$19,119,147	$0	$2,456,000	$0	$103,483	$0	$282,225	$387,225	$2,456,000	$103,483	$2,946,708
2027	$12,905,331	$6,190,035	$24,000	$100,000	$19,219,366	$0	$0	$0	$206,364	$0	$75,042	$204,042	$0	$206,364	$410,406
2028	$12,905,331	$6,291,904	$24,000	$100,000	$19,321,235	$0	$0	$0	$1,080,266	$0	$74,824	$179,824	$0	$1,080,266	$1,260,090
2029	$12,905,331	$6,395,449	$24,000	$100,000	$19,424,780	$0	$0	$0	$461,627	$0	$55,955	$160,955	$0	$461,627	$622,582
2030	$12,905,331	$6,500,699	$24,000	$100,000	$19,530,030	$0	$307,000	$102,286	$1,738,858	$23,247	$316,156	$339,403	$307,000	$1,841,144	$2,487,547
Total	**$258,106,620**	**$111,832,176**	**$480,000**	**$2,000,000**	**$372,418,796**	**$0**	**$24,363,000**	**$1,376,934**	**$12,610,614**	**$361,471**	**$2,804,916**	**$5,839,789**	**$24,363,000**	**$13,987,548**	**$44,190,337**

Table 10-9

Summary of Costs and Revenues, 2030 Lee County Financially Feasible Transit Plan

(in 2005 dollars)

Category	2011-2015	2016-2020	2021-2025	2026-2030	Total (2011-2030)
Operating Costs					
Fixed-Route	$64,526,655	$64,526,655	$64,526,655	$64,526,655	$258,106,620
Paratransit Services (ADA)	$24,633,898	$26,728,711	$29,001,664	$31,467,903	$111,832,176
Commuter Assistance Program	$0	$0	$0	$0	$0
Marketing and Communications	$500,000	$500,000	$500,000	$500,000	$2,000,000
Community Service Events	$120,000	$120,000	$120,000	$120,000	$480,000
Total Operating Costs	**$89,780,553**	**$91,875,366**	**$94,148,319**	**$96,614,558**	**$372,418,796**
Operating Revenues					
Fixed-Route/Paratransit Federal	$5,310,000	$5,940,000	$6,570,000	$7,280,000	$25,100,000
Fixed-Route State	$13,995,000	$14,820,000	$14,845,000	$14,870,000	$58,530,000
Fixed-Route/Paratransit Local	$53,430,000	$54,663,000	$56,046,000	$57,594,000	$221,733,000
Fixed-Route Farebox	$11,185,000	$14,447,000	$18,658,000	$24,099,000	$68,389,000
Total Operating Revenues	**$83,920,000**	**$89,870,000**	**$96,119,000**	**$103,843,000**	**$373,752,000**
Balance	**($5,860,553)**	**($2,005,366)**	**$1,970,681**	**$7,228,442**	**$1,333,204**
Capital Costs					
Fixed-Route Capital	$6,250,000	$2,456,000	$12,894,000	$2,763,000	$24,363,000
Paratransit Services (ADA) Capital	$3,057,297	$3,488,110	$3,749,257	$3,692,884	$13,987,548
Commuter Assistance Program Capital	$0	$0	$0	$0	$0
Other Capital (Facilities, Support Vehicles, and Infrastructure)	$1,797,458	$1,391,555	$1,379,327	$1,271,449	$5,839,789
Total Capital Costs	**$11,104,755**	**$7,335,665**	**$18,022,584**	**$7,727,333**	**$44,190,337**
Capital Revenues					
Fixed-Route Federal	$24,800,000	$25,800,000	$30,300,000	$35,520,000	$116,420,000
County General	$1,110,000	$1,110,000	$1,110,000	$1,110,000	$4,440,000
Total Capital Revenue	**$25,910,000**	**$26,910,000**	**$31,410,000**	**$36,630,000**	**$120,860,000**
Balance	**$14,805,245**	**$19,574,335**	**$13,387,416**	**$28,902,667**	**$76,669,663**
Total Costs and Revenues					
Total Capital and Operating Costs	**$100,885,308**	**$99,211,031**	**$112,170,903**	**$104,341,891**	**$416,609,133**
Total Capital and Operating Revenues	**$109,830,000**	**$116,780,000**	**$127,529,000**	**$140,473,000**	**$494,612,000**
Balance	**$8,944,692**	**$17,568,969**	**$15,358,097**	**$36,131,109**	**$78,002,867**

Plan. The summary table reflects the costs broken down by four distinct time periods: 2011 to 2015, 2016 to 2020, 2021 to 2025, and 2026 to 2030. All costs are reported in 2005 dollars. As shown in the table, the 2030 Financially Feasible Transit Plan totals nearly $417 million in operating and capital costs with $495 million available in revenues. There is an overall operating surplus of $1.3 million and a capital surplus of $76.7 million. This capital surplus reflects projected revenues that cannot be allocated to future projects included in the Needs Plan due to the shortfall in operating revenues.

Unmet Transit Needs

Based on the availability of revenues, the list of projects remaining after all revenues have been programmed for the 2030 Financially Feasible Plan represents the unmet transit needs for Lee County. Given revenue constraints through the 2030 planning horizon, the ranking of projects was used to prioritize transit needs. The highest priority needs were funded and the remaining transit needs formed the list of unmet transit needs. The unmet transit needs can be classified as new local service, new express service, BRT, waterborne transit, and expanding frequency of service on existing bus routes. These projects are discussed in greater detail in the subsequent sections of this chapter.

The 2030 Unmet Transit Needs Plan is summarized in Table 10-10 and illustrated in Map 10-2. The availability of capital revenues remaining after the existing fixed-route and ADA services are funded warrants the need to identify additional operating revenues. Potential funding sources (federal, state and local) and any match requirements associated with these funds are discussed later in this chapter. In addition, an investigation into the application of additional ad valorem tax revenues to fund these improvements is discussed in this chapter, as well.

Expand Frequency of Service on Bus Routes

- Routes 15, 40, 60, 80, 90, 110, and 130 would see phased frequency improvements to 30 minutes.
- Routes 70, 100, and 120 would see phased frequency improvements to 25 minutes.
- Route 140 will see phased improvements to 10 minutes.
- Routes 10, 20, 30, 50, and 150 would see phased frequency improvements to 20 minutes.
- During peak season (December to April), Route 400 would operate more frequent service at 10-minute headways.
- Route 160 would operate Monday through Friday with 60-minute headways.

New Local Service

Several new bus routes are proposed in the 2030 Needs Plan. The following new local bus service was identified to meet the market assessments and demand projections utilized in the development of the Plan.

A total of six new local bus routes were identified for the 2030 Needs Plan.

- By 2010, two new routes would be implemented that would provide service in Lehigh Acres and the City of Sanibel. The Sanibel Circulator would provide service to major locations on the island for both residents and visitors.
- Beyond 2010, new local service would include two bus routes in Cape Coral, one each along Skyline and Chiquita Boulevards to help support

Table 10-10
2030 Unmet Transit Needs - (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# of Peak Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
10A	Expand/ Improve	Add frequency (60 minutes, adjust to 40 minutes)	2008	40	40	15.50	15.50	0.00	23.42	Mon-Sat	4,759	3	1	$283,585
10B	Expand/ Improve	Add frequency (40 minutes, adjust to 30 minutes)	2016	30	30	15.06	15.06	0.00	23.42	Mon-Sat	4,623	4	1	$275,534
10C	Expand/ Improve	Add frequency (30 minutes, adjust to 20 minutes)	2020	20	20	15.06	15.06	0.00	23.42	Mon-Sat	4,623	5	1	$275,534
15B	Expand/ Improve	Add frequency (40 minutes, adjust to 30 minutes)	2017	30	30	15.31	15.31	0.00	20.57	Mon-Sat	4,700	3	1	$280,108
20A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 30 minutes, adjust to 20 minutes)	2007	20	20	15.50	15.50	0.00	13.93	Mon-Sat	4,759	3	1	$283,585
30A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 50 minutes, adjust to 30 minutes)	2009	30	30	15.00	15.00	0.00	27.38	Mon-Sat	4,605	3	1	$274,436
30B	Expand/ Improve	Add frequency (30 minutes, adjust to 25 minutes)	2020	25	25	15.11	15.11	0.00	27.38	Mon-Sat	4,639	4	1	$276,449
30C	Expand/ Improve	Add frequency (25 minutes, adjust to 20 minutes)	2023	20	20	15.11	15.11	0.00	27.38	Mon-Sat	4,639	5	1	$276,449
40A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 120 minutes, adjust to 60 minutes)	2007	60	60	16.75	16.75	0.00	28.47	Mon-Sat	5,142	2	1	$306,454
40B	Expand/ Improve	Add frequency on weekdays and Saturdays (60 minutes, adjust to 40 minutes)	2013	40	40	15.00	15.00	0.00	28.47	Mon-Sat	4,605	3	1	$274,436
40C	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2017	30	30	15.61	15.61	0.00	28.47	Mon-Sat	4,792	4	1	$285,597
50A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 30 minutes)	2011	30	30	15.00	15.00	0.00	38.93	Mon-Sat	4,605	4	1	$274,436
50B	Expand/ Improve	Add frequency on weekdays and Saturdays (30 minutes, adjust to 20 minutes)	2019	20	20	15.42	15.42	0.00	38.93	Mon-Sat	4,734	5	1	$282,121
60A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 80 minutes, adjust to 40 minutes)	2008	40	40	16.42	16.42	0.00	22.18	Mon-Sat	5,041	2	1	$300,417
60B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2016	30	30	15.85	15.85	0.00	22.18	Mon-Sat	4,866	3	1	$289,988
70A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 40 minutes)	2006	40	40	15.50	15.50	0.00	29.89	Mon-Sat	4,759	3	1	$283,585
70B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2011	30	30	14.00	14.00	0.00	29.89	Mon-Sat	4,298	4	1	$256,141

Table 10-10
2030 Unmet Transit Needs - (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# of Peak Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
70C	Expand/ Improve	Add frequency on weekdays and Saturdays (30 minutes, adjust to 25 minutes)	2019	25	25	15.37	15.37	0.00	29.89	Mon-Sat	4,719	5	1	$281,206
80A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 120 minutes, adjust to 60 minutes)	2013	60	60	15.00	15.00	0.00	26.72	Mon-Sat	4,605	2	1	$274,436
80B	Expand/ Improve	Add frequency on weekdays and Saturdays (60 minutes, adjust to 40 minutes)	2014	40	40	14.29	14.29	0.00	26.72	Mon-Sat	4,387	3	1	$261,446
80C	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2023	30	30	14.29	14.29	0.00	26.72	Mon-Sat	4,387	4	1	$261,446
90A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 40 minutes)	2012	40	40	15.00	15.00	0.00	26.55	Mon-Sat	4,605	3	1	$274,436
90B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2016	30	30	15.48	15.48	0.00	26.55	Mon-Sat	4,752	4	1	$283,218
100A	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2021	25	25	13.93	13.93	13.93	24.55	Mon-Sun	5,001	6	1	$298,029
110A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 75 minutes, adjust to 50 minutes)	2010	50	50	15.00	15.00	0.00	52.57	Mon-Sat	4,605	3	1	$274,436
110B	Expand/ Improve	Add frequency on weekdays and Saturdays (50 minutes, adjust to 40 minutes)	2014	40	40	15.33	15.33	0.00	52.57	Mon-Sat	4,706	4	1	$280,474
110C	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 30 minutes)	2018	30	30	15.33	15.33	0.00	52.57	Mon-Sat	4,706	5	1	$280,474
120A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 40 minutes, adjust to 30 minutes)	2012	30	30	15.00	15.00	0.00	22.58	Mon-Sat	4,605	3	1	$274,436
120B	Expand/ Improve	Add frequency on weekdays and Saturdays (30 minutes, adjust to 25 minutes)	2021	25	25	15.50	15.50	0.00	22.58	Mon-Sat	4,759	4	1	$283,585
130A	Expand/ Improve	Add frequency on weekdays (currently 60 minutes, adjust to 40 minutes) and Saturdays (currently 120 minutes, adjust to 60 minutes)	2008	40/60	40/60	15.75	15.75	0.00	29.75	Mon-Sat	4,835	3	1	$288,158
130B	Expand/ Improve	Add frequency on weekdays (40 minutes, adjust to 30 minutes) and Saturdays (currently 60 minutes, adjust to 40 minutes)	2012	30/40	30/40	15.00	15.00	0.00	29.75	Mon-Sat	4,605	4	1	$274,436
130C	Expand/ Improve	Add frequency on weekdays and Saturdays (60/40 minutes, adjust to 30/20 minutes)	2020	30/20	30/20	14.81	14.81	0.00	29.75	Mon-Sat	4,547	5	1	$270,961
140A	Expand/ Improve	Route extension from the current southern terminus of San Carlos Plaza to the new mall opening near Bonita Springs	2006	20	20	33.00	33.00	0.00	35.88	Mon-Sat	10,131	10	2	$603,760
140B	Expand/ Improve	Add frequency on weekdays and Saturdays (20 minutes, adjust to 15 minutes)	2015	15	15	32.63	32.63	0.00	35.88	Mon-Sat	10,017	12	2	$596,990

Table 10-10
2030 Unmet Transit Needs - (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# of Peak Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [2]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
140C	Expand/ Improve	Add frequency on weekdays and Saturdays (15 minutes, adjust to 10 minutes)	2022	10	10	32.63	32.63	0.00	35.88	Mon-Sat	10,017	14	2	$596,990
150A	Expand/ Improve	Add frequency on weekdays and Saturdays (currently 60 minutes, adjust to 40 minutes)	2010	40	40	15.00	15.00	0.00	33.37	Mon-Sat	4,605	2	1	$274,436
150B	Expand/ Improve	Add frequency on weekdays and Saturdays (40 minutes, adjust to 20 minutes)	2021	20	20	14.50	14.50	0.00	33.37	Mon-Sat	4,452	3	1	$265,289
160A	Expand/ Improve	Add revenue hours and frequency to operate Monday to Friday with all day service at approximately 120 minutes	2013	N/A	N/A	15.00	0.00	0.00	62.66	Mon-Fri	3,825	1	0	$227,952
160B	Expand/ Improve	Add revenue hours and frequency to operate Monday to Friday with all day service at approximately 60 minutes	2018	60	60	16.00	16.00	0.00	62.66	Mon-Fri	4,912	2	1	$292,732
400A[3]	Expand/ Improve	Add frequency during peak season on weekdays, Saturdays, and Sundays	2007	12	12	14.00	14.00	14.00	15.08	Mon-Sun	1,834	6	1	$109,298
400B	Expand/ Improve	Add frequency on weekdays and weekends (12 minutes, adjust to 10 minutes)	2014	10	10	12.61	12.61	0.00	15.08	Mon-Sat	3,871	7	1	$230,710
N/A	New Local	Lehigh Circulator- weekdays connecting residential neighborhoods to activity centers in Lehigh Acres	2009	60	60	15.00	0.00	0.00	28.58	Mon-Fri	3,825	0	1	$227,952
N/A	New Local	Sanibel Circulator-service on the island connecting residents and visitors to the regional system	2009	60	60	15.00	15.00	0.00	11.42	Mon-Sat	4,605	0	1	$274,436
N/A	New Local	Cape Coral Circulator- connecting residential neighborhoods to shopping/employment centers in Cape Coral	2010	60	60	15.00	15.00	15.00	20.48	Mon-Sun	5,385	0	1	$320,921
N/A	New Local	Downtown Ft. Myers- service connecting major employment and activity centers in Downtown	2011	N/A	N/A	14.00	0.00	0.00	4.94	Mon-Fri	3,570	0	1	$212,755
N/A	New Local	Skyline Road Circulator	2010	60	60	15.00	15.00	0.00	11.14	Mon-Sat	4,605	0	1	$274,436
N/A	New Express	Charlotte Connector	2030	60	60	1.52	0.00	0.00	30.16	Mon-Fri	386	0	2	$23,027
N/A	New Express	Collier Connector	2026	60	60	4.56	0.00	0.00	40.70	Mon-Fri	1,163	0	1	$69,321
N/A	New Local	Sanibel Connector	2014	60	60	15.00	15.00	0.00	10.88	Mon-Sat	4,605	0	1	$274,436
N/A	New Express	Burnt Store Express	2018	60	60	9.14	0.00	0.00	40.78	Mon-Fri	2,331	0	2	$138,915
N/A	New Express	I-75/Collier Express	2022	60	60	6.60	0.00	0.00	82.46	Mon-Fri	1,682	0	2	$100,251

Table 10-10
2030 Unmet Transit Needs - (in 2005 dollars)

Route No.	Transit Alternative	Description/Service Area	Year of Implementation	Headway (minutes)		Revenue Hours			Directional Route Miles	Days of Service	Annual Hours	# of Peak Vehicles Needed	# of Future Vehicles Needed	Net Annual Operating Cost [1]
				Peak	Off-Peak	Weekday	Saturday	Sunday						
N/A	New Express	La Belle Express	2029	60	60	6.80	0.00	0.00	60.63	Mon-Fri	1,733	0	1	$103,267
N/A	New Express	Immokalee Express	2030	60	60	6.02	0.00	0.00	53.72	Mon-Fri	1,535	0	1	$91,497
N/A	New BRT	North-South Corridor (US 41 or SGLR)	2027	10	10	15.00	15.00	0.00	39.34	Mon-Sat	27,630	0	6	$1,646,619
N/A	New BRT	East-West Corridor (MLK Blvd/Lee Blvd/Colonial Blvd/Veterans Parkway)	2028	10	10	15.00	15.00	0.00	39.14	Mon-Sat	27,630	0	6	$1,646,619
N/A	New Waterborne	Sanibel Island to Ft. Myers Beach[4]	2012	N/A	N/A	14.00	14.00	14.00	N/A	Mon-Sun	10,976	0	2	$1,907,080
N/A	New Waterborne	Lovers Key State Park to Coconut	2015	N/A	N/A	14.00	14.00	14.00	N/A	Mon-Sun	10,976	0	2	$552,931
N/A	New Exclusive Bus Lane	Estero Boulevard - Town of Ft. Myers Beach[5]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	TBD
Buses												N/A	N/A	
Spare Buses												N/A	N/A	
TOTAL BUSES												N/A	N/A	
Vans												N/A	N/A	
Spare Vans												N/A	N/A	
TOTAL VANS												N/A	N/A	
TOTAL			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$19,741,209

(1) The annual operating cost reflects a "net" cost due to the inclusion of an offset from anticipated farebox revenues for all service improvements. The anticipated farebox revenues are 6.55 percent of the total operating cost for each improvement (based on service elasticity of 0.61 multiplied by the FY 2004 farebox recovery ratio of 10.73 percent).

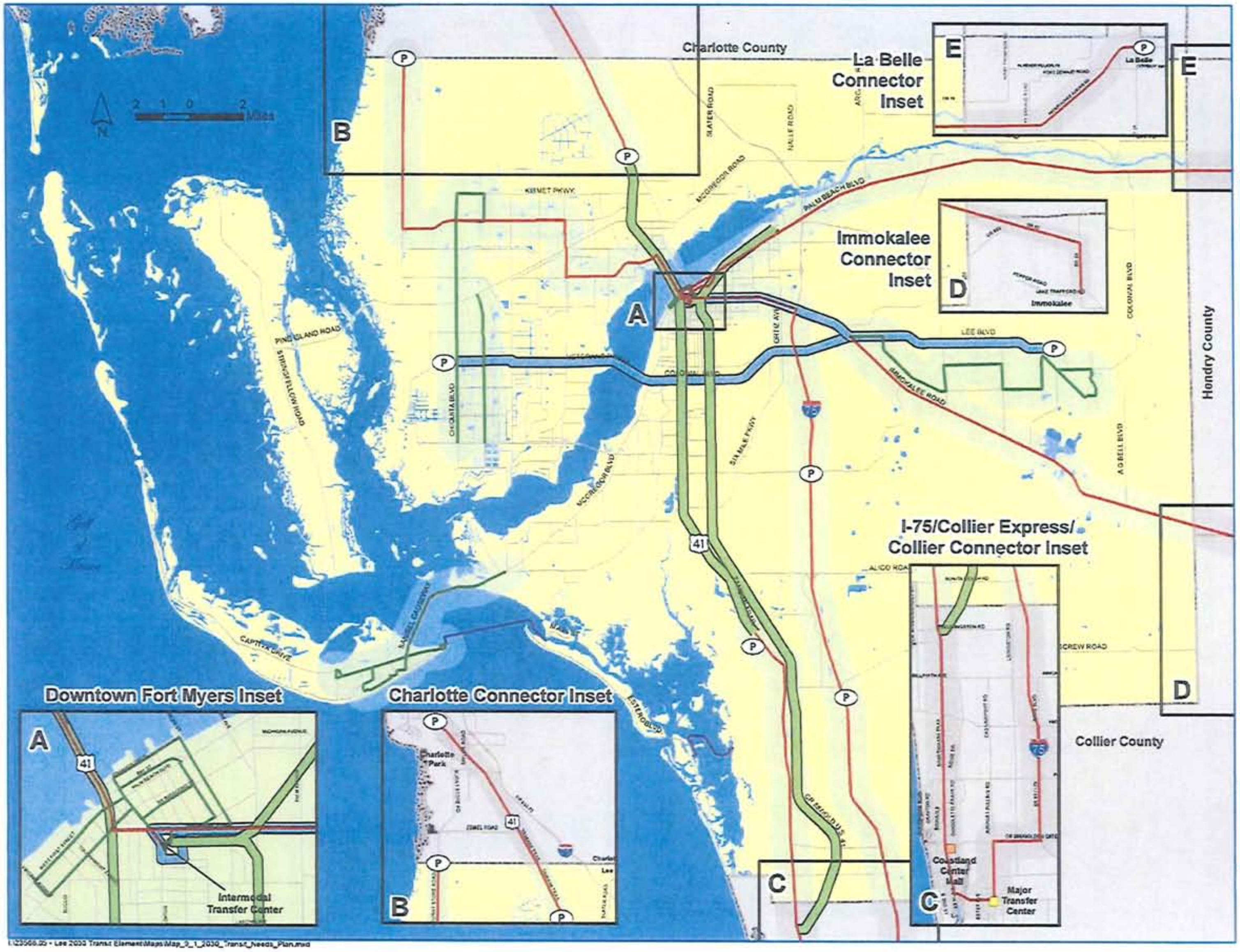
(2) The Fort Myers Beach route operates in-season headways of 15 minutes; however, in the off-season the headways are 65 minutes.

(3) The projected headway improvement is to 12 minutes subject to LeeTran's discussions with Fort Myers Beach officials.

(4) Ferry service will operate two vessels during peak season for four months with one vessel operating 14 hours per day and the other 7 hours per day. During off-peak season for eight months one vessel will operate 14 hours per day. The annual operatin

(5) Estero Boulevard Transit Lane Feasibility Study currently underway; upon completion of the study, the cost estimates, operating concepts, and preferred alternatives will be available.

Amended June 15, 2007



lee tran

Lee County Transit System

- Future Local Route
- Future Express Route
- Future E/W BRT Corridor
- Future N/S BRT Corridor
- Waterborne Transit Route
- 3/4-Mile Service Area
- (P) Potential Park-and-Ride Location

MPO

Tindale-Oliver & Associates, Inc.
Planning and Engineering

2030 Long Range Transportation Plan

Map 10-2
2030 Unmet Transit Needs

Created: 06.12.05 Edited: 06.12.05 By: RRP

a planned new regional mall and provide more service within the City, a circulator within the Downtown Fort Myers area, and a connector route to Sanibel Island serving as a feeder route for the Sanibel Circulator.

New Express Service

In addition to increasing service frequencies on existing routes and implementing new local service, new express service is included in the Needs Plan. A phased approach to implementing new express services is recommended, as noted below.

- In 2018, express bus services would be provided along Burnt Store Road connecting Downtown Fort Myers to Charlotte County.
- In 2022, planned express service includes a connection with Collier County via either the I-75 or SGLR corridors into Downtown Fort Myers.
- In 2026, an additional express route would connect the Coastland Center Mall in Collier County with San Carlos Boulevard in southern Lee County via either the US 41 or SGLR corridors.
- In 2029, express bus services would be provided along Palm Beach Boulevard between Downtown Fort Myers and La Belle in Hendry County.
- In 2030, the Charlotte Connector would connect northern Lee County with Charlotte Park in Charlotte County via US 41 and express service also would be provided along Immokalee Road from Lee Road to Immokalee in Collier County.
- In addition, inter-county express service to Southwest Florida International Airport, Florida Gulf Coast University, and Ave Maria University should be explored in the future.

Waterborne Transit

The waterborne transit feasibility assessment presented in Chapter 7 of this report concludes that there are several opportunities for waterborne public transportation in Lee County. However, two opportunities were considered to be the most feasible by 2030. These routes include a passenger-only ferry connecting Fort Myers Beach and the City of Sanibel and a route connecting Coconut to Lovers Key State Park.

In addition to these two potential services, one other candidate waterborne route was identified in the needs assessment, the Downtown Connector Ferry. This route would connect Downtown Cape Coral with Downtown Fort Myers based on redevelopment plans that are expected create demand for such services. The feasibility of this waterborne route should be reassessed in the next edition of this plan update. The potential future viability of this waterborne transportation alternative will be a function of the success of community redevelopment plans in the cities of Cape Coral and Fort Myers.

Bus Rapid Transit

The Bus Rapid Transit feasibility assessment identified two corridors for specific BRT applications. A North-South BRT Corridor (US 41/ SGLR) and an East-West BRT Corridor (MLK Blvd/ Lee Blvd/Colonial Blvd/Veterans Parkway) were identified in the 2030 Needs Plan, with phased BRT elements within the 2030 planning horizon. As discussed previously in Chapter 9, it is recommended that phased BRT-related elements (increased frequencies, queue jumps, and transit signal priority) along each corridor be implemented initially to prepare the existing system for eventual full-scale BRT operations.

POTENTIAL FUNDING SOURCES

Lee County utilizes several conventional funding sources to meet the transit needs of the area. Existing federal funding sources include Federal Transit Administration Section 5307 Capital Funds, Section 5311 Rural Operating Funds, and Section 5303 Transit Planning Funds. Existing state funding sources include FDOT Public Transportation Block Grants and Urban Corridor Grants. In addition to these two grants, FDOT provides the required matching funds needed to obtain federal Section 5303 Transit Planning monies.

Local contributions from Lee County come from local option gas taxes and from the County's General Fund. Three municipalities—the City of Bonita Springs (Route 150), the City of Fort Myers, and the City of Fort Myers Beach (Beach Trolley)—and Florida Gulf Coast University also contribute to total transit system revenues for services operating in their areas. LeeTran adds to total revenues through farebox collections and through the sale of advertising space on LeeTran vehicles and at LeeTran bus stops.

As shown in the Financially Feasible Plan, the existing funding sources are not sufficient to meet the transit needs identified in this report. In order to meet the revenue shortfall, new funding resources need to be sought and employed by Lee County. This section includes a summary of potential funding sources that potentially can be utilized by Lee County to meet future transit needs.

Federal Funding Sources

The recent federal SAFETEA-LU legislation establishes several new funding sources for transit services around the U.S. Specific application guidelines, procedures, and criteria for these new programs were not available at the time this report was prepared. As more information becomes available, Lee County should explore and apply for funding under these competitive grant programs. These new programs and several existing federal public transportation funding sources are discussed in this section.

New Starts Program (Section 3011)

Projects eligible for FTA New Starts discretionary funding include any fixed guideway system that utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles. This includes, but is not limited to, rapid rail, light rail, commuter rail, automated guideway transit, people movers, and exclusive facilities for buses (such as bus rapid transit) and other high occupancy vehicles. All projects under the program are subject to a criteria and evaluation process. This category of funding is a good resource for the BRT and SGLR transit alternatives proposed in the Lee County Transit Needs Plan. (Match Requirement – 50% Federal, 50% Local)

Small Starts Program (Section 3011)

This new program will be funded out of the New Starts program category. This source would provide funding for smaller projects with a federal New Starts share below $75 million and total project cost less than $250 million, including streetcar, trolley, bus rapid transit, and commuter rail projects. Projects in this category will have simplified application procedures and criteria. A total of $600 million, $200 million in each year from FY 2007

through FY 2009, will be available through the program.

New Freedom Program (Section 3019)

This new program will provide funding for new transportation services and alternatives that integrate persons with disabilities into the workplace. Alternative transportation solutions would include programs that provide loans to purchase or lease accessible motor vehicles, funding for making motor vehicles accessible through technology modifications, and other innovative programs that enhance the transportation mobility of persons with disabilities to and from jobs and employment support services. Sixty percent of the funding will be allocated to urbanized areas with over 200,000 population and the remaining balance will be allocated for use in areas with a population of less than 200,000. (Match Requirement – Capital: 80% Federal, 20% Local; Operating: 50% Federal, 50% Local)

Section 5310 - Elderly and Disabled Grant Program

This program provides capital assistance to nonprofit organizations that offer specialized transportation services to the transportation disadvantaged. The funds can be used to acquire vehicles or other necessary support equipment. Apportionment of funds is based on a formula according to the number of elderly and disabled persons within each state. The allocation of funding may be directed to private, non-profit organizations or to public agencies responsible for coordinating these transportation services. (Match Requirement – 80% Federal, 10% State, 10% Local)

Job Access and Reverse Commute (JARC) Program

The purpose of this grant program is to develop transportation services designed to transport welfare recipients and low income individuals to and from jobs and to develop transportation services for residents of urban centers and rural and suburban areas to suburban employment opportunities. JARC grants may finance capital projects and operating costs of equipment, facilities, and associated capital maintenance items related to providing access to jobs, promoting use of transit by workers with nontraditional work schedules, and promoting use by appropriate agencies of transit vouchers for welfare recipients and eligible low-income individuals. Proposed express routes to and from Immokalee and La Belle make good candidates for JARC funding given the socio-economic characteristics of both areas and expected "future" commute patterns. Apportionment of funds is based on a formula according to urban and non-urban area populations. (Match Requirement – 50% Federal, 50% Local)

Ferry Boat Discretionary (FBD) Program

This funding source provides funding for the construction of ferry boats and ferry terminal facilities. The program was created by Section 1064 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The Transportation Equity Act for the 21st Century (TEA-21) reauthorized FBD funding through FY 2003. For FY 2004, the funding level was maintained consistent with that during the six-year period of the ISTEA bill. This source could provide valuable funding for the Sanibel-to-Fort Myers Beach and the Coconut-to-Lovers Key State Park waterborne routes proposed in the Needs Plan. (Match Requirement – 80% Federal, 20% State/ Local)

State Funding Sources

Strategic Intermodal System

Florida's Strategic Intermodal System (SIS) was established to enhance Florida's economic competitiveness by focusing state resources on those transportation facilities that are critical to Florida's economy and quality of life. The SIS is a statewide network of high-priority transportation facilities, including the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways, and highways. Under the recent SB 360 legislation, the state has allocated approximately $4.7 billion over the next 10 years for SIS projects. In Lee County, the SGLR railway and the LeeTran Downtown Fort Myers Intermodal Center are identified by the state as Emerging SIS facilities.

Transportation Regional Incentive Program (TRIP)

TRIP was created to improve regionally significant transportation facilities in "regional transportation areas." State funds are available to provide incentives for local governments and the private sector to help pay for critically needed projects that benefit regional travel and commerce. Regional transportation corridors, such as regional transit corridors that serve major regional commercial, industrial, and/or medical facilities, that are determined to be "regionally significant" are eligible for funding under this program. (Match Requirement – 50% State, 50% Local)

New Starts

The State of Florida also has developed its own New Starts program. Similar to the federal new starts program, new major transit capital projects that support local plans to direct growth in metropolitan areas are eligible for funds. Projects must be included in local development plans and must be approved by FDOT.

Public Transit Service Development Grants

This program is designed to provide start-up funding for new or innovative techniques or measures for new or expanded services. Funding is limited to the first three years of new service and typically requires a 50/50 match, but up to 100-percent funding is available if a project is of statewide significance and approved by the FDOT Central Office. Potential applications for this grant in Lee County include the proposed waterborne ferries and the North/South and East/West BRT corridors.

Transit Urban Capital

This resource provides state funding for transit capital projects. (Match Requirement – 50% State, 50% Local)

Intermodal Grants Program

The Florida Department of Transportation's Intermodal program supports projects that provide improved access to intermodal or multimodal transportation facilities and terminals. Projects funded under this program include rail access to airports and seaports, interchanges and highways that provide access to airports and seaports, and other

multimodal facilities. (Match Requirement – 50% State, 50% Local)

Park-and-Ride Lot Program

This is a program designed to encourage the use of transit, carpools, vanpools, and other high occupancy vehicle modes, by providing safe and convenient parking facilities for commuters. The Park-and-Ride Program provides primary support for FDOT's Commuter Assistance Program and local transit authorities. FDOT may fund 100 percent of a project when it is carried out completely by the Department.

Local Funding Sources

Lee County is currently in the process of developing an action plan for the establishment of a transit authority. A Lee County Transit Authority would coordinate all County transit funding and services. If successfully established, the transit authority could have the power to implement, collect, and expend its own dedicated funding. The various local level funding sources described in this section include options available for both the transit authority and Lee County to implement in addition to the local contribution being made out of the General Fund towards transit services.

Local Option Sales Tax

A local option sales tax requires a county-wide referendum. Sales taxes on goods and services are considered a stable revenue source and provide an exportable funding source for transit services. Instead of placing the financial burden of transit service on a select population, sales taxes allow transit costs to be absorbed by a large net of contributors, including tourists, visitors, and seasonal residents. Revenues collected from a dedicated sales tax are not limited to spending restrictions placed on state and federal sources and can be spent by the local agency on capital and/or operational improvements.

Special Tax District

Special taxing districts are used when a transportation project is expected to provide benefits to a specific area. The new tax can be ad valorem-based or based on the extent of property frontage (e.g., along a street).

Transit Impact Fees

Impact fees are one-time payments used to fund system improvements. Impact fees are imposed under the local government's police power authority, similar to planning, zoning, and building regulations. As a means of promoting public health, safety, and welfare, impact fees can assist in funding transit infrastructure needed to accommodate new development. An impact fee may be adopted to require development to pay for transit infrastructure according to the impact that the development has on the area.

Municipal Service Taxing Unit (MSTU)

MSTUs can be established to collect a property tax dedicated specifically to public transportation. The service area can be selected based on the services provided and may include portions of unincorporated areas and municipalities. The millage collected for an MSTU does not count against a county's general millage cap of 10 mills; however, it does impact an individual municipality's millage cap.

Ad Valorem Tax Alternatives Evaluation

County ad valorem from the General Fund is the largest source of local revenue for public transportation in Lee County. The amount of revenue from ad valorem taxes dedicated for transit is determined and allocated on an annual basis as part of the County's budget cycle. Taxable property values in Lee County have continued to grow over the last several years. As a result, revenues from ad valorem have served as a reliable funding source for transit.

An option for funding unmet needs in the LRTE Needs Plan is the assessment of additional ad valorem taxes. An evaluation was performed to determine what millage rate would be required to fund all of the unfunded 2030 transit needs. Three alternatives were developed for the analysis. Each alternative examines the impact of a given anticipated average match funding level on proposed new ad valorem assessments. The analysis assumes that new ad valorem would be utilized to leverage new funding from state and federal sources. The three alternatives include:

- Additional Millage Rate with New 50% Match Funding
- Additional Millage Rate with New 25% Match Funding
- Additional Millage Rate with No New Match Funding

Total unprogrammed 2030 Needs Plan capital and operating costs equal approximately $1.1 billion. Estimated revenues from existing sources through 2030 are estimated at $495 million, leaving a shortfall of approximately $615 million. For the analysis, an additional millage rate was estimated for each year in the 2030 Needs Plan beginning in FY 2011 for each alternative. Those millage rates and the estimated revenues and new matching funds for each alternative are presented in Table 10-11. Under the 50% Match Funding alternative, revenues from the new ad valorem would equal $308 million at an average millage rate of 0.2732 over the 20-year planning horizon. Ad valorem revenues under the 25% Match Funding alternative would equal $461 million at an average millage rate of 0.4098 per year. The average millage rate for the third alternative, the No New Match Funding alternative, is 0.5464. Under this third scenario, new ad valorem would be the only new source of funding for financing the remaining Needs Plan improvements.

Table 10-12 notes the amount of new ad valorem revenues that would be contributed toward operating and capital costs for each scenario by year. As noted in that table, a large portion of new ad valorem revenues in FY 2021 through FY 2025 would be used to meet operating cost needs. In FY 2029 and FY 2030, the Needs Plan indicates a small surplus in capital funds. Consequently, 100 percent of the new ad valorem revenues would be dedicated to funding transit operations in those years.

Figures 10-1, 10-3, and 10-5 illustrate the share of 2030 Needs Plan costs by year for various transit funding sources available to Lee County. The "Total County Tax Revenues" category illustrated in the figures includes existing ad valorem and local option gas tax contributions. The "Other Local Revenues" category includes revenues from advertising and additional city and university contributions. As illustrated in the figures, if ad valorem were to be used to fully fund and/or leverage additional funding, ad valorem would make up a large portion of the Needs Plan costs. The peak spending period would

Table 10-11
Summary of Ad Valorem Alternatives Millage Rate & Cost Recovery by 2030 Needs Plan Year

FY	Estimated 2030 Needs Plan Capital & Operating Cost	Estimated Existing Capital & Operating Revenue		Additional Millage Rate with No New Match Funding			Additional Millage Rate with New 25% Match Funding			Additional Millage Rate with New 50% Match Funding		
		Estimated Revenue	Deficit	Additional Millage Rate	Estimated Ad Valorem Revenue	Additional Match Funding	Additional Millage Rate	Estimated Ad Valorem Revenue	25% Additional Match Funding	Additional Millage Rate	Estimated Ad Valorem Revenue	50% Additional Match Funding
2011	$36,674,846	$21,992,000	$14,682,846	0.4520	$14,682,846	$0	0.3390	$11,012,135	$3,670,712	0.2260	$7,341,423	$7,341,423
2012	$41,501,217	$22,453,000	$19,048,217	0.5532	$19,048,217	$0	0.4149	$14,286,163	$4,762,054	0.2766	$9,524,109	$9,524,109
2013	$42,002,260	$21,419,000	$20,583,260	0.5639	$20,583,260	$0	0.4229	$15,437,445	$5,145,815	0.2820	$10,291,630	$10,291,630
2014	$42,740,384	$21,792,000	$20,948,384	0.5414	$20,948,384	$0	0.4061	$15,711,288	$5,237,096	0.2707	$10,474,192	$10,474,192
2015	$45,368,232	$22,174,000	$23,194,232	0.5655	$23,194,232	$0	0.4242	$17,395,674	$5,798,558	0.2828	$11,597,116	$11,597,116
2016	$45,822,185	$22,548,000	$23,274,185	0.5354	$23,274,185	$0	0.4015	$17,455,639	$5,818,546	0.2677	$11,637,093	$11,637,093
2017	$45,818,017	$22,943,000	$22,875,017	0.4964	$22,875,017	$0	0.3723	$17,156,263	$5,718,754	0.2482	$11,437,509	$11,437,509
2018	$49,271,665	$23,347,000	$25,924,665	0.5307	$25,924,665	$0	0.3981	$19,443,499	$6,481,166	0.2654	$12,962,333	$12,962,333
2019	$50,665,942	$23,760,000	$26,905,942	0.5197	$26,905,942	$0	0.3897	$20,179,457	$6,726,486	0.2598	$13,452,971	$13,452,971
2020	$50,836,284	$24,182,000	$26,654,284	0.4857	$26,654,284	$0	0.3642	$19,990,713	$6,663,571	0.2428	$13,327,142	$13,327,142
2021	$89,927,035	$24,601,000	$65,326,035	1.1229	$65,326,035	$0	0.8422	$48,994,526	$16,331,509	0.5615	$32,663,018	$32,663,018
2022	$86,351,761	$25,041,000	$61,310,761	0.9942	$61,310,761	$0	0.7457	$45,983,071	$15,327,690	0.4971	$30,655,381	$30,655,381
2023	$85,206,423	$25,495,000	$59,711,423	0.9135	$59,711,423	$0	0.6851	$44,783,567	$14,927,856	0.4567	$29,855,712	$29,855,712
2024	$84,282,853	$25,958,000	$58,324,853	0.8418	$58,324,853	$0	0.6313	$43,743,640	$14,581,213	0.4209	$29,162,427	$29,162,427
2025	$87,569,854	$26,434,000	$61,135,854	0.8324	$61,135,854	$0	0.6243	$45,851,891	$15,283,964	0.4162	$30,567,927	$30,567,927
2026	$43,323,572	$26,907,000	$16,416,572	0.2109	$16,416,572	$0	0.1582	$12,312,429	$4,104,143	0.1054	$8,208,286	$8,208,286
2027	$46,150,610	$27,406,000	$18,744,610	0.2271	$18,744,610	$0	0.1704	$14,058,458	$4,686,153	0.1136	$9,372,305	$9,372,305
2028	$49,117,099	$27,921,000	$21,196,099	0.2423	$21,196,099	$0	0.1817	$15,897,074	$5,299,025	0.1212	$10,598,050	$10,598,050
2029	$40,893,911	$28,849,000	$12,044,911	0.1299	$12,044,911	$0	0.0974	$9,033,683	$3,011,228	0.0650	$6,022,456	$6,022,456
2030	$46,101,645	$29,390,000	$16,711,645	0.1700	$16,711,645	$0	0.1275	$12,533,734	$4,177,911	0.0850	$8,355,823	$8,355,823
Total	$1,109,625,795	$494,612,000	$615,013,795		$615,013,795	$0		$461,260,346	$153,753,449		$307,506,898	$307,506,898

Table 10-12
New Ad Valorem Capital & Operating Contributions

FY	Estimated Needs Plan Capital & Operating Cost Deficits				No New Match Scenario Capital & Operating Contributions		New 25% Match Scenario Capital & Operating Contributions		New 50% Match Scenario Capital & Operating Contributions	
	Operating Deficit	% of Total Deficit	Capital Deficit	% of Total Deficit	Operating	Capital	Operating	Capital	Operating	Capital
2011	$ 6,549,826	45%	$ 8,133,020	55%	$ 6,549,826	$ 8,133,020	$ 4,912,370	$ 6,099,765	$ 3,274,913	$ 4,066,510
2012	$ 9,577,670	50%	$ 9,470,547	50%	$ 9,577,670	$ 9,470,547	$ 7,183,253	$ 7,102,910	$ 4,788,835	$ 4,735,274
2013	$ 9,648,240	47%	$ 10,935,020	53%	$ 9,648,240	$ 10,935,020	$ 7,236,180	$ 8,201,265	$ 4,824,120	$ 5,467,510
2014	$ 10,583,364	51%	$ 10,365,020	49%	$ 10,583,364	$ 10,365,020	$ 7,937,523	$ 7,773,765	$ 5,291,682	$ 5,182,510
2015	$ 11,613,677	50%	$ 11,580,555	50%	$ 11,613,677	$ 11,580,555	$ 8,710,258	$ 8,685,416	$ 5,806,839	$ 5,790,278
2016	$ 12,352,165	53%	$ 10,922,020	47%	$ 12,352,165	$ 10,922,020	$ 9,264,124	$ 8,191,515	$ 6,176,083	$ 5,461,010
2017	$ 12,787,997	56%	$ 10,087,020	44%	$ 12,787,997	$ 10,087,020	$ 9,590,998	$ 7,565,265	$ 6,393,999	$ 5,043,510
2018	$ 13,362,645	52%	$ 12,562,020	48%	$ 13,362,645	$ 12,562,020	$ 10,021,984	$ 9,421,515	$ 6,681,323	$ 6,281,010
2019	$ 13,780,922	51%	$ 13,125,020	49%	$ 13,780,922	$ 13,125,020	$ 10,335,692	$ 9,843,765	$ 6,890,461	$ 6,562,510
2020	$ 14,451,264	54%	$ 12,203,020	46%	$ 14,451,264	$ 12,203,020	$ 10,838,448	$ 9,152,265	$ 7,225,632	$ 6,101,510
2021	$ 15,150,035	23%	$ 50,176,000	77%	$ 15,150,035	$ 50,176,000	$ 11,362,526	$ 37,632,000	$ 7,575,018	$ 25,088,000
2022	$ 15,679,641	26%	$ 45,631,120	74%	$ 15,679,641	$ 45,631,120	$ 11,759,731	$ 34,223,340	$ 7,839,821	$ 22,815,560
2023	$ 16,037,423	27%	$ 43,674,000	73%	$ 16,037,423	$ 43,674,000	$ 12,028,067	$ 32,755,500	$ 8,018,712	$ 21,837,000
2024	$ 15,849,853	27%	$ 42,475,000	73%	$ 15,849,853	$ 42,475,000	$ 11,887,390	$ 31,856,250	$ 7,924,927	$ 21,237,500
2025	$ 15,650,854	26%	$ 45,485,000	74%	$ 15,650,854	$ 45,485,000	$ 11,738,141	$ 34,113,750	$ 7,825,427	$ 22,742,500
2026	$ 15,525,772	95%	$ 890,800	5%	$ 15,525,772	$ 890,800	$ 11,644,329	$ 668,100	$ 7,762,886	$ 445,400
2027	$ 16,953,610	90%	$ 1,791,000	10%	$ 16,953,610	$ 1,791,000	$ 12,715,208	$ 1,343,250	$ 8,476,805	$ 895,500
2028	$ 18,367,099	87%	$ 2,829,000	13%	$ 18,367,099	$ 2,829,000	$ 13,775,324	$ 2,121,750	$ 9,183,550	$ 1,414,500
2029	$ 18,185,911	100%	$ -	0%	$ 12,044,911	$ -	$ 13,639,433	$ -	$ 6,022,456	$ -
2030	$ 18,044,685	100%	$ -	0%	$ 16,711,645	$ -	$ 13,533,514	$ -	$ 8,355,823	$ -
Total	$ 280,152,653		$ 342,335,182		$ 272,678,613	$ 342,335,182	$ 210,114,490	$ 256,751,387	$ 136,339,307	$ 171,167,591

Figure 10-1
Alternative 1: Share of 2030 Needs Plan Capital & Operating Costs w/ New 50% Matching Funds

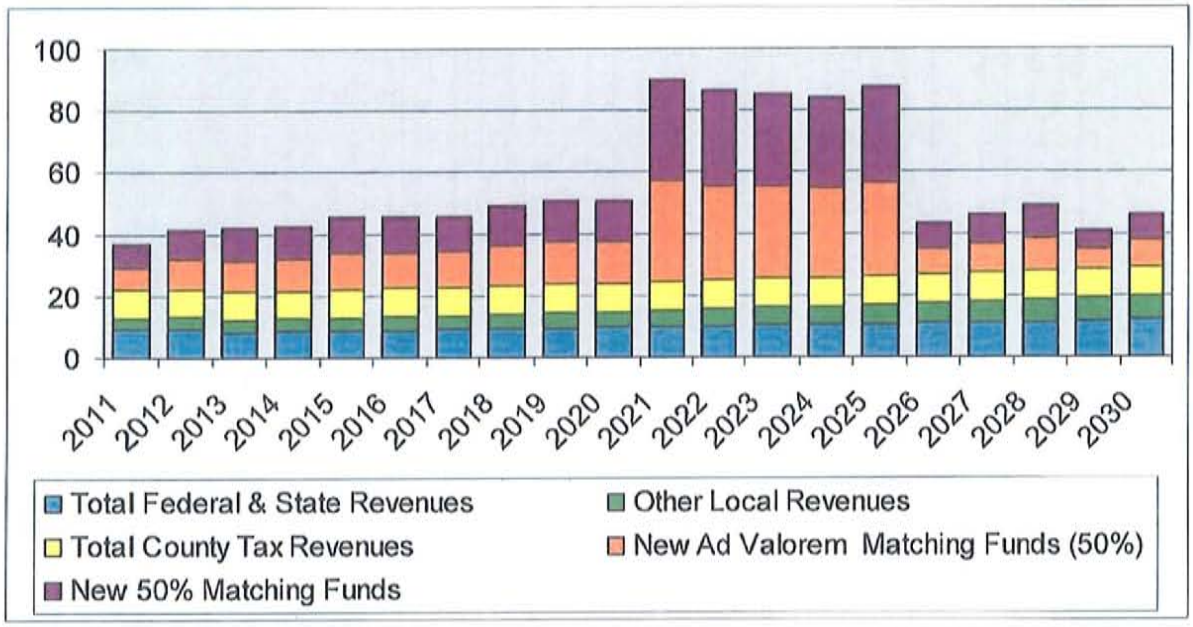


Figure 10-2
Alternative 1: Additional Millage Rate Increase w/ 50% Matching Funds

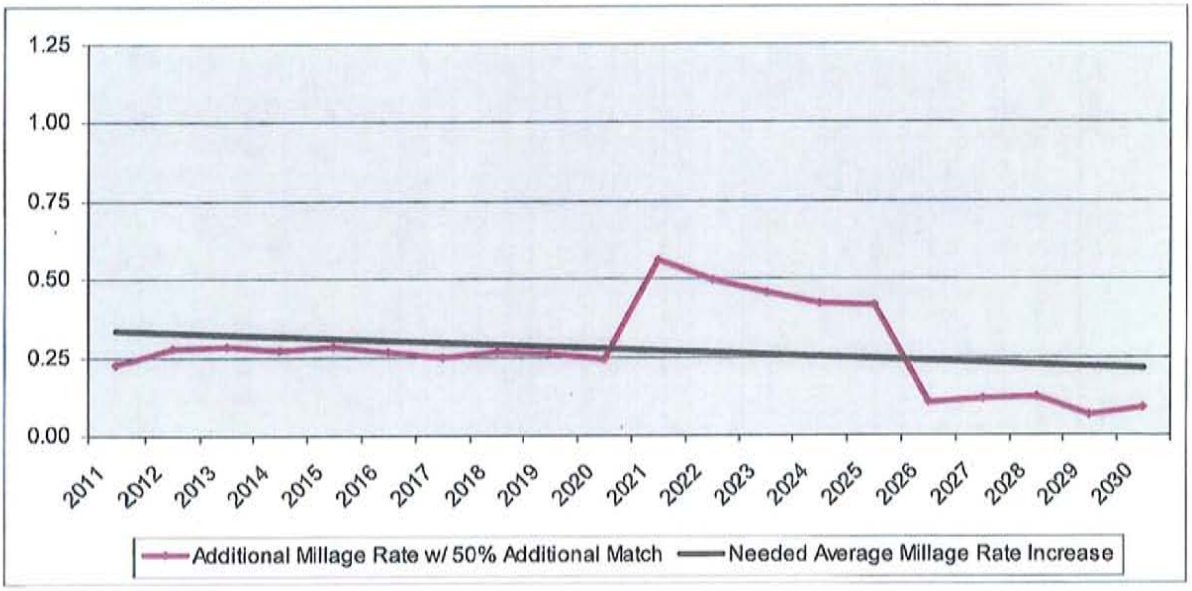


Figure 10-3
Alternative 2: Share of 2030 Needs Plan Capital & Operating Costs w/ New 25% Matching Funds

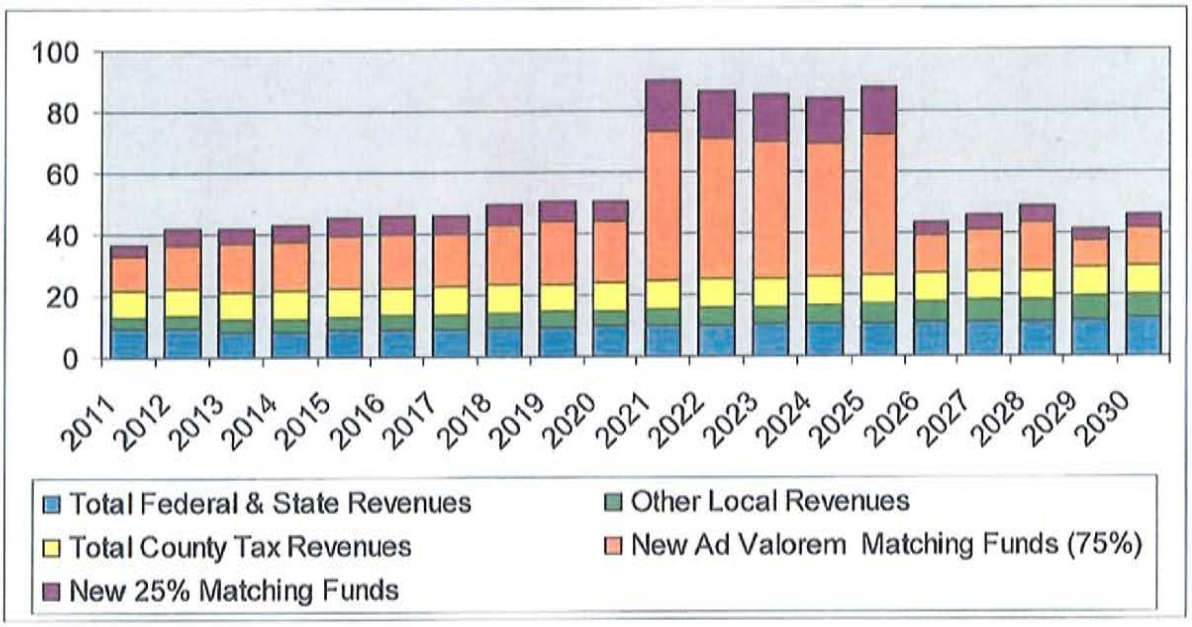


Figure 10-4
Alternative 2: Additional Millage Rate Increase w/ 25% Matching Funds

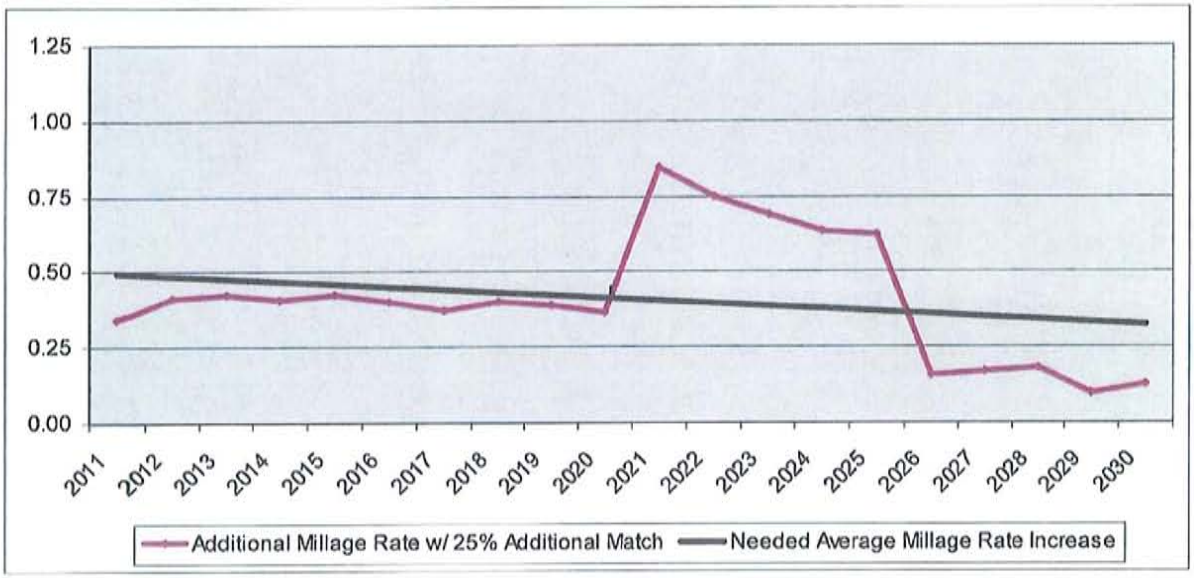


Figure 10-5
Alternative 3: Share of 2030 Needs Plan Capital & Operating Costs w/ No New Matching Funds

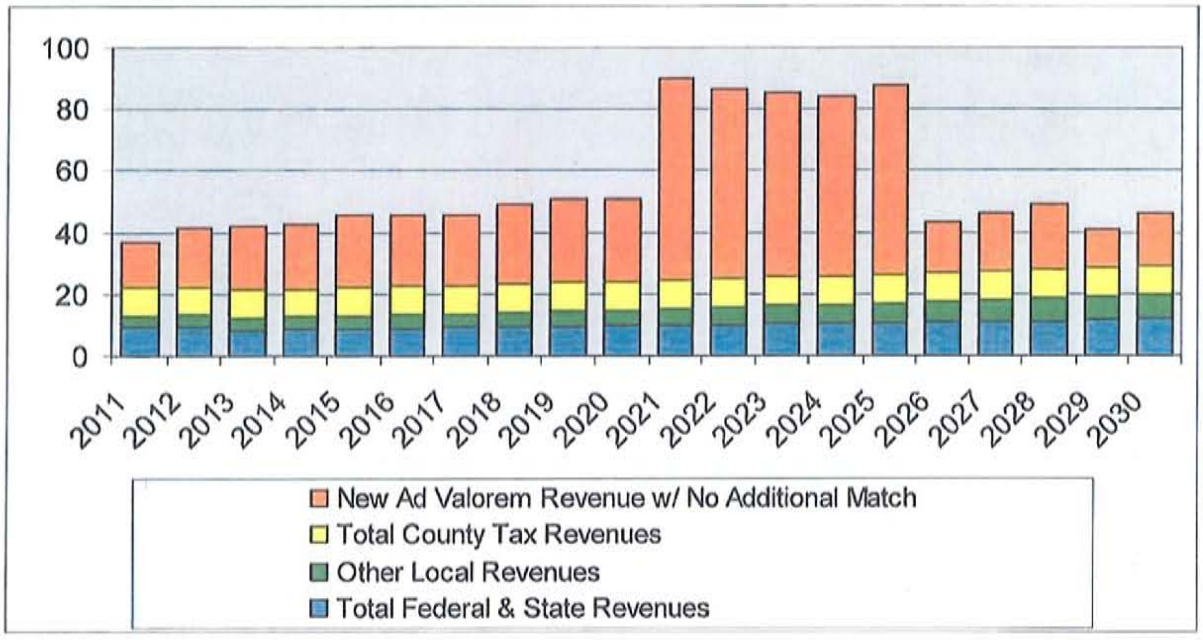
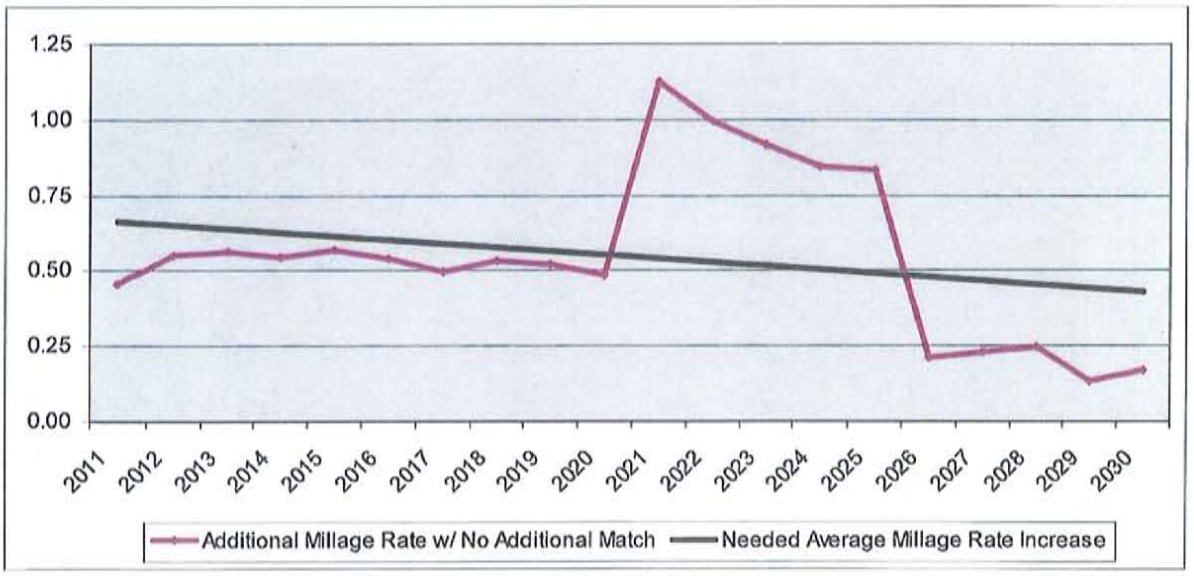


Figure 10-6
Alternative 3: Additional Millage Rate Increase w/ No New Matching Funds



be between 2021 and 2025, which includes the construction costs of exclusive BRT transit ways assumed for the North/South BRT service along the SGLR corridor.

In order to avoid large fluctuations in the millage rate from year to year, a consistent, average millage rate should be adopted. Figures 10-2, 10-4, and 10-6 include the additional millage rate by year and a recommended average millage rate trend line for each of the alternatives. The average millage rate represents the additional ad valorem assessment needed through 2030 to meet the unfunded projects in the Needs Plan. Any surpluses in ad valorem collected in earlier years would be saved for later use. Any deficits during peak spending years not covered by carry-over revenues could be financed through bonds, which in turn could be paid off through ad valorem surpluses in the subsequent years of the planning period.

OPTIONS FOR THE FINANCIALLY FEASIBLE TRANSIT PLAN

To facilitate the determination of a Financially Feasible Transit Plan for the MPO's 2030 LRTP, three transit options are described below. One of these options should be selected for inclusion in the adopted 2030 LRTP for Lee County. These scenarios include the following:

- Scenario 1: Status Quo Transit Service
- Scenario 2: Moderate System Growth
- Scenario 3: Fully-Fund 2030 Transit Needs

Each of these scenarios is discussed below.

Scenario 1: Status Quo Transit Service

This scenario is based on the assumption that LeeTran can fully fund existing fixed-route and paratransit services based on projected revenue sources. Under this scenario there is an operating surplus of $1.3 million. This alternative assumes no new growth in fixed-route transit services, but includes a five percent annual growth in ADA service to accommodate the needs of individuals eligible for ADA paratransit service. Under this scenario, Lee County has a capital surplus given the constraint on expansion of the fixed-route network with minimal available additional operating revenues. Thus, a recommendation for this scenario is bulleted below.

- Utilize the capital surplus of $76.7 million to begin funding transit signal priority and queue jump improvements along the identified BRT candidate corridors.

Scenario 2: Moderate System Growth

This scenario assumes moderate expansion in the fixed-route network consistent with the priorities identified in the 2030 Needs Plan. The transit priorities shown previously in Table 10-1 were used to determine the list of moderate growth transit projects. The projects discussed below include regional connections, local service in new markets, expansion of frequency on existing routes, waterborne transit, and BRT service. The system expansion planned in this scenario is oriented to serve major destinations and transit dependent riders based on projected population and employment.

- Expand frequency of service on Routes 10, 15, 30, 70, 100, 110,130, 140, 400.
- New local service in Downtown Fort Myers, Lehigh Acres, Cape Coral (including Skyline Road), and Sanibel.
- New express service into Collier County via I-75, Burnt Store Road express service in North Cape Coral, and the La Belle express service.
- Waterborne transit service connecting Sanibel Island to Fort Myers Beach (assuming the Sanibel circulator is implemented in 2009 according to guidance from LeeTran).
- The Bus Rapid Transit feasibility assessment identified two corridors for specific BRT applications. A North-South BRT Corridor (US 41/SGLR) and an East-West BRT Corridor (MLK Blvd./Lee Blvd./Colonial Blvd./Veterans Parkway). It is recommended in this scenario that full-scale BRT be implemented along both corridors (using an exclusive busway concept within the SGLR corridor for the North-South BRT corridor) within the 2030 planning horizon. The BRT implementation will be phased to include queue jumps, transit signal priority, and enhanced stations initially.

This scenario requires additional local funding that falls between the local funding levels identified previously in Scenario 1 (status quo transit service) and those discussed subsequently for Scenario 3 (fully funding the 2030 Transit Needs Plan). The analysis assumes that new local transit funding would be available to leverage new funding from state and federal sources. For the purpose of this planning scenario, it is assumed that the additional local funding would leverage an equal amount of state and federal funding, resulting in a 50/50 match. ***This scenario would require an additional $240 million of local funding from 2011 through 2030, or an additional $12.0 million per year. In addition, this scenario may be adjusted to reflect any additional transit investment adopted by the MPO.***

Scenario 3: Fully Fund 2030 Transit Needs

Under this scenario, the 2030 LRTE Needs Plan would be fully funded through a combination of funding sources discussed previously in the "Potential Funding Sources" section of this report. That section notes possible match funding scenarios for an additional ad valorem assessment dedicated to transit services. Lee County would use any new local contributions to leverage additional federal and state funding. For the purpose of this planning scenario, it is assumed that the additional local funding would leverage an equal amount of state and federal funding, resulting in a 50/50 match. ***This scenario would require an additional $308 million of local funding from 2011 through 2030, or an additional $15.4 million per year.***