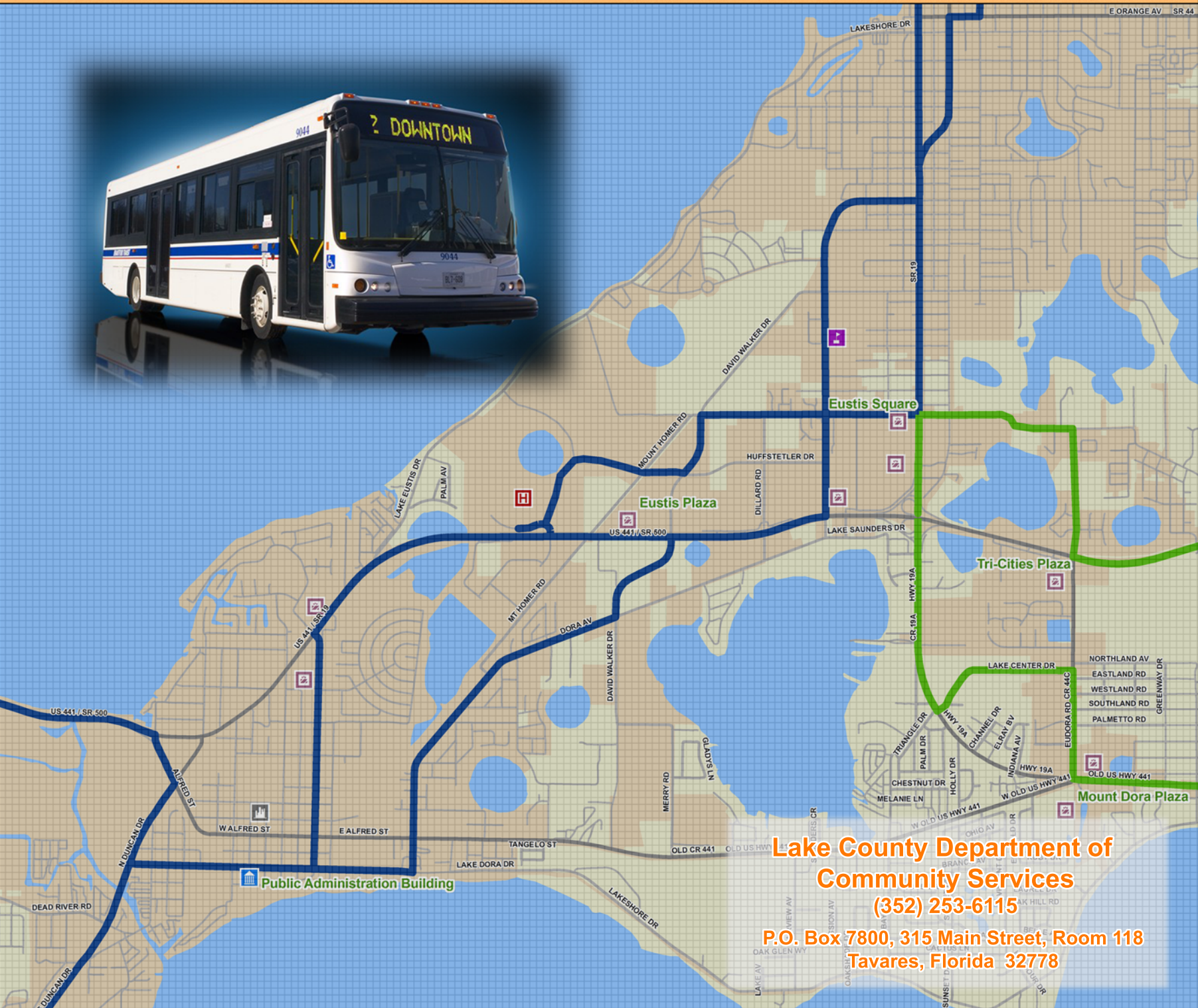




Lake County Transit Operations Plan

Final Report
October 2006



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Community Services**
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Lake County Transit Operations Plan

Final Report

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October 2006

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Section 1 INTRODUCTION

The 2005 Lake County Transit Development Plan (TDP) identifies transit service improvements to be implemented within the five-year planning horizon of the plan. One of transit service improvements identified in the TDP is the need to develop a full-scale, fixed-route transit service in Lake County. In response to the direction given in the TDP, Lake County has proceeded with development of a Transit Operations Plan (TOP) to guide the implementation of fixed-route transit services in the County. This transit operations plan includes specific service policies, financial planning elements, and bus route scheduling and routing for the new Lake County fixed-route transit service.

OVERVIEW OF PROJECT

Development of the Lake County Transit Operations Plan includes seven major tasks. Each task is listed and briefly described below.

Task 1: Kickoff Meeting and Collect/Review of Data – There are two major elements in this task, including a kickoff meeting with County staff, as well as the collection of data necessary to prepare the TOP.

Task 2: Evaluate Operational Issues – To develop recommendations for helping guide the County in addressing issues in the operations plan, specific operational issues were identified and evaluated based on the original direction provided in the TDP.

Task 3: Evaluate Capital Needs and Prepare Interim Report – Capital needs associated with implementation of the Transit Operations Plan have been assessed. This assessment includes such items as vehicles, shelters, benches, bus stop signage, and sidewalks.

Task 4: Evaluate Financial Issues – Financial issues associated with the implementation of the transit service defined in Task 2 are defined and evaluated in order to develop a detailed five-year financial plan for the new public transportation programs.

Task 5: Host Public Workshops – Two public workshops were organized and facilitated to present preliminary recommendations as they relate to both operational and financial issues in the operations plan.

Task 6: Prepare Transit Operations Plan – Based on the results of the previous tasks, a public transportation operations plan was prepared that includes procedures and implementation responsibilities for implementing the new service.

Task 7: Presentations to the CTC, MPO, and MPO Advisory Committees – Presentations of the Transit Operations Plan were made to the Lake County Metropolitan Planning Organization (MPO) Board and its advisory committees.

OVERVIEW OF REPORT

This report documents the work activities followed in the development of the Lake County Transit Operations Plan, described previously and is composed of six major sections, including this introduction. Sections 2 through 6 are described below.

Section 2 includes the results of the **Operational Issues Evaluation**. Specific route characteristics for each of the proposed fixed-routes, including headways, hours and days of service, and scheduling, are addressed in this section. In addition, coordination issues related to paratransit and the implementation of the Americans with Disabilities Act are evaluated. Other aspects of operating the new service that are summarized in this section include staffing requirements for the new service, fare structure and fare policy, a vehicle maintenance plan, and a performance monitoring plan.

Section 3 summarizes the **Evaluation of Capital Needs** for the new fixed-route service. In this section, various vehicles types are assessed in terms of their ability to meet the needs of the proposed service and in terms of their suitability for deployment by Lake County. Additionally, recommended stop types and bus stop infrastructure, such as benches and shelters, are included. The need for sidewalks along the proposed bus routes and the need for a major transfer facility are also discussed.

Section 4 includes **Final Recommendations** for the operations plan based on Lake County review of the initial operational and capital needs evaluations presented in Sections 2 and 3. Changes to the initial recommendations include a revised staffing plan, new routes and route alignments, a new recommended vehicle, and a brief discussion on the need for an intermodal center.

Section 5 presents the **Five-Year Financial Plan** for the Lake County public transportation services including both fixed-route and paratransit services. This includes an assessment of operating and capital needs, along with the projected costs associated with these needs over the next five years. In addition, all transit revenues that are reasonably expected to be available within the next five-year period are identified and used in funding the transit operating and capital needs. The assumptions used in developing both the cost and revenue projections in the five-year financial plan are also listed.

Section 6 summarizes the **Public Involvement** activities that were undertaken as part of the TOP development process. These activities were conducted after development of the draft operational concepts and recommendations in order to get interested citizens throughout the transit service area to review and comment on them. The specific public involvement activities summarized in this section include the series of public workshops that were held in July and August 2006. In addition, this section also presents the results of the TOP survey questionnaire that was distributed at each of the public workshops.

Section 2 OPERATIONAL ISSUES EVALUATION

This section evaluates the operational issues associated with implementing the fixed-route bus service recommended in the TDP. Included in the evaluation are service characteristics, coordination requirements, ridership projections, staffing requirements, and performance monitoring. These issues are discussed and recommendations are developed for the implementation of the fixed-route bus service.

SERVICE CHARACTERISTICS

Consistent with the TDP, a total of six routes were evaluated and configured as part of the operations plan process using the following information:

- Service areas identified in the TDP;
- Inventory of activity centers within these service areas;
- Running times and length of fixed bus routes;
- Input from MPO staff and County staff;
- Input from the TDP public workshops;
- Extensive field observations of potential bus routing;

These routes are summarized below with each summary including a map of the planned route and a travel time analysis.

Route 1

The TDP describes the service area for the recommended Route 1 fixed-route bus service. As part of this TOP, potential service within this area was further analyzed and realigned for maximum efficiency based on extensive field observations of potential bus routing. Map 2-1 illustrates the recommended Route 1 and its service area. Specific categories of activity centers that will be covered by Route 1 include the following:

- Shopping Centers
 - Lake Square Mall
 - Shoppes of Lake Village
- Hospitals
 - Leesburg Regional Medical Center
 - Lake/Sumter Mental Health Center
- Medical Centers
 - Durham Young Clinic

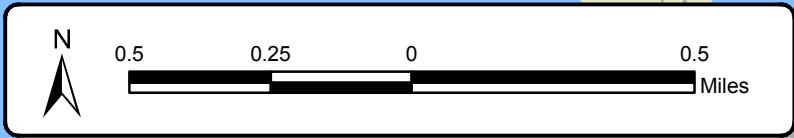
- Lake Center for Rehabilitation
- Lake Heart Center
- Lake Urology Clinic
- Leesburg Regional Medical Center North
- Lake Surgical Clinic
- Community Cancer Center
- Mid-Florida Dialysis Center
- Leesburg Family Medicine
- Lake Medical Imaging
- Lake Eye Clinic
- Central Florida Neurological Center
- Schools
 - Lake/Sumter Community College

The travel time analysis for Route 1 is summarized in Table 2-1. The total travel time is nearly 45 minutes, including the time the bus will spend stopping along the route. The travel time analysis assumes a stop every half-mile along the route and that the bus stops at each of these locations for 30-seconds to allow patrons to board or exit the bus.



Lake County Transit Operations Plan (TOP)

Route 1



Legend

Major Activity Centers

- Residential Development
- Downtown
- Employment Center
- Government Building
- Hospital
- Medical Center
- Park
- School
- Shopping Center
- Intermodal Center
(Commercial Bus Stations & Airports)

Route Alternatives

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6

DRIs

- Mixed Use
- Non-Residential
- Residential

**Table 2-1
Travel Time Analysis – Route 1**

Segment #	On Street	From Street	To Street	Travel Time (minutes)
1	Lake Square Mall	Transfer Center	US 441	1.91
2	US 441	Lake Square Mall	Newell Hill Rd	7.97
3	Newell Hill Rd	US 441	Bentley Rd	0.72
4	Bentley Rd	Newell Hill Rd	Mills St	0.80
5	Mills St	Bentley Rd	US 441	0.95
6	US 441	Mills St	East St	1.05
7	East St	US 441	E Main St	0.47
8	E Main St	East St	S Lake St	0.88
9	S Lake St	E Main St	Entrance to Hospital	0.68
10	Hospital Loop	Entrance to Hospital	Exit from Hospital	1.02
11	S Lake St	Entrance to Hospital	E Main St	0.68
12	E Main St	S Lake St	East St	0.88
13	East St	E Main St	US 441	0.47
14	US 441	East St	Mills St	1.05
15	Mills St	US 441	Bentley Rd	0.95
16	Bentley Rd	Mills St	Newell Hill Rd	0.80
17	Newell Hill Rd	Bentley Rd	US 441	0.72
18	US 441	Newell Hill Rd	Lake Square Mall	7.97
19	Lake Square Mall	US 441	Transfer Center	1.91
Travel Time				31.87
Time for Making Stops (Includes 26 stops at 2 stops per mile)				13.00
Total Travel Time with Stops				44.87

Route 2

Map 2-2 illustrates the recommended Route 2 and its service area. Specific categories of activity centers that will be covered by Route 2 include the following:

- Shopping Centers
 - Lake Square Mall
 - Shoppes of Lake Village
 - The Market Place

- Tavares Square
- Eustis Plaza
- Hospitals
 - Florida Hospital/Waterman
- Medical Centers
 - Tavares Family Medical Center
- Downtowns
 - Downtown Tavares

The travel time analysis for Route 2 is summarized in Table 2-2. The total travel time is over 53 minutes, including the time the bus will spend stopping along the route. The travel time analysis assumes a stop every half-mile along the route and that the bus stops at each of these locations for 30-seconds to allow patrons to board or exit the bus.

Table 2-2
Travel Time Analysis – Route 2

Segment #	On Street	From Street	To Street	Travel Time (minutes)
1	Lake Square Mall	Transfer Center	US 441& Old CR 441	1.91
2	US 441& Old CR 441	Lake Square Mall	N Duncan Dr	6.85
3	N Duncan Dr	US 441 & Old CR 441	Main St.	1.75
4	Main St	N Duncan Dr	St Clair Abrams Av	3.53
5	St Clair Abrams Av	Main St.	W Alfred St	0.34
6	St Clair Abrams Av	W Alfred St	US 441/SR 19	2.30
7	US 441/SR 19	Banning Beach Rd	Huffstetler Dr	1.87
8	Huffstetler Dr & Waterman Way	US 441/SR 19	US 441/SR 19	2.17
9	US 441/SR 19	Huffstetler Dr	Banning Beach Rd	1.87
10	St Clair Abrams Av	US 441/SR 19	W Alfred St	2.30
11	St Clair Abrams Av	W Alfred St	Main St.	0.34
12	Main St	St Clair Abrams Av	N Duncan Dr	3.53
14	N Duncan Dr	Main St.	US 441 & Old CR 441	1.75
15	US 441& Old CR 441	N Duncan Dr	Lake Square Mall	6.85
16	Lake Square Mall	US 441& Old CR 441	Transfer Center	1.91
Travel Time				39.27
Time for Making Stops (Includes 28 stops at 2 stops per mile)				14.00
Total Travel Time with Stops				53.27



Lake County Transit Operations Plan (TOP)

Route 2

Legend

Major Activity Centers

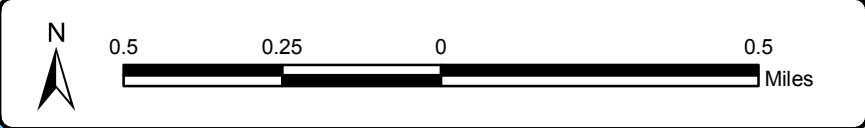
- Residential Development
- Downtown
- Employment Center
- Government Building
- Hospital
- Medical Center
- Park
- School
- Shopping Center
- Intermodal Center
(Commercial Bus Stations & Airports)

Route Alternatives

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6

DRIs

- Mixed Use
- Non-Residential
- Residential



Route 3

Map 2-3 illustrates the recommended Route 3 and its service area. Specific categories of activity centers that will be covered by Route 3 include the following:

- Shopping Centers
 - K-Mart Shopping Center
 - Leesburg Market Place
 - Palm Plaza
- Hospitals
 - Leesburg Regional Medical Center
- Medical Centers
 - Durham Young Clinic
 - Lake Surgical Clinic
 - Lake Medical Imaging
 - Leesburg Family Medicine
 - Mid-Florida Dialysis Center
- Downtowns
 - Downtown Leesburg

The travel time analysis for Route 3 is summarized in Table 2-3. The total travel time is nearly 55 minutes, including the time the bus will spend stopping along the route. The travel time analysis assumes a stop every half-mile along the route and that the bus stops at each of these locations for 30-seconds to allow patrons to board or exit the bus.



Lake County Transit Operations Plan (TOP)

Route 3

Legend

Major Activity Centers

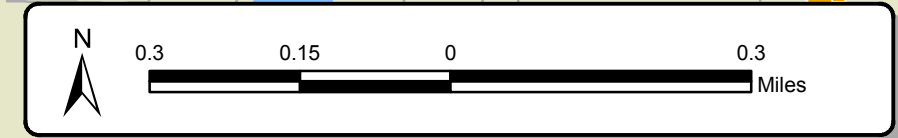
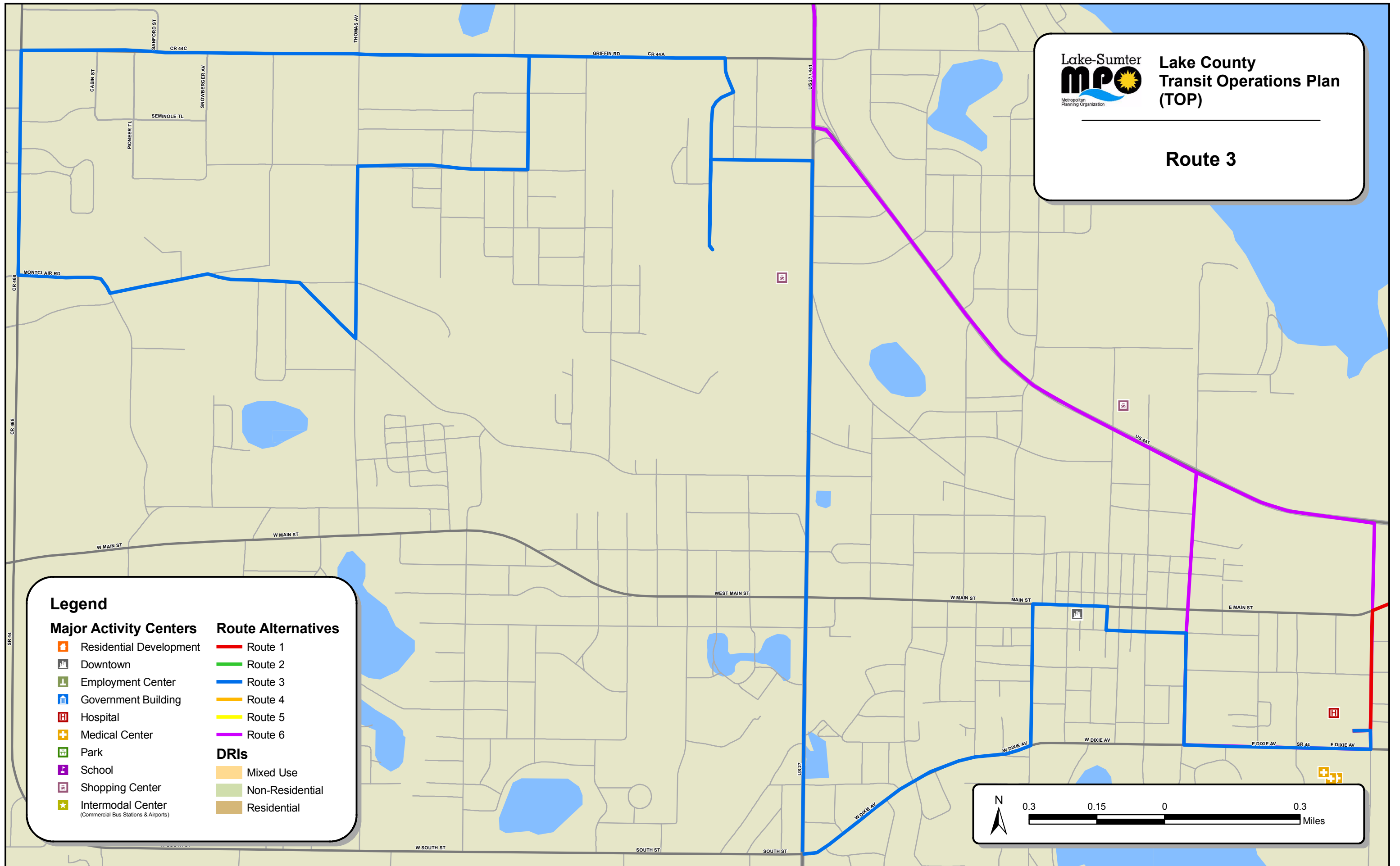
- Residential Development
- Downtown
- Employment Center
- Government Building
- Hospital
- Medical Center
- Park
- School
- Shopping Center
- Intermodal Center
(Commercial Bus Stations & Airports)

Route Alternatives

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6

DRIs

- Mixed Use
- Non-Residential
- Residential



**Table 2-3
Travel Time Analysis – Route 3**

Segment #	On Street	From Street	To Street	Travel Time (minutes)
1	Hospital Loop	Entrance to Hospital	Entrance to Hospital	1.02
2	S Lake St	Entrance to Hospital	Dixie Av	0.26
3	Dixie Av	S Lake St	Childs St	1.00
4	Dixie Av	Childs St	S Canal St	0.85
5	S Canal St	Dixie Av	E Magnolia St	0.78
6	E Magnolia St	S Canal St	S 3rd St	0.63
7	S 3rd St	E Magnolia St	Main St	0.42
8	Main St	S 3rd St	9th St	0.80
9	9th St	Main St	Dixie Av	1.12
10	Dixie Av	9th St	US 27	3.05
11	US 27	Dixie Av	Williams St	5.68
12	Williams St	US 27	Susan St	0.62
13	Susan St	Williams St	Williams St (completing Sports Complex loop)	0.95
14	Susan St	Williams St	Griffin Rd	0.80
15	Griffin Rd	Susan St	Tuskegee St	0.97
16	Griffin Rd	Tuskegee St	CR 468	2.57
17	CR 468	Griffin Rd	Schoolview St	0.28
18	Schoolview St	CR 468	Woodbine Rd	0.15
19	Woodbine Rd	Schoolview St	Griffin Rd	0.28
20	Griffin Rd	Woodbine Rd	CR 468	0.15
21	Griffin Rd	CR 468	Tuskegee St	2.57
22	Griffin Rd	Tuskegee St	Susan St	0.97
23	Susan St	Griffin Rd	Williams St	0.80
24	Susan St	Williams St	Williams St (completing Sports Complex loop)	0.95
25	Williams St	Susan St	US 27	0.62
26	US 27	Williams St	Dixie Av	5.68
27	Dixie Av	US 27	9th St	3.05
28	9th St	Dixie Av	Main St	1.12
29	Main St	9th St	S 3rd St	0.80
30	S 3rd St	Main St	E Magnolia St	0.42
31	E Magnolia St	S 3rd St	S Canal St	0.63
32	S Canal St	E Magnolia St	Dixie Av	0.78

**Table 2-3
Travel Time Analysis – Route 3 (continued)**

33	Dixie Av	S Canal St	Childs St	0.85
34	Dixie Av	Childs St	S Lake St	1.00
35	S Lake St	Dixie Av	Entrance to Hospital	0.26
36	Hospital Loop	Entrance to Hospital	Entrance to Hospital	1.02
Travel Time				43.87
Time for Making Stops (Includes 22 stops at 2 stops per mile)				11.00
Total Travel Time with Stops				54.87

Route 4

Map 2-4 illustrates the recommended Route 4 and its service area. Specific categories of activity centers that will be covered by Route 4 include the following:

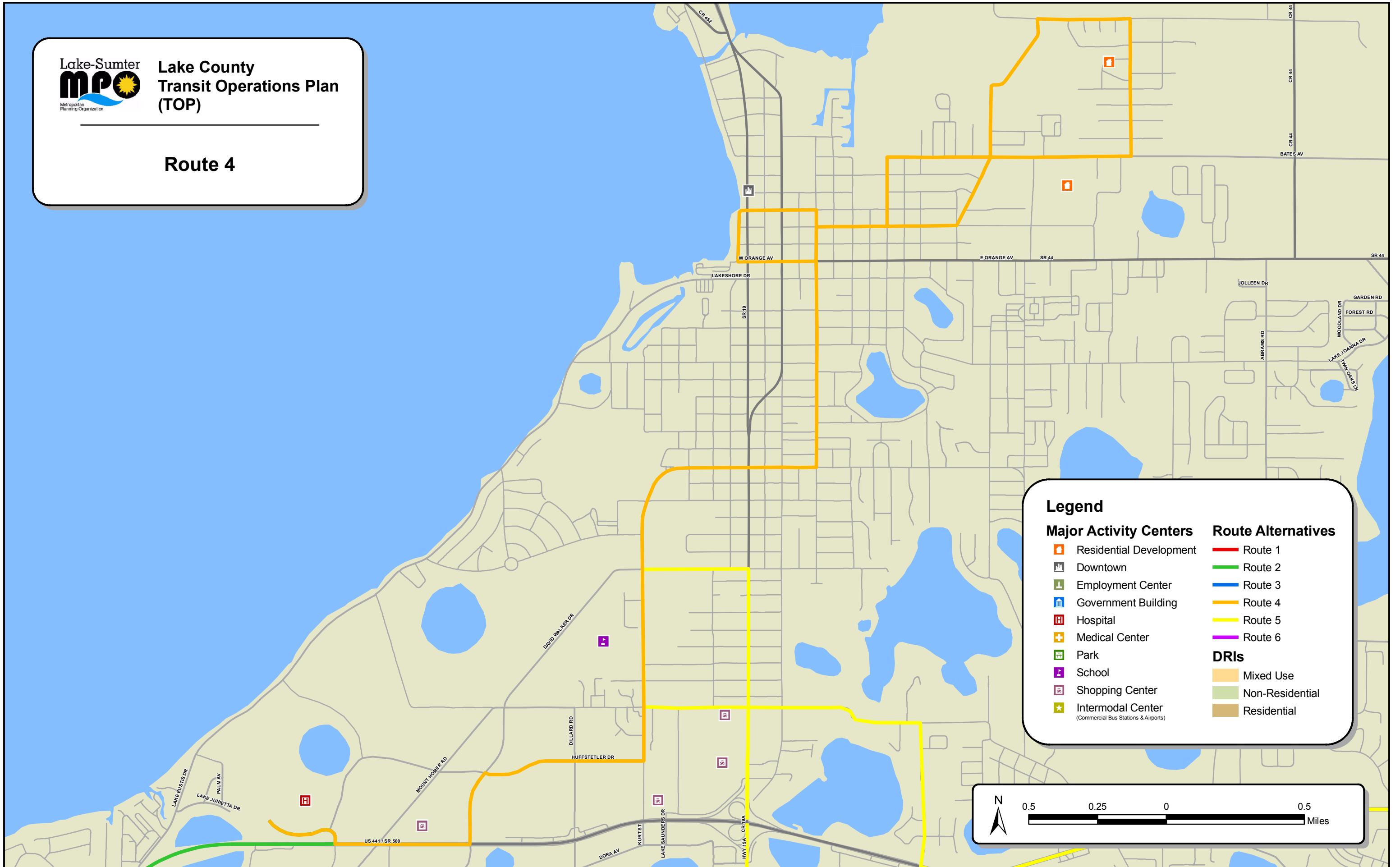
- Shopping Centers
 - The Market Place
 - Tavares Square
 - Eustis Plaza
 - Lake Hills Plaza
 - Eustis Square
- Hospitals
 - Waterman Medical Center
 - Florida Hospital/Waterman
- Medical Centers
 - Lake Eye Associates
 - Lake Pediatrics
 - Urology Associates of Lake County
- Schools
 - Lake County Vocational Technical School
- Downtowns
 - Downtown Eustis

The travel time analysis for Route 4 is summarized in Table 2-4. The total travel time is nearly 54 minutes, including the time the bus will spend stopping along the route. The travel time analysis assumes a stop every half-mile along the route and that the bus stops at each of these locations for 30-seconds to allow patrons to board or exit the bus.



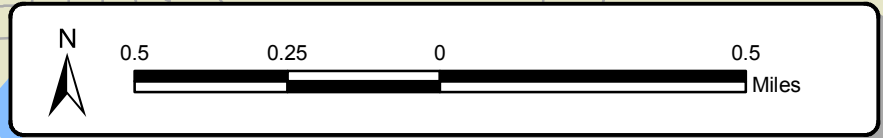
Lake County Transit Operations Plan (TOP)

Route 4



Legend

Residential Development	Route 1
Downtown	Route 2
Employment Center	Route 3
Government Building	Route 4
Hospital	Route 5
Medical Center	Route 6
Park	DRIs
School	Mixed Use
Shopping Center	Non-Residential
Intermodal Center (Commercial Bus Stations & Airports)	Residential



**Table 2-4
Travel Time Analysis – Route 4**

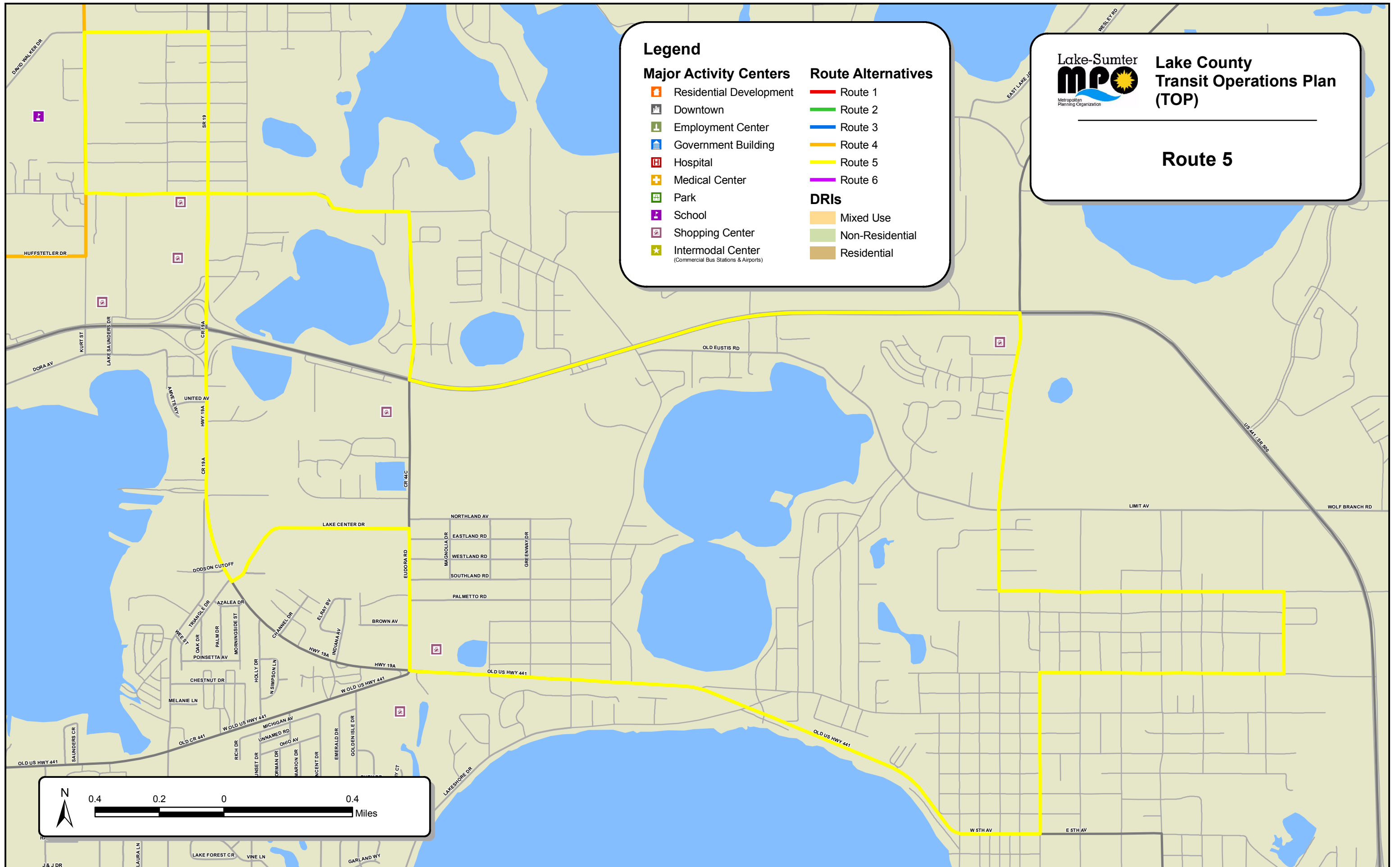
Segment #	On Street	From Street	To Street	Travel Time (minutes)
1	Huffstetler Dr & Waterman Way	US 441/SR 19	US 441/SR 19	2.17
2	US 441/SR 19	Huffstetler Dr	David Walker Dr	1.23
3	David Walker Dr	US 441/SR 19	Huffstetler Dr	1.17
4	Huffstetler Dr	David Walker Dr	Kurt St	1.58
5	Kurt St	Huffstetler Dr	Mount Homer Rd	0.58
6	Kurt St	Mount Homer Rd	SR 19	2.77
7	E Lakeview Av	SR 19	Center St	1.62
8	Center St	E Lakeview Av	E Orange Av	3.17
9	Center St	E Orange Av	W McDonald Av	0.50
13	W McDonald Av	Center St	N Prescott St	0.92
14	N Prescott St	W McDonald Av	Bates Av	0.88
15	Bates Av	N Prescott St	Palmetto Rd	0.95
16	Palmetto Rd	Bates Av	Hicks Ditch Rd	1.60
17	Hicks Ditch Rd	Palmetto Rd	Wall St	0.90
18	Wall St	Hicks Ditch Rd	Bates Av	1.30
19	Bates Av	Wall St	Palmetto Rd	1.17
20	Palmetto Rd	Bates Av	W McDonald Av	0.88
21	W McDonald Av	Palmetto Rd	N Prescott St	0.60
22	W McDonald Av	N Prescott St	Center St	0.88
23	Center St	W McDonald Av	E Glifford Av	0.30
24	E Glifford Av	Center St	Ferran Parker Dr	0.92
25	Ferran Parker Dr	E Glifford Av	W Orange Av	0.55
26	W Orange Av	Ferran Parker Dr	Center St	0.92
27	Center St	W Orange Av	E Lakeview Av	3.17
28	E Lakeview Av	Center St	SR 19	1.62
29	Kurt St	SR 19	Mount Homer Rd	2.77
30	Kurt St	Mount Homer Rd	Huffstetler Dr	0.58
31	Huffstetler Dr	Kurt St	David Walker Dr	1.58
32	David Walker Dr	Huffstetler Dr	US 441/SR 19	1.17
33	US 441/SR 19	David Walker Dr	Huffstetler Dr	1.23
34	Huffstetler Dr & Waterman Way	US 441/SR 19	US 441/SR 19	2.17
Travel Time				41.83
Time for Making Stops (Includes 24 stops at 2 stops per mile)				12.00
Total Travel Time with Stops				53.83

Route 5

Map 2-5 illustrates the recommended Route 5 and its service area. Specific categories of activity centers that will be covered by Route 5 include the following:

- Shopping Centers
 - Eustis Square
 - Lake Hills Plaza
 - Eustis Plaza
 - Golden Triangle Shopping Center
 - Mount Dora Plaza
 - Mount Dora Market Place
- Medical Centers
 - Mid-Florida Eye Center
 - Family Medical Center of Mount Dora
- Schools
 - Lake County Vocational Technical School
- Downtowns
 - Downtown Mount Dora

The travel time analysis for Route 5 is summarized in Table 2-5. The total travel time is nearly 46 minutes, including the time the bus will spend stopping along the route. The travel time analysis assumes a stop every half-mile along the route and that the bus stops at each of these locations for 30-seconds to allow patrons to board or exit the bus.



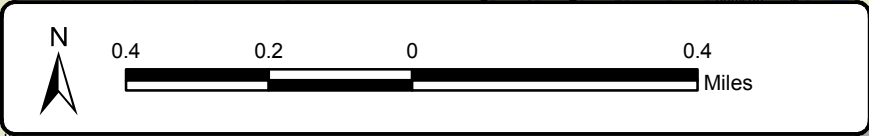
Legend

Major Activity Centers	Route Alternatives
Residential Development	Route 1
Downtown	Route 2
Employment Center	Route 3
Government Building	Route 4
Hospital	Route 5
Medical Center	Route 6
Park	DRIs
School	Mixed Use
Shopping Center	Non-Residential
Intermodal Center (Commercial Bus Stations & Airports)	Residential

Lake-Sumter
mpo
Metropolitan
Planning Organization

**Lake County
Transit Operations Plan
(TOP)**

Route 5



**Table 2-5
Travel Time Analysis – Route 5**

Segment #	On Street	From Street	To Street	Travel Time (minutes)
1	W Ardice Av	SR 19	Kurt St	1.08
2	Kurt St	W Ardice Av	W Golf Links Av	0.92
3	W Golf Links Av	Kurt St	SR 19	1.15
4	SR 19	W Golf Links Av	W Ardice Av	0.97
5	SR 19	W Ardice Av	SR 441	0.73
6	SR 19	SR 441	Lake Center Dr	1.62
7	Lake Center Dr	SR 19	Eudora Rd	1.63
8	Eudora Rd	Lake Center Dr	Old US 441	1.48
9	Old US 441/W 5th Av	Eudora Rd	N Tremain St	3.67
10	N Tremain St	W 5th Av	Lincoln Av	1.80
11	Lincoln Av	N Tremain St	N Wardell St	2.30
12	N Wardell St	Lincoln Av	W Pine Av	0.97
13	W Pine Av	N Wardell St	N Donnely St	2.77
14	N Donnely St	W Pine Av	SR 441	4.12
15	SR 441	N Donnely St	Eudora Rd	5.28
16	Eudora Rd	SR 441	Old Mount Dora Rd	1.83
17	Old Mount Dora Rd	Eudora Rd	SR 19	1.75
Travel Time				34.07
Time for Making Stops (Includes 24 stops at 2 stops per mile)				12.00
Total Travel Time with Stops				46.07

Route 6

Map 2-6 illustrates the recommended Route 6 and its service area. Specific categories of activity centers that will be covered by Route 6 include the following:

- Shopping Centers
 - The Villages
 - Orange Blossom Garden Shopping Center
 - Fruitland Park Plaza
 - Leesburg Square
 - Wal-Mart Shopping Center
 - K-Mart Shopping Center
 - Leesburg Market Place

- Hospital
 - Leesburg Regional Medical Center
- Medical Centers
 - Family Medical Clinic
 - Mid-Florida Dialysis Center
 - Lake Medical Imaging
- Downtown
 - Downtown Leesburg

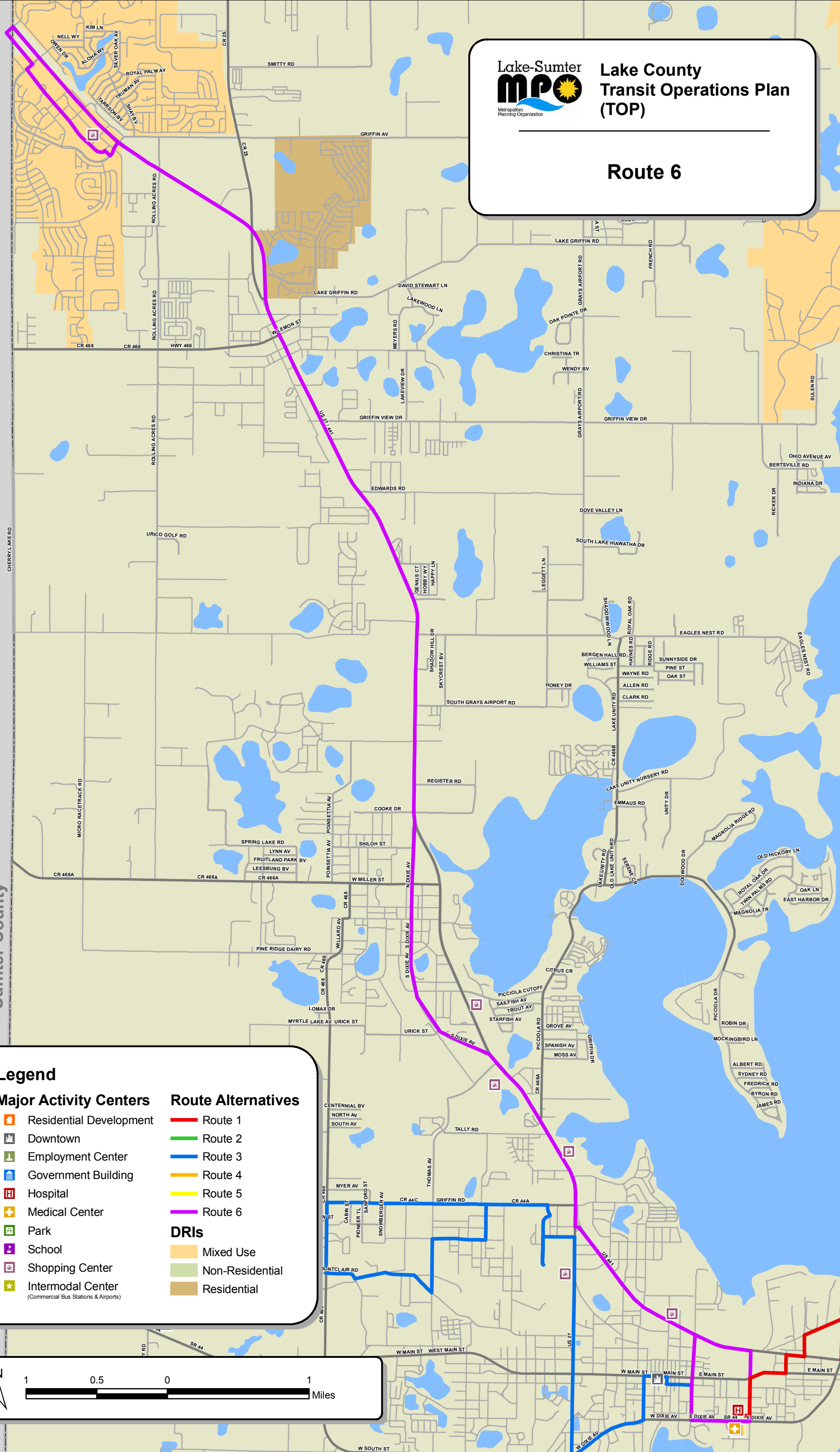
The travel time analysis for Route 6 is summarized in Table 2-6. The total travel time is nearly 78 minutes, including the time the bus will spend stopping along the route. The travel time analysis for Route 6 assumes two stops every 1.5 miles along the route and that the bus stops at each of these locations for 30-seconds to allow patrons to board or exit the bus.

It should be noted that two stops per every 1.5 miles, rather than the two stops per every mile used for all other routes discussed previously, was used in acknowledgement of the current nature of the Route 6 corridor. Due to low commercial density along much of this corridor, which is still generally rural in nature, it is anticipated that fewer stops per mile will be needed than on the other routes.



Lake County Transit Operations Plan (TOP)

Route 6



Sumter County

Legend

Major Activity Centers

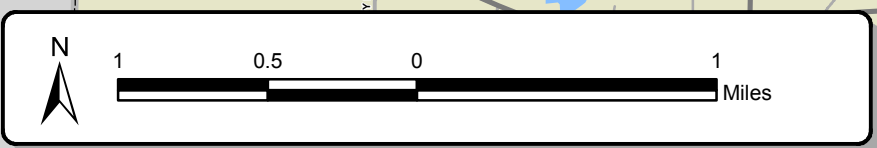
- Residential Development
- Downtown
- Employment Center
- Government Building
- Hospital
- Medical Center
- Park
- School
- Shopping Center
- Intermodal Center
(Commercial Bus Stations & Airports)

Route Alternatives

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6

DRIs

- Mixed Use
- Non-Residential
- Residential



**Table 2-6
Travel Time Analysis – Route 6**

Segment #	On Street	From Street	To Street	Travel Time (minutes)
1	Hospital Loop	Entrance to Hospital	Exit from Hospital	1.02
2	S Lake St	Entrance to Hospital	E Main St	0.68
3	S Lake St	E Main St	SR 441	0.60
4	SR 441	S Lake St	Canal st	1.12
5	SR 441	Canal st	Dixie Av	7.22
6	Dixie Av	SR 441	SR 441	5.03
7	SR 441	Dixie Av	Avenida Central/Bichara Blvd	9.85
8	Avenida/Bichara Blvd	SR 441	SR 441/Avenida Central	2.97
9	Route End Loop	SR 441/Avenida Central	SR 441/Avenida Central	3.93
10	Avenida/Bichara Blvd	SR 441/Avenida Central	SR 441	2.97
11	SR 441	Avenida Central/Bichara Blvd	Dixie Av	9.85
12	Dixie Av	SR 441	SR 441	5.03
13	SR 441	Dixie Av	Canal st	7.22
14	Canal st	SR 441	Magnolia	0.98
15	S Canal St	E Magnolia St	Dixie Av	0.78
16	Dixie Av	S Canal St	Childs St	0.85
17	Dixie Av	Childs St	S Lake St	1.00
18	S Lake St	Dixie Av	Entrance to Hospital	0.26
19	Hospital Loop	Entrance to Hospital	Entrance to Hospital	1.02
Travel Time				62.37
Time for Making Stops (Includes 31 stops at 2 stops per every 1.5 mile)				15.50
Total Travel Time with Stops				77.87

Days and Hours of Service

Except for the routes that were not recommended in the TDP, the recommended days and hours of service are consistent with the assumptions in the TDP. All routes will be operated Monday through Friday from 6:00 a.m. to 7:00 p.m., or 13 hours per day during the weekdays, except Route 6, which will operate from 6:00 a.m. to 7:30 p.m., or 13.5 hours. On weekends, all routes will be operated on Saturdays from 8:00 a.m. to 5:00 p.m., or 9 hours per day, except Route 6, which will operate from 6:00 a.m. to 5:30 p.m., or 9.5 hours. A summary of days and hours of service is provided in Tables 2-7 and 2-8.

**Table 2-7
Summary of Weekday Hours of Service**

Route	Days of Service	Hours of Service	Hours per Day
Route 1	Monday – Friday	6 a.m. – 7 p.m.	13
Route 2	Monday – Friday	6 a.m. – 7 p.m.	13
Route 3	Monday – Friday	6 a.m. – 7 p.m.	13
Route 4	Monday – Friday	6 a.m. – 7 p.m.	13
Route 5	Monday – Friday	6 a.m. – 7 p.m.	13
Route 6	Monday – Friday	6 a.m. – 7:30 p.m.	13.5

**Table 2-8
Summary of Weekend Hours of Service**

Route	Days of Service	Hours of Service	Hours per Day
Route 1	Saturday	8 a.m. – 5 p.m.	9
Route 2	Saturday	8 a.m. – 5 p.m.	9
Route 3	Saturday	8 a.m. – 5 p.m.	9
Route 4	Saturday	8 a.m. – 5 p.m.	9
Route 5	Saturday	8 a.m. – 5 p.m.	9
Route 6	Saturday	8 a.m. – 5:30 p.m.	9.5

Headways and Vehicle Requirements

Headways, or the time that passes between buses at a given bus stop, were also developed for the bus routes in Lake County. In addition, the vehicle requirements for each route are determined based on the headways and running times for the routes. Table 2-9 summarizes

the recommended headways by bus route and day of week, as well as the vehicle requirements for each route. Once the recommended routes were developed and cycle times were estimated, the following conclusions were drawn:

- One vehicle each is required to maintain 60-minute headways on Route 1, 2, 3, 4, and 5;
- One vehicle is required to maintain 90-minute headways on Route 6;
- It is therefore recommended that 60-minute headways be adopted for all routes except Route 6;
- A 90-minute headway is recommended for Route 6;
- All cycle times assume an average speed of 22 miles per hour, including dwell time at stops; and;
- Depending on the route, approximately 5 to 14 minutes are available for layover/recovery time for each of the bus routes.

**Table 2-9
Summary of Headways by Route and Day of Week**

Route	Headway (in minutes)		# of Vehicles Required	Cycle Time* (minutes)
	Weekday	Saturday		
Route 1	60	60	1	60
Route 2	60	60	1	60
Route 3	60	60	1	60
Route 4	60	60	1	60
Route 5	60	60	1	60
Route 6	90	90	1	90

**Cycle time is the total time it takes to drive a round trip on a route plus any time that the operator and vehicle are scheduled to take a break (layover time and/or recovery time).*

Scheduling

Schedules were prepared for the six bus routes operating from Monday through Friday from 6:00 a.m. to 7:30 p.m., and Saturday from 8:00 a.m. to 5:00/5:30 p.m. These schedules were developed based on the service characteristics indicated previously in this section, including the routing, days of service, hours of service, headways, and vehicle requirements. In addition, the schedules were designed to ensure that timed transfers are facilitated at the major transfer locations where at least two or more routes converge. The schedules are provided in Tables 2-10 through 2-15.

**Table 2-10
Proposed Schedule for Route 1 (Weekdays & Saturday)**

Weekday							
Westbound				Eastbound			
Lake Square Mall	US 441 & CR 44	US 441 & Newell Hill Rd	Leesburg Regional Hospital	Leesburg Regional Hospital	US 441 & Newell Hill Rd	US 441 & CR 44	Lake Square Mall
6:00	6:10	6:14	6:22	6:30	6:39	6:43	6:54
7:00	7:10	7:14	7:22	7:30	7:39	7:43	7:54
8:00	8:10	8:14	8:22	8:30	8:39	8:43	8:54
9:00	9:10	9:14	9:22	9:30	9:39	9:43	9:54
10:00	10:10	10:14	10:22	10:30	10:39	10:43	10:54
11:00	11:10	11:14	11:22	11:30	11:39	11:43	11:54
12:00	12:10	12:14	12:22	12:30	12:39	12:43	12:54
1:00	1:10	1:14	1:22	1:30	1:39	1:43	1:54
2:00	2:10	2:14	2:22	2:30	2:39	2:43	2:54
3:00	3:10	3:14	3:22	3:30	3:39	3:43	3:54
4:00	4:10	4:14	4:22	4:30	4:39	4:43	4:54
5:00	5:10	5:14	5:22	5:30	5:39	5:43	5:54
6:00	6:10	6:14	6:22	6:30	6:39	6:43	6:54
Saturday							
8:00	8:10	8:14	8:22	8:30	8:39	8:43	8:54
9:00	9:10	9:14	9:22	9:30	9:39	9:43	9:54
10:00	10:10	10:14	10:22	10:30	10:39	10:43	10:54
11:00	11:10	11:14	11:22	11:30	11:39	11:43	11:54
12:00	12:10	12:14	12:22	12:30	12:39	12:43	12:54
1:00	1:10	1:14	1:22	1:30	1:39	1:43	1:54
2:00	2:10	2:14	2:22	2:30	2:39	2:43	2:54
3:00	3:10	3:14	3:22	3:30	3:39	3:43	3:54
4:00	4:10	4:14	4:22	4:30	4:39	4:43	4:54

**Table 2-11
Proposed Schedule for Route 2 (Weekdays & Saturday)**

Weekday							
Eastbound				Westbound			
Lake Square Mall	US 441 & Duncan Dr	US 441 & St Clair Abrams Av	Florida Hospital	Florida Hospital	US 441 & St Clair Abrams Av	US 441 & Duncan Dr	Lake Square Mall
6:00	6:12	6:22	6:27	6:30	6:33	6:43	6:55
7:00	7:12	7:22	7:27	7:30	7:33	7:43	7:55
8:00	8:12	8:22	8:27	8:30	8:33	8:43	8:55
9:00	9:12	9:22	9:27	9:30	9:33	9:43	9:55
10:00	10:12	10:22	10:27	10:30	10:33	10:43	10:55
11:00	11:12	11:22	11:27	11:30	11:33	11:43	11:55
12:00	12:12	12:22	12:27	12:30	12:33	12:43	12:55
1:00	1:12	1:22	1:27	1:30	1:33	1:43	1:55
2:00	2:12	2:22	2:27	2:30	2:33	2:43	2:55
3:00	3:12	3:22	3:27	3:30	3:33	3:43	3:55
4:00	4:12	4:22	4:27	4:30	4:33	4:43	4:55
5:00	5:12	5:22	5:27	5:30	5:33	5:43	5:55
6:00	6:12	6:22	6:27	6:30	6:33	6:43	6:55
Saturday							
8:00	8:12	8:22	8:27	8:30	8:33	8:43	8:55
9:00	9:12	9:22	9:27	9:30	9:33	9:43	9:55
10:00	10:12	10:22	10:27	10:30	10:33	10:43	10:55
11:00	11:12	11:22	11:27	11:30	11:33	11:43	11:55
12:00	12:12	12:22	12:27	12:30	12:33	12:43	12:55
1:00	1:12	1:22	1:27	1:30	1:33	1:43	1:55
2:00	2:12	2:22	2:27	2:30	2:33	2:43	2:55
3:00	3:12	3:22	3:27	3:30	3:33	3:43	3:55
4:00	4:12	4:22	4:27	4:30	4:33	4:43	4:55

**Table 2-12
Proposed Schedule for Route 3 (Weekdays & Saturday)**

Weekday							
Northbound				Southbound			
Leesburg Regional Hospital	Dixie Ave & US 27	Griffin Rd & Tuskegee St	Schoolview St & Woodbine Rd	Schoolview St & Woodbine Rd	Griffin Rd & Tuskegee St	Dixie Ave & US 27	Leesburg Regional Hospital
6:00	6:12	6:23	6:27	6:28	6:32	6:43	6:55
7:00	7:12	7:23	7:27	7:28	7:32	7:43	7:55
8:00	8:12	8:23	8:27	8:28	8:32	8:43	8:55
9:00	9:12	9:23	9:27	9:28	9:32	9:43	9:55
10:00	10:12	10:23	10:27	10:28	10:32	10:43	10:55
11:00	11:12	11:23	11:27	11:28	11:32	11:43	11:55
12:00	12:12	12:23	12:27	12:28	12:32	12:43	12:55
1:00	1:12	1:23	1:27	1:28	1:32	1:43	1:55
2:00	2:12	2:23	2:27	2:28	2:32	2:43	2:55
3:00	3:12	3:23	3:27	3:28	3:32	3:43	3:55
4:00	4:12	4:23	4:27	4:28	4:32	4:43	4:55
5:00	5:12	5:23	5:27	5:28	5:32	5:43	5:55
6:00	6:12	6:23	6:27	6:28	6:32	6:43	6:55
Saturday							
8:00	8:12	8:23	8:27	8:28	8:32	8:43	8:55
9:00	9:12	9:23	9:27	9:28	9:32	9:43	9:55
10:00	10:12	10:23	10:27	10:28	10:32	10:43	10:55
11:00	11:12	11:23	11:27	11:28	11:32	11:43	11:55
12:00	12:12	12:23	12:27	12:28	12:32	12:43	12:55
1:00	1:12	1:23	1:27	1:28	1:32	1:43	1:55
2:00	2:12	2:23	2:27	2:28	2:32	2:43	2:55
3:00	3:12	3:23	3:27	3:28	3:32	3:43	3:55
4:00	4:12	4:23	4:27	4:28	4:32	4:43	4:55

**Table 2-13
Proposed Schedule for Route 4 (Weekdays & Saturday)**

Weekday									
Northbound					Southbound				
Florida Hospital	Lake County Tech School	West Lakeview Ave & S Center St	East Orange & Central Ave	Getford Rd & Wall St	Getford Rd & Wall St	East Orange & Central Ave	West Lakeview Ave & S Center St	Lake County Tech School	Florida Hospital
6:00	6:09	6:14	6:18	6:25	6:26	6:36	6:40	6:45	6:54
7:00	7:09	7:14	7:18	7:25	7:26	7:36	7:40	7:45	7:54
8:00	8:09	8:14	8:18	8:25	8:26	8:36	8:40	8:45	8:54
9:00	9:09	9:14	9:18	9:25	9:26	9:36	9:40	9:45	9:54
10:00	10:09	10:14	10:18	10:25	10:26	10:36	10:40	10:45	10:54
11:00	11:09	11:14	11:18	11:25	11:26	11:36	11:40	11:45	11:54
12:00	12:09	12:14	12:18	12:25	12:26	12:36	12:40	12:45	12:54
1:00	1:09	1:14	1:18	1:25	1:26	1:36	1:40	1:45	1:54
2:00	2:09	2:14	2:18	2:25	2:26	2:36	2:40	2:45	2:54
3:00	3:09	3:14	3:18	3:25	3:26	3:36	3:40	3:45	3:54
4:00	4:09	4:14	4:18	4:25	4:26	4:36	4:40	4:45	4:54
5:00	5:09	5:14	5:18	5:25	5:26	5:36	5:40	5:45	5:54
6:00	6:09	6:14	6:18	6:25	6:26	6:36	6:40	6:45	6:54
Saturday									
8:00	8:09	8:14	8:18	8:25	8:26	8:36	8:40	8:45	8:54
9:00	9:09	9:14	9:18	9:25	9:26	9:36	9:40	9:45	9:54
10:00	10:09	10:14	10:18	10:25	10:26	10:36	10:40	10:45	10:54
11:00	11:09	11:14	11:18	11:25	11:26	11:36	11:40	11:45	11:54
12:00	12:09	12:14	12:18	12:25	12:26	12:36	12:40	12:45	12:54
1:00	1:09	1:14	1:18	1:25	1:26	1:36	1:40	1:45	1:54
2:00	2:09	2:14	2:18	2:25	2:26	2:36	2:40	2:45	2:54
3:00	3:09	3:14	3:18	3:25	3:26	3:36	3:40	3:45	3:54
4:00	4:09	4:14	4:18	4:25	4:26	4:36	4:40	4:45	4:54

**Table 2-14
Proposed Schedule for Route 5 (Weekdays & Saturday)**

Weekday					
Eastbound/Westbound					
Ardice Ave & S Bay St	Eudora Rd & Old Us 441	E 5th St & N Tremain St	US 441 & N Donnelly St	Lake County Tech School	Ardice Ave & S Bay St
6:00	6:13	6:19	6:34	6:43	6:46
7:00	7:13	7:19	7:34	7:43	7:46
8:00	8:13	8:19	8:34	8:43	8:46
9:00	9:13	9:19	9:34	9:43	9:46
10:00	10:13	10:19	10:34	10:43	10:46
11:00	11:13	11:19	11:34	11:43	11:46
12:00	12:13	12:19	12:34	12:43	12:46
1:00	1:13	1:19	1:34	1:43	1:46
2:00	2:13	2:19	2:34	2:43	2:46
3:00	3:13	3:19	3:34	3:43	3:46
4:00	4:13	4:19	4:34	4:43	4:46
5:00	5:13	5:19	5:34	5:43	5:46
6:00	6:13	6:19	6:34	6:43	6:46
Saturday					
8:00	8:13	8:19	8:34	8:43	8:46
9:00	9:13	9:19	9:34	9:43	9:46
10:00	10:13	10:19	10:34	10:43	10:46
11:00	11:13	11:19	11:34	11:43	11:46
12:00	12:13	12:19	12:34	12:43	12:46
1:00	1:13	1:19	1:34	1:43	1:46
2:00	2:13	2:19	2:34	2:43	2:46
3:00	3:13	3:19	3:34	3:43	3:46
4:00	4:13	4:19	4:34	4:43	4:46

**Table 2-15
Proposed Schedule for Route 6 (Weekdays & Saturday)**

Weekday							
Northbound				Southbound			
Leesburg Regional Hospital	US 27/441 & S Dixie Av	US 27/441 & W Lemon St	US 27/441 & West Boone Ct	US 27/441 & West Boone Ct	US 27/441 & W Lemon St	US 27/441 & S Dixie Av	Leesburg Regional Hospital
6:00	6:13	6:28	6:40	6:45	6:52	7:09	7:23
7:00	7:13	7:28	7:40	7:45	7:52	8:09	8:23
8:00	8:13	8:28	8:40	8:45	8:52	9:09	9:23
9:00	9:13	9:28	9:40	9:45	9:52	10:09	10:23
10:00	10:13	10:28	10:40	10:45	10:52	11:09	11:23
11:00	11:13	11:28	11:40	11:45	11:52	12:09	12:23
12:00	12:13	12:28	12:40	12:45	12:52	1:09	1:23
1:00	1:13	1:28	1:40	1:45	1:52	2:09	2:23
2:00	2:13	2:28	2:40	2:45	2:52	3:09	3:23
3:00	3:13	3:28	3:40	3:45	3:52	4:09	4:23
4:00	4:13	4:28	4:40	4:45	4:52	5:09	5:23
5:00	5:13	5:28	5:40	5:45	5:52	6:09	6:23
6:00	6:13	6:28	6:40	6:45	6:52	7:09	7:23
Saturday							
8:00	8:13	8:28	8:40	8:45	8:52	9:09	9:23
9:00	9:13	9:28	9:40	9:45	9:52	10:09	10:23
10:00	10:13	10:28	10:40	10:45	10:52	11:09	11:23
11:00	11:13	11:28	11:40	11:45	11:52	12:09	12:23
12:00	12:13	12:28	12:40	12:45	12:52	1:09	1:23
1:00	1:13	1:28	1:40	1:45	1:52	2:09	2:23
2:00	2:13	2:28	2:40	2:45	2:52	3:09	3:23
3:00	3:13	3:28	3:40	3:45	3:52	4:09	4:23
4:00	4:13	4:28	4:40	4:45	4:52	5:09	5:23

Bus Stop Placement

General Location - Bus stop placement and spacing have a major influence on the performance of bus service. There is an inherent tradeoff between stop spacing and bus service speeds/performance, as follows.

- Close stops (every block or 1/8 to 1/4 mile) provide short walking distances, but more frequent stops result in longer bus trips; and
- Stops farther apart cause longer walk distances, but more infrequent stops allow higher speeds, and therefore, shorter bus trips.

The prevailing practice for bus stop spacing in the transit industry is summarized in Table 2-16.

Table 2-16
Typical Bus Stop Spacing Based on Prevailing Practices

Environment	Spacing Range	Typical Spacing
Central Core Areas of CBDs	300 to 1000 feet	600 feet
Urban Areas	500 to 1200 feet	750 feet
Suburban Areas	600 to 2500 feet	1000 feet
Rural Areas	650 to 2640 feet	1250 feet

Source: Transportation Research Board, *TCRP Report 19, Guidelines for the Location and Design of Bus Stops*, p. 18.

With the urban/rural make-up of Lake County, using national practices may not be practical. Therefore, a review of the bus stop policies of several transit systems that have been initiated in Florida over the last seven years may provide some applicable guidance to Lake County. Three systems were reviewed and their policies are shown in Table 2-17. The most common policy used at system start-up has been to start with 1,300-1,500 feet spacing between stops, and then to adjust as ridership and population grows. Winter Haven Area Transit (WHAT) adopted a much more detailed and specific policy on spacing between stops because it shares routing and service area with the more developed Lakeland Area Mass Transit District.

Table 2-17
Bus Stop Policies of New Florida Transit Systems

System	CBD- Core	Urban Areas	Suburban Areas	Rural Areas	Intercity Routes
Winter Haven	≥ 660 Feet	660-1,320 Feet	1,320-2,640 Feet	≥ 2,640 Feet	As needed, but ≥ 1 Mile
Collier Co.	N/A	N/A	1,300-1,500 Feet	N/A	N/A
Hernando Co.	N/A	N/A	1,300-1,500 Feet	N/A	N/A

Winter Haven Area Transit service began in March 1999, Collier County Area Transit service began in February 2000, and Hernando County's "The Bus" service began in November 2002.

A summary of the number of bus stops and their spacing is provided by route in Table 2-18. Bus stop spacing in Lake County is recommended at around 1,300 to 2,600 feet between stops given its current characteristics. This is consistent with suburban areas but is approaching the high end of bus stop spacing for urban areas. This also is supported by the new start transit systems in Florida, which generate only moderate ridership as they are implemented. As ridership expands and parts of the County become more urbanized, policies with a tiered system of bus stop spacing should be developed with stop spacing reduced accordingly. Lake County will need to consider at least three spacing policies in the future: urban, suburban, and rural. It is recommended that the stop spacing policies be reviewed annually for the first five years of operation.

Another strategy Lake County may want to consider is the use of “flag stops,” whereby patrons would be allowed to flag down the bus between stops. This system allows passengers to be located anywhere along the routes and, when a bus approaches, wave or “flag” down the bus operator to have the bus pull over to allow access. There are some potential safety concerns associated with this strategy, as there are typically whenever bus stops are placed along roadways that do not include curb and gutters and other urban design infrastructure. However, several benefits can be realized, as well. In addition, this strategy may contribute to initial service inefficiencies. For a new transit system, initial application of a flag stop policy would give time to evaluate where passenger activity is most prevalent and to add designated stops only where demand dictates. This would help to ensure that accessible bus stops are present only at needed locations and that stops where little or no activity occurs are not improved unnecessarily.

**Table 2-18
Bus Stops and Spacing by Route**

Route	Length (miles)	# of Bus Stops	Stop Spacing (feet)
1	13.83	28	2,607
2	15.11	30	2,659
3	11.94	24	2,627
4	12.98	26	2,636
5	12.91	26	2,622
6	24.73	33	3,957

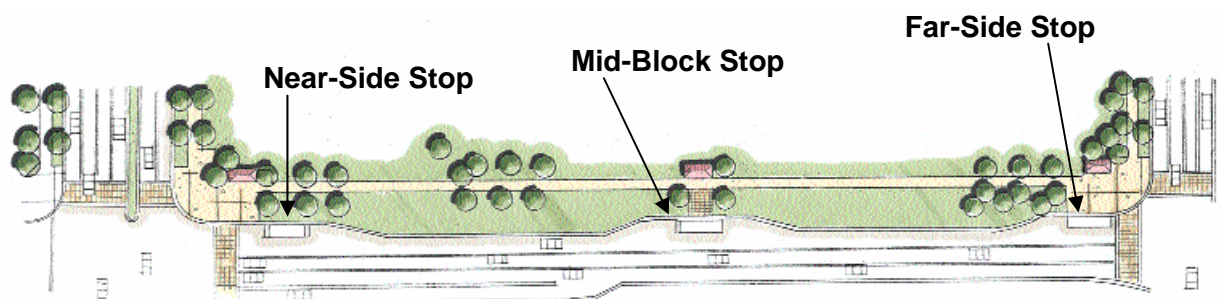
Placement of Stops at Intersections - There are three philosophies regarding the specific placement of bus stops, including far-side, near-side, and mid-block.

- Far-Side Stop – bus stop immediately after passing through an intersection.
- Near-Side Stop – bus stop immediately before an intersection.
- Mid-Block Stop – bus stop within the block between intersections.

The advantages and disadvantages of these stop placement philosophies are summarized in Table 2-19, while the bus stop placement concepts are illustrated in Figure 2-1.

There is no industry standard that supports one philosophy over another, with the exception that mid-block stops are discouraged due to inconveniences to the pedestrian. The industry has supporters of both near-side and far-side stops, with each group having valid arguments. Given the characteristics existing in Lake County, *it is recommended that Lake County adopt a policy of far-side stops for signalized intersections, and that stop placement at other intersections be decided on a case-by-case basis.* At signalized intersections, the far-side policy will help minimize interference with right turns and traffic flow. At non-signalized intersections, geometrics, speed, vehicle movements, and other conditions should be considered in the decision. However, this recommendation should be discussed further with County transportation officials to reflect additional input and concerns as appropriate.

Figure 2-1
Illustration of Near-Side, Mid-Block, and Far-Side Stops with Turn Bays



**Table 2-19
Comparative Analysis of Bus Stop Locations**

Stop Placement	Advantages	Disadvantages
Far-Side Stop	<ul style="list-style-type: none"> • Minimizes conflicts between right turning vehicles and buses; • Provides additional right turn capacity by making curb lane available for traffic; • Minimizes sight distance problems on approaches to intersection; • Encourages pedestrians to cross behind the bus; • Creates shorter deceleration distances for buses since bus can use the intersection to decelerate; • Results in bus drivers being able to take advantage of the gaps in traffic flow that are created at signalized intersections. 	<ul style="list-style-type: none"> • May result in the intersections being blocked during peak periods by stopped buses; • May obscure sight distance for crossing vehicles; • May increase sight distance problems for crossing pedestrians; • Can cause a bus to stop far side after stopping for a red light, which interferes with bus operations and other traffic; • May increase number of rear-end accidents since drivers do not expect buses to stop again after stopping at a red light; • Could result in traffic queued into intersection when a bus is stopped in travel lane.
Near-Side Stop	<ul style="list-style-type: none"> • Minimizes interference when traffic is heavy on the far side of the intersection; • Allows passengers to access buses closest to crosswalk; • Results in the width of the intersection being available for the driver to pull away from curb; • Eliminates the potential of double stopping; • Allows passengers to board and alight while the bus is stopped at a red light; • Provides driver with the opportunity to look for oncoming traffic, including other buses with potential passengers. 	<ul style="list-style-type: none"> • Increases conflicts with right-turning vehicles; • May result in stopped buses obscuring curbside traffic control devices and crossing pedestrians; • May cause sight distance to be obscured for cross vehicles stopped to the right of the bus; • May block the through lane during peak period with queuing buses; • Increases sight distance problems for crossing pedestrians.
Mid-Block Stop	<ul style="list-style-type: none"> • Minimizes sight distance problems for vehicles and pedestrians; • May result in passenger waiting areas experiencing less pedestrian congestion. 	<ul style="list-style-type: none"> • Requires additional distance for no-parking restrictions; • Encourages patrons to cross street at mid-block (jaywalking); • Increases walking distance for patrons crossing at intersections.

Source: TRB, *TCRP Report 19, Guidelines for the Location and Design of Bus Stops*, p. 21.

COORDINATION

Community Opportunities

The Transit Development Plan (TDP) identified numerous community goals, objectives, and strategies that are designed to foster development of the type of community residents seek and desire. Many of the goals, objectives, and strategies of the Lake County transit system are consistent and many help to foster community vision. Lake County should coordinate with local agencies to ensure that development and decisions are guided to benefit the community and the transit system at the same time.

The Lake County MPO will be initiating a Bus Circulator Study in Summer 2006. This study will investigate and evaluate potential community circulator service needs in several sub-areas. These circulator routes may dictate the need to establish additional connector service routes between communities, as well. Included in this study will be the need for inter-county circulator services between Lake and Sumter, Lake and Polk, and Lake and Osceola counties. A natural part of the study effort will include the connections between community circulators, as well. Ensuring that the traveling public can access these services without any gaps or hurdles will need to be included in the study recommendations.

Transportation Disadvantaged

Since 2001, the Lake County Board of County Commissioners has been the County's Community Transportation Coordinator (CTC) and has contracted out the management and provision of TD transportation service to private contractors. Currently, MV Transportation, Inc., is the contractor and handles most of the management and operational duties of the CTC. On November 7, 2003, the Florida Commission on the Transportation Disadvantaged (FCTD) extended Lake County's CTC designation until October 30, 2009. A CTC is responsible for the short-range operational planning, administration, monitoring, coordination, arrangement, and delivery of transportation services originating within the designated service area.

The CTC provides all of the coordination services and MV provides the majority of the transportation services. The CTC has five written coordination agreements with human service agencies that do their own services. MV provides the stretcher transport service in house. A logical goal will be to reduce the demand for door-to-door trips by providing the fixed-route bus service along the US 441 corridor. The County, through MV, is working to convert door-to-door trips to fixed-route service trips. Lake County will modify its agreement with MV just as it did with LifeStream so that MV may provide the fixed service. It is expected that several benefits can be expected for the overall transportation system if MV operates the fixed-route service. These benefits include:

- Less overhead by having a combined system;
- Better coordination to minimize the affects of adding new ADA complementary paratransit service;
- The ability to use innovative matching funds to maximize the leveraging of federal and state funding; and
- The opportunity for joint marketing and to centralize public information resources and services.

Neighboring Transit Systems

LYNX (Central Florida Regional Transit Authority) is the provider of transit service in the Orlando Urban Area, which includes all areas of Osceola, Orange, and Seminole counties and portions of several others. LYNX refers to its routes as “Links.” Currently, there is one route that comes into Lake County. Link 55 operates in the Four Corners area in southeast Lake County, terminating at the Publix at Summer Bay on Town Square Boulevard. Therefore, LYNX also is operating ADA complementary paratransit services in this area of Lake County. LYNX and Lake County have been in discussions to expand coordination and service connections into Lake County.

Two Florida Transit Service Development grant proposals have been submitted by LYNX that create additional services in Lake County. These new services include:

- An extension to Link 55, and
- An express route that connects Clermont in Lake County with the Downtown Orlando area.

The extension to Link 55 would take the route west of the current terminus, onto US 27, and north a short distance to the South Lake Wal-Mart Supercenter. This extension increases service by 25 percent, providing transit service to the growing but unincorporated Four Corners area. The new express route, the Clermont Express, will support the Central Florida MPO Alliance goal of promoting inter-county transit services. Since many residents of Lake County commute to Orlando and Kissimmee locations, a market already exists and this new service will meet a regional need. The Clermont Express is expected to begin operation once Lake County and LYNX agree on an effective date and will operate in the morning and afternoon peak commute periods of 5:30 a.m. to 8:45 a.m. and 4:00 p.m. to 7:15 p.m. There will be five trips to the east during the morning peak and five trips to the west in the afternoon peak.

LYNX also has taken the lead in implementing a regional Automated Vehicle Location (AVL) system for the paratransit services. LYNX has coordinated more closely with the transportation

disadvantaged providers in other service areas, such as Polk County, as they implement the AVL system. This AVL system is designed to allow providers to know where each others' vehicles are, and to rely on each other for cross-county and outlying service needs. The AVL system is one of the components of the TRAPEZE scheduling and managing software used by MV for the paratransit services in Lake County. There may be an opportunity to improve the coordination efforts in services provided to the transportation disadvantaged in the county, and to ensure that the communication level is improved, as well, should Lake County be able to participate in the AVL system in the future.

Currently, there are services provided by Sumter County in The Villages area. A large portion of The Villages is in Lake County and close coordination is justified to ensure that Lake County residents have access to the county and community services within Lake County that they need. A route connecting the Lake County transportation system and the services provided by Sumter County at The Villages will be a priority in the future. The MPO, Marion TPO, and the CTC's of Lake, Marion, and Sumter counties are working together to possibly provide such a service in the future.

As part of the Bus Circulator Study mentioned previously under Community Opportunities, coordination with transit systems in Sumter, Polk, Marion, Volusia, and Central Florida (LYNX) will be important. An on-going regional discussion of the transit activities now and in the future may be a reasonable response to ensure that the various systems interconnect and close gaps that would impact the traveling public adversely.

Other Opportunities

In the Four Corners area a study was commissioned through the Central Florida and East Central Florida Regional Planning Councils to gain a full understanding of the services being provided in the area and to begin a planning process for more efficient delivery of future services. The 2000 Census created the Citrus Ridge Census Designated Place (CDP) for this area, which will help in planning future services. The study identified several potential opportunities for regional transit services, such as the Community Redevelopment Authority that is being established around the Posner Center south of I-4 on US 27. As part of the proposed development orders, there is a requirement for the developer to contract with LYNX and Polk County to establish a Superstop Transfer Center. Other potential development activities in the Four Corners area may include transit services as part of the requirements for permitting. Along US 27 north of I-4, there is a good chance that developers will be supporting transit services in the future. Several specific recommendations from the study are:

- Consideration should be given to the eventual creation of a transit system in the area;
- Town and activity centers should be designed to accommodate future transit services and convenient pedestrian movements;

- Sufficient right-of-way should be maintained for possible bus pull-out bays, queue-jumping lanes, and other measures to support transit use; and
- Ensure that roads parallel to US 27 are constructed during development processes, and access is limited along east-west cross roads as the primary access to regional facilities.

Careful monitoring of the development process in this area is warranted by transit systems and planning agencies.

RIDERSHIP PROJECTIONS

Potential ridership demand for all six bus routes was estimated using a new-start ridership analysis. A new-start ridership analysis is recommended to project ridership for fixed-route bus services evaluated as part of the transit planning process. The maximum potential ridership on new fixed-route systems is not normally achieved until the service has been operating for at least three years. For this reason, it is useful to apply ridership ratios (riders per mile of service) from recent new-start systems in Florida. Applying data from new-start systems provides a realistic projection of ridership in the initial years of new fixed-route bus service. Data for several transit systems in Florida were obtained for the irrespective first three years of operation. Selected data are presented in Table 3-5.

In the first years of operation, the number of trips per revenue mile ranges from 0.06 for Indian River Transit to 0.61 for Lakeland Area Mass Transit District. The average trips per revenue mile is 0.29, while the weighted average is somewhat higher at 0.38. A reasonable goal for Lake County would be to achieve the straight average indicated in the table for the initial three years of operation (year 1 = 0.29, year 2 = 0.35, and year 3 = 0.42). These ratios will be applied to the projected revenue miles to estimate fixed-route transit ridership for Lake County.

The results of applying the average new-start ratios noted in Table 2-20 to Lake County's new fixed bus routes can be found in Table 2-21. Annual ridership in the third year of operation of the transit system is projected to be 138,051. If the weighted average is applied, projected ridership in the third year is 147,912. The higher projection would reflect a high ridership goal for the new system.

Table 2-20
Fixed-Route Data for Start-Up Transit Systems in Florida*

Transit System	Annual Measure	Year 1	Year 2	Year 3
Lakeland Area Mass Transit District	Passenger Trips	259,200	324,500	369,900
	Revenue Miles	424,200	427,600	427,600
	Trips/Revenue Mile	0.61	0.76	0.87
Bay Town Trolley (Panama City)	Passenger Trips	10,200	38,052	N/A
	Revenue Miles	80,000	151,452	N/A
	Trips/Revenue Mile	0.13	0.25	N/A
Collier County Area Transit (year to date only, first year of operation not completed)	Passenger Trips	61,442	N/A	N/A
	Revenue Miles	157,860	N/A	N/A
	Trips/Revenue Mile	0.39	N/A	N/A
Sun Tran (Ocala) (Year 3 is partial year - 9 months)	Passenger Trips	97,690	154,719	154,716
	Revenue Miles	240,330	317,548	277,527
	Trips/Revenue Mile	0.41	0.49	0.57
Pasco County Public Transportation (limited service in initial years)	Passenger Trips	26,840	48,030	58,180
	Revenue Miles	178,470	357,830	419,440
	Trips/Revenue Mile	0.15	0.13	0.14
Indian River Transit	Passenger Trips	8,082	20,260	24,760
	Revenue Miles	133,230	159,520	231,320
	Trips/Revenue Mile	0.06	0.13	0.11
Average Passenger Trips		77,242	117,112	151,889
Average Revenue Miles		202,348	282,790	338,972
Average Trips/Revenue Mile		0.29	0.35	0.42
Weighted Average Trips/Revenue Mile		0.38	0.41	0.45

*Source: Adapted and expanded by TOA from Center for Urban Transportation Research, "Collier County Public Transportation Development Plan (FY 2000-FY 2004), pp. 107-108.

Table 2-21
Projected Annual Ridership

Route #	Estimated Annual Revenue Miles	Year 1 Projected Ridership	Year 2 Projected Ridership	Year 3 Projected Ridership
Route 1	53,398	15,485	18,689	22,427
Route 2	58,340	16,919	20,419	24,503
Route 3	50,965	14,780	17,838	21,405
Route 4	50,116	14,534	17,541	21,049
Route 5	49,846	14,455	17,446	20,935
Route 6	66,029	19,148	23,110	27,732
Total	328,693	95,321	115,043	138,051

STAFFING REQUIREMENTS

A review was conducted to assess the specific staffing requirements for the proposed fixed-route bus system in Lake County. Based on this analysis, a preliminary staff plan was developed that includes the estimated number of full-time drivers and maintenance/administrative employees needed to operate the service.

The 2004 National Transit Database (NTD) was used to calculate the total number of employees needed for implementation of transit service. The ratios of employees of various types to revenue hours for three similar systems in Florida with a peak vehicle requirement between 1 to 9 were used in this assessment. These include fixed-route system data for 2004 for Bay, St. Lucie, and Indian River Counties. The mid-range of these three ratios was then applied to the total projected annual revenue hours for the proposed Lake County fixed-route bus service. The results are shown in Table 2-22.

**Table 2-22
Fixed-Route Transit Staffing Plan – Hiring Criteria**

Staff Category	Criteria
Operators	1 operator per 1,500 revenue hours
Maintenance	1 vehicle maintenance position per 8,000 revenue hours
Administration	1 administration position per every 20,000 revenue hours

Table 2-23 shows the staffing needs to accommodate the implementation of transit service in FY 2007 and maintain the service through FY 2011. It should be noted, however, that additional hires may be required after these initial hires if any major service improvements are implemented within the next five years.

**Table 2-23
Fixed-Route Transit Staffing Plan**

Fiscal Year	Revenue Hours	Operators	Maintenance	Administration	Total Employees
2007-2011	23,310	15	3	1	19

OTHER OPERATING ISSUES

Maintenance

Developing and implementing an effective maintenance management system for capital equipment and facilities is an important component to any operation plan. The Lake County fixed-route transit system's maintenance program will truly be a preventative maintenance scheduling program based on the recommended selection and choice to procure heavy duty buses (discussed further in Section 3). As such, the costs of most elements of the maintenance plan will be controllable for several years after start-up of the operations.

For Lake County, all operations, including the maintenance program may be contracted out to a private provider. The Operator will need to submit a Maintenance Management Plan to Lake County for approval. Documentation of the maintenance process must be thorough and must be approved by Lake County. Funding agencies will periodically perform on-site inspections/reviews of the maintenance program and adequate documentation of actual activity is usually the number one deficit in these reviews.

Vehicle Maintenance

The Maintenance Management Plan should include vehicles and facilities. The vehicle preventative maintenance (PM) plan will be based on an agreed-upon interval, commonly 6,000 miles for heavy duty buses, spread out over a series of service requirements. The PM tracing and scheduling process uses either a Maintenance PM spreadsheet or a maintenance software package called Fleet Focus. In either case, the management program is updated on a daily basis and PM servicing activity is scheduled based on what is identified as due in the schedule. Each PM will be set up by referring to the manufacturer specs with a complete (or staged) vehicle and component inspection accompanying each service interval. The PM paperwork is then filed by vehicle for the life of the vehicle to record the services and life history of each bus.

Maintenance needs beyond the scheduled PM activities will be based on priority as identified. Most, if not all, of these needs in the first several years of operation will be covered by manufacturers' warranties. Scheduling warranty work sometimes can be difficult, so maintaining a good working relationship with the manufacturer is important. Some of the unscheduled maintenance needs will be identified through the daily operators' reports and inspections. These should be diagnosed and resolved as appropriate for the need. Some unscheduled needs may be identified by mechanics during scheduled PM activities. In these cases, mechanics may be able to correct these needs while doing the PM activity, or will have to have the work scheduled as appropriate. There also may be some unscheduled work that becomes apparent with breakdowns/roadcalls. Breakdowns/roadcalls should be minimal during

the first four to six years of operation. However, all repair work needed as a result of these events should be handled immediately if possible, or scheduled as appropriate. In all cases, documentation of the work and activity is very important, including a mechanism to cross reference needs identified during inspections with the actual work efforts that resolved the needs.

Facility Maintenance

For facilities used in transit operations, there are several approaches to maintenance that can, and should, be incorporated into the Lake County fixed-route transit system. The location of benches and shelters are subject to the requirements of the owners of the right-of-way, as well as any local regulations regarding placement and advertising. The following is a synopsis of the various approaches and considerations of each approach.

- The Operator be using Lake County property as a base of operations. Terms of any lease/use agreement details responsibilities for cleaning and maintenance at the facility.
- Transfer facilities, shelters, and bus benches that are constructed or purchased via grant funding and placed in service in Lake County will need to be maintained as agreed upon in the operator contract, or any other active partner (i.e., a transfer point in a medical facility may be maintained by the facility owner). Maintenance needs of any transit facilities to be maintained by Lake County should be specified in the operator contract.
- Lake County may opt to enter into an advertising contract with a private company for the placement of benches and/or shelters. In that case, the contract should stipulate that the advertising company follow all appropriate regulations and perform all maintenance activities.

In summary, the Maintenance Management Plan is an important tool that should be given appropriate attention prior to implementation. The operator should submit its proposed plan to Lake County for approval prior to start-up of operations and Lake County should plan on completing periodic reviews of the maintenance program for quality control and appropriate documentation practices.

Performance Monitoring Plan

Critical to the success of any plan is the development of monitoring procedures to ensure that the plan is implemented successfully, while maintaining specified performance standards. Lake County should adopt a monitoring program that includes three major elements: (1) performance measures, (2) an annual quality of service survey, and (3) a route-by-route performance check.

A series of performance indicators and measures should be monitored and recorded on a

monthly basis for deviations in performance of the fixed-route bus service. A monthly performance monitoring report should be developed and maintained. This report should include selected operating characteristics for the current month, the previous month, the same month in the previous year, and a year-to-date summary. The indicators and measures to be included in the report include the following.

- Vehicle Miles of Service;
- Passenger Trips (Ridership);
- Operating Expense;
- Operating Expense per Vehicle Mile;
- Operating Expense per Passenger Trip;
- Passenger Trips per Revenue Hour;
- Passenger Trips per Vehicle Mile; and
- On-time Performance of Transit Operations.

These indicators and measures are illustrated in a sample report without data in Table 2-24.

These indicators and measures are consistent with data already required for the Federal Transit Administrations's National Transit Database program and the FDOT State Block Grant program. Performance standards also are identified in the table to measure the progress of the system's performance in the coming years. The peer performance standards are taken from the 2004 fixed-route peer review analysis conducted as part of this TOP. The same peers used in the development of the Lake County TDP were used again in this analysis. **In most cases, this level of performance cannot be attained until the third year of operation for a new-start transit system; however, the standards do provide a starting point for measuring performance.** As a result, the performance standards are set so that the peer performance can be achieved during the third complete year of service. Standards in the first and second years are set to reflect the gradual increase in ridership over the initial years of operation. The five measures of performance include:

- **Cost per Revenue Hour** – This ratio measures the efficiency with which transit service is delivered. This measure does not reflect demand; the cost per revenue hour is determined by the rate established in the operator contract. The cost per revenue hour should be maintained throughout the system with only a three percent inflationary factor added for Year 2 and again in Year 3.

**Table 2-24
Sample Monthly Performance Report, July 2007
Lake County***

Transit Service	Vehicle Miles	Passenger Trips	Operating Expense	Cost per Rev. Hour	Cost per Trip	Trips per Rev. Hour	Trips per Rev. Mile	On-Time Perf.
PERFORMANCE STANDARDS								
Year 1	---	---	---	\$55.00	\$14.44	4.39	0.28	85%
Year 2	---	---	---	\$56.65	\$10.83	6.58	0.42	90%
Year 3	---	---	---	\$58.35	\$7.22	8.77	0.56	95%
Route #1 (Add a separate report section for each route)								
Jul-07								
Jun-07								
% Change								
Jul-06								
% Change								
Year-to-date								
SYSTEM-WIDE TOTALS								
Jul-07								
Jun-07								
% Change								
Jul-06								
% Change								
Year-to-date								

*Adapted from the St. Lucie Urban MPO TDP (2002-2006) and the Lake County TDP (1999-2003).

- **Cost per Passenger Trip** – This ratio measures the efficiency with which a transit system is transporting passengers. This measure reflects both market demands, as well as the efficiency with which service is supplied. The 2004 peer performance level indicated a cost of \$7.22 per passenger trip. Interim year standards are set at \$14.44 per trip in Year 1 and \$10.83 per trip in Year 2.
- **Passenger Trips per Revenue Hour** – This measures the effectiveness of the transit system, as well as gives an indication of service consumption. This is one of the first indicators that federal and state funding agencies will want to see in reports regarding system performance. The 2004 peer performance level is at 8.77 passenger trips per

revenue hour. Interim year standards are set at 4.39 trips per hour in Year 1 and 6.58 trips per hour in Year 2.

- **Passenger Trips per Revenue Mile** – This measure is a key indicator of service effectiveness that is influenced by both transit demand and the level of service provided. The 2004 peer performance is 0.56 passenger trips per revenue mile. Interim year standards are set at 0.28 trips per mile in Year 1 and 0.42 trips per mile in Year 2.
- **On-time Performance of Transit Operations** – This measure is an indicator of a properly timed operations schedule and is a key component contributing to rider perceptions of the system. On-time performance is established by policy, but should be reflective of industry standards and community goals. A working definition of on-time performance is arriving within five minutes prior, or one minute after, the scheduled time as established and published. Seasonal and peak periods can have a drastic impact on-time performance, especially in more heavily populated urban areas. Based on the policies of other similar systems, Lake County's on-time performance should be no less than 95 percent. Interim year standards are set at 85 percent in Year 1 and 90 percent in Year 2.

The second component of the monitoring program involves the use of an annual quality of service survey to obtain input from the users of the transit system. The quality of service survey should be conducted annually to assess the performance of the transit system from the user perspective. On the survey, riders should be asked to rate the following aspects of the Lake County fixed-route transit service.

- Days of Service
- Hours of Service
- Frequency (how often buses run)
- Convenience of Routes (where buses go)
- Dependability of Buses (on time)
- Travel Time on Bus
- Cost of Riding the Bus

The survey would be inexpensive to administer since it can be distributed by bus drivers over a number of days. The quality of service, as measured by this annual survey, can then be monitored from year to year. This feedback would be particularly useful in the initial years of operation.

The third component of the monitoring plan does not take effect until the third year of system operation. The route-by-route performance checks should be an on-going process to determine

when a route's performance falls below an acceptable level, and is in need of extraordinary support. This route-by-route performance check also will indicate when a route is not going to be productive and should be considered for elimination or complete restructure. Data for the route-by-route performance check already will be collected for the Monthly Performance Report; however, starting in year 3 and continuing on an annual basis at a minimum, an analysis should be completed that will provide priorities directly into the marketing and operational plans of the systems.

Tables 2-25 and 2-26 detail the route-by-route performance check. The form in Table 2-25 identifies required operational data, performance standards, key indicators for actions, and descriptions of actions to be taken for each route. This tool can be used to conduct the annual analysis. The performance standards and actions to be taken in Table 2-26 are based on the average passenger trips per revenue hour of each route versus the system average passenger trips per revenue hour. It is recommended that when a route's performance falls in the 60-89 percent range of the system average, actions should be taken to create a specific marketing and operational improvement plan. The improvement plan should include:

- Revisiting the route characteristics and demographics, including alignment, ridership generators, and other possible contributors to poor performance;
- A public and business contact and consensus process;
- Planned strategies for improvement with milestones and a schedule;
- Specific marketing programs for the route and the potential riders; and
- An assessment to determine when to cease efforts.

The Federal Transit Administration requires a minimum amount of public information and involvement in decisions regarding major changes to routes. The route-by-route performance check will assist Lake County in preparations for such actions.

Table 2-25
Lake County Route-by-Route Performance Check - Form

Route #	System Average Trips/Hour	Route Average Trips/Hour	Performance Indicator	90% and Above	60%-89%	Below 60%	Action
Route 1							
Route 2							
Route 3							
Route 4							
Route 5							
Route 6							

Table 2-26
Lake County Route-by-Route Performance Check - Standards

Performance Standard	Key Indicators	Actions to be Taken
Average trips/revenue hour	90% or above	No action required
Average trips/revenue hour	60% - 89%	Action plan implemented to improve route performance and watch route closely
Average trips/revenue hour	Below 60%	If preventative actions have already taken place, take actions to cease or completely restructure

FARE POLICY/STRUCTURE

The fare policy for small and new bus systems like Lake County's is an extremely important political and public relations decision that should be kept in a proper perspective. That perspective is one of balancing the financial revenue created with how attractive the system will be to the potential rider. Attracting potential riders and building recurring ridership are major goals of new transit systems. Yet, a solid financial footing cannot be over-stressed with funding agencies and governing boards.

Issues that may need to be considered include: the up-front capital costs of automated fare collection systems versus the limiting nature of traditional fare box systems; the amount of accountability with pass sales and fare handling versus the manpower availability in a small system; and providing a service with a value to community versus the persona of a social service system.

Background Information & Considerations

To develop a fare policy recommendation, the issues posed previously were considered, especially as they specifically interact with the operating characteristics of Lake County. The national trends on fare policies for transit systems then were summarized before analyzing the fares for a sampling of Florida transit systems.

The capital cost to procure an advanced automated fare system is high for a small transit system. Most systems do not consider the investment until reaching at least 15-20 total routes. While the automated systems are helpful in data collection and fiscal control, small systems find that the costs far outweigh the overall benefit. In addition, there may be large costs associated with implementing simple accounting procedures. To assist in accounting practices, a simple fare policy and structure is normally instituted, as the fiscal accountability is more easily maintained and controlled. Instituting a simple fare structure, that is perceived as being based on the realistic value of the service, fosters a feeling of ownership among riders and the persona

of legitimacy in the community. Fares that are set too low foster the idea that transit is a social service program and not a full-service program for the whole community.

Based on previously completed transit fare survey work, the American Public Transportation Association's (APTA) website includes a summary of adult single-trip base fares by mode, updated to 2005. Of the 229 bus systems represented in the summary, 43.7 percent of the systems charge a single-trip full cash fare between \$0.75 and \$1.00. About two-thirds of these systems were charging \$1.00. It is interesting to note that the majority of the fare rates range from \$0 (free) to over \$2.25 per trip. The wide range in fares is due to many elements, however, larger urban systems are more likely to have fares at one of the extremes and tend to have more elaborate fare structures.

In looking at the Florida market, the fare structures for seven different systems were examined, with four of the systems from coastal communities and three from inland communities. The systems vary in size from 6 routes to more than 35 routes. They also vary in age from 4 years to 30 years in existence. A summary is shown in Table 2-27.

Florida transit systems have full cash fares ranging from \$0.75 to \$1.50. The definition of Elderly varied from 60 to 65 years, with two systems using Medicare or other certifications. However, overall fare policies, including base fares, reduced fares, and passes, are tailored to the community served. Patrons that qualify under ADA for complementary paratransit service can be required to pay up to twice the amount as the full cash fare by law. In all but one system, that is the case in the Florida sampling. One interesting policy noted is at ECAT, where certified ADA patrons can ride the fixed-route service for free.

Fare Policy

Lake County should establish a transit fare policy that includes a full cash base fare amount with no transfer charges, a reduced fare for certain special needs patrons, and passes that offer savings and convenience to the users. The fare policy should include ease of use for both the patron and the system fiscal managers and accountants. Each of these three policy areas are covered in more detail below, along with a summary of the recommended policy detailed in Table 2-28.

Table 2-27
Florida Transit System Fare Structures

Fare type	MCAT	SCAT	LeeTran	SunTran	ECAT	LAMTD	WHAT
Base	1.00	1.00	1.00	1.00	1.50	.75	.75
Senior/elderly	.50	.50	.50	.50	.75	.35	.35
Disabled	.50	.50	.50	.50	.75	.35	.35
Medicare	.50	.50	-	.50	.75	.35	.35
Baby in Arms	Free	-	-	-	-	-	-
Children < 5	-	Free	-	Free	-	-	-
Children < 6	.50	-	-	-	-	Free	Free
Youth 6-19	-	-	-	.75	-	.50	.50
Youth < 17	-	-	.50	-	-	-	-
Student shorter than farebox	-	-	-	-	Free	-	-
Student w/ID	-	Free	-	.75	1.00	-	-
Veterans	-	Free	-	-	-	-	-
31-day pass	25.00	-	-	-	40.00	-	-
31-day (Dis.)	14.00	-	-	-	30.00	-	-
Monthly Pass	-	28.00	30.00	36.00	-	24.00	24.00
Monthly (Dis.)	-	14.00	18.00	18.00	-	-	-
Work Perk Pass	-	-	-	-	-	5.00	5.00
Student Monthly	-	-	25.00	27.00	-	-	-
Student 12-Day	-	-	-	-	-	-	-
Student 10-Ride	-	-	-	-	10.00	4.00	4.00
10-Day Pass	10.00	-	-	-	-	-	-
10-Day (Dis.)	5.00	-	--	-	6.00	-	-
7-Day Pass	-	-	-	-	12.50	-	-
All-Day Pass	-	-	-	-	4.50	-	-
Student Summer	-	-	--	-	-	8.00	8.00
20-Ride Pass	-	-	-	-	25.00	12.00	12.00
12-Ride Pass	-	10.00	-	-	-	-	-
12-Ride (Dis.)	-	5.00	-	-	-	-	-
10-Ride (Dis.)	-	-	-	-	-	3.50	3.50
Transfers	Free	Free	.15	Free	1-Free	Free	Free
ADA Fare *	2.00	1.50	2.00	2.00	3.00	1.50	1.50

The Florida transit systems are: MCAT= Manatee County Area Transit; SCAT=Space Coast Area Transit; LeeTran= Lee County Transit; SunTran=Ocala Transit; ECAT=Escambia County Area Transit; LAMTD=Lakeland Area Mass Transit District; WHAT=Winter Haven Area Transit. * Americans with Disabilities Act complementary paratransit

Full Cash Fare – Based on the previous information, it is recommended that Lake County establish a full cash base fare of \$1.00. It is believed that this level will be perceived as appropriate and fair for the services provided, while being within the expense range of most, if not all, potential transit patrons in Lake County. It is also a fare that can easily be handled by traditional types of fare collection systems. ADA complementary paratransit service fares should be set at twice the regular fare, or \$2.00. Traveling companions for ADA riders should pay the regular fare that transit patrons are required to pay.

As noted, the recommended base fare of \$1.00 is reasonable and fair. As service matures, the County may want to revisit the recommended fare policy and structure in order to account for increasing operating costs. One measure for tracking and monitoring the effectiveness of the transit system is the farebox recovery ratio. The farebox recovery represents the percent of total operating costs recovered through farebox collections. National farebox ratios average about 30% and farebox ratios in Florida average about 20%. As the system grows, farebox recovery ratios should be monitored to ensure appropriate fare policies are being implemented by the transit agency.

Reduced Fares – For systems receiving federal funding, the Federal Transit Administration requires the availability of reduced fares during non-peak hours of service for elderly persons (65 years and older) and persons with disabilities. The discount is usually 50 percent of the full cost for a given fare category, but may be varied based on peak travelers and impacts. Many systems also offer student and children discounts. As can be seen in Table 2-27, the reduced fares and who qualifies can vary. It is recommended that Lake County institute a reduced fare, but one that is simple to understand and one that supports simplified accounting practices.

Therefore, it is recommended that a 50-percent fare reduction be applied for elderly over 60 years, disabled citizens, and students. To qualify, patrons will have to show an appropriate identification. This identification could be issued through Medicare, school, or the transit system. Patrons who are certified under the ADA program should be able to ride the regular fixed route bus services for free. Also, children who are five years old or younger should ride for free as long as they are accompanied by a fare-paying chaperone.

The reduced fare structure will allow a wide range of citizen groups to be impacted in a positive manner, while keeping the amount of different price accounts limited to three: full, reduced, and free.

Passes - It is recommended that Lake County institute two types of passes, both with unlimited rides, but one for daily use and one good for a 30-day period. Both will include a reduced cost

pass for those who qualify for reduced fares. For those patrons who qualify, their ADA certification will serve as an unlimited pass for the fixed-route bus service.

The recommended cost for an unlimited ride Daily Pass is \$3.00, with a reduced fare pass costing \$1.50. The unlimited ride 30-Day pass is recommended to cost \$30.00, with the reduced fare pass costing \$15.00. With only four passes to sale and track, the fiscal accounting process should be very easily managed.

**Table 2-28
Recommended Fare Structure**

Fare Category	# of Trips*	Fare	Cost/Trip
Full Cash Base Fare	1	\$1.00	\$1.00
Reduced Fare	1	\$0.50	\$0.50
Daily Unlimited Ride Pass	4	\$3.00	\$0.75
Daily Reduced Fare Unlimited Ride Pass	4	\$1.50	\$0.38
30-Day Unlimited Ride Pass	54	\$30.00	\$0.56
30-Day Reduced Unlimited Ride Pass	54	\$15.00	\$0.28
20-Ride Pass**	20	\$16.00	\$0.80
20-Ride Reduced Pass**	20	\$8.00	\$0.40
10-Ride Pass**	10	\$8.00	\$0.80
10-Ride Reduced Pass**	10	\$4.00	\$0.40
ADA Comparable Paratransit Base Fare	1	\$2.00	\$2.00
ADA Patron using Fixed Route	1	Free	Free
Children Five Years old or Younger	1	Free	Free

* Estimated # of trips within the time period covered by each fare category.

**Fare media will be impacted by the ultimate selection of fare type.

Section 3

CAPITAL NEEDS EVALUATION

The new Lake County fixed-route bus service will require a substantial capital investment to meet the proposed service plan outlined in Section 2 of this report. Initial capital needs include vehicles and bus stop amenities such as signs, benches, shelters, and sidewalks. Future capital investments may include large transfer facilities and/or Intelligent Transportation System (ITS) technology. Decisions to invest in future capital items should be based on the need elicited through the operation of the transit service. This section provides an evaluation of immediate capital needs for starting operation of the new transit service based on the proposed service plan and provides an analysis of potential transfer facility locations and needs.

VEHICLES & BUS STOP INFRASTRUCTURE

The most visible and prominent features of any transit system include bus stops and vehicles. Many transit agencies dedicate a significant amount of effort in selecting the most appropriate bus stop amenities and vehicles to complement their service schedule. Included in the following sections on capital equipment is an evaluation of potential vehicles for the new Lake County fixed-route bus service, a guide for the design and placement of bus stops, and a discussion of needed bus stop amenities.

Vehicles

When starting a new transit service, the need to carefully choose the appropriate vehicles to utilize for initial service has been proven to be problematic and very important to the success and reputation of the system. Choosing the correct vehicles relies on weighing numerous issues and balancing political, financial, and customer needs. Items to consider when choosing vehicles include the following factors:

- Cost
- Delivery time
- Size (capacity, maneuverability, initial demand, operator training needs, etc.)
- Reliability
- Customer expectations
- Maintenance issues
- Replacement time
- Warranties
- Consistency

To determine an appropriate start-up vehicle choice for the Lake County, each of these factors was considered to some degree. First, the pool of potential vehicle options available to Lake County was ascertained utilizing vendor Internet resources and information about various vehicle procurement programs in the State. Next, interviews were conducted with representatives of several smaller Florida transit systems that have used various buses to discuss their experiences with the vehicles and to solicit their personal recommendations about preferred start-up vehicles. Discussions also were held with oversight and funding agencies to gather additional input. Finally, using the obtained input, an assessment of the vehicle performance and financial impacts was completed.

The potential vehicle options that were evaluated during the assessment process include the following:

- Florida Vehicle Procurement Program (FVPP) – Currently operated by the Center for Urban Transportation Research (CUTR) at the University of South Florida under contract with FDOT. This contract includes Champion buses distributed by Transit Plus, Inc. (See additional information included in Appendix A).
- Thomas Built Buses – Bus manufacturer that is not currently under a State of Florida contract for transit coaches.
- Blue Bird Buses – Bus manufacturer that also is not currently under a State of Florida contract for transit coaches. (See additional information included in Appendix A).
- Florida Public Transportation Association (FPTA) Bus Procurement Consortium – Currently administered by the Hillsborough Area Regional Transit Authority (HART). This consortium includes buses by Gillig Corporation. (See additional information included in Appendix A).

As noted previously, several transit operating agencies were contacted about their previous vehicle procurements and their experiences with the vehicles. The agencies included in this survey are shown below along with the agency representatives that were contacted and the vehicles with which the agencies have had experience.

- SunTran (Ocala) – Steven Neal, Thomas Built Buses and Gillig Corporation
- Collier County Transit – Elizabeth Suchsland, Blue Bird Buses, Champion Buses, and Gillig Corporation
- Okaloosa County – Barry Peterson, Champion Buses
- HART - Rich Bannon, Gillig Corporation

The Oversight and Funding Agencies that were contacted about their preferences and to obtain guidance include the following:

- FDOT – Robert Westbrook, State FVPP and FPTA Consortium Contracts
- FTA – Chris White, Florida Transit Project Coordinator
- CUTR-FVPP – Hank Cusack, FVPP Contract Coordinator
- HART – Rich Bannon, FPTA Consortium Contract Coordinator

Following is a summary of the pertinent comments and input that were received from the contacts at the transit operating, oversight, and funding agencies.

- Champion, Bluebird, and Thomas Built buses are not designed or manufactured for public transit service. They do not hold up to the stop-and-go operations of fixed-route service. They also are not designed to operate 12 hours or more each day.
- Champion does not look like a fixed-route bus and does not operate like one, either. Its body construction may meet minimum standards, but it does not always match that of other transit buses. The Champion vehicles tend to have stronger chassis than bodies and there have been on-going and problematic issues that result in down time. Getting repairs done and finding replacement and repair parts for the Champion buses has been an issue of great stress for one agency.
- Thomas Built and Bluebird vehicles have good components, but as a whole, there have been too many break downs and repairs that have hurt service reliability and impacted customer relations negatively.
- Maintenance and repair work escalate with the under-sized and under-designed buses from Thomas Built and Bluebird.
- Because of start-up schedules, Bluebird and Thomas Built buses have both been purchased because of quicker delivery times and lower costs than specially-built transit coaches. However, each of the systems where this has occurred has decided that it was a mistake in the initial decision-making process and has been moving as quickly as possible to replace its fleet with better built transit coaches.
- Oversight and funding agencies do not recommend the medium-duty buses in regular fixed-route service. They understand the impacts that they can have on fiscal planning due to the need for increased maintenance and repair work, the need to increase the spare ratio, and life cycle cost issues.
- The FPTA Gillig buses have provided quality vehicles and good customer service. Each agency has already made at least one purchase off the contract and all are in the process of additional purchases.

Appendix A includes a summary and explanation of the assessment that was conducted to evaluate the various buses/manufacturers that were identified as potential suppliers to Lake County for its initial transit system start-up. As indicated in the Appendix, the assessment determined that the Gillig Corporation and the buses it supplies under the FPTA Consortium contract had the highest rating based on the consideration of the aforementioned factors.

Based on the assessment of available vehicles, it is recommended that Lake County pursue the purchase of 30-foot Gillig Phantom buses from the Florida Public Transportation Association (FPTA) consortium contract. The contract has a base bid price and numerous options that will total \$248,000-\$270,000 per vehicle. The cost to purchase from the contract by Florida transit agencies that are not in the consortium is \$750 per vehicle. Even with this additional cost, the cost savings realized by agencies using this option have ranged from \$10,000-\$25,000 per vehicle compared to self-bid processes. To facilitate boarding for passengers, especially elderly ones, as an alternative Lake County could consider the purchase of the 29-foot Gillig Low Floor model buses instead. However, it is important to note that this Gillig model is a more expensive option than the Phantom model.

The delivery time for vehicles under this contract is a maximum of twelve (12) months. Since it has been indicated that the desired start-up of the Lake County service is slated for December 2006, it is apparent that it would not be feasible to have either model of the Gillig buses delivered in time for this date. Therefore, there are two potential options for the county to pursue. The first option is that the start date can be moved out to allow the Gillig buses to be purchased and delivered. The second option would include the purchase of the Gillig vehicles, as well; however, it also would involve the leasing of buses by the County's contracted operator for at least the first six months of service while awaiting the delivery of the new vehicles. A major benefit of the second option is that it would provide a great marketing opportunity for additional public awareness and participation since the County could have a second dedication ceremony after the arrival of the new buses. Furthermore, the Federal Transit Administration allowance under its Capital Cost of Leasing guidance will allow the County to use capital funding to pay for the lease until the buses are no longer needed. Details of these funding options will be provided later in the finance plan that will be completed as part of this study effort.

Bus Stop Design

The bus stop serves as the gateway to the transit system. Many first-time transit users gauge their experience based on the convenience and comfort afforded to them at bus stops. Stop amenities catering to passenger needs vary widely between transit systems. Amenities also vary based on the number of passengers boarding or alighting at a particular location and/or based on the location of the stop, whether it be in a commercial, residential, or mixed-use area.

Many agencies prioritize bus stop amenities based on the amount of passenger traffic generated at each particular stop. For instance, a stop experiencing a large number of boardings may need additional seating areas, larger shelters, and possibly additional bus schedule information. This may also be true for stops located in areas with a significant amount of commercial activity.

For the Lake County fixed-route bus service, stop amenities have been assigned to three distinct stop types. The three stop types include:

- *Local Stop* – The majority of transit stops will fall into this category. An all-stop local bus route will include many local stops between major destinations. The infrastructure for such a stop may consist of a basic "off the shelf" simple shelter, route information, and a bench.
- *Transfer Stops* – The transfer stop serves as the intersection of various bus routes. Transfer stops are usually located at high passenger traffic locations such as malls, hospitals, and other significant commercial and residential areas. Many small transit systems coordinate intersecting bus arrival times to coincide at transfer stops in order to reduce passenger wait time. Such a stop would include specially designed shelters, lighting, and more weather protection amenities than a local stop. A transfer stop also can include additional artistic and design treatments that help blend it into the surrounding neighborhood.
- *Transit Center* – The transit center is the most complex and costly of the three bus stop designs. This facility represents the hub of transit operations activity and constitutes a large capital investment on the part of the transit agency. A transit center generally includes a host of passenger amenities and transfer opportunities. Information kiosks, round-the-clock security, individual bus bays for all servicing routes, and park-and-ride facilities are all common features of transit centers.

Examples for each type of bus stop are illustrated in Figures 3-1 through 3-3.

Figure 3-1
Local Stop



Figure 3-2
Transfer Stop



**Figure 3-3
Transit Center**



As shown in Figures 3-1 through 3-3, the size and complexity of stops should be directly related to the number of system users at a particular stop. Generally, local stops should be located in roadway right-of-way and transfer stops should be located at accessible points within the transfer location.

The bulk of the Lake County transit system's stops will be local stops located along service route roadways. Because of the size and alignment of the proposed bus service, only four transfer stops are identified for the system at this time. The four transfer stop locations and the corresponding connecting routes are noted in Table 3-1. The need for a major transit center for the service is discussed in detail later in this report.

**Table 3-1
Lake County Fixed-Route Bus Service Transfer Stops**

Transfer Stop	Routes Served
Leesburg Regional Medical Center	1, 3, & 6
Lake Square Mall	1 & 2
Florida Hospital	2 & 4
Lake County Vocational Tech School	4 & 5

Bus Stop Amenities

Bus stop amenities include signs, shelters, benches, and other features that attend to the comfort and safety of bus patrons and also improve the visibility of the stop. Stops with amenities are more inviting to potential patrons and give the transit service a sense of

permanence. For these reasons, needed stop elements must be located at appropriate locations. Depending on the area being served, the number of passengers boarding and alighting, and the bus stop type, the amenities at each stop will vary.

Table 3-2 notes standard and optional stop features for each stop category identified for the Lake County transit service.

**Table 3-2
Implementation Guidelines for Bus Stop Features**

Feature	Local Stop	Transfer Stops	Transit Center
Sign & Pole	S	S	S
Route Designation	S	S	S
Sidewalk Connectivity	S	S	S
Benches	S	S	S
Simple Shelter	S		
Enhanced Shelter*		S	S
Schedule Information	S	S	S
Information Kiosk			S
Individual Bus Bay			S
Park-and-Ride			O
Lighting		S	S
Bicycle Rack		S	S
Trash Receptacle	S	S	S
Landscaping		O	S
Telephone			S

According to the 2005 Lake County TDP, Lake County has budgeted approximately \$150,000 for bus stop amenities between FY 2006 and FY 2011. The FY 2006 budget for bus stop infrastructure is \$30,000. The operational plan for the new transit service identifies a number of local stops and four transfer stops for the system. The limited budget constrains the possibility of fully stocking each and every bus stop with the outlined amenities noted in Table 3-2. For this reason, Lake County will need to prioritize bus stop infrastructure improvements.

**Table 3-3
2005 TDP Bus Stop Infrastructure Budget**

	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	6-Year Total
Bus stop signs and benches	\$20,000	\$20,000	\$2,000	\$2,000	\$2,000	\$2,000	\$48,000
Shelters and Amenities	\$10,000	\$50,000	\$10,000	\$10,000	\$10,000	\$10,000	\$100,000
Total	\$30,000	\$70,000	\$12,000	\$12,000	\$12,000	\$12,000	\$148,000

Before making large capital investments in bus stop infrastructure, many agencies gauge the need for improvements based on the number of passengers utilizing each specific bus stop. A bus stop infrastructure prioritization process can be based on boardings, residential density, and/or square footage of commercial development. Because the Lake County Public Transportation service is a new service, prioritization of bus stop infrastructure should be based on boarding counts taken over a specified period a time, i.e. six months to one year. Once prioritized, benches and shelters can be added to the stops experiencing the largest volume of passenger boardings. Recommendations for expenditure of the bus stop infrastructure budget include:

- **Focus FY 06 transit infrastructure budget on improving identified transfer stops.** Canopied shelter areas may be available on site at some of these locations. The County should coordinate with individual property management in order to locate and place the appropriate infrastructure elements on their site.
- **Develop a prioritization methodology for placement of bus stop infrastructure.** As noted, the County should use boarding counts over the first year of operation to prioritize stops for additional infrastructure. Boarding counts can be verified by conducting ridechecks on each of the six bus routes.

SIDEWALK NEED

The accessibility of the transit system is measured in part by the availability of sidewalks along the proposed route corridors. In general, the presence of sidewalks along streets creates the real and symbolic perception that a separate travel way exists for other modes of transport. In the case of transit, sidewalks provide the pathway to and from bus stops. Accessibility via sidewalks also is made easier to persons using wheelchairs.

An inventory of sidewalks along the proposed bus routes was conducted based on available county data sources. Data was made available for county and state roads from the Lake County MPO. Sidewalk information for the local roads within the counties jurisdictions was

available only for the City of Leesburg. A review of the sidewalk data indicates that, system-wide, sidewalks can be found along 13 percent of the proposed bus route roadways. Table 3-4 notes the amount of sidewalk coverage along each proposed bus route. Existing sidewalks are illustrated in Map 3-1.

**Table 3-4
Sidewalk Coverage by Route (Miles)**

Route #	County	Leesburg	Route Length	Sidewalk Coverage
1	--	0.26	6.34	4%
2	--	0	7.09	0%
3	0.99	1.44	8.32	29%
4	1.1	--	8.34	13%
5	1.11	--	12.91	9%
6	1.47	0.9	13.93	17%
Total	4.67	2.6	56.93	13%

TRANSFER FACILITY


















As noted earlier in this section, the transfer facility is the most complex and costly of the various bus stops designs identified for the new fixed-route bus service. Before planning for a transfer facility, the need for such a facility should be established. Criteria for establishing need should include information on number of riders using the system and/or the number of routes converging at a particular transfer station. Building off of the existing set of transfer stations is a good starting point for planning for a large transfer site.

At this time, there is not a need for a transfer facility for the county's newborn transit service. Several reasons exist for this conclusion. These include:

- The Lake County fixed-route bus service will not operate as a pulse system. Pulse systems schedule routes to converge at a single central location. The Lake County system has been structured in a linear form, connecting Mount Dora and Eustis in the eastern part of the county, traveling through the cities of Tavares and Leesburg, and linking to The Villages in the northwestern part of the county.
- There are no actual ridership counts available for the service. Actual ridership counts by stop should be assessed once service has been in operation for six months to a year in order to identify locations of high transit user activity.
- The maximum number of bus routes that meet at any single transfer point is three. A major transfer facility should be considered only when there is a need to bring a large volume of both system users and system routes to the same location.

Map 3-1 Sidewalk Coverage and Connectivity

Legend

 Residential Development	 Medical Center	 Route 1
 Downtown	 Park	 Route 2
 Employment Center	 School	 Route 3
 Government Building	 Shopping Center	 Route 4
 Hospital	 Intermodal Center	 Route 5
		 Route 6
		 Sidewalk



The transfer facility essentially serves as the nexus for bus routes. At this time, there is no one location that presents itself as a viable alternative for such a facility. As the transit service grows and as service is expanded into new areas of the county, viable stand-alone transfer facility locations should be considered in addition to existing transfer stations.

Section 4 FINAL RECOMMENDATIONS

A meeting regarding the preliminary transit operations strategies outlined in the previous sections of this report was held with Lake County staff on July 5, 2006. A summary of that meeting is included in Appendix B of this report. The purpose of the meeting was to review the proposed draft operations plan, gather feedback from staff, and to discuss the next steps needed to complete the operations plan. At that meeting, County staff suggested several changes to the original recommendations found in the draft operations plan. Changes included:

- Modified route structure and schedule
- Addition of more staff to the staffing plan
- Reassessment of the need for an intermodal center at this time
- Selection of a different vehicle

This section discusses each of the specific changes to the operations plan identified at the July 5th meeting and presents the final operations plan recommendations based on County staff input. All other operations plan recommendations not discussed in this section remain the same as presented previously.

SERVICE CHARACTERISTICS


In order to limit the amount of necessary transfers between system routes and facilitate a one-hour frequency on all routes, Routes 1, 2, 4 and 6 have been combined into one route, Route 1. Routes 3 and 5 will operate as circulator routes within their respective communities, but will be renamed Routes 2 and 3, respectively. The cycle time for the new Route 1 will be two or three hours, depending on the vehicle block, and additional peak vehicles will be added to keep the headway at 60 minutes. This will improve the 90-minute headway programmed for the original Route 6, which covered the western portion of the new Route 1 connecting to The Villages. Service to The Villages in the northwest part of the county also will be realigned to accommodate the reduced headway and to improve the efficiency of the service.

Access to the medical centers in Leesburg will be maintained via the new Route 2. A transfer will still be needed for those bus riders coming into Leesburg via the new Route 1. Other service characteristics include:




- New Routes 1 and 2 are scheduled to begin operation in February 2007.
- New Route 3 is scheduled to begin operation in July 2007.

- Once all three routes are in operation, service span will be from 6:00 a.m. to 7:45 p.m., Monday through Friday. Saturday service will not begin until Year 4.
- Four vehicle blocks will be used to accommodate new Route 1.
- All routes will operate on a one-hour headway schedule.
- “Flag stops” will be used/allowed for up to one year only to permit transition to specific fixed stops.

Map 4-1 illustrates the revised service alignments for each new route. The service schedule for Route 1 is shown in Table 4-1. Tables 4-2 and 4-3 include schedules for new Routes 2 and 3, respectively.


Lake County
Transit Operations Plan (TOP)

Map 4-1: All Routes

Legend
 **Route 1**
 **Route 2**
 **Route 3**

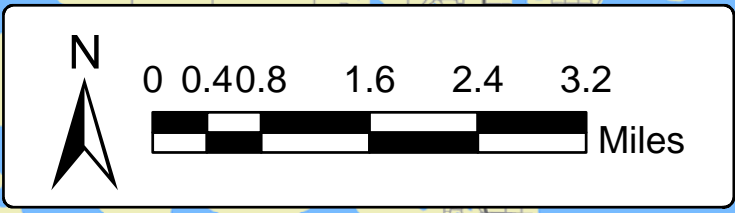
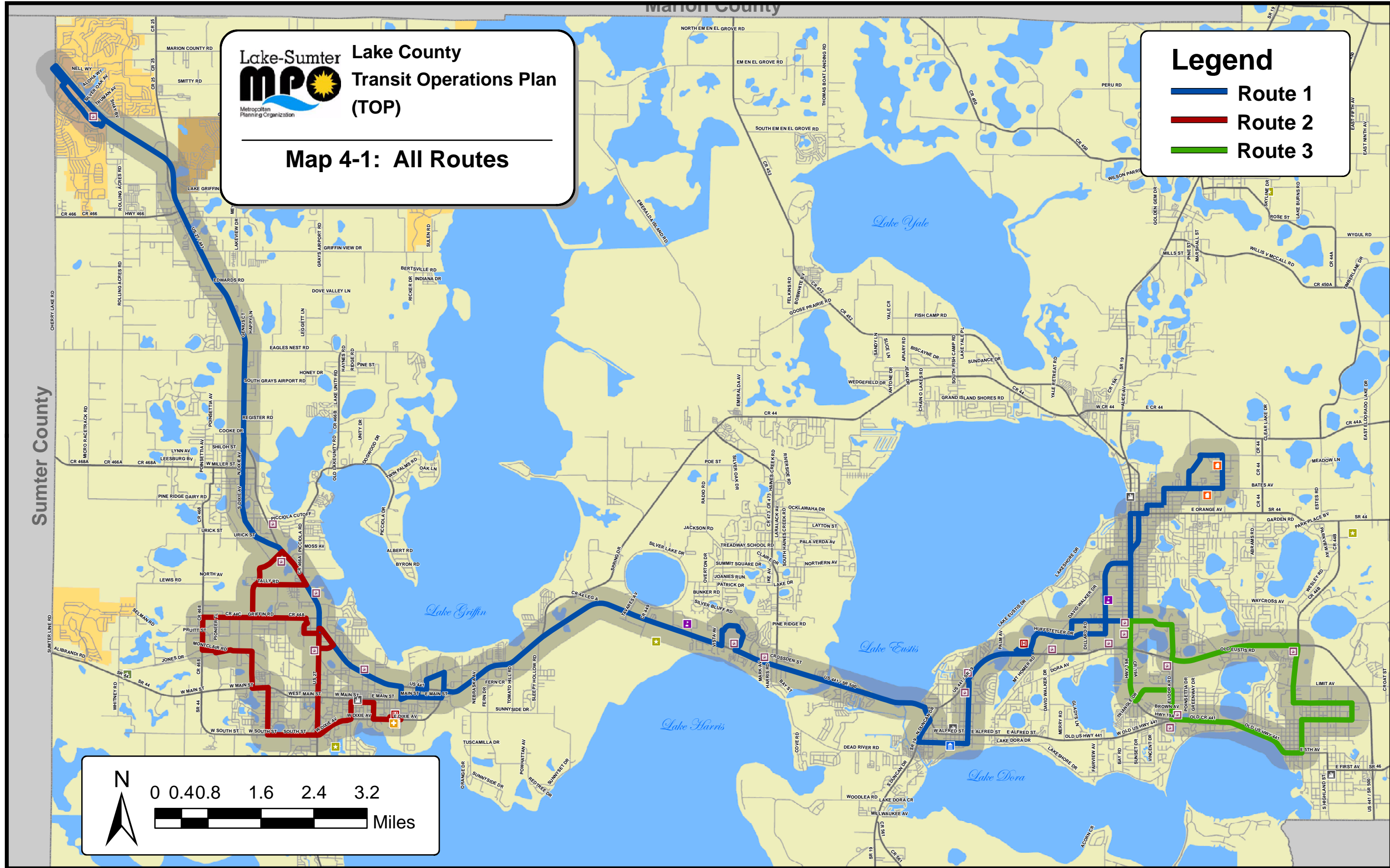


Table 4-1
Second Year Schedule for Route 1 (Weekdays)

Target	Lady Lake Cove Apts	Wal-Mart stop (MLK & 441)	Citizens Blvd	Citizens Blvd	44 & Main	Lake Square Mall	Old 441	Main (County Admin)	Waterman Hospital	19 (Bay)	McDonald	Getford	McDonald	Ardice (Eustis Square)	Waterman Hospital	Main (County Admin)	441	Lake Square Mall	Lake Square Mall	Newell Hill Rd	27 & 441	Citizens Blvd	Citizens Blvd	Wal-Mart stop (MLK & 441)	Lady Lake Cove Apts	Target																					
Express to Citizens Blvd																																												6:00	6:04	6:09	6:16
				6:00	Express service to Lake Square mall from Citizens Blvd																	6:14	6:28	6:38	6:45	7:00	7:04	7:09	7:16																		
				6:32	Express service to County Admin Center													6:47	6:50	7:00	7:14	7:28	7:38	7:45	8:00	8:04	8:09	8:16																			
Express to Citizens Blvd				6:00	6:04	6:15	6:21	6:25	6:35	6:43	6:48	6:54	7:00	7:28	7:33	7:47	7:50	8:00	8:14	8:28	8:38	8:45	9:00	9:04	9:09	9:16																					
6:16	6:27	6:37	6:45	7:00	7:04	7:15	7:21	7:25	7:35	7:43	7:48	7:54	8:00	8:28	8:33	8:47	8:50	9:00	9:14	9:28	9:38	9:45	10:00	10:04	10:09	10:16																					
7:16	7:27	7:37	7:45	8:00	8:04	8:15	8:21	8:25	8:35	8:43	8:48	8:54	9:00	9:28	9:33	9:47	9:50	10:00	10:14	10:28	10:38	10:45	11:00	11:04	11:09	11:16																					
8:16	8:27	8:37	8:45	9:00	9:04	9:15	9:21	9:25	9:35	9:43	9:48	9:54	10:00	10:28	10:33	10:47	10:50	11:00	11:14	11:28	11:38	11:45	12:00	12:04	12:09	12:16																					
9:16	9:27	9:37	9:45	10:00	10:04	10:15	10:21	10:25	10:35	10:43	10:48	10:54	11:00	11:28	11:33	11:47	11:50	12:00	12:14	12:28	12:38	12:45	13:00	13:04	13:09	13:16																					
10:16	10:27	10:37	10:45	11:00	11:04	11:15	11:21	11:25	11:35	11:43	11:48	11:54	12:00	12:28	12:33	12:47	12:50	13:00	13:14	13:28	13:38	13:45	14:00	14:04	14:09	14:16																					
11:16	11:27	11:37	11:45	12:00	12:04	12:15	12:21	12:25	12:35	12:43	12:48	12:54	13:00	13:28	13:33	13:47	13:50	14:00	14:14	14:28	14:38	14:45	15:00	15:04	15:09	15:16																					
12:16	12:27	12:37	12:45	13:00	13:04	13:15	13:21	13:25	13:35	13:43	13:48	13:54	14:00	14:28	14:33	14:47	14:50	15:00	15:14	15:28	15:38	15:45	16:00	16:04	16:09	16:16																					
13:16	13:27	13:37	13:45	14:00	14:04	14:15	14:21	14:25	14:35	14:43	14:48	14:54	15:00	15:28	15:33	15:47	15:50	16:00	16:14	16:28	16:38	16:45	17:00	17:04	17:09	17:16																					
14:16	14:27	14:37	14:45	15:00	15:04	15:15	15:21	15:25	15:35	15:43	15:48	15:54	16:00	16:28	16:33	16:47	16:50	17:00	17:14	17:28	17:38	17:45	18:00	18:04	18:09	18:16																					
15:16	15:27	15:37	15:45	16:00	16:04	16:15	16:21	16:25	16:35	16:43	16:48	16:54	17:00	17:28	17:33	17:47	17:50	18:00	18:14	18:28	18:38	18:45	19:00	19:04	19:09	19:16																					
16:16	16:27	16:37	16:45	17:00	17:04	17:15	17:21	17:25	17:35	17:43	17:48	17:54	18:00	18:28	18:33	18:47	18:50	19:00	19:14	19:28	19:38	19:45																									
17:16	17:27	17:37	17:45	18:00	18:04	18:15	18:21	18:25	18:35	18:43	18:48	18:54	19:00	19:28	19:33							19:48																									
18:16	18:27	18:37	18:45																																												
19:16	19:27	19:37	19:45																																												

Table 4-2
Schedule for Route 2 (Weekdays)

Citizens Blvd	Magnolia St	LRMC	Loan Oak	Wal-Mart	Griffin Rd	Citizens Blvd
6:00	6:09	6:14	6:21	6:32	6:37	7:00
7:00	7:09	7:14	7:21	7:32	7:37	8:00
8:00	8:09	8:14	8:21	8:32	8:37	9:00
9:00	9:09	9:14	9:21	9:32	9:37	10:00
10:00	10:09	10:14	10:21	10:32	10:37	11:00
11:00	11:09	11:14	11:21	11:32	11:37	12:00
12:00	12:09	12:14	12:21	12:32	12:37	13:00
13:00	13:09	13:14	13:21	13:32	13:37	14:00
14:00	14:09	14:14	14:21	14:32	14:37	15:00
15:00	15:09	15:14	15:21	15:32	15:37	16:00
16:00	16:09	16:14	16:21	16:32	16:37	17:00
17:00	17:09	17:14	17:21	17:32	17:37	18:00
18:00	18:09	18:14	18:21	18:32	18:37	19:00

Table 4-3
Schedule for Route 3 (Weekdays, Year 2)

Ardice (Eustis Square)	Lake Center	Tremain	Wardell	441	Ardice (Eustis Square)
7:28	7:31	7:44	7:47	7:59	8:28
8:28	8:31	8:44	8:47	8:59	9:28
9:28	9:31	9:44	9:47	9:59	10:28
10:28	10:31	10:44	10:47	10:59	11:28
11:28	11:31	11:44	11:47	11:59	12:28
12:28	12:31	12:44	12:47	12:59	13:28
13:28	13:31	13:44	13:47	13:59	14:28
14:28	14:31	14:44	14:47	14:59	15:28
15:28	15:31	15:44	15:47	15:59	16:28
16:28	16:31	16:44	16:47	16:59	17:28
17:28	17:31	17:44	17:47	17:59	18:28
18:28	18:31	18:44	18:47	18:59	19:28

STAFFING PLAN

The preliminary staffing plan described in Section 2 of this report included 15 operators, 3 maintenance staff, and 1 administrative staff. The new staffing plan excludes one administrative staff person and adds two road supervisors and one dispatcher. The new staffing plan is presented in Table 4-5.

**Table 4-4
Fixed Route Transit Staffing Plan
(FY 2007 – 2011)**

Staff Category	Number of Staff
Operators	15
Maintenance	3
Supervisors	2
Dispatchers	1
Total	21

INTERMODAL CENTER

The reconfiguration of the fixed-route bus system reduces the need for transfers. Because no more than two routes will meet at any bus stop along the system, an emphasis on developing an intermodal center is not necessary at this time. However, County staff has indicated a need for such a facility. As service increases and as new routes are added to the system, the County should reassess the need for an intermodal center and also pursue funding from their funding partners for that facility.

VEHICLES

The preferred vehicle will be the newly-designed Bluebird low floor buses. MV Transportation staff reported that the chassis on the Bluebird buses is very similar to those on the Gillig buses recommended previously in the document. The County Fleet Manager, along with the MV Fleet Manager, recommended that the County purchase the Bluebird buses based on an analysis of the chassis, transmissions, and engines of both the Bluebird and Gillig buses. The Bluebird and Gillig vehicles are similar in cost and the Bluebird vehicles are available through a Pasco County contract in a shorter delivery time.

Based on the vehicle needs analysis performed to prepare Section 2 of this report, the new Bluebird vehicles exceed or meet the performance of the Gillig vehicles in three choice factors: cost, delivery time, and size-other. MV Transportation and county staff place a considerable

emphasis on kicking-off the service as soon as possible and believe that expedience in delivery of the vehicles outweighs some of the other vehicle choice factors.

Section 5 FIVE-YEAR FINANCIAL PLAN

This section presents the five-year financial plan for the Lake County public transportation services including both fixed-route and paratransit services. This includes an assessment of operating and capital needs, along with the projected costs associated with these needs over the next five years. In addition, all transit revenues that are reasonably expected to be available within the next five-year period are identified for use in funding the transit operating and capital needs. The assumptions used in developing both the cost and revenue projections in the five-year financial plan are also listed.

The remainder of this section is organized in the three major sub sections. First, a discussion of transit costs are presented with all the assumptions associated with developing the cost for the five-year period. Then, a discussion of transit revenues is presented, with an emphasis on all key fixed-route revenue assumptions used. Finally, the TOP financial plan is presented, which summarizes all operating and capital costs and revenues from 2007 through 2011.

TRANSIT COST PROJECTIONS

A number of assumptions were used in developing the capital and operating cost projections for both fixed-route and ADA paratransit services. These assumptions are summarized below.

Operating Cost Assumptions

- Operating cost per hour for bus service enhancements is assumed to be \$60. This unit cost assumption was developed cooperatively with Lake County and the transit provider staff.
- For all routes on average, about 13 hours of bus service per route on weekdays is assumed. Where applicable, 9 hours of service on weekends (Saturday only) is assumed.
- A total of 255 weekdays of service per year is assumed for all three bus routes. This excludes six holidays per year during weekdays (Christmas Day, New Year's Day, Thanksgiving Day, Memorial Day, Labor Day, and Independence Day).
- A marketing cost of \$20,000 is assumed for each year for all five years. However, an additional start-up marketing cost of \$30,000 is assumed for 2007 due to various costs associated with the system implementation. Additional marketing costs of \$20,000 for the implementation of the weekend bus service in 2009 and nearly \$15,000 for the implementation of two new circulators in 2011 are assumed.

- An annual cost of \$8,000 is assumed for the development of maps, schedules, and other printed or promotional materials.
- The cost of operating ADA paratransit for each year is estimated at \$250,000 per year. This amount is the contribution to cover all ADA paratransit costs.
- An annual inflation rate of three percent was used to inflate the operating cost figures, with 2007 being the base year.
- Based on the information provided by the staff of the transit operator in Lake County, annual TD operating cost is expected to be approximately \$3.5 million per year between 2007 and 2011. This information was used for the TD operating costs.
- The Lady Lake Circulator route will be operated by Sumter County. The cost of operating this circulator in 2007 will be covered by funds available from other sources.

Capital Cost Assumptions

- Consistent with the information provided by Lake County staff, unit costs for the purchase of vehicles were assumed at \$250,000 for a bus and \$40,000 for a van for bus service supervisor use.

Lake County staff has decided to purchase the Blue Bird Ultra Low Floor (LF) buses for their initial eight vehicle bus fleet. The Ultra LF is a newer low-floor/low-mass bus recently introduced by the Blue Bird bus manufacturing company, with an interior width of 102 inches and an interior height of 96 inches. A picture of the Ultra LF bus is shown in Figure 5-1.



Figure 5-1: Ultra Low-Floor Blue Bird Bus

- The cost of building a new park-and-ride facility on US 27, nearly a half-mile south of U.S. 50 also was assumed. The cost, as identified in the FDOT Five-Year Work Program, is assumed to be over \$173,000.
- The unit cost of bus shelters with benches and other amenities is assumed at \$12,000 per shelter. However, despite this assumed unit cost, a total cost of \$75,000 in the first year and then \$50,000 for each of the following years was assumed.
- Additional capital expenses include the cost of purchasing and installing information displays on buses at \$1,500 per bus, the one-time purchase and installation of bus stop signs throughout the service area for \$25,000, the one-time addition of a bus wash and lift for approximately \$100,000, and the purchase of scheduling software for approximately \$10,000.
- In addition, the associated maintenance capital equipment cost was assumed at over \$60,000 per year, excluding 2007, the implementation year of the fixed-route service.
- An annual inflation factor of three percent was used for capital costs.

TRANSIT REVENUE PROJECTIONS

All current and projected federal, state, and local sources of transit revenue were reviewed and used to fund the operating and capital transit needs from 2007 to 2011. The operating and capital revenue projections were developed for the Lake County fixed-route/ADA paratransit services and TD services. The following assumptions were made in developing the fixed-route/ADA and TD revenue projections.

Revenue Assumptions

- It is assumed that the Lake County urbanized area population will not exceed 200,000 within the next five years from 2007 through 2011. As a result, assumptions for covering operating costs will continue to be 50 percent federal (Section 5307), and 50 percent of state (Block Grant) and local funds combined, to the extent that federal and state thresholds are not exceeded in this process. The State Block Grant funding can cover only up to 50 percent of the non-federal share less operating revenues.

- Assumes a combined TD service and fixed-route/ADA service budget from FY 2007 through 2011.
- Assumes unrestricted eligible TD funds as local soft match for Section 5307 and State Block Grant Programs.
- The Section 5307 and Block Grant fund allocations are based on information from FDOT. The State Block Grant funds are estimated to increase by three percent annually from 2007 through 2011.
- Assumes that no local government revenues are needed to fund fixed-route transit operating costs within the next five-year period.
- Assumes \$173,890 in FDOT Strategic Intermodal System (SIS) funds for a new park-and-ride facility on US 27, approximately one half-mile south of US 50, as programmed in the FDOT Work Program.
- Farebox revenues are projected based on the average fares for two Florida transit systems (SunTran and MCAT) and ridership projections for Routes 1, 2, 3, and Circulators A, developed based on the ridership data developed previously in Technical Memorandum 1. The average fare of \$0.46 per passenger trip was used for developing the fare revenue projections from 2007 through 2011.

FIVE-YEAR FINANCIAL PLAN

First, the five-year financial plan summarizes the operating and capital needs, along with the projected costs associated with these needs, over the next five years. Then, the summary of all costs and revenues is presented, including fixed-route/ADA paratransit and TD services.

Table 5-1 presents the implementation schedule for fixed-route/ADA transit improvements (2007-2011), while Table 5-2 presents the projected annual operating costs for fixed-route/ADA transit services over the next five years. In addition, other operating-related costs, including marketing, maps, schedules, and other printed or promotional materials are presented. Total fixed-route operating costs are projected to increase from \$1.03 million in FY 2007 to \$2.19 million in FY 2011.

Table 5-3 summarizes the capital requirements necessary to support fixed-route bus services over the same time period. Capital needs include acquisition of buses needed to implement, maintain, and expand bus services over the next five years. In addition, the purchase of vans for bus service supervisors and other capital requirements, such as installation of information displays on buses; the purchase of scheduling software; the purchase and installation of bus

wash and lift facilities; the purchase of bus stop signs, shelters, benches, and other amenities; and associated maintenance capital equipment costs, also are included. However, TD and/or ADA paratransit vehicle acquisition/replacement and other transit infrastructure costs are not reflected in the table.

A summary of projected capital costs is provided in Table 5-4. These costs reflect the cost of acquisition and implementation of each capital item listed.

Five-Year Transit Costs and Revenues

The summary of the five-year TOP financial plan is illustrated in Table 5-5. That table summarizes costs and revenues for both fixed-route/ADA and TD paratransit service from 2007 through 2011. Again, the two major revenue assumptions used to develop the five-year revenue projections are summarized below.

- Assumes a combined TD service and fixed-route/ADA service budget process from FY 2007 through 2011.
- Assumes unrestricted eligible TD funds as local soft match for Section 5307 and State Block Grant Programs.

The top of the table summarizes the projected operating and capital costs from FY 2007 through FY 2011. Revenue requirements to fund the five-year transit plan are summarized in the remainder of the table.

**Table 5-1
Implementation Schedule for Fixed-Route Transit Improvements (2007-2011)**

Existing Service/Service Enhancement	Implementation Year	Annual Operating Cost (2007)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Route 1 - Cross County Connector	2007	\$818,805	Yes	Yes	Yes	Yes	Yes
Route 2 - Leesburg Circulator	2007	\$198,900	Yes	Yes	Yes	Yes	Yes
Route 3 - Mount Dora Circulator	2008	\$183,600	Yes	Yes	Yes	Yes	Yes
Lady Lake Circulator (Sumter County)	2007	\$118,000	Yes	Yes	Yes	Yes	Yes
Circulator A - Service Area TBD	2011	\$198,900	No	No	No	No	Yes
Saturday Service on All Routes 1, 2, and 3	2011	\$168,480	No	No	No	Yes	Yes
ADA Paratransit	2007	\$250,000	Yes	Yes	Yes	Yes	Yes
Marketing	2007	\$20,000	Yes	Yes	Yes	Yes	Yes
Maps and Schedules	2007	\$8,000	Yes	Yes	Yes	Yes	Yes
Total		\$2,163,585	n/a	n/a	n/a	n/a	n/a

Notes:

1. Unit cost of \$60 per hour was used to project operating costs for bus service enhancements.
2. Assumes 255 weekdays of service per year and 6 holidays per year during weekdays (Christmas Day, New Year's Day, Thanksgiving Day, Memorial Day, Labor Day, and Independence Day).
3. Assumes a new circulators, Circulator A in 2011, operating 13 hours per day on weekdays.
4. Assumes \$30,000 in 2007, \$20,000 in 2009, and approximately \$15,000 in 2011 in additional funding for start-up marketing needs.
5. Assumes 8 months of service for Route 1 and Route 2 for FY 2007 starting February 1, 2007, through September 30, 2007.
6. Assumes 3 months of service for Route 3 for 2007.
7. Cost of operating ADA paratransit for each year is estimated at \$250,000 per year. This amount is the contribution to cover all ADA paratransit costs.
8. Cost of operating Lady Lake Circulator in 2007 (\$118,000) will be covered by funds available from other sources.
9. Saturday service is expected to start operating in 2010.

**Table 5-2
Annual Operating Costs for Fixed-Route Implementation Plan (2007-2011)**

Existing Service/Service Enhancement	Annual Operating Cost (2007)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Total 2007-2011
Route 1 - Cross County Connector	\$818,805	\$545,870	\$843,369	\$868,670	\$894,730	\$921,572	\$4,074,212
Route 2 - Leesburg Circulator	\$198,900	\$132,600	\$204,867	\$211,013	\$217,343	\$223,864	\$989,687
Route 3 - Mount Dora Circulator	\$183,600	\$45,900	\$189,108	\$194,781	\$200,625	\$206,643	\$837,057
Lady Lake Circulator (Sumter County)	\$118,000	\$0	\$121,540	\$125,186	\$128,942	\$132,810	\$508,478
Circulator A - Service Area TBD	\$198,900	\$0	\$0	\$0	\$0	\$223,864	\$223,864
Saturday Service on All Routes 1, 2, and 3	\$168,480	\$0	\$0	\$0	\$184,103	\$189,626	\$373,728
ADA Paratransit	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,250,000
Marketing	\$20,000	\$50,000	\$20,600	\$41,218	\$21,855	\$37,084	\$170,757
Maps and Schedules	\$8,000	\$8,000	\$8,240	\$8,487	\$8,742	\$9,004	\$42,473
Projected Annual Operating Costs	\$2,163,585	\$1,032,370	\$1,637,724	\$1,699,356	\$1,906,339	\$2,194,467	\$8,470,256

Notes:

1. Unit cost of \$60 per hour was used to project operating costs for bus service enhancements.
2. Assumes 255 weekdays of service per year and 6 holidays per year during weekdays (Christmas Day, New Year's Day, Thanksgiving Day, Memorial Day, Labor Day, and Independence Day).
3. Assumes a new circulators, Circulator A in 2011, operating 13 hours per day on weekdays.
4. Assumes \$30,000 in 2007, \$20,000 in 2009, and approximately \$15,000 in 2011 in additional funding for start-up marketing needs.
5. Assumes 8 months of service for Route 1 and Route 2 for FY 2007 starting February 1, 2007, through September 30, 2007.
6. Assumes 3 months of service for Route 3 for 2007.
7. Cost of operating ADA paratransit for each year is estimated at \$250,000 per year. This amount is the contribution to cover all ADA paratransit costs.
8. Cost of operating Lady Lake Circulator in 2007 (\$118,000) will be covered by funds available from other sources.
9. Saturday service is expected to start operating in 2010.

**Table 5-3
Summary of Capital Needs for Fixed-Route Bus Service (2007-2011)**

Capital Needs	5-Year Need	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Vehicles and Other Operating Requirements						
Route 1 - Cross County Connector	4	4	0	0	0	0
Route 2 - Leesburg Circulator	1	1	0	0	0	0
Route 3 - Mount Dora Circulator	1	1	0	0	0	0
Lady Lake Circulator (Sumter County)	0	0	0	0	0	0
Circulator A - Service Area TBD	1	0	0	0	1	0
Saturday Service on All Routes 1, 2, and 3	0	0	0	0	0	0
Spare Buses	2	2	0	0	0	0
Supervisor Vans	2	0	2	0	0	0
Total Number of New Buses	7	6	0	0	1	0
Total Number of Spare Buses	2	2	0	0	0	0
Total Number of Buses	9	8	0	0	1	0
Other Capital Requirements						
Install Information Displays on Buses	10	8	0	0	0	2
Scheduling Software	1	1	0	0	0	0
Bus Wash and Lift	1	1	0	0	0	0
Bus Stop Signs	1	1	0	0	0	0
Park-and-Ride Lot	1	1	0	0	0	0
Shelters, Benches, and Other Amenities	TBD	TBD	TBD	TBD	TBD	TBD
Associated Maintenance Capital Equipment	TBD	TBD	TBD	TBD	TBD	TBD

NOTES:

(1) TBD reflects that a capital investment for a given category is "to be determined" for an existing year.

**Table 5-4
Summary of Projected Capital Costs for Fixed-Route Bus Service (2007-2011)**

Category	Unit Cost (2007\$)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Five-Year Cost
New Buses	\$250,000	\$2,000,000	\$0	\$0	\$273,182	\$0	\$2,273,182
Supervisor Vans	\$40,000	\$0	\$82,400	\$0	\$0	\$0	\$82,400
Install Information Displays on Buses	\$1,500	\$12,000	\$0	\$0	\$0	\$3,377	\$15,377
Scheduling Software	\$10,609	\$10,609	\$0	\$0	\$0	\$0	\$10,609
Bus Wash and Lift	\$102,378	\$102,378	\$0	\$0	\$0	\$0	\$102,378
Bus Stop Signs	\$25,000	\$25,000	\$0	\$0	\$0	\$0	\$25,000
Park-and-Ride Lot	\$173,890	\$173,890	\$0	\$0	\$0	\$0	\$173,890
Shelters, Benches, and Other Amenities	\$12,000	\$75,000	\$50,000	\$50,000	\$50,000	\$50,000	\$275,000
Associated Maintenance Capital Equipment	n/a	\$0	\$59,499	\$62,784	\$66,167	\$69,653	\$258,103
Total	N/A	\$2,398,877	\$191,899	\$112,784	\$389,349	\$123,029	\$3,215,938

NOTES:

- (1) Unit costs are reflected in 2007 dollars, while future year costs reflect an annual inflation rate of 3 percent.
- (2) Unit cost for Park-and-Ride lot is based on 2007-2011 FDOT Adopted Work Program.
- (3) Unit cost for installing information displays is assumed at \$1,500 per bus.
- (4) Unit cost for scheduling software in 2007 dollars are based applying 3 percent inflation rate to FY 2006 unit cost shown in draft Lake County transit budget.

**Table 5-5
Transit Costs & Revenues (2007-2011)**

Source	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Five-Year Total
OPERATING COSTS						
Fixed Route Operations	\$974,370	\$1,608,884	\$1,649,651	\$1,875,743	\$2,148,379	\$8,257,026
Other Operating Expenses	\$58,000	\$28,840	\$49,705	\$30,596	\$46,088	\$213,230
Total Fixed-Route Start-Up	\$1,032,370	\$1,637,724	\$1,699,356	\$1,906,339	\$2,194,467	\$8,470,256
Transportation Disadvantaged Service	\$3,499,992	\$3,495,968	\$3,512,920	\$3,530,719	\$3,541,933	\$17,581,532
Total Operating Costs	\$4,532,362	\$5,133,692	\$5,212,276	\$5,437,058	\$5,736,400	\$26,051,788
CAPITAL COSTS						
Fixed-Route Buses	\$2,000,000	\$0	\$0	\$273,182	\$0	\$2,273,182
Supervisor Vans	\$0	\$82,400	\$0	\$0	\$0	\$82,400
Other Fixed-Route Capital	\$398,877	\$109,499	\$112,784	\$116,167	\$123,029	\$860,356
Total Fixed-Route Start-Up	\$2,398,877	\$191,899	\$112,784	\$389,349	\$123,029	\$3,215,938
Total Capital Costs	\$2,398,877	\$191,899	\$112,784	\$389,349	\$123,029	\$3,215,938
Total Costs	\$6,931,239	\$5,325,591	\$5,325,060	\$5,826,407	\$5,859,429	\$29,267,726
PROJECTED AVAILABILITY OF MAJOR FIXED-ROUTE REVENUE SOURCES						
Section 5307 (Leesburg/Eustis) Balance from 2006	\$947,857	\$0	\$0	\$0	\$0	\$947,857
Section 5307 (Leesburg/Eustis)	\$941,378	\$969,619	\$998,708	\$1,028,669	\$1,059,529	\$4,997,902
Section 5307 (Lady Lake) Balance from 2006	\$445,157	\$0	\$0	\$0	\$0	\$445,157
Section 5307 (Lady Lake)	\$467,415	\$490,786	\$515,325	\$541,091	\$568,146	\$2,582,762
FDOT Block Grant Program Balance from 2006	\$592,674	\$0	\$0	\$0	\$0	\$592,674
FDOT Block Grant Program	\$317,119	\$326,633	\$336,432	\$346,524	\$356,920	\$1,683,628
OPERATING REVENUES						
Section 5307 for Fixed Route Operating	\$576,820	\$1,268,506	\$1,401,248	\$1,180,411	\$1,504,645	\$5,931,630
FDOT Block Grant Program as for 5307 Match	\$576,820	\$659,606	\$336,432	\$346,524	\$356,920	\$2,276,302
Farebox Revenues	\$29,232	\$52,920	\$67,974	\$79,689	\$95,137	\$324,952
Transportation Disadvantaged Transit Revenues	\$3,499,992	\$3,495,968	\$3,512,920	\$3,530,719	\$3,541,933	\$17,581,532
Total Operating Revenue	\$4,682,863	\$5,477,000	\$5,318,574	\$5,137,344	\$5,498,635	\$26,114,416
Total Operating Cost	\$4,532,362	\$5,133,692	\$5,212,276	\$5,437,058	\$5,736,400	\$26,051,788
Fund Balance	\$150,501	\$343,308	\$106,298	(\$299,715)	(\$237,764)	\$62,628
Cumulative Fund Balance	\$150,501	\$493,809	\$600,107	\$300,393	\$62,628	\$62,628
CAPITAL REVENUES						
Section 5307 for Fixed Route	\$2,224,987	\$191,899	\$112,784	\$389,349	\$123,029	\$3,042,048
FDOT/SIS Funding for Park and Ride Lot	\$173,890	\$0	\$0	\$0	\$0	\$173,890
Total Capital Revenue	\$2,398,877	\$191,899	\$112,784	\$389,349	\$123,029	\$3,215,938
Total Capital Cost	\$2,398,877	\$191,899	\$112,784	\$389,349	\$123,029	\$3,215,938
Fund Balance	\$0	\$0	\$0	\$0	\$0	\$0
<i>Toll Revenue Credits (soft match)</i>	\$556,247	\$47,975	\$28,196	\$97,337	\$30,757	\$760,512
TOTAL REVENUES VS. LOCAL REVENUES						
Total Fixed-Route Revenue	\$7,081,740	\$5,668,899	\$5,431,358	\$5,526,693	\$5,621,664	\$29,330,355
Total Local Govt. Revenues for Fixed-Route	\$0	\$0	\$0	\$0	\$0	\$0
Percent Local Share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

NOTES:

- (1) FTA Section 5307 funding for operating allows 50 percent of operating costs for urbanized areas with population < 200,000.
- (2) State block grant funding can cover up to 50 percent of the non-federal share less farebox & advertising revenues.
- (3) Assumes a combined TD and fixed-route/ADA budget.
- (4) Assumes unrestricted eligible TD funds as local soft match for Section 5307 and State Block Grant Programs.
- (5) Section 5307 and block grant fund allocations are based on information from FDOT.
- (6) State Block Grant estimated to increase by 3 percent percent from 2007 through 2011.
- (7) All soft match revenues are not included in the sums of the columns.
- (8) No local government funding is assumed to fund fixed-route transit operating costs during the five-year period.
- (9) FTA Section 5307 funding for capital requires 80 percent federal, and 20 percent state & local, or use of toll revenue credits as soft match. Also, budget assumes no funding through congressional earmarks.
- (10) Assumes \$173,890 in FDOT/SIS funds for park-and-ride facility on US 27, 0.05 miles south of US 50, as programmed in FDOT Adopted 2007 -2011 Work Program.
- (11) Farebox revenues were calculated based on the average fare for two Florida peer systems (SunTran & MCAT) and ridership projections for Routes 1, 2, 3, and Circulators A, based on the ridership projection data developed in Technical Memorandum 1.
- (10) Assumes TD transit operating revenues equal to TD operating costs, as reported in the draft Lake transit budget.

RECOMMENDATIONS

This section presents a series of fiscal policy related recommendations that are developed based on the five-year financial plan described in Section 2. It is anticipated that these recommendations will help guide the financial planning process for transit in Lake County over the next five years and beyond. These recommendations are presented below.

Recommendation #1: Revisit TD Service Policy

According to the adopted Lake County TDSP, TD trip eligibility criteria indicate that “the transportation service is available to anyone who needs a ride.” However, the TDSP further specifies eligibility determination policy as follows:

Medicaid transportation is available to everyone who is authorized by the Medicaid office. Transportation Disadvantaged transportation is based on income levels according to Federal poverty guidelines. Elderly transportation is pre-authorized by the Area Agency for Aging or Title III office. The local WAGES office authorizes WAGES passengers. School Board students are pre-authorized by the local school board. DOT Section 5311 passengers use the same guidelines as TD passengers. Public-pay passengers pay the same fares as the sponsoring agencies.

It is recommended that Lake County revisit this TD service policy, and exclude the current TD riders who are not transportation disadvantaged, as defined below by the TD commission.

Potential TD Population: (formerly referred to as TD Category I) includes persons with disabilities, senior citizens, low income persons, and high risk or at risk children. These persons are eligible to receive certain governmental and social service agency subsidies for program-related trips. (Source: 2005 Annual Performance Report, FCTD)

Recommendation #2: TD Trip Conversions from TD to Fixed-route Services

With the start of a fixed-route bus service, Lake County should encourage and promote trip conversions from TD to fixed-route services. Efforts to foster this conversion of trips to the more fiscally-efficient fixed-route services should be planned and implemented. To assist in this conversion, the Finance Plan includes an inflated funding level for ADA services. Also, Lake County should track funding utilization and ridership trends to evaluate these efforts.

Recommendation #3: Move Local Funds to Fixed-Route Bus Service

With the conversion of TD trips to the fixed-route services, it is anticipated that the trip demand for TD service will decrease. Lake County should make a concerted effort to divert the unused portions of local funds currently allocated to TD services into fixed-route services. The availability of an annual local contribution would provide the County with matching funds, which would enhance the ability to leverage additional Federal and State grants, as fixed-route services are expanded in the future.

Recommendation #4: Expanded Fixed-Route Services with Available Funding

The Finance Plan in Section 2 contains planned growth based on estimated revenues. With the potential for TD trip conversions to fixed-route services, Lake County should move the available local funding into fixed-route services and initiate expanded services earlier than planned, or additional new services as identified in the Lake County Bus Circulation Study.

Section 6 PUBLIC INVOLVEMENT

This section summarizes the public involvement activities that were undertaken as part of the TOP development process. These activities were conducted after development of the draft operational concepts and recommendations in order to get interested citizens throughout the transit service area to review and comment on them, especially the proposed routing of the initial system. The specific public involvement activities summarized in this section include the series of public workshops that were held in July and August 2006. In addition, this section also presents the results of the TOP survey questionnaire that was distributed at each of the public workshops.

PUBLIC WORKSHOPS

The TOP public workshops were conducted to provide an opportunity for all interested citizens to participate in the review and development of the operations plan for the new Lake County transit service. A total of six public workshops were held throughout the transit service area in the central portion of the county in an effort to provide all residents who might make use of the initial transit system the opportunity to participate in the public involvement process. The five public workshops that were set up by County staff were advertised in the local newspapers, and also were promoted on the Lake County and Lake-Sumter MPO websites. It should be noted that the first workshop that was held actually occurred during a planned event, the Back to School Fair at Lake Square Mall at the end of July 2006.

Display boards presenting a variety of information related to the TOP recommendations, including maps of the proposed bus routes, were exhibited at the workshops to facilitate discussion with the participants and help generate public input. In addition, a survey questionnaire was made available to all workshop participants. At each of the five County-scheduled workshops, representatives from Lake County Transportation Service (including the contract service provider, MV Transportation), the Lake-Sumter MPO, and the project team attended to discuss issues and answer questions. The specifics of each of the six public workshops are summarized below (in order of occurrence).

Lake County Back to School Fair - The first public workshop was held during the Lake County Back to School Fair at Lake Square Mall on Saturday, July 29, 2006, from 10:00 a.m. to 3:00 p.m. County staff set up a display table for the fair, which included the display boards and questionnaires. While it is not known exactly how many people stopped by the transit exhibit throughout the course of the fair, a total of 53 surveys were completed during this event. Given this level of survey participation, it is reasonable to assume that 90 to 100 individuals or more attended this first public workshop.

Eustis Workshop - The second public workshop was hosted from 9:00 to 11:00 a.m. on August 30, 2006, at the Carver Park Complex in Eustis. A total of three individuals attended this public workshop, the attendance of which may have been negatively impacted by the rainy weather that occurred the morning of the workshop.

Lake Square Mall Workshop - The third public workshop was held at Lake Square Mall on August 30, 2006, from 12:00 to 2:30 p.m. This workshop was set up near the food court, which provided an excellent opportunity to obtain input from citizens passing by the area. Many people stopped to discuss the proposed transit service, as well as to view the route maps on display. While only 21 individuals elected to indicate their participation on the sign-in sheet that was used for this workshop, it is estimated that at least twice this many persons (~40-45 persons) participated in some way.

Tavares Workshop - The fourth public workshop was held from 3:30 to 5:00 p.m. on August 30, 2006, at the Community Services office on Duncan Drive in Tavares. Only two individuals attended this public workshop; however, the participants did have valuable comments about the routing of the cross-county connector (Route 1) through the Tavares area.

The Villages Workshop - The fifth public workshop was held at the Paradise Regional Recreation Center in The Villages on August 31, 2006, from 9:00 a.m. to 12:00 p.m. A total of 37 individuals signed in at this public workshop, although there were a few late arrivals who may not have had an opportunity to do so. It is anticipated that the total attendance of this workshop was approximately 40 to 42 persons. Interestingly, a number of those in attendance previously utilized the service route that had operated in Lake County before. In addition, many of the participants arrived prior to or at the start of the workshop and stayed for at least half of the workshop's duration to discuss the proposed service, thus, turning the workshop into more of a discussion group-style meeting.

Leesburg Workshop - The sixth and final public workshop was held from 2:00 to 5:00 p.m. on August 31, 2006, at the Susan Street Recreational Complex in Leesburg. Only one individual attended this public workshop; however, this person was a long-time resident who knew the area well and provided excellent comments about the proposed service, including offering some marketing ideas and opportunities for the new service. While the weather also may have impacted the attendance at this particular workshop, it is important to note that some persons indicated to the County after that they were unable to locate the facility. Also, one individual who was unsuccessful in her attempt to attend the workshop was provided the pertinent workshop materials (including a survey) via e-mail to review and provide comment.



The summary results of the workshop survey questionnaire are documented later in this section. The remainder of this section summarizes the compiled results of the workshop survey questionnaire, as well as presents a synopsis of the various opinions, comments, and

suggestions that were provided by the workshop participants and resulted in modifications to the proposed routing and/or the TOP recommendations presented previously.

PUBLIC WORKSHOP SURVEY

As previously noted, a brief survey was administered at each of the public workshops. The purpose of this survey was to collect participant opinion on the proposed Lake County transit service and its related operational characteristics, as well as basic demographic information and attitudinal information regarding the need for and funding of transportation in the county. A total of 85 surveys were completed at the six public workshops. Since it is estimated that there was a total of approximately 177 to 194 participants combined at all of the meetings, this represents a response rate of approximately 44 to 48 percent. The results of the public workshop survey are summarized in Figure 6-1.

**Figure 6-1
Public Workshop Survey Results**

	LAKE COUNTY TRANSIT OPERATIONS PLAN	
Please take a minute to give us your opinion of planned transit improvements in Lake County!		

Please mark or write down your responses to each question, as appropriate.

(1) The accompanying display boards illustrate three proposed bus routes in Lake County. Based on your needs and preferences, please rate the three routes based on their coverage area, frequency, and hours of service.

	Coverage Area			Frequency			Service Hours		
	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor
Cross-County Connector (#1)	16	7	0	16	6	0	16	4	1
Leesburg Circulator (#2)	16	10	1	13	12	0	15	7	1
Mount Dora Circulator (#3)	12	9	0	10	9	0	11	7	0

(2) Based on your preferences, please rank the following types of potential bus service improvements in order from 1 (highest priority) to 6 (lowest priority).

Avg Rank	
1.61	Weekday service
3.24	Weekend service
4.14	Late evening service (7:30 to 10:00 p.m.)
3.49	Early morning service (5:30 to 7:00 a.m.)
3.36	High service frequency (30 to 45 minutes)
4.29	Express service (less stops)

(3) The installation of bus stop amenities such as shelters and benches is a costly undertaking for a new bus service in Lake County. Where do you think bus stop amenities should be located (please select only one choice).

32	At major transfer points only
5	At less than 10 percent of bus stops
19	At 10 to 30 percent of bus stops
12	At 30 to 60 percent of bus stops
11	At more than 60 percent of bus stops

(4) The accompanying display boards illustrate three proposed bus routes in Lake County. Based on your needs and preferences, please identify three stops along each route that you would most likely use (for school, work, shopping, medical appointments, etc).

Cross-County Connector	Leesburg Circulator	Mount Dora Circulator
1. <u>Shopping</u>	1. <u>Shopping</u>	1. <u>Shopping</u>
2. <u>Medical</u>	2. <u>Medical</u>	2. <u>Medical</u>
3. <u>Downtown/Major Area</u>	3. <u>Downtown/Major Area</u>	3. <u>Downtown/Major Area</u>

(5) Some of the major fare categories for the proposed bus service are shown below. In your opinion, how do each of these fare types rate?

Regular Fare =\$1			Students/Elderly/Disabled =\$0.50			30-Day Unlimited Ride Pass =\$30		
Too High	Fair	Too Low	Too High	Fair	Too Low	Too High	Fair	Too Low
1	78	1	0	75	5	7	69	0

**Figure 6-1 (continued)
Public Workshop Survey Results**

	<p>LAKE COUNTY TRANSIT OPERATIONS PLAN</p>	
<p>Please take a minute to give us your opinion of planned transit improvements in Lake County!</p>		

(6) Do you believe there is a need for a bus service in Lake County?

82 Yes 1 No

(12) Have you used any type of public transportation in the past? If so, where?

30 Yes Where?
 4 No

(7) Who do you think would most benefit from a new bus service in Lake County? (select only one choice)

7 Children 13 Low-Income
 25 Elderly 60 Everyone
 8 Persons with Disabilities

(13) Have you used existing Lake County transportation disadvantaged transit service?

14 Yes -- proceed with the survey
 64 No -- thank you for completing the survey

(8) Do you think the community as a whole is willing to consider local funding (taxes) for transit?

25 Definitely 3 Not at all
 34 Somewhat 18 Do not know

(14) How often do you use this service?

1 3 or more times a week
 2 1 to 2 times a week
 4 1 to 3 times a month
 5 Less than once a month

(9) Are you willing to pay additional local taxes for an expanded transit system?

33 Definitely 8 Not at all
 30 Somewhat 9 Do not know

(15) How would you rate this service?

1 Very Good
 5 Good
 4 Average
 2 Poor
 1 Very Poor

(10) What is your age?

0 17 years or under 32 41 to 60 years
 1 18 to 24 years 33 More than 60 years
 17 25 to 40 years

(16) What type(s) of trips do you mostly use the service for? (check all that apply)

2 Work Trips
 13 Shopping/Entertainment Trips
 9 Medical Trips
 1 Other, please specify

(11) What was your total household income for 2005?

14 Less than \$20,000 10 \$60,000 - \$79,999
 30 \$20,000 - \$39,999 5 \$80,000 or greater
 19 \$40,000 - \$59,999

General Comments:

THANK YOU FOR YOUR COOPERATION!

In the figure, for each question, the number of survey respondents who selected each potential answer is shown. For Question #4, which is of an open-ended nature, the top responses that were indicated by the participants are shown. The following bullets summarize the results of the various survey questions.

- Question #1 was associated with the routing display boards that were used at each of the workshops. The question sought input from participants on the coverage area, frequency of service, and service hours for each of the proposed routes. As shown in the figure, the majority of the respondents rated these operational characteristics as being “good” or “fair” for all three of the proposed routes.
- In Question#2, the workshop participants were asked to rank order (from 1 to 6) a set of six specific operational considerations for the Lake County transit service to help determine priorities among them. The results indicate that weekday service is the most important improvement that can be considered. This is followed by the provision of weekend service and high service frequency. Interestingly, the respondents rated early morning service to be a more important consideration than later evening service.
- Question #3 sought input on the provision of bus stop infrastructure. Because capital funds for this type of implementation can be limited from year to year, it is important to understand the needs and desires of potential patrons with regard to the placement of benches and shelters. According to the guidance provided by the survey respondents, increased levels of bus stop infrastructure should be limited primarily to major transfer points. The next highest proportion of response was for the placement of such infrastructure at 10 to 30 percent of the proposed system’s total bus stops.
- Question #4 also was associated with the routing display boards that were used at each of the workshops. The question asked participants to specify three particular bus stop locations that would help best meet their travel needs. As shown in the figure, for all three routes, the most important locations for bus stops indicated by the respondents are shopping centers, plazas, and malls; hospitals, medical clinics, and doctor’s offices; and downtown areas within the municipalities being served by transit. Other locations that were indicated include schools (including Lake-Sumter Community College), various recreational locations, libraries, various restaurants, and specific government service offices (e.g., the Social Security Office).
- In Question #5, the participants were asked to provide input on their opinion of the proposed fare schedule, particularly the pricing of the base fare, the discounted base fare, and the 30-day pass. For each fare type, the majority of the response indicated that the proposed rates were “fair.” It is interesting to note that some of the respondents

indicated that the regular and discounted base fare were “too low.” In addition, several respondents believe that the proposed 30-day pass price was “too high.”

- Question #6 asked participants to indicate whether they believe transit service is needed in Lake County. All but one of the persons who responded to this question indicated that such a service is indeed needed in the county at this time.
- Participants were asked in Question #7 who in the county would most benefit from a new transit service. Although the respondents were instructed to select only one choice from those provided, many elected to select more than one. As a result, the distribution of responses indicated in the figure for this question exceeds the total number of surveys received. Nevertheless, the distribution of the total responses indicates that the respondents primarily believe that “everyone” will benefit the most from such a service. The next most-indicated response was for the “elderly.”
- According to the results for Question #8, there appears to be a general belief among the respondents that the community may be willing to consider local funding for transit. Twenty-five of the 80 total respondents who answered this question believe that there is “definitely” a willingness to do this, while another 34 respondents believe that there is “somewhat” of a willingness to consider local funding for transit. Most of the rest of the respondents indicated that they did not whether there is a willingness to do this.
- Question #9 asked the participants about their own willingness to support an expanded transit system with additional local taxes. A total of 63 of the 80 respondents who answered this question indicated that they were “definitely” or “somewhat” willing to pay additional taxes for transit. Eight of the respondents indicated that they were not at all willing to support transit with additional local taxes.
- Most of the respondents fall into the 41 to 60 years (32 respondents) and more than 60 years (33) age categories. All but one of the respondents are 25 years or older, and no one under the age of 18 years completed a survey.
- There was broad income-level representation among the respondents at the workshops. With 30 respondents, the \$20,000 to \$39,999 income category had the highest representation, followed by the \$40,000 to \$59,999 income category, with 19 respondents, and the Less than \$20,000 income category, with 14 respondents.
- A total of 30 respondents indicated having previous experience utilizing public transportation, whether in Lake County or elsewhere (e.g., New York, New Jersey,

Pennsylvania, Boston, Washington, D.C., Chicago, Las Vegas, Tampa, Orlando, Miami, Atlanta, Dallas, and Europe, among others).

- Only 14 of the survey respondents indicated having experience utilizing the existing Lake County transportation disadvantaged service. Most of these individuals indicated being relatively infrequent users of the service (i.e., 3 times per month or less).
- Six of the respondents rated the Lake County transportation disadvantaged service as being “good” or “very good,” and another 4 individuals rated it as “average.”
- Most of the respondents who use the transportation disadvantaged service indicated using it mostly for shopping/entertainment trips and medical trips.

Finally, the survey also provided respondents with an open-ended section in which they could write down any comments or suggestions that they may have about the proposed fixed-route bus service or any other transportation issues impacting them. Eighteen of the survey respondents elected to provide comments in this section. Following are the unedited comments that were provided on the completed surveys.

- Need public transportation in Lake County.
- I think this is an excellent idea!
- Residents of “historical” side of Villages need transportation as they consist of the oldest, most disabled, and with lowest incomes residents. Would be good to start with a Villages circulator as the majority of the Villagers are quite vocal and would provide excellent publicity for the bus line and the services it could and would provide.
- It would be a great asset for this area to have a transit system.
- On the east side of The Villages when Lake County had buses, they used to stop at the recreation center on Paradise. Why can't it be on this new route?
- When we came to The Villages they told us that we'll have a bus for you people.
- When I bought my house in 1987, the developer assured me that there would be bus service. I live in Country Club Hills in Lady Lake.
- Good place for stop is Paradise Recreation Hall.
- Need bus service ASAP.
- This service needed.
- I am very impressed with the presentation and knowledge of the needs of residents of our county.
- Greatly needed – I look forward to some day having integrated network of bus and light rail to connect all of Golden Triangle: Leesburg, The Villages, Orlando!
- Good idea.
- Please consider going down CR 473 in between Tavares and Mall.

- Add transportation on 473. Several mobile home parks and low mobility.
- Great interest in connection to Orlando area via LYNX.
- Good presentation. Hope all areas are eventually covered and projected into Orlando.
- We need a bus line running south on 27 so people in the developments who don't drive can get into the city, doctors, mall, etc.

PRESENTATIONS

The public involvement program included presentations to the Technical Advisory Committee (TAC) and Citizens Advisory Committee (CAC) of the Lake County MPO. In addition, presentations on the TOP were made to the MPO Board and the Board of County Commissioners (BOCC). Presentations to these committees and Boards took place on the following dates:

- TAC/CAC – September 20, 2006
- MPO Board – September 17, 2006
- BOCC – October 17, 2006

The Lake County BOCC adopted the TOP at their October 17th meeting.

SUMMARY

The public involvement conducted as part of the TOP process was beneficial in getting input from potential users of the transit system on the proposed routing of the service and some of its operational characteristics. For example, at some of the public workshops, participants made a variety of suggestions about modifying the proposed routing of one or more of the routes. There also were suggestions related to the proposed fare structure and the hours of operation for the service. At one of the workshops, a participant even provided some suggestions for marketing the service. Unfortunately, not all of the suggestions could be accommodated, especially regarding routing, because of the time constraints of the routes due to the need to maintain schedules. However, there were a number of recommendations that were incorporated into the final TOP recommendations included herein. The following bullets highlight the various public input that has impacted the final TOP recommendations.

- At the Eustis workshop, it was commented that it would be beneficial for the cross-county connector to serve more of the Downtown Eustis commercial district. As a result of this suggestion, a portion of Route 1 was modified within Eustis to serve this area, with the route extending to Pendleton Avenue in the north instead of providing downtown service only to Orange Avenue.

- The Eustis workshop also produced a suggestion for serving the Eustis Village Shopping Center more directly with the routing of the cross-county connector. This also has been accommodated with some rerouting of Route 1.
- At the Mall workshop, one participant suggested that the fare structure was missing a multi-ride pass option that would better serve the needs of regular, but infrequent riders. As a result of this comment, two new fare options have been recommended for the Lake County service: a 10-ride fare pass and a 20-ride fare pass.
- At the Tavares workshop, it was indicated that the routing of the cross-county connector through Tavares did not serve some desirable developments for potential transit trip generation, such as the YMCA and some elderly housing developments. As a result of this comment, the portion of Route 1 through Tavares was broken into two branches (along St. Clair Abrams and Dora Avenues) to increase the amount of service area coverage within Tavares.
- It also is important to note that, because of some available schedule time in the Mount Dora circulator route, MPO staff met with Mount Dora planning staff to develop potential additional routing within the area to help improve the coverage and effectiveness of the route. The suggestions stemming from the meeting were reviewed and incorporated into the Route 3 structure, which now provides better coverage of the growing commercial districts around Downtown Mount Dora.
- As a result of a comment received at the MPO Board meeting, Route 1 was modified to provide service directly to the library in Fruitland Park. The change resulted in minimal impacts to the proposed service alignment and timing. As such, changes to the route were made to accommodate transit riders wishing to access the library.
- County staff indicated that transit service should be provided to the new office location of the County's Community Services Department at Woodlea Road. The new location was considered to be a major activity center that would warrant a connection to the new transit service. In order to accommodate service to the new office location, an additional modification to Route 1 was made.

On the following pages, Maps 6-1 through 6-3 illustrate the final, modified version of the three proposed routes for the initial Lake County transit service implementation. Appendix C includes the turn movement guides for each route.



Lake County Transit Operations Plan (TOP)

Route 1 - Cross-County Connector

Legend

Major Activity Centers

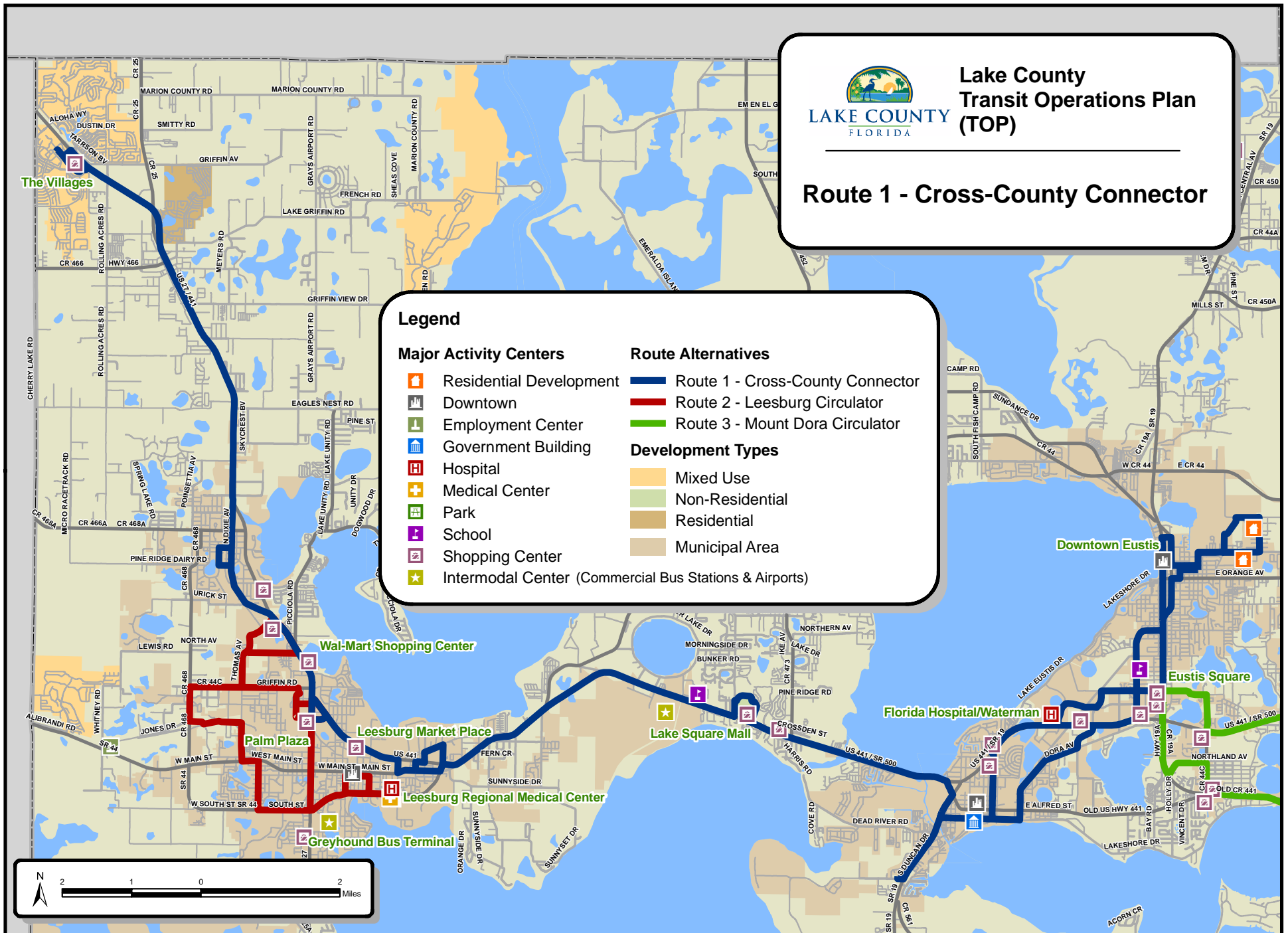
- Residential Development
- Downtown
- Employment Center
- Government Building
- Hospital
- Medical Center
- Park
- School
- Shopping Center
- Intermodal Center (Commercial Bus Stations & Airports)

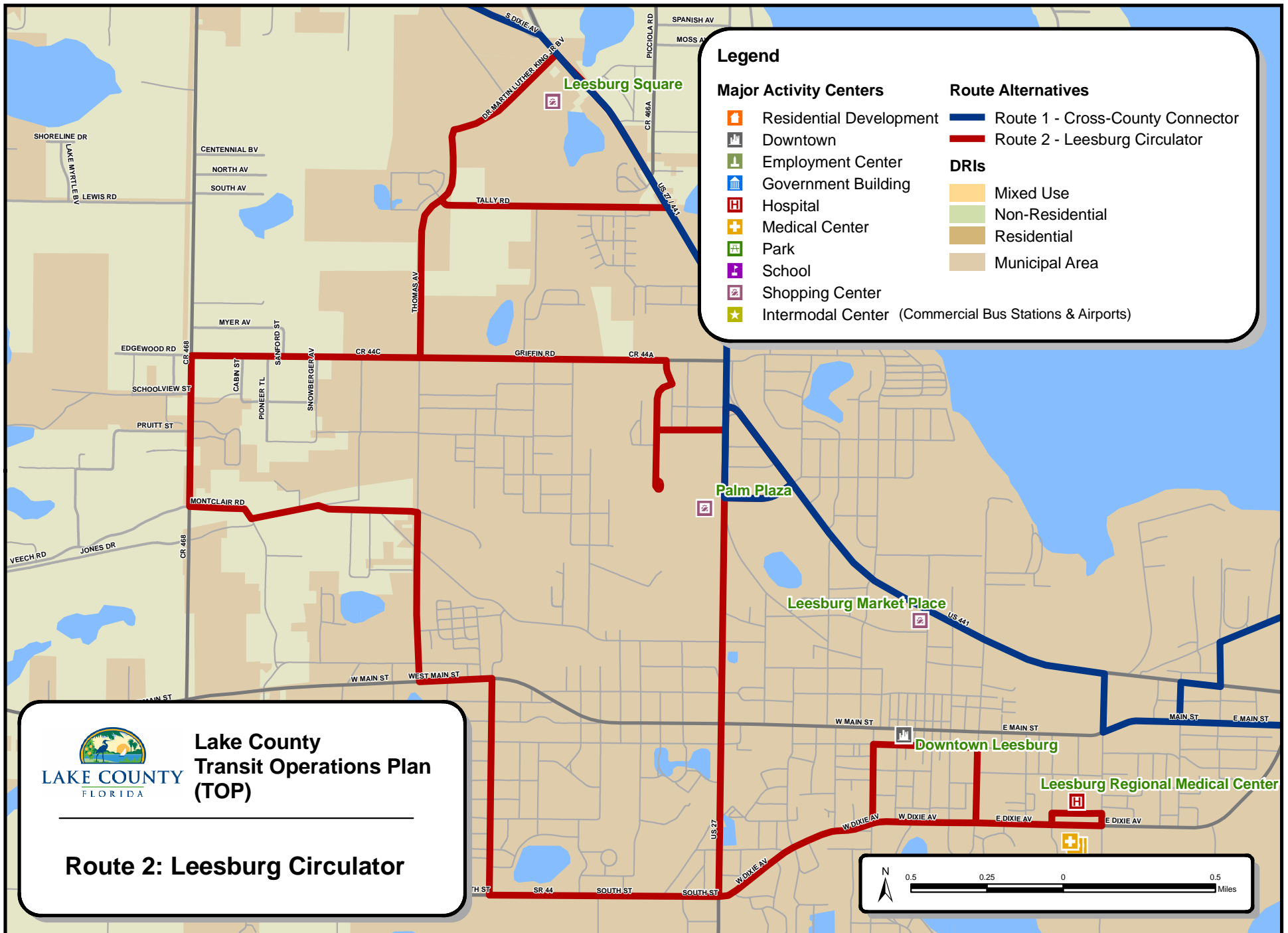
Route Alternatives

- Route 1 - Cross-County Connector
- Route 2 - Leesburg Circulator
- Route 3 - Mount Dora Circulator

Development Types

- Mixed Use
- Non-Residential
- Residential
- Municipal Area





Legend

Major Activity Centers


- Residential Development
- Downtown
- Employment Center
- Government Building
- Hospital
- Medical Center
- Park
- School
- Shopping Center
- Intermodal Center (Commercial Bus Stations & Airports)

Route Alternatives

- Route 1 - Cross-County Connector
- Route 2 - Leesburg Circulator

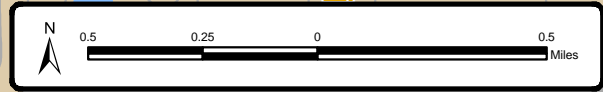
DRIs


- Mixed Use
- Non-Residential
- Residential
- Municipal Area



**Lake County
Transit Operations Plan
(TOP)**

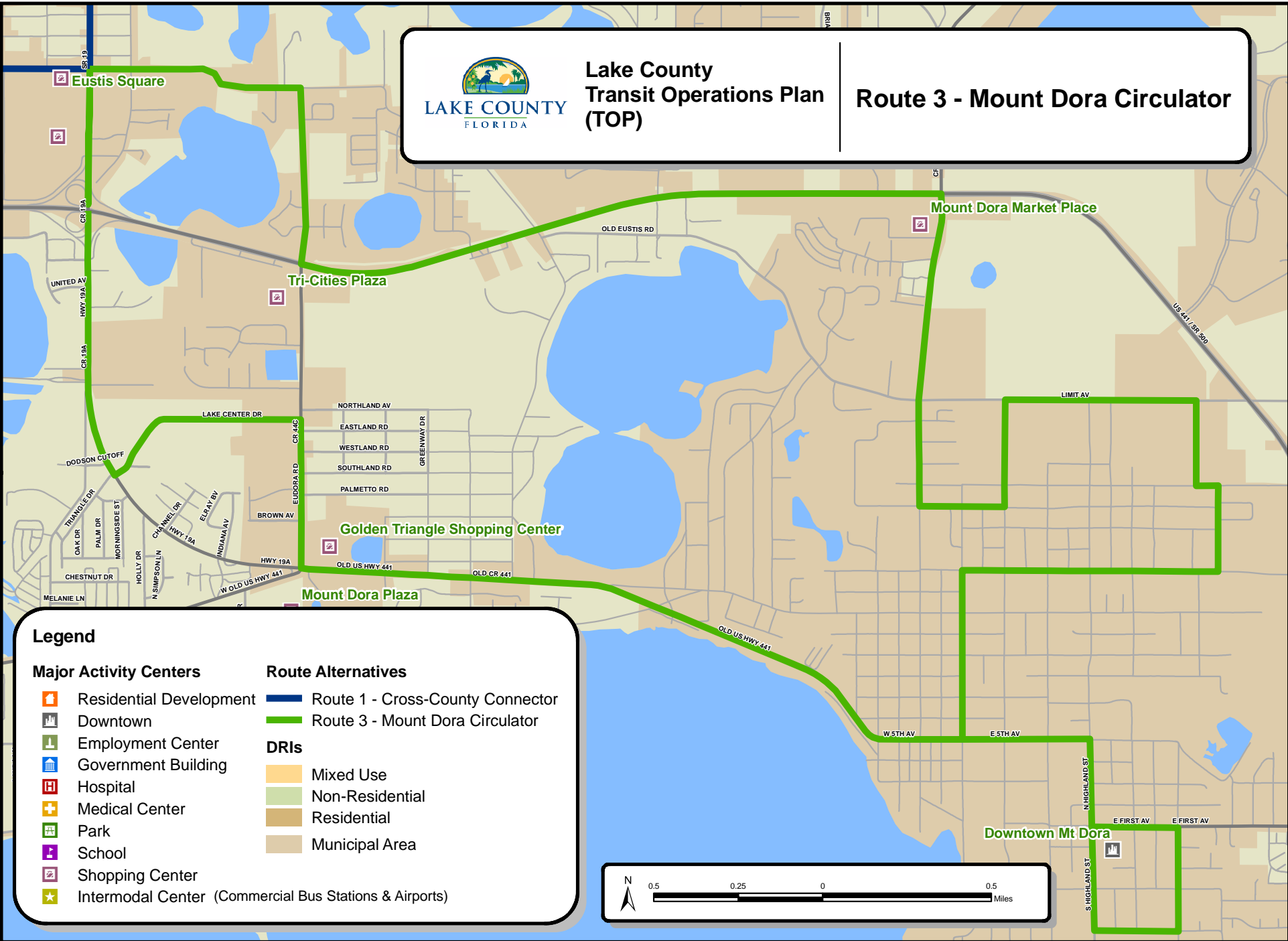
Route 2: Leesburg Circulator





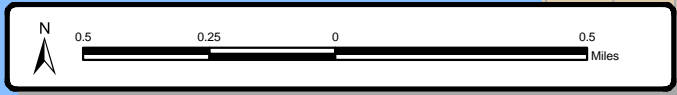
Lake County Transit Operations Plan (TOP)

Route 3 - Mount Dora Circulator



Legend

Major Activity Centers		Route Alternatives	
	Residential Development		Route 1 - Cross-County Connector
	Downtown		Route 3 - Mount Dora Circulator
	Employment Center	DRIs	
	Government Building		Mixed Use
	Hospital		Non-Residential
	Medical Center		Residential
	Park		Municipal Area
	School		
	Shopping Center		
	Intermodal Center (Commercial Bus Stations & Airports)		



Appendix A
VEHICLE NEEDS ASSESSMENT

Vehicle Needs Assessment

Many items and factors need to be considered when choosing the vehicles for a new start-up transit service. For purposes of the vehicle needs assessment detailed in this Appendix, the factors described below were used. The results of the assessment are presented in Table A-1.

Cost – In any new start-up system, the initial cost can be more constraining than the long-term cost (replacement time, depreciation, maintenance and repairs, etc.), which sometimes dictates opting for expediency as opposed to best practice. For this factor, consideration of both the initial acquisition cost and the long-term expense of each vehicle were reviewed. Life-cycle cost evaluations are important to building a sustainable budget.

Delivery Time – When starting a new system, delivering on the expectation to initiate service by a prescribed date can be very important. In order to evaluate this factor, past performance of vehicle suppliers, reasonable assurance that all other elements necessary to start service will be ready on the planned date, the impact of not starting as planned, and the options available if vehicles are not delivered as planned were all considered.

Size-Operations – The size of the vehicles used, especially in small and community-based systems can be critical to the operations of the service. In Lake County, while the service is somewhat community-based and operated on many local streets, the proposed routing was not found to have any tight turning radii that could limit any of the buses being considered. However, some of the buses are easier to handle, maneuver, and store, while others are easier to maintain because of access and roominess.

Size-Other – There are other factors related to size that should be considered, as well. Size can sometimes play a big role in public perception of performance and efficiency. Bigger buses with the same amount of people as smaller vehicles will appear emptier and often become a source of critical uproar. There are strategies to overcome this type of criticism. The best one is to operate buses that are so full that people believe you need bigger buses. When this happens, the smaller vehicles are a burden, because you are not able to easily replace them, as the funding agencies have a vested interest in them and require their utilization until reaching the quantified useful life of the vehicles.

Reliability – One of the worst problems for a newer system to deal with is the unreliability of its vehicles. Recurring break downs in mid-route, vehicles on the side of the road or being towed, and poor on-time performance can be very damaging to a system's reputation. Higher than budgeted repair and maintenance costs and the need for

additional spare vehicles also can be critical failures in the management of systems using under-designed vehicles.

Customer – Customer needs, desires, and comfort should be considered. Many buses are adapted to transit service and have certain physical elements that are not as “customer appealing” as others. Such items as riser and tread depth, door width, aisle width, and wheel well accommodations, can influence customer comfort and gratification. Also, operational issues such as a smooth ride, deflection in turns, and acceleration and deceleration motion can make a customer’s experience enjoyable or negative.

Maintenance – The ease of planning for and performing maintenance should be considered. Also important is the amount of unscheduled maintenance and repairs that will occur during the life of the fleet. Maintenance costs are identified more often as the most critical indication of the performance of the vehicle chosen for a transit service.

Replacement – While acquisition costs is critical, other factors can play into the bus replacement plan budget impact. Items such as the need for additional spare vehicles, the average length of time of life cycles, depreciated value of used buses, and the influence bus size/type has on funding selection and priority all can have major impact on the average age of the fleet and the budget decisions for replacement.

Warranties – Manufacturer service and warranty performance is important to evaluate because if a vehicle cannot be repaired in a timely fashion, a transit system is borrowing from its reserve vehicles, which may be more susceptible to future system failures with increased use.

Consistency – Ridership growth in a transit system is highly dependent on a consistent service. Vehicles with consistent reliability enhance a system’s ability to perform consistent service that riders will learn to depend upon for their transportation needs. Conversely, inconsistent service is one of the most damaging elements to ridership growth.

**Table A-1
Lake County Vehicle Needs Analysis**

Choice Factors	Vehicle Options	FVPP-Champion	Bluebird	Thomas Built	FPTA-Gillig	Self Bid
Cost		High	Med	Med	Low	Low
Delivery Time		High	High	High	Med	Low
Size- operations		Med	Med	Low	Med	Med
Size- other		Med	Med	Med	Low	Low
Reliability		Low	Low	Low	High	Low
Maintenance		Low	Low	Low	High	Med
Replacement		Med	Low	Low	High	Med
Customer		Low	Low	Low	High	Med
Warranties		Low	Med	Med	High	Low
Consistency		Low	Low	Low	High	Low
Final Composite Score		Med	Med	Low	High	Low

Note: Assessment process utilized high-medium-low scoring methodology to comparatively rate the choice factors for each vehicle option.

Appendix B
STAFF COORDINATION & TECHNICAL MEMORANDUM #1 REVIEW
MEETING SUMMARY

Lake County Transit Operations Plan (TOP)
STAFF COORDINATION & TECHNICAL MEMORANDUM #1 REVIEW MEETING
SUMMARY

DATE & TIME: July 5, 2006 10:00 AM - 12:00 Noon
LOCATION: Lake County Administration Building
315 West Main Street, Room 235, 2nd Floor
Tavares, Florida

ATTENDEES:

- Michael Woods, Lake County
- David Hope, MV Transportation, Inc.
- Joel Rey, TOA
- Richard Dreyer, TOA
- T.J. Fish, Lake County MPO

AGENDA:

- Introductions
- Review & Discussion of Technical Memorandum #1
 - Content (Policies and Recommendations)
 - Format and Presentation
- Discussion of Public Workshops
 - Focus of efforts
 - Scheduling
- Preliminary Review of Financial Plan
 - Questions & Assumptions
 - Review of Draft Documents
- Wrap-up and Action Steps

SUMMARY:

After brief introductions, the discussion went directly into the Technical Memorandum #1 review and comments.

- The document was done well, and there are only minor comments.
- The decision is to go with the newly-designed Bluebird low floor buses. Staff reported that the chassis on these buses is very similar to those on the Gillig buses recommended in the tech memo. They also cost approximately the same amount, but are available through a Pasco County contract in a shorter delivery time. TOA will get additional information from the website on these buses to use in the upcoming public workshops.

- The proposed routes laid out in the tech memo go everywhere they need to go and they serve all the appropriate ridership destinations and/or generators. Even after proposed changes in route structure, there is little variance in the route coverage/service area.
- The decision locally is to reduce transfers by combining the proposed Routes 1, 2, 4, and 6 into one long Route 1. With four buses serving the route, it will have one hour headways for the entire length of the route, and it will be the system's main trunk line.
- Proposed Route 3 would become Route 2, and proposed route 5 would become Route 3. Both of these routes would serve as circulator routes serving their respective communities and connecting with the main trunk line, Route 1.
- MV Transportation staff provided detailed routing and schedule information for the new route structure to incorporate into the TOP.
- The days and hours of service will be set at 6:00 am – 7:00 pm, Monday through Friday. Saturday service will not start until the fourth year of service.
- The TOP suggestion that "Flag Stops" be considered was discussed, and the consensus was that the "Flag Stops" would be used/allowed for up to one year only.
- MV Transportation staff also reported that, instead of one administrative position as documented in the TOP, staffing level will include two road supervisors and one dispatcher. It was indicated that it was the local consensus that this is warranted for the new system.
- The recommended fare structure and all other sections of the tech memo are fine as proposed in the TOP. There were no other comments on the tech memo.

It was decided that content and recommendations in Technical Memorandum #1 would not be revised, but that a new section would be added to it to detail the final decisions and that it would be forwarded with the final TOP after the public workshops. The new section will include new route maps and schedules, other information on operational characteristics, details on the Bluebird bus purchases, and a summary of this meeting.

Discussion then turned to the two Public Workshops outlined in the scope. The preference was to have one in Lady Lake, maybe at the town hall or a facility in The Villages. It also was discussed whether the second one should be in Leesburg, or Eustis, or possibly both. TOA agreed to staff additional workshops, as long as they are scheduled so as to require only two day trips to Lake County. Having two on the same day would be acceptable. It was decided to hold the public workshops in August or early September. Lake County will take the lead in scheduling, reserving venues, and doing the public announcements. TOA will develop display boards and the survey tool to be used for the workshops and future board presentations. The displays will include boards

depicting the routes, service/operational information (i.e., fare policies, hours of operation, etc.), the Bluebird buses, and sample shelters. It was anticipated that there will be 4-6 boards when finished.

Mike Woods mentioned that there is a community Back-to-School Fair on July 29th. The County will have an area of booths set up at the fair and they would like to have display boards and survey forms regarding the new transit service available for the event. TOA agreed to provide these materials to the County for the event. David Hope agreed to check to see whether a Bluebird bus could be made available for the event, as well.

The display boards and survey tools will also be added to the County's website. The County staff will handle this activity and any feedback from the public will be provided to TOA to be included in the summary of the workshops.

Discussion then turned to the preliminary budget/finance plan. TOA had a list of questions based on the financial information previously provided by MV Transportation. MV Transportation staff noted that some of the questions might be answered once he presented a revised budget based on new operational data and other information. Upon David presenting the revised budget, it was determined that most questions were answered. Highlights of the financial plan discussion include the following:

- Use \$60 per hour instead of \$55;
- changes in the estimates for fare box revenues were agreed to;
- start-up sequencing for each route and Saturday service was decided, the intermodal facility was removed;
- carry-over amounts of Block Grant and FTA Section 5307 were detailed;
- and additional amounts for marketing were agreed upon.

TOA will create a finance plan based on the updated budgeting information received from MV Transportation and from the federal/state allocation tables.

During the financial discussions, facility costs and maintenance issues were raised as a potential issue. For example, if Life-Stream's facility was purchased and/or built with any federal and/or state funding, then there may be equity issues and federal/state interests to be resolved and this could benefit the system. The County will follow up with FDOT to determine what are the appropriate actions and requirements.

The meeting concluded at approximately 11:45 a.m.

Appendix C
LEFT-RIGHT TURN SCHEDULE FOR NEW FIXED ROUTES

ROUTE 1

Left-Right Turns for Route 1	
Turn	Location
From	Spanish Springs Station (Villages)
Right	Bichara Blvd
Left	La Grande Blvd
Right	441
Timepoint	Water Oaks MHP
Timepoint	Lady lake Cove Apts
Right	Dixie (25A)
Right	Berckman St
Left	Mirror Lake Dr
Left	Fruitland St
Right	Dixie (25A)
Left	Urlick
Timepoint	Wal-Mart stop (MLK & 441)
Right	441
Left	Citizens Blvd
from	Citizens Blvd
Right	441
Right	Lake
Left	Main
Left	44 & Main (Leesburg)
Right	441
Left	Radio Rd
Right	Into Mall (Behind Barnhills)
Left	441 (times from lake Square)
Right	Lakeshore (Old 441)
Right	19
Right	Woodlea Rd
Left	Into Ag ctr parkuing Lot
Right	Woodlea Rd
Left	19
Right	Main
Continue	Main becomes Lake Dora Dr
Left	Dora Ave

Left-Right Turns for Route 1	
Turn	Location
Left	David walker
Left	441
Right	Huffstetler (Into Waterman Hosp by ER)
Left	On Huffstetler Dr
Left	On Dr Kurt St
Right (Curve)	On Lakeview
Left	On SR 19 (Bay)
Right	On Orange
Left	On Center
Right	On McDonald Av
Left	On Prescott St
Right	On Bates Av
Left	On Palmetto Rd
Right	On Getford
Right	On Wall St
Right	On Bates Av
Left	On Prescott
Right	Clifford
Right	19 (Grove St)
Left	E. Pendleton
Left	19 (Bay)
Right	On Ardice (Mt Dora Transfer)
Left	Kurt
Right	441
Right	Huffstetler (Into Waterman Hosp by ER)
Right	On Huffstetler Dr (From ER)
Right	441
Left	St Claire Abrams
Right	Main
Right	SR 19
Left	Old 441
Left	441
Right	Into Mall (Barnhills)
From	Mall
Left	Radio Rd

Left-Right Turns for Route 1	
Turn	Location
Right	441
Right	Newell Hill Rd
Left	Bentley St
Left	Mills St
Right	441
Left	27
Left	Citizens Blvd
From	Citizens Blvd (Transfer to Rt 2)
Left	441
Right	441
Timepoint	Wal-Mart stop (MLK & 441)
Timepoint	Lady lake Cove Apts
Timepoint	Water Oaks MHP
Left	Avenida Central
Right	Bichara Blvd
Left	into parking lot (just before Main)
To	Spanish Springs Station (Villages)

ROUTE 2

Left-Right Turn for Route 2	
Turn	Street
Depart Citizens Blvd (transfer point) to LRMC	
Left	On 441
Left	On US 27
Left	On Dixie Av
Left	On 9th St
Right	On Magnolia St
Right	On S Canal St
Left	On Dixie Av
Left	On S Lake St
Left	LRMC
Left	Rambo
Right	On Dixie Av
Cross	27 (Dixie becomes South St)
Right	Lone Oak Drive
Left	Main
Right	Thomas
Left	Colonial
Right	Montclair
Right	468
Right	On Edgewood (Griffin Rd)
Left	44C Thomas
Right	MLK (Wal-Mart)
Right	27
Right	Tally Rd
Left	44C Thomas
Left	Griffin RD
Right	On Pamela
Right	On Susan St (Turn around at park)
Right	On William
Right	On US 27
Left	On Citizens Blvd

ROUTE 3

Left-Right Turns for Route 3	
Turn	Street
from	On Ardice Av (Eustis Square)
Right	On SR 19
Left	On Lake Center Dr
Right	On Eudora Rd
Left	On Old US 441 (5th Ave)
Right	Highland
Left	First Avenue
Right	Rossiter Street
Right	Camp
Right	Highland
Left	5th Ave
Right	On Tremain St
Right	On Lincoln Av
Left	On N Wardell St
Left	On W Pine Av
Right	Unser St
Left	Limit Ave
Left	Grandview
Right	Jackson Av
Right	On Donnely St
Left	On SR 441
Right	On Eudora Rd
Left	On Mount Dora Rd
Cross	SR 19 to Ardice Eustis Square