

# Transit Planning Examples

## Five year plan:

It is important that transit agencies develop and update a regular plan for a transit system change. Ideally this is in the form of a five year plan which outlines actions to be taken in the following year and also sets goals for subsequent years. Such a plan should be updated annually and should be a topic of major discussion with the governing board of the transit agency. It also can be used as input to the regional Transportation Improvement Program (TIP) of the Metropolitan Planning Agency.

In general, a five year plan for a transit agency contains the following major elements:

- Community profile
- Description of existing services and resources
- Related plans programs and policies
- Transit system Goals and Objectives
- Performance evaluation of current system
- Alternatives for future change
- Five year program of projects

Some of these sections do not change very much over time, while others may. Performance evaluation of the system is an important component in that it provides clues on how to modify the system in the future.

The following pages provide examples of transit planning projects from the state of Florida.

Florida requires that transit agencies annually prepare transit plans that describes the current system and its performance and describes what they intend to do for the next five years.

The examples are from the Fort Lauderdale area (Broward County) , the Orlando region (Lynx transit) and Lee County (Ft. Myers). These are excerpts from the plans which show how performance indicators are used to develop the plan. In most cases you can get the latest version of the full plan from the internet;

Some web sites are:

Lynx transit: <http://www.golynx.com/media/pdfs/TDP2%20Final%20March2005.pdf>

Broward County: <http://www.broward.org/transportationplanning/tpi02601.pdf>

Lee County: <http://www.rideleetran.com/tdppdf.htm>

Most of these give good examples of how GIS can be used for transit planning. For example, the Lee county plan, chapter 1 has extensive maps that show trends and characteristics of census tracts as they relate to the potential for transit use.

This section also has an example of goals for a smaller rural transit service

# Broward County Transit Development Plan FY 2005–FY 2009<sup>1</sup>

## Table of Contents

1. Transit Goals and Objectives .....	1
1.1 Broward County Vision and Mission	
1.2 Broward County Comprehensive Plan	
1.3 Broward County Long Range Transportation Plan.	
1.4 Florida Transportation Plan.	
1.5 Summary Statement of Goals and Objectives	
1.6 Regional Considerations	
2. Public Involvement.....	5
2.1 On-board Survey.	
2.1.1 Methodology.	
2.1.2 On-board Survey Results	
2.1.3 Comparison with Previous Surveys	
2.1.4 Profile of Typical BCT Rider	
2.2 Bus Operator Focus Groups.	
2.3 Community Survey	
2.3.1 Methodology	
2.3.2 Survey Results	
2.4 Community Meetings	
3. Existing Conditions .....	23
3.1 Area Setting	
3.1.1 Land Use	
3.1.2 Future Land Use	
3.1.3 Environment	
3.1.4 Roadway Level of Service	
3.2 Population Characteristics	
3.2.1 Population Change and Location.	
3.2.2 Population Age Groups	
3.2.3 Income and Vehicle Availability	
3.3 Tourism Characteristics and Travel Patterns	
3.4 Employment and Commuting Characteristics	
3.5 Transit Needs Analysis	
4. Transit Service Analysis .....	58
4.1 Identification of Existing Public Transportation Services	
4.1.1 BCT	
4.1.2 Paratransit Service	
4.1.3 Passenger Facilities	
4.1.4 Community Bus Services	
4.1.5 Water Bus	
4.1.6 Other Transportation Providers	
4.1.7 Service to Educational Facilities	
4.1.8 Service to Colleges	

<sup>1</sup> <http://www.broward.org/transportationplanning/tpi02601.pdf> accessed August 31, 2006  
H:\Projects\Transit course\Five yr.doc

4.2 Regional Transit Services	
4.2.1 South Florida Regional Transportation Authority (SFRTA –Tri-Rail)	
4.2.2 Broward County Transit	
4.2.3 Miami-Dade Transit	
4.2.4 Palm Tran	
4.3 Long-Range Projects That Affect The TDP	
4.3.1 Fixed Route Service Frequency Improvements and Modifications	
4.3.2 Coordination with Community Bus Service	
4.3.3 Alternative Fuels	
4.3.4 Transit Bridge and Bus Rapid Transit	
4.3.5 Central Broward East-West Transit Study	
5. Performance Evaluation .....	79
5.1 Purpose of Performance Review	
5.2 National Transit Database	
5.3 Fixed Route Overview	
5.4 Fixed Route Peer and Trend Analysis	
5.5 Operational Report Measures	
5.5.1 General Measures	
5.5.2 Vehicle Measures	
5.5.3 Employee Measures	
5.5.4 Service Measures	
5.6 Financial Measures	
5.6.1 Performance Evaluation Standards	
5.7 Transit Quality of Service Evaluation	
6. Development of the Five-Year Alternative .....	98
6.1 Transit Service Objectives	
6.1.1 Previously Incorporated Service Objectives	
6.1.2 Fixed Route Objectives	
6.1.3 Future Ridership Objectives	
6.2 Proposed Transit Operational and Capital Projects	
6.2.1 Frequency Improvements	
6.2.2 Route Extensions and New Routes	
6.2.3 Route Straightening	
6.2.4 Facility Improvements	
6.2.5 Ongoing Planning Elements	
6.3 Coordination with Workforce Development Board	
6.4 Expansion of Community Bus Program	
7. Management, Operations, and Capital Plan .....	109
7.1 Management Plan	
7.1.1 Strategic Business Plan	
7.1.2 Marketing Plan	
7.1.3 Monitoring Program	
7.2 Existing Budget	
7.3 Operations Plan and Recommendations .	
7.3.1 The Five-year Plan of Improvements	
7.3.2 Operating Estimates – Fixed Route	
7.3.3 Operating Costs and Current Projected Revenues	
7.4 Capital Improvement Plan	
7.4.1 Capital Improvement Requirements	
7.4.2 Vehicle Acquisition Schedule	

- 7.5 Funding/Financial Plan
  - 7.5.1 Funding the TDP
  - 7.5.2 Federal Funding Sources
  - 7.5.3 State Funding Sources
  - 7.5.4 Local Funding Sources

8. Coordination and Related Plans, Programs and Policies ..... 127

- Appendix A Broward County Comprehensive Plan: Selected Excerpts
- Appendix B Survey Questionnaires
- Appendix C Previous Surveys
- Appendix D Focus Groups
- Appendix E Bus Stop Inventory
- Appendix F Summary Table of Operational Improvements

## Statement of Broward County Goals and Objectives

“... the following goals and objectives have been specifically developed for this Broward County Transit Development Plan. These are intended to be used for discussion in the planning process for the TDP.

“Goal 1: Increase ridership within existing transit service areas through cost-effective transit improvements

Objectives:

- Increase bus headways on routes that currently exhibit strong ridership demand.
- Realign bus service routes to provide line haul service on major transportation corridors.
- Install ITS and other passenger infrastructure at bus stops (i.e., hardstands, shelter, lighting, seating, bus schedules, route connectivity maps etc.).
- Maintain schedule adherence through operational improvements along arterials that are planned for transit improvements.

“Goal 2: Enhance local and regional transit connectivity

Objectives:

- Develop major transfer stations where major transit corridors intersect
- Integrate transit routes and mode connections with corresponding service schedules to facilitate efficient passenger transfer transition.
- Encourage adoption of County and local ordinances that support Transit Oriented Development and pedestrian and bicycle enhancements.
- Improve the interconnection of the local transit system with the regional network of transit services i.e., South Florida Regional Transportation Authority (SFRTA/Tri-Rail), Miami-Dade Transit (MDT), and Palm Tran.

“Goal 3: Implement transit capital improvements that support the County’s GMP Land Use and Development Goals

Objectives

- Implement transportation improvements in a manner coordinated with orderly development within the County.
- Provide a transportation system that is coordinated and consistent with agency plans of Broward County, its communities and neighbors
- Support collaborative land use and transportation planning efforts that ensure the community can develop in an efficient and sustainable way.

“Goal 4: Develop cost effective transit alternatives

Objectives

- Implement smaller scale transit projects during the TDP timeframe that will be needed to support large, capital intensive improvement projects in later years.
- Implement an evolutionary process within corridors programmed for BRT development by gradually building up service.

“Goal 5: Increase funding opportunities for Broward County Transit services

Objectives

- Seek to move flex funds from highway projects to transit projects in accordance with the funding plans of the 2025 LRTP.
- Identify and pursue opportunities of joint development with private sector.

- Determine favorability of various options for increasing local funds for transit, including
- options for a sales tax to finance transportation improvements similar to initiatives proven successful in Miami-Dade and in other areas of the country.
- Support efforts of the RTA to develop local funds for transit purposes.”

## **Broward County Performance Measures**

### General Operational Measures

- Service Area Population
- Passenger Trips (Boardings)
- Operating Expense
- Revenue Miles
- Route Miles

### Vehicles

- Vehicle Available in Maximum Service Local Contribution
- Vehicle Operated in Maximum Service Directly-Generated Non-Fare Revenue
- Revenue Miles per Vehicle in Maximum Service Passenger Revenue
- Average Age (yrs.) of Fleet

### Employee (Full Time) Efficiency

- Total Employees
- Revenue Hours per Employee
- Passenger Trips per Employee

### Service

- Vehicle Miles per Capita Average Fare
- Passenger Trips per Capita
- Passenger Trips per Revenue Mile
- Passenger Trips per Revenue Hour

### Financial Measures

- Maintenance Expense
- Vehicle Local Revenue

### Local Revenue

- Local Contribution
- Directly-Generated Non-Fare Revenue
- Passenger Revenue

### Farebox Recovery

### Efficiency

- Operating Expense per Capita
- Operating Expense per Passenger Trip
- Operating Expense per Revenue Mile
- Operating Expense per Revenue Hour

Examples of Broward County Peer Group comparisons

Figure 5-14  
BCT's Revenue Miles/Vehicle  
Miles/Vehicle (000's)

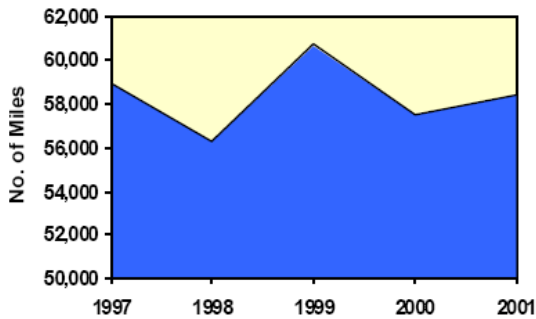


Figure 5-15  
Peer Revenue

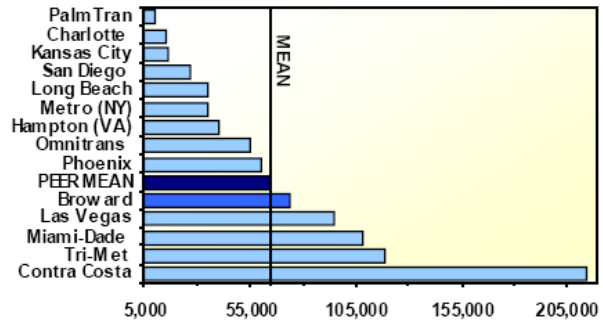


Figure 5-42  
BCT's Operating Expense per Rev. Mile  
per Rev. Mile

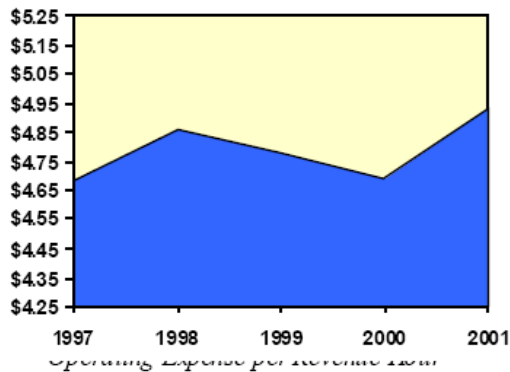


Figure 5-43  
Peer Operating Expense

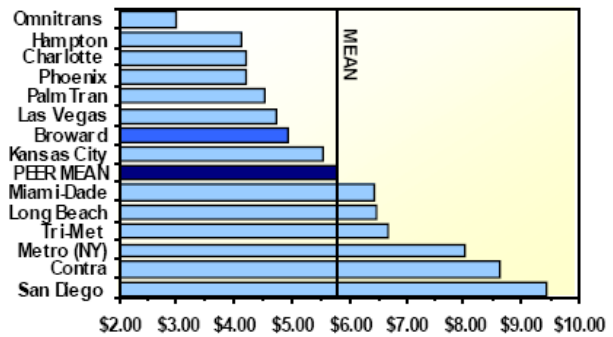


Figure 5-46  
BCT's Farebox Recovery

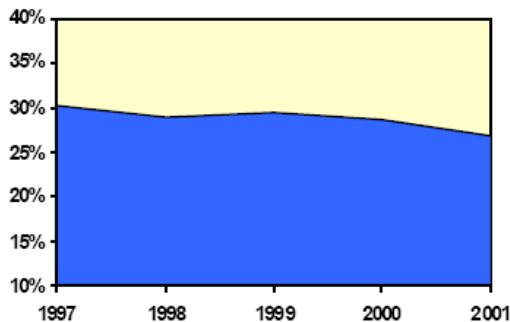
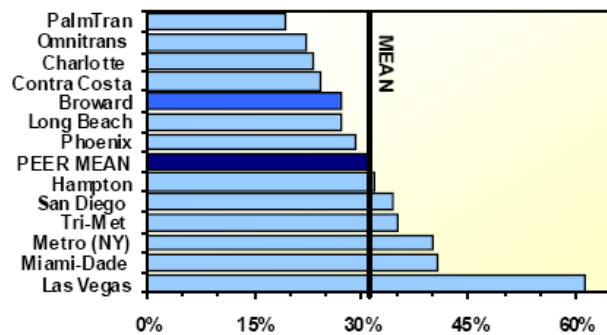


Figure 5-47  
Peer Farebox Recovery



The following are from the 1999 version of the plan

Objective	Policy (Measurable Target)	Baseline Condition- 1998 Adoption	Current Condition- 1999	Policy Achieved
<p>Broward County shall continue to implement strategies to facilitate local traffic to use alternatives to the Florida Intrastrate Highway System (FIHS) as a means of protecting its interregional and intrastate functions</p>	→70% peak-hour LOSS	Ongoing	Ongoing	YES
	→Work with the Broward County Planning Council and affected municipalities to identify a FDOT public transportation corridor and to amend the Broward County Land Use Plan as appropriate.	Ongoing	Ongoing	YES
	→Investigate the potential of programming public transit route headways and span of service, and the provision of information kiosks along County roads that are parallel to FIHS roads.	Ongoing	Ongoing	YES
	→Enhance regular route service to Tri-Rail stations.	Ongoing	Ongoing	YES
	→Expand transit service alternatives jointly developed by the County and affected municipalities in areas which otherwise would not qualify under set standards.	Ongoing	Ongoing	YES
	→Provide public education through marketing strategies about public transit desirability and availability.	Ongoing	Ongoing	YES
	→Promote transit oriented design along County roads that are parallel to FIHS roads.	Ongoing	Ongoing	YES



Objective	Policy (Measurable Target)	Baseline Condition- 1998 Adoption	Current Condition- 1999	Policy Achieved
<p><b>Broward County Mass Transit Division shall improve the efficiency of public transit services by increasing operating revenue from 29.87 percent in 1997 to 35 percent by 2002 per operating expense.</b></p>	<ul style="list-style-type: none"> <li>→Annual review of public transit routes or route segments for cost effectiveness.</li> <li>→Coordinate new transit routes and changes with established development and land use plans to serve existing and future generators.</li> <li>→Annual evaluation of bus routes or route segments which provide large numbers of work trips for an increase in service frequency during base hours.</li> <li>→Provide passenger amenities at transfer locations which generate no less than 25 passenger activities per day.</li> <li>→Ensure full utilization of advertising potential on buses, benches, and shelters in order to generate system revenues and reduce costs associated with providing fixed amenities.</li> <li>→Provide mechanisms for private participation in the funding of mass transit.</li> <li>→Monitor the effectiveness of the Congestion Management System and the permit monitoring system.</li> <li>→Future trafficways be conveyed to the public by dedication or grant of easement which is necessary for the ultimate construction of roadways, intersections, turn lanes, bicycle facilities, sidewalks, bus pullout bays, bus shelters, or roadway drainage facilities.</li> </ul>	Ongoing	Ongoing	YES
<p><b>Broward County shall continue to identify transit corridors in future rights-of-way.</b></p>		Ongoing	Ongoing	YES

**TABLE 12**  
**ROUTE RIDERSHIP AND PERFORMANCE MEASURES**  
**Broward County Transit System**  
**FY 1998**

<u>Route</u>	<u>Passengers</u>	<u>Revenue Miles</u>	<u>Revenue Hours</u>	<u>Pass./ Mile</u>	<u>Pass./ Hour</u>
1	1,637,404	409,979	33,081	3.99	49.50
2	940,518	546,765	36,086	1.72	26.06
3	483,029	177,614	12,201	2.72	39.59
5	426,826	124,101	8,723	3.44	48.93
6	501,891	236,705	19,616	2.12	25.59
7	1,160,479	477,162	33,000	2.43	35.17
9	790,538	414,738	27,704	1.91	28.54
10	993,202	398,020	31,015	2.50	32.02
11	1,156,609	532,317	36,101	2.17	32.04
12	334,003	205,958	12,856	1.62	25.98
14	985,134	377,115	26,729	2.61	36.86
17	137,086	109,624	9,091	1.25	15.08
18	2,531,091	772,909	57,426	3.27	44.08
20	232,172	191,618	14,199	1.21	16.35
22	1,109,116	479,371,	36,579	2.31	30.32
28	667,320	275,040	19,389	2.43	34.42
30	580,025	217,530	1,5972	2.67	36.32
31	806,521	319,031	20,740	2.53	38.89
36	1,573,106	495,894	37,309	3.17	42.16
40	1,136,663	275,922	23,716	4.12	47.93
50	1,103,248	370,288	27,685	2.98	39.85
55	373,852	183,757	13,675	2.03	27.34
56	620,009	384,522	27,538	1.61	22.51
57	68,486	59,889	3,742	1.14	18.30
60	555,235	168,568	13,545	3.29	40.99
62	263,631	188,966	12,094	1.40	21.80
72	1,208,511	355,835	26,438	3.40	45.71
75	56,686	70,839	4,233	0.80	13.39
81	701,130	213,711	17,877	3.28	39.22
83	571,533	374,246	23,885	1.53	23.93
87	14,167	11,520	557	1.23	25.43
92	105,386	36,294	3,593	2.90	29.33
93	93,330	47,699	3,414	1.96	27.34
94	136,450	15,955	1,527	8.55	89.36
95	92,596	44,817	2,918	2.07	31.73
97	35,125	19,648,	2,125	1.79	16.53
<b>TOTAL</b>	<b>24,182,108</b>	<b>9,583,967</b>	<b>696,379</b>	<b>2.52</b>	<b>34.73</b>

Source: Broward County Mass Transit Division, 1999.






## **Performance Indicators and Transit Propensity**

A transit propensity analysis was prepared for the transit needs study and current needs assessment for the FY 2000 - FY 2004 TOP to understand existing transit demand. This analysis was used to identify areas that may be candidates for service adjustment. The analysis is based on 1990 U.S. Census data at the census tract level and 1990 Florida Standard Urban Transportation Modeling Structure (FSUTMS) data for the Transportation Analysis Zone (TAZ) level. The data was plotted in a GIS information base. The data used are: population density, density of employment, density of persons over age 64, density of households below poverty level, population and employment density, and density of households without a vehicle (See Appendix E). These factors are related to the propensity of the Census Tract population to be, or to become, transit riders.

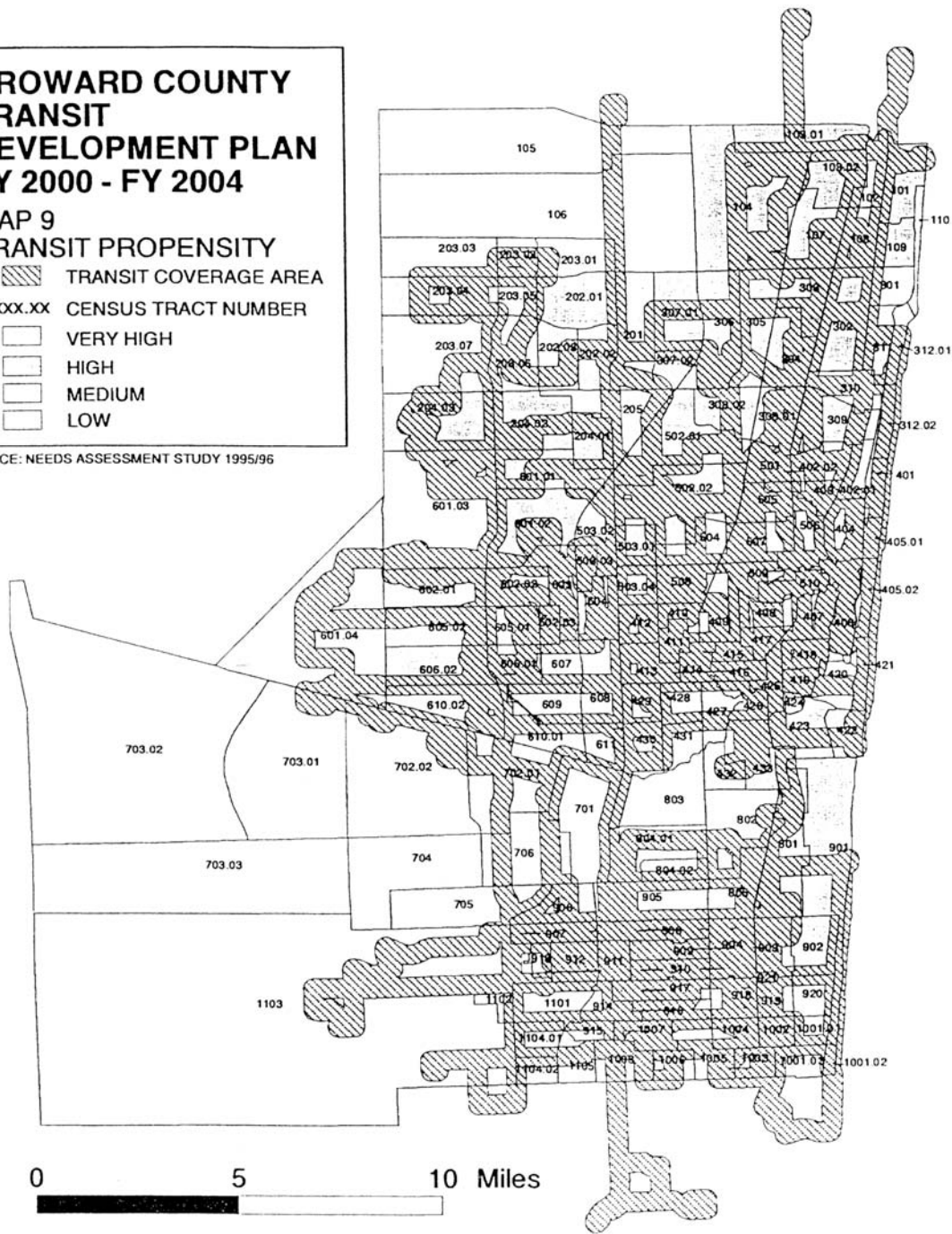
The transit potential variables are depicted in the map: very high, high and medium, and low. This information is presented with the transit service area in MAP 9. The results of this portion of the needs study concluded that, relative to existing demand, the current structure (fixed-route and community bus service) of the transit system provides excellent coverage. It was also recognized that increased levels of service may be warranted in some areas.

# BROWARD COUNTY TRANSIT DEVELOPMENT PLAN FY 2000 - FY 2004

## MAP 9 TRANSIT PROPENSITY

-  TRANSIT COVERAGE AREA
- XXX.XX CENSUS TRACT NUMBER
-  VERY HIGH
-  HIGH
-  MEDIUM
-  LOW

SOURCE: NEEDS ASSESSMENT STUDY 1995/96



0 5 10 Miles



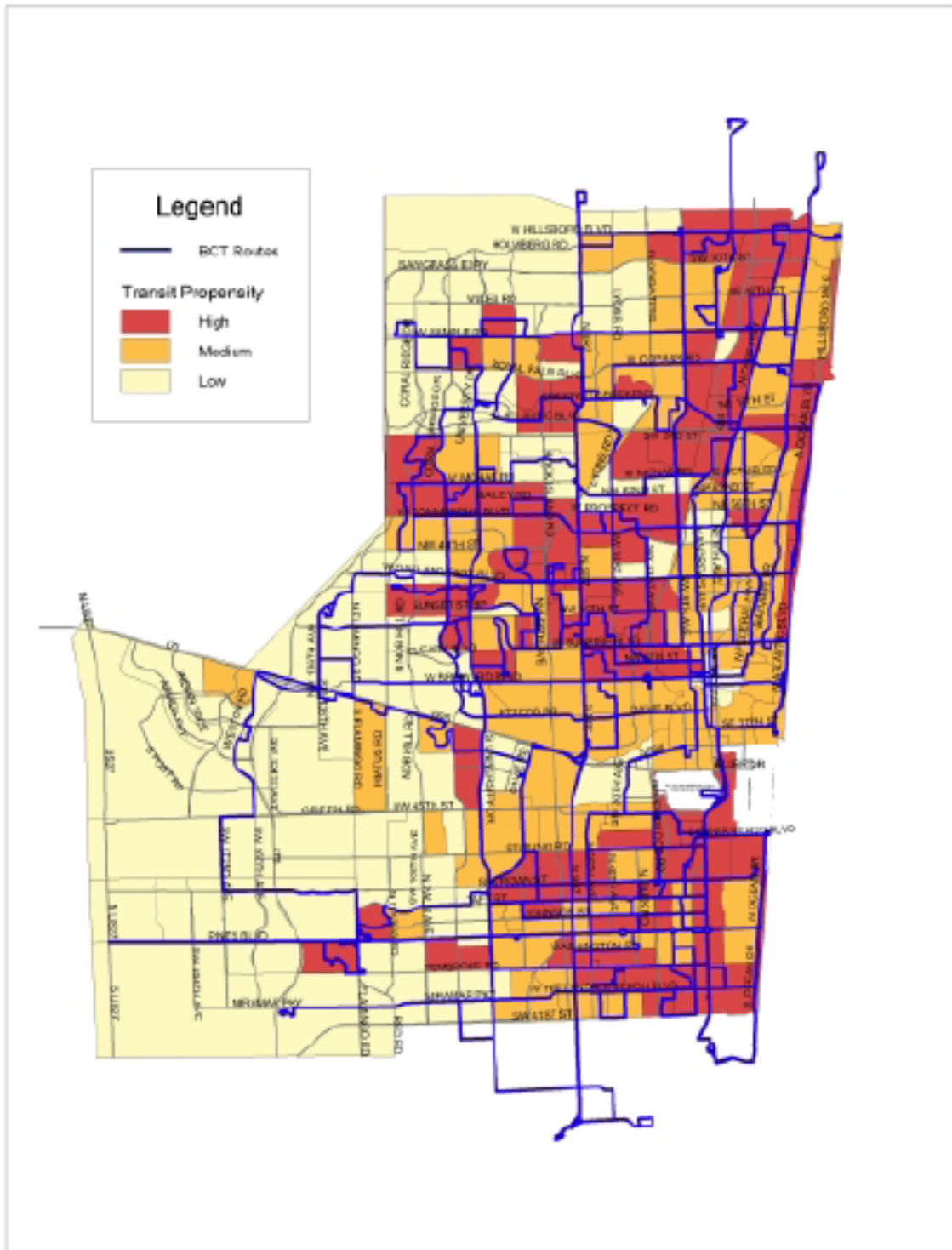
1996 - May 1996

Prepared by:  
TRANSPORTATION PLANNING DIVISION  
DEPARTMENT OF PLANNING AND ENVIRONMENTAL PROTECTION



From 2005-2009 plan

Figure S-1  
Transit Propensity





**Central Florida Regional Transportation Authority**

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**Five-Year Plan Table of Contents**

**CHAPTER 1 – INTRODUCTION** ..... 1

    TDP Purpose and Background ..... 1

    The LYNX Story ..... 1

    LYNX History ..... 2

    The End of the Cat Nap ..... 5

    What Is "LYNX-like"? ..... 6

    Organizational Goals and Objectives ..... 7

    Visions for the New Millennium ..... 16

    How to Read this TDP ..... 17

**CHAPTER 2 - OUR COMMUNITY** ..... 19

    Introduction ..... 19

    Central Florida Defined ..... 20

    Employment Growth..... 21

    The Balancing Act ..... 23

**CHAPTER 3 - TRANSPORTATION AND LAND USE DESIGN** ..... 25

    Community Building Through Transportation Planning..... 25

        Transit Oriented Developments ..... 26

    Other Suggested Guidelines for Urban and Transit Design ..... 27

        Location of Land Uses ..... 27

        Site Planning and Design Standards ..... 28

        Transit Facility Design ..... 29

        Parking Design and Management ..... 31

        Toward Sustainable Development ..... 31

**CHAPTER 4 - COORDINATION WITH RELATED PLAN PROGRAMS, AND POLICIES**..... 35

    Introduction..... 35

    Coordination Efforts for Achieving LYNX's Goals ..... 35

        Transit Friendly Land Development Patterns ..... 36

        Sufficient Financing to Operate and Maintain the Necessary Transit System .... 36

        Integration of Transportation Plans and Special Studies to  
            Achieve the Shared Vision ..... 37

Central Florida Light Rail Transit System .....	37
Project Background .....	37
Description of the North/South Transit Corridor .....	38
Definition of Minimum Operable Segment .....	41
North of Loch Haven Park/Princeton Street - To Be Determined .....	41
Opportunities for Coordination .....	41
LYNX Projects and Plans .....	43
State (FDOT) Projects and Plans .....	46
Regional Projects and Plans .....	47
METRO PUN ORLANDO Plans .....	49
Orlando Orange County Expressway Authority Expressway Master Plan ....	50
Volusia Light Rail Systems Plan .....	50
Local Projects and Plans .....	50
Special Study Areas including Activity Center Plans .....	50
East Orange County Transportation Study .....	51
Major Development Approvals .....	51
Local Government Comprehensive Plans .....	52
LYNX Coordination Efforts with Local Government Comprehensive Plans .....	57
Local Government Land Development Regulations .....	57
Other Governmental Coordination .....	58
Local Government and FDOT Road Projects .....	58
Local and State Government Remnant Parcel Program .....	58
Conclusion .....	58

<b>CHAPTER 5 - EXISTING TRANSPORTATION SYSTEM .....</b>	<b>59</b>
“Cat”itude .....	59
Fixed Route Links .....	59
Performance Measures .....	62
LYNX Revenue Vehicle Fleet .....	62
LYNX Facilities .....	64
Fares .....	66
Ridership by Fare Type .....	67
Customer Service .....	67
Mobility Assistance Program .....	67
Travel Planning Center .....	67
AVL/GPS Pilot Project .....	68
Highway Helper Program .....	68
VanPlan .....	69
AutoMates Ride Sharing .....	69
School Pool Program .....	69
WAGES .....	69

A+Link Paratransit Service .....	70
LYNX Ridership Growth .....	71
Funding Service .....	73
Financial Trends .....	73
Regional Allocation Model .....	75
Private Transportation Providers .....	76
<b>CHAPTER 6 - NEEDS AND OPPORTUNITIES .....</b>	<b>77</b>
Introduction .....	77
Market Research .....	77
The Report Card .....	78
Improve Image/Public Awareness .....	78
Improve Market Share .....	79
Improve Service Effectiveness .....	80
Continue to Improve Service Value .....	80
Community Opinions on the Role of Public Transportation .....	81
Opportunities for the Future .....	81
Peer Group Analysis .....	82
Methodology .....	82
Current Peer Analysis .....	82
Current Peer Analysis Conclusion .....	88
Future Peer Analysis .....	88
Future Peer Analysis Conclusion .....	93
<b>CHAPTER 7 - SYSTEM STRUCTURE &amp; SERVICE PLAN .....</b>	<b>95</b>
Introduction .....	95
Existing Service Structure .....	95
Alternative Potential Service Structures .....	96
The Transit Network For LYNX Service .....	99
Transit Development Concepts .....	103
Service Standards .....	106
Bus Route Design Guidelines .....	108
Bus Stop Spacing .....	109
Private Sector Service Considerations .....	109
Service Planning .....	110
Performance Review of Existing Services .....	112
Five Year Service Plans - Fixed Route .....	113
Central Florida Light Rail Transit Program - North/South Corridor .....	115
Central Florida Light Rail Transit Program - Airport Corridor .....	118
Five Year Service Plan - Mobility Assistance Program .....	119
Conclusion .....	119



<b>CHAPTER 8 - TRANSPORTATION ACTION PLAN</b> .....	121
Five Year Operating and Capital Improvement Program .....	121
Transit Action Program - Major FY 2000 Projects .....	126
<b>CHAPTER 9 - ACCOMPLISHMENTS</b> .....	131
Facilities and Passenger Amenities .....	131
Jurisdictional Partnerships .....	132
Service .....	133
Equipment/Tools .....	137
Marketing .....	137
Studies .....	138
Financial .....	142
Policy .....	143
Organizational .....	143
APPENDIX A - PRIVATE OPERATOR INVENTORY	
APPENDIX B - SPAN OF SERVICE	
APPENDIX C - SERVICE CHANGES	
APPENDIX D - LYNX FIVE YEAR SERVICE PLAN	
APPENDIX E - CFLRTS MOS SCHEDULE	
LYNX MASTER PROJECT PLANNING AND COORDINATION SCHEDULE	
LYNX RIDERSHIP TREND	
LYNX FIXED ROUTE OPERATING REQUIREMENTS	
APPENDIX F - COMPARISON OF 1999 GOALS AND ACHIEVEMENTS	

**Transit system Goals:**

One of the most important steps in transit planning and management is to develop a good set of goals and associated indicators. These can be used to direct all elements of the transit system and to provide a common basis for management and the board to proceed. The following are from Fort Meyer (Lee County) Florida. The performance indicators associated with the goals are also given.

Example of Transit Goals  
*LEE COUNTY TRANSIT DEVELOPMENT PLAN, 1995-1999*

**Table 30**  
**Proposed LeeTran Goals**

<b>Goal 1</b>	<b>Ensure Availability of Transit Service to Lee County Residents and Visitors</b>
	<ul style="list-style-type: none"> <li>• Provide transit service that meets demand and needs.</li> <li>• Identify the appropriate service area for LeeTran.</li> <li>• Increase span of service, as appropriate.</li> <li>• Increase frequency of service on busiest routes.</li> <li>• Comply with all requirements of the Americans with Disabilities Act (ADA).</li> </ul>
<b>Goal 2</b>	<b>Provide Quality Passenger Amenities to Enhance Bus Service and Attract Discretionary Riders</b>
	<ul style="list-style-type: none"> <li>• Provide bus shelters and/or benches at highly used bus stops and transfer locations.</li> <li>• Coordinate with local governments for the construction of accessible sidewalks in proximity to bus stops.</li> <li>• Develop a multimodal transfer center in the downtown area coordinated with other transportation modes.</li> </ul>
<b>Goal 3</b>	<b>Intensify Marketing Efforts and Increase Visibility of LeeTran</b>
	<ul style="list-style-type: none"> <li>• Increase the availability of information regarding routes and schedules.</li> <li>• Include information kiosks at bus shelter locations.</li> <li>• Institute a community outreach/education program for residents and visitors.</li> <li>• Develop and implement a marketing program geared towards downtown workers.</li> <li>• Provide the system transit map in the Yellow Pages directory.</li> </ul>
<b>Goal 4</b>	<b>Promote System Efficiency</b>
	<ul style="list-style-type: none"> <li>• Monitor overall system performance through trend and peer analyses. Develop and apply measures to monitor individual route performance. Coordinate with local transportation agencies for the early inclusion of transit amenities in the planning process.</li> <li>• Integrate transit needs into the land use planning and development process.</li> <li>• Coordinate transit service with other transportation providers.</li> </ul>
<b>Goal 5</b>	<b>Investigate Innovative Approaches to the Provision of Efficient Transit Service</b>

	<ul style="list-style-type: none"> <li>• Explore the use of smaller vehicles.</li> <li>• Consider the possibility of route deviation in appropriate areas.</li> <li>• Investigate the implementation of a Guaranteed Ride Home Program. Coordinate with the local transportation planning agencies for inclusion of dedicated bus lanes in transportation projects.</li> <li>• Investigate private funding/operating opportunities.</li> </ul>
<b>Goal 6</b>	<b>Secure Adequate Funding for the Transit System</b>
	<ul style="list-style-type: none"> <li>• Secure a long-term, dedicated funding source for the transit system.</li> <li>• Seek FDOT Service Development funds to implement innovative service techniques on a trial basis.</li> <li>• Leverage local matching funds to the maximum extent possible.</li> </ul>

**CHAPTER THREE, PERFORMANCE EVALUATION**

**Table 31**

**Selected Performance Review Indicators and Measures  
Fixed-Route Transit Services**

**Figure 1**

<b>Performance Indicators</b>	<b>Effectiveness Measures</b>	<b>Efficiency Measures</b>
Service Area Population	<b>Service Supply</b>	<b>Cost Efficiency</b>
Service Area Size (square miles)	Vehicle Miles Per Capita	Operating Exp. Per Capita
Passenger Trips	<b>Service Consumption</b>	Operating Exp. Per Passenger Trip
Revenue Miles	Passenger Trips Per Capita	Operating Exp. Per Revenue Mile
Total Operating Expense	Passenger Trips Per Revenue Mile	<b>Operating Ratios</b>
Total Operating Expense (1984 \$)	<b>Quality of Service</b>	Farebox Recovery
Total Maintenance Expense	Average Age of Fleet (in years)	<b>Labor Productivity</b>
Total Maintenance Expense (1984 \$)		Revenue Hours Per Employee
Operating Revenue		Passenger Trips Per Employee
Total Employees		<b>Fare</b>
Vehicles Available in Max. Service		Average Fare
Vehicles Operated in Max. Service		

**Table 47  
Performance Measures Applied to LeeTran Goals**

<b>Goals</b>		<b>Applicable Performance Measures</b>
<b>Goal 1</b>	Ensure Availability of Transit Service to Lee County Residents and Visitors	Service Supply Vehicle Miles Per Capita  Fare Full Cash Fare Average Fare
<b>Goal 2</b>	Provide Quality Passenger Amenities to Enhance Bus Service and Attract Discretionary Riders	Quality of Service Average Age of Fleet
<b>Goal 3</b>	Intensify Marketing Efforts and Increase Visibility of LeeTran	No applicable performance measures in Section 15 database. Specific actions are addressed in the recommendations as system enhancements.
<b>Goal 4</b>	Promote System Efficiency	Service Consumption Passenger Trips Per Capita Passenger Trips Per Revenue Mile  Cost Efficiency Operating Expense Per Capita Operating Expense Per Passenger Trip Operating Expense Per Revenue Mile  Operating Ratios Farebox Recovery  Labor Productivity Revenue Hours Per Employee Passenger Trips Per Employee
<b>Goal 5</b>	Investigate Innovative Approaches to the Provision of Efficient Transit Service	No applicable performance measures in Section 15 database.
<b>Goal 6</b>	Secure Adequate Funding for the Transit System	No applicable performance measures in Section 15 database. Specific actions are addressed in the recommendations as system enhancements.

**Table 48**  
**Status of Goal 1: Ensure Availability of Transit Service to Lee County**  
**Residents and Visitors**

Applicable Performance Measure	Trend, % Change 1988-1993	Trend, % Change 1992-1993	Peer % Deviation From Mean
<b>Service Supply</b>			
Vehicle Miles Per Capita	39%	5%	-35%
<b>Fare</b>			
Average Fare	-11%	-12%	-17%

**Table 49**  
**Status of Goal 2: Provide Quality Passenger Amenities to Enhance**  
**Bus Service and Attract Discretionary Riders**

Applicable Performance Measure	Trend, % Change 1988-1993	Trend, % Change 1992-1993	Peer, % Deviation From Mean
<b>Quality of Service</b>			
Average Age of Fleet	9%	16%	-16%

**Table 50**  
**Status of Goal 4: Promote System Efficiency**

Applicable Performance Measure	Trend, % Change 1988-1993	Trend, % Change 1992-1993	Peer, % Deviation from Mean
<b>Service Consumption</b>			
Passenger Trips per Capita	35%	14%	-62%
Passenger Trips per Revenue Mile	-2%	10%	-32%
<b>Cost Efficiency</b>			
Operating Expense Per Capita	19%	-5%	-56%
Operating Expense per Passenger Trip	-12%	-17%	-18%
Operating Expense Per Revenue Mile	-13%	-8%	-27%
<b>Operating Ratios</b>			
Farebox Recovery	1%	6%	-18%
<b>Labor Productivity</b>			
Revenue Hours Per Employee	-14%	-9%	17%
Passenger Trips Per Employee	32%	14%	-6%

**SMALL TRANSIT AGENCY**  
**SAMPLE TRANSPORTATION SYSTEM GOALS AND OBJECTIVES<sup>2</sup>**  
(applicable to quantitative performance evaluation)

Financial

- Recover at least 40 percent of public service operating expense from farebox revenue.
- Recover at least 60 percent of all system operating costs from farebox, contract service revenues and advertising fees.
- Maintain local tax base financial support at a maximum of 20 percent of the system's total operating expense.
- Contain system operating expense to a maximum increase of 10 percent per year.
- Increase the ratio of passenger revenue to total operating expense by at least 3 percent per year.
- Keep changes in the passenger fare system equivalent to increases in the area's consumer price index.
- Administrative expenses for the system should not exceed 20 percent of the system's total operating expenses.
- The operating cost per vehicle mile and per vehicle hour should not exceed the average cost for other similar-size systems in Pennsylvania.
- Total subsidy per passenger should not increase by more than 8 percent per year.

Ridership

- The total number of passengers carried each year should exceed the number for the previous year even if the size of the system does not increase. If system cutbacks occur, ridership for retained service segments should still increase each year.
- A minimum of 30 percent and a maximum of 60 percent of the total annual passengers should be persons 60 years or older.
- At least 50 percent of all passengers should be fare-paying passengers.

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<sup>2</sup> Source: *Rural Public Transit Performance Guide*, prepared by Carter-Goble Associates for the Pennsylvania Department of Transportation, reprinted by the Technology Sharing Program, U.S. Department of Transportation, November, 1982.

The entire system should maintain a minimum of five (5.0) passengers per vehicle hour.

- Expand special routes for non-peak service to major shopping locations.
- All fixed route services should maintain a minimum of one (1.0) passenger per vehicle mile.
- Maintain headways at a schedule that will minimize recurring overloads.

#### Service Quality

- At least 90 percent of all stops should be on time (0 minutes early to 5 minutes late).
- There should be no more than three complaints per individual driver per year.
- All bus stops should have clearly marked bus stop signs and no-parking signs.
- There should be a minimum of 8,000 miles between road calls per individual vehicle.
- Match all routes with vehicles of adequate size, design and accessibility features, depending upon route demand and characteristics.
- All buses in daily service should be thoroughly cleaned at least once a week on the exterior and daily on the interior.

#### Level of Service

- Urban area fixed route service should maintain an average speed of between 12 and 15 miles per hour (ratio of revenue miles to revenue hours).
- Rural area demand responsive service should maintain an average speed of at least 25 miles per hour and intra-urban area demand responsive service an average of 15 miles per hour (ratio of revenue miles to revenue hours).
- The system's vehicle hours per year should not be increased by more than 10 percent over the amount for the previous year.

#### Safety

- The entire system should have no more than one avoidable revenue vehicle accident per two years.
- The entire system should have no more than two non-vehicle accidents per year.
- The system should average no less than 18,000 vehicle miles per revenue vehicle accident for 12 months.



### Public Relations and Support

- Attempt to change the perceived importance of the automobile as the major transportation mode.
- Stimulate interest, acceptance and understanding of public transportation by taking a progressive and interactive role in the community.
- Inform the public of the environmental and economic benefits of public transportation.
- Periodically present system goals, plans and accomplishments to local elected officials.
- Increase political support for the system by increasing management's and board members' involvement with political and governmental groups.
- Assist local businesses in developing and providing for public transportation access to shopping and employment centers.
- Design and implement a rider information system (on and off routes) and a targeted promotion plan.
- Maintain constant surveillance of existing and potential route structures for optimum social, financial and operating benefits.

### Passenger Amenities

- Improve bus stop shelters and benches.
- Install passenger information displays at key locations.

### Personnel

- Build a positive community, service and organization spirit and attitude.
- Ensure continuous communications among operations, supervisory, management and administrative personnel.
- Implement driver and management training policies and programs.
- Ensure that all personnel present an attractive appearance and a professional and courteous attitude to the general public.
- The number of annual sick days per employee should not exceed the average for the past three years.

## Management

- Provide regular financial and operating performance statistics and reviews to the governing board.
- Maintain a dedicated and competent staff that presents a positive image and attitude to the general public.
- Increase the level of public support for the system.
- Maintain and update system policies and development plan.
- Secure the system's position as the lead and central coordinating entity for all transportation needs in the service area.
- The ratio of administrative staff to total staff should not exceed 20 percent.