



PREFACE

The Florida Department of Transportation (FDOT) has embarked upon a statewide evaluation of transit system performance. The outcome of this evaluation is a benchmark of transit performance that can be communicated to the Florida Legislature and other decision makers. To achieve this initiative, FDOT requires all Metropolitan Planning Organizations (MPOs) with fixed-route transit systems in their jurisdictions to perform an annual evaluation of transit service. Results of the evaluation are submitted to the FDOT Public Transit Office.

FDOT has developed a framework for evaluation, the Florida MPO Transit Quality of Service Evaluation Agency Reporting Guide, to ensure consistency across all MPOs. The framework applies the concepts presented in the Transit Capacity and Quality of Service Manual (TCRP Report A-15), and focuses on six key transit performance measures:

- Service frequency;
- Hours of service;
- Service coverage;
- Passenger loading;
- Reliability, and
- Transit vs. auto travel time.

A revised guideline dated August 16, 2002 required analysis of four of the six performance measures. Subsequent FDOT guidance provided that passenger loading and reliability should be analyzed only when the transit quality of service analysis is being performed as part of an update to the MPO's Long Range Transportation Plan, as is the case this year. In other years, these two measures need not be analyzed. It should be noted that this methodology is geared primarily towards the transit patron's perspective, not the transit operator's perspective. This report documents the 2005 Transit Quality of Service Evaluation performed for the Brevard MPO during Spring 2005.



1.0 Agencies Involved in Evaluation

The Brevard MPO contracted with Renaissance Planning Group to perform the Transit Quality of Service Evaluation. Renaissance structured the evaluation process and performed the analysis consistent with the FDOT guidelines described above and with input and technical assistance from MPO and Space Coast Area Transit (SCAT) staff.

2.0 Activity Centers Chosen for Analysis

Figure 1 shows the 10 traffic analysis zones (TAZs) that were selected to represent activity centers for this analysis. To do so, the activity centers used in the previous analysis were reviewed for reasonableness consistent with the FDOT guidelines noted below. Based on this review, a few activity centers were modified consistent with the FDOT guidelines. Each of the county's five distinct geographic sub-areas is represented: north, central, south, Merritt Island and the beaches.

The activity center locations are based on the criteria identified by FDOT in the *Florida MPO Transit Quality of Service Evaluation Agency Reporting Guide*. The TAZs represent a "cross-section of travel desires" and a mix of trip distances. The TAZs were not chosen based on transit availability. All the TAZs fall within the transit system's service area. The TAZs also equally represent residential areas and non-residential areas. According to the Guide, if possible, the activity centers for large MPOs should include:

- At least one location in the CBD
- A major intermodal station
- A regional shopping center
- A university or community college
- A major park and ride facility
- A large office development outside the CBD
- A geographically diverse set of neighborhoods and/or tourist attractions

3.0 Evaluation of Service Measures

Consistent with guidance provided in FDOT's *Agency Reporting Guide*, an evaluation was performed of fixed route transit service in Brevard County. The following sections provide the results of each of the six level of service measures calculated for the 90 origin-destination (O-D) pairs resulting from the ten activity centers.



3.1 Service Frequency LOS

Service frequency measures the number of travel opportunities every hour between a given origin and destination. LOS scores range from “A” for greater than six buses per hour (greater than 10 minute headways) to “F” for less than one bus per hour. *Table 1* shows the service frequency LOS scores for the 90 O-D pairs, along with the two other quality of service mobility measures – hours of service and travel times. The mobility measures were determined using the most current SCAT schedules.

Most routes in the SCAT system operate on one hour headways. Therefore, a majority of the O-D pairs had an LOS score of “E”. Route 4 connecting Cocoa with the beaches, Route 9 serving the beaches, and Route 21 serving Melbourne, operate on half hour headways. O-D trip pairs served entirely by these routes received an LOS score of “D.” It should be emphasized that the amount of service provided between a given O-D pair may be greater than implied in *Table 1*, but does not meet the methodology thresholds for inclusion in the calculation. For example, travel opportunities requiring multiple transfers would not be counted.

3.2 Hours of Service LOS

Table 1 also shows the results of the hours of service LOS evaluation. This is a measure of the total number of hours each day that transit service is available between a given O-D pair. Scores range from “A” for 19 or more hours of daily service to “F” for less than four hours of daily service. Most routes in the SCAT system are in operation between nine and ten hours per day, with Routes 4 and 9 operating between 13 and 14 hours per day. A majority of the O-D pairs received an LOS score of “E;” only those O-D pairs served entirely by Routes 4 and 9 received an LOS score of “D.” No O-D pairs received an LOS score above “D.”



*2005 Transit Quality of Service
Figure 1- Activity Centers*

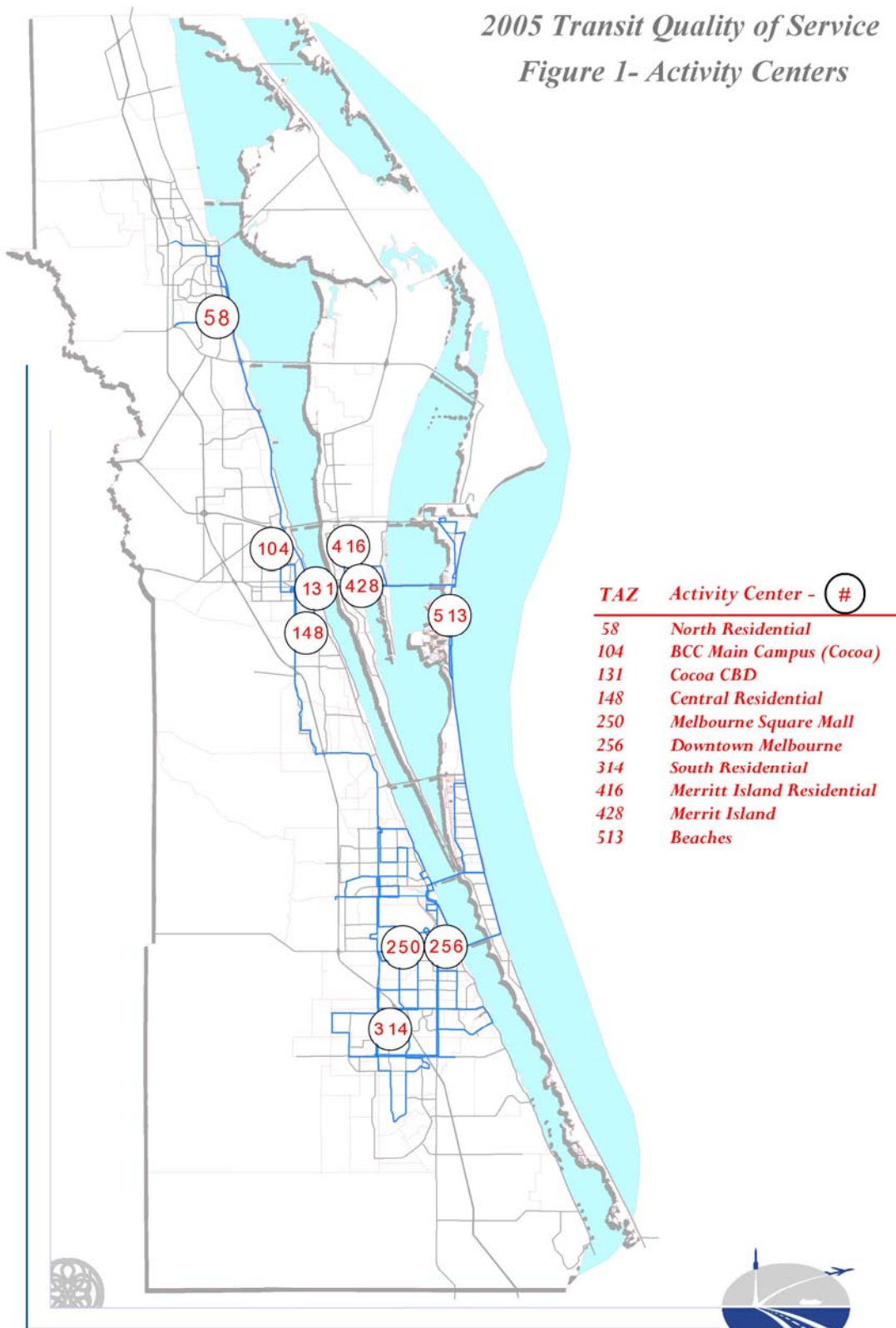




Table 1
Transit Quality of Service Mobility Measures

From: North Residential		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential									
BCC Main Campus (Cocoa)	43	1	E	10	E	65	22	43	D
Cocoa CBD	6	1	E	10	E	25	25	0	B
Central Residential	1	1	E	10	E	35	30	5	B
Melbourne CBD	1	1	E	10	E	125	52	73	F
Melbourne Square Mall	2	1	E	10	E	135	55	80	F
South Residential	0	1	E	10	E	150	56	94	F
Merritt Island Residential	10	1	E	10	E	95	26	69	F
Merritt Island	9	1	E	10	E	65	30	35	D
Beaches	7	1	E	10	E	90	38	52	E

From: BCC Main Campus (Cocoa)		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	9	1	E	10	E	90	22	68	F
BCC Main Campus (Cocoa)									
Cocoa CBD	17	1	E	11	E	30	7	23	C
Central Residential	8	1	E	10	E	20	12	8	B
Melbourne CBD	2	1	E	10	E	110	37	73	F
Melbourne Square Mall	2	1	E	10	E	120	38	82	F
South Residential	0	1	E	10	E	135	41	94	F
Merritt Island Residential	15	1	E	10	E	70	12	59	E
Merritt Island	16	1	E	11	E	40	13	27	C
Beaches	4	1	E	11	E	65	23	42	D

From: Cocoa CBD		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	4	1	E	10	E	25	25	0	B
BCC Main Campus (Cocoa)	13	1	E	10	E	40	8	32	D
Cocoa CBD									
Central Residential	7	1	E	10	E	10	7	3	B
Melbourne CBD	1	1	E	10	E	100	34	66	F
Melbourne Square Mall	2	1	E	10	E	110	32	78	F
South Residential	1	1	E	10	E	125	38	87	F
Merritt Island Residential	12	1	E	10	E	70	9	61	F
Merritt Island	20	1	E	10	E	40	7	33	D
Beaches	6	1	E	10	E	65	18	47	E

From: Central Residential		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	7	1	E	10	E	35	30	5	B
BCC Main Campus (Cocoa)	229	1	E	10	E	55	12	43	D
Cocoa CBD	61	1	E	10	E	10	7	3	B
Central Residential									
Melbourne CBD	29	1	E	10	E	90	30	60	E
Melbourne Square Mall	36	1	E	10	E	100	31	69	F
South Residential	0	1	E	10	E	115	34	81	F
Merritt Island Residential	32	1	E	10	E	85	15	70	F
Merritt Island	60	1	E	10	E	25	13	12	B
Beaches	13	1	E	10	E	50	24	26	C



Table 1 (continued)
Transit Quality of Service Mobility Measures

From: Melbourne CBD		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	0	1	E	10	E	60	52	8	B
BCC Main Campus (Cocoa)	2	1	E	10	E	80	36	44	D
Cocoa CBD	1	1	E	10	E	35	33	2	B
Central Residential	0	1	E	10	E	25	25	0	A
Melbourne CBD									
Melbourne Square Mall	551	2	D	10	E	30	5	25	C
South Residential	9	1	E	10	E	50	14	36	D
Merritt Island Residential	0	1	E	10	E	110	41	69	F
Merritt Island	0	1	E	10	E	50	39	11	B
Beaches	3	1	E	9	E	80	38	42	D

From: Melbourne Square Mall		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	1	1	E	9	E	115	55	60	E
BCC Main Campus (Cocoa)	1	1	E	9	E	135	38	97	F
Cocoa CBD	1	1	E	9	E	90	32	58	E
Central Residential	1	1	E	9	E	80	30	50	E
Melbourne CBD	619	2	D	10	E	25	5	20	C
Melbourne Square Mall									
South Residential	22	1	E	10	E	15	15	0	A
Merritt Island Residential	1	1	E	9	E	165	40	125	F
Merritt Island	2	1	E	9	E	105	38	67	F
Beaches	3	1	E	9	E	105	36	69	F

From: South Residential		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	1	1	E	9	E	135	59	76	F
BCC Main Campus (Cocoa)	5	1	E	9	E	155	41	114	F
Cocoa CBD	0	1	E	9	E	110	38	72	F
Central Residential	1	1	E	9	E	100	34	66	F
Melbourne CBD	264	1	E	9	E	45	14	31	D
Melbourne Square Mall	344	1	E	10	E	15	15	0	A
South Residential									
Merritt Island Residential	1	1	E	9	E	185	45	140	F
Merritt Island	2	1	E	9	E	125	44	81	F
Beaches	1	1	E	9	E	95	47	48	E

From: Merritt Island Residential		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	6	1	E	10	E	90	26	64	F
BCC Main Campus (Cocoa)	99	1	E	10	E	50	12	38	D
Cocoa CBD	26	1	E	10	E	65	9	56	E
Central Residential	7	1	E	10	E	50	15	35	D
Melbourne CBD	7	1	E	10	E	140	42	98	F
Melbourne Square Mall	5	1	E	10	E	150	40	110	F
South Residential	0	1	E	10	E	180	46	134	F
Merritt Island Residential									
Merritt Island	248	1	E	10	E	20	5	15	B
Beaches	46	1	E	10	E	45	17	28	C



Table 1 (continued)
Transit Quality of Service Mobility Measures

From: Merritt Island		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	3	1	E	10	E	65	29	36	D
BCC Main Campus (Cocoa)	11	1	E	11	E	25	13	12	B
Cocoa CBD	20	1	E	10	E	40	7	33	D
Central Residential	6	1	E	10	E	25	13	12	B
Melbourne CBD	1	1	E	10	E	115	40	75	F
Melbourne Square Mall	2	1	E	10	E	125	38	87	F
South Residential	0	1	E	10	E	155	44	111	F
Merritt Island Residential	98	1	E	10	E	25	5	20	C
Merritt Island									
Beaches	45	2	D	13	D	25	12	13	B

From: Beaches		Frequency		Hours of Service		Travel Times			
To	Travel Demand (trips/h)	Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
North Residential	5	1	E	10	E	90	38	52	E
BCC Main Campus (Cocoa)	57	1	E	10	E	50	24	26	C
Cocoa CBD	19	1	E	10	E	65	18	47	E
Central Residential	4	1	E	10	E	50	24	26	C
Melbourne CBD	19	1	E	9	E	65	38	27	C
Melbourne Square Mall	9	1	E	9	E	95	36	59	E
South Residential	0	1	E	9	E	115	46	69	F
Merritt Island Residential	101	1	E	10	E	50	17	33	D
Merritt Island	254	2	D	13	D	25	12	13	B
Beaches									



3.3 Service Coverage LOS

Service coverage LOS measures the number of people in transit supportive areas that have access to transit. As defined by the FDOT methodology, an area is considered transit-supportive if it contains four or more employees (jobs) per acre or three or more dwelling units per acre. An area is considered to have access to transit if it is located within one-quarter mile of a transit route. The unit of analysis is the traffic analysis zone (TAZ). Service coverage LOS scores range from “A” for 90 percent or more of transit-supportive areas with access to transit to “F” for less than 50 percent with access to transit.

Table 2 shows the results of the service coverage analysis using 2000 population and employment data included in the newly developed Central Florida Regional Planning Model (CFRPPM IV), as well as the most current GIS layer of transit routes developed by Renaissance based on information provided by SCAT. Because the CFRPM IV was not yet complete when the analysis was conducted, the 2000 socioeconomic data was transferred to the Brevard County traffic model (known as BATS). The BATS model was then adapted accordingly for use in this analysis.

Figure 2 includes a map of transit-supportive TAZs and access to transit. As shown in the table and figure, approximately 73 percent of transit-supportive areas in the county have access to transit based on the 2000 base year data, resulting in an LOS score of “C.” It should be emphasized that countywide statistics are skewed because population and development is concentrated in the eastern portions of the county, while the western areas are mostly undeveloped (outside of Palm Bay). Had the measurements included only developed areas (primarily east of Interstate 95), the percentage would have been much higher. This is illustrated by the corresponding percentage for Melbourne (61 percent). Limiting the calculation to only transit-supportive developed areas would result in an even higher percentage. In fact, *Figure 2* clearly illustrates that SCAT is effectively serving the most transit-supportive areas of the county.

The table also provides other service coverage measures, including percent transit access by land area, population and employment for the county as a whole as well as for the three principal cities of Titusville, Melbourne, and Palm Bay. Land area service coverage



ranges from a low of four percent for the county (not including the principle cities) to a high of 73 percent for the transit-supportive areas of the county (including all municipalities). Population coverage ranges from a low of 26 percent for Titusville to a high of 70 percent for the transit-supportive areas of the county (including all municipalities). Finally, employment coverage ranges from a low of 44 percent for the county (minus the principal cities) to a high of 77 percent for the transit-supportive areas of the county (including all municipalities), and a similar percentage for Melbourne.

The service coverage estimation method used for this analysis assumes an even distribution of population and employment across each TAZ. Thus, the actual amount of population and employment may be higher or lower depending on how each are clustered within a TAZ. Presumably, the amounts would be higher. It should also be noted that population is calculated directly from the socioeconomic data, a more accurate method than estimating through a countywide population per household ratio.

Further, the analysis is based on 2000 population and employment data and current (2005) SCAT route configurations. This temporal mismatch of data results in some inaccuracy in the coverage measures because the County’s population and employment distribution has changed somewhat since 2000.

Table 2
Service Coverage LOS

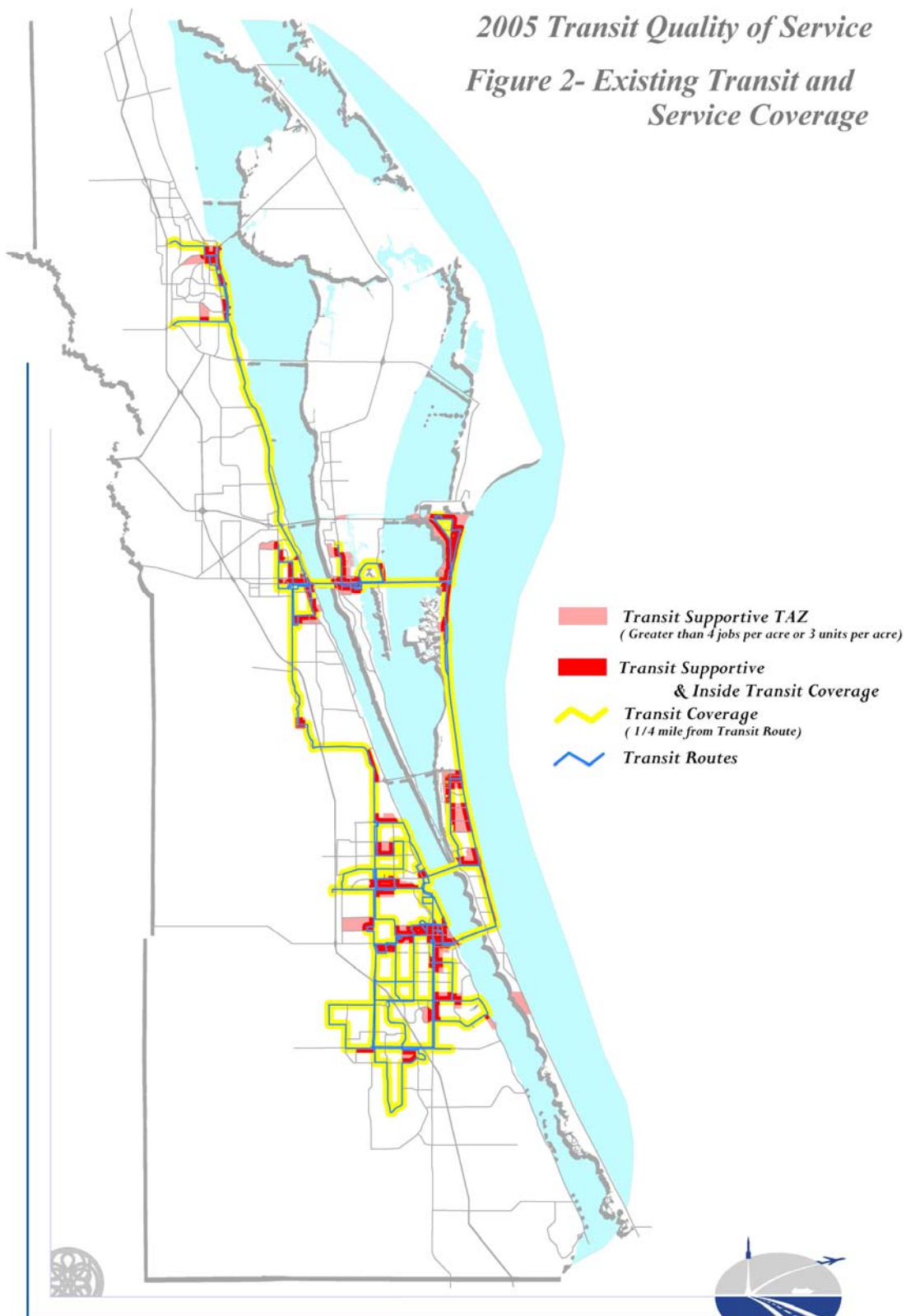
Calculation Method (GIS/Manual) GIS
Population Data Year 2000
Job Data Year 2000

	% Area Served	% Population Served	% Jobs Served
County <i>(not including principal cities)</i>	4.3%	28.7%	43.5%
Principal City - Titusville	19.3%	25.7%	44.6%
Principal City - Melbourne	60.6%	67.2%	75.4%
Principal City - Palm Bay	22.1%	42.4%	57.7%
Countywide Transit-Supportive Area	72.5%	70.3%	77.4%
Service Coverage LOS	C		

Source: SCAT/Renaissance Planning Group (GIS data); CFRPM IV (socioeconomic data)



2005 Transit Quality of Service
Figure 2- Existing Transit and
Service Coverage





3.4 Passenger Loading LOS

Passenger loading measures the comfort of transit passengers in terms of personal space while on board a bus. Passenger loading is determined by field observation during the afternoon peak period. Because of the significant staff requirement associated with field observation, passenger loading LOS is calculated for only the 15 percent of O-D pairs (15 pairs) with the highest travel demand, as determined by output from the Brevard County traffic model (BATS) using the 2000 socioeconomic data.

Field observations were performed by riding the routes serving the 15 highest-demand O-D pairs during the Tuesday-Thursday afternoon peak period. In accordance with the FDOT guidelines, each route was observed from the origin activity center TAZ either to the destination activity center TAZ (if a direct route), or to the point of transfer needed to complete the trip from the origin to destination activity center. The field observations were conducted during the week of March 28th consistent with the FDOT guidelines to conduct the field work during March.

Table 3 shows the results of the passenger loading LOS analysis. Two LOS measures were calculated: average load and peak load. Potential LOS scores for each range from “A” for 20.0 or more square feet per passenger to “F” for fewer than 3.2 square feet per passenger. Based on data collected during the field observations, all O-D pairs received an LOS score of “A” for both average load and peak load. These results indicate that, for the 15 highest-demand O-D pairs, no transit trips operate in crowded conditions and passengers experience a maximum amount of comfort with respect to space.

It should be noted that this measure can be difficult to calculate because of the required data inputs regarding bus vehicle dimensions. In some cases, at any given time during the day, different types of buses could be operating on a given route due to maintenance issues or vehicle break-downs. Finally, certain model type series include similar, but not identical buses, making identification of a specific bus on a certain route at a certain time that much more difficult.



**Table 3
Passenger Loading LOS**

From	To	Vehicle Data				Count Data		Average Load			Maximum Load		
		Len. (ft)	Wid. (ft)	Bus/Rail	# of Seats	APC/Man.	# Trips	# Pass.	Area per Pass.	LOS	# Pass.	Area per Pass.	LOS
Melbourne Square Mall	Melbourne CBD	32	10	Bus	32	Manual	1	9	35.56	A	13	24.62	A
Melbourne CBD	Melbourne Square Mall	32	10	Bus	32	Manual	1	3	106.67	A	4	80.00	A
South Residential	Melbourne Square Mall	32	10	Bus	32	Manual	1	3	106.67	A	3	106.67	A
South Residential	Melbourne CBD	32	10	Bus	32	Manual	1	3	106.67	A	3	106.67	A
Beaches	Merritt Island	34	10	Bus	31	Manual	1	3	113.33	A	4	85.00	A
Merritt Island Residential	Merritt Island	32	10	Bus	32	Manual	1	5	64.00	A	8	40.00	A
Central Residential	BCC Main Campus (Cocoa)	32	10	Bus	32	Manual	1	9	35.56	A	15	21.33	A
Beaches	Merritt Island Residential	34	10	Bus	31	Manual	1	3	113.33	A	4	85.00	A
Merritt Island Residential	BCC Main Campus (Cocoa)	32	10	Bus	32	Manual	1	5	64.00	A	8	40.00	A
Merritt Island	Merritt Island Residential	32	10	Bus	32	Manual	1	3	106.67	A	5	64.00	A
Central Residential	Cocoa CBD	32	10	Bus	32	Manual	1	6	53.33	A	9	35.56	A
Central Residential	Merritt Island	32	10	Bus	32	Manual	1	6	53.33	A	9	35.56	A
Beaches	BCC Main Campus (Cocoa)	34	10	Bus	31	Manual	1	3	113.33	A	4	85.00	A
Merritt Island Residential	Beaches	32	10	Bus	32	Manual	1	5	64.00	A	8	40.00	A
Merritt Island	Beaches	32	10	Bus	32	Manual	1	6	53.33	A	7	45.71	A

3.5 Reliability LOS

Reliability is a measure of the on-time performance of a given transit route. Reliability LOS scores range from “A” for an on-time performance rate of 97.5 percent or greater to “F” for an on-time performance rate of less than 80.0 percent.

Reliability LOS was calculated for the 15 highest-demand O-D pairs using time data collected during field observation. A given transit route was considered to be on time if it arrived within five minutes of the scheduled time. *Table 4* shows the results of the LOS calculation. All but four of the 15 O-D pairs had an LOS score of “A.”

The data involved in calculating Reliability LOS should be treated with caution for three reasons. First, the FDOT guidance states that the location of field data collection measurement should be the same as the maximum observed passenger load. Where this point occurs along the route may influence the measurement of on-time performance, particularly if measured later in the route after several stops.

Second, like most transit systems, SCAT bus schedules list time points only for major stops along a given route. Accordingly, it can be difficult to assess the on-time performance of a route if the



measurement is taken at a point that does not correspond with a time point on the printed schedule.

Finally, the field data collection required for this measure is substantial. FDOT guidelines specify that data should be collected for the greater of 10 runs or for three days of PM peak hour observation for each route corresponding to the 15 O-D pairs. Even with some overlapping of routes (one route serving more than one activity center), the staff time and resources needed to collect this data are significant. Due to budget constraints, data were collected only once for each route, with additional observation for certain routes where feasible.

Table 4
Reliability LOS

From	To	Route Data	Count Data		On-Time Performance		
		Frequency (trips/h)	AVL/Man.	# Trips Counted	# of On-Time Trips	% On-Time Trips	LOS
Melbourne Square Mall	Melbourne CBD	2	Manual	1	1	100.0%	A
Melbourne CBD	Melbourne Square Mall	2	Manual	1	1	100.0%	A
South Residential	Melbourne Square Mall	1	Manual	1	1	100.0%	A
South Residential	Melbourne CBD	1	Manual	1	1	100.0%	A
Beaches	Merritt Island	2	Manual	1	0	0.0%	F
Merritt Island Residential	Merritt Island	1	Manual	1	1	100.0%	A
Central Residential	BCC Main Campus (Cocoa)	1	Manual	1	1	100.0%	A
Beaches	Merritt Island Residential	2	Manual	1	0	0.0%	F
Merritt Island Residential	BCC Main Campus (Cocoa)	1	Manual	1	1	100.0%	A
Merritt Island	Merritt Island Residential	2	Manual	1	1	100.0%	A
Central Residential	Cocoa CBD	1	Manual	1	1	100.0%	A
Central Residential	Merritt Island	1	Manual	1	1	100.0%	A
Beaches	BCC Main Campus (Cocoa)	2	Manual	1	0	0.0%	F
Merritt Island Residential	Beaches	1	Manual	1	1	100.0%	A
Merritt Island	Beaches	2	Manual	1	0	0.0%	F



3.6 Transit vs. Auto Travel Time LOS

Transit versus auto travel time is the final of the three mobility LOS measures. It scores a given O-D pair based on the comparative travel time advantage (or disadvantage) of riding transit versus driving. LOS scores range from “A” for trips that are faster via transit to “F” for trips that take an hour or longer via transit.

Table 1 shows the results of the transit versus auto travel time LOS analysis for all 90 O-D pairs. Transit and auto travel times were estimated using output of the BATS model with 2000 socioeconomic data. The travel time analysis resulted in a wide range of LOS scores for each of the O-D pairs. Three percent received an LOS score of “A,” 18 percent received a “B,” 11 percent “C,” 17 percent “D,” 13 percent “E,” and 38 percent “F.” This wide range in scores may also be explained to a small extent by the inherent variability of outputs derived on a link-by-link basis from the countywide traffic model, particularly for a small section of the regional network. No SCAT routes include exclusive transit vehicle rights-of-way, and therefore, it is highly doubtful that any O-D pairs can consistently be traveled more quickly by transit than by auto. The largest determinant of travel time differential is whether a transfer(s) is required.

3.7 Summary Evaluation

Table 5 also summarizes the four route-level LOS measures for each of the 90 O-D pairs (passenger loading and reliability LOS are calculated only for the 15 highest-demand O-D pairs). LOS scores for two of the six measures (passenger loading and reliability) are mostly very good, scoring an LOS of “A.” Scores for the other four measures (frequency, hours of service, travel time, and service coverage) vary widely, but generally range from “C” to “E.”

Given the large service area, low population density, segregated land use patterns, and a multi-nodal urban development form, it is difficult to provide a level of transit service that would score highly on every criterion. Like most transit agencies, SCAT must allocate scarce financial resources to maintain existing transit service and must prioritize and make trade-offs in expanding service. Even so, SCAT continues to expand service, extend routes, and reduce headways where justified from a cost and ridership perspective, which should result in service improvements that will be reflected in future transit quality of service evaluations.



Table 5
Summary of Evaluation Measures

Trip Rank	From	To	Trips	Frequency	Hours of Service	Travel Time	Average Loading	Reliability
1	Melbourne Square Mall	Melbourne CBD	619	D	E	C	A	A
2	Melbourne CBD	Melbourne Square Mall	551	D	E	C	A	A
3	South Residential	Melbourne Square Mall	344	E	E	A	A	A
4	South Residential	Melbourne CBD	264	E	E	D	A	A
5	Beaches	Merritt Island	254	D	D	B	A	F
6	Merritt Island Residential	Merritt Island	248	E	E	B	A	A
7	Central Residential	BCC Main Campus (Cocoa)	229	E	E	D	A	A
8	Beaches	Merritt Island Residential	101	E	E	D	A	F
9	Merritt Island Residential	BCC Main Campus (Cocoa)	99	E	E	D	A	A
10	Merritt Island	Merritt Island Residential	98	E	E	C	A	A
11	Central Residential	Cocoa CBD	61	E	E	B	A	A
12	Central Residential	Merritt Island	60	E	E	B	A	A
13	Beaches	BCC Main Campus (Cocoa)	57	E	E	C	A	F
14	Merritt Island Residential	Beaches	46	E	E	C	A	A
15	Merritt Island	Beaches	45	D	D	B	A	F
16	North Residential	BCC Main Campus (Cocoa)	43	E	E	D		
17	Central Residential	Melbourne Square Mall	36	E	E	F		
18	Central Residential	Merritt Island Residential	32	E	E	F		
19	Central Residential	Melbourne CBD	29	E	E	E		
20	Merritt Island Residential	Cocoa CBD	26	E	E	E		
21	Melbourne Square Mall	South Residential	22	E	E	A		
22	Cocoa CBD	Merritt Island	20	E	E	D		
23	Merritt Island	Cocoa CBD	20	E	E	D		
24	Beaches	Cocoa CBD	19	E	E	E		
25	Beaches	Melbourne CBD	19	E	E	C		
26	BCC Main Campus (Cocoa)	Cocoa CBD	17	E	E	C		
27	BCC Main Campus (Cocoa)	Merritt Island	16	E	E	C		
28	BCC Main Campus (Cocoa)	Merritt Island Residential	15	E	E	E		
29	Cocoa CBD	BCC Main Campus (Cocoa)	13	E	E	D		
30	Central Residential	Beaches	13	E	E	C		
31	Cocoa CBD	Merritt Island Residential	12	E	E	F		
32	Merritt Island	BCC Main Campus (Cocoa)	11	E	E	B		
33	North Residential	Merritt Island Residential	10	E	E	F		
34	North Residential	Merritt Island	9	E	E	D		
35	BCC Main Campus (Cocoa)	North Residential	9	E	E	F		
36	Melbourne CBD	South Residential	9	E	E	D		
37	Beaches	Melbourne Square Mall	9	E	E	E		
38	BCC Main Campus (Cocoa)	Central Residential	8	E	E	B		
39	North Residential	Beaches	7	E	E	E		
40	Cocoa CBD	Central Residential	7	E	E	B		
41	Central Residential	North Residential	7	E	E	B		
42	Merritt Island Residential	Central Residential	7	E	E	D		
43	Merritt Island Residential	Melbourne CBD	7	E	E	F		
44	North Residential	Cocoa CBD	6	E	E	B		
45	Cocoa CBD	Beaches	6	E	E	E		
46	Merritt Island Residential	North Residential	6	E	E	F		
47	Merritt Island	Central Residential	6	E	E	B		
48	South Residential	BCC Main Campus (Cocoa)	5	E	E	F		
49	Merritt Island Residential	Melbourne Square Mall	5	E	E	F		
50	Beaches	North Residential	5	E	E	E		
51	BCC Main Campus (Cocoa)	Beaches	4	E	E	D		
52	Cocoa CBD	North Residential	4	E	E	B		
53	Beaches	Central Residential	4	E	E	C		
54	Melbourne CBD	Beaches	3	E	E	D		
55	Melbourne Square Mall	Beaches	3	E	E	F		
56	Merritt Island	North Residential	3	E	E	D		
57	North Residential	Melbourne Square Mall	2	E	E	F		
58	BCC Main Campus (Cocoa)	Melbourne CBD	2	E	E	F		
59	BCC Main Campus (Cocoa)	Melbourne Square Mall	2	E	E	F		
60	Cocoa CBD	Melbourne Square Mall	2	E	E	F		



Table 5 (continued)
Summary of Evaluation Measures

Trip Rank	From	To	Trips	Frequency	Hours of Service	Travel Time	Average Loading	Reliability
61	Melbourne CBD	BCC Main Campus (Cocoa)	2	E	E	D		
62	Melbourne Square Mall	Merritt Island	2	E	E	F		
63	South Residential	Merritt Island	2	E	E	F		
64	Merritt Island	Melbourne Square Mall	2	E	E	F		
65	North Residential	Central Residential	1	E	E	B		
66	North Residential	Melbourne CBD	1	E	E	F		
67	Cocoa CBD	Melbourne CBD	1	E	E	F		
68	Cocoa CBD	South Residential	1	E	E	F		
69	Melbourne CBD	Cocoa CBD	1	E	E	B		
70	Melbourne Square Mall	North Residential	1	E	E	E		
71	Melbourne Square Mall	BCC Main Campus (Cocoa)	1	E	E	F		
72	Melbourne Square Mall	Cocoa CBD	1	E	E	E		
73	Melbourne Square Mall	Central Residential	1	E	E	E		
74	Melbourne Square Mall	Merritt Island Residential	1	E	E	F		
75	South Residential	North Residential	1	E	E	F		
76	South Residential	Central Residential	1	E	E	F		
77	South Residential	Merritt Island Residential	1	E	E	F		
78	South Residential	Beaches	1	E	E	E		
79	Merritt Island	Melbourne CBD	1	E	E	F		
80	North Residential	South Residential	0	E	E	F		
81	BCC Main Campus (Cocoa)	South Residential	0	E	E	F		
82	Central Residential	South Residential	0	E	E	F		
83	Melbourne CBD	North Residential	0	E	E	B		
84	Melbourne CBD	Central Residential	0	E	E	A		
85	Melbourne CBD	Merritt Island Residential	0	E	E	F		
86	Melbourne CBD	Merritt Island	0	E	E	B		
87	South Residential	Cocoa CBD	0	E	E	F		
88	Merritt Island Residential	South Residential	0	E	E	F		
89	Merritt Island	South Residential	0	E	E	F		
90	Beaches	South Residential	0	E	E	F		