

HILLSBOROUGH COUNTY MPO

TRANSIT QUALITY OF SERVICE EVALUATION REPORT

Prepared by:



BRW, Inc.

**505 East Jackson Street, Suite 209
Tampa, Florida 33602**

Prepared for:

**Hillsborough County Metropolitan Planning Organization
601 E. Kennedy Boulevard, 18th Floor
Tampa, Florida 33602**

**JUNE 2001
FINAL**

Hillsborough County Transit Quality of Service Evaluation

Report Organization

- 1.0 Agencies Involved in Evaluation
- 2.0 Activity Centers Chosen for Analysis
 - Figure 1: Hillsborough County Activity Centers*
- 3.0 Evaluation of Service Measures
 - 3.1 Service Frequency
 - 3.2 Hours of Service
 - 3.3 Service Coverage
 - Figure 2: Transit Supportive Areas*
 - Figure 3: Service Coverage Area*
 - Figure 4: Transit Supportive Areas Served and Not Served by Transit*
 - 3.4 Passenger Loading
 - 3.5 Reliability
 - 3.6 Transit vs. Auto Travel Time
 - 3.7 Summary Evaluation
 - 3.8 Level of Effort on Evaluation
- Appendix: Tables

Hillsborough County Transit Quality of Service Evaluation

The Hillsborough County Metropolitan Planning Organization (MPO) has completed this Transit Quality of Service (TQS) Evaluation as part of the Florida Department of Transportation (FDOT) effort to employ a new transit quality of service framework. This evaluation provides information on the current performance of the transit system in Hillsborough County, as operated by Hillsborough Area Regional Transit (HART). The results of this evaluation benchmark will be used in conjunction with information provided by transit systems across the state.

1.0 Agencies Involved in Evaluation

As the local lead agency, the Hillsborough County MPO completed this TQS Evaluation under the guidance of FDOT. As a cooperating agency, HART provided access to, and reporting data available on, the transit operations in the county.

2.0 Activity Centers Chosen for Analysis

The following activity centers, shown in Figure 1, were chosen for evaluation. The activity centers were chosen to demonstrate a variety of travel patterns across the county while representing corridors with the greatest traffic volumes.

- *Downtown Tampa* is considered the Central Business District of the principal city in the county.
- *Citrus Park* was selected as a representative regional shopping center.
- *Brandon* is a major residential area with increasing business opportunities as well as several park and ride facilities.
- *Westshore Business District* encompasses the county's largest concentration of commercial office employment
- *Hillsborough Community College, Dale Mabry Campus*, is the largest campus of the county community college system
- *University of South Florida*, located adjacent to the City of Tampa limits, is a state university.
- *Tampa International Airport* was selected as the county's most prominent intermodal center.
- *Port of Tampa/ Port Sutton* contains a large concentration of industrial employment in the county.
- *MacDill Air Force Base* is one of the county's largest employers and demonstrates the federal government interest in the Tampa area.
- *New Tampa* is one of the newest, largest, and fastest growing residential areas in the county.

3.0 Evaluation of Service Measures

The following section outlines the measures used to evaluate transit service in Hillsborough County. The purpose, data sources and results of each measure are also listed.

3.1 Service Frequency

The "service frequency" measure evaluates the number of trip opportunities are available between each pair of origins and destinations via transit. This information was garnered from the Customer Service Department of HART, which uses a computer database to answer customer questions regarding operation and service availability. The results of this measure are available on the Mobility Measures Worksheet located in the attached tables.

3.2 Hours of Service

The "hours of service" measure demonstrates the number of hours per day that service is available between each pair of origins and destinations. This information was garnered from the Customer Service Department of HART, which uses a computer database to answer customer

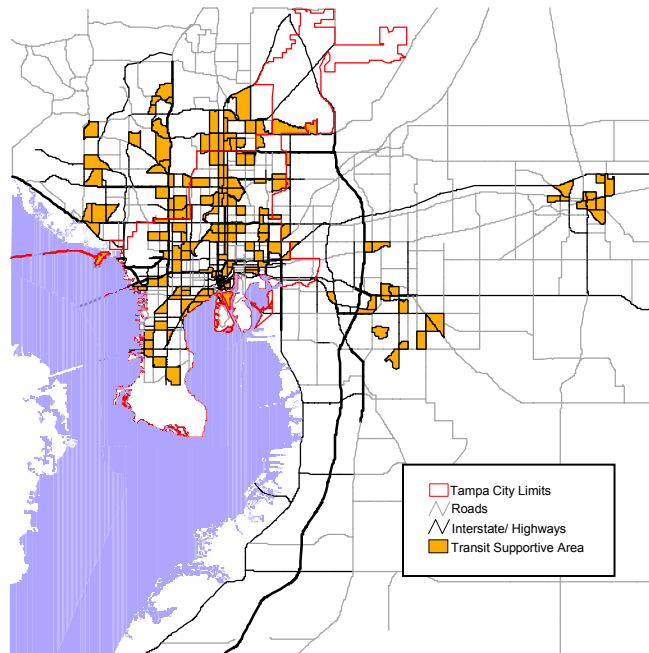
Hillsborough County Transit Quality of Service Evaluation

questions regarding operation and service availability. The results of this measure are available on the Mobility Measures Worksheet located in the attached tables.

3.3 Service Coverage

The “service coverage” measure evaluates how well current transit operations provide service to transit supportive areas. Transit supportive areas are defined as those traffic analysis zones (TAZs) with either a population density of three households per gross acre or four employees per gross acre. Base data for this analysis included TAZs, population estimates and projections (Year 1999 data), employment estimates and projections (Year 1999 data), current bus route locations (as of January 2001), and local jurisdiction boundaries was provided by the MPO in Geographic Information Systems (GIS) format. The analysis was conducted in Arc/Info and ArcView. Figures 2-4 illustrate the areas of Hillsborough County that are transit supportive and served by transit as of March 1, 2001. The results of this measure are available on the Service Coverage Worksheet located in the attached tables.

Figure 2: Transit Supportive Areas



Hillsborough County Transit Quality of Service Evaluation

Figure 3: Service Coverage Area

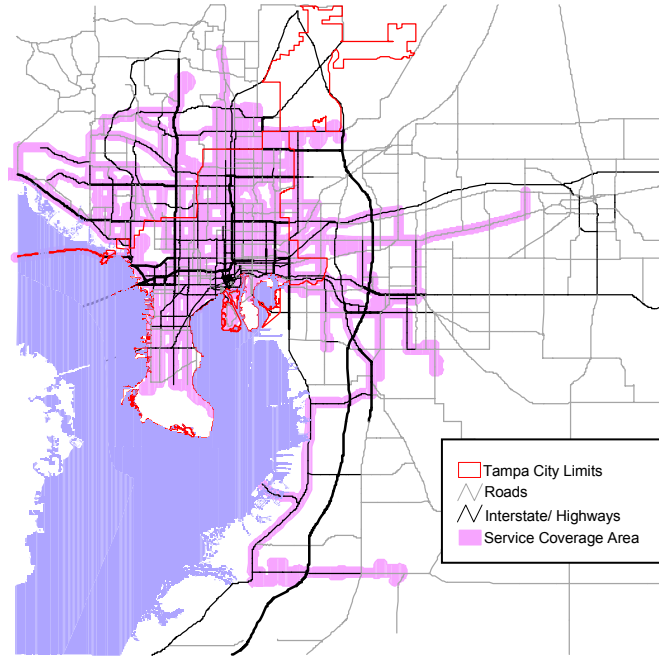
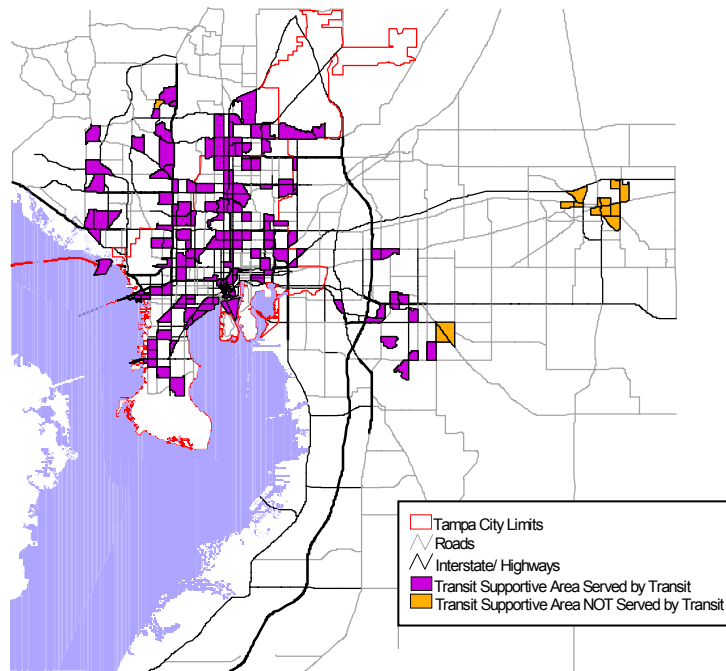


Figure 4: Transit Supportive Areas Served and Not Served by Transit



*Note: The enclave of transit supportive areas NOT served by transit shown in orange in the east part of the county are located in Plant City, Florida. HART began service in Plant City on March 19, 2001.

Hillsborough County Transit Quality of Service Evaluation

3.4 Passenger Loading

The “passenger loading” measure evaluates the number of passengers and space per passenger for each observed route. Data for this measure was collected during the last two weeks of March 2001 for the fifteen origin-destination pairs with the greatest travel demand. The fifteen origin-destination pairs with the greatest travel demand were determined by the Tampa Bay Regional Planning model, maintained by the MPO and FDOT District 7. For each trip, a maximum load point was selected for observation based on previously completed counts of boardings and alightings.

Surveyors observed the route at the maximum load point, during weekday PM peak, for a minimum of three days. The average passenger load is the mean of these observations. The maximum passenger load is the highest observed value for all observations at that point. Surveyors also made note of the bus identification number for each observation. Using the bus identification number, HART was able to provide the vehicle data necessary to determine area per passenger.

During the observations, it was noted that buses with different capacities may be used for a single bus route. The attributes of the bus observed at the maximum passenger load point were used in the data table.

The results of this measure are available on the Passenger Loading Worksheet located in the attached tables.

3.5 Reliability

The “reliability” measure evaluates the timeliness of the bus arrival when compared to the bus route schedule. Data for this measure was collected during the last two weeks of March 2001 for the fifteen origin-destination pairs with the greatest travel demand. For each trip, a maximum load point was selected for observation based on data provided by HART for the selected route.

Surveyors observed the route at the maximum load point, during weekday PM peak, for a minimum of three days. For each observation, the difference between the actual and scheduled time was noted. On time trips are considered those arriving within five minutes of the scheduled time.

The results of this measure are available on the Service Reliability Worksheet located in the attached tables.

3.6 Transit vs. Auto Travel Time

The “transit vs. auto travel time” measure compares travel times of transit to travel times for automobiles between each pair of origins and destinations. The fifteen origin-destination pairs with the greatest travel demand and auto travel times were determined by the Tampa Bay Regional Planning model maintained by the MPO and FDOT District 7. Transit travel times were garnered from the Customer Service Department of HART, which uses a computer database to answer customer questions regarding operation and service availability. The results of this measure are available on the Mobility Measures Worksheet located in the attached tables.

3.7 Summary Evaluation

A summary of the data collected and analyzed is provided in the Summary Results table attached to this report. Overall, the level of service of Hillsborough County transit service for the top

Hillsborough County Transit Quality of Service Evaluation

fifteen origin-destination pairs is LOS C or better for travel time, LOS A for average loading, and LOS C or lower for reliability.

3.8 Level of Effort on Evaluation

Given the resources available to the Hillsborough County MPO, and the cooperative nature of the relationship between the MPO and HART, the effort expended on this evaluation would be considered moderate. Assumptions made, in order to accommodate local situations that did not meet the examples in the reporting guide, should decrease as the program develops.

MPO Name	Hillsborough County MPO
Fixed-Route Transit Provider(s) Name(s)	Hillsborough Area Regional Transit (HART)
Staff Name	Elizabeth Malaby
Staff Contact Telephone Number	272-5940
Report Title	Hillsborough County Transit Quality of Service Evaluation
Data Collection Dates	March 20-22, 26-29, 2001

INSTRUCTIONS

These instructions describe how to use this spreadsheet. For information on the procedures to use to collect data for use in this spreadsheet, refer to the *Agency Reporting Guide*.

The spreadsheet contains seven pages, which are described below. In general, you should complete each page in the order that it appears in the spreadsheet before moving on to the next page. Cells where you should enter data are colored light yellow; all other cells are protected and should not be changed.

This spreadsheet uses a macro to assist in sorting directional trip demands. In order to take advantage of this macro, which is triggered by the **Sort Data** button on the **Loading** page, you must click **Enable Macros** when opening this spreadsheet.

Instructions

What you're currently reading, a description of how to use this spreadsheet.

AgencyData

Enter the MPO name, transit agency name(s), report title, and data collection dates on the indicated lines. The last two lines will be used as header information on each report page you'll print out after completing this spreadsheet.

ActivityCenters

Enter the names of the activity centers (major trips origins and destinations) that have been selected for this quality of service evaluation. Each activity center should be entered on a separate line. Space is provided for up to 15 activity centers. Large MPOs (those serving areas with populations of 200,000 or more) should use at least 10 activity centers; small MPOs (those serving areas under 200,000 population) should use at least 6 activity centers. Also enter the TAZ associated with each center.

Mobility

This page calculates the service frequency, hours of service, and auto-transit travel time level of service measures.

The page is organized into 15 identical tables. The first table, at the top of the page, is used to enter information about trips from activity center #1 to all other activity centers. The second table is used for trips from activity center #2 to all other activity centers, and so on. If you are not using all 15 activity centers, you will not need to complete every table.

Travel Demand

The information entered in this column is used elsewhere in the spreadsheet to determine the top 15 combinations of activity centers, in terms of travel demand. It is also used on the summary page to sort results by the amount of travel demand.

For each combination of activity center origin and destination, enter the total number of trips (auto and transit) between the two locations during the p.m. peak hour, using data from the local FSUTMS model.

Service Frequency

Enter the number of opportunities to travel from each origin to each destination during the peak hour. If there is only one route serving the two locations, this is equal to the route's frequency. If there is only one combination of routes serving the two locations, this is equal to the lowest frequency among the combination of routes used to make the trip. Where there is more than one way to get from origin to destination, use the following guidelines:

- (1) A given vehicle should only be used once--if there are four departures per hour from the trip origin, but only one arrival per hour at the trip destination, there is only one travel opportunity.
- (2) Any combination of routes that produces travel times within 10 minutes of the fastest trip should be counted.
- (3) If several vehicles leave the trip origin or a transfer point at about the same time, vehicles that leave within 3 minutes of each other should be counted as a single trip opportunity.

Transit-Auto Travel Time

Enter the fastest travel time between origin and destination during the p.m. peak hour, in minutes, in the "Transit" column. Enter the auto travel time given by the local FSUTMS model between the zones corresponding to the origin and destination. The spreadsheet will calculate the travel time difference and the corresponding LOS.

Loading

This page calculates passenger loading LOS for the 15 combinations of activity center origins and destinations with the highest travel demands. Before starting to enter data on this page, you must first provide travel demands for all combinations of activity centers on the **Mobility** page, and then press the **Sort Data** button found at the top of the **Loading** page. The spreadsheet will sort the travel demands and will list the top 15 origin-destination combinations in the table on this page. The spreadsheet will also set up report headers at this time, based on the agency information you provided earlier.

Passenger loading data are collected at the maximum load point of the first route one would take to travel between origin and destination in the fastest time.

Vehicle Data

Enter information about the vehicle serving each route measured: length (feet), width (feet), number of seats, and whether it is a bus or rail vehicle.

Count Data

Enter the number of trips (buses or trains) that were counted, and whether the counts were taken manually or using Automatic Passenger Counter (APC) equipment.

Average and Maximum Loads

Enter the average load on board each vehicle at the count location, and the maximum observed load. The spreadsheet will calculate the corresponding area per passenger and passenger loading LOS.

Reliability

This page calculates service reliability LOS for the same 15 combinations of activity center origins and destinations that you entered passenger loading data for.

Route Data

Enter the number of trips per hour made by the observed route.

Count Data

Enter the number of vehicles observed, and whether the observations were made manually or using Automatic Vehicle Location (AVL) equipment.

On-Time Performance

If the observed route operates at headways of more than 10 minutes, enter the number of on-time trips. The spreadsheet will calculate the corresponding on-time percentage and LOS.

Headway Adherence

If the observed route operates at headways of 10 minutes or less, enter the sample standard deviation of the observed headways. The spreadsheet will calculate the corresponding coefficient of variation and LOS.

Coverage

This page summarizes the results of the service coverage evaluation. Refer to the *Agency Reporting Guide* for step-by-step

Summary

This page summarizes the results of the evaluation, sorted from highest to lowest travel demand.

Printing Reports

Each page has been pre-formatted to print reports that can be used directly in the MPO report to FDOT. Simply move from page to page and click the printer icon for each page (or select **Print** from the **File** menu).

TAZ¹	Activity Center Name	TAZs in TBRPM Center²
274	Downtown Tampa	101,119,204,208,263,273,291,293
392	Citrus Park Mall	392
607	Brandon	575,579-81,584,589,600-2,605-9,612-4,621-2
155	Westshore Business District	151-9,169-71,182-3,185
135	Hillsborough Community College	135,137,142-3
256	University of South Florida	11,16-20,255-6,444-6,448-51
126	Tampa International Airport	126,128-132
121	Port of Tampa/ Port Sutton	120-3,637-9
240	MacDill AFB	231,240
242	New Tampa*	241-51,454-5

¹These TAZs were used to approximate the center of each designated Activity Center for travel time calculations .

² The analysis used Activity Centers designed by the Tampa Bay Regional Planning Model (TBRPM), often with several TAZs assigned to each center. The trip demand calculations are based on the TAZs assigned by the TBRPM.

* There is no transit service to the New Tampa area

SUMMARY RESULTS

Trip Rank	From	To	Trips	Frequency	Hours of Service	Travel Time	Average Loading	Reliability
1	New Tampa*	University of South Florida	10633	F	F	F	n/a	n/a
2	University of South Florida	Downtown Tampa	5566	B	C	C	A	F
3	Westshore Business District	Downtown Tampa	3606	D	C	C	A	C
4	University of South Florida	New Tampa*	3176	F	F	F	n/a	n/a
5	Downtown Tampa	Westshore Business District	2972	D	C	B	A	E
6	Brandon	Downtown Tampa	2740	C	D	B	A	F
7	Brandon	University of South Florida	2399	C	D	F	A	F
8	Downtown Tampa	University of South Florida	2269	A	B	C	A	F
9	University of South Florida	Brandon	2095	D	E	F	A	D
10	Westshore Business District	Tampa International Airport	1895	C	C	A	A	F
11	Tampa International Airport	Westshore Business District	1667	C	C	A	A	C
12	Port of Tampa/ Port Sutton	Downtown Tampa	1628	C	C	A	A	C
13	Downtown Tampa	Brandon	1537	C	C	B	A	D
14	University of South Florida	Westshore Business District	1310	D	C	D	A	F
15	MacDill AFB	Westshore Business District	1181	D	D	C	A	A
16	Hillsborough Community College	University of South Florida	1143	E	D	F		
17	Tampa International Airport	Downtown Tampa	1115	C	C	C		
18	Brandon	Port of Tampa/ Port Sutton	1100	C	D	D		
19	New Tampa*	Brandon	1065	F	F	F		
20	Hillsborough Community College	Downtown Tampa	1020	C	D	C		
21	Brandon	Westshore Business District	1015	C	D	D		
22	Westshore Business District	University of South Florida	998	D	C	D		
23	MacDill AFB	Downtown Tampa	996	E	D	C		
24	Downtown Tampa	Tampa International Airport	995	D	C	D		
25	Hillsborough Community College	Westshore Business District	889	D	C	E		
26	New Tampa*	Downtown Tampa	820	F	F	F		
27	Port of Tampa/ Port Sutton	Brandon	798	E	D	C		
28	Westshore Business District	Hillsborough Community College	770	D	C	B		
29	Downtown Tampa	Hillsborough Community College	746	D	C	C		
30	Tampa International Airport	University of South Florida	653	E	C	E		
31	University of South Florida	Hillsborough Community College	641	E	C	F		
32	New Tampa*	Westshore Business District	638	F	F	F		
33	Downtown Tampa	Port of Tampa/ Port Sutton	584	D	D	B		
34	Brandon	New Tampa*	558	F	F	F		
35	Westshore Business District	MacDill AFB	548	E	D	D		
36	University of South Florida	Tampa International Airport	543	E	C	F		
37	Port of Tampa/ Port Sutton	University of South Florida	472	E	E	D		
38	Downtown Tampa	MacDill AFB	450	D	D	C		
39	Port of Tampa/ Port Sutton	Westshore Business District	437	E	D	D		
40	University of South Florida	Port of Tampa/ Port Sutton	433	E	D	F		
41	Westshore Business District	Brandon	415	D	C	E		
42	Hillsborough Community College	Tampa International Airport	388	E	D	F		
43	Brandon	Tampa International Airport	359	C	D	E		
44	MacDill AFB	Tampa International Airport	334	E	D	F		
45	University of South Florida	Citrus Park Mall	302	E	C	F		
46	Tampa International Airport	Hillsborough Community College	285	E	D	B		
47	New Tampa*	Tampa International Airport	284	F	F	F		
48	Citrus Park Mall	University of South Florida	260	E	C	E		
49	Westshore Business District	Port of Tampa/ Port Sutton	245	D	D	B		
50	University of South Florida	MacDill AFB	243	E	D	E		
51	Brandon	MacDill AFB	238	C	D	E		
52	Brandon	Hillsborough Community College	229	C	D	E		
53	Hillsborough Community College	Brandon	229	E	D	C		
54	Tampa International Airport	Brandon	226	E	C	C		
55	MacDill AFB	University of South Florida	203	E	D	E		
56	New Tampa*	MacDill AFB	197	F	F	F		
57	New Tampa*	Port of Tampa/ Port Sutton	184	F	F	F		
58	New Tampa*	Hillsborough Community College	164	F	F	F		
59	Citrus Park Mall	Westshore Business District	143	E	D	D		
60	Port of Tampa/ Port Sutton	Tampa International Airport	143	E	D	F		
61	MacDill AFB	Hillsborough Community College	134	E	D	D		
62	New Tampa*	Citrus Park Mall	134	F	F	F		
63	Downtown Tampa	New Tampa*	118	F	F	F		
64	Port of Tampa/ Port Sutton	Hillsborough Community College	117	E	E	D		
65	Port of Tampa/ Port Sutton	MacDill AFB	117	E	D	F		
66	Hillsborough Community College	MacDill AFB	111	E	D	F		
67	Hillsborough Community College	New Tampa*	110	F	F	F		
68	Tampa International Airport	MacDill AFB	105	E	D	F		
69	Citrus Park Mall	Tampa International Airport	90	E	D	D		
70	Tampa International Airport	Port of Tampa/ Port Sutton	90	E	E	E		

SUMMARY RESULTS

Trip Rank	From	To	Trips	Frequency	Hours of Service	Travel Time	Average Loading	Reliability
71	Westshore Business District	Citrus Park Mall	79	E	D	D		
72	Hillsborough Community College	Port of Tampa/ Port Sutton	79	E	D	C		
73	MacDill AFB	Brandon	69	D	D	B		
74	Westshore Business District	New Tampa*	68	F	F	F		
75	Tampa International Airport	New Tampa*	63	F	F	F		
76	MacDill AFB	Port of Tampa/ Port Sutton	61	E	D	F		
77	Citrus Park Mall	Hillsborough Community College	57	E	E	C		
78	Citrus Park Mall	Downtown Tampa	55	E	C	D		
79	Tampa International Airport	Citrus Park Mall	50	E	C	F		
80	Downtown Tampa	Citrus Park Mall	47	E	C	F		
81	Hillsborough Community College	Citrus Park Mall	44	E	C	E		
82	Port of Tampa/ Port Sutton	New Tampa*	33	F	F	F		
83	Citrus Park Mall	New Tampa*	30	F	F	F		
84	MacDill AFB	New Tampa*	19	F	F	F		
85	Brandon	Citrus Park Mall	17	C	D	F		
86	Citrus Park Mall	MacDill AFB	16	E	D	F		
87	Citrus Park Mall	Brandon	15	E	E	F		
88	Citrus Park Mall	Port of Tampa/ Port Sutton	10	E	E	F		
89	Port of Tampa/ Port Sutton	Citrus Park Mall	10	E	C	A		
90	MacDill AFB	Citrus Park Mall	6	E	D	F		

*There is no transit service to the New Tampa area.

New Tampa, as an origin or destination, results in travel time service LOS of "#VALUE!" due to lack of service to this area.

MOBILITY MEASURES WORKSHEET

From: Downtown Tampa

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa									
Citrus Park Mall	47	1	E	15.5	C	113	36.71	76.29	F
Brandon	1537	3	C	14.5	C	45	31.04	13.96	B
Westshore Business District	2972	2	D	14.5	C	34	19.79	14.21	B
Hillsborough Community College	746	2	D	14	C	50	20.76	29.24	C
University of South Florida	2269	8	A	17	B	58	31.72	26.28	C
Tampa International Airport	995	2	D	14	C	56	25.16	30.84	D
Port of Tampa/ Port Sutton	584	2	D	12	D	20	19.77	0.23	B
MacDill AFB	450	2	D	12	D	53	27.08	25.92	C
New Tampa*	118	0	F	0	F	n/a	44.45	n/a	F

From: Citrus Park Mall

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	55	1	E	15	C	70	36.3	33.7	D
Citrus Park Mall									
Brandon	15	1	E	11.5	E	133	57.18	75.82	F
Westshore Business District	143	1	E	12	D	61	23.34	37.66	D
Hillsborough Community College	57	1	E	8	E	52	25.26	26.74	C
University of South Florida	260	1	E	14	C	95	36.25	58.75	E
Tampa International Airport	90	1	E	12	D	55	23.83	31.17	D
Port of Tampa/ Port Sutton	10	1	E	11.33	E	183	45.58	137.42	F
MacDill AFB	16	1	E	12.3	D	150	44.72	105.28	F
New Tampa*	30	0	F	0	F	n/a	44.25	n/a	F

* There is no transit service to the New Tampa area

Sources: MPO/FDOT District 7 Tampa Bay Regional Planning Model and HART Operations Department (TRAPEZE)

MOBILITY MEASURES WORKSHEET

From: Brandon

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	2740	3	C	12.3	D	44	32.4	11.6	B
Citrus Park Mall	17	3	C	12.3	D	157	58.74	98.26	F
Brandon									
Westshore Business District	1015	3	C	12.3	D	78	41.79	36.21	D
Hillsborough Community College	229	3	C	12.3	D	94	42.66	51.34	E
University of South Florida	2399	3	C	12.3	D	102	34.99	67.01	F
Tampa International Airport	359	3	C	12.3	D	100	47.19	52.81	E
Port of Tampa/ Port Sutton	1100	3	C	12	D	64	28.05	35.95	D
MacDill AFB	238	3	C	12	D	97	45.75	51.25	E
New Tampa*	558	0	F	0	F	n/a	36.92	n/a	F

From: Westshore Business District

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	3606	2	D	14.5	C	45	19.99	25.01	C
Citrus Park Mall	79	1	E	12	D	61	23.99	37.01	D
Brandon	415	2	D	14	C	90	40.04	49.96	E
Westshore Business District									
Hillsborough Community College	770	2	D	14	C	24	11.84	12.16	B
University of South Florida	998	2	D	15	C	69	36.53	32.47	D
Tampa International Airport	1895	4	C	14	C	12	12.1	-0.1	A
Port of Tampa/ Port Sutton	245	2	D	12	D	41	29.27	11.73	B
MacDill AFB	548	1	E	12	D	71	27.14	43.86	D
New Tampa*	68	0	F	0	F	n/a	50.06	n/a	F

* There is no transit service to the New Tampa area

Sources: MPO/FDOT District 7 Tampa Bay Regional Planning Model and HART Operations Department (TRAPEZE)

MOBILITY MEASURES WORKSHEET

From: Hillsborough Community College

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	1020	4	C	13	D	45	20.53	24.47	C
Citrus Park Mall	44	1	E	15	C	74	25.44	48.56	E
Brandon	229	1	E	13	D	60	41.3	18.7	C
Westshore Business District	889	2	D	14	C	61	11.6	49.4	E
Hillsborough Community College									
University of South Florida	1143	1	E	13	D	105	34.62	70.38	F
Tampa International Airport	388	1	E	13	D	94	16.56	77.44	F
Port of Tampa/ Port Sutton	79	1	E	12.3	D	54	28.42	25.58	C
MacDill AFB	111	1	E	12	D	104	28.88	75.12	F
New Tampa*	110	0	F	0	F	n/a	49.23	n/a	F

From: University of South Florida

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	5566	5	B	16.3	C	47	31.92	15.08	C
Citrus Park Mall	302	1	E	15	C	130	35.29	94.71	F
Brandon	2095	2	D	11	E	109	35.55	73.45	F
Westshore Business District	1310	2	D	14.3	C	75	35.79	39.21	D
Hillsborough Community College	641	1	E	14	C	95	33.94	61.06	F
University of South Florida									
Tampa International Airport	543	1	E	14	C	102	41.16	60.84	F
Port of Tampa/ Port Sutton	433	1	E	12.22	D	133	36.43	96.57	F
MacDill AFB	243	1	E	13	D	107	48.22	58.78	E
New Tampa*	3176	0	F	0	F	n/a	23.81	n/a	F

* There is no transit service to the New Tampa area

Sources: MPO/FDOT District 7 Tampa Bay Regional Planning Model and HART Operations Department (TRAPEZE)

MOBILITY MEASURES WORKSHEET

From: Tampa International Airport

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	1115	3	C	14.2	C	46	24.86	21.14	C
Citrus Park Mall	50	1	E	15.4	C	93	23.25	69.75	F
Brandon	226	1	E	14.4	C	68	45.74	22.26	C
Westshore Business District	1667	3	C	14.2	C	11	12.22	-1.22	A
Hillsborough Community College	285	1	E	13	D	31	16.92	14.08	B
University of South Florida	653	1	E	14.5	C	87	41.4	45.6	E
Tampa International Airport									
Port of Tampa/ Port Sutton	90	1	E	11.52	E	88	34.14	53.86	E
MacDill AFB	105	1	E	13	D	100	33.28	66.72	F
New Tampa*	63	0	F	0	F	n/a	54.93	n/a	F

From: Port of Tampa/ Port Sutton

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	1628	3	C	14	C	20	20.18	-0.18	A
Citrus Park Mall	10	1	E	15.2	C	214	46.07	167.93	F
Brandon	798	1	E	12.15	D	53	28.34	24.66	C
Westshore Business District	437	1	E	12.3	D	63	29.15	33.85	D
Hillsborough Community College	117	1	E	11.15	E	66	29.19	36.81	D
University of South Florida	472	1	E	11.15	E	76	36.28	39.72	D
Tampa International Airport	143	1	E	12.15	D	99	34.52	64.48	F
Port of Tampa/ Port Sutton									
MacDill AFB	117	1	E	13.15	D	104	36.37	67.63	F
New Tampa*	33	0	F	0	F	n/a	45.67	n/a	F

* There is no transit service to the New Tampa area

Sources: MPO/FDOT District 7 Tampa Bay Regional Planning Model and HART Operations Department (TRAPEZE)

MOBILITY MEASURES WORKSHEET

From: MacDill AFB

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	996	1	E	12.3	D	52	26.77	25.23	C
Citrus Park Mall	6	1	E	13	D	220	44.41	175.59	F
Brandon	69	2	D	12	D	50	45.55	4.45	B
Westshore Business District	1181	2	D	12	D	51	27.03	23.97	C
Hillsborough Community College	134	1	E	12.15	D	61	29.37	31.63	D
University of South Florida	203	1	E	13	D	104	48.37	55.63	E
Tampa International Airport	334	1	E	13	D	147	32.86	114.14	F
Port of Tampa/ Port Sutton	61	1	E	12.13	D	144	35.55	108.45	F
MacDill AFB									
New Tampa*	19	0	F	0	F	n/a	60.23	n/a	F

From: New Tampa*

To	Travel Demand (trips/h)	Frequency		Hours of Service		Travel Times			
		Travel Opps/h	LOS	Hours	LOS	Transit (min)	Auto (min)	Difference (min)	LOS
Downtown Tampa	820	0	F	0	F	n/a	43.47	n/a	F
Citrus Park Mall	134	0	F	0	F	n/a	45.21	n/a	F
Brandon	1065	0	F	0	F	n/a	37	n/a	F
Westshore Business District	638	0	F	0	F	n/a	48.28	n/a	F
Hillsborough Community College	164	0	F	0	F	n/a	48.83	n/a	F
University of South Florida	10633	0	F	0	F	n/a	23.74	n/a	F
Tampa International Airport	284	0	F	0	F	n/a	53.65	n/a	F
Port of Tampa/ Port Sutton	184	0	F	0	F	n/a	44.81	n/a	F
MacDill AFB	197	0	F	0	F	n/a	59.07	n/a	F
New Tampa*									

*There is no transit service to the New Tampa area.

PASSENGER LOADING WORKSHEET

From	To	Vehicle Data				Count Data		Average Load			Maximum Load		
		Length (ft)	Width (ft)	Bus/ Rail	# of Seats	APC/ Manual	# Trips Counted	# Pass.	Area per Pass.	LOS	# Pass.	Area per Pass.	LOS
New Tampa*	University of South Florida	0	0	Bus	0	Manual	0	0	0.00	n/a	0	0.00	n/a
University of South Florida	Downtown Tampa	40	8	Bus	44	Manual	22	16	20.00	A	33	9.70	D
Westshore Business District	Downtown Tampa	40	8	Bus	46	Manual	12	15	21.33	A	25	12.80	C
University of South Florida	New Tampa*	0	0	Bus	0	Manual	0	0	0.00	n/a	0	0.00	n/a
Downtown Tampa	Westshore Business District	40	8	Bus	46	Manual	12	8	40.00	A	16	20.00	A
Brandon	Downtown Tampa	30	8.5	Bus	23	Manual	10	10	25.50	A	21	12.14	C
Brandon	University of South Florida	30	8.5	Bus	23	Manual	10	10	25.50	A	21	12.14	C
Downtown Tampa	University of South Florida	35	8	Bus	33	Manual	22	19	14.74	A	30	9.33	D
University of South Florida	Brandon	40	8	Bus	44	Manual	22	16	20.00	A	33	9.70	D
Westshore Business District	Tampa International Airport	40	8	Bus	44	Manual	12	9	35.56	A	21	15.24	B
Tampa International Airport	Westshore Business District	35	8.5	Bus	35	Manual	11	13	22.88	A	20	14.88	B
Port of Tampa/ Port Sutton	Downtown Tampa	30	8	Bus	28	Manual	12	3	80.00	A	6	40.00	A
Downtown Tampa	Brandon	30	8.5	Bus	23	Manual	7	6	42.50	A	10	25.50	A
University of South Florida	Westshore Business District	40	8	Bus	44	Manual	22	16	20.00	A	33	9.70	D
MacDill AFB	Westshore Business District	35	8	Bus	35	Manual	11	3	93.33	A	6	46.67	A

*There is no transit service to the New Tampa area.
 Vehicle Data is based on bus used at maximum load observation.

SERVICE RELIABILITY WORKSHEET

From	To	Route Data	Count Data		On-Time Performance			Headway Adherence		
		Frequency (trips/h)	AVL/ Manual	# Trips Counted	# of On-Time Trips	% On-Time Trips	LOS	Headway Std. Dev.	Coeff. of Variation	LOS
New Tampa*	University of South Florida	0	Manual	0	0		n/a			
University of South Florida	Downtown Tampa	4	Manual	24	16	66.7%	F			
Westshore Business District	Downtown Tampa	2	Manual	12	11	91.7%	C			
University of South Florida	New Tampa*	0	Manual	0	0		n/a			
Downtown Tampa	Westshore Business District	2	Manual	12	10	83.3%	E			
Brandon	Downtown Tampa	1	Manual	10	7	70.0%	F			
Brandon	University of South Florida	1	Manual	10	7	70.0%	F			
Downtown Tampa	University of South Florida	4	Manual	24	19	79.2%	F			
University of South Florida	Brandon	1	Manual	7	6	85.7%	D			
Westshore Business District	Tampa International Airport	2	Manual	12	7	58.3%	F			
Tampa International Airport	Westshore Business District	2	Manual	11	10	90.9%	C			
Port of Tampa/ Port Sutton	Downtown Tampa	2	Manual	12	11	91.7%	C			
Downtown Tampa	Brandon	1	Manual	7	6	85.7%	D			
University of South Florida	Westshore Business District	4	Manual	24	16	66.7%	F			
MacDill AFB	Westshore Business District	2	Manual	10	10	100.0%	A			

*There is no transit service to the New Tampa area.

SERVICE COVERAGE WORKSHEET

Calculation Method (GIS/Manual) GIS
Household Data Year 1999
Population Data Year 1999
Job Data Year 1999
Average Persons per Household 2.2

	% Area Served	% Population Served	% Jobs Served
County	10.4%	37.2%	44.3%
Principal City	59.4%	84.2%	92.0%
Transit-Supportive Area	35.7%		
Service Coverage LOS	F		