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**MANATEE COUNTY AREA
TRANSIT (MCAT)**

***DOWNTOWN TRANSFER
ANALYSIS***

**Final Report
August 2002**

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TRANSPORTATION
RESEARCH**



MANATEE COUNTY AREA TRANSIT (MCAT)

DOWNTOWN TRANSFER ANALYSIS

Prepared for:



Manatee County Area Transit

By:



**Center for Urban Transportation Research
College of Engineering
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***Final Report
August 2002***

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MCAT DOWNTOWN TRANSFER ANALYSIS

Final Report

INTRODUCTION

Manatee County Area Transit (MCAT) contracted with The Center for Urban Transportation Research (CUTR) to conduct a transfer analysis at the Downtown transfer center located near the Manatee County Courthouse in Downtown Bradenton. The purpose of this project was to determine the average number of persons arriving at the transfer center via MCAT with a final destination in Downtown Bradenton. This analysis was conducted using both an analysis of MCAT's recent on-board survey (March 2001) conducted by CUTR as part of the system's transit development plan (TDP), and on-site data collection and analysis of the activity at the transfer center.

ANALYSIS OF EXISTING ON-BOARD SURVEY DATA

The first task of this effort examined the results of the on-board ridership survey conducted by CUTR in March 2001 in conjunction with MCAT's five-year TDP major update. Questions on the survey instrument that could provide information on travel patterns through the Downtown transfer center asked where and how the respondent accessed and egressed the bus and the location of their trip origin and destination. It is important to note that passengers were asked to fill out a survey each time they boarded a bus for the unlinked trip they were currently making; therefore, transfer activity is captured.

Due to the nature of the questions, the survey results can be analyzed at the route-level, but not at a segment- or stop-level. As such, to narrow the analysis to the passenger activity at the Courthouse, the analysis relies on the respondents' written answers to the open-ended questions on the survey asking where the respondents boarded and alighted the bus for their trip. These questions, questions 3 and 5, specifically, asked, "You got on this bus at?" and "You will get off this bus at?" and prompted the respondents to write in the "nearest street intersection/place to the bus stop." The responses indicating a downtown location for boarding or alighting (such as "Downtown" or "Courthouse") were cross-tabulated with responses to question 4, "How did you get to the bus stop for this trip?" for the trip origin, and question 6, "How will you get to your final destination?" for the trip destination. There are limitations to this analysis, since it relies on survey respondents providing an answer to the open-ended

questions, as well as providing an answer that gives enough information to determine the exact location. Often, survey respondents skip open-ended questions in favor of questions with a defined choice-set of responses. The response rate for these questions was 71 percent and 70 percent, respectively. It is expected that these rates would be similar since respondents usually either choose to answer most or all open-ended questions on a survey, or they choose to leave them blank.

Questions 4 and 6 on the survey instrument asked respondents to choose only one response from a given set of choices. For both questions, the possible answers are:

- Walk 0-3 blocks
- Walk more than 3 blocks
- Taxi
- Drive
- Bus stop is at my origin/destination
- Transfer to/from MCAT Route # ____
- Transfer to/from SCAT Route # ____
- Bicycle
- Dropped off/picked up
- Other (please specify) _____

An estimation of the percent of passengers who board or alight at the Courthouse and are only using the Courthouse location as a transfer point can be determined by analyzing those who chose the response "Transfer to/from MCAT Route # ____." Those who selected any other response to this question are assumed *not* to be transferring at the Downtown location (the response "Transfer to/from SCAT Route # ____" is not applicable to those boarding or alighting at the Courthouse for the surveyed trip); however, it cannot be stated conclusively that all other respondents have an origin or destination in the downtown area. Nevertheless, it can be assumed that those respondents choosing options including "Walk 0-3 blocks," "Walk more than 3 blocks," and "Bus stop is at my origin/destination" do have trip origins or destinations in the downtown area.

Table 1 presents the results of these cross-tabulations. The table, on the following page, shows the number of respondents boarding or alighting at the Courthouse (or "Downtown") during the survey period, which represented one typical weekday. Specifically, 65 survey respondents indicated that they boarded the bus at the "Courthouse" or "Downtown," while 99 respondents indicated that they alighted the bus at one of these locations, for a total of 164 respondents.

Table 1 also examines the boarding pattern at the Courthouse, using Question 4 on the survey instrument ("How did you get to the bus stop for this trip?"). Of the 65 respondents who indicated they boarded at the Courthouse, 21 answered that they did transfer from another MCAT bus before boarding the bus on which they received the survey. This result indicates that

these 21 respondents (32 percent) used the Courthouse as a transfer point to another destination. It was also found that 36 of the 65 respondents who boarded at the Courthouse did not come directly from another MCAT bus; instead, they either walked less than three blocks, walked more than three blocks, or had a trip origin at the Courthouse itself. Based on these responses, it can be stated that these 36 respondents, which represent 55 percent of those boarding at the Courthouse, did have a trip origin in Downtown Bradenton. The remaining eight respondents who boarded at the Courthouse indicated that they either arrived by bicycle or were dropped off, so it cannot be determined whether their trip origin was in the Downtown Bradenton area.

The results in Table 1 also show the analysis of those survey respondents who indicated that they alighted the bus at the Courthouse using the results of Question 6 on the survey instrument (“How will you get to your final destination?”). Of the 99 respondents who indicated that they alighted at the Courthouse during the survey period, 48 (48%) selected the response from Question 6 that indicated they would transfer to another MCAT bus at that point. This result shows that the 48 respondents were utilizing the Courthouse as a transfer location to another destination. In addition, 46 respondents either planned to walk less than three blocks, walk more than three blocks, or had a destination at the Courthouse. Therefore, it can be stated that these 46 respondents had a trip destination in Downtown Bradenton, which represents approximately 46 percent of those respondents who indicated that they alighted at the Courthouse. The remaining five respondents who alighted at the Courthouse indicated that they planned to bicycle to their final destination, be picked up, or indicated an “other” response, so it cannot be determined whether their trip destination was in the Downtown Bradenton area.

Table 1, on the following page, summarizes these results and indicates that, of the 164 survey respondents indicating they boarded or alighted at the Courthouse, 69, or 42 percent utilized the location as a transfer point. However, 82 respondents, or 50 percent, indicated that they walked either to or from the Courthouse transfer location, or had a trip origin or destination at the Courthouse itself. This result is significant and shows that, based on these survey results, more MCAT passengers are utilizing the Courthouse transfer center as a bus stop for origins and destinations in the area than are transferring to other routes to pass through Downtown.

TABLE 1: Analysis of Survey Respondents *Boarding and Alighting* at the "Courthouse" or "Downtown"

Courthouse/Downtown Activity	Number of Survey Respondents
Boarded/Alighted at Courthouse	164
Number <i>Transferring To or From</i> Another MCAT Bus	69 (42%)
Number Estimated with a <i>Downtown Origin/Destination</i> ¹	82 (50%)
Number Accessing/Egressing via Bicycle or Car Drop-Off/Pick-Up	13 (8%)

¹Indicates responses to survey Questions 4 and 6 including "Walk 0-3 blocks," "Walk more than 3 blocks," or "Bus stop is at my destination."

As mentioned previously, for inclusion in MCAT's TDP, these results were analyzed at a systemwide level. The survey instrument was not tailored to provide route segment- or stop-level data, nor to specifically analyze activity at any particular transfer point, including the Courthouse Transfer Center. As such, the analysis provided in this section relies upon passengers responding accurately to open-ended questions regarding the locations where they boarded and alighted the bus for their surveyed trip. It is common for on-board survey respondents to have difficulties answering open-ended questions and questions related to their trip origins and destinations. It is always a challenging endeavor to word the survey questions such that the respondents will understand exactly what is meant by one "trip." For example, suppose a rider traveling Route 4 needs to transfer at the Courthouse to get to a destination in Palmetto. The rider might walk or be picked up from that destination, and might check one of those options on the survey instead of indicating that he or she will be transferring to Route 10 to get to the final destination. Alternately, a survey respondent with a destination in Downtown Bradenton may think that the "final destination" is for a round-trip, i.e., if the trip started at home, it will end at home. In that case, the analysis of the existing survey data would miss that Downtown destination. For these reasons, and to ensure an accurate depiction of the activity at the Downtown transfer center, a more detailed on-site analysis was conducted.

ON-SITE DATA COLLECTION AND ANALYSIS

For robust results, on-site observations of passenger activity at the Courthouse Transfer Center were conducted in May 2002 to determine the number of passengers using the facility solely to transfer between MCAT routes and the number of passengers with an origin or destination in the Downtown area. The results include total passenger activity by route at the Courthouse

Transfer Center, the proportion of riders immediately transferring to other routes, the proportion of riders who need to wait to transfer, and the proportion of riders with an origin or destination in the Downtown Bradenton area. For those riders making a transfer, the routes they were transferring to and from were observed and recorded (the appendix contains these full results).

CUTR staff were present at the Courthouse Transfer Center for the afternoon (noon until end of service) on Tuesday, May 7, 2002 and the morning (start of service until noon) on Wednesday, May 8, 2002, to cover one full average weekday of transit service. In addition to passively observing and manually recording passenger activity, the staff were instructed to speak with passengers to determine origin/destination, as appropriate. As the buses arrived at the transfer center each hour, those passengers alighting the buses were observed to determine whether they were immediately boarding another bus, waiting to board a bus that had not yet arrived, or whether they walked away from the transfer center. Those who walked away were assumed to have a downtown destination. In addition, those who boarded the buses were observed to determine whether they had just alighted another bus or walked up to the transfer center from the downtown area. Those who walked up to the transfer center from the surrounding downtown area were assumed to have a downtown origin. Some passengers were dropped off or picked up at the transfer center.

Table 2 shows the matrix for transfer activity at the Courthouse transfer facility. Five routes serve this facility: Routes 2, 3, 4, 9, and 10. As Table 2 indicates, 206 trips were observed that involved a transfer to another route. The highest level of transfer activity occurs between Route 3 and Route 10, as evidenced in the table.

TABLE 2: Transfer Activity at Courthouse Transfer Facility

		<i>From Route...</i>					Totals
		2	3	4	9	10	
<i>To Route...</i>	2	--	7	4	0	9	<i>20</i>
	3	15	--	16	16	28	<i>75</i>
	4	3	12	--	3	5	<i>23</i>
	9	1	2	4	--	1	<i>8</i>
	10	21	43	14	2	--	<i>80</i>
Totals		<i>40</i>	<i>64</i>	<i>38</i>	<i>21</i>	<i>43</i>	<i>206</i>

While 206 trips were observed involving transfers to other MCAT buses, a total of 232 passengers were observed either alighting the bus and walking into Downtown, or walking up to the facility from the Downtown area to board a bus. Thus, in total, 438 unlinked passenger trips were noted during the observation period. It is possible that many of these trips were made by the same individuals, and that their "round trips" to and from their destinations were included during the observation period. As such, it is important to determine the number of persons making these 438 trips to arrive at a depiction of the number of actual persons (not number of trips) using MCAT to access destinations in the Downtown Bradenton area.

Based on industry experience, a rule-of-thumb is to assume that 95 percent of unlinked trips are part of a round trip. The remaining five percent are assumed to be one-way, whereby the passenger uses another mode either to or from the destination (e.g., being dropped off or picked up in a vehicle, taxi, etc.). Therefore, using this methodology, it is estimated that the 206 trips that were observed to involve a transfer were made by 108 individual persons, and it is also estimated that approximately 122 individual persons made the 232 trips that involved an origin or destination in Downtown Bradenton. This information is summarized in Table 3 below.

TABLE 3: Analysis of Persons Making Trips via the Courthouse Transfer Facility

Courthouse/Downtown Activity	Number of Persons¹
Boarded/Alighted at Courthouse	230
Number <i>Transferring To or From</i> Another MCAT Bus	108 (47%)
Number Estimated with a <i>Downtown Origin/Destination</i>	122 (53%)

¹ Determined from the number of trips observed assuming 95 percent as round trips (i.e., two trips) and the remaining 5 percent as one-way trips.

The information presented in Table 3 is quite consistent with and supports the results of the on-board survey summarized in Table 1. Whether in terms of trips or persons, the proportions do not change. Table 1 showed that, based on on-board survey results, 42 percent used the Courthouse Transfer Facility for the purpose of transferring to another MCAT route, while 50 percent demonstrated a trip origin or destination in the Downtown area. Those on-board survey results are similar to the outcome from the on-site observation discussed in this section and summarized in Table 3, which shows that 47 percent used the Courthouse facility to transfer to another MCAT bus and 53 percent were observed having a trip origin or destination in Downtown Bradenton.

CONCLUSION

The results of this analysis indicate that the location of the Courthouse Transfer Facility is important to MCAT riders. Without such a facility in the Central Business District (CBD), approximately 122 individual passengers per day would be affected in their ability to access Downtown destinations. It is well-known in the industry that existing and potential transit riders are more sensitive to the need to transfer to complete a trip than they are to other factors such as travel time, wait time, and fare changes/payment. A "classic" smaller urban transit service is typically oriented around an hourly schedule during which buses from several routes converge in the downtown area to allow access to the CBD and allow passengers to transfer with the minimum wait time.¹ Downtown transit transfer centers can enhance the image of public transit in an area, provide a facility of which the community can be proud, play a role in downtown development and revitalization, and provide safety, security, and convenience for passengers.² Transit centers located in the CBD provide easy access to businesses, government services, and entertainment options in the area.

¹Stern, Richard, Transit Cooperative Research Program (TCRP) Synthesis 19, *Passenger Transfer System Review*, Transportation Research Board, National Academy Press, Washington, D.C., 1996, pp. 16-17.

²ITE Technical Council Committee 6A-40, "Effectiveness of Downtown Transit Transfer Centers," *ITE Journal*, vol. 60, Issue 9, Institute of Transportation Engineers, Washington, D.C., 1990, pp. 34-38.