

Houston-Galveston Area Council

2007 Transit Onboard Survey

Summary

The Houston-Galveston Area Council (H-GAC) conducts origin-destination (OD) surveys of passengers riding the fixed transit services provided in the region. H-GAC sponsored the 2007 Transit Onboard Survey in cooperation with the Metropolitan Transit Authority of Harris County (METRO), Brazos Transit District for The Woodlands Express, and Galveston Island Transit (Island Transit). Throughout the survey process, the project was guided by the 2007 Transit Survey Steering Committee (Steering Committee) which included representatives of H-GAC, METRO, The Woodlands Express, Galveston Island Transit, HDR/S.R. Beard (General Planning Consultant to METRO), and a technical advisor from Texas Transportation Institute (TTI). H-GAC hired Dikita Management Services (Dikita) to conduct the system-wide survey for the three transit agencies. Dikita's team (Team) of professionals included:

- RSM Services Corporation – provider of survey software and data entry and processing;
- DiverseStaff, Inc. – temporary employment agency providing survey staff;
- MPAC Media – survey printer and graphic consultant; and
- Dr. Graciela Daichman – Spanish translator.

The project was begun by H-GAC and TTI in July 2006 and the Steering Committee first met in August 2006. The project was completed in September 2007. The field data collection was performed on Weekdays from March 12 through May 25, 2007. The Team provided the data collection plan, survey instrument design and printing, staffing, scheduling, field supervision, data analysis, and reporting.

This document presents an overview of the results of the survey. Part II (in a separate volume) presents the details of the survey effort at the route level.

SURVEY PERFORMANCE CHARACTERISTICS

This section presents a summary of the survey performance characteristics including response rates, confidence level, and accuracy. All survey data were collected from Weekday transit riders. The data tables for each survey question tally total valid surveys, including 'No Response' for some questions. The percent response rate is based on the total valid surveys including 'No Response.' For percent of response without 'No Response' for each question and each system, mode and route type, please refer to Appendix F of the full survey report.

Response Rate

Survey response rates for METRO Local, METRO Park & Ride, METRORail, and the METRO System total as well as The Woodlands Express and Galveston Island Transit are presented in **Table 1**. The 'Estimated Rate' is the percent of passengers who received a survey and were expected to complete and return a valid response. The estimated rate was used to plan the survey sample size.

For the purposes of the tables presented in this Survey Summary, the titles for service types are shortened in the interest of space in the column headings to METRO P&R (METRO Park & Ride), METRO Rail (METRORail), TWEx (The Woodlands Express) and Island Transit (Galveston Island Transit), . METRO Local represents all METRO fixed local bus routes, including shuttles and limited routes. METRO System is used throughout to represent all of METRO's Weekday service for the local, park and rides and rail service categories.

Table 1
Response Rate

Service Type	Estimated Rate	Actual Rate
METRO Local	13.4%	15.2%
METRO P& R	34.0%	24.2%
METRO Rail	13.4%	18.2%
METRO System	N.A.	16.2%
TWEx	34.0%	26.6%
Island Transit	13.4%	9.7%

Confidence and Accuracy

Table 2 below reflects the actual statistical accuracy and confidence levels that were achieved for the 2007 survey.

Table 2
Confidence and Accuracy by Service

Service Type	Sample Size	Confidence	Accuracy
METRO Local	9,630	95%	+/- 1.0%
METRO P& R	1,644	95%	+/- 2.4%
METRO Rail	1,136	95%	+/- 2.9%
METRO System	12,410	95%	+/- 0.9%
TWEx	306	95%	+/- 5.6%
Island Transit	181	95%	+/- 7.3%

Factoring

The survey effort sampled only a small fraction of the total Weekday population of transit riders. The survey responses were expanded to actual ridership totals provided by METRO, Island Transit and The Woodlands Express through a process called factoring. In this process sample values were multiplied by various factors accounting for variations in response rates, sample size, riders by route, and linked trips. Table 3 below shows the sample size, unlinked trips, and linked trips for METRO System, The Woodlands Express, and Island Transit.

Table 3
Factored Trips

Service Type	Sample Size	Unlinked Trips	Linked Trips
METRO System	12,410	323,978	215,551
TWEx	306	2,043	2,030
Island Transit	181	2,994	2,091

DEMOGRAPHIC CHARACTERISTICS

This section presents data profiling the demographic characteristics of transit riders for the different services.

Age

Among the different service types, the average age of riders was the highest for The Woodlands Express and METRO Park & Ride, at 47.4 and 44.3 years, respectively. METRO Local passengers were the youngest at an average age of 36.6 years, followed by METRORail at 37 years (**Table 4**).

Table 4
Average Age

Service Type	Average Age (in Years)
METRO Local	36.6
METRO P& R	44.3
METRO Rail	37.0
METRO System	37.7
TWEx	47.4
Island Transit	40.6

Gender

Table 5 shows the gender distribution for each service type. The Woodlands Express has a majority of male riders (60%). All other services have a majority of female riders, ranging from 52% for METRO Local to 60% for Island Transit.

Table 5
Gender

Gender	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	8%	1%	4%	7%	1%	6%
Male	40%	39%	42%	40%	60%	34%
Female	52%	59%	54%	53%	39%	60%

Race/Ethnicity

Table 6 presents the race/ethnic distribution of ridership among the different services. Both METRO Park & Ride and The Woodlands Express have a majority of White/Non-Hispanic riders, 59% and 86% respectively. White/Non-Hispanic riders represent 29% of METRORail riders, 18% of Island Transit riders, and 14% METRO Local riders. Black/African Americans form the single largest race/ethnic group for METRO Local (53%), METRORail (40%), and Island Transit (50%). Eighteen percent of METRO Park & Ride and 2% of The Woodlands Express patrons are Black/African American. Hispanic riders are 19% of all riders on METRO Local and Island Transit, 16% METRORail riders, 10% METRO Park & Ride, and 7% The Woodlands Express. Asian Americans are 3% of all riders on the METRO System and 1% of riders on The Woodlands Express.

**Table 6
Race/Ethnicity**

Race/ Ethnicity	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	8%	3%	5%	7%	2%	10%
Hispanic/Latino	19%	10%	16%	17%	7%	19%
Asian American	2%	6%	4%	3%	1%	0%
Black/ African American	53%	18%	40%	48%	2%	50%
White/Non- Hispanic	14%	59%	29%	20%	86%	18%
Native American	0.8%	0.6%	0.6%	0.7%	0.1%	2%
Other	3%	3%	6%	3%	1%	0.5%

Note: Rounding may cause totals to appear to be less than or more than 100%

Language of Response

Consistent with previous practice, the 2007 Survey was provided in two languages – English and Spanish. The METRO Local service had the highest number of surveys completed in Spanish (5%). All the survey responses in The Woodlands Express were in English. One percent of METRORail and Island Transit riders completed the survey in Spanish while less than 1% of METRO Park & Ride passengers completed the survey in Spanish. These results are presented in **Table 7**.

**Table 7
Language of Response**

Language	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
English	95%	99.6%	99%	96%	100%	99%
Spanish	5%	0.4%	1%	4%	0%	1%

Total Annual Household Income

Fifty-four percent of METRO Local passengers report an annual household income below \$32,000, as compared to 40% of METRORail and 7% of METRO Park & Ride. Less than 1% of The Woodlands Express riders and 68% of Island Transit riders report an income below \$32,000.

Of all service types, the highest percentage of riders from households with annual income above \$81,000 was METRO Park & Ride and The Woodlands Express (50% and 63% respectively). Sixteen percent of METRORail riders, 5% of METRO Local riders, and 2% of Island Transit riders report annual household income of above \$81,000.

**Table 8
Household Income**

Income	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	16%	10%	10%	15%	19%	16%
Below \$16,000	29%	1%	18%	25%	0.3%	51%
\$16,000 - \$31,999	25%	6%	22%	23%	0.4%	17%
\$32,000 – \$53,999	17%	13%	20%	17%	5%	11%
\$54,000 - \$80,999	8%	20%	14%	10%	12%	3%
\$81,000 or more	5%	50%	16%	11%	63%	2%

Note: Rounding may cause totals to appear to be less than or more than 100%

Household Members Working Outside the Home

Table 9 presents the number of household members working outside the home as reported by survey respondents. Approximately 77% of Island Transit riders are from a household with at least one member working outside the home, as compared to 84% of METRO System riders and 95% of The Woodlands Express riders.

METRO Park & Ride and The Woodlands Express riders report the highest proportion of households with two or more members working outside the home (63% and 54% respectively). Forty-eight percent of METRORail and METRO Local riders and 37% of Island Transit riders report two or more household members working outside the home.

**Table 9
Household Members Working Outside the Home**

Household Workers	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	9%	2%	6%	8%	0.3%	9%
Zero	10%	2%	10%	9%	5%	15%
One	34%	34%	36%	35%	41%	40%
Two	30%	50%	31%	32%	45%	23%
Three	12%	10%	14%	12%	8%	10%
Four or more	6%	3%	3%	5%	1%	4%

Note: Rounding may cause totals to appear to be less than or more than 100%

Licensed Drivers in the Household

Island Transit has the highest percentage (30%) of riders from households with no licensed drivers (**Table 10**). This compares to 12% of METRO System riders and less than 1% of The Woodlands Express riders are from households with no licensed drivers. Ten percent of METRORail riders are from households with no licensed drivers.

**Table 10
Licensed Drivers in the Household**

Licensed Drivers	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	8%	2%	4%	7%	0.2%	10%
Zero	14%	1%	10%	12%	0.1%	30%
One	32%	15%	31%	31%	10%	33%
Two	28%	57%	37%	32%	63%	13%
Three	10%	17%	12%	11%	16%	10%
Four or more	7%	7%	6%	7%	10%	3%

Note: Rounding may cause totals to appear to be less than or more than 100%

Working Motor Vehicles

Table 11 shows the distribution of the number of working vehicles per household among the riders of different services.

Table 11
Working Motor Vehicles

Vehicles	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	5%	1%	2%	4%	0.8%	3%
Zero	44%	3%	26%	38%	0.2%	64%
One	30%	20%	35%	30%	10%	21%
Two	15%	51%	29%	20%	63%	8%
Three or more	6%	24%	8%	8%	25%	3%

Note: Rounding may cause totals to appear to be less than or more than 100%

Vehicle Availability

Seventy-two percent of METRO Local riders reported that a private vehicle was not available to make the surveyed trip. This compares to 49% of METRORail riders and 12% of METRO Park & Ride while 82% of Island Transit riders reported that a private vehicle was not available. Eighty-seven percent of METRO Park & Ride users and 95% of The Woodlands Express users had a private vehicle available to make the trip at the time of the survey. Forty-nine percent of METRORail riders had a private vehicle available for the same trip.

Table 12
Vehicle Available to Make This Trip

Vehicle Available	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	6%	0.7%	2%	5%	0.5%	4%
Yes	23%	87%	49%	32%	95%	14%
No	72%	12%	49%	63%	4%	82%

Note: Rounding may cause totals to appear to be less than or more than 100%

Patronage Duration

Table 13 shows that Island Transit has the highest percentage of riders using transit for more than five years (47%), as compared to 42% of METRO System riders and 39% of The Woodlands Express riders. Since METRORail opened just over three years ago, these riders have used bus and rail for more than five years.

Table 13
Length of Transit Patronage

Time	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	9%	1%	5%	8%	7%	9%
Less than 6 months	11%	10%	13%	12%	9%	12%
6-12 months	7%	8%	13%	8%	13%	5%
1-2 years	13%	15%	23%	15%	11%	11%
2-5 years	15%	23%	19%	16%	21%	16%
More than 5 years	44%	42%	27%	42%	39%	47%

TRAVEL CHARACTERISTICS

This section presents data profiling the travel characteristics of transit riders in 2007 by different service types.

Trip Origin

Of all survey respondents on METRO Local routes, 48% began the trip at home and 30% began the trip at work. The origins for METRORail were in similar proportion. For Island Transit survey respondents, 49% began the trip at home and 40% began the trip at work.

The third highest reported origin from these Weekday riders was school. Thirteen percent of METRORail respondents originated from school.

METRO Park & Ride and The Woodlands Express services were surveyed only in the AM period in the inbound direction. So riders on these services reported 90% or more origins to be from home.

**Table 14
Trip Origin**

Origin	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Work	30%	8%	29%	28%	4%	40%
Home	48%	90%	48%	52%	96%	49%
School	8%	0.6%	13%	8%	0.1%	0%
Medical	3%	0.2%	4%	3%	0%	6%
Visiting/ Recreational	3%	0.3%	3%	3%	0%	1%
Shopping Errands	4%	0.2%	1%	3%	0%	2%
Other	4%	0%	2%	3%	0%	3%

Note: Rounding may cause totals to appear to be less than or more than 100%

Trip Destination

Of all survey respondents on METRO Local routes, 35% were traveling to home and 35% were traveling to work. The destinations for METRO Rail were 30% to home and 35% to work, followed by 13% for school. For Island Transit survey respondents, 39% were going home and 22% were traveling to work.

METRO Park & Ride and The Woodlands Express services were surveyed only in the AM period in the inbound direction. So the proportion of riders traveling to work using METRO Park & Ride and The Woodlands Express services was 94% and 99% respectively.

**Table 15
Trip Destination**

Destination	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Work	35%	94%	35%	41%	99%	22%
Home	35%	3%	30%	31%	0.4%	39%
School	8%	2%	13%	8%	0%	1%
Medical	4%	0.3%	8%	4%	0.2%	7%
Visiting/ Recreational	5%	0.4%	4%	4%	0%	8%
Shopping Errands	7%	0.2%	5%	6%	0%	11%
Other	6%	0.3%	5%	6%	0.2%	12%

Transfers

Table 16 presents the data on transfers for different services. The data are provided for both transfers TO (access) and transfers FROM (egress) the surveyed route. If a survey respondent transferred for both access and egress, the statistic is reported also in each category. The transfer rates were highest for METRO Local and METRORail. Transfer rates were the lowest for The Woodlands Express and METRO Park & Ride.

Table 16
Transfers

Destination	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Access Transfers	44%	7%	42%	40%	0%	37%
Egress Transfers	41%	11%	33%	37%	1%	35%
Access and Egress Transfers	17%	2%	21%	16%	0%	18%

Access and Egress

This section presents data profiling the access and egress characteristics of transit riders in different services.

Access

Walking was the dominant mode of access for METRO Local, METRORail, and Island Transit services while driving alone was the dominant mode of access for METRO Park & Ride and The Woodlands Express services (**Table 17**). On average, those who walked to METRO Local, METRORail, and Island Transit walked 2.5 blocks or less (**Table 18**). Those who walked to catch METRO Park & Ride and The Woodlands Express walked longer distances.

Riders on METRO Park & Ride and The Woodlands Express drove 6.4 and 6.3 miles, respectively. Those who drove to access transit service for Island Transit and METRORail drove longer distances, 20.8 miles and 10.9 miles, respectively. This is explained by riders who drive to a parking lot and then use the transit service as a shuttle to work or school.

It is important to note that because METRO Park & Ride and The Woodlands Express trips were surveyed in the AM, the access mode shares and distances are accurate for the AM inbound direction.

Table 17
Access Mode

Access Mode	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Drove	9%	90%	28%	19%	97%	1%
Rode	11%	3%	8%	10%	2%	9%
Bicycled	0.4%	0.2%	0.6%	0.4%	0%	0.4%
Walked	80%	6%	63%	71%	0.8%	90%

Note: Rounding may cause totals to appear to be less than or more than 100%

Table 18
Access Distance

Access Mode	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Drove	9.0 miles	6.4 miles	10.9 miles	7.8 miles	6.3 miles	20.8 miles
Rode	8.5 miles	4.5 miles	10.1 miles	8.3 miles	3.4 miles	11.6 miles
Bicycled	2.8 miles	1.5 miles	2.2 miles	2.5 miles	None	1.5 miles
Walked	2.5 blocks	3.8 blocks	2.4 blocks	2.5 blocks	8.5 blocks	2.5 blocks

Egress

Walking was the dominant mode of egress on all services (**Table 19**). In general, the egress distances walked were slightly less than the access distances except for Island Transit (**Table 20**). Island transit had the longest egress distance for driving alone (15.4 miles). The Woodlands Express had the longest egress distance for riding as a passenger (20.7 miles). METRORail had longest egress distances for driving alone (9.8 miles) and riding as a passenger (11.2 miles) among METRO services.

It is important to note that because METRO Park & Ride and The Woodlands Express trips were surveyed in the AM, the egress mode shares and distances are accurate for the AM inbound direction.

Table 19
Egress Mode

Egress Mode	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Drove	4%	3%	17%	6%	3%	2%
Rode	8%	1%	7%	7%	0.8%	14%
Bicycled	0.2%	0.1%	0.1%	0.2%	0%	0.2%
Walked	87%	95%	76%	87%	97%	84%

Note: Rounding may cause totals to appear to be less than or more than 100%

Table 20
Egress Distance

Egress Mode	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Drove	8.5 miles	7.3 miles	9.8 miles	8.8 miles	8.7 miles	15.4 miles
Rode	9.1 miles	6.3 miles	11.2 miles	9.2 miles	20.7 miles	4.1 miles
Bicycled	3.0 miles	1.0 miles	1.7 miles	2.8 miles	None	2.0 miles
Walked	2.2 blocks	1.9 blocks	2.3 blocks	2.2 blocks	2.1 blocks	2.6 blocks

Boardings

Table 21 presents 2007 unlinked trips (boardings) for average weekday by service type. METRO Local has the dominant share of the regional transit market (78%) while METRO Rail came in second at 11%.

Table 21
Boardings

Service Type	Boardings	Percent of Total
METRO Local	255,548	78%
METRO P& R	31,434	10%
METRO Rail	36,996	11%
TWEx	2,043	0.6%
Island Transit	2,994	0.9%

Note: Rounding may cause totals to appear to be less than or more than 100%

Frequency of Use

Thirty-seven percent of METRO System riders use transit 5 days per week and 31% use transit 6 or 7 days per week. Twenty-five percent of Island Transit use transit 5 days per week and 31% use transit 6 or 7 days per week. Seventy-five percent of The Woodland Express and 80% of the METRO Park & Ride riders use the transit service every weekday.

Table 22
Frequency of Use

Frequency	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
No Response	9%	1%	4%	7%	0.6%	9%
6 or 7 days per week	36%	5%	24%	31%	3%	31%
5 days per week	31%	80%	41%	37%	75%	25%
3 or 4 days per week	15%	12%	18%	15%	19%	21%
1 or 2 days per week	5%	1%	5%	5%	2%	9%
1 or 2 days per month	1%	0.2%	3%	1%	0.2%	0.4%
Once in a while	3%	0.5%	6%	3%	0.9%	5%
This is my first time	0.5%	0.1%	0.1%	0.4%	0%	0.5%

Note: Rounding may cause totals to appear to be less than or more than 100%

Customer Opinion on Transit Service

Table 23 presents survey respondents' opinions on transit service through their agreements with different statements related to transit service. While a majority of riders on all services have a positive evaluation of their public transit experience, The Woodlands Express and METRO Park & Ride services have the highest proportion of positive evaluations. METRORail ranked second in positive evaluation among the METRO services.

It is worthwhile to note that 80% of METRO Park & Ride respondents utilize the Internet to gain information on routes and schedules. The Woodlands Express (68%) and METRORail (49%) respondents are the second and third highest Internet users. Fifty-one percent of METRO System as a whole uses the Internet for transit information.

Table 23
Agreement with Customer Opinion Statements

Agree or Strongly Agree with the Following Statements	METRO Local	METRO P & R	METRO Rail	METRO System	TWEx	Island Transit
Transit Services operate on time	56%	84%	81%	61%	95%	51%
I feel safe when riding the bus or rail	76%	96%	77%	78%	97%	73%
Drivers are helpful and friendly	67%	87%	73%	70%	97%	64%
Vehicles are clean	59%	91%	68%	64%	96%	56%
I use the Internet for route/schedule information.	45%	80%	55%	51%	68%	22%

Transit Use Because of METRORail

Table 24 presents the percentage of riders who chose to use transit service because of the availability of METRORail service. Forty percent of METRORail users said "Yes" to the statement "I started using transit because of METRORail".

Table 24
Transit Use Because of METRORail

Survey Respondents Answered YES	METRO Local	METRO P & R	METRO Rail	METRO System
I started using transit because of METRORail	12%	4%	41%	14%