

4.0 PEER REVIEW

The peer and trend analysis are performed to evaluate the efficiency and effectiveness of the transit agency as compared to peer agencies and to its own past performance. Data for the peer and trend comparisons are derived from the National Transit Database (NTD), which is a standard database maintained by the Federal Transit Administration (FTA) and to which all US Federally-funded transit agencies must provide information each year.

4.1 Peer and Trend Analysis

In the peer comparison, various operating and service statistics for MDT's transit modes were compared to a list of Florida and national peer agencies based on NTD data for 2007 (the most current data available as of July 2009). The peer comparison considered four of the transit modes operated by MDT: bus, heavy rail, automated guideway and ADA/demand-response service. Bus rapid transit service, which is operated by MDT and several of the peer agencies, is not separated from other bus services in the NTD data at this time, and therefore cannot be analyzed as a separate mode.

The peer agencies were selected based on the similarity of the city in size and development pattern, the similarity of the transit system in the modes operated (such as bus and rail), the size of the transit system in terms of the number of vehicles operated, number of miles and hours of service operated, size of budget and other characteristics.

The agencies selected as Metrobus peers include the following:

- Broward County Transit (BCT) (Pompano Beach, Florida)
- Dallas Area Rapid Transit (DART) (Dallas, Texas)
- Jacksonville Transit Authority (JTA) (Jacksonville, Florida)
- King County Metro (Seattle, Washington)
- Denver Regional Transportation District (Denver, Colorado)
- Metropolitan Atlanta Rapid Transit Authority (MARTA) (Atlanta, Georgia)
- Metropolitan Transit Authority (MTA) (Baltimore, Maryland)
- Massachusetts Bay Transit Authority (MBTA) (Boston, Massachusetts)
- Washington Metropolitan Area Transit Authority (WMATA) (Washington, DC)

The agencies selected as Metrorail (heavy rail) peers include the following:

- Metropolitan Atlanta Rapid Transit Authority (MARTA) (Atlanta, Georgia)
- Metropolitan Transit Authority (MTA) (Baltimore, Maryland)
- Massachusetts Bay Transit Authority (MBTA) (Boston, Massachusetts)
- Washington Metropolitan Area Transit Authority (WMATA) (Washington, DC)

The agencies selected as Metromover (automated guideway) peers include the following:

- JTA (Jacksonville, Florida)
- Detroit Transportation Corporation (DTC) (Detroit, Michigan)
- Las Vegas Monorail Company (LVMC) (Las Vegas, Nevada)

For ADA/Demand Response service, the following peer agencies were considered:

- BCT (Pompano Beach, Florida)
- Lynx (Orlando, Florida)
- JTA (Jacksonville, Florida)
- Santa Clara Valley Transportation Authority (VTA) (San Jose, California)
- Orange County Transportation Authority (OCTA) (Orange County, California)
- Regional Transportation Commission (RTC) (Las Vegas Nevada)

A trend analysis was also performed for the MDT modes of transit service (Metrobus, Metrorail, Metromover, and Demand Response) that were examined in the peer comparison. The trend analysis utilized the most recent data from MDT dating from the last six (6) years from 2003 through 2008.

4.2 Findings Summary

This peer and trend review of MDT's service indicates that MDT's services generally fall within the normal range for its peers and that trends are generally positive or normal for the time period analysis. The analyses indicate several significant findings to include the following:

- Several of the efficiency statistics for fixed route Metrobus service indicate MDT may be offering more service than is warranted for the existing level of ridership. However, this is tempered by noting MDT has reduced the volume of Metrobus service between 2006 and 2008. The result is that passenger trips have held steady even with decreases in the volume of service offered as measured in vehicle revenue hours and miles of bus service.
- MDT's Metrorail service has low passenger productivity and a high cost per passenger trip and farebox recovery ratio in comparison with the peer agencies operating rail service.
- MDT's demand response service carries far more passengers than its peers and is well within the range of its peers in terms of efficiency and productivity. This service has grown dramatically over the period of this analysis without suffering significant reduction in its productivity or efficiency.
- Trip lengths for demand response service increased significantly over the time period. This is probably due to service expansion to previously unserved areas of Miami-Dade County.

4.3 Bus Peer Comparison and Trends

Table 4-1, below, compares MDT to a number of selected peer agencies in terms of a wide range of statistics related to their operation of fixed-route bus service. Table 4-2 shows the trend for the six most recent years of data available from the NTD for the operation and performance of MDT's fixed-route Metrobus service.

The trend analysis allows us to assess how the service is changing over recent years and can suggest potential areas of service that should be examined or changed to improve performance.

Table 4-1: Bus Peer Comparison

Agency	MDT	BCT	JTA	MARTA	King County Metro	DART	WMATA	MBTA	MD MTA	RTD	Peer Mean	
City	Miami, FL	Pompano Beach, FL	Jacksonville, FL	Atlanta, GA	Seattle, WA	Dallas, TX	Washington, DC	Boston, MA	Baltimore, MD	Denver, CO		
NTD Number	4034	4029	4040	4022	0001	6056	3030	1003	3034	8006		
Unlinked Passenger Trips	83,458,376	41,608,063	10,171,201	69,464,584	87,187,816	53,266,534	133,695,295	98,968,436	80,186,666	73,966,662	64,922,953	
Average Age (yrs.) of Bus Fleet	5.2	6.0	7.0	5.4	7.5	7.3	6.9	6.0	5.8	5.6	6.5	
Passenger Miles Traveled	427,626,902	179,376,141	59,798,493	208,464,179	466,541,901	241,312,509	416,055,395	214,521,392	347,986,479	396,495,470	241,080,459	
Average Passenger Trip Length	5.12	4.31	5.88	3.00	5.35	4.53	3.11	2.17	4.34	5.36	4.04	
Vehicle Revenue Hours	2,923,018	1,254,275	633,474	1,941,988	2,665,597	1,990,866	3,500,518	2,475,496	1,826,011	2,794,724	1,840,879	
Vehicle Revenue Miles	35,654,448	16,879,810	9,638,777	23,709,913	32,168,736	27,666,962	38,939,524	26,455,779	23,952,488	38,609,744	22,541,779	
Passenger Trips Per Revenue Hours	28.55	33.17	16.06	35.77	32.71	26.76	38.19	39.98	43.91	26.47	33.49	
Passenger Trips Per Revenue Miles	2.34	2.46	1.06	2.93	2.71	1.93	3.43	3.74	3.35	1.92	2.71	
Operating Costs Per Passenger Trip	\$3.83	\$2.35	\$6.00	\$2.69	\$4.02	\$3.98	\$3.64	\$3.06	\$3.08	\$3.60	\$3.54	
Operating Costs Per Revenue Hour	\$109.25	\$77.84	\$96.26	\$96.28	\$131.53	\$106.44	\$138.97	\$122.27	\$135.36	\$95.21	\$112.25	
Weekend Service Availability	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0445-0020) Sun (0645-2221)	Yes Sat (0407-0148) Sun (0442-0148)	Yes Sat (0545-2035) Sun (0615-2025)	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0332-0152) Sun (0421-0132)	Yes Sat (0341-0418) Sun (0351-0340)	Yes Sat (0251-0159) Sun (0251-0159)	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0000-2359) Sun (0000-2359)	
Operating Expenses	\$319,327,599	\$97,636,578	\$60,981,288	\$186,974,438	\$350,596,717	\$211,906,909	\$486,460,600	\$302,678,564	\$247,174,370	\$266,072,700	\$219,318,971	
Maintenance Expenses	\$86,883,261	\$19,116,420	\$11,653,623	\$49,880,978	\$77,626,420	\$54,625,273	\$156,199,024	\$83,139,248	\$59,151,496	\$53,382,646	\$57,444,647	
Fare Revenues	\$71,186,530	\$19,544,418	\$7,294,731	\$51,154,855	\$74,158,688	\$27,613,779	\$106,824,203	\$71,008,548	\$72,597,527	\$58,675,609	\$48,378,939	
Farebox Recovery	22.29%	20.02%	11.96%	27.36%	21.15%	13.03%	21.96%	23.46%	29.37%	22.05%	20.67%	

Data Source: NTD (2003-07)

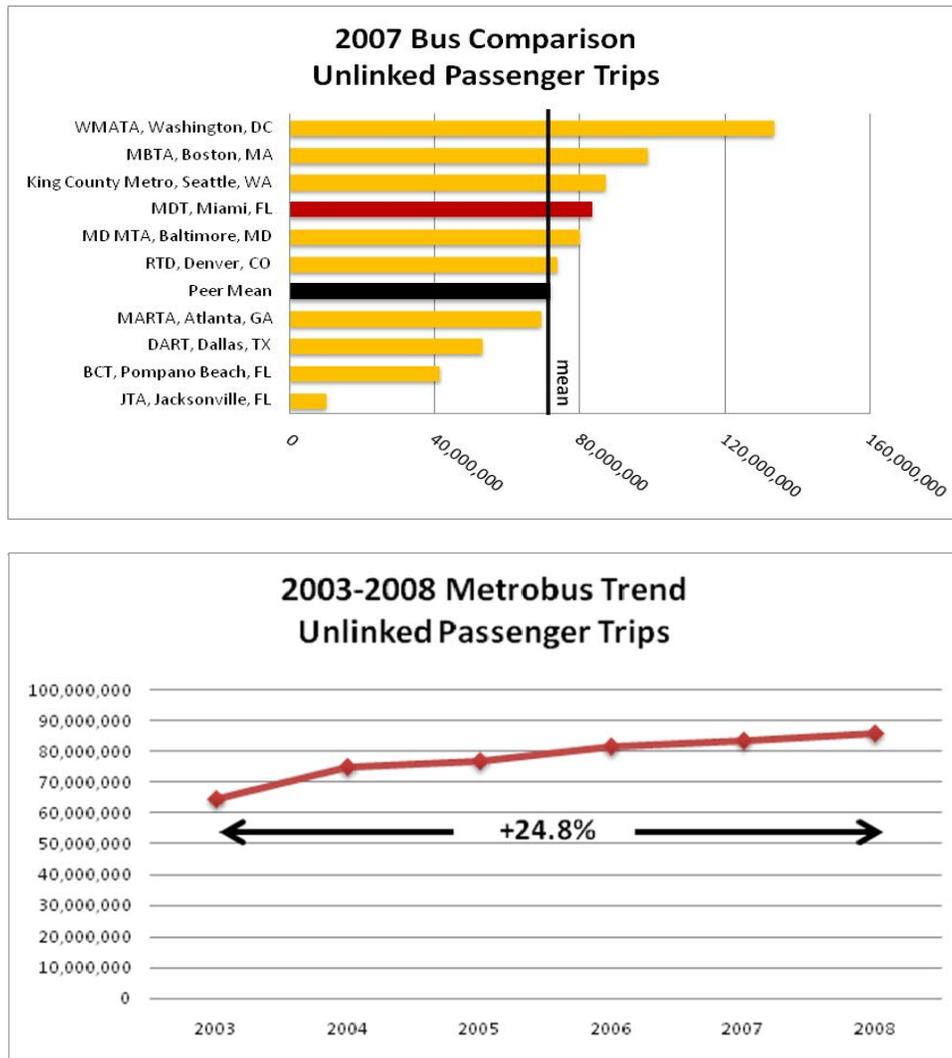
Table 4-2: MDT Metrobus 2003-2008 Trends

Performance Measures	2003	2004	2005	2006	2007	2008
Unlinked Passenger Trips	64,546,632	75,137,426	76,752,965	81,637,435	83,458,376	85,789,745
Average Age (yrs.) of Bus Fleet	5.3	4.6	4.8	4.5	5.2	5.0
Passenger Miles Traveled	279,410,583	296,888,711	324,237,445	348,022,328	427,626,902	426,400,600
Average Passenger Trip Length	4.33	3.95	4.22	4.26	5.12	4.97
Vehicle Revenue Hours	2,336,218	2,535,807	2,731,978	2,949,999	2,923,018	2,752,703
Vehicle Revenue Miles	27,506,309	31,100,472	34,222,523	36,825,387	35,654,448	33,407,289
Passenger Trips Per Revenue Hours	27.63	29.63	28.09	27.67	28.55	31.17
Passenger Trips Per Revenue Miles	2.35	2.42	2.24	2.22	2.34	2.57
Operating Costs Per Passenger Trip	\$3.32	\$3.05	\$3.40	\$3.79	\$3.83	\$3.94
Operating Costs Per Revenue Hour	\$91.78	\$90.48	\$95.45	\$104.87	\$109.25	\$122.75
Weekend Service Availability	Yes Sat (0000-2359) Sun (0000-2359)					
Operating Expenses	\$214,417,916	\$229,427,318	\$260,756,940	\$309,379,653	\$319,327,599	\$337,894,421
Maintenance Expenses	\$53,940,300	\$54,121,421	\$63,582,082	\$79,541,514	\$86,883,261	\$91,115,200
Fare Revenues	\$53,855,926	\$58,074,979	\$73,220,122	\$69,344,312	\$71,186,530	\$71,722,693
Farebox Recovery	25.12%	25.31%	28.08%	22.41%	22.29%	21.23%

Data Source: NTD (2003-07) and MDT (2008)

The graph in Figure 4-1 shows peer agencies and MDT trends in terms of unlinked passenger trips. As the graphic shows, MDT's Metrobus service carries a higher number of passenger trips compared to the peer mean. MDT's Metrobus service is most similar to Seattle, Atlanta and Baltimore in the number of unlinked passenger trips that its bus system serves. The Washington, DC and Boston bus systems serve significantly more riders than MDT, while the Jacksonville and Broward systems serve only a fraction of the number served by MDT. MDT unlinked passenger trips have increased 24.8 percent (24.8%) over the 2003-08 time period.

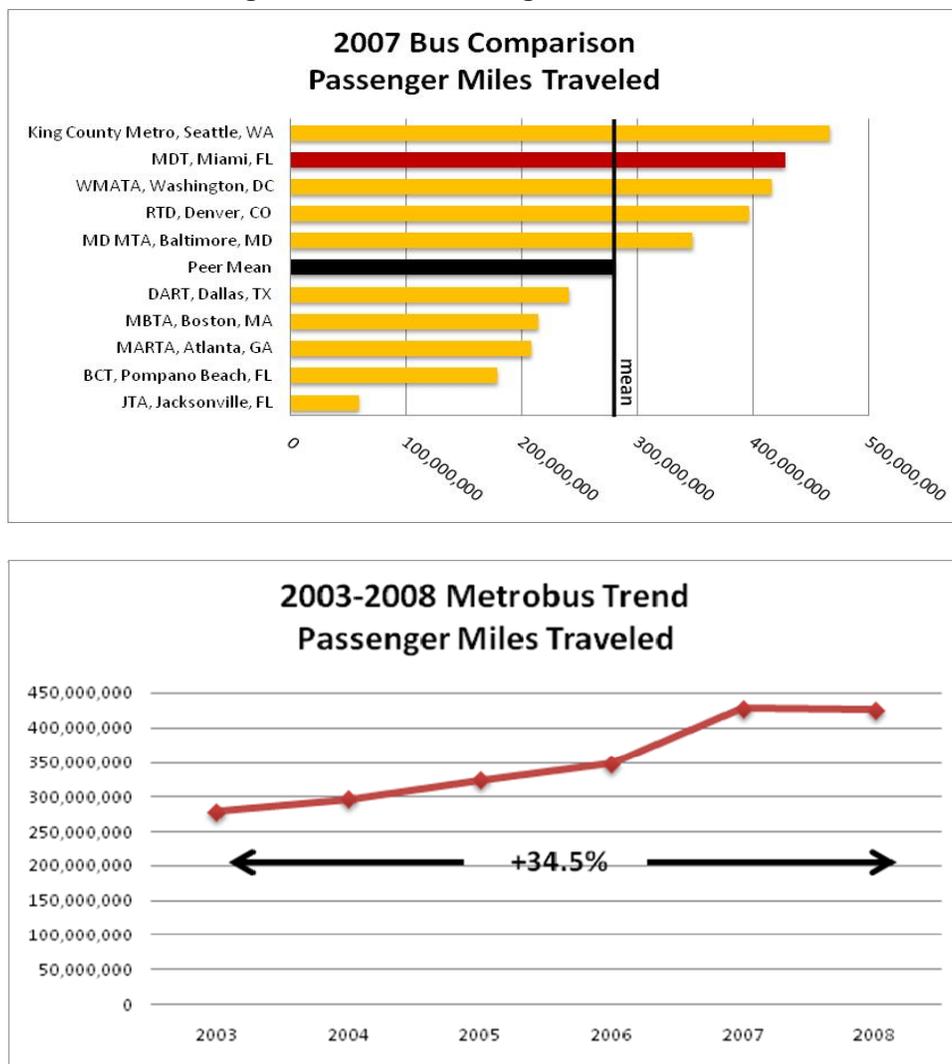
Figure 4-1: Bus Unlinked Passenger Trips



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-2 shows passenger miles traveled. MDT's system is one of the most productive in terms of total passengers carried, carrying more passenger miles than all of the peer agencies except for Seattle. Given that the number of total passenger trips is lower for MDT than for several other systems, this indicates that MDT customers tend to make longer trips than their counterparts in most of the other peer cities. Passenger miles have increased for MDT approximately 34.5 percent (34.5%) between 2003 and 2008. This increase is mainly attributed to the implementation of the Miami-Dade County People's Transportation Plan (PTP). However, beginning in 2005, the amount of service miles are being reduced by MDT. Passenger miles have increased at a greater rate than unlinked passenger trips indicating that the average length of a bus passenger trip is rising.

Figure 4-2: Bus Passenger Miles Traveled

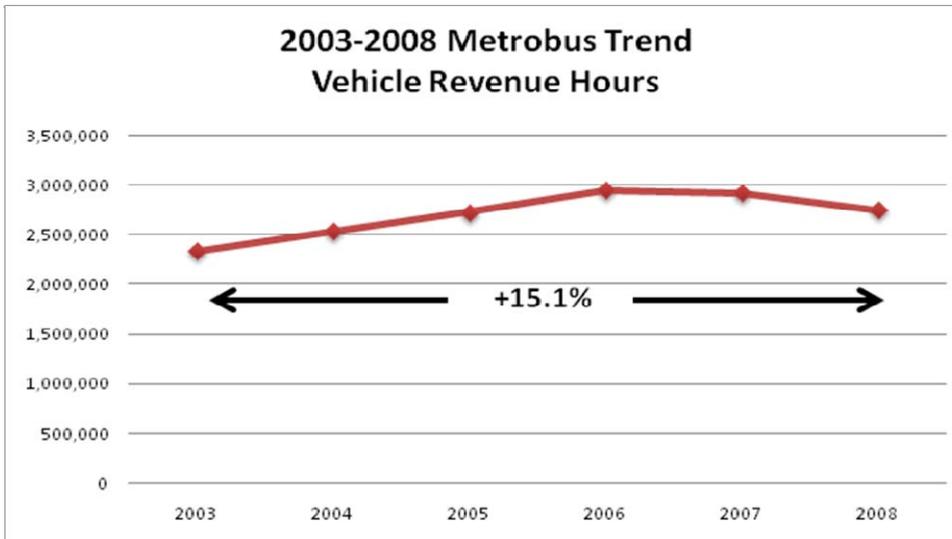
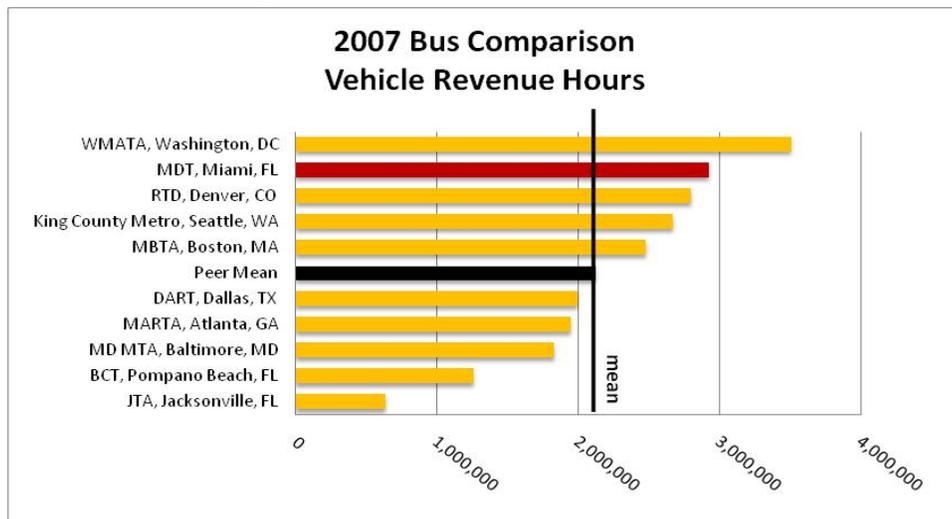


Data Source: NTD (2003-07) and MDT (2008)

Figure 4-3 and Figure 4-4 show the number of annual vehicle revenue hours and miles on bus for each of the peer transit systems. As the figure shows, MDT operates more Metrobus service, as expressed in terms of revenue vehicle hours and miles of service, than any of the peer agencies except WMATA.

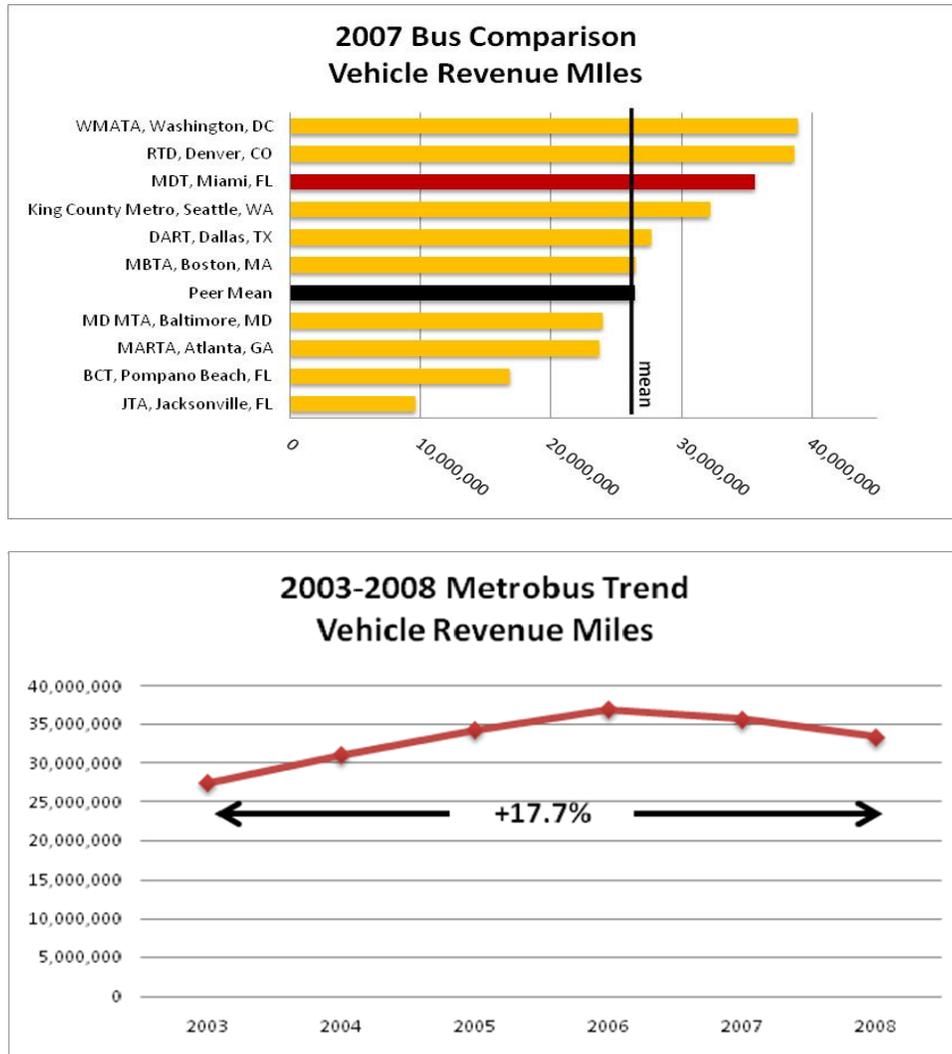
The trend for MDT's revenue hours and miles indicate the volume of Metrobus service increased steadily between 2004 and 2006 before dropping slightly between 2006 and 2008. Overall, vehicle hours increased by 15.1 percent (15.1%) between 2003 and 2008, while vehicle miles increased slightly more, by 17.7 percent (17.7%) -- indicating that the average route length increased slightly over the time period.

Figure 4-3: Bus Vehicle Revenue Hours



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-4: Bus Vehicle Revenue Miles



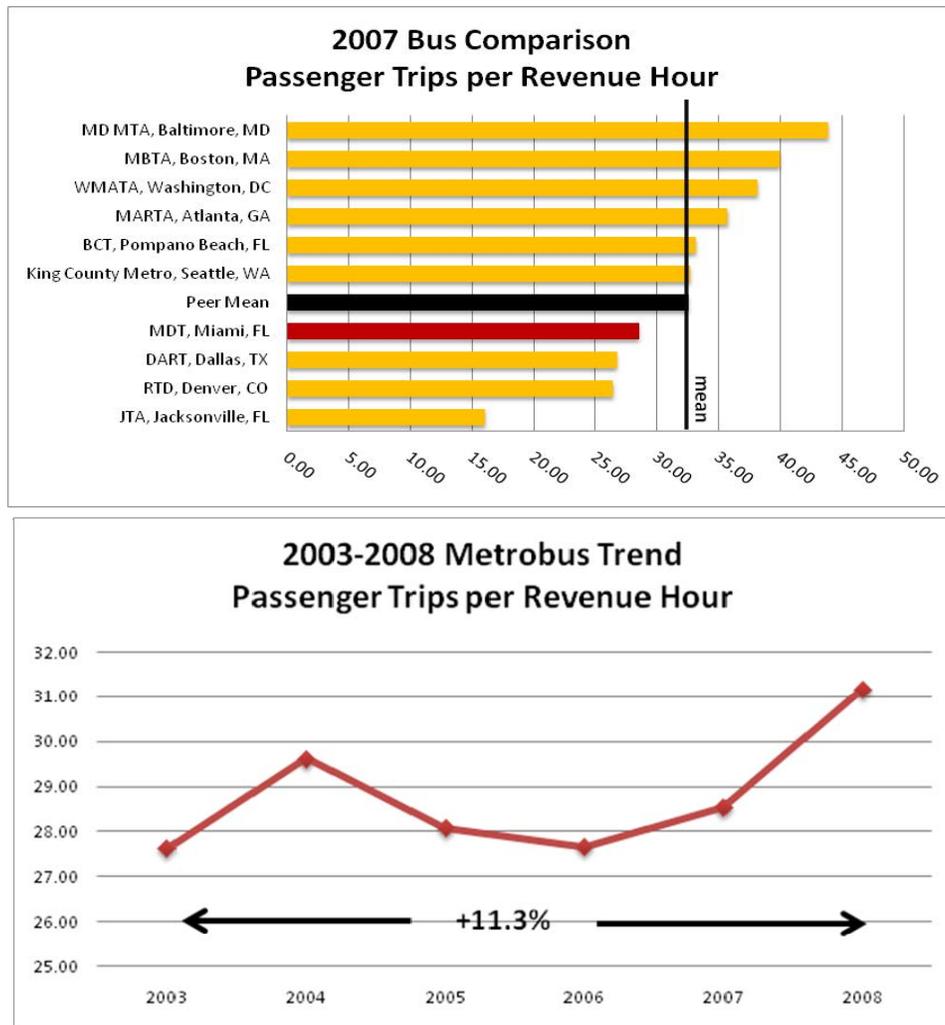
Data Source: NTD (2003-07) and MDT (2008)

Figure 4-5 and Figure 4-6 show the average number of passenger trips per revenue hour and mile. As these figures show, the high number of revenue hours and miles of service operated relative to the system ridership translate into lower than average performance for MDT compared to its peers on these important service efficiency measures. MDT is lower in terms of passenger trips per vehicle hour and mile than all of the peer agencies except Jacksonville and Dallas.

The trend for passenger trips per hour is an increase of 11.3 percent (11.3%). As the graph shows, productivity grew between 2003 and 2004, declined in 2005 and 2006, and then rose between 2006 and 2008.

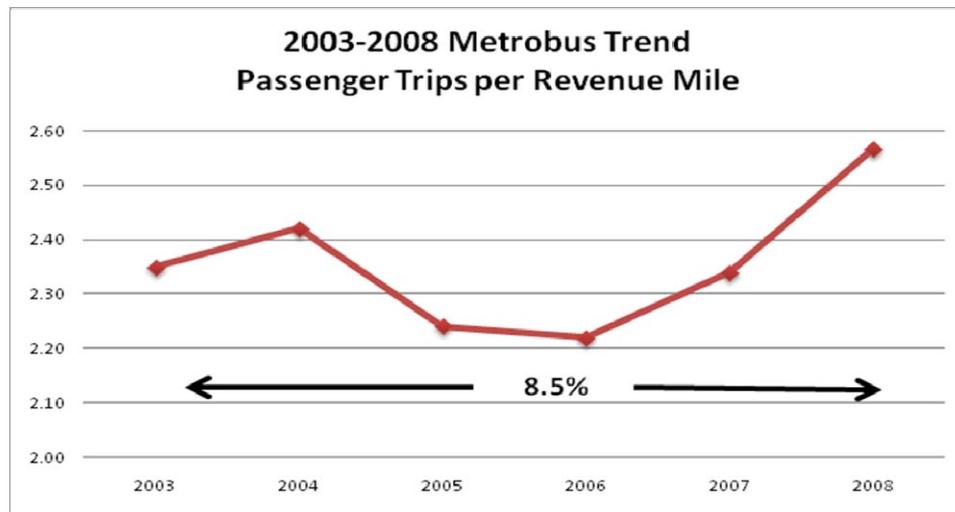
The trend for passenger trips per revenue mile rose between 8.5 percent (8.5%) between 2003 and 2008. The trend is similar to passenger trips per revenue hour, with a decrease in productivity in the middle of the decade and increases in productivity between 2006 and 2008 due to decreases in revenue hours and miles.

Figure 4-5: Bus Passenger Trips per Revenue Hour



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-6: Bus Passenger Trips per Revenue Mile

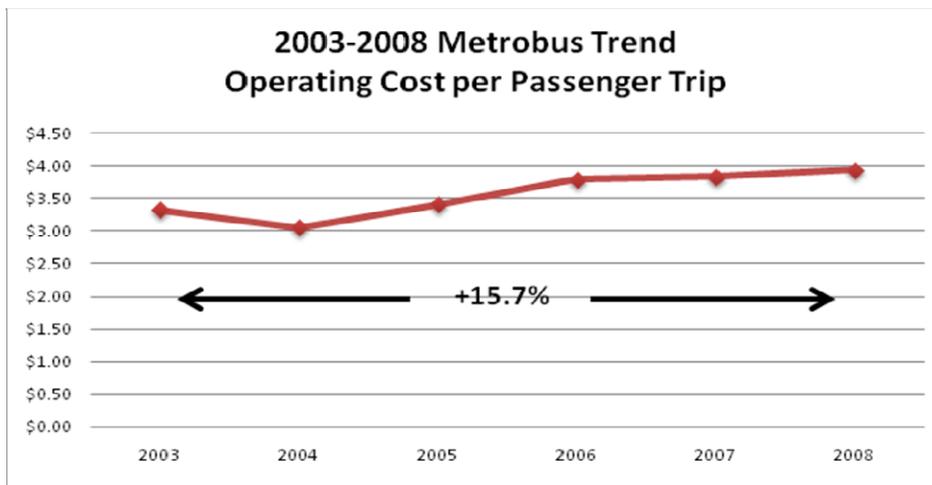
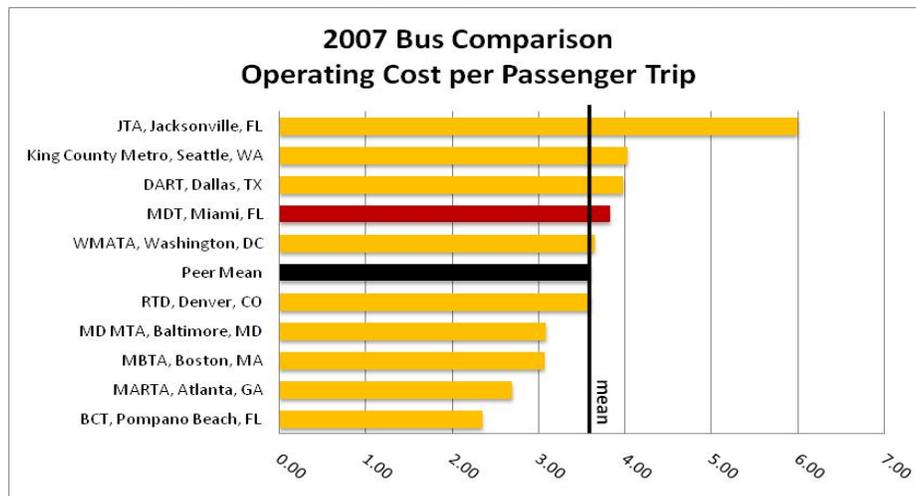


Data Source: NTD (2003-07) and MDT (2008)

Figure 4-7, which shows that MDT’s operating cost per passenger trip, and Figure 4-8, which shows operating cost per revenue mile, place MDT slightly above the average of the peer group in terms of operating efficiency. MDT’s Metrobus cost per passenger trip, \$3.94, is significantly lower than that of Jacksonville, lower than the Seattle and Dallas systems, and only slightly higher than WMATA. MDT’s cost per revenue hour is slightly below the average for the peer group and is lower than that of Seattle, Washington, DC, Boston and Baltimore and on par with Dallas.

The trend for cost per passenger trip dropped significantly (by 9%) as the ridership increased between 2003 and 2004. Cost per passenger trip then rose steadily between 2004 and 2007, before finally leveling off between 2007 and 2008. This is attributed to the increase of service that was required under the passage of the People’s Transportation Plan, as opposed to an indication of falling route productivity. Overall, between 2003 and 2008 the operating cost per passenger trip increased 15.7 percent (15.7%).

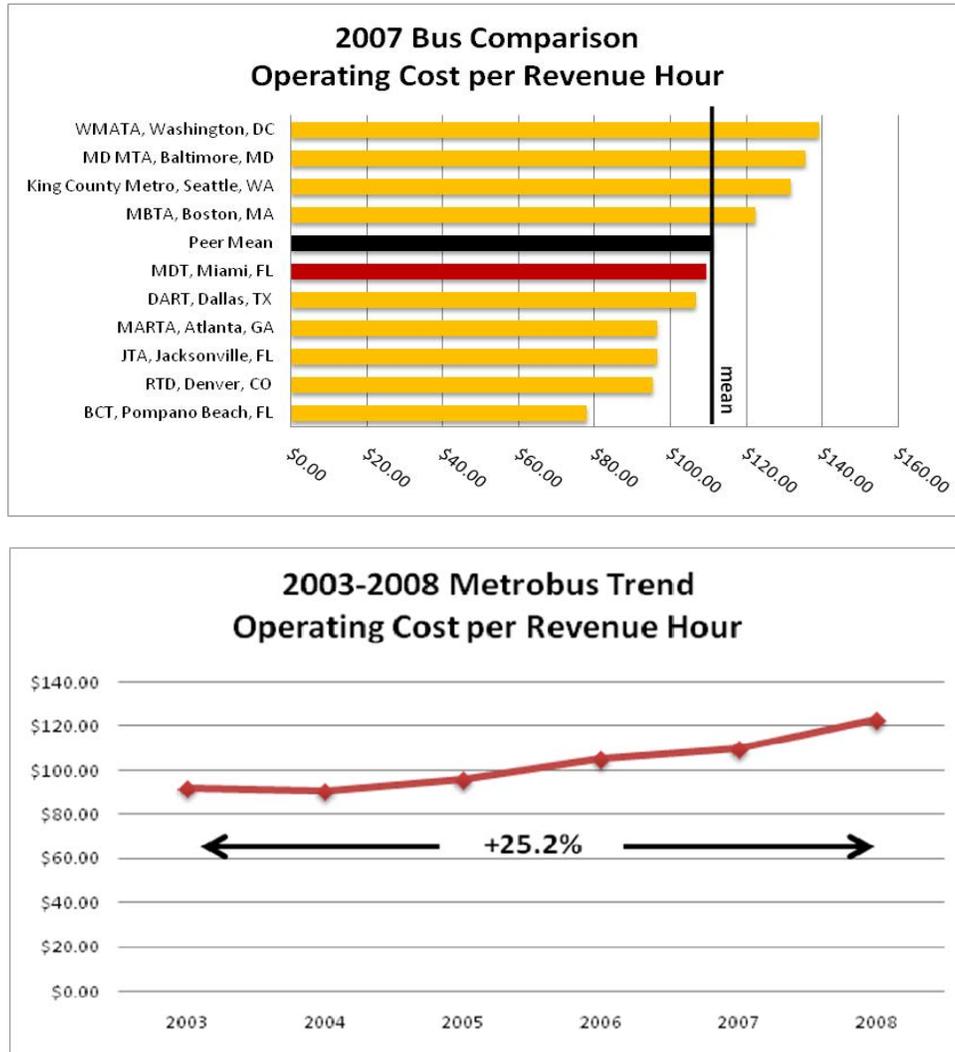
Figure 4-7: Bus Operating Cost per Passenger Trip



Data Source: NTD (2003-07) and MDT (2008)

The trend for operating cost per revenue hour dipped between 2003 and 2004, then increased steadily from 2004 to 2008. The overall 2003-08 increase is 25.2 percent (25.2%). (Figure 4-8)

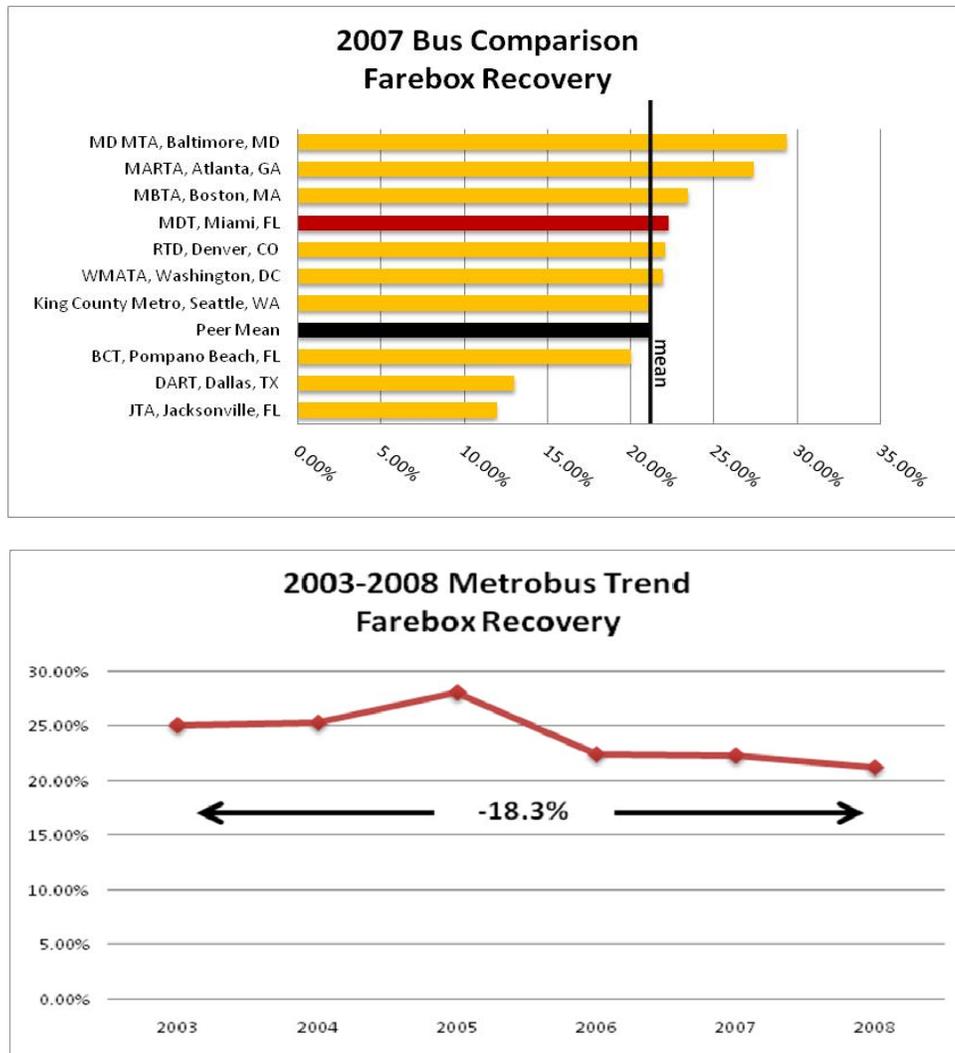
Figure 4-8: Bus Operating Cost per Revenue Hour



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-9 shows the peer comparison for farebox recovery ratio (the ratio of collected fares to total operating cost) for bus. As the graph shows, MDT is slightly better than the average on this measure. MDT's farebox recovery, at 22.3 percent (22.3%) for 2007, is significantly better than Jacksonville and Dallas (each of which posted a farebox recovery ratio for bus below 20%) and on par with Denver and WMATA. Boston, Baltimore and MARTA had higher farebox recovery ratios; however, none of the agencies reached a farebox recovery ratio of 30 percent (30%).

Figure 4-9: Bus Farebox Recovery Ratio



Data Source: NTD (2003-07) and MDT (2008)

Farebox recovery ratio increased slightly between 2003 and 2005, tracking with the ridership increases that were experienced in that period. Then, farebox recovery ratio fell between 2005 and 2007. Overall trend shows farebox recovery ratio dropped 18.3 percent (18.3%) between 2003 and 2008. This is an indication of rising operating costs relative to ridership. The 2005 fare increase resulted in increased passenger fare revenues, but was also coupled with increased operating costs. Furthermore, this reduction of MDT's farebox recovery is attributed to the increase of riders that became eligible for free passenger fares (i.e., golden passport passengers). The result is a downward trend in farebox recovery for the six year trend period.

In 2007, MDT had begun to reduce bus with additional reductions occurring in 2008 and programmed for 2009 which has resulted in increases to MDT's productivity measures. As a result, MDT is now more in line with peer agencies. On other measures MDT's Metrobus service is performing adequately or slightly better than other members of the peer group.

4.4 Heavy Rail Peer Comparison and Trends

Table 4-3, below, compares statistics for MDT Metrorail (heavy rail) service with those peer agencies that also operate heavy rail service. Only four (4) of the ten (10) selected peer agencies selected for this analysis operated heavy rail transit service in 2007, and these are listed in Table 3-1.

MDT is, in fact, one of only a handful of transit agencies that operate heavy rail transit in the US. Most of the other cities that operate heavy rail transit in the US are represented in the peer group.

Table 4-4 shows the trend in operating and service statistics for the six most recent years MDT's Metrorail system.

Table 4-3: Heavy Rail Peer Comparison

Agency	MDT	MARTA	WMATA	MBTA	MD MTA	Peer Mean
City	Miami, FL	Atlanta, GA	Washington, DC	Boston, MA	Baltimore, MD	
NTD Number	4034	4022	3030	1003	3034	
Unlinked Passenger Trips	17,504,736	77,685,887	276,440,693	143,666,785	13,158,501	127,737,967
Average Age (yrs.) of Bus Fleet						
Passenger Miles Traveled	134,407,819	541,418,734	1,590,316,851	514,157,854	65,783,472	677,919,228
Average Passenger Trip Length	7.68	6.97	5.75	3.58	5.00	5.33
Vehicle Revenue Hours	359,326	833,235	2,636,654	1,464,328	190,559	1,281,194
Vehicle Revenue Miles	8,354,432	21,993,495	67,029,516	21,063,667	4,735,303	28,705,495
Passenger Trips Per Revenue Hour	48.72	93.23	104.85	98.11	69.05	91.31
Passenger Trips Per Revenue Mile	2.10	3.53	4.12	6.82	2.78	4.31
Operating Costs Per Passenger Trip	\$4.61	\$2.21	\$2.52	\$1.82	\$3.84	\$2.60
Operating Costs Per Revenue Hour	\$224.39	\$205.98	\$264.10	\$178.34	\$265.27	\$228.42
Weekend Service Availability	Yes Sat (0530-0045) Sun(0530-0045)	Yes Sat (0416-0216) Sun (0416-0157)	Yes Sat (0654-0340) Sun (0654-0040)	Yes Sat (0501-0133) Sun (0538-0138)	Yes Sat (0407-0056) Sun (0407-0056)	
Operating Expenses	\$80,628,996	\$171,626,175	\$696,335,404	\$261,148,955	\$50,550,360	\$294,915,224
Maintenance Expenses	\$34,272,813	\$68,708,871	\$356,791,820	\$115,537,310	\$25,727,156	\$141,691,289
Fare Revenues	\$13,435,411	\$50,462,915	\$404,837,785	\$125,471,260	\$12,429,257	\$148,300,304
Farebox Recovery	16.66%	29.40%	58.14%	48.05%	24.59%	40.04%

Data Source: NTD (2003-07)

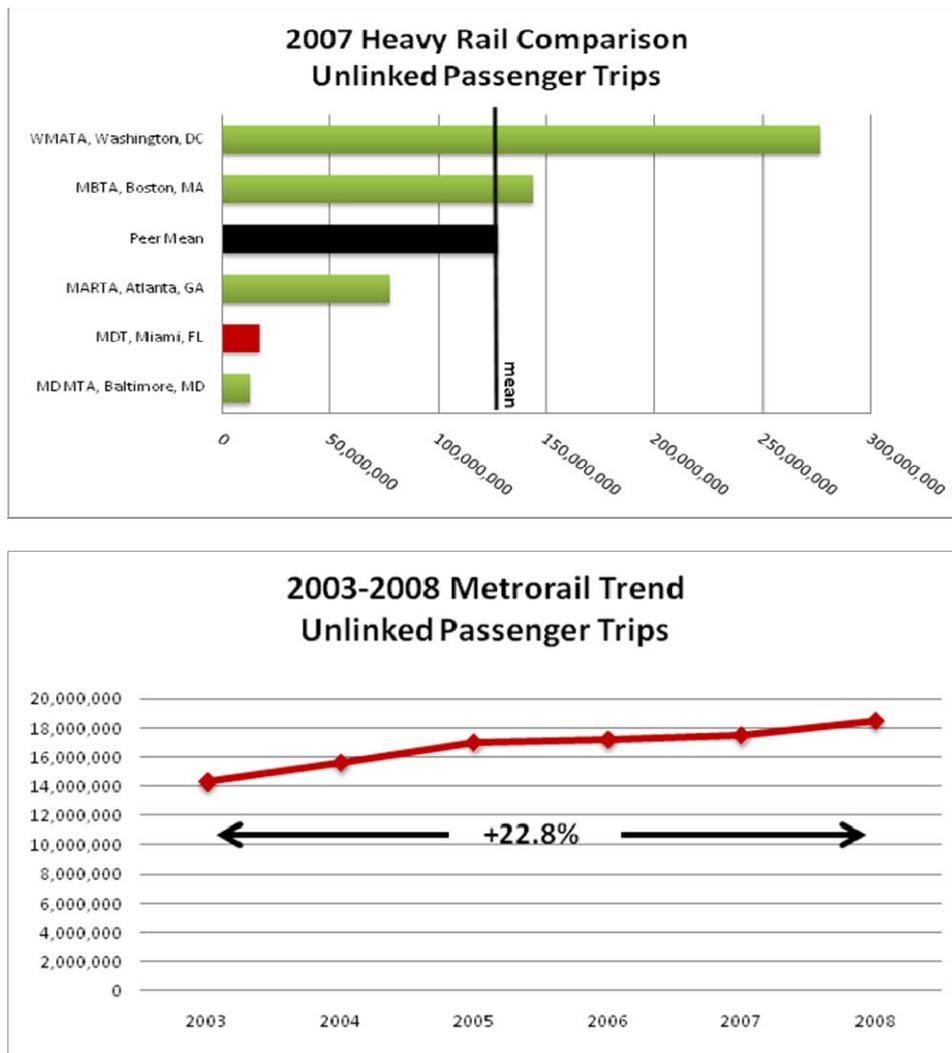
Table 4-4: MDT Metrorail 2003-2008 Trends

Performance Measures	2003	2004	2005	2006	2007	2008
Unlinked Passenger Trips	14,306,084	15,637,516	17,034,513	17,234,962	17,504,736	18,538,741
Average Age (yrs.) of Bus Fleet	21.0	22.0	23.0	24.0	25.0	26.0
Passenger Miles Traveled	109,218,683	121,822,960	134,854,478	131,446,453	134,407,819	142,152,120
Average Passenger Trip Length	7.63	7.79	7.92	7.63	7.68	7.67
Vehicle Revenue Hours	310,162	386,495	395,072	405,539	359,326	318,765
Vehicle Revenue Miles	7,701,190	9,112,334	9,345,661	9,690,079	8,354,432	7,158,361
Passenger Trips Per Revenue Hours	46.12	40.46	43.12	42.50	48.72	58.16
Passenger Trips Per Revenue Miles	1.86	1.72	1.82	1.78	2.10	2.59
Operating Costs Per Passenger Trip	\$4.61	\$3.93	\$4.22	\$4.35	\$4.61	\$4.44
Operating Costs Per Revenue Hour	\$212.43	\$158.96	\$181.83	\$185.00	\$224.39	\$258.44
Weekend Service Availability	Yes Sat (0000-2459) Sun(0000-2359)	Yes Sat (0530-0045) Sun(0530-0045)				
Operating Expenses	\$65,889,174	\$61,437,722	\$71,834,407	\$75,026,360	\$80,628,996	\$82,381,902
Maintenance Expenses	\$33,575,474	\$29,248,272	\$32,432,774	\$33,093,977	\$34,272,813	\$36,316,586
Fare Revenues	\$9,665,282	\$10,026,596	\$11,432,839	\$19,665,320	\$13,435,411	\$13,246,540
Farebox Recovery	14.67%	16.32%	15.92%	26.21%	16.66%	16.08%

Data Source: NTD (2003-07) and MDT (2008)

Figure 4-10 and Figure 4-11 graphically show the number of unlinked passenger trips and passenger miles traveled for MDT and each of the peer agencies. As the graph shows, MDT's Metrorail system carried fewer unlinked passenger trips and passenger miles traveled in 2007 than any of the peer agencies except for the MTA system in Baltimore. Unlinked passenger trips increased 22.8 percent (22.8%) for MDT's Metrorail system, from just over 14 million to more than 18 million between 2003 and 2008. The increase includes a steady rate of growth between 2003 and 2008.

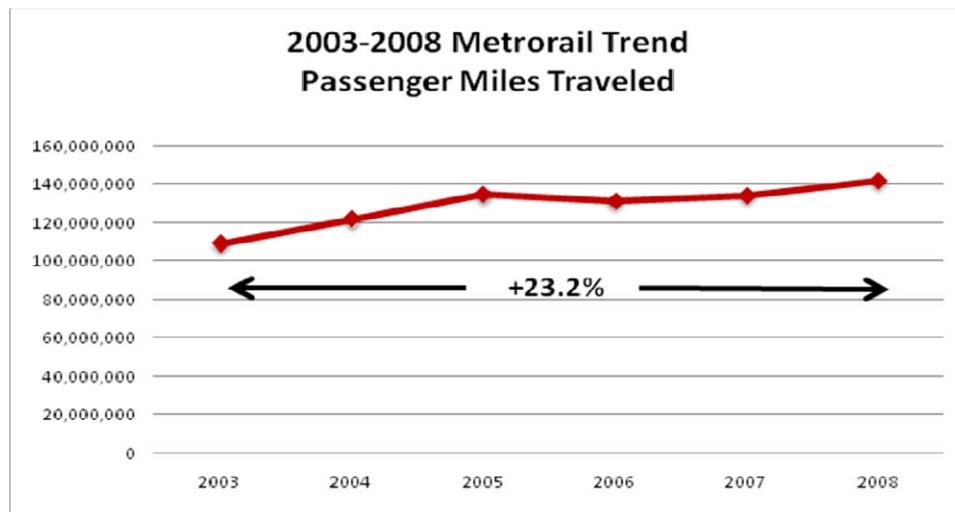
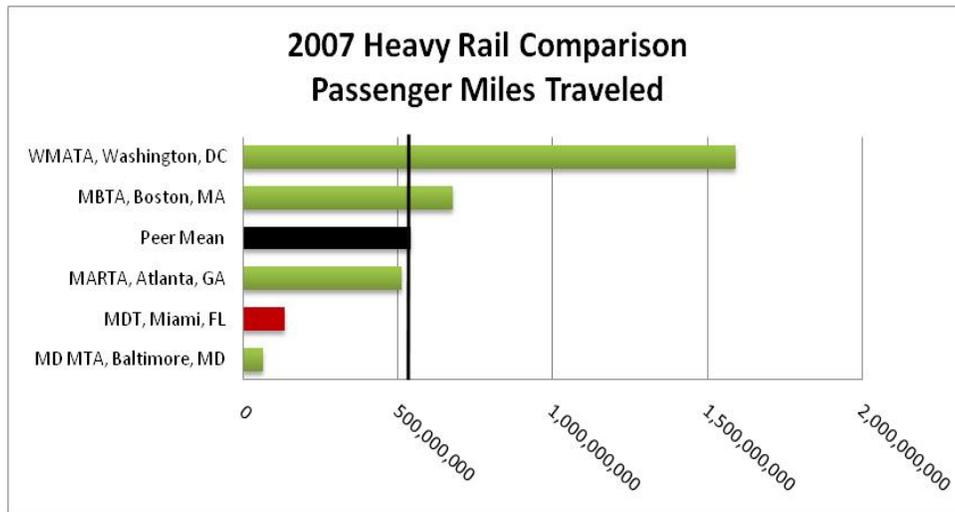
Figure 4-10: Rail Unlinked Passenger Trips



Data Source: NTD (2003-07) and MDT (2008)

The trend for number of passenger miles traveled increased 23.2 percent (23.2%) between 2003 and 2008. This increase mostly occurred between 2003 and 2005, with an increase between 2007 and 2008 as well.

Figure 4-11: Rail Passenger Miles Traveled

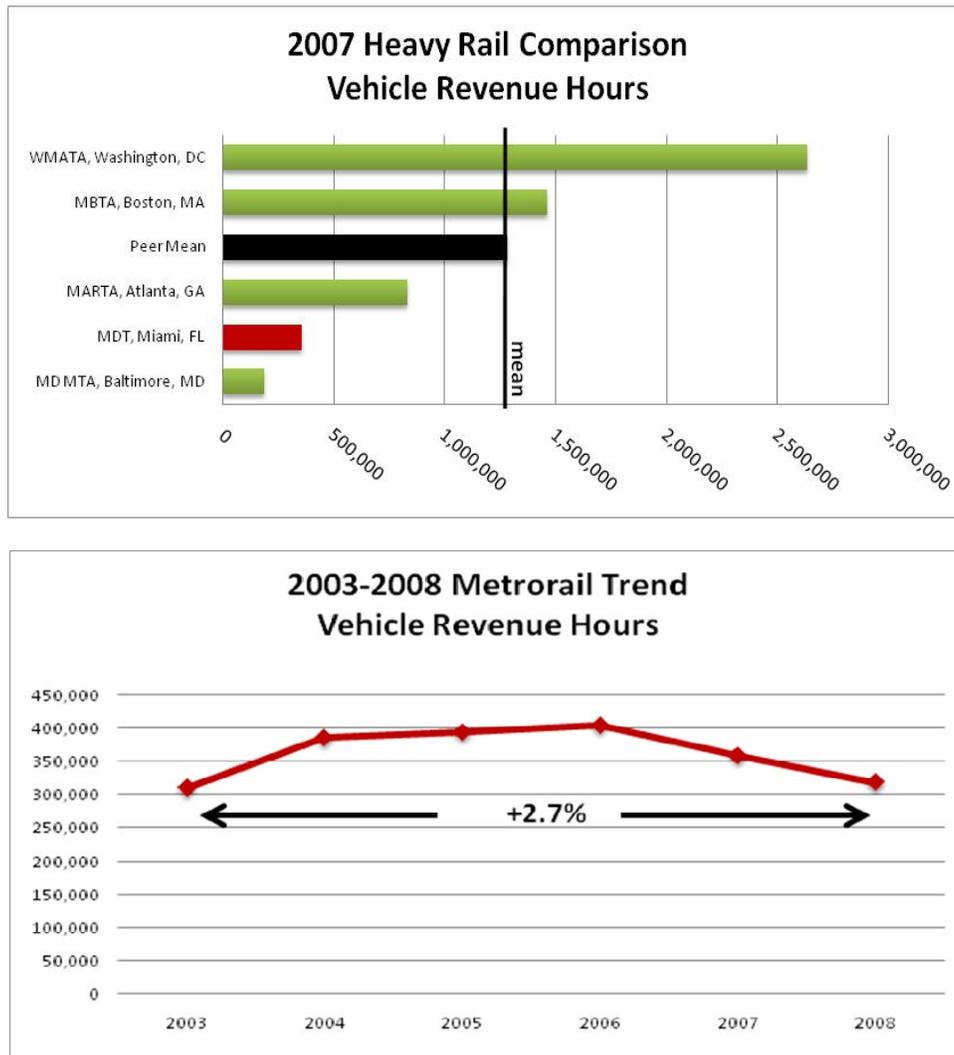


Data Source: NTD (2003-07) and MDT (2008)

Figure 4-12 and Figure 4-13 presents vehicle revenue hours and vehicle revenue miles. MDT operates less service on their Metrorail line than any of the other peer agencies except for Baltimore MTA. This level of service comparison with the other peer agencies also illustrates a corresponding level of passenger trips per revenue hour and per revenue mile.

In terms of MDT trends, revenue vehicle hours increased overall 2.7 percent (2.7%) between 2003 and 2008, but the six year trend includes an increase in service in the middle part of the decade, with a decrease in service between 2006 and 2008.

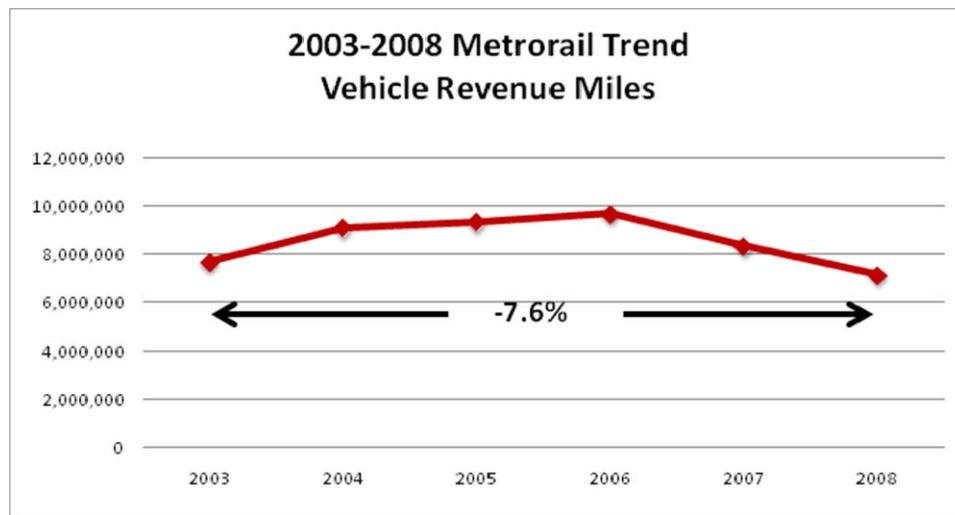
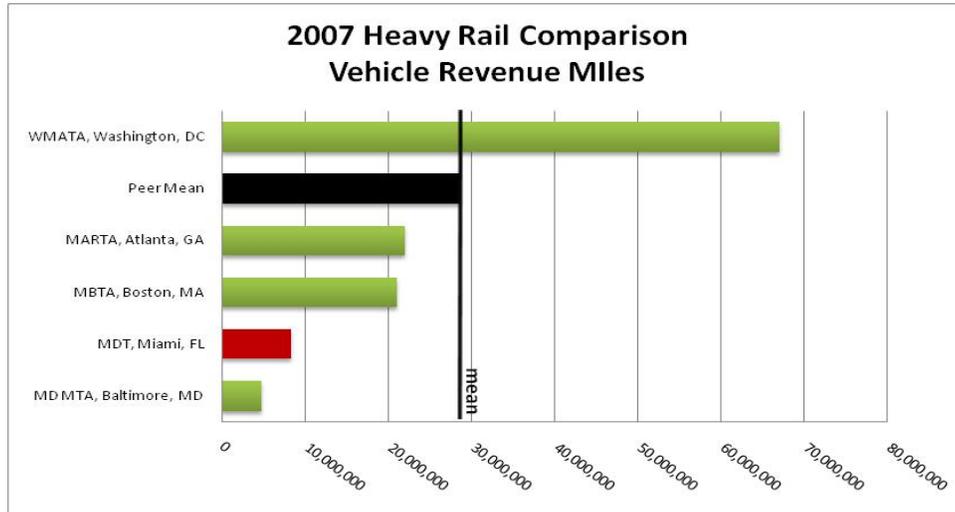
Figure 4-12: Rail Vehicle Revenue Hours



Data Source: NTD (2003-07) and MDT (2008)

A similar trend pattern is shown for vehicle revenue miles. Increases in service occurred between 2003 and 2006, with decreases in service between 2006 and 2008. The major difference is that vehicle miles are actually 7.6 percent (7.6%) less than they were in 2003, trending down to 7,158,361 in 2008.

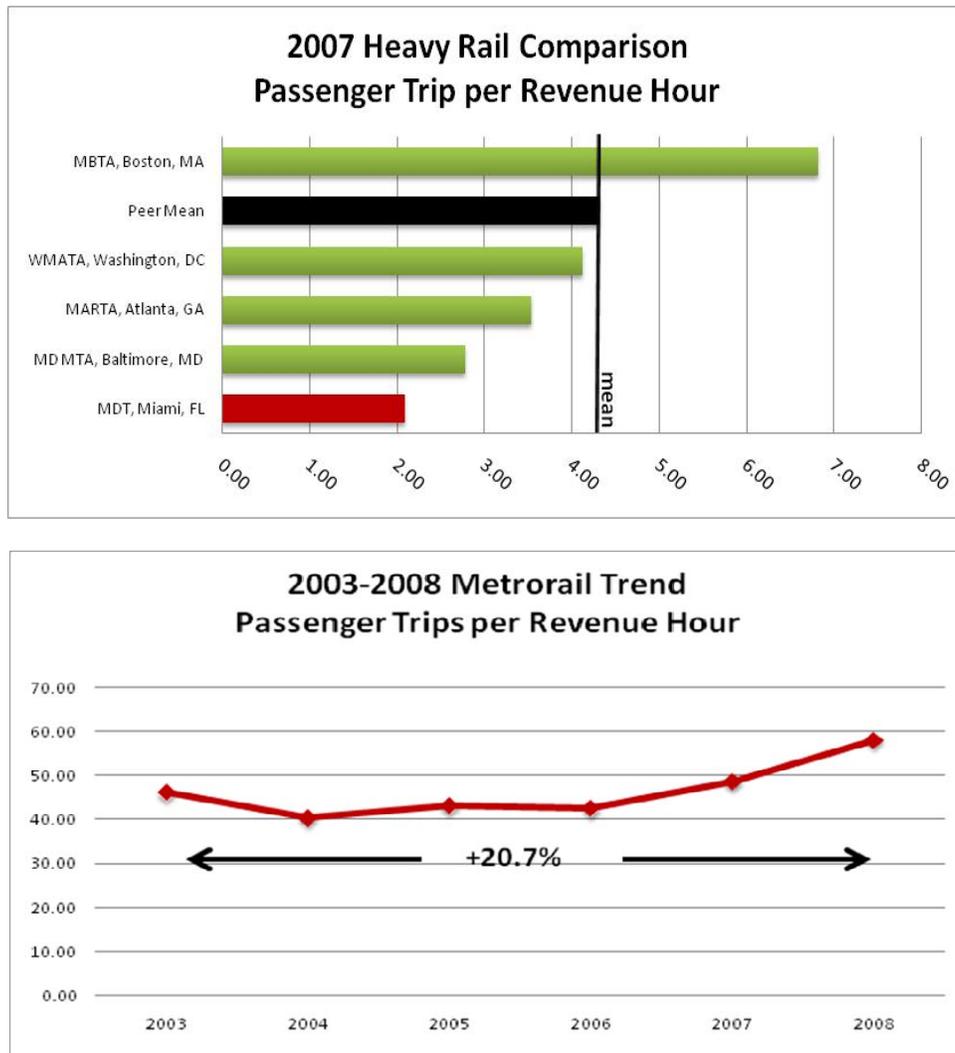
Figure 4-13: Rail Vehicle Revenue Miles



Data Source: NTD (2003-07) and MDT (2008)

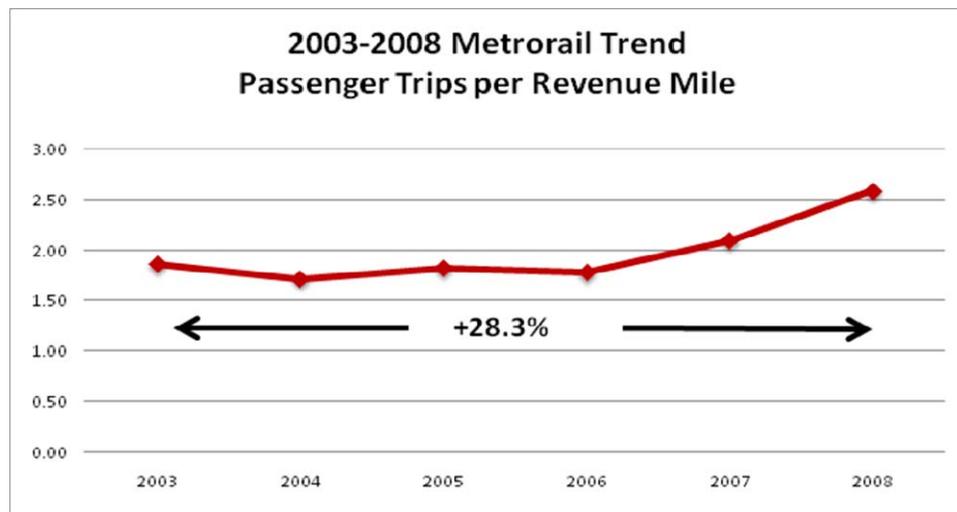
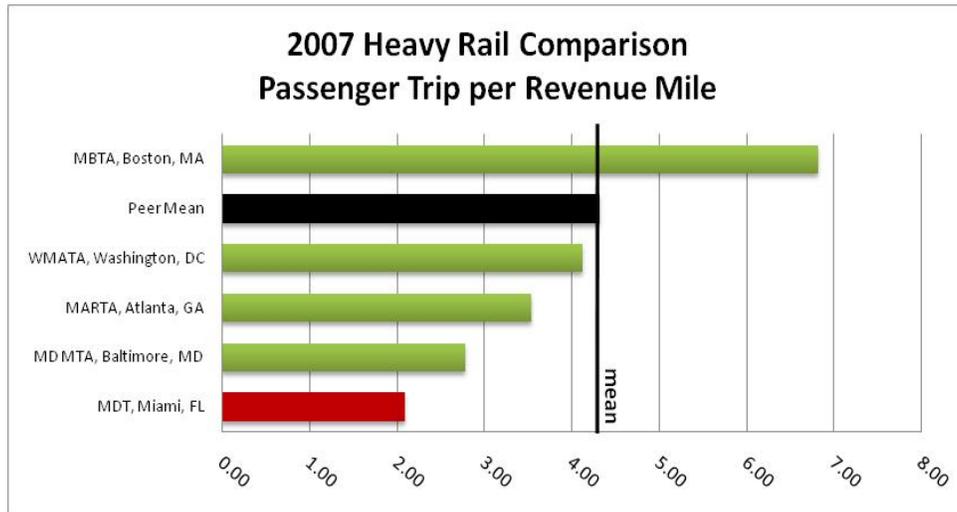
In terms of passenger trips per revenue hour and miles, MDT is the lowest of the peer agencies, although productivity has improved over the six year period for MDT. As shown in Figure 4-14 passenger trips per revenue hour has increased 20.7 percent (20.7%) between 2003 and 2008 and illustrated in Figure 4-15 passenger trips per revenue mile has increased 28.3 percent (28.3%). Each of these measures has a similar trend which reflects MDT's passenger trip increases and decreases over the last six years.

Figure 4-14: Rail Passenger Trips per Revenue Hour



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-15: Rail Passenger Trips per Revenue Mile

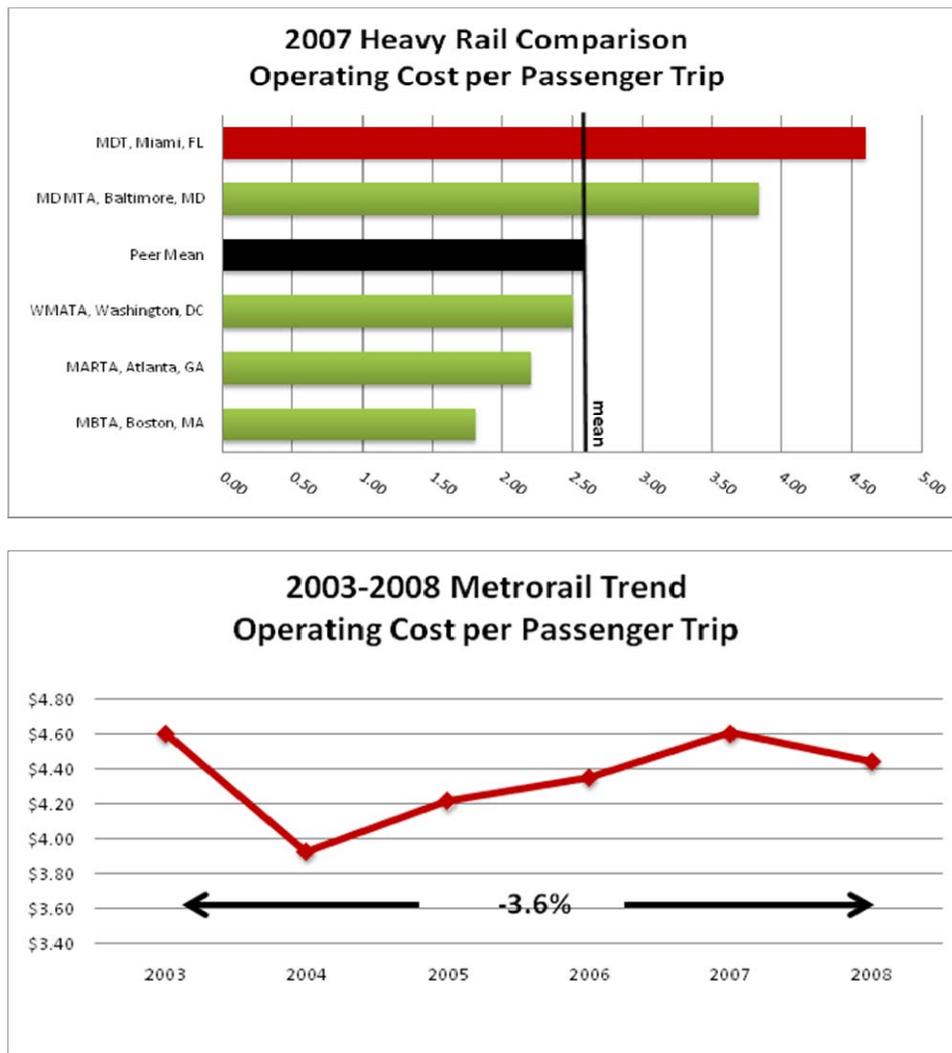


Data Source: NTD (2003-07) and MDT (2008)

The graph in Figure 4-16 shows operating cost per passenger trip. As illustrated, MDT's cost per passenger trips as the highest among the peers. This is due to the relatively lower ridership on MDT's system compared to the volume of service it operates.

The trend in cost per passenger trip between 2003 and 2008 decreased 3.6 percent (3.6%). However, the six year period included a sharp drop in cost between 2003 and 2004, a steady increase between 2005 and 2007, and then a drop between 2007 and 2008.

Figure 4-16: Rail Operating Cost per Passenger Trip

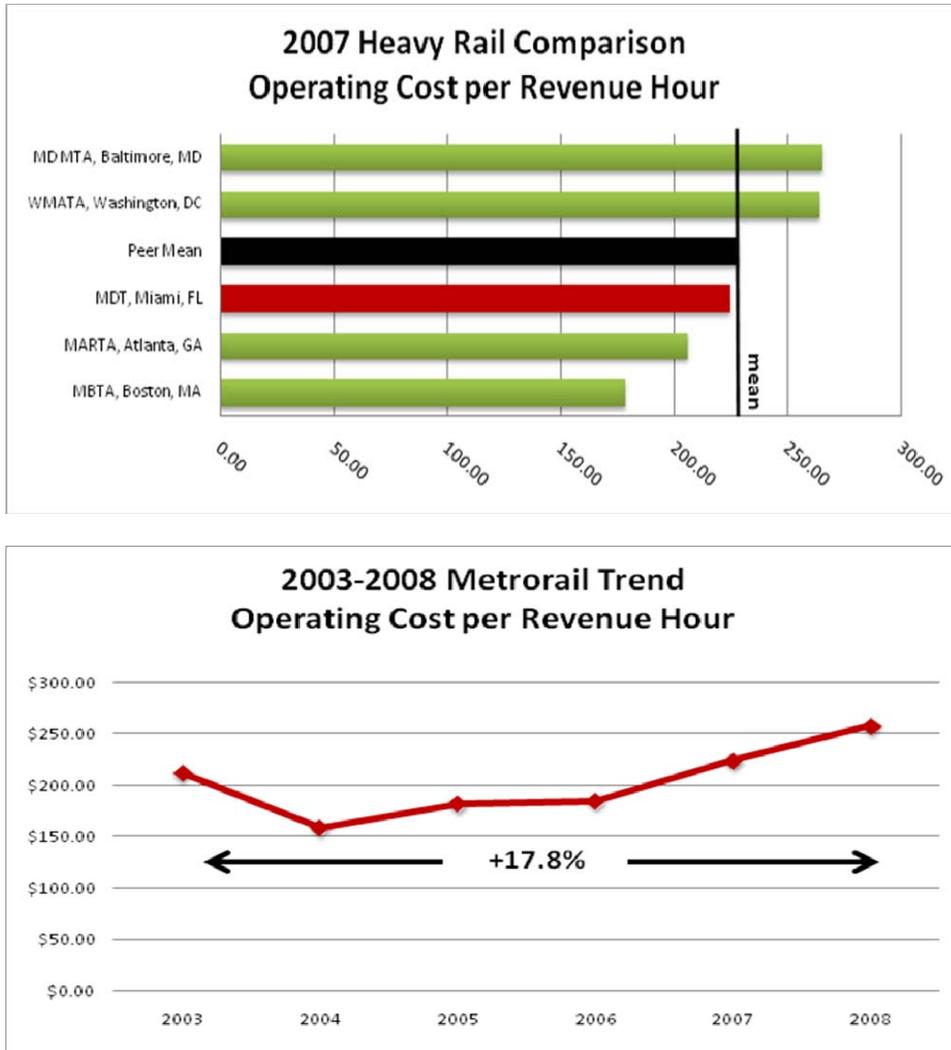


Data Source: NTD (2003-07) and MDT (2008)

The graph in Figure 4-17 shows operating cost per passenger hour. MDT's operating cost per revenue hour is average among the peer group, with MDT higher in this cost than MARTA and MBTA, but lower than WMATA and MTA.

Operating cost per revenue hour of service, a measure of efficiency, trended down between 2003 and 2004 before showing improvement between 2004 and 2008. The overall trend is 17.8 percent (17.8%) increase between 2003 and 2008.

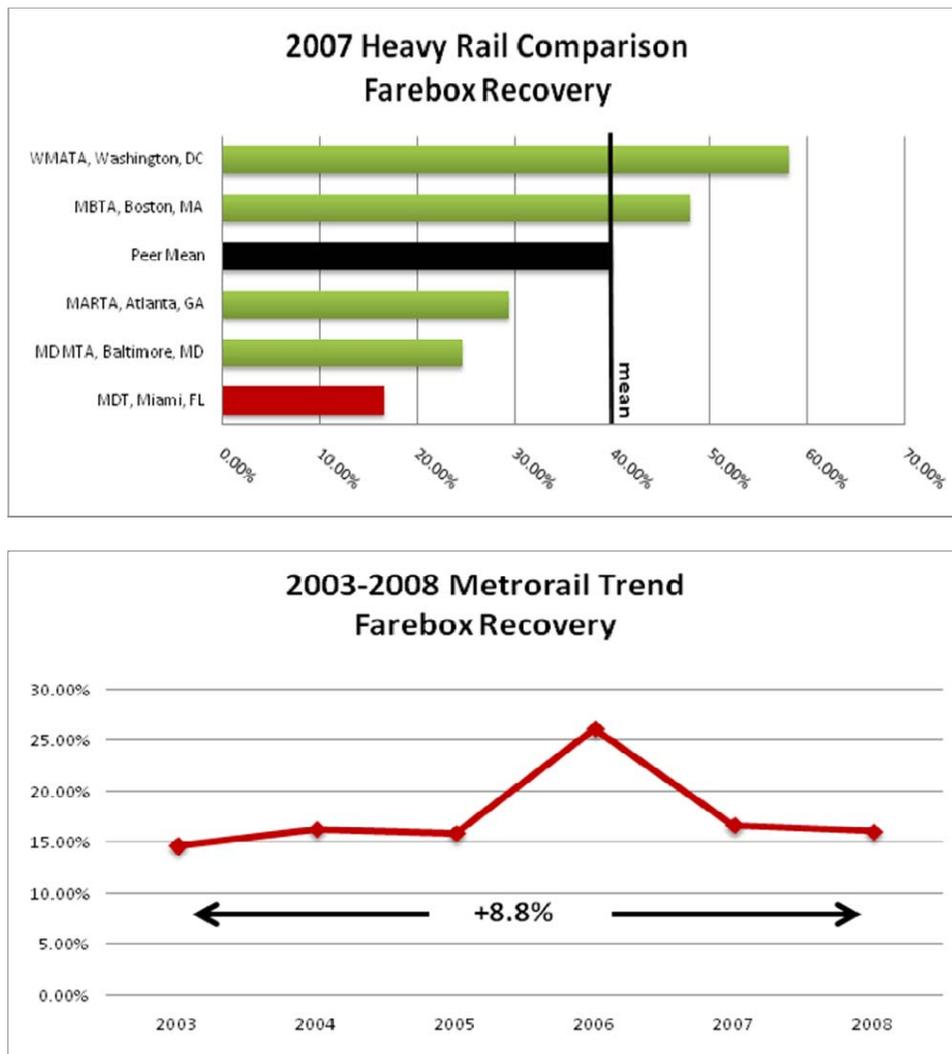
Figure 4-17: Rail Operating Cost per Revenue Hour



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-18 shows farebox recovery for MDT and peer agencies. MDT had the lowest farebox recovery rate of the peer group. This again is related to relatively lower ridership compared to the volume of service operated. The trend for farebox recovery ratio improved 8.8 percent (8.8%) between 2003 and 2008. However, this trend shows little increase between 2003 and 2005, a sharp increase in 2006, and then a reduction in farebox recovery ratio between 2006 and 2008. The 2006 farebox recovery increase could be in part attributed to additional revenue hours of service for that year in comparison to the entire period.

Figure 4-18: Rail Farebox Recovery Ratio



Data Source: NTD (2003-07) and MDT (2008)

The peer group of agencies that operate rail systems is highly varied, including both cities that are both significantly larger and smaller than Miami, some with much larger heavy rail systems. The data indicates that the volume of service operated may be too high relative to the number of passengers that are being transported, resulting in higher costs relative to the number of passengers carried when comparing with the peers of this analysis. This could be addressed by reducing the frequency of service or reducing costs in other ways to bring the costs and benefits of the system into greater balance.

4.5 Automated Guideway Peer Comparison

Table 4-5 compares peer agency statistics for automated guideway service. There are few agencies in the United States that operate automated guideway systems. As a result there are only three (3) peers for the comparison, Jacksonville, FL, Detroit, MI, and Las Vegas, NV.

Each of these systems differ from one another and from MDT's Metromover in terms of operation, fare collection, and the areas and cities they serve. Metromover is the oldest of the people mover systems, serves the largest and strongest downtown area of the peer cities, and is the only system that connects directly to a heavy rail system that provides a connection to a regional commuter rail system. The differences between the systems and the cities they serve make comparisons relatively difficult. Conclusions based on those comparisons should be regarded as being far less definitive than the conclusions drawn from comparisons with the peer groups in the areas of bus, Metrorail or ADA paratransit service.

Table 4-6 shows the 2003-2008 trends in operating and service statistics for the six (6) most recent years of MDT's Metromover service.

Table 4-5: Automated Guideway Peer Comparison

Agency	MDT	JTA	DTC	LVMC	Peer Mean
City	Miami, FL	Jacksonville, FL	Detroit, MI	Las Vegas, NV	
NTD Number	4034	4040	5141	9204	
Unlinked Passenger Trips	8,622,729	619,414	2,307,804	9,329,974	5,219,980
Average Age (yrs.) of Bus Fleet					
Passenger Miles Traveled	8,840,136	255,898	3,543,035	2,217,870	3,714,235
Average Passenger Trip Length	1.03	0.41	1.54	0.24	1
Vehicle Revenue Hours	91,657	19,013	56,932	26,771	48,593
Vehicle Revenue Miles	934,906	254,228	552,640	488,298	557,518
Passenger Trips Per Revenue Hours	94.08	32.58	40.54	348.51	129
Passenger Trips Per Revenue Miles	9.22	2.44	4.18	19.11	9
Operating Costs Per Passenger Trip	\$2.44	\$7.44	\$5.56	\$5.75	\$5.30
Operating Costs Per Revenue Hour	\$229.12	\$242.51	\$225.32	\$2,005.49	\$675.61
Weekend Service Availability	Yes Sat (0530-0000) Sun (0530-0000)	Yes Sat (1000-2300) Sun (None)	Yes Sat (0900-2000) Sun (1200-2400)	Yes Sat 0700-0300 Sun (0700-0200)	
Operating Expenses	\$21,000,653	\$4,610,771	\$12,827,644	\$53,688,939	\$23,032,002
Maintenance Expenses	\$11,439,965	\$2,890,659	\$6,173,028	\$0	\$5,125,913
Fare Revenues	\$0	\$336,188	\$1,068,241	\$29,446,783	\$7,712,803
Farebox Recovery	0.00%	7.29%	8.33%	54.85%	17.62%

Data Source: NTD (2007)

Table 4-6: MDT Metromover 2003-2008 Trends

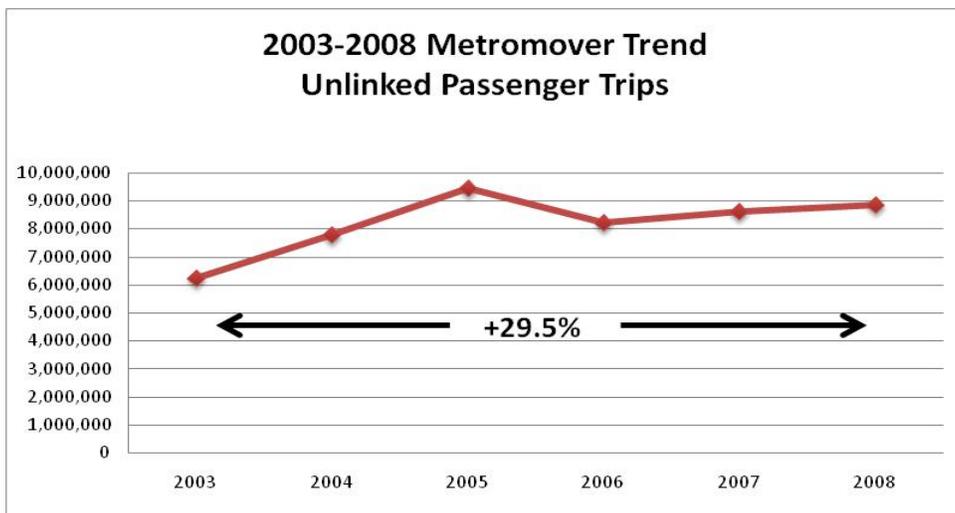
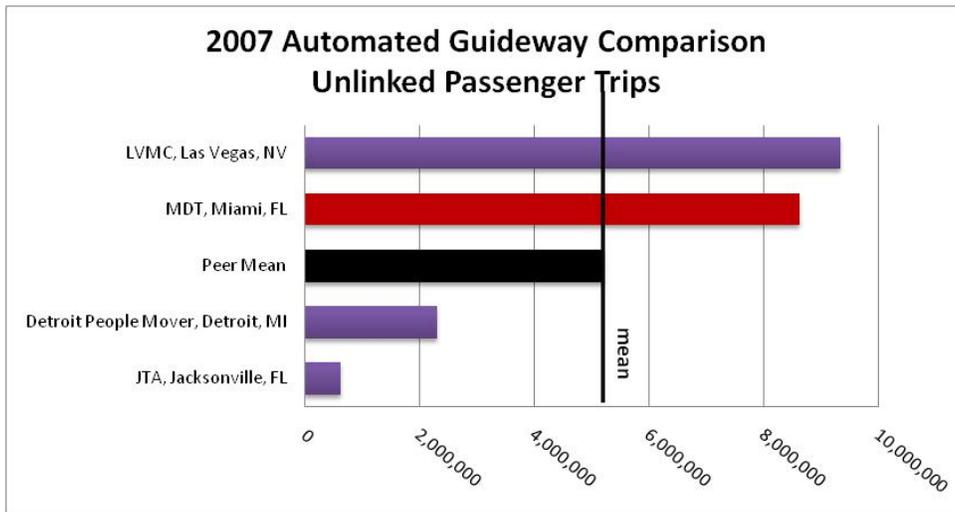
Performance Measures	2003	2004	2005	2006	2007	2008
Unlinked Passenger Trips	6,229,321	7,768,509	9,444,910	8,221,687	8,622,729	8,839,156
Average Age (yrs.) of Fleet	12.9	13.9	14.9	15.6	16.4	16.2
Passenger Miles Traveled	6,391,523	7,910,898	9,437,646	8,213,863	8,840,136	8,593,648
Average Passenger Trip Length	1.03	1.02	1.00	1.00	1.03	0.97
Vehicle Revenue Hours	94,617	93,515	91,705	92,321	91,657	110,228
Vehicle Revenue Miles	1,031,321	953,848	935,393	941,678	934,906	1,120,647
Passenger Trips Per Revenue Hours	65.84	83.07	102.99	89.06	94.08	80.19
Passenger Trips Per Revenue Miles	6.04	8.14	10.10	8.73	9.22	7.89
Operating Costs Per Passenger Trip	\$3.10	\$2.40	\$2.21	\$2.33	\$2.44	\$2.58
Operating Costs Per Revenue Hour	\$204.24	\$199.68	\$227.90	\$207.80	\$229.12	\$207.23
Weekend Service Availability	Yes Sat(24 Hours) Sun(24 Hours)	Yes Sat(0530-0000) Sun(0530-0000)	Yes Sat(0530-0000) Sun(0530-0000)	Yes Sat(0530-0000) Sun(0530-0000)	Yes Sat(0530-0000) Sun(0530-0000)	Yes Sat(0530-0000) Sun(0530-0000)
Operating Expenses	\$19,324,185	\$18,672,871	\$20,899,603	\$19,184,690	\$21,000,653	\$22,842,866
Maintenance Expenses	\$11,648,797	\$11,333,016	\$12,290,807	\$10,656,675	\$11,439,965	\$11,711,857
Fare Revenues	\$47,865	\$0	\$0	\$0	\$0	\$0
Farebox Recovery	0.25%	0.00%	0.00%	0.00%	0.00%	0.00%

Data Source: NTD (2003-07) and MDT (2008)

As Figure 4-19 illustrates, MDT’s automated guideway service in 2007 carried the second highest number of passenger trips among the peer group, with Las Vegas carrying more passenger trips.

MDT’s Metromover trend for unlinked passenger trips includes a steady increase between 2003 and 2005, a drop between 2005 and 2006, and then another increase between 2006 and 2008. Overall unlinked Metromover passenger trips increased 29.5 percent (29.5%) over the six year time period.

Figure 4-19: Automated Guideway Unlinked Passenger Trips

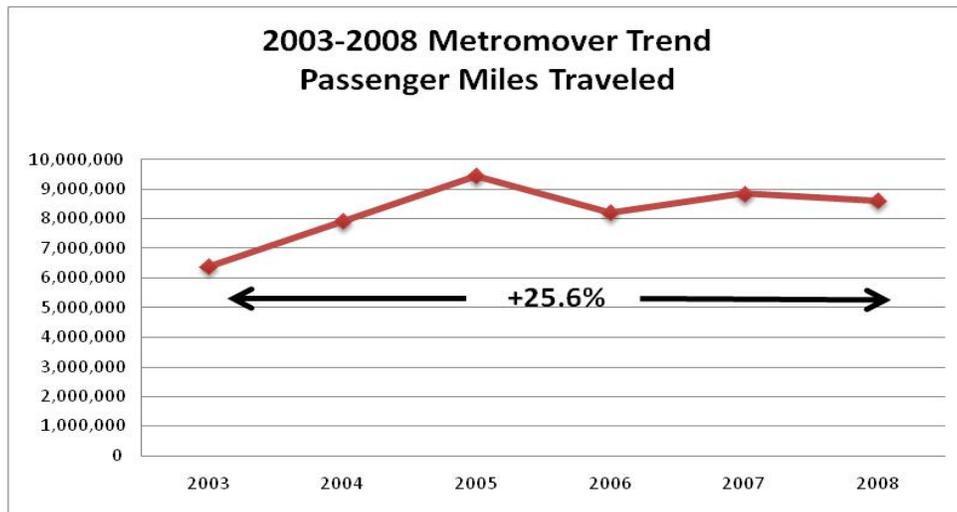
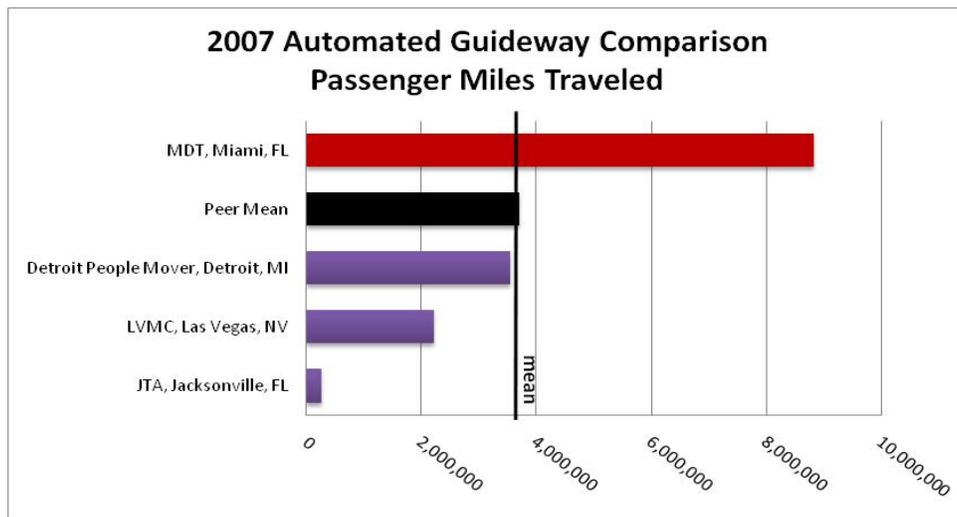


Data Source: NTD (2003-07) and MDT (2008)

MDT has the highest number of passenger miles when compared to the rest of the peer group, and also skews the results of the peer mean due to Metromover passenger miles being so much larger than the rest of the peers. (Figure 4-20)

For the period between 2003 and 2008 passenger miles follows the same trend as unlinked passenger trips. Overall, passenger miles increased 25.6 percent (25.6%) between 2003 and 2008.

Figure 4-20: Automated Guideway Passenger Miles Traveled

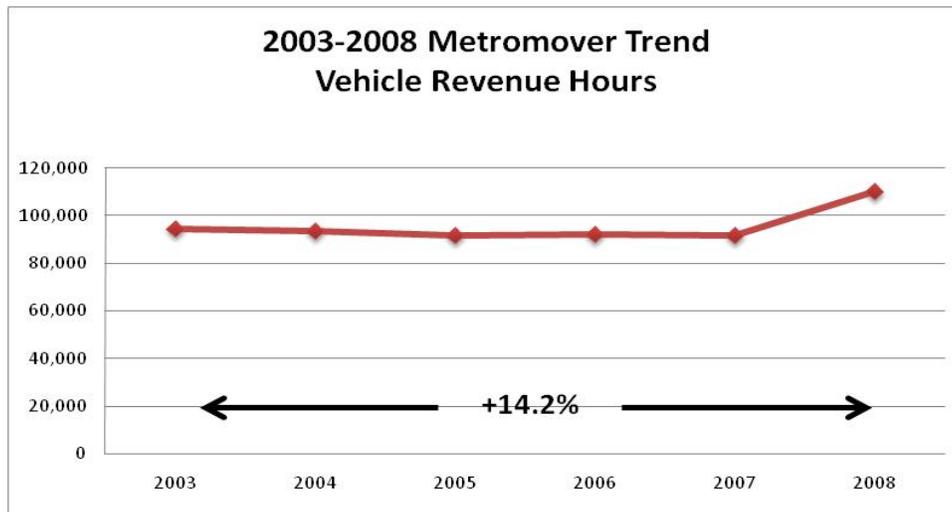
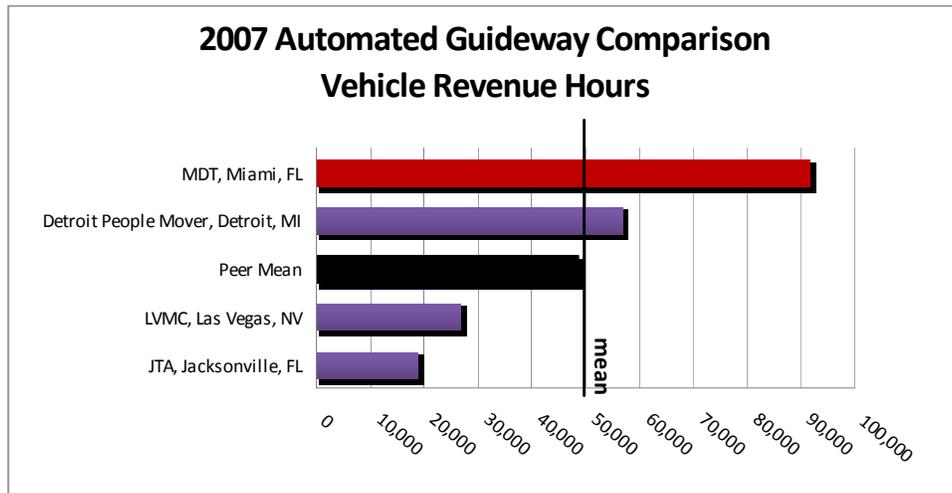


Data Source: NTD (2003-07) and MDT (2008)

Figure 4-21 and Figure 4-22 indicate vehicle revenue hours and miles. MDT operates more revenue hours and miles than any of the peers for automated guideway service.

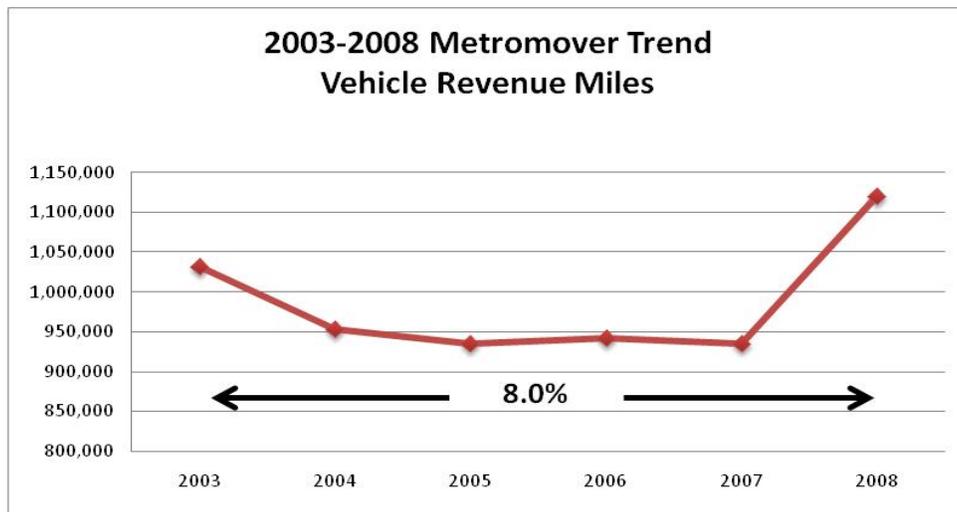
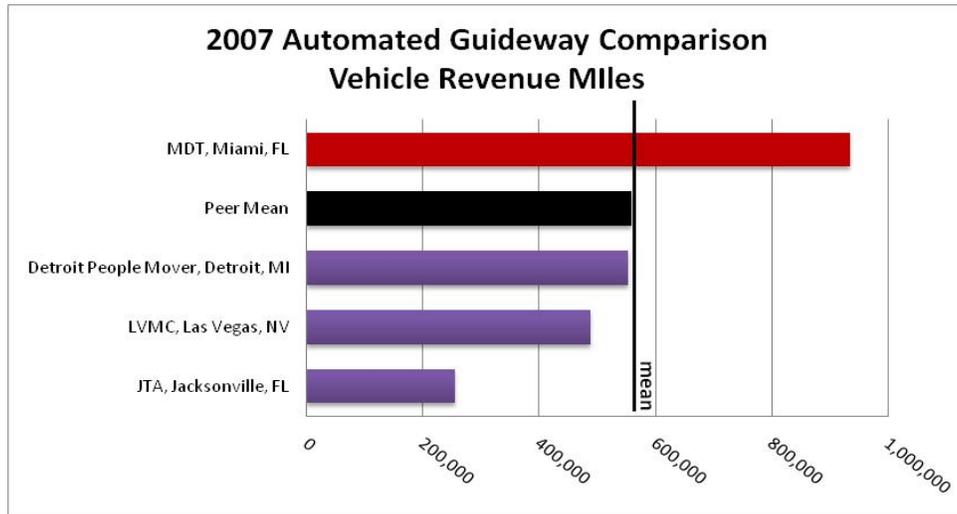
In terms of trend, MDT's vehicle revenue hours held steady between 2003 and 2007, with a sharp increase between 2007 and 2008. Vehicle revenue hours increased 14.2% between 2003 and 2008, although most of this increase occurred between 2007 and 2008. Vehicle revenue miles decreased between 2003 and 2004, held steady for the middle part of the trend period, and then increased between 2007 and 2008. Overall vehicle revenue miles increased 8.0 percent (8.0%) between 2003 and 2008.

Figure 4-21: Automated Guideway Vehicle Revenue Hours



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-22: Automated Guideway Vehicle Revenue Miles

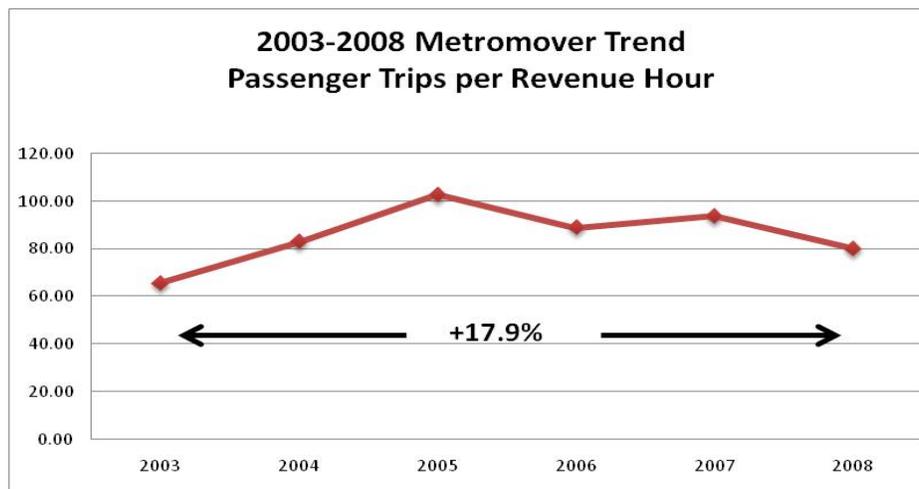
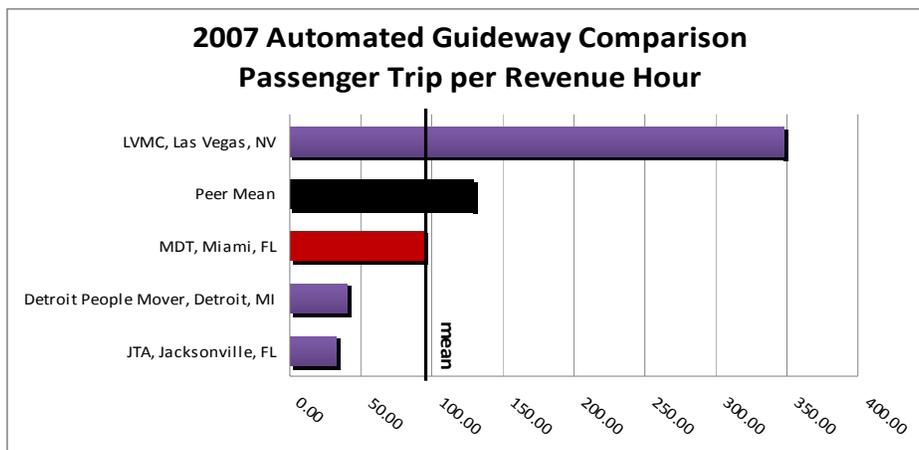


Data Source: NTD (2003-07) and MDT (2008)

Passenger trips per revenue hour and passenger trips per revenue mile are shown in Figure 4-23 and Figure 4-24, respectively. MDT ranks second, ahead of Detroit and Jacksonville and behind Las Vegas in terms of passenger trips per revenue hour. MDT also ranks second in terms of passenger trips per revenue mile. In both cases the Las Vegas system skews the mean by reporting much higher numbers than the rest of the systems.

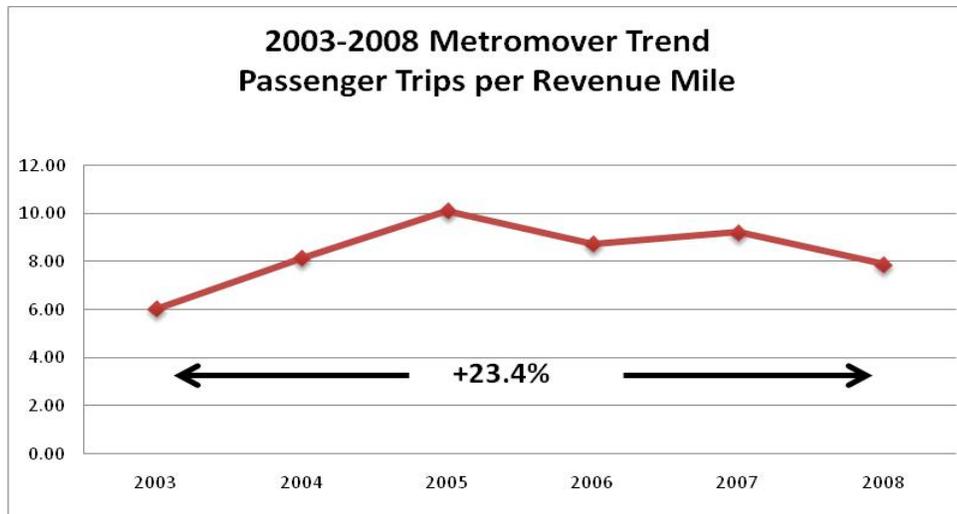
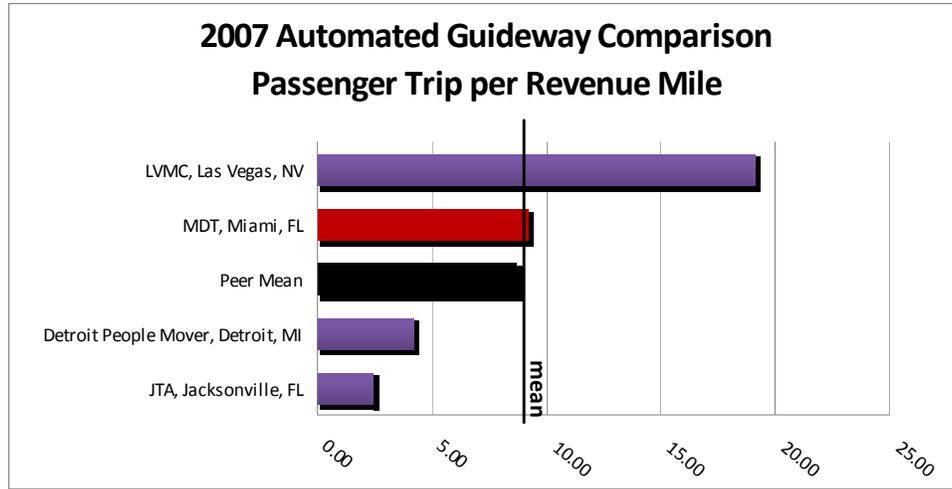
In terms of the 2003-2008 trend, both measures reflect the same pattern. Between 2003 and 2005 the measures trended positively, decreased from 2005 and 2006, increased again between 2006 and 2007, and then decreased again from 2007 to 2008. The trend reflects the increase/decrease pattern of unlinked passenger trips during the same period where revenue hours and miles held mostly steady. Overall passenger trips per revenue hour increased 17.9 percent (17.9%) between 2003 and 2008. During the same time period passenger trips per revenue mile increased 23.4 percent (23.4%).

Figure 4-23: Automated Guideway Passenger Trips per Revenue Hour



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-24: Automated Guideway Passenger Trips per Revenue Mile



Data Source: NTD (2003-07) and MDT (2008)

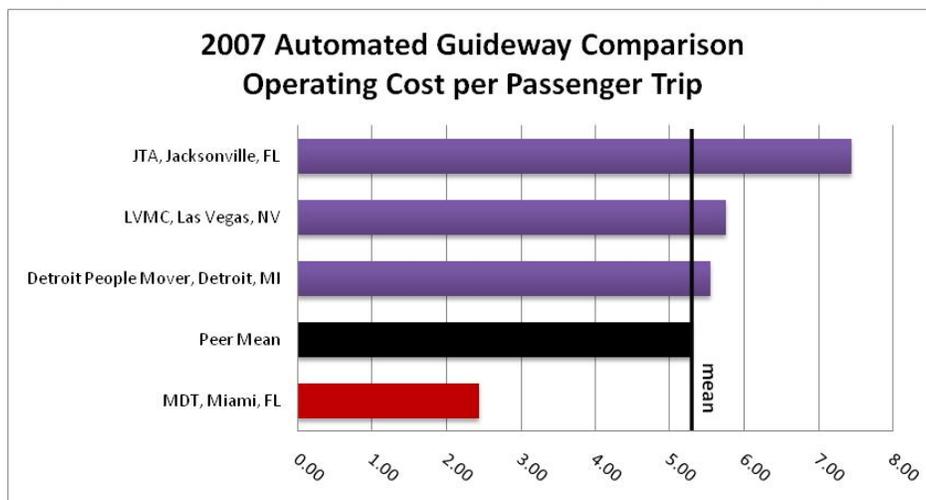
Figure 4-25 and Figure 4-26 indicate efficiency as measured by MDT’s operating cost per passenger trip and operating cost per revenue hour. For both indicators MDT has the lowest factored cost amongst the peer group.

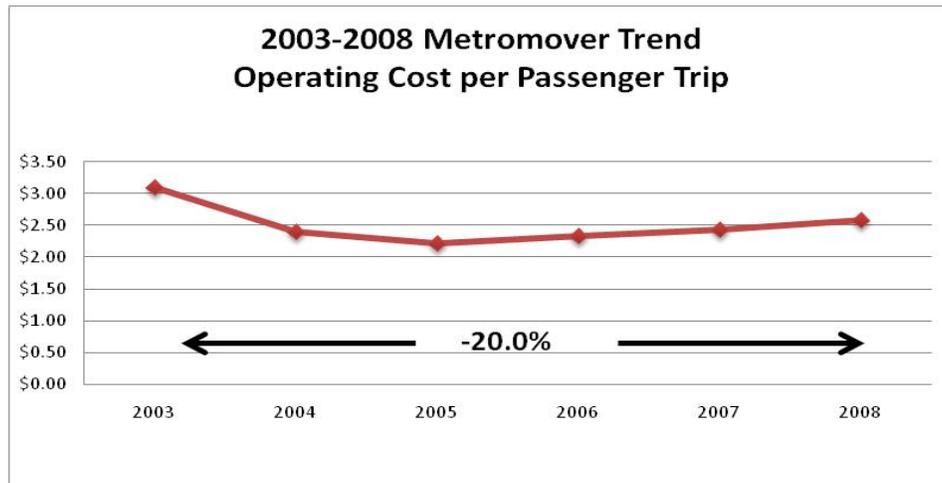
Interestingly, the Metromover trends for operating cost per passenger trip and operating cost per revenue hour are different, which is reflective of the differences in passenger trip and revenue hour trends.

Operating cost per passenger trip shows a decrease between 2003 and 2005 and then a steady increase between 2005 and 2008. Overall, the cost per passenger trip decreased 20.0 percent (20.0%), from \$3.10 to \$2.58, between 2003 and 2008 which means that the Metromover system has become more efficient over the six year time period

Operating cost per revenue hour shows costs following a pattern of increasing, decreasing, then increasing again between 2003 and 2008. Overall the operating cost per revenue hour has only increased 1.4% in the six (6) year time period, which is an indicator of good performance considering the inflation in costs over this span.

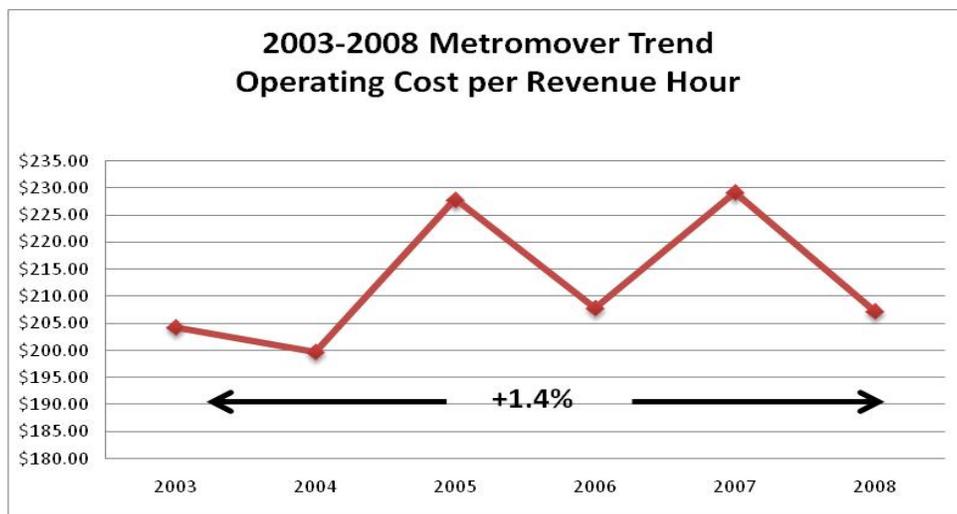
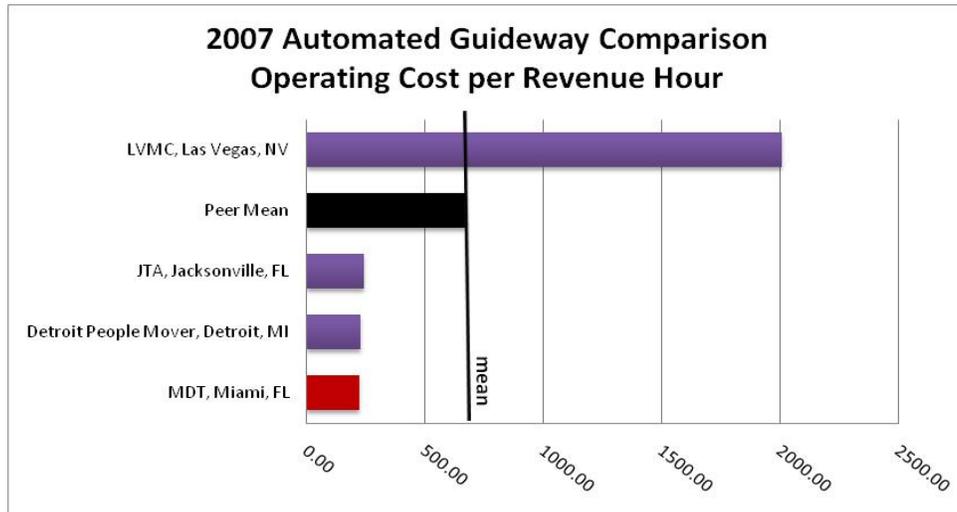
Figure 4-25: Automated Guideway Operating Cost per Passenger Trip





Data Source: NTD (2003-07) and MDT (2008)

Figure 4-26: Automated Guideway Operating Cost per Revenue Hour

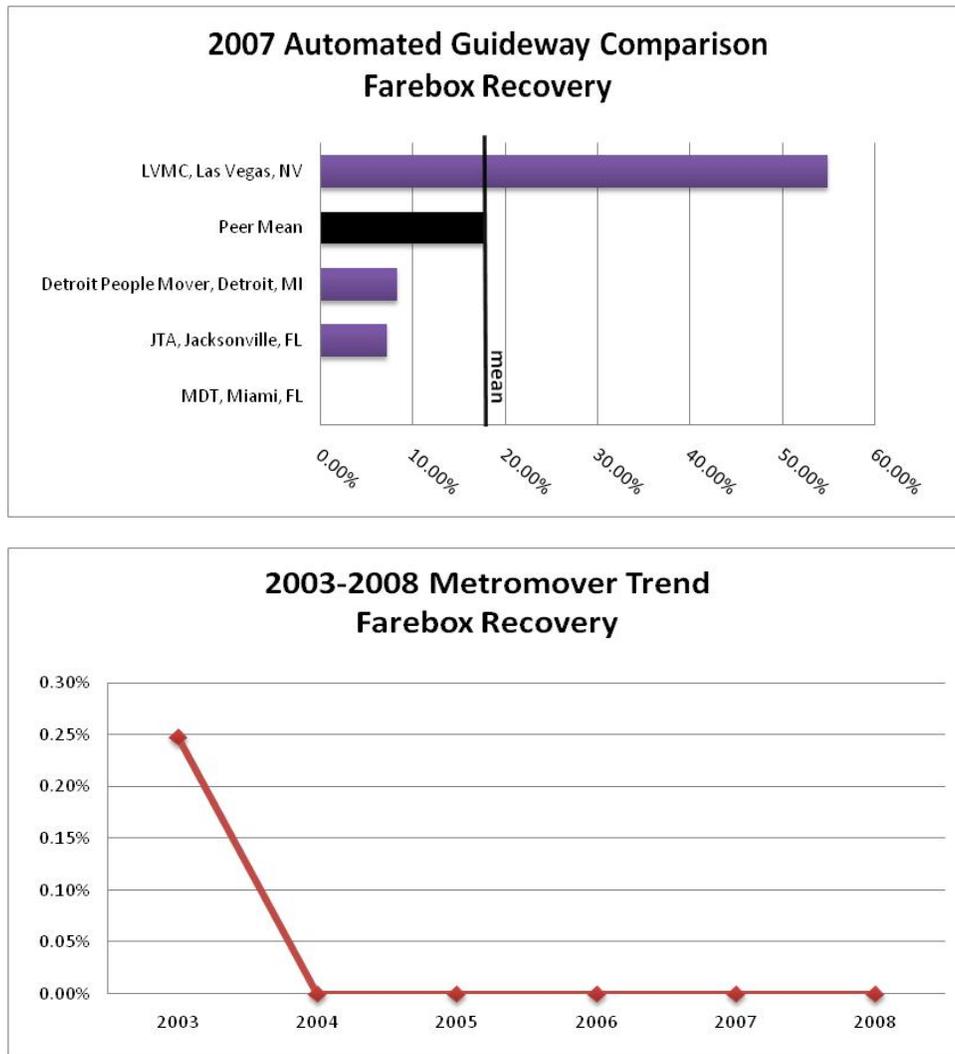


Data Source: NTD (2003-07) and MDT (2008)

In 2004 the decision was made for MDT’s Metromover to be a free fare service as a result of the passage of the People’s Transportation Plan. As a result the farebox recovery is reported as zero percent (0%), which places MDT at the bottom when compared to the peer group since the other peers all charge fares for their automated guideway systems. (Figure 4-27)

The six (6) year trend for MDT’s farebox recovery is not available due to free fare service on the Metromover after 2003.

Figure 4-27: Automated Guideway Farebox Recovery Ratio



Data Source: NTD (2003-07) and MDT (2008)

4.6 Demand Response Peer Comparison

Table 4-5 compares peer agency statistics for demand response service. Demand response service in Miami is impacted by the relatively larger percentage of elderly people in the Miami area, many of whom are eligible to use demand response service.

The members of the peer group for demand response service include a number of other cities that also have relatively high percentages of older people, including Orlando, Jacksonville and Broward County. Table 4-6 shows the 2003-2008 trends in operating and service statistics for the six most recent years MDT's demand response service.

Table 4-7: Demand Response Peer Comparison

Agency	MDT	BCT	Lynx	JTA	VTA	OCTA	RTC	Peer Mean
City	Miami, FL	Pompano Beach, FL	Orlando, FL	Jacksonville, FL	San Jose, CA	Orange, CA	Las Vegas, NV	
NTD Number	4034	4029	4035	4040	9013	9036	9045	
Unlinked Passenger Trips	1,678,018	834,205	550,578	402,187	1,025,937	1,231,346	894,219	823,079
Average Age (yrs.) of Bus Fleet								
Passenger Miles Traveled	24,268,233	9,009,411	7,046,737	3,842,800	7,835,246	13,191,180	9,670,927	8,432,717
Average Passenger Trip Length	14.46	10.80	12.80	9.55	7.64	10.71	10.81	10.39
Vehicle Revenue Hours	950,790	546,698	404,675	235,911	445,179	614,620	451,530	449,769
Vehicle Revenue Miles	13,948,718	7,882,892	6,825,312	3,639,796	6,296,061	9,330,511	6,663,336	6,772,985
Passenger Trips Per Revenue Hours	1.76	1.53	1.36	1.70	2.30	2.00	1.98	1.81
Passenger Trips Per Revenue Miles	0.12	0.11	0.08	0.11	0.16	0.13	0.13	0.12
Operating Costs Per Passenger Trip	\$25.15	\$28.25	\$32.69	\$46.77	\$31.53	\$25.94	\$33.83	\$33.17
Operating Costs Per Revenue Hour	\$44.38	\$43.10	\$44.47	\$79.74	\$72.67	\$51.96	\$67.00	\$59.82
Weekend Service Availability	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0445-0020) Sun (0645-2221)	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0430-2330) Sun (0600-2330)	Yes Sat (0500-0200) Sun (0500-0200)	Yes Sat (0000-2359) Sun (0000-2359)	Yes Sat (0000-2359) Sun (0000-2359)	
Operating Expenses	\$42,198,872	\$23,563,309	\$17,996,662	\$18,811,094	\$32,350,519	\$31,938,045	\$30,253,029	\$25,818,776
Maintenance Expenses	\$6,024,556	\$3,910,391	\$979,512	\$4,012,008	\$3,929,171	\$5,001,812	\$4,279,416	\$3,685,385
Fare Revenues	\$4,238,800	\$1,228,433	\$1,053,158	\$9,301,887	\$2,931,178	\$3,982,916	\$740,852	\$4,164,774
Farebox Recovery	10.04%	5.21%	5.85%	49.45%	9.06%	12.47%	2.45%	17.04%

Data Source: NTD (2003-07)

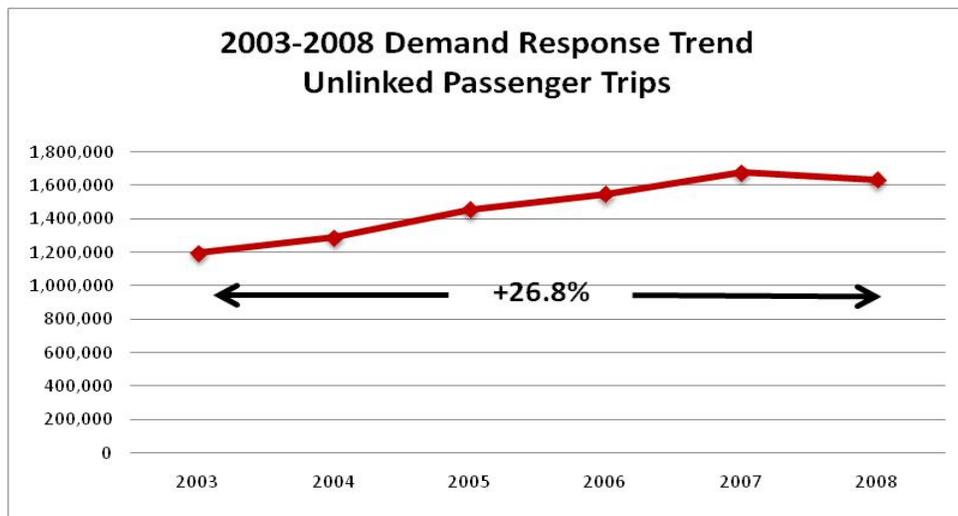
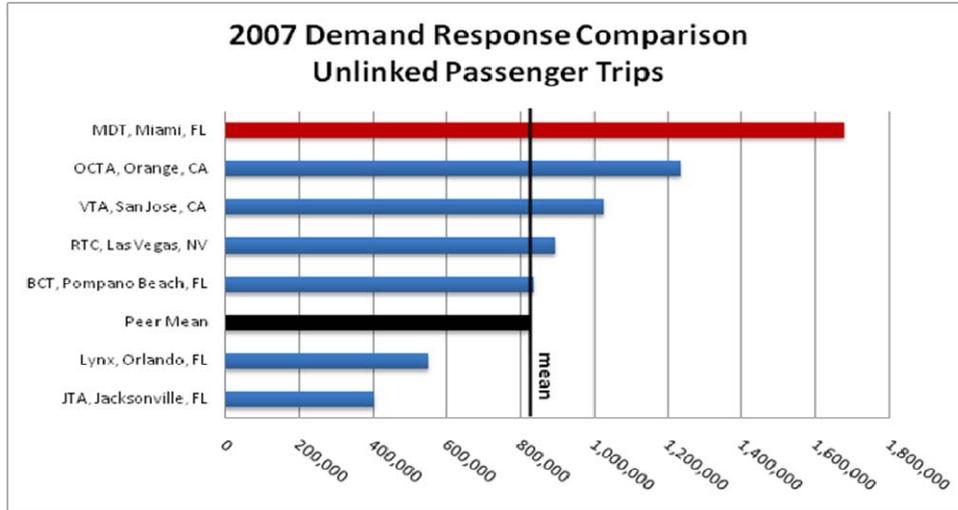
Table 4-8: MDT Demand Response 2003-2008 Trends

Performance Measures	2003	2004	2005	2006	2007	2008
Unlinked Passenger Trips	1,196,014	1,288,305	1,454,361	1,546,295	1,678,018	1,634,468
Average Age (yrs.) of Fleet	2.8	1.3	1.6	1.9	2.4	2.7
Passenger Miles Traveled	15,942,966	17,562,141	18,107,038	22,997,534	24,268,233	22,224,772
Average Passenger Trip Length	13.33	13.63	12.45	14.87	14.46	13.60
Vehicle Revenue Hours	744,634	787,907	796,847	907,604	950,790	944,519
Vehicle Revenue Miles	11,904,059	12,090,936	12,042,482	13,493,393	13,948,718	13,605,381
Passenger Trips Per Revenue Hours	1.61	1.64	1.83	1.70	1.76	1.73
Passenger Trips Per Revenue Miles	0.10	0.11	0.12	0.11	0.12	0.12
Operating Costs Per Passenger Trip	\$23.67	\$24.02	\$24.84	\$25.35	\$25.15	\$27.43
Operating Costs Per Revenue Hour	\$38.02	\$39.28	\$45.34	\$43.19	\$44.38	\$47.46
Weekend Service Availability	Yes Sat (0000-2359) Sun (0000-2359)					
Operating Expenses	\$28,313,612	\$30,947,301	\$36,130,638	\$39,199,640	\$42,198,872	44,829,765
Maintenance Expenses	\$5,019,965	\$4,765,885	\$5,559,746	\$5,992,450	\$6,024,556	6,334,171
Fare Revenues	\$2,991,136	\$3,207,968	\$3,669,910	\$3,878,264	\$4,238,800	4,303,798
Farebox Recovery	10.56%	10.37%	10.16%	9.89%	10.04%	9.60%

Data Source: NTD (2003-07), ATS (2003-2006) and MDT (2007-2008)

As Figure 4-28 indicates, MDT's demand response service in 2007 carried the highest number of passenger trips among the peer group.

Figure 4-28: Demand Response Unlinked Passenger Trips

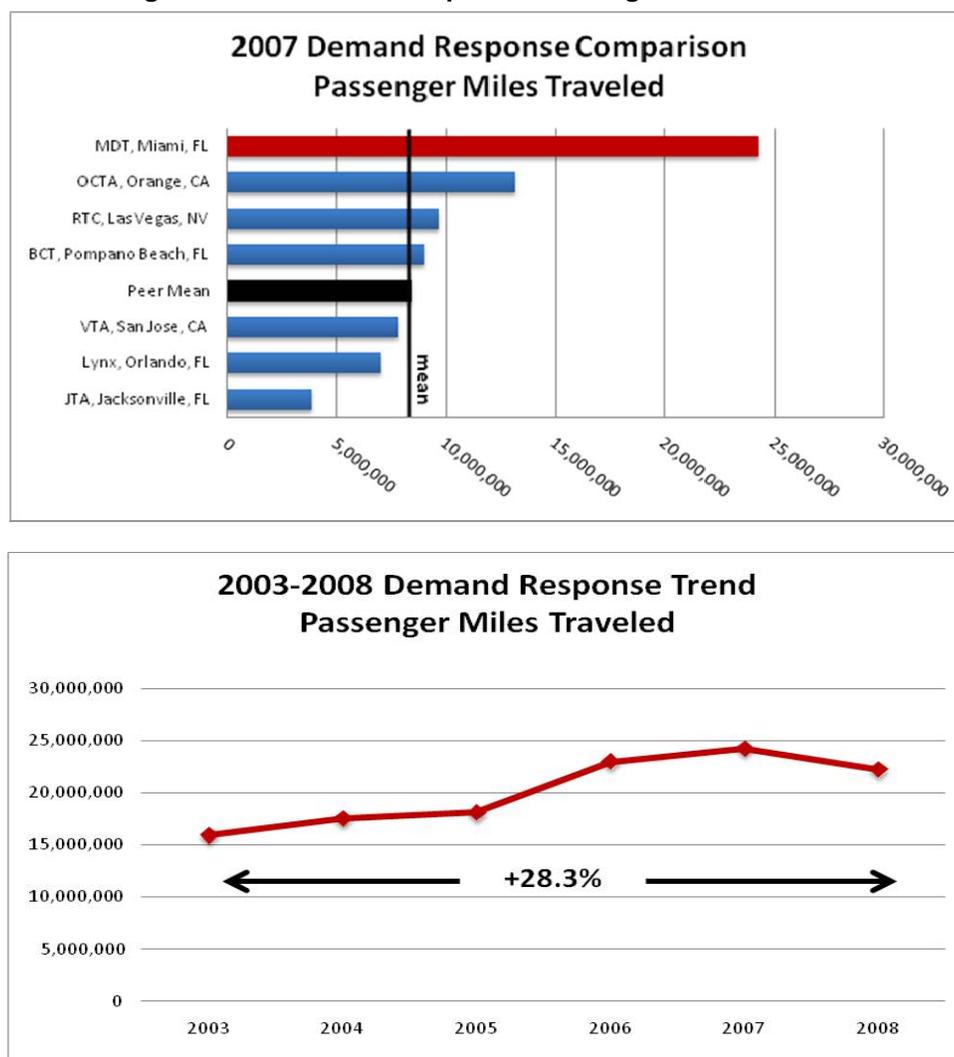


Data Source: NTD (2003-07) and MDT (2008)

Miami is the largest city in service area among the peer group cities for demand response service, and as Figure 4-29 through Figure 4-31 show, MDT provides the largest volume of service as measured by passenger miles traveled and vehicle revenue hours and miles.

As at many transit agencies, demand response service ridership grew dramatically and steadily between 2003 and 2008. MDT's unlinked passenger trips using demand response service increased by 26.8 percent (26.8%) between 2003 and 2008, much more than the increase in fixed route Metrobus or Metrorail service. Passenger miles traveled increased even more, 28.3 percent (28.3%) between 2003 and 2008, although this includes a decrease between 2007 and 2008.

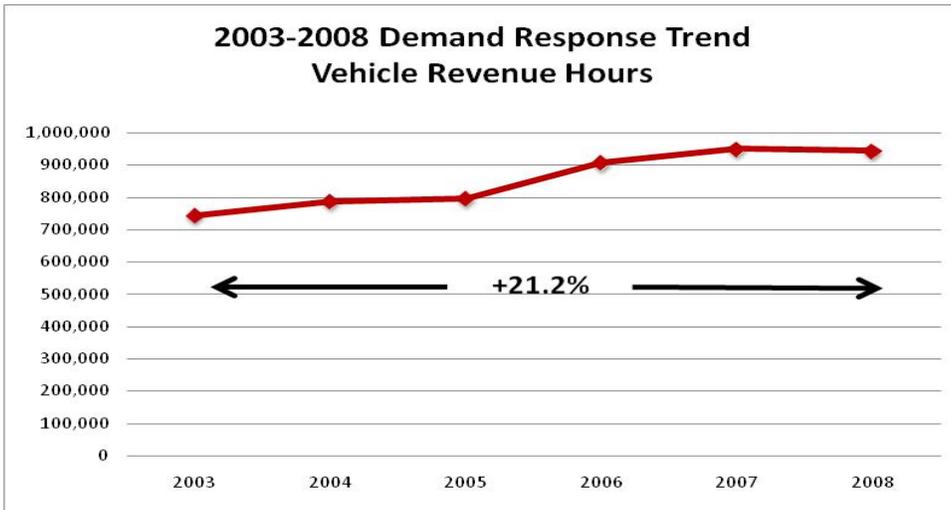
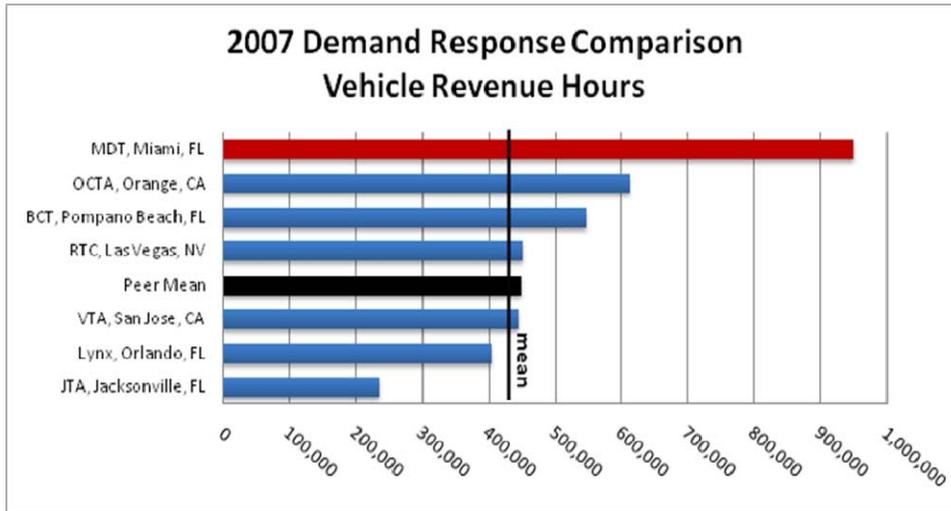
Figure 4-29: Demand Response Passenger Miles Traveled



Data Source: NTD (2003-07) and MDT (2008)

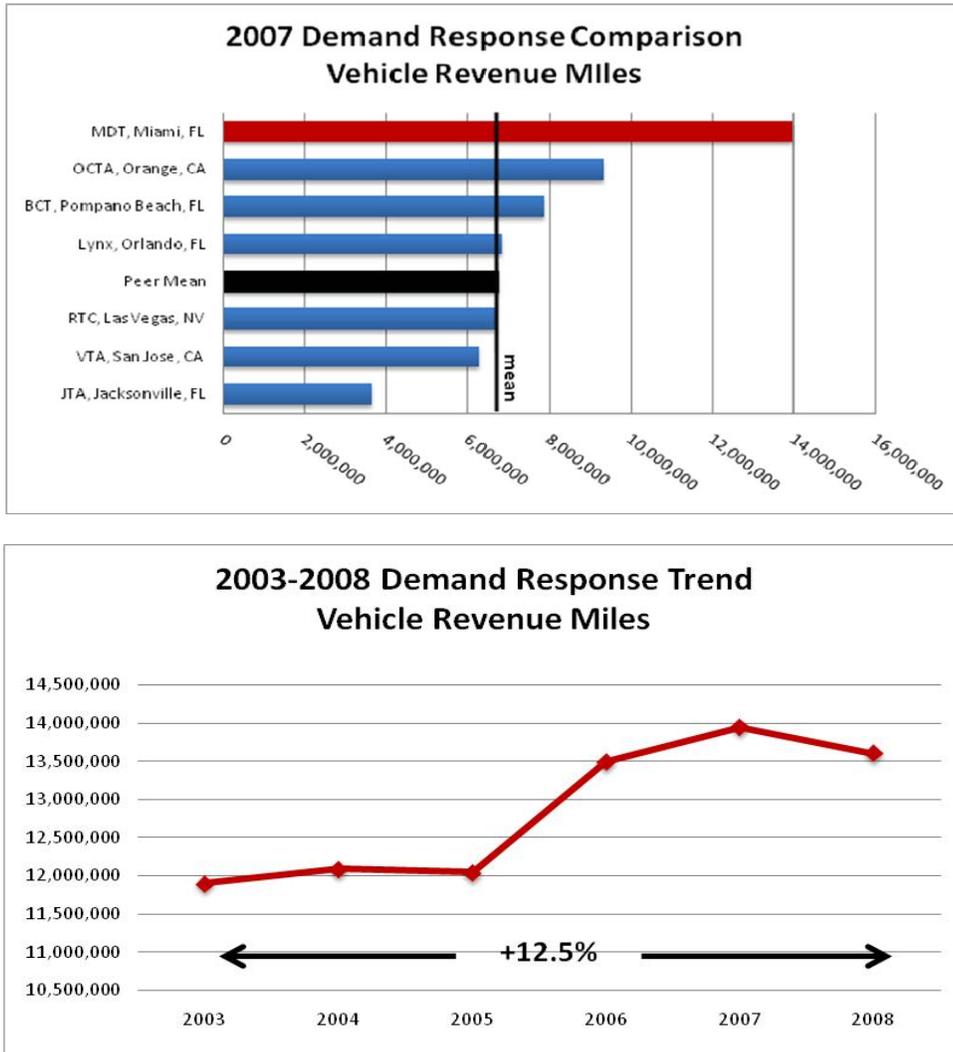
Revenue vehicle hours and miles also trended up between 2003 and 2008. Vehicle revenue hours increased 21.2 percent (21.2%) over the time period. Vehicle revenue miles increased 12.5 percent (12.5%) over the same period.

Figure 4-30: Demand Response Vehicle Revenue Hours



Data Source: NTD (2003-07) and MDT (2008)

Figure 4-31: Demand Response Vehicle Revenue Miles



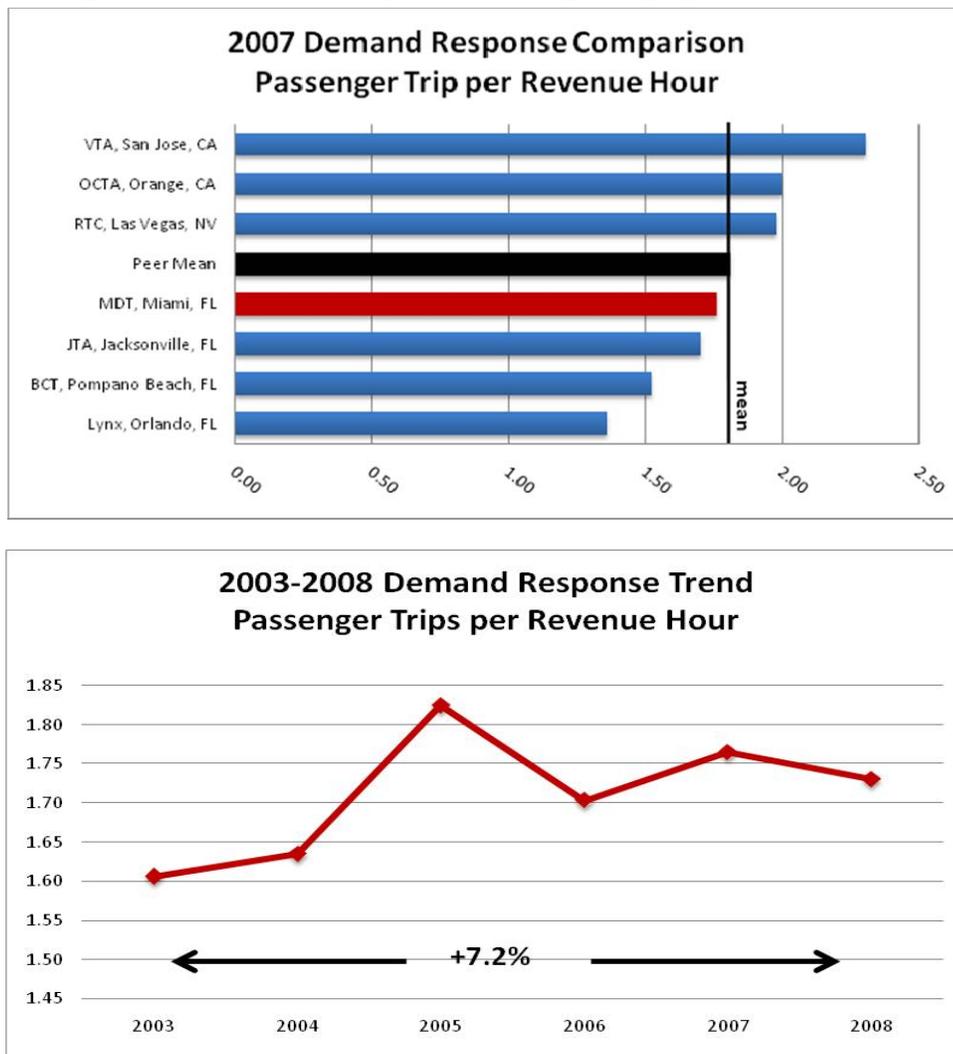
Data Source: NTD (2003-07) and MDT (2008)

MDT's demand response service is average in terms of productivity as expressed by passenger trips per hour and mile (Figure 4-32 and Figure 4-33) -- higher than Orlando, Jacksonville and Broward County, lower than San Jose, Orange County California and Las Vegas. MDT's service performs at or slightly better than the average on these measures.

Comparing this data to the increase in ridership and passenger miles, the system has become more productive between 2003 and 2008, and this is confirmed by looking at the trends in passenger trips per revenue hour and revenue mile.

Productivity in terms of passenger trips per revenue hour are 7.2 percent (7.2%) higher between 2003 and 2008. The trend included gains in this measure between 2004-05 and 2006-07, with declines between 2005-06 and 2007-08.

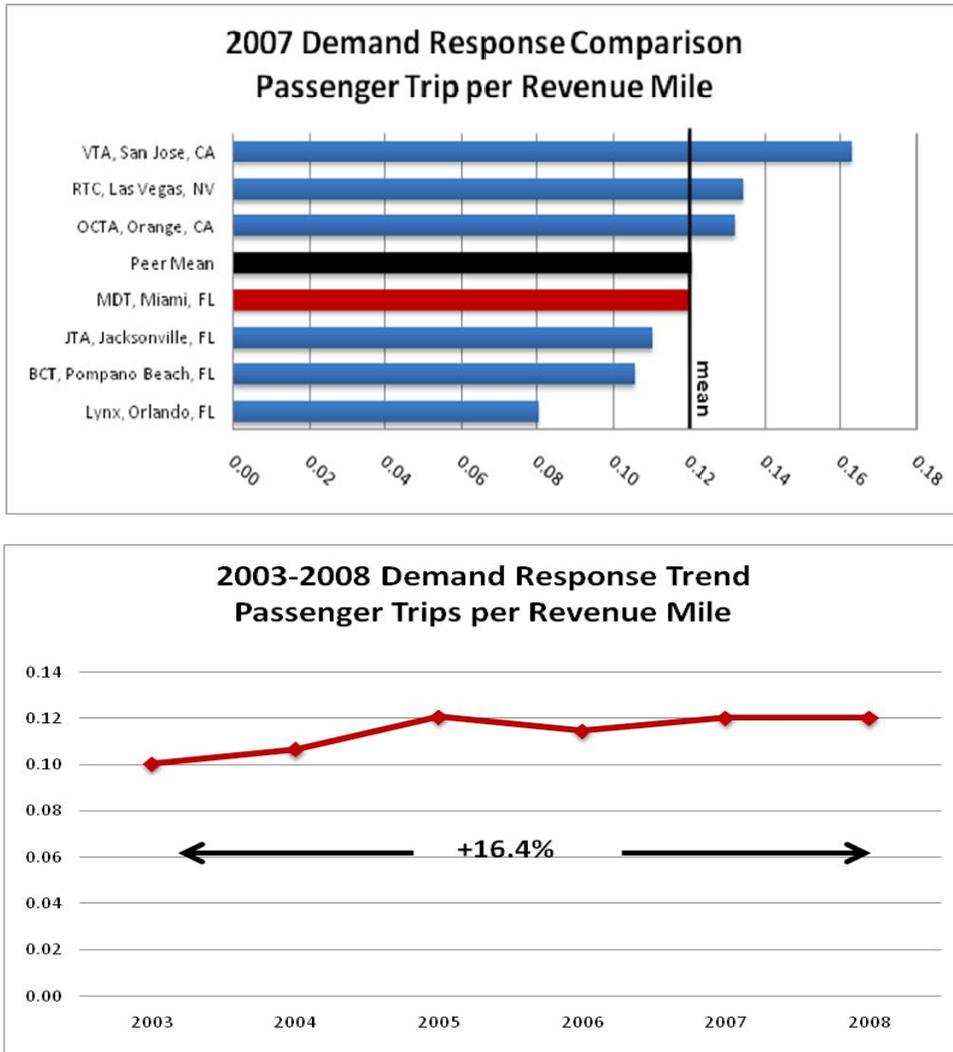
Figure 4-32: Demand Response Passenger Trips per Revenue Hour



Data Source: NTD (2003-07) and MDT (2008)

Passenger trips per revenue mile traces a similar pattern, although with a smaller rise and fall. The 2003-2008 increase in passenger trips per revenue mile is 16.5 percent (16.4%).

Figure 4-33: Demand Response Passenger Trips per Revenue Mile

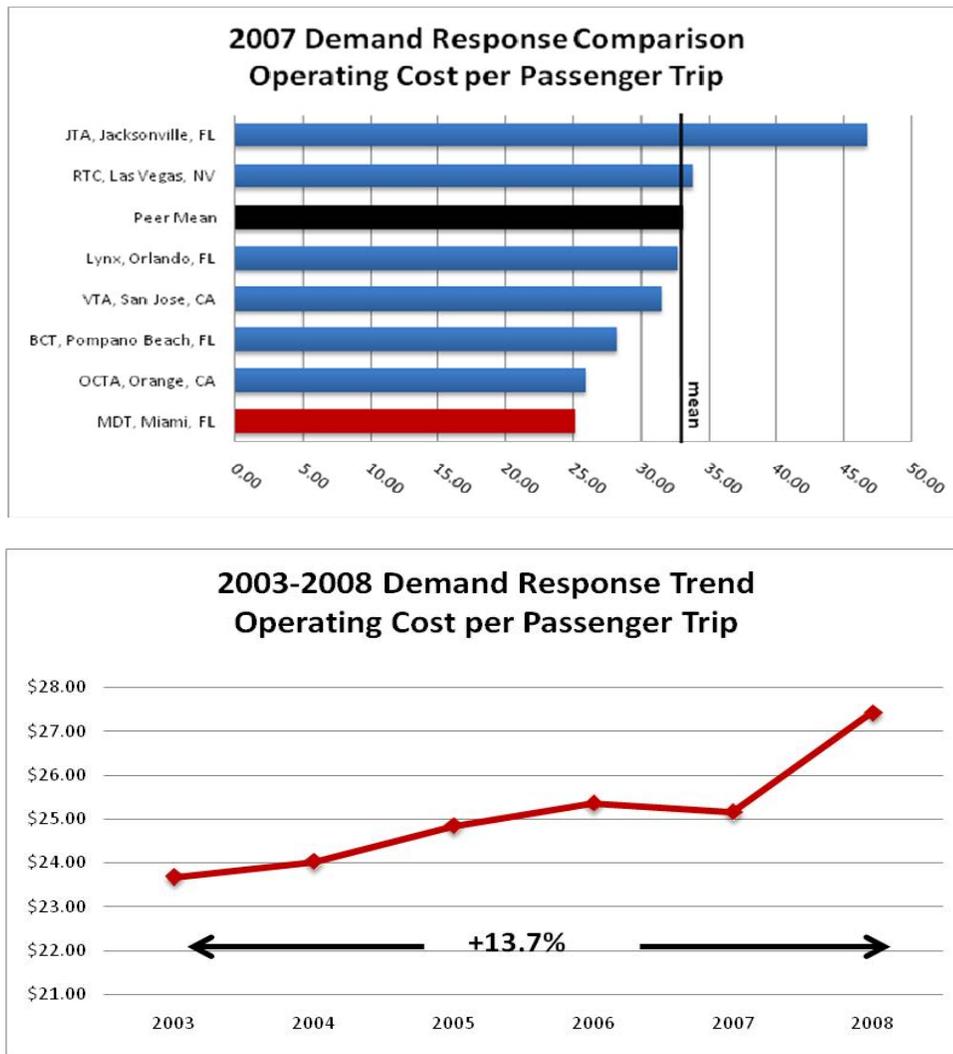


Data Source: NTD (2003-07) and MDT (2008)

As Figure 4-34 and Figure 4-35 indicate, the service also is operated efficiently from a financial standpoint. MDT has the lowest operating cost per passenger trip and the second lowest operating cost per revenue hour amongst all peers for demand response.

The trend for operating cost per passenger trip is a 13.7 percent (13.7%) increase between 2003 and 2008. This rose steadily between 2003 and 2006 before declining slightly between 2006 and 2007, with a large increase between 2007 and 2008.

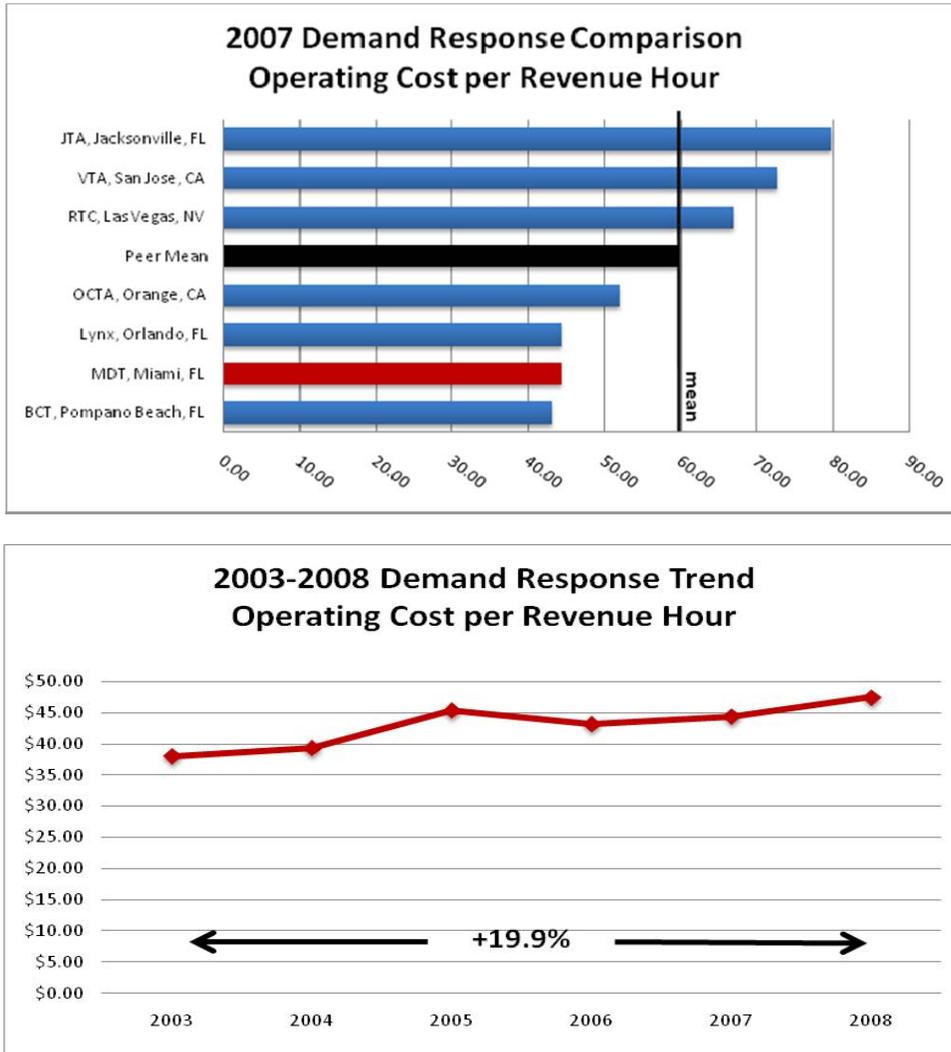
Figure 4-34: Demand Response Operating Cost per Passenger Trip



Data Source: NTD (2003-07) and MDT (2008)

The trend for operating cost per revenue hour is an increase of 19.9 percent (19.9%). The trend includes some slight increases and decreases between 2003 and 2008. Not a bad result given the increases in operating cost elements such as fuel and employee benefits over the time period.

Figure 4-35: Demand Response Operating Cost per Revenue Hour

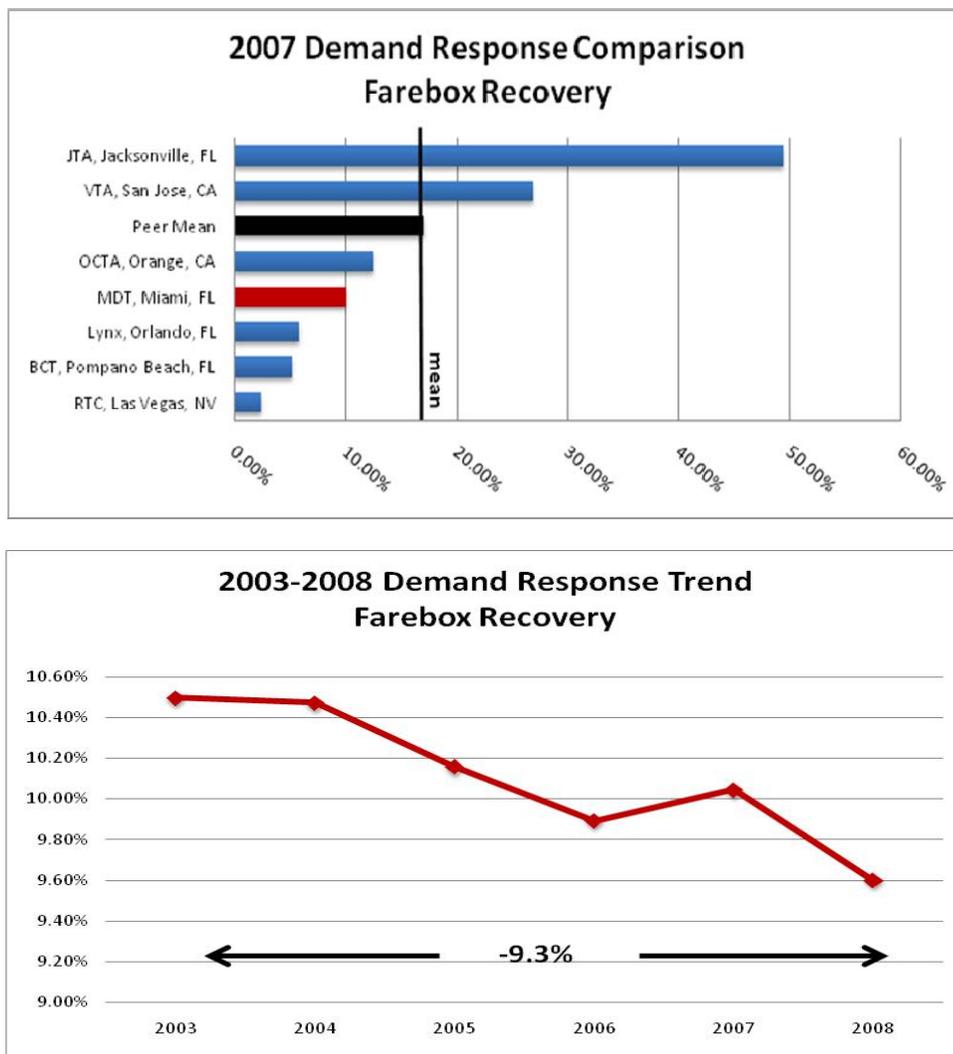


Data Source: NTD (2003-07) and MDT (2008)

Figure 4-36 shows MDT’s farebox recovery ratio for demand response service. MDT’s service performs a bit below average relative to its peers in terms of farebox recovery ratio—better than Las Vegas, Orlando or BCT. The average for the peer group is artificially high due to the performance of the Jacksonville system, which recovers nearly 50 percent (50%) of its costs through the farebox.

At 9.6 percent (9.6%), MDT’s farebox recovery ratio for demand response service is relatively high for this type of service. Performance on this statistic fell between 2003 and 2008, but is still relatively strong. Farebox recovery ratio for demand response service trended down 9.3 percent (9.3%) between 2003 and 2008.

Figure 4-36: Demand Response Farebox Recovery Ratio



Data Source: NTD (2003-07) and MDT (2008)