2005 Transportation MAP

2005 Transportation **M**etropolitan **A**tlanta **P**erformance Report

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EXECUTIVE SUMMARY

The 2005 Transportation MAP Report (2005 Transportation Metropolitan Atlanta Performance Report) updates the 2004 Transportation MAP Report, which set baselines and targets for use in tracking the overall performance of the transportation system in Metropolitan Atlanta. Measures and targets were set in four general categories – Mobility, Transit Accessibility, Air Quality, and Safety.

The 2005 report reveals a mixed picture for the Metropolitan Atlanta transportation system, with some progress and some slippage in each of the areas of Mobility, Air Quality, and Transit Accessibility and Safety.

More specifically, the pavement condition rating of Atlanta improved markedly from 2004 to 2005. Highway congestion during the morning and evening peak periods, measured by the newly introduced travel time index, has worsened compared to the previous year and to the 2002 baseline. Daily vehicle miles traveled per person has increased slightly, reversing a trend that began in 1998.

Due to the Metropolitan Atlanta Rapid Transit Authority (MARTA) service realignment and cutbacks annual transit passenger boardings and passenger trips per transit service hour continued their downward trend in 2004. A sign that the MARTA services are stabilizing are the improvements in its transit revenue service hours and transit passenger miles traveled. Transit revenue service hours on other providers – Cobb Community Transit (CCT), Douglas County Rideshare (DCR), the Georgia Regional Transportation Authority (GRTA), and Gwinnett Transit—increased, as did the overall number of vanpools.

We also continued to see relative improvements in Air Quality. The region successfully met the 1-hour ozone standard in 2005, just as the standard was being revoked. However, the efforts to improve air quality should continue in light of the new, tougher 8-hour ozone and the new fine particulate matter ($PM_{2.5}$) standards. The new air quality measures introduced with this year's report— daily vehicle emissions of volatile organic compounds, nitrogen oxides and primary fine particulate matter—show that vehicle emissions in 2004 were 80, 82 and 82 percent of their respective year 2000 level—a decrease of about 20 percent over four years.

For safety, there were increases in the absolute numbers of highway, pedestrian and bicycle fatalities. However, the highway fatality rates per 100 million vehicle miles traveled declined. Roadway clearance time, which contribute heavily to congestion in metropolitan Atlanta, backtracked, from 63.4 minutes in 2004 for tractor-trailers to 64.5 minutes in 2005 and from 29.3 minutes to 34.5 minutes for other vehicles.

OVERVIEW

Metropolitan Atlanta will make significant investments in its transportation system over the next 25 years. In order to assess the effectiveness of those investments, a group of agencies responsible for managing those investments has developed a set of measures and targets for tracking the performance of those investments. This is the third annual Transportation Metropolitan Atlanta Performance (MAP) Report summarizing those measures and targets. The measures and targets focus on four areas: Mobility, Transit Accessibility, Air Quality, and Safety. These measures are obtained for the former 13-county 1-hour ozone nonattainment area consisting of Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale. Another ongoing consideration for the region is the addition of counties to the nonattainment area under both the 8-hour ozone standard and the $PM_{2.5}$ standard.

The agencies tracking these measures are the U.S. Department of Transportation, the Georgia Department of Transportation (GDOT), the Environmental Protection Division of the Georgia Department of Natural Resources, the Atlanta Regional Commission, GRTA, and MARTA.

Baseline and target years have been set for the measures, typically 2000 or 2001 for the baseline year and 2006 for the target year. The specific targets, respecting the unique quality of each measure, were set after review and discussion by appropriate professionals from the respective agencies. Each year, after the data is collected and certified, the agencies present a report of the region's progress in meeting the targets that have been set. New measures and targets are developed and added to this report as they become necessary.

MOBILITY

The mobility measures for the region track highway and transit system performance. The partner agencies have agreed on five measures of mobility:

- Freeway travel time index and Arterial congestion,
- Daily vehicle miles traveled (VMT) per person,
- Pavement condition rating,
- Transit passenger miles traveled,
- Annual transit passenger boardings.

The first three measures address the ease with which an individual vehicle can travel over the roads, the distances the average person drives each day, and the physical condition of the roadway. The final two measures track how far people in the region travel on public transit in a year, which is roughly analogous to annual vehicle miles traveled, and the number of people that board public transit each year.

FREEWAY AND ARTERIAL CONGESTION

The freeways are at the heart of Atlanta's highway system. The roads that move traffic on and off the freeway are called arterials. The amount of traffic a road is designed to handle is the road's capacity. The traffic actually on the road is its volume. The volume, capacity and travel time are used to calculate congestion measures.

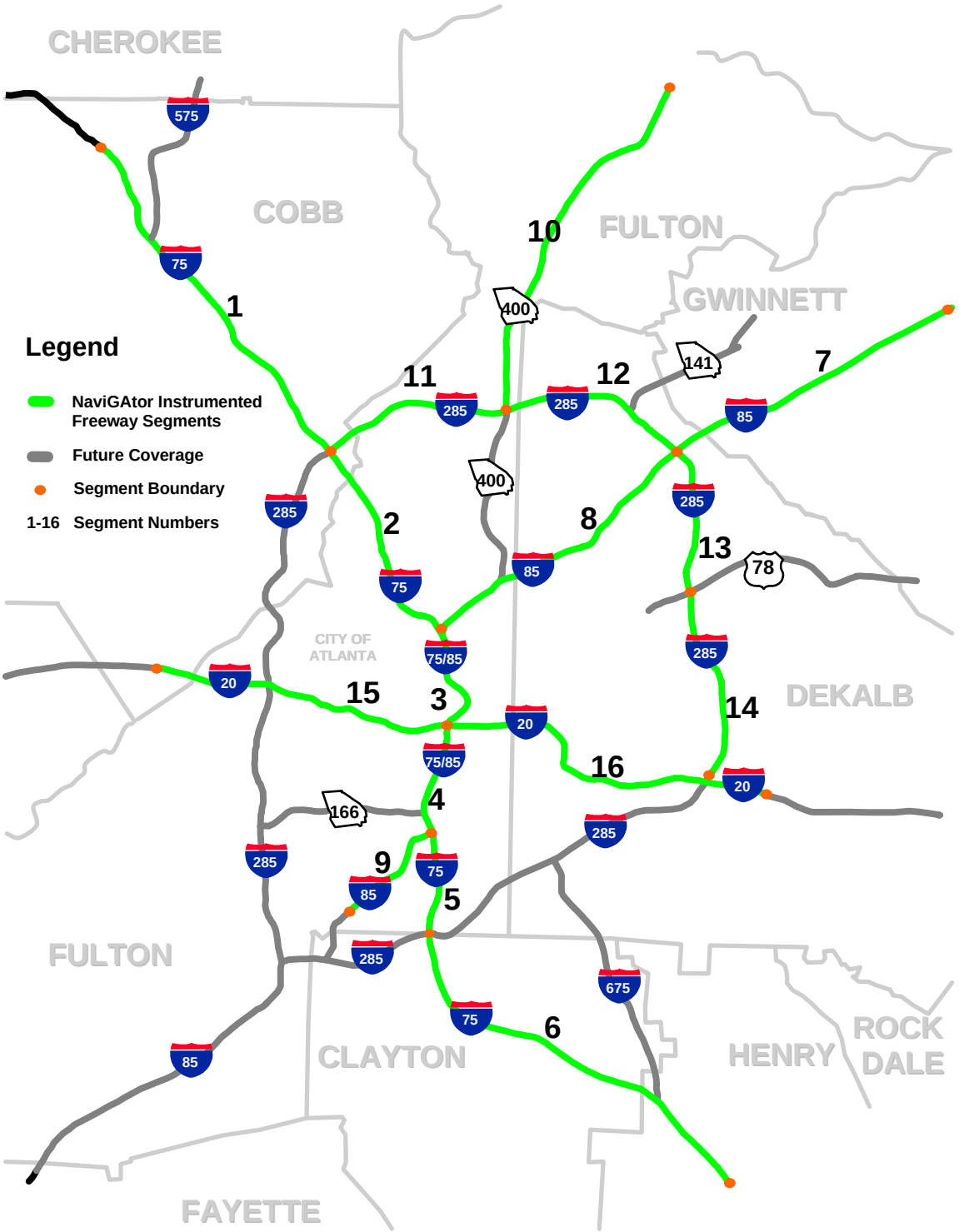
Freeway Travel Time Index

Measuring congestion on the region's freeways is a difficult task that can be approached using a variety of tools. The 2005 report introduces the travel time index (TTI) as a measure for congestion on the Atlanta region's freeways. TTI is the ratio of the congested travel time over the free-flow travel time obtained for a certain portion or segment of the freeway system. For this report, measurements were created using GDOT's NaviGAtor video detection cameras. The Metropolitan Atlanta freeway network covered by the Georgia NaviGAtor system is split into 16 bidirectional segments. Coverage is determined by the functioning NaviGAtor infrastructure across the Metropolitan Atlanta freeway system as depicted on Figure 1 on page four.

These cameras are strategically placed to monitor speeds and volumes, with each camera taking a measurement every 20 seconds. As many as 1.5 billion measurements are taken by these cameras each year. The measurements are examined and aggregated into 15-minute intervals for the morning peak period (6:00 a.m. to 10:00 a.m.) and evening peak period (3 p.m. to 7 p.m.) for the weekdays only. Subsequently, the freeway travel time index during the slowest region-wide one-hour morning (7:30 a.m. to 8:30 a.m.) and evening peak (5:00 p.m. to 6:00 p.m.) period is obtained for each of the 16 segments. The regional travel time index is then obtained as the weighted average of the freeway segment TTIs with VMT used as weight. In cases when a segment TTI is less than one the respective segment TTI is assumed equal to one. The higher the TTI number the worst the congestion is. Figure 2 on page 5 depicts the Metropolitan Atlanta TTI for the slowest one-hour morning and afternoon peak period, respectively.

The freeway travel time index measure is the VMT-weighted average of the freeway segments' TTIs for the one-hour morning and evening peak period with the slowest regional freeway travel speed, averaged across all directional freeway segments.

Figure 1: NaviGAtor Video Detection Coverage



For the 2002 base year, during the morning peak period, TTI was 1.16. This TTI increased to 1.30 in 2005. During the afternoon peak period the average TTI worsened from 1.21 in 2002 to 1.33 in 2005.

GA 400 north of I-285 was the worst performing segment in 2004 with TTI of 2.24 (southbound) for the morning peak and 2.26 (northbound) for the evening peak. It is assumed that this still would be the case if 2005 data were available. However, 2005 data for this segment are not available due to data collection problems. In the absence of such data, the worst performing morning segment in 2005 was northbound I-75 between I-85 and I-20, with an average TTI of 1.93. The worst performing evening segment was southbound I-285 between I-85 and US-78, with TTI of 2.15. The actual travel times by freeway segment used in obtaining the regional TTI are summarized in the Appendix.

It is important to recognize that the regional TTI measure is a VMT-weighted average. With speeds on some segments of the freeway network in excess of 70 mph and others at less than 30 mph, at the same time of day, the average TTI may seem low to those who regularly travel the segments with slower speeds. The freeway travel time index, by creating a weighted average TTI for the slowest one-hour periods of the day, provides a constant by which the performance of the freeway network can be compared from year to year. Additionally, since the creation of the measure provides a record of the performance of individual segments of the network, it will be easier for the region to assess the impacts on congestion of improvements or degradations to individual segments of the freeway network.

In order to put the regional TTI measure in context, the travel time index, by individual segment, is summarized in Table 1 on page 6. Additionally, the 2005 TTIs, depicted by freeway segment, are presented in Figure 3 (morning peak hour) and Figure 4 (evening peak hour) on pages seven and eight, respectively.

Figure 2: Freeway Travel Time Index

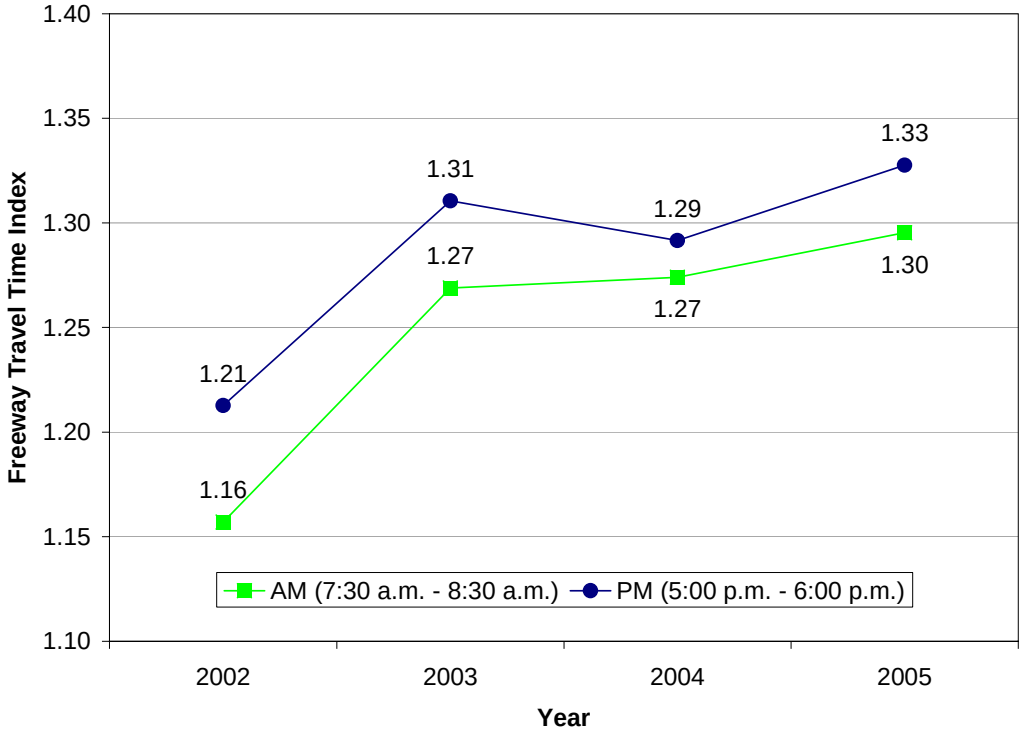
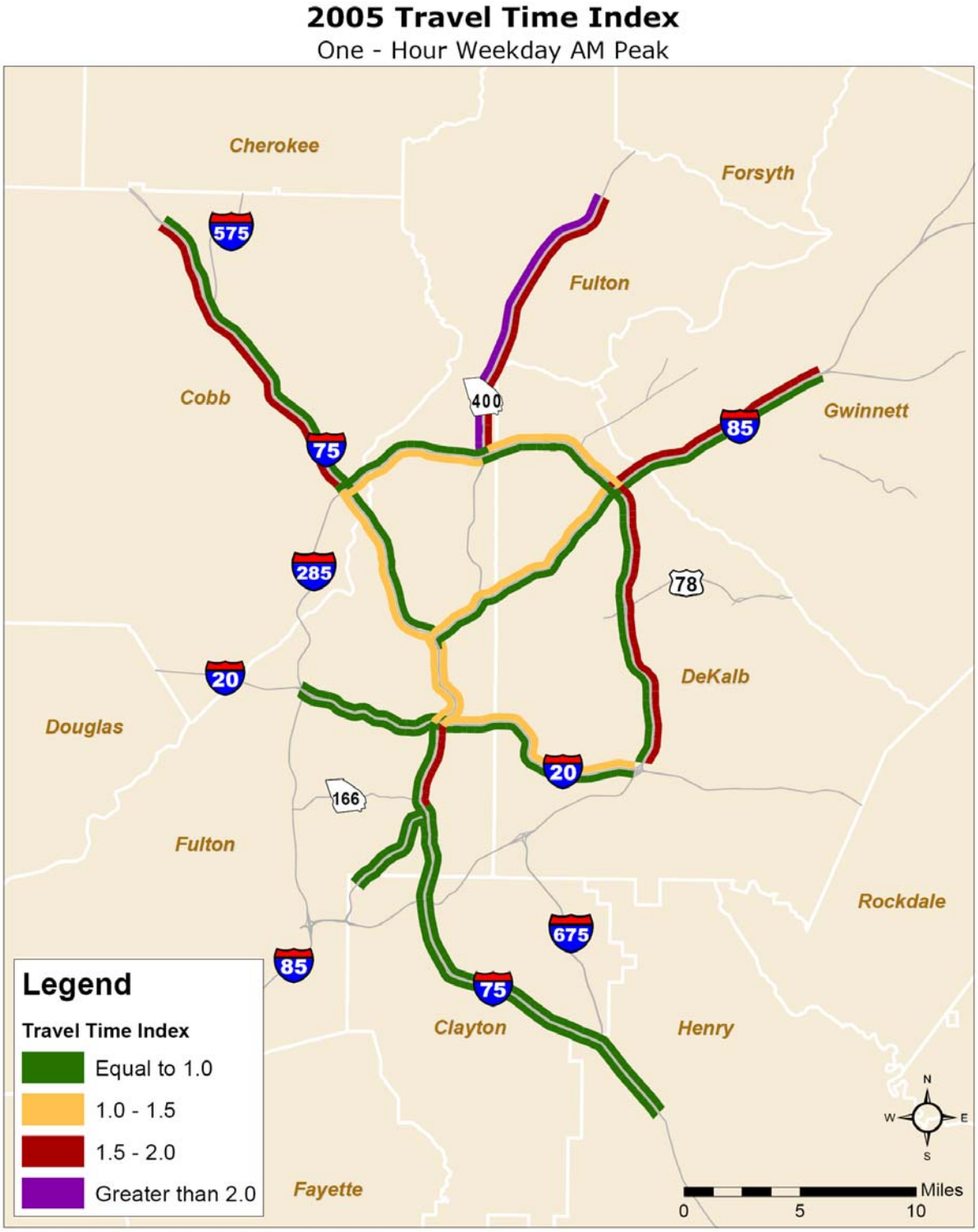


Table 1: 2005 Travel Time Index by Freeway Segment (Segment-Specific Peak Hour)

Freeway Segment Description	Segment Length (miles)	Morning Peak Hour	Morning Period TTI	Evening Peak Hour	Evening Period TTI
1: I-75 NB (from I-285 to Wade Green Road)	14.00	6:00	1.00	17:00	1.82
1: I-75 SB (from Wade Green Road to I-285)	14.55	7:15	1.75	17:45	1.00
2: I-75 NB (from I-85 to I-285)	8.45	6:00	1.00	17:00	1.20
2: I-75 SB (from I-285 to I-85)	7.86	8:00	1.09	17:15	1.00
3: I-75/I-85 NB (from I-20 to I-85)	4.41	7:45	1.24	17:30	1.37
3: I-75/I-85 SB (from I-85 to I-20)	4.40	8:15	1.05	16:45	2.04
4: I-75 NB (from I-85 to I-20)	3.88	7:45	1.98	15:45	1.00
4: I-75 SB (from I-20 to I-85)	3.75	8:30	1.00	16:45	1.00
5: I-75 NB (from I-285 to I-85)	4.00	7:45	1.00	16:00	1.00
5: I-75 SB (from I-85 to I-285)	4.12	6:00	1.00	17:00	1.08
6: I-75 NB (from Hudson Bridge Road to I-285)	14.53	6:45	1.00	17:15	1.00
6: I-75 SB (from I-285 to Hudson Bridge Road)	14.45	6:00	1.00	17:00	1.45
7: I-85 NB (from I-285 to Old Norcross Road)	10.71	6:00	1.02	17:00	2.00
7: I-85 SB (from Old Norcross Road to I-285)	10.66	7:15	1.72	17:15	1.00
8: I-85 NB (from I-75 to I-285)	9.96	7:30	1.00	17:00	1.00
8: I-85 SB (from I-285 to I-75)	10.45	8:00	1.18	17:15	1.10
9: I-85 NB (from Camp Creek Parkway to I-75)	4.86	7:30	1.00	15:15	1.00
9: I-85 SB (from I-75 to Camp Creek Parkway)	4.20	6:00	1.00	16:45	1.00
10: GA-400 NB (from I-285 to Old Milton Parkway)	13.14	N/A	N/A	N/A	N/A
10: GA-400 SB (from Old Milton Parkway to I-285)	13.16	N/A	N/A	N/A	N/A
11: I-285 EB (from I-75 to GA-400)	6.82	7:30	1.26	17:15	1.00
11: I-285 WB (from GA-400 to I-75)	7.21	9:00	1.00	17:00	1.62
12: I-285 EB (from GA-400 to I-85)	6.48	7:30	1.00	17:00	2.19
12: I-285 EB (from I-85 to GA-400)	6.37	8:00	1.53	17:00	1.11
13: I-285 NB (from US-78 to I-85)	5.37	7:30	1.53	15:00	1.04
13: I-285 SB (from I-85 to US-78)	5.89	9:00	1.00	17:00	2.29
14: I-285 NB (from I-20 to US-78)	8.20	7:15	1.60	16:30	1.02
14: I-285 SB (from US-78 to I-20)	7.45	9:00	1.00	16:45	1.13
15: I-20 EB (from I-285 to I-75/I-85)	6.43	7:45	1.00	17:15	1.00
15: I-20 WB (from I-75/I-85 to I-285)	7.12	9:00	1.00	17:00	1.00
16: I-20 EB (from I-75/I-85 to I-285)	9.85	9:00	1.00	17:15	1.06
16: I-20 WB (from I-285 to I-75/I-85)	9.39	7:45	1.22	18:00	1.00

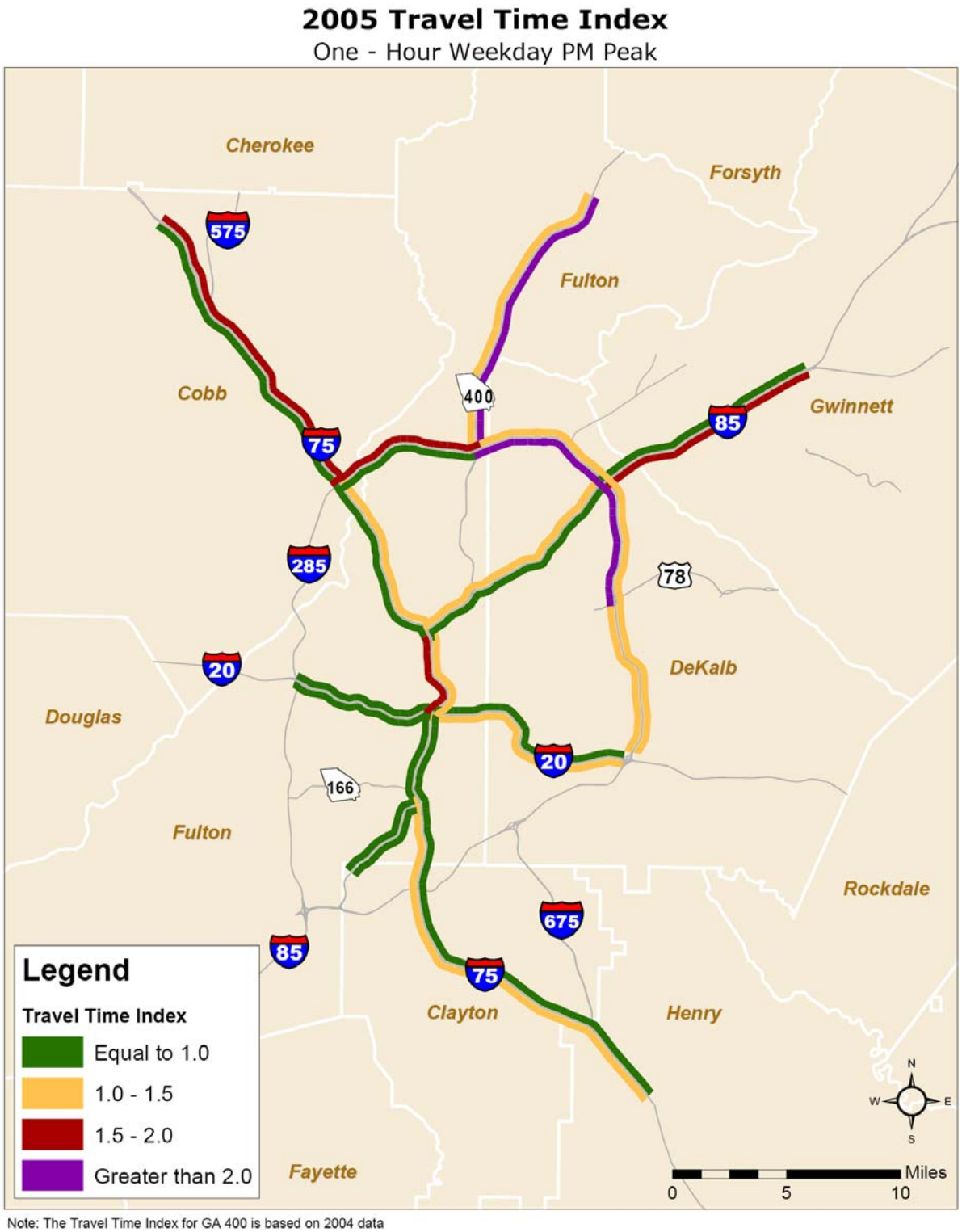
The TTIs presented in this table are the VMT-weighted average TTI for each of the segments during the one-hour segment-specific peak period with the slowest average speed.

Figure 3: 2005 Travel Time Index – Morning Peak (7:30 a.m. – 8:30 a.m.)



Note: The Travel Time Index for GA 400 is based on 2004 data

Figure 4: 2005 Travel Time Index – Afternoon Peak (5 p.m. – 6 p.m.)



Note: The Travel Time Index for GA 400 is based on 2004 data

Arterial Congestion

The Arterial Congestion measure is based on the data compiled by GDOT's consultant, SkyComp. The SkyComp database associates a level of service (LOS) grade by segment of several state highways based on analysis of overlapping aerial photography of these arterials. LOS grades are classified as Uncongested (LOS A, LOS B, LOS C, and LOS D), Moderately Congested (LOS E) and Severely Congested (LOS F). The Arterial Congestion measure is the percentage of lane miles for each of the three congestion levels as defined.

The SkyComp measurements are taken in early autumn, on weekdays, with good weather and with no incidents impeding traffic flow. The most recent 2004 round of flights covered arterials not covered in the 2001 survey. Therefore, in order to ensure thorough coverage of the region, this performance measure is based on 2004 data as well as the data from the 2001 survey. The arterial congestion measure will be updated when new data becomes available later in 2006.

For the morning peak period (6:30 a.m. to 9:30 a.m.), 88 percent of the arterial lane-miles are uncongested, 9 percent are moderately congested and 3 percent are severely congested. For the evening peak period (4:00 p.m. to 7:00 p.m.), 81 percent of the arterial lane-miles are uncongested, 15 percent are moderately congested and 4 percent are severely congested. These results are graphically depicted in Figure 5 and Figure 6, respectively.

Figure 5: Arterial Congestion – Morning Peak

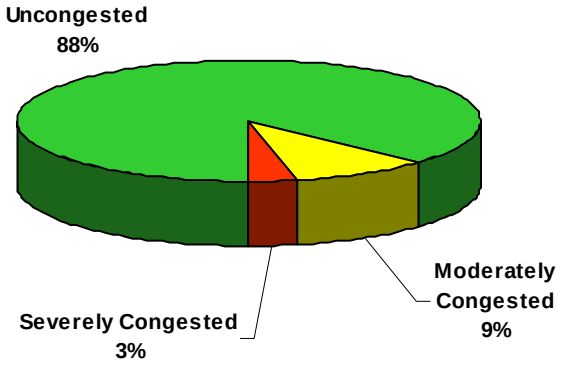
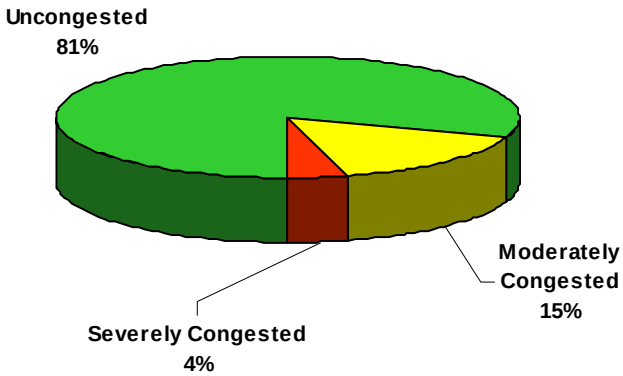


Figure 6: Arterial Congestion – Evening Peak



DAILY VEHICLE MILES TRAVELED PER LICENSED DRIVER / PERSON

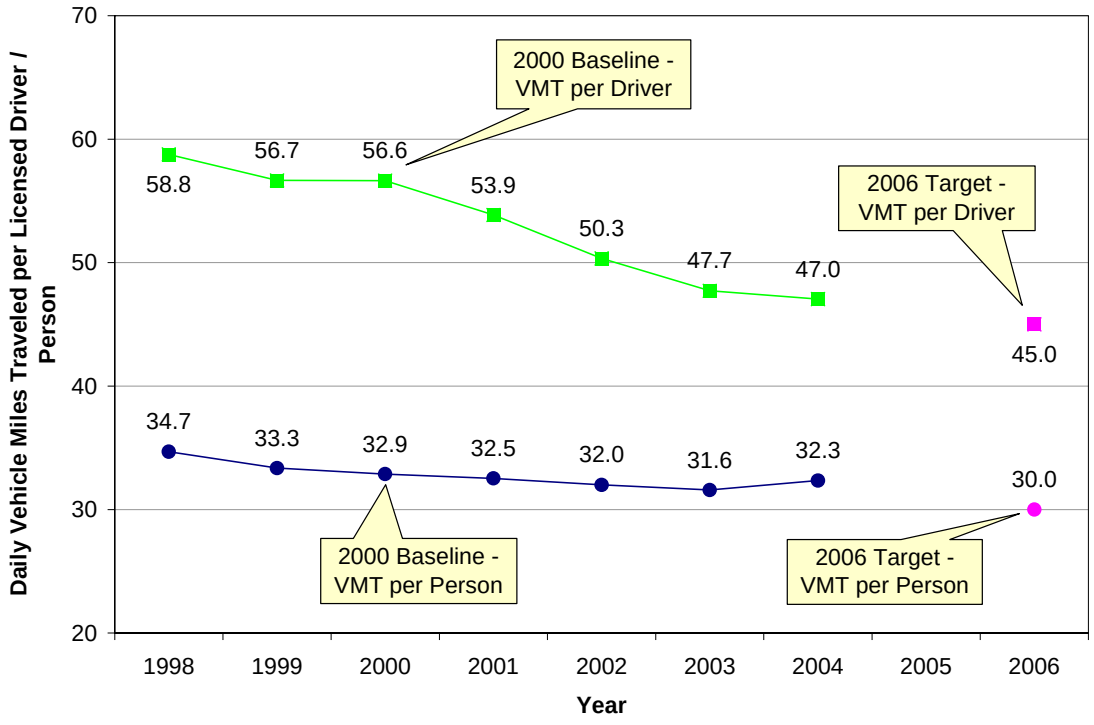
Daily vehicle miles traveled per licensed driver measures the average distance each licensed driver in the region drives each day.[1] In 1998 that number was 58.8 miles.[2] In the baseline year of 2000, that number had declined to 56.6 miles. The 2006 target is to reduce the daily vehicle miles traveled per driver to 45 miles.

Similarly, daily vehicle miles traveled per person measures the average distance each person in the region drives each day.[3] In 1998 that number was 34.7 miles. In the baseline year of 2000, that number had fallen to 32.9 miles. The 2006 target is to reduce the daily vehicle miles traveled per person to 30 miles.

Reduction of VMT may be interpreted as a sign that people are choosing to live closer to their daily work, play, and other destinations, that they are more carefully choosing their routes or are trip chaining, or that they are engaging in other behaviors such as walking or biking that result in reducing the distances that they drive each day.

Reducing VMT reduces the amount of emissions generated by the vehicles. With the region's population expected to increase by approximately two million persons over the next 25 years, reducing VMT will be a necessary component of controlling the vehicle emissions that contribute to poor air quality.

Figure 7: Daily Vehicle Miles Traveled Per Licensed Driver / Person



[1] Daily vehicle miles traveled per licensed driver is computed as the total daily VMT divided by the number of the licensed drivers for the former 13-county Atlanta 1-hour ozone nonattainment area. The VMT data and licensed drivers data are obtained from GDOT and the Department of Driver Services (DDS), respectively.
[2] VMT per licensed driver numbers differ from the ones in the 2004 Transportation MAP Report because of the rescaled licensed driver's data due to the change in DDS methodology for obtaining these numbers.
[3] Daily vehicle miles traveled per person is computed as the total daily VMT divided by the total population for the former 13-county Atlanta 1-hour ozone nonattainment area. The VMT data and population data are obtained from GDOT and ARC, respectively.

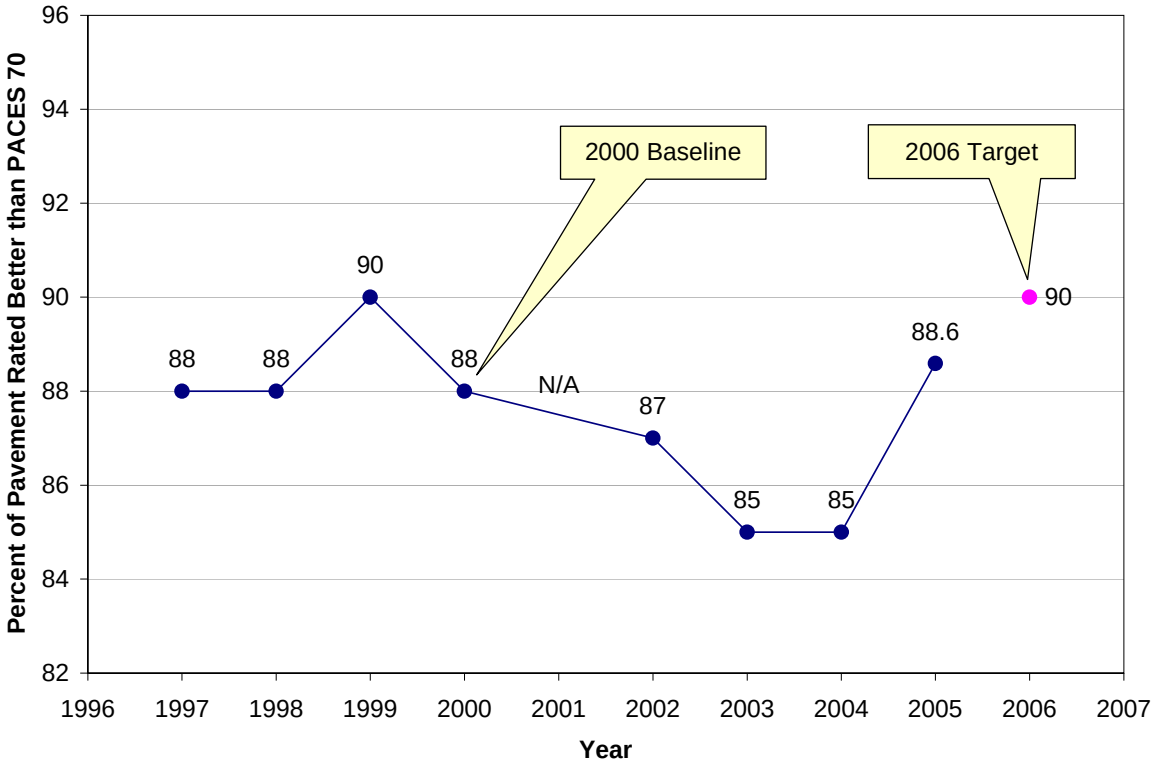
PAVEMENT CONDITION RATING

It is important to keep pavement in good shape. When roadway surfaces are not maintained, the roadway must be rebuilt from the ground up. It is more economical to systematically maintain roadways than to rebuild them.

The PACES (Pavement Condition Evaluation System) rating is a system by which GDOT measures the quality of the roadway pavement. A pavement in perfect condition receives a maximum value of 100 and points are deducted according to the extent and severity of observed distress. Roadways rated 70 and below are further evaluated to determine if they are good candidates for a preservation action and what that action will be, typically resurfacing or rehabilitation. Although it may be expanded in the future, currently the PACES rating covers only state and national highway system routes, i.e. those roads for which GDOT has maintenance responsibility.

Pavement condition rating is the percentage of pavement rated better than PACES of 70. In the baseline year of 2000, 88 percent of the GDOT roads had a PACES rating of 70 or better.[4] The 2006 target is to maintain that standard, with 90 percent of the roads having a PACES rating value of 70 or better. This target allows GDOT to resurface or replace each of the roads it is responsible for about every 10 years. The 2005 PACES rating increased significantly due to GDOT implementing several resurfacing projects during the last year.

Figure 8: Percent of Pavement Rated Better than PACES 70



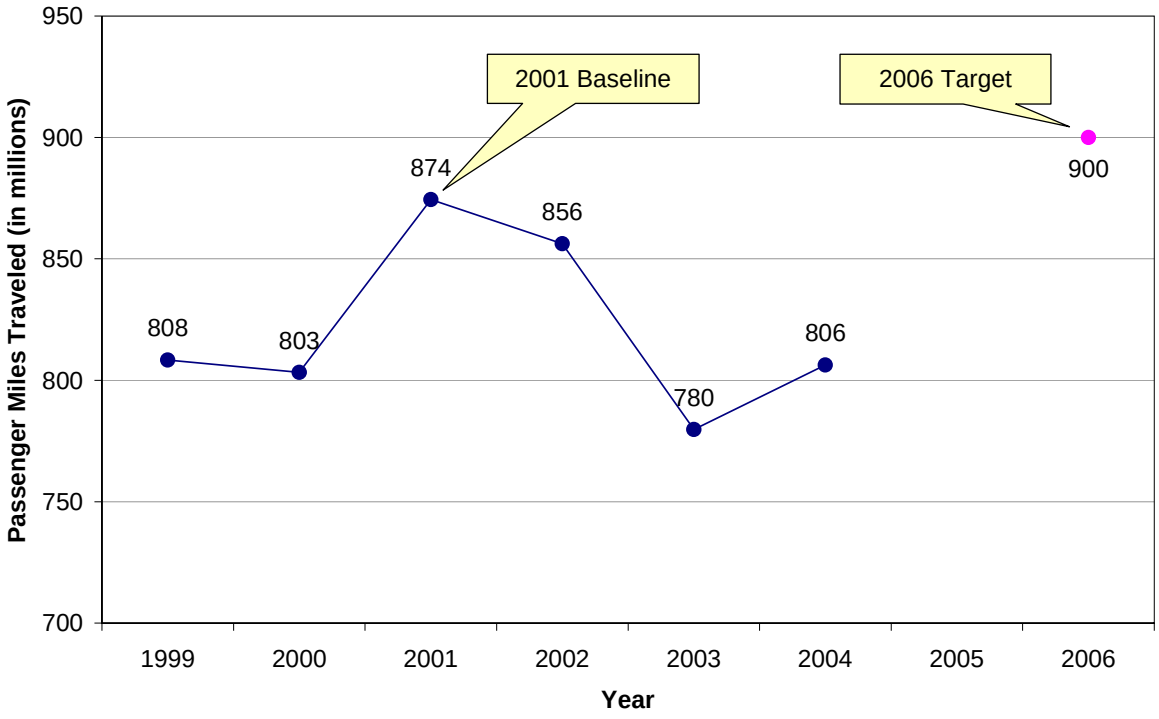
[4] Pavement condition rating series has been re-estimated by GDOT in this year's report. A 2001 pavement condition rating estimate is not available because of a statewide data collection problem.

TRANSIT PASSENGER MILES TRAVELED

The measure "transit passenger miles traveled" is the sum of the distances of bus and rail annual usage by all passengers of all transit systems in the former 13-county Atlanta 1-hour ozone nonattainment area. This measure is roughly analogous to "vehicle miles traveled." Increasing transit passenger miles traveled may reduce the growth in VMT that can be expected from increased population. Lower VMT can result in lower emissions, which contributes to improved air quality.

In the base year of 2001, passengers using public transit traveled 874 million miles. That slid to 806 million miles in 2004, due mainly to MARTA service reductions. The target for 2006 is to increase the number of transit passenger miles traveled to 900 million annually.

Figure 9: Transit Passenger Miles Traveled[5]

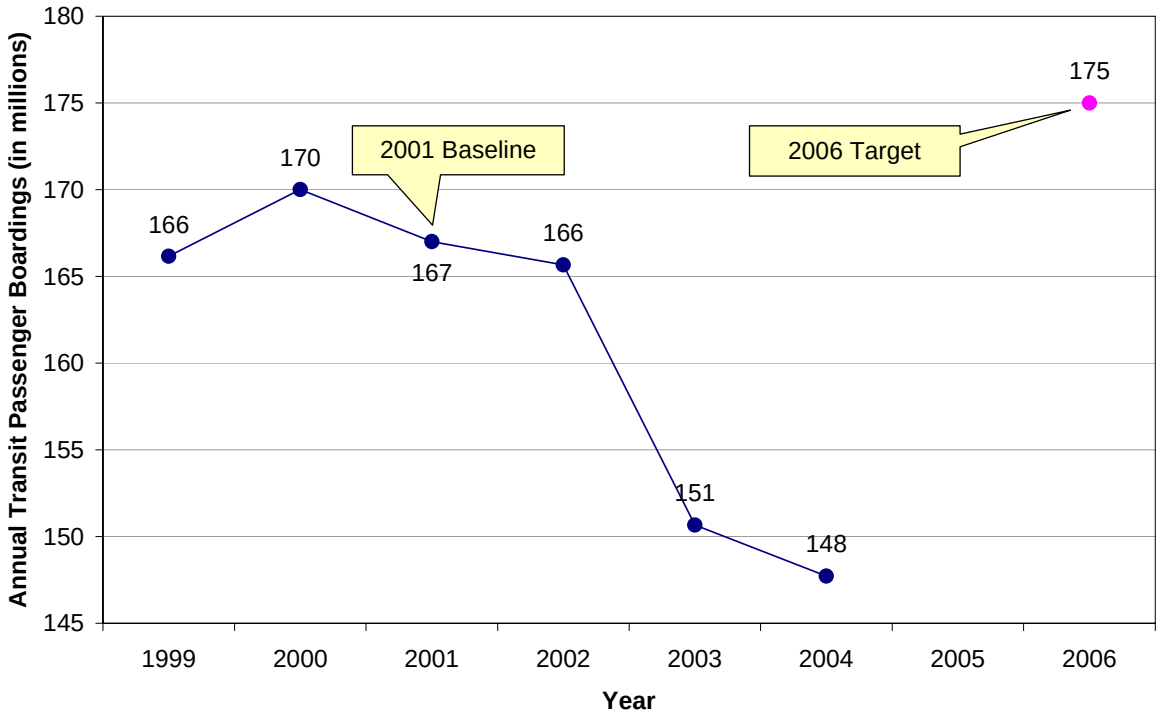


[5] The transit passenger miles information for years 1999 through 2003 comes from the National Transit Database. The MetroVanPool portion of the GRTA's passenger miles for 2002 is estimated. The 2004 system wide passenger miles number is based on information provided directly by the regional transit agencies MARTA, Cobb Community Transit, Douglas County Rideshare, GRTA, and Gwinnett Transit.

ANNUAL TRANSIT PASSENGER BOARDINGS

The annual transit passenger boardings measure represents the number of passengers who board the 13-county region's buses and trains in a given year. Passengers are counted each time they get on vehicles no matter how many vehicles they use to travel from their origin to their destination. In the base year of 2001, there were 167 million passenger boardings. That number declined to 148 million boardings in 2004. The target for 2006 is 175 million boardings. As with transit passenger miles traveled, increasing transit boardings may offset potential increases in VMT attributable to increased population, with the corresponding reduction in vehicle emissions.

Figure 10: Annual Transit Passenger Boardings[6]



[6] The transit passenger boardings (unlinked passenger trips) information for years 1999 through 2003 comes from the National Transit Database. The motorbus portion of the GRTA's transit passenger boardings for 2003 is based on GRTA data. The 2004 system wide transit passenger boardings number is based on information provided directly by the regional transit agencies MARTA, Cobb Community Transit, Douglas County Rideshare, GRTA, and Gwinnett Transit.

TRANSIT ACCESSIBILITY

The transit accessibility measures assess the availability of transit to the public. There are four specific measures:

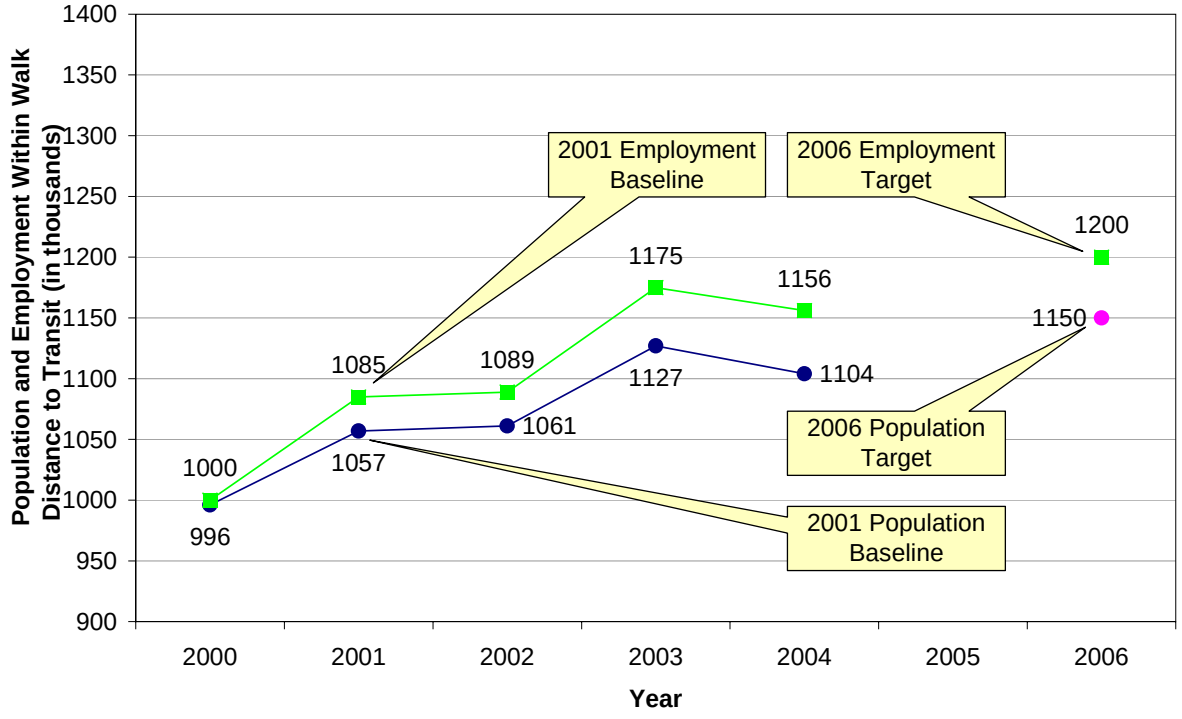
- Population within walk distance to transit,
- Transit revenue service hours,
- Passenger trips per transit service hour, and
- Number of vanpools.

The more accessible and available transit is, the more likely it is to be used, leading to increased transit passenger miles traveled and transit boardings and their associated benefits.

POPULATION AND EMPLOYMENT WITHIN WALK DISTANCE TO TRANSIT

The measure population and employment within walk distance to transit measures how many people live or work within 4/10 of a mile of a transit stop, this being considered a distance which the average person is willing to walk in order to use transit.[7] In 2001, the baseline year, 1,057,000 people lived and 1,085,000 people worked within walking distance of a transit stop. The drop from 2003 to 2004 is attributable to MARTA service reductions. For target year 2006, the goal is to increase these numbers to 1,150,000 and 1,200,000, respectively.

Figure 11: Population and Employment Within Walk Distance to Transit



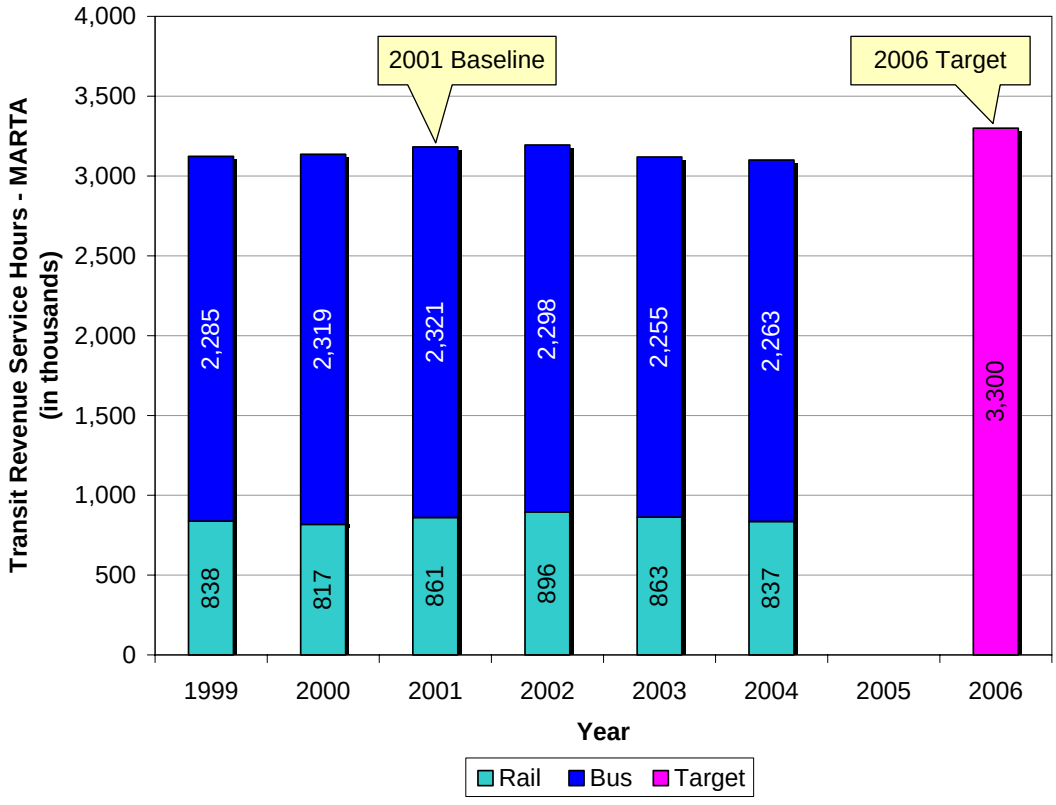
[7] This measure is estimated for the 13-county Atlanta region by using ARC's travel demand model and combining ARC's socio-economic forecasts with highway and transit networks updated for each year.

TRANSIT REVENUE SERVICE HOURS

The measure "transit revenue service hours" reflects the total number of hours trains and buses are running and available to carry passengers in a given year. One vehicle in service for one hour equals one transit revenue service hour. In terms of number of passengers carried, one train car equals two transit buses. An increase in transit revenue service hours reflects an increase in the availability of transit to the public.

In the baseline year of 2001 there were 3,339,000 revenue service hours provided by MARTA, CCT, DCR, transit providers reported through GRTA and Gwinnett Transit. MARTA provided 3,182,000 revenue service hours.[8] The other transit systems combined provided a total of 157,000 revenue service hours. (C-TRAN service began in October of 2001 and Gwinnett Transit began service in November of 2001. Their first year revenue service hours are reported as part of the 2002 statistics.). The target for transit revenue service hours for all transit systems in 2006 is 3,650,000 revenue service hours – 3,300,000 for MARTA and 550,000 for the other transit systems combined.

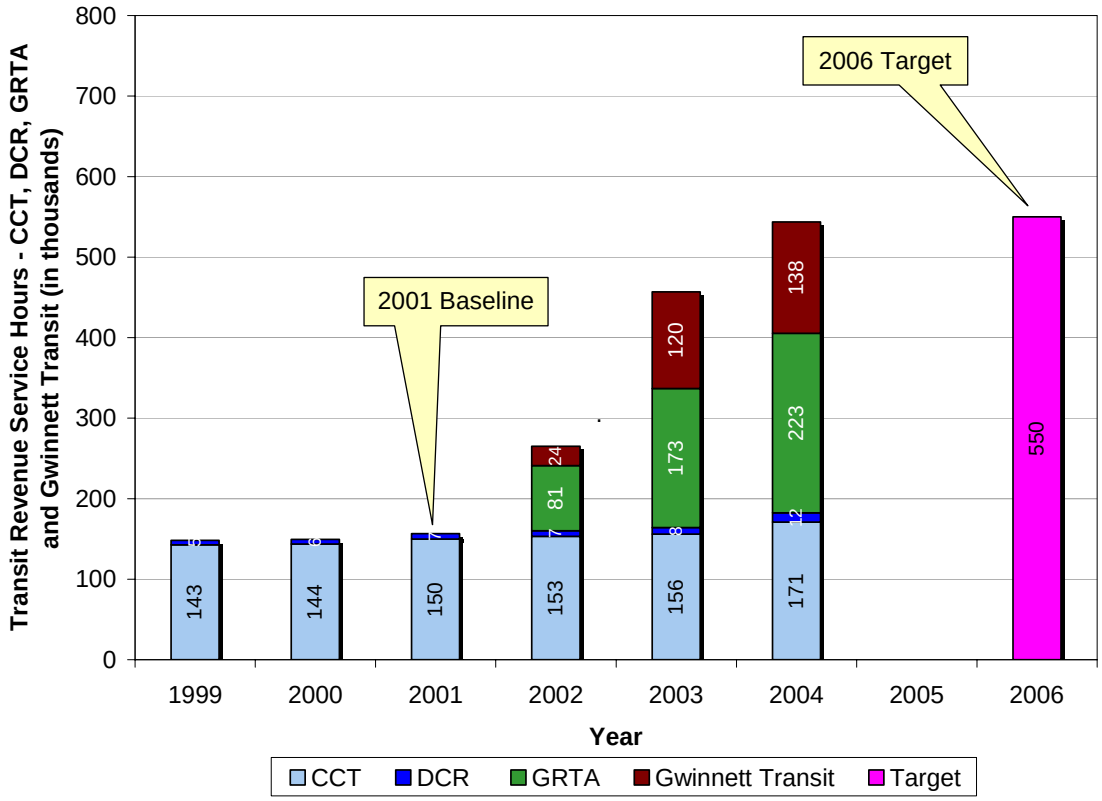
Figure 12: Transit Revenue Service Hours – MARTA[9]



[8] The transit service providers reporting to the National Transit Database through GRTA are C-TRAN, Quicklink and MetroVanPool for 2002; C-TRAN, Quicklink, Emory Shuttle, MetroVanPool, GBA/GRTA Vanpool for 2003; and C-TRAN, Buckhead Shuttle "Buc," Emory Shuttle, Georgia Tech, MetroVanPool, and GRTA Vanpool for 2004.

[9] The transit revenue service hours are the sum of the rail and bus revenue service hours. The bus figure also includes the paratransit service. The revenue service hours information for years 1999 through 2003 comes from the National Transit Database. The 2004 number is based on information provided directly by MARTA.

Figure 13: Transit Revenue Service Hours – Cobb Community Transit, Douglas County Rideshare, GRTA and Gwinnett Transit[10]



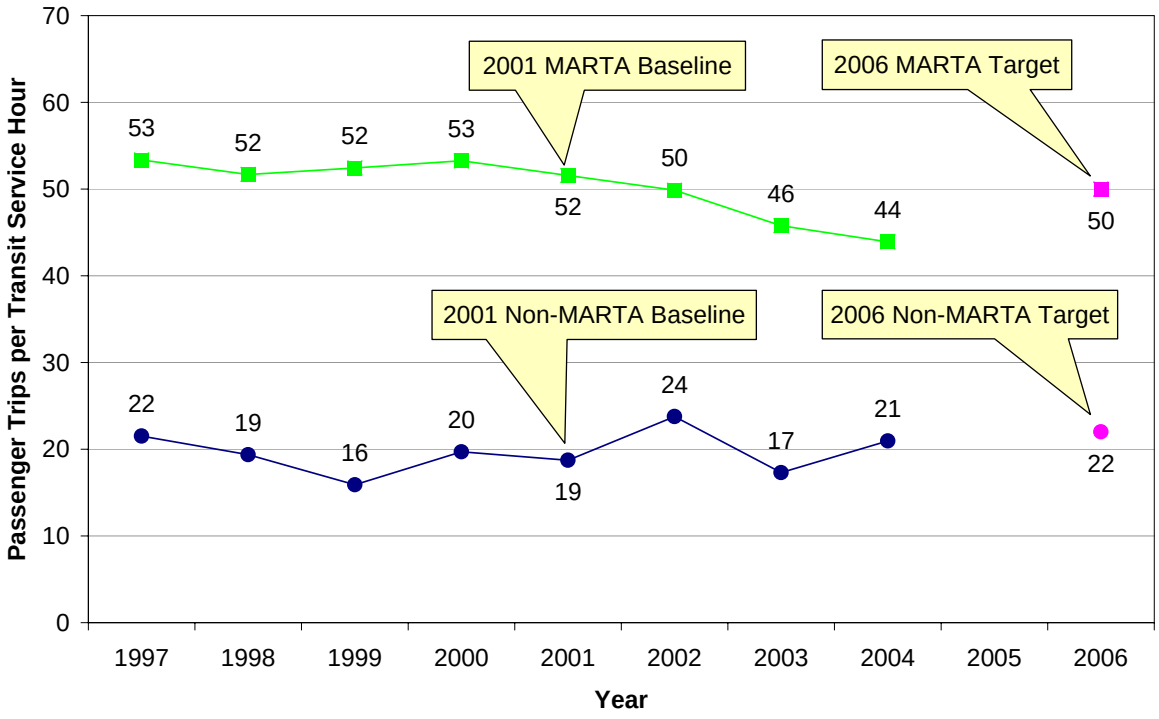
[10] The revenue service hours information for years 1999 through 2003 comes from the National Transit Database. The GRTA portion of transit revenue service hours for 2003 is based on GRTA data. The 2004 system wide transit passenger boardings number is based on information provided directly by the regional transit agencies Cobb Community Transit, Douglas County Rideshare, GRTA, and Gwinnett Transit.

PASSENGER TRIPS PER TRANSIT SERVICE HOUR

The measure "passenger trips per transit service hour" reflects the average number of unlinked passenger trips per revenue hour trains and buses are running and available to carry passengers in a given year. One vehicle in service for one hour equals one transit revenue service hour. In terms of number of passengers carried, one train car equals two transit buses. An increase in passenger trips per transit service hour reflects an increase in the transit system effectiveness.

In the baseline year of 2001 there were 52 passenger trips per transit service hour for MARTA. The other transit systems combined (CCT, DCR, transit providers reported through GRTA, and Gwinnett Transit) had 19 passenger trips per transit service hour. The target for passenger trips per transit service hour for MARTA in 2006 is 50 and 22 for the other transit systems combined.

Figure 14: Passenger Trips per Transit Service Hour

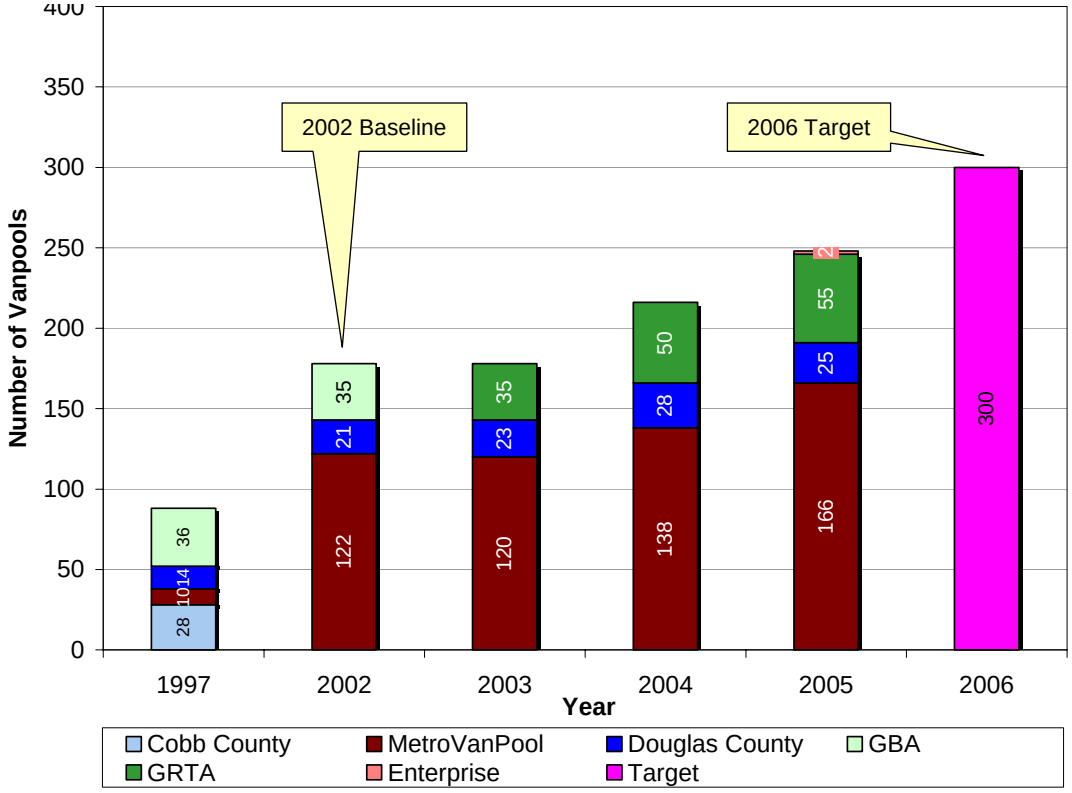


NUMBER OF VANPOOLS

Vanpools are perhaps the most flexible form of public transit other than a carpool. They operate at the convenience of the vanpool group and are able to be in service at any hour of the day and to travel any route the group desires, from door-to-door service to pickup and drop-off at fixed locations. This flexibility is particularly useful for people working second and third shifts, those working at locations not currently served by regularly scheduled public transportation, and for others not effectively served by available public transit service. A typical vanpool operating a 15-passenger van takes seven cars off the road, contributing to reductions in both emissions and congestion.

Prior to 1997, there were four vanpool programs operating in the region – CCT's vanpool program, MetroVanPool, Douglas County Rideshare and the Georgia Building Authority's (GBA) vanpool program. When CCT's vanpool program disbanded service in October of 1997, all 28 of its routes were taken over by MetroVanPool. MetroVanPool is a private operator in the region and also provides some service to the public operators.[11] Another private operator—Enterprise, has entered the market to offer vanpool services as a vendor for the Clean Air Campaign (CAC) and the transportation management associations. Enterprise has one van with CAC and one van with Cobb Rides as of 2005. In October of 2003, GRTA absorbed the GBA's vanpools into its operation. GRTA and Douglas County operate public vanpools. The baseline year for vanpools in the region is 2002, when 178 vanpools were operating. The target for 2006 is to raise the total number of vanpools to 300.

Figure 15: Number of Vanpools



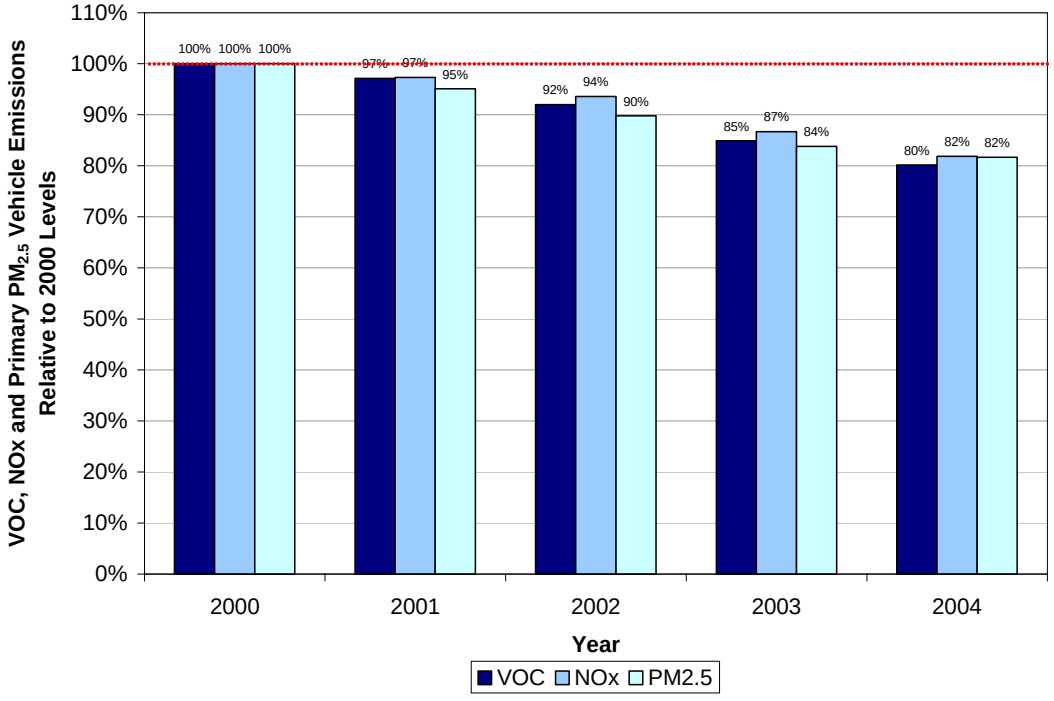
[11] MetroVanPool van fleet provides service to and/or from 28 counties in the Atlanta metropolitan area.

AIR QUALITY

The U.S. Environmental Protection Agency (EPA) has designated the Atlanta area as nonattainment under 8-hour ozone and fine particulate matter standards. The 8-hour ozone standard is based on the measured concentration of ozone in the air, averaged over eight-hour periods. Particulate matter is the general term used for a mixture of solid particles and liquid droplets found in the air. "Fine" particulate matter is less than 2.5 microns in diameter. The three major precursors for both ozone and fine particulate matter are volatile organic compounds (VOC), nitrogen oxides (NO_X), and primary fine particulate matter ($PM_{2.5}$). Three emission measures, corresponding to each of the three precursors, are introduced with this year's report, since these emissions are more directly related to the performance of the transportation system.

Total daily vehicle emissions of VOC, NO_X and primary $PM_{2.5}$, are estimated for the 13-county Atlanta area by multiplying the summer-adjusted average total daily VMT for the area by the corresponding MOBILE6 emissions factors. In order to make the measures directly comparable, their absolute values are converted into percentages and then compared to the baseline (year 2000) levels.[12] Figure 16 shows that total daily vehicle VOC, NO_X and primary $PM_{2.5}$, emissions in 2004 were 80, 82 and 82 percent of their respective year 2000 level—a decrease of about 20 percent over four years. Since the average total daily VMT has continued to increase each year, these decreases in emissions are due to declining emission factors resulting from advanced emission control technologies on newer vehicles and the Georgia Environmental Protection Division's clean gasoline and vehicle emissions inspection programs.

Figure 16: VOC, NO_X and $PM_{2.5}$ Vehicle Emissions in the Atlanta Area Relative to Year 2000



[12] These measures are similar to the respective emissions measures found in the GRTA 2005 Air Quality Report. The slight differences between the corresponding measures are due to the fact that the 13-county Atlanta area is considered in this report while the 20-county area is applicable to the 2005 Air Quality Report.

SAFETY

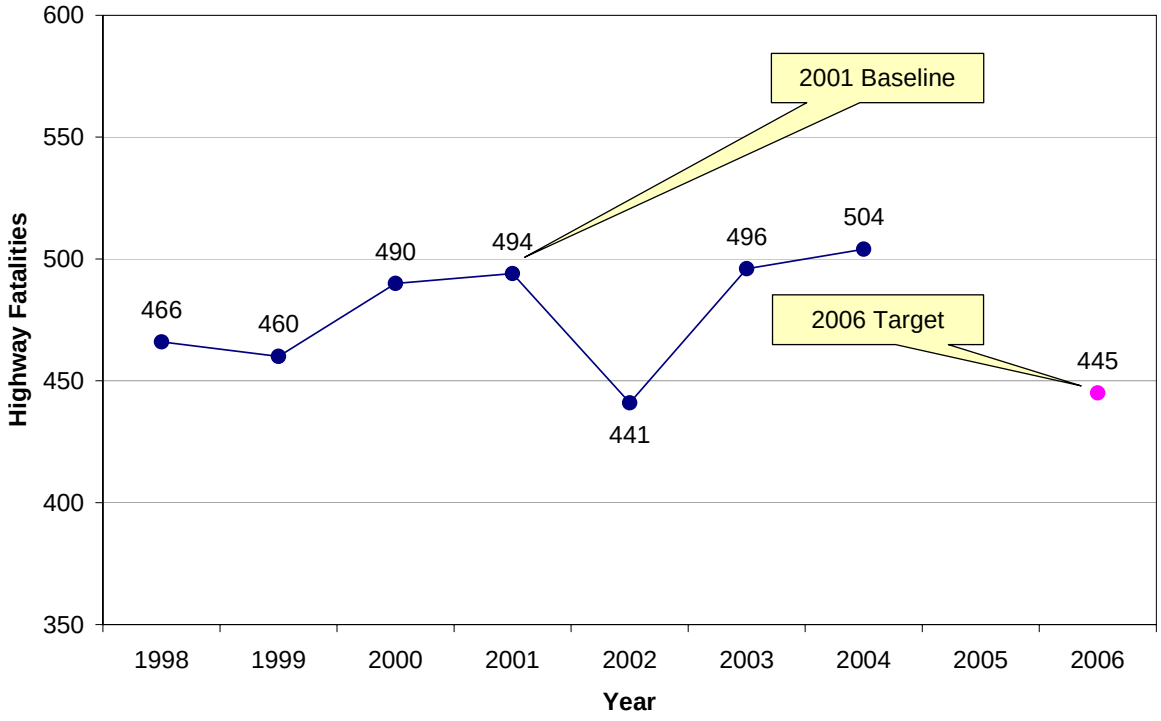
The safety measures address personal transportation safety as well as the roadway clearance time. The latter measure also affects mobility in the region, as each minute an incident blocks a travel lane results in three to seven minutes of delay and increases the probability of secondary incidents as traffic backs up.

The first two measures address fatalities. The ultimate target would be to eliminate highway, pedestrian and bicycle fatalities completely. Given that this is unlikely, the following measures and targets have been set.[13]

HIGHWAY FATALITIES

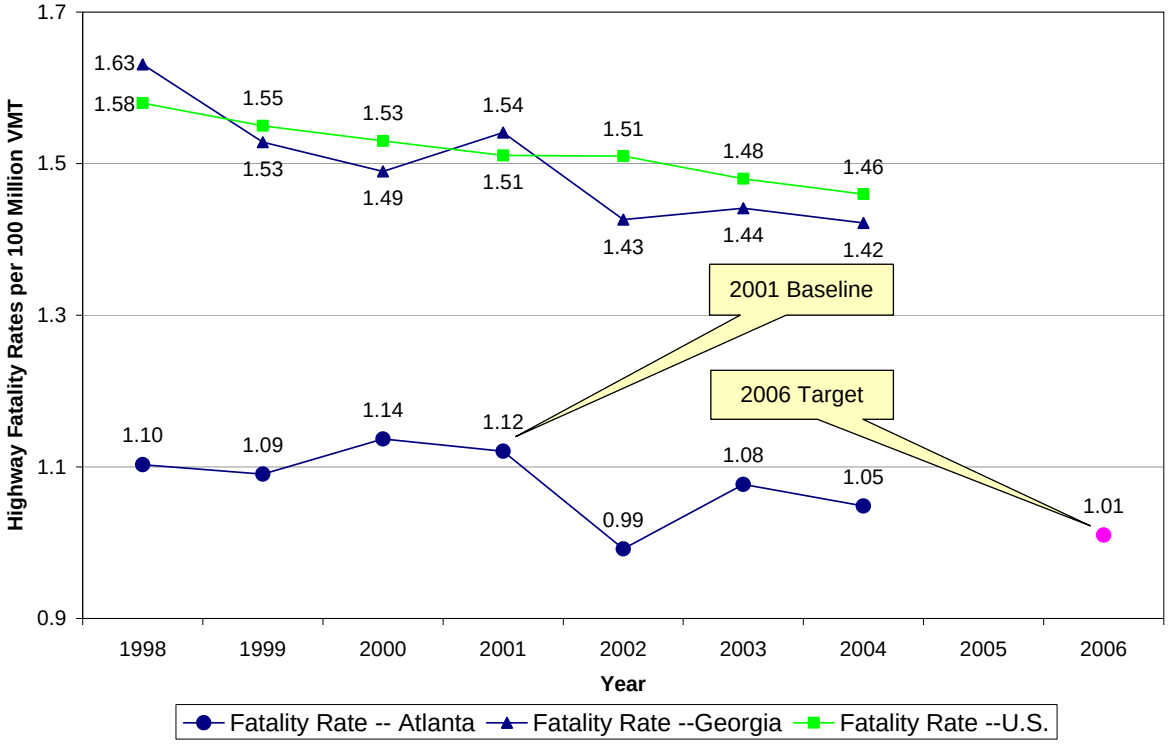
In the base year of 2001, the 13-county Atlanta region experienced 494 highway fatalities at a rate of 1.12 fatalities per 100 million miles driven. The target is a 10 percent reduction to 445 fatalities or 1.01 per 100 million vehicle miles traveled by 2006.

Figure 17: Highway Fatalities



[13] Data for the safety measures comes from the Fatality Analysis Reporting System web-based encyclopedia located at http://www-fars.nhtsa.dot.gov.

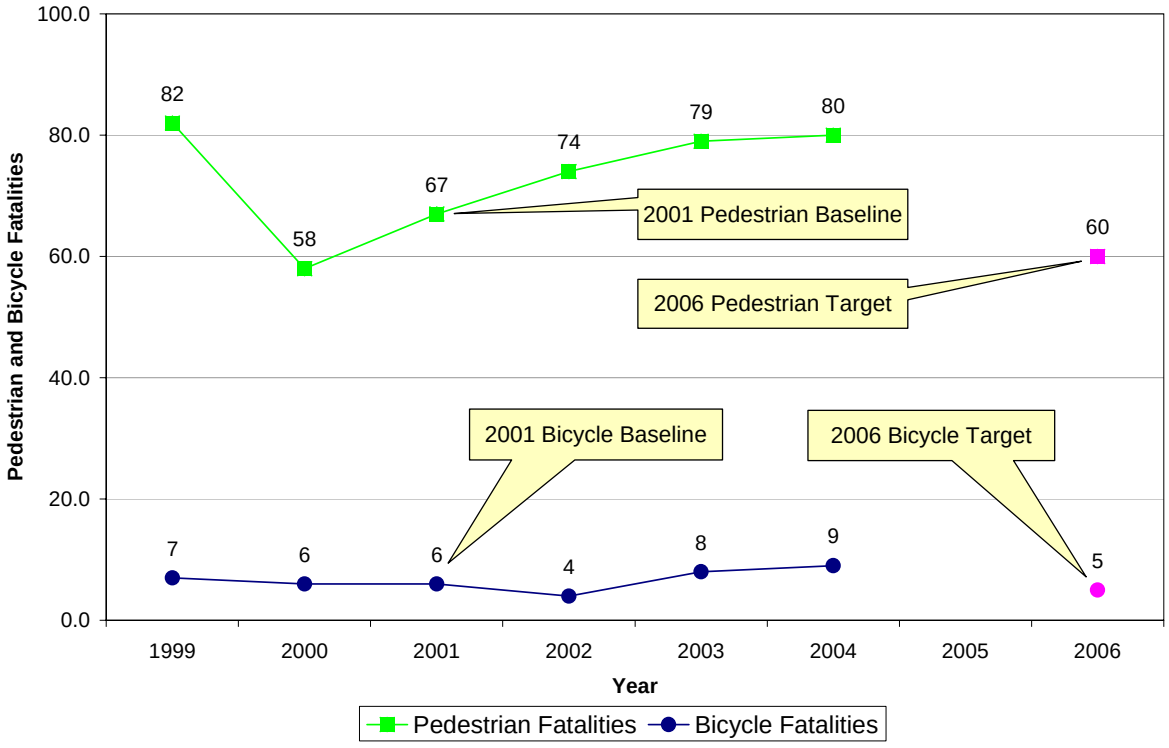
Figure 18: Highway Fatality Rates per 100 Million Vehicle Miles Traveled



PEDESTRIAN AND BICYCLE FATALITIES

In the base year of 2001 there were 67 pedestrian and six bicycle fatalities in the 13-county Atlanta region. The 2006 target is a 10 percent reduction, to 60 pedestrian fatalities and five bicycle fatalities.

Figure 19: Pedestrian and Bicycle Fatalities



ROADWAY CLEARANCE TIME

Over fifty percent of all congestion nationally is non-recurring. It is caused by traffic incidents, work zones, and weather.[14] For each minute an incident blocks a travel lane, roughly three to seven minutes of delay is created. Some studies have shown as much as seventy percent of daily delay is due to "non-recurring" congestion.[15]

Traffic incident management is a strategy that uses many different techniques to help emergency responders quickly and safely clear traffic incidents so the roadway can return to normal flow with a minimum of additional delay. The Traffic Incident Management Enhancement Task Force, a partnership between transportation agencies, police, fire, towing and recovery operators, and other emergency responders, has been implementing techniques to improve traffic incident management in Metro Atlanta.

The key performance measure for traffic incident management in Atlanta is "roadway clearance time." Roadway clearance time is defined as the "time between first recordable awareness (detection/notification/verification) of an incident by a responsible agency and first confirmation that all lanes are available for traffic flow."[16] The response time is the time between the first recordable awareness of an incident and the first arrival by a responder on scene.

In 2002, the baseline year, response time for tractor-trailer incidents was 17 minutes and for automobiles 10 minutes. On-scene time for tractor-trailer incidents was 65 minutes, and 30 minutes for automobiles. The roadway clearance time for a typical tractor-trailer incident was more than twice (82 minutes) the 40 minute duration of an automobile incident.[17] The difference in time is influenced by a number of factors, including degree of seriousness, HAZMAT concerns, number of lanes affected, and availability of equipment necessary to accommodate tractor-trailer size and weight.

The targets for 2006 are to reduce roadway clearance time to 60 minutes for incidents involving tractor-trailers and 30 minutes for automobiles.

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[14] http://ops.fhwa.dot.gov/program_areas/reduce-non-cong.htm
[15] http://depts.washington.edu/trac/bulkdisk/pdf/568.2.pdf
[16] FHWA Focus States Initiative - Traffic Incident Management Performance Measures - Action Plan.
[17] Data source—monthly incident data found in the GDOT's HERO Monthly Statistics publication.

Figure 20: Roadway Clearance Time – Tractor-trailers

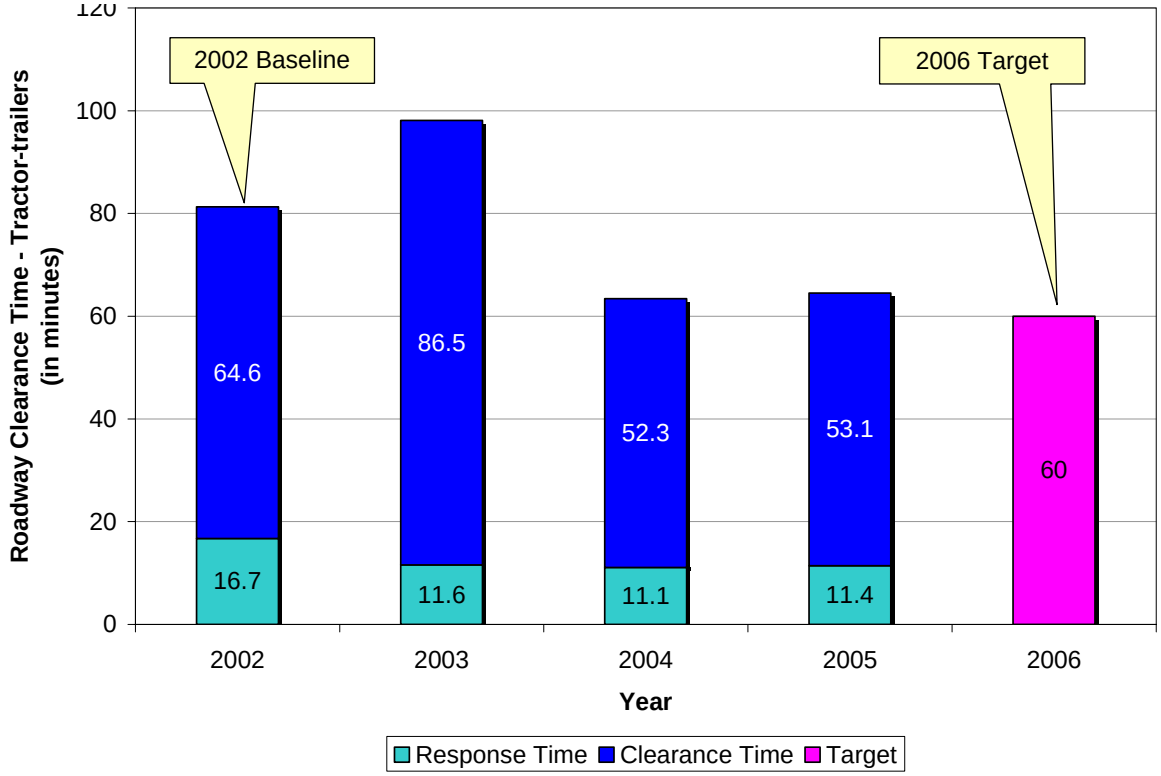
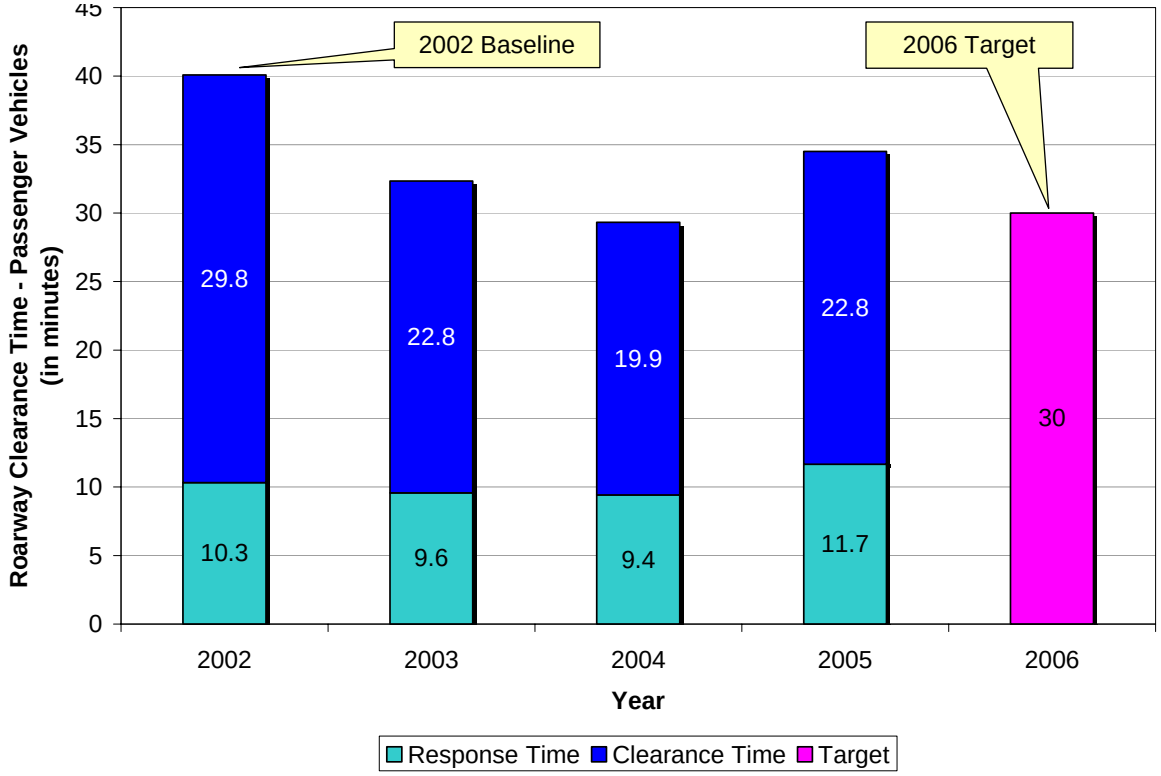


Figure 21: Roadway Clearance Time – Passenger Vehicles



SUMMARY OF 2005 TRANSPORTATION MAP MEASURES AND TARGETS

	Performance Measure	***Description***		***Baseline***		***Update***		***Target***	
				Value	***Year***	***Value***	***Year***	***Value***	***Year***
Mobility	Freeway travel time index *Notes:* *The slowest periods are 7:30 a.m. – 8:30 a.m. and 5:00 p.m. – 6:00 p.m.*	Average freeway travel time index, weighted by segment VMT, during the slowest regional one-hour morning and evening peak period *The afternoon peak number is given below in italic.*		1.16 *1.21*	2002	1.30 *1.33*	2005	N/A N/A	N/A N/A
	Arterial congestion *Notes:* *The morning peak is defined as 6:30 a.m. to 9:30 a.m.* *The afternoon peak is defined as 4:00 p.m. to 7:00 p.m.* *The afternoon peak number is given in italic.*	Percentage lane miles for each congestion level as defined: un-congested, moderately congested, and severely congested.	Un-congested (LOS A, B, C, and D)	88% *81%*	2004	N/A N/A	N/A N/A	N/A N/A	N/A N/A
			Moderately Congested (LOS E)	9% *15%*	2004	N/A N/A	N/A N/A	N/A N/A	N/A N/A
			Severely Congested (LOS F)	3% *4%*	2004	N/A N/A	N/A N/A	N/A N/A	N/A N/A
	Daily vehicle miles traveled per licensed driver / per person	Vehicle miles traveled per licensed driver / person per day in the 1-hour ozone nonatt. area		56.6	2000	47.0	2004	45.0	2006
				32.9	2000	32.3	2004	30.0	2006
	Pavement condition rating	Percent of the state highway system with a PACES rating greater than 70		88%	2000	88.6%	2005	90%	2006
	Transit passenger miles traveled	Transit passenger miles traveled in the 1-hour ozone nonattainment area (in millions)		874	2001	806	2004	900	2006
	Annual transit passenger boardings	Cumulative sum of the number of passengers who board public transportation vehicles annually in the 1-hour ozone nonattainment area (in millions)		167	2001	148	2004	175	2006

	Performance Measure	*Description*		*Baseline*		*Update*		*Target*	
				Value	*Year*	*Value*	*Year*	*Value*	*Year*
Transit Accessibility	Population and employment within walk distance to transit	Number of people that live or work within 4/10 of a mile of a transit stop year (in thousands)	Pop.	1,057	2001	1,104	2004	1,150	2006
			Empl.	1,085	2001	1,156	2004	1,200	2006
	Transit revenue service hours (MARTA, CCT/DCR/GRTA/ Gwinnett Transit)	Total number of hours trains and buses are running and available to carry passengers in a given year (in thousands)	MARTA	3,182	2001	3100	2004	3,300	2006
			Other	157	2001	544	2004	550	2006
	Passenger trips per transit service hour (MARTA, CCT/DCR/GRTA/ Gwinnett Transit)	Average number of unlinked passenger trips per revenue hour trains and buses are running and available to carry passengers in a given year.	MARTA	52	2001	44	2004	50	2006
			Other	19	2001	21	2004	22	2006
	Number of vanpools	Total number of vanpools operating in a given year in the 28-county Atlanta area		178	2002	248	2005	300	2006
Air Quality	Atlanta Daily Vehicle Emissions (relative to year 2000 levels)	VOC		100%	2000	80%	2004	N/A	N/A
		NO_x		100%	2000	82%	2004	N/A	N/A
		Primary $PM_{2.5}$		100%	2000	82%	2004	N/A	N/A
Safety	Highway fatalities /Highway fatality rate	Total number of highway fatalities		494	2001	504	2004	445	2006
		Highway fatality rate per 100 million VMT		1.12	2001	1.05	2004	1.01	2006
	Pedestrian and bicycle fatalities	Pedestrian fatalities		67	2001	80	2004	60	2006
		Bicycle fatalities		6	2001	9	2004	5	2006
	Roadway clearance time	Incidence response and clearance time (in min.)	Tractor-trailers	81	2002	64	2005	60	2006
			Vehicles	40	2002	34	2005	30	2006