



NPTS BRIEF

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U.S. Department of Transportation
Federal Highway Administration

Is Congestion Slowing us Down?

The U.S. transportation system's quality and pervasiveness are almost transparent to us as we move between jobs, markets, education, healthcare, and leisure activities. But the transparency ends when congestion occurs—the system breaks down as too many vehicles try to move through at the same time. Congestion reduces mobility and increases auto-operating costs, adds to air pollution, and causes stress. Congestion is considered one of the major urban transportation problems.

Americans are spending more time to travel about the same distance in an average day (all trips for all purposes). The average driver spends over an hour a day behind the wheel, 24 percent more time than in 1990 (see Exhibit 1). Time in travel has increased about one minute per year between 1990 and 2001.

Commuters know about congestion--work trips are particularly concentrated in time and space. Nearly 30 percent of the 130 million workers in the U.S. leave for work between 7:00 and 8:00 am. During the 80s and early 90s, due to a combination of decentralization of workplaces and the huge increase in drive-alone to work, both commute distances and speed of travel to work increased. However, the 2001 data shows a leveling off of commuting distances, and a real decline in commute speeds (see Exhibit 2).

In addition, there has been a large increase in incidental stops on the way to work, such as dropping the children at day care or school, or picking-up dinner on the way home, especially for workers with the longest commutes. Now, nearly half of all workers stop for some other purpose during their commute to or from work.

Exhibit 1 – Increase in Miles and Minutes of Travel per Driver, 1990-2001

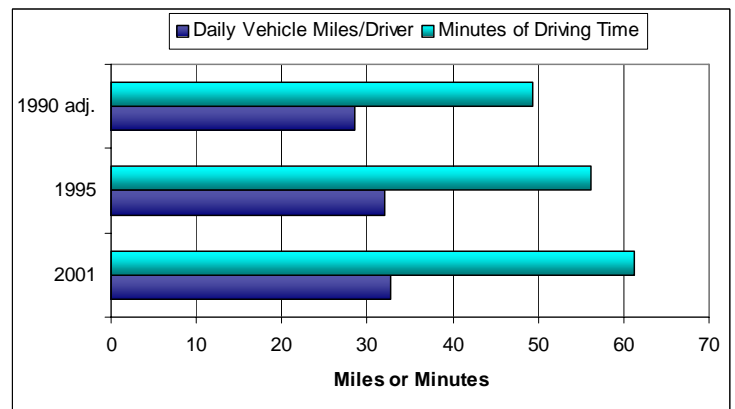
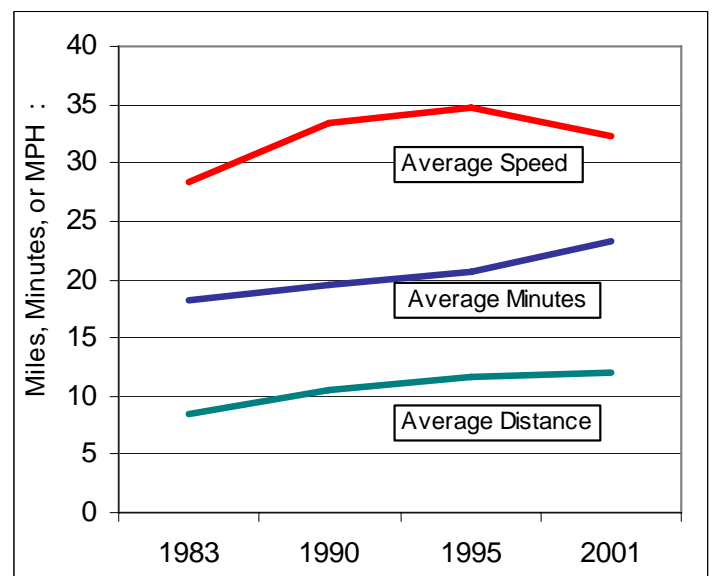


Exhibit 2 – Average Commute Miles, Minutes, and Speed, 1983 - 2001



Although when we think about congestion we most often think about work travel, one of the most critical changes in travel behavior has been the increase in travel for shopping, family errands, and social and recreational purposes. Less of the traffic we experience in the weekday peak period is work travel, as shown in Exhibit 3.

Who Worries About Congestion?

Traditional congestion measures are based on system-level information, for example, vehicle speed and counts from automatic vehicle detectors. Other widely used congestion measures are based on vehicle miles of travel and travel time delay, such as the TTI Urban Mobility Study. This method uses vehicle occupancy, average vehicle speeds, and the percent of daily travel in peak periods combined with average costs of time to quantify peak period congestion for 75 urban areas. The most recent report finds that traffic congestion is increasing in every major urban area, and has been since 1982.

From the road user perspective, however, both the NHTS and other studies (Moving Ahead, FHWA) indicate that half of all travelers are satisfied with traffic flow, or don't think congestion is much of a problem.

But the amount of travel during peak periods, and the total time spent in travel can affect the user's view of congestion. People in large metropolitan areas, and people who travel significantly more than the average, think congestion is a bigger problem than people who travel less or live in smaller cities (see Exhibit 4).

These two ways of looking at congestion, the objective measures of system performance and average delay and the perceptions of road users as to how well the local transportation system supports their mobility, are both important and valid measurement tools. But these different measures reveal important differences in system and user experiences of congestion.

Exhibit 3 – Change in the Percent of Work Travel During Weekday Peak Periods, 1990 - 2001

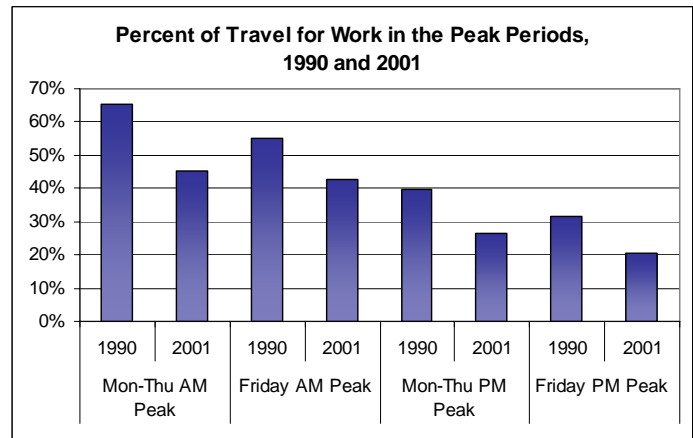
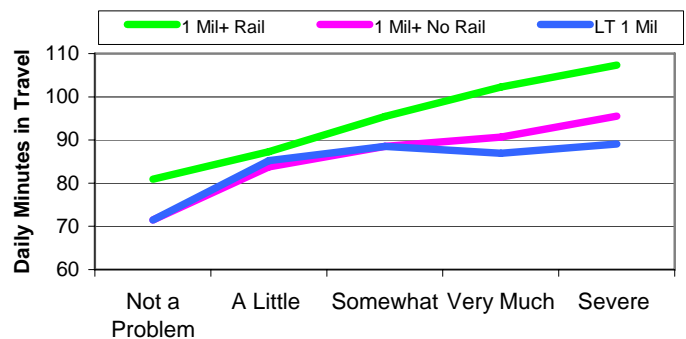


Exhibit 4 – Congestion is more of a Problem for Travelers in Large Metropolitan Areas (MSAs)



System users may care more about reliable travel time than predictable delay. In addition, some of the impacts of congestion on the user have not been measured. These include economic impacts, such as shopping or recreational trips that are not taken because of expected congestion, and social impacts, such as the impact on friend and family time, and kinds of things people do in the vehicle, such as eat a meal or talk on the cell phone, that allows in-vehicle time to be productive. To mitigate the effects of congestion transportation professionals must both manage and improve existing infrastructure and understand current and future travel behavior.

For more information, visit our website: <http://nhts.ornl.gov>