

Emerging Economic and Demographic Trends Affecting Transportation

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The two emerging economic and demographic trends affecting transportation that are presented here are commuting patterns and highway safety. Commuting patterns are considerably different than they were 10 or 20 years ago. These patterns changing, and they are not going to reverse themselves. Current patterns put substantially different demands on the highway network than did the previous ones. The three basic reasons for the changing commuting patterns are the worker boom, the suburban commuting boom, and the vehicle boom.

Between 1950 and 1980, the U.S. population grew about 50 percent while the civilian labor force grew about 65 percent. In other words, about 40 million new workers began commuting. Not only have the baby boomers entered the work force, but women now make up about 45 percent of the work force. The worker boom pattern is nationwide, and Indiana's figures are similar.

The suburban commuting boom essentially involves the changing location of jobs and residences. From 1950 to 1984, the population of the suburbs increased 21 percent. From 1980 to 1986, the suburban areas near Indianapolis grew more than twice as fast as the central areas. Several changes contribute to this boom, and they are all long-term trends, none of which are likely to be reversed.

The first change is in manufacturing technology. The use of assembly lines increases the building of single-story factories. Because building single-story factories requires a lot of land, you want to build it where land is relatively cheap, which is in the outlying areas.

The second change is in technological advances. With the growth of truck traffic relative to rail, ship, and barge traffic, there is much less need for a manufacturing facility to be located at a central rail yard, port facility, or on a river. At the same time, manufactured goods produced in this country have increased in value relative to weight. High value to weight ratios tend to favor truck transportation over rail or barge transportation, which is slower in terms of portal to portal.

The third change is in the growth of service industries. Intercity transportation and central locations are less important to service industries than to manufacturing industries.

The fourth change is in improved telecommunications technology. The frequency of face-to-face contact in business has decreased somewhat.

The final change is in rising incomes. In the U.S., as household incomes increase, people consume more residential space. People tend to move where that space is cheaper, or to outlying areas. In addition, people own more automobiles

so the firms they work for do not need to be concerned about transit for their workers.

All these changes make the dominant commuting pattern one that is from suburb to suburb. This commuting pattern is also the fastest growing one. Of the markets served by mass transit, the suburb to suburb commuter is served the least, so mass transit is least likely to be a factor in this commuting pattern.

The auto commuting boom also affects commuting patterns. Auto ownership nearly doubled between 1960 and 1980, rising from 43 million to 83 million vehicles. Most households in the U.S. own two or more cars. The number of households without any vehicles decreased from 22 percent in 1960 to 13 percent in 1980. In fact, 20 percent of all households without car ownership are in New York City. In 1960, 70 percent of people used a private vehicle to get to work. By 1980, 85 percent did. During the same time period, transit's share of work trips fell from about 12.5 percent to 6 percent, despite the funding it received.

These trends show that auto usage is going to increase and that usage patterns for autos particularly in medium and large cities will become oriented to travel around the circumference of the city, rather than the traditional, radial type of commute. The new travel pattern will cause congestion and heavy loads in new places on road networks.

Older people are the fastest growing segment of the U.S. population, particularly the driving population, and this has some implications for highway safety. In the U.S. between 1960 and 1980, the number of people over 65 years of age increased 54 percent. The number of people over 75 will double between now and the end of the century. These people will be owning more autos, using them more often, and becoming involved in more vehicle deaths and injuries. Between 1980 and 1982, motor vehicle deaths in this country decreased 14 percent, in part due to the recession and reduced vehicle mileage, but among drivers over 65, they did not decrease at all. Among women drivers over 65, the number of motor vehicle deaths increased 14 percent.

Male drivers over 85 years of age have about the same accident rate as male drivers who are 17. Not only do older people get involved in more accidents, but they account for 12 percent of fatalities. In fact, when an accident involves one driver over 65 and one driver under 65, the older driver is 3.5 times more likely to be killed than the other in the accident.

The reasons for the more frequent involvement of older drivers in accidents include loss of visual acuity, narrowed peripheral vision, reduced hearing, reduced range of motion, and slowed reaction times. The highway system is essentially designed for the capabilities of younger drivers. Standards set for sign dimensions, lighting standards, and traffic light timing signals better match the characteristics of younger drivers. We need to be prepared to accommodate older drivers in highway systems. This means changing standards for signage, traffic signals, sight lines, timing, lighting, and a whole host of other things. Because of changes in demographics and economics, the transportation system is subject to changing demands, and transportation professionals need to try to anticipate the demands and prepare for them rather than simply reacting to them.