

A County Engineer's View of Local Roads and Streets from the Legislature

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Being in the legislature has changed my thinking from highway oriented to transportation oriented. Transportation is all encompassing, dealing with all modes. More than highways and bridges, the transportation picture includes whole changes in the economy, such as those requiring transit.

In rural areas, for example, many people have had to move into the cities to look for jobs. We see a real changing picture as far as the rural situation goes. In small towns, many of the services are gone. Instead of a viable grocery store, small towns may have only a filling station or a combination filling station/grocery store. Practically all other services are gone. What remains is an aging community. The people who live there can't afford to get in or out. In many cases, they are older people who do not have available transportation. While we need highways in rural areas because of the agricultural products, we certainly need other modes. We need transit.

Another issue we face in the legislature deals with railroads. In Minnesota, we have a large amount of abandoned railroad mileage. The state has become involved in financing some repurchasing of the lines. We have short line, privately owned railroads.

The state also has become involved in transportation on waterways, especially at the Port of Duluth. We have become involved with ports and port authorities, dredging channels, and a few of those things. Another important issue is air transportation. Minneapolis-Saint Paul has the fourth busiest airport in the nation, and there are real concerns about noise and air pollution and about the growth of the airport.

The legislative arena is more involved in transportation than highways, but highways are important. Currently there is some deficiency in our highway system. We have inadequate highway capacity. When we built roads 20 or 30 years ago, we built them as cheaply as we could. We thought we were doing well, but we built roads that might be a five-ton design. Now we build roads that may be a seven- or nine-ton design. The change results from the change in how we transport products. The agricultural community used to have single axle trucks, and then came tandems, tridem, and semis. In this respect, the whole mode of transportation has changed.

Like all our infrastructure, the roads are aging. In fact, the normal life span of most existing roads and bridges is over. In addition, there is a failing transit ridership. Since metro transit reached its peak in 1979 and 1980, there has been a 25 percent reduction in transit use, and no significant increase is expected. At the same time, we see an increase in workers in the urban area, as the formerly

rural population shifts into other areas. There has been a 90 percent increase in the number of women entering the work force over the last 15 years. These factors contribute to the increase in the number of work trips. Besides the increase in their number, work trips have changed in nature. Employment has shifted from urban to suburban areas, making work trips a different type of trip. In rural areas, where there had been a lot of small communities, there is a regionalization of communities. Legislators have to assess all needs for all units and modes.

In recent years, we have seen changes in the transportation modes. We used to have a lot of railroads; now we have trucks. We used to have automobile traffic; now we rely to a large degree on transit. Where we used to have buses, we have light rail or subways. Where we used to have passenger rail for traveling, we have airplanes.

There also has been an increase in travel. From 1970 to date, there has been a 52 percent increase in the number of registered automobiles. In 1970, the average vehicle occupancy was 1.5 and now it is 1.3 per average daily trip per person. The number of trips was 2.7 in 1970 and 3.4 in 1986. It is expected to be 3.6 in 2000. The distance of the average work trip distance also is increasing. It was 6.6 miles in 1970 and today it is 8.1 miles. It is expected to be 9.7 miles in 2000.

Congestion is one of the biggest problems we face. By the year 2000, congestion is expected to increase 50 percent so delays resulting from congestion are expected to double in duration. To compensate for the congestion that is expected in the next 20 to 30 years, we can make transportation system improvements and use travel demand management. We can improve transit services. However, the one thing that everyone asks is how we can increase the capacity of the current system. We know it is not possible to build all new roads or widen all the roads we have. Instead, we have to be concerned with how to put more people on a particular road at a given time.

Some improvements to existing highways may help relieve congestion. For example, we might eliminate shoulders and use them for traffic lanes. We might add turn lanes, remove sharp curves, and lengthen merging lanes. We might add a lane that provides for any car carrying two or more passengers. Improving signal timing may also significantly increase energy efficiency. Traffic signs and lights should not be used to regulate speeds. Using a travel demand management strategy may offer some relief through the encouragement of car and van pools, the staggering of work hours, and the provision of preferential parking. In metropolitan areas, wide area detection systems are used to monitor congestion, but in rural areas, improving traffic flow can help make better use of the existing road systems.

Incidents, which are defined as any traffic problems related to vehicles stopping on the roadway, contribute to congestion. Whether related to an accident, mechanical problems, weather, or construction and maintenance operations, incidents are responsible for about 60 percent of all congestion in metropolitan areas. Radio broadcasting of motorist information and highway helpers during rush hour help prevent traffic delays resulting from incidents.

Developmental impact fees can be charged by suburban areas when a new industry moves into the area. The fees can be used to install traffic signals or build additional lanes. Transportation management organizations within the business

community can target local problems. Of course, legally, you can adopt transportation ordinances.

Public transit services can be better promoted and private services can be used. In some areas, there are suburban shuttles and circulation buses that meet the main liners. There are park-and-ride sites and suburb-to-suburb transit.

Whether we focus on rural or urban transportation problems, one of the important factors is financing. Financing always is a critical problem. The completion of the Interstate System was scheduled to be in 1991. When the Federal Highway Act expires, a new act should be passed. Some states, however, do not pass federal transportation monies through to the counties. In Minnesota, we are hearing rumors about raising the federal fuel tax to between 50 cents and \$1. In Minnesota last year, we raised the gasoline tax to 20 cents. On the other hand, we can make the funding we already receive go farther. When letting a contract, be certain to get what you pay for. When building bridges, be certain that they can withstand heavy loads. It is better to build them strong originally than to try to strengthen them later.

Most of the research in transportation is done by private industry, especially by the materials and auto industries. The greatest advances have been in the area of the auto. Currently, we are five years behind Europe and Japan in basic research. In Europe, for example, the 14 largest auto makers and 70 universities have combined for a billion dollar research effort that will operate on a continuing basis. In Detroit, one development is automatic headway control. It can be used to increase capacity in roads. With radar and with automatic braking devices, researchers say we will be able to operate cars at high speeds, keeping an interval of one and one-half feet between cars. Other developments include video detection and automatic data processing in vehicle navigation and route guidance. Automatic vehicle identification will make automatic toll billing possible. Collision avoidance systems enable drivers to use something similar to radar in planes. At any rate, we know that financing is not enough to solve all our transportation problems and research will play an important role in the future of transportation.