

Statewide Congestion Overview for Oregon Part 1

This issue of Policy Notes summarizes the report, *Statewide Congestion Overview for Oregon*, updated by Brian Gregor, P.E., senior transportation analyst with the Oregon Department of Transportation (see <http://www.odot.state.or.us/tddtpau/cms.html>).

The *Overview* provides background information on statewide congestion trends and the major factors that influence congestion. Information for this report was drawn from published data sources, existing ODOT databases, and the analysis of congestion on state highways.

Due to the complexity of the subject, this installment is considered Part 1 of a series of summary reports on this topic. Additional installments will appear in future Policy Notes releases.

Vehicle travel in Oregon has grown almost continuously since 1980. See Figure 1. Average vehicle miles traveled (VMT) per capita increased by almost 40% from 1980 to 2000. Rapid growth occurred after 1982 as the state recovered from economic recession. The rate of per capita VMT growth slowed after 1990, but the state's population continued to grow steadily. As a result, VMT increased by 75% overall between 1980 and 2000.

Traffic growth, particularly in urban areas, has not been matched by roadway infrastructure growth. From 1982 to 1999, freeway traffic demand grew about six times faster than freeway lane-miles. VMT growth on other arterials also outpaced expansion rates of those roads although the gap was much smaller. See Figure 2.

The gap between the growth of traffic and the growth of lanes caused the density of traffic to increase, particularly on urban freeways. On average, each urban freeway carried about 60% more traffic in 1999 than in 1982. See Figure 3.

Travel time and delay have increased as well. In the Portland-Vancouver metropolitan area, for example, the Texas Transportation Institute (TTI) estimated that in 1999 peak-period trips took an average of 36% more time than off-peak trips. In contrast, TTI estimated that in 1982 there was little difference in peak and off-peak travel times.

TTI estimates that the total annual congestion delay per person in the Portland-Vancouver metropolitan area is about 35 hours. Their estimates of delays in the Eugene-Springfield and Salem metropolitan areas are 10 and 14 hours respectively. See Figure 4.

Public concerns about congestion are increasing. In 1990, almost half of respondents to the Oregon Population Survey believed traffic congestion was a "small problem", while less than a quarter perceived that it was a "serious problem." By 2000, a third believed congestion was a "small problem", while a third perceived that it was a "serious problem." See Table 1.

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The cause of rising congestion appears to be straight forward. As mentioned earlier, freeway travel grew over six times faster than freeway capacity from 1982 to 1999. Capacity increases for other arterials also lagged travel growth, but not by as much. Determining causality, however, is complicated by the fact that travel, urbanization, and economic development are dynamic and interact with each other. As congestion increases, people change attitudes and behaviors as to when, where, and how to travel. Congestion also affects employers' attitudes about whether and where they should move their businesses.

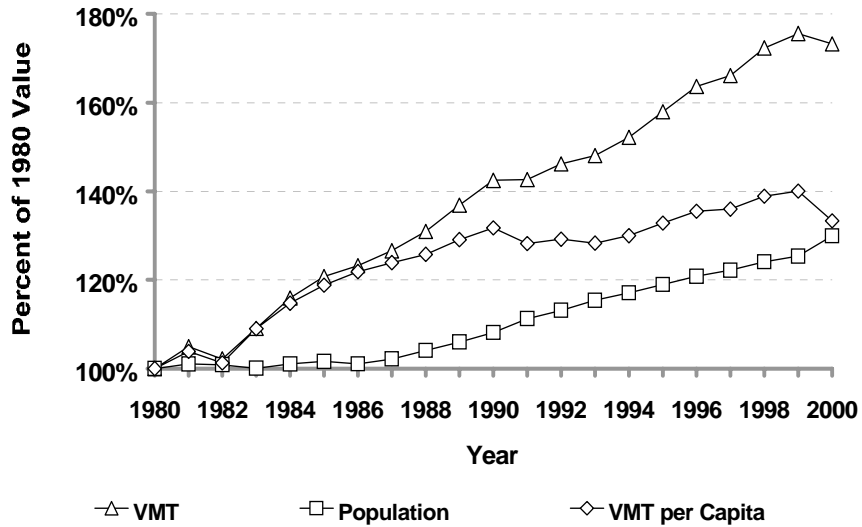
Determining what is a cause and what is a consequence is difficult due to the complexity of the economic, land use and transport interactions. For example, some would say that road building causes congestion by increasing both suburban sprawl and driving; others maintain that high population and employment densities coupled with inadequate roads cause congestion. Although there are disagreements about cause and effect, most would agree it is important to understand the linkages between congestion, travel, land use and economic development. The following points summarize these linkages:

- Economies develop as a result of the economic benefits of comparative advantage that lead to specialization and trade. The ability to capitalize on these benefits depends on transaction costs, technology, and the size of markets.
- Travel is required for most trade to occur, so economic growth through specialization and trade requires travel.
- Throughout history, improvements in communication and transportation technologies have increased the potential for specialization and trade by lowering transaction costs and enlarging markets.
- Urbanization occurs primarily because people and businesses cluster to reduce their transaction costs by reducing transportation and communication costs, thereby increasing the economic benefits of specialization and trade.
- Clustering of people and activities increases the competition for space. Greater demand is generated for limited space caused by larger agglomerations of people and activities.

- Urban land use is chiefly determined by government policies and market prices for land. Comprehensive plans, local zoning ordinances, and government procedures for zone changes establish the supply for various categories of uses in different parts of the urban area. Markets allocate the supply among land uses through prices. As prices increase, land tends to be used more intensively, referred to as highest and best use.
- Allocation of space on urban roads is greatly affected by government policies and is rarely allocated by prices. Government policies determine the supply. Supply is allocated only by people's willingness to crowd onto the roadways and the relative cost of alternatives. Peak periods see more use and lower performance than would be the case if space were allocated by price.
- Crowding and congestion, which occur as cities become larger and denser, make transportation facility expansion more costly because of higher land prices, more costly construction and more intensive land use(s).
- The economies of larger cities can bear higher levels of congestion than the economies of smaller cities because they have larger markets. Larger markets offer greater economic benefits from specialization and trade. The economic benefits of agglomeration allow cities to grow despite rising congestion.
- Larger cities can also provide more convenient and frequent public transportation services. Travelers have a choice of alternatives to traveling on congested roadways and therefore increased peak period capacity of the transportation system.
- People and businesses exercise a variety of options for limiting the effects of congestion on travel time and transaction costs. They: 1) use less congested routes, 2) travel during off-peak or less congested times, 3) chain/link trips to accomplish more activities with each trip, 4) use different travel modes or substitute communications for travel or as a supplement to travel, 5) choose destinations less affected by congestion, and 6) move to other locations to avoid congestion. The effect of rising congestion on travel times has been moderated because people and businesses have exercised these options.

Figure 1

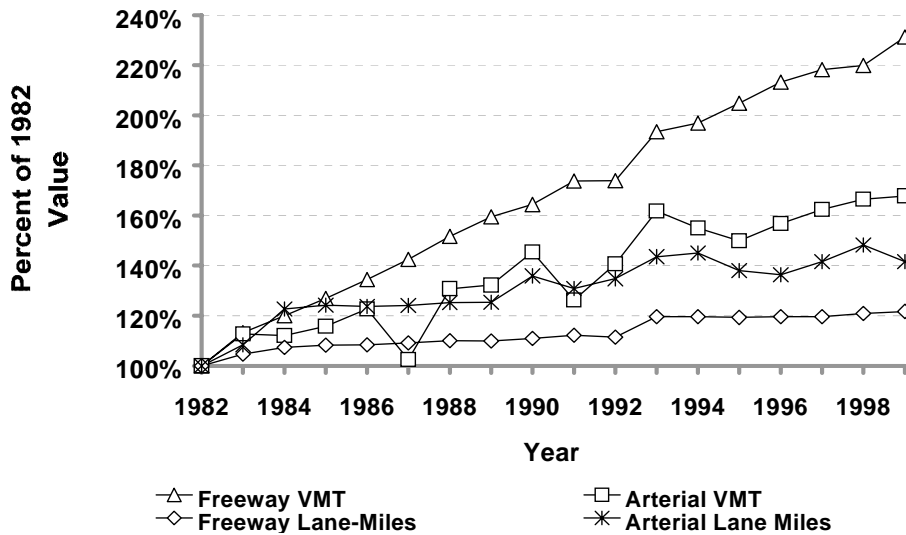
**Statewide VMT, Population, and VMT per Capita:
1980 - 1999, Indexed to 1980 Values**



Source: VMT - ODOT Finance Section, Population - Portland State University Center for Population Research and Census

Figure 2

**Urban Freeway & Arterial VMT and Lane Miles
In Oregon: 1982 - 1999, Indexed to 1982 Values**



Sources: ODOT Finance Section and Transportation Data Section

Figure 3

Source: ODOT Finance Section and Transportation Data Section

Figure 4

Source: TTI, *2001 Urban Mobility Report*, May 2001, Table A-5.

Table 1

Oregonian's Perceptions of Traffic Congestion
Percentage of Respondents Agreeing

Magnitude of Problem	1990	1996	1998	2000
Serious Problem	22	26	25	32
Moderate Problem	32	37	32	34
Small Problem	46	37	44	33

Source: Vaidya, Kanhaiya L., "2000 Oregon Population Survey Summary of Findings", Oregon Office of Economic Analysis, January 12, 2001. P.6