

15 August 2009

From: Michael L. Sena  
 To: Traffic Technology International  
 Ref: Beating Traffic\_V3\_TTI\_UK  
 Re: Proposed Article

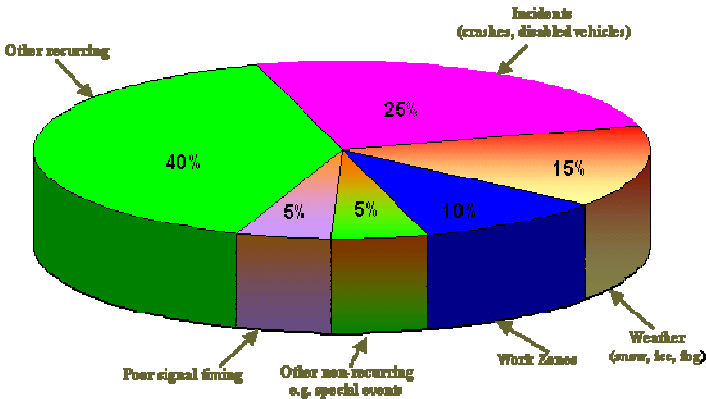
**BEATING TRAFFIC  
TIME TO GET UNSTUCK**

**TRAFFIC CONGESTION: WHOSE FAULT IS IT ANYWAY?**

TRAFFIC CONGESTION HAS BECOME A DEEPLY POLARIZING ISSUE, an “us versus them” dilemma. The list of traffic congestion offences includes noise, pollution, crowding out of on street public transportation, impeding emergency vehicles, adding danger to pedestrians and the general inconvenience caused by delays in making daily journeys to work, school, recreation and shopping. Anti-car groups are promoting the elimination all cars and trucks from urban areas, are recommending heavy usage taxes for all roadways, and want to make truck transportation so difficult and expensive that goods transport will be forced to return to the rails.

The causes of congestion have been catalogued in countless reports and documents. They all say that approximately one-half of the causes are *predictable* (recurring and non-recurring events and poor signal timing), and the other half are *inevitable* (incidents, weather, work zones). An example of a *predictable* event is a traffic jam at a heavily used intersection on any workday during the morning and evening rush hour. Although we cannot predict when, *inevitably*, one driver at that intersection will rear-end another driver and long travel delays will ensue.

**Figure 1: Reasons for Traffic Congestion**



*Source: U.S. Federal Highway Administration, Office of Operations (2000)*

Cars provide an unbeatable form of transportation: flexibility; comfort; convenience, and cost-effectiveness. Trucks cannot be equalled for moving goods in the manufacturing and retailing world that exists today. New motor vehicles use significantly less fuel and pollute the environment measurably less than their predecessors. The main problem is that there are just too many of us trying to use these great inventions on the roads we have built for them—seemingly all at the same time.

## PUNISHING THE VICTIMS, INSTEAD OF ADDRESSING THE CAUSES

People who are not fortunate enough to live in a city where they can also work, shop, recreate and educate themselves and their children—and where there is actually an alternative to driving, like an operating public transit system—need their cars today to get themselves to wherever they have to go. In most cases, there are no alternatives, and where alternatives do exist, they are often take much more time, are less convenient from a schedule point of view, are much less comfortable, and often are, or appear to be, less safe than the car option. What else would explain the situation shown in the table below, *Means of Transportation to Work: 1990 and 2000*?

**Figure 2: Means of Transportation to Work: 1990 and 2000**

| Means of Transportation | 1990 in% | 2000 in% | Change % |
|-------------------------|----------|----------|----------|
| Car, truck or van       | 86.5     | 87.9     | 1.3      |
| Drove alone             | 73.2     | 75.7     | 2.5      |
| Carpooled               | 13.4     | 12.2     | -1.2     |
| Bus                     | 3.0      | 2.5      | -0.5     |
| Streetcar or trolley    | 0.1      | 0.1      | -        |
| Subway or elevated      | 1.5      | 1.5      | -        |
| Railroad                | 0.5      | 0.5      | -        |
| Ferryboat               | -        | -        | -        |
| Taxicab                 | 0.2      | 0.2      | -        |
| Motorcycle              | 0.2      | 0.1      | -0.1     |
| Bicycle                 | 0.4      | 0.4      | -        |
| Walked                  | 3.9      | 2.9      | -1.0     |
| Other means             | 0.7      | 0.7      | -        |
| Worked at home          | 3.0      | 3.3      | 0.3      |

*Source: U.S. Census Bureau, 1990 Census Summary Tape File 3 and Census 2000 Summary File 3*

People are just trying to do the best they can to use the hours that a day offers in the most beneficial way for themselves and their families. Moreover, stop-gap measures, such as charging vehicles for entering certain districts, or road usage fees, will generate their own secondary effects that could well be more damaging for our city regions and their inhabitants than their currently clogged transportation arteries and capillaries. With entrance fees, it is more than likely that the problem, along with businesses and jobs, will simply be moved to another location where the tolls or restrictions are lower.

Indiscriminate road closings, road user tolls, high fuel taxes and similar measures punish the victims of traffic congestion, not those who created the original conditions for it and who continue to foster these conditions. Anti-car solutions attack the symptoms, but totally ignore the real causes of traffic congestion, which are a lack of forethought by governments and planners to build city regions that do not promote congestion-causing movement, along with well-contrived business decisions—backed by political policies, legislation and financial incentives—that have allowed urban regions all over the world to develop in ways that make non-car solutions to transportation ineffective and obsolete.

To solve the traffic congestion problem, we need to get to its root causes. Those causes lie in the way we have built our city regions, planned our transportation systems, and, to a certain extent, the way we have designed our cars and trucks. They lie also in a worldwide phenomenon that has had a major impact on reducing available space on already overcrowded roads, namely the increase in truck transportation.

## THE DYNAMICS OF TRAFFIC CONGESTION

Collective solutions to traffic congestion, like collective transportation, no longer work in most parts of North America and many western European countries. Both collective transportation and organized congestion mitigation ceased working approximately thirty years ago when transportation academics and practitioners reached the conclusion that traffic congestion was destined to become a way of life. They gave up on the notion that more roads with more lanes and higher speed standards would solve the growing traffic congestion problem. They gave up trying to fix the problem, and began to focus on traffic management.

Transportation texts written in the 1960s and early 1970s stated that any road built at that time would be congested at rush hour soon after it was opened. It was reasoned that congestion could not be eliminated, but its effective time could be reduced by building more roads and widening existing ones with more lanes so that the length of the traffic congestion periods would remain relatively constant as the number of vehicles entering the road system increased. One author, Anthony Downs, gave a particularly good explanation of the transfer phenomenon in his 1962 paper, *The Law of Peak-Hour Expressway Congestion*.<sup>1</sup> Commuters, claimed Downs, would attempt to minimize the total amount of time they spent travelling to and from work within the four constraints defined by his Downs's Law. These were:

- Income – This determines what is economically feasible for an individual.
- Money cost of transportation – This includes fares for trains and buses, tolls on highways and bridges, fees for parking and operating costs for a car.
- Location of residence – The decision on where one lives has a major bearing on the eventual choice of transportation.
- Personal comfort – Each person has an individual level of tolerance for different transportation situations, and this can affect the choice of mode to a greater or lesser extent.

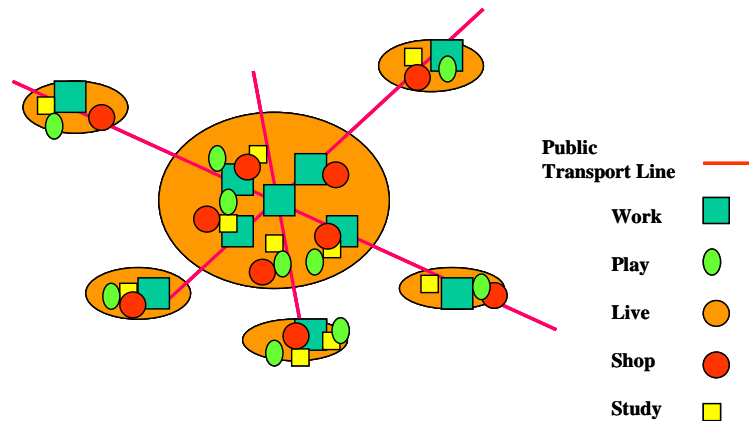
Downs went on to define the rules of his Law by classifying commuters into two groups: *Explorers* and *Sheep*. He claimed that most commuters “follow the law of inertia,” which means that once they have selected a mode of transportation (i.e., bus, train, foot, car, etc.), they continue to use it until some event encourages or forces them to shift to another mode. Such an event might be a sharp increase in train fares, or the closing of a commuter train line, or the opening of a new expressway. *Explorers* are individuals who are constantly looking for ways to minimize their travel time, and who easily shift modes or routes in order to do so. *Sheep* are those who rarely shift transportation modes unless a major event occurs.

In the early 1960s, metropolitan regions in the U.S. and Europe were still dominated by a central business district (CBD) that was fed by a combination of radial rail lines and roads. Growth spread from the centre like the arms on a starfish. Traffic moved like the tide: into the “downtown” during the morning’s rush hour, and out during the evening’s exodus. This was before roads like Route 128 and Interstate 495 in the Boston area, the M25 in Greater London, the *Peripherique* in Paris and many other ring roads around major cities created conditions for multiple centres of business and commerce.

### Figure 3: Pre-sprawl urban regions

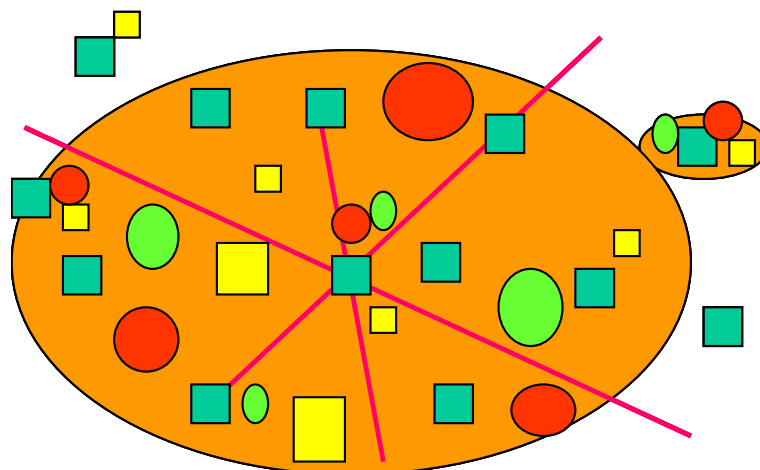
---

<sup>1</sup> Anthony Downs, “Urban Problems and Prospects” *Chapter 7, The Law of Peak-Hour Expressway Congestion* (Markham Publishing Company, 1970). Reprinted from *Traffic Quarterly*, Vol. 16, No. 3 (July, 1962), pp.393-409, by permission of the Eno Foundation for Transportation, Inc.



Today, in the 21<sup>st</sup> century, *Explorers* still search for the fastest routes, and *sheep* are still the last to switch modes, routes or times of travel. One major difference, however, is that traffic flows do not move as they did in the starfish days. Today in our sprawling urban regions have multiple centres with more jobs located in the suburbs than in what was the central city. Roads traverse the region connecting multiple nodes. These roads are heavily congested in both directions during the peak times, and mildly congested the rest of the time.

**Figure 4: After sprawl conurbations**



More than thirty years after he commented on the futility of trying to reduce traffic congestion, Anthony Downs testified before the U.S. Senate’s Committee on the Environment and Public Works. His testimony concerned peak-hour traffic congestion. He said to the Committee: *“Most people regard peak-hour traffic congestion as an unmitigated evil, but that viewpoint is incorrect. Congestion is a vital de facto device we use to ration the scarce space on our roads during periods when too many people want to use that space at once. In effect, congestion is a balancing mechanism that enables us to pursue many other goals besides rapid movement—goals American society values highly. Those goals include having a wide variety of choices about where to live and where to work, working during similar hours so we can interact with each other efficiently, living in low-density settlement patterns, and enjoying highly flexible means of movement—that is, private vehicles. We must use delays from overcrowding in order to pursue the other goals we want to achieve”*<sup>2</sup>

It is one thing to say that a problem is intractable; it is quite another to say that a problem is in reality a benefit. The “rationing a scarce resource” theme seems like saying that poverty is a de facto device we use to ration the scarce resource of money. How can the 93 lost, wasted, unpaid hours that a commuter loses per year in Los Angeles be a benefit to the individual or to society?<sup>3</sup>

<sup>2</sup> Anthony Downs: Testimony before the Committee on the Environment and Public Works, U.S. Senate (March 19, 2002).

<sup>3</sup> Ibid.

That we all work during similar hours is a gross overstatement. Twenty percent of the U.S. workforce are “shift workers” who work outside the “normal” 9-to-5 period.<sup>4</sup> In the U.K., the figure is an even higher 25%. Most people today do not have much freedom in deciding where they live. They live where they can afford to live. They put up with living far away from everything, and accept their complete dependence on their cars, because the alternatives are simply not acceptable (i.e., too expensive; too little space; too much crime).

Raising the price of owning and operating a car is one of the worst forms of discrimination against the poor. Not having a car or a driver’s license is a severe handicap in obtaining and holding a job.<sup>5</sup> Research by the U.S. Federal Reserve Bank shows that people who own cars are more likely to be employed and to work more hours than those who do not own cars; that access to a car shortens periods of unemployment; that car ownership equals increased earnings, especially among racial minorities and low-skilled workers; and, that welfare recipients who received cars through a car ownership program increased their earnings and reduced their dependence on public support payments.<sup>6</sup>

And as for enjoying the “highly flexible means of movement”, this description no longer fits the private car in most urbanized parts of the world. In Great Britain, close to 25% of the major arteries are congested for more than one hour per day.<sup>7</sup> It is true that there are no restrictions on anyone getting into their car at any time of the day to travel anywhere they like, but there are no assurances that they will arrive within an acceptable or agreed time, or whether they will arrive at all.

### **TRAFFIC CONGESTION IS BEATABLE**

ON ONE POINT, THE PROPONENTS OF THE “TRAFFIC IS INEVITABLE” MESSAGE and I do agree: traffic congestion will definitely get much worse before it gets any better. This is true, in part, because we now have more people living on our planet who have experienced nothing but congestion, and they may have difficulty imagining life without it. The message that traffic congestion is with us forever needs to be countered by many other voices spreading the message that traffic congestion can be beaten.

Congestion on our roads is neither a natural nor a predestined state of affairs. It has existed for less than half a century. Humans caused it, and humans can make it disappear. In order to make this happen, the “stuckees” (i.e., you and I) need to become engaged in the traffic congestion debate, and to become part of the solution rather than helpless victims of the problem. We need to take traffic congestion personally. Each of us has to solve the problem for ourselves because there is no one—no government or business or higher power—who is going to solve it for us, not in the short term. We have to change our own transportation habits in order to get traffic congestion, in whole or in part, out of our lives. I would like to challenge you to think about how you use your transportation alternatives, how you make your decisions about what you and your family do on a daily basis to get from one place to another.

To effectively eliminate traffic congestion, we need to get to its roots. We need to begin rebuilding our city regions so that all modes of transport work in concert, instead of at cross purposes. If we allow our governments to pursue policies that merely fool us into thinking that congestion is licked because it moves the problem into someone else’s community (as with congestion zone charging), or onto someone else’s commuting path (as with road tolling schemes), we are only making matters worse, eventually for ourselves—our neighbours can play the same game—but definitely for the following generations.

---

<sup>4</sup> The United Electrical, Radio and Machine Workers of America, *Fatigue and Shiftwork* (2005).

<sup>5</sup> UK Census Deprivation Study.

<sup>6</sup> Federal Reserve Bank of San Francisco. Community Investment Online, *Working Wheels*, 2005.

<sup>7</sup> The UK Commission for Integrated Transport, 2001.

You alone cannot eliminate traffic congestion and all the other harmful and damaging side-effects of cars and trucks, but this is one case where the platitude truly fits: By not being part of the problem, you will become part of the solution.

.