

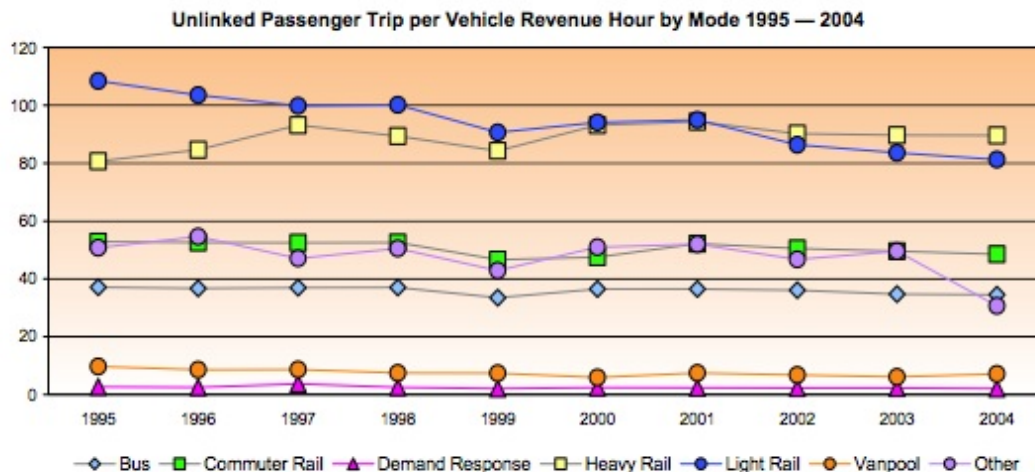


A few more transit stats

Posted by [Stuart Staniford](#) on December 15, 2006 - 10:11am

Topic: [Demand/Consumption](#)

Tags: [peak oil](#), [public transportation](#), [rail](#) [[list all tags](#)]



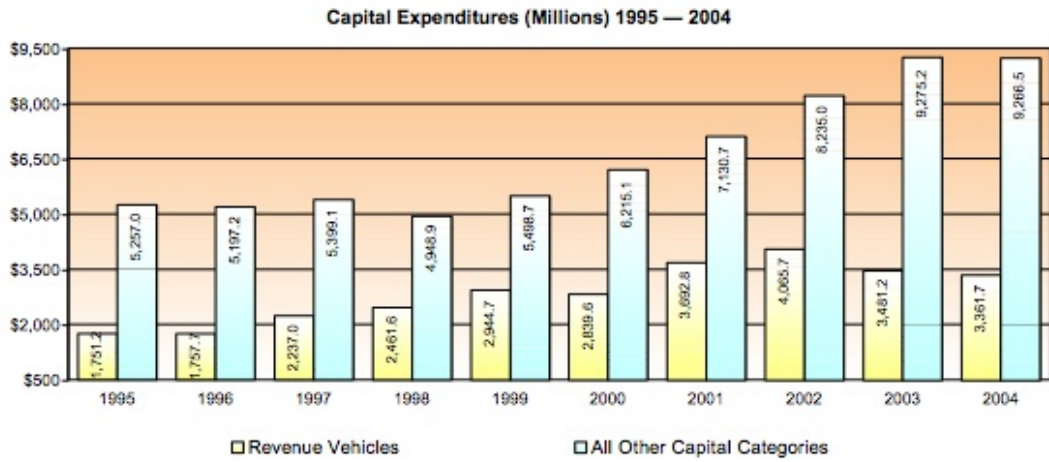
Passenger trips per hour of transit service, broken out by mode. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

A lot of transit enthusiasts howled bitterly about my [piece the other day](#). Some of the accusations were:

- The Department of Transport transit infrastructure spending numbers I found were off by an order of magnitude, included vehicles, or were otherwise wrong.
- My statistics were old (around 2000), and it was All Different Now, because ridership was up following the increase in energy costs.
- It would be Even More All Different after peak oil, when transit would magically become Much More Effective in the US than it seemingly was hitherto.

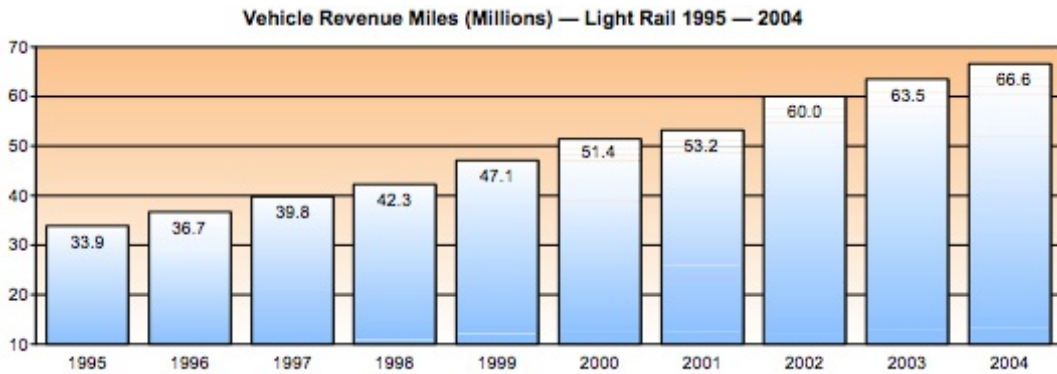
Well, I found a bunch of great stats from the [Federal Transit Agency](#) that allow me to address most of these issues. Here's a quick tour.

These guys see capex on infrastructure as a little less than \$10b/yr, and rolling stock as \$3-4b/yr. Their numbers are not consistent with the BEA derived numbers the other day, but are in the same ballpark. Transit spending has been increasing sharply.



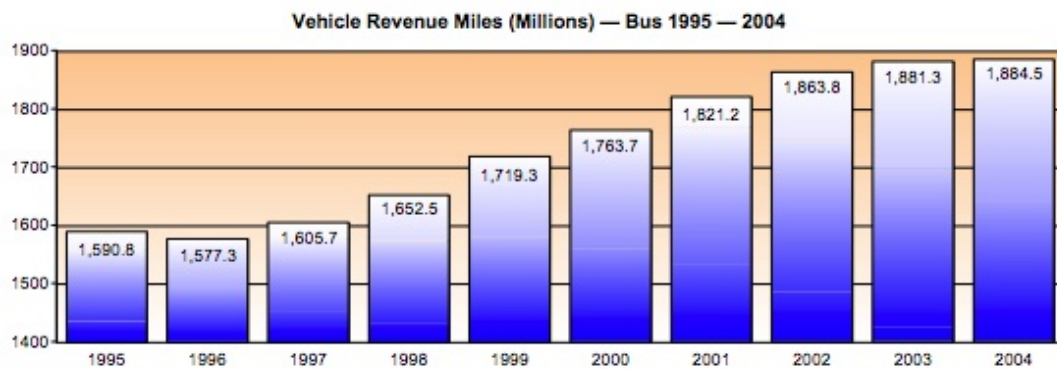
Capital expenditures on all forms of transit. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

This has increased capacity in just about all forms of transit. For example, the total amount of light rail service available roughly doubled in the decade 1995-2004.



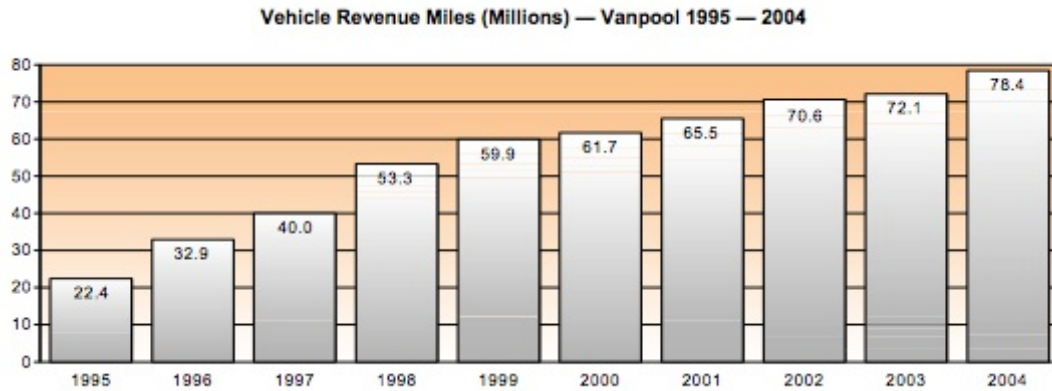
Vehicle miles of light rail service. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

Bus service went up by a more modest 18% or so.



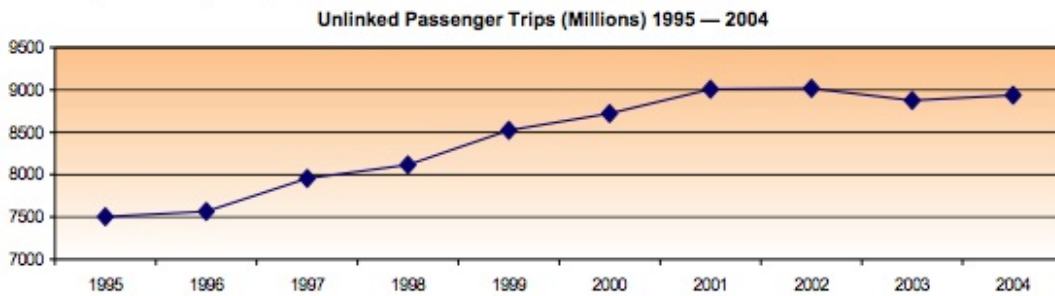
Vehicle miles of bus service. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

Available vanpool service more than tripled:



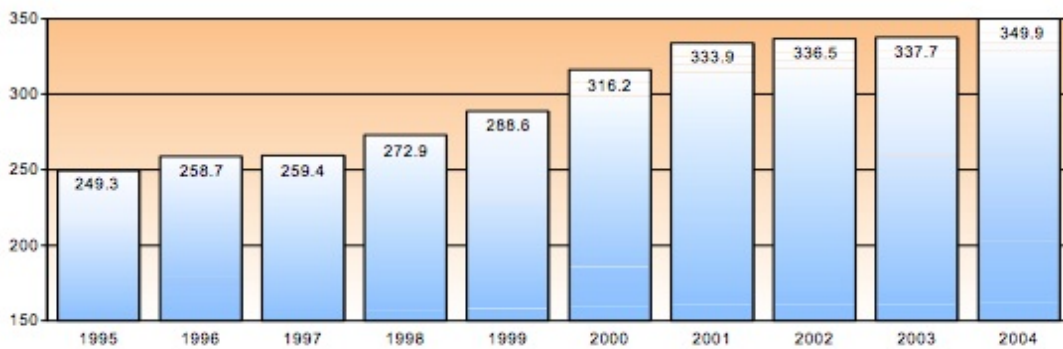
Vehicle miles of vanpool service. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

In response to all this increase in capacity, total passenger trips increased 19% over the decade.



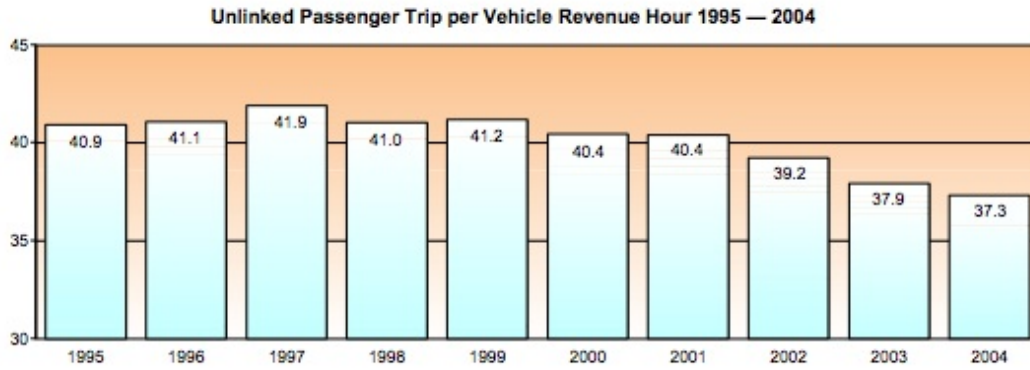
Passenger Trips on All Forms of Transit. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

Light rail for example, where available service miles went up 100%, saw an increase in passenger trips of 40%.



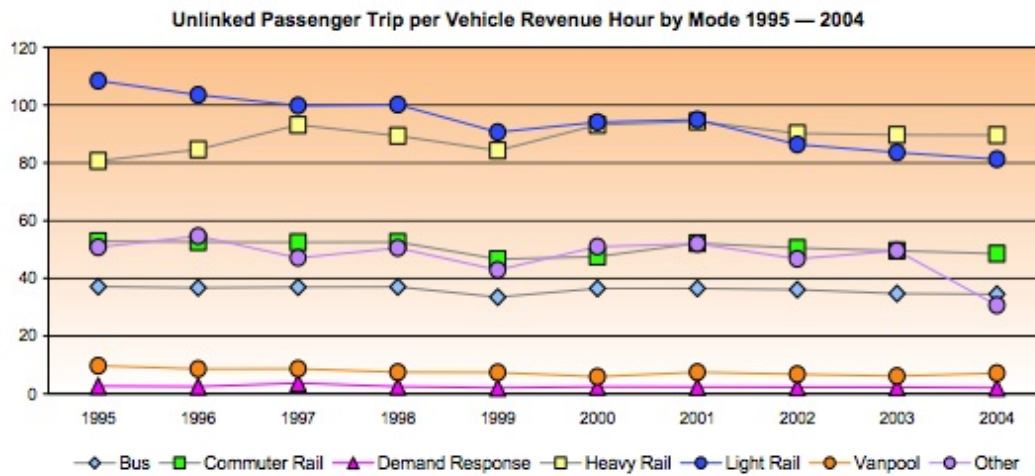
Passenger trips on light rail. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

So that must mean that ridership is growing slower than the increase in capacity, right? Yup:



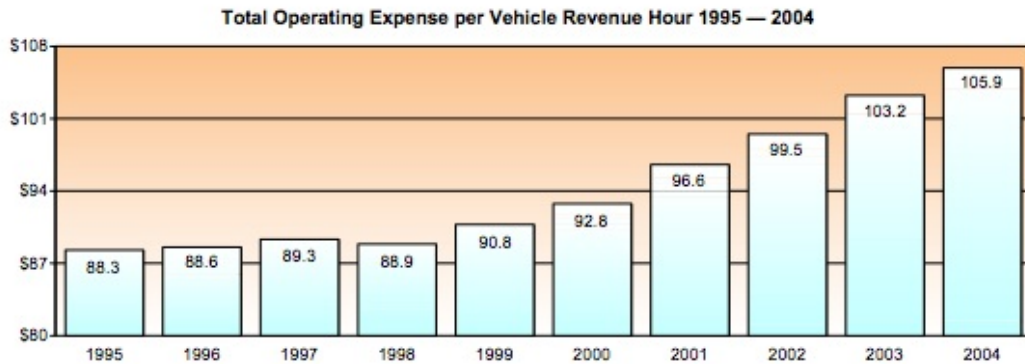
Passenger trips per vehicle revenue hour, all forms of transit. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

If we breakdown this number (the passenger trips per hour of service provided), we find that the utilization is dropping in most modes. It's particularly serious in light rail, but nothing is doing much better than holding it's own. The best is perhaps heavy rail (but that may be in part because heavy rail service increased less than others - only 20% or so).



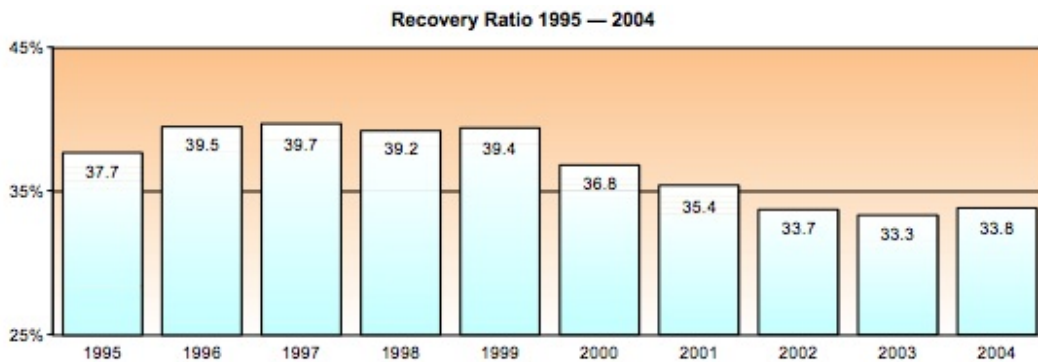
Passenger trips per hour of transit service, broken out by mode. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

Operating costs per trip started climbing about five or six years ago. I assume this is mainly due to the increase in fuel prices.



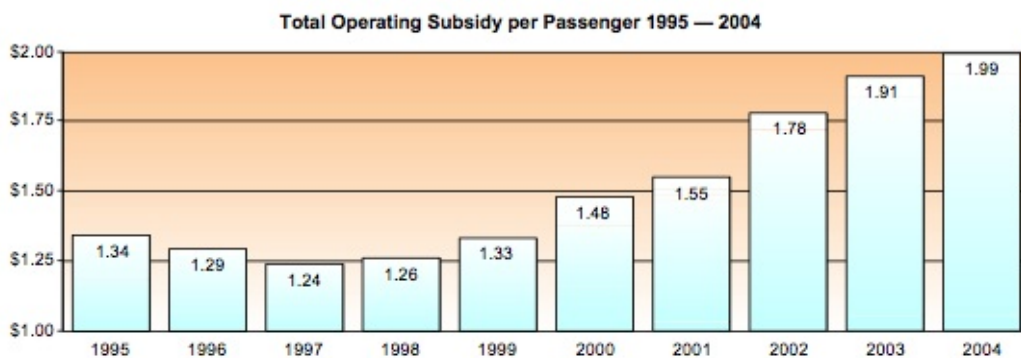
Operating expenses (excluding cost of capital) per vehicle revenue hour for all forms of transit. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

With costs per hour of service going up, and ridership per hour of service going down, the amount of operating costs covered by fares, never good, is falling:



Recovery ratio of transit (all forms). This is the proportion of operating costs (ex cost of capital) covered by fares. Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

Thus the operating subsidy per passenger is going through the roof (and this doesn't include costs of capital):



Operating subsidy per passenger (ex cost of capital). Source: Federal Transit Agency: [2004 National Transit Summaries and Trends](#).

So, in summary, during this pre-peak run-up in energy prices, we invested more and more heavily in transit. The effect of that was to increase capacity, but lower utilization. Operating expenses increased, and thus the overall financial performance of transit systems degraded

significantly, requiring much larger subsidies per passenger (and the number of passengers increased). Overall, we got diminishing returns from this strategy suggesting that the best transit opportunities are already in use, and newer ones are more marginal. Light rail seemed to degrade the worst of any of the modes.

Under the assumption that the post peak-oil period involves still further rises in energy prices, if we invest even more heavily in transit, it would appear to me that we are likely to get even more diminishing returns.



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