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Why rail transit never improves traffic congestion

— and why relief must come from highway options, especially HOT lanes

Since the advent of the Model-T, followed by the first suburban shopping center in 1923, and then the incredible expansion of suburbs after World War II, we have radically changed our means of getting to work. Not only getting there, but also what we do on the way there — and on the way back. We take our children to school, go for exercise, or go shopping and we no longer shop downtown.

Nor do we shop at the small local store, but in supermarkets, and lately, even more distant big box stores like Costco. Our children are in larger, more distant, schools whether public or private, and most of us drive them there.

As we move to the suburbs from town, say, Kaimuki to Mililani, we find that bus service is now every hour instead of every few minutes, and so we use it less.

We have always valued our time but now, because of increasing incomes, our time is more valuable than it used to be. Accordingly, it plays a bigger role in the decision about how we commute.

These are some of the factors that have altered the way we live, and why the percentage of commuters using public transportation has declined every decade since the U.S. Census began measuring it in 1960.

U.S. Census Data for journey-to-work nationally, 1960-2000					
Percent of Commuters	***1960***	***1970***	***1980***	***1990***	***2000***
Private Vehicle	64.0	77.7	84.1	86.5	87.9
Public transportation	12.1	8.9	6.4	5.3	4.7

<u>It is not that we are in love with our automobiles; it is that we value our time.</u>

This is the principal reason that public transportation's share of commuters is declining on Oahu, the mainland, Europe and virtually everywhere else. This share is critical.

To hold rush hour traffic congestion on Oahu in 2012 at year 2000 levels we would have to keep the number of those commuters who are driving to work in 2012 the same as the year 2000. Given the state's forecast of a 10 percent increase in all commuters for 2000-2012, we would have the result shown in the lower table. As you can see, it tells us that, all else being equal; we would have to double the percentage of commuters using public transportation. How likely is that?

Oahu traffic with commuter growth +10%				
	2000	**%**	**2012**	**%**
Transit	32,000	8%	70,000	16%
Auto	300,000	75%	300,000	68%
Other	68,000	17%	70,000	16%
Total	400,000	100%	440,000	100%

Before we go on, let's get our terms straight. We must use Metropolitan Statistical Areas (MSA's or metro areas) rather than cities. It is useless to discuss the city of San Francisco without including Oakland and all the other cities that are contiguous to it. And that is why the federal government's data is usually about metro areas, for example, the San Francisco MSA. Similarly, the city of Portland does not run its public transportation but rather Trimet, the three county contiguous area. San Diego's transit is run by SANDAG, the San Diego Association of Governments.

Further, we must discuss combined bus and rail transit use because we cannot, in any sensible way, separate them; the use of one without the other is not reliable. For example, Vancouver, Canada, and many other cities offer passes for bus and rail combined and so there is no accurate data about who is using what. In discussing commuting, the most relevant statistics are those of the U.S. Census and the U.S. Department of Transportation and that is what we use here. We also use the nationally recognized Texas Transportation Institute studies on traffic congestion.

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U.S. metro areas essentially stopped building rail lines around 1920 as rail transit ridership peaked and the first serious and reliable bus service appeared. From that point on until the 1970s, hundreds of U.S. cities removed their streetcar lines and substituted motor buses because it was so much less expensive.

Then starting in the 1970s, U.S. transit agencies projected significant increases in public transportation commuting by re-instating rail transit. It did not work out that way.

What happened was that of the 15 metropolitan areas with new rail transit, only one managed to increase the percentage of commuters using public transportation during the 1980 to 2000 period. That was San Diego and it only managed an increase from 3.3 percent to 3.4 percent — hardly earth shattering — all others declined.

Percentage of commuters using transit			
	1980	2000	
Boston	9.4	9.0	↓
New York	26.2	24.9	↓
Chicago	16.2	11.5	↓
Philadelphia	12.4	8.7	↓
Cleveland	7.6	3.4	↓
San Francisco	11.2	9.5	↓
Washington, DC	12.5	9.4	↓
Atlanta	7.0	3.7	↓
San Diego	3.3	3.4	↑
Seattle	7.5	6.8	↓
Miami	4.9	3.9	↓
Pittsburgh	10.4	6.2	↓
Buffalo	6.6	3.5	↓
Portland	7.2	5.7	↓
Sacramento	3.4	2.7	↓
Los Angeles	5.1	4.7	↓
St. Louis	5.6	2.4	↓
Denver	5.8	4.3	↓
Dallas	3.4	1.8	↓
Salt Lake City	4.9	3.0	↓

Note that outside of the New York metro area, the percentage of commuters using public transit is very small; nationally those commuting by automobile are twenty times greater than those using transit.

This is why, as we see with the earlier Honolulu example, any significant population growth results in new drivers totally overwhelming new transit users. Without major increases in this percentage, new drivers will always overwhelm new transit users.

This can be seen in the results from Federal Highways Administration data as shown in the table below. Nationally, 13 million more commuters resulted in 13 million more drivers and a slight decrease in transit commuters.

Percentage using transit			Increase/(Decrease)	
	1990	2000	Drivers	Transit
New York	24.8	24.9	108,237	22,710
Chicago	13.4	11.5	321,606	(41,250)
Washington DC	11.0	9.4	316,912	(34,589)
Philadelphia	10.2	8.7	138,161	(37,403)
San Francisco	9.3	9.5	149,957	27,849
Boston	8.6	9.0	155,134	24,379
Pittsburgh	7.4	6.2	81,306	(10,854)
Seattle	6.1	6.8	176,336	28,528
Portland	4.8	5.7	172,928	22,103
Buffalo	4.7	3.5	38,988	(14,751)
Los Angeles	4.6	4.7	(24,833)	4,981
Atlanta	4.5	3.7	384,725	5,159
Miami	4.4	3.9	147,685	(105)
Cleveland	4.4	3.4	112,782	(9,830)
Denver	4.0	4.3	247,718	17,241
San Diego	3.3	3.4	87,740	3,379
Salt Lake City	3.0	3.0	130,192	4,860
St. Louis	2.9	2.4	95,149	(4,114)
Sacramento	2.4	2.7	86,583	5,301
Dallas	2.3	1.8	387,757	(873)

This is why we find the higher levels of traffic congestion all across the nation.

The Texas Transportation Institute recently divided U.S. metro areas into four groups according to population size with the following results:

Very Large: 11 metro areas with over 3 million population all with rail lines except Houston — it had the least increase in traffic congestion of the group.

Large: 27 metro areas with 1 to 3 million population, half with rail lines. Aside from those areas with little or no commuter growth, the four best performers had no rail lines.

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Medium: 30 metro areas with ½ to 1 million population including Honolulu. Only Salt Lake City had rail and they had the third worst showing of the 30.

Small: less than ½ million, none with rail lines.

TTI's table also showed that of the nine worst metro areas for traffic congestion increases, 1982-2002, eight have rail transit.

This meant that all U.S. metro areas with significant increases in commuters saw a dramatic worsening of traffic congestion — rail transit had made no difference.

Everyone agrees that we have a traffic congestion problem and that the worst on Oahu is that found on the freeways and highways along the Leeward Corridor.

However, since rail transit has done nothing to relieve traffic congestion in any other U.S. city, it begs the question, what makes anyone think it will do it here?

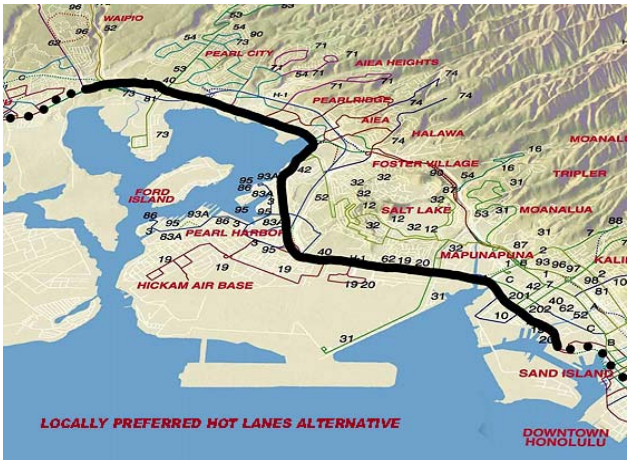
Instead, we believe that the new high-tech High Occupancy Toll lanes (HOT lanes) have shown such promise and such public acceptance that they may be a far preferable alternative.

Our proposal is for a two-lane reversible, elevated HOT lane highway between the H1/H2 merge near Waikele and Pier 16 near Hilo Hatties.

Buses and vanpools would have priority and travel free, other vehicles would pay a toll that would be collected electronically by way of a pre-paid smart card, as is quite commonplace on the mainland today. As on the San Diego I-15 HOT lanes, the toll price would be dynamically calculated every few minutes to keep the lanes full, but free flowing.

One of the more surprising outcomes of implementing HOT lanes is that they are popular with motorists across all income groups. Even those who use them rarely favor them because it is an option they can use in an emergency.

A single highway lane with free-flowing non-stop traffic carries up to 2,000 vehicles per hour and with two lanes that means removing 4,000 vehicles from the existing freeway, or 25 percent of the rush hour traffic now using that corridor.



Our projection of the HOT lanes traffic of around 4,000 vehicles does not have to be calculated since we know that rush-hour highways are always fully used; we only have to project the toll price that will keep the HOT lanes full but free-flowing. Judging from San Diego's I-15 and Orange County's SR-91 the average cost will be about $4.50 under normal circumstances and up to $7.75 for special periods such as Friday evenings.

A major advantage of HOT lanes is that traffic travels at uncongested freeway speeds of 60mph whereas rail transit can only average 22.5 mph because of stops every half mile. The HOT lane speed enables buses to make two trips in the time it now takes to make one. Further, buses on HOT lanes may travel door-to-door whereas rail nearly always requires transfers. HOT lanes offer both motorists and bus riders a choice of avoiding traffic congestion. The regular freeway is still there and available for free with less congestion than before.

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The last issue is that of cost. The Mayor and DOT have been using $2.6 billion for a Kapolei to Iwilei first segment. Since then the Mayor has added Iwilei to UH.

We have priced this addition at 15 percent more per mile for the difficulty of in-town construction and going over H-1 at University Avenue. That adds $1 billion to the cost. The federal funding has a practical limit of $0.5 billion and that will leave $3.1 billion for local funding as shown in the table below.

Kapolei to Iwilei	$2.6 billion
Iwilei to UH,	$1.0 billion
Total cost	$3.6 billion
Less Federal funding	$0.5 billion
To be locally funded	$3.1 billion**

**Before overruns

The ½ percent increase in the G.E. Tax does not come close to funding this system, especially considering annual losses of $59 million and making sufficient allowance for bond interest. Our calculations show that in the out years the revenues from the tax will barely cover the operating losses and bond interest, leaving little or nothing for capital repayment. In addition, there has been no consideration for cost overruns.

When one considers that this rail transit project would entail a local per capita cost five times greater than any other rail system in the U.S., even after allowing for inflation, that alone should give us pause, even if we are under the mistaken impression that a rail system would have benefits.

On the other hand, the 10-mile long elevated HOT lanes would have a total cost of $1 billion, or $100 million a mile. Rail proponents have said that we cannot build it for that price and that it is too wide to use pedestal construction.

The earlier rendering shows the Tampa Expressway now under construction which uses pedestal construction and is three lanes wide. Even though it is 30 percent wider than our proposal, it will open this June 2006 at a cost of $52 million a mile.

Consultants at the 2002 Governor's Conference on Reversible Tollways had initially calculated the cost at $70 million per mile and later added $30 million for unforeseen problems and other cost overruns.

HOT lanes are eligible for the same federal fixed-guideway funding as the rail proposal, which means that with $1 billion total cost and $500 million federal funding, it would only need $500 million in local funding, there being little or no operating costs.

Of this $500 million, toll revenues of $20 million annually would pay off $300 million over 25 years using five percent GO bonds. Another $13 million annually would pay off the remaining $200 million balance over 25 years. If we cannot find $13 million annually from city and state budgets without raising taxes someone is not making an effort.

Summary

- Rail has never improved traffic congestion anywhere,
- We have a traffic problem — not a transit problem,
- Tax-free HOT lanes give motorists a choice,
- Tax-free HOT lanes outperform rail transit easily,
- We can afford HOT lanes and we cannot afford rail.
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Don't trust us; check out everything we say. Then ask rail proponents to do the same for the statements they are making.