

TRANSIT'S TINY FRACTION OF URBAN TRAVEL

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SUMMARY

How much does mass transit contribute to the reduction of urban congestion and pollution? How much is it doing in other US cities? This paper offers some newly compiled data and insights into that important question.

Mass transit serves an essential function in our transportation system in providing mobility for that fraction of travelers who cannot drive. That fraction is small and shrinking. Nevertheless, transit is being widely promoted for an entirely different purpose, as a preferred alternative to roads, to solve our urban congestion problem. This notion ignores a wealth of national statistical data showing that transit, particularly light rail, is much more expensive than roads and that, irrespective of cost, transit is not used by enough travelers to have any measurable effect on overall mobility. This paper sheds new light on this latter limitation.

Most prior data on the fraction of urban traffic carried by transit has its source in the decennial census, which provides extensive data on travel-to-work modes. This data shows the fraction of workers using transit to be small and shrinking. However, the significance of these data is limited since 1) they only deal with the trip-to-work traffic, commonly only 30% or so of total travel, and 2) they are based solely on stated preferences, thus subject to unknown bias.

This report develops some interesting new results on *total* transit travel as a fraction of *total* travel by all modes for each urbanized area. . The data are all simply derived from two widely available DOT annual statistical summaries of Highway and Transit system performance[1,2]. They show that transit's contribution to total travel is much smaller than previously had been reported.

METHODOLOGY

How does one measure or compare the contribution of different modes to our total regional travel requirement? It is common among transit analysts to state transit performance in "boardings" or "unlinked-trips", commonly referred to in transit context as simply "trips". In the US, the average such trip length is 3.73 miles for Bus and 3.69 miles for light rail [1], whereas the US average automobile trip is 9.0 miles [2. Table NPTS-1] So on the average one automobile trip is the equivalent of 2 or 3 transit trips linked together by transfers. Transportation's requirement, whether roads or transit is to move *people* the *miles* from their origin to their destination. Accordingly, in order to

compare apples-to-apples, different modes must be compared in terms of *person-miles* (ps-mi).

Total roads travel is given for each of the major US urbanized areas, in [2, table HM-71] as average daily vehicle-miles, defined as annual vehicle miles divided by 365. US Average Vehicle Occupancy (AVO) is given in the same reference [2, Table NPTS-1] as 1.64. Multiplying by AVO gives the average daily person-miles (ps-mi/day) in each urbanized area shown as column D in Table 1 here. In both the references, the data are organized by UZA or urbanized area as defined by the Census Bureau.

Total transit travel is given in person-miles per year for the same urbanized areas, for each mode (i.e. bus, light rail, heavy rail, commuter rail, etc.) in the annual DOT “Transit Profiles” [1]. These are converted to person-miles per average day using the same 365 days per year and shown in column G for total transit and column J for light rail.

These data are combined in Table 1 here with average daily person-miles (ps-mi/day) for each mode expressed also as a percent of total travel (roads plus transit). Light rail is included in total transit and also tabulated separately in the final columns.

RESULTS

The results are shocking. Only one city (urbanized area) in the United States, New York of course, serves 10% of its total travel needs by transit. No other, including Chicago, serves as much as 5%. The vast majority of US cities serve less than 2% of their total traffic by public mass transit of all types.

The results on light rail are even more revealing. In spite of the billions spent on light rail in the last 20 years under federal grant policies, no urbanized area in the United States serves as much as 0.4% of its total travel by light rail. The vast majority are under 0.3%.

CONCLUSION

There is a proper and essential need for some amount of transit to serve the transportation needs for those who are dependent on it. But the notion that transit, particularly light rail, can make any significant contribution to the capacity we need to alleviate urban congestion, is simply uninformed wishful thinking and without precedent in the U.S.

REFERENCES

1. “Transit Profiles, 1996”, US DOT.
2. “Highway Statistics, 1996”, US DOT.

Table 1 on next page.

TABLE 1

Transit Utilization Factor

1996

12/15/98

	B	C	D	G	H	J	K
UZA	Pop. thous	Roads [2] veh-mi/day thous	ps-mi/day thous	All Transit [1] ps-mi/day thous	%Transit	Lt. Rail [1] ps-mi/day thous	%LtRail
All US UZAs		3,694,971	6,059,752	104,184	1.69%	2616.4	0.04%
Boston	2,878	57,605	94,472	3,666	3.74%	386.3	0.39%
San Diego	2,561	55,622	91,220	1,140	1.23%	306.8	0.33%
Portland	1,355	29,305	48,060	838	1.71%	131.5	0.27%
St. Louis	1,968	56,082	91,974	641	0.69%	216.4	0.23%
Sacramento	1,217	26,583	43,596	299	0.68%	101.4	0.23%
San Francisco	3,890	81,023	132,878	4,997	3.62%	274.0	0.20%
Philadelphia	4,538	73,690	120,852	3,786	3.04%	241.1	0.19%
Pittsburgh	1,768	35,557	58,313	899	1.52%	109.6	0.19%
Baltimore	2,107	42,214	69,231	1,373	1.94%	112.3	0.16%
New Orleans	1,070	14,387	23,595	545	2.26%	35.6	0.15%
Buffalo	1,073	19,729	32,356	225	0.69%	43.8	0.13%
San Jose	1,593	35,425	58,097	532	0.91%	76.7	0.13%
Cleveland	1,767	38,349	62,892	775	1.22%	82.2	0.13%
Los Angeles	12,222	264,941	434,503	5,932	1.35%	421.9	0.10%
Denver	1,770	37,262	61,110	816	1.32%	32.9	0.05%
New York	16,320	246,964	405,021	45,019	10.00%	57.5	0.01%
Memphis	964	20,940	34,342	178	0.52%	2.7	0.01%
Dallas-Ft Worth	3,363	100,272	164,446	885	0.54%	8.2	0.00%
Chicago	7,961	152,256	249,700	9,066	3.50%	0.0	0.00%
Washington	3,449	79,506	130,390	4,345	3.23%	0.0	0.00%
Seattle	1,948	47,735	78,285	2,074	2.58%	0.0	0.00%
Miami	2,058	36,233	59,422	1,025	1.70%	0.0	0.00%
Atlanta	2,449	89,530	146,829	1,896	1.27%	0.0	0.00%
Las Vegas	1,074	16,779	27,518	342	1.23%	0.0	0.00%
Milwaukee	1,250	30,681	50,317	499	0.98%	0.0	0.00%
Ft. Lauderdale	1,485	31,397	51,491	490	0.94%	0.0	0.00%
San Antonio	1,193	29,581	48,513	427	0.87%	0.0	0.00%
Houston	3,059	78,735	129,125	1,099	0.84%	0.0	0.00%
Minn.- St. Paul	2,263	51,946	85,191	685	0.80%	0.0	0.00%
Cincinnati	1,161	30,974	50,797	378	0.74%	0.0	0.00%
Orlando	1,064	26,777	43,914	282	0.64%	0.0	0.00%
Riverside	1,325	29,388	48,196	249	0.51%	0.0	0.00%
Phoenix	2,340	50,430	82,705	392	0.47%	0.0	0.00%
Detroit	3,768	86,811	142,370	663	0.46%	0.0	0.00%
Norfolk	1,429	32,004	52,487	192	0.36%	0.0	0.00%
Tampa	1,862	38,720	63,501	225	0.35%	0.0	0.00%
Indianapolis	993	27,653	45,351	145	0.32%	0.0	0.00%
Kansas City	1,339	37,329	61,220	137	0.22%	0.0	0.00%
West Palm Bch	967	18,510	30,356	49	0.16%	0.0	0.00%
Oklahoma City	1,027	26,683	43,760	38	0.09%	0.0	0.00%
Columbus, OH	898	23,947	39,273	200	0.51%	0.0	0.00%

Salt Lake City	862	18,558	30,435	315	1.02%	0.0	0.00%
Jacksonville	819	21,522	35,296	126	0.36%	0.0	0.00%
Louisville	782	23,327	38,256	159	0.41%	0.0	0.00%
Tulsa	757	16,729	27,436	49	0.18%	0.0	0.00%
Honolulu	692	11,379	18,662	879	4.50%	0.0	0.00%
Birmingham	640	21,073	34,560	82	0.24%	0.0	0.00%
Tucson	639	11,293	18,521	175	0.94%	0.0	0.00%
Rochester	619	14,455	23,706	110	0.46%	0.0	0.00%
Nashville	619	20,448	33,535	101	0.30%	0.0	0.00%
Austin	618	16,580	27,191	282	1.03%	0.0	0.00%
El Paso	617	10,925	17,917	216	1.19%	0.0	0.00%
Richmond, VA	606	15,998	26,237	96	0.36%	0.0	0.00%
Springfield, MA	599	12,264	20,113	96	0.47%	0.0	0.00%
Hartford	597	14,806	24,282	170	0.69%	0.0	0.00%
Dayton	593	16,318	26,762	96	0.36%	0.0	0.00%
Tacoma	588	12,651	20,748	214	1.02%	0.0	0.00%
Charlotte	571	14,378	23,580	123	0.52%	0.0	0.00%
Omaha	544	11,324	18,571	55	0.29%	0.0	0.00%
Akron	534	12,785	20,967	58	0.27%	0.0	0.00%
Fresno	530	9,393	15,405	88	0.57%	0.0	0.00%
Oxnard	520	11,647	19,101	44	0.23%	0.0	0.00%
Sarasota	510	8,653	14,191	36	0.25%	0.0	0.00%
Toledo	491	11,614	19,047	55	0.29%	0.0	0.00%
Albany	491	12,760	20,926	125	0.59%	0.0	0.00%
Albuquerque	476	12,095	19,836	63	0.32%	0.0	0.00%
Allentown-Bethlehem-	457	8,975	14,719	42	0.28%	0.0	0.00%
New Haven-Meriden	455	9,778	16,036	73	0.46%	0.0	0.00%
Bridgeport	412	8,052	13,205	2	0.01%	0.0	0.00%
Scranton-Wilkes-Barre	402	6,839	11,216	53	0.47%	0.0	0.00%
Colorado Springs	400	7,067	11,590	50	0.43%	0.0	0.00%
Raleigh	399	12,910	21,172	30	0.14%	0.0	0.00%
Youngstown	380	7,225	11,849	9	0.07%	0.0	0.00%
Baton Rouge	377	8,683	14,240	30	0.21%	0.0	0.00%
Melbourne	377	7,469	12,249	53	0.43%	0.0	0.00%
Syracuse	364	8,884	14,570	86	0.59%	0.0	0.00%
Wichita	358	7,190	11,792	28	0.24%	0.0	0.00%
Orange County		60,600	99,384	512	0.51%	0.0	0.00%

References:

- 1: "Transit Profiles, 1996", US DOT
- 2: "Highway Statistics, 1996", US DOT

ps-mi/day = person-miles per day
veh-mi/day = vehicle-miles per day
UZA = Census "Urbanized Area"

Constants:

DPY	365	Days Per Year
AVO	1.64	Average Vehicle Occupancy