



## LOS ANGELES SUBURBAN RAIL SUMMARY (COMMUTER RAIL, REGIONAL RAIL)

October 2003

Los Angeles is the only urban area in the United States to have developed a regional commuter rail system in decades. The system opened in the early 1990s and now extends to more than 400 miles, with approximately 50 stations on seven routes. The system length is second only to New York in the United States and the 10<sup>th</sup> most extensive in the world.<sup>1</sup> There are 0.02 stations per square mile of urban land (one for each 48 square miles).. The 56 mile San Bernardino to Los Angeles line is by far the nation's most successful new commuter rail route, carrying more than 10,000 riders daily.<sup>2</sup>

The Los Angeles commuter rail system serves an area<sup>3</sup> of 14 million people, spread over 2,300 square miles at an average population density of 6,100 per square mile. Approximately 6.5 percent of the urban land area is at pre-automobile population densities (above 15,000 per square mile), accounting for 23 percent of the population (3.2 million). However, much of the pre-automobile density in Los Angeles actually represents post-automobile development. Los Angeles is virtually alone among major automotive world urban areas in having experienced a significant increase in density since 1950. The core of Los Angeles in 2000 was 35 percent more dense than in 1950. Almost all of the high density areas of Los Angeles were developed after high levels of automobile ownership were achieved. Thus, despite the pre-automobile densities, there is an automobile era urban form, including wide streets and a comparatively dense freeway system.

Public transport's share of travel is less than 1.5 percent, with commuter rail accounting for 0.2 percent of travel (Figure 19). Average automobile travel speeds are 27.9 miles per hour, more than double the 12.4 miles per hour of public transport.

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<sup>1</sup> Among systems for which data is available (*Janes Urban Transport Systems* and Federal Public transport Administration).

<sup>2</sup> <http://www.metrolinktrains.com/>

<sup>3</sup> Includes Los Angeles, Oxnard, Simi Valley, Santa Clarita, Lancaster, Mission Viejo and San Bernardino-Riverside urbanized areas (areas served by commuter rail system). The core Los Angeles urbanized area has the nation's highest population density, at 7,068 persons per square mile.

The Los Angeles central business district, at 170,000 employees, represents only 2.5 percent of metropolitan employment. From 1960 to 1990, more than 99 percent of new jobs were created outside the downtown area.

Most commuter rail services terminate at Union Station, located on the northern periphery of the downtown area. Los Angeles commuter rail ridership, however, is considerably lower than that of other large commuter rail systems, at 8.1 million annually, or 31,000 daily. This is approximately 0.02 percent of travel in the metropolitan area. The commuter rail operator estimates that 2.9 percent of adjacent freeway traffic is diverted by commuter rail during peak travel hours.<sup>4</sup>



Figure 1

Transfers can be made at Union Station to the subway line or buses. There is, however, no through running of commuter rail trains on the subway.

Commuter rail in Los Angeles is also principally a downtown oriented system. Auto-competitive service is provided to the central business district from throughout the urban area. Approximately 70 percent<sup>5</sup> of riders terminate at Union Station, which means that there are approximately 100

<sup>4</sup> <http://www.metroinktrains.com/>

<sup>5</sup> <http://www.metroinktrains.com/>

passenger miles per square mile to destinations outside downtown. This compares to daily roadway travel of 105,000 vehicle miles per square mile (168,000 person miles).

## APPENDIX TABLES

	Appendix Table A International Pre-Automobile Commuter Rail Systems					
	Tokyo	Osaka	Nagoya	Paris	London	Sydney
<b>DEMOGRAPHICS</b>						
Population (000)	31,200	15,250	8,050	9,650	12,230	3,539
Urban Area (Square Miles)	2,030	1,050	1,090	1,060	1,600	811
Population Density	15,369	14,524	7,385	9,104	7,644	4,365
Gross Product/Capita 1999	\$28,327	\$25,376	\$28,535	\$32,343	\$27,365	\$25,643
Compared to Tokyo	0.0%	-10.4%	0.7%	14.2%	-3.4%	-9.5%
<b>CENTRALIZATION</b>						
% Population>15,000 Density	71%	70%	24%	56%	23%	1%
% Land>15,000 Density	46%	43%	9%	18%	8%	0%
Core Population Share	26%	17%	27%	22%	59%	15%
Suburban Population Share	74%	83%	73%	78%	41%	85%
CBD (Downtown) Employment Share	16%	18%	13%	17%	16%	11%
Outside CBD Employment Share	84%	82%	88%	83%	84%	89%
Employment in CBD (000)	2,434	1,380	500	891	1,099	175
<b>PUBLIC TRANSPORT SYSTEM</b>						
Public transport Market Share	56.7%	59.5%	24.6%	24.1%	17.1%	13.6%
Public transport/Auto Speed	1.6			1.5		
<b>COMMUTER RAIL</b>						
Commuter Rail Market Share	39.5%	36.4%	12.0%	7.2%	3.7%	5.6%
Compared to New York	59.9	53.3	18.2	11.0	5.6	8.5
Miles of Route	1,779	1,095	528	1,012	2,260	1,273
Stations	1,243	1,065	843	540	940	306
Station Density	0.61	1.01	0.77	0.51	0.59	0.38
Operating Subsidy?	No	No	No	Yes	Yes	Yes
Capital Subsidy	No	No	No	100%	100%	100%
Share with Freight?	No	No	No	Little	Little	Little
<b>HIGHWAYS</b>						

Traffic Density (Vehicle Miles/Sq.Mi.)	118,854	83,462
Compared to Tokyo	0.0%	-29.8%

EXTENT OF AUTO COMPETITIVE PUBLIC TRANSPORT SERVICE

Within Core	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Suburbs to Core	HIGH	HIGH	HIGH	MIDDLE	MIDDLE	MIDDLE
Within Suburbs	HIGH	HIGH	HIGH	LOW	NIL	NIL

Appendix Table B  
United States Pre-Automobile Commuter Rail Systems

	New York	Chicago	Boston	Philadelphia
<b>DEMOGRAPHICS</b>				
Population (000)	20,253	8,307	4,032	5,149
Urban Area (Square Miles)	4,711	2,123	1,736	1,799
Population Density	4,299	3,913	2,323	2,862
Gross Product/Capita 1999	\$43,805	\$39,384	\$40,301	\$36,025
Compared to Tokyo	54.6%	39.0%	42.3%	27.2%
<b>CENTRALIZATION</b>				
% Population > 15,000 Density	44%	24%	20%	22%
% Land > 15,000 Density	5%	4%	2%	3%
Core Population Share	40%	35%	15%	29%
Suburban Population Share	60%	65%	85%	71%
CBD (Downtown) Employment Share	19%	13%	13%	14%
Outside CBD Employment Share	81%	87%	87%	86%
Employment in CBD (000)	1,733	485	280	351
<b>PUBLIC TRANSPORT SYSTEM</b>				
Public transport Market Share	9.0%	3.6%	3.8%	2.9%
Public transport/Auto Speed	0.9	0.8	0.6	
<b>COMMUTER RAIL</b>				
Commuter Rail Market Share	0.7%	0.5%	0.4%	0.3%
Compared to New York	1.0	0.7	0.6	0.4
Miles of Route	979	333	328	304
Stations	404	250	116	176
Station Density	0.09	0.12	0.07	0.10
Operating Subsidy?	Yes	Yes	Yes	Yes

Capital Subsidy	100%	100%	100%	100%
Share with Freight?	Little	Little	Little	Little

#### HIGHWAYS

Traffic Density (Vehicle Miles/Sq.Mi.)	63,312	57,968	43,350	57,168
Compared to Tokyo	-46.7%	-51.2%	-63.5%	-51.9%

#### EXTENT OF AUTO COMPETITIVE PUBLIC TRANSPORT SERVICE

Within Core	HIGH	HIGH	HIGH	HIGH
Suburbs to Core	MIDDLE	MIDDLE	MIDDLE	MIDDLE
Within Suburbs	NIL	NIL	NIL	NIL

Appendix Table C  
United States Automobile Era Commuter Rail Systems and Lines

	Washington- Baltimore	Los Angeles	San Diego	Miami	Dallas-Fort Worth	Seattle
<b>DEMOGRAPHICS</b>						
Population (000)	6,010	14,000	2,674	4,919	4,146	2,712
Urban Area (Square Miles)	1,840	2,299	782	1,116	1,407	954
Population Density	3,266	6,090	3,419	4,408	2,947	2,843
Gross Product/Capita 1999	\$41,316	\$33,486	\$34,495	\$31,261	\$40,306	\$38,928
Compared to Tokyo	45.9%	18.2%	21.8%	10.4%	42.3%	37.4%
<b>CENTRALIZATION</b>						
% Population>15,000 Density	10%	23%	3%	7%	2%	2%
% Land>15,000 Density	1%	6%	2%	2%	0%	0%
Core Population Share	20%	26%	46%	7%	29%	21%
Suburban Population Share	80%	74%	54%	93%	71%	79%
CBD (Downtown) Employment Share	19%	2%	6%	2%	6%	12%
Outside CBD Employment Share	81%	98%	94%	98%	94%	88%
Employment in CBD (000)	444	167	73	41	112	171
<b>PUBLIC TRANSPORT SYSTEM</b>						
Public transport Market Share	3.3%	1.4%	1.5%	1.3%	0.5%	1.8%
Public transport/Auto Speed	0.8	0.4	0.5			

#### COMMUTER RAIL

Commuter Rail Market Share	0.05%	0.02%	0.02%	0.03%	0.01%	0.01%
Compared to New York	0.08	0.03	0.03	0.04	0.02	0.01
Miles of Route	191	415	43	71	35	34
Stations	56	48	9	19	9	7
Station Density	0.03	0.02	0.01	0.02	0.01	0.01
Operating Subsidy?	Yes	Yes	Yes	Yes	Yes	Yes
Capital Subsidy	100%	100%	100%	100%	100%	0%
Share with Freight?	Yes	Yes	Yes	Yes	Yes	Yes

#### HIGHWAYS

Traffic Density (Vehicle Miles/Sq.Mi.)	74,798	104,970	85,687	109,613	68,077	60,936
Compared to Tokyo	-37.1%	-11.7%	-27.9%	-7.8%	-42.7%	-48.7%

#### EXTENT OF AUTO COMPETITIVE PUBLIC TRANSPORT SERVICE

Within Core	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Suburbs to Core	MIDDLE	MIDDLE	MIDDLE	MIDDLE	MIDDLE	MIDDLE
Within Suburbs	NIL	NIL	NIL	NIL	NIL	NIL

Note: Washington-Baltimore CBD data is for Washington and Baltimore.

<p><b>The Public Purpose</b>    <b>WENDELL COX CONSULTANCY</b>    <b>Demographia</b></p> <p>P. O. Box 841 - Belleville, IL 62269 USA  Telephone: +1.618.632.8507 - Facsimile: +1.810.821.8134</p> <p><i>To facilitate the ideal of government as the servant of the people by identifying and implementing strategies to achieve public purposes at a cost that is no higher than necessary.</i></p>
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