



## **SYDNEY SUBURBAN RAIL SUMMARY (COMMUTER RAIL, REGIONAL RAIL)**

**October 2003**

Sydney is the largest urban area in Australia, with approximately 3.5 million inhabitants spread over 800 square miles, for a population density 4,400 per square mile. Only one percent of Sydney is developed at pre-automobile densities, however, Australia reached US 1930 automobile ownership rates only in the mid-1960s. Sydney's public transport market share is very high for a low density urban area, at 13.6 percent (only Toronto, at 15.2 percent is higher among urban areas in the US, Canada, Australia and New Zealand). Commuter rail accounts for 5.6 percent of travel in the area (Figure 9).

There are more than 1,250 commuter rail route miles and 300 stations located on 15 lines throughout the urban area. There are 0.38 commuter rail stations per square mile (one for each 2.65 square miles) of developed land. Commuter rail ridership is 41 percent of the public transport total.

Sydney has the automotive world's sixth most patronized commuter rail system, and the third most extensive in terms of route miles. Virtually all of the system predates high automobile ownership. Unlike the London and New York systems and many other systems in Western Europe and the United States, the Sydney system operates through the central business district, providing through service. In this respect, the Sydney system is similar to that of Paris, though does not have the dense mesh of service provided in the Japanese urban areas. Moreover, the system has a major secondary hub outside the downtown area (where public transport's work trip market share is more than 70 percent), in Parramatta. Parramatta is also unique in being a hub for the suburban privately operated bus system. The central business district has approximately 10 percent of the region's employment, while Parramatta has approximately one percent (a public transport work trip market share of under 30 percent) This two hub system substantially increases the extent of automobile competitive service available in the Sydney

Nonetheless, automobile competitive public transport service is generally limited to the two hubs. There is little automobile competitive service between suburban locations, which account for 85 percent of the population and 65 percent of the employment.<sup>1</sup>

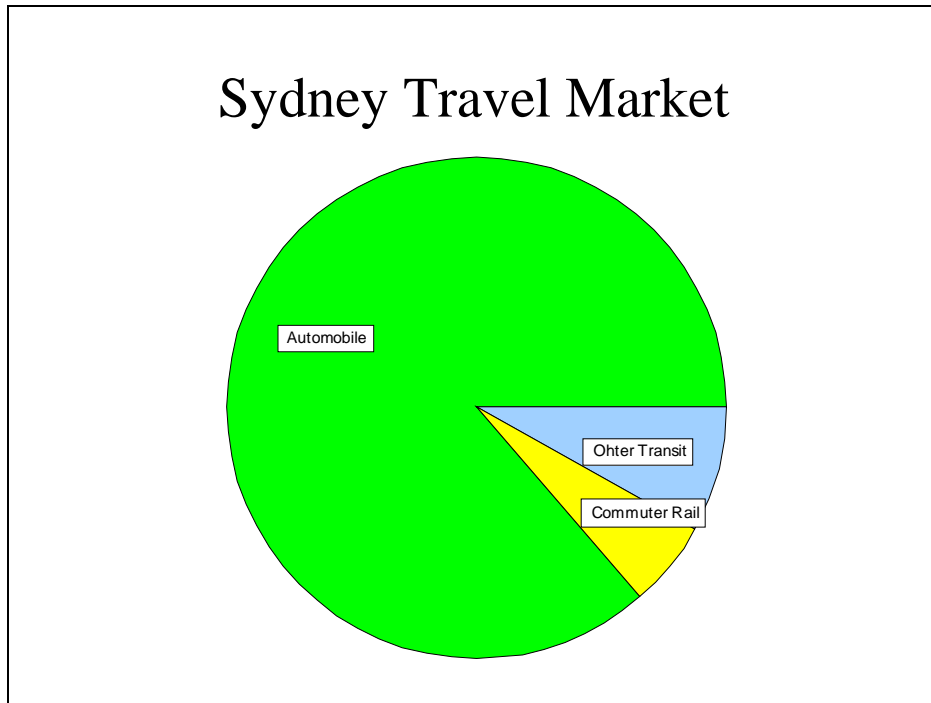


Figure 1

**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%

<sup>1</sup> Based upon the inner city as defined by Kenworthy and Laube.

% 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

#### PUBLIC TRANSPORT SYSTEM

Public transport Market Share	56.7%	59.5%	24.6%	24.1%	17.1%	13.6%
Public transport/Auto Speed	1.6			1.5		

#### COMMUTER RAIL

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

#### HIGHWAYS

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
DEMOGRAPHICS				
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%
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CENTRALIZATION

% 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

PUBLIC TRANSPORT SYSTEM

Public transport Market Share	9.0%	3.6%	3.8%	2.9%
Public transport/Auto Speed	0.9	0.8	0.6	

COMMUTER RAIL

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
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DEMOGRAPHICS

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%

#### CENTRALIZATION

% 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

#### PUBLIC TRANSPORT SYSTEM

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
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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. 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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