



NEW YORK SUBURBAN RAIL SUMMARY (COMMUTER RAIL, REGIONAL RAIL)

October 2003

New York: The New York commuter rail service area consists of 20.3 million people, spread over 4,700 square miles at an average population density of 4,300 per square mile. Approximately five percent of the urban land area is at pre-automobile population densities (above 15,000 per square mile), though this accounts for 44 percent of the population (9.0 million). Approximately 40 percent of the population is in the core city of New York.

The New York central business district (Manhattan) is the world's second largest, with approximately 1.7 million jobs.¹ This represents 19 percent of metropolitan area employment. Further, few new jobs have been created downtown. From 1960 to 1990, more than 96 percent of the new jobs in the metropolitan area were created outside downtown.²

New York has by far the nation's highest public transport market share, at more than 9 percent. Commuter rail ridership is approximately 240 million boardings annually (approximately 800,000 daily), and represents approximately 0.7 percent of travel in the area (Figure 10). Unlike the Japanese urban areas and Paris, public transport operating speeds are slower than automobile speeds. Public transport operates at 21.2 miles per hour, while automobiles average 23.8 miles per hour.

The New York commuter rail system is by far the largest in the nation. There are nearly 1,000 miles of route and 400 stations on nearly 30 routes. Most service terminates in the New York central business district (Manhattan) at either Penn Station or Grand Central Station. Transfers can be made at each of these stations to subway services or buses. There is, however, no through running of commuter rail trains on subway routes, and no commuter rail trains run through the central business district. There are 0.09 commuter rail stations per square mile (one for each 11.7 square miles) of urban land. This is barely one-tenth of the Tokyo station density. Further,

¹ US Census Bureau, 1990.

² Calculated from Kenworthy & Laube.

service frequencies are somewhat sparse, with from zero to 12 percent of services operating every five minutes off peak.

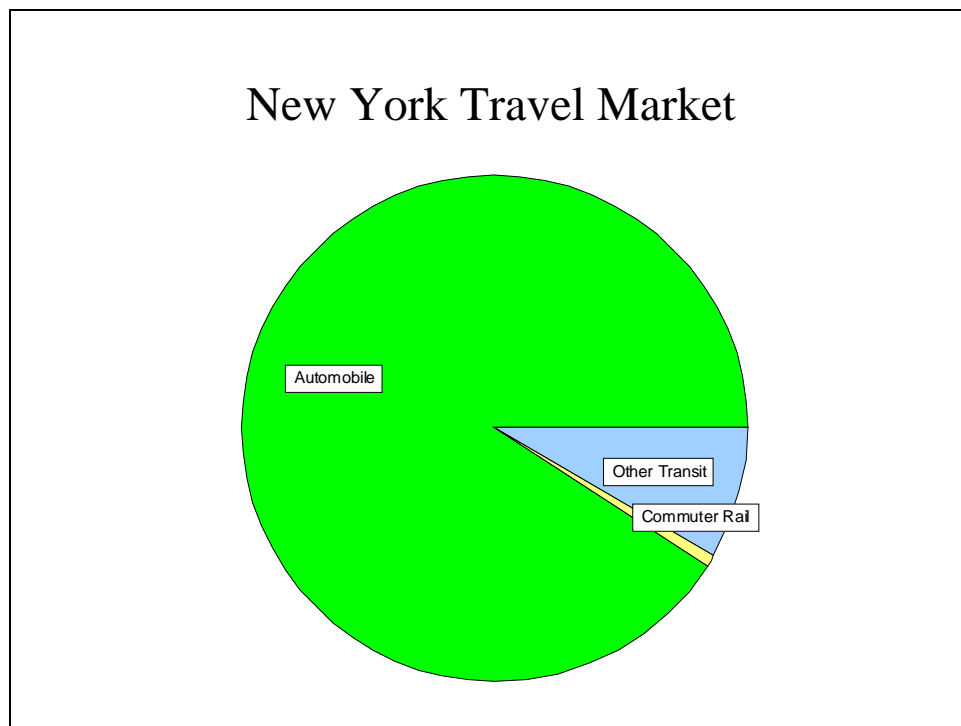


Figure 1

As a result, in New York commuter rail is principally a downtown oriented system. Auto-competitive service is provided to the central business district from throughout the urban area. In the downtown area. Commuter rail carries 14 percent of commuters to the central business district. Commuter rail appears to have a significant impact on traffic congestion to downtown (Figure 11), with nearly 250,000 commuters converging on less than 10 square miles (27,000 per square mile). This represents more than the total number of jobs in all but a few of the nation's downtown areas.³

However, little auto-competitive service is available in the rest of the area, which is reflected by commuter rail's much smaller share at one percent outside downtown. It is estimated that there are 1,100 daily passenger miles of commuter rail ridership that is not oriented to downtown.⁴ This compares to 63,000 daily vehicle miles (100,000 person miles) per square mile of road travel in the New York area.⁵

³ Only Chicago, San Francisco, Boston, Washington and Philadelphia have more than 250,000 downtown jobs.

⁴ 1990 data.

⁵ Assumes national vehicle occupancy ratio of 1.6.

New York CBD Work Trip Market Share

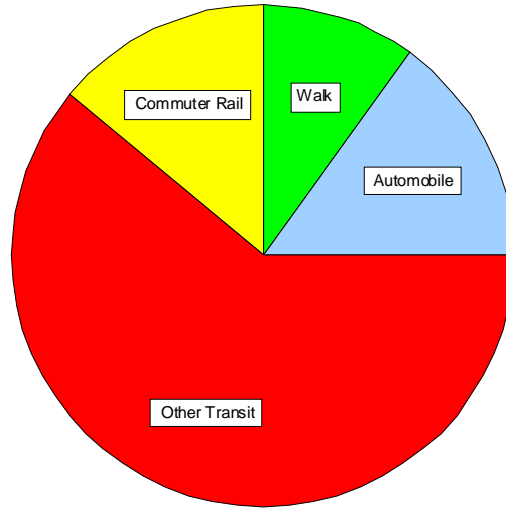


Figure 2

APPENDIX TABLES

Appendix Table A
International Pre-Automobile Commuter Rail Systems

	Tokyo	Osaka	Nagoya	Paris	London	Sydney
DEMOGRAPHICS						
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%
CENTRALIZATION						
% 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

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%
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
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
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.

The Public Purpose **WENDELL COX CONSULTANCY** Demographia

P. O. Box 841 - Belleville, IL 62269 USA
Telephone: +1.618.632.8507 - Facsimile: +1.810.821.8134

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.

(c) 2003 www.publicpurpose.com --- Wendell Cox Consultancy --- Permission granted to use with attribution.