



## PHILADELPHIA SUBURBAN RAIL SUMMARY (COMMUTER RAIL, REGIONAL RAIL)

October 2003

The Philadelphia commuter rail service area consists of 5.1 million people, spread over 1,800 square miles at an average population density of 2,900 per square mile. Approximately 2.7 percent of the urban land area is at pre-automobile population densities (above 15,000 per square mile), and 22 percent of the population (1.1 million) lives at these densities. The Philadelphia central business district is the one of the nation's largest, with 350,000 jobs.<sup>1</sup> This represents 14 percent of the metropolitan area's employment. Public transport's work trip market share to downtown is approximately 40 percent, compared to three percent outside downtown.

Public transport's share of travel is below three percent., with a commuter rail share of 0.3 percent (Figure 16). Philadelphia has the nation's fourth largest commuter rail ridership, with approximately 30 million boardings annually (100,000 daily), which is approximately 0.3 percent of travel in the area. There are more than 300 miles of route and 175 stations on 13 routes. There are 0.10 stations per square mile of urban land (one station per every 10 square miles). Most service terminates at one of three downtown stations. Philadelphia, however, is unique in having commuter rail trains that run through the downtown area. This was made possible by the construction of a tunnel connector in the early 1980s. Nonetheless, commuter rail ridership is less with the new tunnel than before.<sup>2</sup>

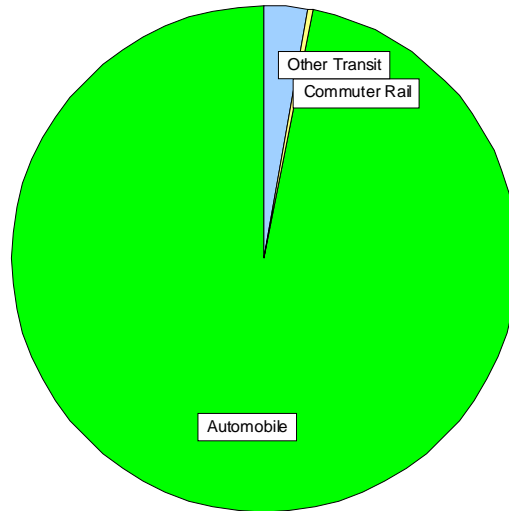
The commuter rail system is operated by a government agency, and receives operating subsidies. All capital costs are subsidized.

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<sup>1</sup> US Census Bureau, 1990.

<sup>2</sup> Commuter rail ridership declined six percent from 1980 to 2000 according to the National Public transport Database.

## Philadelphia Travel Market



**Figure 1**

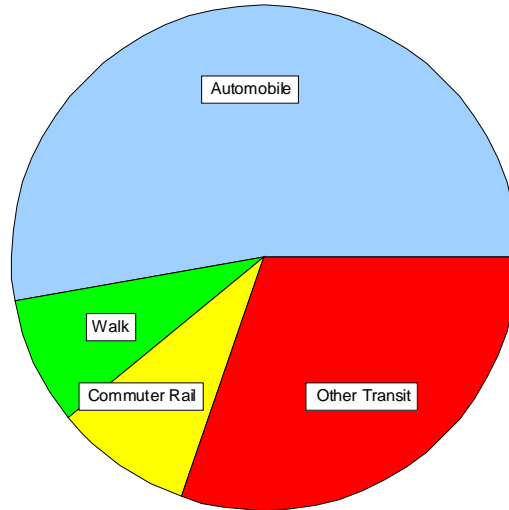
Transfers can be made at these stations to subway services or buses. There is, however, no through running of commuter rail trains on subway routes.

Commuter rail in Philadelphia is also principally a downtown oriented system. Auto-competitive service is provided to the central business district from throughout the urban area. Commuter rail carries nine percent of commuters (Figure 17). Outside downtown, commuter rail's work trip market share is approximately 0.6 percent. It is estimated that there are approximately 225 daily passenger miles of commuter rail ridership not oriented to downtown.<sup>3</sup> This compares to 57,000 daily vehicle miles of road travel per square mile (91,000 person miles) in the Philadelphia area.

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<sup>3</sup> 1990 data.

## Philadelphia CBD Work Trip Market Share



**Figure 2**

### 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

#### 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.

<p><u>The Public Purpose</u>    WENDELL COX CONSULTANCY    <u>Demographia</u> 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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