Hub-bound Travel

IN THE TRI-STATE NEW YORK METROPOLITAN REGION

Persons and Vehicles Entering Manhattan South of 61st St. 1924-1960

Regional Plan Association / Bulletin Number 99 / December 1961

THE NEW JERSEY - NEW YORK - CONNECTICUT METROPOLITAN REGION

THE NEW YORK METROPOLITAN REGION is a 22-county metropolis spreading roughly fifty miles from Times Square in every direction, and covering parts of three states. The Region was defined in 1922 for the purpose of research studies leading to the *Regional Plan of New York and Its Environs* and has been used since then for economic, population and land-planning research by the REGIONAL PLAN ASSOCIATION.

The Region's land area is approximately 7,000 square miles of which New York City covers 320 square miles. The Region's 1960 population was 16,139,000.

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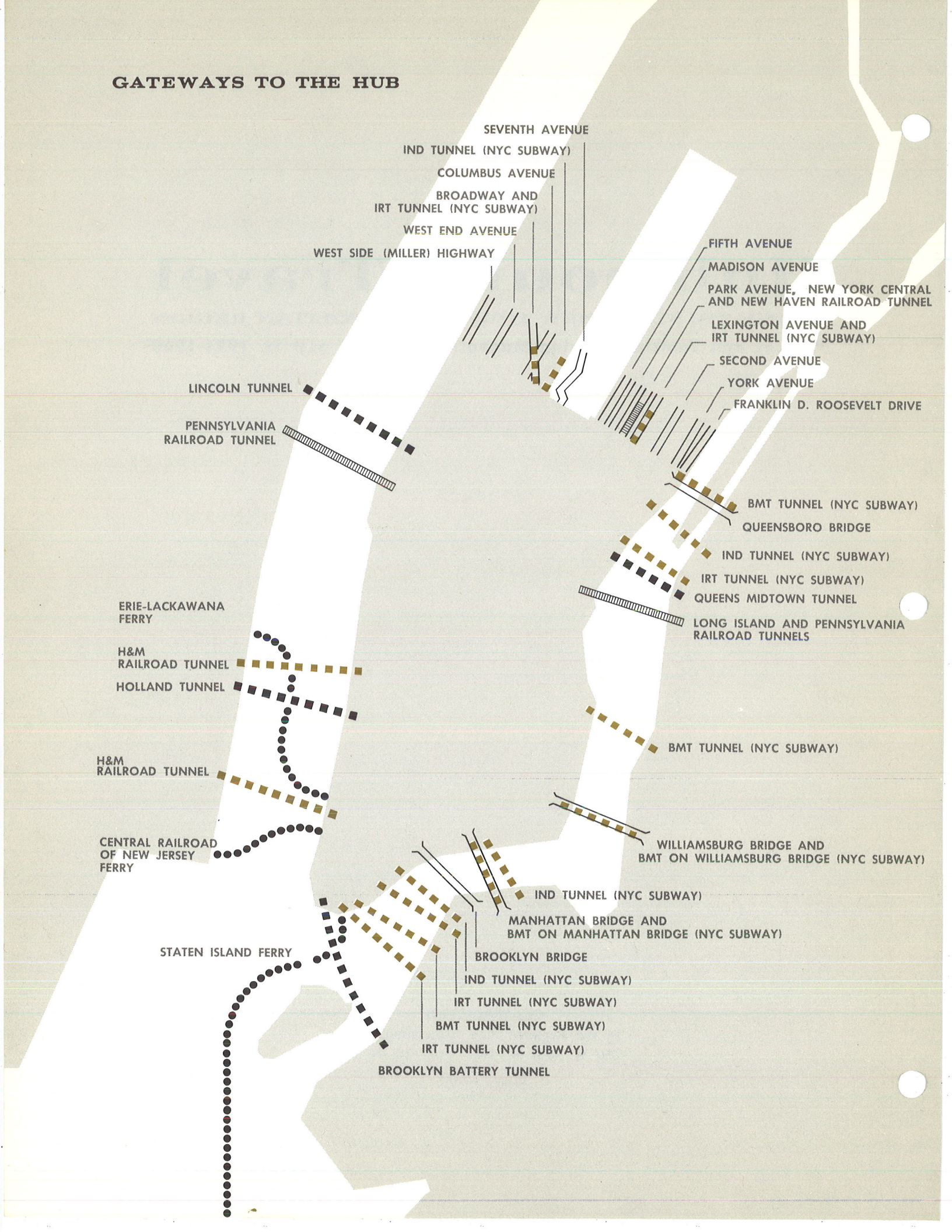
Price: $5.00

GATEWAYS TO THE HUB



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INTRODUCTION

Transportation shapes a region's development. For two centuries New York residents settled close to the port and the central business district because transportation was difficult and slow. When subways were pushed out into upper Manhattan and the other boroughs, settlement went with them. In the suburbs, homes clustered around the railroad station until a network of highways made possible a wider dispersal of population and employment.

Where people go, how they get there, when they leave and when they want to arrive — all are basic to the physical shape and the social and cultural life of the Region. We must know these facts to predict the pattern of regional development, and we must understand the forces exerted by the transportation system in order to shape the Region as we want it.

The most travelled routes in the Region are those to the hub — Manhattan's central business district — a nine-square-mile area from Central Park to the Battery. No part of the country and perhaps of the world has such a concentration of economic and cultural activity or attracts such great numbers every day.

The pull of the hub has a powerful effect on the economic functioning and way of life of the entire Region. Regional Plan Association, therefore, has been publishing periodic counts of the persons and vehicles entering the hub ever since 1924. This bulletin up-dates the figures to 1960. It also includes more information on the time of entries than has been published before.

The figures presented here were collected for all of the entry points to the central business district (see Chart 1). They do not show where persons started their trips or where they were going. For example, some who entered from Brooklyn doubtless came from Queens and some entered from the east only to pass through the hub to New Jersey or vice versa. Each of the counts in the series was made on a typical business day in October.

ACKNOWLEDGMENTS

As in past years, hub-bound travel data are collected mainly by the Planning Division, Department of Port Development, Port of New York Authority.

The various public and private agencies which have jurisdiction over travel through the hub's gateways provide the basic counts. These include the Port Authority itself which operates the Holland and Lincoln tunnels, NYC Transit Authority (subways and buses), NYC Department of Traffic (surface travel crossing 61st Street), NYC Department of Public Works (East River bridges), NYC Department of Marine and Aviation (Staten Island Ferry), Triboro Bridge and Tunnel Authority (Queens Midtown and Brooklyn-Battery tunnels), Hudson and Manhattan Tubes, Fifth Avenue Coach Co. and other private bus companies, and the Region's seven railroads.

The Regional Plan Association, which analyzes, interprets and publishes the data, expresses its appreciation to all of those who make *Hub-Bound Travel* possible.

This report was financed from a special Regional Plan research fund provided by The Ford Foundation, Rockefeller Brothers Fund and Taconic Foundation.

SUMMARY

Manhattan's central business district has retained its magnetism as an employment center over the past four years though its attraction for shoppers and others coming for non-work purposes appears to have declined slightly.

On a typical business day in 1960, 3,349,000 persons entered Manhattan south of 61st Street, some 36,000 or 1 percent more than on a similar day in 1956. By contrast, there was a 10 percent decline in the numbers entering the central business district between 1948 and 1956. The high point of entries to the hub was recorded in 1948.

Time of Entry

The increase in entries over the past four years occurred entirely during the three morning rush hours, 7 to 10 a.m. In fact, the number entering before and after the rush hours declined by 36,000 (2.1 percent) while 72,000 more persons entered during the three rush hours (4.6 percent).

Half of all the people who entered the hub did so in the three hours between 7 and 10 a.m. A quarter entered in the single hour from 8 to 9 a.m. The 1956 to 1960 increase was slightly greater in the two secondary rush hours (7-8 and 9-10 a.m.) than in the peak hour (8 to 9 a.m.), 5 percent compared to 4 percent.

Mode of Travel

Travel to the hub was overwhelmingly by public transportation. Subway, railroad, bus and ferry riders accounted for 72 percent of total 24-hour entries, 86 percent of 7-10 a.m. entries and 90 percent of 8-9 a.m. entries. Even during the 21 off-peak hours between 10 and 7 a.m., more persons entered by public transportation than by private car, taxi and truck — 993,000 to 729,000.

Public transportation, however, lost patronage in the past four years while more persons entered by automobile and taxi. The railroads lost some passengers even in the peak hour. The two rail transit systems (the New York City subways and the Hudson and Manhattan Tubes) and the buses gained rush-hour riders but lost more riders off-peak than they gained from 7 to 10 a.m. The number of entries by automobile increased at a somewhat faster rate during the secondary rush hours (7-8 and 9-10 a.m.) than during the 8-9 a.m. peak hour or the 21 off-peak hours. One-quarter of the total increase in automobile-taxi arrivals occurred between 7 and 10 a.m. Automobile riders constituted 9.3 percent of 8-9 a.m. arrivals, 16 percent of 7-8 and 9-10 a.m. arrivals, but 38.5 percent of the off-peak 10 a.m. to 7 a.m. arrivals.

Sector of Entry

Of all the gateways to the Manhattan central business district (see Chart 1), only those from Brooklyn showed a drop in entries in 1960, and there only after the morning rush hours. The biggest increases in entries by sector were from north of 61st Street and from Queens. In the off-peak hours only Queens showed a significant increase in entries.

Chart 2

24-HOUR TOTALS 1924-1960, PERSONS
entering the hub on a typical business day

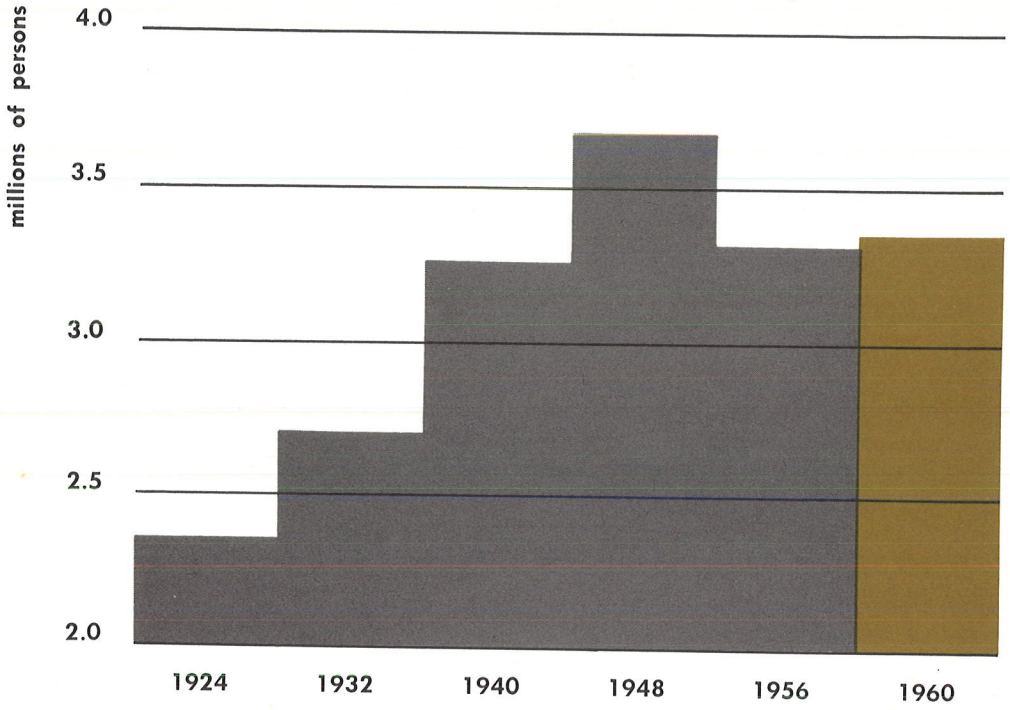
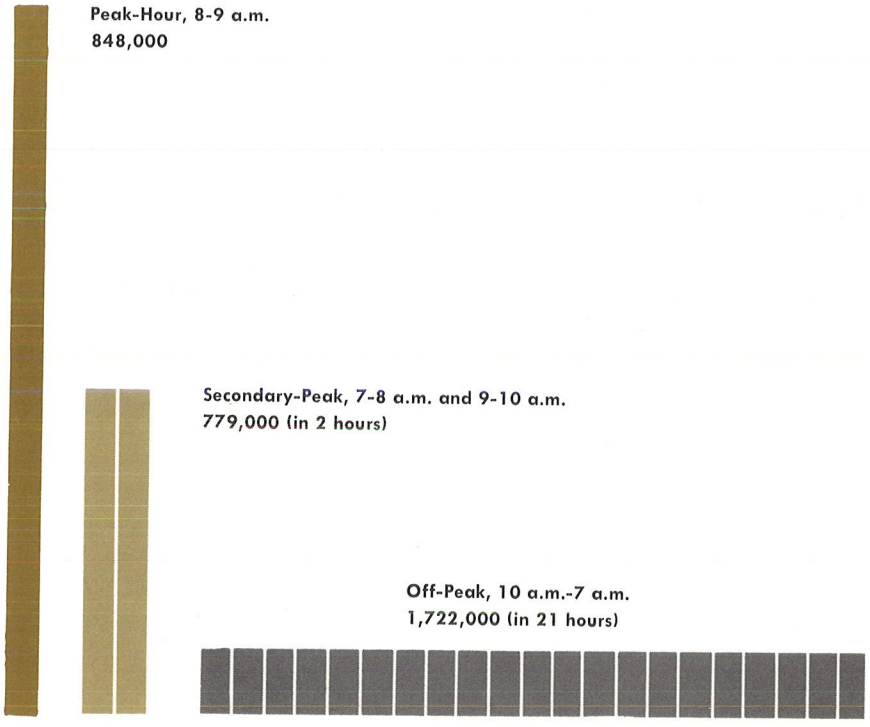


Chart 3

PERSONS ENTERING THE HUB BY TIME OF DAY 1960
on a typical business day



1

TOTAL VOLUME OF HUB-BOUND TRAVEL

On a typical business day in 1960, 3,349,000 persons entered the central business district of Manhattan, the nine-square-mile center south of 61st Street. This is like bringing the entire population of Chicago into South Plainfield, New Jersey every day.

Compared to a typical day in 1956, the number entering the New York Metropolitan Region's hub in 1960 was up 36,000, a 1 percent increase. This contrasted with a drop of 378,000 (10 percent) between typical days in 1948 and 1956. The increase was small, however, when compared to the rise between 1940 and 1948 of 420,000 (12.8 percent) and between 1932 and 1940 of 574,000 (21.3 percent).

The equivalent of one person out of every five (21 percent) living in the 7,000 square mile Region (shown on the inside front cover) entered the hub on a typical business day in 1960. This proportion has been dropping, however, from 26 and 27 percent in 1940 and 1948 to 22 percent in 1956 and 21 percent in 1960. The loss of population in the central counties of the Region and the sharp population and employment increase in its outer areas are causing the relative importance of the hub to decline; but the decline of the hub's attractive power in absolute terms seems to have been arrested.

2

TIME OF ENTRY

The total number of persons entering Manhattan in 1960 during the daily peak hours of 8-9 a.m. was 848,000; those entering over the two secondary rush hours of 7-8 and 9-10 a.m. numbered 779,000. This represented 25.3 and 23.3 percent of the total daily volume, respectively.

The increase in hub-bound travel between 1956 and 1960 was confined to the rush hours. The number of persons entering in the peak hour, from 8 to 9 a.m., increased by 34,000 or 4 percent. The number of persons entering during the secondary rush hours, from 7 to 8 and from 9 to 10 a.m., increased even more, by 38,000 or 5.1 percent. This indicates some spontaneous staggering of entry time. Entries during the 21 off-peak hours declined by 36,000 or 2.1 percent, but the decline was much smaller than the off-peak drop of the preceding eight years.

The off-peak decline reflects the diminishing number of trips for shopping and perhaps for other central business district services. Retail trade in the hub has been affected by the population declines in and near the central business district as well as by the development of suburban shopping centers.

Chart 4

24-HOUR TOTALS BY MODE 1924-1960, PERSONS
entering the hub on a typical business day

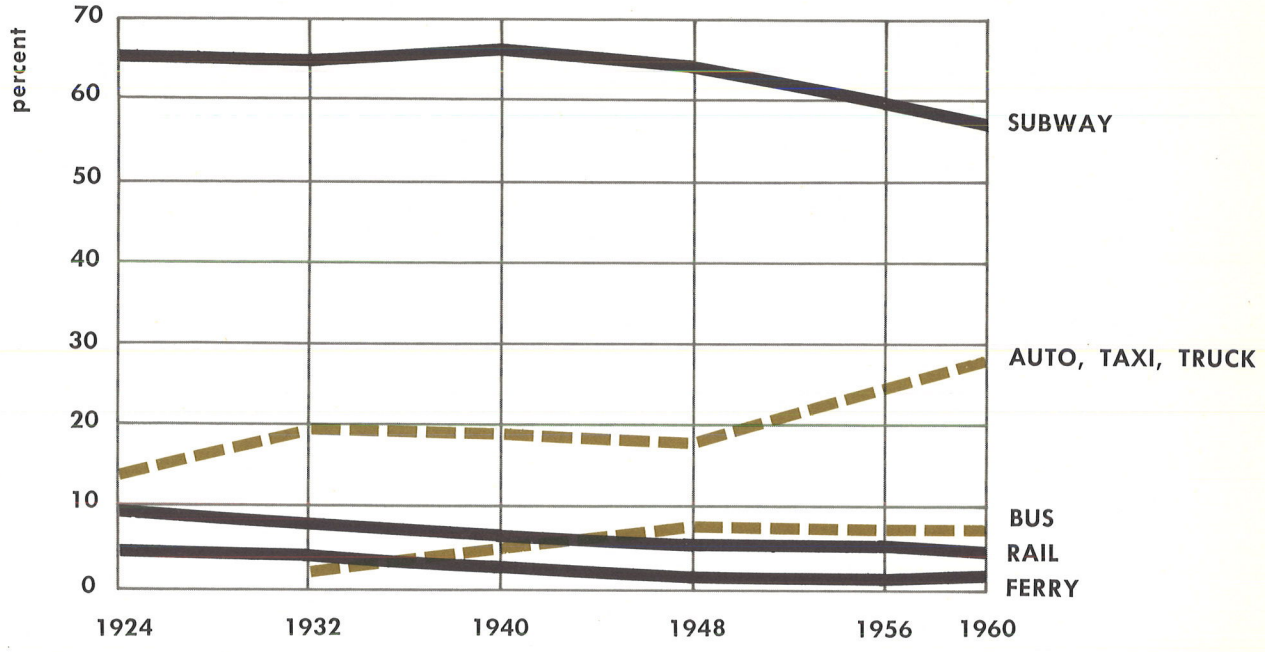
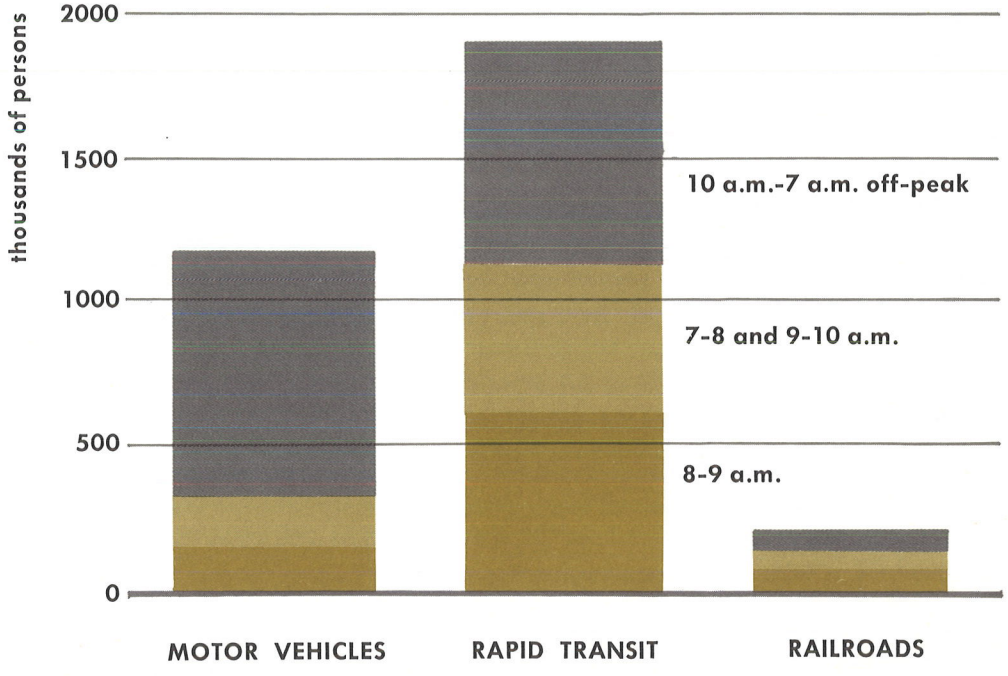


Chart 5

PERSONS ENTERING THE HUB BY MODE 1960
on a typical business day



3

MODE OF TRAVEL

Hub-bound travel was predominantly by public transportation, as Chart 5 shows, but there was a slow shift away from public transportation, particularly off-peak.

Share of Central Business District Entrants Carried by Public Transportation

	1960	*1956*
8 to 9 a.m.	90%	91%
7-8 and 9-10 a.m.	82	84
10 to 7 a.m.	58	64

Automobiles and Taxis

The average annual increase in number of persons entering the hub by automobile and taxi was greater in the past four years than in any other period since 1924. Between 1956 and 1960, while passengers on other modes decreased, automobile and taxi passengers increased at an annual rate of 4.2 percent. From 1948 to 1956 this rate was 3.5 percent; from 1932 to 1948, 1.9 percent.

In 1924, automobiles and taxis brought only a tenth of all persons entering the hub. In 1960, they brought a fourth.

Three-quarters of the additional automobile-taxi arrivals in 1960 compared to 1956 were during the off-peak hours. The *percentage* increase from 1956 to 1960, however, was somewhat higher during the 7-10 a.m. rush hours than off-peak, 20.0 vs. 17.6 percent.

Because highway facilities leading to the hub are virtually at capacity during the peak hour or two, it is physically impossible for automobile volume to increase significantly at that period. Increases only can be effected by construction of new arteries or major improvements to old ones. A new gateway was opened since 1956 — the third tube of the Lincoln Tunnel — and the number of motor vehicles coming from New Jersey went up 44.8 percent during the peak hour.

Buses

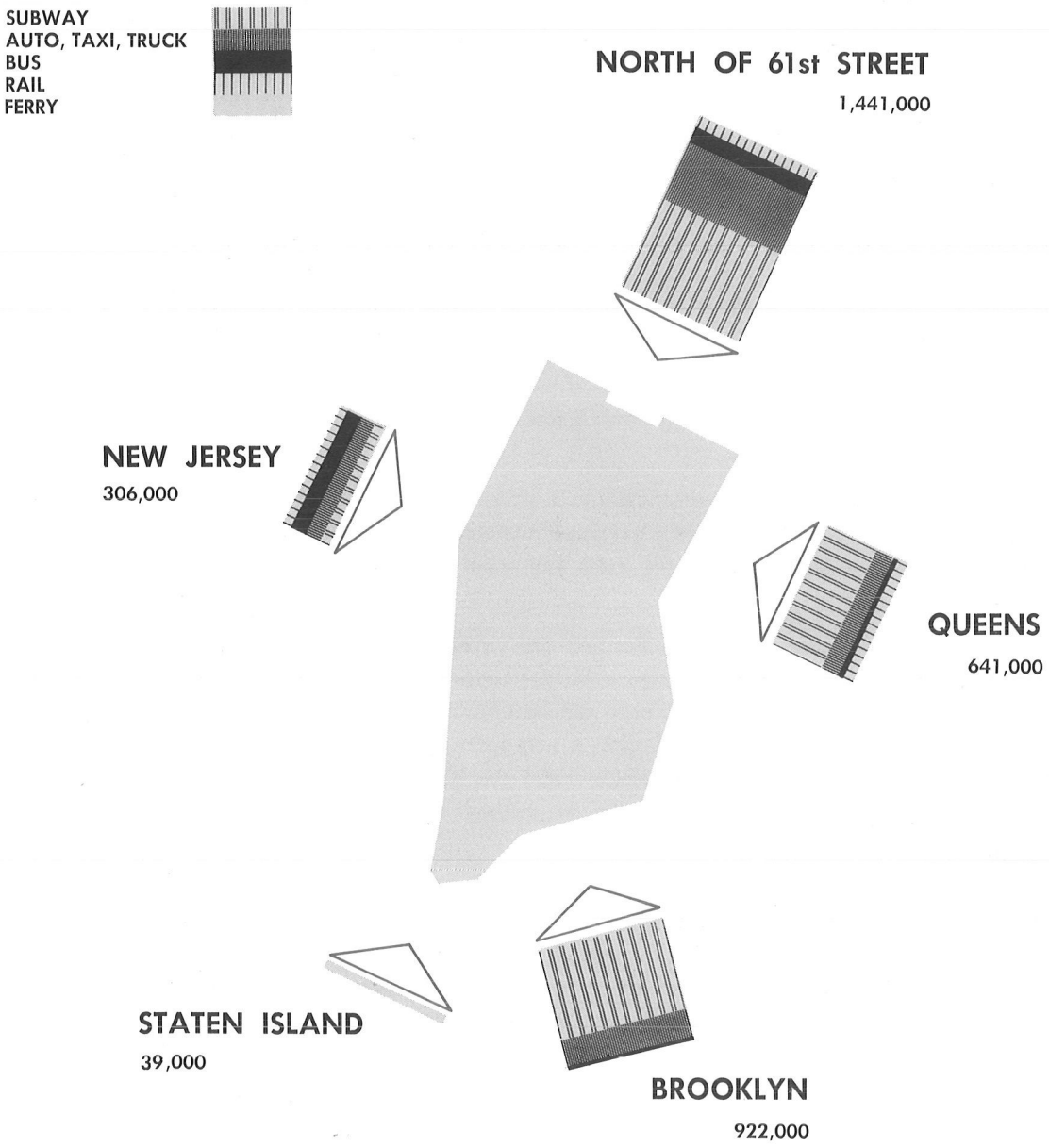
With the new Lincoln Tunnel tube and the ending of railroad service on the West Shore line of the New York Central Railroad, many New Jersey rush-hour arrivals appear to have switched to buses. On the other hand, the number of bus riders from north of 61st Street declined, partly due to the inconvenience caused the riders when some of the avenues were made one-way. That decline was mainly during off-peak hours.

As a result of these and other smaller shifts in bus patronage, the number of daily bus passengers to the hub remained at 243,000 in 1960, as in 1956. The 7-10 a.m. increase of 18,000 was matched by an 18,000 off-peak decline.

The bus is not primarily a peak-hour vehicle in the New York Metropolitan Region, despite shifts in that direction in the last four years. Three-fifths of the bus riders still entered the central business district during off-peak hours compared to only one-third of the railroad passengers and two-fifths of subway passengers. Comparatively, three-fourths of auto and taxi riders arrived at the off-peak.

Chart 6

24-HOUR TOTALS BY SECTOR AND MODE, PERSONS
entering the hub on a typical business day



Trucks

There were no important changes in truck entries since 1956 at any time interval or from any sector. The 88,000 persons arriving in trucks in 1960 made up 2.6 percent of all entries.

Rapid Transit

The New York City subways and the Hudson and Manhattan Tubes carried 1,913,000 people into the Manhattan central business district daily, 57 percent of all hub-bound travellers. This was 57,000 fewer persons than in 1956 and nearly 500,000 fewer than in 1948 when subway travel to the hub was at its peak. All of the loss in patronage over the last four years was off-peak, 89,000 in the hours from 10 a.m. to 7 a.m. From 7-10 a.m., hub-bound subway travel rose 32,000. The biggest off-peak losses were from Brooklyn and from Manhattan north of 61st Street. The biggest peak-hour gains were from north of 61st Street.

The 24-hour decline in rapid transit passengers was at a slower annual rate from 1956 to 1960 (.7 percent) than it was from 1948 to 1956 (2.4 percent).

Railroads

Hub-bound travel by railroad was lower in 1960 than at any time since 1924. Only 203,000 passengers entered by rail, 6 percent of the total entrants. The 1956-1960 loss in passengers amounted to 30,000, including an 8,000 off-peak decline on the New York Central and New Haven, a 3,000 decline on the Long Island and a loss of 19,000 New Jersey riders, the latter resulting in part, but in minor part, from the demise of the West Shore Railroad. At the 8-9 a.m. peak hour, railroads carried as many persons into Grand Central Station as in 1956; the Long Island Railroad increased its passengers by 2,000 (6.0 percent); railroad passengers from New Jersey decreased by 7,000 (30 percent).

The percentage decline in railroad passengers was far greater from 1956 to 1960 (3.5 percent per year on the average) than from 1948 to 1956 (2.4 percent). Between 1940 and 1948 railroad patronage rose sharply and before 1940 annual losses were small.

Ferries

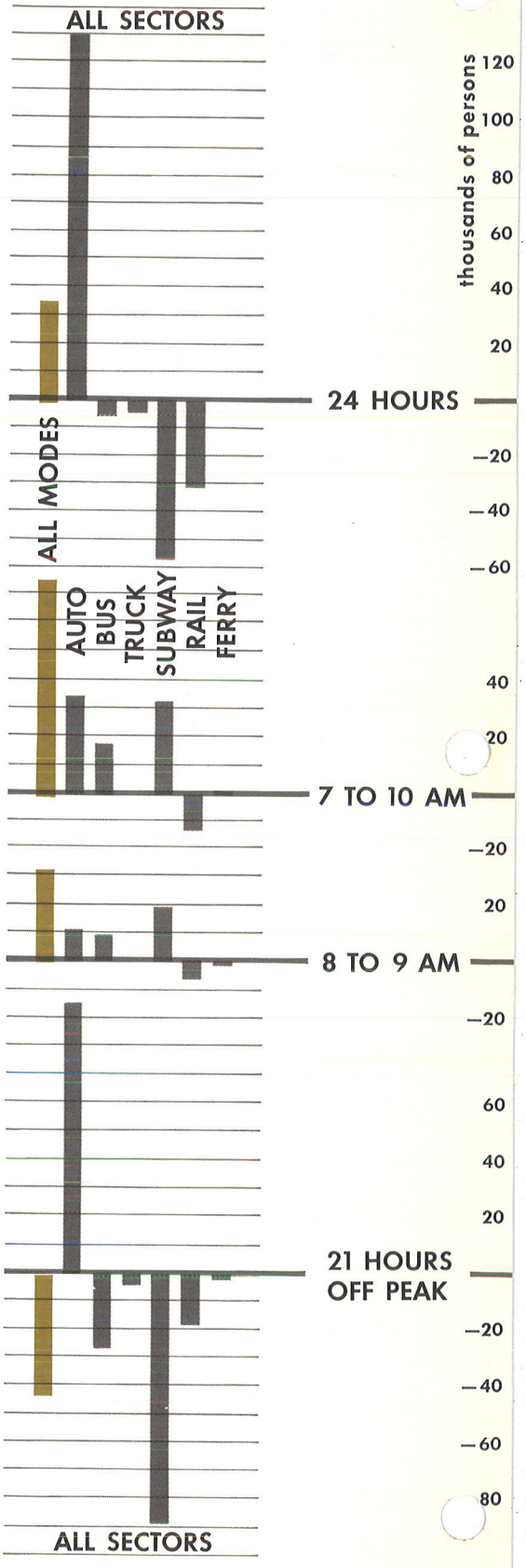
Persons whose railroad tickets entitled them to a ferry ride or who embarked in a vehicle were counted as railroad or motor vehicle passengers, respectively, in this report. Only pedestrians were counted as ferry passengers. Some 36,000 entered the hub on a typical business day in 1960, 1 percent of all entries. There was no significant change in this category from 1956, ending a series of large and continuing declines from 1924, when 103,000 pedestrians entered the hub by ferry.

Other Modes

Some persons, no doubt a small number, entered the hub by means which made it difficult to count them. They arrived on foot or horseback and by hansom cab, bicycle, seaplane, and ship ranging from motor boat to ocean-going vessel. Helicopters were accounted for: they brought in 25 passengers on a typical business day in 1960.

Chart 7

CHANGE 1956-1960
BY TIME OF DAY, MODE AND SECTOR, PERSONS
entering the hub on a typical business day



NORTH OF 61st ST.
BROOKLYN
QUEENS
NEW JERSEY
STATEN ISLAND
ALL MODES
AUTO
BUS
TRUCK
SUBWAY
SUBWAY (H&M)
RAIL
FERRY
NORTH OF 61st ST.
BROOKLYN
QUEENS
NEW JERSEY
STATEN ISLAND

Chart 8

24-HOUR TOTALS BY SECTOR 1924-1960, PERSONS
entering the hub on a typical business day

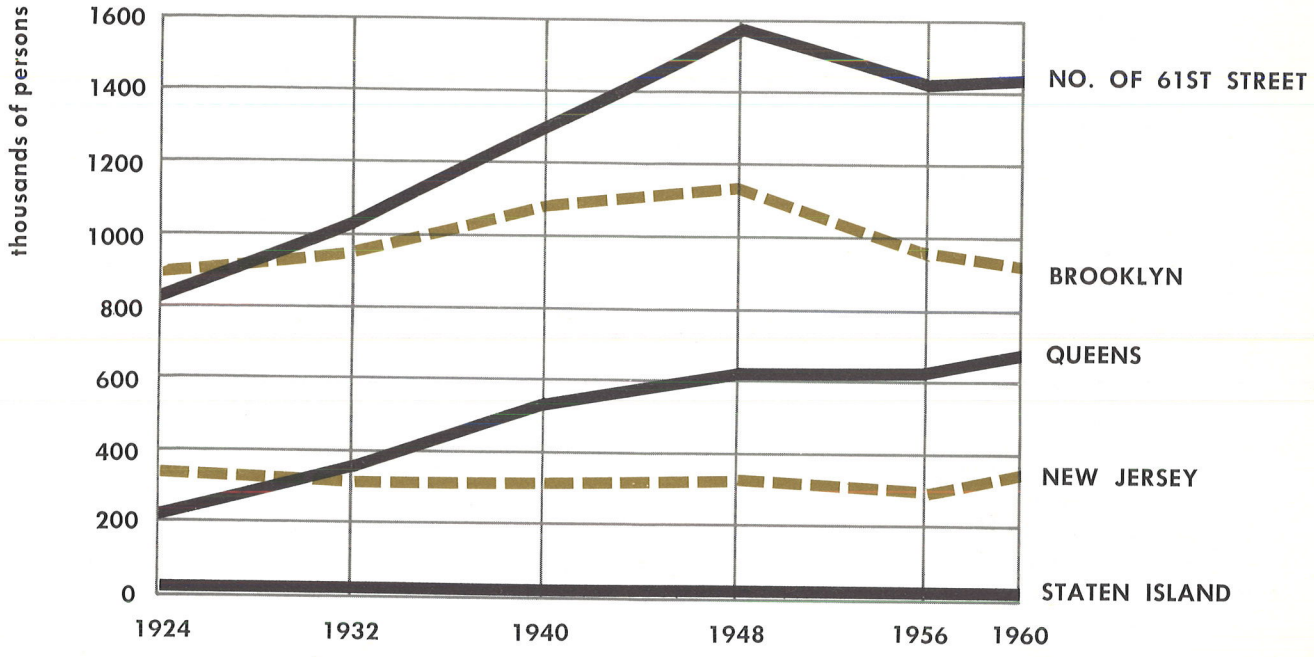
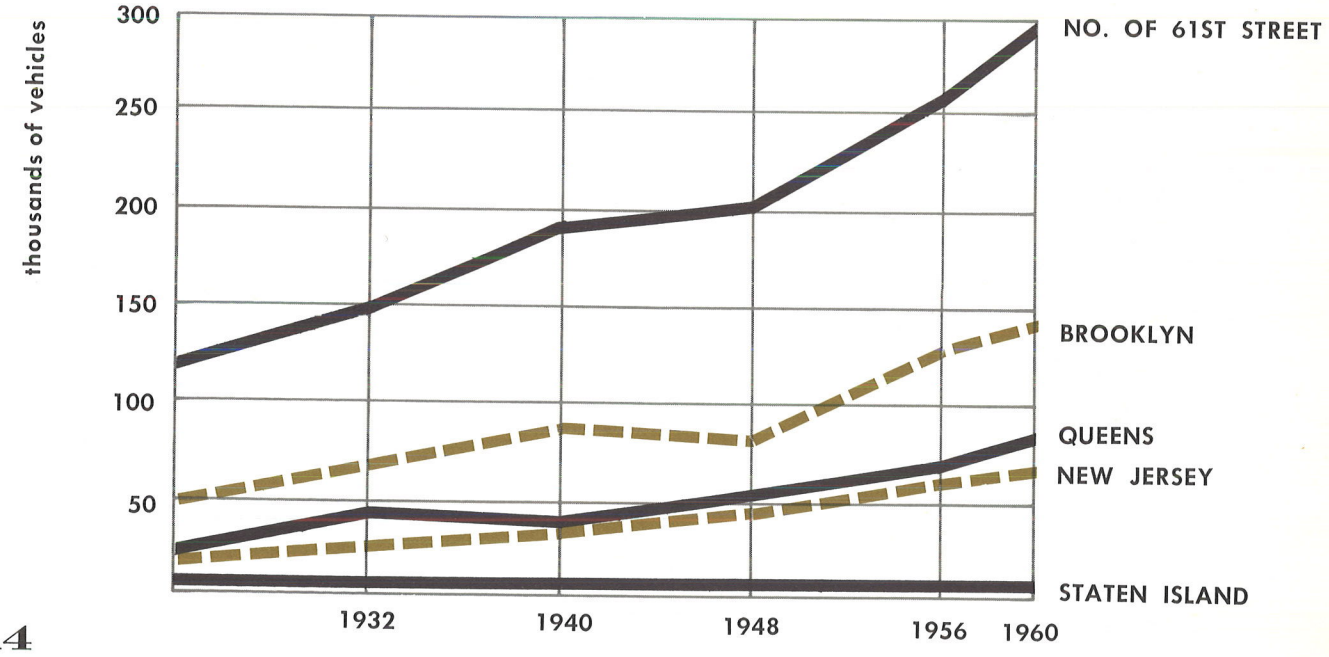


Chart 9

24-HOUR TOTALS BY SECTOR 1924-1960, MOTOR VEHICLES
entering the hub on a typical business day



Number of Motor Vehicles

A total of 590,000 motor vehicles of all types entered the hub on a typical business day in 1960. The bulk of these were automobiles and taxis (86 percent); buses comprised 1.6 percent and trucks 12.4 percent. Between 1956 and 1960 there was an increase of 70,000 vehicles entering the hub, 76 percent of the increase occurring in the 21 off-peak hours.

The average number of persons in each vehicle entering in 1960 was approximately 1.7 in autos and taxis, 1.2 in trucks and 25.5 in buses (bus drivers are not counted). The number of persons in buses was far higher in peak hours than off-peak: 45.6 in the peak hour, 37.4 in secondary rush hours (7-8 a.m. and 9-10 a.m.) and 20.1 off-peak. Automobile riders decreased from 1.8 per car between 8 and 9 a.m. to 1.7 in all other hours.

4

SECTOR (place of entry)

Travel to the hub was measured at its gateways (shown in Chart 1) not from where the trip started. Chart 6, page 10, summarizes the distribution by sector and mode of travel. Of all persons crossing the imaginary border into the hub, 43 percent came across 61st Street from the north, 27.5 percent came across the East River from Brooklyn, 19.2 percent crossed the River from Queens, 9.1 percent crossed the Hudson River from New Jersey and just over 1 percent ferried across the harbor from Staten Island. These shares of total entries to the hub have undergone some change since 1924, primarily a drop in the share crossing from Brooklyn and New Jersey and a rise in the share from Queens and north of 61st Street (see Table 1). However, from 1956 to 1960 the ratios remained substantially the same except that Brooklyn's dropped.

The proportions from each sector for 7-10 a.m. and 8-9 a.m. entries were very close to those for 24 hours (see Table 2) except that the proportion of entries from north of 61st Street was higher off-peak.

Manhattan north of 61st Street

More than 1,441,000 persons crossed 61st Street from the north on a typical business day in 1960. They came from homes in upper Manhattan, the Bronx or counties to the north in New York State and Connecticut, or they crossed the George Washington Bridge from New Jersey.

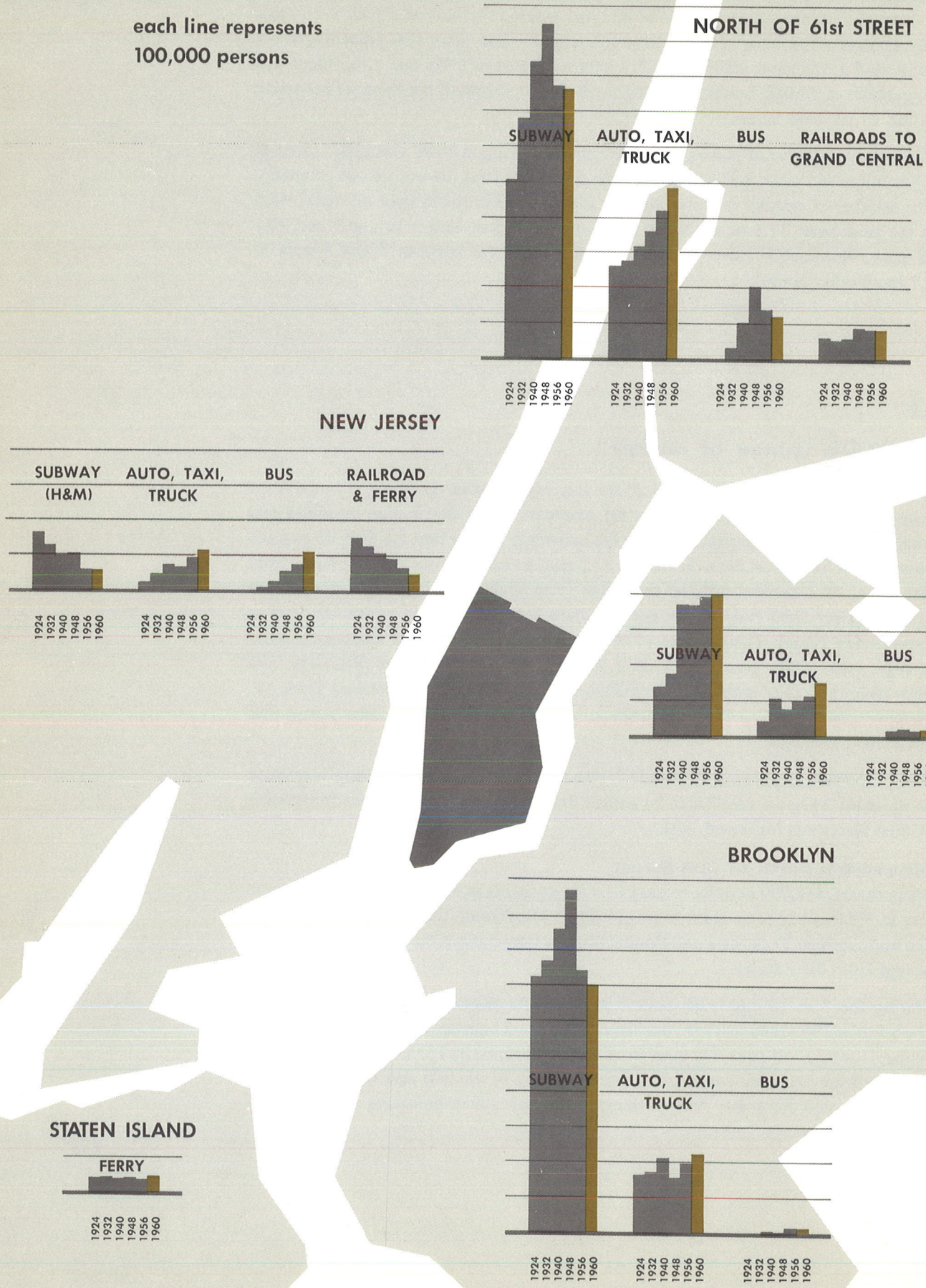
During the 7 to 10 a.m. rush hours, 30,000 more persons entered the hub from the north in 1960 than in 1956, the largest numerical increase of any sector for those hours. However, off-peak, the number of entries dropped by 11,000. Part of the rush-hour increase probably consisted of persons living in the new apartments in upper Manhattan and Riverdale and working in the new office buildings of the central business district.

Chart 10

24-HOUR TOTALS BY SECTOR AND MODE 1924-1960, PERSONS

entering the hub on a typical business day

each line represents
100,000 persons



Brooklyn

Only from the Brooklyn sector was there a decline in total entries between 1956 and 1960. In the peak hour (8-9 a.m.), however, arrivals from Brooklyn increased 5.7 percent. Since most of the Brooklyn 8 to 9 a.m. increase was on the subways, it probably included primarily the residents of fast-growing sections of Queens that are on the subway line through Brooklyn and Long Island Railroad passengers from Queens, Nassau or Suffolk who switched in Brooklyn to the subway to lower Manhattan.

Most of the decrease off-peak was in subway riders, some 51,000 fewer arriving between 10 a.m. and 7 a.m. in 1960 than in 1956.

In all, 922,000 persons entered the hub from Brooklyn on a typical business day, three-quarters of them by subway.

Queens

Queens had the greatest off-peak (10 a.m. to 7 a.m.) increase — 16,000 persons, nearly 5.8 percent. In addition, 7-10 a.m. entries increased by 12,000, 3.6 percent. The percentage increase of arrivals by automobile and taxi was the greatest of any sector (except for the very small number of entries from Staten Island) — 28.6 percent — but the ratio of automobile-taxi arrivals to total arrivals remained lower from Queens than from any other sector (again with the exception of Staten Island).

Altogether, 641,000 persons crossed the East River from Queens to south of Manhattan's 61st Street.

New Jersey

The most important 1956 to 1960 change in traffic from New Jersey to Manhattan south of 61st Street was the sharp rise in the use of motor vehicles and the sharp decline in the use of railroads during the rush hours. Bus passengers increased 20,000 (56.2 percent) and automobile-taxi riders 5,000 (48.8 percent) during the 7-10 a.m. period. Even entries by truck rose 1,000 (22.5 percent). On the other hand, 7-10 a.m. railroad entries dropped 12,000 (30.4 percent). The opening of the third tube of the Lincoln Tunnel was the probable cause of this switch to motor vehicles, plus the ending of service on the West Shore branch of the New York Central Railroad. Over the 24-hour period bus passengers from every other sector either declined or remained substantially the same, but from New Jersey bus passengers increased by 25,000, nearly one-third.

Some 306,000 persons entered the central business district directly from New Jersey on a typical day in 1960. Many additional New Jersey residents entered Manhattan across the George Washington Bridge and came into the hub from north of 61st Street.

Staten Island

The ferry affords the only direct access to the hub for the 39,000 persons entering from Staten Island. Four thousand of these came via auto or truck; the rest debarked on foot. There was an increase of 3,000 entries (9.2 percent) from this sector from 1956 to 1960.

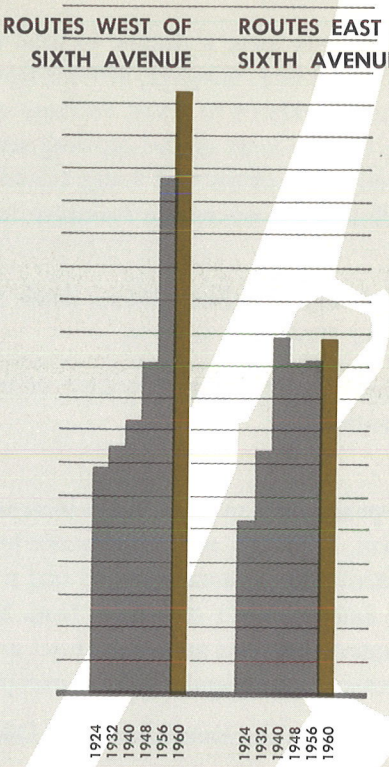
Entries from Staten Island have been stable over the years since 1924. They were 40,000 in 1924 and have increased or dropped only small amounts at each count.

Chart 11

24-HOUR TOTALS BY SECTOR AND FACILITY 1924-1960, MOTOR VEHICLES

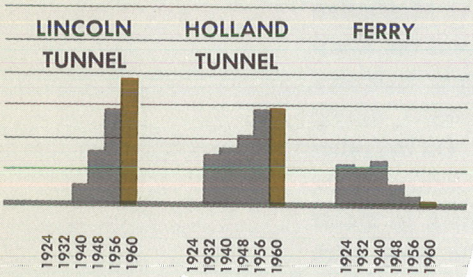
entering the hub on a typical business day

each line represents
10,000 vehicles

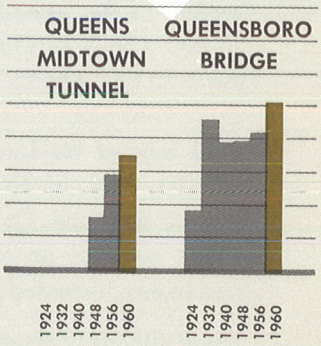


NORTH OF 61st STREET

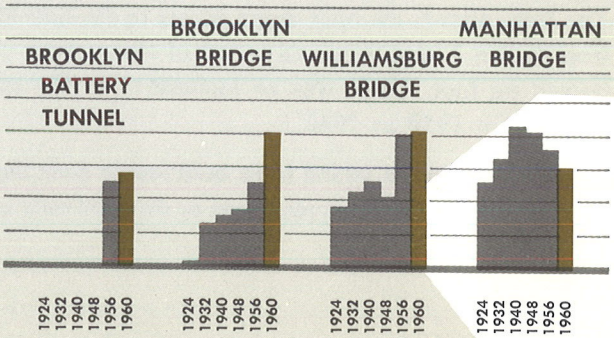
NEW JERSEY



QUEENS



BROOKLYN



STATEN ISLAND

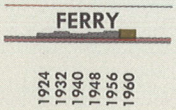


Table 1

24-HOUR TOTALS 1924-1960, PERSONS AND VEHICLES
entering the hub on a typical business day (in thousands)

Persons by Mode

	1924		1932		1940		1948		1956		1960	
	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT
ALL MODES	2,343	100.0	2,697	100.0	3,271	100.0	3,691	100.0	3,313	100.0	3,349	100.0
Auto & Taxi	249	10.6	430	15.9	503	15.4	577	15.7	736	22.2	866	25.9
Bus			40	1.5	150	4.6	290	7.8	243	7.4	243	7.3
Truck	82	3.5	86	3.2	116	3.5	80	2.2	92	2.8	88	2.6
Trolley	161	6.9	88	3.2	59	1.8	24	0.6	3	0.1		
Rapid Transit	1,531	65.3	1,752	65.0	2,169	66.3	2,389	64.8	1,970	59.4	1,913	57.1
Railroad	217	9.3	216	8.0	206	6.3	283	7.6	233	7.0	203	6.0
Ferry	103	4.4	85	3.2	68	2.1	48	1.3	36	1.1	36	1.1

Persons by Sector

	1924		1932		1940		1948		1956		1960	
	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT	NUMBER OF PERSONS	PERCENT
ALL SECTORS	2,343	100.0	2,697	100.0	3,271	100.0	3,691	100.0	3,313	100.0	3,349	100.0
North of 61st St.	832	35.5	1,046	38.8	1,320	40.4	1,599	43.3	1,422	42.9	1,441	43.0
Brooklyn	899	38.4	946	35.1	1,074	32.8	1,124	30.5	950	28.7	922	27.5
Queens	237	10.1	355	13.1	538	16.5	602	16.3	613	18.5	641	19.2
New Jersey	335	14.3	309	11.5	302	9.2	326	8.8	292	8.8	306	9.1
Staten Island	40	1.7	41	1.5	37	1.1	40	1.1	36	1.1	39	1.2

Motor Vehicles by Sector

	1924		1932		1940		1948		1956		1960	
	NUMBER OF VEHICLES	PERCENT	NUMBER OF VEHICLES	PERCENT	NUMBER OF VEHICLES	PERCENT	NUMBER OF VEHICLES	PERCENT	NUMBER OF VEHICLES	PERCENT	NUMBER OF VEHICLES	PERCENT
ALL SECTORS	200	100.0	293	100.0	351	100.0	382	100.0	519	100.0	590	100.0
North of 61st St.	122	60.9	150	51.1	191	54.5	203	53.1	259	49.9	293	49.7
Brooklyn	47	23.5	69	23.6	84	23.9	79	20.7	126	24.3	139	23.6
Queens	18	9.0	46	15.8	40	11.3	56	14.6	71	13.7	87	14.7
New Jersey	12	5.9	26	9.0	35	9.9	43	11.2	61	11.7	69	11.6
Staten Island	1	0.7	2	0.5	1	0.4	1	0.4	2	0.4	2	0.4

Table 2

PERSONS ENTERING THE HUB 1960 BY TIME, MODE, SECTOR AND FACILITY
on a typical business day (in thousands)

Sector and Facility	Total Persons Via All Modes			Persons by Motor Vehicle												Persons by Rail									Persons on Ferries		
				TOTAL			AUTO & TAXI			BUS			TRUCK			TOTAL			RAPID TRANSIT			RAILROADS			NON R.R. PASSENGER		
	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9
ALL SECTORS	**3,349**	**1,627**	**848**	**1,197**	**326**	**139**	**866**	**204**	**79**	**243**	**101**	**53**	**88**	**21**	**7**	**2,116**	**1,276**	**699**	**1,913**	**1,133**	**608**	**203**	**143**	**91**	**36**	**25**	**10**
NORTH OF 61st STREET	**1,441**	**632**	**313**	**600**	**144**	**59**	**450**	**98**	**38**	**116**	**40**	**19**	**34**	**6**	**2**	**841**	**488**	**254**	**760**	**428**	**214**	**81**	**60**	**40**			
West Side Highway	67	19	7	67	19	7	67	19	7																		
4 West Side Avenues	647	311	157	161	38	17	100	20	8	48	16	8	13	2	1	486	273	140	486	273	140						
6 East Side Avenues	631	277	139	276	62	25	187	34	13	68	24	11	21	4	1	355	215	114	274	155	74	81	60	40			
F. D. Roosevelt Drive	96	25	10	96	25	10	96	25	10																		
BROOKLYN	**922**	**486**	**261**	**223**	**60**	**23**	**194**	**53**	**20**	**8**	**2**	**1**	**21**	**5**	**2**	**699**	**426**	**238**	**699**	**426**	**238**						
Manhattan Bridge	210	112	59	50	14	5	40	12	4	1	a	a	9	2	1	160	98	54	160	98	54						
Williamsburg Bridge	140	62	31	65	16	6	51	12	4	7	2	1	7	2	1	75	46	25	75	46	25						
Brooklyn Bridge	60	15	6	60	15	6	60	15	6				a	a	a												
Brooklyn Battery Tunnel	48	15	6	48	15	6	43	14	6	a	a	a	5	1	a												
Rapid Transit Tunnels	464	282	159													464	282	159	464	282	159						
QUEENS	**641**	**347**	**185**	**162**	**46**	**19**	**131**	**36**	**15**	**18**	**6**	**3**	**13**	**4**	**1**	**479**	**301**	**166**	**399**	**244**	**133**	**80**	**57**	**33**			
Queensboro Bridge	98	26	11	98	26	11	76	18	7	14	6	3	8	2	1												
Queens Midtown Tunnel	64	20	8	64	20	8	55	18	8	4	a	a	5	2	a												
Rapid Transit & RR Tunnels	479	301	166													479	301	166	399	244	133	80	57	33			
NEW JERSEY	**306**	**137**	**79**	**208**	**75**	**38**	**87**	**16**	**6**	**101**	**53**	**30**	**20**	**6**	**2**	**97**	**61**	**41**	**55**	**35**	**23**	**42**	**26**	**18**	**1**	**1**	**a**
Holland Tunnel	50	9	3	50	9	3	35	4	1	3	2	1	12	3	1												
Lincoln Tunnel	157	66	35	157	66	35	51	12	5	98	51	29	8	3	1												
2 Ferries	23	18	12	1	a	a	1	a	a				a	a	a	21	17	12				21	17	12	1	1	a
Rail Tunnels	76	44	29													76	44	29	55	35	23	21	9	6			
STATEN ISLAND FERRY	**39**	**25**	**10**	**4**	**1**	**a**	**4**	**1**	**a**				**a**	**a**	**a**										**35**	**24**	**10**

a Less than 500 persons.

Table 3

MOTOR VEHICLES ENTERING THE HUB 1960, BY TIME, SECTOR AND FACILITY
on a typical business day (in thousands)

Sector and Facility	TOTAL MOTOR VEHICLES			AUTOS & TAXIS			BUSES			TRUCKS		
	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9	24-hr	7-10	8-9
ALL SECTORS	**589.7**	**136.3**	**50.5**	507.1	116.5	43.1	**9.5**	**2.5**	**1.1**	73.1	17.3	6.3
NORTH OF 61st STREET	**293.1**	**61.0**	**23.0**	260.6	55.2	20.8	**4.5**	**1.0**	**0.4**	28.0	4.8	1.8
West Side Highway	41.7	12.1	4.3	41.7	12.1	4.3						
4 West Side Avenues	67.4	12.9	5.3	54.7	10.5	4.3	2.0	0.4	0.2	10.7	2.0	0.8
6 East Side Avenues	125.9	21.9	8.2	106.1	18.5	7.0	2.5	0.6	0.2	17.3	2.8	1.0
F. D. Roosevelt Drive	58.1	14.1	5.2	58.1	14.1	5.2						
BROOKLYN	**139.2**	**36.2**	**13.2**	121.8	32.2	11.7	**0.3**	**0.1**	**a**	17.1	3.9	1.5
Manhattan Bridge	30.2	8.1	3.0	22.7	6.4	2.3	a	a	a	7.5	1.7	0.7
Williamsburg Bridge	41.2	9.4	3.3	35.4	8.0	2.8	0.3	0.1	a	5.5	1.3	0.5
Brooklyn Bridge	40.1	9.9	3.4	39.6	9.8	3.4				0.5	0.1	a
Brooklyn Battery Tunnel	27.7	8.8	3.5	24.1	8.0	3.2	a	a	a	3.6	0.8	0.3
QUEENS	**86.6**	**23.1**	**8.5**	75.2	19.6	7.1	**0.8**	**0.1**	**0.1**	10.6	3.4	1.3
Queensboro Bridge	51.4	12.8	4.6	44.8	10.6	3.7	0.4	0.1	0.1	6.2	2.1	0.8
Queens Midtown Tunnel	35.2	10.3	3.9	30.4	9.0	3.4	0.4	a	a	4.4	1.3	0.5
NEW JERSEY	**68.5**	**15.4**	**5.6**	47.5	9.0	3.3	**3.9**	**1.3**	**0.6**	17.1	5.1	1.7
Holland Tunnel	29.1	5.3	1.8	19.3	2.6	0.9	0.1	0.1	a	9.7	2.6	0.9
Lincoln Tunnel	38.5	9.9	3.8	27.8	6.3	2.4	3.8	1.2	0.6	6.9	2.4	0.8
2 Ferries	0.9	0.2	a	0.4	0.1	a				0.5	0.1	a
STATEN ISLAND FERRY	**2.3**	**0.6**	**0.2**	2.0	0.5	0.2				0.3	0.1	a

a Less than 50 vehicles.

Table 4

CHANGE 1956-1960, PERSONS
entering the hub on a typical business day by time of day, mode, and sector (in thousands)

Sector and Mode	24-Hour Total						3-Hour Peak (7-10 a.m.)						Peak Hour (8-9 a.m.)						21-Hour Off-Peak (10-7 a.m.)					
	1960		1956		CHANGE		1960		1956		CHANGE		1960		1956		CHANGE		1960		1956		CHANGE	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
ALL SECTORS	3349	100.0	3313	100.0	36	1.1	1627	100.0	1555	100.0	72	4.6	848	100.0	814	100.0	34	4.0	1722	100.0	1758	100.0	−36	−2.1
Auto & Taxi	866	25.9	736	22.2	130	17.6	204	12.5	170	10.9	34	20.0	79	9.3	68	8.4	11	16.4	662	38.5	566	32.2	96	17.0
Bus	243	7.3	243	7.4	a	....	101	6.2	83	5.4	18	21.7	53	6.1	43	5.3	10	23.3	142	8.2	160	9.1	−18	−11.3
Truck	88	2.6	92	2.8	−4	−4.4	21	1.3	21	1.4	a	−0.5	7	0.9	8	0.9	−1	−0.2	67	3.9	71	4.0	−4	−5.6
Trolley			3	0.1	−3	−100.0			b	....	b	−100.0			b	....	b	−100.0			3	0.2	−3	−100.0
Rapid Transit	1913	57.1	1970	59.4	−57	−2.9	1133	69.7	1101	70.8	32	2.9	608	71.7	588	72.2	20	3.3	780	45.3	869	49.4	−89	−10.3
Railroad	203	6.0	233	7.0	−30	−13.1	143	8.8	156	10.0	−13	−8.1	91	10.7	96	11.8	−5	−5.9	60	3.4	77	4.4	−17	−22.1
Ferry	36	1.1	36	1.1	a	1.0	25	1.5	24	1.5	1	4.3	10	1.3	11	1.4	−1	−5.4	11	0.7	12	0.7	−1	−8.3
NORTH of 61st St.	1441	100.0	1422	100.0	19	1.3	632	100.0	602	100.0	30	5.0	313	100.0	305	100.0	8	2.6	809	100.0	820	100.0	−11	−1.4
Auto & Taxi	450	31.2	383	26.9	67	17.6	98	15.5	82	13.6	16	19.7	38	12.2	33	10.8	5	16.4	352	43.5	301	36.7	51	16.9
Bus	116	8.1	140	9.9	−24	−17.2	40	6.4	42	7.1	−2	−4.8	19	6.0	21	6.9	−2	−11.9	76	9.4	98	12.0	−22	−22.5
Truck	34	2.3	38	2.6	−4	−9.6	6	0.9	7	1.1	−1	−8.0	2	0.7	3	0.8	−1	−8.5	28	3.5	31	3.8	−3	−9.7
Rapid Transit	760	52.8	772	54.3	−12	−1.5	428	67.8	412	68.4	16	4.0	214	68.2	208	68.3	6	2.5	332	41.0	360	43.9	−28	−7.8
Railroad	81	5.6	89	6.3	−8	−10.0	60	9.4	59	9.8	1	0.1	40	12.9	40	13.2	....	0.3	21	2.6	30	3.6	−9	−30.0
BROOKLYN	922	100.0	950	100.0	−28	−3.0	486	100.0	471	100.0	15	3.1	261	100.0	247	100.0	14	5.7	436	100.0	479	100.0	−43	−9.0
Auto & Taxi	194	21.1	174	18.4	20	11.5	53	10.9	45	9.6	8	16.9	20	7.8	18	7.2	2	13.6	141	32.3	129	26.9	12	9.3
Bus	8	0.8	11	1.1	−3	−28.9	2	0.4	3	0.5	−1	−17.5	1	0.3	1	0.4	a	−10.5	6	1.4	8	1.7	−2	−25.0
Truck	21	2.3	24	2.5	−3	−11.9	5	1.0	6	1.3	−1	−20.5	2	0.7	2	0.9	a	−22.3	16	3.7	18	3.8	−2	−11.1
Rapid Transit	699	75.8	741	78.0	−42	−5.8	426	87.7	417	88.6	9	2.1	238	91.2	226	91.5	12	5.5	273	62.6	324	67.6	−51	−15.8
QUEENS	641	100.0	613	100.0	28	4.7	347	100.0	335	100.0	12	3.6	185	100.0	179	100.0	6	3.0	294	100.0	278	100.0	16	5.8
Auto & Taxi	131	20.4	102	16.6	29	28.6	36	10.3	31	9.4	5	14.5	15	7.6	13	7.2	2	9.7	95	32.3	71	25.5	24	33.8
Bus	18	2.9	16	2.6	2	12.5	6	1.7	5	1.4	1	20.0	3	1.7	2	1.3	1	50.0	12	4.1	11	4.0	1	9.1
Truck	13	2.0	11	1.9	2	8.2	4	1.2	3	1.0	1	15.3	1	0.8	1	0.7	a	11.2	9	3.1	8	2.9	1	12.5
Trolley			3	0.5	−3	−100.0			b	....	b	−100.0			b	....	b	−100.0			3	1.1	−3	−100.0
Rapid Transit	399	62.2	398	64.9	1	0.4	244	70.3	237	70.8	7	2.8	133	72.1	132	73.5	1	1.0	155	52.7	161	57.9	−6	−3.7
Railroad	80	12.5	83	13.5	−3	−3.0	57	16.5	59	17.4	−2	−1.7	33	17.8	31	17.3	2	6.0	23	7.8	24	8.6	−1	−4.2
NEW JERSEY	306	100.0	292	100.0	14	4.7	137	100.0	124	100.0	13	10.1	79	100.0	73	100.0	6	6.6	169	100.0	168	100.0	1	0.6
Auto & Taxi	87	28.4	74	25.4	13	16.8	16	11.6	11	8.7	5	48.8	6	7.8	4	5.7	2	47.0	71	42.0	63	37.5	8	12.7
Bus	101	32.9	76	26.0	25	32.4	53	38.4	33	26.3	20	56.2	30	37.5	19	25.7	11	55.3	48	28.4	43	25.6	5	11.6
Truck	20	6.7	19	6.6	1	7.2	6	4.5	5	4.1	1	22.5	2	2.7	2	2.1		36.1	14	8.3	14	8.3		
Rapid Transit	55	18.1	59	20.3	−4	−6.4	35	25.6	35	28.3	b	0.8	23	29.0	22	30.5	1	1.6	20	11.8	24	14.3	−4	−16.7
Railroad	42	13.6	61	20.7	−19	−31.3	26	19.5	38	31.2	−12	−30.4	18	22.6	25	34.5	−7	−30.2	16	8.9	23	13.7	−7	−30.4
Ferry (non RR pass.)	1	0.3	3	1.0	−2	−73.5	1	0.4	2	1.4	−1	−72.5	a	0.4	1	1.5	−1	−71.9		0.6	1	0.6	−1	−100.0
STATEN ISLAND	39	100.0	36	100.0	3	9.2	25	100.0	23	100.0	2	11.7	10	100.0	10	100.0	a	2.8	14	100.0	13	100.0	1	7.7
Auto & Taxi	4	8.8	3	7.4	1	30.7	1	3.6	1	2.4	a	66.7	b	3.1	b	2.3	b	35.8	3	21.4	2	15.4	1	50.7
Truck	b	0.9	b	1.0	b	−0.9	b	0.3	b	0.5	b	−33.6	b	0.3	b	0.3	b		b	....	b	....	b	....
Non-Vehicular Pass.	35	90.3	33	91.6	2	7.6	24	96.1	22	97.1	2	10.6	10	96.6	10	97.4	a	2.1	11	78.6	11	84.6	a	

a Change not shown since numerical difference between 1956 and 1960 in the rounded figures is zero.

b Less than 500 persons.

.... Negligible.

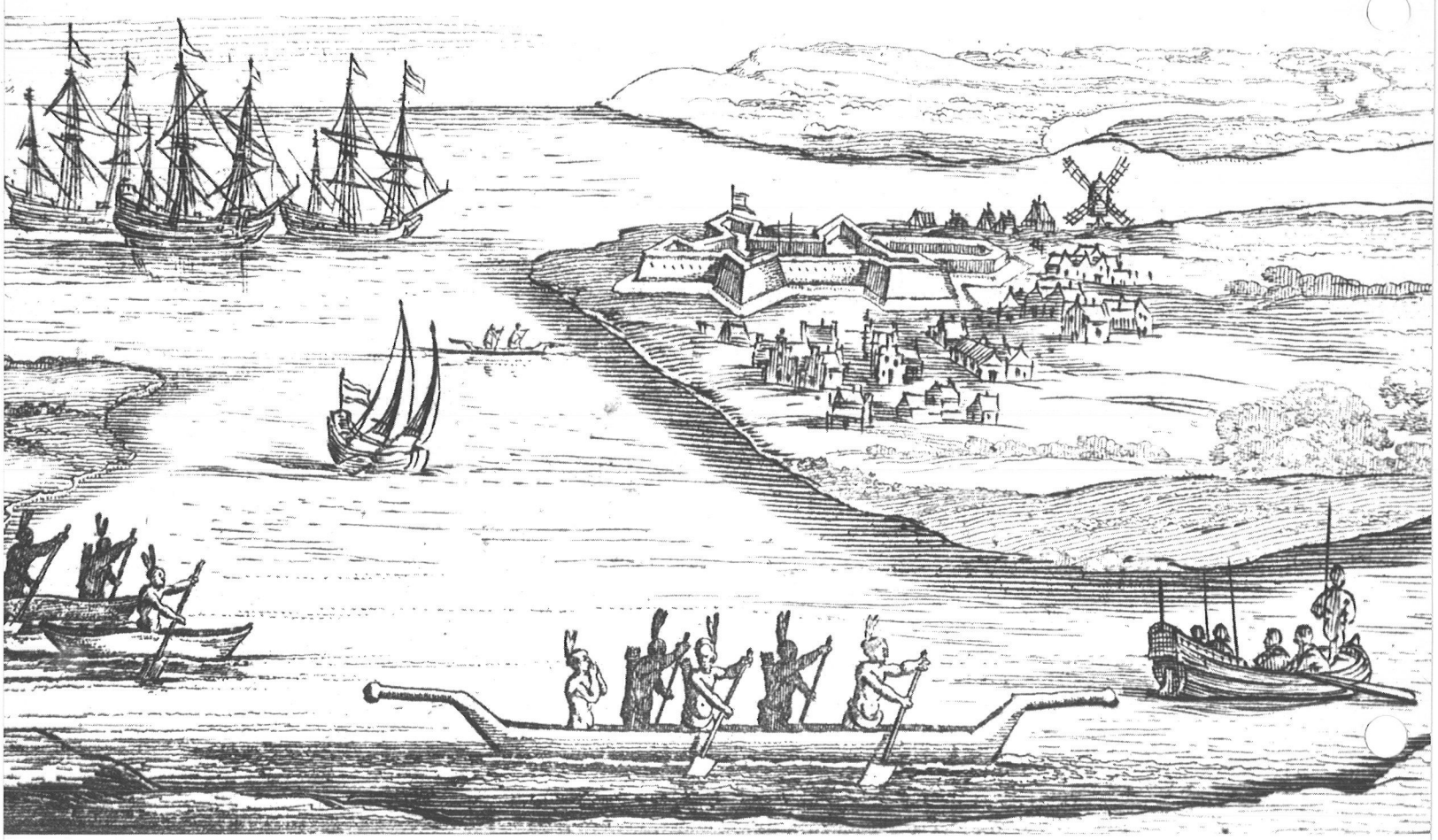
NOTE: Changes in [illegible]ent are based on unrounded figures.

Table 5

CHANGE 1956-1960, MOTOR VEHICLES
entering the hub on a typical business day by time of day, type of vehicle and sector (in thousands)

Sector and Type of Vehicle	24-Hour Total						3-Hour Peak (7-10 a.m.)						Peak Hour (8-9 a.m.)						21-Hour Off-Peak (10-7 a.m.)					
	1960		1956		CHANGE		1960		1956		CHANGE		1960		1956		CHANGE		1960		1956		CHANGE	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
ALL SECTORS	**589.7**	100.0	**519.4**	100.0	**70.3**	13.6	**136.3**	100.0	**119.1**	100.0	**17.2**	14.4	**50.5**	100.0	**44.0**	100.0	**6.5**	14.8	**453.4**	100.0	**400.3**	100.0	**53.1**	13.3
Auto & Taxi	507.1	86.0	434.8	83.7	72.3	16.6	116.5	85.5	99.8	83.8	16.7	16.7	43.1	85.3	37.2	84.4	5.9	16.1	390.6	86.2	335.0	83.7	55.6	16.6
Bus	9.5	1.6	9.9	1.9	−0.4	−4.0	2.5	1.8	2.3	1.9	0.2	10.3	1.1	2.3	0.9	2.2	0.2	16.8	7.0	1.5	7.6	1.9	−0.6	−7.9
Truck	73.1	12.4	74.7	14.4	−1.6	−2.0	17.3	12.7	17.0	14.3	0.3	1.5	6.3	12.4	5.9	13.4	0.4	6.4	55.8	12.3	57.7	14.4	−1.9	−3.3
NORTH OF 61st St.	**293.1**	100.0	**259.4**	100.0	**33.7**	13.0	**61.0**	100.0	**53.7**	100.0	**7.3**	13.6	**23.0**	100.0	**20.3**	100.0	**2.7**	13.3	**232.1**	100.0	**205.7**	100.0	**26.4**	12.8
Auto & Taxi	260.6	88.9	225.0	86.7	35.6	15.8	55.2	90.4	47.7	88.8	7.5	15.7	20.8	90.4	18.1	89.0	2.7	15.0	205.4	88.5	177.3	86.2	28.1	15.8
Bus	4.5	1.5	5.4	2.1	−0.9	−16.3	1.0	1.7	1.1	2.1	−0.1	−10.2	0.4	1.8	0.4	2.3	a	−11.0	3.5	1.5	4.3	2.1	−0.8	−18.6
Truck	28.0	9.6	29.0	11.2	−1.0	−3.3	4.8	7.9	4.9	9.1	−0.1	−1.6	1.8	7.8	1.8	8.7	a	2.1	23.2	10.0	24.1	11.7	−0.9	−3.7
BROOKLYN	**139.2**	100.0	**126.3**	100.0	**12.9**	10.2	**36.2**	100.0	**33.2**	100.0	**3.0**	8.9	**13.2**	100.0	**11.9**	100.0	**1.3**	10.8	**103.0**	100.0	**93.1**	100.0	**9.9**	10.6
Auto & Taxi	121.8	87.5	106.4	84.3	15.4	14.4	32.2	89.0	28.2	84.9	4.0	14.1	11.7	88.6	10.1	84.9	1.6	15.6	89.6	87.0	78.2	84.0	11.4	14.6
Bus	0.3	0.2	0.4	0.3	−0.1	−18.1	0.1	0.2	0.1	0.2	a	−14.9	b	0.2	b	0.2	b		0.2	0.2	0.3	0.3	−0.1	−33.3
Truck	17.1	12.3	19.5	15.4	−2.4	−12.3	3.9	10.8	4.9	14.9	−1.0	−20.7	1.5	11.2	1.8	14.9	−0.3	−16.8	13.2	12.8	14.6	15.7	−1.4	−9.6
QUEENS	**86.6**	100.0	**71.2**	100.0	**15.4**	21.7	**23.1**	100.0	**20.6**	100.0	**2.5**	11.9	**8.5**	100.0	**7.7**	100.0	**0.8**	9.7	**63.5**	100.0	**50.6**	100.0	**12.9**	25.5
Auto & Taxi	75.2	86.9	60.5	84.9	14.7	24.5	19.6	84.8	17.5	85.0	2.1	11.7	7.1	84.8	6.6	85.5	0.5	8.7	55.6	87.6	43.0	85.0	12.6	29.3
Bus	0.8	0.9	0.9	1.3	−0.1	−16.7	0.1	0.6	0.2	0.9	−0.1	−18.1	0.1	0.7	0.1	0.9	a	−8.7	0.7	1.1	0.7	1.4	a	−16.3
Truck	10.6	12.2	9.8	13.8	0.8	8.2	3.4	14.6	2.9	14.1	0.5	15.3	1.3	14.5	1.0	13.6	0.3	17.1	7.2	11.3	6.9	13.6	0.3	4.3
NEW JERSEY	**68.5**	100.0	**60.6**	100.0	**7.9**	13.1	**15.4**	100.0	**11.2**	100.0	**4.2**	38.2	**5.6**	100.0	**3.9**	100.0	**1.7**	44.8	**53.1**	100.0	**49.4**	100.0	**3.7**	7.5
Auto & Taxi	47.5	69.3	41.3	68.1	6.2	14.9	9.0	58.7	6.1	54.8	2.9	48.1	3.3	57.6	2.2	56.3	1.1	48.5	38.5	72.5	35.2	71.3	3.3	9.4
Bus	3.9	5.7	3.2	5.3	0.7	22.1	1.3	8.1	0.9	7.7	0.4	44.8	0.6	11.5	0.4	10.9	0.2	52.4	2.6	4.9	2.3	4.6	0.3	13.0
Truck	17.1	25.0	16.1	26.6	1.0	6.5	5.1	33.2	4.2	37.5	0.9	22.5	1.7	30.9	1.3	32.8	0.4	36.1	12.0	22.6	11.9	24.1	0.1	0.8
STATEN ISLAND	**2.3**	100.0	**1.9**	100.0	**0.4**	19.0	**0.6**	100.0	**0.4**	100.0	**0.2**	36.6	**0.2**	100.0	**0.2**	100.0	**a**	23.7	**1.7**	100.0	**1.5**	100.0	**0.2**	13.3
Auto & Taxi	2.0	87.5	1.6	85.0	0.4	22.5	0.5	89.0	0.3	77.5	0.2	56.9	0.2	88.6	0.2	85.9	a	27.6	1.5	88.2	1.3	86.7	0.2	15.4
Bus																								
Truck	0.3	12.5	0.3	15.0	a	−1.0	0.1	11.0	0.1	22.5	a	−33.3	b	11.4	b	14.1	b		0.2	11.8	0.2	13.3	a	15.5

a Change not shown since numerical difference between 1956 and 1960 in the rounded figures is zero.
b Less than 50 vehicles.
NOTE: Changes in percent are based on unrounded figures.



Courtesy of New York Historical Society, New York City

"t' Fort nieuw Amfterdam op de Manhatans"

a view of Lower Manhattan, 1626
engraving published by Joost Hartgers, Amsterdam, 1651

REGIONAL PLAN ASSOCIATION

REGIONAL PLAN ASSOCIATION works for the satisfactory development of the Metropolitan Region surrounding the Port of New York. Through research and information programs, the Association provides governments and private organizations in the Region with data to make decisions on the way land is to be used and on the transportation system to serve it.

A pioneering development Plan of New York and Environs, fostered by the Association since 1929, has now been achieved in most of its fundamentals — in the network of radial and circumferential expressways of the Region, in regional parks, metropolitan airport and port development, and in the substantial growth of effective municipal and county planning.

Now the Association is constructing new guidelines for metropolitan development to 1985, based upon several years of intensive research and with the advice and consultation of regional leaders.

Regional Plan is a nonprofit civic organization supported by 1,500 businesses, governments and individuals. Special research projects are sponsored by regional and national foundations.

The Region served by the Association consists of twenty-two counties in New Jersey, New York and Connecticut within roughly a 50-mile arc from Times Square, encompassing more than 1,400 governmental units.

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