

# Development of the New York City Rail System

Peter Derrick

New York City has the most extensive rapid transit system in the world, with 1142 track-km on 390 route-km. For more than a century before the completion of the last major new subway line in 1940, the fundamental purpose of all public transportation in New York—streetcar, elevated railway and subway—was to accommodate the city's rapid population growth. As the number of inhabitants in what is now New York City rose steadily from 391,000 in 1840 to 7.455 million in 1940, each addition to the transit network opened up new territory for residential development (Table 1). From the second decade of the twentieth century on, the largest expansion of New York's rapid transit system enabled middle- and working-class residents to move out of overcrowded tenement districts in Lower Manhattan to better housing in northern Manhattan, The Bronx, Brooklyn and Queens. (Until 1874, the City of New York consisted of the island of Manhattan. In this year, the area north of Manhattan and west of the Bronx River was annexed, in 1895, the area east of this river. In 1898, Brooklyn, Queens and Staten Island were consolidated with Manhattan and The Bronx to form the present boundaries of New York City.)

Together with an extensive network of commuter rail lines built by private companies from the mid-nineteenth century on, the rapid transit system in New York also strengthened the commercial advantages of the 23-km<sup>2</sup> Manhattan Central Business District south of 60th Street. This has always been the location of most of the city's jobs. Today, the rapid transit network remains the principal means of travel for work trips to Manhattan. The 1990 U.S. Census reported that some 2.038 million people worked in Manhattan, 1.481 million of whom used mass transit. Of the transit users, 897,630 used the subway, and 249,907 took a commuter rail train.

New York's existing rapid transit system

was planned and implemented in four stages: (1) the original, solely elevated networks in Manhattan, The Bronx and Brooklyn, late 1860s to 1890s; (2) the first subway, 1890–1908; (3) the Dual System, 1902–1931; and (4) the Independent System, 1920–1940. The periods overlap because planning for new lines began before construction was completed on the lines of the previous stage of development. During each of these stages, final decisions on route configuration, financing and terms of operation of new rapid transit lines were made only after prolonged political battles among the proponents of different schemes of transit expansion. In addition, the operators of existing transit services saw their profits threatened by competition, and worked to forestall any new lines. Except for the first stage, the rapid transit system was

constructed largely with funds provided by the City of New York, and was municipally owned. The lines of stages 2 and 3 were leased to two private companies for operation until 1940. In 1940, all the subways in New York City were unified into one publicly operated system. Since then, two former railroad lines have been incorporated into the rapid transit network, one in 1941, the other in 1956. A massive expansion program begun in 1968 has had only limited success, as most available capital funds have been needed to revitalize the existing system.

## The Elevated Railroads

Until about 1840, New York was still largely a 'walking city,' that is, an urban place with a relatively small developed

Table 1 Population of Greater New York\* by Borough, 1790–1997

|         | Manhattan | Bronx | Brooklyn | Queens | Staten Is. | Total** |
|---------|-----------|-------|----------|--------|------------|---------|
| 1790    | 33        | 2     | 5        | 6      | 4          | 49      |
| 1800    | 61        | 2     | 6        | 7      | 5          | 79      |
| 1810    | 96        | 2     | 8        | 7      | 5          | 120     |
| 1820    | 124       | 3     | 11       | 8      | 6          | 152     |
| 1830    | 203       | 3     | 21       | 9      | 7          | 242     |
| 1840    | 313       | 5     | 48       | 14     | 11         | 391     |
| 1850    | 516       | 8     | 139      | 19     | 15         | 696     |
| 1860    | 814       | 24    | 279      | 33     | 25         | 1,175   |
| 1870    | 942       | 37    | 420      | 45     | 33         | 1,478   |
| 1880    | 1,165     | 52    | 599      | 57     | 39         | 1,912   |
| 1890    | 1,441     | 89    | 839      | 87     | 52         | 2,507   |
| 1900    | 1,850     | 201   | 1,167    | 153    | 67         | 3,437   |
| 1910    | 2,332     | 431   | 1,634    | 284    | 86         | 4,767   |
| 1920    | 2,284     | 732   | 2,018    | 469    | 117        | 5,620   |
| 1930    | 1,867     | 1,265 | 2,560    | 1,079  | 158        | 6,930   |
| 1940    | 1,890     | 1,395 | 2,698    | 1,298  | 174        | 7,455   |
| 1950    | 1,960     | 1,451 | 2,738    | 1,551  | 192        | 7,892   |
| 1960    | 1,698     | 1,424 | 2,627    | 1,810  | 222        | 7,782   |
| 1970    | 1,539     | 1,472 | 2,602    | 1,987  | 295        | 7,896   |
| 1980    | 1,428     | 1,169 | 2,231    | 1,891  | 352        | 7,071   |
| 1990    | 1,488     | 1,204 | 2,301    | 1,952  | 379        | 7,323   |
| 1997*** | 1,536     | 1,188 | 2,240    | 1,976  | 402        | 7,343   |

\* Greater New York was not formed until 1898.

\*\* Totals may not add due to rounding.

\*\*\* 1997 U.S. Census Estimate

Source: United States Census

area not yet fully segregated into districts by function (such as offices, factories, and residences). Most businesses were located in Lower Manhattan below Canal Street, along the docks and in the Wall Street area, and most employees lived nearby and walked to work. However, New York's economy was growing rapidly, attracting tens of thousands of immigrants from Europe. Most of the new arrivals were from Ireland and Germany. Migrants from rural areas in the United States were also moving to the new metropolis. As the business district expanded out from Lower Manhattan and the population increased, many residents were forced to look for new homes in areas beyond walking distance from work. The natural place to move on the island was to the north, the only direction not restricted by

huge bodies of water.

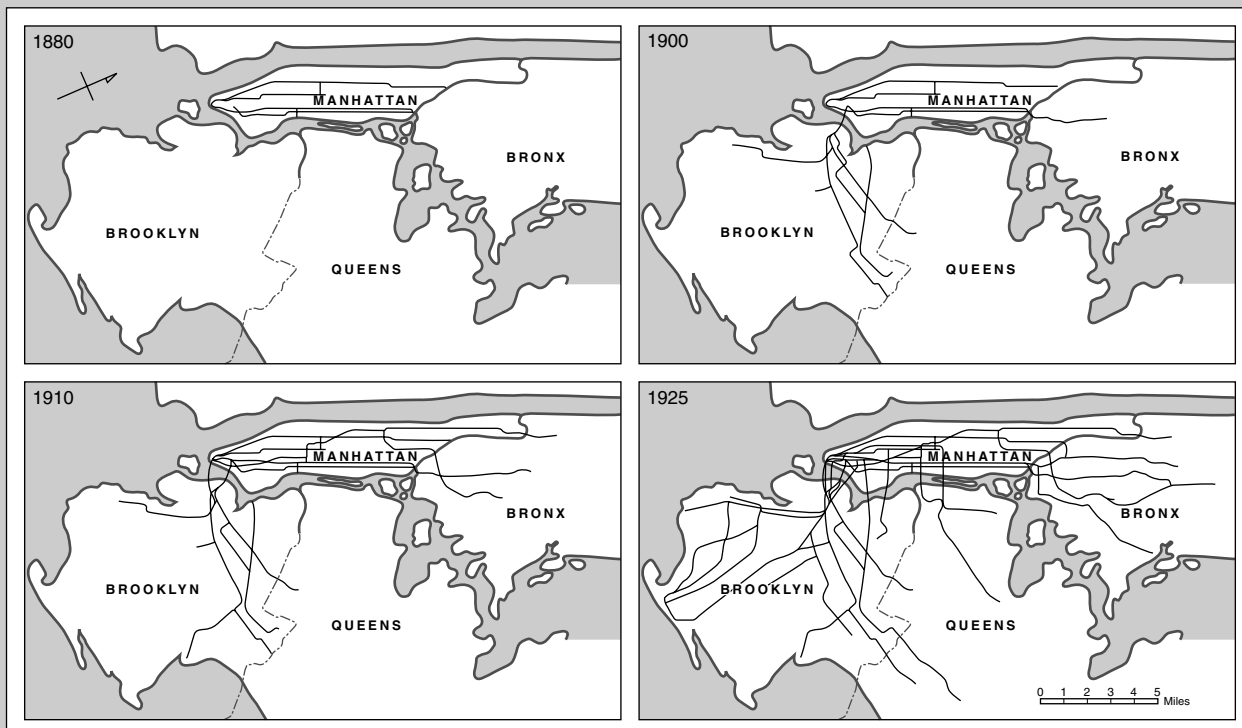
The move north led to the development of the first public transit lines from the late 1820s on. The omnibuses—horse drawn, stagecoach-like vehicles operating along fixed routes and charging a standard fare, opened first in 1827. More efficient were the horsecars, started in 1832; horses pulled vehicles over rails in Manhattan's streets. As New York's economy boomed during the 1850s, an extensive network of horsecar lines was put in operation. The horsecars helped to open the area up to what is now called Midtown (34th to 59th streets) to residential development. By 1860, however, what is now New York City had 1.175 million residents, 814,000 of them living on Manhattan island. It became clear that dependence on surface transportation would, because of the slow

speeds, fail to open up further areas of Manhattan for residential development.

In 1863, London had opened the world's first rapid transit line, a subway connecting railroad terminals. This is a portion of today's Metropolitan Line between Paddington and Farringdon. Inspired by this example, New York businessmen made numerous proposals to construct both subway and elevated lines. These proposals, however, got caught up in political struggles.

After much political debate over financing and over what technology was best, it was finally decided to take the cheaper option and to build elevated rail lines in Manhattan. The first segment of an elevated rail line opened for operation on 3 July 1868, powered by cable. This line ran up Greenwich Street on the West Side,

**Figure 1 Development Stages of the New York City Rapid Transit System**



Source: Maps slightly revised from: Regional Plan of New York and Its Environs, Transit and Transportation (Volume IV of the *New York Regional Survey*; New York, 1928)

and was extended north along Ninth Avenue to 30th Street in 1870. Cable power was soon replaced by steam operation. Small steam locomotives pulling railcars would remain the motive power until the turn of the century.

The success of the first elevated line, the first in the world, led to the construction of a network of privately funded elevated lines on the East and West sides of Manhattan. By 1880, elevated lines were in operation on Second, Third, and Sixth avenues, and the Ninth Avenue line (joined by the Sixth Avenue line at 53rd Street) was extended north. These lines terminated at the Harlem River, which separates The Bronx from Manhattan. In 1886, the East Side lines were extended across the Harlem River up Third Avenue, through a district now known as the South Bronx. Meanwhile, across the East River in the independent City of Brooklyn, a network of elevated lines was put in place by private capital from the 1880s through the 1890s. Some of these lines crossed the East River over the Brooklyn Bridge (opened in 1883), to a terminal in Lower Manhattan. In 1901, the elevated lines

in the newly expanded city of Greater New York carried 253 million riders.

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## The First Subway

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The construction of the two networks of privately owned elevated lines helped accommodate some of New York's rapid population growth. But they were not enough to keep pace with the large numbers of people pouring into the city each year. By the early 1890s, there was widespread interest in building an underground system using the new technology of electric traction motors. Private companies, however, were unwilling to risk investing in such a project. The elevated railroad interests also opposed a subway. To get around the financing problem, a proposal allowing the City of New York to build a subway with public funds was overwhelmingly approved by the voters in a referendum in 1894. A permanent rapid transit board was created to supervise construction. This board was the predecessor of all the public agencies that have been responsible for

planning and overseeing New York's rapid transit system to this day.

The board's engineering staff, headed by William Barclay Parsons, laid out the route of the first subway, which began at City Hall in Lower Manhattan and proceeded up the East Side to Grand Central Terminal. From here, the line went across 42nd Street to Times Square and then up Broadway to 96th Street. From this point, one branch proceeded up Broadway to the northwest Bronx. The other passed through Harlem and then under the Harlem River, proceeding to the Bronx Zoo in the center of the borough. To reduce costs, the outer sections of this system were to be built on elevated structures, rather than underground. This system would be owned by the city, but operated by a private company under a long-term lease. The fare was to be 5 cents for one trip on the system, regardless of length. The operator was selected by the rapid transit board under a competitive bidding process.

After another company had been awarded the contract, the Interborough Rapid Transit Company (IRT) was formed to take over the lease. This company was soon awarded a second contract to extend the first subway south through the Wall Street area and under the East River to downtown Brooklyn. The initial section of the first subway opened for operation on 27 October 1904, to great public acclaim. The entire initial IRT system, including the extension to Brooklyn was opened by 1908. The system had 41 route-km. One of the unique features was the use of express and local services, with the main trunk line in Manhattan having four tracks. The cost to the city was about \$52 million. The bonds sold by the city to pay for the construction were to be redeemed from subway operating revenues.



This is a photograph taken on 16 March 1909 of the elevated portion of the branch of New York's first subway through the South Bronx. The elevated line is on Westchester Avenue as it crosses Rogers Place. Dongan Place (later designated as 163rd Street) is in the foreground. The subway train on the structure was operated by the Interborough Rapid Transit Company under a lease with the City of New York.

(Courtesy of The Bronx County Historical Society)

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## The Dual System

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The first subway was a major accomplishment, but it was not enough to help alleviate major social problems resulting from increasing population densities. Many of the new residential areas along the elevated lines had been built up with block after block of five- and six-story buildings, called tenements. This pattern was repeated along much of the route of the first subway. The tenement buildings were extremely overcrowded from the start. They became even more so as about 100,000 people migrated to New York each year, most of them now from southern and eastern Europe. Between 1900 and 1910, the population of the expanded city grew from 3.437 million to 4.767 million. Some districts, such as Manhattan's Lower East Side, were the most crowded in the world. All responsible public officials were in agreement that many more subway lines were needed, in order to allow the population to disperse to new, less-crowded, residential areas in The Bronx, Brooklyn and Queens. There was much vacant land in these boroughs, but it was not possible to commute to Manhattan cheaply and quickly because of the lack of adequate transportation connections. In addition, there were demands from many citizens that new subway lines be built to their neighborhoods. How to meet these needs and demands became the biggest political issue in New York. The answer seemed to be construction of many more rapid transit lines simultaneously. But there was also a consensus that the fare on any new subway lines should be 5 cents, regardless of distance traveled. In 1910, everyone assumed that the entire cost of subway construction and operation would be covered from operating revenues. This meant that the major issue was whether there would be enough operating revenues to support the construction of a



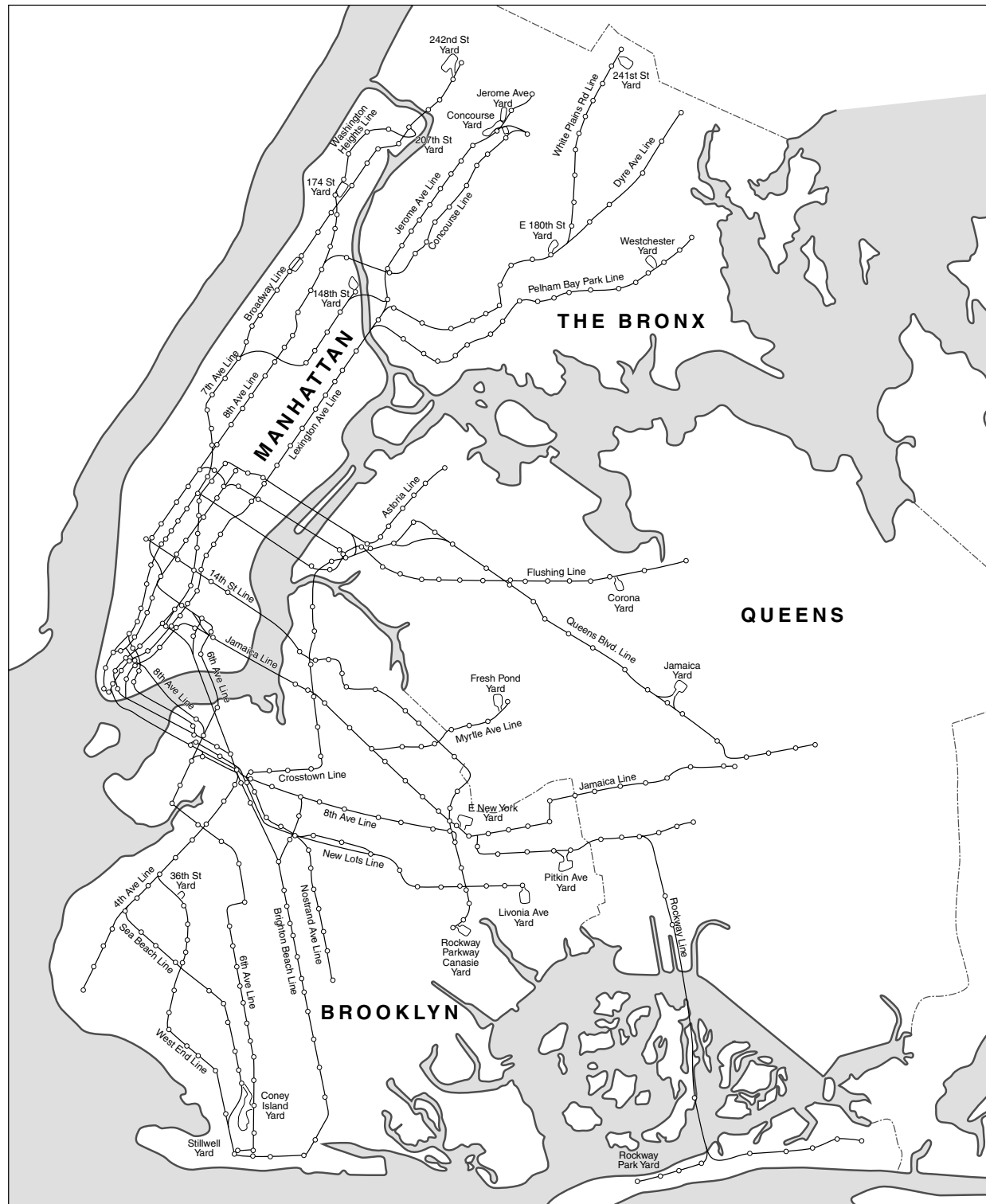
This is a photograph of the elevated portion of a new subway line to Queens being constructed under the Dual System plan of 1913. The date is 8 October 1914. This line starts at Times Square in Manhattan, crosses 41st and 42nd streets and then passes under the East River to Queens. When it opened to Corona in 1917, the services on the line were jointly operated by the Interborough Rapid Transit Company (IRT) and Brooklyn Rapid Transit Company (BRT). The line now terminates in Flushing. This view is looking east through what was then open land. This area was only about 5 km from the East River separating Queens from Manhattan. The main purpose of the Dual System was to open up new districts of New York for residential development.

(Courtesy of the New York Transit Museum Archives)

vast network of new lines if a flat fare was to be charged. It was soon discovered that building many new lines at the same time would be a risky financial proposition. Analysis of the finances of the first subway indicated that the IRT was making high profits from short-haul trips in Manhattan, but was losing money on the operation of the branch lines to The Bronx. It was also determined that if many new lines were constructed at one time, it would be several years, perhaps a decade or more, before there would be enough passenger traffic in the new residential areas to support the new subway lines. This made private companies reluctant to participate financially in the construction of new lines. At the same time, the City of New York did not have enough funds to build an extensive network of new lines by itself because of restrictions on the amount of money it could borrow. Meanwhile, reformers in New York were documenting the social problems resulting from the severe housing overcrowding in the tenement districts. These included high disease rates (especially tuberculosis), crime, alcoholism, prostitution and family breakdowns. The poor immigrants living

in the tenements also came to be seen by some as a threat to public health and social order. A Committee on Congestion of Population, including businessmen and civic reformers, was formed to publicize these social ills and to recommend solutions. At the same time, several reformers came to hold high political office in the city and state governments. By 1910, the leaders of the Progressive movement in New York were united in the belief that they had to break up the congestion of population in the tenement districts. They also believed that the way to do this was for the city to take the financial risk in the construction of new subway lines. The leader of these reformers was Manhattan Borough President George McAneny. In 1913, McAneny and his allies worked out an arrangement with the operators of the two rapid transit networks in New York, the IRT and the Brooklyn Rapid Transit Company (BRT). (The latter controlled all the elevated lines in Brooklyn.) The two companies would contribute financially, along with the city, to a plan called the Dual System of Rapid Transit. The cost of this plan was \$366

Figure 2 New York City Rapid Transit System, 1986



Source: *The Rapid Transit Service Sufficiency Study*, New York City Transit Authority, June 1984

million. (This amounts to about \$22 billion in current dollars, using the construction index history of *Engineering News Record*. The actual cost of building these lines now, however, would probably be much higher, based on the difficulties of construction in New York City.) To induce the companies to contribute financially to the new Dual System lines, each company was to receive a fixed annual amount from operating revenues based on the profits they had been making before 1913. The existing networks of each of the two companies would be greatly expanded, with new lines extended to many of the outlying districts. All the new lines would be municipally owned, but leased to the companies for 49 years. The fare would be 5 cents on each system. This plan more than doubled the size of the existing rapid transit from 476 to 996 km of single track. (There were 182 new route-km.) Most of the current subway lines in New York are the result of this plan. In Manhattan, these include the Lexington Avenue, Seventh Avenue and Broadway trunk lines, all three of which have four tracks, allowing for express and local services. The Dual System lines had the expected impact. Most of the lines opened between 1915 and 1920. Almost all of New York's population growth between 1910 and 1940 was in new 'subway suburbs' opened for development by new lines. These districts were mostly between 6.5 and 19 km from the Manhattan Central Business District (CBD). They were twice the land area of the built-up districts of New York in 1910. In the new subway suburbs, population densities were much lower than they had been in the old tenement districts. Moreover, the population in the old crowded neighborhood decreased substantially as residents move out to better housing in the subway suburbs. Almost all the new subway lines had both express and local services. Travel times to the CBD for the vast majority of passengers was less than 50 minutes. In 1913, the rapid transit lines

carried 810 million passengers; in 1930, the expanded network carried 2,049 million passengers.

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### The Independent System

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The last major addition to New York's subway network was the Independent System (IND). The decision to build the IND was made in 1924, after yet another intense political battle about how to expand the rapid transit network. The IND lines were opened for operation between 1932 and 1940. The Independent System was meant to be 'independent' of the Dual System lines owned by the city. Paradoxically, the IND lines were built solely with city funds and were also owned by the municipality. The IND system, however, was publicly operated from the start.

The IND was the result of strong public hostility to the private transit operation companies. This hostility had originated in the financial arrangements made with the private companies in 1913, and was exacerbated by the financial problems of the Dual System. Moreover, subway services in New York were very crowded, making the daily trip to work an unpleasant experience for many riders. City politicians discovered that they could win elections by attacking the private operating companies. This was especially the case when the companies, which were in financial difficulties, asked in 1919 that the fare be raised above 5 cents. Under the terms of the operating leases, this could not be done unless the city agreed. Mayor John F. Hylan (1918–1925), however, refused, although transit fares rose in most other American cities at the time. From this time on, the transit fare has been one of the most controversial issues in city elections. The fare was finally raised to 10 cents in 1948; in 1999 it was \$1.50. When it came to building new subways, Hylan insisted that they be independent of

those operated by the 'corrupt' private companies. This populist rhetoric resulted in the IND system, which had no transfers to the lines of the Dual System. (All existing transfers were built later.) The IND added 315 track-km (97 route-km) to New York's rapid transit network, at a cost of about \$815 million. The IND system opened few new areas of the city for development, since it was designed largely to compete with the Dual System, as well as to replace the oldest elevated lines. In Manhattan, the main trunk lines are under Sixth and Eighth avenues. In the three decades after the opening of the IND lines, almost all the elevated lines of stage 1 were torn down. The financial troubles of the private operating companies were made even worse as the IND lines started to open. Throughout the 1930s, talks went on about 'unification, which meant one system, with one fare, operated by a public agency. Finally, in 1940, the City of New York purchased all the operating rights of the IRT and the BRT's successor, the Brooklyn Manhattan Transit Corporation (BMT). Since 1953, the subway has been operated by the New York City Transit Authority (now also known as MTA New York City Transit). From 1968 on, New York City Transit, which also operates most of the buses in the city, has been part of a regional agency created by the State of New York called the Metropolitan Transportation Authority (MTA).

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### The Commuter Rail Network in the New York Region

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New York's subway is not the only rail system serving the Manhattan CBD. Three separate commuter rail networks feed into New York, as well as a much smaller rapid transit network between New Jersey and Manhattan. This smaller subway passes under the Hudson River via two lines to terminals in the Wall Street district and in Midtown. Built by a private company and opened in 1909, one of its original

purposes was to bring passengers from railroad stations along the New Jersey shore across the river into Manhattan. Since 1962, this line has been operated by the Port Authority of NY & NJ, and is called PATH (Port Authority Trans Hudson). With regard to commuter rail, in the 1830s, steam railroad lines began connecting central Manhattan island with what is now The Bronx and with cities to the north and east. Railroad lines also appeared on Long Island, to the east of Manhattan across the East River. Some of these lines could be reached by ferry from Manhattan. In the nineteenth century, several railroads were also built in New Jersey. These railroads terminated along the west shore of the Hudson River; transfers to Manhattan were by ferry. The private companies, which had built most of these lines mainly for long-haul intercity services, sought to attract local passenger traffic to fill seats that might otherwise be empty, thereby increasing revenues at no increase in cost. To do this, the railroad companies offered discounts to the largely upper-income owners of country homes and city businesses. This discount was called a 'commutation,' meaning a reduced rate from the normal fare. The term 'commuter' originates from this.

Early in the twentieth century, major improvements were made to the rail terminal system in New York City. Part of the reason for these improvements was the development of electric traction, allowing trains to pass through tunnels into Manhattan without the smoke of steam engines. A new Grand Central Terminal, opened in 1913, was constructed at 42nd Street and Park Avenue in Midtown Manhattan, to replace an older building on the same site. Built by the New York Central Railroad, this terminal was used by commuter and intercity services of this company as well as by the New York, New Haven and Hartford Railroad. North of the new terminal, the tracks below Park Avenue were covered over and the avenue soon

became one of New York's premier addresses.

Another magnificent new rail facility, Pennsylvania Station, was opened in 1910. Located in the southeastern corner of Midtown, between 31st and 33rd streets, Seventh to Eighth avenues, this station was built by the Pennsylvania Railroad, the major competitor in the northeastern United States to New York Central. Tunnels were constructed under the East River and the Hudson River to Penn Station (the common name), allowing through service from New Jersey to Long Island. Moreover, a new bridge was constructed over the Hell Gate, a portion of the East River between The Bronx and Queens (on Long Island), allowing direct service from Penn Station to New England. The new station was used by trains of the Pennsylvania Railroad, as well as by services of the Long Island Rail Road and the New York, New Haven and Hartford Railroad.

Since 1913, no major new railroad connections have been built to Manhattan, although there are now plans to bring the Long Island Rail Road into Grand Central Terminal.

From the 1930s on, the private railroads were having financial difficulties, and tried to shed their commuter rail services. The result was that all commuter rail services became public operations over time. Service from New Jersey to Penn Station is now the responsibility of New Jersey Transit, a statewide public agency. All the services from the east are operated by the Long Island Rail Road, the nation's largest commuter rail carrier. Most Long Island services come into Penn Station, although there are also terminals in Brooklyn and Queens. Services from the northern suburbs are operated by Metro-North Railroad into Grand Central Terminal. Both the Long Island Rail Road and Metro-North Railroad are subsidiaries of the Metropolitan Transportation Authority.

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## The Metropolitan Transportation Authority

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For the New York State portion of the New York region, since 1968, the Board of Directors of the Metropolitan Transportation Authority has determined policy for passenger rail services. Most of the members of this board are appointed by the governor of New York State, others are appointed by the mayor of New York City and officials of the various suburban counties. The MTA Board approves the budgets of the New York City Transit Authority as well as those of the two commuter railroads under its control. This board is also responsible for making final decisions about expanding the rail network. Since the 1950s, almost all the funding for capital improvements to the subway and rail systems has come from the city, state and federal governments. In addition, a good portion—more than half in some cases—of the operating expenses have been subsidized from tax revenues. MTA has lobbied vigorously to obtain the public funds needed for transit operations and capital improvements.

The dependence on public funds for capital improvements came at a time when transit ridership was declining. In 1947, for example, the New York subway system carried over 2 billion passengers. By 1977, the number was below 1 billion. The decline in subway passengers occurred when the rapid transit system, as well as the commuter rail services, were in need of large amounts of capital funding for the replacement of rolling stock and rehabilitation of the physical infrastructure (tracks, signals, line structures, maintenance facilities, stations, etc.).

In 1968, the MTA announced a huge expansion plan for the subway and commuter rail systems, hoping to obtain much of the needed funds from the federal government. By the mid-1970s, most of this plan had been abandoned or postponed, after it became clear that all

available capital funds were needed to return the existing transit systems to a state of good repair. In fact, with ongoing capital needs in 1980 estimated at over \$1 billion annually, and only about \$300 million available, large increases in capital funding were needed just to keep the existing systems operational.

In 1981, the then MTA Chairman, Richard Ravitch, persuaded the New York State Legislature to approve a creative funding package to carry out a massive 5-year capital improvement program, aimed at restoring safe and reliable service on New York's subway, bus and commuter rail systems. This plan relied in part on revenues from the sale of bonds backed by vehicle tolls collected by yet another MTA agency, the Triborough Bridge and Tunnel Authority. (This agency operates all the toll bridges and tunnels connecting the five boroughs of New York.) Bonds were also sold backed by operating revenues. Many other methods were also used to raise capital funds, including the sale (to private companies) and lease back of subway cars. (This was then possible under a provision of federal tax law.) Under the first MTA capital plan, and two subsequent 5-year plans ending in 1996, over \$25 billion was spent on capital improvements to the existing MTA systems. The result has been substantial improvements in service quality and reliability, as well as increases in ridership. In 1997, the New York subway carried 1,132.4 million revenue passengers, or 3.762 million riders on an average business day. Another 189.2 million trips were made in 1997 on the three commuter railroads serving Manhattan (75.8 million on the Long Island Rail Road, 62.6 million on Metro North Railroad and 50.8 million on the rail services of New Jersey Transit). PATH carried another 62.2 million passengers. The bus network within New York City had 504.6 million riders. New York is far more dependent on mass transit than any other American

city, and the continued strength of its economy depends in part upon keeping the existing public transportation system in good working order. This will require the ongoing expenditure of more than \$2 billion annually during the next decade. Further expansion of the rail network is also required. New York has seen many changes since the 1950s. Within the region, population has shifted, with some districts losing residents and others growing rapidly. Many of the growth districts do not have good transit access to Manhattan. In addition, on the East Side of Manhattan, two old elevated lines were torn down in expectation that a subway under Second Avenue would replace them. This area saw the construction of hundreds of high-rise apartment buildings during the past half century, replacing old tenement buildings. The Lexington Avenue subway serving this area, is severely congested, at least by MTA standards. The business districts served by the Lexington Avenue line have also grown in employment but no subway has been built on Second Avenue because of the capital needs of the existing system. During the next 20 years, the number of jobs in Manhattan is expected to grow by several hundred thousand. This growth, together with the previous shifts in population and changes in employment concentrations, has led several groups to conclude that New York must once again expand its rail network. The private Regional Plan Association has proposed a new regional express system, called Metrolink. This would entail construction

of 29 km of new tunnels. These tunnels, joined to some existing rail lines, would form a system with about 145 route-km. A business group, the New York City Partnership/Chamber of Commerce, is also calling for new rail lines, including the Second Avenue subway. Meanwhile, the MTA has conducted numerous detailed network expansion studies, and wants to move forward with plans for a Second Avenue subway. The MTA also plans to complete a project that would allow Long Island Rail Road trains to run into Grand Central Terminal, in addition to Penn Station. There is also a proposal to build a new rail tunnel under the Hudson River from New Jersey to Manhattan.

The rail expansion proposals will cost billions of dollars and the debate now centers around how to finance them, while at the same time finding the funds to keep the existing services running properly. The New York City Partnership/Chamber of Commerce is exploring various funding options towards this end. Devising a financing plan to achieve both goals will be the major challenge facing the rail system and its managers during the next century. ■



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