

REGIONAL PLAN ASSOCIATION

RX: REGIONAL EXPRESS RAIL

The transportation systems in the New York-New Jersey-Connecticut Metropolitan Region are a barrier to the efficient movement of people and goods throughout the entire region, and thus to the region's economy and the quality of life of its citizens. In an age when more and more jobs can go anywhere, this region's survival depends on providing a quality of life that will support the decisions of businesses to stay and prosper here and of citizens to choose the region as a place to live and work.

Rx: Regional Express Rail is one of the primary recommendations of Regional Plan Association's Third Regional Plan ***A Region At Risk***. The nation's oldest independent planning organization, RPA promotes policies to improve the quality of life of the New York-New Jersey-Connecticut Metropolitan Region by drafting long-range plans and advocating for their implementation across political boundaries. RPA's efforts have improved the economy, transportation systems, environment and urban centers throughout the Tri-State Metropolitan Region.

The deficiencies of both the highway and transit networks make it difficult for this region to compete in the global marketplace. Many highways and river crossings are jammed during increasingly extended peak hours, costing billions of dollars in time lost each year. The region is past the age when it can solve this problem by building its way out of this highway congestion as it once tried to do, given the excessively high cost, environmental damage and community disruption of expressway construction. Instead, focus is increasingly turning towards more efficiently managing highway travel demand. Regional Plan Association's Third Plan, *A Region at Risk*, proposes how to accomplish this, applying market-based measures and new technologies.

This report focuses on the transit system, particularly the extensive but inadequate rail network, and how it can be improved to help the region meet its economic and quality of life objectives. Today, the Tri-State Metropolitan region faces competition from other existing or budding world cities. Each of our rivals—Paris, Tokyo, London and the major cities of

Germany—has developed or has ambitious plans to create its own regional rail system. Berlin's transit network, long divided by the Cold War, is being reconnected. Even Los Angeles has launched a multi-billion-dollar effort to create a rail network from scratch.

The region's existing rail system hands us, perhaps for the last time, the opportunity to save, rebuild and recreate communities that have been losing out to the ravages of sprawled development. Moreover, if designed and properly coordinated with land use

Rx can become the springboard for launching the next wave of development in the metropolitan region.

decisions, a truly regional system would effectively serve many medium-density portions of the region not now served by rail, while providing new opportunities for economic development in suburban centers.

RPA's *Regional Express Rail - Rx* proposal described in this report is a generation-long,

billion-dollar per year program to transform the existing transit system. **Rx** can become the springboard to launch the next wave of development in the metropolitan region and can spur redevelopment just as rail transit opened up new land opportunities early in this century and the automobile did somewhat later. **Rx**'s productivity gains would make more effective use of public funds and fares through more efficient use of labor, rolling stock and other infrastructure. **Rx** also breaks down artificial barriers among the three states and between the urban and suburban areas. Therefore, one region's transit operators can make broader appeals for capital and operating funds and region-wide revenue sources, particularly as citizens of the Region come to view the entire rail system as their own.

The Problem

The region's 1,257-mile rail network is by far the most extensive in the nation, but many of its features leave much to be desired. The New York City subway offers frequent service and good coverage to much of the city, but it is old and slow, with few amenities. Many areas, most notably eastern Queens, all of Staten Island and parts of upper Manhattan, southern Brooklyn, and the Bronx do not have any subway service at all. Inhumane crowding is a big problem, particularly the Lexington Avenue line in Manhattan and the Queens Boulevard and Flushing lines in Queens. And most stations are unpleasant and

FIGURE 1: Specific Goals of Rx

- Increase transit capacity across the East River to provide more service for Long Islanders and Queens residents to East Midtown and Downtown;
- Increase transit capacity across the Hudson River to provide New Jerseyans access to East Midtown and Lower Manhattan;
- Increase capacity on the East Side to provide more service for Upper East Siders and Bronxites;
- Eliminate unwanted transfers to crowded subways for most of the markets from the suburbs, including Long Island to East Midtown and Lower Manhattan and the northern suburbs to West Midtown and Lower Manhattan;
- Relieve overcrowding on the Queens Boulevard (E and F) and Flushing (#7) subway lines into Midtown and at the Lexington Avenue-53rd Street station;
- Relieve overcrowding on the subway lines feeding Lower Manhattan from Brooklyn;
- Relieve overcrowding on the Lexington Avenue subway to provide a more reliable service, and provide a comfortable option for Metro North commuters from Connecticut and the Hudson Valley headed for Lower Manhattan;
- Reduce bus volumes on the Route 495 exclusive bus lane, preventing its eventual breakdown;
- Speed service and increase frequency from the north, east and west into midtown and lower Manhattan;
- Expand the coverage of the network to areas without rail transit, including southeastern Queens, the central Bronx and eastern Bergen and Rockland counties;
- Provide new services between the northern suburbs and New Jersey;
- Provide new services to interconnect Brooklyn, Queens, and the Bronx, making it unnecessary to travel to Manhattan for trips within and among those boroughs;
- Expand greatly expanded or new services to Long Island City, the Hackensack Meadowlands, and Jamaica; and
- Provide direct, no-transfer access to Kennedy airport and easy one-transfer access to LaGuardia from midtown and lower Manhattan.

uninviting, compounded by cramped and confusing transfer passages and egress and access to the street.

The commuter rail network is generally fast, comfortable and usually provides a seat, but

coverage is limited in the suburbs and it is unable to distribute passengers to their work locations in the core. The Long Island Rail Road brings riders from Nassau and Suffolk Counties to Penn Station on

Midtown's West Side, but not to the East Side or to Lower Manhattan. Metro North riders can reach the Grand Central area but must take crowded and unreliable subways to get to Lower Manhattan. New Jersey commuters can reach the West Side easily via Penn Station, and via the Port Authority Bus Terminal, but are one or two subway trains away from East Midtown. The commuter rail network is also unable to offer frequent "reverse" service from city to suburb because of peak direction operat-

FIGURE 2:

<i>TRIPS TO MANHATTAN FROM:</i>	<i>1990 TRIPS</i>	<i>1990-2020 INCREASE</i>	<i>PERCENT INCREASE</i>
Queens	344,001	36,609	10.6
New York	594,659	23,092	3.9
Hudson	52,292	20,325	38.9
Nassau	97,205	19,983	20.6
Brooklyn	343,762	19,576	5.7
Suffolk	38,505	12,506	32.5
Bergen	60,013	11,156	18.6
Middlesex	24,030	11,049	46.0
Staten Island	54,292	10,904	20.1
Essex	25,750	10,266	39.9
<i>Rest of Region</i>	<i>375,915</i>	<i>60,197</i>	<i>16.0</i>
TOTAL	1,634,509	175,466	10.7

Rx is a rail network spliced together from the existing one by constructing a few critical links that are now missing.

ing priorities. Nor does it inter-connect points other than Manhattan well, if at all.

And the regional rail network does not provide access to the region's three airports.

Rx, the Regional Rail Solution

Regional Plan Association has developed a group of proposals designed to address all of these problems. They are called **Rx**, Regional Express Rail. What is **Rx**? It is a rail network spliced together from the existing one by constructing a few critical links that are now missing. Some parts would be no different from commuter rail as we know it, others would remain just like rapid transit (the NYC subway or PATH), and still

other parts would operate as frequently and with the acceleration of rapid transit, but with the comfort of commuter rail. This last "hybrid" service would operate with **Rx** trains, vehicles having the dimensions and power capabilities of the most modern rapid transit vehicle. They can operate in existing tunnels, but with seating arrangements of the most comfortable commuter rail vehicles (like the ones operated on the Washington Metro). **Rx** services would, where necessary, break down the artificial barriers among rail properties that had their genesis in the 19th century, when rival railroad companies competed with one another.

Rx would:

- Operate at higher speeds to compete more effectively with auto travel;
- Provide easier access with new service in places now far from any rail transit;
- Allow for greater comfort with more comfortable seating

and less crowding;

- Provide more direct service with fewer and easier transfers;
- Run frequent service, especially in off-hours; and
- Offer reliable service.

The specific achievements of **Rx** are shown in the Figure 1.

New worktrips to Manhattan in 2020 will have to be met with rail only five more sets of tracks would do it, compared to over 80 highway lanes.

Why Rx Now?

The **Rx** plan accommodates most of the commuter markets that will experience substantial growth projected over the next generation. Twenty-first century growth simply cannot be accommodated on today's transit system, a system designed in the 19th century, and

built in the first third of the 20th century. RPA projects that over 230,000 more trips to work will be made to Manhattan each day in 2020. This growth will have to be met with rail—only five more sets of tracks would do it, compared to over 80 highway lanes. Nearly 90,000 new worktrips will cross the East River: approximately 56,000 from Queens and Brooklyn and

Linking the LIRR to Grand Central Terminal would save East-Midtown bound commuters up to 30 minutes per day and shift some 8,000 Long Islanders from their automobiles.

another 32,000 from Nassau and Suffolk counties. New Jersey will send about 70,000 more trips into Manhattan, primarily from Bergen, Essex and Middlesex counties, while the neighboring New York counties of Orange and Rockland add another 13,000 (see Figure 2).

More than 210,000 new work trips will be made among the other four boroughs of New York City. An additional 50,000 new work trips are expected to be made totally within Queens and another 48,000 within Brooklyn

New Jersey counties closer to New York will also experience an influx of new internal commuter travel, with Essex, Hudson, Union, Passaic and Bergen leading the way. I-95's chronic congestion is a barrier

to new growth in southwestern Connecticut. Metro North service along the New Haven Line can provide the “grow room” for focused development in Stamford, Bridgeport, and New Haven. Without the construction of the **Rx** proposals or other projects that provide for this capacity, it is almost certain that this growth will not occur. The **Rx** proposals will meet these needs by bringing substantially more commuter rail, **Rx** and subway service into the core of the region, fully using the 63rd Street tunnel and new tunnel under the East River from Brooklyn to Lower Manhattan, a new line from the Bronx and Upper Manhattan, and new tunnel under the Hudson River from New Jersey. **Rx** will also serve substantial parts of the surrounding city and inner

suburbs with new intra-borough and inter-county services.

The Rx Plan

Rx consists of a few critical projects, totaling only 25 miles of new transit lines—a two percent increase to the existing 1,257 mile rail network—making possible a multitude of new services. Many of these concepts build on projects previously proposed or now actively being studied by transit agencies. Other concepts seek to capture the unrealized and ultimately abandoned investments made in previous generations, such as the 63rd Street tunnel connections, the Second Avenue subway or the extension of the Archer Avenue subway in Jamaica. These key linkages, the services they provide and the benefits they make possible are

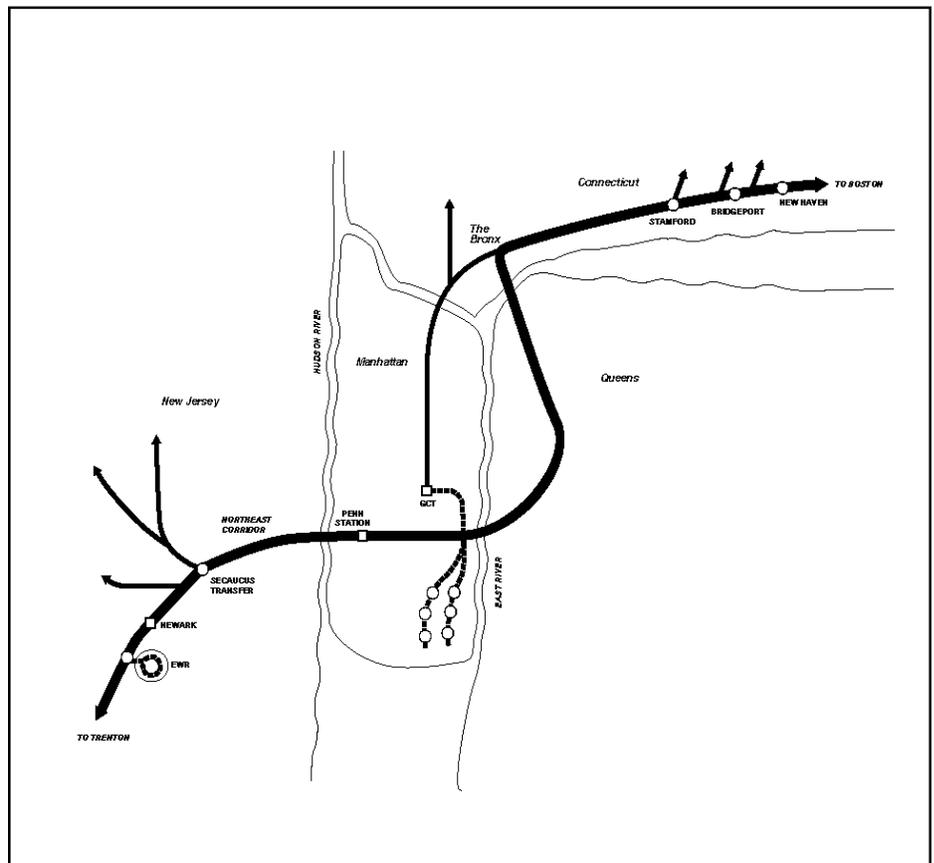


FIGURE 3:

<i>Trips to Boroughs From:</i>	<i>1990 Trips</i>	<i>1990-2020 Increase</i>	<i>Percent Increase</i>
Queens	460,789	80,346	17.4
Brooklyn	506,519	60,499	11.9
Bronx	182,891	37,215	20.3
Staten Island	103,238	32,391	31.4
TOTAL	1,253,437	210,451	16.8

described in the following text and maps. The sequence for the elements of **Rx** is not fixed and many sequences are possible. Because the economic health of Lower Manhattan is especially threatened today, the elements of **Rx** that would help that area should be implemented sooner.

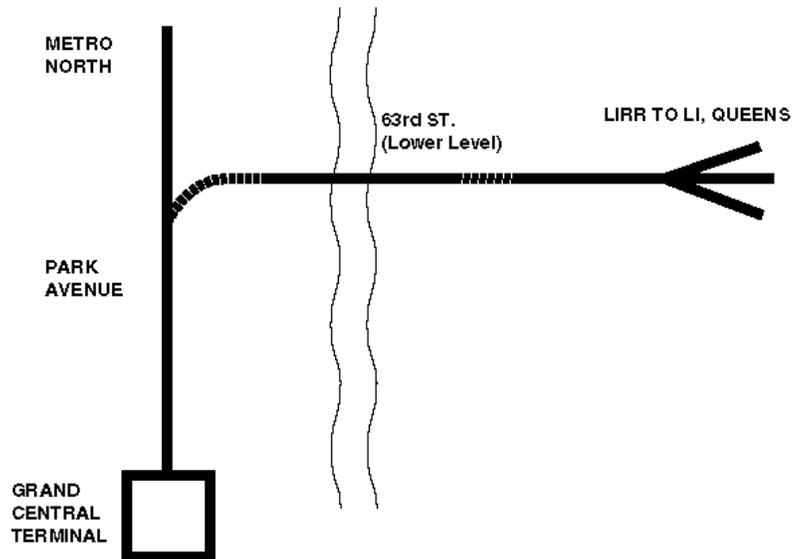
Running through-trains from Connecticut to New Jersey (as shown in Map 1) on the Northeast Corridor Line (for example, New Brunswick or Trenton to Stamford), can happen today without any new construction—the biggest expense could be printing new schedules! These trains would make use of the enormous (and barely used) Hell Gate Bridge offering new stops in the Bronx at Co-op City and at the Bronx hospital complex in Eastchester near Hunts Point, where transfers to and from the Pelham Bay subway line would be possible. Subway transfers in Queens could also be made at a new station at Northern Boulevard. Connecticut, eastern Westchester, and eastern Bronx residents could also use these Tri-State **Rx** trains to reach Penn Station and Newark Airport. Other through-running lines among the three commuter

railroads is possible, including Hudson Line to Penn Station to Long Island.

Travel from Long Island and Queens to East Midtown destinations would be greatly improved by completing the Long Island Rail Road connection to Grand Central Terminal via the existing 63rd Street Tunnel, as

shown in Map 2. The project's missing links (shown as dashed lines), short sections of track in Long Island City and between Park and Second Avenues, connect the unused lower level tunnel under the East River at 63rd Street and give Long Island Rail Road trains access to Grand Central. The number of trains to Manhattan from Queens and Long Island would increase by two-thirds. More than 50 percent of LIRR riders would switch to Grand Central-bound trains, saving up to 30 minutes per day, shifting some 8,000 Long Islanders from their automobiles. This would relieve congestion on the crowded roads of Queens, the Queensborough Bridge and the Queens-Midtown Tunnel. (See Appendix B)

MAP 2: *More than 50 percent of LIRR riders would switch to Grand Central-bound trains, saving up to 30 minutes per day, and shift some 8,000 Long Islanders from their automobiles.*

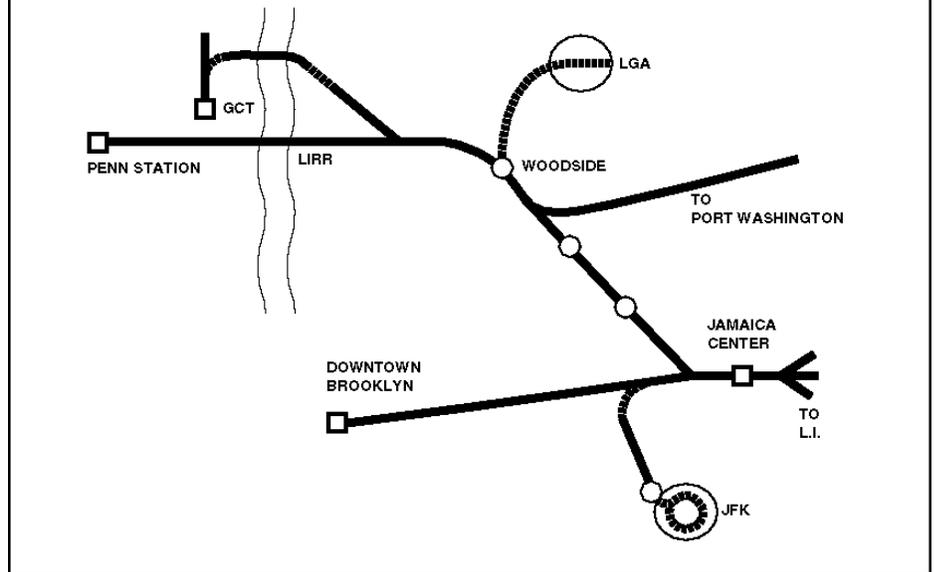


The light rail or *Rx* link from LIRR's Jamaica Station to JFK Airport, funded by the existing air passenger facility charge (PFC) should proceed as shown in Map 3. This link would give LIRR riders one-transfer escalator access to JFK Airport and set up direct service to the airport from Downtown Brooklyn via the Atlantic line of the LIRR (converted to an *Rx* line) as well as the abandoned, city-owned, ex-LIRR Rockaway line. The transit loop on the airport would be built to support *Rx* vehicles. A simple escalator transfer to a light rail line at the present LIRR stop in Woodside, Queens would speed travelers to **LaGuardia Airport**. Transfers to the Flushing Line subway are also possible at Woodside/LaGuardia. This route would also be built using PFC funds, over a route that reuses existing transportation rights-of-way.

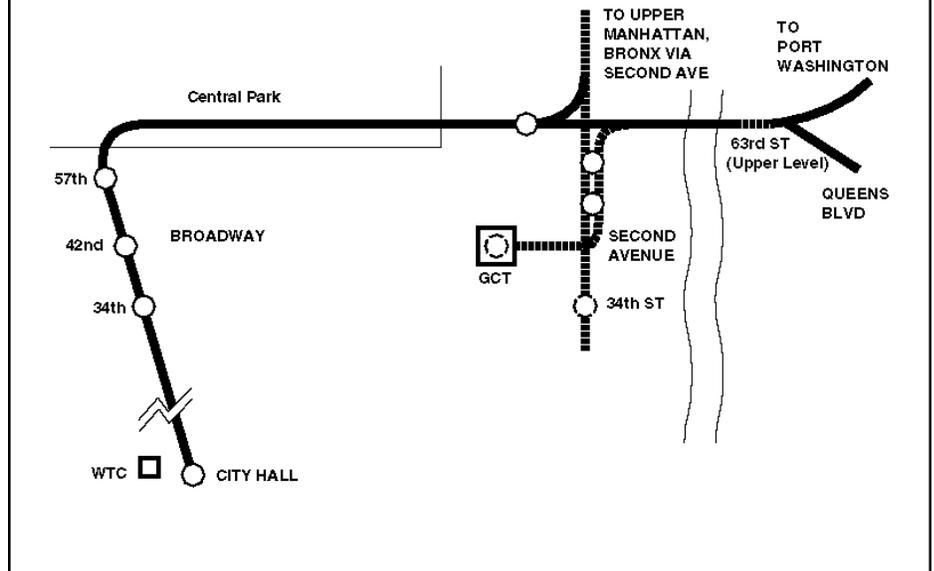
Building the LIRR-Grand Central link allows airport passengers from both LaGuardia and Kennedy, with an easy transfer at Jamaica or Woodside/LaGuardia, to have a choice of reaching Manhattan's East or West Side by rail.

Queens and Long Island access to Midtown and Lower Manhattan would be dramatically improved by linking the LIRR's Port Washington Line to the 63rd Street tunnel's upper level subway tunnel, as shown in Map 4. This line would then be transformed into a high frequency service—the Broadway *Rx* line—using existing subway tunnels, providing access to West 57th Street, Times Square, Herald Square, 14th Street and

MAP 3: Links at Jamaica and Woodside allow airport travelers to reach all part of Manhattan, Queens, and Long Island.



MAP 4: Queens and Long Island access to Midtown and Lower Manhattan is greatly improved.



the City Hall area near the World Trade Center and municipal government buildings. Building in conjunction with the LIRR-Grand Central connection

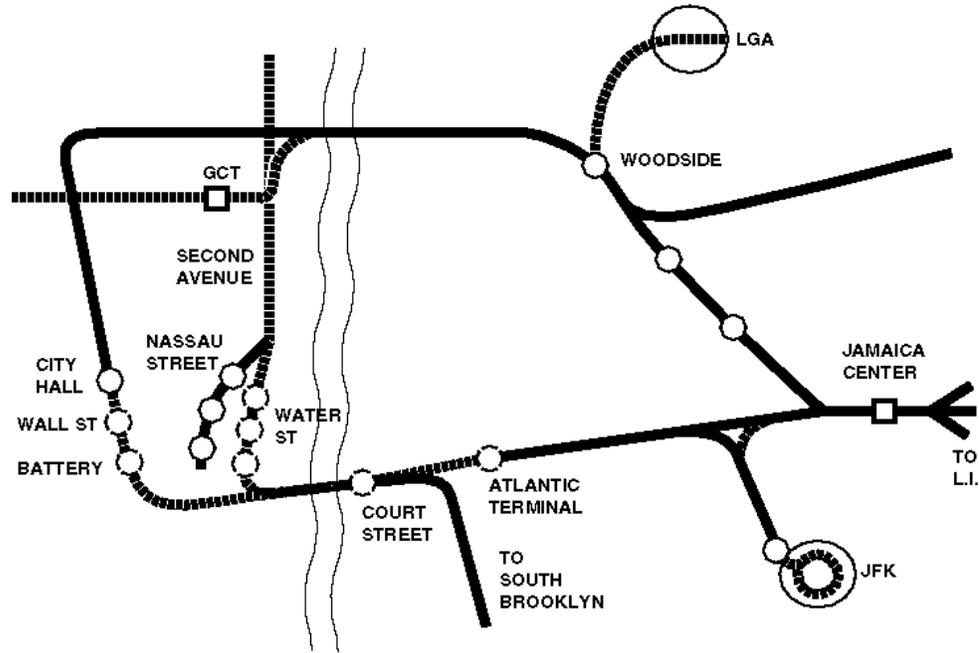
described above could have considerable cost savings.

The LIRR/GCT connection and the Broadway *Rx* allow more frequent service into Penn

Station from Long Island and Queens. Currently, about three dozen LIRR trains enter or leave the station to and from the east in a peak hour: seven of them are Port Washington trains. The LIRR's current capacity expansion project will increase this number to 42 trains per hour. With many riders shifting to trains into Grand Central Terminal and with the Port Washington trains running in the 63rd Street Tunnel, the LIRR will be able to bring more trains directly into Penn Station without the century-old change in Jamaica.

There will also be more room for other trains that use (or can use) Penn Station: high-speed Amtrak Northeast Corridor trains to Boston and through service between New Jersey and Connecticut. The **Rx** link provides both increased service coverage in Manhattan and greater frequency of service for Port Washington line riders, attracting many new riders from northeastern Queens now relegated to the overcrowded Flushing subway line. This, in turn, could reduce traffic congestion in downtown Flushing caused by subway-bound commuters. Finally, these projects give all the region's suburban areas, East and West Midtown, and Lower Manhattan, easy

MAP 5: Metro North riders at Grand Central Terminal would have an easy escalator transfer to a high speed, high amenity and frequent express service to Lower Manhattan. Long Island Rail Road riders would also have easy access to a high speed, high amenity and frequent express service to Lower Manhattan, and lower Manhattan would have a one-seat ride to Kennedy Airport.



one-transfer access to JFK and LaGuardia airports.

Constructing the 63rd Street tunnel projects is a critical first step in creating a new business center in the Long Island City area. Once the nearly 100,000 rail passengers are able to reach Midtown smoothly, Main Line track capacity is freed up in the Sunnyside Yard area of Long Island City. This, in turn, allows trains to stop at a new station proposed for the site. Moreover, these transit projects would also reduce automobile traffic clogging local roads and highways, fighting to get to Manhattan, making Long Island City even more accessible. In short, these projects do not “bypass” Long Island City

redevelopment, they facilitate it.

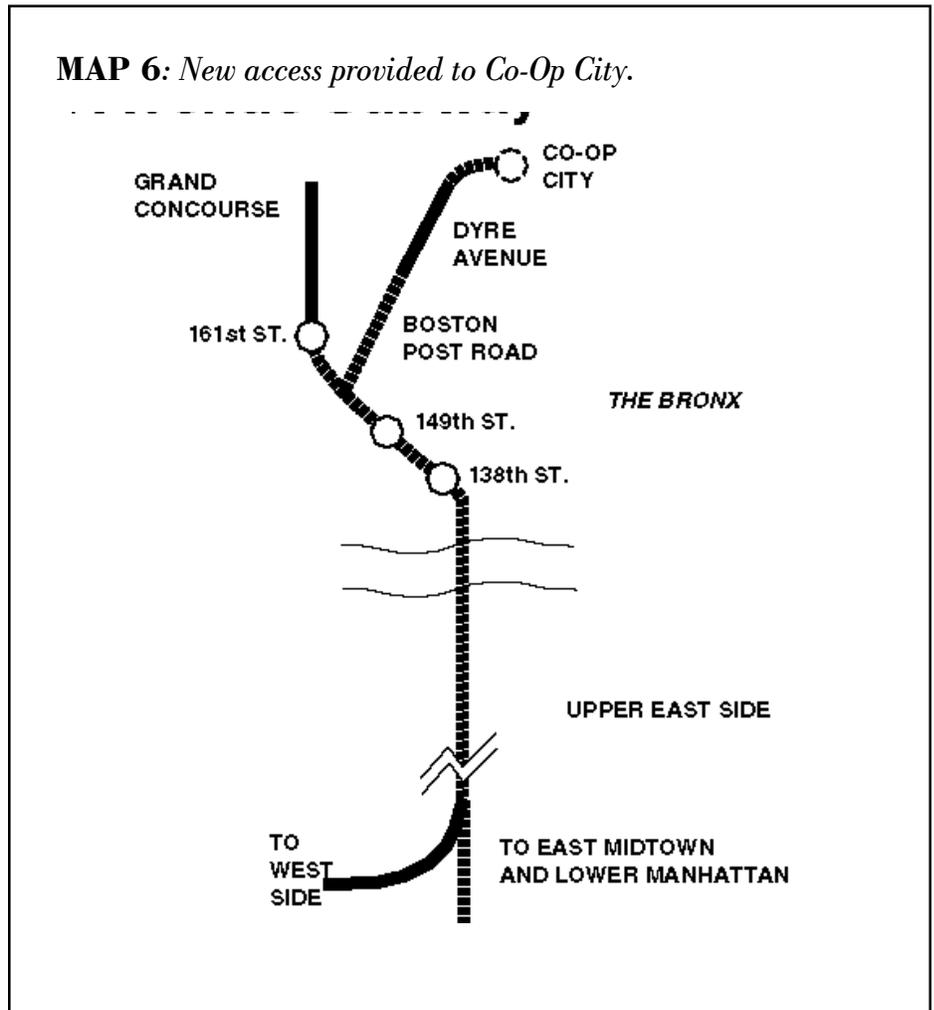
Map 5 shows new *connections to Lower Manhattan and Downtown Brooklyn*. As previously noted, the revitalization of Lower Manhattan may hinge on better access, and therefore this should receive priority attention. A new route under Second Avenue from the Bronx, through the Lower East Side, to New York Plaza on Water Street is at the core of this proposal. A Downtown **Rx**, from a new station under Grand Central Terminal at 43rd Street, would carry transferring Metro North riders from Connecticut and the Hudson Valley destined for Lower Manhattan south down Second Avenue and into Nassau Street in the heart of the Finan-

cial District. Metro North riders at Grand Central Terminal would have an easy escalator transfer to a high speed, high amenity and frequent express service to Lower Manhattan. A second Downtown **Rx** service would operate under Second Avenue to Water Street, serving both local offices and the South Street Seaport District.

Building north under Second Avenue to connect the already transformed Port Washington line at the 63rd Street tunnel would create a second **Rx** service, known as Midtown **Rx**. This would serve East Midtown destinations before turning west to a new station under the lower level of Grand Central Terminal at 43rd Street. Port Washington line riders then have seven access points to midtown—by far the best travel choices of all the suburban areas. From this new GCT station, Midtown **Rx** would be poised to continue west under 43rd Street and the Hudson River to New Jersey.

The western section of the financial district would receive new service as well. Referring to Map 5, the Broadway **Rx** would be extended south from the City Hall station in a new tunnel with stops along Broadway. Traveling in a new tunnel under the East River to Downtown Brooklyn, this route would connect into the Atlantic Avenue terminal of the LIRR. This tunnel would also carry the Downtown **Rx** on an extension from Water Street. These two **Rx** services would continue along the converted LIRR Atlantic Branch east toward Jamaica, with one service turning south down the

MAP 6: *New access provided to Co-Op City.*



Rockaway line to JFK and the other continuing to Jamaica to meet the LIRR. An added bonus of the new Manhattan-Brooklyn tunnel under the East River is its capability to receive many Brooklyn trains that now operate over the unreliable and often closed Manhattan Bridge, thereby reducing the reliance on the subway level of the bridge, which was never designed to carry such loads. These trains would operate along Water Street in Lower Manhattan, connecting up to Sixth Avenue routes at Chrystie Street and providing subway coverage for the eastern edge of Lower Manhattan.

The Second Avenue corridor

creates two additional *travel opportunities from the Bronx and Queens*. Map 6 sketches the two Bronx services. The first service from the Grand Concourse at 161st Street heads south down Second Avenue, with one fork turning down the west side at Seventh Avenue in an existing tunnel under Central Park built for this purpose. The other fork continues down Second Avenue and into the new East River tunnel described above. The second service in the Bronx would be extended north to **Co-op City**, replacing obsolete elevated sections of the White Plains Road subway line with a joint-service tunnel under Boston Post Road and on the

surface replacing the existing Dyre Avenue IRT subway line.

Extending subway service into **southeast Queens** beyond Archer Avenue in Jamaica Center would provide service equivalent to that provided in northeast Queens by the intensified Port Washington line. Most of this construction was nearly completed in the early 1980s, then simply abandoned. Completing a short ramp to the surface would extend the Queens Boulevard subway service three miles east on the Atlantic Branch of the LIRR to Laurelton and Rosedale. The limited LIRR service now on that line would be shifted to the

parallel Montauk LIRR mainline through St. Albans, where a third track would be constructed to provide capacity for the added service. As another bonus, LIRR Jamaica Station operations would be simplified, and a blighting elevated trestle in Jamaica Center removed. On the Manhattan end, some Queens Boulevard trains already using the 63rd Street Tunnel could turn down Second Avenue as far as 34th Street, as shown in Map 5, creating a one-seat ride from Laurelton to the United Nations.

There are many advantages of creating the access described in Maps 5 and 6. In Manhattan, it

affords significant relief to the overcrowded Lexington Avenue subway and provides better East Side coverage and faster trips from the Bronx to Manhattan. Sending some Queens Boulevard trains down Second Avenue further relieves congestion on the 53rd Street line and gives convenient access to East Side destinations. Moreover, it eases the particularly overcrowded transfer point at Lexington Avenue and 53rd Street. The Downtown **Rx** creates a high-amenity service from Grand Central to Lower Manhattan—reducing crowding on the Lexington Avenue line—and gives Midtown and Lower

Governor and Regional Agencies Adopt Many Rx Concepts

There are signs of progress in transforming the rail transit system. In New Jersey, the opening this past May of MidtownDirect, aka the Kearny Connection, a project long advocated by RPA, is one such sign. By 2002 NJ TRANSIT will have completed the Secaucus Transfer. And the Montclair Connection, proposed by RPA in the first Regional Plan in the 1920s, is finally moving forward. Together, these three projects, and the necessary signal and capacity upgrades, will provide access to Penn Station for riders on all of north Jersey's ten rail lines. NJ TRANSIT is also advancing a rail spur to and through the Meadowlands Sports Complex, which is the first step toward service on the West Shore line. Contracts have been signed to build a light rail line on the Hudson River Waterfront, as advocated by RPA in River City in the early 1980s. And the Port Authority has opened the on-airport circulator at Newark Airport, which will provide it with rail access to the region, once it is extended to the nearby Northeast Corridor line.

East of the Hudson, New York City Transit is completing a connection to the upper level of the 63rd Street tunnel to partially relieve crowding on Queens subway lines, Metro North is rehabilitating Grand Central Terminal and is completing the North End Access project, which will save at least 10 minutes walking a day for tens of thousands of commuters, and the LIRR has already opened its refurbished terminal at Penn Station, with its new entrance on 34th Street. The Port Authority has proposed an on-airport circulator at Kennedy airport which will also connect to the Long Island Rail Road at Jamaica Center and to the subway system at Howard Beach. Their proposed system will be compatible with Rx, thereby not precluding connections directly into the airport from the region's rail network. RPA has worked with the MTA, Port Authority, and Governor Pataki's office to advance any of the Rx concepts described in this report. Governor Pataki's visionary Master Links proposal of May, 1996, calls for Long Island Rail Road links to Grand Central Terminal, conversion of the Farley Post Office to a new Amtrak gateway, integrated transit connections to Kennedy and LaGuardia airports, and better access to Lower Manhattan. The Port Authority provides for RPA's airport access concepts in their construction specifications for the Kennedy Airport transit system, allowing NYCTA IND-compatible vehicles to use the planned route within the airport. This important step could allow Rx services from Manhattan to travel directly into the airport, as shown in Map 5. RPA continues to promote Rx concepts to the other regional transit studies listed in Appendix B.

Manhattan direct service to JFK. The replacement of slow, trouble-prone Manhattan Bridge subway service with a reliable route along Water Street will benefit Brooklyn subway riders enormously. New access to the eastern edge of Lower Manhattan and the South Street Seaport is also created.

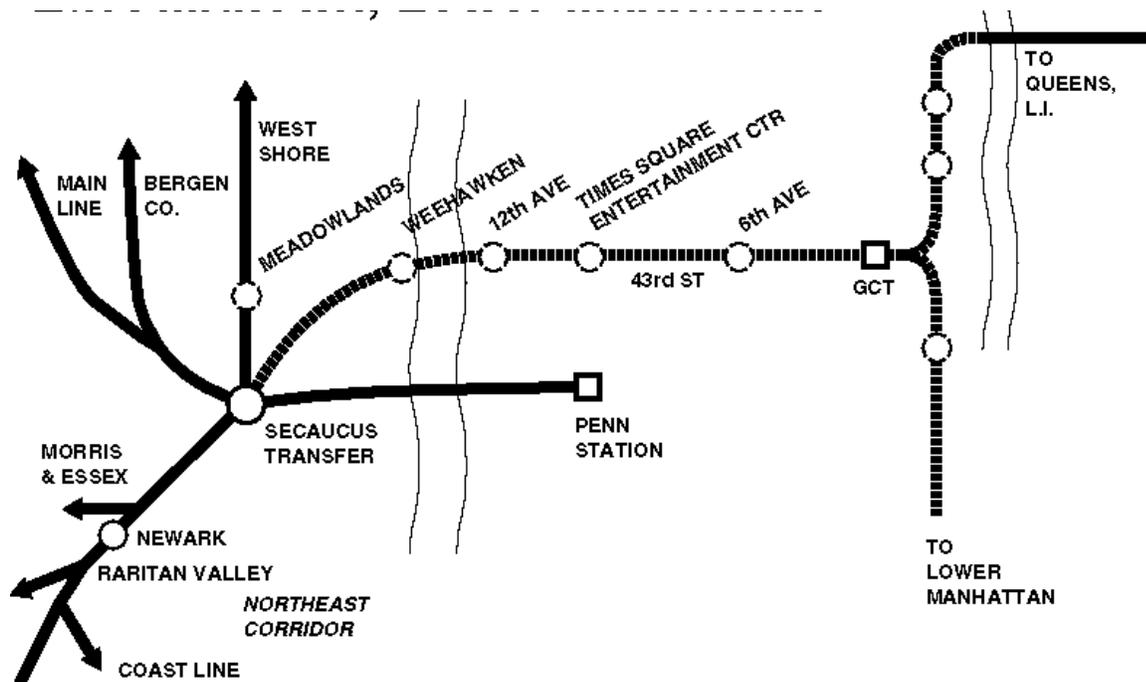
There are also significant benefits for the boroughs and Long Island. Extending the Second Avenue subway north will provide coverage for the central and northern Bronx, especially Co-op City. Completion of the southeast Queens extension reduces bus, van and car traffic into Jamaica Center, and provides new development possibilities for Jamaica and

York College. This phase provides full access to Midtown via seven (and eventually ten stations) in Midtown with frequent service for Port Washington Line riders. The rest of the LIRR riders can also transfer to the Port Washington Line at Woodside, given them added access to more of Midtown. Long Islanders could transfer at Jamaica for frequent and fast **Rx** trains to Downtown Brooklyn and the Financial District of Lower Manhattan.

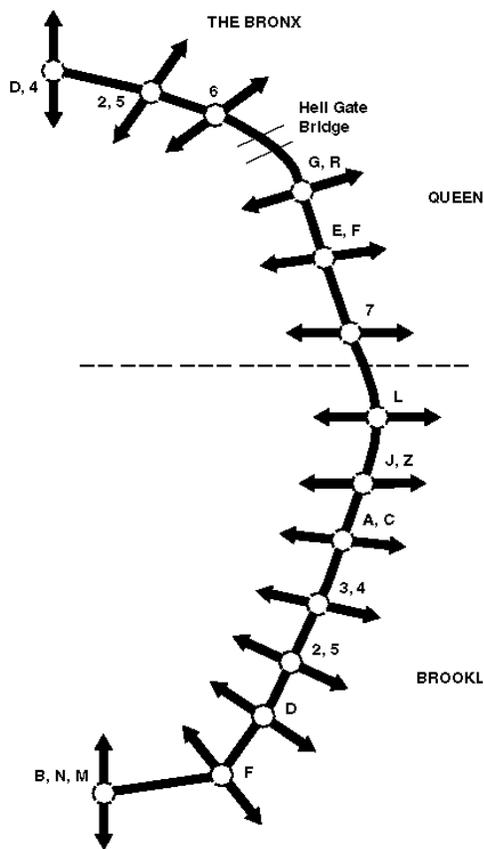
New Jersey access to East Midtown and Lower Manhattan is provided by extending the two **Rx** lines west from the new station under Grand Central Terminal to the Secaucus Transfer site in New Jersey,

where all ten existing NJ TRANSIT lines converge, as shown in Map 7. The Secaucus Transfer station would then give all New Jersey rail riders the option of transferring to **Rx** service across 43rd Street to the East Side at Grand Central Terminal (either on the Midtown **Rx**, which would take them up Second Avenue, stopping in the 40s and 50s), or to the Downtown **Rx** service, which would turn down Second Avenue to Lower Manhattan, as detailed earlier. It is also possible to extend the **Rx** services deeper into New Jersey. Sending one **Rx** line north through the Meadowlands Sports Complex and up the West Shore rail line to West

MAP 7: *New Jersey riders gain access to all of Manhattan's business and cultural districts, especially the hard to reach areas of east Midtown.*



MAP 8: TriBoro Rx would attract many outer borough transit riders and provide countless new intra- and inter-borough options.



Shore or Main Line in northern New Jersey. These improvements would significantly ease the increasing congestion on local streets, as well as the exclusive bus lane leading to the Lincoln Tunnel, making room to speed up vital service vehicle traffic into Lincoln Tunnel.

Convenient travel between the Bronx, Queens, and Brooklyn would be created by a new transit line, the TriBoro Rx, running essentially perpendicular to the existing radial subway lines, as shown in Map 8.

Brooklyn (mostly four tracks wide), the New York Connecting Railroad in Queens, the lightly used Hell Gate Bridge between Queens and the Bronx, and the St. Mary's Park Tunnel in the Bronx. Connecting these lines would allow TriBoro trains to reach across 161st Street to Yankee Stadium.

The order that the Rx travel opportunities were presented does not necessarily represent a chronological to-do list, for many of the projects can and should be phased in to create logical and usable segments building to a final system. One logical order is presented below, with the earlier elements selected because they are either easier to do, planning for them is further along, or in the case of airport access elements, funding is in place. These phases could coincide with MTA five-year capital programs.

Phase I: TriState Rx; LIRR-Grand Central Link, including re-routing of Port Washington line to upper level of 63rd Street tunnel to Broadway; JFK and LaGuardia airport links; Farley Post Office conversion to Amtrak gateway.

Phase II: Second Avenue subway/Rx route from Yankee Stadium to Water Street, creating Downtown and Midtown Rx services; extension of Archer Avenue subway to Laurelton; Sunnyside Intermodal Station.

Phase III: Downtown Brooklyn-Lower Manhattan tunnel to extend Downtown and Broadway Rx to Brooklyn, Jamaica, and JFK Airport; Co-op City extension of Second Avenue subway.

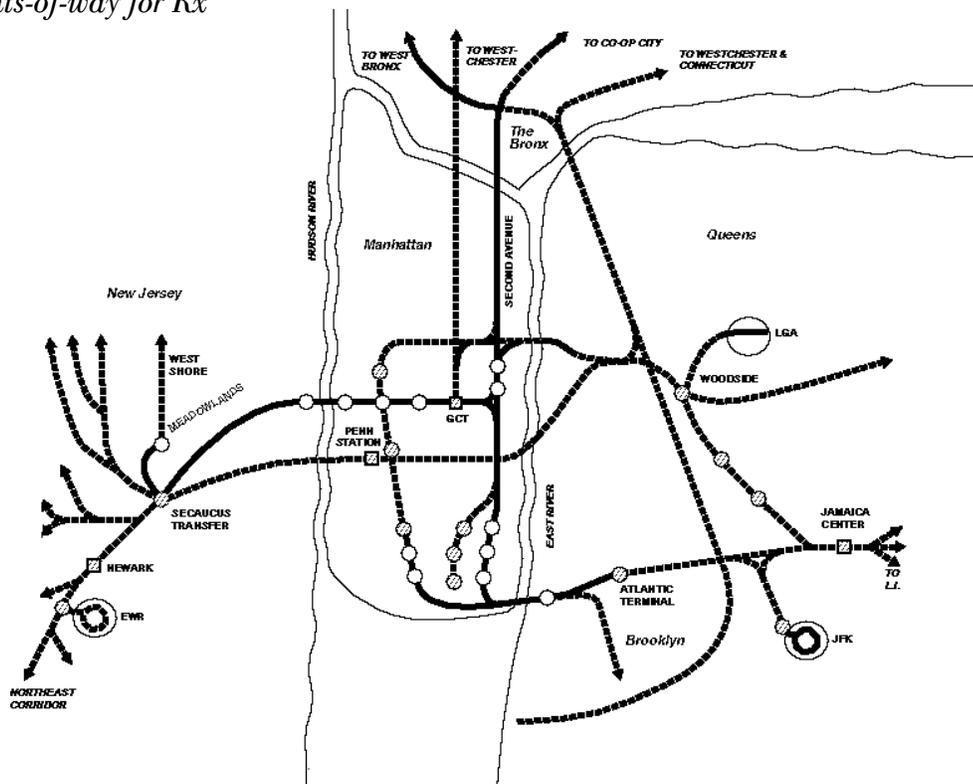
Phase IV: Extension of Downtown Rx and Midtown Rx across midtown to Secaucus Transfer and beyond.

Nyack would extend rail service to eastern Bergen and Rockland counties for the first time in forty years. The other Rx line could run westward along the NJ TRANSIT Main Line to Passaic and Paterson.

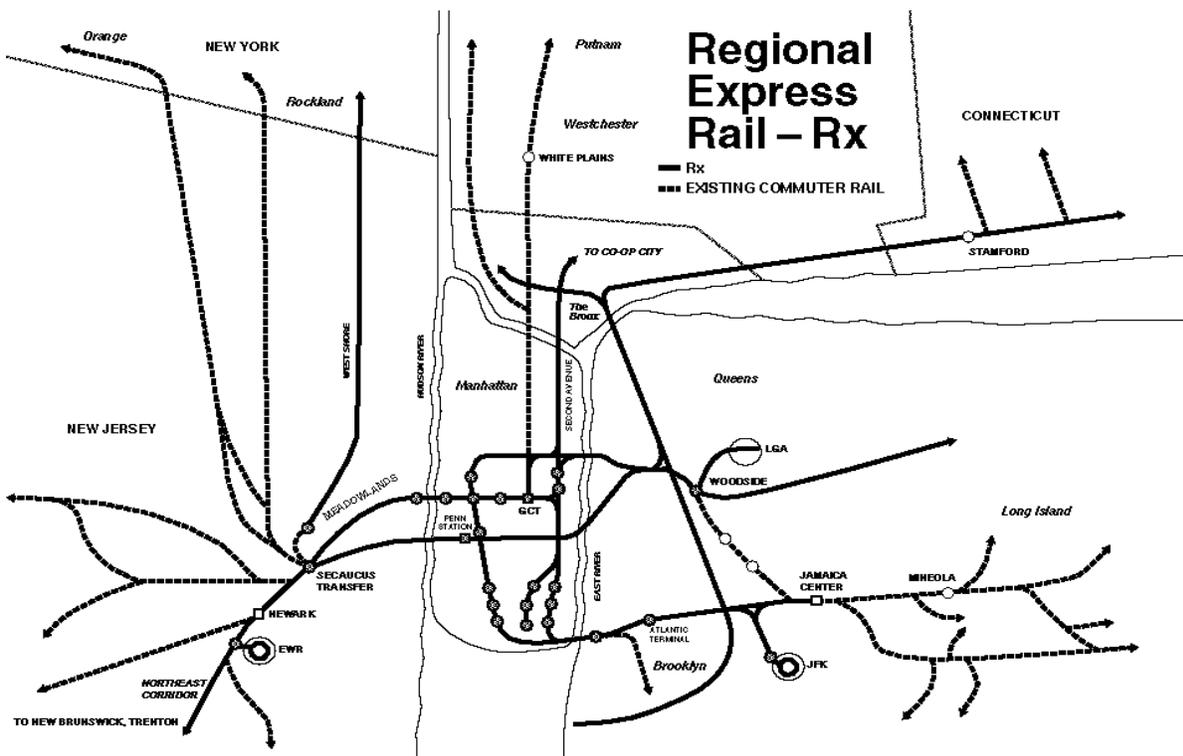
In this phase, the New Jersey riders would gain either direct or easy-transfer rail service to all of Manhattan's business and cultural districts, especially the hard to reach areas of East Midtown, as well as Downtown Brooklyn and the airports. Slow bus commutes from Bergen and Rockland counties would be a thing of the past with Rx services along the West

Twenty-three subway lines would be intersected at least once, and six others intersected twice. The TriBoro Rx could be constructed in stages, independently from the rest of the Rx system described above. The place to start is Brooklyn, relocating the 2.8-mile-long existing Canarsie elevated line into the LIRR Bay Ridge freight right-of-way, in conjunction with the construction of 1.7 miles of tunnel south of Church Avenue to replace the slow-moving McDonald F elevated line. Most of the TriBoro right-of-way is already available: the LIRR Bay Ridge freight line in

MAP 9: New rights-of-way for Rx



MAP 10: New RX routes and conventional transit



The TriBoro **Rx** would attract many outer borough transit riders, and by crossing existing lines would provide countless new intra- and inter-borough options not captured by the subway system. These trips—some 1.3 million work trips alone—are presently served by slow buses, or driving.

The high residential density that early subway lines made possible generates many other travel needs within and between the outer boroughs. TriBoro **Rx** would serve them. This line would create new subway access to much of southeastern Brooklyn, and eliminate antiquated elevated structures, fill underused express tracks on the IND F line, speed travel times from the Brighton Beach area and begin the circumferential TriBoro line.

Each of the many elements of **Rx** serves more than one purpose. For example, the Atlantic Branch of the LIRR once converted to **Rx** gives access to both Lower Manhattan for Long Islanders and to JFK Airport from Manhattan and Brooklyn. The Second Avenue line creates access to Lower Manhattan for Metro North riders, to the East Side for Queens residents, and frees up the congested Lexington Avenue subway for the Upper East Side and Bronxites. The full **Rx** system is depicted in Maps 9 and 10. In Map 9 segments of the system that would consist of wholly new rights-of-way is shown. The portions of the system that would operate either with new **Rx** vehicles or under new institutional arrangements are shown separately in Map 10.

One way of demonstrating the value of **Rx** is to determine the key regional markets that will be significantly better served by it. We have done this by selecting 14 key centers of activity in the region. For each of these we have determined how well **Rx** improves transit service from 28 places throughout the region. The answers shown in Figure 4 are dramatic. Eighty-four percent of the 392 market pairs represented in the table would receive improved transit service with **Rx**, with the vast majority of those receiving substantial improvements to the service now offered. Only one market in six would not be directly benefited by **Rx**, and many of those already have excellent transit service.

Paying for Rx

RPA's best estimate of the capital cost of **Rx** is \$21 billion, spent over 20 years. This figure is in addition to current transit needs, and **Rx** funding should not starve the existing system. **Rx** funding could be generated from many places. It could be raised by a charge of just 2 cents on each mile traveled by motor vehicle in the region, or a payroll tax of only one-half of one percent (Paris' payroll tax pays for their regional rail network). Funding could also come from "value-capture" taxes, which redirect some of the windfall gains accruing to property owners from **Rx**'s construction.

The private sector can also help. RPA has proposed that the City of New York lease its four East River Bridges to a private operating firm, in exchange for

the design, construction, and maintenance of parallel transit routes. This proposal alone could generate more than five billion of the required funds, assure proper bridge maintenance, and enable the city to redirect precious transportation funds spent on these facilities to other worthy projects.

Complementary Transit Improvements

A series of transit improvements complements the **Rx** proposal. Redesigning the James A. Farley Post Office across from Penn Station for Amtrak, expedited under New York Senator Daniel P. Moynihan's leadership, is a significant complement to **Rx**. This would open up more space in Penn Station for the expanded commuter rail operations and services expected there, and once again establish a proper New York City gateway for intercity rail travel. Other complementary projects include light rail systems, some created by "re-inventing" existing, but underperforming commuter rail lines:

- New Jersey Hudson River Waterfront;
- Newark-Elizabeth Rail Link;
- Cross-Nassau Light Rail Link;
- Manhattan Midtown Light Rail Loop.

While we are creating the **Rx** network, we cannot ignore the need to repair and upgrade the transit system already in place, particularly investments that can provide a more reliable, secure and attractive service. These are listed in the Appendix and described more fully in *A Region at Risk*.

Building Consensus

The region's transportation agencies are already hard at work examining a range of alternatives within their jurisdictions. RPA applauds their work and wants to see it continue. Choosing new projects is never easy, particularly when dozens of other choices are simultaneously being made in so many separate agencies. Ideally, each alternative should be fully informed about all the other alternatives under examination, and flow from a regional vision of the future region-wide rail transit network. Then, we can work together to achieve it.

Over the last year RPA has been closely monitoring the studies that are being done by the region's transportation agencies, listed in Appendix B. Unfortunately, it is unclear whether the studies are taking advantage of the synergies to be gained by establishing projects that meet multiple objectives that cross jurisdictional boundaries. Those conducting the studies attempt to find the best answer to meeting their own objectives, and, in so doing, they may prevent the best regional solution from emerging, for example:

- More effective use of the upper level of the 63rd Street tunnel is not an objective of the LIRR *East Side Access Study*, overlooking the potential value of running the Port Washington Line as an **Rx** down Second and Seventh avenues.
- Delivering Metro North riders to Lower Manhattan is beyond the scope of NYCT's *Manhattan East Side Access Study*.

FIGURE 4: HOW WELL DOES RX SERVE THE KEY REGIONAL

29 Sectors of Region

<i>Activity Center</i>	<i>Vast</i>	<i>Some</i>	<i>None</i>
<i>Lower</i>	21	7	0
<i>Midtown NE</i>	20	2	6
<i>Midtown NW</i>	15	8	5
<i>Midtown SE</i>	22	2	4
<i>Midtown SW</i>	18	5	5
Downtown Brooklyn	18	7	3
Long Island City	12	7	9
Jamaica	15	5	8
New Jersey Waterfront	17	5	6
Hackensack Meadowlands	21	5	2
Newark	15	6	7
Stamford, Connecticut	20	3	5
JFK Airport	21	6	1
LaGuardia Airport	21	6	1
Newark Airport	13	9	6
Total Markets	269	83	68
<i>Percent of Total</i>	<i>64</i>	<i>20</i>	<i>16</i>

- NYCT's *Study* does not consider the value of bringing riders from Long Island to Lower Manhattan, or links to the *Manhattan East Side Access Study* alternatives.
- *Access to the region's Core Study* geographic scope prevents consideration of branching a new crosstown route to Lower Manhattan. And none of these studies considers the value of their alternatives to provide improved

rail access to the two airports in Queens.

There are undoubtedly many ways of achieving at least some of these objectives for the regional rail network. RPA has concentrated on developing one plan, Regional Express Rail, or **Rx**, which we believe can accomplish them all. Because the **Rx** system provides so many benefits to so many parties, it is possible to build a consensus around the full plan. However, the constituents that would gain

must be able to agree to support the elements of the **Rx** program that do not directly benefit them, understanding that they will receive mutual support from others. In other words, the region has to behave like a region. There is a range of interests who will benefit—employers and employees, realtors, developers, unions. Benefits flow to riders of the subway within New York City, suburban commuter rail passengers, and airport passengers and employees. All three suburban sectors—Long Island, New Jersey and the Hudson Valley and Connecticut—reap significant gains, as do each of the

Because the Rx system provides so many benefits to so many parties, it is possible to build a consensus around the full plan.

boroughs of New York City. **Rx** further works to strengthen the region's centers, most notably downtown Brooklyn, Long Island City, Jamaica, the Hudson River Waterfront and Newark. And **Rx** helps get cars and trucks off the road, easing road congestion for those unable to take advantage of the regional rail network.

Barriers to Regional Transit Solutions

Some may see it as the wrong time to be making proposals to expand the transit network when the region is struggling to piece together enough funds to

merely keep the existing system from falling apart. But we disagree. It is time for this region to plan for its revival, not accept the weaknesses of the existing rail network. It is time to eliminate intolerable congestion, unwieldy transfers among disconnected systems, and provide the quality of transit service to give more of the region's residents choices superior to the motor vehicle. This will enable us to compete effectively with other metropolitan areas domestic and overseas, rather than assume the inevitability of a declining share of the national and world economy.

The greatest barrier to achieving the vision that is **Rx**, is self-perpetuating pessimism. Many believe that we cannot afford to spend the kind of money required to put **Rx** in place. But if we do not make this investment, then we can guarantee that we will never again have the resources to even consider it, since our ability to compete globally will decline and our economic base will erode.

The barriers to fulfilling this regional transit vision are institutional and financial, not physical.

- Conflicts exist even within the same transit organization. Metro North, for instance, is wary of its sister agency, the LIRR, operating trains into Grand Central Terminal. And, LIRR is concerned about Metro North trains operating into Penn Station.
- Each agency continues to make its choices based on its own mandate, understandable in the absence of coordinated planning, but unacceptable for the region. Suboptimal choices

are inevitable in such an environment.

- There is no universally agreed to set of evaluation criteria proceeding from a shared value system to apply to alternatives. How, for example, do we weigh capital costs against operating deficits? How much are we willing to trade off in community impacts to gain some transportation benefits? How much are we willing to spend to remove motor vehicles from the roads to make our cities more livable or reduce air pollution? How much would we invest to give a transit rider a seat during the peak period?
- Overall decision-making responsibility is scattered among many entities and across many jurisdictions. Federal legislation theoretically puts this process in the hands of the Metropolitan Planning Organizations (MPOs) in each metropolitan area, but there are separate MPOs in each state of the region. Moreover, even within each state, the MPOs do not now have clear control over the process of prioritizing projects as intended by the legislation. A decision-making bridge across jurisdictions is needed.
- Regional funds are not apparent. Federal funding for capital projects is directly assigned to each transit operator, making it difficult for individual agencies to give up funding for projects beneficial to their operations and constituencies for projects whose benefits will be shared with

other political jurisdictions. Current funding mechanisms must be changed to accommodate the regional funding of worthy regional projects.

- The public in each state does not now see the entire regional transit system as “their own.” The system needs to present itself as a seamless whole to a public whose fundamental interest is in moving around freely. One way of doing that is through a universal fare system, one that integrates tokens, Metrocards and paper tickets, and highway, bridge and tunnel tolls.

Next Steps for RPA and the Region

Over the next number of months Regional Plan Association will further refine this **Rx** proposal. The physical features of the plan will be defined more fully. Route alignments and station locations will be investigated, enabling more accurate estimates of capital costs. Financial aspects will also be scrutinized. Estimates will be made of operating costs based

on the operational analysis and on labor requirements. Revenue will be estimated based on ridership and the proposed fare structures. RPA will also look for creative financing and operational structures that could create public-private partnerships to speed **Rx** implementation and operations. Fare collection and fare system alternatives will also be explored, with the criteria of simplicity, fairness and ease and cost of collection.

RPA will refine estimates of potential ridership and the benefits to those riders in time saved and transfers avoided that the **Rx** projects will provide. Estimates will also be made of the volume of motor vehicles that **Rx** will remove from the road system. These ridership estimates will be matched to the operating capabilities of the proposed services to accommodate the demand in peak periods, accounting for required frequencies, merging conflicts, vehicle and train capacities, and comfort standards. Special attention will be paid to those

line segments where **Rx** and rapid transit will operate jointly. We will also determine the maintenance and storage yard requirements for rail rolling stock.

Finally, and most importantly, RPA will continue to advocate these projects by bringing them to the region’s decision-makers: corporate leaders, real estate development interests, politicians, transportation experts, and civic and environmental organizations. We must work to bring down the barriers that prevent the consideration of **Rx**—much less their implementation.

This is an ambitious plan that targets new investments—and reinvestments—necessary for sustained growth and continued prosperity in an uncertain future. It calls for radical changes in the status quo and bold initiatives on the part of citizens, business, and government. Strong regional leadership—both public and private—is needed to bring about **Rx** and enter the next millennium strategically poised for another century of growth and prosperity.

A Region At Risk: The Third regional Plan for the New York-New Jersey-Connecticut Metropolitan Region is available through the publisher, *Island Press*, at 800-828-1302.

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Appendix A: Complementary Transit Improvements

Stations: Improved lighting and information systems; better visibility in stations; less steep stairways; more stairway and escalator access; reconstruct high priority stations; heated station buildings (commuter rail); high level platforms (commuter rail); expanded parking (where access on foot is impractical).

Transit Equipment: Upgraded signal systems; upgraded rail beds; continuously welded rails (commuter rail); universal cab signaling (commuter rail).

Transit Operations: More skip-stop and express service; express buses where rail is unfeasible; more local buses for local service and to feed rail; regional fare card

Specific Complementary Projects and Rail Services:

- Sunnyside Yard Station in Long Island City
- New Jersey Hudson River Waterfront
- Newark-Elizabeth Rail Link
- Cross-Nassau Light Rail Link
- Manhattan Midtown Light Rail Loop
- Shuttle from JFK Airport to Jamaica
- Shuttle from LGA Airport to Woodside
- Stamford Rail Station

Appendix B: Major Transit Studies

Manhattan East Side Access - NYC Transit

To examine options for north/south transit on the East Side of Manhattan.

Completion July 1997

East River Crossing - NYC Transit

To examine options for East River transit crossings between Brooklyn and Lower Manhattan to reduce reliance on Manhattan and Williamsburg bridges.

Completion 1996

Access to the region's Core - Joint MTA/PA/NJT

To examine options in the East/West Midtown corridor between New Jersey and Queens. In addition to RPA's Rx east-west transit route to New Jersey, the ARC study is analyzing the alternatives including a commuter rail connection between Grand Central Terminal and Penn Station, and an east-west commuter rail line between New Jersey and Queens through Midtown.

Completion June 1997

LIRR East Side Access - LIRR

To examine options for access for the LIRR to East Midtown.

Completion July 1997

Lower Manhattan Transportation Access Economic Benefits Study - Empire State Development Corporation

To examine the economic impacts of improved Lower Manhattan transit access

Completion 1996