

Hofstra University, Department of Global Studies & Geography, Honors Essay

Public Transit in New York

The Past and Future of the Metropolitan Transportation Authority



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Introduction: Public Transportation in the United States

The Rise of the Suburb and the Decline of the Inner City

From the 1950s to the 1970s, race riots, deindustrialization, the rise of consumerism, and the rise of the automobile contributed to the decline of America's cities and the rise of the suburbs. For instance, downtown Hempstead lost its major department store and saw a decline in population and a rise in crime. Nearby in Levittown, houses were mass produced for market consumption at a time when demand for detached suburban style houses skyrocketed. The pressure for housing not only came from a housing shortage for returning veterans but from FHA policies which subsidized mortgages for new houses. The policy made it significantly cheaper in some cases to buy a new home than to either rent an apartment or refurbish an existing home. To serve these low density areas, malls, just like the Roosevelt Field Mall in Garden City, were erected in suburban places across the country. Roosevelt Field gladly made up for Hempstead's diminishing retailing in its downtown. Due to an increase in the number of malls, many cities saw areas just outside of their downtown decline into severe and in some cases complete abandonment.

In the late 1960s acute racial tensions in central cities simmered to a boiling point. It only took six days from July 12 to July 17, 1967, in Newark, New Jersey for riots in the city to leave 26 people dead and \$10 million in damages. While a specific incident of police brutality ignited the riots, it was the substandard housing; high infant mortality rates, high unemployment, inferior schools, and corrupt municipal governments that mostly angered the African American community. A militant and minority of African Americans, who in some cases were intoxicated, looted and burned sections of cities.

The Los Angeles Watts Riot of August 1965 resulted in 1,000 injuries and \$200 million worth of property damage, taking place over 46.5 sq miles with 35,000 rioters, and took 16,000 national guardsmen to quell.¹ Riots in the 1960s took place in large cities such as New York, Newark, Detroit, and Cleveland. The violence of these insurrections led to the reinforcement of informal racial segregation in urbanized areas. In most cases this meant whites moved away from inner city neighborhoods, which increased dependence on the automobile. Throughout the 1960s and 1970s people and jobs moved to the suburbs at a high rate.² Racial redlining in cities meant that residents who lived in some ethnic or low income neighborhoods would be denied jobs, loans, and other opportunities. Because transit operates most efficiently in dense areas, the private automobile took the upper hand in the modal split in suburbs across America. Through these conditions transit systems lost passengers; the modal split between transit and the automobile began to heavily show evidence that the latter would be the primary mode of transportation in the United States.

¹ "Fire This Time: the Watts Uprising and the 1960s" by Gerald Horne

² <http://www.thirteen.org/newark/history3.html>

The U.S. Census confirms this postulation; the percentage of Americans using public transportation to travel to work fell from 12.6% in 1960 to 4.7% in 2000. The percentage of trips made by walking also fell from 10.3% to 2.9% in the same period, indicating that the 1960s was a turning point in terms of how Americans journeyed to work. As of 2006 approximately 74% of employment in the New York Metropolitan Area was located outside of Manhattan, despite of it being second largest business district in the developed world.³ Ridership statistics show that on all Queens-Nassau routes on MTA Long Island Bus, the greatest flow of people are residents of Queens commuting to jobs in Nassau County.⁴ This dynamic is totally different on the Long Island Rail Road; its dominant traffic consists of people commuting to the central business district of Manhattan from suburban villages in Long Island, but this dynamic still speaks of the importance of suburbia in America. Cities lost their population while suburbs continued to thrive; in fact, the United States as a whole continued to experience a positive population growth rate throughout the 1950s, 1960s, and 1970s.

Heartland America Declines

Cities of the “Rust Belt” were hit especially hard during these times; they saw a decline in industry and population, particularly the steel industry. The unreasonable demands of labor unions hurt Detroit’s economy, while race riots affected Detroit the most of any city in the United States. The unrest in Detroit resulted in an exodus of population. Up to 2007, American auto makers were making \$20 more an hour than their overseas rivals. Car manufacturers and industry analysts think that in view of the global wage arbitrage the union’s unwillingness to renegotiate wages in order to improve competitiveness has contributed to Detroit’s fall. Detroit’s car industry almost grinded to a halt before the U.S. government bailed out both Chrysler and General Motors from bankruptcy in 2009. In exchange for economic cooperation the United Autoworkers Union gained a 17.5% stake in GM and a 55% stake in Chrysler, giving the union plenty of reason to cooperate with management.⁵ Yet the damage has already been done, starting in the 1940s when auto companies looked to build more efficient plants, they looked for both cheap land and cheap labor, often neither of which were available in Detroit. As a result many blue collar manufacturing jobs have left Detroit for locations in the South. Buffalo, Cleveland, and Detroit lost between 20 and 18% of their population between 1960 and 1980⁶. The combination of the convenience of driving in a suburban environment and the auto industry’s presence in Detroit led to a sharp decline in bus ridership. Detroit’s ridership has shriveled dramatically; its transit system can now claim fewer riders than some smaller cities in America such as Boston.

³ <http://www.newgeography.com/content/001721-new-york-commuting-profile-from-monocentrism-edgeless-city>

⁴ Automatic Fare Collection Data, MTA Long Island Bus

⁵ <http://www.mg.co.za/article/2010-01-26-ron-gettelfinger-the-man-who-conquered-detroit>

⁶ <http://www.demographia.com/db-city1970sloss.htm>

Cities and States across the Nation Turn to Public Transportation for Mobility

Municipalities and state governments throughout the 1960s began to strategize; many turned to the concept of creating public authorities to operate the city's public transit network because most private companies were unwilling to continue providing public transportation or went bankrupt. A public authority is a type of public-benefit corporation entrusted with the maintenance of public infrastructure; public authorities have broad powers, including the power to raise revenue and contract debt by issuing bonds. A transit system is defined as an "organization (public or private) providing local or regional multi-occupancy-vehicle passenger service" which after negotiation with its private operator has been handed over to a public authority.⁷

Public Transportation and Urban Decay

As transit systems across the nation moved into public ownership, investments in public transit systems increased. Urban dwellers, in the face of rioters, vandalism, and rising crime rates became increasingly apprehensive of riding public transit. To address concerns of safety, states created laws designed to protect employees, riders, and property from crimes. With cooperation from law enforcement, in the 1980s transit authorities successfully fought back against vandalism on their buses and trains. David Gunn, the President of New York City Transit from 1984-1990, implemented a policy whereby subway cars vandalized by graffiti artists would be removed from service immediately. Gunn instructed New York City Transit maintainer crews to paint over the graffiti before returning the car to passenger service, thereby discouraging graffiti artists because neither they nor the public would see their trademarks rolling around the system for very long. New car orders made from Gunn's time onward were built with graffiti resistant materials. In addition to curtailing vandalism, transit providers were able to commit to regularly replacing outdated rail cars and buses and properly maintaining their existing stock. States generally provided a 50% match to passenger revenue to cover operating expenses. When vehicles past their useful lifespan needed replacement, the federal government funded 50 to 80% of the cost of providing new vehicles. With vehicles being regularly replaced and vandalized vehicles being quickly cleaned, public transportation took on a fresh new look. Middle-class passengers lost in the 1970s began to return, at least in New York. Since 1975 MTA ridership has increased by 22% representing an increase in 500 million riders.^{8 9} Transit systems were able to break even during World War II, but the economic and social conditions within cities compromised this dynamic.¹⁰ However, with transit authorities in place, transit ridership in some cities began to increase or at least decelerate in its decline.

⁷ Transport Geography Rodrigue p.274

⁸ 1975 Metropolitan Transportation Authority Annual Report

⁹ 2006 Metropolitan Transportation Authority Annual Report

¹⁰ <http://reason.org/files/71e730dda361a6c11edc32a805928ecb.pdf>

New York's Metropolitan Transportation Authority (MTA) transports the most trips per capita of any transit system in the United States. It carries 140 more people per capita than the next largest transit property, the Los Angeles transit system. In 2006 New York's metropolitan area accrued 3.5 billion transit trips, which makes New York the primate public transportation user in the United States.¹¹ Because the MTA is the most significant public transportation authority in the nation, this paper will look at how the MTA is organized and operates the transport assets under its jurisdiction.

I will argue that through improvements in infrastructure, revenue, vehicle stock, reliability, and scheduled service coalescing with increasing motor vehicle traffic congestion and fuel prices, the MTA was able increase total use of transportation in the New York metropolitan area as well as help transit gain an even greater share of the modal split in New York county. As a counterpoint, although the MTA and economic conditions provided impetus for transit use, the MTA has been slow to adopt new innovations. Elsewhere in the industry, systems have expanded or technology has allowed passengers to access real time information about bus locations. Unfortunately, the MTA's history is a legacy of stagnancy in terms of infrastructural and technological improvements. This is in part due to political and bureaucratic inertia; in the United States a transit project commonly has its funding diverted because the project has overrun its budget, lost favor through changes in the political landscape, or the region's road maintenance coffers have emptied.¹² This legacy of road users competing with transit users for funding is an active issue. For example, the Access to the Region's Core project (ARC) promised to connect New York and New Jersey with a vital rail tunnel providing direct access to New York to commuters in Northern New Jersey. As a result of the project "commuting times would drop on average by 15 to 30 minutes, which mean more family/leisure time. And the tunnel was critical for Homeland Security purposes."¹³ Despite its importance cited by many transportation experts, New Jersey Governor Christie scrapped the plan. He reasoned "the ARC project is not financially viable and is expected to dramatically exceed its current budget." As of October 18, 2010, the project is cancelled pending a two week reprieve.¹⁴ The legacy of cost overruns in public transit was therefore a fundamental factor behind the failure to make a new public transit tunnel between New York and New Jersey a reality.

I will show through a comparison between the early MTA and contemporary subway system that the MTA's route mileage cuts have outweighed additions. Its inability to expand route mileage contributes to the stigma that the MTA's infrastructure is in a state of paralysis. On a positive note, improvements to train and bus frequency have been significant, helping herald a

¹¹ In Appendix A you will find ridership data represented in graphs and tables.

¹² Regional Plan Association "Spotlight on the Region", Alex Marshall. October 5, 2010.

¹³ <http://transportationnation.org/> "The ARC of the Covenant: ARC Tunnel Update" Posted on October 14, 2010

¹⁴ <http://transportationnation.org/> "The ARC of the Covenant: ARC Tunnel Update" Posted on October 14, 2010

growth in ridership. Furthermore, though the MTA has taken long to do so, it is building a better reputation through both its recently completed projects such as the South Ferry station and East Side Bus Rapid Transit as well as through several active improvement projects which seem likely to be completed.

Using information from publicly available information, such as Annual Reports, the paper will cite performance indicators such as ridership, budget allocation, and maintenance. These indicators will help benchmark the MTA's performance from its inception to contemporary operations; these indicators are typical ways of measuring reliability, customer satisfaction, profitability, and accountability. Other references will include MTA and Federal Transit Administration (FTA) documents, transportation authority websites, scholarly articles, and books written on transportation. Through press releases and best practices reports, the paper will compare the MTA's innovations vis-à-vis other transit agencies. A map of service expansion will be provided to give the reader an idea of how the system has developed as well as the extent of its service area. Other graphic techniques will include charts and data sets, located in the appendices.

New York's MTA and Its Subsidiaries

MTA's Inception: The original players

In 1968 the New York State Legislature created the MTA to assume control of the Triborough Bridge and Tunnel Authority (TBTA), the Long Island Rail Road, and the New York City Transit Authority (NYCTA). Robert Moses, highway czar who formerly ran the Triborough Bridge and Tunnel Authority, allowed toll revenue to be directed to the TBTA and its projects only. New York State set up a new dynamic in the TBTA's charter after the MTA took over allowing toll revenue to fund mass transit. This system remains and the MTA continues to divert toll revenues into its public transit network.

In trying to create a friendlier MTA, the agency has created "doing business as" (dba) names for its subsidiaries. In the 1990s the MTA gave each agency a new dba in order to drop the imposing "Authority" connected to agency names. The Triborough Bridges and Tunnel Authority operates under the doing dba name of MTA Bridges and Tunnels.

The Long Island Rail Road (LIRR) is the commuter railroad serving Long Island. The LIRR is the only commuter passenger railroad to operate a 24-hour service; it's also the oldest railroad still operating under both its original name and charter. The Pennsylvania Railroad owned the majority of stock in the LIRR. The PRR heavily subsidized the LIRR, but when the railroad industry fell onto hard times, the LIRR found itself without a supporting owner in 1949. New York State subsequently stepped in to subsidize. In 1966 New York State purchased the LIRR from the Pennsylvania Railroad and handed responsibility for operating commuter rail service on Long Island to the MTA. This move meant that the MTA could provide significant

modernization to the LIRR, eventually resulting in its status as the busiest commuter railroad in the United States; the LIRR carried 82 million passengers in 2006.¹⁵

The Transit Authority

MTA New York City Transit runs the biggest bus and subway operation in the entire nation. It oversees its paratransit service, Access-A-Ride, but does not operate it directly. What it does operate directly is quite impressive. In 2006 the NYCTA carried 2.24 billion passengers.¹⁶ Their operation covers all five of New York City's boroughs, as well running services which reach into New Jersey and Nassau County. New York's subway system was built during the early 1900s, and was operated by three separate companies. The Interborough Rapid Transit (IRT) subway opened for business in 1904.¹⁷ Brooklyn-Manhattan Transit (BMT) and the Independent Subway (IND) were built mostly in the 1920s; extensions to existing IRT lines were also made during this time under the funding of the city. However these tunnels were built at a larger width than the original IRT tunnels. As a result, the city opted to order IND and BMT subway lines cars too wide to operate on the original IRT lines. As a result of the two different types of tunnel widths, to this day the NYCTA must procure subway cars at two different widths for its former IRT lines, under the guise of its A-division, and the BMT and IND lines, operated under the guise of the B-division.¹⁸

In 1940 the private owners of New York's subway system went bankrupt; the system went into receivership and the city took over operations. In 1953 the Transit Authority (TA) was created; the TA would set fares and policies. Over time the TA also acquired bus companies and ran bus service throughout the city. In 2006 its bus ridership reached 101.5 million passengers.¹⁹ Finally, in 1968 the MTA merged the TA into its corporate structure. The NYCTA has been a trendsetter in the MTA. It is the first and as of now the only agency in New York State with a Bus Rapid Transit line. Although every public transit system in the United States operates at a deficit, the NYCTA is the closest transit authority in the nation to breaking even; it recovers 67% of its expenditures via revenue.²⁰ The NYCTA's dba name is New York City Transit (NYCT).²¹

Empire Building: Staten Island Railway & MSBA join the team

The Baltimore & Ohio Railroad (B&O) operated their Staten Island Main Line until 1971, when the MTA created the Staten Island Rapid Transit Operating Authority (SIRTOA) to take over operation of heavy rail passenger services on Staten Island.²¹ Under the B&O, both

¹⁵ 2006 Metropolitan Transportation Authority Annual Report

¹⁶ 2006 Metropolitan Transportation Authority Annual Report

¹⁷ <http://www.nycsubway.org/faq/briefhist.html>

¹⁸ <http://www.mta.info/capconstr/sas/documents/sdeis/chapter5b.pdf>

¹⁹ 2006 Metropolitan Transportation Authority Annual Report

²⁰ http://www.washingtonpost.com/wp-dyn/articles/A30138-2004Dec27_2.html

²¹ <http://www.mta.info/nyct/facts/ffhist.htm>

freight and passenger service suffered causing the North and South Shore branches to be essentially eradicated. The only portion of the North Shore branch still in existence is the now refurbished rail bridge link to New Jersey, connecting Staten Island to the national railroad system. Fortunately the Main Line survived and was taken over by the MTA; today the MTA provides 24 hour service with peak direction express service and access to the Staten Island Ferry, a service operated by the NYC DOT. SIRTOA has since dropped the Authority from its “dba” name and now does business as the MTA Staten Island Railway. In 2006 SIRTOA carried 3.8 million passengers.²²

In 1973, the MTA subsequently assumed control of eleven private operators in Nassau County, forming the Metropolitan Suburban Bus Authority (MSBA), now doing business under MTA Long Island Bus. MSBA originated an agreement between Nassau County and the MTA; Nassau County agreed to pay the MTA \$20 million a year in order to operate their county’s bus service. Since MSBA’s inception, schedules have been improved on many routes and limited stop service has been introduced on its N6 service.²³ In 2006 MSBA carried 32,512,375 passengers.²⁴

Passenger Rail Sees an End in the Private Section: Metro North

The demise of passenger rail seemed imminent during the late 1960s. Rail car manufacturers such Pullman, famous for its luxurious sleeping and dining cars, went out of business. Penn Central, a failing conglomerate of private railroads, could no longer operate costly commuter rail services. In 1970 the U.S. Government passed the Rail Passenger Service Act to create Amtrak, the government’s passenger rail corporation, which assumed control of most intercity passenger rail services in the United States. To ensure the continuation of commuter rail services, the federal government passed the 1973 Railroad Reorganization Act which declared “commuter services which are essential shall be maintained” in the Northeast and Midwest areas of the United States.²⁵ In 1976, the United States government created Conrail, Consolidated Rail Corporation, to take control of both freight and commuter passenger services in major cities across the Northeast. Even with state subsidies Conrail did not want to take on the money-losing commuter lines.

The Federal Government once again acted in 1981. Congress passed the Northeast Rail Service Act of 1981, which established two primary goals regarding rail service. The first was to move all passenger service out of the hands of Conrail and into the hands of public authorities such as the MBTA, SEPTA, and the MTA Conrail. The other goal of this act was to steadily remove subsidy from the freight side of Conrail’s business; with this plan, the government would

²² 2006 Metropolitan Transportation Authority Annual Report

²³ <http://mta.info/libus/routes/n6/n6times.htm>

²⁴ http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2008/Transit%20Profiles_All%20Transit%20Agencies_Complete%20Set.pdf

²⁵ <http://uscode.house.gov/download/pls/45C20.txt>

turn the freight business into a profitable one. With the theories of Reaganomics in mind, the federal government thought it would be a good idea to first make the freight railroad business profitable in the United States at cost to itself. The federal government would then turn this profitable business over to the private sector. With these two goals in mind, Conrail would no longer become a burden on the back of the federal tax payer. In 1997 CSX and Norfolk Southern Railway assumed operations of nearly all of Conrail's freight business.²⁶ In 1983 the MTA assumed operation of the Conrail commuter rail lines operating into Westchester, Putnam, Dutchess, Fairfield, and Rockland counties, creating the Metro North Commuter Railroad (dba: Metro North Railroad). In 2006 Metro North carried 80 million passengers.²⁷

More Private Operators Bite the Dust: MTA Bus Company

New York State established MTA Bus Company in December 2004 to take over for seven private bus operators in New York City. The companies and routes were overseen by the New York City Department of Transportation. Mayor Bloomberg thought that consolidating these bus companies and collapsing them into the MTA would provide more reliable bus service and transparency. MTA Bus Company started the takeover process with Liberty Lines Express in January 2005, and finalized the takeover with Triboro Bus Corp on February 20, 2006.²⁸

By the end of the takeover MTA Bus Company had assumed the transit operations of seven private bus companies which operated local service in Queens and Brooklyn as well as express service from Manhattan to the Bronx, Brooklyn, and Queens. The trouble started when the financially independent bus companies could no longer sustain bus services solely on passenger revenue, and systematically began to threaten to discontinuation of all service. In 1985 the New York City Department of Transportation provided buses to these companies as well as operating funds.²⁹ Operating assistance fluctuated up to about \$150 million a year. After the MTA Bus takeover, due to the service and driver wage improvements as well as lease payments, subsidies for operation of these lines increased to over \$260 million a year.³⁰ The extra spending also addressed operational deficiencies. MTA Bus' service improvements and capital investments have helped to facilitate major gains in ridership. In addition to an increase in trips limited Stop service was introduced to busy lines to help cut commute times. Brand new Motor Coach Industry buses were introduced to inter-borough express bus transportation, improving the quality of the passenger's ride. These buses offered new amenities such as reclining seats, private air conditioning vents, and outlets for charging personal electronic devices. Advanced systems that decreased engine emissions significantly replaced older engines known as "two stroke", helping to contribute to better air quality. The passengers who were used to dirty and

²⁶ <http://uscode.house.gov/download/pls/45C20.txt>

²⁷ 2006 Metropolitan Transportation Authority Annual Report

²⁸ For before and after pictures of the MTA Bus Company takeover and a thorough timeline of each company's takeover please see Appendix B.

²⁹ Mark Wolodarsky, New York Bus Service transit historian

³⁰ <http://www.ibo.nyc.ny.us/newsfax/insidethebudget158.pdf>

uncomfortable twenty-year-old buses responded positively to these new buses because they could now ride in comfort on buses with clean air technology.³¹ MTA Bus Company's "dba" name is MTA Bus and in 2006 it carried 99 million passengers.³²

At this point nearly all transit operations in New York have been placed in the control of public authorities, and most of the few private companies that still exist operate with no public subsidy. New York Tours Inc. operates New York Airport Service which provides bus transportation between the central business district and both John F. Kennedy and LaGuardia Airports. New York Tours also operates Private Transportation which operates service between Boro Park and Williamsburg. New York Tours runs its operations efficiently and turns a profit without public subsidy. They buy used buses at a cost of \$6,000 - \$8,000 each as opposed to purchasing brand new buses which typically cost \$500,000. New York Tours also pays its operators lower salaries than the public sector. In addition it operates charter service which allows these companies to boost their profit margins and gives bus operators additional income. Money Tours also operates a similar outfit, transporting commuters from New York, NY, to Monsey, NY. Interestingly, both New York Tours Inc. and Monsey Tours are operated by Jewish business entrepreneurs and some fixed route services offered by both Monsey and Private Transportation specifically cater to the needs of the Jewish community. Other significant examples of private bus operations are either shuttle services, typically paid for by a local university, or those that involve interstate operations.

MTA's Departmental Structure

The MTA is a classic top down organization with a Fordist managerial structure. The Fordist structure starts with a single head and breaks down to the employees in a pyramid-like structure, with the most important and strategic decisions made at the top of the pyramid. The CEO of the MTA, currently Jay Walder, is responsible for all of the MTA's operations. He coordinates with MTA Headquarters and its board to decide on MTA-wide policy. From MTA Headquarters the corporate structure is broken down into the different agencies. Each agency has a president who reports to the MTA board, and vice presidents who report to the president. His or her vice presidents are in charge of the managers or directors who run the departments. The department heads may have interns, analysts and assistant managers reporting to them.³³

Operations Planning Department

MTA LI Bus Operations Planning Department plans and implements service changes by inputting them into Trapeze Scheduling Software, which allows the department to map routing using Trapeze's Geographic Information System (GIS), manipulate running time afforded to a trip in between nodes, and control how trips are coupled to each other in runs. Scheduling

³¹ For an example of an older bus blowing excessive emissions please see Appendix D.

³² 2006 Metropolitan Transportation Authority Annual Report

³³ Please See Appendix C for an Organization Chart of MTA Long Island Bus

produces data on peak bus requirements and operator requirements. The ridership data, and the identification of overloads and underused trips is compiled by the scheduling office at Long Island Bus; this data justifies service improvements and service cuts. During periods of LIRR track work the railroad may require bus shuttle service; Operations Planning at LIB coordinates report times for bus operators and if necessary builds schedules for all LIRR bus substitutions. In the case of service changes planning employees communicate with Nassau County and village officials to move bus stops signs and install new ones.

Even though the MTA finds itself creating effective policy, sometimes the best results are produced by breaking with an organization's standard operating procedure or guideline. For example, passengers can more easily memorize a transit route's timetable with consistent 15 minute headways than a route which alternates between a 14 minute headway and 16 minute headway. Smooth headways produce optimum ridership most of the time but what if a train arrives at an intermodal center two minutes past a bus' departure time? It's unlikely that the railroad will move the time of its train since track train service is less flexible because of its constriction to a set capacity of track. Does one break the even headway of a bus route running hourly service on a Sunday to make sure that passengers departing from the train make their bus connection? The scheduler may push the time back two to four minutes, but the train that may arrive late presents a potential problem. Should it be the bus operator's business to wait for railroad passengers to make the connection? Some routes exist to provide service around the neighborhood to and from a major railroad station. In these cases Long Island Bus instructs bus operators to wait for connecting trains.

Planners also apply for grant money to fund new services and capital projects which may help cut costs, increase passenger comfort, or attract new passengers. The Job Access and Reverse Commute (JARC) grant has been used successfully at Long Island Bus; the grant funds new services which provide access to entry level jobs or service in the reverse peak direction. Planners applying for this grant must sell a JARC initiative not only to his own Finance Department and agency president but also to the local Metropolitan Planning Organization (MPO) which is in charge of selecting worthy projects in its region. In order to make the agency eligible for federal funding, planners must compile data in order to report the demographics and job density as well as service levels in the area affected by the proposed JARC funded service improvement to the Federal Transit Administration.

Operations – Bus and Train Service Delivery

The Operations Department is responsible for delivering service to customers. It supervises bus operators and train operators. To this end, managers send dispatchers into the field to supervise bus operators and staff a Command Center which uses Automatic Vehicle Locators to keep track of bus locations. Until superintendents arrive at the scene of an incident, the Command Center globally calls the shots on what bus operators should do in the case of accidents and breakdowns. On the rail side, train dispatchers control signals and rail switches and

advise train operators and conductors what action to take in instances of disturbances, breakdowns, and derailments. Superintendents of Transportation administer discipline for offenses noted by dispatchers or the superintendents themselves. Depot Managers typically sentence an offending operator to a 70% reduction in pay, warnings, suspension, or termination.³⁴ In the case of a serious accident in which passengers are injured seriously or fatally, the National Transportation Safety Board is alerted and superintendents are mandated to report to the scene of the incident. Various other duties of Operations personnel include managing operator overtime and on time performance.

Superintendents of the Operations Department also talk about the challenge of “making service”, or “making the score”, transit jargon for making sure that there are both enough operators and enough buses to provide the service level customers see in timetables. In March 2010, new MTA CEO Jay Walder gave the directive to agency presidents to cut costs. Rather than hire new bus operators or allow bus operators to work overtime, some revenue trips simply were not run. This resulted in crush-loaded buses; some transit experts called it a true abomination. “If we didn't spend money buying two hundred and seventy luxury watches for retirees and we didn't spend money on overtime where it wasn't needed, we'd have the necessary money for the proper overtime to pay the necessary employees to provide the service promised.”³⁵ In a day and age when managers know the manpower and vehicle requirements, officials need to meet what their agency claims it will provide to customers. If the agency is unable to meet these demands ridership will surely slump. At a minimum, the MTA should inform customers up front that certain trips will not run. In the 1980s Detroit Department of Transportation ridership dropped significantly partially because customers no longer trusted posted schedules.

Prior to the Walder administration, Long Island Bus had considerably more autonomy and put providing service advertised to passengers at the forefront of their concerns. While dispatchers have found ways around Walder's directive to cut service by asking operators already on the road to work an extra few hours to cover operators that call out sick, there simply is no way to cover a shortfall of operators of this magnitude without authorization for operators to come in on their day off. On a day when snowfall or rainfall is overwhelming, passengers are willing to forgive lateness. When trips do not run on a regular day and passengers are stranded or stuck on an overloaded trip because a previous trip did not run, they sometimes do not come back and find another way of getting to work or wherever they need to go.

Maintenance Department

The Maintenance Department handles everything from replacing light bulbs to engine rebuilds. Track maintainers not only repair switches but they also run a subway track geometry car. This car shows a live feed of track to the maintainers and automatically diagnoses track

³⁴ Information gained from my experience as an Operations Intern

³⁵ Trevor Logan, transit consultant

issues. The track geometry car is used over the entire system; checks are done intermittently throughout the entire system which begins again immediately following its conclusion. The whole process could take up to a month. In addition to checking old rail, in some parts of the system concrete rail ties are being installed; the concrete ties allow trains to run smoother and at higher speeds. The signal maintainer crews do more than inspect and fix signals; they examine the substations which provide the signals with power and they inspect “tripper arms” for the ability to engage a train’s emergency brake if it has passed through a red signal. Vehicle maintenance jobs can include entire engine overhauls, re-flooring, repainting, car rebuilds, or SMS (scheduled maintenance systems). SMS means that vital parts such as brakes have a slated lifespan; even if a part is still functioning, for safety reasons the MTA will replace all parts during a SMS inspection that have lived past their pre-determined lifespan. MTA maintenance programs have increased the “Mean Distance Between Failure” (MDBF)³⁶ for subway cars from 23,136 miles in 1971, just after the MTA takeover, to over 178,085 miles in 2005³⁷.

Safety

The System Safety Department staff trains bus operators and train operators to handle revenue vehicles safely. The Safety Department’s goal is to minimize the chance of preventable accidents. Operators charged with causing preventable accidents must report to System Safety for retraining. Safety personnel are responsible for determining if a bus route alteration is safe for operation. New routings must be approved by system safety; if a turn is too tight, these personnel have the power to veto the new route.

Labor Relations

Labor Relations are responsible for mediating between unions and management. Generally Labor Relations people try to ease tension between management and the union employees; in cases of discipline being administered, the union employee can protest a decision; the first step on the appellate ladder is the Labor Relations department. Labor Relations also advise personnel on whether their actions abide by the union contracts. The private bus companies which the MTA took over had unique agreements with their employees. As a result, the Labor Relations personnel at MTA Bus must be aware of each different contract and ensure everything done by management and the union is legal within the bounds of the contract. Labor relations personnel are the main players when it comes time to renegotiate a union contract.

Strategic Finance

The Finance Department secures funding for projects and balances the budget through negotiations with county, state, and federal government. In 2003, the department successfully brokered federal government funding and local matches through the JARC grant program. JARC

³⁶ For graphical representation on the subway system’s Mean Distance Between Failure, please see Appendix D.

³⁷ Please See Appendix D

funds supported new services such as the N27 Sunday service, N43, and N8 Long Island bus routes.

Procurement

Procurement departments make purchases for a company. In the MTA environment it is more efficient to have a Procurement Department than to train managers in each department to deal with vendors and create competitive bids. For example, the Operations Planning department at Long Island Bus has a vendor print their reports rather than print the reports in house. The procurement department, in generating contracts, takes the specifications and wants from these departments and will put sizable contracts of \$4000 or greater out for competitive bidding, as mandated by MTA policy. Analysts and managers within procurement are responsible for the correctness and legality of paperwork regarding contracts with vendors; they also are responsible for finding the best match of effectiveness and efficiency offered by vendors who respond to a procurement department's Request For Proposal (RFP), which asks for vendors to bid for a contract. The Procurement Department knows its boundaries; it operates according MTA ethics and NY State Law while building cost effective contracts.

Revenue Collection

To ride urban public transportation in the United States passengers pay a pre-determined fare. Sometimes riders pay a fare per trip, and sometimes fares are determined by the length of the trip. In New York passengers access the subway and local bus system by swiping a fare media known as MetroCard; the \$2.25 flat fee allows for one transfer between bus and subway. Some systems have touch-less fare cards available where passengers can link a card to the debit or credit card account and pay their fare by simply placing the card in front of a sensor. These systems are in place in Chicago's Transit Authority and are being tested on New York City Transit Authority's system. On the MTA's system, passengers may purchase an unlimited travel pass for commuter rail only, or for the combination of bus and subway lines. These passes, if used often enough, provide a significant discount for riders, giving them incentive to commute using transit. These discounts boost ridership levels but lead to a decrease in revenue. Before the introduction of MetroCard in New York, passengers who paid for a fare on the subway would have to pay an additional fare to travel on Long Island Bus. Now however, if a rider uses a MetroCard to access the subway system, that card stores a transfer which may be used to access a Long Island Bus service without additional charge. The fare collected is split between the two transit systems, leading to lower revenues for Long Island Bus, despite an increase in ridership.

In some systems passengers may also pay for use of Park-N-Ride facilities as part of their fare package; Park-N-Ride facilities encourage suburban residents who work in the city to drive to a major suburban transportation hub, park their car, and ride transit into the central business district. Boston's commuter rail system, Massachusetts Bay Transit Authority (MBTA), charges fares based on the distance of a passenger's trip. Commuter rail systems peak tickets cost more than a ticket purchased for off-peak travel. At all other times passengers may access the entire

system at the same cost all 24 hours a day 7 days a week in contrast to airlines which charge based on real time demand management. For instance, if there are only a few seats left on a flight scheduled in a few weeks, the fare for the remaining seats will increase significantly to see who is willing to pay. As a result, people sitting on the same flight and even next to one-another may have paid significantly different fares.

Community Affairs

The Community Affairs Department aims to improve relations between the MTA and the public. As representatives of the MTA, the department often reaches out to college students by distributing brochures and designing bus advertisements which market bus transportation, which may for instance promote public transit as a way to go the mall, to the beach, or to school. As a way of capturing students who are looking at colleges, community affairs promotes public transit use by offering free MetroCards to prospective students of the City University of New York. The student has the potential to become a frequent MTA customer in the future, and in effect the MTA has marketed its transit service as a way to commute from home to school. Another duty of the Community Affairs Department comes via the schedules; their graphics person formats the way the schedule looks and applies the data produced and exported from the Operations Department. Interestingly, the graphics person at Long Island Bus does not have a predilection for transportation; in fact the schedule makers must proof the customer timetables which she produces. Ensuring that geographical outputs from graphics people are spatially accurate takes a whole lot of supervision, especially when despite receiving all the correct information schedules and system maps are sometimes still published with errors. The customer relations team also takes in complaints and relays them to the appropriate departments or sometimes fields the call themselves. Complaints and suggestions regarding bus service are then relayed to the appropriate department for further investigation.

Additionally, the department is the main arm for brokering meetings between MTA officials and politicians. If a councilman, representative, or senator, or in fact any politician would like to speak to planners or people on the technical side of service provision MTA policy states that a Community Affairs representative should be involved. Typically politicians either have suggestions for service improvements regarding their district or relay complaints that were directed from their constituency to the politician's office. The department is also responsible for outreaching to the community in the cases of a fare increase or service revision hearings. Once the department sets up a hearing it is also responsible for registering participants who would like to speak at the hearing.

Human Resources

The Human Resources (HR) department is in charge of the hiring process at the MTA. HR works with departments who are seeking to change the status of an existing employee or hire someone new to the agency. During the candidate selection process HR plays an especially key role; they often help the department seeking to hire draw up a test for the interview process and

create an effective job posting. During the driver hiring process, HR tests candidates on spatial orientation and their ability to read and analyze a map. To test a bus operator's sense of space and direction a Human Resources representative provides bus operator candidates with a map. The representative instructs the candidate to provide turn-by-turn directions of how to reach a destination by way of a commercial vehicle. Another question asks bus operators to describe the geographical direction the sun sets and rises. In addition to supervising the hiring process, HR keeps record of all agency employees. Retiring employees coordinate their departure with HR to ensure they receive all pay owed and the MTA receives all of its property in their employees' possession. Other departments are dependent on HR to receive information on new and retiring employees.

Employee Benefits

The Employee Benefits department provides MTA employees with information pertaining to available retirement packages, medical benefits, and associated benefits. They are effectively a branch of the Human Resources department dealing specifically with employee benefits. Benefits personnel also work with the Legal Counsel Department to determine if operators qualify and to what extent they will receive FMLA (Family Medical Leave Act) leave or workers compensation. The Benefits Department also administers employee MetroCards.

Payroll

The Payroll department handles paychecks and determines overtime based on union contracts. Each MTA agency makes separate union contacts with each union representing a diverse pool of employees. Some bus and train operators work "split shifts" also known as "swings" These shifts require an operator to report to work to provide service for the AM rush hour. The operator would then go off duty at around 9 or 10 AM and have a few hours off. The operator is then expected to report for the PM rush hour. Long Island Bus operators who work swing shifts and spend more than eight hours in their vehicle or eleven hours between the morning report time and the evening clear time are paid overtime. As a result of a specific stipulation within the contract the bus operators are entitled to the amount of pay which is higher. This condition varies throughout the industry and even within the MTA itself both because operators in different locations are represented by various unions and locals and because the union could be negotiating with a different agency or sub agency.

Engineering

The Engineering Department has several duties split among different types of engineers. Electrical engineers work with vendors on ordering propulsion systems for subway cars and create smart bus technology. Automatic Vehicle Locators and stop enunciators are maintained by the Engineering Technology department. Civil Engineers within Capital Program Management

endeavor to ensure that structures are sound and help with the construction of new projects, such as the Second Avenue Subway. The MTA also benefits from having fully qualified engineers on their staff when dealing with vendors. An MTA engineer can determine which of the vendor's ideas will be helpful and which ideas will be risky, determine if contracted vendors are giving a fair price for the proposed work, and establish realistic project completion dates.

Legal Counsel

The Legal Counsel goes to court for the MTA. If a bus operator was involved in an accident while on duty and a suit has been filed against the MTA claiming damages to personal property, namely that person's vehicle, the MTA needs to have a line of defense. The lawyers at the MTA try to discern between invalid and valid claims for compensation. Lawyers at the MTA are also effective lobbyists and law analysts.

Information Technology

An Information Technology (IT) Department controls many aspects of technology. At LI Bus some personnel maintain communication systems, others install computers and hardware, others write programs or macros, others maintain LIB's servers and their data flow, and others supervise software distribution. The IT department controls most of the technological aspects of Long Island Bus. To provide access to features in a program, employees must submit a technology request form. In the mid-90s the IT department struggled to keep mainframe technology rather than shift to a MS Windows environment, and in many cases these mainframe supporters won their battles. Each victory meant that a different program was going to interface with mainframe technology to export data. The IT department is perceived to be holding LI Bus from having programs that are easy to use for the end user in order to justify its large staff. The older generation of IT personnel was trained to operate technology in a mainframe environment. Rather than learn to work with a new environment; if enough mainframe technology remains at LI Bus, the IT department will need to hold onto mainframe experts and avoid training older workers with the Windows environment. As a result, in 2010, ten year old technology at Long Island Bus is interfacing with archaic technology and the amount of people with the skills to manipulate a mainframe environment is growing slimmer. Long established businesses are often uncertain about upgrading to new technology. The cost of training new employees and installing new software, uncertainty about new software's compatibility and reliability, and reluctance of employees to bring in new technology for fear of it making their expertise obsolete all present inertia to new software and technology implementation in a well established business.

Security

Security agents and property protection agents coordinate with local police departments to protect MTA property and safeguard passengers and employees. At Hempstead Transit Center, bus depots, and busy subway stations, security agents use CCTVs (Closed Circuit Televisions) to both monitor and record the actions of passengers. Police and security agents use

these cameras to catch fare evaders and deter people from committing crimes on MTA property. In some subway stations, High Entry Exit Turnstiles (HEETs) have been installed to collect fares while leaving that entrance when unattended by a station agent. In order to ensure the safety of Long Island Bus property and employees, an access card system was recently installed. This card system restricts employees to areas of authorized entry and prevents infiltration of security sensitive areas, such as the HR department and the parts stockroom. If a passenger loses property on a bus and the property is turned in, it's up to the Security agents to investigate the incident and determine how to get into contact with the rightful owner of the property.

Medical Service Unit

Operators of an MTA vehicle involved in a collision or a derailment are taken out of service and are instructed report to the Medical Office where a nurse administers tests to determine the sobriety of the vehicle operator. If the test is positive for alcohol or controlled substances, then the operator is suspended and either put into substance abuse rehabilitation or terminated. The Medical Services Unit does provide basic medical services, but its primary function is to perform fitness for duty tests and drug tests for new and offending employees.

The MTA's Report Card

Is the MTA Innovative or Stagnant?

In the 1980s the MTA and law enforcement were able to make the subway system both safer and more reliable which encouraged ridership growth at a time when there was a natural market for transit growth due to increasing levels of congestion and energy prices. In addition to reliability and safety efforts the MTA implemented electronic scheduling software and automated fare collection, freeing planners from labor intensive tasks. Planners can spend more time analyzing data as computer programs automatically store ridership information downloaded from fareboxes. With help from affordable and accessible data, planners look for trends as well as potential trip generators which might deserve new or improved transit service.

In addition to freeing up planners to do more research, the scheduling software helps produce both internal and external reports. Some reports give dispatchers information such as peak bus requirements during rush hour. Others are used for reporting mandated by the federal government. In December 2005 Google introduced a new mapping feature called Google Transit. It allows a person to enter in a starting address and a destination address. In response, if the Transit feature is selected, Google will give the web user automated directions from start to destination by using public transportation, if data is available. To facilitate this service for New Yorkers, the MTA exports data to Google Transit using its scheduling software; at Long Island Bus the scheduling program Trapeze exports the data whereas New York City Transit uses Hastus. Most importantly to both the transit authority and the web user, access to Google Transit's direction feature is free.

These new forays into the future encourage ridership growth just as the MTA's MetroCard, which introduced bus to subway transfers and the ability for transit users to purchase unlimited use fare cards. MetroCard not only introduced fares cheaper and free transfers, but also gave users a means to access other transit systems in the region who turned to MetroCard as an alternative fare media; Westchester's Bee-Line, PATH (Port Authority Trans Hudson), Roosevelt Island Operating Corporation, and the Port Authority's AirTrain all accept the MetroCard, with Bee-Line even accepting transfers from New York City Transit service to its buses. Ridership data shows that New Yorkers responded well to the new incentive to ride transit; ridership took off to such a great degree that previously lagging bus routes such as the M86 crosstown now required longer 60 foot articulated buses. The MetroCard's success story is apparent in the MTA's latest 2010 – 2014 budget plan:

“The proposed 2010-2014 Capital Program includes \$1.766 billion for investment in NYC Transit's bus fleet. This includes 1,041 standard buses (\$765 million), 674 articulated buses (\$620 million), and 375 express buses (\$279 million) for a total of 2,090 vehicles. These purchases include 118 articulated buses for four new Select Bus Service routes. A major factor driving proposed purchases is a high volume of vehicles now reaching the end of their useful life. These buses were purchased in the late 1990s due to increased ridership after MetroCard fare incentives were introduced.”³⁸

Since its introduction on June 1, 1993, however, the landscape has changed in fare media, and the MTA has not made sufficient efforts to renew its fare collection technology to keep up with the latest standards.

MetroCard is reported to bring in \$1.96 per fare due to heavy discounts offered to passengers through purchasing either significantly valued MetroCards or unlimited ride MetroCards, despite the MTA's base fare currently being set at \$2.25.³⁹ However due to processing fees and the cost of producing MetroCards and distributing them through costly and sensitive machinery often requiring maintenance the MTA makes even less revenue per fare. In addition to fiscal concerns, sometimes the cards jam fareboxes and customers are often left angered as either the card's barcode has worn away or a fare has been doubly deducted at a turnstile. To avoid this problem, an expiration date is assigned to each MetroCard. The fare cards are at this point over sixteen years old.

Other transportation authorities employ better systems for fare payment, for example using fare cards which use radio-frequency identification (RFID), a technology that uses communication via radio to identify an object. Some tags can be read from several meters away and beyond the line of sight of the reader. Transit systems have used this technology to revolutionize the way fares are collected from passengers; by simply waving a card in front of a

³⁸ http://www.mta.info/news/pdf/cap10/capital_program.pdf

³⁹ <http://blog.tstc.org/2010/09/13/statement-in-opposition-to-proposed-mta-fare-increases/>

reader a passenger can gain entry to the system. Across the globe transportation companies are allowing passengers to pay with contactless fare cards. The Chicago Transit Authority has had contactless fare card technology available for over four years, with the “Chicago Card”.⁴⁰ This has been implemented in Europe as well. London uses the “Oyster Card” which also allows contactless fare payment and RATP, the Paris transit system, uses a RFID system called Navigo.

Transit users are far less likely to discard contactless fare cards resulting in lower costs for the transit authority. The cards are durable and do not experience erosion during transactions; some transit systems like PATCO and PATH charge a flat fee for purchasing these cards. As a result, serious transit users are the ones who make the investment in the card. The nominal fee of \$5 at PATCO and PATH gives users access to an account that can automatically link their checking account to the transit card, but gives the user the option of using vending machines.⁴¹ Value added onto the cards is protected. Additionally the fare cards on both systems allow for discounted purchases otherwise unavailable, and PATH’s SmartLink card allows for the purchase of day of unlimited rides on a fare card.⁴² The transit agency benefits from these users lost cards because the user pays to replace the card, unlike the MTA where lost cards are taken as a loss by the transit company. Auto replenishment means less users waiting at ticket machines and further justifies absence of ticket agents. The contactless fare payment means that the cards will not likely malfunction and it also speeds up the users’ trips significantly.

Through a partnership between the MTA, Citibank, and MasterCard Paypass was introduced on January 30, 2006. Paypass allowed contactless fare payment and automated deduction from a Citibank checking account, but only on select 6 train stations in Manhattan and one in the Bronx and recently a few bus lines thanks to Walder’s administration. The pilot program requires that users have a Citibank checking account; between the limited places accepting payment via Paypass and the checking account requirement usage will naturally underperform and the majority of subway users will continue not to benefit from the Paypass. The MTA has yet to fully commit to this technology and as a result lags behind the forefront of fare card technology.

The MTA is a testing site for new transit technology. As of the summer of 2009 the MTA had the largest number of hybrid vehicles in the “world”. “In the summer of 2009, NYC Transit had 855 hybrid buses, and MTA Bus Company had 316, for a total of 1,171.”⁴³ At Long Island Bus, compressed natural gas is the only fuel source used for its fleet. At its Mitchel Field depot, the MTA installed new batteries for its fueling station. It stores energy during off peak hours of electricity use during overnight hours, which allows the MTA to fuel its buses during the day at off peak rates, meaning that fuelers can refuel buses whenever convenient and buses do not have

⁴⁰ <http://www.chicago-card.com/cc/>

⁴¹ <http://www.ridepatco.org/schedules/freedom.html>

⁴² http://www.pathsmartlinkcard.com/pa_media/SmartLinkBrochure_126.pdf

⁴³ <http://www.mta.info/nyct/facts/ffenvironment.htm>

to go around with full tanks saving on weight which creates fuel efficiency.⁴⁴ The installation of the high tech compressed natural gas fueling station at Mitchel Field depot was a landmark achievement, New York State and the federal government contributed large sums of money. Despite the MTA's willingness to test technology; it seems as if some of their tests have been proven to either become failures or to become obsolete. The MTA's slow reactive nature does not stop at fare cards or fueling systems. The MTA also lags in providing capital route improvements. This leaves markets for transportation with unmet demands and untapped into potential for both transit oriented development and ridership growth.

The History of Infrastructure at New York City Transit

In the 1940s, the Lexington Avenue subway was already overloaded, but when the city cut the Second and Third Avenue Elevated lines in Manhattan on May 5, 1955, the situation went from bad to unbearable. In 1973 the MTA cut the remainder of the elevated line in the Bronx. The city in 1955 and, to a lesser extent, the MTA in 1973 reacted to political and real estate lobbyist pressures to help increase property values. Yet to this day, the Lexington Avenue Subway is desperately overloaded. The Second Avenue Subway was meant to respond to both concerns of property values on the East Side and to commutation necessities of New Yorkers.⁴⁵ On the table since the 1950s, it has only undergone serious planning and construction within the last five years; the tunnels that were already bore lay dormant. This situation should be redolent of the unfortunate budget problems which New Jersey Governor Christie cites as his reason for cutting the largest federally funded transit project in the history of the United States: Access to the Region's Core (ARC) which promised to add capacity to the Hudson River tubes for both Amtrak and New Jersey Transit. In the Second Avenue Subway's case, funding was also an issue and the political powers in New York could not successfully commit to building until recently.

On October 4th, 1969, the MTA decided to discontinue service on the Myrtle Avenue Elevated line, also known as the MJ, citing poor ridership as its logic. In doing so, the MTA left entire neighborhoods filled with the politically underrepresented underclass of East New York starving for subway service. This cutback also left only one cross-town line between Brooklyn and Queens, reflecting possible feelings that Downtown Brooklyn was no longer an important destination to justify running subway service skipping Manhattan.⁴⁶ Discontinued in 1973, as mentioned above, was the Bronx portion of the Third Avenue Elevated, then known as the 8 train. This cut alone spans more than five miles. Far smaller than the first two cuts but still one of significance, the MTA cut the Culver Shuttle on May 11, 1975, leaving parts of Brooklyn without subway access, and creating an inconvenient commute for many others.

Overall New York has seen a net loss in track mileage under the MTA, but its additions are nonetheless commendably strategic. Thanks to the MTA's Capital Construction team the F

⁴⁴ <https://www.nypa.gov/press/2006/060501b.htm>

⁴⁵ http://maloney.house.gov/index.php?option=com_content&task=view&id=2198&Itemid=63

⁴⁶ The area left without subway service can be observed in Appendix E

train is now able to travel through that run under 63rd street in Manhattan. The construction increased capacity, speed, and access to transit. In fact Roosevelt Island received its first subway stop with the 63rd street tunnel project; the new access to transit encouraged privately funded high end condominium and cooperative buildings to locate on Roosevelt Island. The new routing also provides a subway stop to Queensbridge, providing excellent access to the New York City Housing Authority public housing cluster directly adjacent to the subway stop. Unfortunately the 63rd Street tunnel took a long time to see its construction and later its entire project see reality. The tunnel was approved in 1962 and was built during the 1970s, but due to funding difficulties it was not until 2001 that the project provided more than a stub of service into Queens and connected Manhattan with the full Queens Blvd line.⁴⁷ A new E train extension along Archer Avenue provides convenient access for Manhattan and Queens subway passengers to access the all important Long Island Rail Road Jamaica station. No doubt this extension contributed to the Port Authority of New York and New Jersey's decision to locate an Air Train station, which connects New York's transit system to the airport via a monorail, in Jamaica. The move also provided additional rail capacity along the Queens Blvd line, complementing the aid that the 63rd Street tube already was providing. Yet this line underwent similar political setbacks that the 63rd street tube construction underwent. Construction on the project started on August 15, 1972 but it was not until December 11, 1988 that the construction drew to a close. Slow bureaucratic and political complexities caused this construction to be delayed. On a side note, the MTA also extended the 3 train for a quarter of a mile to 148th Street.⁴⁸

The Climbing Expense of Riding Transit

The subway fare was five cents in 1904, because politicians were willing to sacrifice the extra revenue which could have used to expand the system or add other capital improvements the fare stayed at five cents until 1948 when the fare doubled to ten cents. The fare was long overdue for an increase; the Board of Transportation was responsible to the Board of Estimate in New York. For over forty years New York City's Board of Estimate and the Interborough Rapid Transit Authority preferred to subsidize operations rather than to raise the fares. The fare steadily climbed to fifty cents by the September 1, 1975. However, politicians began to slow their support of strong central government during the 1970s as the nation ran itself into debt by waging a war in Vietnam and on poverty at home. Meanwhile the economy experienced stagflation as oil producing nations spiked oil prices. It was not until the 1980s that President Reagan and Prime Minister Thatcher led the rise of the New Right. This movement lauded the rights of the individual and frowned upon government intervention especially in subsidizing the undeserving poor. Transit systems, viewed as a subsidy to the poor and a form of collectivism, were to come second to road users in Reagan's administration. He said "We have the best transportation system in the world. And the main reason for that is because we have the best highways and

⁴⁷ <http://www.nycsubway.org/lines/6thave.html>

⁴⁸ For information on these additions, please see Appendix E, located at the rear of the report.

roads.” He clearly favored roads over transit. “He considered transit operating subsidies ‘a special abomination’ that had the effect of raising ‘the already monopoly level wages of local transit workers—or to reduce arbitrarily the transit fares paid by rich and poor alike.’”⁴⁹ He made efforts to cut subsidies and was successful in doing so. The federal government took on a new persona of decentralization; making a conservative stance during the 1980s and 1990s, it sought out privatization and cost cutting where possible. This coupled with rising labor costs for the transportation authorities to create an even more desperate situation.

In the transit industry labor costs for blue collar workers continued at most contract negotiations. Entry level engineers at Long Island Bus make less than a bus operator at full pay. Organized labor in transportation has won bus operators and mechanics pay increases and benefits which are unheard of in the private sector. Top pay for an MTA bus operator at Long Island Bus is \$26 an hour whereas a Bolt Bus operator makes \$15 an hour. The labor costs and decreased federal spending helped fares go up astronomically. Since the 1970s the fare has increased from fifty cents to \$2.25 a trip, with another fare hike scheduled to take effect in December rising base fares to \$2.50. Yet despite the rising fares, the MTA has still sustained significant ridership growth during this period, speaking to the MTA’s success in improving its system and offering a service worth riding.⁵⁰

Fuel Efficient Technology

The MTA has made significant efforts in testing alternative technology for bus fuel and engine. Unfortunately the MTA has found that hybrid buses are an inefficient investment. A look at the geographical distribution of its hybrid buses may explain why the MTA has reached such a conclusion. When the MTA received its order of hybrid buses it assigned its hybrid buses to depots in Queens, Brooklyn, Manhattan and Staten Island. Staten Island is probably the most surprising borough on that list; while Staten Island’s I-278 Expressway experiences severe traffic congestion, its local roads and other limited access highways permit vehicles to operate at higher average speeds than any other borough. Suburban housing and transportation dominate the borough spatially. Staten Island’s slowest bus route is the S42, which operates at an average speed of 10.6 mph, pointing to the capacity for high speed traffic. The S42 is the fastest of the slowest routes of each borough and nearly three times faster than the slowest route in Manhattan, the M42.⁵¹ ⁵² Currently, the MTA operates 159 hybrid buses Staten Island.

The Toronto Transit Commission (TTC) and Société de transport de Montréal both purchased hybrid buses for test. Montreal’s transit system experienced a savings of 30% in fuel consumption per hybrid bus. Toronto found itself disappointed with the hybrid buses.

⁴⁹ https://international.fhwa.dot.gov/highwayhistory/reagan_staa.cfm

⁵⁰ For a graphical representation of fare increases please see Appendix F

⁵¹ <http://www.straphangers.org/pokeyaward/09/>

⁵² For a table on the MTA’s slowest bus routes, please visit Appendix G

“The experience of the Toronto Transit Corporation (TTC) with about 500 hybrid buses has been well publicized due to a lower than expected fuel savings of around 10% and premature replacement of lead-acid batteries after 18 months. The results from Toronto may be explained by the hybrid buses serving on routes with fewer stops and starts - which are operating conditions that are not best suited to hybrid buses. The lead-acid batteries have not lasted the expected 2 to 3 years.”⁵³

Both New York and Toronto made the mistake of assigning hybrid buses to routes that do not have stop and go conditions, where hybrid buses produce the greatest efficiencies in energy use. The MTA has unofficially decided that its hybrid buses were an inefficient investment, reasoning that hybrid bus fuel efficiencies at the MTA have yet to outweigh its extra capital purchasing cost. The TTC website tells the user that “the capital cost for hybrid buses is 50% to 70% more than comparable diesel buses.” As a result in the MTA’s latest budget plan allows for “1,041 standard buses (\$765 million), 674 articulated buses (\$620 million), and 375 express buses (\$279 million) for a total of 2,090 vehicles.”⁵⁴ The MTA has decreed, albeit quietly, that new bus orders will either come in the diesel variety from 2010 onwards.

The reasoning behind the dispersion of newer buses is no doubt to comply with Title VI of the Civil Rights Act of 1964. Specifically, Title VI provides that "no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."⁵⁵ Los Angeles MTA was sued under the Title VI regulations and lost to the plaintiff; the charge was that the LA MTA favored suburbs with its rail projects and provided white areas with newer equipment. The result of that court’s meant that the LA MTA has had to deal with the FTA checking up on their operations and threatening discontinuation of federal funding of both its operating and capital budgets for noncompliance with Title VI of the 1964 Civil Rights Act. Other transit authorities have taken this court case as a warning that they can be found guilty of racial discrimination based solely on what neighborhoods federally funded vehicles serve. As a result transit authorities across the nation have made efforts to distribute all new equipment evenly, despite the clear advantage in some cases of assigning new hybrid buses to areas that access the central business district. The situation highlights the inefficiencies of public transportation in the United States particularly in New York. The environment and tax payers are subsidizing racial equality while hybrid technology in the bus industry is unfairly critiqued by analyses reported by test sites which did not use their hybrid buses efficiently certainly does hybrid bus manufacturers a disservice. Test sites which assign hybrid buses to quickly moving bus routes are drawing conclusions that hybrid buses are not for them; despite their success in cities such as Montreal where the transit authority takes advantage of a dense city with a high level of public transit use.

⁵³ <http://www.tc.gc.ca/eng/programs/environment-utsp-casestudy-cs71e-hybridbuses-272.htm>

⁵⁴ http://www.mta.info/news/pdf/cap10/capital_program.pdf

⁵⁵ http://www.fta.dot.gov/civilrights/civil_rights_5088.html

Planning for the Future

Creating a Fiscally Stable MTA

The MTA has had to reinvent itself as of late due to the lackluster economic environment. Olaf Kilard, the Director of Marketing at Charlotte Area Transit, said “the lack of jobs is pulling potential commuters out of the pool, and losses within transit agencies are hurting their ability to provide services in the first place.”⁵⁶ Employers, including the self-employed with net earnings above \$10,000, within the MTA’s service area pay a Metropolitan Commuter Transportation Mobility Tax; this source of revenue has shrunk because of the recent trends of increasing unemployment and lower net earnings. Real estate transaction taxes, a major source of MTA revenue, have also taken a huge hit as a result of tanking real estate values. The MTA received \$1.6 billion in real estate transactions in 2007. Crisis kicked in when in 2008 the MTA board found itself projecting only \$1 billion from the same tax. That’s a \$600 million dollar shortfall in expected revenue, and the transaction taxes have only shrunk since then.⁵⁷ Passenger revenue has also decreased because fewer people are commuting to work.

The MTA has made efforts to cut costs and balance its budget. It has downsized its workforce through attrition and layoffs. The MTA has also slashed its service levels, and with less service the MTA will find savings in fuel, maintenance, procurement, and staff. Strategic cuts have meant only the most inefficient routes have been eliminated. In some cases, planners extended routes to serve areas formerly served by now discontinued routes. For instance, planners extended an express route which normally goes from Pelham Bay to Manhattan to serve City Island because the MTA cut the City Island express route in its package of service cuts. This move allowed passengers in City Island to still have equivalent express service into Manhattan. The N93, a Long Island Bus route serving the Nassau Hub, carried an average of two passengers a day. This route cost \$130.15 per passenger to operate, over 57 times more than the base fare collected from passengers.⁵⁸ In cutting service on this route, the MTA produced significant savings.⁵⁹ If the economy picks back up, one can hope that the MTA will restore service to areas where it’s needed, and leave the failing routes dead. Therefore, a recession often represents for a transit system an opportunity to rationalize its routes.

Projects on the Horizon

Despite service cuts, there are a number of projects which promise to revitalize communities, provide access to major trip generators, increase capacity, and give people adequate access to transit. The East Side Access project will connect the Long Island Rail Road system to the East Side of Manhattan. This project will relieve the congested Penn Station and its connecting river tubes. With this project, residents of Manhattan’s Upper East Side will no

⁵⁶ www.planetizen.com/node/41730

⁵⁷ [http://mta.info/mta/budget/081110_Presentation_to_Finance.ppt#451,6,Real Estate Transaction Taxes \(\\$ in millions\)](http://mta.info/mta/budget/081110_Presentation_to_Finance.ppt#451,6,Real%20Estate%20Transaction%20Taxes%20($%20in%20millions))

⁵⁸ 2010 Long Island Bus Service Reductions

⁵⁹ 2010 Long Island Bus Service Reductions

longer have to make the arduous trip involving a subway trip and a transfer for to access the LIRR. Experts forecast that more people will be attracted to ride the LIRR and the private Hampton Jitney bus service should see a greater threat from the Long Island Rail Road's competition. The MTA also has the 7 train extension project in the works. This project will extend the 7 train from its Times Square Terminal to the Jacob Javits Convention Center, a much needed mass transit connection. The MTA is also making a good faith effort to develop the far west side; the 7 train will dip south and service the far west side on 34th street.

Bus Rapid Transit (BRT) has entered the transportation scene in New York. The MTA introduced its own rendition of Bus Rapid Transit to the Bronx, marketing it as Select Bus Service. The NYCDOT and the MTA plan on implementing BRT city-wide; they started in the Bronx with the Bx12 as their test line. The Bx12, operating on Fordham Road, serves one of the busiest shopping corridors in the Bronx and offers users access Bay Plaza, Fordham University, and eight subway lines. Unfortunately the route used to get snarled in traffic bottlenecking on Fordham Road, making service unreliable. The MTA introduced BRT to ease passenger loads, shorten trip times, and improve on-time-performance along the route. With dedicated bus lanes enforced by law enforcement and cameras, proof of purchase payment, and multiple door boarding, Select Bus Service has greatly improved bus transportation along the Fordham Road corridor.

Select Bus Service passengers pay with proof of purchase. In other words, passengers pay for their ride before they board the bus at a fare collection machine which prints a receipt proving purchase. The boarding process is faster on BRT as well; when the bus arrives passengers may board the bus on any three of the doors. Occasionally re-inspectors on board the bus check for passenger proof of purchase receipts. The MTA has taken into account that there might be passengers willing to board without paying for their ride; passengers caught without a proof of purchase ticket by an inspector receives a citation which could lead to a \$100 fine, more than making up for the \$2.25 fare unpaid. In October 2010 the MTA successfully expanded its Select Bus Service efforts by bringing bus rapid transit to the M15 line on First and Second Avenues.

The Second Avenue Subway is also finally on its way. Its history has been filled with staggered construction dating back to the 1950s. The new line will be designed with the more modern wider B-division width cars to increase passenger capacity. The stations will also be longer and will be able to fit 60 foot cars as opposed to the shorter and narrower Lexington Ave. line cars, which operate to A-division standards. In addition, all stations will be accessible; wheelchair passengers will finally have a fully accessible subway line in Manhattan, after over a century of operation. The MTA will be able to relieve the one and only crush loaded line (Lexington Ave. Subway) on the East Side of Manhattan with the inception of Second Avenue Subway Service, due to be delivered in 2016.

Conclusion: “MTA: Going Your Way”, What Direction is that Exactly?

The MTA has reinvented itself to meet difficult challenges. MTA CEO Jay Walder and the MTA board have decided to discontinue subsidization of Long Island Bus. Under the original operating agreement, Nassau County would pay the MTA \$20 million a year to subsidize bus operations. In 2002, Nassau County began cutting back on its funding to Long Island Bus. In 2009 Long Island Bus subsidies from Nassau County slipped to under \$10 million dollars. Meanwhile, because of service improvements, increases in fuel and energy costs, and inflation, the MTA has faced growing operating costs. Last year the MTA paid out \$44 million to cover the cost of operating Long Island Bus. The MTA has left that consideration out of its budget for 2011. MTA Long Island Bus President Joe Smith said: “Nobody wants to see over 100,000 riders a day without bus service; Nassau County cannot walk away from so many riders.”⁶⁰ Where does that leave Long Island Bus and its 100,000 daily riders? Nobody is sure, but the MTA is playing hardball and fighting for money Nassau County agreed to pay in its original operating agreement with the MTA. Its goal has shifted to creating efficiencies; sometimes it seems at the expense of riders. The trips not put out by dispatchers because management ordered them not to assign operators to work overtime to cover open runs has hurt passenger confidence in Long Island Bus and in the MTA as a whole.

The future of the MTA’s organizational structure seems to making more efforts to merge and consolidate. Officials are considering merging MTA Bus and NYCT, but issues of labor union contract agreements and legislation empowering these agencies need to be adjusted for a merger to be legal. Long Island Bus may also find itself merging to form one regional bus authority or leaving the MTA umbrella altogether as Nassau County considers privatizing their MSBA. Meanwhile with the East Side Access Project connecting Metro North and the LIRR through Grand Central, passengers will have the ability to travel via Grand Central from Metro North territory in Westchester County, Dutchess County, and Putnam County to Long Island Rail Road territory on Long Island. Questions are raised whether a merger will create a new entity uniting the two commuter railroads.

Despite its shortcomings MTA has contributed to efforts to regional sustainability. Its initiatives have spurred growth in agency ridership since the 1980s and in many counties transit is enjoying a renaissance. In a New York State Department of Transportation study transit gained significant shares in New York County (+2.0%), Queens County (+0.6%), and Richmond County (+2.1%) between the 2000 and 1990 census.⁶¹

⁶⁰ Czelusniak, Susan M., Senior Manager of Marketing

⁶¹ https://www.nysdot.gov/portal/page/portal/divisions/policy-and-strategy/darb/dai-unit/ttss/repository/r11_co.pdf

The MTA's new style of management shows signs of improving upon the former service offered by the private transportation companies. From June 2009 to June 2010 improvements in service have contributed to a 1.3 million increase in ridership for MTA Bus Company. The unification of several companies into one public benefit corporation known as MTA Bus is a perfect example of the contemporary trends which show the importance of improvements that the MTA has made to transportation in the region, marking the downfall for municipal subsidized privately provided mass transportation in New York City. Despite the expediency of MTA Bus' improvements, the nature of their changes builds upon a legacy of improvements to mass transportation made by the MTA with corresponding increases in transit ridership. Between 1975 and 2006 ridership rose by 22% overall, not including the addition of MTA Bus. Furthermore, the MTA and the NYC DOT promised Select Bus Service for October 2010 in Manhattan. Together, the MTA and the NYCDOT were able to bring bus rapid transit to First and Second Avenue in Manhattan; they even have introduced cameras to enforce bus-only lanes. Perhaps the MTA is transitioning into a new style of management by which it actually does what it sets out to do, and implements projects as scheduled

Yet if the MTA wants to shed its reputation of sluggishness, archaic infrastructure, and unreliable service amongst the public, it has a lot of work ahead of it. The Second Avenue Subway line has been only a matter of talking and suggestion until recently. The MTA has made serious construction efforts and has benchmarked project completion for 2016. If completed, the project will fulfill the seemingly empty promise of a subway to follow the decommissioned elevated railway decades ago. Completing which are crucial to mobilizing the region such as the Second Avenue Subway or East Side Access, implementing city-wide Bus Rapid Transit, and committing to a contactless fare card may redefine how people regard the MTA as a transportation provider. Critics may correctly point to past failures and forecast that current projects may meet the same inertia that past capital projects have met in the transit industry. Fortunately for the MTA, whether it innovates and builds or not, it has a monopoly on public transportation in the region. With ongoing concerns about urban sustainability and rising energy prices few, if any, options are left to support the mobility of passengers for a global city such as New York. New York was built initially as a walking city and later became a transit city; transit will continue to play a fundamental role in shaping its future.

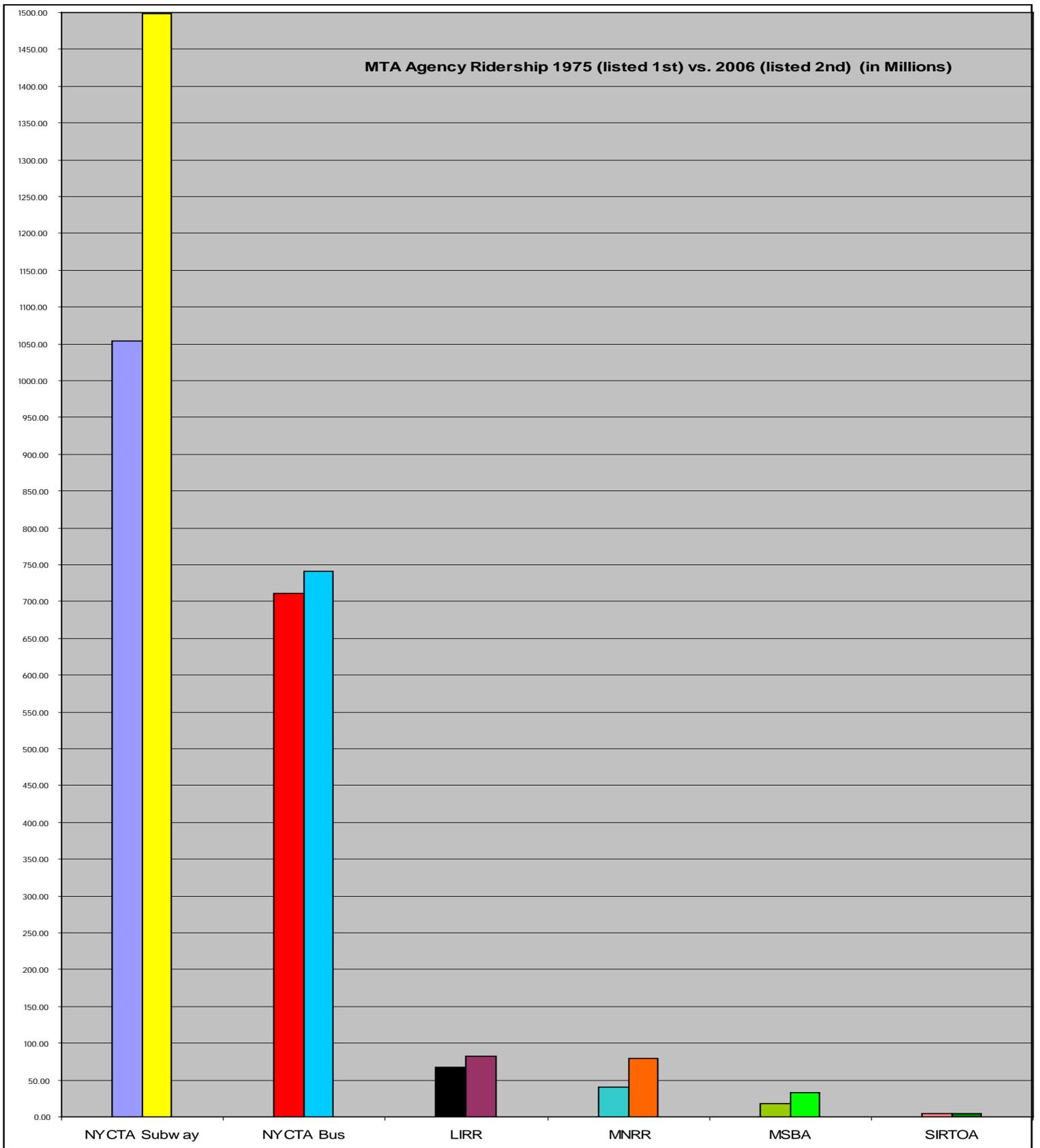
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Appendix A: Ridership Statistics

Appendix A – 1: MTA Ridership 1975 vis-à-vis 2006

Operating Authority	Ridership 1975	Operating Authority	Ridership 2006	% of Increase
NYCTA Subway	1053.93	NYCTA Subway	1,498.92	30%
NYCTA Bus	710.45	NYCTA Bus	741.42	6%
LIRR	67.17	LIRR	82.00	19%
MNRR	40.08	MNCR	80.00	50%
MSBA	17.86	MSBA	32.60	46%
SIRTOA	4.37	SIRTOA	3.81	-13%
Overall	1893.87	Overall	2,438.74	22%
		MTAB	99.00	
		With MTAB	2,538.00	

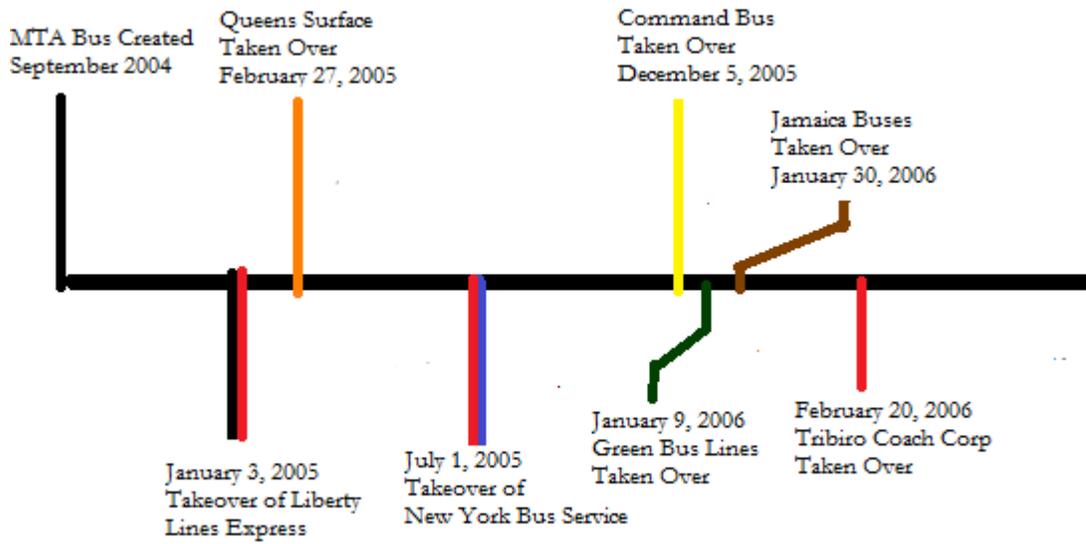


Appendix A – 2 Top Transit Cities in the United States

Per Capita Rank (2006)	Metropolitan Area	AREA SQUARE MI	POPULATION	2006 TRIPS (MILLIONS)	TRIPS PER CAPITA
1	New York	3,353	17,799,861	3,556.90	199.8
10	Los Angeles	1,668	11,789,487	700.4	59.4
6	Chicago, IL	2,123	8,307,904	610.7	73.5
3	Washington D.C	1,157	3,933,920	461	117.2
2	San Francisco	527	3,228,605	420.2	130.1
5	Boston	1,736	4,032,484	386.7	95.9
8	Philadelphia	1,800	5,149,079	342	66.4

Appendix B – MTA Bus Takeover

Appendix B -1 Takeover Progression



Appendix B – 2 MTA Bus Takeover Before and After

Below: New York Bus Service 1982 #1502 Fishbowl in Service until July 1, 2005 (MTA Bus Takeover)

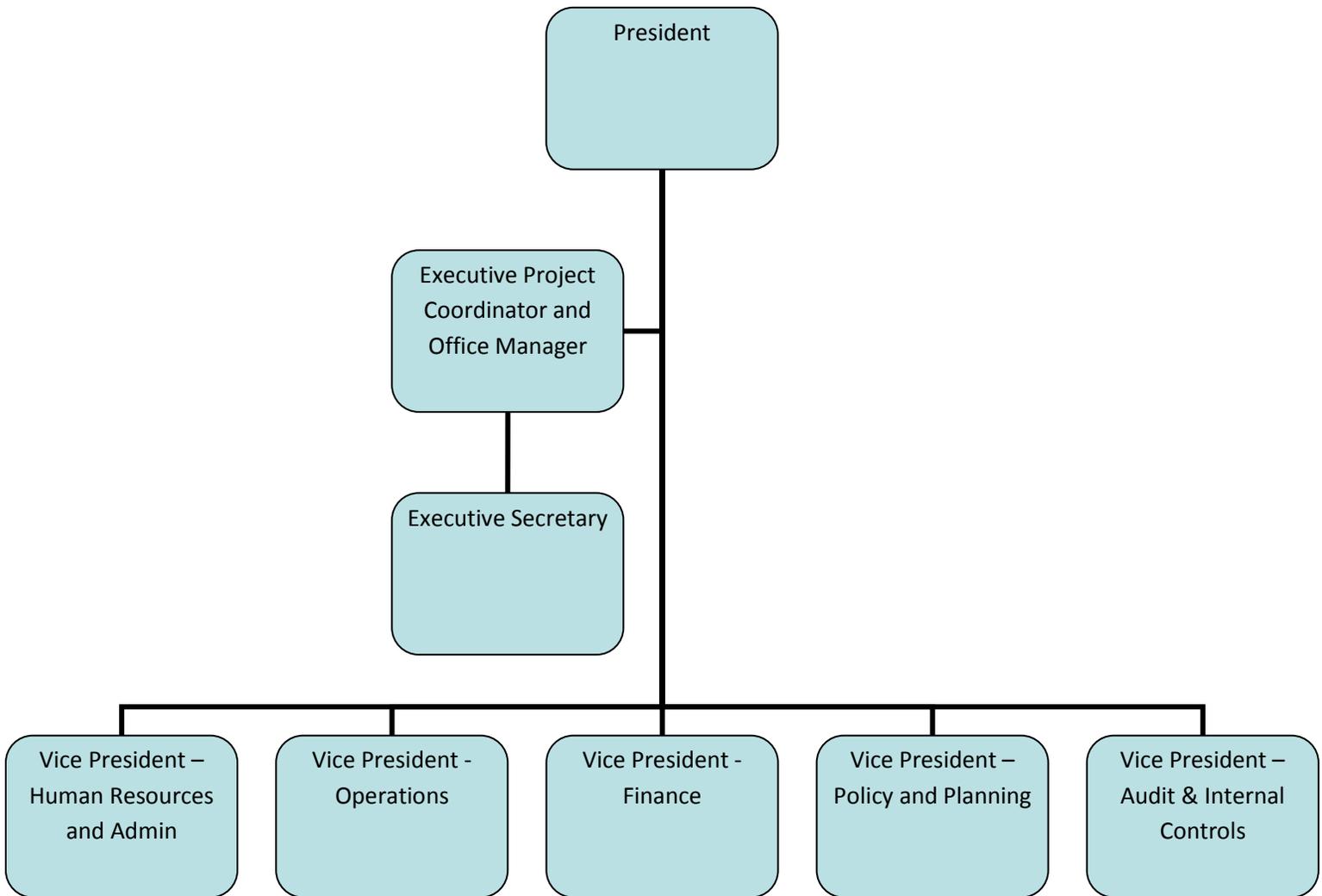


Below: 2007 MTA Bus MCI Cruiser Next to 1982 GM Fishbowl #1481 (bus preserved by author)

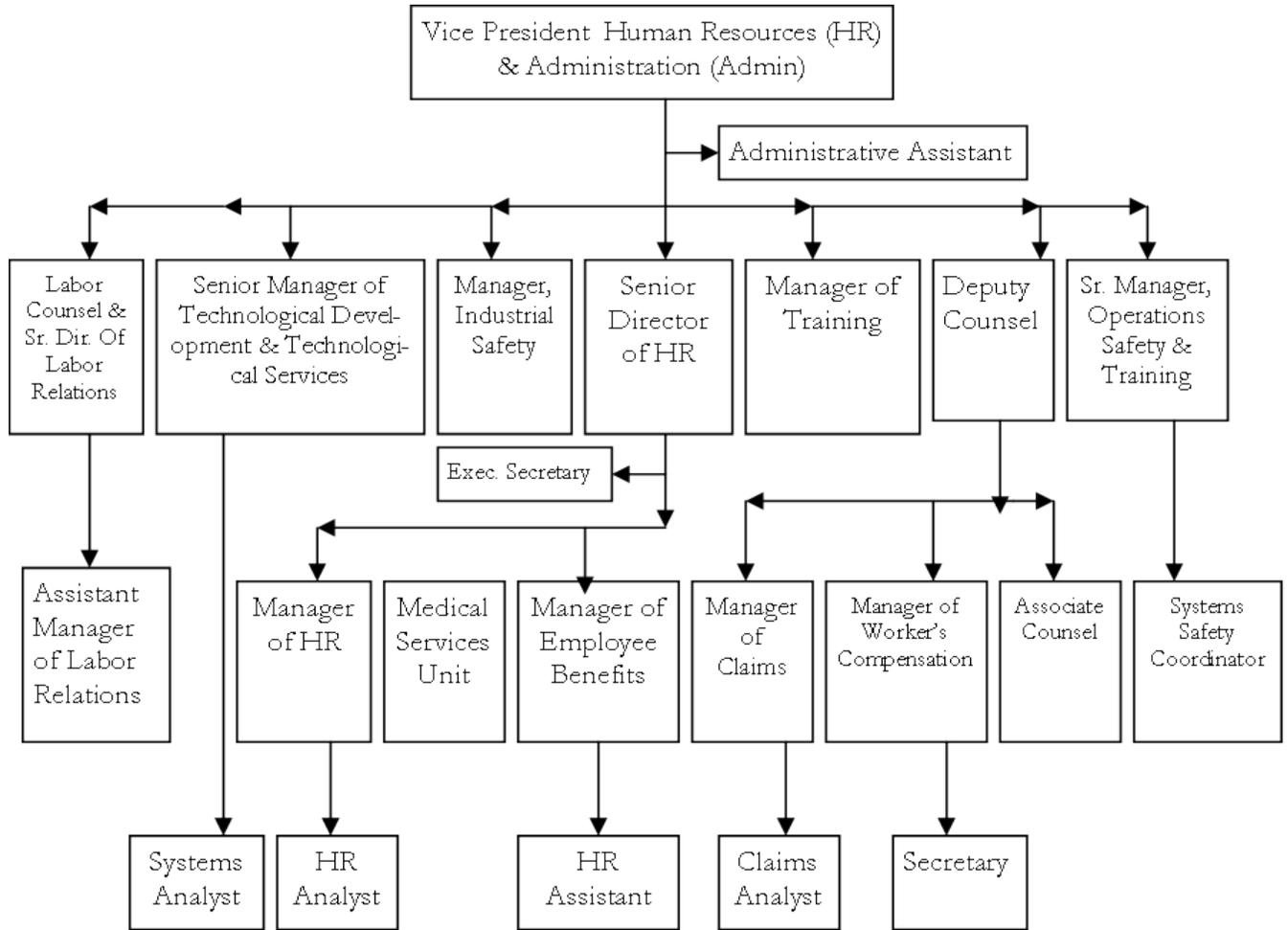


Appendix C – Organizational Chart – MTA Long Island Bus (1997)

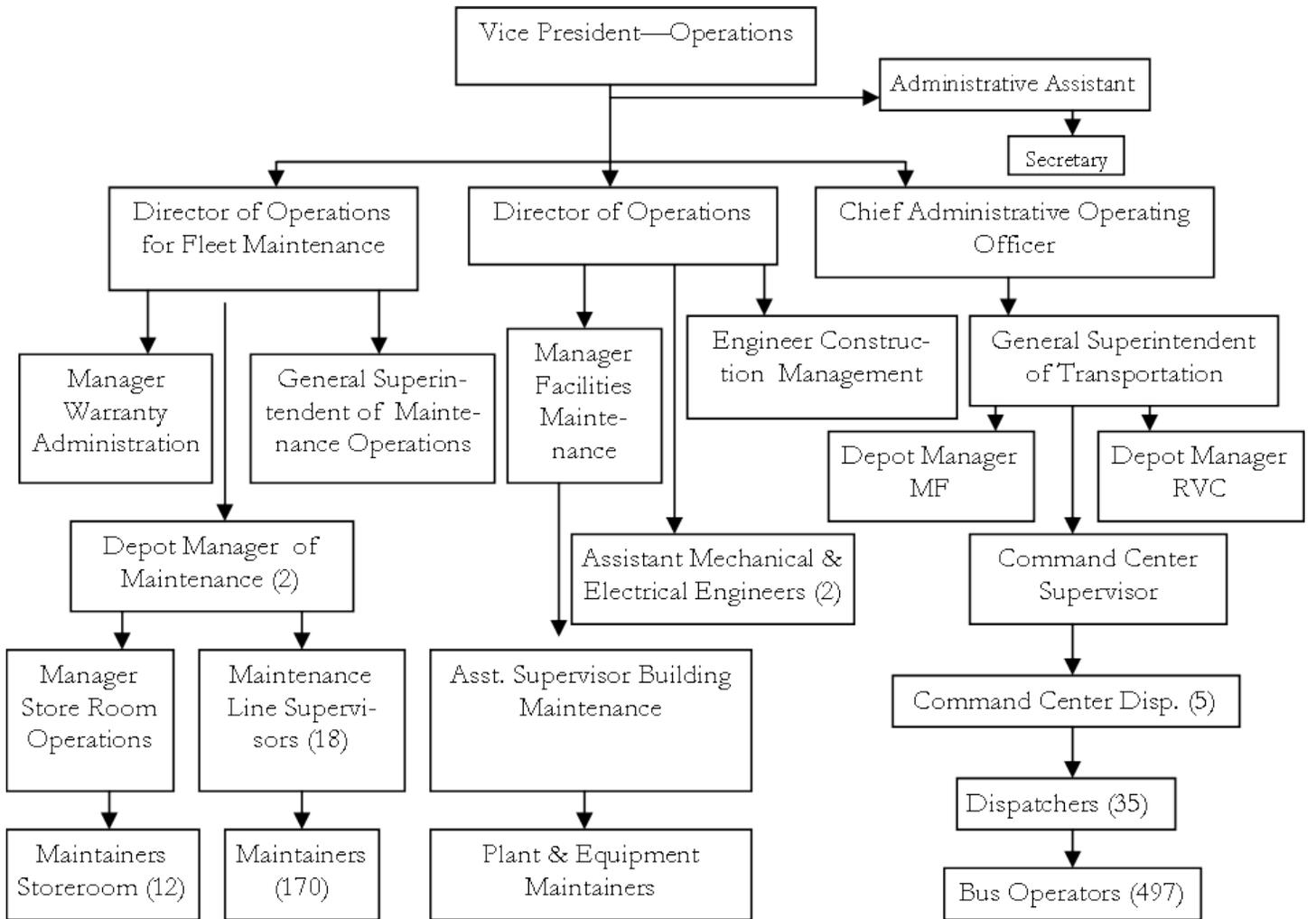
Appendix C-1: Executive Staff



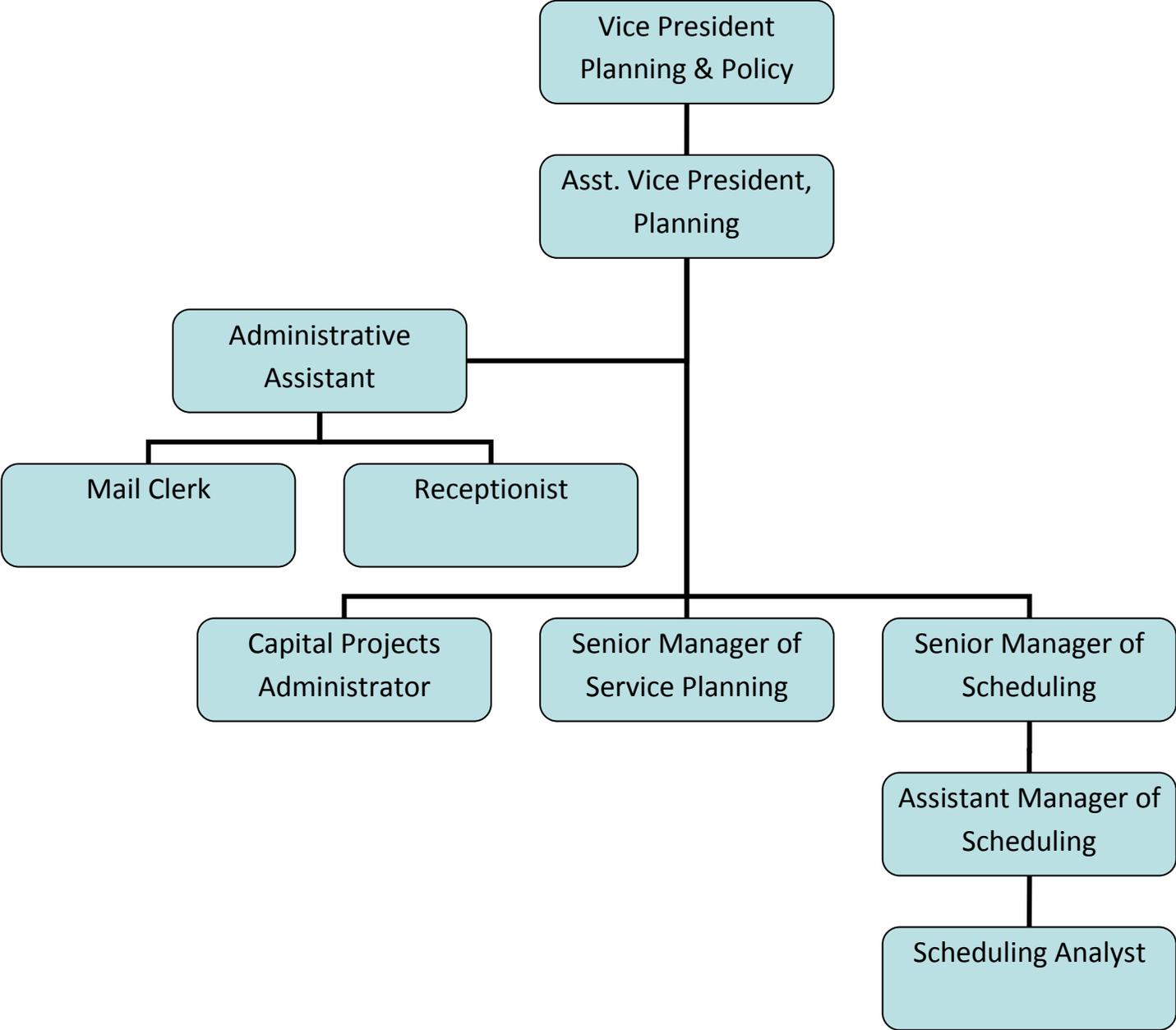
Appendix C – 2 Human Resources and Administration



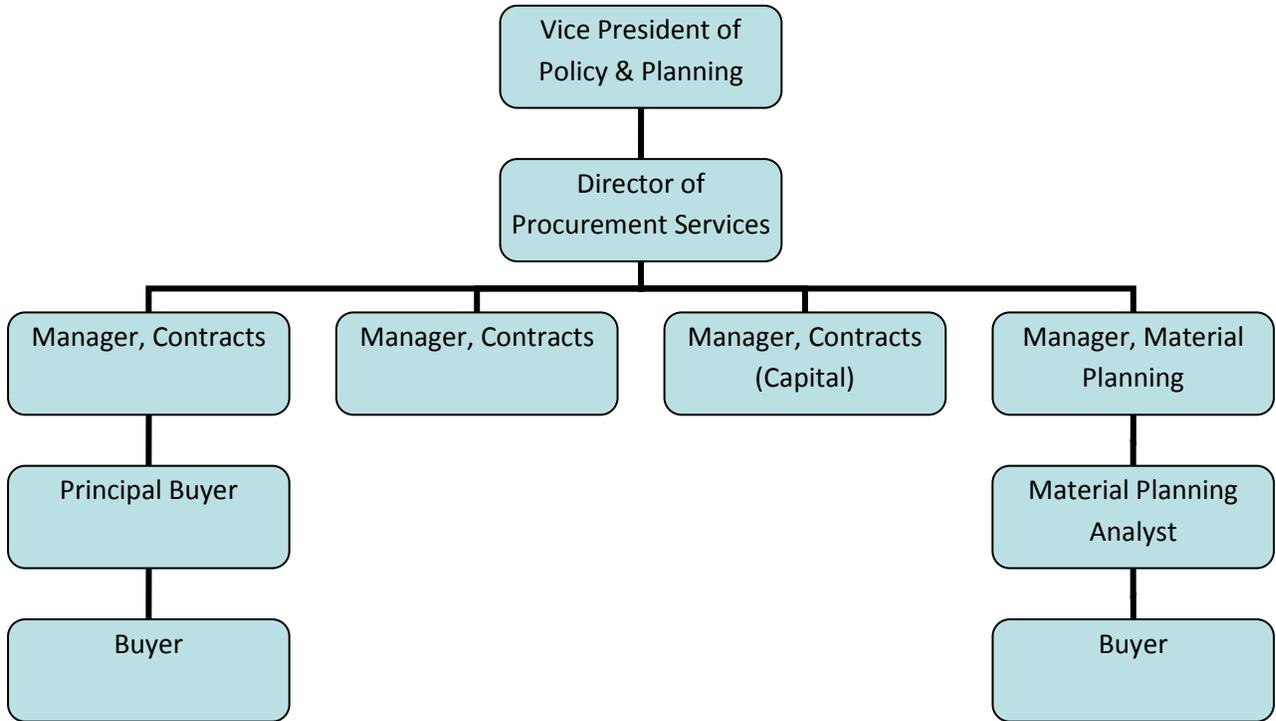
Appendix C-3 - Operations



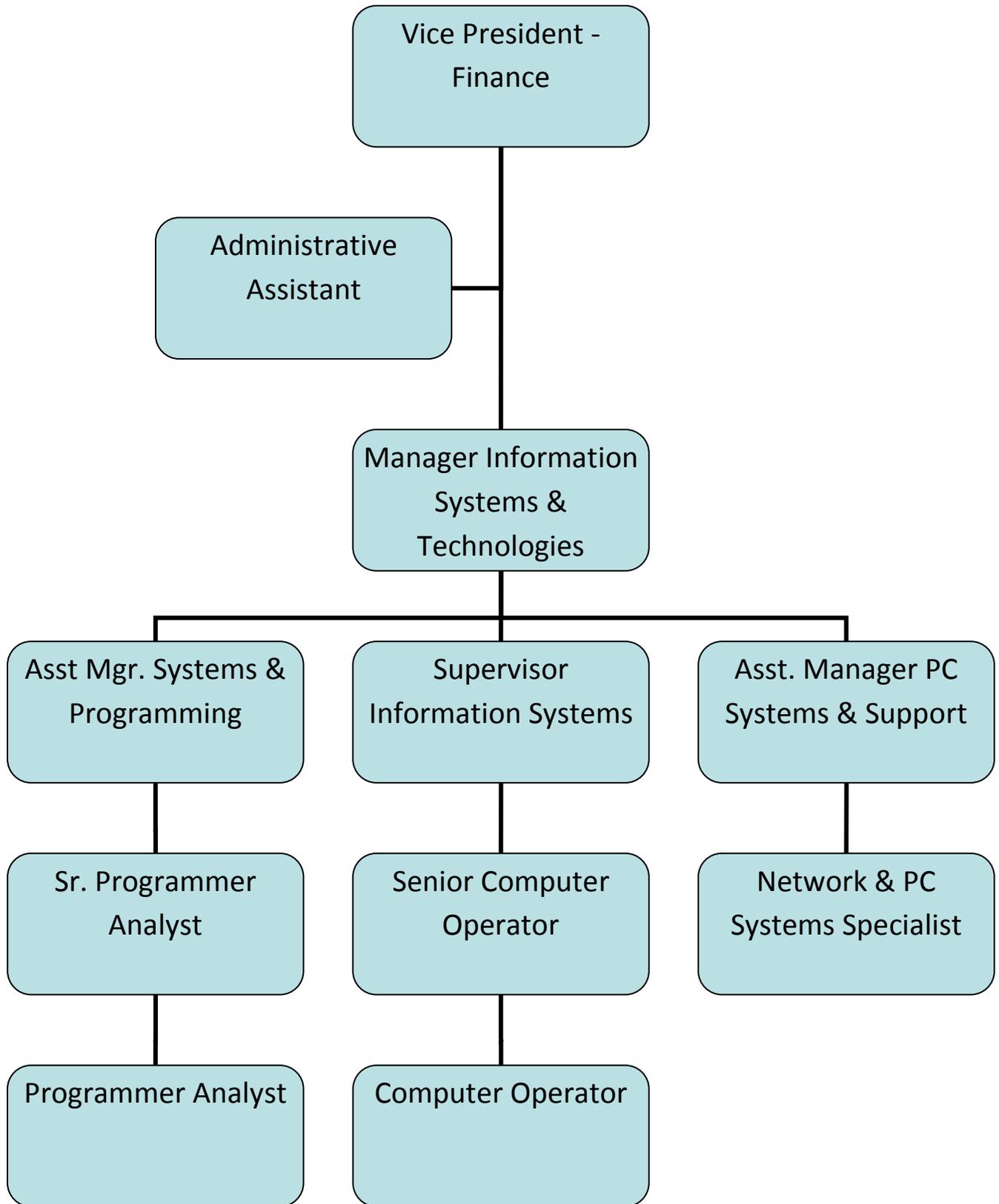
Appendix C-4 - Operations Planning



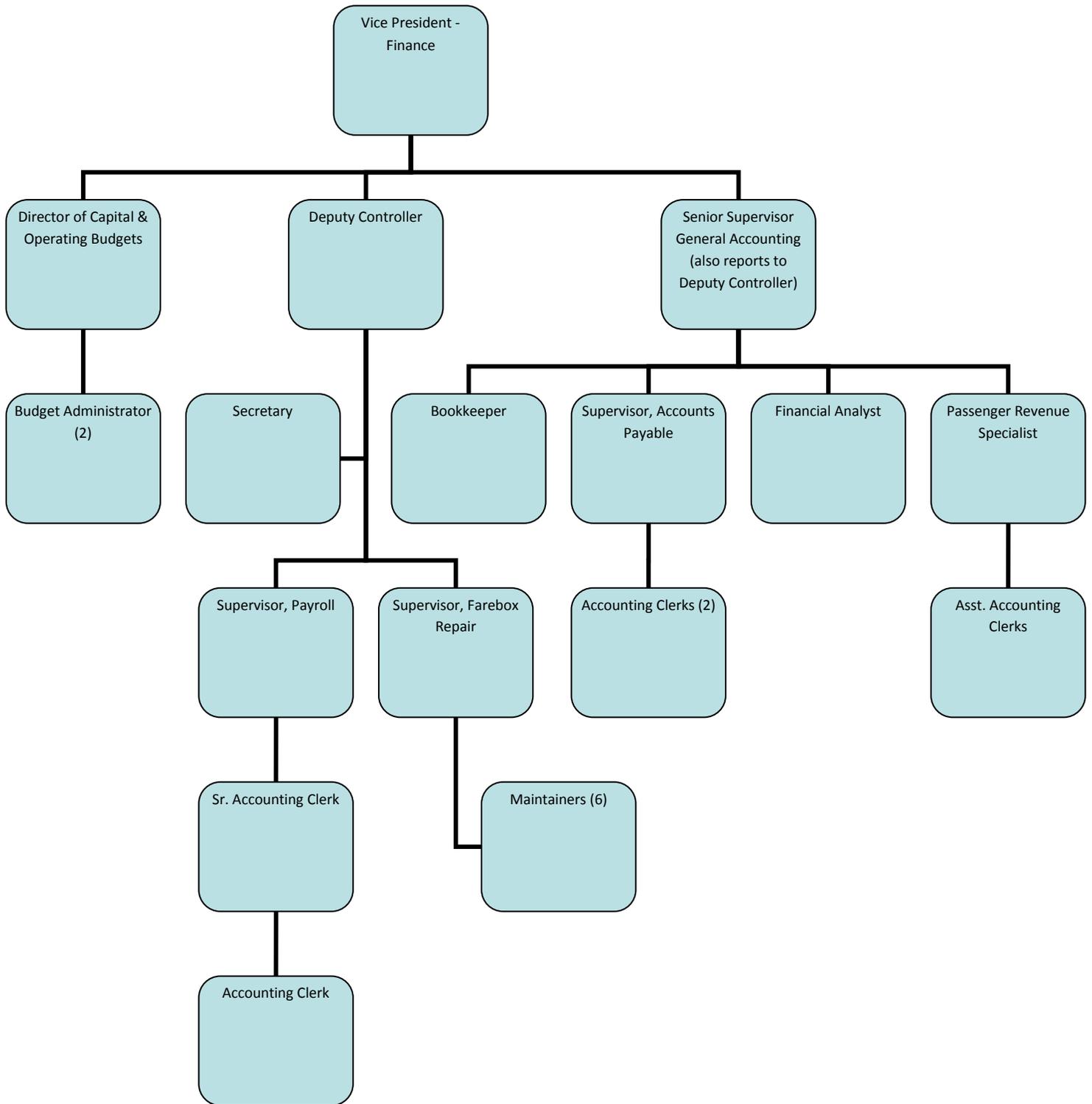
Appendix C-5 - Procurement



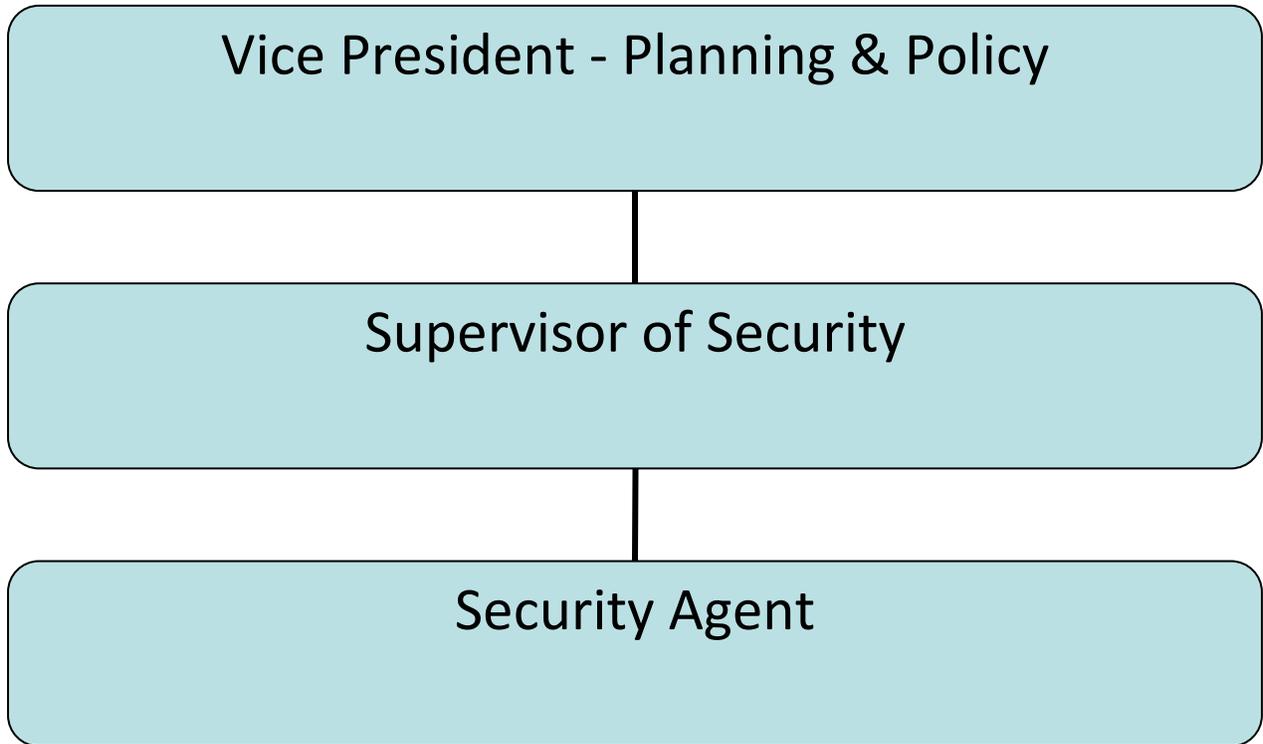
Appendix C-6 Information Technology

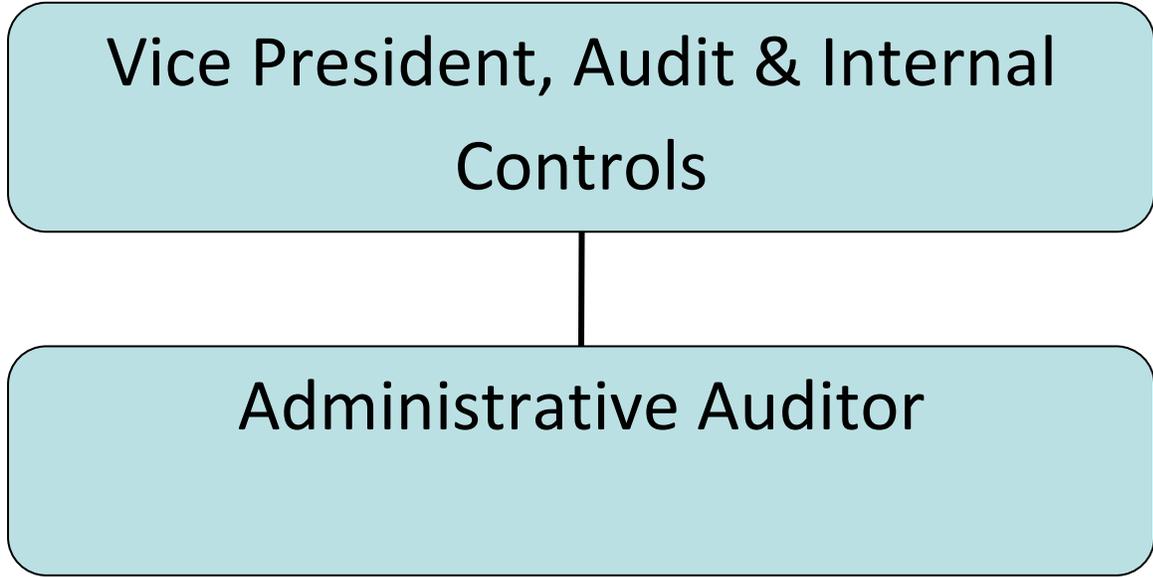


Appendix C-7 - Finance



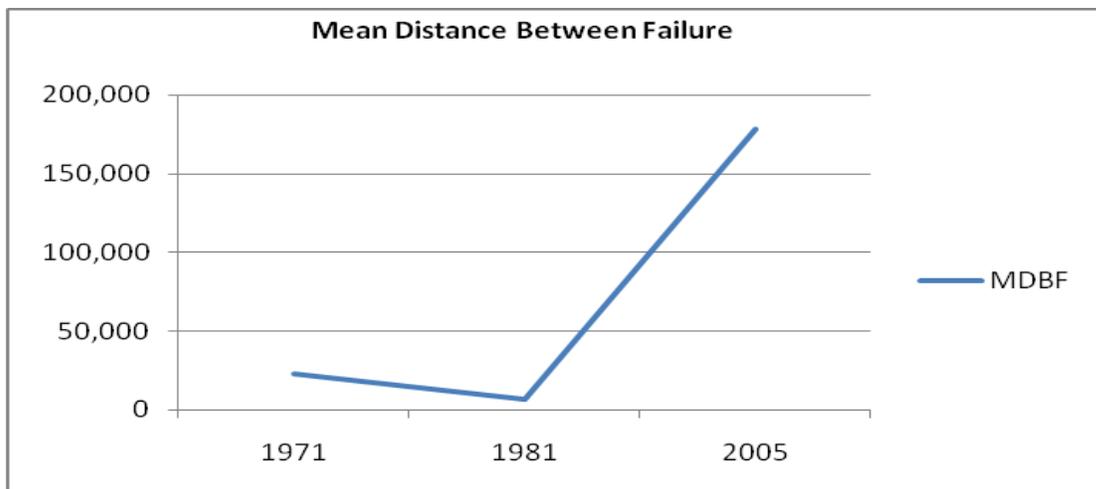
Appendix C-8 - Security





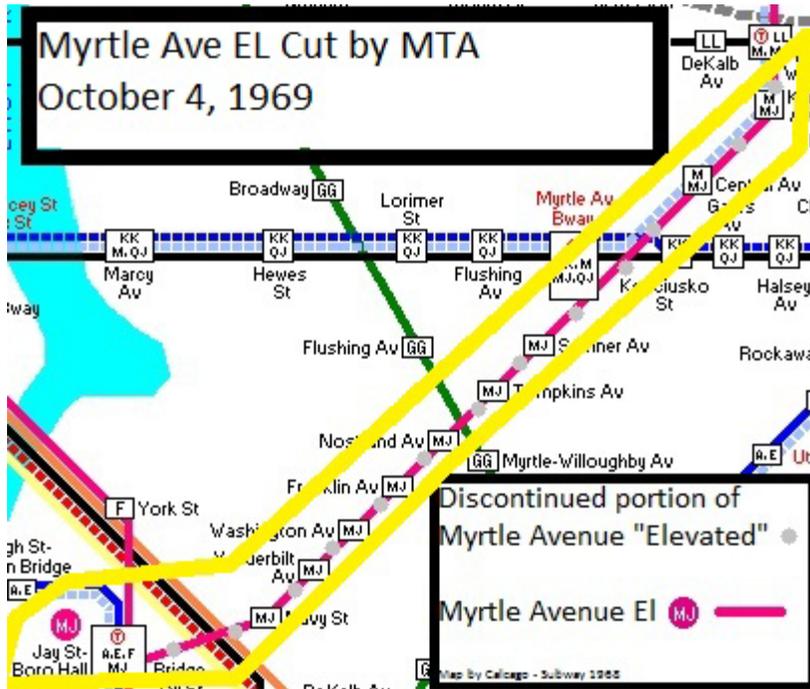
Appendix D – New York City Subway Mean Distance Between Failure

Year	Subway Car MDBF (Source NYCT Control Center)
1971	23,136
1981	6994
2005	178,085

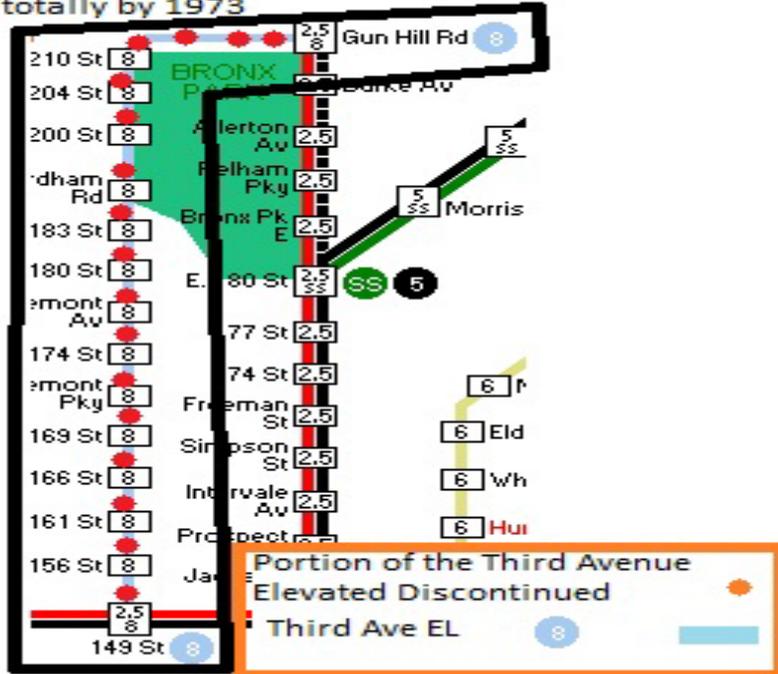


Appendix – E - MTA NYCTA Major Service Changes

Appendix E – 1 – Subway Service Cuts



Third Ave El, Bronx, NY cut by the MTA totally by 1973



Culver Shuttle, cut by MTA May 11, 1975



- Discontinued Portion of the Culver Shuttle

1968 Subway Map - Caligano

Appendix E – 2 – Subway Service Improvements

E Train Archer Avenue Extension



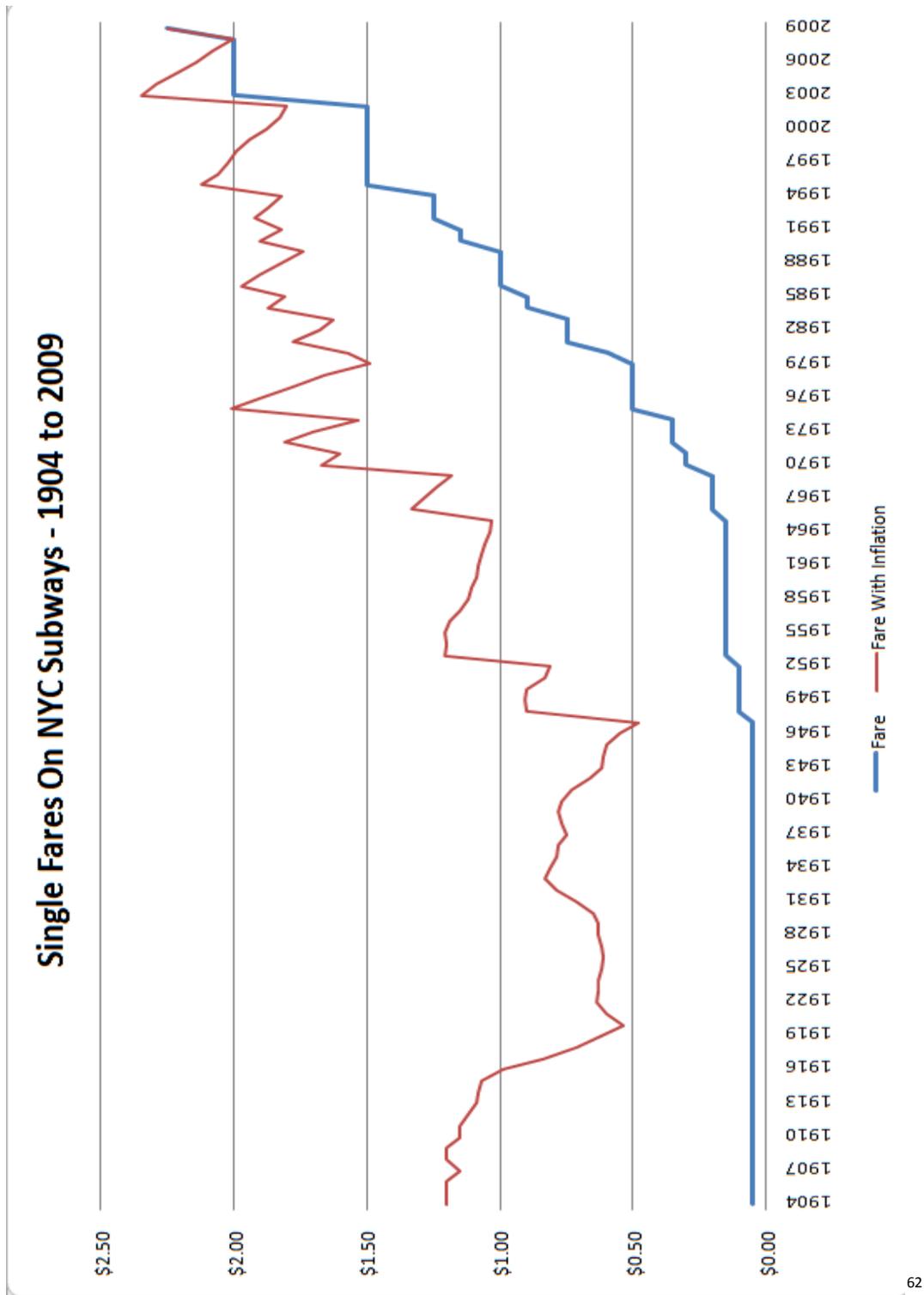
3 Train Extension



New Routing



Appendix F – New York City Subway Fare from 1904 - 2010



⁶² <http://upload.wikimedia.org/wikipedia/commons/6/6d/NYC-SubwayFaresWithInflation.png>

Appendix G – Slowest MTA’s Bus Routes

Appendix G – 1 MTA’s Slowest Bus Routes in 2009⁶³

Each Borough's Slowest Bus Route			
Route	Borough	Average Speed	Route Description
M42	Manhattan	3.7 mph	42nd Street Crosstown
Bx19	Bronx	4.9 mph	Fordham to Harlem
B63	Brooklyn	5.1 mph	Fort Hamilton to Cobble Hill
Q56	Queens	6.3 mph	Jamaica to East New York
S42	Staten Island	10.6 mph	New Brighton to St. George Ferry Terminal

⁶³ <http://www.straphangers.org/pokeyaward/09/>

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