

New York Regional Intermodal Freight Transportation Planning: Institutional Challenges

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PREFACE

The main objective of this paper is to review the institutional structure of the transportation agencies in the New York City region, with particular emphasis on their ability to conduct intermodal freight transportation planning. The paper is comprised of three major sections and an *Introduction*. In *Institutional Structure*, a brief description of the concerned agencies and their formal and informal interactions is provided. At the end of this section, the adequacy of the current institutional structure is examined. The *New Paradigms* section attempts to provide an idea about new governance structures that may enhance the efficiency and effectiveness of intermodal freight transportation in the New York region. *Conclusions* summarizes the major findings of this research.

INTRODUCTION

The New York City metropolitan region is a region of superlatives. That is both good and bad news. The good news is that the population and its workforce create a world-class economic engine. The bad news is

that—as a consequence of this economic activity—the costs of doing business in a world capital, that is congested and growing more so, are substantial.

This metropolitan region is home to close to 20 million residents, more than 600,000 business establishments, more than 1.3 million registered trucks, and more than 8.8 million employees. The region is one of the largest and densest in the world with an average of 17,600 persons per square mile. Every year, more than 67 million trucks cross the toll facilities administered by the various transportation agencies (NYMTC, 1999a). One-third of the nation's transit commuters are in this metropolis; one-tenth of all national vehicle miles traveled on expressways are within this metropolis (Paaswell and Zupan, 1998). The complexity of moving goods and passengers is compounded by the severe congestion, the existence of significant physical constraints and the fact that the area is home to the largest concentration of transportation facilities in the world, including three airports, dozens of container terminals, intermodal yards and more than 11,000 miles of highways.

As anticipated in a metropolitan region that must simultaneously serve itself, while serving as a major international gateway, enormous quantities (and types) of freight are transported to and from the region. The cargoes with origin or destination in the New York City region amounted to 170 million tons in 1996 (Holguín-Veras and Thorson, 2000). The majority of these goods arrive, or depart from, terminals in New Jersey, and then are transported to New York by *trucks that move 79% of the region's goods*, while the national average is 44% (Holguín-Veras and Thorson, 2000). If through movements are taken into account, the total tonnage moved to, through or out of the region is 475 million tons (NYC EDC, 1998). Although air cargo represents only 0.26% of the regional goods movement, it is very important to the economy because these cargoes are time-sensitive cargoes with high opportunity costs that require efficient trucking connections at both ends of the trip.

There are several sources that provide estimates of the high costs involved in moving goods in New York City. Federal Express claims that it costs 30% more to deliver in New York City than in other comparable locations (NYMTC, 1998b). Urban goods movement focus groups indicated that because of: theft/vandalism, physical constraints, lack of equitable law enforcement for parking/standing, and high facility costs near the urban core, shipments to New York City pay a surcharge of \$150 on average (NYMTC, 1999b). Another focus group of business representatives reported that moving a shipment from the container terminals in New Jersey to Manhattan, a straight-line distance of 1.5 miles, cost as much as sending a shipment from Connecticut to Ohio, that is a difference of 500 miles (NYC EDC 1998).

The complex nature of the freight transportation system, the congestion that hampers it, and the physical challenges faced by the system, also extend to the institutional structure intended to govern the freight transportation system. First, firms, shippers and carriers are almost exclusively private sector. Yet the institutional structure that plans, regulates and funds the transportation system and its infrastructure is defined by a complex set of mega-agencies (each of them among the largest of its kind in the world). These agencies include, from New York State: the Metropolitan Transportation Authority (MTA), the New York State Department of Transportation (NYSDOT), and the Port Authority of New York and New Jersey (PANYNJ); and a number of smaller, though still large agencies, most notably, the New York City Department of Transportation (NYCDOT), the New York Metropolitan Transportation Council (NYMTC) the regional Metropolitan Planning Organization, and the New York City Economic Development Corporation (NYC EDC). From New Jersey, the most relevant agencies are the North Jersey Transportation Planning Authority (NJTPA), which is the MPO for Northern New Jersey, New Jersey Transit (NJT), and the New Jersey Department of Transportation (NJDOT).

The complexity of this institutional structure originates from the legislation and purposes for establishing the each agency. Needless to say, these agencies did not arise from a master plan identifying goods movement as a high priority.

- A number of special purpose governments, some of them created at the beginning of the 20th Century, have played a prominent role in the economic development and in building the region's transportation system. The Port Authority of New York and New Jersey (founded in 1921 as the Port of New York Authority), the Triborough Bridge Authority (founded in 1933 and later merged as part of the Metropolitan Transportation Authority), the Metropolitan Transit Authority (created in 1968) and the New York State Thruway Authority, and the New Jersey Turnpike Authority are examples of special governments that are given powers to design, build and operate transportation facilities, as well as (important) special powers to collect tolls and fees, and issue debt. It is the latter that makes them independent and unique operators of regional infrastructure.
- The State DOTs, most of them reorganized as such in the mid 1960s (although their predecessors date back from the 18th Century), originated from federal legislation requiring states to establish highway departments to receive and utilize federal funds. The purpose of these funds was, initially, to build roads for a rapidly

expanding (in terms of mobility) country. State DOTs still plan, build and maintain roads.

- Federal Law also requires the establishment of Metropolitan Planning Organizations (since 1975). Their purpose is to coordinate all regional transportation planning and programming and to establish an annual program of projects for the region. They also have the responsibility of long range planning. It is the MPOs who would develop regional freight plans. But note that while the MPOs plan the expenditure of funds; the other agencies (most frequently DOTs) are the recipients of funds and also have an influence on their expenditures.

Each mega-agency controls a different facet of the system and maintains some independence from the others. While many of the agencies have the power to be multi modal, and modally integrated, the history and institutional framework have led them to concentrate on single modes. And, in fact, while the special purpose authorities provide service (operate transit systems, ports, bridges and tunnels, expressways) the State DOTs plan, build and maintain highway infrastructure, but operate no transit systems or expressways. However, the infrastructure they build must serve the needs of passengers and freight; simultaneously, these people and goods also move over the portions of the transportation network controlled by the special purpose authorities.

However successful this structure may have been in the past, in this era of systems integration and multi-modalism, it is not particularly well prepared to address the challenges facing the freight transportation system. This is the result of a combination of factors. The advent of new paradigms of transportation operations, based on the use of real time information and technology, the shift toward integrated transportation system encompassing different transportation modes (multimodal transportation systems), and the sheer volume of the cargoes to be transported will all require enhanced interagency coordination and planning. Both passengers and shippers have numerous choices concerning how to move themselves, their customers and their goods. In the new era of Just-In-Time manufacturing and E-commerce, these choices depend upon knowledge of these alternatives and what the overall choices among the systems available have to offer, and, most importantly, how much they cost to use. Institutions must address their role in the system, and begin to understand the implications of real time information on how the parts of the system they control impact user behavior. This is the major shift in institutional responsibility from the last quarter of the 20th Century to the first decade of the 21st Century.

The complexity of planning for improved goods movements under

such a fragmented institutional structure is compounded by the significant role of the private industry. The New York City region, following the breakup of Conrail, is being served by two railroads; multiple railroads already serve the intermodal terminals in Northern New Jersey; float barges carrying rail cars serve some of New York City's needs; while thousands of trucking companies take care of both long haul and local deliveries in the area. The fiercely competitive nature of the freight industry, among modes and among companies, necessitates the implementation of a planning process that is responsive to industry needs, while taking societal impacts into account.

In today's context of just-in-time production systems and heightened international competitiveness, efficient goods movement is absolutely necessary. For that reason, and given the fact that demand is expected to grow and that adding transportation capacity is quickly becoming increasingly difficult and expensive, there is an urgent need to determine the course of action to be taken in order to guarantee increased efficiency in freight transportation movements. Effective policy making is not possible without an efficient institutional structure. However, policy making must begin, not with institutional capability, but with fundamental questions addressing economic and quality of life issues. Integrated, inter and multimodal transport policy must become more integrative in addressing current regional objectives, including:

- Reducing the costs of moving goods.
- Stimulating regional business location decisions.
- Assisting economic development and job creation.
- Reducing regional congestion.
- Improving air quality.

Only by embracing the above objectives as their guiding principles, the transportation agencies can begin the process of reshaping agendas and reviewing cooperative steps to achieve policy goals. However, it should be remembered that historical precedents in the region show how arduous and perilous the process of institutional change could be.

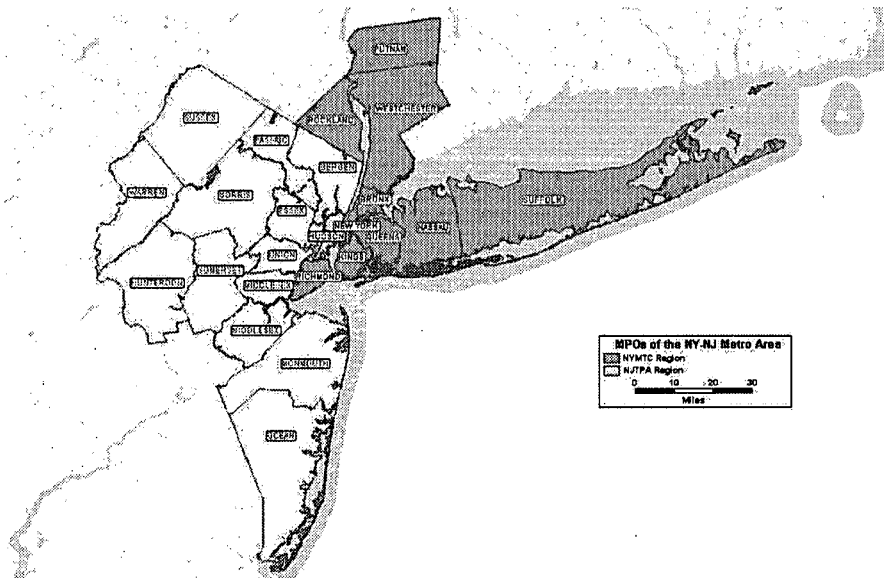
INSTITUTIONAL STRUCTURE

This section provides an overview of the different agencies that are related to the freight transportation system. This overview attempts to cover, to the extent permitted by the length of this paper, the agencies' history, purpose, responsibilities, geographic domain, as well as providing an indication of the agency's size and regional influence. Some of the information provided in this section comes from the web pages maintained by the different agencies which contain the most up to date information about the agencies considered here.

METROPOLITAN PLANNING ORGANIZATIONS IN THE REGION

In the strictest sense, there is no consensus on what is to be defined as the New York City metropolitan region. The Regional Plan Association, a civic group founded at the beginning of this century to foster regional planning, traditionally has defined the New York City region as having thirty-one counties, including counties in New York, New Jersey and three counties in Connecticut (Danielson and Doig, 1982, pp. 36-37). In this huge area, with more than 12,700 square miles, the combined jurisdictions of two Metropolitan Planning Organizations (MPOs) cover a great portion of the region. These MPOs, the New York Metropolitan Transportation Council (NYMTC) and the North Jersey Transportation Planning Authority (NJTPA), play a major role in regional transportation planning.¹ These regions are shown in Figure 1.

FIGURE 1: NYMTC AND NJTPA'S REGIONS



Although the situation of a metropolitan region with multiple MPOs is hardly a new event (see examples in Dempsey et al., 2000, Vol. I, Sec. II pp. 27-30), the New York City case is unique because of the size of the transportation agencies involved, of the MPOs, and the complexity of

1. Note that there are two MPOs that define the greater New York City and Northern New Jersey region – one based in each State. This is in great contrast to the MPO in the St. Louis region, where the metropolitan area also crosses two states, Missouri and Illinois and there is only one MPO. By having one MPO - East West Gateway - the St. Louis Region attempts to address local, and intra regional conflicts at one table.

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their institutional relationships. Regardless of which definition of the New York City metropolitan region is used, NYMTC's and NJTPA's regions cover a major portion of what could be considered the metropolitan region of New York, if defined in terms of the economic interactions of its different geographic areas.

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL (NYMTC)

The New York Metropolitan Transportation Council (NYMTC) is an association of local governments and transportation agencies that serves as the federally mandated Metropolitan Planning Organization (MPO) for New York City, Long Island and the Lower Hudson Valley (NYMTC, 1999). As shown in Figure 1, the NYMTC region is comprised of Manhattan, Brooklyn, Bronx, Queens, Staten Island (Richmond) plus the adjacent counties of Nassau (Long Island), Suffolk (Long Island), Westchester, Putnam, and Rockland.

NYMTC's board is comprised of both voting and non-voting members that represent the different constituencies. The *voting members* are: New York State Department of Transportation Commissioner (as a Permanent Co-Chairperson), Nassau County Executive (Rotating Co-Chairperson), New York City Planning Commission Chairperson, New York City Department of Transportation Commissioner, Metropolitan Transportation Authority Chairperson, Westchester County Executive, Putnam County Executive, Rockland County Executive, and Suffolk County Executive. *Non-voting members* are: Federal Highway Administration Division Administrator, Federal Transit Administration Regional Administrator, New Jersey Transit Executive Director, US Environmental Protection Agency Regional Administrator, Port Authority of New York & New Jersey Executive Director, New York State Department of Environmental Conservation Commissioner, North Jersey Transportation Planning Authority Executive Director, New York State Department of Transportation Region 11 Regional Director (Council Secretary). As seen, two of the voting board members are appointed by the Governor of New York, two are appointed by the New York City Mayor, while five are elected local officials.

NORTH JERSEY TRANSPORTATION PLANNING AUTHORITY (NJTPA)

NJTPA is the federally mandated MPO for Northern New Jersey. Its geographic domain consists of thirteen counties and two major cities, Newark and Jersey City. It is governed by a Board of Trustees comprised of one elected official of each county and the two major cities, for a total of fifteen members. The Board also includes a Governor's representative, the Commissioner of the New Jersey Department of Transportation

(NJDOT), the Executive Directors of New Jersey Transit and the Port Authority of New York and New Jersey, and a Citizens' Representative appointed by the Governor. Five of the voting board members are appointed by the Governor of New Jersey, two of them are elected city officials, while thirteen are elected county executives.

NJTPA's mission is the same as NYMTC's, which is to ensure regional compliance with planning regulations, conduct regional planning in its jurisdiction, and serve as a depository of data, as well as generating the Transportation Improvement Program (TIP) and other planning documents. More specifically, the mission of both NYMTC and NJTPA is: a) to focus the collective, federally funded planning activities and resources to ensure that the agencies' UPWP (Unified Planning Work Program) and TIP (Transportation Improvement Program) are based on sound technical analyses and are mutually consistent and supporting, and b) to produce and maintain a Regional Transportation Plan to guide future planning and program activities (NYMTC, 1999b; NJTPA, 2000).

THE DEPARTMENTS OF TRANSPORTATION

There are three Departments of Transportation in the New York metropolitan area: the State of New Jersey Department of Transportation (NJDOT), the New York State Department of Transportation (NYSDOT), and the New York City Department of Transportation. The first two are state Departments of Transportation (DOT), while the third one is the DOT of New York City. NJDOT and NYSDOT share responsibilities similar to those of other Departments of Transportation in the Nation: develop comprehensive transportation policy for the State, assist in the implementation of Intelligent Transportation Systems technologies, participate in the formulation of statewide master plans for highway, railroad, mass transit, port, waterway and aviation facilities. A significant component of their activities is related to supervising highway reconstruction and maintenance projects; and increasingly, deployment of Intelligent Transportation Systems in DOT facilities. New York City DOT, one of the largest of its kind in the world, also plays an important role on maintaining and operating the local streets and highway network of New York City.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT)

NYSDOT is one of the oldest transportation agencies in the United States. It is a descendent of the Office of Surveyor-General established in 1777, that has undergone a number of transformations over two centuries. In 1846 it was replaced by the Office of State Engineer and Surveyor, that, in turn, was replaced by the Department of Public Works in

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1878. The Public Service Commission, established in 1907, took charge of the regulation of private transportation, railroad, bus safety inspections, and rail-highway crossings. In 1909, the Highway Act created the New York State Department of Highways. An unified Department of Public Works emerged in 1923 (NYSDOT, 2000). The modern NYSDOT was created in 1967 as part of an overall reorganization of the institutional structure of the state agencies in New York under Governor Nelson Rockefeller.

The top executive of NYSDOT is the Commissioner of Transportation, who is appointed by the Governor and must be ratified by the State Legislature. NYSDOT is organized in eleven regional offices each having a Regional Director that is appointed by the Commissioner. Three different NYSDOT regions are located in parts of the New York City metropolitan region. Region 8 consists of the Hudson Valley, Region 10 represents Long Island, and Region 11 consists of New York City. Each of these regions enjoy relative independence, though key policy decisions are usually taken in consultation with NYSDOT headquarters in Albany. NYSDOT has an operating budget of \$4.8 billion (1998) and 11,000 employees.

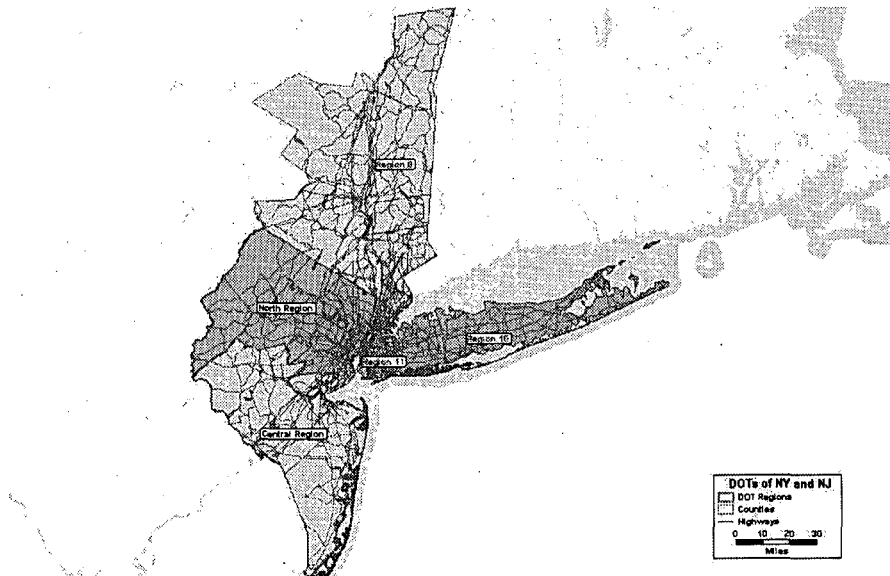
STATE OF NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT)

The NJDOT is the preeminent state transportation agency in New Jersey. NJDOT's main functions are related to statewide planning, maintenance and rehabilitation of transportation infrastructure. With more than 5,000 employees and an annual budget of \$2.17 billion. NJDOT is one of the largest and most influential agencies in New Jersey. This situation, together with access to State funds, enables NJDOT to undertake major transportation enhancement projects in an environment of relative independence. Some of these projects, e.g., Portway, are expected to improve the intermodal access to the New Jersey marine terminals along the Hudson River, thus enhancing New Jersey's role as a major national and international intermodal freight transportation hub. As with NYSDOT, it is organized in different regions (i.e., North, Central and South). Regions North and Central are the most relevant to the purposes of this paper because they represent the New Jersey counterpart of the New York City metropolitan region (see Figure 2).

NEW YORK CITY DEPARTMENT OF TRANSPORTATION (NYCDOT)

In addition to the state DOTs, the New York City Department of Transportation (NYCDOT) is in charge of local streets and arterials, supervises the city's franchise agreements with private bus companies, and oversees private ferry operators in city owned piers. NYCDOT is in

FIGURE 2: STATE DEPARTMENTS OF TRANSPORTATION:
 NYSDOT AND NJDOT

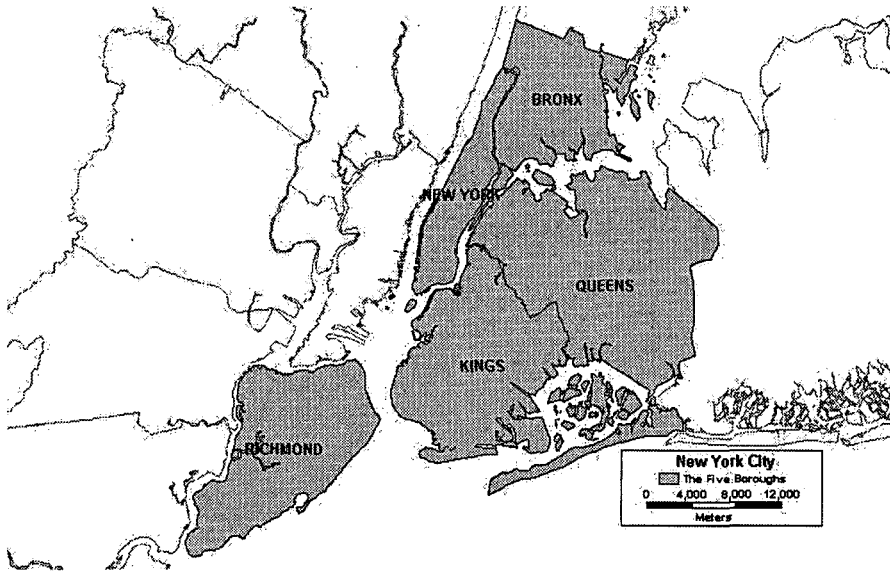


charge of defining local truck routes, of issuing commercial vehicle permits, and of promulgating traffic regulations that affect local deliveries of urban goods movements. NYCDOT also is in charge of deployment of Intelligent Transportation Systems in its facilities, and, through its alternative fuels program, of promoting the use of alternative fuels in the area, including truck fleets. NYCDOT jurisdiction encompasses the five boroughs shown in Figure 3.

NYCDOT is headed by a Commissioner who is appointed the New York City Mayor and must be ratified by the City Council. NYCDOT, in its capacity as the arm of the New York City Mayor in transportation, is in position to influence transportation policy and projects in the New York City area. This power, significantly more than what the financial capabilities and size of NYCDOT may suggest, is derived from the fact that the New York City Mayors are influential politicians in their own right. This, in turn, enable both the Mayors and the Commissioners of Transportation to play a powerful role in shaping transportation decisions.

NYCDOT network includes a number of key bridges (e.g., Brooklyn Bridge, Williamsburg Bridge, Manhattan Bridge and the Queensboro Bridge) that are of primary importance to urban goods movements. The NYCDOT transportation network is, for the most part, complementary to the transportation network of NYSDOT Region 11.

FIGURE 3: NEW YORK CITY FIVE BOROUGHES



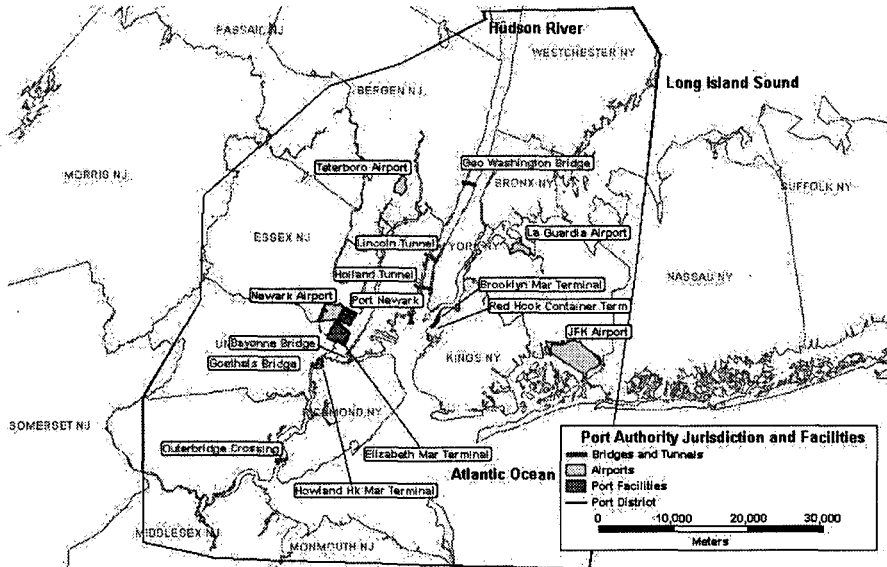
SPECIAL PURPOSE AGENCIES

PORT AUTHORITY OF NEW YORK AND NEW JERSEY (PANYNJ)

The Port of New York Authority (PNYA) was created in 1921, with broad responsibility to solve regional transportation problems, as a bi-state agency in charge of “Port District” a bi-state area of approximately 1,500 square miles centered on the Statue of Liberty (Danielson and Doig, 1982; pp. 155). A schematic of the Port District is shown in Figure 4. Interestingly enough, the main motivation for its creation was the widespread desire to improve rail freight’s efficiency (Danielson and Doig, 1982; pp. 187). In 1972, its name was changed to the Port Authority of New York and New Jersey (PANYNJ), to make it reflects its bi-state nature.

Although originally in charge of port related activities, the PNYA filled a vacuum in the transportation sector. In 1923, after it negotiations with the railroads on improving rail access to the region foundered, the PNYA turned its attention to vehicular traffic. The same year, both states agreed that future bridges and tunnels should be “constructed and financed by the Port Authority,” (Danielson and Doig, 1982; pp. 188) though the formal agreement was signed in 1930. With the transfer of the Holland tunnel to PNYA in 1930 an era of involvement with vehicular traffic began. In the following years the PNYA would play a primary role in building the George Washington Bridge (1931), the Lincoln Tunnel

FIGURE 4: PANYNJ'S PORT DISTRICT AND KEY FACILITIES



(1937); and later on, the second deck at the George Washington Bridge, the first containerports at Newark, the Port Authority Bus Terminal, and the World Trade Center (PANYNJ, 2000). The economic development impact of these investments has been significant. The cumulative investment in all facilities amounts to \$30 billion in 1999 dollars (PANYNJ, 2000).

Since its modest beginnings, the PANYNJ has transformed itself into an agency of considerable size and influence with 7,200 employees, and a total budget of \$3.6 billion (1999). Of similar importance is the amount of users of its facilities: 121.4 million vehicles used the interstate crossings in 1998; 3,075 ships arrived at its facilities in 1998; 86.40 million passengers used PANYNJ airports; and 65 million riders used the agency's interstate transit system (PANYNJ, 2000).

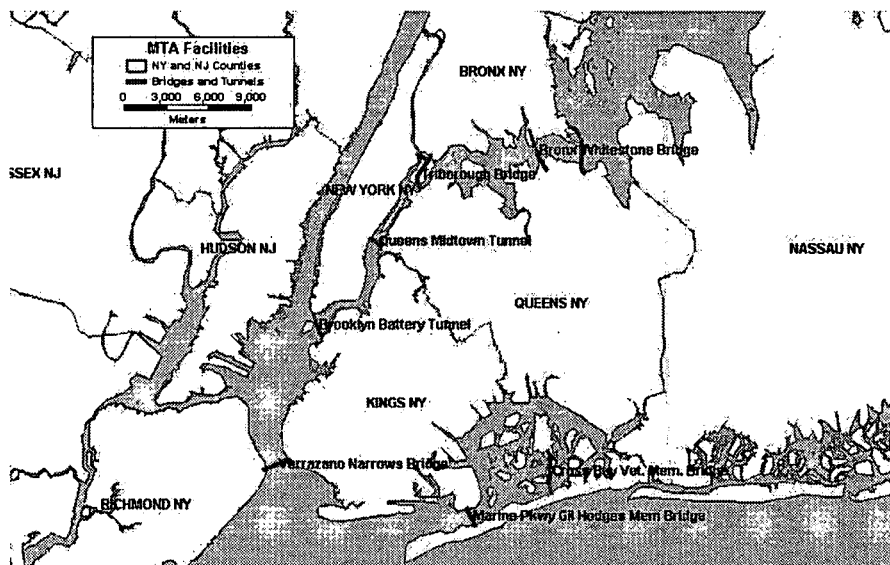
The PANYNJ is a self supporting public agency that relies almost entirely on revenues generated by facility users, tolls, fees and rents. It does not receive tax revenues from any local or state jurisdictions, and has no power to tax (PANYNJ, 2000). In terms of governance, the Governors of the States of New York and New Jersey each appoints six members to the Board of Commissioners who subject to state approval. The commissioners serve for overlapping six year terms, and the Governors retain the right to veto the actions of the commissioners of his or her own state. The Board of Commissioners appoints an Executive Director to carry out day to day operations.

METROPOLITAN TRANSPORTATION AUTHORITY (MTA)

The Metropolitan Transportation Authority (MTA) was created in 1968 with broad powers to operate, design and plan the transit system in the New York metropolitan region. The MTA is comprised of a number of different organizations that collectively handle commuter rail lines, subways, buses and the bridges and tunnels that were built by the Triborough Bridge Authority (currently MTA Bridges and Tunnels) under Robert Moses.

Two of the agencies comprising the MTA are of most interest for the purposes of this paper. The first one is Long Island Railroad (LIRR), which moves freight along its commuter lines, and MTA Bridges and Tunnels, which is in control of some of the most important bridges in the New York City area (i.e., Triborough Bridge, Throgs Neck Bridge, Verrazano Narrows Bridge, Bronx-Whitestone Bridge, Henry Hudson Bridge, Marine Parkway Gil Hodges Memorial Bridge, Cross Bay Veterans Memorial Bridge, Brooklyn Battery Tunnel and Queens Midtown Tunnel). Proposals have also been made to handle freight traffic along the rail lines of Metro North, another commuter rail agency part of MTA. These facilities are shown in Figure 5.

FIGURE 5: MTA BRIDGES AND TUNNELS



The MTA is governed by a seventeen member Board. Members are recommended by the Governor (six), New York City's Mayor (four), and the county executives of the outlying New York State counties served by

the MTA (seven members with a total of four votes, because the members from the counties of Dutchess, Orange, Putnam, and Rockland cast one collective vote). In addition to voting members, the MTA Board includes non-voting members representing transit worker unions (three) and various civic groups (three). The MTA operating budget in 1998 was \$6.4 billion with 58,000 employees.

THE NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION (NYC EDC)

The New York City Economic Development Corporation is a quasi-governmental agency which contracts with the city to promote long-term economic growth. The agency provides services to New York City businesses to make them more competitive, productive, and profitable (NYC EDC, 2000). NYC EDC has played an increasingly important role in trying to define freight transportation policy in the region.

The agency's President and a Chairman of the Board are both appointed by the New York City Mayor. The agency has been active in the effort to redevelop the Port of New York, and has produced a number of planning documents on intermodal freight transportation and urban goods movements. The NYC EDC also manages the Brooklyn Army Terminal in Sunset Park, Brooklyn and is overseeing renovations to the facility.

CHALLENGES AND OPPORTUNITIES IN CURRENT INSTITUTIONAL STRUCTURE

As it should be evident by now, the institutional structure of the transportation sector in the New York City metropolitan region is characterized by a high degree of fragmentation, both functionally and geographically. This fragmentation, which is the product of the nature and character of the historical evolution of the agencies in the region, prevents the region's transportation agencies from taking advantage of the tradeoffs that frequently occur in such complex systems.

From the functional standpoint, a number of different agencies control and operate key components of the region's transportation network, each acting somewhat independent of the others (see Table 1). Bridges and tunnels are operated and maintained by five different agencies (Port Authority of New York and New Jersey, New York City Department of Transportation, New York State Department of Transportation, New Jersey Department of Transportation, and Metropolitan Transportation Authority). The complexity is exacerbated, not only by operating concerns, but also by regulatory and financial concerns. For example, State DOTs must follow regulations set by the U.S. Department of Transporta-

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tion in planning and operating infrastructure. Their budgets are complex combinations of federal funding, and State general and dedicated funds (in New York and New Jersey, State DOTs do not operate toll roads, and do not issue debt). The special purpose authorities discussed here (i.e., Port Authority of New York and New Jersey, Metropolitan Transportation Authority) do operate toll facilities and, as noted, issue debt. A summary of the key features of the key agencies is shown in Table 1.

TABLE 1: MAIN FEATURES OF AGENCIES IN NEW YORK METROPOLITAN REGION

Agency	Geographic domain	Modes	Type of agency	Functions
New York Metropolitan Transportation Council	New York City + 5 counties in NY		MPO	Plan, coordinate
North Jersey Transportation Planning Authority	13 counties in NJ		MPO	Plan, coordinate
New York State Department of Transportation	New York State	State highways, traffic control systems	DOT	Plan, build
New Jersey Department of Transportation	State of New Jersey	State highways, traffic control systems	DOT	Plan, build
New York City Department of Transportation	New York City	Local streets, arterials, traffic control systems	DOT	Plan, build
Port Authority of New York and New Jersey	Port District in NJ and NY	Marine terminals, bridges, tunnels, airports, transit	Special purpose	Plan, build, operate, issue debt, toll
Metropolitan Transportation Authority	New York City + 7 counties in NY	Buses, subways, commuter lines, bridges, tunnels	Special purpose	Plan, build, operate, issue debt, toll
New York City Economic Development Corporation	New York City	Marine terminals	Special purpose	Plan, operate
Federal Agencies: USDOT, FHWA, FTA	US			Oversight, regulate

As shown in Table 1, geographically, no two agencies in the New York City metropolitan region have similar jurisdictions. This situation translates into the agencies having different definitions about their role and the relative importance of their constituents. The geographic jurisdiction also determines the area of responsibility of the agency and consequently the way in which the resources are allocated.

Almost all of the major transportation agencies in the region, in one way or the other, perform functions that overlap with other agencies. This overlapping is most evident between special purpose authorities and the Department(s) of Transportation. The Port Authority of New York and New Jersey (PANYNJ) has traditionally had a highly capable planning staff that performs technical work similar to that performed by the MPO; its jurisdiction overlaps with both the New Jersey DOT and New York State DOT; and, although originally focused on port development, over the decades, PANYNJ's role has changed to include the operation of the regional airports, an interstate transit system and the World Trade Center. The Metropolitan Transportation Authority, in addition to operating one of the largest transit systems in the world, operates a number of important toll bridges and commuter lines that play an important role in the freight system. At the same time, both New Jersey and New York DOT control a significant portion of the intermodal freight system, while the remainder is controlled by private intermodal companies.

The complexity of this institutional structure is magnified by the power relationships among the agencies. Contrary to the case of simpler metropolitan regions in which a single agency—frequently a DOT—is able to marshal the power to play a dominant role in its region; in the New York City metropolitan region no single agency enjoys a situation of dominance. Assuming that the operating budget is an indication of the agency's strength, it is interesting to note that four of the agencies have operating budgets—of the same order of magnitude—exceeding \$2 billion per year (MTA, \$6.4 billion; NYSDOT, \$4.8 billion; PANYNJ, \$3.6 billion; and NJDOT, \$2.17 billion). This situation makes systematic transportation planning much more difficult to achieve because there are many more players (with conflicting views about investment priorities) to take into account when doing transportation policy and programming. Furthermore, since two of these agencies issue debt the interest of bondholders need also to be taken into account.

In spite of the centripetal forces leading each agency toward a potentially different direction, there is no doubt that all the agencies must play, ultimately, a positive role in the region they are located. When addressing the objectives noted in the introduction, all agencies, local jurisdiction and special government must recognize two significant factors necessary to solve goods movement problems. These are:

- the rapid integration of high technology (Intelligent Transportation Systems, ITS) into infrastructure; and,
- the need to bring innovative and modern techniques of financing to support infrastructure renewal and growth.

The first, ITS, is changing the way infrastructure systems will be op-

erated (Paaswell, 2000). Infrastructure systems will go from static control to centralized, real-time dynamic control. This will add not only capacity, but more choices for system users. Ultimately, ITS should drive real system use costs down. The second addresses the need to get away from issuance of debt as the primary way to build new infrastructure. In Europe and Asia, innovative finance incorporates road pricing, land value arbitrage and a number of other approaches to raising capital and operating funds for modern infrastructure.

The complexity of today's local transportation governments mitigates against quick changes to these new models. First, each agency is supported by a particular local or State government and reflects—to some extent—the wishes of the voters. Second, each has a long institutional history of managing its slice of the pie. However, because these agencies have for the most part interlocking Board of Directors, —that are appointed by Governors, Mayors, and Legislatures— these obstacles to institutional change can be overcome. Atlanta, Maryland, Seattle and Vancouver have just gone through regional government transformations that began with setting new regional objectives, such as those noted above (for a meaningful summary of the Seattle case see Dempsey et al., 2000, Vol. I, Sec. II pp. 10-12).

NEW PARADIGMS OF GOVERNANCE

It seems evident that the institutional structure discussed above, which has been the result of a unique set of historical circumstances, needs to evolve to be able to deal with the new set of challenges posed by the 21st Century. The need to design and implement highly complex Intelligent Transportation Systems, to take into account the broad range of constituents, to do effective multimodal planning, to build the highly expensive and challenging infrastructure projects the region needs, necessitates a different kind of institutional structure based on new paradigms of governance.

It is not entirely clear at this point in time what these new paradigms would be. In all likelihood any new governance structures in the New York City metropolitan region are going to be the result of complex political negotiations. As with any other complex system, the result is likely to be determined by both the pressures for change and the political feasibility of the proposed solution. Importantly, it should be understood that the rationale for change begins with a strategic action: defining the objectives to improve intermodal and freight transportation. These must be added, or used to modify the broader set of transportation goals existing in the region.

In any case, regardless of the actual institutional and governance

structures that will be implemented in the future, the path to change will encompass three distinct set of options. The first set of options consist of modifying, in some cases redefining, broadening and in others narrowing, the agenda and mandates of different agencies. The second set consists of defining inter-agency cooperation agreements, (i.e., compacts, memoranda of understanding and other agreements), aimed at ensuring that the resulting institutional and governance structure is able to effectively respond to the development challenges outlined here. The third set is comprised of a set of actions intended to change the agencies themselves, including the creation of new agencies, if needed.

The structure of the region's MPOs may also need to change to include a broader set of constituents and stakeholders. In their present form, the region's special purpose agencies –that have been engines of economic development– are not fully represented as voting members, though the Port Authority of New York and New Jersey is member of NJTPA and the Metropolitan Transportation Authority is member of NYMTC. Many of the special purpose governments have been created to address complex issues of regional funding. However, in the past, most of these agencies, with the exception of the Port Authority of New York and new Jersey, have had narrowly focused agendas. The inclusion of the special purpose agencies as part of the MPOs would significantly enhance the planning process, bringing to the planning table considerable expertise in innovative financing and programming, and would undoubtedly smooth the implementation of projects and programs.

Other proposals that deserve consideration and that certainly have the potential to enhance interagency coordination are: a) to put the Commissioner of the New York State Department of Transportation in the Boards of the Port Authority of New York and New Jersey and the Metropolitan Transportation Authority; and, b) to create a Transportation Cabinet, comprised of the Executives of the transportation agencies in New York City. Though incremental such steps could improve coordination and pave the way for more formal interagency interactions.

The region's leaders must also try to achieve an institutional structure for the transportation sector that is able to deal with the frequently differing perspectives of Mayors and Governors, while still providing effective transportation planning. Outside pressure, from both civic groups and the Federal Government, may play a key role in aligning the priorities of Mayors and Governors toward institutional change. The Federal Government should play the same type of proactive role it played during the construction of the interstate highway system. Environmental legislation may be the catalyst for an increased Federal role in the region. Civic groups must play a proactive role in pushing transportation up in the busy agendas of Mayors and Governors, so that the region's leaders appreciate

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the need to undertake the institutional changes the region needs. Such outside pressure may also play a role in mitigating other dynamics such as: City vs. Suburbs, Highway vs. Transit, State Agencies vs. Local Governments, that add significant complexity to the political equation.

Agencies in New York City metropolitan region have a history of change. The challenge of integrating goods movement priorities into the region's transportation agenda comes from understanding that the transportation components are highly multi modal, and that the private sector is the primary player. Global competitiveness mandates that the region reexamine how it moves and transfers goods entering, leaving and being redistributed to and from the rest of the world. This is part of an economic development agenda that must also help shape the transportation agenda.

The political realities at the New York City metropolitan region, in which a set of powerful, tradition-rich, agencies have dominated the institutional scene for decades, seems to indicate that the path to change will be one more of gradual evolution than one of institutional revolution. The existing agencies are characterized for having, for the most part, highly competent executives in the art of politics that are likely to defeat abrupt changes in the agency's role, and of its position in the institutional totem pole.

CONCLUSIONS

The institutional system governing the New York City metropolitan area is as complex and varied as the transportation system itself. It is comprised of a number of agencies of great influence and power that, for the most part, operate in an environment of functional and geographic fragmentation.

This situation is the result of a unique set of historical circumstances. However successful in the past, this institutional structure needs to transform itself into another more responsive to the economic development objectives of one of the largest, and more complex, metropolitan regions in the world. This challenge is compounded by the sheer size of the regional transportation system, both of passengers and freight; and by the integrative pressures of the tidal wave of Intelligent Transportation Systems –that are effectively pushing the agencies down the path of inter-agency coordination.

However high the pressure for institutional change may be, it will not take place in a vacuum. It will take place in a highly contested political arena, with players well versed in the political arts that, most likely, will defeat any proposal that may significantly reduce or alter the perceived power of the agency. This situation seems to indicate that the path

of institutional change will be one more of gradual evolution than of revolutionary institutional transformations. Outside pressure, from both civic groups and the Federal Government, is a *sine qua non* condition for the regions' leader to develop a common agenda of institutional change.

This paper identifies three main avenues of change: redefining the agencies' mandates and roles; implementing inter-agency compacts or memoranda of understanding that lay out the foundation for effective inter-agency cooperation; and transforming the institutional structure including the consolidation and creation of new agencies, if deemed necessary. In any case, the existence of powerful political players at all of the agencies involved, each having its own set of constituents and demands, points out to a long and arduous process of institutional change. It is the authors' hope that at the end of this process the New York City metropolitan region be able to have the regional and multimodal transportation agencies that have been the unfulfilled dream of long gone generations of planners and civic leaders.

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