

LOWER MANHATTAN'S TRANSPORTATION SYSTEM: WHERE WE ARE, WHERE ARE WE GOING?

Introduction

This paper summarizes the status and issues of major transportation plans for Lower Manhattan. The destruction of the World Trade Center (WTC) and much of the transportation infrastructure below it has created an opportunity for a bold plan for rebuilding these systems to make Lower Manhattan one of the most accessible and desirable districts in the world to work, live or visit. But to meet this goal we must not just rebuild what was lost in September 2001, but replace it with something far better. If Lower Manhattan is to fully recover, the transit systems and streets beyond the WTC site, extending to all of Lower Manhattan must be upgraded too. It will be not be cheap and it will not be easy as the City and the State sort through competing priorities and competing interests in a climate of limited resources.

It is the extraordinary concentration of public transit services -- 14 rapid transit lines, over 40 bus routes and a number of ferry services, which has made Lower Manhattan's high density possible. Transit carries 85 percent of the 1.2 million trips entering and leaving Lower Manhattan daily. This system must be maintained, upgraded and expanded if Lower Manhattan is to thrive. The road system must function too, carrying the remaining travelers, goods and waste, and providing for police, fire and emergency vehicles and buses on a network that was first laid out as cowpaths 300 years ago.

As important as the trains, buses and streets, is the public space environment encountered each day by workers, residents and visitors in Lower Manhattan. All of us must walk to and from our daily destinations and spend parts of the day on foot to run errands, travel to business meetings, lunch, shop, or just stroll to break up our busy days. The sidewalks connect us to underground transit, to the ferry slips, to the bus stops, and even to the parking lots and garages. The impressions we have, consciously or subconsciously of these experiences drive our view of whether Lower Manhattan is a place we want to be in, either on a daily basis, or even just for the occasional visit. As we come to grips with rebuilding the transportation system of this damaged portion of our City, we would be remiss if we ignored the pedestrian environment, too often an afterthought in city planning.

The remainder of this paper covers specific transportation issues, discussing the problem, the status of progress toward solutions and RPA's perspectives.

The Walking Environment, the WTC and Beyond

The now destroyed World Trade Center functioned poorly from a walking perspective, with most travel occurring underground while the vast plaza above was largely devoid of activity. The WTC superblock, in the absence of through streets, made it virtually impossible to cross the site without descending below ground. The Lower Manhattan Development Corporation (LMDC) recognized these weaknesses and encouraged designs that would bring back some of the streets lost when the WTC was built. The winning design concept by Studio Libeskind extends Fulton and Greenwich Streets through the site. But the form that the underground walking network will take is still uncertain. Before 9/11 the four stations under or adjacent to the WTC site were near one another, but walking connections among the four were not obvious or direct. Two of these stations were destroyed and the other two have had their services

restored after minor repairs. The rebuilding of the WTC site and the rebuilding of the two closed stations (the PATH WTC station and the 1/9 Cortland Street station), provides the opportunity to design the pedestrian circulation patterns and create a high amenity transit complex. The design of this complex has now been put in the hands of Santiago Calatravas, the internationally acclaimed architect of train stations, who will work with Libeskind's concept. This does not mean that many concerns have been magically dealt with. Among these are 1) poor circulation among the stations, 2) excessive retail space underground that could divert from neighborhood businesses, and 3) the location of storage areas for tourist buses in the WTC basement. Two billion dollars of \$4.5 billion of federal funds allocated for transportation are to be used for the station complex. As design options emerge, RPA will be analyzing them carefully.

West of the WTC, the presence of busy West Street, some 210 feet across, serves as a barrier between the World Financial Center and Battery Park City and the rest of Lower Manhattan. This problem had been partially addressed prior to 9/11 with two pedestrian overpasses, but the more heavily used one connected directly into the Winter Garden was destroyed. Two solutions are on the table – a short tunnel from Liberty Street to Murray Street to remove some of the traffic from the surface, and a redesigned West Street built to higher amenity standards. The tunnel would cost about \$700 million more than the surface option and take five years to build compared to two years, and many Battery Park residents fear the tunnel would isolate the community further with its long entrance portals. A less expensive solution would leave more funds for other transportation purposes. On the other hand, the tunnel would make crossing West Street easier, and might, pending on design, mitigate intrusive vehicle noise and blight near the memorial.

Beyond the WTC site, prioritization of precious street space use is needed, given the many demands on limited space. A street management plan that treats street space as a scarce commodity is needed to determine when and where various uses should receive priority. This plan would recognize the primacy of pedestrians while accounting for necessary vehicle operations and storage, including goods delivery and waste removal, service, utility and emergency vehicles, commuter and tourist buses, and the needs of residents. Such a plan would be developed through a process of reaching consensus among the users of the space, informed by data gathered on current needs and use. RPA is seeking funds to bring the parties together and to collect the necessary data.

In the short term, new pedestrian spaces in Lower Manhattan should be created using retractable bollards that allow access to emergency, utility and service vehicles, replacing concrete barriers that give the appearance of an armed camp. As downtown rebuilds, a network of parks, plazas, streets, and pedestrian-friendly environments should be provided to improve access to public transportation, the waterfront and other major destinations in Lower Manhattan. Standards should be adopted that encourage better lit and more secure streets.

Upgrading the Subway System

After 9/11 there was a new recognition of the importance of a well-functioning transit system to Lower Manhattan. The result was the emergence of two major plans for upgrading dysfunctional portions of the existing transit network -- the Fulton/Broadway complex and the South Ferry subway station. At Fulton Street four stations are connected by a catacomb of

bewildering corridors, and at the South Ferry station the loop configuration and narrow station design limits pedestrian flow, creates long connecting walks to the ferry services in Lower Manhattan, slows 1/9 subway service, and limits track capacity.

The MTA is moving ahead with the Fulton Transit Center, which is designed to improve connections among the four stations, opening up the Lexington Avenue line station to light and air with a new off-sidewalk entrance between Fulton and John Streets on the east side of Broadway. The station would be connected to the World Trade Center transit complex one block to the west with an underground walkway under Dey Street. The cost of the project is estimated at \$750 million and would be completed in 2007, with funding to come from the federal transportation pot mentioned above. One controversial feature of the project is the potential razing of the late 19th Century Corbin Building, which preservationists are trying to save. A design that incorporates either the facade of the building or the entire structure is being considered. RPA supports the effort to save the entire building, if it can be done without materially affecting the design of the Fulton Transit Center.

The second project, the South Ferry station replacement, is designed to overcome the many deficiencies of a station that requires thousands of commuters daily to suffer with platforms that can only handle half the train, delays from slow train movements, and a single overcrowded exit. The station, which serves as gateway for tourists destined for Liberty and Ellis islands, is an embarrassment. The project's original design under Battery Park City has been re-evaluated at the urging of the Battery Conservancy, producing a new design which would do less damage to Battery Park while providing easier transfers to the Staten Island ferry terminal and other subway stations in the area. The project will cost \$400 million and be completed in 2007.

Suburban Access and Airport Access

The tragedy of 9/11 has highlighted the inherent weaknesses in the transportation system serving Lower Manhattan, particularly in contrast to Midtown. With no direct commuter rail access from any of the three suburban sectors (Midtown has such access from all three sectors), Lower Manhattan has been at a competitive disadvantage for office locations for several decades. Similarly, it is difficult to reach any of the three major airports by rail and current plans for improving that situation do not materially benefit Lower Manhattan.

Soon after 9/11 Brookfield Properties proposed the construction of subway connections in Brooklyn that could bring trains into Lower Manhattan using the tunnel now carrying A and C trains. Service would begin in Jamaica to serve Long Island commuters and provide for a transfer to the Kennedy Airport Airtrain, to open next year. But interference with existing subway service and riders is a concern. The City has proposed a new tunnel under the East River which avoids impacting existing subway service while providing a one-seat ride to JFK. The City also called for a connection in Jamaica to give Long Island Rail Road riders a more direct trip into Lower Manhattan. Each of these concepts would leave passengers at only one point in Lower Manhattan, limiting their utility and the time saved for both air passengers and Long Island commuters. RPA has suggested a number of other alternatives that would remedy this problem by stopping at a number of locations in Lower Manhattan and provide the added benefit of through service to points further north in Manhattan. Among the possibilities are to connect the tunnel to the planned Second Avenue subway, which is to be designed to allow

such a connection from Brooklyn. LMDC, working with the MTA, the Port Authority and the City's Economic Development Commission, has been asked by Governor Pataki to sort through the alternatives and make a recommendation by next spring. However, funding sources have not been identified. RPA has developed a criteria matrix for consideration of alternatives that emphasizes the importance of good distribution in Lower Manhattan to maximize the time savings value, provision of through service to points north in Manhattan, and service to downtown Brooklyn. This matrix is included here.

Comparison of Alternatives for Rail Access to Lower Manhattan from the East

Criteria	Alternative >>>> Brookfield	Connection to SAS	Connection to E	Connection to SAS and E	Connection to N/R (CCS Proposal)	Connection to SAS and then to WTC Vicinity via Liberty Street	Connection to SAS and then to E via Liberty Street	To WTC Vicinity (assumed to be Mayor's proposal)	Connection to E train	
	A	B	C	D	E	F	G	H	I	
New Tunnel	None	New tunnel from Atlantic Avenue to Battery Vicinity						New tunnel to Liberty Street from vicinity of Pineapple Street		
AirTrain one-seat	no	yes	yes	yes, both east and west side possible	yes	yes	yes	yes	yes	
AirTrain & subway both in tunnel	no	yes	yes	yes	yes	yes	yes	yes	yes	
Illustrative hourly frequency (subway/AirTrain)	(10/0)	(15/5)	(15/5)	(12/12/4/4)	(15/5)	(12/12/4/4)	(12/12/4/4)	(15/5)	(15/5)	
Distribution capability in LM (# stations)	1	2	2	4	4	3 or 4	4	1	1 or 2	
Connects to rest of Manhattan	no	east side	west side	east and west side	east side south of 23rd Street; west side to north	east side	east and west side	no	west side	
Connection to Metro North riders	no	possible with spur at GCT	no	possible with spur at GCT	no	possible with spur at GCT	possible with spur at GCT	no	no	
Travel time from Jamaica to LM	25 plus	20	23	23	20	22	22	22	23	
Avoids WTC site	maybe	yes	no	no	yes	yes	no	yes	no	
Avoids negative impacts to subway riders	no	yes	yes	yes	no	yes	yes	yes	yes	
Access to Downtown Brooklyn (# stations)	1	2	2	2	2	2	2	unknown	unknown	
Constructability issues	Connection for C train sub-standard		Difficult construction issues from Battery to WTC	Difficult construction issues from Battery to WTC		May require building underpinning or deep station	May require building underpinning or deep station			
Cost estimates	\$1.9b to \$ 5.0b	\$ 4.3 billion	\$ 5.1 billion	\$ 5.9 billion	\$ 3.7 billion	\$ 5.7 billion	\$ 5.7 billion	\$ 4.8 billion	\$ 4.8 billion	

Notes

1. For service frequencies numerous possibilities exist. Only one is shown for illustrative purposes
2. Construction costs: for Brookfield assumed range discussed publicly. For others assumed \$80,000 per foot under land and \$49,000 per foot under water, as done in Mayor Bloomberg's concept; assumed \$400 million per new station.
3. Any new station in vicinity of WTC is assumed not to be on the WTC site.
4. There are two Atlantic Avenue alignments, with the first continuing along Atlantic Avenue directly to Atlantic Terminal and the other shifting over to Schermerhorn Avenue in Brooklyn Hts., then joining the Atlantic Branch of the LIRR at Vanderbilt Avenue.

Second Avenue Subway

The Second Avenue line, committed to be built from 125th Street to Hanover Square in Lower Manhattan, would help the economy of Lower Manhattan in a number of ways. First, the new line under the east side of Lower Manhattan would stimulate development in a currently underserved portion of Lower Manhattan. Second, it would provide for improved subway service with a new direct route into lower Manhattan through its Broadway service, and third it would relieve crowding on the overworked Lexington Avenue express, effectively added to capacity on that line, and forth it would provide Metro North riders two more reliable and less crowded choices to Lower Manhattan than the current Lexington Avenue line. The benefits that would accrue to Lower Manhattan have been largely overlooked in some quarters.

Ferries

The layout of Lower Manhattan, with most of its land area within a reasonable walk of the East or Hudson rivers, is ideal for ferry operations, which could expand the choices for commuters who can easily reach shorelines throughout the metropolitan area. Opportunities for expanded ferry service can come with investments in the new Lower Manhattan docks, such as at the Battery Maritime Terminal, now largely unused just east of the Staten Island Ferry Terminal. Potential ferry markets include those where there is poor ground transportation with little prospect for improvements. Such areas could include the Rockaways in Queens and Greenpoint and Red Hook in Brooklyn. Other new ferry markets include areas where transfers between ferries and ground transportation modes can be created, possibly in Long Island City. Many new ferry services may not be viable without some operating subsidy to keep fares within a manageable level for many potential riders. But funding for this purpose should not be taken from existing transit subsidies and would need to be found.

Goods and Waste

Increased demands on the streets of Lower Manhattan and security concerns since 9/11 suggest a coherent and coordinated policy for bringing in and removing goods and removing refuse. All possible options, especially those that minimize truck use and exploit water or rail transportation should be pursued.

Buses

It is expected that the completion of the memorial at the WTC will bring record numbers of tourists to Lower Manhattan, many on tourist or school buses, which will require space for loading, unloading and for storage. Originally, the Port Authority proposed storing the buses in the basement of the WTC site, but family members of those who died on 9/11 objected. Alternate sites are now under study, including under the Deutsche Bank site, now part of the WTC redevelopment. Hopefully, this will work. But every effort should be made to encourage a shift to rail or ferry modes for tourists to limit the volume of buses on the streets of Lower Manhattan and under development sites.

How Do We Pay for Lower Manhattan's Transportation Needs?

Over \$3 billion of the federal commitment of some \$4.5 billion for transportation is spoken for by the WTC transit center, the Fulton Transit Center and the South Ferry project. West Street would consume between \$200 million and \$900 million more, leaving little for other projects, including new rail services from JFK or Long Island, the Second Avenue Subway, street improvements, and ferry infrastructure. To close the gap, every revenue option should be

considered, with the objective of producing a mix of revenue sources that doesn't disproportionately impact any sector of the economy. The potential use of East River bridge toll revenue and of pricing vehicle entries into Manhattan should be entertained and coordinated with the Street Management Plan described earlier.

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Jeffrey M. Zupan
Regional Plan Association