[This is my section of a 4-person arguing that the FDR Drive from the Battery to the Brookly Bridge should not be lowered to grade. This section, Section 2, is a discussion of the transportation issues. Section 1 was on the "business perspective", Section 3 the "community perspective", and Section 4 "real estate development".]

SECTION II: Transportation

by S. Sabina Wolfson

Replacing the FDR Drive viaduct with an at-grade roadway between the Battery and Brooklyn Bridge would worsen the transportation network (for vehicular traffic – including busses – as well as bicyclists, pedestrians, and ferry users), be very expensive in term of construction costs and quality-of-life issues, and inhibit waterfront access. In addition, destruction of the viaduct would be a waste of a historic asset and against the wishes of the residential and business communities.

The transportation network would suffer

Attempting to replace the FDR Drive viaduct (from the Battery to the Brooklyn Bridge) would require accommodating the current traffic on both the viaduct and South Street (a local-access roadway under the viaduct). This portion of the FDR is a limited-access traffic artery (with 3 northbound and 3 southbound lanes) accommodating about 60,000 vehicles per day[1]. During the peak hour, this artery moves more than 4000 vehicles. South Street (with 1 northbound and 1 southbound travel-lane) accommodates about 600 vehicles per hour during peak hours[2]. Demolishing the viaduct would undermine the intent of limited-access roadways – such as the FDR – to *not* put additional strain on local streets.

Replacing the viaduct and South Street with a 6- to 8-lane at-grade roadway – arguably the widest that could fit[3] – would not accommodate all of the traffic. This would result in diverted

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[1] New York State (NYS) Department of Transportation (DOT), 15 May 2001. Annual Average Daily Traffic count of 58,126. Note that this number may represent only 66% of the traffic since the published traffic count states that it is for 2 northbound and 2 southbound lanes.

[2] Metropolitan Transportation Authority (MTA), March 2003, *Second Avenue Subway* (SAS) *Supplemental Draft Environmental Impact Statement* (SDEIS), Chapter *5D Transportation – Vehicular Traffic*. "South Street, which has one travel lane northbound and southbound... currently carries 200 to 400 vph [vehicles per hour] per direction during the AM and PM peak hours".

[3] There is approximately 100 feet of space under the viaduct including South Street (estimated from New York City Economic Development Corporation's *East River Bikeway and Esplanade* schematic drawings). In theory this would allow for eight 12-foot lanes and two 2-foot buffer zones. (Note, however, that some structures – such as part of the Fulton Fish Market – are partially under the viaduct.) In practice, space for a median would be needed, wider buffer zones would be required, and parking/delivering space might be necessary, resulting in a 6-travel-lane roadway.

traffic to other Lower Manhattan streets already "legendary" for gridlock[4]. In particular, there would be substantial diverted traffic to Water Street[5]. The overall result would be increased congestion and longer journey times for surface transportation modes from private vehicles to taxies, and busses[6].

Given that Lower Manhattan's residential population grew faster than anywhere else in the city between 1990 and 2000 and is expected to grow by 75% between 2000 and 2005[7], and given that new trip-generating facilities are likely to be developed[8], the strain on the transportation network will be even greater looking forward.

Bicycle and pedestrian movement would be restricted by the impact of a wide at-grade roadway on the waterfront Greenway. At best the wide roadway would severely limit the width of the Greenway along the waterfront, resulting in a cramped and unpleasant space. More likely it would result in no appreciable space for the Greenway. Even if space were found for the Greenway, it would be severed from the rest of Lower Manhattan by the wide roadway inhibiting access to the waterfront (discussed more below under *Waterfront access would be inhibited*). In addition, the resurging passenger ferry business would likely be negatively impacted by this same division between the waterfront and the rest of Lower Manhattan.

If – instead of a "boulevard" at-grade – a new limited-access at-grade roadway were created, fewer lanes of traffic would be required (due to the increase speed and throughput). However, these lanes would have to be wider (again, due to the increased speed), and the waterfront would be completely cut off from the rest of Lower Manhattan since pedestrians cannot cross a limited-access roadway at-grade. In addition, some local-access roadway would be needed (next to the limited-access roadway) to accommodate local traffic and deliveries. This would be trading one bad choice for another.

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[4] New York City Council, August 2002, *Building a Better New York: Recommendations for Lower Manhattan Redevelopment.*

[5] American Institute of Architects Planning & Urban Design Committee, March 2003, presentation *East Side Waterfront* by Alliance for Downtown New York, Community Board 1, and Skidmore, Owings & Merrill. "Traffic planners calculated [a boulevard at grade] would necessitate an additional lane of traffic beyond what the elevated drive requires, and significantly increase through traffic on Water Street".

[6] Busses that run along Water Street, including New York City Transit local and express busses and the free *Downtown Connection* service, would be negatively impacted by the increased congestion from diverted traffic.

[7] Downtown Express, 1-7 July 2003, *Meeting the needs of Downtown's growing population.*

[8] For example, proposed Calatrava/Sciame tower at 80 South Street, Tin Building, Fulton Market, etc.

The viaduct's role in the transportation network is critical.

Construction costs are estimated to be on the order of $1 billion

The $1 billion estimate of construction costs is a very rough estimate, but – based on a range of estimates from $900 million to $2.7 billion – it is a conservative estimate. This estimate is the sum of the two major construction costs. (1) The cost for demolishing the viaduct and constructing an at-grade roadway is estimated at about $300 million[9]. To be conservative in the estimate, this assumes no additional right-of-way is required which would be extremely expensive (and socially questionable given the historic nature of much of the area). (2) The cost of reconstructing the Brooklyn Bridge interchange is the majority of the cost. There are ten connections between the street, the Brooklyn Bridge, and the FDR Drive viaduct, eight of which would likely require construction or reconstruction[10] to fit a new at-grade roadway geometry. This interchange is estimated to cost between $600 million and $2.4 billion[11].

There are, of course, other costs to construction: noise, disruption, and pollution. Such costs have *not* been included in the above estimate in order to keep the estimate conservative and because these costs are controversial to estimate. And note that these costs are not necessarily one time costs. Evidence suggests that pollution on elevated freeways is lower than on at-grade freeways[12], traffic congestion increases pollution[13], and disruptions to quality-of-life can cause residents or businesses to relocate[14].

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[9] NYS DOT estimates, in 1994, that similar demolition and construction for the Gowanus would cost $656 million. Converting from a length of 3.5 miles (Gowanus) to 1.3 miles (FDR) the cost would be $244 million in 1994 dollars. Adjusted for inflation, this is about $300 million in 2004 dollars.

[10] [1] FDR NB (north bound) to the street, [2] FDR NB to the BB (Brooklyn Bridge), [3] FDR SB to street, [4] FDR SB to BB, [5] BB to FDR NB, [6] BB to FDR SB, [7] BB to street, [8] street to FDR NB, [9] street to FDR SB, [10] street to BB. Connections [7] and [10] – BB to and from street – would likely not need reconstruction.

[11] Estimates for bridge-FDR ramp construction costs are from $300 million to $75 million per ramp.

(i) **$300 million** to build a two-lane ramp from the FDR to the Brooklyn Bridge says a NYC DOT spokesperson. (New York Construction News, August 2003, *Big Plans: The Region's Transportation Infrastructure Due for Expansion*)

(ii) **$200 million** to building a new ramp connecting Brooklyn Bridge to the southbound FDR. (New York Times, 21 February 2002, *Plan to Cut Construction Spending Would Delay Willis Avenue and Brooklyn Bridge Projects*)

(iii) **$75 million** for ramps from the Williamsburg Bridge to the FDR according to the NYC DOT's final report on the FDR Drive / Lower Manhattan highway loop study (inflation adjusted from $56 million in 1991 dollars). (Mobilizing the Region, 21 September 1994, *NYC DOT Releases Lower Manhattan Truck Loop Study*)

[12] Nikolaou, Buffington, Herrera, & Inkeuk, May 1997, *Traffic air pollution effects of elected, depressed, and at-grade level freeways in Texas*.

Waterfront access would be inhibited

A wide at-grade roadway can isolate one area from another as seen on the West Side of Lower Manhattan: "West Street divides lower Manhattan, cutting off Battery Park City and the Hudson waterfront from the rest of downtown."[15] This can negatively impact transportation modes that use the waterfront or the Greenway (pedestrians, bicyclists, ferry users) by separating them from the rest of Lower Manhattan.

Crossing a wide at-grade roadway can be achieved with signaled cross walks. However, if the green phase of the signal is long enough for the pedestrians to cross the whole of the roadway, vehicular congestion increases (due to the long red phase along the roadway) requiring additional lanes to move the same number of vehicles. On the other hand, if the signal is timed to keep vehicular traffic moving, such that a pedestrian can only cross half the roadway in a phase, a median refuge is needed, again necessitating a wider right-of-way. At popular destinations such as South Street Seaport, the median refuge would have to be quite large due to the high number of pedestrians crossing the street. In addition, pedestrians tend to not favor median refuges and try to cross the whole roadway in one light, increasing pedestrian-vehicular accidents. (Pedestrian bridges are not a viable solution[16]).

Thus, regardless of the implementation, accessing the waterfront would be more difficult with a wide at-grade roadway than with the viaduct. The viaduct can easily be walked under and the only roadway to be crossed is South Street. The viaduct *enables* waterfront access.

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[13] Elihu D. Richter & Tamar Berman, July 2001, *Speed, Air Pollution, and Health: A Neglected Issue*, Archives of Environmental Health.

[14] Lower Manhattan businesses are concerned about being in a "permanent construction site" and two-thirds oppose replacing this portion of the FDR with an at-grade roadway. (Downtown Alliance, April 2003, *Transportation Priorities for Lower Manhattan*)

[15] New York City Council, August 2002, New York: Recommendations for Lower Manhattan redevelopment.

Civic and business organizations concur: "West Street, at least on the blocks adjacent to the World Financial Center, should be suppressed, linking the Hudson River and Battery Park City, with the rest of Downtown". (*Key principles in rebuilding Lower Manhattan*, Alliance for Downtown New York, Association for a Better New York, New York City Partnership, Real Estate Board of New York)

[16] Sam Schwartz has summarized the situation quite well: "The worst thing we ever did is pedestrian bridges: we'll put the highway at grade and pedestrians will just walk over the highway. Well pedestrians hated that... That was a big failure." (Metropolis Magazine, June 2002, *Good Grades*)

Further, pedestrian bridges that are accessible to the disabled cost about $15 million each. (Downtown Express, 16-22 April 2004, *Vesey elevators coming this summer to a bridge near you*)

Support is significant and broad

People are the users of transportation so their opinions should be considered. The FDR viaduct allows for easy access to the waterfront, and there is massive support for waterfront access from politicians to business and civic organizations[17]. The community has also shown great support in the "unique, community-based, collaborative effort" resulting in the *Downtown East River Waterfront Concept Plan*[18] which emphasizes open space and waterfront access.

The FDR should not be destroyed

Lowering the FDR would worsen the vehicular traffic congestion in Lower Manhattan while also undermining other transportation modes (pedestrian, bicycle, ferry, and bus). Further, a wide at-grade roadway between Lower Manhattan and its waterfront would make it very difficult for the City to utilize this asset for recreation and for development.

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[17] **Mayor Bloomberg**: "Today's announcement... is indicative of this administration's commitment ... to restore access to our great waterfront and improve the quality of life for all New Yorkers". (PR-271-03, 30 September 2003) "We must open the waterfront to the public". (December 2002, *New York City's Vision for Lower Manhattan*) **Governor Pataki**: "The creation of the Manhattan Waterfront Greenway continues our commitment to providing pedestrian-friendly options for commuters and recreational cyclists, in-line skaters, runners, and others, while simultaneously giving New Yorkers access to their majestic waterfront". (PR-271-03, 30 September 2003) **Senator Schumer**: "To truly revitalize Lower Manhattan, we need to build a beautiful apron park [...] a great park that could connect the waterfront with the rest of downtown". (press release, 28 June 2002, *Build a Central Park for Lower Manhattan*) **Manhattan Borough President Fields**: "We must continue to find new ways to increase access to the waterfront..." (PR-271-03, 30 September 2003) **New York City Council**: "New open space can be developed not only on the former WTC site and a buried West Street, as the Planners have proposed, but also on the East River. [...] Manhattan Community Board One and the Downtown Alliance, for instance, have developed an East River Master Plan". (August 2002, *Building a better New York: Recommendations for Lower Manhattan redevelopment*) **Department of City Planning**, director of the Waterfront and Open-Space Division, Wilbur Woods: [T]he city's current waterfront revitalization plan focuses on four specific areas: increasing public access... (Downtown Express, 18-24 November 2003, *Attention focuses on Downtown's 'other waterfront'*) **Alliance for Downtown New York**, **Association for a Better New York**, **New York City Partnership, Real Estate Board of New York**: "The East River waterfront and Battery Park should be dramatically improved, with the principal goal of providing access, open space and services". (*Key principles in rebuilding Lower Manhattan*) **Civic Alliance to Rebuild Downtown New York**: "The most essential actions to provide the cultural and recreational activities...include...improving parks, waterfront access and recreation, and improving open space and pedestrian connections." (September 2002, *Economic development working group reports*) **Madelyn Wils** (chairperson, **Community Board 1**) and **Carl Weisbrod** (president, **Downtown Alliance**): "We believe that lowering the FDR to street level would severely reduce Downtown's connectivity to the rest of the region, as well as between the west and east side of Lower Manhattan. Moreover, it is a prohibitively expensive and lengthy project that may increase barriers to the waterfront rather than reduce them." (The Villager, 10-16 December 2003, Letter to the Editor)

[18] The Alliance for Downtown New York and Manhattan Community Board 1.