WHAT TO DO WITH THE HIGH LINE?

Final Draft Report

June 21, 1999

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Prepared for
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WHAT TO DO WITH THE HIGH LINE?

Introduction and Background

History. On June 1, 1999 CSX Transportation, Inc. and Norfolk Southern, the two major Class I rail freight carriers in the eastern half of the United States assumed control of properties formerly owned by the Consolidated Rail Corporation (Conrail), the freight carrier created in 1976 by the federal government from the remains of seven rail carriers in the Northeast. Among the properties allocated to CSX is the “High Line”, an elevated railroad structure on the West Side of Manhattan.

The present elevated High Line was opened in 1934 as part of the “West Side Improvement” for the purpose of carrying rail freight within and through the west side of Manhattan on a grade separated right-of-way. The West Side Improvement consisted of the elevated High Line from the vicinity of the Holland Tunnel, where the St. Johns Park Freight Terminal once stood, north to the 30th Street Yard. North of the yard the right-of-way ducked into a cut (opened in 1937) in the vicinity of 34th Street, and continued on to the 60th Street Yard. North of 72nd Street to 122nd Street, the rail line was covered to provide land for the Henry Hudson Parkway and improved access to Riverside Park. It then continued north in the open parallel to Riverside Drive and the Henry Hudson Parkway and connected to the Hudson Division the New York Central Railroad (now Metro North’s Hudson Line) at Spuyten Duyvil. The West Side Improvement also included the West Side Elevated (Miller) Highway (since demolished) and the Henry Hudson Parkway. See Reference 1 for a more complete description of the West Side Improvement.

Prior to the West Side Improvement, the movement of freight created many problems on the West Side. Freight trains operated on city streets with as many as 800 carloads a day,
where they were forced to operate at slow speeds and were in constant conflict with growing street traffic, especially trucks serving busy piers. North of 30th Street, the locomotives ran on steam power causing added environment problems. The entire West Side Improvement eliminated 105 at-grade intersections between rail freight and street traffic. Diesel and electric power was used below 30th Street, and only electric power was used in the yards and to the north. The High Line was built through several buildings and direct connections were built into several buildings. This permitted loading and unloading operations to be could use the High Line done while protecting workers and goods from the elements. These connections are still in place.

The useful life of the West Side Improvement and particularly the High Line south of 30th was relatively short. The last train to use the High Line carried three carloads of frozen turkeys in 1980. The line has been dormant since. Public investment in highways and in trans-Hudson road connections helped to spur the ascendancy of trucks for carrying goods, partially explaining its declining use. Many recipients of freight moved elsewhere, break bulk shipping declined in favor of containers, and harbor activities declined.

Today, the High Line extends 1.6 miles from Gansevoort Street on the south, where it was truncated in 1991 to make way for other land uses, to 34th Street where it comes down to grade after winding west around the Long Island Rail Road West Side storage yard which replaced the 30th Street Yard. Over most of its length, it is located just west of Tenth Avenue. Clearance below the High Line structure at the cross streets is a minimum of 14 feet. Three views of the High Line are provided in Figures 1, 2, and 3. In 1991, Amtrak completed a connection in the cut north of 34th Street to operate their Empire service from upstate New York down the West Side and into Penn Station. The one-track connection expands to two tracks above 39th Street.
Figure 2:
High Line Through Buildings
Figure 3: High Line Looking North from 18th Street
While the High Line itself not in active rail use today, the land underneath serves a number of purposes, with small commercial and industrial buildings, and for the storage of vehicles.

Because the High Line is currently not in use, there has been considerable interest in either demolishing it or finding a purpose for it. It is for this reason that the CSX Transportation, Inc. engaged Regional Plan Association (RPA) to explore alternative transportation uses for the High Line.

Finding a Use for the High Line

Data Gathering. RPA began the process by gathering information to gain a better understanding of the attributes that might work for or against a new use for the High Line. Data was collected on adjoining land uses, interviews were held regarding past ideas for its use, and field trips were taken to gain an appreciation of the High Line’s features and setting. One field trip involved walking on it from 14th Street in the Gansevoort Meat Market district to a point at 28th Street where access further north was blocked by fencing. Three separate field trips were made to gain an appreciation of the way the High Line relates to the area around the Jacob K. Javits Convention Center at 34th Street and to the surrounding land uses over its entire length. Maps of existing land uses and zoning in the corridor were developed for RPA by Community Cartographers, Inc.

On May 20th, RPA convened a meeting to “brainstorm” ideas about possible uses for the High Line. The purpose was to bring together knowledgeable people in transportation, public works, development, housing, land use, open space, and urban design to consider all possible uses for the High Line. The attendance list and the agenda are included here as Appendix A and B, respectively.

Attributes. The High Line’s attributes create many contradictions as they relate to possible future uses. The High Line’s most important attribute is simply that it is there, not an inconsiderable advantage in an age when constructing anything new is virtually
impossible in a built-up environment. But development pressures are growing as developers look for new frontiers in Manhattan, particularly on the relatively underdeveloped West Side. Changes to zoning are now taking place that will affect development too. Many want the structure to be torn down to make way for development.

Being in place is one thing and being in the right place is another. Because the right-of-way is in an industrial area, its value for personal transportation uses may be limited. On the other hand, residential land uses predominate just east of Tenth Avenue, especially from 14th Street to 28th Street, which suggests its value for serving local residents. And the land uses in the area are changing as conversions of industrial properties to residential and commercial uses are anticipated to increase. Today, residents seeking subway access must walk to Eighth Avenue, where service is provided at stops at 23rd and 14th Streets. There is also bus service on Ninth Avenue (southbound) and Tenth Avenue (northbound) and at three cross-town streets.

The High Line is also near the new Hudson River Park, slowly taking shape along the river. The advantage: people will be drawn to the area that may wish to use the High Line for either recreation or as a means to reach the riverfront park. The disadvantage: the High Line may have trouble competing as a recreation facility with a park with river views and breezes.

The High Line is already separated from any street traffic, making it unnecessary to build expensive structures to separate it from existing traffic. It opens the possibility of a transportation system without conflicts at the street level. The High Line is relatively straight with a tangent run from 17th Street to 30th Street. But it is also curved in places, most notably the segment from 30th Street to 34th Street, with three right-angle turns in the space of approximately one-half mile.
The High Line is structurally strong, having been built to carry heavy freight operations. Despite its heft, it is relatively inconspicuous, becoming most visible where it crosses east-west streets. Yet, some see it as an eyesore, and it does require ongoing maintenance. Its inconspicuousness is one of its virtues when concerns about community impact are heard, but it can be a liability if many people are hardly aware it is there, and the intended purpose is to attract people to it.

Adjoining Land Uses. As shown in Figure 4, current land uses are predominately residential east of Tenth Avenue, especially south of 28th Street, and predominately industrial west of Tenth Avenue. There are, nevertheless, a significant number of residential uses along the corridor, which raises the issue of compatibility with adjacent properties if the High Line is to be restored to some kind of active use again. As of the 1990 US Census (the latest data available), 42,000 people in 23,400 households lived in the corridor defined in Figure 5 as west of Eighth Avenue, south of 38th Street, east of Twelfth Avenue and north of Bank Street. As is very clear from Figure 5, residential densities are high east of Tenth Avenue, especially south of 30th Street. An oblique view highlighting residential land uses is shown in Figure 6. The corridor is also home to 41,300 jobs shown in the job density map in Figure 7.

Zoning. The current zoning allows for an over-all FAR of between 6 and 8. This implies mid-rise commercial buildings and high-rise residential ones. If the area is thought of as a district, then it would be possible to transfer density within the district to the places that would be more likely to support transit along the corridor, such as near transit stations.

There is currently pending, and soon to be approved, new zoning for the area around the High Line. The existing zoning, in keeping with the land use pattern, is residential east of Eleventh Avenue and industrial (list districts) west of Eleventh Avenue. This will be replaced with a new mixed-use zoning category that allows commercial and residential uses to be mixed within the same building on different floors. This is in contrast to the existing regulations that allow for residential uses only above the last floor of commercial
Figure 5: Population Density in the Corridor

Total Population: 42,000 (1990 Census)
Persons per Mile²

- Less than 20,000
- 20,000 to 40,000
- 40,000 to 60,000
- 60,000 to 100,000
- Over 100,000
CSX High Line 200 ft. Corridor: 3D View Looking South from 34th Street

Residential buildings shown this color.

Image not to scale

CommunityCartography

www.ComCarto.com
1-877-MakeMaps
Figure 7: Job Density in the Corridor

High Line
Other Rail

Existing Subways
B, D, F, Q
A, C, E
1, 2, 3, 9
L

Total Employees:
38,000 (1990 Census)

Employees per Mile²

- Less than 20,000
- 20,000 to 40,000
- 40,000 to 60,000
- 60,000 to 100,000
- Over 100,000
West Side Elevated Rail: Zoning and Ownership within 200 ft. Strip
uses. The change to allow mixing throughout the building recognizes that there are many activities, especially service-related businesses that can be adjacent to, above or below residential uses.

While some high performance light manufacturers might meet the criteria, the new zoning anticipates the displacement of the existing industrial uses, making this area a lower density extension of midtown south. The loss of manufacturing is implicit here, and explicit in the section of the new text that allows the complete conversion of industrial buildings between Sixth and Seventh Avenues, to residential uses, in lieu of the current regulations that limit the portion of the building that can be converted.

Collectively, these changes mean that the High Line corridor will see a full range of activities – offices (primarily service providers), and possibly for example, such uses as dance and production studios and galleries, plus substantial residential redevelopment.

Industry – except for high technology firms that are not thought of as traditional manufacturing – is likely to all but disappear. The capacity for vertical mixed-use may support some of the re-use strategies described elsewhere in this report. Conversion of industrial properties to residential and commercial uses will continue and probably increase. New mixed-use zoning in this area allows for the coexistence of manufacturing and residential uses, but the industrial uses will ultimately be displaced, with the north end of the corridor tending to be more commercial, and the southern end tending toward mixed use development, with considerable residential uses. The latter is a “double-edged sword” for potential transit improvements: the increased population will help create demand for transit, but the increased land values will create pressure to remove the High Line because new residents will not want to live next to an elevated transit line.

Transit Uses. The idea of operating passenger service on the High Line has been considered for some time, ever since its use as a freight line began to wane. Today, the corridor is served only by the #M11 bus route, which operates southbound on
Ninth Avenue and northbound on Tenth Avenue with a frequency of service varying from seven to ten minutes on weekdays and ten to twenty minutes on weekends. This service frequency as a bus service suggests that rail transit could not come close to justifying itself. There is no bus service on Eleventh Avenue. There are cross-town bus services on 14th, 23rd and 34th Streets. Eleven of every twelve residents in the area who travel to work, travel outside the study area, mostly to midtown or lower Manhattan. And most jobs in the study are filled by residents who live elsewhere (13 of every 14 jobs). Even if substantial build-out were to occur in the corridor, the level of transit demand is not likely to support a line that only operated within the corridor. Thus, for the High Line to be used as a regular rail transit line and carry enough people to justify its cost, it would have to connect or extend into the heart of Manhattan’s dense core, generally in an east-west direction. Any transit project would have to also compete for funds with other transit expansion projects, of which there are many now under consideration. Some major ones include:

- Long Island Rail Road’s connection to Grand Central Terminal
- Second Avenue subway, either the MTA preferred option or the RPA-preferred MetroLink proposal
- Lower Manhattan Access (extensions of Metro North or LIRR to lower Manhattan or RPA’s MetroLink proposal)
- Access to the Region’s Core or ARC (new tunnel under the Hudson to Penn Station with extension to Grand Central Terminal)
- West Side Access for Metro North
- Rail Access to LaGuardia and/or to JFK Airports

Options

A. Subway: Two subway lines operate east-west in Manhattan and could be connected to a subway service (rapid transit or heavy rail) on the High Line. These are the #7 Flushing that runs under 41st Street, stopping at Grand Central, Fifth Avenue and terminates at Seventh Avenue-Times Square, and the “L” that runs under 14th Street, stopping at First
Avenue, Third Avenue, Union Square, Sixth Avenue and Eighth Avenue. Over the years, a number of proposals have been made to extend the Flushing Line to the West Side.¹

This past January, in his State of the City address, Mayor Giuliani suggested extending the Flushing Line to 34th Street and Eleventh Avenue to serve a proposed football stadium, which would be decked over the LIRR West Side Yard. The line would also serve a relocated Madison Square Garden and an enlarged Javits Center, which has been handicapped by its inaccessibility since it opened. The mayor’s proposal would use the West Side Improvement (Amtrak) cut from 41st to 34th Streets, run under the Javits Center, and then raze the High Line in the vicinity of the 30th Street Yard to make way for the stadium (see Figure 9). Metro North’ Hudson Line trains could also operate into the station just north of the football stadium. It is unclear if these facilities can be made to fit without doing damage to the Amtrak connection to Penn Station. A Metro North study of access to Penn Station now underway could shed some light on this. Another routing option for an extension of the Flushing Line is an alignment studied by ARC. It would be built via Eighth Avenue and then across 33rd Street, which serves Penn Station.

The Mayor’s Office has acquired cost estimates of Flushing extensions, either by extending the line west and then south to 34th Street or via Eighth Avenue and then west.

If the High Line were to become part of any Flushing Line extension, the extension would have to be justified and built first. And it would seem that the raison d’etre for the Flushing Line would need to include a high trip-generating use for the 30th Street Yard, and one that retained the connection to the High Line. A football stadium that is used for only a few dozen events per year, at most, does not fit that description. It would seem that other high trip-generating land uses such as offices, other commercial uses, and

¹ In the 1980s, RPA proposed extending the Flushing Line to New Jersey as a way to add rail capacity under the Hudson River. In the late 1980s, the MTA and the Port Authority examined this concept, but nothing came of it. In 1996 RPA as part of its Third Regional Plan, rejected the use of the Flushing Line for added Hudson River rail capacity, and instead proposed a new subway line running under 43rd Street.

More recently, the Access to the Region’s Core study (ARC), a consortium of the Port Authority, the MTA and NJ TRANSIT examined the extension of the Flushing Line via Eighth Avenue and then west to the Javits Center. Because this proposal did not address the prime objective of ARC, namely trans-Hudson
Figure 9: Proposed Flushing Line Extension

Source: NYC Department of City Planning
residential uses would have to be part of the mix and be economically justified over and
near the LIRR Yard.

Another subway connection option that has received some consideration has been a
connection to the 14th Street crosstown “L” line. The line now ends just west of Eighth
Avenue and would need to rise to the surface and then up to the level of the High Line.
In doing so, the line would need to block off at least three crosstown streets and impose a
tunnel portal in the area — likely to be unpopular. Should the Flushing Line be extended,
however, a plausible subway use for the High Line would be to continue a Flushing Line
extension from 33rd Street and Eleventh Avenue south to 14th Street with an intermediate
station at 23rd Street, perhaps in conjunction with an extension of the 14th Street line to a
transfer station at Tenth Avenue.

Still another concept would have the High Line running northward using the West Side
Improvement where Amtrak now operates. The intent is to provide transit relief to the
upper West Side in the 70s, where the recent addition of apartment towers over the 60th
Street Yard is creating more crowding at the 72nd Street Station of the West Side IRT
Line. But to be of value the line would need to take people where they wish to go. Few
are likely to use it unless it feeds midtown. An agreement with Amtrak as to how to
share the right-of-way would be needed – no small task. Either the Flushing Line or the
connection into Penn Station would be needed, but neither would require the High Line.

As for the subway running on the High Line itself under any of these options, the line
would be operating near residential areas, especially just east of Tenth Avenue. It could
be expected to generate community opposition, unless the local residents see it as enough
of a benefit to tolerate its negative impacts.

B. Light Rail: Light rail is a modern version of the trolley that commonly ran on city
streets in the first third of the 20th Century. Eighteen cities in the nation now operate light

River capacity growth, it was rejected. None of these proposals contemplated using the High Line.
rail and many more systems are proposed. A new light rail line is under construction on the Hudson River waterfront in New Jersey and is expected to open next year. Light rail vehicles are flexible enough to make sharp turns, and can climb steeper grades than heavy rail. They can operate in tunnels, on elevated lines and at grade on city streets. They are appropriate where bus costs escalate because of slow street speeds and where high frequencies are necessitated by high demand, but not so high to justify higher capacity heavy rail systems.

In the High Line corridor, light rail may be able to overcome community impact objections. Light rail on the High Line would still need to find a way to connect to points to the east in midtown Manhattan. One option would be to connect to the proposed crosstown trolley loop proposed by RPA in 1996 in its Third Plan (Reference 2). The loop would operate on the street across both 42nd Street and either 33rd or 34th Street (see Figure 10). The RPA plan is an extension of the 42nd Street trolley proposal, which would operate from the United Nations on First Avenue to the Hudson River. Opposition to it has come from Con Edison, who is concerned that it will be difficult to obtain access to their underground utilities. and those concerned that traffic diverted from 42nd Street would clog parallel streets. (The trolley would ban traffic eastbound on 42nd Street).

If the High Line were connected to the RPA-proposed alignment, it would connect at 34th Street just west of Eleventh Avenue and the run across 34th Street. It could also operate up Eleventh Avenue and then across 42nd Street. Connections to all subway lines, both passenger rail terminals, including the expanded Penn Station into the Farley Post Office, and the Port Authority Bus Terminal would all be available.

C. Rubber-tire transit: The High Line was also considered for bus use. At first glance its advantages in the short run, of lower capital requirements, faster implementation and lower impact than rail would appear to offer good prospects. Express buses operating from the outer portions of the Bronx, Brooklyn, Queens and Staten Island or from New Jersey were considered. But the volumes that could find reason to use the High Line are
minimal. Small buses or other rubber-tired vehicles, like the ones used at the Bronx Zoo, is another possibility. They would operate locally, serving the corridor and the Javits Center as a tourist attraction, and would also serve the Hudson River Park. The route would provide a quick trip downtown for Convention Center visitors. It could be virtually silent and be powered by electric or natural gas. It could run over an inexpensive boardwalk. Because the High Line crosses grade at the south side of the Convention Center, passengers at the Convention Center could board at that point. An elevator would be required at the south end to reach grade and the Hudson River Park.

D. Other Transit Uses: ARC examined the High Line as a rail storage facility. ARC is currently examining the feasibility and value of adding another rail tunnel into Penn Station under the Hudson River. Under this proposal, the tunnel would continue across to the East Side and then north into Grand Central Terminal. Its two main purposes would be to provide added trans-Hudson rail passenger capacity and to offer direct rail service to the East Side for New Jersey commuters. In doing so, the project would offer Metro North an option for running through to Penn Station from Grand Central Terminal (GCT). But it would also put more pressure on Metro North to store trains at a place other than at GCT. (Metro North is already under considerable pressure to store trains elsewhere because of the connection that the Long Island Rail Road is planning to build into GCT by the end of 2009). It is in this context that ARC explored various concepts for midday Metro-North train storage in the vicinity of Penn Station. One of these concepts was using the High Line as a linear yard. ARC ultimately rejected the High Line for this purpose primarily because of its limited storage space of about four to six trains (compared to a need to store about 20 trains midday). The narrow right-of-way of the High Line and linear layout introduced security concerns. And the complication of moving train crews back and forth between the southern end of the High Line and crew quarters were an added factor in rejecting this idea.

E. Truckway: The High Line could be connected to the street grid and Lincoln Tunnel ramp system and paved over to allow tractor trailers and panel trucks to access it and
make pickups and deliveries at adjacent buildings. This would require reopening or installation of loading docks and doors in adjacent buildings (some buildings that had not previously received shipments might require additional modifications such as reinforced ceilings and new freight elevators). This is likely to be opposed by local residents because of the impacts associated with trucks, such as noise, vibration and diesel fumes. The concept might be more acceptable if trucks were not allowed at street level for those businesses using the High Line.

E. Waste Transfer: This would work only as a connection to the 59th Street waste transfer station. It would only be palatable to the community if the community accepted the trade-off to reclaim the space occupied by the current facility at 14th Street, if visual and other impacts of the new site were deemed acceptable (which would mean a fully enclosed facility), and if resulting changes in truck traffic were not serious or disruptive.

To reach the 59th street waste transfer station, the train would have to share a right-of-way with Amtrak. There are presently only two tracks, and it is not clear if there is room for more. Also, this would be a potential eyesore for any development at the rail yards.

G. Recreational Purposes: The High Line's right-of-way can be used for non-motorized walkway/bikeway combination. This is especially important in light of the CSX deed restriction that the easement be maintained for "transportation" purposes. One can envision a greenway, which would also include a bikeway, walkway, and either a small rubber-tire vehicle or a light rail trolley line (see earlier discussions). Access would need to be provided at numerous spots. Today, the High Line is inaccessible, blocked off from the street below without public access points. This inaccessibility would need to be overcome at numerous locations, if the High Line is to be used for these purposes.

To make it attractive for recreational purposes, adjacent buildings could be used for restaurants, art galleries and other passive entertainment. To better accomplish this, zoning restrictions along the right-of-way should be examined to facilitate creative re-use
of the structure. This includes, for example, modification of zoning and subdivisions to allow legal windows to face onto the line.

That would allow more intensive residential and commercial development along the line. The portion of the right-of-way over the cross streets may become particularly valuable, offering sight lines to the Hudson River and back toward the center of Manhattan. In addition to the transportation uses, there are a number of complementary land uses that could take place along the High Line.

The vision is of a “Street in the Air”. The ultimate extension of the liberalized zoning described above, is the gradual re-invention of the High Line as a “street in the air” – a corridor lined with cafes, art galleries, shops etc. made accessible by some kind of transit technology. The difficulty with this vision is that the amount of development pressure needed to support a street parallel and within a few lots of 10th Avenue is high. Also, incremental redevelopment would be difficult, as the street concept is dependent on a continuous experience.

“String of Beads”. Because the High Line is so close to Tenth Avenue, an alternative vision is one in which the reuse of the portions of the High Line that are over the street is tied to the activities on Tenth Avenue, e.g., the art gallery on the corner that could have an outdoor sculpture garden on the High Line; or the restaurant on Tenth Avenue that could have an outdoor café on the High Line over the street. In this scenario, the various activities along Tenth Avenue are the “front door” to that particular section of the High Line and these uses would be specific to each cross street. Again, primary access is from some transportation technology along the High Line. This also has the advantage of allowing for incremental redevelopment.

A grand plan for the corridor may be necessary to implement these plans, including the creation of incentives for private investment. However, development in the corridor and on the High Line structure itself may come about in a more spontaneous way as New
Yorkers discovery this unique asset, if zoning and excessive regulatory obstacles were removed.

**Evaluation**

To help to evaluate the options for the High Line discussed in the previous section a number of criteria were considered and defined. Each of the options was then characterized for each of the criterion in relative terms to assist in thinking through the comparative strength of each of the options. No attempt was made to be quantitative, to weight the relative importance of each criteria, to provide any rigorous cost-benefit analysis or to impose a ranking system. The criteria used are described below.

**Corridor Passenger Transportation Benefits.** This criterion measures the extent that the option will offer transportation benefits to the people living and working in the High Line corridor. Measured by high, medium, low, or none.

**Regional Passenger Transportation Benefits.** This criterion measures the extent that the option will offer transportation benefits to the other transit riders in the metropolitan area. Measured by high, medium, low, or none.

**Impacts on Existing Transportation System.** This criterion assesses the impact, either positive or negative on the existing street, highway, or transit network. Measured as positive, negative, none, or mixed (some features positive, others negative).

**Potential for Amenities.** This criterion judges whether the option itself will offer a physical improvement to the corridor. Measured by yes or no.

**Likely Community Reaction.** This criterion judges the likely reaction of the community to the option. Measured by very positive, positive, neutral, negative, very negative, or mixed (some features positive, others negative).

**Dependence on More Intensive Corridor Land Uses.** This criterion assesses whether the option will depend on intensive development to boost its likelihood of moving forward. Measured by high, medium, low or none.
**Government Attitudes.** This criterion describes the current thinking of those government entities that would have to be favorably disposed to the option if it were to move forward.

**Cost.** This criterion measures the cost of the option. Measured by high, medium, low.

**Public Subsidy Required.** This criterion measures whether there will be a public subsidy necessary to support the option. Measured by yes or no.

**Implementation Time Frame.** This criterion measures the length of time it would take to implement the option. Measured as short (less than 2 years), medium (2 to 5 years), or long (more than 5 years).

In Figure 11 the evaluation of the options are arrayed using these criteria. Examination of these criteria for all the options led to the rejection of three of them outright. The rail storage yard (C-1) was rejected by the commuter rail agencies as part of the MTA/NJT/Port Authority tri-partite effort known as ARC, because of its limited capacity for storage. The truckway (E-1) and transfer station (F-1) are both rejected because of the massive local opposition they are certain to create, with limited value to the communities to offset such opposition. The other options are discussed by category below.

Regarding subway options, the current City administration is interested in seeing the Flushing subway line extension move forward to serve a possible football stadium built over the LIRR storage yard, expansion of the Javits Center, and for a relocated Madison Square Garden. This could occur either by extending the line west and then using the West Side Improvement railroad cut from 41st Street between Tenth and Eleventh avenues (see Figure 9), or by extending the line under Eighth Avenue and then west at 34th Street. In the City’s plan for the football stadium, the High Line would be torn down. If that plan were to change in a way that would allow the High Line to stand, either by redesigning the layout of the football stadium or by other proposed development opportunities (interest in the football stadium has been largely confined to the some members of the City Administration), then the possibility would exist to make use of the High Line to serve the corridor from 34th Street to 14th Street. But without some development impetus that would create a desire to extend the Flushing Line, the use of
the High Line as a subway line would have little chance to proceed. Options A-1 and A-2 would each use the High Line, with A-1 involving the Flushing extension via the cut and A-2 involving the Eighth Avenue route. To be effective as a new rapid transit (subway) line, development would need to intensify considerably. Opposition to an elevated transit line would almost certainly develop because of noise and other impacts, despite the transportation benefit that residents in the corridor would receive. Since most of the residents of the corridor live east of Tenth Avenue, and are a less than two-avenue walk to the Eight Avenue subway, residents are unlikely to be heavily swayed by that argument. New York City’s opposition to retaining the High Line and the MTA’s likely antipathy to building such an expensive line (which would necessarily include the Flushing extension from Seventh Avenue) in the face of more pressing capital needs, would not bode well for any of these subway options. A-3 would extend the 14th Street “L” line onto the High Line and would have the added disadvantage of being of less value as a transportation link, since it would not include the Flushing Line extension, and would require closing some cross streets in Chelsea. Option A-4 would extend the 14th Street Line to, but not onto the High Line, creating a transfer point at 14th Street and Tenth Avenue to the High Line subway service offered by options A-1 or A-2. This would have all of the negative features associated with A-1 or A-2, and only a marginally added transportation benefit. For all these reasons, all of the subway options have been rejected.

Compared to the subway, light rail transit would have somewhat less of a negative impact on the neighborhood, require somewhat less development to be effective, and would cost somewhat less. Its flexibility also offers more possible ways of fitting it into the surrounding environment. Light rail on the High Line could also incorporate some amenity features to the right-of-way where space allows. The High Line would still need to be connected to the more intensively developed parts of midtown Manhattan to the east. This could be done by combining it with RPA’s proposed light rail loop (Option B-1) that would run across 42nd Street and across either 33rd or 34th Streets, where connections to all subway lines, both railroad terminals, and the Port Authority Bus
Terminal, would be possible. A more modest alternative is Option B-2 that would involve building only the 42nd Street crosstown portion (known as the 42nd Street trolley) in conjunction with the High Line. Option B-3 would add an extension of the 14th Street "L" extension to Tenth Avenue, where a transfer to either the B-1 or B-2 versions of the High Line light rail line above. The 42nd Street trolley has been discussed for some time and the current administration has preferred the idea of extending the Flushing line as a means to give access to the far west side. Opposition has also come from Con Edison and those concerned about usurping space for motor vehicle traffic. To date, the RPA concept of a full loop in midtown, whatever its merits, have not gotten a full hearing. The relative benefits of any of the light rail options compared to "heavy rail" or subway suggest that they be kept alive as options for the High Line.

Rubber-tire transit vehicles can offer a lower impact option for the High Line. The use of express commuter buses from outside Manhattan to the Manhattan Central Business District has risen dramatically in the last twenty years. Because these buses must negotiate traffic congestion in the core of the city, opportunities to reroute them on their own right-of-way would be welcome. Using the High Line for this purpose is extremely limited, however. The High Line is not well located between the points of entry into Manhattan and the ultimate destination of the bus passengers. Hence, its effectiveness for this purpose would be very limited and Option D-1 has been rejected.

A small rubber-tire vehicle could also operate on the High Line. These vehicles would tend to be used for recreational transportation purposes. They would be environmental benign, operated by electric power rather than gas or diesel. They would be very compatible with either of the Greenway options (G-1 or G-2), should these options materialize.

Two Greenway options were considered. Each would incorporate a walkway and a bikeway to provide a continuous transportation corridor. They could also include a small recreational vehicle (as in Option D-2) to transport people from one part of the High Line
to another, with connections to the Javits Center. The "string of beads" concept would take advantage of the portions of the High Line that span the cross streets to offer views and sight lines consistent with various "people" uses, including outdoor cafes, restaurants, sculpture gardens and similar uses. The proximity of the High Line to Tenth Avenue would be helpful in creating visibility to attract passers-by to these uses. In the more expansive "street in the air", a linear activity center would incorporate both old and new buildings, with zoning changes that make the building uses more compatible with recreational and cultural activities. Parts of both concepts might materialize together, since they are not mutually exclusive. These options would incorporate low-intensity transportation modes – small electric vehicles on their own right-of-way, with adjacent space for biking, skating and walking. It could be combined with a more expansive light rail system too. A review of the evaluation matrix suggests that these greenway concepts would more likely be widely acceptable to the community, less costly and with fewer negative impacts than some of the more capital-intensive options.
Findings

1. All of the subway options making use of the High Line suffer from the same problems: high negative impact locally, lack of current interest on the part of the City or the MTA, high cost, and higher priority transit investments. Moreover, without some development impetus that would create a desire to extend the Flushing Line, the use of the High Line as a subway line would have little chance to proceed. For these reasons, all of the subway options were rejected.

2. Light rail offers some chance for use of the High Line for transportation purposes. Its negative features are not as great as are those of the subway options and light rail can be more easily built into the High Line right-of-way, with opportunities for community-pleasing amenities, and even could be incorporated with the greenway options. A light rail line might be built in conjunction with a light rail line along 42nd Street or along 33rd or 34th Street, or both, as per the RPA 1996 light rail proposal, although these proposals are not being actively advocated at this time by the City. Yet, despite this, the light rail possibilities suggest that they be retained for consideration.

3. Use of the High Line as a storage facility for commuter rail rolling stock has been rejected by the commuter rail agencies because of a variety of limitations, and is therefore rejected here too.

4. The use of the High Line for express buses to provide a congestion-free routing is rejected because of the limited number of vehicles that would be likely to use it.

5. The use of small environmentally benign vehicles to move people in a linear park-like setting on the High Line, consistent with the greenway concepts, should be retained for consideration.
6. Making use of the High Line for a truckway would be poorly received in the community and has been rejected.

7. Similarly, a waste transfer facility on the High Line would receive little public support and substantial opposition. It has been rejected as an option.

8. The use of the High Line for a high amenity transportation corridor with bikeways, walkways, space for environmentally sound small vehicles and possibly a light rail line, should continue to receive strong consideration. Two related and overlapping land use concepts are included as part of the greenway. One is a “string of beads”, emphasizing the value of the portions of the High Line extending over the cross streets. The other is a “street in the air”, which would make use of the much of the length of the High Line, bolstered by zoning changes that encourage retail establishments to take hold on the High Line surface.
References

1. West Side Improvement, reprinted by West Side Rail Line Foundation Development Inc. 1984

2. A Region at Risk: The Third Regional Plan, February 1996, Regional Plan Association
### High Line Evaluation Matrix

<table>
<thead>
<tr>
<th>Option</th>
<th>Benefits to Corridor Transit</th>
<th>Benefits to Regional Transit</th>
<th>Impact on Existing Transportation Network</th>
<th>Potential for Amenities</th>
<th>Likely Community Reaction</th>
<th>Dependence on More Intense Land Use</th>
<th>Government Attitudes</th>
<th>Cost</th>
<th>Public Subsidy Required</th>
<th>Time Frame</th>
<th>Findings</th>
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<tbody>
<tr>
<td><strong>Subway</strong></td>
<td></td>
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<tr>
<td>A-1 Flushing/41st Ht.</td>
<td>High</td>
<td>Medium</td>
<td>Negative/Amtrak</td>
<td>None</td>
<td>Very negative</td>
<td>High</td>
<td>Current City admin</td>
<td>High</td>
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<td>Long</td>
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<td>A-2 Flushing/80th Ht.</td>
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<td>None</td>
<td>Very negative</td>
<td>High</td>
<td>favors Flushing ext.</td>
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<td>Low</td>
<td>None</td>
<td>None</td>
<td>Negative</td>
<td>High</td>
<td>but not High Line;</td>
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<td>High</td>
<td>Negative/Amtrak</td>
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<td>High</td>
<td>MTA competes with other priorities</td>
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<td>Yes</td>
<td>Long</td>
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<tr>
<td><strong>Light Rail</strong></td>
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<tr>
<td>B-1 RPA Loop/Hl.</td>
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<td>High</td>
<td>Mixed/Traffic</td>
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<td>Positive/Neg.</td>
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<td>Current admin.</td>
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<td>High/Med</td>
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<td>Positive/Neg.</td>
<td>Medium</td>
<td>MTA cool to light rail</td>
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<td>C-1 Rail Storage</td>
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<td>None</td>
<td>Rejected by MTA/ARC</td>
<td>Low</td>
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<td><strong>Rubber-tire</strong></td>
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<td>D-1 Express Bus</td>
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<td>Negative</td>
<td>None</td>
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<td>Yes</td>
<td>Positive</td>
<td>Low</td>
<td>Uncertain</td>
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<td>E-1 Truckway</td>
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<td>F-1 Waste Transfer</td>
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<td>Mixed, more local trucks, lower region</td>
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<td>Yes</td>
<td>Medium</td>
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<tr>
<td>G-1 String of Beads</td>
<td>Medium</td>
<td>Low</td>
<td>Positive, if D-2 too</td>
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<td>Positive</td>
<td>Medium</td>
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<td>G-2 Street in Air</td>
<td>Medium</td>
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<td>Positive, if D-2 too</td>
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<td>Positive</td>
<td>Medium</td>
<td>Uncertain</td>
<td>Low</td>
<td>Little/none</td>
<td>Medium</td>
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