3.0 INTRODUCTION

The evaluation of alternatives consists of a two-tiered process designed to assess how well the proposed modes address the Proposed Project's overall goals and objectives. This chapter outlines the methodology, describes the performance measures, and presents the results of both screenings.

3.1 METHODOLOGY

3.1.1 PERFORMANCE MEASURES

Performance measures have been developed to evaluate alternatives consistent with the goals and objectives shown in Table 1-3. These measures are generally qualitative and allow for a comparison of the order of magnitude benefits and detriments of each option for the Proposed Project. In certain cases, one performance measure correlates to multiple project objectives, and certain objectives have been defined by more than one performance measure. **Table 3-1** shows the project's objectives and the corresponding performance measures for the forthcoming evaluation of alternatives.

3.1.2 SCREENING METHODOLOGY

The proposed alternatives were evaluated using a two-part screening process. The first eliminated alternatives that could not reasonably meet the primary goals and objectives and the second assessed the remaining alternatives based on the secondary goals and objectives. In the primary screening, the proposed modes were rated using a scale that ranged from high-performing to low-performing. The rating scale used in the screening matrices is shown below.

The screening considers a baseline (No Build) condition against which the benefits and adverse effects of each alternative are to be weighed. Some alternatives could be implemented more quickly than others, but the evaluation must use a consistent baseline. Therefore for purposes of this study, the baseline condition reflects land use, social and demographic conditions, and transportation services in 2035, by which time it is reasonable to assume that any of the alternatives could be implemented.

Table 3-1
Primary and Secondary Screening Criteria

GOAL / OBJECTIVE	PERFORMANCE MEASURE
PRIMARY GOALS/OBJECTIVES	
IMPROVE CROSSTOWN MOBILITY	
Reduce transit travel time for crosstown trips	End-to-end travel time
Improve transit reliability	Remove conflicts with non-transit modes
	Remove traffic signal delay
Reduce pedestrian congestion/Improve pedestrian safety	Increase or reduction in pedestrian space
	Mode shift from walk to transit
Provide connections to existing and future transit service	Identify transit connections
Improve express bus operations along 34th Street	Travel time along 34th Street for express bus
	Passenger amenities
Accommodate future demand	Peak period capacity
MINIMIZE CAPITAL AND OPERATING CONCERNS	
Implement within a reasonable construction timeframe	Construction duration
Implement within a reasonable construction cost	Estimated construction cost
Be consistent with MTA operating procedures	Does mode integrate with MTA operations and infrastructure?
Avoid conflicts with existing and proposed infrastructure	Potential infrastructure conflicts
Maintain delivery access to local businesses	Restricted or unrestricted truck access
Maintain access for emergency vehicles	Restricted or unrestricted emergency vehicle access
Maintain access to arterial roadways and Manhattan portals	Restricted or unrestricted vehicle access to Manhattan portals and arterial roadways
SECONDARY GOALS/OBJECTIVES	
ENHANCE COMMUNITY CHARACTER	
Support existing and proposed development	Transit travel time
	Transit capacity
	Restricted or unrestricted vehicular access
	Restricted or unrestricted truck access
Improve connections between residential and commercial destinations	Transit travel time
	Transit capacity
Improve pedestrian circulation and safety	Increase or reduction in pedestrian space
	Increase or reduction in vehicular traffic on 34th Street
	Increase or reduction in street crossing time
	Improved or degraded lines-of-sight
MINIMIZE ADVERSE IMPACTS ON THE BUILT AND NATURAL ENVIRONMENT	
Avoid, minimize, or mitigate impacts on historic resources	Historic properties to be acquired
	Potential visual effects on historic resources
Minimize encroachment on view corridors	Height of above-grade infrastructure
Maintain access to existing and future uses on 34th Street	Access constraints
	Parking supply changes
	Delivery access
Avoid property acquisition to the maximum extent feasible	Identify property requirements
Reduce vehicular congestion, emissions, and noise	Transit ridership
	Noise emission of transit mode
	Vehicle emission of transit mode
	Number of vehicular travel lanes
Minimize construction impacts to the extent feasible	Construction duration
	Excavation requirements and requirements for spoils removal
Avoid impacts on natural features and coastal waters	Identify portion of alignment in coastal zone
	Identify in-water or above-water construction activities

Note: MTA=Metropolitan Transportation Authority

3.1.2.1 PRIMARY SCREENING

The primary screening addresses two specific goals: 1) improve crosstown mobility; and 2) minimize capital and operating concerns. Combined, these goals and their supporting objectives aim to provide a service that not only reduces travel time and decreases congestion but is achievable both within reasonable timeframe and at reasonable cost. The primary screening rates the performance of each alternative based on their degree of high to low performance, whereas a low-performing (empty circle) rating corresponds to a failing performance measure. Each performance measure is then rated based on the framework described below.

The screening framework assigns one of the following designations for each alternative based on the screening matrix ratings:

- ***Fails:*** Alternatives designated as "Fails" do not meet one or more of the project's goals and objectives, thus failing to address some part of the project's purpose and need. An alternative that receives an empty circle in any performance measure is designated as "Fails". These alternatives are eliminated from further consideration.
- ***Pass—Federal Transit Administration (FTA) Requirement:*** Alternatives deemed "Pass—FTA Requirement" received an empty circle in at least one performance measure, thus not meeting one or more of the project's goals and objectives, but are required by FTA to be screened as an alternative. These alternatives are advanced to the secondary screening.
- ***Pass:*** Alternatives designated "Pass" do not receive any empty circles on any performance criteria and provide substantial progress towards addressing the project's goals and objectives. These alternatives are advanced into the secondary screening.

All passed alternatives are carried forward for secondary screening.

3.1.2.2 SECONDARY SCREENING

The alternatives that pass the primary screening enter the secondary screening process. The secondary screening adds two specific goals: 1) enhance community character; and 2) minimize adverse impacts on the built and natural environment. Like the primary screening, the secondary screening rates the performance of each alternative based on a range of high to low performance. However, the secondary screening assigns point values for the respective ratings of each performance measure for the primary and secondary goals and objectives identified in **Table 3-1**. Below is the point system that is designated for the respective performance measure:

The points for all the performance measures for both the primary and secondary screening criteria are added to come up with a final point total for each alternative. The alternative with the highest point total will be designated as the Locally Preferred Alternative (LPA).

3.2 PRIMARY SCREENING RESULTS

3.2.1 FAILED ALTERNATIVES

The screening framework designated four of the five build alternatives as "fails": Streetcar, LRT, AGT, and Heavy Rail. **Table 3-2** shows the primary screening results, which are further discussed in this section.

3.2.1.1 BUILD ALTERNATIVE 2—STREETCAR

Streetcar would provide some benefit to the 34th Street corridor, including connections to existing and future transit services, and unrestricted vehicular access to arterial roadways and Manhattan portals. The new service would improve connections to transit passenger amenities and yield a modest increase in transit ridership and some mode-shift from walk to transit.

However, streetcar service along 34th Street failed the primary screening because the mode is inconsistent with current MTA operating procedures. A new storage and maintenance yard would need to be constructed for the system, which would involve both substantial expense for the project and the acquisition of property. Other issues include a minimal decrease in travel time relative to other proposed modes, no improvement to pedestrian circulation areas, and severe restriction of deliveries to local businesses due to its curbside operation. For these reasons, streetcar service is eliminated from further consideration.

3.2.1.2 BUILD ALTERNATIVE 3—LIGHT RAIL TRANSIT

LRT would provide some benefits along the 34th Street corridor, such as unrestricted vehicular access to arterial roadways and Manhattan portals, and provide limited connections to existing and future transit services (station spacing would limit connectivity to north-south bus routes). It would improve passenger amenities and transit service reliability. In addition, LRT would provide moderate peak period capacity relative to the other alternatives under consideration, accommodating increased transit ridership and a substantial mode-shift from walk to transit.

LRT failed the primary screening because it does not meet a number of the primary goals and objectives. In particular, the designated right-of-way would cause delays for express bus operations. In addition, the mode is inconsistent with current MTA operating procedures. Like the streetcar option, it would require that a new storage and maintenance yard be constructed for the system, which would involve significant additional expense for the project and entail impacts on land uses that would need to be acquired for the project. The LRT option would also cause more negative impacts to parking and loading needs than other options.

The cost for this alternative is relatively high, in part because one of the lowest cost technologies, catenary wire, is prohibited in Manhattan, and other technologies are more expensive or unproven. Construction costs range between $240 and $345 million. This cost is also driven upward by the utility relocation that would be required to construct this alternative.

3.2.1.3 BUILD ALTERNATIVE 4—AUTOMATED GUIDEWAY TRANSIT

The principle benefits of AGT are unrestricted vehicular access to arterial roadways and Manhattan portals. The above-grade alignment would yield significantly decreased crosstown travel times, substantially improve crosstown transit reliability, and cause a sizeable mode-shift

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Table 3-2
Primary Screening Results

GOAL / OBJECTIVE	PERFORMANCE MEASURE	NO BUILD ALTERNATIVE	TRANSPORTATION SYSTEM MANAGEMENT (TSM) ALTERNATIVE	BUILD ALTERNATIVE #1 BUS RAPID TRANSIT	BUILD ALTERNATIVE #2 STREETCAR	BUILD ALTERNATIVE #3 LIGHT RAIL TRANSIT	BUILD ALTERNATIVE #4 AUTOMATED GUIDEWAY TRANSIT	BUILD ALTERNATIVE #5 HEAVY RAIL
IMPROVE CROSSTOWN MOBILITY ON 34TH STREET								
Reduce transit travel time for crosstown trips	End-to-end travel time*	27-31 min	22-25 min	18-20 min	21-23 min	17-19 min	13-15 min	9-11 min
Improve transit reliability	Remove conflicts with non-transit modes	Partial (Weekdays 7AM to 7PM Only)"	Partial (Weekdays 7AM to 7PM Only)	All but emergency vehicles	All but emergency vehicles and vehicles making right turns at intersections	No vehicles allowed in right of way. Conflicts are present only at turn locations	Non-transit modes will have no conflict with AGT which operates above grade	Non-transit modes will have no conflict with subway which operates below grade
	Remove traffic signal delay	None	Existing signal timings, TSP at select locations	TSP will be implemented	TSP will be implemented	TSP will be implemented	No delay at signals since guideway is elevated	No delay at signals since guideway is below grade
Reduce pedestrian congestion / Improve pedestrian safety	Increase or decrease in pedestrian circulation area	No Change	No Change	Increase - Corner bulb-outs, crosswalk refuges constructed at stations	No Change	Increase Crossing refuges constructed at stations	Increase - Pedestrians can take refuge at enlarged crosswalk or median underneath platform	No Change
	Mode shift from walk to transit	No Change	Slight mode shift due to decreased end-to-end travel time for crosstown trips	Moderate mode shift due to decreased end-to-end travel time for crosstown trips and increased amenities	Moderate mode shift due to travel time savings and amenities. However, streetcar also adds a sense of "charm" that will add riders	Significant mode shift due to travel time savings and amenities; however, stations will be farther apart than other alternatives.	Significant mode shift due to travel time savings and amenities; however, stations will be farther apart than other alternatives.	Significant mode shift due to travel time savings and amenities, however pedestrians must walk down to train and station distances will be far apart
Provide connections to existing and future transit service	Access to local and express bus routes from mode	Yes	Yes	Yes	Yes	Yes, however, not all north-south bus routes due to station spacing	Yes, however, not all north-south bus routes due to station spacing	Yes, however, not all north-south bus routes due to station spacing
Improve express bus operations along 34th Street	Travel time along 34th Street for express bus	No Change	Express bus travel time would slightly improve due to TSP	Express buses could operate in BRT lanes with TSP in turn reducing overall travel time	Express bus travel time would slightly improve due to TSP	Travel times will increase due to reduced right-of-way	Travel times will increase due to reduced right-of-way	Express bus operations would have no designated bus lane. Travel times will increase.
Improve Passenger Amenities	Availability and quality of passenger amenities	None	Articulated Buses and Off-Board fare collection***	Articulated Buses, Off-Board fare collection and new stations, real-time information***	Streetcar, Off-Board fare collection and new stations, real-time information***	Light Rail Vehicle, Off-Board fare collection and new stations, real-time information***	AGT Vehicle, turnstile fare collection and new stations, real-time information	Subway Stations, Turnstile fare collection, real-time information
Increase transit demand	Estimated transit ridership	No Change	Transit ridership will increase slightly due to reduced travel time for crosstown trips	Transit ridership will increase due to amenities and travel time savings	Transit ridership will increase due to amenities and travel time savings	Transit ridership will increase due to amenities and travel time savings	Transit ridership will increase due to amenities and travel time savings	Transit ridership will increase significantly due to travel time savings
Accommodate future demand	Peak period capacity	No Change	Peak period capacity will slightly increase due to articulated buses and increased ridership	Peak period capacity increase will be moderate due to increase in operational frequency and articulated bus capacity; capacity increase sufficient to handle demand	Peak period capacity increase will be moderate due to increase in capacity and frequency of Streetcar Vehicles; capacity increase sufficient to handle demand	Peak period capacity increase will be moderate due to increase in capacity and higher frequency of Light Rail Vehicles; capacity increase sufficient to handle demand	Peak period capacity increase will be moderate due to increase in volume of riders, however capacity and frequency of AGT vehicles limit overall volumes; capacity increase sufficient to handle demand	Peak period capacity increase will be high due to increase in capacity and frequency of subway trains; capacity increase sufficient to handle demand
MINIMIZE CAPITAL AND OPERATING CONCERNS								
Implement within a reasonable construction timeframe	Construction duration	None	Less than 12 Months	12 to 18 Months	24 to 36 Months	24 to 36 Months	36 to 72 Months	72 to 96 Months
Implement within a reasonable construction cost	Estimated construction cost**	None	$12.5 - $15 million	$30 - $125 million	$115 - $250 million	$240 - $345 million	$560 - $610 million	$6.0 - $7.8 billion
Be consistent with MTA operating technologies	Integration of mode with MTA operations and technologies	Mode integrates with operations and technologies	Mode integrates with operations and infrastructure. Buses can be maintained at existing facilities	Mode integrates with operations and infrastructure. Buses maintained at existing facilities	Vehicles not consistent with current MTA technologies, and would require new maintenance facility and storage facilities. May need to install catenary wires and overhead power distribution, which are against the law in Manhattan, for operation.	Vehicles not consistent with current MTA technologies, and would require new maintenance facility and storage facilities. May need to install catenary wires and overhead power distribution, which are against the law in Manhattan, for operation.	Aerial structure and AGT guideway are not consistent with current MTA technologies, and would require new maintenance facility and ancillary facilities.	Mode integrates with operations and technologies
Avoid conflicts with existing and proposed infrastructure: construction	Potential infrastructure conflicts: construction	None	None	Stations and reconstruction of portions of street will create infrastructure impacts	Need to relocate some utilities. Potential issues with subway vaults.	Need to relocate all utilities. Potential issues with subway vaults	Need to relocate utilities under support columns.	Major conflicts with utilities, water tunnel, ARC
Avoid conflicts with existing and proposed infrastructure: operation	Potential infrastructure conflicts: operation	None	None	May need to be rerouted due to utility construction.	Need to maintain catenary wires. Will be interrupted by utility construction.	Need to maintain catenary wires. Will be interrupted by utility construction.	None during operation	None during operation
Maintain delivery access to local businesses	Restricted or unrestricted truck access	Partially Restricted (Restricted Weekdays 7AM to 7PM)	Partially Restricted (Restricted Weekdays 7AM to 7PM)	Depending on alignment, parking/delivery bays are possible that are accessible 24/7	Severely Restricted due to curbside streetcar operation	Severely Restricted due to needed Right-of-way for Light Rail	Unrestricted	Unrestricted
Maintain access for emergency vehicles	Crosstown mobility of emergency vehicles	No change	No change	Emergency vehicles can use transitway to travel crosstown faster	Emergency vehicles can use transitway to get across town quicker, however, lack of maneuverability of streetcar and ability of traffic to enter transitway will hinder crosstown trips	Restricted No vehicles allowed on transitway except to access buildings in an emercency , emergency vehicles must operate in non-transit zone	Unrestricted, however bus lane is eliminated and right-of-way is also reduced. Emergency vehicles must operate in non-transit zone.	Unrestricted, however emergency vehicles must operate in non-transit zone.
Maintain access to arterial roadways and Manhattan portals	Restricted or unrestricted vehicular access	Unrestricted	Unrestricted	Turn restrictions at 34th St portals; all entrances and exits still accessible	Unrestricted	Turn restrictions at 34th St portals; all entrances and exits still accessible	Unrestricted	Unrestricted
Recommendation to move the alternative forward?		Pass (FTA Requirement)	Pass. Move Forward	Pass. Move forward	Fails. Not moving forward.	Fails. Not moving forward.	Fails. Not moving forward.	Fails. Not moving forward.

High-performing ● ◕ ◑ ◔ ○ Low-performing

* End-to-end travel times are estimated based on typical vehicle speeds and station delays
**Construction Costs are estimated to midpoint of construction
***Off-Board fare collection refers to a number of technologies under consideration that would allow for all-door boarding
The Screening Framework assigns the following designations for alternatives based on the Screening Assessment ratings:
- Fails – One or more empty circles.
- Pass – Multiple filled circles, no empty circles.

from walk to transit. The disadvantages are limited connectivity to existing and future transit services (station spacings and elevated configuration would restrict connections to north-south bus routes and would complicate transfers to subway routes).

Of the Build alternatives, AGT received the highest number of empty circles attributable to factors such as high cost and lengthy construction time. Construction cost estimates are between $560 and $610 million, and the construction period would be between 36 and 72 months. AGT is not consistent with existing MTA infrastructure, and as such would require a new storage and maintenance yard be constructed for the system. This would involve both additional expenses for the project and property acquisition. The service would be detrimental to express bus operations, resulting in an overall increase in express bus travel times due to the loss of the existing bus lanes on 34th Street. Implementation of AGT would also restrict emergency vehicle access due to the elimination of the bus lane and reduction in the street right-of-way. AGT would also raise significant aesthetic issues, as it would have impacts on viewsheds, light, and air. For these reasons, AGT is eliminated from further consideration.

3.2.1.4 BUILD ALTERNATIVE 5—HEAVY RAIL

Heavy rail, in this case subway, would generate substantial benefits in the 34th Street corridor. The below-grade, exclusive alignment would result in significantly reduced end-to-end travel times and greatly improved transit reliability. The peak period capacity would accommodate future demand and facilitate a sizeable mode-shift from walk to transit, although pedestrians would have to travel underground to access trains and stations would be farther apart. For the purposes of this analysis, it is assumed that the subway would be able to connect to and access existing NYCT subway maintenance facilities.

Despite these stated benefits, heavy rail fails the primary screening due in large part to high costs and a lengthy construction period. The estimated construction cost is between $6 and $7.8 billion, notably higher than all other alternatives under consideration; the construction period would range between 72 and 96 months. Heavy rail would also not improve pedestrian circulation area along the corridor. A subway may also cause conflicts with other underground infrastructure in the project area, such as the ARC tunnel. For these reasons, heavy rail is eliminated from further consideration.

3.2.2 PASSED ALTERNATIVES

The primary screening framework designated three alternatives as “Pass”—No Build, TSM, and BRT. The Alternatives Analysis process requires a detailed examination of the No Build and TSM alternatives to allow for a comparison to the benefits and detriments of the build alternatives; therefore, these alternatives pass the initial screen although they may not meet the goals and objectives as well as some of the build alternatives that failed the primary screening. Below is a discussion of the overall ratings of the passed alternatives.

3.2.2.1 NO BUILD ALTERNATIVE

The No Build Alternative performed poorly across several screening criteria. The alternative will not reduce crosstown travel time, increase transit ridership, accommodate future travel demand, nor improve pedestrian safety and congestion. The only merits of the No Build are

that it yields no capital or operating concerns and virtually no impact on critical roadway functions, as no new services are being implemented.

FTA requires the No Build Alternative be advanced as a basis of comparison and, per this guideline, the No Build Alternative was advanced to the secondary screening.

3.2.2.2 TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

The TSM Alternative received an overall rating of "Pass." The alternative received mostly quarter-filled circles for each of the screening criteria, indicating that it would provide slight or modest progress toward meeting the majority of the project's stated goals or objectives. Merits of the alternative include a moderate increase in speed; connections to existing and future transit services; reasonable costs and implementation timeframe; consistency with existing MTA operations; full vehicular access to arterial roadways and Manhattan portals; and avoidance of conflicts with existing infrastructure.

Although FTA requires the TSM alternative to be advanced as a basis of comparison, it also received no empty circles and was advanced regardless of the FTA requirement.

3.2.2.3 BUILD ALTERNATIVE 1—BUS RAPID TRANSIT (BRT)

BRT received an overall designation of "Pass." The alternative did not receive any empty or quarter-filled circles, indicating that it would fully or substantially meet all of the project's stated goals and objectives. The service would provide connections to existing and future transit services and full vehicular and emergency vehicle access would be maintained under the alternative. In addition, the bus technology is consistent with existing MTA operations and stations, and would have few conflicts with existing and proposed infrastructure. Express buses could operate in a BRT transitway, improving overall travel time. Transit ridership would increase due to the moderate decrease in crosstown travel time and enhanced passenger amenities at stations. Construction costs and timeframe estimates are reasonable relative to other build alternatives. A new system would cost between $30 and $125 million, and implementation could be completed in 12 to 18 months. For these reasons, BRT was advanced to the secondary screening.

3.3 SECONDARY SCREENING RESULTS

The secondary screening assigns points to each representative scoring circle for the primary and secondary performance measures for the passed alternatives. The secondary screening results in the following point totals for the alternatives screened: the No Build Alternative received 475 points, the TSM Alternative received 525 points, and the BRT Alternative received 615 points. The detailed analysis is presented in **Table 3-3**.

3.3.1 NO BUILD ALTERNATIVE

The No Build Alternative received the fewest points of all the alternatives -475 points- indicating that it would provide little to no progress toward the project goals and objectives.

The No Build Alternative will not enhance community character. While the alternative allows unrestricted vehicular access and partial delivery access in bus lanes during certain times of the day, it would not improve transit travel time and capacity. The alternative does not improve

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Table 3-3

Secondary Screening Results

GOAL / OBJECTIVE	PERFORMANCE MEASURE	NO BUILD ALTERNATIVE		TRANSPORTATION SYSTEM MANAGEMENT (TSM) ALTERNATIVE		BUILD ALTERNATIVE #1 BUS RAPID TRANSIT	
Enhance Community Character							
Support long term land use planning	Transit travel time	27-31 min	○	22-25 min	◕	18-20 min	◑
	Transit capacity	No Change	○	Total capacity will slightly increase due to articulated buses and increased frequency	◑	Total capacity will increase moderately due to protected Transitway, articulated buses and increased frequency	◔
	Restricted or unrestricted vehicular access	Unrestricted	●	Unrestricted	●	Turn restrictions at 34th St portals; all entrances and exits still accessible	◔
	Restricted or unrestricted truck delivery access	Partially Restricted (Restricted Weekdays 7AM to 7PM)	◑	Partially Restricted (Restricted Weekdays 7AM to 7PM)	◑	Depending on alignment, parking/delivery bays that are accessible 24/7 are possible	◑
Improve connections between residential and commercial destinations	Transit travel time	No Change	○	22-25 min	◕	18-20 min	◑
	Transit capacity	No Change	○	Total capacity will slightly increase due to articulated buses and increased frequency	◑	Total capacity will increase moderately due to articulated buses and increased operational frequency	◔
Improve pedestrian circulation and safety	Increase or reduction in pedestrian space	No reduction in pedestrian space	◕	No reduction in pedestrian space	◕	Increase (Corner bulb-outs, crosswalk refuges)	◑
	Increase or reduction in vehicular traffic on 34th Street	No Change	○	No Change	○	Reduction (Potential decrease in auto, taxi, and bus trips and potentially eliminate one direction of general traffic)	◑
	Increase or reduction in pedestrian crossing time	No Change	○	No Change	○	Reduction (Curb bulb-outs and crosswalk refuges)	●
	Improved or degraded lines-of-sight	Lines-of-sight remain unchanged	◑	Lines-of-sight remain unchanged	◑	Improved (Removes one direction of general traffic)	◔
Minimize Adverse Impacts on the built and natural environment							
Avoid, minimize, or mitigate impacts on historic resources	Historic properties to be acquired	None	●	None (Infrastructure is in public right-of-way)	●	None (Infrastructure is in public right-of-way)	●
	Potential visual effects on historic resources	No visual effects	●	Minimal effect (Signage, shelters, and fare collection equipment)	◔	Minimal effect (Signage, stations, and fare collection equipment)	◔
Minimize encroachment on view corridors	Height of above-grade infrastructure	20 feet (Max. height is overhead signs)	●	20 feet (Max height is overhead signs)	●	20 feet (Max height is overhead signs)	●
Maintain access to existing and future uses on 34th Street	Access constraints	Unrestricted	●	Unrestricted	●	Partially Restricted (one-way street)	◑
	Parking supply changes	No Change	○	No change	○	Increase supply (Design would allow for all day curbside parking at certain locations along the right-of-way)	◔
	Restricted or unrestricted delivery access	Partially Restricted (Restricted Weekdays 7AM to 7PM)	◑	Partially Restricted (Restricted Weekdays 1AM to 7pm)	◑	Depending on alignment, parking/delivery bays that are accessible 24/7 are possible	◑
Avoid property acquisition to the maximum extent feasible	Identify property requirements	None	●	None (Infrastructure is in public right-of-way)	●	None (Infrastructure is in public right-of-way)	●
Reduce vehicular congestion, emissions, and noise	Transit ridership	No Change	○	Transit ridership will increase slightly due to reduced travel time for crosstown trips	◕	Transit ridership will increase due to amenities and travel time savings	◔
	Noise emission of transit mode	80 - 83 dba / bus	●	80 – 83 dba / bus Minimal to modest increase (Increased bus runs would increase noise emissions)	◔	80 – 83 dba / bus Minimal to modest increase (Increased bus runs would increase noise emissions)	◔
	Vehicle emission of transit mode	No Change	●	Minimal to modest increase (increased bus runs would increase emissions; fleet will comply with NYCT emission standards)	◔	Minimal to modest increase (increased bus runs would increase emissions; fleet will comply with NYCT emission standards)	◔
	Number of vehicular travel lanes	No Change	●	No Change	●	Reduction	○
Minimize construction impacts to the extent feasible	Construction duration	None	●	Less than 12 months	◔	12 to 18 Months	◑
	Excavation requirements and requirements for spoils removal	None	●	None	●	Minimal to Low	◔
Avoid impacts on natural features and coastal waters	Identify portion of alignment in coastal zone	Bus right-of-way and bus stops	●	Bus right-of-way and bus stops	●	Transitway right-of-way and stations; limited effect on coastal zone policies	●
	Identify in-water or above-water construction activities	None	●	None	●	Stations at end of corridor on existing pier; no new water coverage	●
Overall Rating		**475 Points**		**525 Points**		**610 Points**	

High-performing ● ◔ ◑ ◕ ○ Low-performing

connections between residential and commercial destinations or support long-term land use planning. In addition, the No Build Alternative provides no change to pedestrian circulation and safety, as it does not enhance pedestrian space, vehicular traffic on 34th Street, pedestrian crossing time, or lines-of-sight.

Since the No Build Alternative would not result in construction activities or new infrastructure, it would not directly impact the built or natural environment. However, as described in Chapter 1, "Purpose and Need," a number of developments are proposed that will increase demand for transit service. The No Build Alternative would not allow for a substantial enhancement of transit operations along 34th Street and would, therefore, not support development as proposed. Although new bus service may be added to meet passenger demand, transit use would be hampered by severe crowding and congestion. In turn, workers and residents of these new developments will rely more heavily on automobile and taxis to make trips. These additional vehicle trips will increase congestion, emissions, and ambient noise and further exacerbate the problems identified in Chapter 1, "Purpose and Need."

3.3.2 TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

Overall, the TSM alternative received 525 points. It would provide modest progress toward meeting project goals and objectives

The TSM Alternative shows limited potential to enhance community character. It results in small improvements in travel time and a slight increase in transit capacity from the use of articulated buses and more frequency of service. The TSM Alternative would allow unrestricted vehicular access, but bus lanes would impede deliveries at certain times. The TSM Alternative somewhat supports long-term land use planning and moderate improvements to connections between residential and commercial destinations, but similar to the No Build Alternative, it yields no improvement in pedestrian circulation and safety, as it does not enhance pedestrian space, vehicular traffic on 34th Street, pedestrian crossing time, or lines-of-sight.

The TSM Alternative would require limited construction activities and new infrastructure along the 34th Street corridor, but this alternative would have limited effects on the built and natural environment. New infrastructure would be located within public right-of-way; therefore, the TSM Alternative would not require property acquisition or the displacement of businesses and residents. The installation of new fare machines, shelters, and signage would require shallow excavation, but substantial impacts to archaeological resources, utilities, and hazardous materials would not be anticipated. Above-grade infrastructure would be limited in bulk and height and would not substantially alter the visual character of 34th Street.

The TSM Alternative would improve transit service and travel time along the corridor, helping to meet some of the demand generated by new development. Additional buses operating on 34th Street would increase bus noise and emissions, but this may be offset by reductions in vehicular demand. Since curbside lanes would be fully dedicated for bus operations from 7AM to 7PM on weekdays (as in the existing conditions), the TSM alternative would not allow for any curbside parking or delivery opportunities during weekday, daytime hours. The TSM alternative would also not increase pedestrian circulation space along the corridor since existing sidewalk widths would be maintained.

3.3.3 BUILD ALTERNATIVE 1: BUS RAPID TRANSIT

BRT's overall point total of 615 points was the highest point total calculated for the alternatives considered in the secondary screening. This alternative would provide substantial progress towards meeting the project goals and objectives.

This Alternative would generate moderate travel time improvements, while articulated buses and increased operational frequency would result in sizeable increases to transit capacity. BRT would allow full vehicular access, and in the preferred alignment, partial delivery access through parking/delivery bays. Overall, BRT is anticipated to support long-term land use planning and foster better connections between residential and commercial destinations. The alternative would also improve pedestrian circulation and safety. Corner bulb-outs and crosswalk refuges would increase pedestrian space and reduce pedestrian crossing time. In addition, the potential removal of one direction of traffic would improve lines-of-sight and, combined with potentially decreased auto, taxi, and bus trips, reduce vehicular traffic on 34th Street and surrounding streets. More significant study will be required to understand BRT's full effect on neighborhood and regional traffic patterns.

The BRT Alternative would include new stations along 34th Street. These stations would be located within the public right-of-way and would not require acquisition of private property or the displacement of businesses and residents. Station construction could require excavation and utility relocation but, given the development history of the area, archaeological disturbance would be limited, if any. Station shelters and signage would be located along the corridor but would not contrast drastically with the diverse urban context of 34th Street.

The BRT Alternative would allow for increased bus operations along 34th Street to meet demand from future development. Although additional buses would increase noise and emissions from bus operations, the BRT Alternative would decrease demand for and associated noise and emissions from automobiles and taxis. The BRT Alternative has the potential to reduce the number of general travel lanes on 34th Street, but it could increase opportunities for curbside parking and delivery operations and provide for more pedestrian circulation area.

3.4 CONCLUSION

Based on the primary and secondary screenings of the alternatives proposed for the 34th Street Transit Corridor, the BRT Alternative is recommended as the LPA. This alternative best addresses the full purpose and need of the corridor, in improving crosstown transit, express bus operations, creating opportunities for pedestrian space, and accommodating future growth. In addition, it responds to the public feedback received, in terms of creating opportunities for all day loading zones along 34th Street to the greatest extent possible. Based on the foregoing analysis the BRT Alternative should be advanced into the environmental review and preliminary design phases of the project.