

MTA New York City Transit Service Guidelines Manual

Thomas F. Prendergast, President
Robert Bergen, Executive Vice President

Division of Operations Planning
Peter G. Cafiero, Chief

August 2010

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Overview

MTA New York City Transit (NYC Transit) operates the largest public transportation system in the United States, providing almost 2.4 billion trips annually and carrying some 7.6 million customers on an average weekday. NYC Transit provides public transportation throughout the City of New York, operating 24 hours per day and seven days per week.

NYC Transit guidelines are used to develop and maintain comprehensive, cost-efficient transit service that meets the needs of those who live, work and travel in New York City. These guidelines provide a structure for consistent and fair evaluation of existing and proposed services by determining when, where, and how frequently service should be offered.

The NYC Transit service guidelines¹ discussed in this manual address the following questions.

I. Where should bus service be provided?

- *Service Coverage Guidelines* determine the appropriate spacing between bus routes.
- *Bus Stop Guidelines* identify the appropriate distance between bus stops on local, limited, and express bus routes.

II. What type of service should be provided?

- *Route Design Guidelines* determine the proper application of different routing patterns (through local, express/local, skip-stop, shuttle) for subway lines, and determine when it is appropriate to introduce limited-stop or express bus routes to supplement local (all-stop) service.

III. When should service be provided?

- *Span of Service Guidelines* identify the hours and days a local bus route should operate.

IV. How frequently should service be provided?

- *Schedule Guidelines* establish the minimum service frequencies (known as “policy headways”) for bus and subway service.
- *Loading Guidelines* determine how much bus and subway service should be provided, based on the number of customers on a bus or train at the route’s busiest point.

V. How is service changed?

- *Service Change Guidelines* specify the process for making major and minor changes to bus and subway service, such as changes in routing, stop patterns, and/or hours of service.

¹ Note that NYC Transit guidelines do not apply to the Staten Island Railway.

I. Where should bus service be provided?

The NYC Transit bus system includes more than 12,000 bus stops and 244 bus routes. NYC Transit uses Service Coverage and Bus Stop Guidelines to configure bus routes and stops so that they best serve riders by providing convenient access and attractive travel times.

Service Coverage Guidelines

The two most significant criteria in the service coverage guidelines are population density and transit dependency. NYC Transit established the following guidelines for local bus route spacing:

Transit Dependency (Percentage of Households Without Automobiles)	Population Density (Persons per Square Mile)	
	Greater Than 12,000	12,000 or Less
Over 15%	2,000-2,600 feet (3/8- 1/2 mile) between routes	2,000-2,600 feet (3/8- 1/2 mile) between routes
15% and Under	2,000-2,600 feet (3/8- 1/2 mile) between routes	5,280 feet (1 mile) between routes

According to 2000 Census data, only 3 percent of New York City block groups fall into the 1-mile coverage category, with a population density less than 12,000 people per square mile and less than 15 percent of households without a car.²

Average walking distance to a bus route is one-half the distance between routes. Ninety percent of the 2000 population in NYC Transit's service area is within one-quarter mile of NYC Transit bus service.

Other criteria can be considered for route spacing, including geographic factors (e.g., terrain, type of the existing street network) and demographic factors (e.g., employment density, population within walking distance of a stop, significant concentrations of elderly and/or disabled persons, presence of major destinations such as hospitals, schools, or shopping).

² 182 of 5,602 Census 2000 block groups have at least 15 percent of households with no vehicles and a residential density of 12,000 or fewer people per square mile. 5,602 block groups report a population density greater than 0 and occupied units greater than 0.

Bus Stop Guidelines

NYC Transit and NYC Department of Transportation jointly developed guidelines for bus stop placement in 1989. Even though these bus stop guidelines were never officially approved, they serve as effective policy for bus stop planning.

Procedures for Establishing New Bus Stops, Changing Existing Bus Stops, or Revoking Bus Stops

NYC Transit does not have the regulatory authority to establish bus stops. The NYC Department of Transportation (NYCDOT) is responsible for installing and maintaining bus stops. NYC Transit pays NYCDOT to provide these services, contingent on the request and approval of NYC Transit. NYC Transit is responsible for the installation and maintenance of bus service schedule information at bus stops, known as Guide-A-Rides.

Criteria for Siting Bus Stops

Location on the Street:

- Bus stop locations must be in areas that permit customers to board and alight from buses safely, with no hidden or unexposed areas.
- Efforts should be made to avoid having bus stops located in the active driveways of gasoline stations, convenience stores, or other commercial land uses.
- In areas with high traffic volumes, a large number of turning movements, and considerable pedestrian crossing through intersections, bus stops should be located at the corners of intersections with the least conflict.
- NYC Transit generally prefers bus stop locations on the far side of intersections, permitting buses to travel through intersections prior to discharging and picking up customers, improving traffic flow at intersections. This permits the bus operator to position the bus doors adjacent to the curb more easily, facilitating customer boarding and alighting. Most importantly, far side placement eliminates the hazard caused by motorists attempting to make right turns in front of a bus at a near side bus stop, and it reduces the likelihood of conflict between buses and crossing pedestrian traffic.

Far side placement exceptions

- Bus stops may be located at the near side of an intersection when an elevated line's support columns are located within a street's right-of-way. The support columns of elevated structures in the Bronx are located within the center of the roadway, rather than near the curbs or on sidewalks as is the case with elevated structures in Brooklyn and Queens. Because these elevated structures separate one lane of traffic from one lane of parking in each direction, and buses are too large to pass through columns from the through lane to the parking lane, buses will stop all through traffic at every stop. To improve traffic flow in these cases, bus stops are located on the near side of signalized intersections so that vehicles following buses will not have to stop immediately after an intersection.

- Near side bus stops may be appropriate when traffic volume is substantially low and there are few right-turning movements.
- Near side bus stops may be appropriate when intersections are controlled by stop signs.
- *Space Requirements:* Bus stops used exclusively by standard-size 40-foot buses should be a minimum of 100 feet in length, as this allows for two buses to utilize a bus stop simultaneously with sufficient space for buses to maneuver around each other. Longer bus stops may be required, depending on the frequency of service, the number of bus routes utilizing the stop, and the size of the buses utilizing the stop.
- *Distance Between Bus Stops:*
 - For local bus routes in areas with grades that are generally less than six percent, the desired average spacing interval between bus stops is three blocks or 750 feet.
 - For limited-stop bus routes, the desired average spacing interval between bus stops is ten blocks or 0.5 miles.³
 - For express bus routes, the desired average spacing interval between bus stops is seven blocks or 1,750 feet outside Manhattan, and five blocks or 1,250 feet within Manhattan.

³ Limited-stop spacing is a working guideline; it was not included in the 1989 guideline document.

II. What type of service should be provided?

NYC Transit designs service patterns for subway and bus routes that adjust the frequency and nature of transit service to meet travel demand.

Route Design Guidelines

NYC Transit's route design guidelines outline the subway and bus route configurations that serve customers most efficiently.

Subway Route Design

The New York City subway system is unique in its complexity, with an extensive network of three- and four-track lines featuring local and express stations and numerous track connections between lines. This complexity provides many possibilities for subway routing. The rail service design process analyzes and incorporates ridership patterns and origin-destination patterns, as well as operational feasibility, resource availability, and schedule consistency.

NYC Transit operates four subway service patterns to maximize efficiency and meet customer demand:

- *Through local service:* Trains operate to/from Manhattan and/or Downtown Brooklyn, stopping at all stations (e.g., the L route).
- *Express/local service:* Trains operate on parallel tracks, with local trains making all stops and express trains making express stops only. Express/local service can operate in several configurations:
 - On four-track lines, express service operates in both directions (e.g., EFRV service on the Queens Boulevard line).
 - On three-track lines, express service operates in one direction only (e.g., 7& service on the Flushing line in Queens), generally with the direction of express service changing to match peak passenger flows (e.g., to Manhattan in the morning and from Manhattan in the evening).
 - A variation of the express/local pattern is a zone system (e.g., 6⁺ service on the Pelham line in the Bronx), where a subway line is divided into “outer” and “inner” zones. Zone express trains stop at all stations in the outer zone, and then skip all or most stations in the inner zone. Local trains make all stops in the inner zone, and may originate at the boundary station between the zones (e.g., Parkchester on the 6).
- *Skip-stop service:* Trains with two separate designations operate on the same track in two stopping patterns. Some stations are served by one of the trains, some stations are served by the other train, and some services are served by both trains (e.g., JZ service).
- *Shuttle service:* Trains operate on a branch line and terminate at a transfer point to a through service (e.g., overnight 5 shuttle trains terminate at East 180th Street, where customers can transfer to the 2 train for service to Manhattan).

Bus Route Design

New York City land use varies widely, from neighborhoods that are primarily employment and/or retail centers to those that are exclusively residential, while many of New York's communities fall somewhere in between. In turn, NYC Transit schedules local bus service to accommodate origins and destinations along a route and limited-stop or express service to accommodate significant demand for a small number of stops at major traffic generators or transfer points.

Limited-Stop Bus Design Guidelines

Limited-stop routes typically take one of two forms: limited/through service or limited/short turn service.

- **Limited/through service:** Limited bus stops are spread over an entire route. This service pattern caters to riders making longer trips (at least three miles) with destinations scattered throughout the route.
- **Limited/short turn local service:** This service pattern divides a route into three zones—an outer zone, an inner zone, and a Central Business District (CBD). Service along the route is shared by the limited service, which serves all stops in the outer zone and most stops within the CBD, and the short turn service, which serves all stops in the inner zone and the CBD.

NYC Transit will consider the introduction of limited-stop service on local bus routes where loading guidelines support headways of six minutes or less, for a span of at least two hours. This would result in local and limited services, each operating every 12 minutes. The duration of six-minute local service will dictate the span for limited-stop service. For example, if service on a local bus route operates every six minutes during peak periods and every ten minutes during middays, then limited-stop service would be considered for the peak period but not for the midday period. Similarly, limited-stop service may be unidirectional or bidirectional.

While the span of six-minute local service will identify candidate routes for limited-stop service, further analysis is required to determine whether limited-stop service is appropriate. The most significant factor is the boarding and alighting pattern of customers along the route; there must be a sufficient concentration of customers at a small number of stops, which would then become stops on the limited stop route.

Exceptions to the above standard include:

- Routes that are all limited, with parallel or alternate local services (e.g., routes M98 and S93).
- Feeder routes with simultaneous trip departures, one operating local and one operating limited, despite the lack of six-minute service frequencies (e.g., routes S84, S86, S90, S91, S92, S94, S96, and S98 operating from the St. George ferry terminal in Staten Island).

Express Bus Design Guidelines

Similar to limited-stop local bus routes, NYC Transit will consider implementing express routes on corridors where travelers have common origins and destinations. Express routes differ from local and limited routes in that they are not necessarily paired with a local service sharing the same route and they have an express segment separating a cluster of pick-up stops from a cluster of drop-off stops. NYC Transit guidelines specify that express bus routes are appropriate where they are either 1) not competitive with other bus or rail service, or 2) serving a corridor where rapid transit demand exceeds the current capacity of competitive NYC Transit service.

The express segment is defined as the distance between the last pick-up stop and the first drop-off stop. For CBD (Central Business District)-bound routes, the last pick-up point should be at one of the following locations:

- Before the first stop of an intersecting rapid transit line. In order to provide comparable travel time savings and remain competitive, express bus routes should begin the express segment before intersecting with a parallel rapid transit line.
- At a merge point with another express route that can pick up passengers at stops closer to the CBD, thus avoiding duplicate service.
- At least three miles from the first drop-off point.
- At the point where the scheduled service would be at its capacity load.

III. When should service be provided?

NYC Transit balances comprehensive service and resource efficiency. To this end, NYC Transit examines both costs and ridership to determine how many hours a day a particular route will operate. Span of service is defined as the time between the first and last trips on a route or a portion of a route.

Span of Service Guidelines

Determining whether service should be provided during different time periods is a multi-step analysis. The first consideration is the relationship between the expense of operating a given route and the revenue it generates. In any given time period, the share of operating expenses covered by revenue (cost recovery) for a route must be at least two-thirds of the systemwide average during that time period. Local routes are compared to a systemwide local bus average and express routes are compared to a systemwide express bus average. For example, if NYC Transit is operating at 75 percent local bus cost recovery systemwide during the peak, any individual local route must generate at least 50 percent cost recovery to meet this requirement.

If a route falls below this minimum, the number of passengers at the route's busiest point is analyzed to ensure it meets minimum standards. Table 1 shows the minimum number of riders per hour a route needs to serve at its busiest point (if it fails to meet the minimum cost recovery).

Table 1: Minimum Riders per Hour Required at Peak Load Point, Peak Direction

	a.m. / p.m. Peak	Weekday Midday, Saturday, Sunday	Weekday Evening	Owl (overnight)
Grid	90	75	45	20
Feeder	60	40	40	15
Express	80	60	60	n/a

When a route falls below these minimum standards it becomes the subject of a route analysis to determine whether routing or scheduling changes may bring the route's performance up to minimum standards. If NYC Transit determines that no such improvement is possible, the route becomes a candidate for total or partial discontinuation.

Other factors will also be examined, such as whether a route serves major employers, hospitals, or other locations that need local bus service at special times.

IV. How frequently should service be provided?

Schedule guidelines establish the minimum service frequencies (known as “policy headways”) for bus and subway service. This is intended to maintain basic mobility throughout NYC Transit’s service area. The policy headways for bus and subway service may vary by time of day and by day of week. In many cases, however, routes need to operate at shorter intervals than the “policy headways” in order to accommodate higher ridership levels. In these cases, Loading Guidelines match service to the number of riders using a particular route at a given time.

Schedule Guidelines

Minimum Service Frequencies

Local Bus

- *All Times except Late Nights:* If service is provided, it should operate at least every 30 minutes.
- *Late Nights (1 a.m. – 5 a.m.):* If service is provided, it should operate at least every 60 minutes.

Express Bus

- *Weekday Rush Hours and Weekday Middays:* If service is provided, it should operate at least every 30 minutes.
- *Weekday Evenings and Weekends:* If service is provided, it should operate at least every 60 minutes.

Subway

- *Weekday Rush Hours, Weekday Middays, and Saturday Middays:* If service is provided, it should operate at least every 10 minutes.
- *Weekday Evenings, Saturday Evenings, and All Day on Sunday:* If service is provided, it should operate at least every 12 minutes.
- *Late Nights (1 a.m. – 5 a.m.):* If service is provided, it should operate at least every 20 minutes.

On the subway system, there is an exception to the minimum service frequencies. If through service on a subway line operates on more than one branch, the service frequency on each branch may be less than the minimum service frequency (e.g., the Lefferts Blvd and Rockaways branches of the A train). This may occur in cases where the track or platform configuration does not permit a timed transfer between a through route and a shuttle, or it may be based on operating cost considerations, the proportion of ridership on each branch, or the length of each branch.

Loading Guidelines

Loading guidelines determine the appropriate level of bus and subway service based on the maximum load point, or the greatest number of customers riding at one time along a route. The number of customers can vary by the frequency of service, time of day/day of week, vehicle size or type, and route type. NYC Transit loading guidelines reflect this variation.

There are several important characteristics of loading guidelines:

- Schedule guidelines (which establish the minimum service frequencies, or “policy headways,” for bus and subway service) apply when ridership is low; loading guidelines apply when ridership is high.
- Loading guidelines are based on the maximum load point on a bus or subway route in the peak direction. The number of customers at other locations along the route, and in the reverse direction, is lower (often much lower) than the maximum load point.
- Loading guidelines are an average for each time period. For example, bus loading guidelines call for a seated load, with no standees, on routes operating on six-minute headways during weekday middays. This guideline does not guarantee that no customers will stand; it does ensure that, on average, buses will carry a seated load of customers during the weekday midday time period.
- Loading guidelines are designed for optimal operations. When crowds on buses and trains exceed loading guidelines, limited passenger movement during boarding and alighting causes systemwide service delay.
- Loading guidelines have a sliding scale during peak periods, with fewer customers per vehicle allowed on routes with less frequent service. This encourages ridership by scheduling more frequent service than demand would otherwise warrant and making transit a more attractive option.
- The distribution of customers on a train is almost never even; some cars will be more crowded than others. Some cars may be above the guideline, even if the entire train is within the guideline.

The following section will outline the loading guidelines for local bus, express bus and rapid transit service for peak, off-peak and late night service.

Loading Guidelines: Local Bus

Loading guidelines vary across route type, time of day/week and bus size. Table 2 provides a summary of local bus loading guidelines showing the most common service intervals (headways).⁴ Table 2 includes guidelines for standard and articulated buses, grid and feeder routes, and for peak periods, off-peak periods (includes middays, early evenings, and weekends), and late evening. During overnight periods, service frequency will generally be governed by the schedule guideline's minimum frequency of 60 minutes.

Average Peak Load

Peak load is the number of passengers on a bus at its busiest point. NYC Transit loading guidelines do not refer to individual buses. These guidelines refer to the peak number of passengers on a specific route, averaged over a given period of time (½ hour during the peak, one hour during off-peak). For example, six southbound M15 buses serve downtown Manhattan every ½ hour during the morning peak. In this case, loading guidelines refer to the average of the peak loads on all six of these buses. When the average peak load in a time interval exceeds the numbers included in Table 2, NYC Transit will add additional buses to the route.

Route Type

Routes are characterized as grid or feeder service. Grid routes constitute more than 80 percent of NYC Transit's local bus routes; they operate through multiple neighborhoods with customers boarding and alighting throughout the length of the route. Feeder routes primarily carry customers from outlying areas to a subway station or major terminal, with most customers having a common origin or destination. Feeder routes are permitted to carry more customers per bus because there is less need for internal circulation due to the common origin or destination.

Frequency of Service

During peak hours, most bus service is scheduled so that all seats can be filled and some passengers can be standing at the route's busiest point, i.e., the number of passengers exceeds the number of seats when the bus is most crowded. For example, NYC Transit will not add buses to a rush hour grid route with 5-minute headways until a 40-seat bus has more than 54 peak-point riders, on average. As bus frequency decreases, the allowable average peak load also decreases.

⁴ NYC Transit loading guidelines were approved by the MTA Board in December 2004, with application of the seated load minimum deferred.

Table 2

Local Bus Service Loading Guidelines

Standard 40' Bus

Articulated Bus

Weekday Peak Period Service Load Guidelines

Grid Routes			Feeder Routes		
7:00A.M. to 9:00A.M. and 4:00P.M. to 7:00P.M.			6:30A.M. to 8:30A.M. and 4:30P.M. to 7:30P.M.		
Maximum Riders/1/2 hr	Headway (Minutes)	Maximum Avg.Load Per Trip	Maximum Riders/1/2 hr	Headway (Minutes)	Maximum Avg.Load Per Trip
36	30.0	36	36	30.0	36
54	20.0	36	63	20.0	42
90	15.0	45	94	15.0	47
120	12.0	48	130	12.0	52
156	10.0	52	171	10.0	54
220	7.5	54	252	7.5	54
290	6.0	54	325	6.0	54
360	5.0	54	390	5.0	54
915	2.0	54	990	2.0	54

Weekday Peak Period Service Load Guidelines

Grid Routes			Feeder Routes		
7:00A.M. to 9:00A.M. and 4:00P.M. to 7:00P.M.			6:30A.M. to 8:30A.M. and 4:30P.M. to 7:30P.M.		
Maximum Riders/1/2 hr	Headway (Minutes)	Maximum Avg.Load Per Trip	Maximum Riders/1/2 hr	Headway (Minutes)	Maximum Avg.Load Per Trip
n/a	30.0	n/a	n/a	30.0	n/a
n/a	20.0	n/a	n/a	20.0	n/a
n/a	15.0	n/a	n/a	15.0	n/a
175	12.0	70	190	12.0	76
225	10.0	75	249	10.0	83
328	7.5	82	360	7.5	90
420	6.0	84	450	6.0	90
504	5.0	84	540	5.0	90
593	4.3	85	649	4.3	93

Off - Peak Period Service Load Guidelines

Grid Routes			Feeder Routes		
10A.M. to 2P.M. and 7P.M. to 9P.M. Weekdays			9:30A.M. to 2P.M. and 8:30P.M. to 9P.M. Weekdays		
6A.M. to 9P.M. Saturday and Sunday			6A.M. to 9P.M. Saturday and Sunday		
Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip	Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip
72	30.0	36	72	30.0	36
108	20.0	36	108	20.0	36
144	15.0	36	144	15.0	36
180	12.0	36	190	12.0	38
216	10.0	36	252	10.0	42
296	7.5	37	376	7.5	47
400	6.0	40	500	6.0	50
516	5.0	43	600	5.0	50
690	4.0	46	750	4.0	50
823	3.5	48	874	3.5	51

Off - Peak Period Service Load Guidelines

Grid Routes			Feeder Routes		
10A.M. to 2P.M. and 7P.M. to 9P.M. Weekdays			9:30A.M. to 2P.M. and 8:30P.M. to 9P.M. Weekdays		
6A.M. to 9P.M. Saturday and Sunday			6A.M. to 9P.M. Saturday and Sunday		
Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip	Minimum/Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip
n/a	30.0	n/a	n/a	30.0	n/a
n/a	20.0	n/a	n/a	20.0	n/a
n/a	15.0	n/a	n/a	15.0	n/a
280	12.0	56	285	12.0	57
336	10.0	56	342	10.0	57
448	7.5	56	496	7.5	60
560	6.0	56	650	6.0	65
684	5.0	57	780	5.0	65
915	4.0	61	975	4.0	65
1200	3.2	64	1238	3.2	66

Late Evening Service Load Guidelines

Grid Routes			Feeder Routes		
9:00 P.M. to 1:00 A.M.			9:00 P.M. to 1:00 A.M.		
Weekdays, Saturday and Sunday			Weekdays, Saturday and Sunday		
Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip	Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip
72	30.0	36	72	30.0	36
108	20.0	36	108	20.0	36
144	15.0	36	144	15.0	36
180	12.0	36	180	12.0	36
216	10.0	36	216	10.0	36
288	7.5	36	288	7.5	36
617	3.5	36	617	3.5	36

Late Evening Service Load Guidelines

Grid Routes			Feeder Routes		
9:00 P.M. to 1:00 A.M.			9:00 P.M. to 1:00 A.M.		
Weekdays, Saturday and Sunday			Weekdays, Saturday and Sunday		
Maximum Riders/hour	Headway (Minutes)	Avg.Load Per Trip	Maximum Riders/hour	Headway (Minutes)	Maximum Avg.Load Per Trip
n/a	30.0	n/a	n/a	30.0	n/a
n/a	20.0	n/a	n/a	20.0	n/a
n/a	15.0	n/a	n/a	15.0	n/a
280	12.0	56	280	12.0	56
336	10.0	56	336	10.0	56
448	7.5	56	448	7.5	56
1050	3.2	56	1050	3.2	56

Note 1 - Transition periods between peak and off peak guidelines use average of both standards

Note 1 - Standard bus guidelines used for loadings requiring headways of 15 minutes or longer
 Note 2 - Transition periods between peak and off peak guidelines use average of both standards

Loading Guidelines: Express Bus

Peak Period

All express bus service will be scheduled to a seated load of 55 customers (for 45-foot express coaches) or 40 customers (for 40-foot express buses).⁵ Lower standards of 50-52 passengers per trip (about 90% of capacity) are actually used in AM peak to avoid having standees. Experience has shown that slight service disruptions that can occur daily (1 to 2 minute delays on shorter headways) will cause frequent standing loads and generate complaints.

Off-Peak Periods

Express bus service will be scheduled to a seated load of 20-50 customers (for express coaches) or 20-40 customers (for standard express buses).

Table 3: Loading Guidelines for Express Bus

	Trips per 30 minutes	Headway (Min.)	Standard Capacity Express Bus: Average Maximum Load	High Capacity Express Bus: Average Maximum Load
Peak	1	30	40	55
	2	15	40	55
	3	10	40	55
	4	7.5	40	55
	5	6	40	55
	6	5	40	55
	7.5 or more	4 or less	40	55
Off-Peak	0.5	60	20	20
	1	30	30	35
	1.5	20	40	45
	2	15	40	50
	3 or more	10 or less	40	50

Frequency of Schedule Review

NYC Transit policy to provide a seat, on average, for every express bus customer requires a more frequent and intensive schedule review policy than for local bus, where standees are allowed by policy. Schedule unit personnel check each weekday express bus trip on an annual basis, with current policy requiring these checks during the Spring of each year in advance of schedule change implementation in September of each year. Weekend express service is checked every four years along with local bus routes.

⁵ Express Bus Loading Guidelines have not been officially modified since the introduction of high-capacity express buses. The numbers in Table 3 reflect the same loading guidelines that were approved for standard capacity buses, but these numbers are scaled up to reflect 55-passenger buses.

Loading Guidelines: Subway

Subway loading guidelines differ for the three sizes of subway cars used by NYC Transit: “A” Division 51-foot cars (car classes R62, R62A, R142, and R142A), “B” Division 60-foot cars (car classes R32, R42, R143, R160A, and R160B), and “B” Division 75-foot cars (car classes R46, R68, and R68A).

Peak Period

All subway service is scheduled to provide for standees during peak periods. When service operates more frequently, the guidelines allow more customers per car. The maximum capacity for each car size is based on a standing space of three square feet per standing customer. The number of allowable peak period riders per car is as follows:

- “A” Division 51-foot car: 90-110
- “B” Division 60-foot car: 115-145
- “B” Division 75-foot car: 140-175

Off-Peak Periods

All subway service is scheduled to 125 percent of a seated load during off-peak periods. The number of allowable off-peak riders, by subway car size, is as follows:

- “A” Division 51-foot car: 48-54⁶
- “B” Division 60-foot car: 53-54⁷
- “B” Division 75-foot car: 88-93⁸

During overnight periods, service frequency will generally be governed by the schedule guideline’s minimum frequency of 20 minutes. A uniform 20-minute service frequency enables NYC Transit to maintain train-to-train connections for customers.

Tables 1 through 3 provide the detailed subway loading guidelines. Table 1 shows the guidelines for the “A” Division 51-foot cars; the “B” Division 60-foot and 75-foot cars are shown in Tables 2 and 3.

⁶ R142 and R142A cars have 38 seats/car and all other Division “A” cars have 43 seats/car.

⁷ This is based on the average number of seats per car on R143 and R160A/R160B cars. R32 and R42 cars, which are slated for retirement, have 50 seats per car.

⁸ R46 ‘A’ cars have 70 seats, R46 ‘B’ cars have 74 seats, and R68/R68A cars have 70 seats/car.

Table 4: Subway Loading Guidelines: "A" Division Car

Weekday Peak (7:00 - 9:30 AM, 4:00 - 6:30 PM)

Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Half-Hour	Sq. Ft. per Standee	% Seated	Riders per Half-Hour
2.0	110	70	10	15.0	3.0	36%	16,500
2.5	110	70	10	12.0	3.0	36%	13,200
3.0	110	70	10	10.0	3.0	36%	11,000
4.0	110	70	10	7.5	3.0	36%	8,250
5.0	105	65	10	6.0	3.2	38%	6,300
6.0	100	60	10	5.0	3.5	40%	5,000
7.5	95	55	10	4.0	3.8	42%	3,800
10.0	90	50	10	3.0	4.2	44%	2,700

Midday (10:30 AM - 3:00 PM), Evening (8:00 PM - 12:00 Midnight), Saturday, and Sunday

Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Hour	Sq. Ft. per Standee	% Seated	Riders per Hour
4.0	50	10	10	15.0	21.0	80%	7,500
5.0	50	10	10	12.0	21.0	80%	6,000
6.0	50	10	10	10.0	21.0	80%	5,000
7.5	50	10	10	8.0	21.0	80%	4,000
8.5	50	10	10	7.0	21.0	80%	3,500
10.0	50	10	10	6.0	21.0	80%	3,000
12.0	50	10	10	5.0	21.0	80%	2,500

Midday (10:30 AM - 3:00 PM), Evening (8:00 PM - 12:00 Midnight), Saturday, and Sunday

Owl (1:00 - 5:00 AM)

Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Hour	Sq. Ft. per Standee	% Seated	Riders per Hour
20.0	50	10	10	3.0	21.0	80%	1,500

Notes:

1. During the transition between these time periods, passenger loads between those shown above are permitted.
2. The 7 has 11 cars per train. 42nd Street Shuttle operates with 3- and 4-car trains.
3. Division "A" cars seat 38 to 43 passengers (seats vary by car type).

Table 5: Subway Loading Guidelines, "B" Division 60-foot Car

Weekday Peak (7:00 - 9:30 AM, 4:00 - 6:30 PM)							
Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Half-Hour	Sq. Ft. per Standee	% Seated	Riders per Half-Hour
2.0	145	103	10	15.0	3.0	29%	21,750
2.5	145	103	10	12.0	3.0	29%	17,400
3.0	145	103	10	10.0	3.0	29%	14,500
4.0	145	103	10	7.5	3.0	29%	10,875
5.0	135	93	10	6.0	3.4	31%	8,100
6.0	125	83	10	5.0	3.8	34%	6,250
7.5	115	73	10	4.0	4.4	37%	4,600
10.0	115	73	10	3.0	4.4	37%	3,450

Midday (10:30 AM - 3:00 PM), Evening (8:00 PM - 12:00 Midnight), Saturday, and Sunday							
Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Hour	Sq. Ft. per Standee	% Seated	Riders per Hour
4.0	53	11	10	15.0	29.4	80%	7,875
5.0	53	11	10	12.0	29.4	80%	6,300
6.0	53	11	10	10.0	29.4	80%	5,250
7.5	53	11	10	8.0	29.4	80%	4,200
8.5	53	11	10	7.0	29.4	80%	3,675
10.0	53	11	10	6.0	29.4	80%	3,150
12.0	53	11	10	5.0	29.4	80%	2,625

Owl (1:00 - 5:00 AM)							
Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Hour	Sq. Ft. per Standee	% Seated	Riders per Hour
20.0	53	11	10	3.0	29.4	80%	1,575

Notes:

1. During the transition between these time periods, passenger loads between those shown above are permitted.
2. C J L M and Z trains operate with 8 cars per train.
3. R143 and R160 60-foot cars seat 42 to 43 passengers (seats vary by car type). R32 and R42 cars seat 50 passengers, but are not included here because they are slated for retirement.

Table 6: Subway Loading Guidelines, "B" Division 75-foot Car

Weekday Peak (7:00 - 9:30 AM, 4:00 - 6:30 PM)							
Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Half-Hour	Sq. Ft. per Standee	% Seated	Riders per Half-Hour
2.0	175	103	8	15.0	3.0	41%	21,000
2.5	175	103	8	12.0	3.0	41%	16,800
3.0	175	103	8	10.0	3.0	41%	14,000
4.0	175	103	8	7.5	3.0	41%	10,500
5.0	165	93	8	6.0	3.3	44%	7,920
6.0	155	83	8	5.0	3.7	46%	6,200
7.5	145	73	8	4.0	4.2	50%	4,640
10.0	140	68	8	3.0	4.5	51%	3,360

Midday (10:30 AM - 3:00 PM), Evening (8:00 PM - 12:00 Midnight), Saturday, and Sunday							
Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Hour	Sq. Ft. per Standee	% Seated	Riders per Hour
4.0	90	18	8	15.0	17.2	80%	10,800
5.0	90	18	8	12.0	17.2	80%	8,640
6.0	90	18	8	10.0	17.2	80%	7,200
7.5	90	18	8	8.0	17.2	80%	5,760
8.5	90	18	8	7.0	17.2	80%	5,040
10.0	90	18	8	6.0	17.2	80%	4,320
12.0	90	18	8	5.0	17.2	80%	3,600

Owl (1:00 - 5:00 AM)							
Headway	Maximum Allowable Load/Car	# of Standees	Cars/Train	Trips per Hour	Sq. Ft. per Standee	% Seated	Riders per Hour
20.0	90	18	8	3.0	17.2	80%	2,160

Notes:

1. During the transition between these time periods, passenger loads between those shown above are permitted.
2. S Rockaway Park Shuttle and G routes operate with 4 car trains. S Franklin Av Shuttle operates with 2 car trains.
3. Division "B" 75-foot cars seat approximately 70 to 74 passenger (seats vary by car type).

V. How is Service Changed?

NYC Transit guidelines specify the procedure for changing any of three basic characteristics of bus or train service: frequency (how often a service operates), span (when a service operates), and routing (where a service operates). These guidelines outline the process for obtaining official approval for a service change. This process begins after NYC Transit staff analyzes and recommends a service change based on community input, demographic factors, ridership, performance data, and service guidelines.

Service Change Guidelines

The service change guidelines specify criteria for major and minor changes.

Minor Changes (aggregated over a 12-month period) are defined as those resulting in:

- Less than 25% change in daily revenue miles (frequency)
- Less than one hour service span reduction or any same-day service span increase
- Less than 25% change in route miles (routing)

Major Changes (aggregated over a 12-month period) are defined as those resulting in:

- 25% or greater change in daily revenue miles (frequency)
- One hour or more reduction in service span
- 25% or greater change in route miles (routing)

Major changes require a public hearing and Board approval. Minor changes do not. The procedure for making each of these types of changes is outlined below.

Procedure for Frequency Adjustments

Minor Changes

- Service Change Staff Summary prepared
- New schedules prepared
- Service adjustments implemented
(Estimated duration: 2 to 4 months⁹)

Major Changes

- Service Change Staff Summary prepared
- President requests and Chairman authorizes hearing
- Public hearing conducted
- President presents updated Staff Summary to Board, incorporating public comments and responses
- Board approves
- New schedules prepared
- Service adjustments implemented
(Estimated duration: 5 to 7 months)

⁹ Estimated duration represents the approximate timeframe for bus schedule changes, train schedule production is a more time-consuming process and would generally take longer to implement.

Procedure for Permanent Span Adjustments

Minor Changes

- Service Change Staff Summary prepared
- President approves
- Service adjustments implemented
(Estimated duration: 3 to 6 months)

Major Changes

- Service Change Staff Summary prepared
- President requests and Chairman authorizes hearing
- Public hearing conducted
- President presents updated Staff Summary to Board
incorporating public comments and responses
- Board approves
- Service adjustments implemented
(Estimated duration: 5 to 9 months)

For experimental span changes, such as the addition of an entire day's service, changes are implemented for a six month trial period. A formal public hearing will follow implementation.

Procedure for Permanent Routing Adjustments

Minor Changes

- Service Change Staff Summary prepared
- President informs Board
- Service adjustments implemented
(Estimated duration: 3 to 8 months)

Major Changes

- Service Change Staff Summary prepared
- President requests and Chairman authorizes hearing*
- Presentation to local Community Board and
elected officials*
- Public hearing conducted*
- President presents updated Staff Summary to Board
incorporating public comments and responses*
- Board approves
- Service adjustments implemented
(Estimated duration: 6 to 17 months)

Additional procedure for adding new routes:

- Mayor's Approval*
(Estimated duration: 7 to 20 months)

* Not required for experimental changes, defined as service additions for a six-month trial period.