

3. TRANSIT SERVICES

To provide competitive levels of mobility and access service, transit operations need to perform well on a number of service quality measures. Some of the most important are:

- **Effective Routing** – Connections to key destinations;
- **Effective Stop Placement** – Convenient points of access to service;
- **Service Spans** – When vehicles operate;
- **Service Frequency** – Wait time between buses/trains; and
- **Schedule Reliability** – Particularly during times of lower frequency.

To provide a service-level conditions context for the DBSTCS, the following sections outline these conditions for bus and subway service within the Study Area. Data for bus and subway services were provided by NYCT. Data on commuter van service are also documented, as provided by the Brooklyn Van Industry Association. These conditions are the primary decision-making tools by which riders decide whether to rely on transit services for their travel planning. Together, they tell travelers when and where services are available, how sensitive their trips are to an individual scheduled transit trip (i.e., does their trip hinge on one scheduled bus or is there flexibility), and how reliable that service is to transport them to their destination.

3.1 BUSES

Routing

Seventeen bus routes serve the Study Area. Figure 25 shows a map of these routes. Figure 26 goes a step further and shows the stops of all of the routes that serve the Study Area, and the density of bus stops within the Study Area. A higher level of density implies a higher level of accessibility to bus routes. The map in Figure 28 demonstrates that the majority of the Study Area is serviced by at least one bus route.

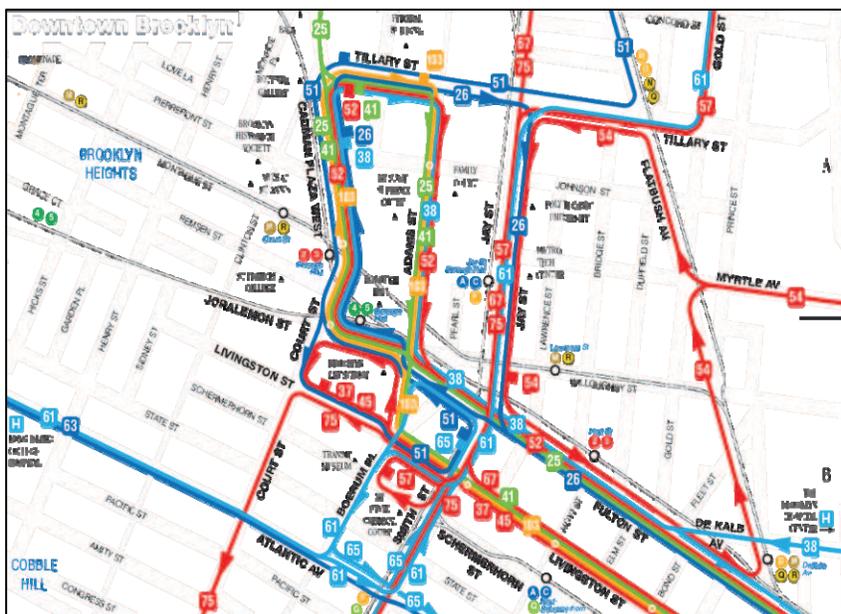


Figure 25 - Downtown Brooklyn NYCT Bus Map

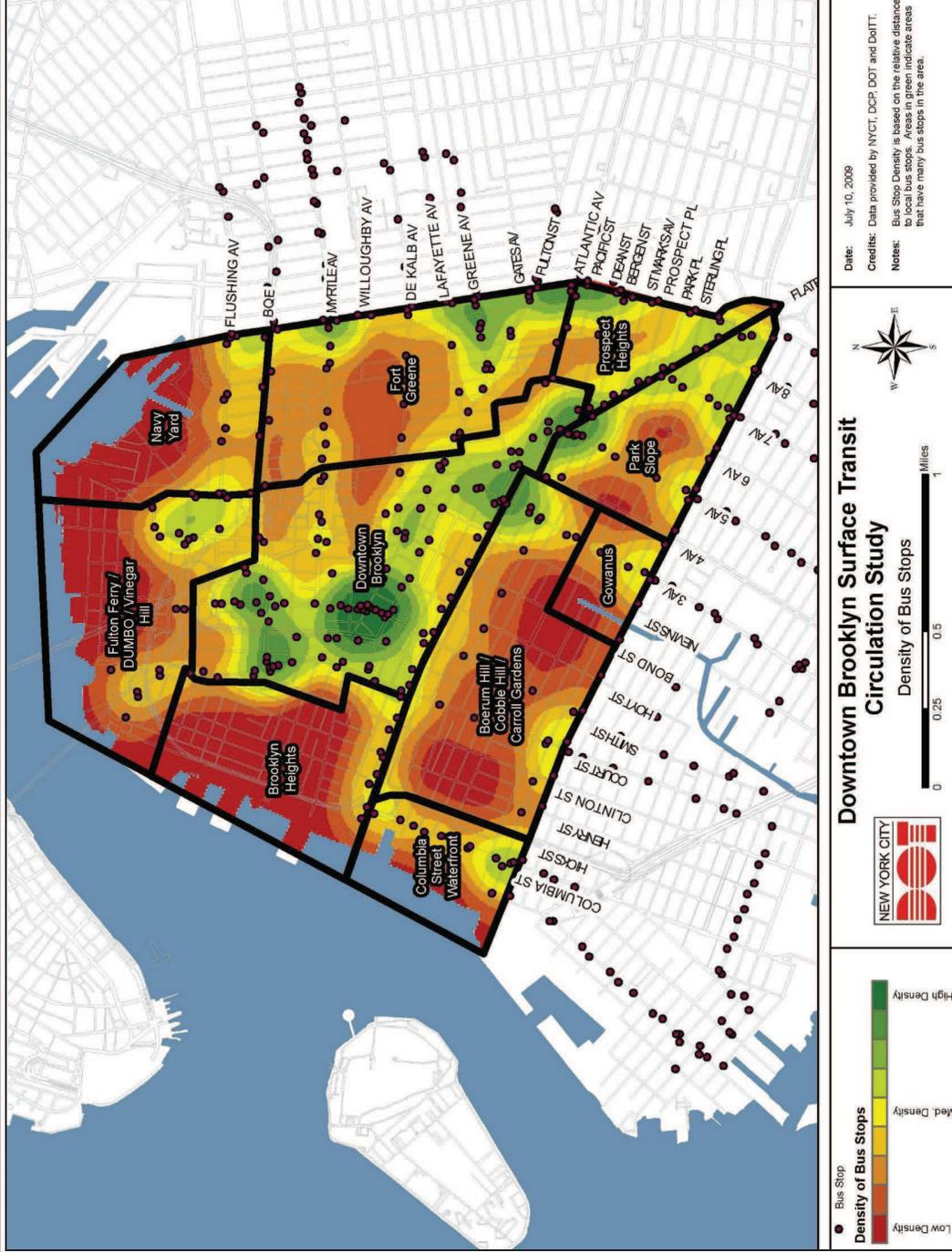


Figure 26 - Bus Stop Density

Bus Route Characteristics

The following is a detailed breakdown of performance measures for the bus routes that service Downtown Brooklyn.

B25		
Stops	Total	73
	In Study Area	35 (48%)
Average Trip Time (Min)⁵	AM Peak to Downtown	56.1
	PM Peak from Downtown	62.4
Buses Per Hour⁶	AM Peak to Downtown	8
	PM Peak from Downtown	8
Average Weekday Ridership	Total	12,615
	Hourly AM Peak	641
	Hourly PM Peak	1,056
Peak Hourly Passenger Load	AM Peak to Downtown	301 -----
	PM Peak from Downtown	390 -----

Local service between East New York and Fulton Landing, with service to Brownsville, Ocean Hill, and Fort Greene. Key Study Area stops at Fulton Street Mall and Borough Hall. Total revenue miles: 12.21 (westbound: 6.09, eastbound: 6.12)

--- 8am-9am, Fulton St./New York Ave.
--- 3pm-4pm, Fulton St./Albany Ave.

B26		
Stops	Total	81
	In Study Area	24 (30%)
Average Trip Time (Min)	AM Peak to Downtown	58.7
	PM Peak from Downtown	58.0
Buses Per Hour	AM Peak to Downtown	8
	PM Peak from Downtown	7
Average Weekday Ridership	Total	11,367
	Hourly AM Peak	692
	Hourly PM Peak	884
Peak Hourly Passenger Load	AM Peak to Downtown	450 -----
	PM Peak from Downtown	329 -----

Local service between Ridgewood (Queens) and Downtown Brooklyn, with service to Bushwick, Bedford-Stuyvesant, and Fort Greene. Key Study Area stops at Fulton Street Mall, Metro Tech, and Borough Hall. Total revenue miles: 12.64 (westbound: 6.41, eastbound: 6.23)

--- 7am-8am, Hasley St./Marcy Ave.
--- 3pm-4pm, Hasley St./Nostrand Ave.

⁵ Average Trip Time was calculated using NYCT bus timetables (April 2009). This calculation looked at all full-length trips scheduled to begin during the peak period (AM Peak: 6am to 10am, PM Peak: 3pm to 7pm). The scheduled durations of each one-way trip were summed and divided by the number of buses that started their trip during the peak period in question.

⁶ Buses per Hour was calculated using NYCT bus timetables (April 2009). First, the number of buses scheduled to begin their trip during the peak period was summed (For buses with short-routes, only full-length trips were considered). That number was then divided by the number of hours in the period (four) to determine the number of buses per hour during the period.

B37		
Stops	Total In Study Area	100 22 (22%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	57.9 56.4
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	4 3
Average Weekday Ridership	Total Hourly AM Peak Hourly PM Peak	3,565 225 277
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	78 ----- 88 -----

Local service between Fort Hamilton and Downtown Brooklyn, with service to Bay Ridge, Sunset Park, Gowanus, Park Slope, and Boerum Hill. Key Study Area stops at Borough Hall, New York Transit Museum, and Brooklyn Law School. Total revenue miles: 13.78 (northbound: 6.92, southbound: 6.86)

--- 8am-9am, 3rd Ave./60th St.
--- 3pm-4pm, 3rd Ave./Atlantic Ave (Core Study Area)

B38		
Stops	Total In Study Area	98 21 (21%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	54.5 54.3
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	16 13
Average Weekday Ridership	Total Hourly AM Peak Hourly PM Peak	23,061 1,639 1,703
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	959 ----- 716 -----

Local and Limited-Stop service between Ridgewood (Queens) and Downtown Brooklyn, with service to Bushwick, Bedford-Stuyvesant, and Fort Greene. Short Route service available between Bushwick and Downtown Brooklyn. Key Study Area stops at Fulton Street Mall, Metro Tech, and Brooklyn Supreme Court. Total revenue miles: 11.53 (westbound: 5.39, eastbound: 6.14)

--- 8am-9am, Dekalb Ave./Vanderbilt Ave (Overall Study Area)
--- 4pm-5pm, Lafayette Ave./Carlton Ave. (Overall Study Area)

B41		
Stops	Total In Study Area	106 28 (26%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	60.6 67.7
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	21 19
Average Weekday Ridership	Total Hourly AM Peak Hourly PM Peak	39,323 2,210 3,187
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	755 ----- 1,009 -----

Local and Limited-Stop service between Bergen Beach or Kings Plaza and Downtown Brooklyn, with service to Flatbush and Prospect Heights. Short Route service available between Midwood and Prospect Park. Key Study Area stops at Fulton Street Mall, Borough Hall, and Cadman Plaza. Total revenue miles: 15.7 (northbound: 7.78, southbound: 7.92)

--- 8am-9am, Flatbush Ave./Empire Blvd.
--- 5pm-6pm, Flatbush Ave./Prospect Pl. (Overall Study Area)

B45	
Stops	
Total	66
In Study Area	19 (29%)
Average Trip Time (Min)	
AM Peak to Downtown	46.7
PM Peak from Downtown	51.6
Buses Per Hour	
AM Peak to Downtown	6
PM Peak from Downtown	7
Average Weekday Ridership	
Total	9,227
AM Peak	437
PM Peak	791
Peak Hourly Passenger Load	
AM Peak to Downtown	232 -----
PM Peak from Downtown	326 -----

Local service between Crown Heights and Downtown Brooklyn, with service to Crown Heights and Prospect Heights. Key Study Area stops at Atlantic Terminal, Borough Hall, New York Transit Museum, and Brooklyn Law School. Total revenue miles: 9.42 (westbound: 4.6, eastbound: 4.82)

--- 8am-9am, St. John's Pl./Nostrand Ave.
--- 3pm-4pm, Atlantic Ave./6th Ave. (Overall Study Area)

B51	
Stops	
Total	19
In Study Area	12 (63 %)
Average Trip Time (Min)	
AM Peak to Downtown	17.8
PM Peak from Downtown	25.3
Buses Per Hour	
AM Peak to Downtown	2
PM Peak from Downtown	3
Average Weekday Ridership	
Total	920
AM Peak	66
PM Peak	66
Peak Hourly Passenger Load	
AM Peak to Downtown	26 -----
PM Peak from Downtown	45 -----

Local weekday only service between Downtown Brooklyn and Lower Manhattan, with service to DUMBO, the Lower East Side (Manhattan), and Chinatown (Manhattan). Key Study Area stops at Cadman Plaza, Borough Hall, and Brooklyn Law School. Total revenue miles: 9.42 (westbound: 4.6, eastbound: 4.82)

--- 9am-10am, Bowery/Bayard St.
--- 4pm-5pm, Centre St./Chambers St.

B52	
Stops	
Total	71
In Study Area	23 (32%)
Average Trip Time (Min)	
AM Peak to Downtown	56.0
PM Peak from Downtown	55.3
Buses Per Hour	
AM Peak to Downtown	9
PM Peak from Downtown	10
Average Weekday Ridership	
Total	14,821
AM Peak	919
PM Peak	1,188
Peak Hourly Passenger Load	
AM Peak to Downtown	715 -----
PM Peak from Downtown	517 -----

Local service between Ridgewood (Queens) and Downtown Brooklyn with service to Bushwick, Bedford-Stuyvesant, and Fort Greene. Key Study Area stops at Cadman Plaza, Borough Hall, and New York State Supreme Court. Total revenue miles: 10.53 (westbound: 5.41, eastbound: 5.12)

--- 8am-9am, Gates Ave./Bedford Ave.
--- 5pm-6pm, Franklin Ave./Greene Ave.

B54		
Stops	Total In Study Area	73 18 (25%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	47.0 54.7
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	7 9
Average Weekday Ridership	Total AM Peak PM Peak	12,419 799 935
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	440 ----- 438 -----

Local service between Ridgewood (Queens) and Downtown Brooklyn, with service to Bushwick and Bedford-Stuyvesant. Key Study Area stops at New York City College of Technology, Polytechnic University, Metro Tech, and Long Island University. Total revenue miles: 9 (westbound: 4.29, eastbound: 4.71)

--- 8am-9am, Myrtle Ave./Throop Ave.
--- 4pm-5pm, Myrtle Ave./Walworth St.

B57		
Stops	Total In Study Area	74 15 (20%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	46.8 52.0
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	4 7
Average Weekday Ridership	Total AM Peak PM Peak	5,670 475 430
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	206 ----- 170 -----

Local service between Maspeth (Queens) and Downtown Brooklyn, with service to Clinton Hill and Fort Greene. Key Study Area stops at New York City College of Technology, Polytechnic University, Metro Tech, and New York Transit Museum. Total revenue miles: 11.8 (westbound: 5.57, eastbound: 6.23)

--- 7am-8am, Flushing Ave./Humboldt St.
--- 5pm-6pm, Flushing Ave./Classon Ave.

B61		
Stops	Total In Study Area	130 42 (32%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	81.1 77.3
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	8 7
Average Weekday Ridership	Total AM Peak PM Peak	18,041 1,359 1,270
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	331 ----- 210 -----

Local service between Red Hook (Brooklyn) and Queens Plaza (Queens), with service to Cobble Hill, Fort Greene, Clinton Hill, Williamsburg, and Greenpoint. Short Route service available between Red Hook and Williamsburg. Key Study Area stops at New York State Criminal Court, New York City College of Technology, Polytechnic University, and Metro Tech. Total revenue miles: 18.93 (northbound: 9.76, southbound: 9.17)

--- 8am-9am, McGuinness Blvd./Freeman St.
--- 4pm-5pm, Atlantic Ave./Clinton St. (Overall Study Area)

B63		
Stops	Total In Study Area	110 29 (26%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	78.2 81.4
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	5 5
Average Weekday Ridership	Total AM Peak PM Peak	14,315 720 1,216
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	305 ----- 468 -----

Local service between Fort Hamilton and Cobble Hill, with service to Bay Ridge, Sunset Park, Gowanus, and Park Slope. Key Study Area stops at Atlantic Terminal and Long Island College Hospital. Total revenue miles: 15.17 (northbound: 7.67, southbound: 7.5)

--- 7am-8am, 5th Ave./39th St.
--- 3pm-4pm, 5th Ave./26th St.

B65		
Stops	Total In Study Area	63 23 (37%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	40.9 42.3
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	5 6
Average Weekday Ridership	Total AM Peak PM Peak	4,851 335 383
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	344 ----- 289 -----

Local service between Ocean Hill/Brownsville and Downtown Brooklyn, with service to Crown Heights, Prospect Heights, and Boerum Hill. Key Study Area stops at New York State Criminal Court, New York Transit Museum, and Fulton Street Mall. Total revenue miles: 8.94 (westbound: 4.36, eastbound: 4.58)

--- 8am-9am, Bergen St./Franklin Ave.
--- 4pm-5pm, Dean St./Franklin Ave.

B67		
Stops	Total In Study Area	77 33 (43%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	46.2 45.1
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	6 6
Average Weekday Ridership	Total AM Peak PM Peak	6,897 515 558
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	320 ----- 215 -----

Local service between Kensington and DUMBO, with service to Windsor Terrace and Park Slope. Key Study Area stops at Fulton Street Mall, New York City College of Technology, Polytechnic University, and Metro Tech. Total revenue miles: 10 (northbound: 5.03, southbound: 4.97)

--- 7am-8am, McDonald Ave./Fort Hamilton Pwky.
--- 3pm-4pm, 7th Ave./3rd St.

B69		
Stops	Total In Study Area	67 28 (42%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	42.3 35.1
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	4 3
Average Weekday Ridership	Total AM Peak PM Peak	2,302 222 186
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	163 ----- 126 -----

Local service between Windsor Terrace and Downtown Brooklyn, with service to Park Slope, Prospect Heights, Clinton Hill, and Fort Greene. Total revenue miles: 9.63 (northbound: 4.85, southbound: 4.78)

--- 8am-9am, Vanderbilt Ave./Atlantic Ave. (Overall Study Area)
--- 3pm-4pm, Vanderbilt Ave./Fulton St. (Overall Study Area)

B75		
Stops	Total In Study Area	62 22 (36%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	37.8 43.0
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	3 3
Average Weekday Ridership	Total AM Peak PM Peak	3,528 207 306
Peak Hourly Passenger Load	AM Peak to Downtown PM Peak from Downtown	104 ----- 154 -----

Local service between Park Slope and Downtown Brooklyn, with service to Gowanus and Cobble Hill. Key Study Area stops at New York Transit Museum, Fulton Street Mall, New York City College of Technology, Polytechnic University, and Metro Tech. Total revenue miles: 8.163 (northbound: 3.8, southbound: 4.36)

--- 8am-9am, Smith St./Nelson St.
--- 5pm-6pm, Court St./Warren St. (Overall Study Area)

B103⁷		
Stops	Total In Study Area	74 13 (18%)
Average Trip Time (Min)	AM Peak to Downtown PM Peak from Downtown	67.2 74.0
Buses Per Hour	AM Peak to Downtown PM Peak from Downtown	11 11
Average Weekday Ridership	Total AM Peak PM Peak	4,222 n/a n/a
Peak Hourly Passenger Load		n/a

Limited-Stop weekday and Saturday service between Canarsie and Downtown Brooklyn, with service to East Flatbush, Kensington, and Boerum Hill. Short Route service available between Flatbush and Canarsie. Key Study Area stops at Borough Hall, the main Post Office, and New York State Supreme Court.

⁷ Hourly passenger data is not available for the B103.

Bus Route Performance Measures

With 17 routes,⁸ the study area has significant bus coverage. While there are many routes, however, two routes – the B38 and the B41 – account for approximately one-third of the total boardings and ridership across all of the routes (Table 12 and Table 13). With an average of over 1,000 riders boarding every hour during the peak periods (and over 2,000 hourly riders on the B41 outbound during the PM peak hour), these two routes serve as the primary links between Downtown Brooklyn and the surrounding area. Specifically, the B38 gives riders access to Ridgewood (Queens) and Fort Greene, and the B41 connects riders to Bergen Beach and Kings Plaza. Given the high levels of ridership on these routes, improvements to them would benefit the most Study Area riders.

Table 12 - Average Hourly Weekday Peak Boardings⁹

Route	AM Peak		PM Peak	
	to Downtown	from Downtown	to Downtown	from Downtown
B25	441	195	441	732
B26	599	275	441	588
B37	116	103	129	152
B38	1,285	567	925	1,227
B41	1,521	765	1,460	2,018
B45	373	155	327	594
B51	16	57	59	54
B52	805	449	673	884
B54	598	437	510	710
B57	312	227	229	263
B61	852	699	716	698
B63	117	73	489	541
B65	384	160	235	365
B67	458	273	312	390
B69	148	167	117	106
B75	147	119	118	264
TOTAL	8,213	4,676	7,172	9,590

⁸ Due to limitations in data, the following tables do not include information for the B103.

⁹ Average Hourly Peak Boardings were calculated using on/off counts from NYCT. First, the number of passengers who boarded a route going one direction during a peak period (AM Peak: 6am to 10am, PM Peak: 3pm to 7pm) was summed. That number was divided by the number of hours in the period (four) to determine the average number of people who boarded the route each hour during the peak. This calculation was repeated for each route, in each direction, during each peak period.

Table 13 - Average Hourly Weekday Peak Ridership¹⁰

Bus Route	AM Peak	PM Peak
B25	641	1,056
B26	692	884
B37	225	277
B38	1,639	1,703
B41	2,210	3,187
B45	437	791
B51	66	66
B52	919	1,188
B54	799	935
B57	475	430
B61	1,359	1,270
B63	720	1,216
B65	335	383
B67	515	558
B69	222	186
B75	207	306
TOTAL	11,461	14,436

Table 14 examines peak load data from the bus routes that serve the Study Area. The hourly load for a route at a given stop is the sum of passengers who were aboard buses for that route as the buses passed the stop during a given hour. The largest of these hourly loads is defined as the peak load. The time period during which this peak load occurred is the Peak Hour, and the stop at which this load occurred is the Peak Location on the route

As shown in Table 14, the peak loads for all of the routes traveling inbound occur at points outside of the Core Study Area (and mostly outside of the Overall Study Area). This indicates that potential riders who may consider boarding a bus within the Study Area may be dissuaded by crowded vehicles. Outbound, the AM peak load points for the B51, B54, and B57 and the PM peak load point for the B37 are within the Core Study Area. This demonstrates high utilization of these routes by individuals who are travelling out of the Study Area, and it could indicate that there is limited space to accommodate additional riders originating in the Study Area.

¹⁰ Average Hourly Peak Ridership was calculated using MetroCard data from NYCT. First, the number of passengers during a peak period (AM Peak: 6am to 10am, PM Peak: 3pm to 7pm) was summed. That number was divided by the number of hours in the period (four) to determine the average number of people who rode the route each hour during the peak. This calculation was repeated for each route, during each peak period. Calculations could not be performed for each direction due to data limitations.

Table 14 - Peak Hourly Passenger Load¹¹

Route	AM Peak		PM Peak	
	To Downtown	From Downtown	To Downtown	From Downtown
B25	(8am-9am, FULTON ST NEW YORK AV) 301	(8am-9am, FULTON ST UTICA AV) 118	(3pm-4pm, FULTON ST GREENE AV) 194	(3pm-4pm, FULTON ST ALBANY AV) 390
B26	(7am-8am, HALSEY ST MARCY AV) 450	(8am-9am, HALSEY ST STUYVESANT AV) 146	(3pm-4pm, HALSEY ST PATCHEN AV) 217	(3pm-4pm, HALSEY ST NOSTRAND AV) 329
B37	(8am-9am, 3 AV 60 ST) 78	(8am-9am, 3 AV BAY RIDGE AV) 69	(3pm-4pm, 3 AV 86 ST) 121	(3pm-4pm, 3 AV ATLANTIC AV) 88
B38	(8-9am, DE KALB AV/VANDEBILT AV) 959	(8-9am, LAFAYETTE AV LEWIS AV) 246	(3-4pm, DE KALB AV CARLTON AV) 476	(4-5pm, LAFAYETTE AV CARLTON AV) 716
B41	(8-9am, FLATBUSH AV EMPIRE BL) 755	(9-10am, FLATBUSH AV CHURCH AV) 399	(3-4pm, FLATBUSH AV E 29TH ST) 579	(5-6pm, FLATBUSH AV PROSPECT PA) 1,009
B45	(8am-9am, ST JOHNS PL NOSTRAND AV) 232	(8am-9am, ST JOHNS PL KINGSTON AV) 139	(3pm-4pm, ST JOHNS PL SCHENECTADY AV) 181	(3pm-4pm, ATLANTIC AV 6 AV) 326
B51	(9am-10am, BOWERY BAYARD ST) 715	(7am-8am, FLATBUSH AV EXT CHAPEL ST) 83	(4pm-5pm, BOWERY BAYARD ST) 133	(4pm-5pm, CENTRE ST CHAMBERS ST) 45
B52	(8am-9am, GATES AV BEDFORD AV) 440	(8am-9am, GATES AV STUYVESANT AV) 297	(3pm-4pm, GATES AV LEWIS AV) 390	(5pm-6pm, CENTRE ST CHAMBERS ST) 517
B54	(8am-9am, MYRTLE AV THROOP AV) 206	(8am-9am, MYRTLE AV ASHLAND PL) 304	(4pm-5pm, MYRTLE AV ST EDWARDS ST) 264	(5pm-6pm, FRANKLIN AV GREENE AV) 438
B57	(7am-8am, FLUSHING AV HUMBOLDT ST) 331	(8am-9am, JAY ST FULTON ST) 138	(4pm-5pm, MYRTLE AV ST EDWARDS ST) 136	(4pm-5pm, MYRTLE AV WALWORTH ST) 170
B61	(8am-9am, MC GUINNESS BL FREEMAN ST) 305	(8am-9am, MANHATTAN AV DRIGGS AV) 160	(3pm-4pm, ATLANTIC AV CLINTON ST) 233	(5pm-6pm, FLUSHING AV CLASSON AV) 210
B63	(7am-8am, 5 AV 39 ST) 344	(8am-9am, 5 AV DOUGLASS ST) 115	(3pm-4pm, ATLANTIC AV CLINTON ST) 326	(4pm-5pm, ATLANTIC AV CLINTON ST) 468
B65	(8am-9am, BERGEN ST FRANKLIN AV) 320	(8am-9am, DEAN ST NEW YORK AV) 301	(4pm-5pm, BERGEN ST BROOKLYN AV) 145	(3pm-4pm, 5 AV 26 ST) 289
B67	(7am-8am, MC DONALD AV FT HAMILTON PY) 163	(8am-9am, 7 AV UNION ST) 214	(4pm-5pm, 7 AV GARFIELD PL) 246	(4pm-5pm, DEAN ST FRANKLIN AV) 215
B69	(8am-9am, VANDERBILT AV ATLANTIC AV) 104	(8am-9am, PROSPECT PK W PRESIDENT ST) 91	(3pm-4pm, 8 AV 3 ST) 152	(3pm-4pm, 7 AV 3 ST) 126
B75	(8am-9am, SMITH ST NELSON ST)	(8am-9am, COURT ST AMITY ST)	(3pm-4pm, SMITH ST 5 ST) 86	(5pm-6pm, COURT ST WARREN ST) 154

Shaded Peak Hourly Passenger Loads indicate that the Peak Location is within the Study Area. Grey represents locations in the Overall Study Area, and red indicates locations within the Core Study Area.

¹¹ Peak Hourly Passenger Load was determined for each route using on/off counts from NYCT. Hourly load counts were examined, and the largest load within a peak period (AM Peak: 6am to 10am, PM Peak: 3pm to 7pm) was determined to be the Peak Hourly Passenger Load. The time of this load is the Peak Hour for the period, and the stop at which this load occurred is the Peak Location on the route. This analysis was repeated for each route, in each direction, during each peak period.

Typically, MTA –NYCT bus schedule and route information is provided at each bus stop. Figure 27 is an example of the current method for displaying this information.



Figure 27 - NYCT Bus Schedule / Ride Information at Bus Stops

Bus Only Lanes

A limited number of Bus Only lanes are in operation within the Study Area. Fulton Street between Adams Street and Flatbush Avenue has dedicated Bus Only lanes operating 24 hours a day, while Fulton Street between Flatbush Avenue and South Oxford Street (operating during peak hours), and Livingston Street between Adams Street and Flatbush Avenue have dedicated Bus Only lanes on weekdays from 7am-10am and from 4pm-7pm (Figure 28). These dedicated lanes offer buses priority routing and support bus operations over other motorized modes. At the same time, though, bus only lanes do not feature bus priority systems such as signal priority or queue jumpers.

Enforcement agents are dispatched during these periods to further support the operation of the Bus Only lanes. Although enforcement does take place and officers do distribute tickets, parking, driving, and standing in Bus Only lanes remains a serious problem and limits the effectiveness of these lanes. Many cars blocking the Bus Only lanes also have placards, and this makes parking more difficult to enforce.

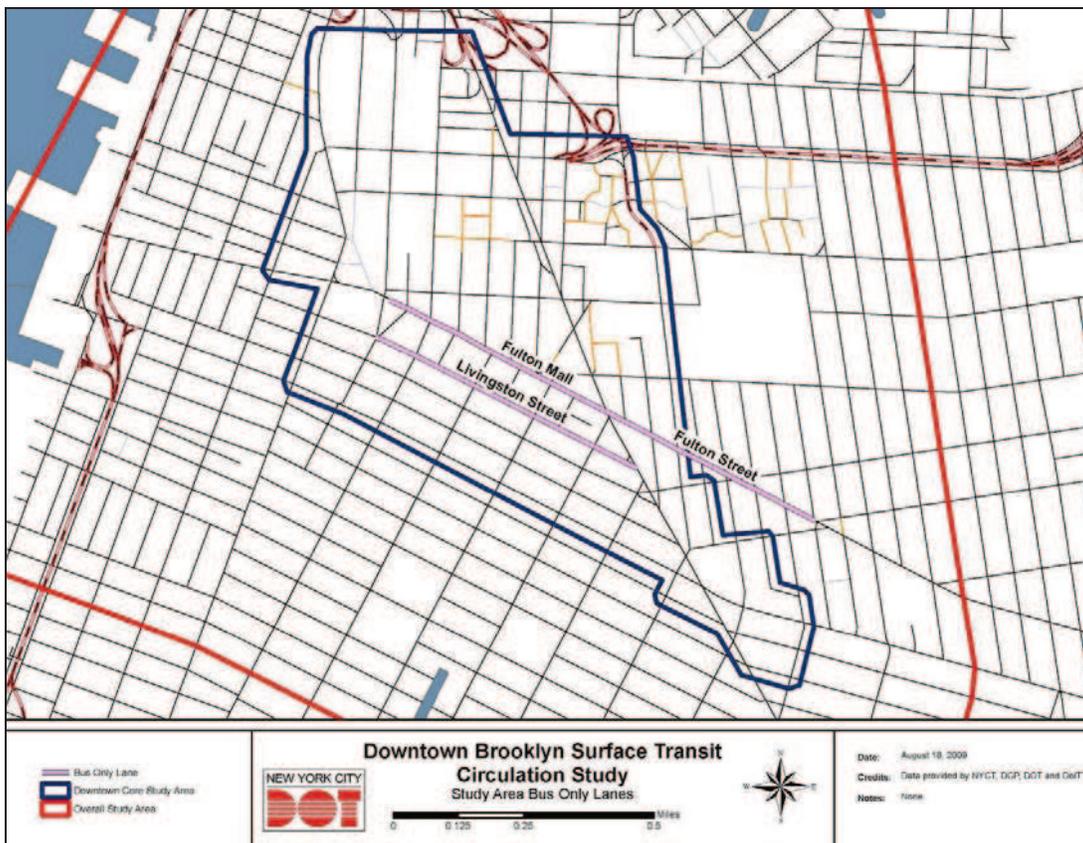


Figure 28 - Location of Study Area Bus Only Lanes

Service Spans

Table 15 provides a summary of the service spans of bus routes serving the Study Area. Service spans are the hours of the day and days of the week during which buses run. As shown in green, the vast majority of buses offer 24-hour/7-day service. Only two routes, the B38 Limited and B51, is limited to weekdays, and just three routes, the B38 Limited, B51, and B103, do not operate on Sundays. This shows that scheduled service spans not only peak hours, but runs consistently throughout each day and week. This scheduling provides the first element of transit service for riders to incorporate into their trip planning.

Table 15 - Bus Routes: Operating Hours

Routes	Operating Hours																				
	Weekdays					Saturday					Sunday										
	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B25	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B26	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B37	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B38 Limited																					
B38	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B41 Limited																					
B41	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B45	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B51																					
B52	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B54	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B57	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B61	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B63	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B65	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B67	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B69																					
B75	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
B103																					

Service Frequencies

Table 16 presents bus route service levels in terms of the scheduled headways between bus runs. The headway is the amount of time elapsed between one bus leaving a station and another bus arriving there. The average amount of time that riders can expect to wait for a bus is equal to half of the headway. A 15-minute headway is a standard target for attempting to attract “choice” or casual riders. These individuals are riders who are prone to avoid service that requires schedule memorization or offers the risk of being “stranded” at a stop in the midst of a long headway. Fifteen minutes is generally considered to represent a high level of operator investment in service levels.

As shown in Table 16, 15-minute or better headways are standard for Study Area service from 6am to at least 7pm, with most routes running at such frequencies for much of the midday period and well into the

evening, even on Sundays. The conclusion drawn from this data set is that service is frequent enough throughout the Study Area to support choice and non-choice riders.

Table 16 - Bus Routes: Service Headways

Routes	Hours with 15-Minute Headways or Smaller														
	Weekdays					Saturday					Sunday				
B25															
B26															
B37															
B38 Limited															
B38															
B41 Limited															
B41															
B45															
B51															
B52															
B54															
B57															
B61															
B63															
B65															
B67															
B69															
B75															
B103															

Schedule Reliability

Table 17 summarizes MTA Wait Assessment surveys results for the B41, B41 Limited, and B63 routes. The table shows the percentage of observed service intervals (headways) that were deemed to be “on-time.” A bus is considered to be on-time if it is no more than three minutes over the scheduled interval during peak hours and no more than five minutes over the scheduled interval during off-peak hours. As indicated in the table, roughly 80% of all service intervals observed during the surveys qualified as on-time.

Table 17 - Bus Routes: Sample Wait Assessment

Route	2007		2008		Average
	1st Half	2nd Half	1st Half	2nd Half	
B41	80%	79%	79%	77%	79%
B41 Limited	82%	78%	82%	80%	80%
B63	85%	82%	81%	80%	82%
All					80%

The fact that the B41 Limited service was slightly more reliable than the all-day B41 service indicates that performance of these downtown Brooklyn routes holds up reasonably well during peak hours. This is remarkable given that scheduled headways during these hours are smaller and the negative impact of traffic congestion on bus speeds will be greater than it is during off-peak periods. To perform this well during the peak, the MTA must provide significantly more vehicles to make up for the loss in vehicle speeds and to avoid a total breakdown of on-time performance. For example, the MTA runs three times as many B45 buses (15) between 4:00 and 5:00 PM as it does between 6:00 and 7:00 AM (five).

Bus Ridership and Bus Stop Volumes

Average daily ridership on the bus routes in the Study Area varies greatly. On weekdays, ridership ranges from 920 passengers (B51) to 39,323 (B41 / B41 Limited). Weekend ridership varies from 873 passengers (B61) to 31,627 (B41 / B41 Limited). Table 18 summarizes ridership on all Study Area routes.

Table 18 - Bus Routes: Ridership

Route	Average Daily Ridership		
	Weekday	Saturday	Sunday
B25	12,615	9,417	5,973
B26	11,367	8,882	6,289
B37	3,565	2,021	1,299
B38	23,061	14,455	10,197
B41 and B41 Limited	39,323	31,627	20,503
B45	9,227	7,040	4,744
B51	920	N/A	N/A
B52	14,821	9,804	6,939
B54	12,419	8,136	5,697
B57	5,670	2,805	1,791
B61	18,041	10,408	7,188
B63	14,315	12,993	9,996
B65	4,851	3,055	1,996
B67	6,897	3,348	2,414
B69	2,302	1,058	873
B75	3,528	2,377	1,445
B103	4,222	1,233	N/A

Passenger activity can best be shown by the number of riders boarding (getting on) and alighting (getting off) at each bus stop. As shown in Figure 29, Figure 30, Figure 31, and Figure 32, significant trip demand occurs at the following stops:

- Court Street at Joralemon Street
- Jay Street at Myrtle Avenue and Joralemon Street
- Fulton Street at Pearl Street, Smith Street and Flatbush Avenue
- Livingston Street at Smith Street
- Flatbush Avenue at 4th Avenue (Atlantic Terminal Station)

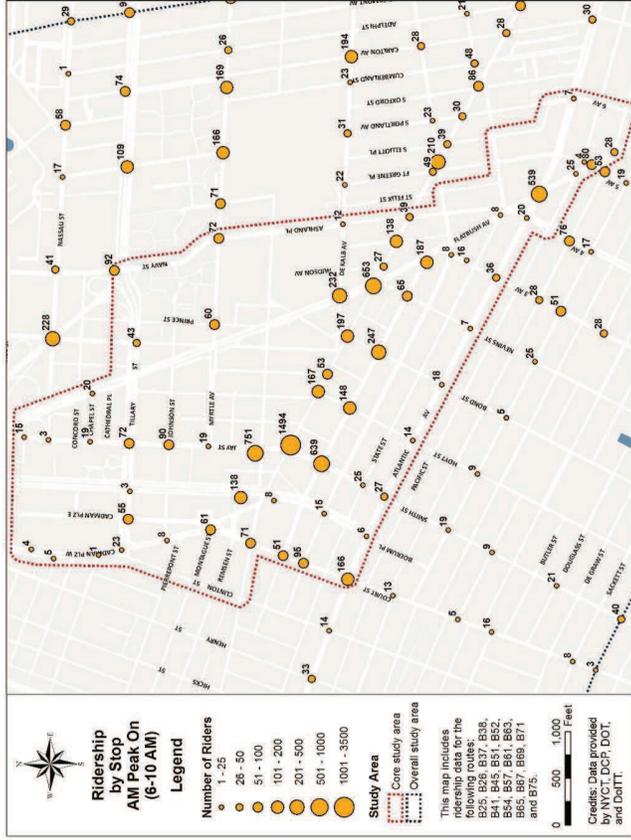


Figure 29- Bus Stop Ridership: Boarding, AM Peak Period

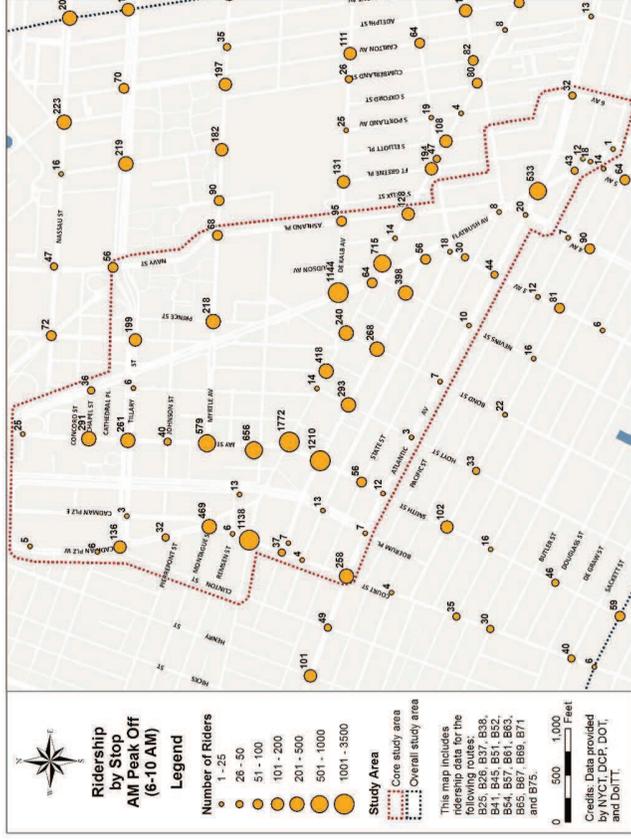


Figure 30- Bus Stop Ridership: Alighting, AM Peak Period

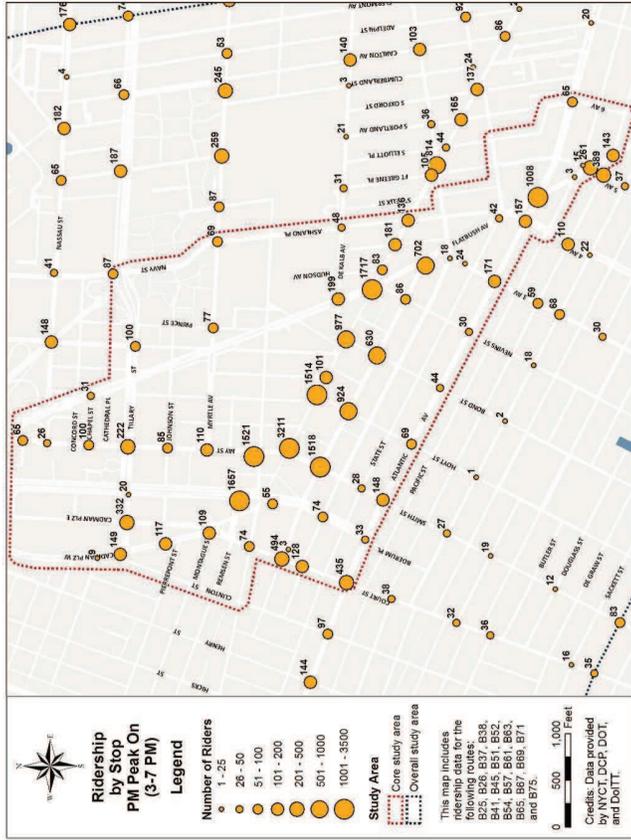


Figure 31 - Bus Stop Ridership: Boarding, PM Peak Period

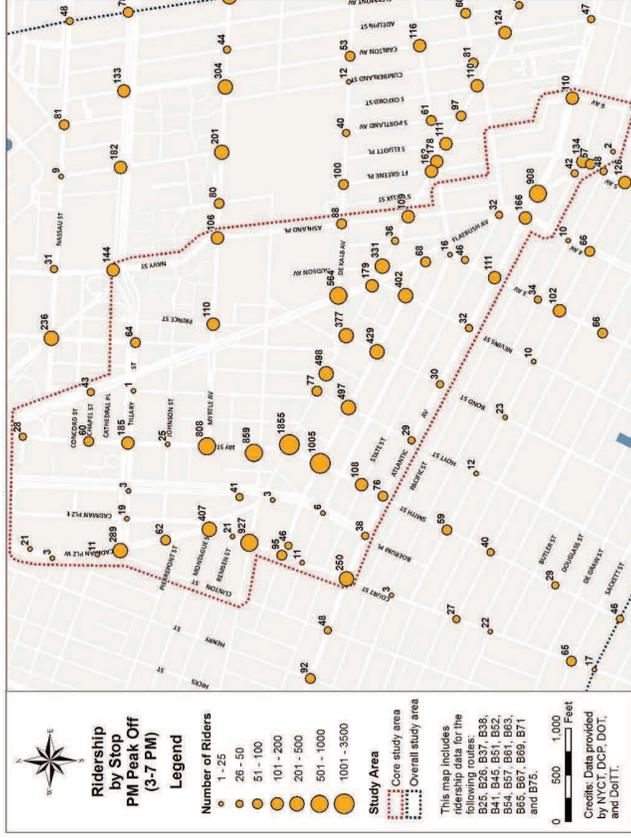


Figure 32 - Bus Stop Ridership: Alighting, PM Peak Period

As evident from comparing the population density patterns in Figure 22 (page 36) and the employment densities in Figure 23 (page 38) with the ridership patterns mapped above, high levels of bus boardings and alightings correlate with clusters of employment and subway access points in the Study Area.

Figure 24 (page 39) reinforces the finding that, even with variation between population-employment density patterns throughout the Study Area, current bus routes are well positioned to serve the area where the most people live and work. The bus stops at Flatbush Avenue / Fulton Street, Jay Street / Fulton Street, Jay Street/Livingston Street, and Court Street/Joralemon Street consistently show the highest boardings and alightings during all periods; these locations also coincide with high employment density. With more than 1,000 passengers boarding buses at these locations during the peak periods, these stops add significant dwell time, as it takes each passenger an average of more than four seconds to pay his or her fare. These locations may become opportunities to implement alternative payment procedures that could result in decreased dwell times and faster overall travel time.

Fulton Mall Reconstruction

Fulton Mall is currently being reconstructed. To accommodate this project, individual blocks will be limited to one lane of traffic while construction occurs on that block. Initially, flagmen have been utilized to route bi-directional bus traffic on those blocks where only one lane is available. With 685 NYCT buses currently operating along Fulton Mall each day, this is a condition that will significantly slow down bus operations, possibly to unacceptable levels. To mitigate this condition, NYCDOT is currently investigating alternative options to accommodate these routes on different streets during reconstruction. The DBSTCS Project Team will provide alternative routing options as a parallel effort to this overall study.

3.2 SUBWAYS

The transit system within the Study Area consists of surface transit as well as subway service. In fact, the Study Area benefits from an exceptionally high level of access to subways. There are eleven stations within the Study Area, and all points within the Study Area are within one half-mile of a subway station. The furthest one can get from a subway station in the Study Area is near the corner of Tillary Street and Navy Street. This location is roughly 0.4 miles from the Lawrence Street Station and within roughly one half-mile of five additional stations. This high density of subway service and the higher level of reliability inherent in a mode with a separated right-of-way (compared to one in mixed traffic) make subways an attractive and convenient option for many trips.

Span and Frequency of Services

As indicated in Table 19 and Table 20, the Study Area benefits from access to 14 subway lines, with over half (eight) offering 24-hour/7-day service. Additionally, the vast majority of routes (11) provide more than twelve consecutive hours of service at fifteen-minute frequencies or better every day.

Table 19 - Subway Routes: Operating Hours By Station

Stations	Lines	Operating Hours														
		Weekdays					Saturday					Sunday				
		1 AM	6 AM	Noon	6 PM	11 PM	1 AM	6 AM	Noon	6 PM	11 PM	1 AM	6 AM	Noon	6 PM	11 PM
High Street	A	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	C	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Jay Street/ Borough Hall	A	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	C	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	F	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Court Street	M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	R	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Borough Hall	2	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	3	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	4	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	5	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Lawrence Street	M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	R	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Hoyt Street	2	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	3	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
DeKalb Avenue	B	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	N	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	R	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Nevins Street	2	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	3	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	4	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	5	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Hoyt Schermerhorn	A	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	C	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	G	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Atlantic Avenue	B	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	2	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	3	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	4	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Atlantic Avenue - Pacific Street	D	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	M	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	N	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	R	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

Table 20 - Subway Routes: Short Headway Hours by Station

Stations	Lines	Hours with 15-Minute Headways or Smaller														
		Weekdays					Saturday					Sunday				
		1 AM	6 AM	Noon	6 PM	11 PM	1 AM	6 AM	Noon	6 PM	11 PM	1 AM	6 AM	Noon	6 PM	11 PM
High Street	A															
	C															
Jay Street/ Borough Hall	A															
	C															
	F															
Court Street	M															
	R															
Borough Hall	2															
	3															
	4															
	5															
Lawrence Street	M															
	R															
Hoyt Street	2															
	3															
DeKalb Avenue	B															
	M															
	N															
	R															
Nevins Street	2															
	3															
	4															
	5															
Hoyt Schermerhorn	A															
	C															
	G															
Atlantic Avenue	B															
	2															
	3															
	4															
Atlantic Avenue - Pacific Street	5															
	D															
	M															
	N															
	R															

Schedule Reliability

To assess the performance reliability of the subway lines in the Study Area, on-time performance was obtained from New York City Transit. Based on NYCT methodology, most subways in the study area have between 80 percent and 90 percent on-time performance (Table 21).

Table 21 - Subway Routes: Schedule Reliability

Line	On-Time Performance
A	83%
B	85%
C	87%
D	86%
F	81%
G	89%
M	88%
N	86%
Q	89%
R	87%
2	86%
3	85%
4	78%
5	83%

3.3 LONG ISLAND RAIL ROAD (LIRR) ATLANTIC AVENUE TERMINAL

Downtown Brooklyn is also served by commuter rail, with the LIRR operating out of Atlantic Terminal. Atlantic Terminal is located at Flatbush and Atlantic Avenues, and it consists of three platforms serving six stub-end tracks. As part of a 2004 upgrade to the subway station complex, LIRR ticketing facilities were relocated to a street-level concourse that also provides access to the Atlantic Terminal office and retail development located above the subway station complex. This concourse can be reached via stairs located on each platform.

Direct connections to key Downtown Brooklyn bus routes, including the B41, B45, B63, and B67 buses boarding along Flatbush Avenue, can be made at Atlantic Terminal. Also, the Atlantic Avenue/Pacific Street subway station complex, which incorporates the LIRR terminal, is a direct connection. Stairs connect each LIRR platform to a central connecting corridor that provides access to the Atlantic Avenue IRT, Atlantic Avenue BMT, and Pacific Street BMT subway stations. Direct access is also available to the platform for Manhattan-bound 2 and 3 trains, which is at the same level and adjacent to the LIRR platforms.

From Atlantic Terminal, LIRR trains operate to Jamaica, Queens and points east, with connections available to all LIRR branches except the Port Washington Branch. Based on recent schedules, the greatest number of LIRR trains arriving at Atlantic Terminal during the weekday AM commuter peak period peaks is 10 between 7:30am and 8:30am. During the weekday PM peak commuter period, upwards of nine LIRR trains are scheduled to depart Downtown Brooklyn in a one-hour period. During the weekday midday off-peak periods, trains typically arrive and depart Atlantic Terminal twice per hour.

Overall, the LIRR carries more than 270,000 passengers each weekday (approximately 81 million passengers per year) on ten branches serving 124 stations. An estimated 10 to 12 percent of all Downtown Brooklyn office commuters use the LIRR for their commute. In addition to serving Downtown Brooklyn,

Atlantic Terminal is also a major transfer point between the LIRR and the subway, especially for trips to and from Lower Manhattan.

3.4 COMMUTER VANS

In areas where users deem publicly-operated transit services to be too expensive or rigid, or where these services are far away or unavailable, private alternatives frequently are provided in the form of commuter vans. A function of the market, these privately-owned vehicles – often referred to as “dollar vans” – operate during times and/or in places where the cost and/or service limitations of formal public transportation services result in unmet market demand significant enough to attract consistent, formalized operations with designated routes, stops, and fare structures. Over time, these services have become established neighborhood fixtures.

New York City became responsible for authorizing and regulating commuter vans in 1994. The law defines commuter van service as a “common carrier of passengers... that provides a transportation service through the use of one or more commuter vans on a prearranged basis over non-specified or irregular routes, between a zone in a residential neighborhood and a location which shall be a work-related central location, a shopping center, recreational facility, or airport.” Individuals wishing to start a commuter van operation must apply with the Van Licensing Division of the Taxi and Limousine Commission (TLC). Vans used for such services must seat between nine and twenty passengers.

In March 2009, the Project Team held a meeting with representatives from the Brooklyn Van Industry Association (BVIA) to discuss the history and role of commuter van service in Brooklyn. According to participants, commuter vans had the authority to operate in Brooklyn from 1997 to 2002. There were approximately 40 vehicles operating during this time. Since 2002, legal changes have limited licensed commuter van operation.

These legal changes make it so that becoming a licensed commuter van involves significant insurance and licensing fees. Operating a legal commuter van therefore tends not to be a profitable endeavor, especially considering that the 2008 fare increase from \$1.50 to \$2.00 resulted in a 25% decrease in commuter van ridership.¹² As a result, today more than 80% of commuter vans (approximately 125) are operating illegally, and 25 vans are operating legally.

Other key pieces of information provided by participants include:

- Approximately 80% of van users are from Caribbean cultures;
- There are approximately 20,000 daily van riders in Brooklyn;
- Current fare (\$2.00) is less than the current base NYCT base fare (\$2.25);
- In 2005, there were 8,000 summonses for van violations – 91% were issued to legal operators¹³;
- Key van pick-up and drop-off points within the Study Area are Court Street and Livingston Street;
- 75-80% of all van traffic is on Flatbush Avenue;
- Trip duration is approximately one half-hour from Kings Highway to Downtown Brooklyn; and
- Each van makes an average of twelve to thirteen trips per day.

¹² Brown, Stephen Rex. “For the Dollar Vans, a Gleam in the Eye.” *New York Times*. March 8, 2009.

¹³ According to BVIA representatives, illegal van operators are more adept at evading summonses.

Based on this information, the Brooklyn commuter vans can be viewed as support services to the bus and subway services provide by NYCT. Since the vans primarily pick-up and drop-off at specific locations within the Study Area and do not generally circulate, the conclusion is that the vans are not indicative of unmet transit demand within the area. Coordination of van and bus pick-up/drop-off locations could improve service quality (in terms of transfers and information) between transit systems.

At the same time, Community Board 2 and local residents have expressed concerns about the operation of commuter vans in Downtown Brooklyn. The vans have been associated with unsafe and aggressive driving, and they often interfere with city buses. This interference occurs when commuter vans pull into bus stops in an attempt to solicit passengers, thereby blocking buses from entering the stops. This especially happens along high-volume bus routes, like the B41. To mitigate this interference with city buses, vans have been banned from Fulton Street Mall. When trying to get the attention of potential riders, commuter vans also have been observed to use a significant, and often excessive, amount of horn honking. Such activities damage the reputation of commuter vans so that they may not be seen as a preferable form of transportation within Downtown Brooklyn.