

October 2018

# Metrobus Service Evaluation Study

Mount Pleasant Line: 42, 43  
Connecticut Avenue Line: L1, L2

Technical Memorandum #1

## Existing Service Summary



metrobus

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## 1.0 Existing Service Summary

### 1.1 ROUTE DESCRIPTION

The Mount Pleasant and Connecticut Avenue Lines Study covers two lines operating entirely within the Northwest quadrant of the District of Columbia. The first line is the Mount Pleasant Line, which operates between the Mount Pleasant Terminal and either Farragut Square or Gallery Place Metro Station. The second line is the Connecticut Avenue Line, which has two routes that operate along Connecticut Avenue (L1/L2) between Chevy Chase Circle, near the border with Maryland, and either Farragut Square or Potomac Park. During Friday and Saturday nights, the Connecticut Avenue Line is extended to serve Friendship Heights and Bethesda. The Mount Pleasant Line is presented in **Figure 1-1**, and the Connecticut Avenue Line is presented in **Figure 1-2**.

Each line -- including terminal points, roadways utilized by the line, route trip patterns, Metro Stations served, and intersecting bus lines -- is described below.

#### 1.1.1 Mount Pleasant Line (Routes 42/43)

Metrobus Routes 42/43, known as the Mount Pleasant Line, are classified as a Framework Service providing a radial service that connects the Mount Pleasant neighborhood at Lamont Park with downtown Washington, D.C. Route 42 is an all-day/all-week service, while Route 43 provides additional peak direction service Monday–Friday (between 7:00 AM–10:13 AM southbound and between 3:47 PM–7:21 PM northbound) and supplemental service on four federal holidays: Columbus Day, Veterans’ Day, Martin L. King Jr. Day, and Presidents’ Day. Route 43 makes all stops—in Mount Pleasant, Adams Morgan, and Farragut Square—and bypasses Dupont Circle via the Connecticut Avenue underpass. The Mount Pleasant Line roughly follows:

- Lamont Street NW
- Mount Pleasant Street NW
- Harvard Street NW
- Columbia Road NW
- California Street NW
- Connecticut Avenue NW
- Dupont Circle NW
- 17<sup>th</sup> Street NW
- H Street NW
- 9<sup>th</sup> Street NW
- F Street NW
- 11<sup>th</sup> Street NW, and
- I Street NW.

Metro stations along the line include Dupont Circle, Farragut North, Farragut West, McPherson Square, Metro Center, and Gallery Place-Chinatown.

**Table 1-1** below identifies the bus and transit intersections along the Mount Pleasant Line.

With 6,000 passengers and 260 one-way trips during an average weekday (June 2017), the Mount Pleasant Line provides important access between the Mount Pleasant neighborhood and downtown

Washington, D.C. Areas served along this corridor include the Mount Pleasant, Adams Morgan, Dupont Circle, and Farragut Square neighborhoods. Major generators along this line include the commercial and employment corridors along Mount Pleasant Street NW, Columbia Road NW in Adams Morgan, Connecticut Avenue NW, and I and H Streets NW between the Farragut Square and 9<sup>th</sup> Street NW. Specific generators include the New Executive Office Building, Lafayette Square, the White House, Department of Veterans Affairs, Martin Luther King Jr. Central Library, National Portrait Gallery, Franklin Square, and McPherson Square. There are no short-turns on either route on this line.

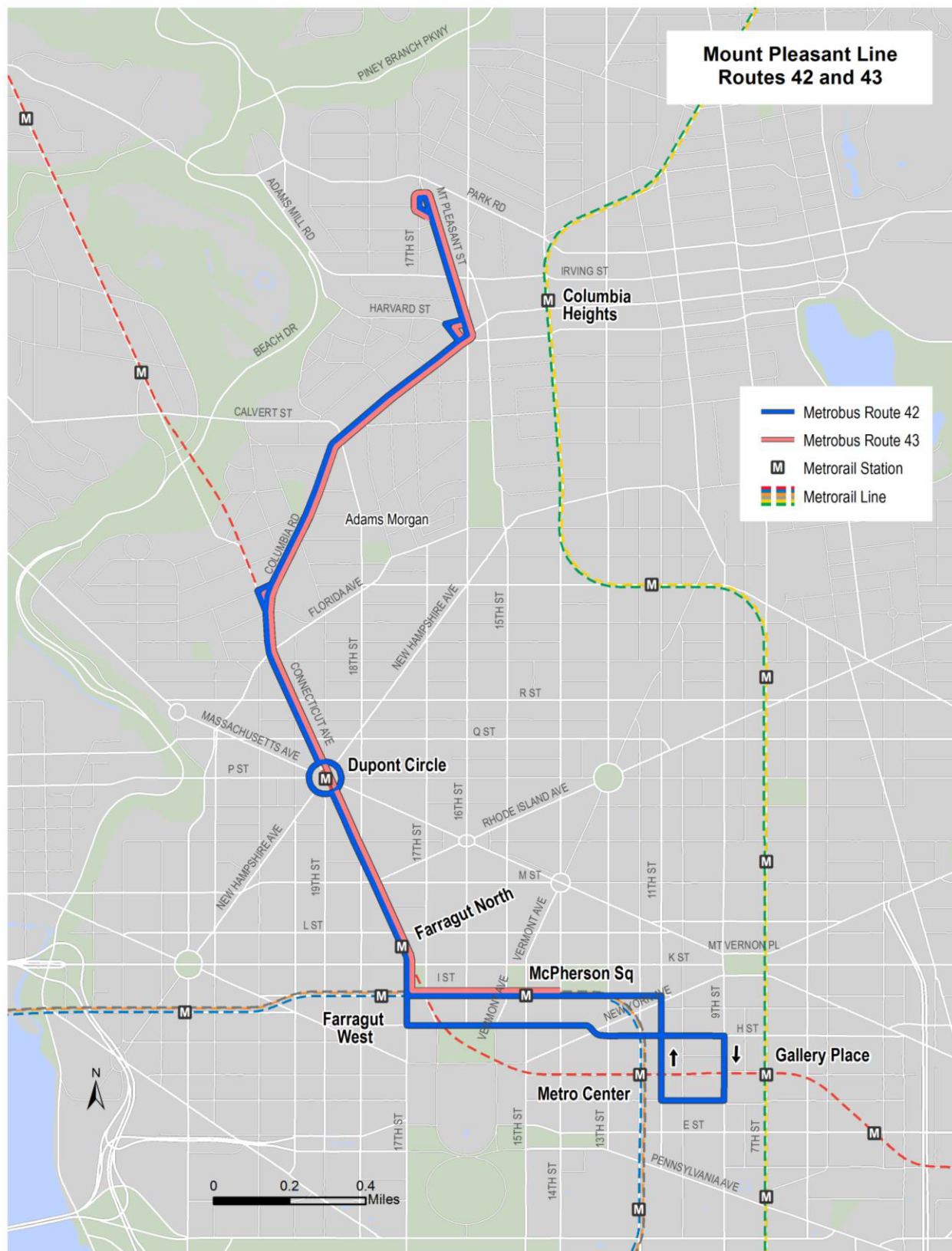


Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

**Table 1-1 | Mount Pleasant Line Bus and Transit Intersections**

Location	Operator and Routes			
	WMATA		DC-Circulator	Other Operators
	Metrobus	Metrorail		
Mount Pleasant Terminal	H3, H4, H8			
Mount Pleasant Street and Irving Street NW (intersection)	H2			
Columbia Road NW between Mount Pleasant Street and 18th Street NW			Woodley Park-Adams Morgan-McPherson Sq Metro Route	
Columbia Road NW and Connecticut Avenue NW between Calvert Street and Florida Avenue NW	H1			
Columbia Road NW and 18th Street NW (intersection)	96, X3			
Columbia Road NW and Connecticut Avenue NW between 18th Street NW and Farragut Square	L2			
Connecticut Avenue NW between Columbia Road and Florida Avenue NW	L1			
Dupont Circle Metro Station	37, D1, D2, D4, D6, G2, H1, L1, N2, N4, N6	Red Line	Dupont Circle-Georgetown-Rosslyn Route	MTA Commuter Bus Routes 305, 325
Farragut Square	3Y, 7Y, 11Y, 16Y, 30N, 30S, 32, 33, 36, 37, 38B, 39, 80, D1, D4, D5, D6, L2, N2, N4, N6, P17, P19, S1, S2, S4, S9, W13	Blue, Orange, Red, and Silver Lines	Georgetown-Union Station Route	<ul style="list-style-type: none"> <li>MTA Commuter Bus Routes 260, 305, 335, 345, 715, 725, 810, 820, 830, 840</li> <li>LCT Purcellville Route</li> <li>PRTC Routes D, G, L, M</li> </ul>
McPherson Square Metro Station (Franklin Square)	3Y, 11Y, 16E, 16Y, 30N, 30S, 32, 33, 36, 37, 39, 52, 53, 54, 80, A9, D1, D4, D6, G8, G9, S2, S4, S9, X2, X9	Blue, Orange, and Silver Lines	Georgetown-Union Station Route, Woodley Park-Adams Morgan-McPherson Sq Metro Route	<ul style="list-style-type: none"> <li>MTA Commuter Bus Routes 220, 240, 260, 315, 325, 620, 640, 650, 715, 725, 810, 820, 830, 840</li> <li>LCT Purcellville Route</li> <li>PRTC Routes D, G, L, M</li> </ul>
Metro Center Metro Station	11Y, 52, 53, 54, 63, 64, 80, D1, D3, D6, G8, P6, P17, P19, S2, S4, W13, X2	Blue, Orange, Red, and Silver Lines		<ul style="list-style-type: none"> <li>MTA Commuter Bus Routes 315, 325, 610, 620, 640, 650, 705, 715, 725, 810, 820, 830, 840</li> <li>LCT Purcellville Route</li> <li>PRTC Routes M, R</li> </ul>
Gallery Place-Chinatown Metro Station	70, 74, 79, 80, P6, X2, X9	Green, Red, and Yellow Lines		

**Figure 1-1 | Mount Pleasant Line (Routes 42/43) Existing Service**



### 1.1.2 Connecticut Avenue Line (Routes L1/L2)

Metrobus Routes L1/L2, known as the Connecticut Avenue Line, are classified as a Framework Service providing a radial service that connects Chevy Chase to Foggy Bottom (L1) and Bethesda or Chevy Chase to Farragut Square (L2) in downtown Washington, D.C. Route L1 provides peak-direction service Monday–Friday (southbound AM Peak and northbound PM Peak). Route L1 bypasses Dupont Circle via the Connecticut Avenue underpass. Route L2 operates all-day bus service in three service variations:

- Northbound and southbound all-day service between Chevy Chase Circle and Farragut Square, no AM Early service on Sunday;
- Extended northbound and southbound Late Night service between Bethesda Metro Station and Farragut Square on Friday and Saturday only; and
- Additional northbound PM Peak service operating between Connecticut Avenue & Veazey Terrace NW (Van Ness-UDC Metro Station) and Chevy Chase Circle on Monday–Friday.

Route L2 provides supplemental service on four federal holidays—Columbus Day, Veterans’ Day, Martin L. King Jr. Day, and Presidents’ Day.

Routes L1 and L2 follow Connecticut Avenue NW for the majority of their trips before diverging in Woodley Park to separate destinations in downtown Washington, D.C.

Route L1 starts at Chevy Chase Circle and follows:

- Connecticut Avenue NW,
- 20<sup>th</sup> Street NW,
- New Hampshire Avenue NW,
- M Street NW, 23<sup>rd</sup> Street NW,
- Washington Circle,
- Constitution Avenue NW, and
- 18<sup>th</sup> Street NW to end at E Street NW in the AM.

During the PM, Route L1 begins at 17<sup>th</sup> and C Street NW and follows:

- 20<sup>th</sup> Street NW, Virginia Avenue NW,
- C Street NW,
- 20<sup>th</sup> Street NW,
- Constitution Avenue NW,
- 23<sup>rd</sup> Street NW,
- Washington Circle,
- New Hampshire Avenue NW,
- 20<sup>th</sup> Street NW,
- Massachusetts Avenue NW,
- Florida Avenue NW, and
- Connecticut Avenue NW to terminate at Chevy Chase Circle.

Route L2 starts at Chevy Chase Circle and follows:

- Connecticut Avenue NW,
- 24<sup>th</sup> Street NW,
- Calvert Street NW,

- Adams Mill Road NW,
- Columbia Road NW,
- California Street NW,
- Connecticut Avenue NW, and
- K Street NW, to end at 17<sup>th</sup> and I Streets NW (Farragut Square).

Service to the Bethesda Metro station continues from Chevy Chase Circle along Western Avenue NW, Wisconsin Avenue, Old Georgetown Road, Edgemoor Lane, Woodmont Avenue, Montgomery Lane, and then returns via the same route.

Metro stations along the line include Van Ness-UDC, Cleveland Park, Woodley Park, Dupont Circle, Farragut North, Farragut West, and Foggy Bottom-GWU. Route L2 services the Friendship Heights and Bethesda Metro stations.

**Table 1-2** below identifies the bus and transit intersections along the Connecticut Avenue Line.



**Table 1-2 | Connecticut Avenue Line Bus and Transit Intersections**

Location	Operator and Routes			
	WMATA		DC-Circulator	Other Operators
	Metrobus	Metrorail		
Chevy Chase Circle NW	L81			• Ride-On Bus Routes 1, 11
Connecticut Avenue NW and McKinley Street NW (intersection)	E4, E6			
Connecticut Avenue NW and Nebraska Avenue NW (intersection)	M4			
Connecticut Avenue NW between Van Ness Street NW and Porter Street NW	H2			
Van Ness-UDC Metro Station		Red Line		
Connecticut Avenue NW and Porter Street NW	H3, H4			
Cleveland Park Metro Station		Red Line		
Calvert Street NW between 24th Street NW and Columbia Road NW	96, X3		Woodley Park-Adams Morgan-McPherson Sq Metro Route	
Woodley Park Metro Station		Red Line		
Columbia Road NW and Connecticut Avenue NW between Calvert Street NW and Florida Avenue NW	H1			
Columbia Road NW and Connecticut Avenue NW between 18th Street NW and Farragut Square	42/43			
Dupont Circle Metro Station	37, 42/43 D1, D2, D4, D6, G2, H1, N2, N4, N6	Red Line	Dupont Circle-Georgetown-Rosslyn Route	• MTA Commuter Bus Routes 305, 325

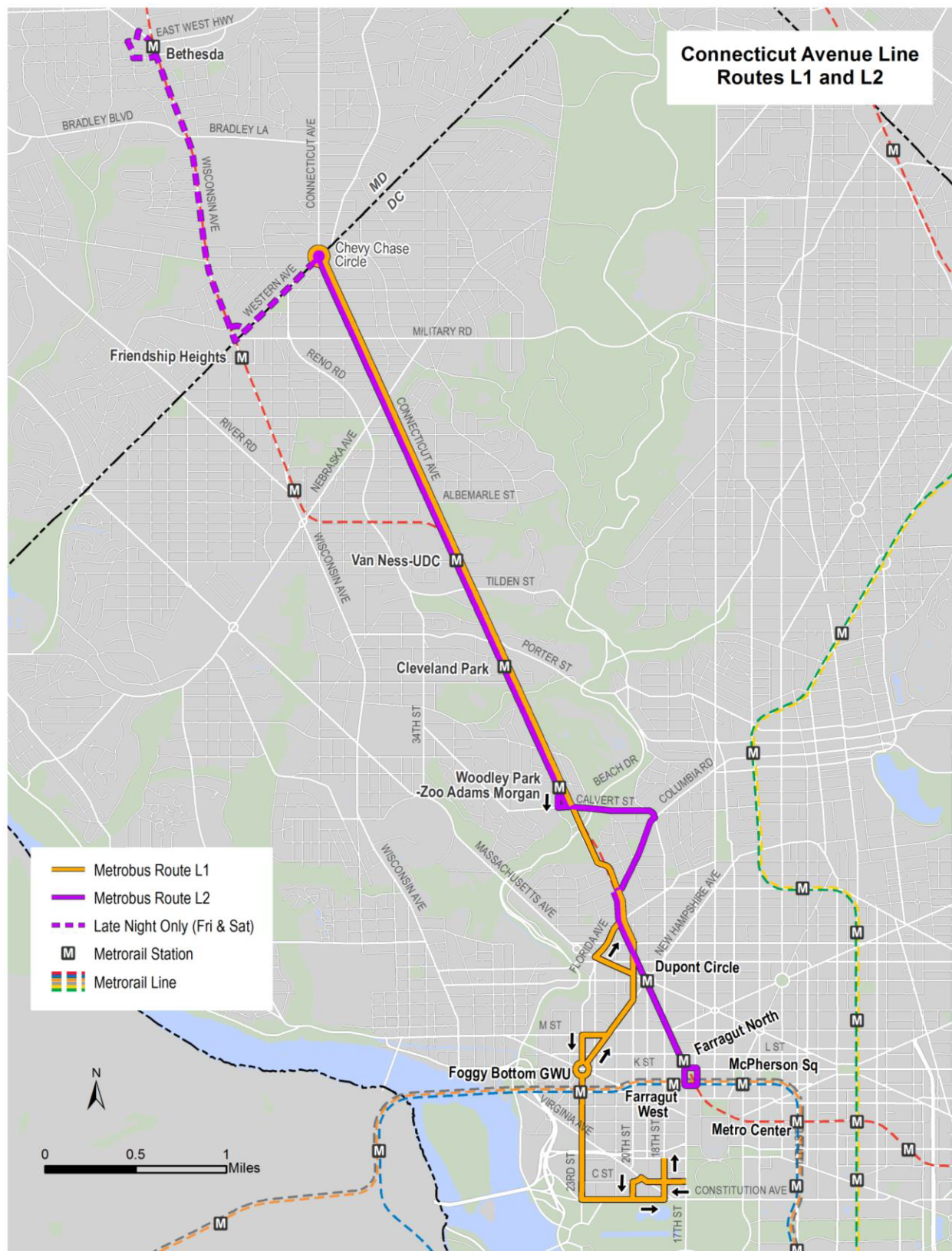
Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Location	Operator and Routes			
	WMATA		DC-Circulator	Other Operators
	Metrobus	Metrorail		
Farragut Square	3Y, 7Y, 11Y, 16Y, 30N, 30S, 32, 33, 36, 37, 38B, 39, 42/43, 80, D1, D4, D5, D6, N2, N4, N6, P17, P19, S1, S2, S4, S9, W13	Blue, Orange, Red, and Silver Lines	Georgetown-Union Station Route	<ul style="list-style-type: none"> <li>MTA Commuter Bus Routes 260, 305, 335, 345, 715, 725, 810, 820, 830, 840</li> <li>LCT Purcellville Route</li> <li>PRTC Routes D, G, L, M</li> </ul>
Washington Circle NW	30N, 30S, 31, 32, 33, 36, 38B, 39, H1		Georgetown-Union Station Route	
Foggy Bottom-GWU Metro Station	30N, 30S, 31, 32, 36, 38B, 39, 80, H1, N3, X1	Blue, Orange, and Silver Lines	Georgetown-Union Station Route	<ul style="list-style-type: none"> <li>MTA Commuter Bus Routes 220, 240, 260, 620, 640, 650, 725</li> </ul>
23rd Street NW between H Street NW and F Street NW	31, 32, 36, 39, 80, H1, S1, X1			
23rd Street NW and E Street NW (intersection)	3Y, 16Y			
Constitution Avenue between 23rd Street NW and 18th Street NW	7Y		National Mall Route	
18th Street NW and C Street NW (intersection)	7Y, 11Y, 80, H1, N4, S1			

With 4,100 passengers and 145 one-way trips during the average weekday (June 2017), the Connecticut Avenue Line provides important access to major government employers in downtown Washington, D.C., and neighborhood activity centers along Connecticut Avenue out to Bethesda, Maryland. Areas served along this corridor include the Chevy Chase, Wakefield, Forest Hills, Cleveland Park, Woodley Park, Adams Morgan, Dupont Circle, West End, Farragut Square and Foggy Bottom neighborhoods.

The Connecticut Avenue Line serves multiple neighborhood commercial destinations that generate Metrobus ridership. Other major generators include the University of the District of Columbia, Howard University School of Law, Howard University School of Divinity, and the Smithsonian National Zoological Park. Major generators along Route L1 include George Washington University, U.S. Department of State, United States Institute of Peace, American Pharmacists Association, National Academy of Sciences, the Federal Reserve, U.S. Department of the Interior, U.S. Office of Personnel Management, and the National Mall. Route L2 provides access to the commercial and employment corridors of Adams Morgan, Connecticut Avenue NW, and K Street NW near Dupont Circle and Farragut Square.

**Figure 1-2 | Connecticut Avenue Line (Routes L1/L2) Existing Service**



## 1.2 KEY SERVICE CHARACTERISTICS

Key service characteristics of the Mount Pleasant and Connecticut Avenue Lines are presented in **Table 1-3** through **Table 1-6**. These characteristics demonstrate the amount of service provided and consumed.

**Table 1-3 | Key Service Characteristics of the Mount Pleasant Line**

Mount Pleasant Line (Routes 42/43)	
Basic Characteristics	
Route Length in Miles	42=3.46, 43=2.86
Weekday Buses	AM=17, Midday=7, PM=16
Weekend Buses	Saturday=8, Sunday=5
Weekday Revenue Hours of Service	42=115.3, 43=19.7, Total=135.0
Saturday Revenue Hours of Service (42 Only)	91.4
Sunday Revenue Hours of Service (42 Only)	64.2
Weekday Revenue Miles of Service	42=651.3, 43=126.1, Total=777.4
Saturday Revenue Miles of Service (42 Only)	551.6
Sunday Revenue Miles of Service (42 Only)	423.8
Number and Percent of Weekday Trips	42=209 (81.0%), 43=49 (19%), Total=258
Weekday Span of Service	4:20 AM to 3:44 AM
Saturday Span of Service (42 Only)	4:30 AM to 3:49 AM
Sunday Span of Service (42 Only)	4:30 AM to 2:27 AM
Ridership and Costs	
Average Weekday Ridership	42=4,572, 43=1,603, Total=6,175
Average Saturday Ridership (42 Only)	3,201
Average Sunday Ridership (42 Only)	2,375
Annual Ridership (year)	2,218,904
Passengers per Revenue Mile	42=6.2, 43=11.2, Total =7.9
Passengers per Revenue Trip	42=21.5, 43=32.2, Total=26.7
Annual Operating Cost	\$7,123,810
Annual Fare Revenue	\$2,596,118
Annual Subsidy	\$4,527,692
Farebox Recovery	36.4%
Cost per Passenger Trip	\$3.21
Subsidy per Passenger	\$2.04

**Table 1-4 | Service Area Characteristics of the Mount Pleasant Line**

Mount Pleasant Line (Routes 42/43)	
Wards Served	Wards 1 and 2
Business Improvement Districts	Adams Morgan, Downtown, and Golden Triangle
D.C. Projects and Initiatives in the Service Area	<p><b>Great Streets:</b> Connecticut Ave, U St/14<sup>th</sup> Street, and Wisconsin Avenue NW</p> <p><b>Small Area Plans:</b> Mount Pleasant Street Commercial Revitalization Strategy (2010), Adams Morgan Vision Framework (2016)</p> <p><b>Other DDOT Projects:</b> Connecticut Avenue NW Streetscape Improvement (between Dupont Circle and California Street), Columbia Road improvements (between Connecticut Avenue and 16<sup>th</sup> Street NW)</p> <p><b>Historic Districts:</b> Downtown Historic District, Dupont Circle Historic District, Federal Triangle Historic District, Fifteenth Street Financial Historic District, Ford's Theatre National Historic Site, Kalorama Triangle Historic District, Lafayette Square Historic District, Massachusetts Avenue Historic District, Meridian Hill Historic District, Mount Pleasant Historic District, Mount Vernon Square Historic District, National Zoological Park, Pennsylvania Avenue National Historic Site, Rock Creek &amp; Potomac Parkway (Res 360), Shaw Historic District, Sheridan-Kalorama Historic District, Sixteenth Street Historic District, Strivers' Section Historic District, Washington Heights Historic District</p>
Museums and Tourist Attractions served	Anderson House, Armenian Genocide Museum and Memorial, Charles Sumner School, Clara Barton Missing Soldiers Office Museum, Decatur House Museum, Ford's Theater, German-American Heritage Museum, Heurich House Museum, Historical Society of Washington DC, International Spy Museum, L. Ron Hubbard House, Mexican Cultural Institute, National Geographic Museum, National Museum of American Jewish Military History, National Museum of Women in the Arts, National Portrait Gallery, Naval Heritage Center, O Street Museum, Petersen House, Powhatan Museum, Renwick Gallery, Smithsonian American Art Museum, The Phillips Collection, The Wilderness Society - Ansel Adams Collection, Whittemore House, Dupont Circle, Rock Creek Park
Major Government and Military Bases served	Eisenhower Executive Office Building, New Executive Office Building, The White House, Department of Veterans Affairs, Connecticut Avenue and K Street Corridors
Metro Stations served	Dupont Circle, Farragut North, Farragut West, McPherson Square, Metro Center, Gallery Place
Universities and Hospitals served	None

**Table 1-5 | Key Characteristics of the Connecticut Avenue Line**

Connecticut Avenue Line (Routes L1/L2)	
<b>Basic Characteristics</b>	
Route Length in Miles	L1=6.57, L2=5.24
Weekday Buses	AM=13, Midday=5, PM=14
Weekend Buses	Saturday=5, Sunday=5
Weekday Revenue Hours of Service	L1 = 16.3, L2 = 72.7, Total = 89.0
Saturday Revenue Hours of Service (L2 Only)	65.7
Sunday Revenue Hours of Service (L2 Only)	45.9
Weekday Revenue Miles of Service	L1=116.4, L2=594.2, Total=710.6
Saturday Revenue Miles of Service (L2 Only)	588.00
Sunday Revenue Miles of Service (L2 Only)	443.51
Number and Percent of Weekday Trips	L1=18 (13.6%), L2=114 (86.3%), Total=132
Weekday Span of Service	5:05 AM to 1:40 AM (2:40 AM on Friday)
Saturday Span of Service (L2 Only)	5:42 AM to 2:47 AM
Sunday Span of Service (L2 Only)	6:00 AM to 12:56 AM
<b>Ridership and Costs</b>	
Average Weekday Ridership	L1=791, L2=3,462, Total=4,253
Average Saturday Ridership (L2 Only)	2,080
Average Sunday Ridership (L2 Only)	1,501
Annual Ridership (year)	1,589,727
Passengers per Revenue Mile	L1=6.58, L2=5.53, Total=6.4
Passengers per Revenue Trip	L1=43.2, L2=28.9, Total=34.3
Annual Operating Cost	\$4,700,750
Annual Fare Revenue	\$1,859,981
Annual Subsidy	\$2,840,769
Farebox Recovery	39.6%
Cost per Passenger Trip	\$2.96
Subsidy per Passenger	\$1.79



**Table 1-6 | Service Area Characteristics of the Connecticut Avenue Line**

Connecticut Avenue Line (Routes L1/L2)	
Wards Served	Wards 1, 2, and 3
Business Improvement Districts	Adams Morgan and Golden Triangle
D.C. Projects and Initiatives in the Service Area	<p><b>Great Streets:</b> 7<sup>th</sup> Street/Georgia Ave NW and U St/14<sup>th</sup> Street</p> <p><b>Small Area Plans:</b> Van Ness-UDC Commercial Corridor Enhancement Study (2011), Adams Morgan Vision Framework (2016)</p> <p><b>Other DDOT Projects:</b> Cleveland Park Streetscape and Drainage Improvement, Connecticut Avenue NW Streetscape Improvement (between Dupont Circle and California Street), Columbia Road improvements (between Connecticut Avenue and 16<sup>th</sup> Street NW)</p> <p><b>Historic Districts:</b> Cleveland Park Historic District, Dupont Circle Historic District, East and West Potomac Parks Historic District, Fifteenth Street Financial Historic District, Foggy Bottom Historic District, Fort Circle Parks Historic District, George Washington University /Old West End Historic District, Georgetown Historic District, Kalorama Triangle Historic District, Lafayette Square Historic District, Massachusetts Avenue Historic District, Meridian Hill Historic District, National Zoological Park, Rock Creek &amp; Potomac Parkway (Res 360), Seventeenth Street Historic District, Sheridan-Kalorama Historic District, Sixteenth Street Historic District, Strivers' Section Historic District, Washington Heights Historic District, Woodley Park Historic District</p>
Museums and Tourist Attractions served	American Red Cross Museum, Anderson House, Art Museum of the Americas, Charles Sumner School, Corcoran Gallery of Art, Daughters of the American Revolution Museum, Heurich House Museum, Interior Museum, L. Ron Hubbard House, Luther W. Brady Art Gallery, National Geographic Museum, National Museum of American Jewish Military History, National Zoological Park, O Street Museum, Octagon House, The Phillips Collection, The Textile Museum, The Wilderness Society - Ansel Adams Collection, Whittemore House, Woodrow Wilson House, The National Mall, The White House, Dupont Circle, Rock Creek Park
Major Government and Military Bases served	U.S. Department of State, United States Institute of Peace, American Pharmacists Association, National Academy of Sciences, the Federal Reserve, U.S. Department of the Interior, U.S. Office of Personnel Management, Friendship Village, Bethesda
Metro Stations served	Van Ness-UDC, Cleveland Park, Woodley Park, Dupont Circle, Farragut North, Farragut West, Foggy Bottom-GWU
Universities and Hospitals served	George Washington University, George Washington University Hospital, Howard University School of Divinity, Howard University School of Law, University of the District of Columbia

## 1.3 LINE HISTORY

WMATA evaluates services and makes adjustments as necessary. Changes to routes can include alignment changes, frequency changes, span changes, or changes to trip times. Some of these changes are relatively minor, while others are major changes. **Table 1-7** shows a brief history of service changes to both the Mount Pleasant Line and the Connecticut Avenue Line since 2002. This service history does not include minor changes to trip times.

**Table 1-7 | Mount Pleasant and Connecticut Avenue Lines Service Changes**

Time		Mount Pleasant Line (Routes 42/43)	Connecticut Avenue Line (Routes L1/L2)
Year	Month		
2003	September	<ul style="list-style-type: none"> <li>Route 42 Metro Center terminal stand was relocated from F &amp; 11th Streets NW to 9th &amp; G Streets NW due to construction</li> </ul>	
2004	June	<ul style="list-style-type: none"> <li>Route 42 running time adjustments on all days</li> </ul>	
2005	September		<ul style="list-style-type: none"> <li>Six Saturday supplemental L4 trips converted to eight L2 trips</li> </ul>
2006	September	<ul style="list-style-type: none"> <li>Several Friday-only and Saturday late nights trips are discontinued due to low ridership.</li> </ul>	
2007	June	<ul style="list-style-type: none"> <li>Weekday Route 42 northbound trips that are scheduled to originate at 17th &amp; I (Eye) Streets NW, on the east side of Farragut Square, between 3 PM and 7:15 PM will be changed to originate at the existing D5 stop on the east side of 17th Street NW, south of I (Eye) Street, adjacent to the Farragut West Station entrance</li> </ul>	
2008	December	<ul style="list-style-type: none"> <li>New Route 43 implemented utilizing the Dupont Circle underpass, Route 42 service reduced to account for Route 43</li> </ul>	
2009	March		<ul style="list-style-type: none"> <li>New weekday L2 southbound trips were scheduled to operate during the PM peak period from Chevy Chase Circle to Van Ness-UDC via Connecticut Avenue</li> </ul>
	December	<ul style="list-style-type: none"> <li>Three weekday southbound Route 42 trips were changed to new Route 43 trips while one Route 43 trip will be changed to Route 42</li> <li>Two Route 43 weekday northbound trips were discontinued</li> <li>Route 42 weekend running time recalibrated</li> </ul>	

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Time		Mount Pleasant Line (Routes 42/43)	Connecticut Avenue Line (Routes L1/L2)
Year	Month		
2010	December		<ul style="list-style-type: none"> <li>Three additional weekday AM peak southbound L2 trips added</li> <li>Weekend L2 running time recalibrated</li> </ul>
2011	December	<ul style="list-style-type: none"> <li>Seventeen AM peak period Route 42 trips converted to Route 43 trips</li> <li>Midday Route 42 headways changed from every 10 minutes to every 10-11 minutes</li> </ul>	
2012	June		<ul style="list-style-type: none"> <li>Line restructuring which resulted in the elimination of the L4 variation and rerouting of L1 via Virginia Avenue between 23<sup>rd</sup> and C Streets NW, reroute L2 to operate direct via Connecticut Avenue between Chevy Chase Circle and Farragut Square, using the underpass at Dupont Circle, except for a diversion via Calvert Street and Columbia Road</li> <li>Running time recalibration on the Connecticut Avenue Line</li> </ul>
	September	<ul style="list-style-type: none"> <li>Route 43 terminal stand in Mount Pleasant moved to the same location as the Route 42 terminal stand</li> </ul>	
	December		<ul style="list-style-type: none"> <li>Route L1 will be changed back to its previous routing passing 23rd &amp; C Streets NW instead of operating via Virginia Avenue</li> </ul>
2013	June	<ul style="list-style-type: none"> <li>Running time recalibrated on all days</li> <li>Saturday service frequency reduced from every 8-10 minutes to every 10-12 minutes.</li> <li>Sunday afternoon frequency of service reduced from every 11 minutes to every 15 minutes.</li> <li>Sunday service span shortened by one hour</li> </ul>	
2015	March	<ul style="list-style-type: none"> <li>Route 42 terminal stand is relocated from 9th &amp; G Streets NW to 9th &amp; F Streets NW to allow for a new terminal stand for X2 short trips</li> </ul>	
	August	<ul style="list-style-type: none"> <li>Three AM peak period trips are added to the Saturday Supplemental schedule to reduce crowding</li> </ul>	<ul style="list-style-type: none"> <li>Three AM peak period trips are added to the Saturday Supplemental schedule to reduce crowding</li> </ul>
2016	June		<ul style="list-style-type: none"> <li>The L2 downtown terminal stand is relocated to the east side of Farragut Square</li> </ul>

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

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Time		Mount Pleasant Line (Routes 42/43)	Connecticut Avenue Line (Routes L1/L2)
Year	Month		
	December		<ul style="list-style-type: none"> <li>• Weekday running time recalibration on routes L1/L2 with frequencies reduced to provide additional running time</li> <li>• Friday and Saturday evening trips extended to Friendship Heights and Bethesda Metro Stations</li> </ul>
2017	June	<ul style="list-style-type: none"> <li>• Route 43 PM terminal stand is relocated to the NW corner of I (Eye) &amp; 14<sup>th</sup> Streets (westbound on Eye St.). Due to lack of a secure bus zone at this location, route 43 is detoured to begin service at 17<sup>th</sup> &amp; H Streets NW which became permanent in September.</li> <li>• Additional Route 42 trips are added during the overnight periods</li> </ul>	

## 1.4 DEMOGRAPHIC CONTEXT

The Mount Pleasant and Connecticut Avenue Lines serve dense inner neighborhoods in Washington, D.C. and activity centers in the Maryland suburbs. There are approximately 96,500 residents within a quarter-mile of the both bus lines with an average population density of 24 persons per acre (15,500 persons per square mile). The areas that have higher density are along the 16<sup>th</sup> Street NW, Columbia Road NW, Connecticut Avenue NW (between Calvert Street NW and Dupont Circle), New Hampshire Avenue NW corridors, and near the Friendship Heights and Bethesda Metro stations. Population densities are lowest for census blocks covering downtown Washington, D.C. employment centers and residential neighborhoods in Maryland. Lower density areas are defined as areas with less than 10 persons per acre (3,000 persons per square mile).

Low-income households are clustered throughout the two bus lines. The areas with the highest concentration of low-income households are in the census block groups along the New Hampshire Avenue NW and 16<sup>th</sup> Street NW corridors, as well as the neighborhood around the George Washington University, which has a prevalence of student dorms and minimal residences. Overall, it is estimated that 10 percent of the residents in the study area are classified as having income below the poverty line. This is compared to the statewide average of 18 percent and 10 percent for Washington, D.C. and Maryland, respectively.

Minority populations are found along the two bus lines and comprise an average of 33 percent of the study area population. Minority populations comprise all groups identified in the American Community Survey (ACS) other than White Non-Hispanic residents. The 16<sup>th</sup> Street NW corridor is home to the highest density of minority residents. **Table 1-8** summarizes demographic characteristics along both bus lines.

**Table 1-8 | Combined Mount Pleasant and Connecticut Avenue Lines Demographic Characteristics (Quarter-Mile)**

Combined Demographic Characteristics	
Study Area Population	96,500
Average Population Density (per ac)	24
Average Population Density (per sq mi)	15,500
Minority Population	32,200 (33%)
Low Income <sup>1</sup>	9,000 (10%)

Source: 2014 5-Year ACS Census Block Estimates  
1. Population Poverty status determined – 89,100

### 1.4.1 Mount Pleasant Line

**Table 1-9** summarizes demographic characteristics of the Mount Pleasant Line. The Mount Pleasant Line serves high-density residential and commercial neighborhoods in Dupont Circle, Adams Morgan, and Columbia Heights, and Mount Pleasant as shown in **Figure 1-3** and **Figure 1-4**.

A greater percentage of minority populations, all groups other than White Non-Hispanic as identified in the ACS, is found in the Columbia Heights neighborhood near the northern terminus of the Mount Pleasant Line, as shown in **Figure 1-5**. Approximately 39 percent of residents within a quarter-mile of the Mount Pleasant Line belong to a minority population.

Low-income communities are concentrated in near Farragut Square and near the Columbia Heights Metro station as shown in **Figure 1-6**. The area west of Farragut Square is characterized by commercial office space, George Washington University and Hospital and other institutions that comprise low-income resident student populations. Approximately 10 percent of residents within a quarter-mile of the Mount Pleasant Line are below the poverty rate.

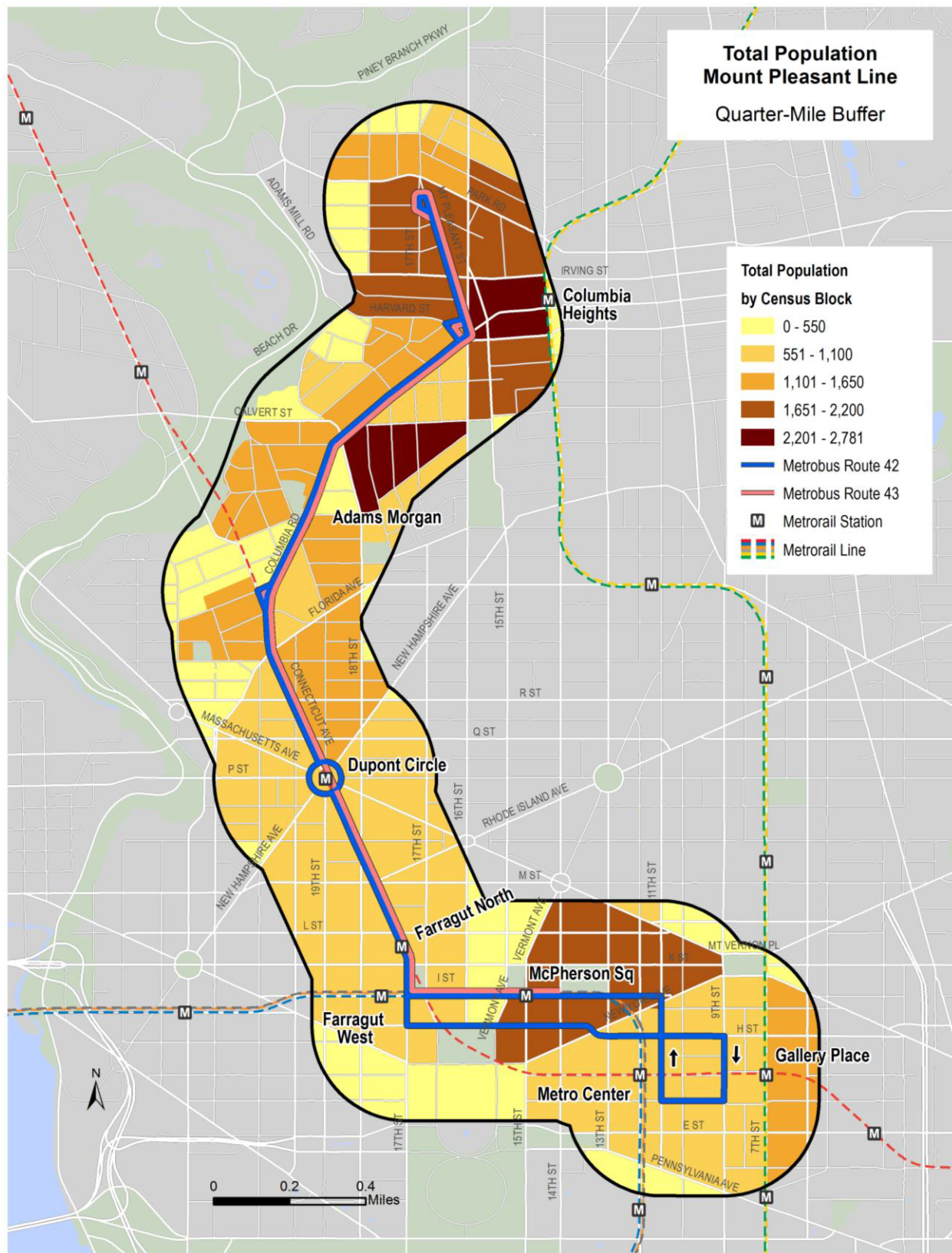
**Table 1-9 | Mount Pleasant Line Demographic Characteristics (Quarter-Mile Buffer)**

Mount Pleasant Line Demographic Characteristics	
Study Area Population	46,900
Average Population Density (per ac)	36
Average Population Density (per sq mi)	23,200
Minority Population	18,400 (39%)
Low Income <sup>1</sup>	4,700 (10%)

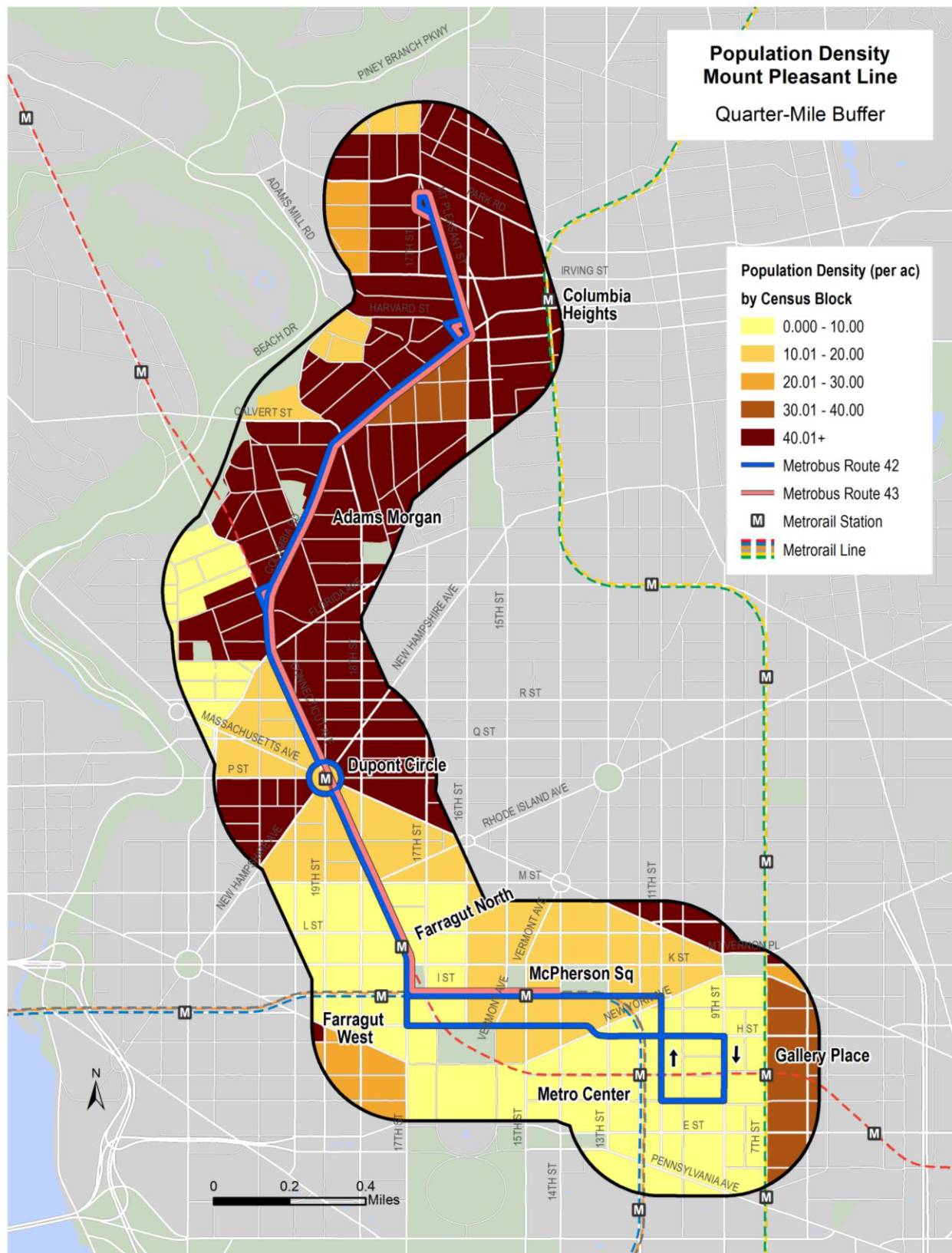
Source: 2014 5-Year ACS Census Block Estimates  
1. Population Poverty Status Determined – 45,300



**Figure 1-3 | Total Population Along the Mount Pleasant Line**



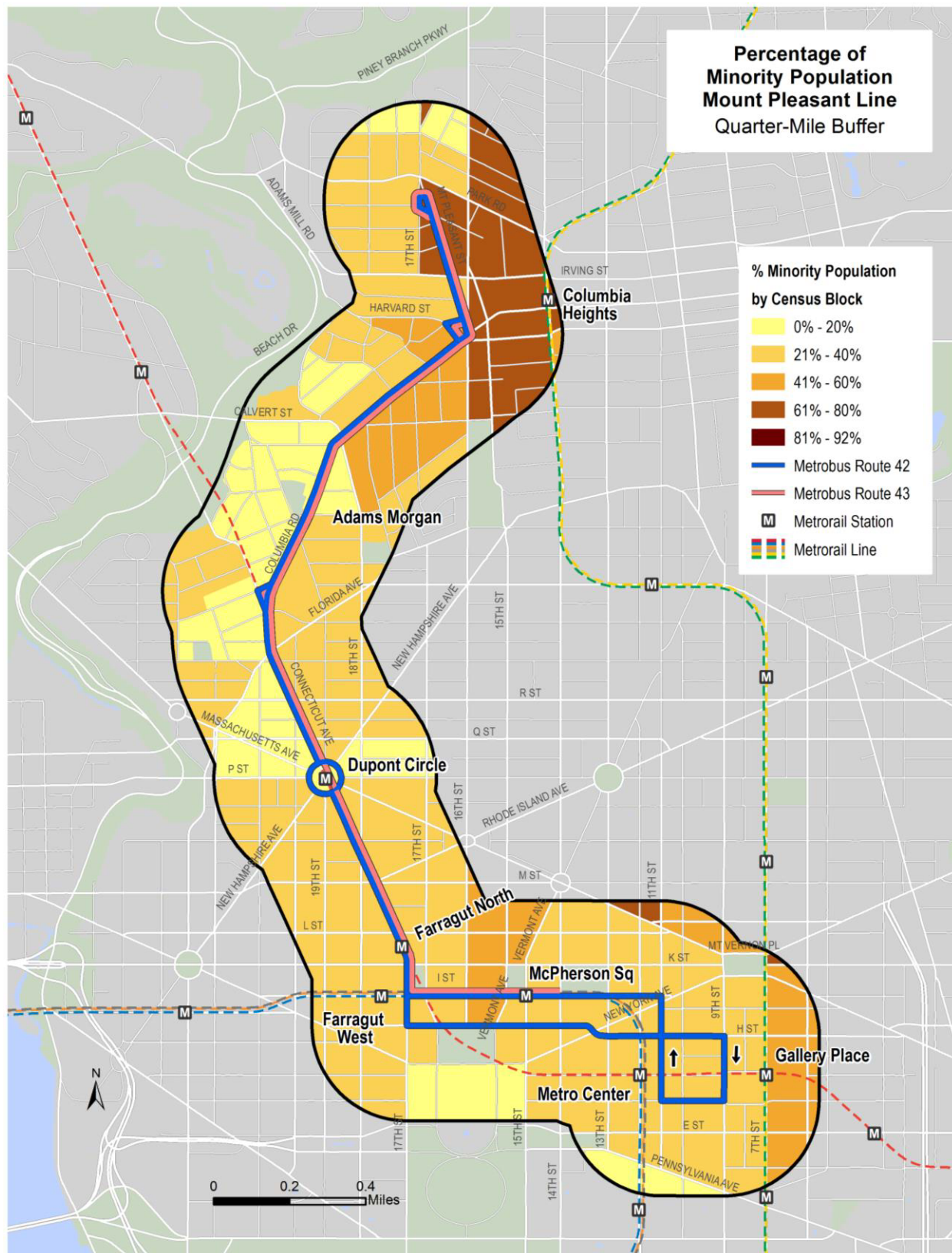
**Figure 1-4 | Population Density Along the Mount Pleasant Line**



Source: 2014 5-Year ACS Census Block Estimates

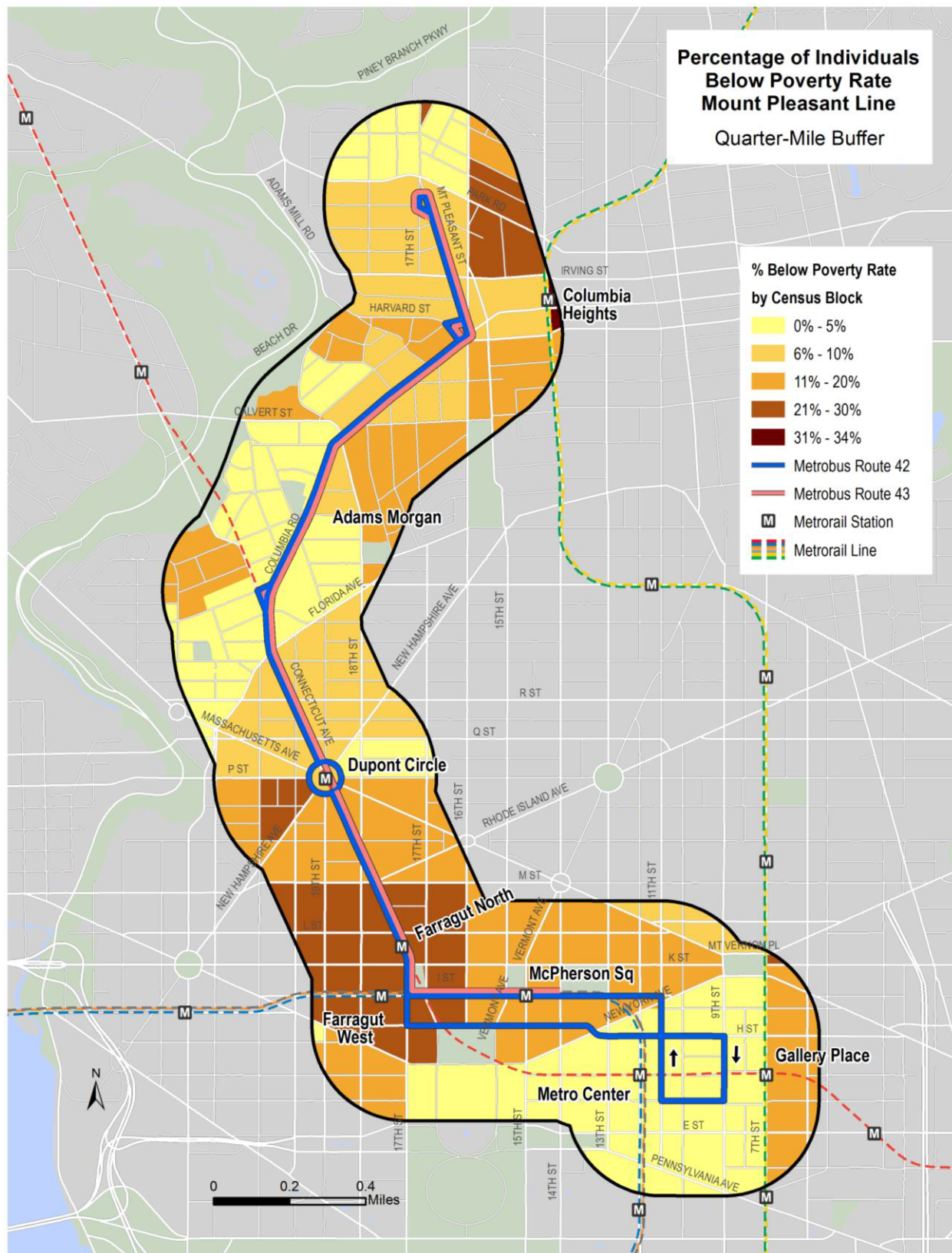


**Figure 1-5 | Percentage of Minority Population Living Along the Mount Pleasant Line**



Source: 2014 5-Year ACS Census Block Estimates

**Figure 1-6 | Percentage of Individuals Living in Poverty Along the Mount Pleasant Line**



Source: 2014 5-Year ACS Census Block Estimates

### 1.4.2 Connecticut Avenue Line

**Table 1-10** summarizes demographic characteristics of the Connecticut Avenue Line. The Connecticut Avenue Line serves high-density residential and commercial neighborhoods in Maryland near the Bethesda and Friendship Heights Metro stations and along Connecticut Avenue from Maryland to downtown Washington, D.C., as shown in **Figure 1-7** and **Figure 1-8**.

Minority populations are concentrated downtown and near Metro stations in Maryland, as shown in **Figure 1-9**. Approximately 27 percent of residents within a quarter-mile of the Mount Pleasant Line belong to a minority population.

Similar to the Mount Pleasant Line, low-income communities are concentrated in student-dominated census blocks near George Washington University, the University of the District of Columbia, and Howard University School of Law and School of Divinity as shown in **Figure 1-10**. Approximately nine percent of residents within a quarter-mile of the Mount Pleasant Line are below the poverty rate.

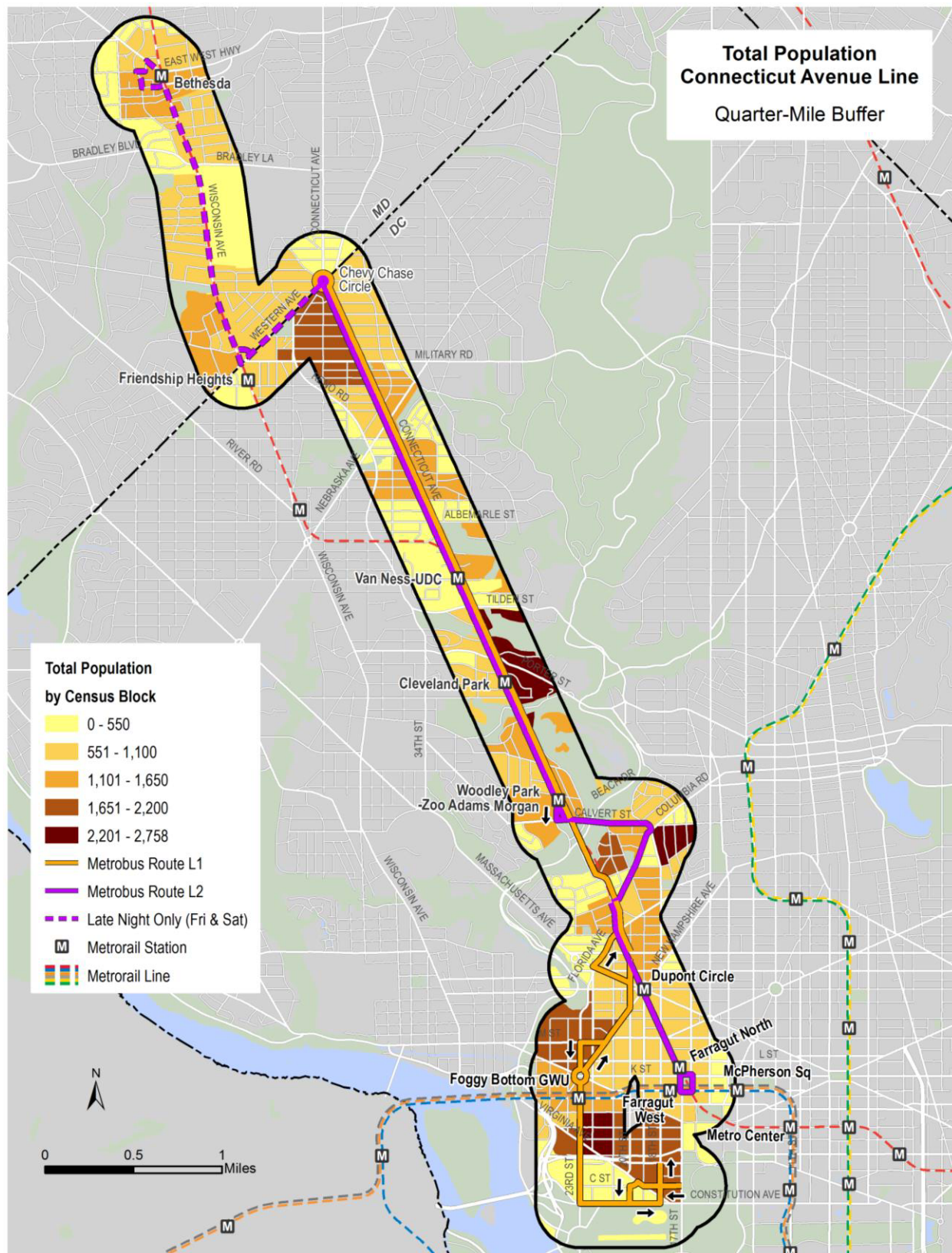
**Table 1-10 | Connecticut Avenue Line Demographic Characteristics (Quarter-Mile Buffer)**

Connecticut Avenue Line Demographic Characteristics	
Study Area Population	73,100
Average Population Density (per ac)	22
Average Population Density (per sq mi)	13,900
Minority Population	19,900 (27%)
Low Income <sup>1</sup>	6,300 (9%)

Source: 2014 5-Year ACS Census Block Estimates  
1. Population Poverty Status Determined – 66,500



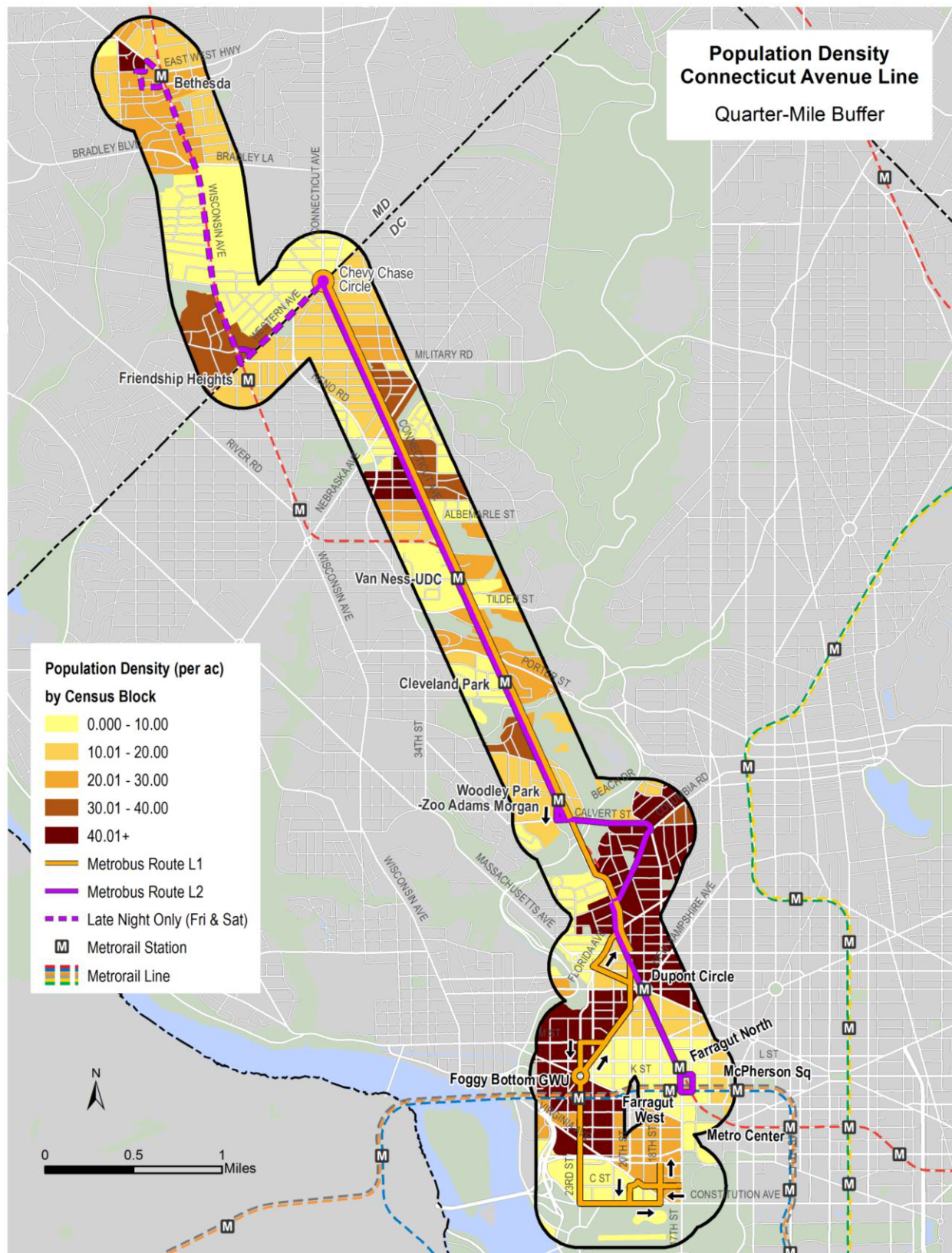
**Figure 1-7 | Total Population Along the Connecticut Avenue Line**



Source: 2014 5-Year ACS Census Block Estimates



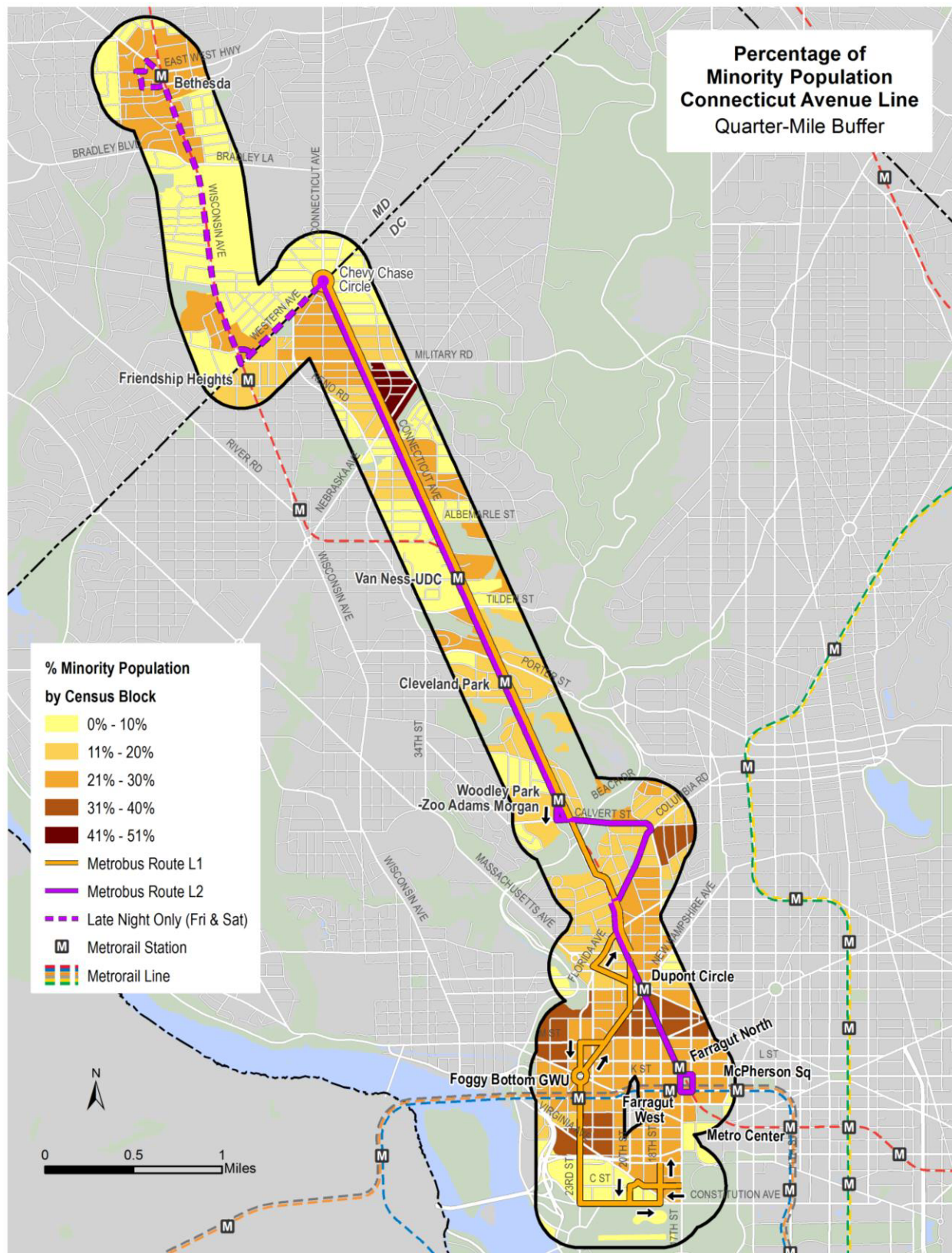
**Figure 1-8 | Population Density Along the Connecticut Avenue Line**



Source: 2014 5-Year ACS Census Block Estimates

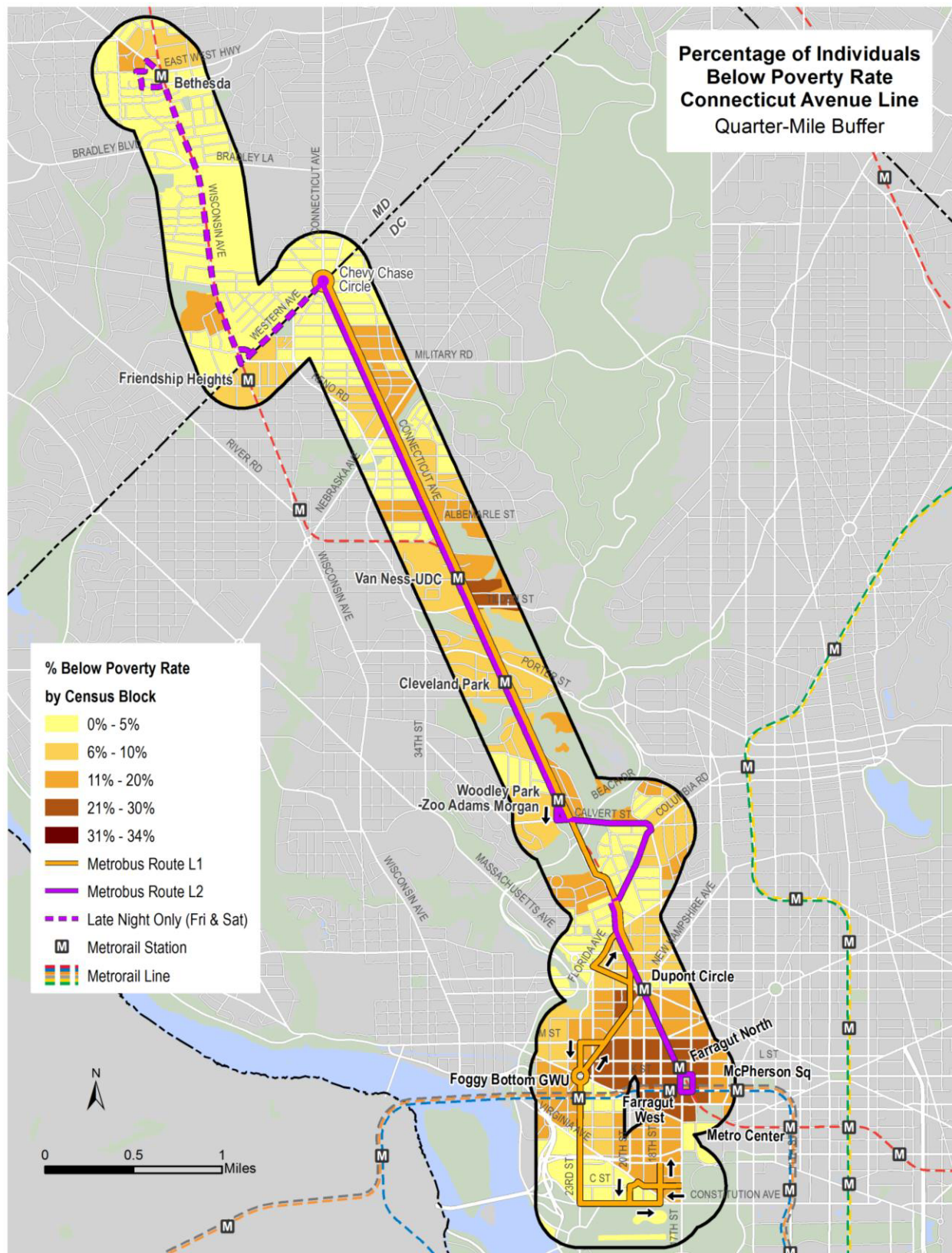


**Figure 1-9 | Percentage of Minority Population Living Along the Connecticut Avenue Line**





**Figure 1-10 | Percentage of Individuals Living in Poverty Along the Connecticut Avenue Line**



## 2.0 Service Characteristics

This section presents and analyzes key service statistics for the Mount Pleasant and Connecticut Avenue Lines. The analysis compares the performance of each of the routes to WMATA's service guidelines. Recommendations will be based on addressing concerns raised from this analysis, subsequent public engagement as well as building off of any opportunities identified.

### 2.1 HOURS OF SERVICE/SPAN OF SERVICE

Both of the lines being evaluated in this study are classified as Framework Services. The minimum span of service/hours of service for Framework Services is identified in **Table 2-1** below.

**Table 2-1 | WMATA Metrobus Minimum First Trip Arrival and Last Trip Departure Times**

Service Period	Minimum First Trip Arrival Time at Destination Terminal	Minimum Last Trip Departure from Starting Terminal
Weekday	6:00 AM	10:30 PM
Saturday	6:30 AM	10:00 PM
Sunday	7:00 AM	10:00 PM

**Table 2-2** presents the span of service/hours of service. Key findings from the analysis presented in this table are:

- Route 42 provides close to 24-hour service on weekdays and Saturday.
- 42 and L2 meet the guideline for span/hours of service with the following exceptions:
  - L2 northbound misses the guideline by 21 minutes on weekdays and by 25 minutes on Saturday.
- As peak period/peak direction services, Routes 43 and L1 do not meet the guideline for span of service/hours of service.

**Table 2-2 | Hours of Service**

Time of Day	Route/Arrival or Departure Terminal	Direction	AM Arrival Time/ PM Departure Time	Meets Criterion?
<b>Mount Pleasant Line</b>				
<b>Weekday</b>				
AM	42 – Gallery Place Metro Station	SB	4:39 AM	Yes
	42 – Mount Pleasant Terminal	NB	5:08 AM	Yes
	43 – Farragut Square	SB	7:18 AM	<b>No</b>
	43 – Mount Pleasant Terminal	NB	N/A	No – peak period/peak direction service
PM	42 – Mount Pleasant Terminal	SB	2:55 AM	Yes
	42 – Gallery Place Metro Station	NB	3:20 AM	Yes
	43 – Mount Pleasant Terminal	SB	N/A	No – peak period/peak direction service
	43 – Farragut Square	NB	6:54 PM	<b>No</b>
<b>Saturday</b>				
AM	42 – Gallery Place Metro Station	SB	4:50 AM	Yes
	42 – Mount Pleasant Terminal	NB	5:20 AM	Yes
PM	42 – Mount Pleasant Terminal	SB	3:13 AM	Yes
	42 – Gallery Place Metro Station	NB	3:20 AM	Yes
<b>Sunday</b>				
AM	42 – Gallery Place Metro Station	SB	4:50 AM	Yes
	42 – Mount Pleasant Terminal	NB	5:20 AM	Yes
PM	42 – Mount Pleasant Terminal	SB	2:50 AM	Yes
	42 – Gallery Place Metro Station	NB	3:20 AM	Yes
<b>Connecticut Avenue Line</b>				
<b>Weekday</b>				
AM	L1 – 18th Street & E Street NW	SB	7:50 AM	<b>No</b>
	L1 – Chevy Chase Circle	NB	N/A	No – peak period/peak direction service
	L2 – Farragut Square	SB	5:37 AM	Yes
	L2 – Chevy Chase Circle	NB	6:14 AM	<b>No</b>
PM	L1 – Chevy Chase Circle	SB	N/A	No – peak period/peak direction service
	L1 – 18th Street & E Street BW	NB	7:30 PM	<b>No</b>
	L2 – Chevy Chase Circle <sup>1</sup>	SB	12:15 AM <sup>2</sup>	Yes

Time of Day	Route/Arrival or Departure Terminal	Direction	AM Arrival Time/ PM Departure Time	Meets Criterion?
	L2 – Farragut Square	NB	1:00 AM <sup>3</sup>	Yes
<b>Saturday</b>				
AM	L2 – Farragut Square	SB	6:09 AM	Yes
	L2 – Farragut Square	NB	6:48 AM	No
PM	L2 – Bethesda Metro Station	SB	1:04 AM	Yes
	L2 – Farragut Square	NB	2:00 AM	Yes
<b>Sunday</b>				
AM	L2 – Farragut Square	SB	6:09 AM	Yes
	L2 – Chevy Chase Circle	NB	6:48 AM	Yes
PM	L2 – Chevy Chase Circle	SB	11:45 AM	Yes
	L2 – Farragut Square	NB	12:30 AM	Yes

Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2

1. Northern terminal of L2 is Bethesda Metro Station on Friday night.

2. 1:04 AM on Friday night.

3. 2:00 AM on Friday night.

## 2.2 SERVICE FREQUENCY

The minimum frequency, or the “policy headway”, is the maximum time interval between vehicles moving in the same direction on a particular segment. Generally, Metrobus service intervals should not exceed 20 minutes during the peak period and one hour during the off-peak periods. The specific guideline for framework services is presented below:

- Weekday Peak – 20 minutes
- Weekday Off-Peak – 30 minutes
- Saturday – 60 minutes
- Sunday – 60 minutes

**Table 2-3** presents the number of trips operated during each period by each route. The segment level assessment of service headway is presented in **Table 2-4** for southbound service and **Table 2-5** for northbound service. The analysis shows that at all times the guideline for service frequency is achieved, except on segments that are served only by Routes 43 or L1. It is important to note that the L2 does not operate clockface headways early in the morning on weekends as service is ramping up.

**Table 2-3 | Number of Trips by Time Period and Day of Week**

Route	Time Period	Weekday		Saturday		Sunday	
		NB	SB	NB	SB	NB	SB
Mount Pleasant Line							
42	AM Early (4:00 AM–5:59 AM)	3	5	3	4	3	4
	AM Peak (6:00 AM–8:59 AM)	12	16	11	12	9	10
	Midday (9:00 AM–2:59PM)	31	29	29	30	24	24
	PM Peak (3:00 PM–6:59 PM)	25	23	23	21	15	16
	Early Night (7:00 PM–10:59 PM)	25	19	13	12	12	10
	Late Night (11:00 PM–3:59 AM)	12	10	10	9	5	4
43	AM Early (4:00 AM–5:59 AM)	-	-	-	-	-	-
	AM Peak (6:00 AM–8:59 AM)	-	21	-	-	-	-
	Midday (9:00 AM–2:59PM)	-	8	-	-	-	-
	PM Peak (3:00 PM–6:59 PM)	21	-	-	-	-	-
	Early Night (7:00 PM–10:59 PM)	-	-	-	-	-	-
	Late Night (11:00 PM–3:59 AM)	-	-	-	-	-	-
Connecticut Avenue Line							
L1	AM Early (4:00 AM–5:59 AM)	-	-	-	-	-	-
	AM Peak (6:00 AM–8:59 AM)	-	9	-	-	-	-
	Midday (9:00 AM–2:59PM)	-	-	-	-	-	-
	PM Peak (3:00 PM–6:59 PM)	9	-	-	-	-	-
	Early Night (7:00 PM–10:59 PM)	-	-	-	-	-	-
	Late Night (11:00 PM–3:59 AM)	-	-	-	-	-	-
L2	AM Early (4:00 AM–5:59 AM)	1	3	-	1	-	-
	AM Peak (6:00 AM–8:59 AM)	9	11	7	8	6	6
	Midday (9:00 AM–2:59PM)	18	18	18	18	14	15
	PM Peak (3:00 PM–6:59 PM)	20	12	12	12	9	9
	Early Night (7:00 PM–10:59 PM)	9	8	8	8	8	8
	Late Night (11:00 PM–3:59 AM)	10	8	7	5	4	2
TOTAL		205	200	141	140	109	108

Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2



**Table 2-4 | Southbound Trips per Hour and Headway**

Line Segment	Route Numbers	Time Period	# of Trips per Hour	Average Headway (min)	Meets Criterion?
Connecticut Avenue NW: Chevy Chase Circle to Calvert Street NW	L1/L2	AM Peak	8	7.50	Yes
		Midday	3	20.00	Yes
		PM Peak	3	20.00	Yes
		Saturday	3	20.00	Yes
		Sunday	2.5	24.00	Yes
Connecticut Avenue NW: Calvert Street NW to Columbia Road NW	L1	AM Peak	4	15.00	Yes
		Midday	0	N/A	No – peak direction service
		PM Peak	0	N/A	No – peak direction service
		Saturday	0	N/A	No – peak direction service
		Sunday	0	N/A	No – peak direction service
Calvert Street/Adams Mill Road NW: Connecticut Avenue NW to Columbia Road NW	L2	AM Peak	4	15.00	Yes
		Midday	3	20.00	Yes
		PM Peak	3	20.00	Yes
		Saturday	3	20.00	Yes
		Sunday	2.5	24.00	Yes
Mount Pleasant Street NW/Columbia Road NW: Mount Pleasant Terminal to Adams Mill Road/Calvert Street NW	42/43	AM Peak	11	5.45	Yes
		Midday	5	12.00	Yes
		PM Peak	6	10.00	Yes
		Saturday	5	12.00	Yes
		Sunday	4	15.00	Yes
Columbia Road NW: Adams Mill Road/Calvert Street NW to Connecticut Avenue NW	42/43, L2	AM Peak	15	4.00	Yes
		Midday	8	7.50	Yes
		PM Peak	9	6.67	Yes
		Saturday	8	7.50	Yes
		Sunday	6.5	9.23	Yes
Connecticut Avenue NW: Columbia Road NW to Dupont Circle	42/43, L1/L2	AM Peak	19	3.16	Yes
		Midday	8	7.50	Yes
		PM Peak	9	6.67	Yes
		Saturday	8	7.50	Yes
		Sunday	6.5	9.23	Yes

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Line Segment	Route Numbers	Time Period	# of Trips per Hour	Average Headway (min)	Meets Criterion?
Connecticut Avenue NW: Dupont Circle to Farragut Square	42/43, L2	AM Peak	15	4.00	Yes
		Midday	8	7.50	Yes
		PM Peak	9	6.67	Yes
		Saturday	8	7.50	Yes
		Sunday	6.5	9.23	Yes
F Street/H Street/I Street/9 <sup>th</sup> Street/11 <sup>th</sup> Street NW: Farragut Square to Gallery Place Metro	42	AM Peak	5	12.00	Yes
		Midday	5	12.00	Yes
		PM Peak	6	10.00	Yes
		Saturday	5	12.00	Yes
		Sunday	4	15.00	Yes
New Hampshire Avenue/23 <sup>rd</sup> Street/Constitution Avenue NW: Dupont Circle to 18 <sup>th</sup> and E Street NW	L1	AM Peak	4	15.00	Yes
		Midday	0	N/A	No – peak direction service
		PM Peak	0	N/A	No – peak direction service
		Saturday	0	N/A	No – peak direction service
		Sunday	0	N/A	No – peak direction service

Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2

**Table 2-5 | Northbound Trips per Hour and Headway**

Line Segment	Route Numbers	Time Period	# of Trips per Hour	Average Headway (min)	Meets Criterion?
New Hampshire Avenue/23 <sup>rd</sup> Street/Constitution Avenue NW: 18 <sup>th</sup> and E Street NW to Dupont Circle	L1	AM Peak	0	N/A	No – peak direction service
		Midday	0	N/A	No – peak direction service
		PM Peak	3	20.00	Yes
		Saturday	0	N/A	No – peak direction service
		Sunday	0	N/A	No – peak direction service
F Street/H Street/I Street/9 <sup>th</sup> Street/11 <sup>th</sup> Street NW: Gallery Place Metro to Farragut Square	42	AM Peak	4	15.00	Yes
		Midday	5	12.00	Yes
		PM Peak	6	10.00	Yes
		Saturday	5	12.00	Yes
		Sunday	4	15.00	Yes
Connecticut Avenue NW: Farragut Square to Dupont Circle	42/43, L2	AM Peak	7	8.57	Yes
		Midday	8	7.50	Yes
		PM Peak	16	3.75	Yes
		Saturday	8	7.50	Yes
		Sunday	6.5	9.23	Yes
Connecticut Avenue NW: Dupont Circle to Columbia Road NW	42/43, L1/L2	AM Peak	7	8.57	Yes
		Midday	8	7.50	Yes
		PM Peak	19	3.16	Yes
		Saturday	8	7.50	Yes
		Sunday	6.5	9.23	Yes
Columbia Road NW: Connecticut Avenue NW to Adams Mill Road/Calvert Street NW	42/43, L2	AM Peak	7	8.57	Yes
		Midday	8	7.50	Yes
		PM Peak	16	3.75	Yes
		Saturday	8	7.50	Yes
		Sunday	6.5	9.23	Yes
Mount Pleasant Street NW/Columbia Road NW: Adams Mill Road/Calvert Street NW to Mount Pleasant Terminal	42/43	AM Peak	4	15.00	Yes
		Midday	5	12.00	Yes
		PM Peak	13	4.62	Yes
		Saturday	5	12.00	Yes
		Sunday	4	15.00	Yes

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Line Segment	Route Numbers	Time Period	# of Trips per Hour	Average Headway (min)	Meets Criterion?
Calvert Street/Adams Mill Road NW: Columbia Road NW to Connecticut Avenue NW	L2	AM Peak	3	20.00	Yes
		Midday	3	20.00	Yes
		PM Peak	3	20.00	Yes
		Saturday	3	20.00	Yes
		Sunday	2.5	24.00	Yes
Connecticut Avenue NW: Columbia Road NW to Calvert Street NW	L1	AM Peak	0	N/A	No – peak direction service
		Midday	0	N/A	No – peak direction service
		PM Peak	3	20.00	Yes
		Saturday	0	N/A	No – peak direction service
		Sunday	0	N/A	No – peak direction service
Connecticut Avenue: Calvert Street NW to Chevy Chase Circle	L1/L2	AM Peak	3	20.00	Yes
		Midday	3	20.00	Yes
		PM Peak	6	10.00	Yes
		Saturday	3	20.00	Yes
		Sunday	2.5	24.00	Yes

Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2

## 2.3 VEHICLE REQUIREMENTS AND CAPACITY OFFERED

Most trips on the Connecticut Avenue and Mount Pleasant Lines are operated out of Western Division, on Harrison Street NW and Jennifer Street NW in Washington, D.C. Some trips are operated out of Bladensburg Division, on Bladensburg Road NE at 26<sup>th</sup> Street NE in Washington, DC. Driver and division assignments are shown in **Table 2-6** following.

**Table 2-6 | Vehicles and Operators Assigned**

Day	Division		Mount Pleasant Line (42/43)	Connecticut Avenue Line (L1/L2)
Weekday	Western	Buses	15	14
		Drivers	42	36
	Bladensburg	Buses	2	0
		Drivers	4	0
	Total	Buses	17	14
		Drivers	46	36
Saturday	Western	Buses	6	5
		Drivers	26	16
Sunday	Western	Buses	5	4
		Drivers	18	15

*Source: WMATA Productivity Reports June 2017*

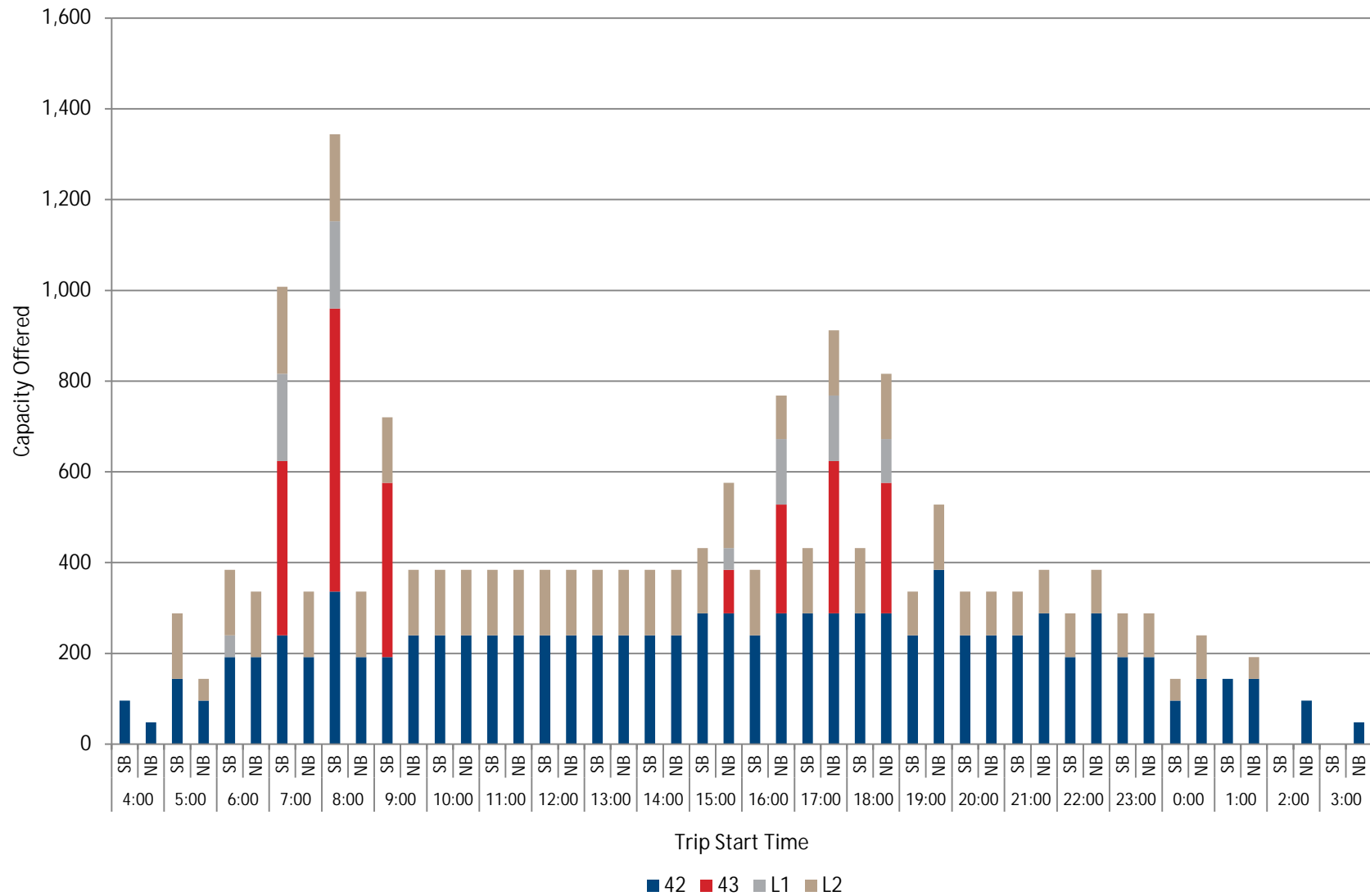
The capacity offered analysis is presented in **Figure 2-1** through **Figure 2-3**. These figures show the maximum capacity offered on each route on weekdays, Saturday, and Sunday by hour. It is based on an average bus capacity of 48 passengers. On weekdays, the most capacity is offered during the AM peak hour in the southbound direction. During the PM peak hours, there is additional capacity in the northbound direction. Most of the additional capacity is provided by the peak-period-only routes. On Saturday and Sunday the capacity pattern is relatively flat throughout the day with the most capacity offered during the mid-late afternoon hours.

## 2.4 ROUTE DIRECTNESS ANALYSIS

The directness guideline states that routes should be as direct as possible and route deviations should not take up more of the end-to-end travel time, and should not account for more than three minutes per passenger per route. Neither the Mount Pleasant Line nor the Connecticut Avenue Line has any deviations, so these routes meet the route directness guideline.

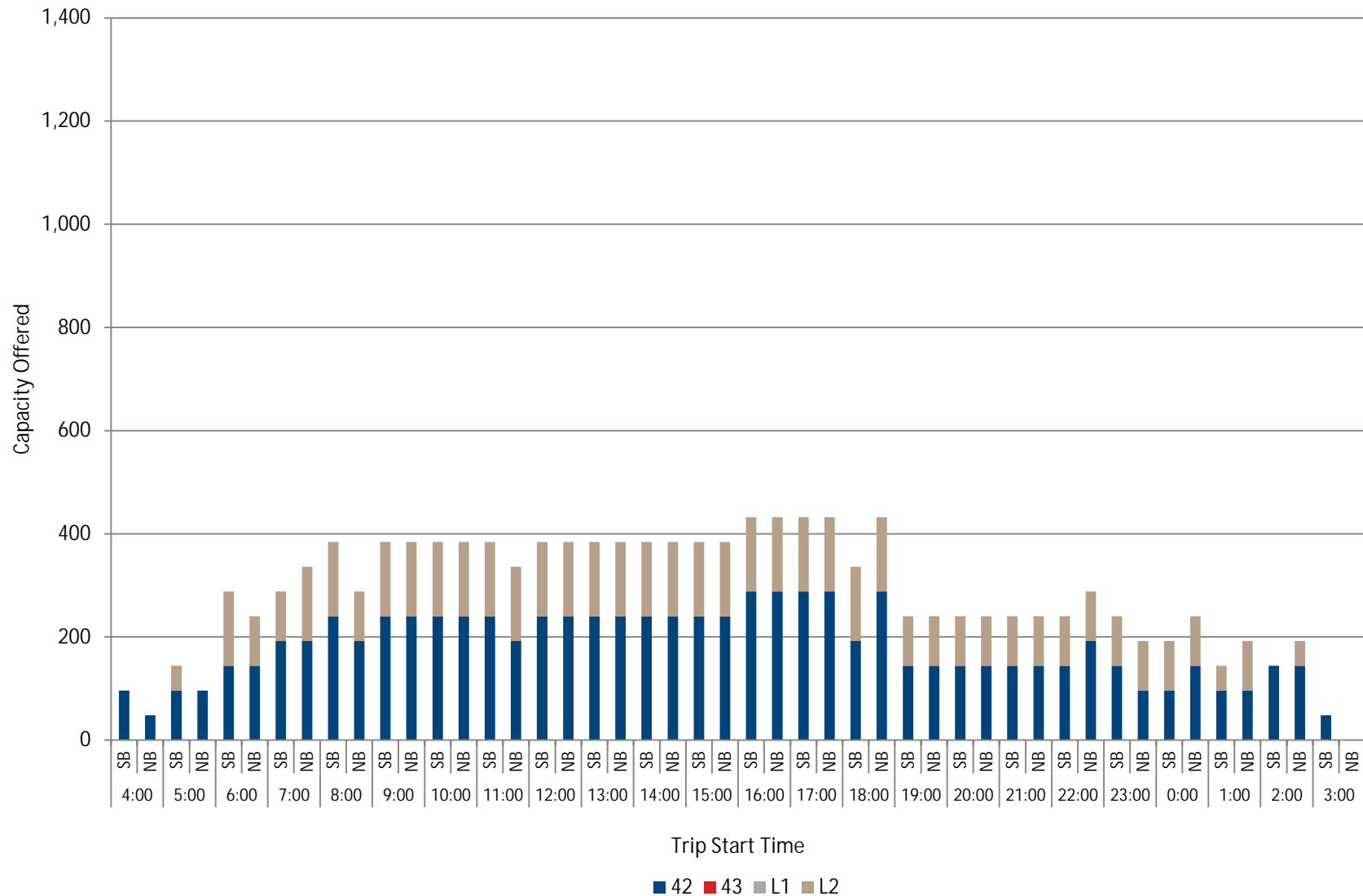


**Figure 2-1 | Weekday Capacity Offered**



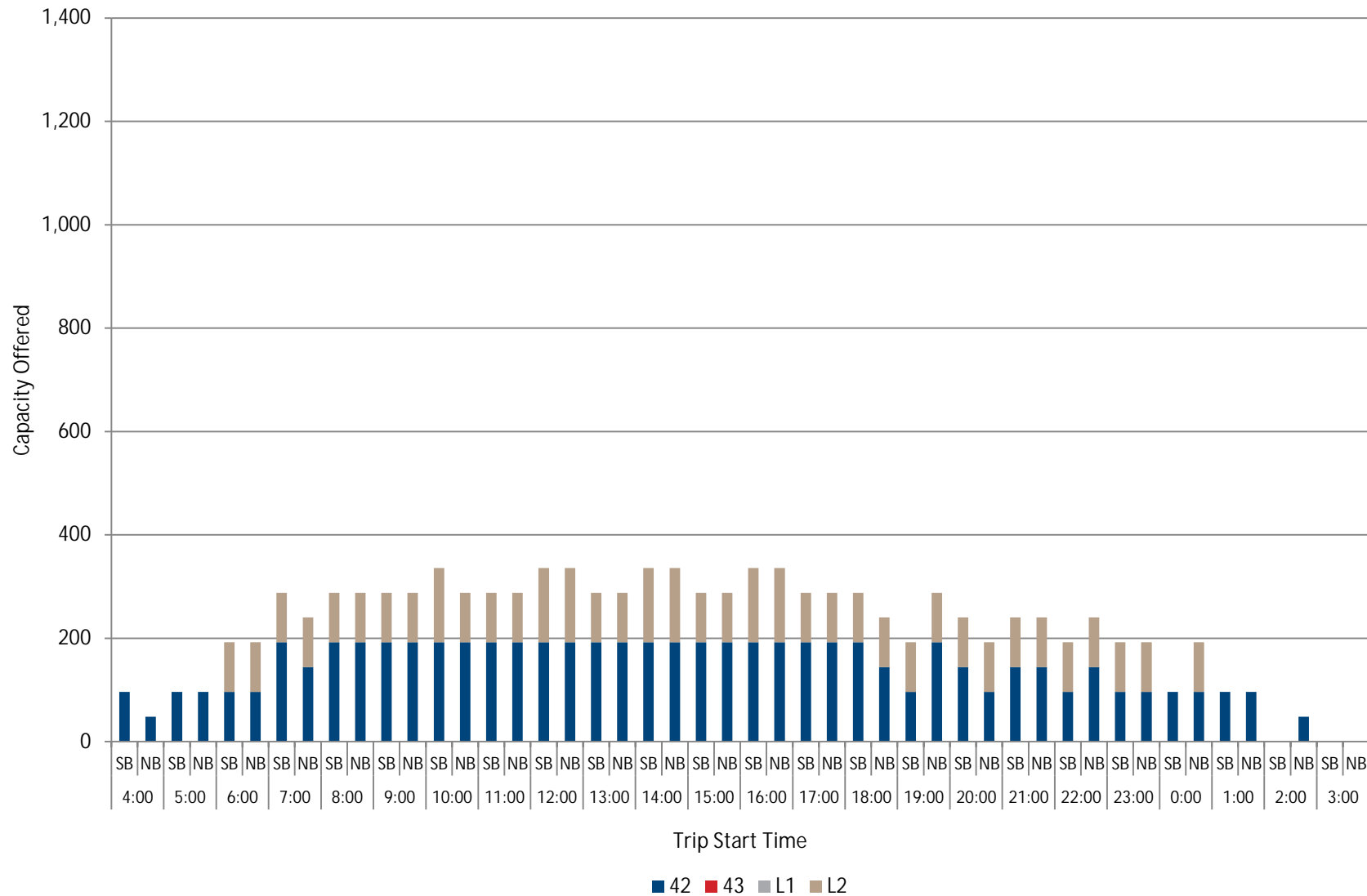
Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2

**Figure 2-2 | Saturday Capacity Offered**



Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2

**Figure 2-3 | Sunday Capacity Offered**



Source: Public timetables 9/24/17 for 42/43 and 12/8/16 for L1/L2

## 3.0 Ridership and Productivity

This chapter presents the ridership and productivity of the Connecticut Avenue and Mount Pleasant Lines. Ridership and productivity are compared to service guidelines which analyzes the need for changes to the routes in each line. Indicators are based on comparing ridership to operating cost, fares, subsidy, and revenue miles operated. Guidelines presented are based on the guidelines from the 2015 *Metrobus Service Guidelines Study*.

### 3.1 DAILY RIDERSHIP

**Table 3-1** presents the number of boardings for weekends, Saturdays, and Sundays. Route 42 has the highest number of boardings of all four routes, regardless of the day. The number of boardings on weekdays is approximately twice as high as Saturday or Sunday, 48 or 60 percent respectively, which is shown as a ratio on the table below.

**Table 3-1 | Number of Boardings by Day of Week, June 2017**

Route	Day Type	Average Daily Ridership	Ratio to Weekday Ridership
<b>Mount Pleasant Line</b>			
42	Weekday	4,507	1.00
	Saturday	3,015	0.67
	Sunday	2,464	0.55
43	Weekday	1,490	1.00
<b>Connecticut Avenue Line</b>			
L1	Weekday	723	1.00
L2	Weekday	3,409	1.00
	Saturday	2,230	0.65
	Sunday	1,610	0.47

Source: WMATA Productivity Reports June 2017

### 3.2 COST RECOVERY FROM FARES

The guideline for cost recovery from fares for Framework Services is 25.0 percent. The analysis of cost recovery from fares is presented in **Table 3-2**. This table shows that all routes meet the farebox recovery guideline on weekdays but none of the services meet farebox recovery guidelines on Saturday. Sunday Route 42 meets the guideline while Route L2 does not.

### 3.3 BOARDINGS PER TRIP

The guideline for Framework Services for boardings per trip is 25.0 boardings per trip. The analysis of boardings per trip is presented in **Table 3-3**. This table shows that Route 42 does not meet the boardings per trip guidelines. Route L2 meets the guideline on weekdays, but not on weekends. Routes 43 and L1 do meet the boardings per trip guideline.

### 3.4 SUBSIDY PER PASSENGER

The guideline for subsidy per passenger is \$3.00. The analysis of subsidy per passenger is presented in **Table 3-4**. This table shows that all routes meet the subsidy per passenger guideline on weekdays. Route 42 does meet the guideline on weekends, but Route L2 does not.

**Table 3-2 | Cost Recovery from Fares**

Route	Day Type	Average Operating Cost	Average Daily Fare Revenue	Cost Recovery	Cost Recovery Guideline	Meets Guideline?
<b>Mount Pleasant Line</b>						
42	Weekday	\$17,897	\$4,560	25.5%	>25.0%	Yes
	Saturday	\$12,585	\$2,987	23.7%	>25.0%	No
	Sunday	\$8,636	\$2,213	25.6%	>25.0%	Yes
43	Weekday	\$3,058	\$2,100	68.7%	>25.0%	Yes
<b>Connecticut Avenue Line</b>						
L1	Weekday	\$2,430	\$999	41.1%	>25.0%	Yes
L2	Weekday	\$10,937	\$3,658	33.4%	>25.0%	Yes
	Saturday	\$8,866	\$2,144	24.2%	>25.0%	No
	Sunday	\$6,614	\$1,568	23.7%	>25.0%	No

Source: WMATA Productivity Reports June 2017

**Table 3-3 | Boardings per Trip**

Route	Day Type	Average Daily Boardings	Trips Operated	Boardings per Trip	Boardings per Trip Guideline	Meets Guideline?
<b>Mount Pleasant Line</b>						
42	Weekday	4,572	212	21.5	>25.0	No
	Saturday	3,201	177	18.1	>25.0	No
	Sunday	2,375	136	17.5	>25.0	No
43	Weekday	1,603	50	32.2	>25.0	Yes
<b>Connecticut Avenue Line</b>						
L1	Weekday	791	18	43.2	>25.0	Yes
L2	Weekday	3,462	120	28.9	>25.0	Yes
	Saturday	2,080	104	20.0	>25.0	No
	Sunday	1,501	81	18.5	>25.0	No

Source: WMATA Productivity Reports June 2017



**Table 3-4 | Subsidy per Boarding Passenger**

Route	Day Type	Operating Subsidy	Average Daily Boardings	Subsidy per Passenger	Subsidy per Passenger Guideline	Meets Guideline?
<b>Mount Pleasant Line</b>						
42	Weekday	\$13,337	4,572	\$2.92	\$3.00	Yes
	Saturday	\$9,598	3,201	\$3.00	\$3.00	Yes
	Sunday	\$6,423	2,375	\$2.70	\$3.00	Yes
43	Weekday	\$958	1,603	\$0.60	\$3.00	Yes
<b>Connecticut Avenue Line</b>						
L1	Weekday	\$1,431	791	\$1.81	\$3.00	Yes
L2	Weekday	\$7,279	3,462	\$2.10	\$3.00	Yes
	Saturday	\$6,722	2,080	\$3.23	\$3.00	No
	Sunday	\$5,046	1,501	\$3.36	\$3.00	No

Source: WMATA Productivity Reports June 2017

### 3.5 BOARDINGS PER REVENUE MILE

The guideline for boardings per mile on the Connecticut Avenue and Mount Pleasant Lines is three passengers per mile. All routes meet the boardings per revenue mile guideline on all days, as shown on **Table 3-5**.

**Table 3-5 | Boardings per Revenue Mile**

Route	Day Type	Average Daily Boardings	Average Daily Revenue Miles	Boardings per Revenue Mile	Boardings per Revenue Mile Guideline	Meets Guideline?
<b>Mount Pleasant Line</b>						
42	Weekday	4,572	734.61	6.22	3.0	Yes
	Saturday	3,201	623.58	5.13	3.0	Yes
	Sunday	2,375	479.06	4.96	3.0	Yes
43	Weekday	1,603	142.23	11.27	3.0	Yes
<b>Connecticut Avenue Line</b>						
L1	Weekday	791	120.11	6.58	3.0	Yes
L2	Weekday	3,462	626.36	5.53	3.0	Yes
	Saturday	2,080	588.00	3.54	3.0	Yes
	Sunday	1,501	443.51	3.38	3.0	Yes

Source: WMATA Productivity Reports June 2017

### **3.6 AVERAGE DAILY RIDERSHIP TRENDS**

Both the Mount Pleasant and Connecticut Avenue Lines have seen declines in boardings since mid-2012. These declines are discussed in greater detail below, and may be due to several reasons, including the increasing use of bikeshare service (i.e., Capital Bikeshare). Additionally, both lines act as feeder bus routes to Metrorail service, with the Connecticut Avenue Line serving the Van Ness-UDC Metro station and the Mount Pleasant Line serving the Dupont Circle Metro station. With some of the reliability issues recently facing the Metro system, ridership on connecting bus routes such as the Connecticut Avenue and Mount Pleasant Lines may have declined.

Over the past five years, the ridership peaked on all service days (i.e., weekdays, Saturdays and Sundays) during the mid-2013 to mid-2014 year, with the exception of weekdays on the Connecticut Avenue Line, which peaked during the mid-2014 to mid-2015 year. This mirrors recent national trends in the decline of transit ridership.

### 3.6.1 Mount Pleasant Line (42/43)

The Mount Pleasant Line experienced a decline in weekday and weekend ridership across both routes that comprise the line between 2012 and 2017 (see **Table 3-6** and **Figure 3-1**). Since 2012, the average weekday ridership on the Mount Pleasant Line has decreased by approximately 11.3 percent – weekday ridership on Route 42 only declined by approximately 3.6 percent, but weekday ridership on Route 43 declined by approximately 27.9 percent. From 2012 to 2017, the average Saturday ridership declined by approximately 26.6 percent, while the average Sunday ridership declined approximately 16.0 percent. One factor that may have contributed to the decrease in ridership is the presence and growth of Capital Bikeshare in the corridor, as bikeshare usage has increased by 10 percent over the same time period.

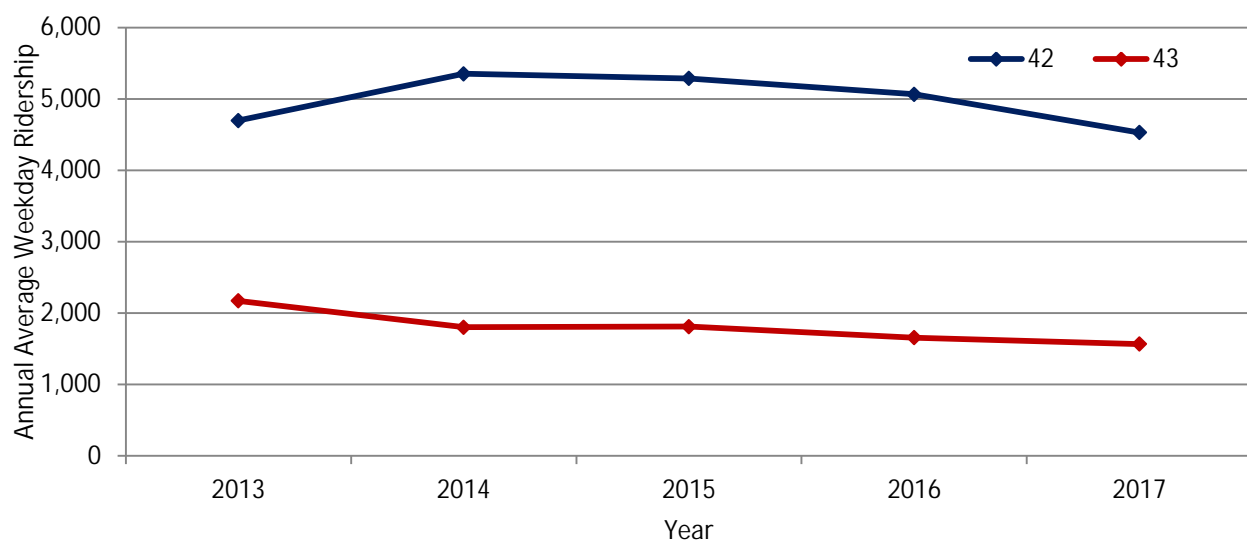
In June of 2013, the Saturday and Sunday frequencies of service were lengthened on the Mount Pleasant Line, which may have impacted ridership along the line.

**Table 3-6 | Mount Pleasant (42/43) Historical Ridership Summary – July 2012 to June 2017**

Route	2013	2014	2015	2016	2017	% Change
<b>Average Annual Weekday</b>						
42	4,697	5,350	5,285	5,065	4,529	-3.6%
43	2,170	1,799	1,809	1,653	1,565	-27.9%
<b>Total</b>	<b>6,867</b>	<b>7,149</b>	<b>7,094</b>	<b>6,718</b>	<b>6,094</b>	<b>-11.3%</b>
<b>Average Annual Saturday</b>						
42	4,272	4,290	3,827	3,645	3,134	-26.6%
<b>Average Annual Sunday</b>						
42	3,159	3,173	3,013	2,911	2,652	-16.0%

Source: WMATA Farebox Data June 2017

**Figure 3-1 | Mount Pleasant Line (42/43) Historical Annual Average Weekday Ridership, 2013-2017**



Source: WMATA Farebox Data June 2017

### 3.6.2 Connecticut Avenue Line (L1/L2)

The Connecticut Avenue Line experienced a decline in weekday and weekend ridership when both routes that make up the line are considered jointly between 2012 and 2017 (see **Table 3-7** and **Figure 3-2**), but not to the same extent as the Mount Pleasant Line. Since 2012, the average weekday ridership on the Connecticut Avenue Line has decreased by approximately 1.5 percent – weekday ridership on Route L2 increased by 9.3 percent, but weekday ridership on Route L1 declined by approximately 29.6 percent. From 2012 to 2017, the average Saturday ridership declined by approximately 10.8 percent, while the average Sunday ridership declined approximately 2.2 percent.

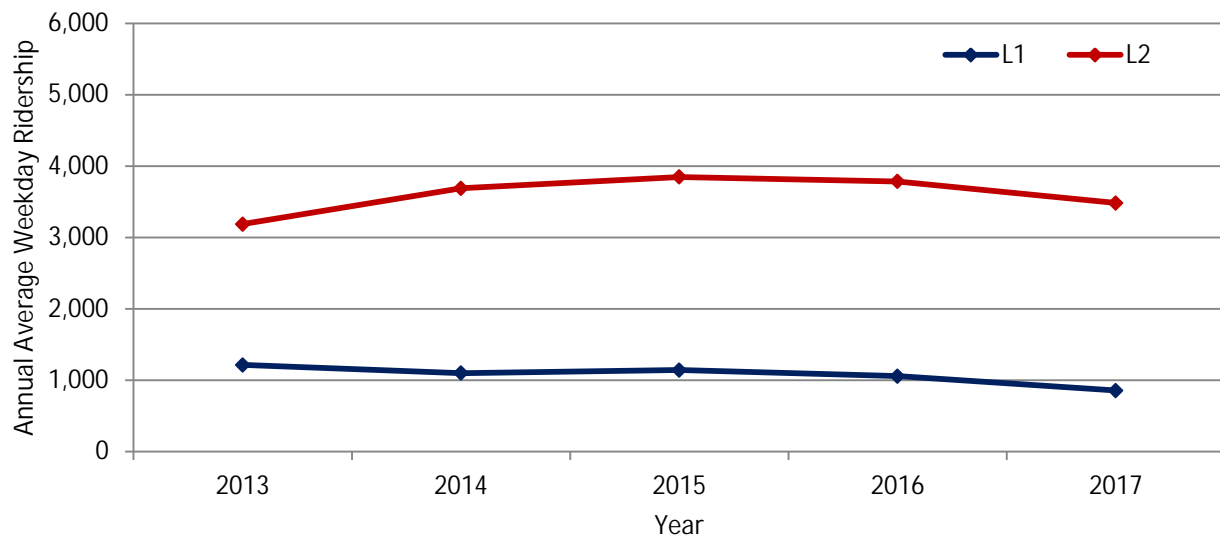
In December of 2016, the weekday frequencies of service were lengthened on the Connecticut Avenue Line.

**Table 3-7 | Connecticut Avenue (L1/L2) Historical Ridership Summary – July 2012 to June 2017**

Route	2013	2014	2015	2016	2017	% Change
<b>Average Annual Weekday</b>						
L1	1,212	1,097	1,141	1,054	853	-29.6%
L2	3,186	3,688	3,847	3,783	3,481	9.3%
<b>Total</b>	<b>4,398</b>	<b>4,785</b>	<b>4,988</b>	<b>4,837</b>	<b>4,334</b>	<b>-1.5%</b>
<b>Average Annual Saturday</b>						
L2	2,395	2,663	2,500	2,453	2,137	-10.8%
<b>Average Annual Sunday</b>						
L2	1,703	2,028	1,995	1,897	1,666	-2.2%

Source: WMATA Farebox Data June 2017

**Figure 3-2 | Connecticut Avenue (L1/L2) Historical Annual Average Weekday Ridership, 2013-2017**



Source: WMATA Farebox Data June 2017

### 3.7 FARE PAYMENT CHARACTERISTICS AND TRANSFERS

Fare payment characteristics, based on data collected in June of 2016, are presented in **Table 3-8**. This table shows that the majority of riders (over three-fourths on both lines) pay their fares with a SmarTrip card or cash. The Connecticut Avenue Line has a higher percentage of transfers than the Mount Pleasant Line. It is important to note that transfers are coded onto SmarTrip cards.

Data reviewed has indicated that there is a low percentage of cash passengers, which means that cash fare payments are not a significant cause of dwell time at bus stops. The data does not provide insight on whether there are a large number of passengers loading their SmarTrip card onboard buses.

**Table 3-8 | Fare Payment Characteristics**

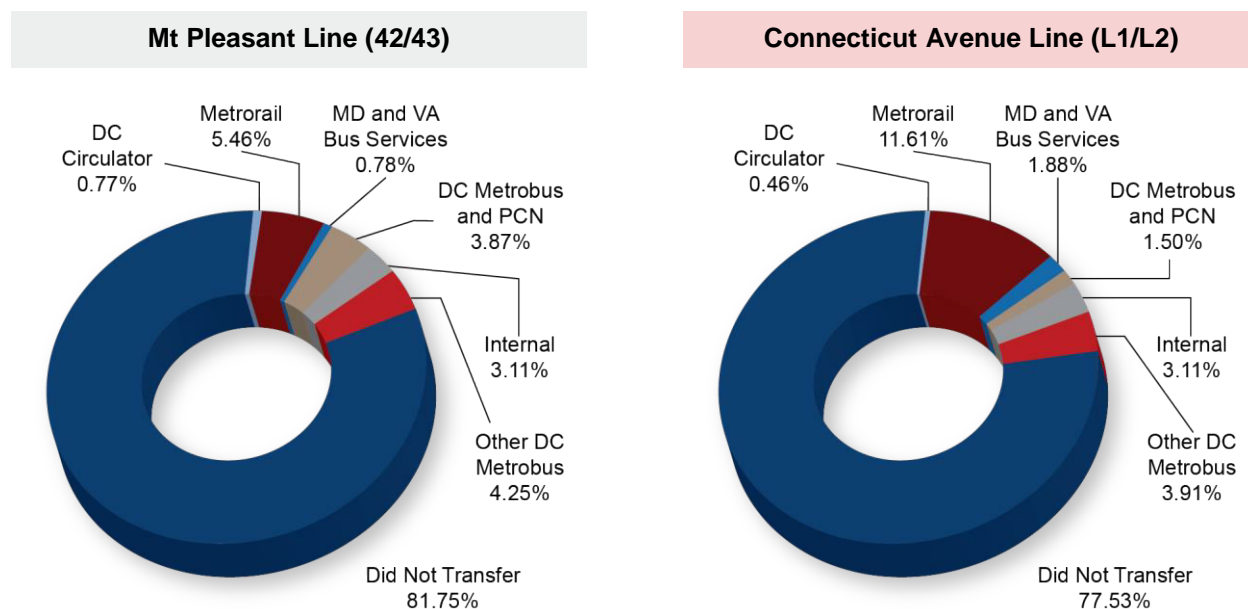
Route	SmarTrip or Cash	Transfers	Total
<b>Mount Pleasant Line</b>			
42	109,026	27,640	136,666
43	29,393	5,025	34,418
<b>Total</b>	<b>138,419 (80.9%)</b>	<b>32,665 (19.1%)</b>	<b>171,084 (100.0%)</b>
<b>Connecticut Avenue Line</b>			
L1	16,042	4,472	20,514
L2	76,121	22,655	98,776
<b>Total</b>	<b>92,163 (77.3%)</b>	<b>27,127 (22.7%)</b>	<b>119,290 (100.0%)</b>

Source: SmarTrip Data All Days June 2017

Through SmarTrip card taps, WMATA is able to track the transfer activity. Based on SmarTrip data, the percentage of passengers that do not transfer is very high on both the Mount Pleasant and Connecticut Avenue Lines. This is shown below on **Table 3-3** and **Table 3-4**. Of the transfers that do occur, the highest percentages are to and from Metrorail. Specific patterns are shown on **Table 3-9**. This table presents the top 20 transfers on weekdays and the top 10 on weekends.

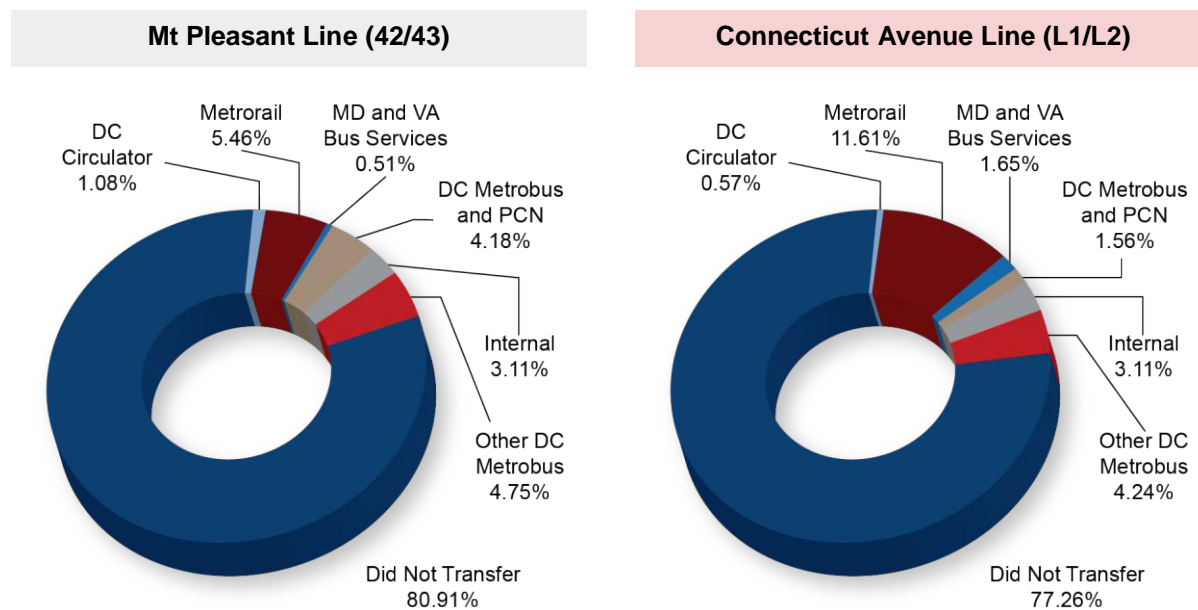


**Figure 3-3 | Transfers to the Mount Pleasant and Connecticut Avenue Lines**



Source: SmarTrip Data All Days June 2017

**Figure 3-4 | Transfers from the Mount Pleasant and Connecticut Avenue Lines**



Source: SmarTrip Data All Days June 2017

**Table 3-9 | Major Transfer Movements (Average per Day)**

	Mount Pleasant Line (42/43)		Connecticut Avenue Line (L1/L2)	
	Transfers To	Transfers From	Transfers To	Transfers From
<b>Weekday</b>				
Van Ness-UDC Metro	0	0	326	329
Farragut West Metro	161	204	60	62
Metrobus 42	167	164	39	39
Metrobus L2	44	41	122	119
Dupont Circle Metro	80	79	18	24
Metrobus H2/3/4	58	54	33	31
Metrobus S1/2/4	73	86	6	6
Metrobus H8	56	32	2	0
Foggy Bottom Metro	4	3	54	36
Farragut North Metro	32	43	21	25
Metrobus X2	44	27	5	3
Metrobus E4	1	1	47	52
Columbia Heights Metro	45	47	2	3
D.C. Circulator-WAM	30	17	14	12
Metrobus 90/92	17	11	25	23
Cleveland Park Metro	0	0	42	23
Metrobus 43	29	31	12	8
Woodley Park-Zoo Metro	2	4	37	43
Metrobus 96/97	18	16	19	18
Metrobus 52/53/54	33	32	3	3
<b>Saturday</b>				
Metrobus 42	143	143	32	27
Metrobus L2	27	32	126	126
Van Ness-UDC Metro	1	0	115	81
Farragut West Metro	70	46	31	29
Dupont Circle Metro	71	31	11	13
Metrobus S2/4	60	70	3	5
Metrobus H2/4	32	31	17	21
Columbia Heights Metro	47	25	2	2

	Mount Pleasant Line (42/43)		Connecticut Avenue Line (L1/L2)	
	Transfers To	Transfers From	Transfers To	Transfers From
Cleveland Park Metro	1	0	37	15
D.C. Circulator-WAM	24	12	11	9
<b>Sunday</b>				
Metrobus 42	115	115	27	23
Metrobus L2	23	27	76	76
Van Ness-UDC Metro	0	0	83	83
Farragut West Metro	52	52	26	26
Dupont Circle Metro	58	58	11	11
Metrobus S1/2/4	41	45	3	4
Metrobus H2/4	20	15	16	17
D.C. Circulator-WAM	21	9	8	9
Metrobus X2	25	16	4	1
Metrobus H8	24	16	1	1

Source: SmarTrip Data All Days June 2017

### 3.8 BLOCK ANALYSIS

The purpose of the analyses contained in this section is to assess the productivity of the scheduling and blocking of the Mount Pleasant and Connecticut Avenue Lines. The first analysis to assess this scheduling productivity is a comparison of platform hours to revenue hours. If the platform-to-revenue-hour ratio is high, this indicates that an excessive amount of total platform hours is spent deadheading to and from the garage rather than running in productive revenue service. **Table 3-10** contains a summary of the platform-to-revenue-hour ratios for the line, by day of week. Also included in the table is the average system-wide ratio by day of week. The only time that the ratio of platform hours to revenue hours exceeds the system average is on Routes 42/43 on weekdays. The Connecticut Avenue Line has a very low platform hour to revenue hour ratio, primarily due to the close proximity to the line's northern terminal at Chevy Chase Circle.

**Table 3-10 | Platform Hours to Revenue Hours Ratio**

Route	Day of Week	Platform Hours per Day	Revenue Hours per Day	Ratio of Platform Hours to Revenue Hours	Average System-wide Ratio
<b>Mount Pleasant Line</b>					
42/43	Weekday	168.75	140.48	1.20	1.17
	Saturday	120.15	112.65	1.07	1.08
	Sunday	82.45	78.87	1.05	1.65
<b>Connecticut Avenue Line</b>					
L1/L2	Weekday	28.83	24.00	1.20	1.17
	Saturday	22.84	20.12	1.14	1.08
	Sunday	101.89	89.72	1.14	1.65

Source: WMATA Productivity Reports June 2017

The second analysis of scheduling productivity involves an evaluation of block lengths on the line. The longer a block, the less time that is spent running back to the garage for driver reliefs, and therefore the more productive it is. Block lengths by route and day of week are shown below on **Table 3-11**.

**Table 3-11 | Block Analysis**

Block Number	Route(s)	Leaves Garage	Enters Revenue Service	Ends Revenue Service	Arrives at Garage	Total Block Length (Hours)	Note
<b>Weekday</b>							
W-400	42/43	3:54	4:18	21:05	21:24	17:30	
W-401	42/43	4:24	4:48	9:25	9:45	5:21	
W-402	42/43	5:09	5:33	9:45	10:05	4:56	
W-407	42/43	6:04	6:28	20:07	20:26	14:22	
W-406	42/43	6:39	7:03	9:37	9:57	3:18	
W-409	42/43	6:46	7:10	19:02	19:21	12:35	
W-410	42/43	6:51	7:15	9:16	9:41	2:50	
W-412	42/43	7:03	7:27	18:55	19:14	12:11	
W-413	42/43	7:07	7:31	19:54	20:13	13:06	
W-414	42/43	7:20	7:44	9:57	10:16	2:56	
W-416	42/43	7:31	7:55	9:04	9:24	1:53	
W-417	42/43	7:35	7:59	9:51	10:11	2:36	
W-427	42/43	18:40	19:04	24:01	24:20	5:40	
W-428	42/43	18:52	19:16	23:00	23:19	4:27	
W-430	42/43	19:19	19:43	23:22	23:41	4:22	

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Block Number	Route(s)	Leaves Garage	Enters Revenue Service	Ends Revenue Service	Arrives at Garage	Total Block Length (Hours)	Note
W-431	42/43	20:52	21:16	25:30	25:49	4:57	
W-432	42/43	22:21	22:45	27:45	28:04	5:43	
W-433	42/43	23:54	24:18	27:20	27:39	3:45	
W-420	42/43	14:20	14:50	19:18	19:37	5:17	
W-421	42/43	15:17	15:45	22:32	22:51	7:34	
W-422	42/43	15:29	15:57	19:30	19:49	4:20	
W-424	42/43	15:53	16:21	19:08	19:27	3:34	
W-426	42/43	16:22	16:50	19:12	19:31	3:09	
W-425	42/43	16:16	16:46	24:16	24:35	8:19	
B-445	42/43	17:08	17:27	18:55	19:19	2:11	
B-446	42/43	17:04	17:22	19:38	20:02	2:58	
W-429	42/43	19:08	19:38	21:29	21:48	2:40	
BX-53	42/43	21:26	21:44			N/A	Goes to X2
BX-54	42/43	21:49	22:07			N/A	Goes to X2
W-415	42/43			9:14	9:34	N/A	From D5
B-850	42/43			9:33	9:52	N/A	From 80
B-440	42/43			10:02	10:21	N/A	From X3
B-441	42/43			10:14	10:33	N/A	From G8
W-411	42/43			18:36	18:55	N/A	From D5
W-403	42/43			18:45	19:04	N/A	From D1
W-423	42/43	15:41	16:09	18:58	19:17	3:36	
WL-14	L1/2	15:18	15:48	24:11	24:22	9:04	
WL-18	L1/2	16:37	16:47	19:01	19:07	2:30	
WL-16	L1/2	15:53	16:18	18:51	18:57	3:04	
WL-15	L1/2	15:39	16:09	17:49	17:55	2:16	
WL-20	L1/2	16:57	17:06	19:11	19:17	2:20	
WL-17	L1/2	16:03	16:33	18:18	18:24	2:21	
WL-22	L1/2	17:14	17:24	18:38	18:44	1:30	
WL-19	L1/2	16:22	16:52	19:31	19:37	3:15	
WL-21	L1/2	16:42	17:12	18:11	18:17	1:35	
WL-01	L1/2	4:58	5:03	8:54	9:19	4:21	
WL-02	L1/2	5:28	5:33	9:24	9:49	4:21	



Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Block Number	Route(s)	Leaves Garage	Enters Revenue Service	Ends Revenue Service	Arrives at Garage	Total Block Length (Hours)	Note
WL-03	L1/2	5:47	5:52	9:44	10:04	4:17	
WL-04	L1/2	6:04	6:09	25:29	25:35	19:31	
WL-05	L1/2	6:33	6:38	9:09	9:34	3:01	
WL-06	L1/2	6:43	6:48	20:21	20:27	13:44	
WL-07	L1/2	7:01	7:06	9:40	10:05	3:04	
WL-08	L1/2	7:15	7:20	18:31	18:51	11:36	
WL-09	L1/2	7:23	7:28	8:21	8:46	1:23	
WL-10	L1/2	7:38	7:43	8:39	9:04	1:26	
WL-11	L1/2	7:45	7:50	9:31	9:37	1:52	
WL-12	L1/2	8:01	8:06	24:29	24:35	16:34	
WL-13	L1/2	8:31	8:36	19:21	19:27	10:56	
<b>Saturday</b>							
W-400	42	4:06	4:28	19:10	19:28	15:22	
W-401	42	4:34	4:56	22:50	23:15	18:41	
W-402	42	5:51	6:13	23:28	23:53	18:02	
W-403	42	6:21	6:43	19:33	19:51	13:30	
W-404	42	7:48	8:10	23:55	24:13	16:25	
W-405	42	8:36	8:58	18:17	18:35	9:59	
W-406	42	11:36	11:58	18:48	19:06	7:30	
W-407	42	15:34	15:58	22:31	22:56	7:22	
W-409	42	22:12	22:36	27:00	27:18	5:06	
W-410	42	22:31	22:55	27:25	27:43	5:12	
W-408	42	23:09	23:33	27:50	28:08	4:59	
WL-05	L2	8:39	8:58	19:48	19:52	11:13	
WL-01	L2	5:34	5:40	14:22	14:26	8:52	
WL-02	L2	5:58	6:04	19:10	19:30	13:32	
WL-03	L2	6:22	6:28	20:36	20:40	14:18	
WL-04	L2	8:42	8:48	21:36	21:40	12:58	
WL-06	L2	14:22	14:28	25:48	25:59	11:37	
WL-07	L2	20:37	20:43	25:18	25:29	4:52	
WL-09	L2	21:37	21:43	26:48	26:59	5:22	
WN-05	L2			26:18	26:29	2:29	From N6

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Block Number	Route(s)	Leaves Garage	Enters Revenue Service	Ends Revenue Service	Arrives at Garage	Total Block Length (Hours)	Note
<b>Sunday</b>							
W-400	42	4:06	4:28	23:40	23:58	19:52	
W-401	42	4:34	4:56	21:38	22:02	17:28	
W-402	42	6:16	6:38	19:48	20:06	13:50	
W-403	42	7:07	7:29	25:58	26:16	19:09	
W-404	42	21:18	21:42	26:28	26:46	5:28	
W-405	42	9:58	10:20	19:03	19:21	9:23	
WL-02	L2	5:54	6:13	14:46	14:50	8:56	
WL-01	L2	5:52	5:58	18:18	18:22	12:30	
WL-03	L2	6:22	6:28	15:58	16:02	9:40	
WL-04	L2	10:46	10:52	24:27	24:31	13:45	
WL-05	L2	14:46	14:52	23:57:00	24:10	9:24	
WL-06	L2	15:58	16:04	24:57	25:01	9:03	

Source: Headway Sheets June 2017

**Table 3-11** above shows that not many of the blocks on the Mount Pleasant or Connecticut Avenue Lines are interlined. On weekdays, none of the Connecticut Avenue Line blocks are interlined and only eight out of 35 blocks on the Mount Pleasant Line, or 22.9 percent of blocks are interlined. These interlined blocks are primarily operated out of Bladensburg Division. On weekends, none of the Mount Pleasant Line blocks are interlined with another service. Only one of nine Connecticut Avenue Saturday blocks are interlined and none of the Sunday blocks are interlined. The implication is that interlines are not having a major effect on on-time performance.

### 3.9 PRELIMINARY RIDERSHIP AND PRODUCTIVITY FINDINGS

There are a number of key findings from the analyses presented in this chapter, which are as follows:

- Routes are not meeting boarding per trips guidelines because these are relatively short routes that are not very crowded.
- Historically, ridership has been declining.
- Western Division is very close to the northern end of Connecticut Avenue Line, which allows for efficient schedules.
- The Mount Pleasant and Downtown Washington terminals are far from the operating divisions, which reduces schedule efficiency.
- Interlines are not a major influence on on-time performance.

## 4.0 Service Reliability

Service reliability has a major impact on customer's perceptions of service quality. Reliability also has an impact on crowding because as reliability declines, buses begin to bunch together creating crowded conditions on some buses and other buses being relatively empty. This chapter provides an analysis of service reliability.

### 4.1 ON-TIME PERFORMANCE

An analysis of Connecticut Avenue and Mount Pleasant Lines schedule adherence (on-time performance) was conducted using Timepoint Running Time data for June 2017 to present an illustration of schedule adherence along the lines. Overall, data reflects the on-time performance of these two lines throughout the entire June 2017 schedule period for weekdays, Saturday, and Sunday.

WMATA's new definition of schedule adherence considers a bus "on-time" when it arrives zero minutes early to five minutes late. On-time performance should not be less than 79 percent of all daily trips (as measured at all timepoints) for all Metrobus Line Classifications. **Table 4-1** shows the percentage of trips that arrived on-time for northbound and southbound service on Routes L1/L2, which comprise the Connecticut Avenue Line, and Routes 42/43, which comprise the Mount Pleasant Line. According to the data collected, on-time performance is a concern for these lines, as there is a high percent of early and late trips.

**Table 4-1 | On-Time Performance by Route and Schedule Period, March 2017**

Route		Weekday			Saturday			Sunday		
		Early	On-Time	Late	Early	On-Time	Late	Early	On-Time	Late
<b>Mount Pleasant Line</b>										
42	North	5.3%	73.6%	21.1%	4.9%	81.4%	13.7%	4.1%	80.4%	15.4%
	South	4.6%	76.6%	18.9%	9.4%	81.4%	9.2%	3.8%	83.7%	12.5%
43	North	1.0%	47.5%	51.5%	-	-	-	-	-	-
	South	3.2%	83.1%	13.8%	-	-	-	-	-	-
<b>Connecticut Avenue Line</b>										
L1	North	8.2%	49.6%	42.2%	-	-	-	-	-	-
	South	7.6%	76.9%	15.5%	-	-	-	-	-	-
L2	North	3.6%	77.2%	19.3%	9.7%	78.2%	12.1%	4.8%	89.0%	6.2%
	South	4.3%	78.1%	17.6%	4.2%	80.0%	15.8%	5.4%	83.0%	11.5%

Source: WMATA On-time Performance Report March 2017

The analysis of on-time performance by block is presented in **Table 4-2**. This table shows that, on weekdays, the blocks that have the lowest on-time performance are blocks that are less than five hours long. The block that has the highest on-time performance is five hours and twenty minutes long. The block with the lowest on-time performance is four hours and twenty minutes long. On weekends, most blocks on-time performance is better than 70 percent. This shows that shorter blocks that operate during peak periods tend to have lower on-time performance than longer all-day blocks that operate during some periods when there is less traffic.

**Table 4-2 | On-Time Performance by Block**

Block Number	Route(s)	Division	Total Block Length (Hours)	Percent On-Time	Percent Early	Percent Late
<b>Weekday</b>						
W-400	42/43	Western	17:30	75.15%	6.78%	18.07%
W-401	42/43	Western	5:21	98.16%	0.67%	1.17%
W-402	42/43	Western	4:56	94.65%	--	5.35%
W-407	42/43	Western	14:22	73.88%	4.77%	21.35%
W-406	42/43	Western	3:18	81.97%	11.57%	6.46%
W-409	42/43	Western	12:35	73.60%	6.42%	19.98%
W-410	42/43	Western	2:50	82.82%	6.13%	11.04%
W-412	42/43	Western	12:11	73.51%	5.37%	21.12%
W-413	42/43	Western	13:06	88.29%	1.34%	10.37%
W-414	42/43	Western	2:56	78.70%	3.00%	18.30%
W-416	42/43	Western	1:53	77.83%	--	22.17%
W-417	42/43	Western	2:36	52.00%	--	48.00%
W-427	42/43	Western	5:40	84.58%	0.71%	14.72%
W-428	42/43	Western	4:27	74.67%	2.17%	23.17%
W-430	42/43	Western	4:22	93.65%	0.78%	5.57%
W-431	42/43	Western	4:57	94.34%	1.00%	4.66%
W-432	42/43	Western	5:43	89.67%	1.00%	9.33%
W-433	42/43	Western	3:45	86.83%	0.67%	12.50%
W-420	42/43	Western	5:17	63.63%	5.43%	30.94%
W-421	42/43	Western	7:34	49.58%	0.83%	49.58%
W-422	42/43	Western	4:20	34.00%	--	66.00%
W-424	42/43	Western	3:34	43.92%	0.81%	55.27%
W-426	42/43	Western	3:09	36.67%	0.50%	62.83%
W-425	42/43	Western	8:19	72.65%	3.14%	24.20%
B-445	42/43	Bladensburg	2:11	43.08%	2.51%	54.40%
B-446	42/43	Bladensburg	2:58	65.50%	1.75%	32.75%
BX-54	42/43	Bladensburg	N/A	53.11%	--	46.89%
W-415	42/43	Western	N/A	81.00%	--	19.00%
B-850	42/43	Bladensburg	N/A	68.55%	9.65%	21.80%
B-440	42/43	Bladensburg	N/A	83.18%	9.39%	7.43%



Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Block Number	Route(s)	Division	Total Block Length (Hours)	Percent On-Time	Percent Early	Percent Late
B-441	42/43	Bladensburg	N/A	73.78%	1.22%	25.00%
W-411	42/43	Western	N/A	71.96%	2.54%	25.50%
W-403	42/43	Western	N/A	77.22%	3.05%	19.73%
W-423	42/43	Western	3:36	63.18%	3.85%	32.97%
WL-18	L1/2	Western	2:30	57.75%	6.83%	35.42%
WL-16	L1/2	Western	3:04	52.71%	1.25%	46.04%
WL-15	L1/2	Western	2:16	71.26%	6.08%	22.66%
WL-20	L1/2	Western	2:20	43.78%	10.60%	45.62%
WL-17	L1/2	Western	2:21	44.43%	3.15%	52.42%
WL-22	L1/2	Western	1:30	38.67%	4.44%	56.89%
WL-19	L1/2	Western	3:15	76.94%	2.06%	21.00%
WL-21	L1/2	Western	1:35	69.42%	9.75%	20.83%
WL-01	L1/2	Western	4:21	89.66%	7.36%	2.98%
WL-02	L1/2	Western	4:21	79.38%	14.31%	6.31%
WL-03	L1/2	Western	4:17	84.57%	14.10%	1.33%
WL-04	L1/2	Western	19:31	89.97%	8.31%	1.72%
WL-05	L1/2	Western	3:01	77.14%	22.00%	0.86%
WL-06	L1/2	Western	13:44	92.86%	5.43%	1.71%
WL-07	L1/2	Western	3:04	86.03%	12.57%	1.40%
WL-08	L1/2	Western	11:36	77.78%	--	22.22%
WL-09	L1/2	Western	1:23	97.57%	1.57%	0.86%
WL-10	L1/2	Western	1:26	96.85%	--	3.15%
WL-11	L1/2	Western	1:52	89.29%	1.14%	9.57%
WL-12	L1/2	Western	16:34	76.39%	0.29%	23.32%
WL-13	L1/2	Western	10:56	49.07%	--	50.93%
<b>Saturday</b>						
W-400	42	Western	15:22	81.00%	7.19%	11.81%
W-401	42	Western	18:41	80.00%	20.00%	--
W-402	42	Western	18:02	91.67%	8.33%	--
W-403	42	Western	13:30	79.17%	8.33%	12.50%
W-404	42	Western	16:25	85.17%	3.67%	11.17%
W-405	42	Western	9:59	83.33%	16.67%	--

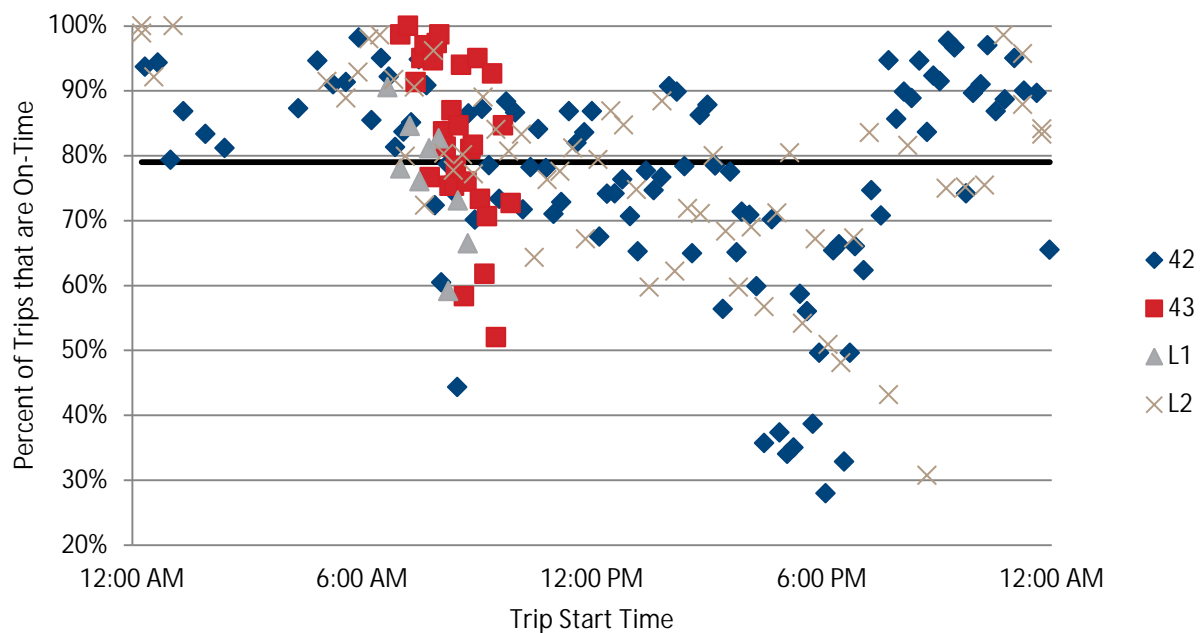
Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Block Number	Route(s)	Division	Total Block Length (Hours)	Percent On-Time	Percent Early	Percent Late
W-406	42	Western	7:30	88.17%	9.50%	2.33%
W-407	42	Western	7:22	88.83%	--	11.17%
W-409	42	Western	5:06	96.64%	--	3.36%
W-408	42	Western	4:59	46.62%	--	53.38%
WL-05	L2	Western	11:13	85.70%	6.67%	7.62%
WL-01	L2	Western	8:52	80.77%	6.36%	12.87%
WL-02	L2	Western	13:32	74.29%	10.00%	15.71%
WL-03	L2	Western	14:18	76.73%	2.17%	21.10%
WL-04	L2	Western	12:58	84.43%	5.14%	10.43%
WL-06	L2	Western	11:37	72.16%	8.93%	18.91%
WL-07	L2	Western	4:52	87.78%	6.67%	5.56%
WL-09	L2	Western	5:22	91.58%	5.65%	2.77%
WN-05	L2	Western	2:29	65.91%	6.82%	27.27%
<b>Sunday</b>						
W-400	42	Western	19:52	83.02%	5.06%	11.92%
W-401	42	Western	17:28	72.88%	16.64%	10.48%
W-402	42	Western	13:50	72.88%	14.64%	12.48%
W-403	42	Western	19:09	90.82%	3.67%	5.51%
W-404	42	Western	5:28	97.84%	--	2.16%
WL-02	L2	Western	8:56	86.14%	8.93%	4.93%
WL-01	L2	Western	12:30	87.36%	7.36%	5.27%
WL-03	L2	Western	9:40	90.84%	4.72%	4.44%
WL-04	L2	Western	13:45	100.00%	--	--
WL-05	L2	Western	9:24	86.71%	--	13.29%
WL-06	L2	Western	9:03	92.29%	--	7.71%

Source: WMATA Headway Sheets June 2017

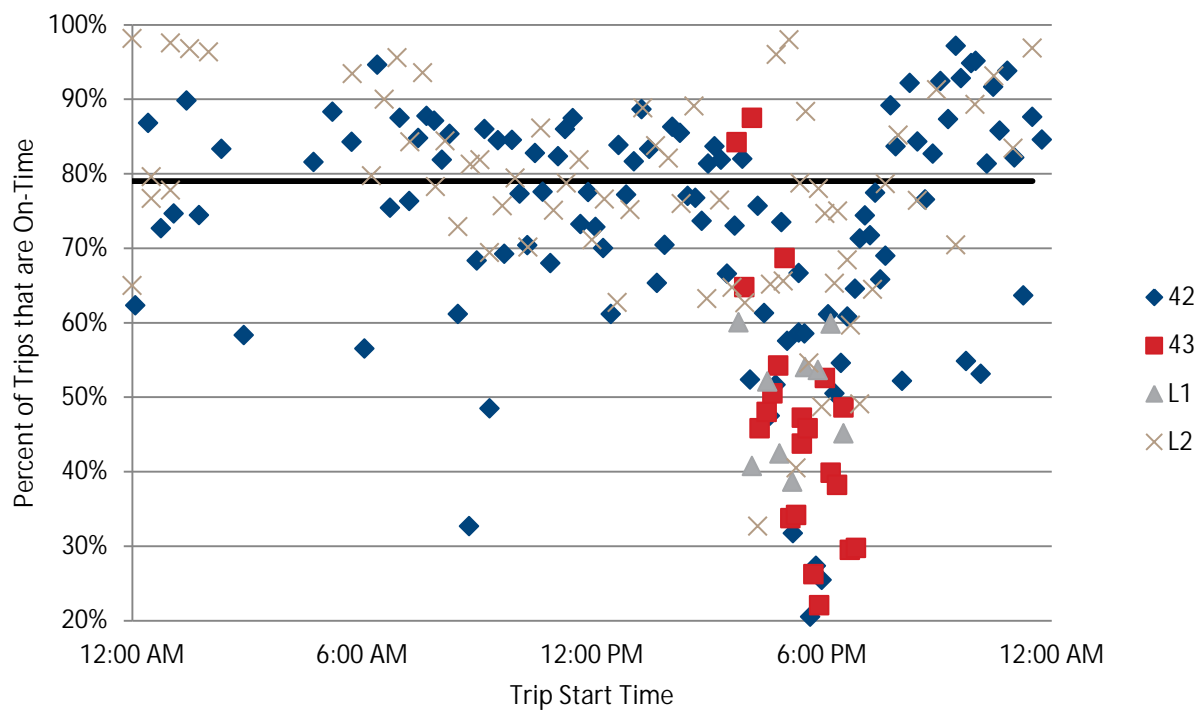
On-time performance by trip is presented in **Figure 4-1** through **Figure 4-6**. **Figure 4-1** shows the on-time performance on weekdays in the southbound direction which shows that during the AM and PM peak periods on-time performance is lower than other times. The northbound, presented in **Figure 4-2**, shows a similar pattern to the southbound direction; however, the overall performance of the AM peak is better in the northbound direction compared to the PM peak in the southbound direction. The weekend on-time performance by trip shows no distinct pattern of time of day variation in on-time performance.

**Figure 4-1 | On-Time Performance, Weekday Southbound**



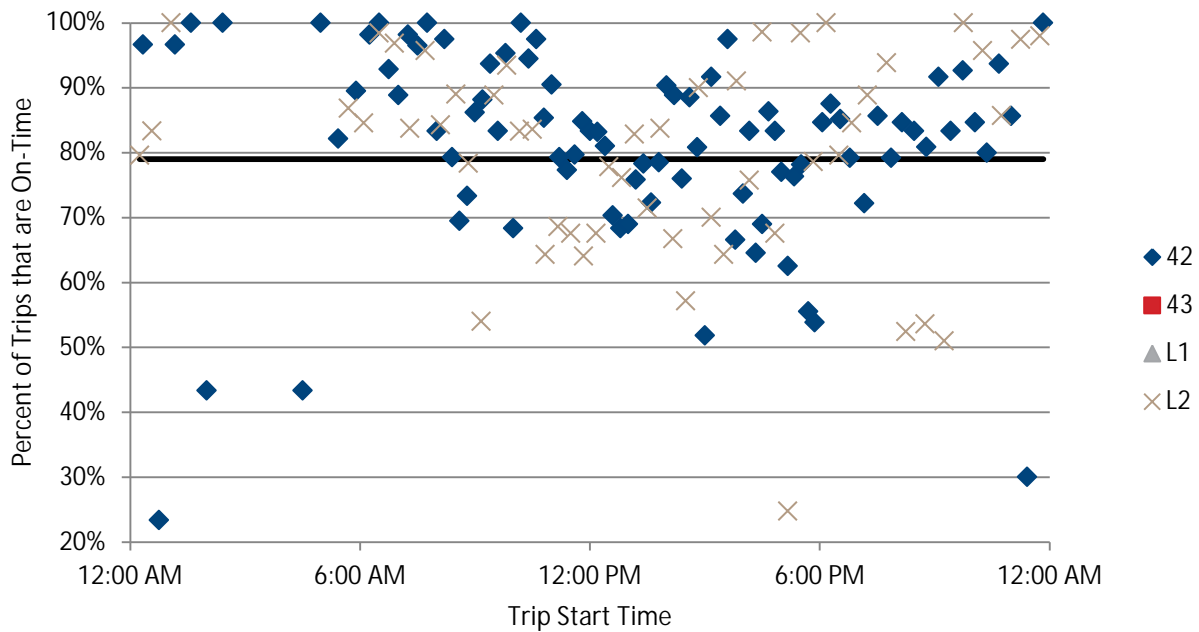
Source: WMATA On-time Performance Report March 2017

**Figure 4-2 | On-Time Performance, Weekday Northbound**



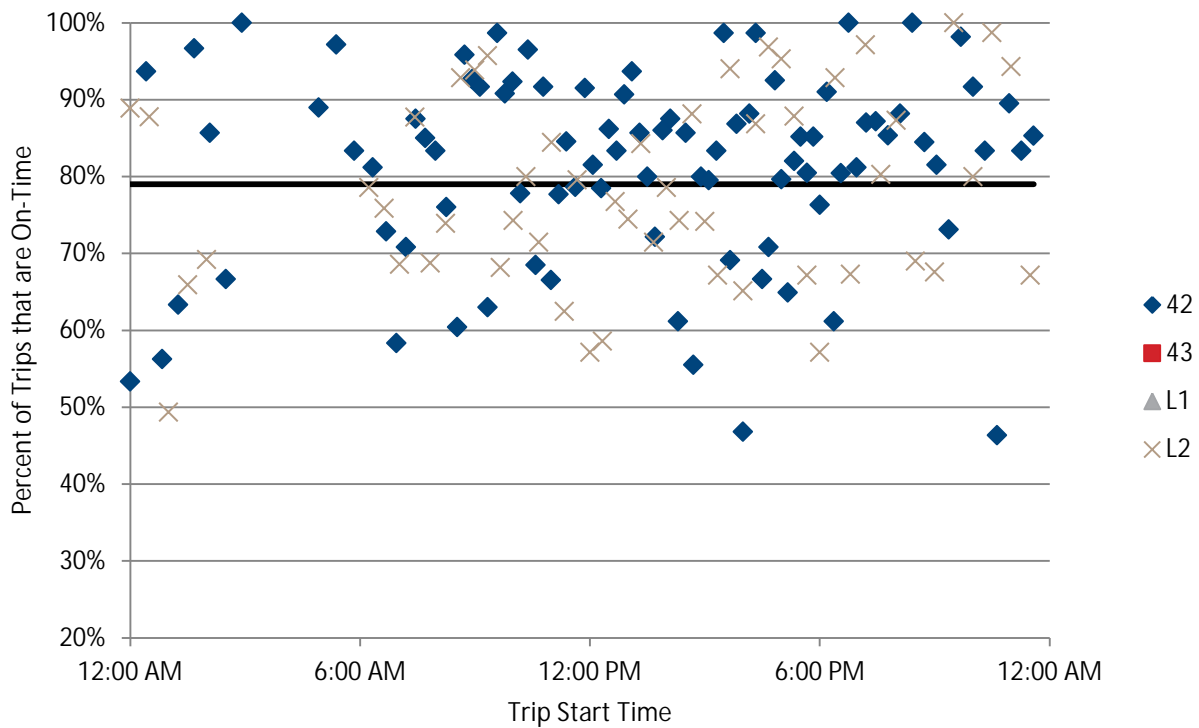
Source: WMATA On-time Performance Report March 2017

**Figure 4-3 | On-Time Performance, Saturday Southbound**



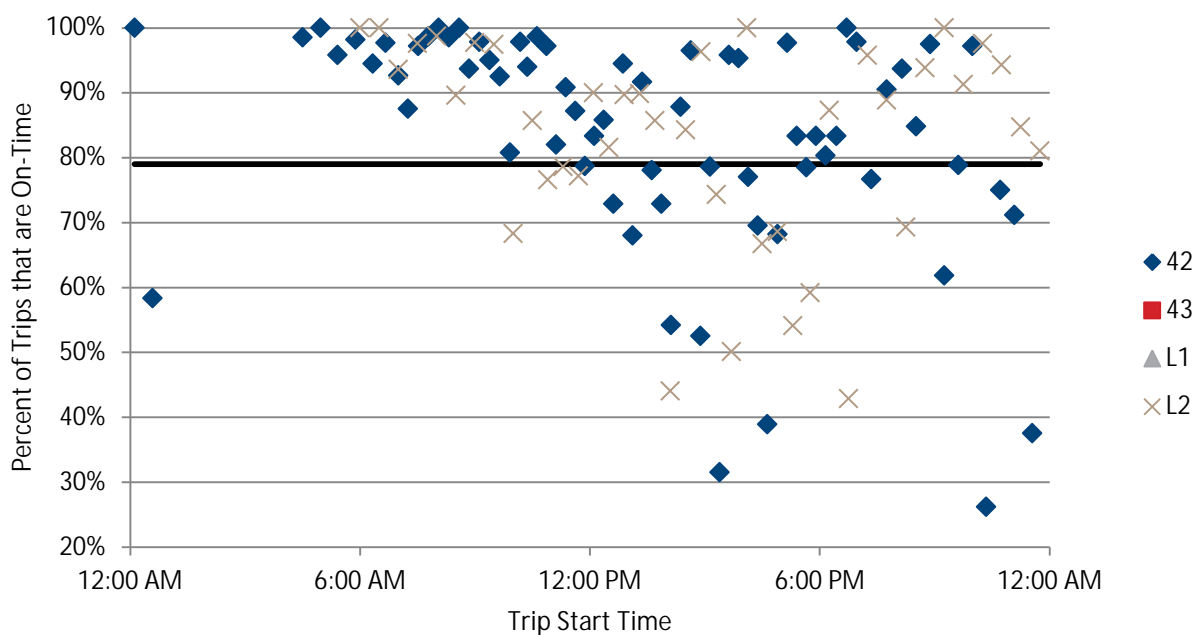
Source: WMATA On-time Performance Report March 2017

**Figure 4-4 | On-Time Performance, Saturday Northbound**



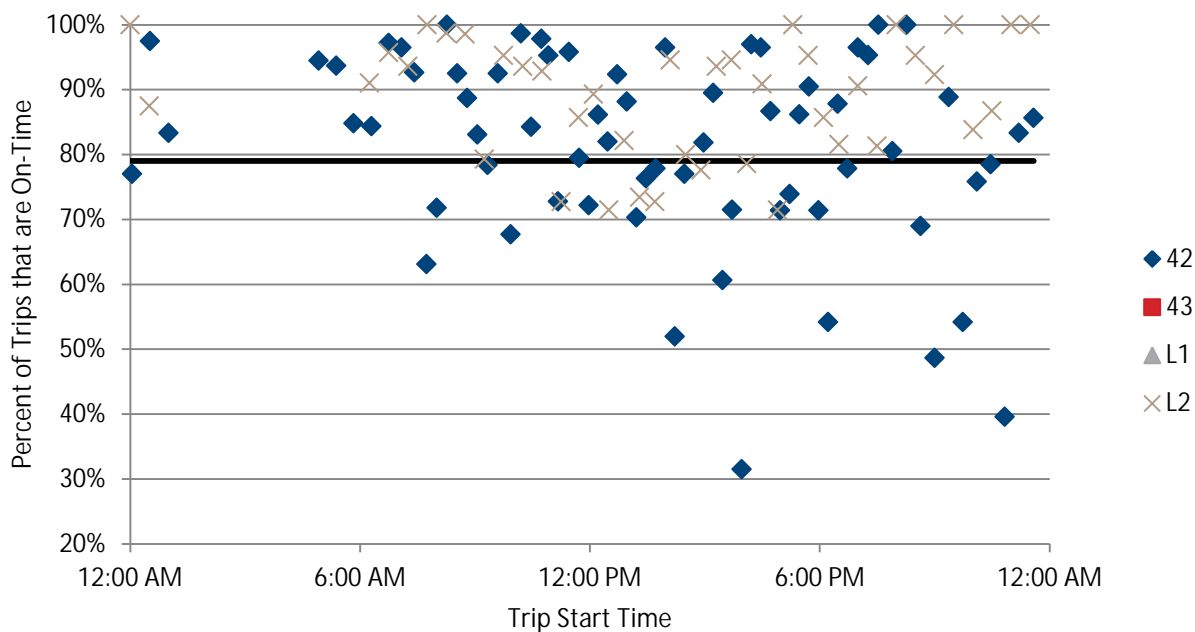
Source: WMATA On-time Performance Report March 2017

**Figure 4-5 | On-Time Performance, Sunday Southbound**



Source: WMATA On-time Performance Report March 2017

**Figure 4-6 | On-Time Performance, Sunday Northbound**



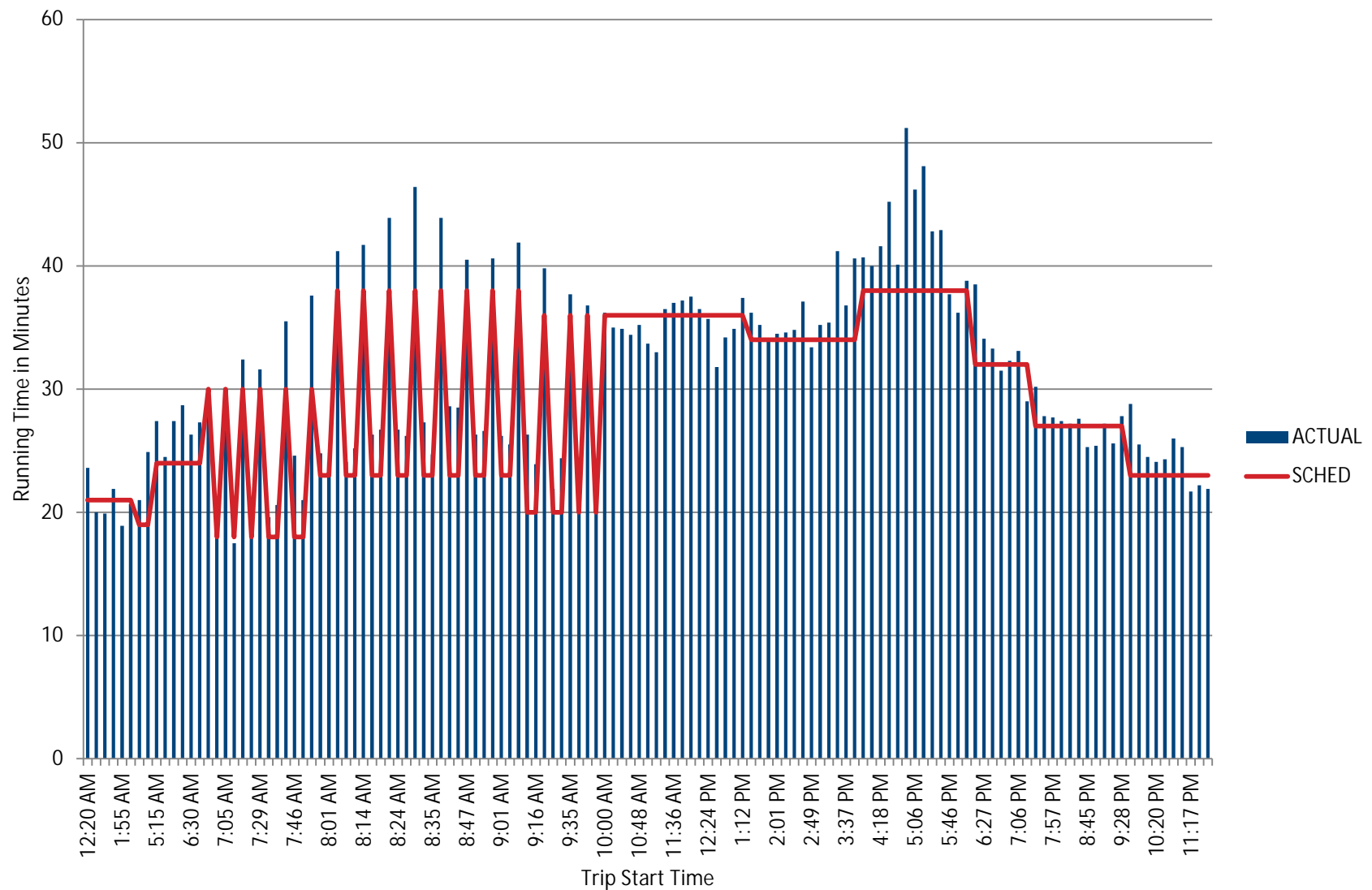
Source: WMATA On-time Performance Report March 2017



## 4.2 SCHEDULED VERSUS ACTUAL RUN TIME

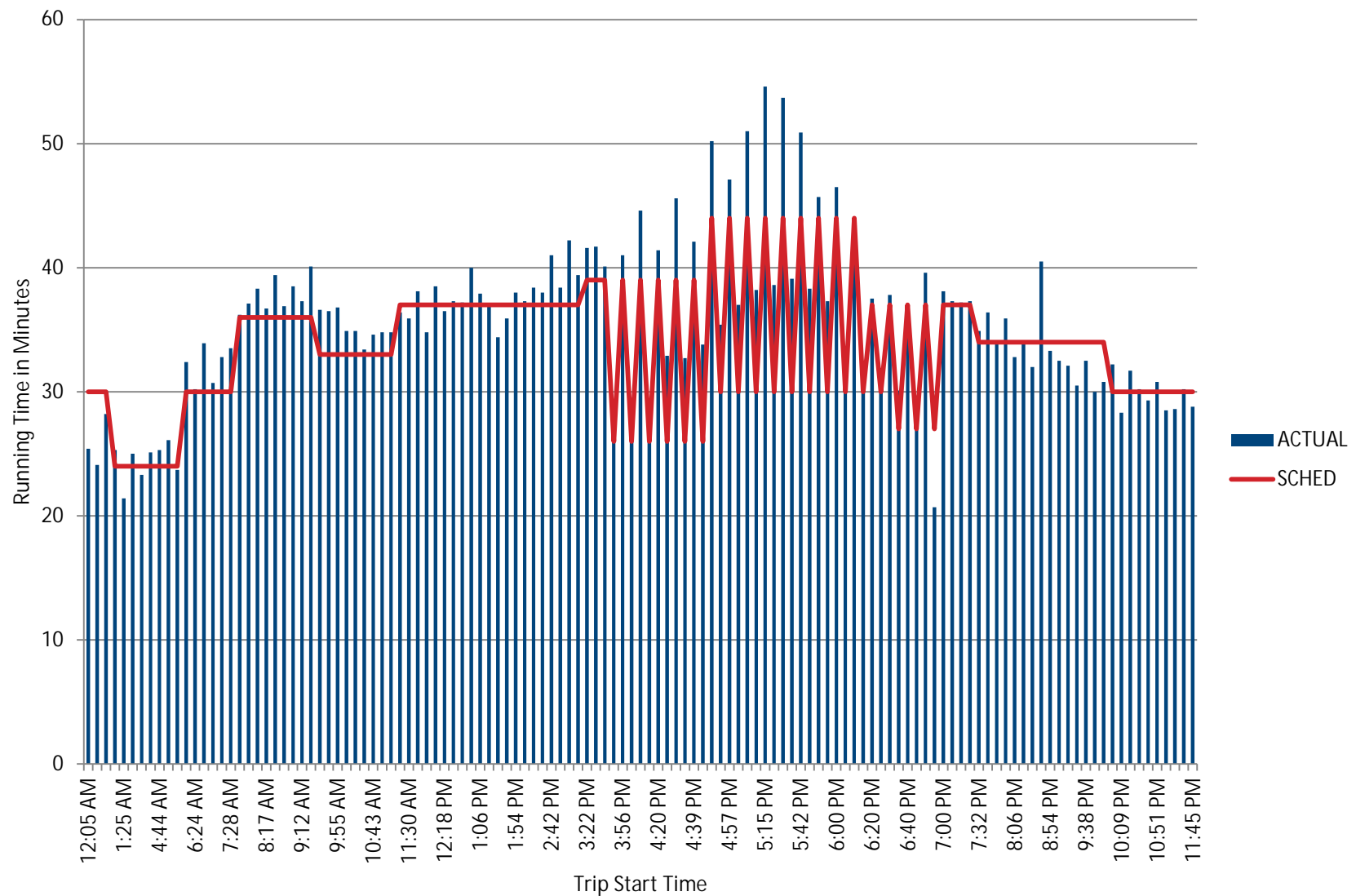
The scheduled run time versus actual run time was analyzed for weekdays only. This analysis compares the actual running time with the schedule to determine if running time is sufficient. Insufficient running time is a common cause of low on-time performance rates. The analysis is presented in **Figure 4-7** through **Figure 4-10**. These figures show that there are running time issues during peak periods but overall during off-peak periods throughout the day running time is sufficient. The data includes peak period short trips on the Northbound L2 during weekdays that operate between Van Ness-UDC Metro station and Chevy Chase Circle.

Figure 4-7 | Mount Pleasant Line, Southbound Scheduled Running Time versus Actual Running Time



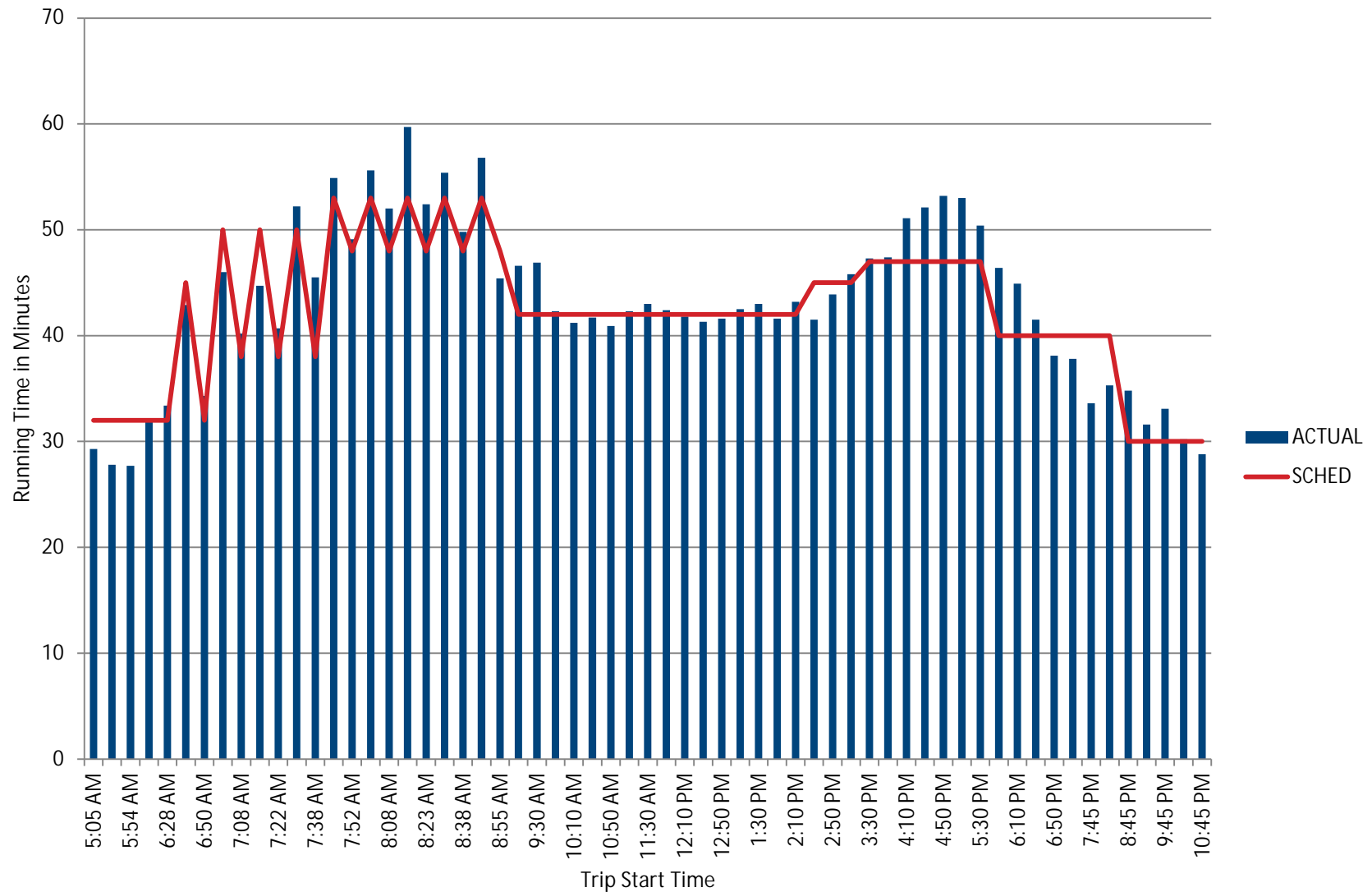
Source: WMATA On-time Running Time Report March 2017

Figure 4-8 | Mount Pleasant Line, Northbound Scheduled Running Time versus Actual Running Time



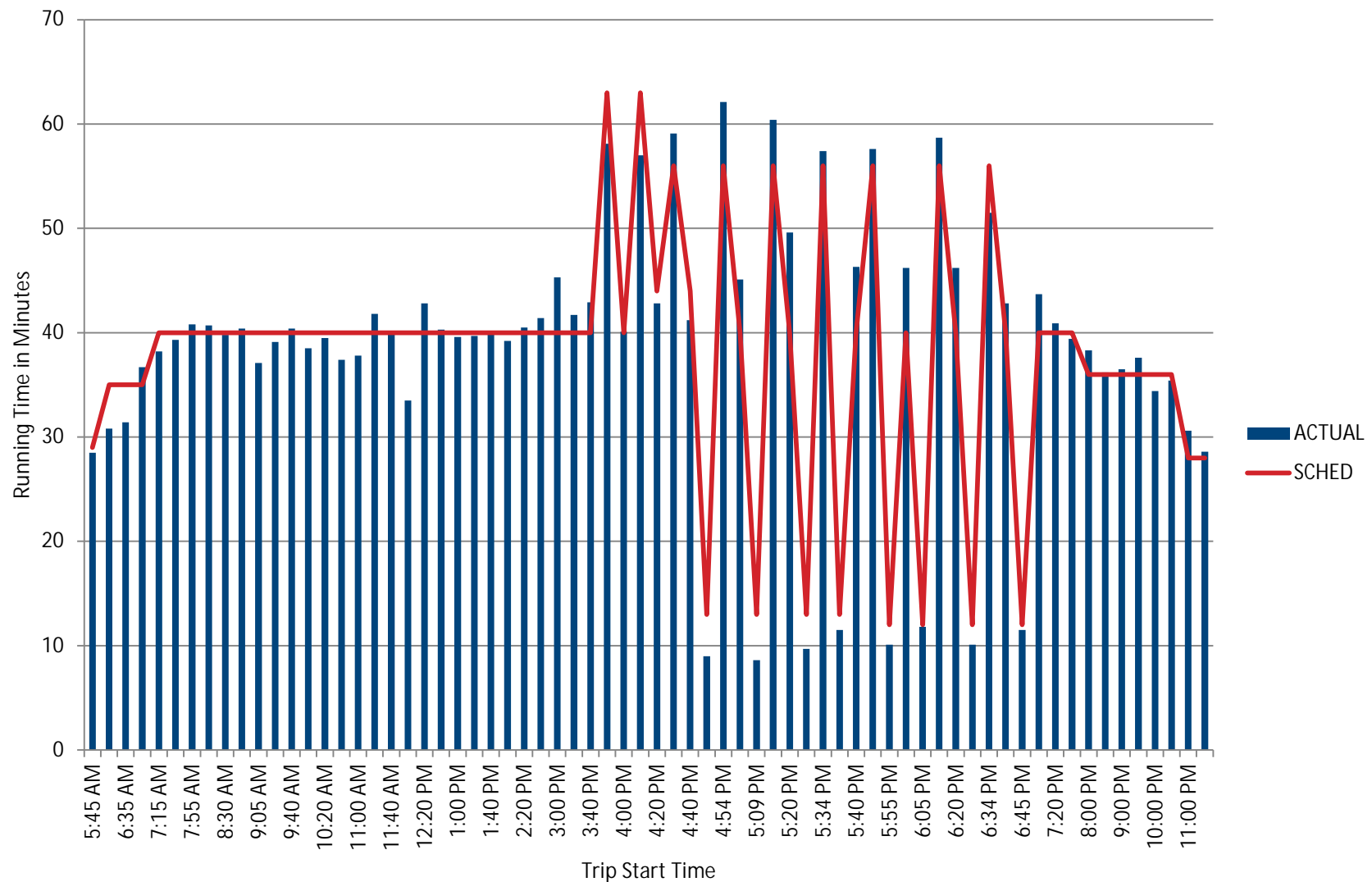
Source: WMATA On-time Running Time Report March 2017

**Figure 4-9 | Connecticut Avenue Line, Southbound Scheduled Running Time versus Actual Running Time**



Source: WMATA On-time Running Time Report March 2017

Figure 4-10 | Connecticut Avenue Line, Northbound Scheduled Running Time versus Actual Running Time



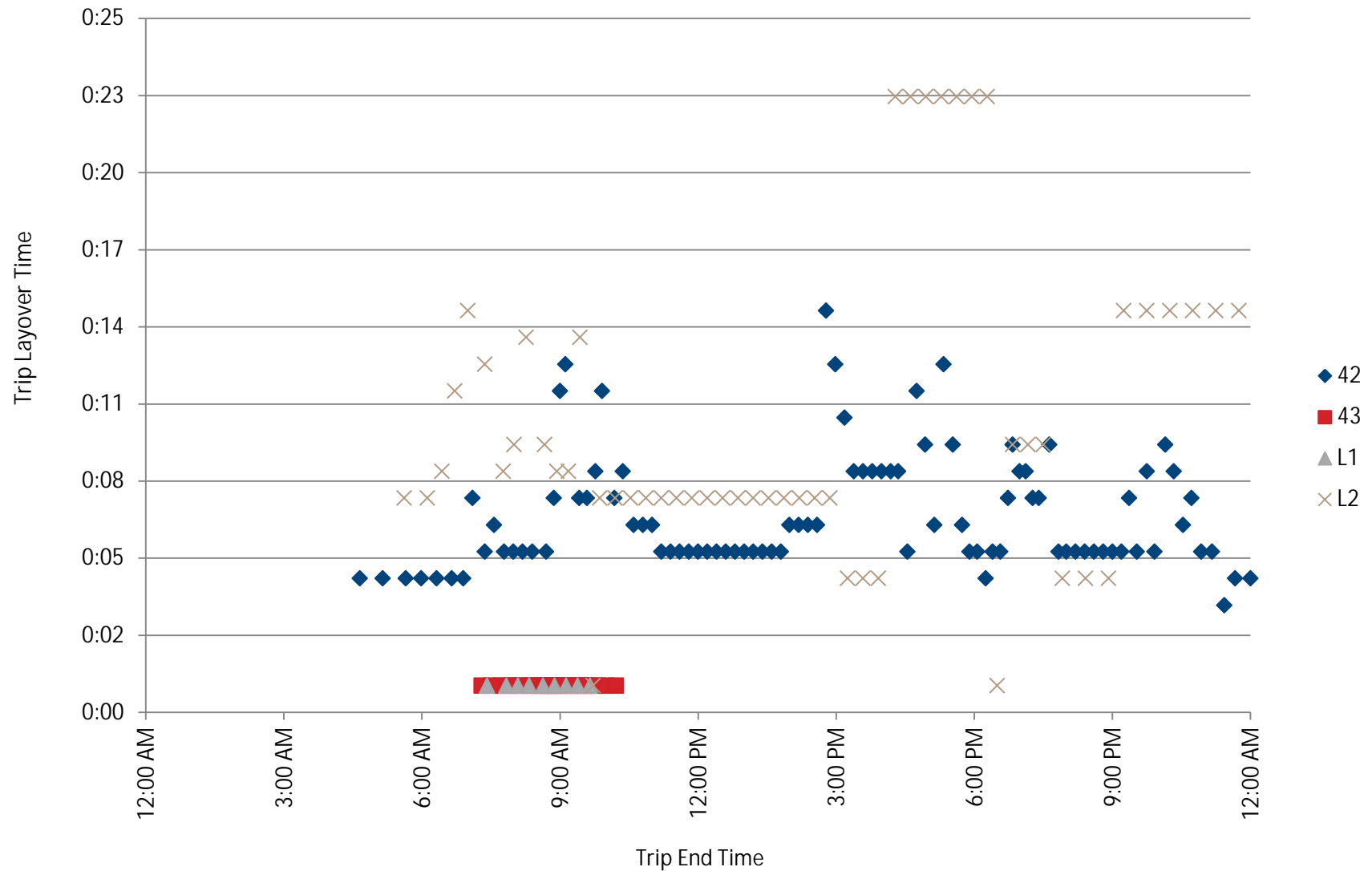
Source: WMATA On-time Running Time Report March 2017

### 4.3 LAYOVER TIME

Layover time serves two purposes: for recovery time to provide late buses with the opportunity to catch up to the schedule and to allow bus operators to have a break between trips. The amount of layover time is a function of the driver contract and scheduling to determine the appropriate layover time by time of day. The amount of layover time on the Mount Pleasant and Connecticut Avenue Lines is presented in **Figure 4-11** through **Figure 4-16**. Layovers range from one minute to 26 minutes. These figures show that layover times correspond with the length of the trip. The peak period/peak direction trips have very short layover times because they deadhead to another location after their trip in most instances. It is likely that some of the longer layovers are operator meal breaks.

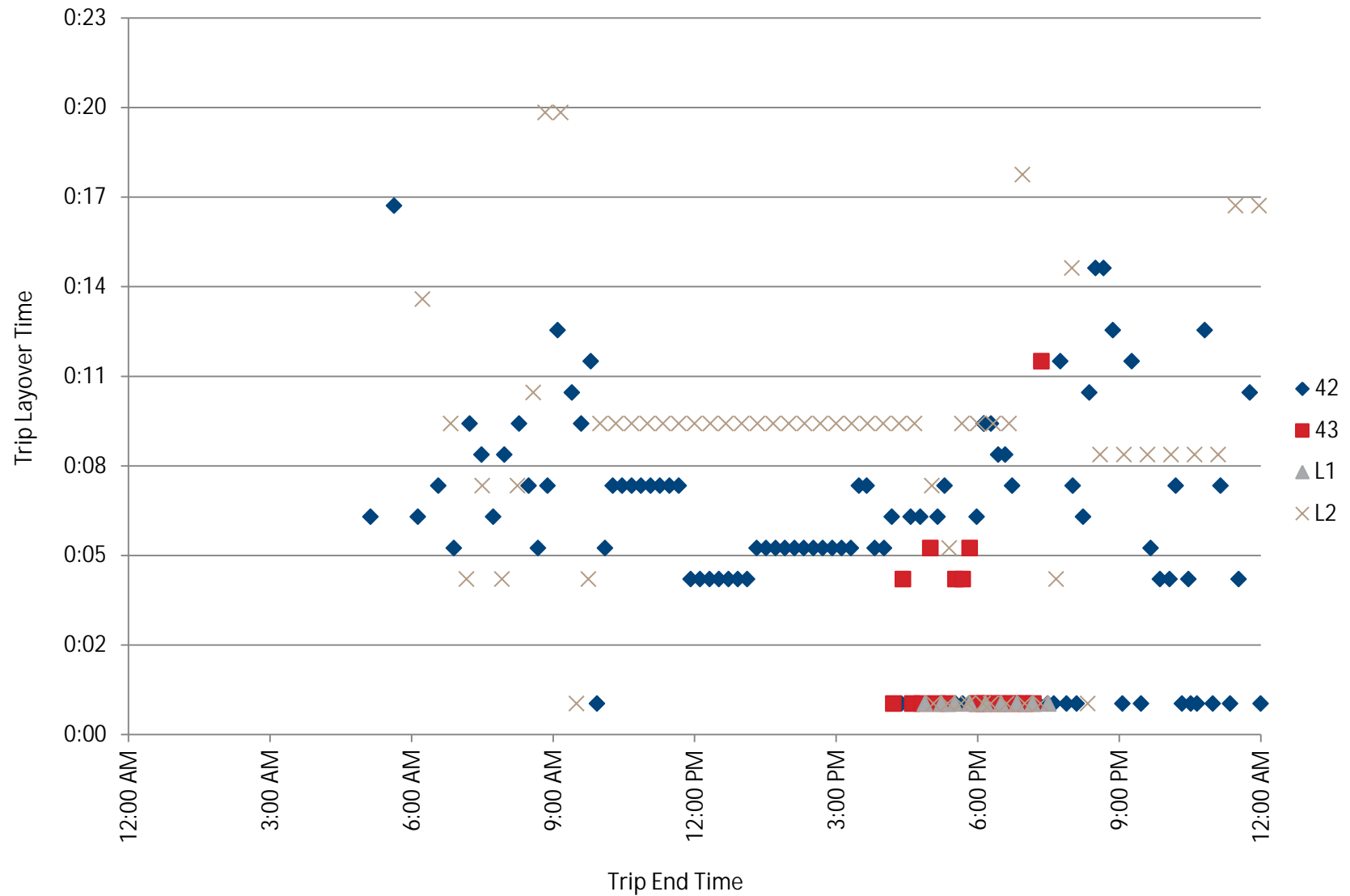


Figure 4-11 | Mount Pleasant and Connecticut Avenue Lines, Weekday Southbound Layover Time



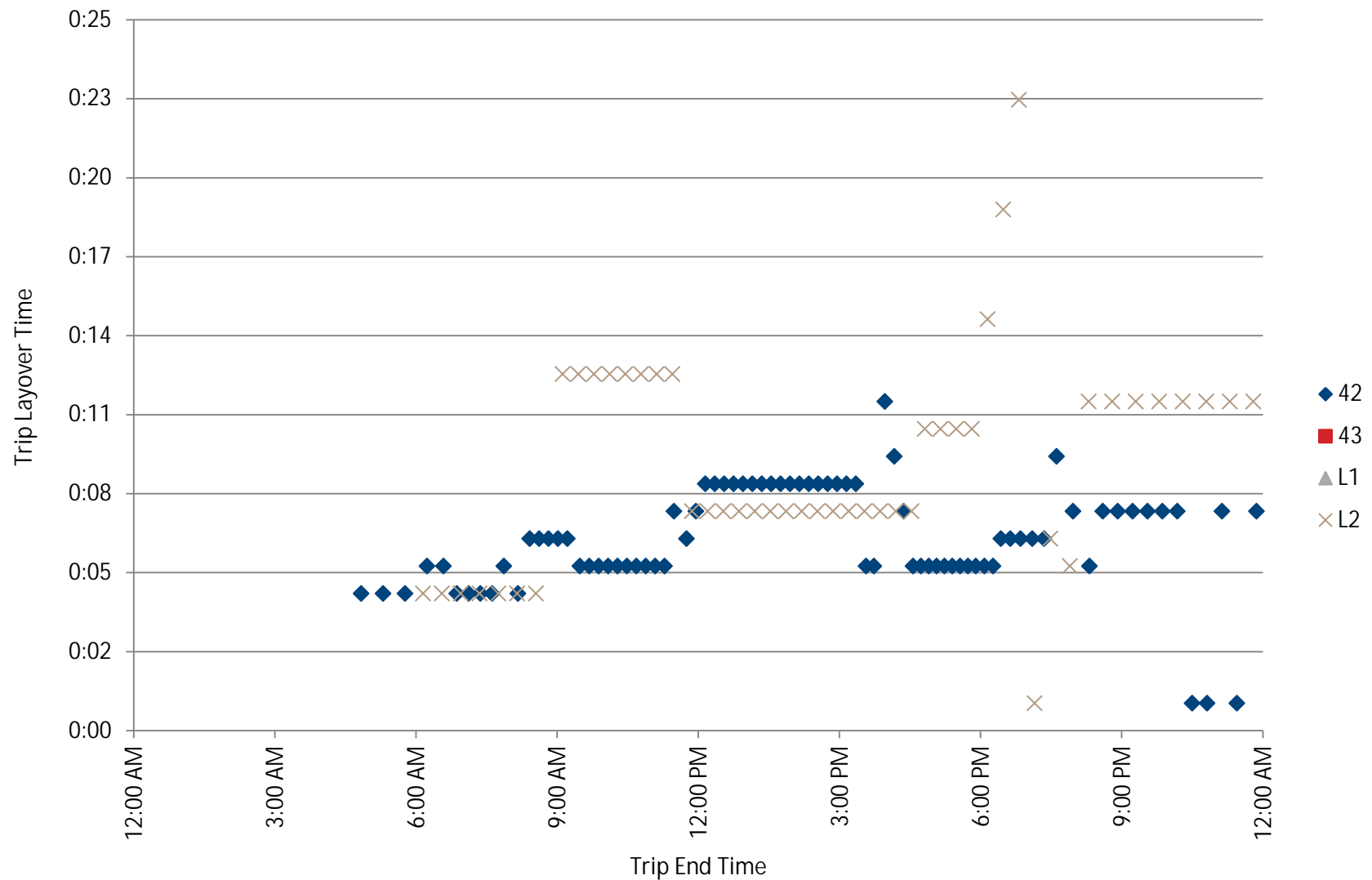
Source: WMATA headway sheets June 2017

**Figure 4-12 | Mount Pleasant and Connecticut Avenue Lines, Weekday Northbound Layover Time**



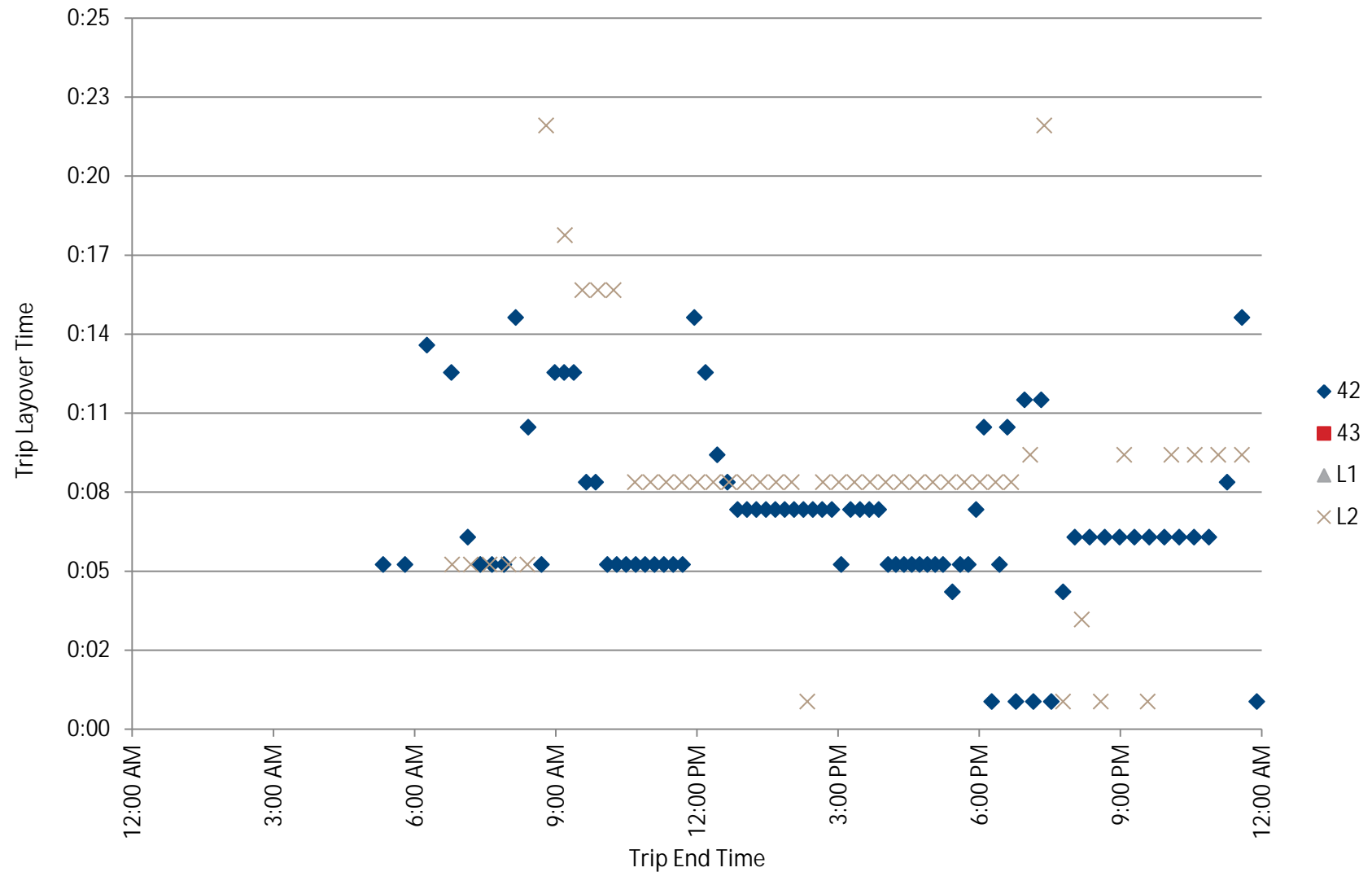
Source: WMATA headway sheets June 2017

**Figure 4-13 | Mount Pleasant and Connecticut Avenue Lines, Saturday Southbound Layover Time**



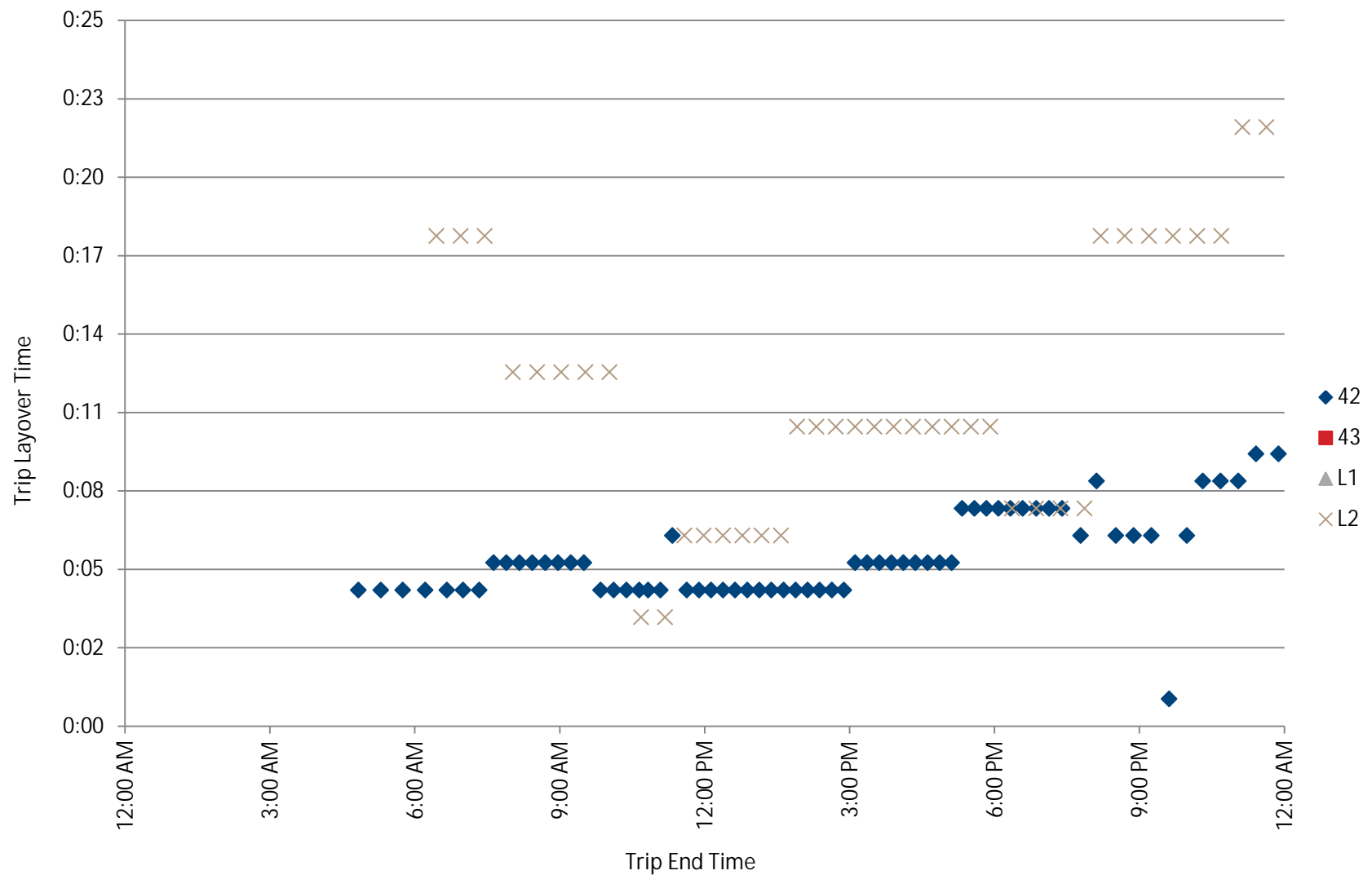
Source: WMATA headway sheets June 2017

**Figure 4-14 | Mount Pleasant and Connecticut Avenue Lines, Saturday Northbound Layover Time**



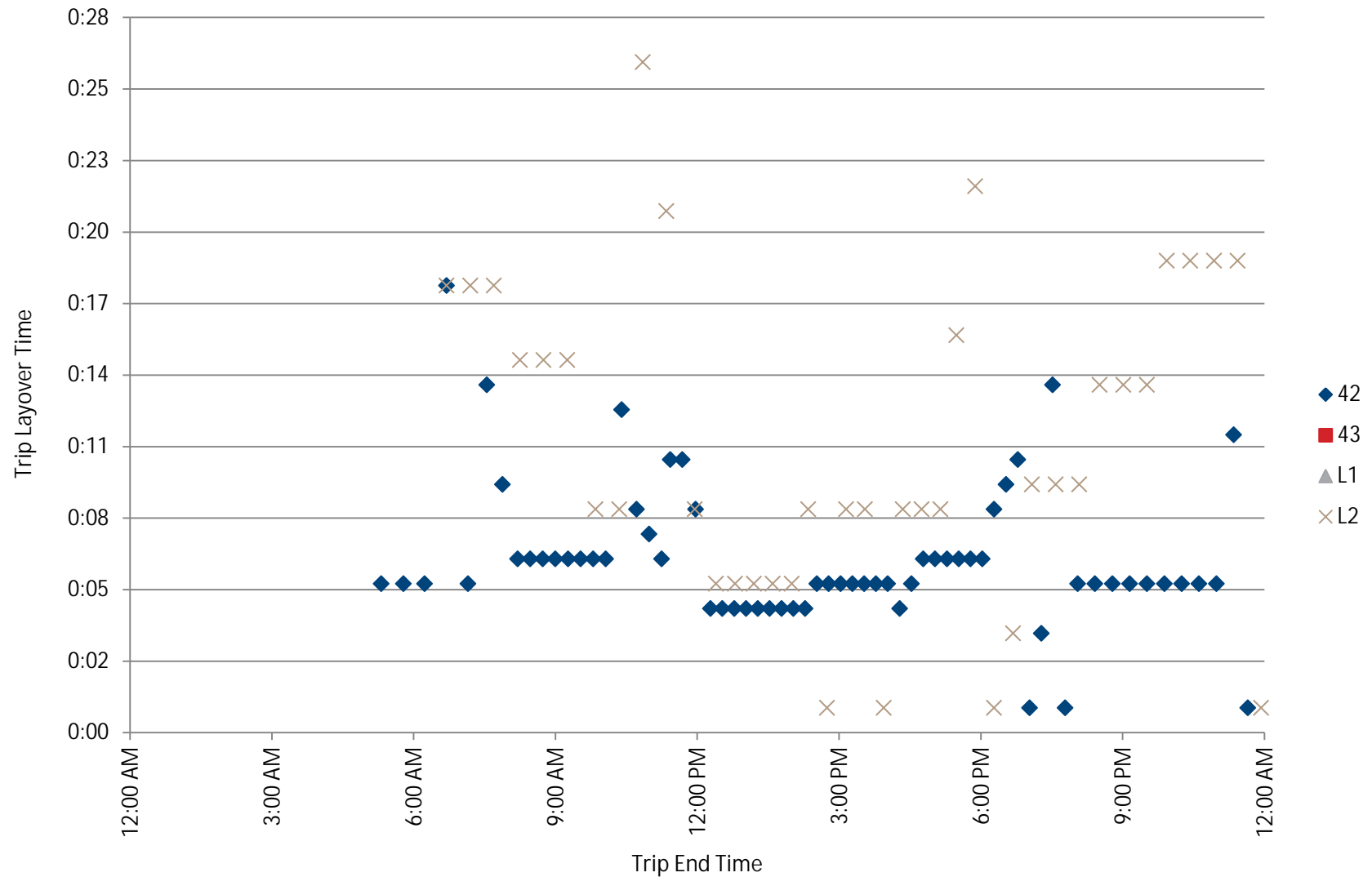
Source: WMATA headway sheets June 2017

**Figure 4-15 | Mount Pleasant and Connecticut Avenue Lines, Sunday Southbound Layover Time**



Source: WMATA headway sheets June 2017

Figure 4-16 | Mount Pleasant and Connecticut Avenue Lines, Sunday Northbound Layover Time



Source: WMATA headway sheets June 2017



## 4.4 REVENUE AND NON-REVENUE HOURS AND MILES

The analysis of hours and miles is presented in **Table 4-3**. This table presents the total platform and revenue hours and miles along with a ratio of revenue hours to platform hours. This takes into account driver pay hours and deadhead time/mileage. A low ratio means that there is very little deadhead time and a high ratio means that there are a lot of long deadheads, as compared to the amount of service being provided.

**Table 4-3 | Hours and Miles Analysis**

Route	Day	Hours			Miles		
		Platform	Revenue	Ratio	Platform	Revenue	Ratio
Mount Pleasant Line							
42	Weekday	168.75	140.48	1.20	1,068.19	723.31	1.49
	Saturday	120.15	112.65	1.07	728.98	623.58	1.17
	Sunday	82.45	78.87	1.05	529.76	479.06	1.11
43	Weekday	28.83	24.0	1.20	208.15	140.04	1.49
Connecticut Avenue Line							
L1	Weekday	22.84	20.12	1.14	142.92	116.40	1.23
L2	Weekday	101.89	89.72	1.14	749.62	610.50	1.23
	Saturday	84.65	81.88	1.03	627.48	588.00	1.07
	Sunday	63.15	61.63	1.02	459.75	443.51	1.04

Source: WMATA Productivity Reports

## 4.5 BUS BUNCHING AND CAUSES

Bus bunching events are more frequent at stops serviced by two bus routes. On both the Mount Pleasant and Connecticut Avenue Lines, bunching is more prevalent along Connecticut Avenue NW between Calvert Street and downtown Washington, D.C. Approximately one-third of buses experience bunching along the Mount Pleasant Line and 20 percent of buses experience bunching along the Connecticut Avenue Line, as shown in **Table 4-4**. These instances increase towards the terminal station along each route.

**Table 4-4 | Summary of Bunching Events and Area of Frequent Occurrence**

Route/Direction	Bunched Events	Total Events	Percentage	Area
<b>Mount Pleasant Line</b>				
42/43 NB	23,037	75,886	30.4%	Connecticut Ave NW + S St NW and Columbia Rd NW + 19 <sup>th</sup> St NW
42/43 SB	22,457	75,619	29.7%	Lamont St NW + Mt Pleasant Ave NW; H St NW + 9 <sup>th</sup> St NW

Route/Direction	Bunched Events	Total Events	Percentage	Area
<b>Connecticut Avenue Line</b>				
L1/L2 NB	12,355	61,721	20.0%	Connecticut Ave NW + Veazey Terr NW (Van Ness-UDC Metro station) and Connecticut Ave NW + McKinley St NW
L1/L2 SB	13,738	68,682	20.0%	23 <sup>rd</sup> St NW + L St NW and 18 <sup>th</sup> St NW + E St NW

Source: AECOM analysis, WMATA AVL Data, October 2017

**Figure 4-17** through **Figure 4-18** present instances of bus bunching along the Mount Pleasant Line during October 2017. Using WMATA AVL data, analysis calculated the time interval between buses at a specific stop. A bus event was flagged as a bunching event if the time interval was less than or equal to 95 percent of the line's schedule headway. On the Mount Pleasant Line, the peak hour bunching threshold is 2:51 minutes; the off-peak hour bunching threshold is 11:24 minutes.

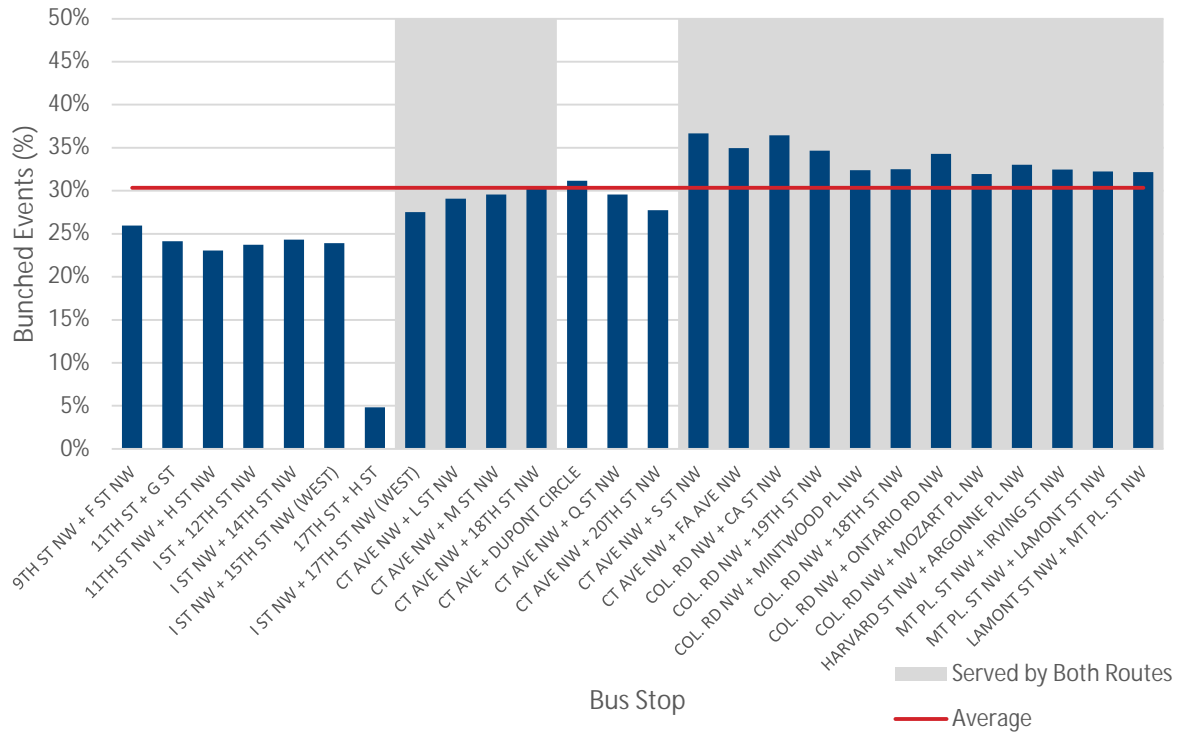
**Figure 4-19** through **Figure 4-20** present instances of bus bunching along the Connecticut Avenue Line during October 2017. Like the Mount Pleasant Line, a bus event was flagged as a bunching event if the time interval was less than or equal to 95 percent of the line's schedule headway. On the Connecticut Avenue Line, the peak hour bunching threshold is 7:07 minutes; off-peak hour bunching threshold is 19:00 minutes.

Grey shading indicates stops serviced by both routes. Stops are sequential for the route direction.

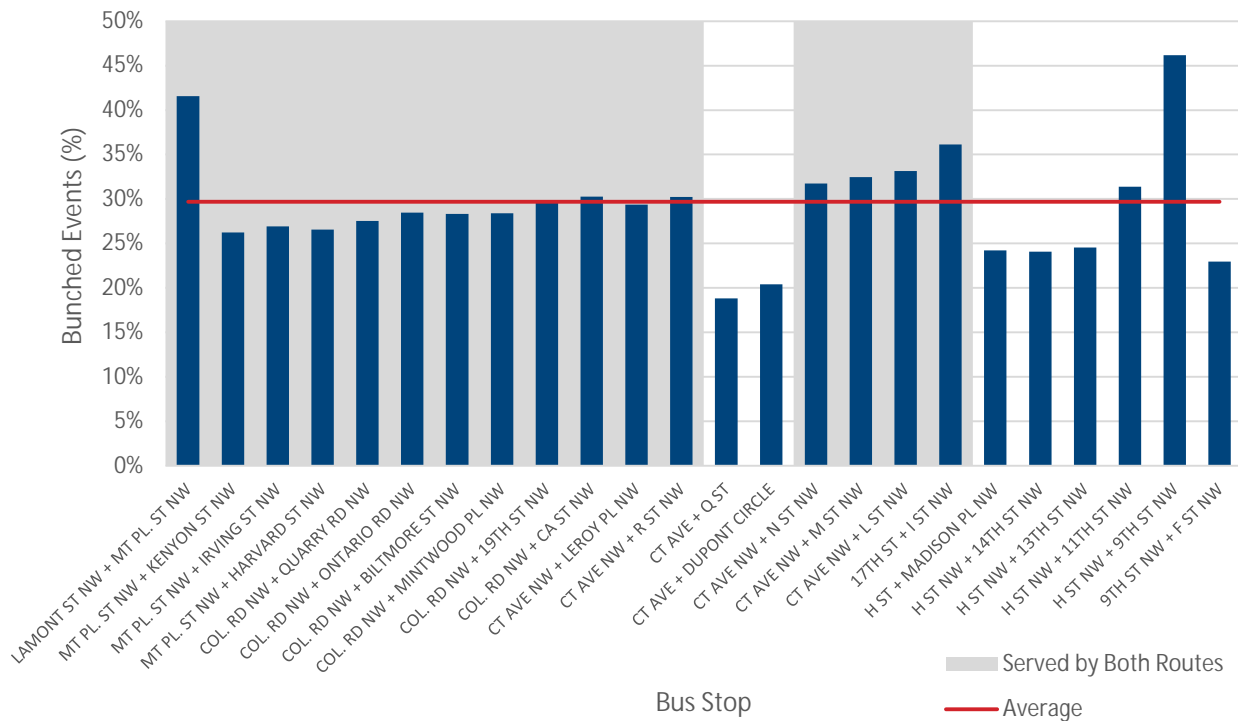
Both the Mount Pleasant Line and Connecticut Avenue Line are subject to bus bunching, particularly during the AM and PM Peak periods. In speaking with bus operators and supervisors, the following factors were determined to be the primary causes of bunching along the routes:

- **Other Vehicles and Obstacles in the Bus Right of Way** – Impediments such as on-street construction, pedestrians, bicycles, illegally parked cars, and delivery trucks are the single biggest impediment to buses being able to move and complete schedules on time. Drivers cite construction along Columbia Road (42, 43), and delivery trucks along both Connecticut Avenue NW in the vicinity of Dupont Circle (42, L2) and near Metro Center (42) as particularly bad areas with high congestion and delays.
- **Crowding at Terminals** – Operators along the Mount Pleasant Line (42, 43) cite a lack of layover space and not having enough room to accommodate buses at the Mount Pleasant terminal. During the week, buses compete with other cars, other vehicles, and the H Lines for space. On weekends, the farmer's market makes it even harder for buses to attain layover and revenue space. Furthermore, crowding at the Farragut Square terminal for buses starting trips (43) as well as buses on existing trips (42) make it difficult for buses to stay on time and keep to posted schedules. One operator lamented that the time it takes him to complete one trip around Farragut Square takes as much time as it would for him to complete half of his posted route.
- **Riders Adding Money to SmarTrip Cards On-Board Buses** – Operators on all lines cite passengers who add money to SmarTrip cards during busy operating periods (i.e. AM and PM peak periods) cause them to have delayed runs and may contribute to bunching along the route. Operators would prefer that riders could board buses with pre-loaded cards to eliminate time spent trying to load cards on buses and speed up the boarding process.

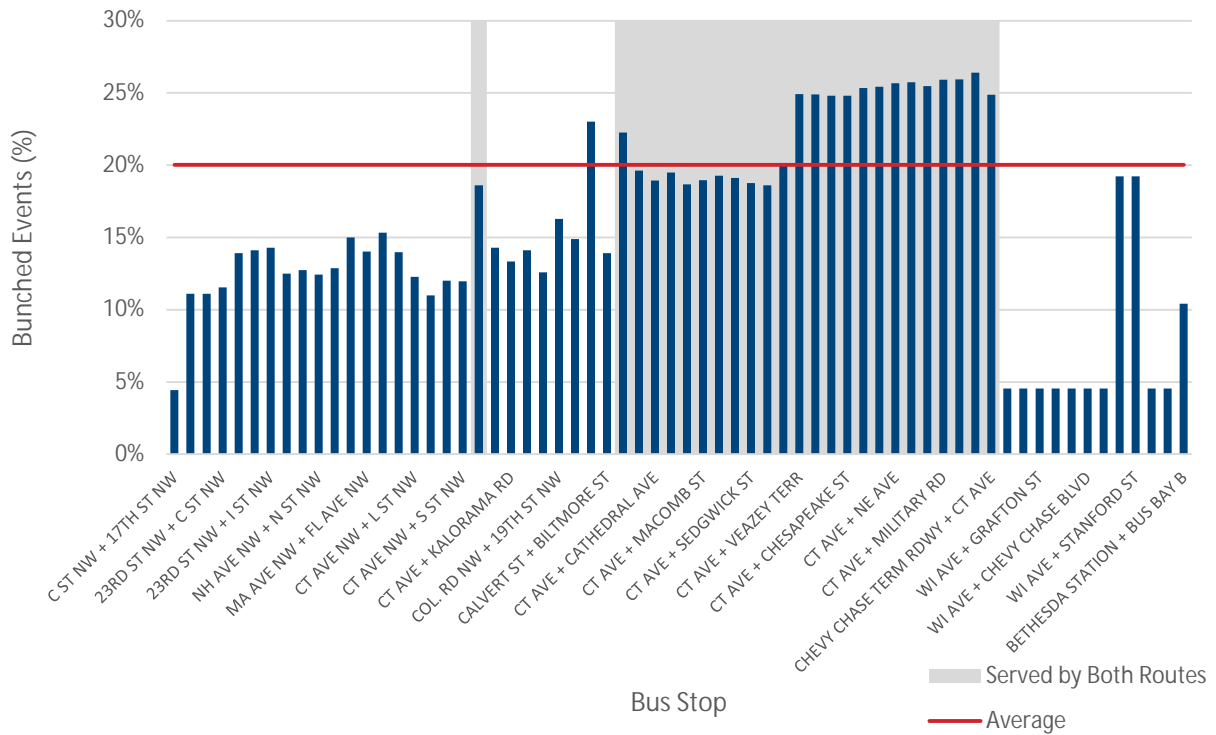
**Figure 4-17 | Mount Pleasant Line NB Bunching, October 2017**



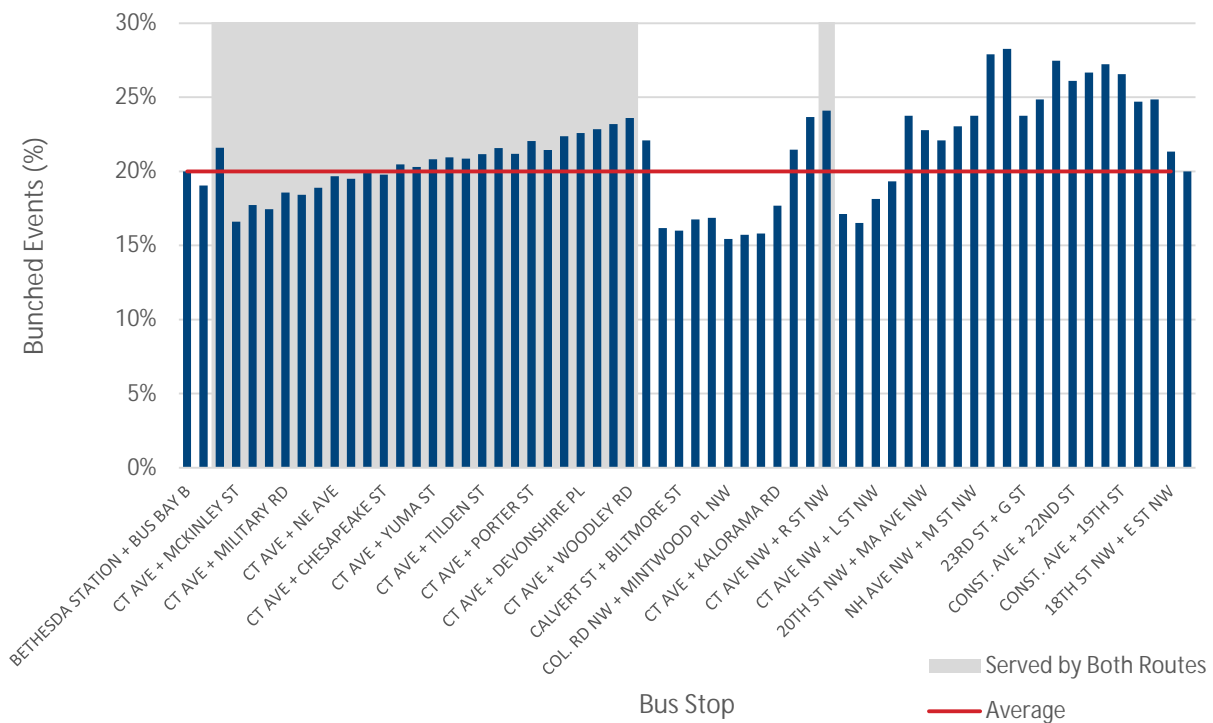
**Figure 4-18 | Mount Pleasant Line SB Bunching, October 2017**



**Figure 4-19 | Connecticut Avenue Line NB Bunching, October 2017**



**Figure 4-20 | Connecticut Avenue Line SB Bunching, October 2017**



## 4.6 LATE TRIPS

Late trips (buses that miss their trips from the posted scheduled times) occur on both the Mount Pleasant and Connecticut Avenue Lines. As was mentioned previously, WMATA's new definition of schedule adherence considers a bus "on-time" when it arrives zero minutes early to five minutes late. On-time performance should not be less than 79 percent of all daily trips (as measured at all timepoints) for all Metrobus Line Classifications. **Table 4-5** below shows the percentage of trips that arrived on-time for northbound and southbound service on Routes L1/L2, which comprise the Connecticut Avenue Line, and Routes 42/43, which comprise the Mount Pleasant Line. According to the data collected, on-time performance is a concern for these lines, as there is a high percentage of early and late trips.

**Table 4-5 | On-Time Performance by Route and Schedule Period, March 2017**

Route		Weekday			Saturday			Sunday		
		Early	On-Time	Late	Early	On-Time	Late	Early	On-Time	Late
<b>Mount Pleasant Line</b>										
42	North	5.3%	73.6%	21.1%	4.9%	81.4%	13.7%	4.1%	80.4%	15.4%
	South	4.6%	76.6%	18.9%	9.4%	81.4%	9.2%	3.8%	83.7%	12.5%
43	North	1.0%	47.5%	51.5%	-	-	-	-	-	-
	South	3.2%	83.1%	13.8%	-	-	-	-	-	-
<b>Connecticut Avenue Line</b>										
L1	North	8.2%	49.6%	42.2%	-	-	-	-	-	-
	South	7.6%	76.9%	15.5%	-	-	-	-	-	-
L2	North	3.6%	77.2%	19.3%	9.7%	78.2%	12.1%	4.8%	89.0%	6.2%
	South	4.3%	78.1%	17.6%	4.2%	80.0%	15.8%	5.4%	83.0%	11.5%

Source: WMATA On-time Performance Report March 2017

Operators and supervisors cited the issues below as being the cause for these buses to have late trips:

- **Current Schedules do Not Reflect Real Time Traffic Conditions** – Operators on both lines complain that bus runs are not long enough, and that the current running times do not account for the amount of real-time traffic along the route. Buses often depart garages early to arrive at their starting locations in order to ensure an on-time departure. Operators have suggested that adding an additional 15 minutes to schedules would help to alleviate scheduling problems.
- **Traffic along Main Arterials and Roadways** – Operators complain that traffic along both Connecticut Avenue NW (42/43, L2) and Columbia Road (42/43) cause significant delays. In particular, operators noted that Connecticut Avenue NW in downtown Washington, D.C. (between K St and Q St NW, including Dupont Circle); Columbia Road between 18<sup>th</sup> St NW and 16<sup>th</sup> St NW; and Connecticut Avenue NW near the University of the District of Columbia are among the most congested areas along these routes that contribute to bus delay. L1 operators also complain that traffic and congestion in the West End, in particular along M St NW, 23<sup>rd</sup> St NW, Washington Circle NW, and near George Washington University Hospital causes bus delay sets drivers behind on schedules.

## 4.7 MISSED TRIPS

Buses generally do not miss trips, although some trips are late due to traffic and congestion along the routes. **Table 4-6** below shows the percentage of trips that were missed on Routes L1/L2, which comprise the Connecticut Avenue Line, and Routes 42/43, which comprise the Mount Pleasant Line. According to the data collected, missed trips are not a concern for these lines, with less than approximately one percent of trips being missed.

**Table 4-6 | Missed Trips, June through November 2017**

Route	Trips Scheduled	Trips Missed	% Missed
<b>Mount Pleasant Line</b>			
<b>42</b>	35,100	277	0.8%
<b>43</b>	6,468	28	0.4%
<b>Connecticut Avenue Line</b>			
<b>L1</b>	2,376	16	0.7%
<b>L2</b>	19,320	118	0.6%
<b>Total</b>	<b>63,264</b>	<b>439</b>	<b>0.7%</b>

Source: WMATA Trips Lost Report June through November 2017

Buses operate safely, although there are sometimes accidents. **Table 4-7** below shows the percentage of accidents that occurred relative to the number of trips that were operated on Routes L1/L2, which comprise the Connecticut Avenue Line, and Routes 42/43, which comprise the Mount Pleasant Line. According to the data collected, accidents are not a concern for these lines, with less than approximately 0.1 percent of trips being impacted.

**Table 4-7 | Bus Accidents, June through November 2017**

Route	Trips Scheduled	Accidents	% Impacted by Accidents
<b>Mount Pleasant Line</b>			
<b>42</b>	35,100	31	0.1%
<b>43</b>	6,468	3	0.0%
<b>Connecticut Avenue Line</b>			
<b>L1</b>	2,376	2	0.1%
<b>L2</b>	19,320	11	0.1%
<b>Total</b>	<b>63,264</b>	<b>47</b>	<b>0.1%</b>

Source: WMATA Accidents Report June through November 2017

In speaking with operators, there have been no recent significant accidents or occurrences along the route. Bus operators have noted that several factors along both routes contribute to unsafe conditions and would increase the risk of a potential accident:

- Delivery trucks and other vehicles that block bus lanes and impede the right of way (in particular along Connecticut Avenue NW near Dupont Circle);



- Passengers who stick their heads out into traffic and/or the bus lane; and
- Bicyclists who compete with buses on the roadway and often do not yield to buses in times of roadway conflict.

Operators have indicated that changes in policy with regards to how to maneuver around roadway obstacles, as well as increased time and safety buffers, could reduce the risk of future accidents and incentivize operators to travel more safely, especially on congested and high-traffic roadways.

## 5.0 Boarding and Alighting by Stop and Line Segment

This chapter presents an analysis of boarding and alighting activity. This analysis is presented by stop and line segment, as well as a discussion of the highest ridership bus stops.

### 5.1 BOARDING AND ALIGHTING ACTIVITY BY STOP

Bus stop activity maps show the locations where passengers are boarding and alighting from each of the routes. This data is presented for the weekdays. The Mount Pleasant Line boarding and alighting activity maps are presented in **Figure 5-1** through **Figure 5-4**. The boarding and alighting activity for the Connecticut Avenue Line is presented in **Figure 5-5** through **Figure 5-8**. These maps show that – in general – all the bus stops on these routes are well utilized.

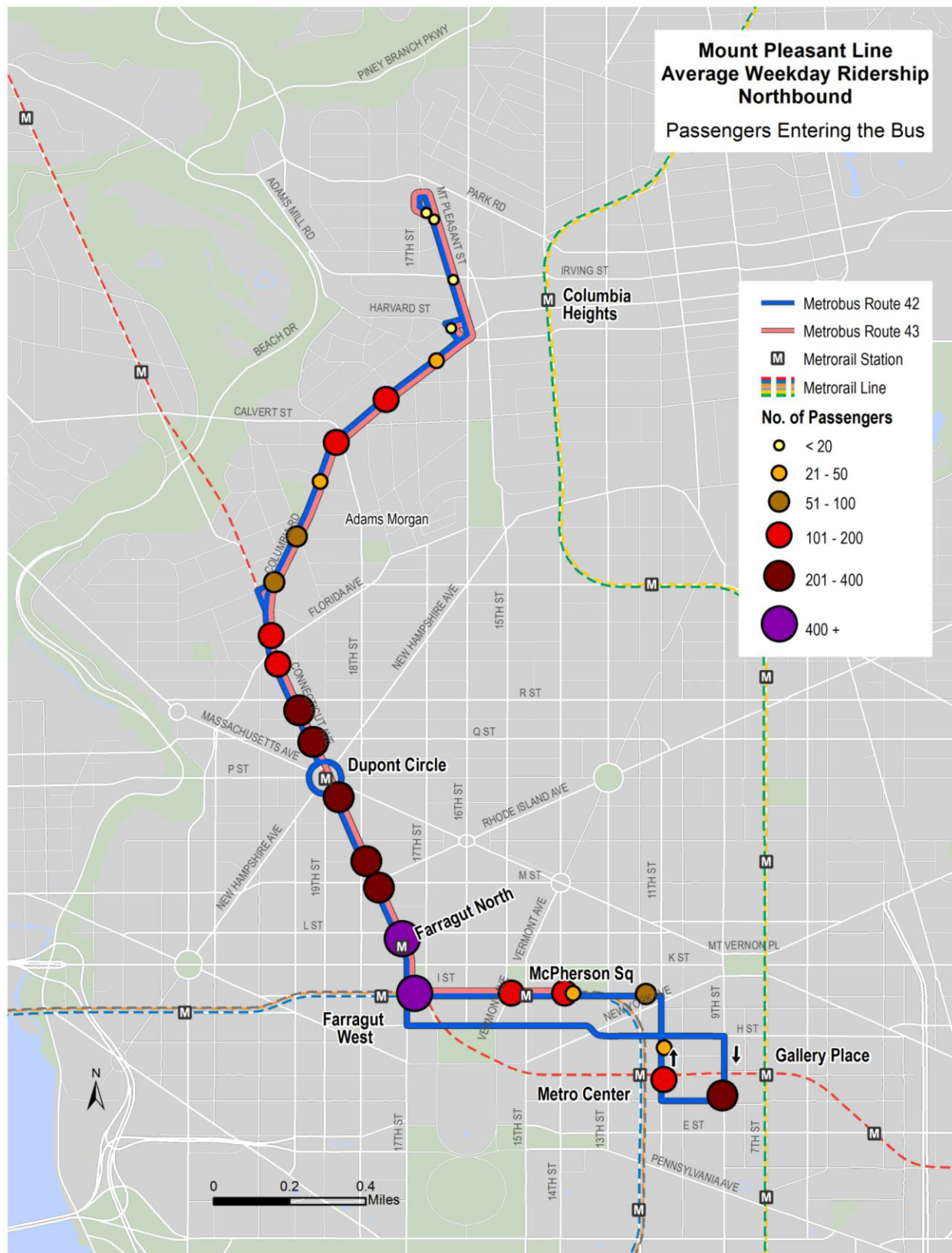
The recent extension (in December of 2016) of Friday and Saturday evening trips on Route L2 to Friendship Heights and the Bethesda Metro Station has provided late night access for riders along the Connecticut Avenue Line to areas that are not accessible via Metrorail at those hours. **Table 5-1** below shows the boardings and alightings on this segment of the line.

**Table 5-1 | Boardings and Alightings, New Route L2 Segment, August 2017**

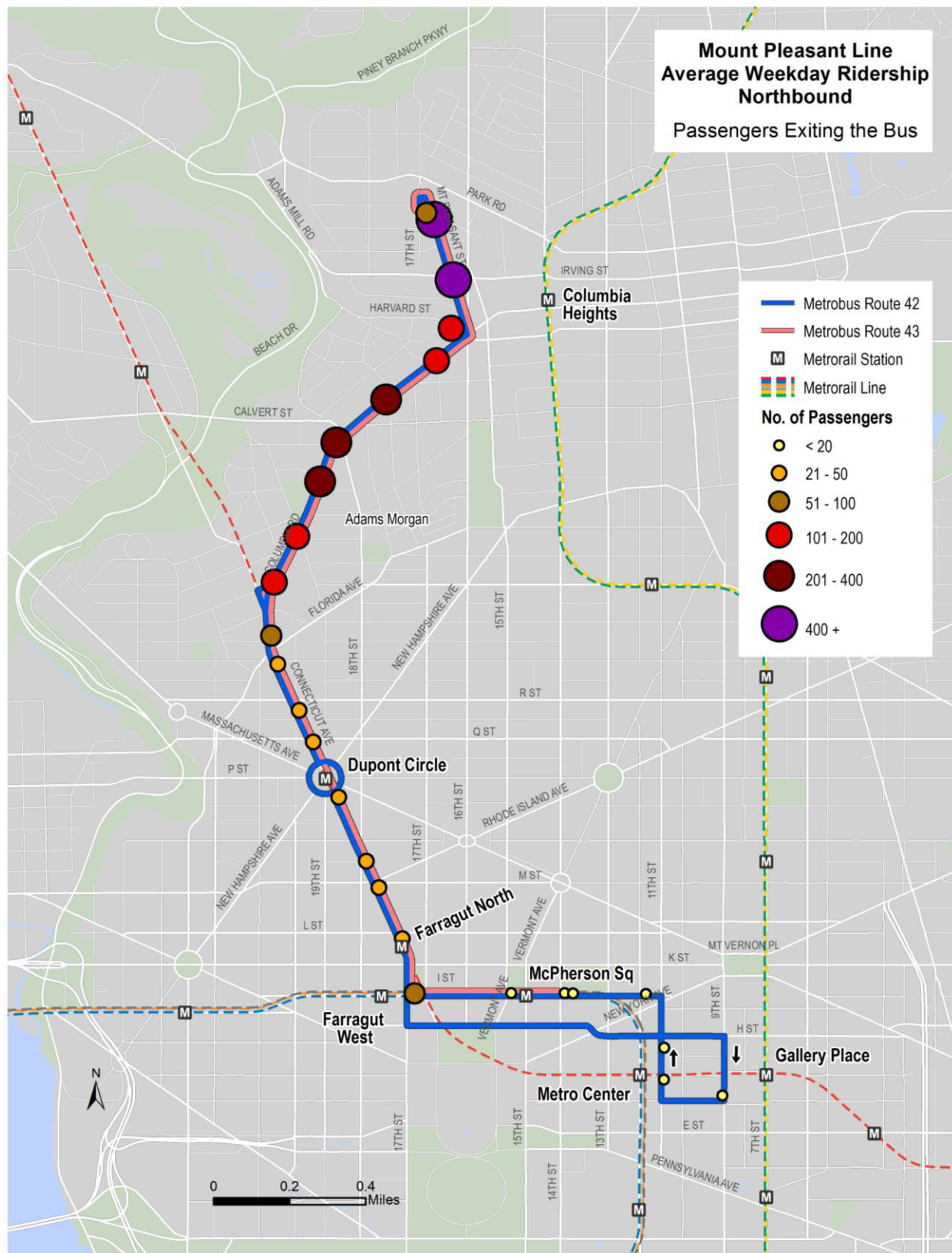
Route L2	Ons	Offs
<b>Friday Evening</b>		
Northbound	1	12
Southbound	3	0
<b>Saturday Evening</b>		
Northbound	2	9
Southbound	6	0

*Source: WMATA Ridership by Route and Stop Report August 2017*

**Figure 5-1 | Mount Pleasant Line, Northbound Bus Stop Passenger Boarding Activity**



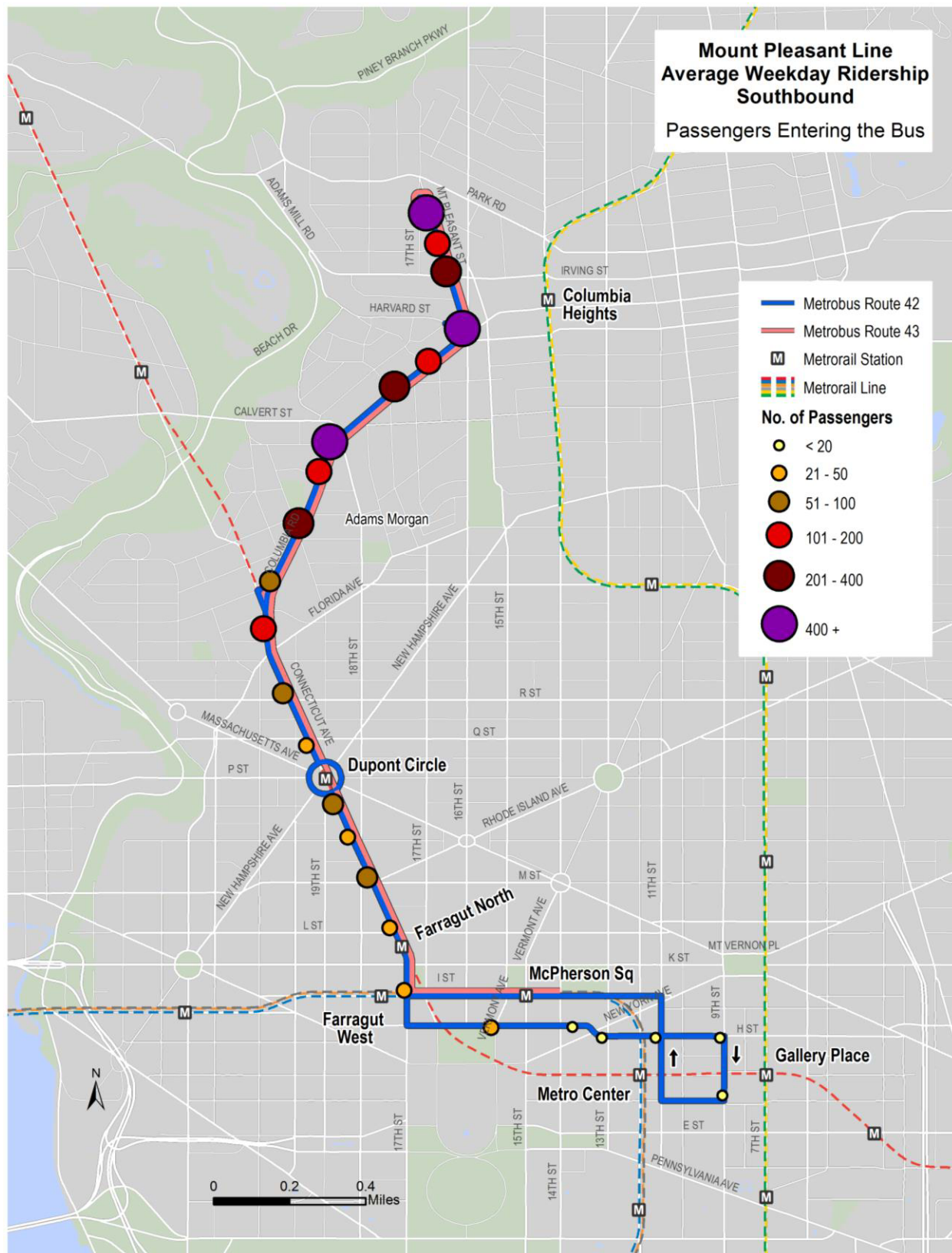
**Figure 5-2 | Mount Pleasant Line Northbound, Bus Stop Passenger Alighting Activity**



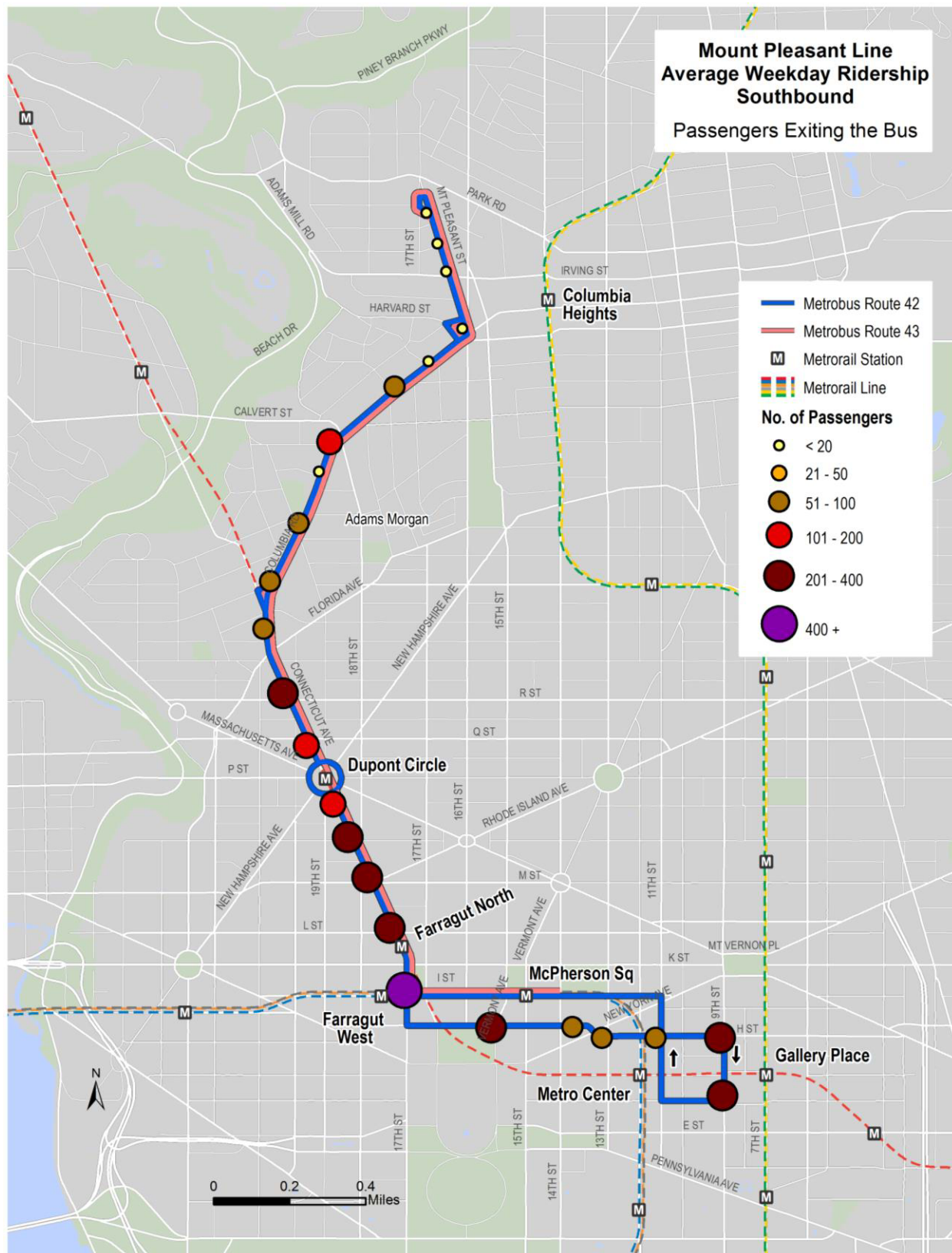
Source: WMATA Ridership by Time and Stop report August 2017



**Figure 5-3 | Mount Pleasant Line, Southbound Bus Stop Passenger Boarding Activity**



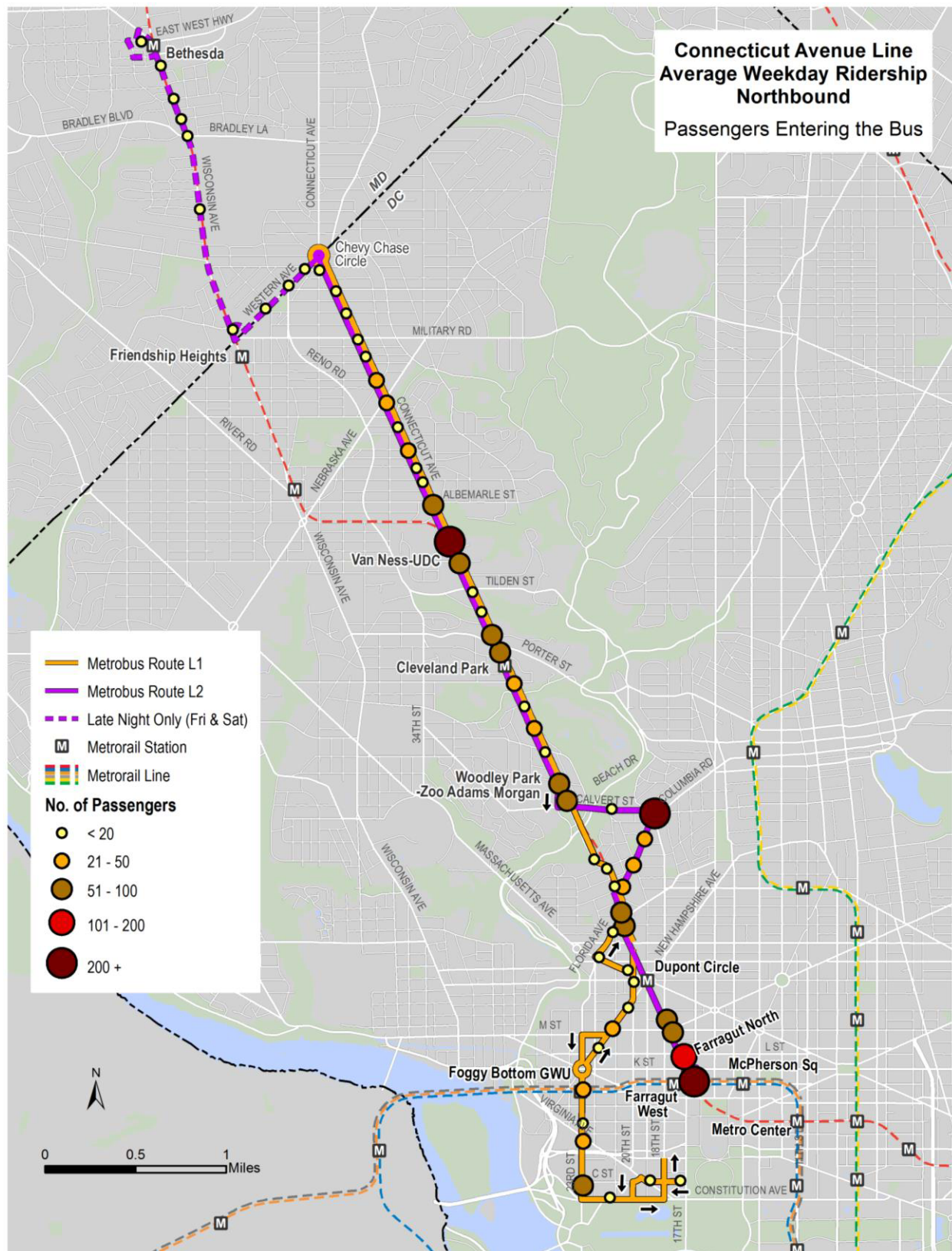
**Figure 5-4 | Mount Pleasant Line, Southbound Bus Stop Passenger Alighting Activity**



Source: WMATA Ridership by Time and Stop report August 2017

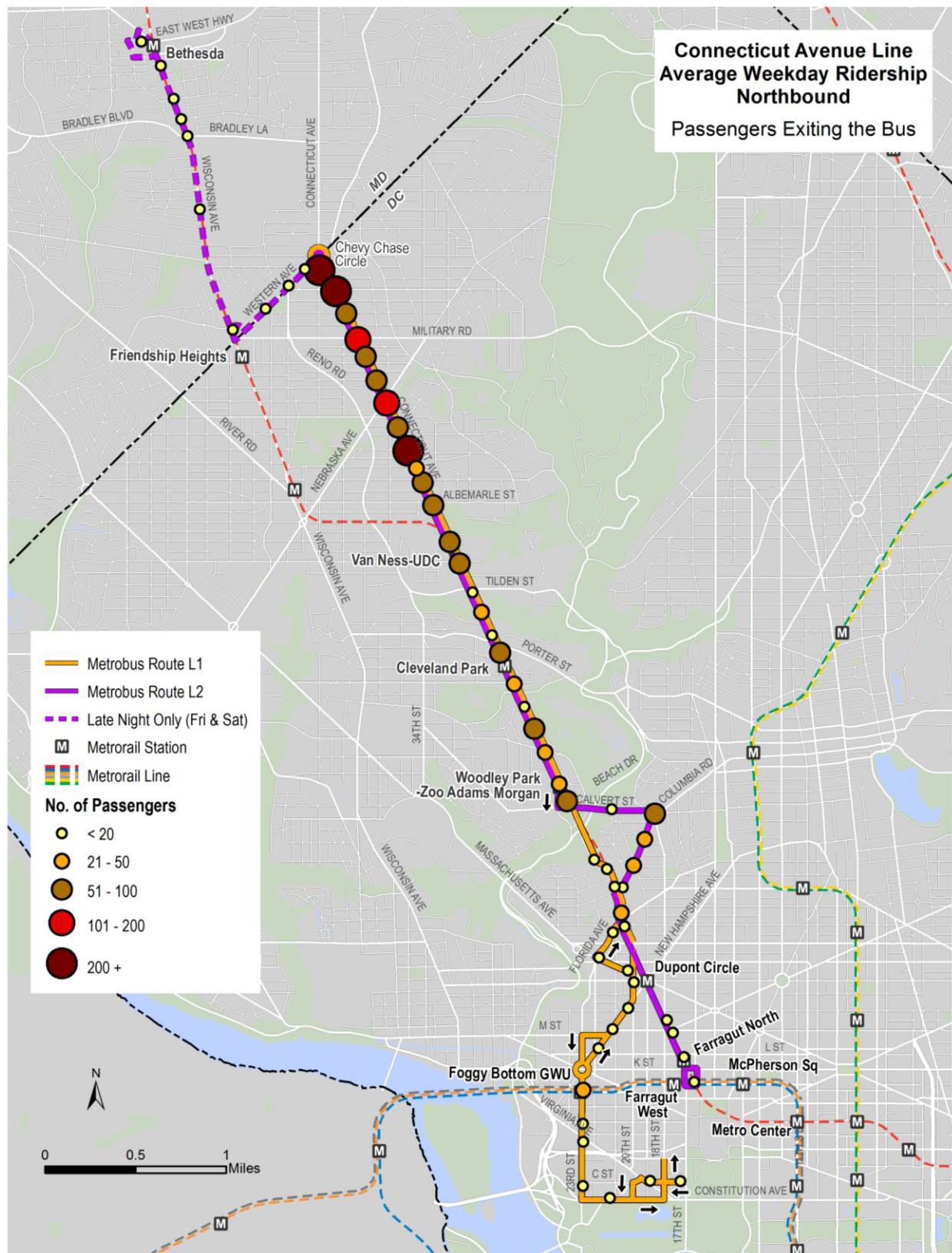


**Figure 5-5 | Connecticut Avenue Line, Northbound Bus Stop Passenger Boarding Activity**



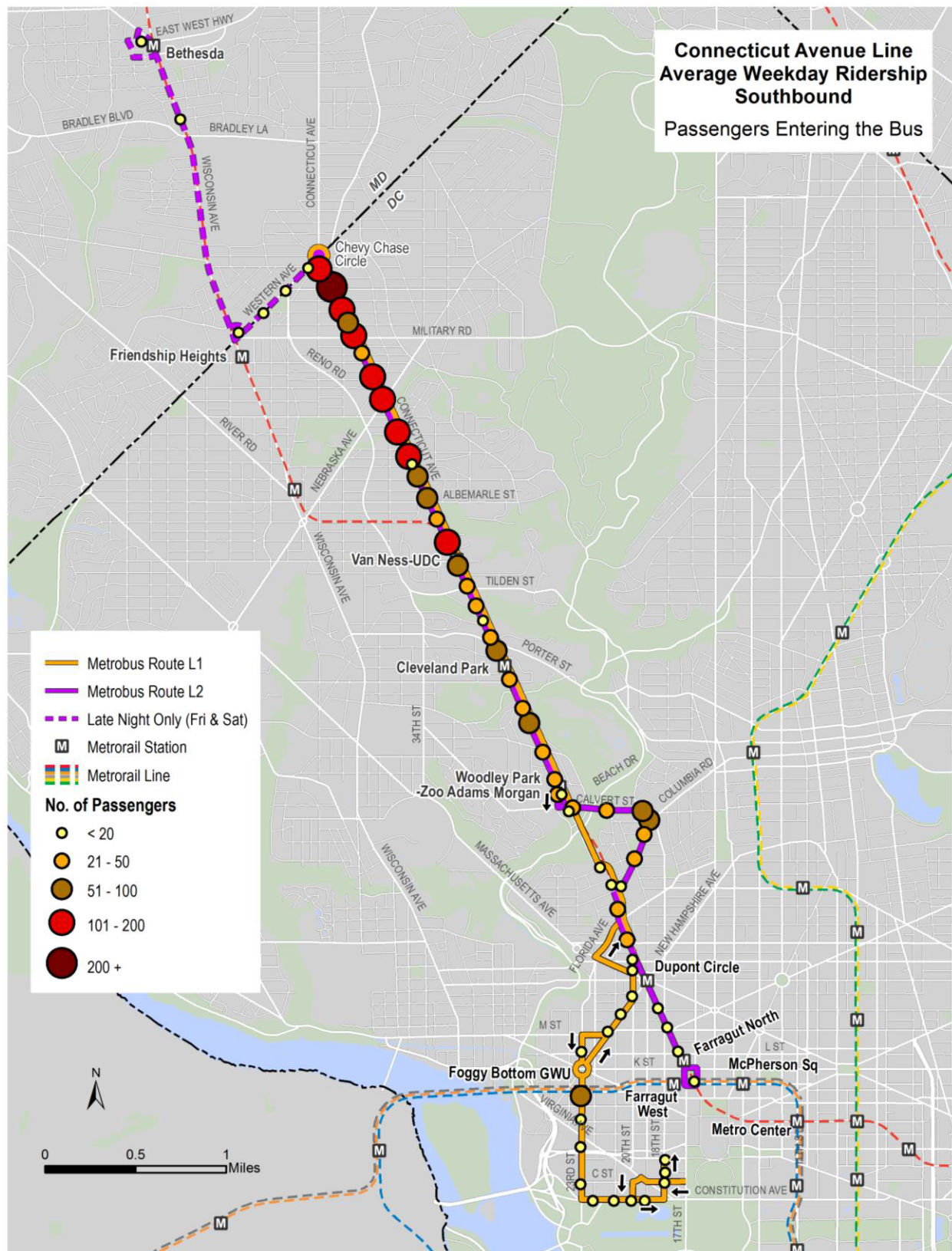


**Figure 5-6 | Connecticut Avenue Line, Northbound Bus Stop Passenger Alighting Activity**



Source: WMATA Ridership by Time and Stop report August 2017

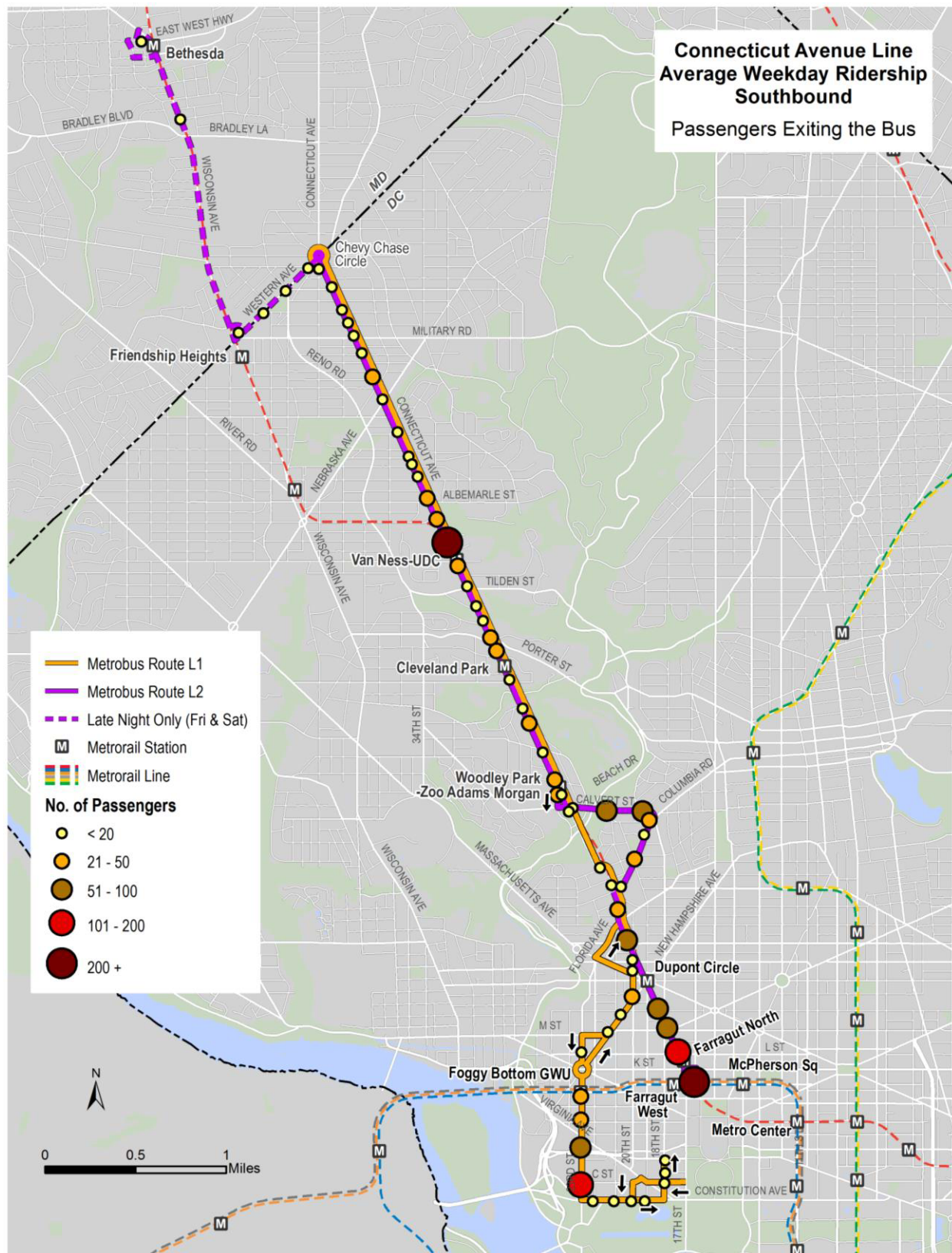
**Figure 5-7 | Connecticut Avenue Line, Southbound Bus Passenger Boarding Activity**



Source: WMATA Ridership by Time and Stop report August 2017



**Figure 5-8 | Connecticut Avenue Line, Southbound Bus Passenger Alighting Activity**



Source: WMATA Ridership by Time and Stop report August 2017

The Mount Pleasant and Connecticut Avenue Lines analyzed together were divided into ten segments in each direction. Boarding and alighting activity for each segment is presented in **Table 5-2** and **Table 5-3** below. These tables show that essentially all segments served do have a lot of boarding and alighting activity, with the exception of some of the peak period/peak direction only segments where the route is taking advantage of quick and direct routes that do not generate a lot of ridership. This analysis will be used for route recommendations to determine future service levels.

**Table 5-2 | Southbound Boarding and Alighting by Segment**

Segment	Distance (miles)	AM Peak		Midday		PM Peak		All Day	
		Boarding	Alighting	Boarding	Alighting	Boarding	Alighting	Boarding	Alighting
Connecticut Avenue from Chevy Chase Circle to Van Ness UDC	1.7	722	395	359	138	272	75	1,528	638
Connecticut Avenue from Van Ness to Woodley Park	1.5	202	80	145	94	110	78	478	279
Calvert Street/Adams Mill Road NW	0.7	42	14	43	53	32	75	122	172
Mount Pleasant Terminal to Adams Mill Road NW	0.8	903	27	649	48	352	43	2,091	115
Columbia Road NW from Adams Mill Road NW to Connecticut Avenue NW	0.5	563	90	311	121	136	98	1,081	351
Connecticut Avenue from Woodley Park to Columbia Road NW	0.7	17	6	0	0	0	0	17	6
Connecticut Avenue from Columbia Road NW to Dupont Circle	0.4	145	258	87	201	90	166	398	740
Dupont Circle to Farragut Square	0.9	33	1,334	75	575	58	244	179	2,549
Farragut Square to Gallery Place	1.1	14	198	36	303	26	210	89	892
Dupont Circle to Potomac Park	2.3	65	304	0	0	0	0	65	304

Source: WMATA Ridership by Time and Stop report August 2017

**Table 5-3 | Northbound Boarding and Alighting by Segment**

Segment	Distance (miles)	AM Peak		Midday		PM Peak		All Day	
		Boarding	Alighting	Boarding	Alighting	Boarding	Alighting	Boarding	Alighting
Potomac Park to Dupont Circle	2.5	0	0	0	0	211	64	211	64
Gallery Place to Farragut Square	1.1	64	3	186	31	252	14	778	40
Farragut Square to Dupont Circle	1.0	136	28	383	38	1,289	60	2,402	175
Dupont Circle to Columbia Road NW	0.1	43	34	247	45	383	94	875	203
Connecticut Avenue from Columbia Road NW to Woodley Park	0.6	0	0	0	0	5	12	5	12
Columbia Road NW from Connecticut Avenue NW to Adams Mill Road NW	0.5	31	17	71	84	116	336	275	569
Adams Mill Road NW to Mount Pleasant Terminal	0.8	23	132	118	642	141	1,394	342	2,955
Calvert Street/Adams Mill Road NW	0.5	72	22	19	11	66	49	24	156
Connecticut Avenue from Woodley Park to Van Ness UDC	1.6	38	27	107	113	496	179	361	324
Connecticut Avenue from Van Ness UDC to Chevy Chase Circle	1.7	68	212	130	397	103	860	712	1,764

Source: WMATA Ridership by Time and Stop report August 2017

## 5.2 TEN HIGHEST RIDERSHIP STOPS

**Figure 5-9** and **Figure 5-10** illustrate the most popular stops on the Mount Pleasant Line in terms of overall passenger activity for the busiest ten northbound and southbound stops, respectively. **Figure 5-11** and **Figure 5-12** illustrate the most popular stops on the Connecticut Avenue Line in terms of overall passenger activity for the busiest ten northbound and southbound stops, respectively. These figures show that all of the busiest stops are at locations where there are transfer opportunities, often with Metrorail but sometimes only with major cross-town corridors.

The highest activity stops in each direction on each line in terms of both boardings and alightings were analyzed for dwell time concerns. 2016 and 2017 dwell times were compared to determine what impact service changes had on dwell times. As can be seen in **Table 5-4**, at many stops dwell times decreased, but at the stops that had high boardings, there was some level of increase in dwell time.

**Table 5-4 | Dwell Times, October 2017**

Direction	Highest Activity Stop	2016 Dwell Time (seconds)	2017 Dwell Time (seconds)	Difference In Dwell Time (seconds)
<b>Mount Pleasant Line</b>				
<b>NB</b>	Mount Pleasant Street NW/Irving Street NW	11	9	-2
<b>NB</b>	Mount Pleasant Street NW/Lamont Street NW	36	39	3
<b>NB</b>	I Street NW/17 Street NW	86	87	1
<b>NB</b>	Columbia Road NW/Ontario Road NW	18	16	-2
<b>NB</b>	Connecticut Avenue NW/L Street NW	11	16	5
<b>NB</b>	Columbia Road NW/18th Street NW	31	35	4
<b>NB</b>	Connecticut Avenue NW/Dupont Circle	14	5	-9
<b>NB</b>	Connecticut Avenue NW/M Street NW	19	7	-12
<b>NB</b>	Columbia Road NW/Mintwood Place NW	10	8	-1
<b>NB</b>	Connecticut Avenue NW/Q Street NW	19	6	-13
<b>SB</b>	17th Street NW/I Street NW	49	48	-1
<b>SB</b>	Lamont Street NW/Mount Pleasant Street NW	0	0	0
<b>SB</b>	Columbia Road NW/Biltmore Street NW	18	16	-3
<b>SB</b>	Mount Pleasant Street NW/Harvard Street NW	9	7	-2
<b>SB</b>	Columbia Road NW/Ontario Road NW	65	60	-6
<b>SB</b>	Connecticut Avenue NW/M Street NW	12	10	-1
<b>SB</b>	Mount Pleasant Street NW/Irving Street NW	11	9	-2
<b>SB</b>	Connecticut Avenue NW/R Street NW	10	5	-5
<b>SB</b>	Connecticut Avenue NW/L Street NW	9	9	0
<b>SB</b>	Columbia Road NW/19th Street NW	10	9	-1

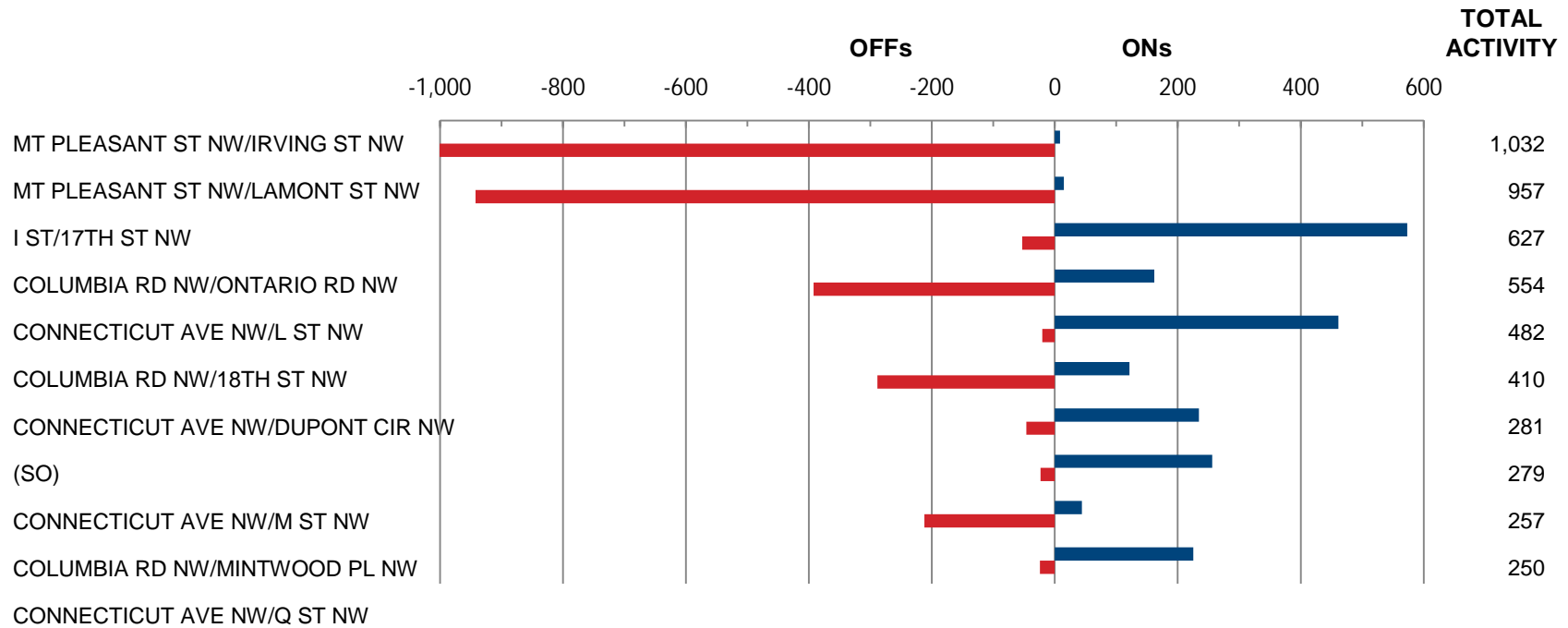
Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Direction	Highest Activity Stop	2016 Dwell Time (seconds)	2017 Dwell Time (seconds)	Difference In Dwell Time (seconds)
<b>Connecticut Avenue Line</b>				
<b>NB</b>	Connecticut Avenue NW/Veazey Terrace NW	93	90	-4
<b>NB</b>	Chevy Chase Terminal/Connecticut Avenue NW	0	3	3
<b>NB</b>	Adams Mill Road NW/Columbia Road NW	19	16	-2
<b>NB</b>	17th Street NW/I Street NW	0	0	0
<b>NB</b>	Connecticut Avenue NW/Davenport Street NW	8	8	-1
<b>NB</b>	Connecticut Avenue NW/McKinley Street NW	8	7	-1
<b>NB</b>	Connecticut Avenue NW/Military Road NW	6	5	-1
<b>NB</b>	Connecticut Avenue NW/Nebraska Avenue NW	49	38	-10
<b>NB</b>	Connecticut Avenue NW/Albemarle Street NW	7	7	0
<b>NB</b>	Connecticut Avenue NW/Van Ness Street NW	9	10	0
<b>SB</b>	Connecticut Avenue NW/Veazey Terrace NW	71	73	2
<b>SB</b>	17th Street NW/I Street NW	0	0	0
<b>SB</b>	Connecticut Avenue NW/McKinley Street NW	11	11	-1
<b>SB</b>	Chevy Chase Terminal/Connecticut Avenue NW	0	0	0
<b>SB</b>	Connecticut Avenue NW/L Street NW	8	6	-2
<b>SB</b>	Connecticut Avenue NW/Ellicott Street NW	22	10	-13
<b>SB</b>	Connecticut Avenue NW/Military Road NW	13	16	3
<b>SB</b>	Connecticut Avenue NW/Nebraska Avenue NW	26	37	11
<b>SB</b>	Calvert Street NW/Lanier Place NW	2	1	0
<b>SB</b>	Connecticut Avenue NW/Huntington Street NW	13	14	1

Source: WMATA Automatic Passenger Counters June 2016 and 2017

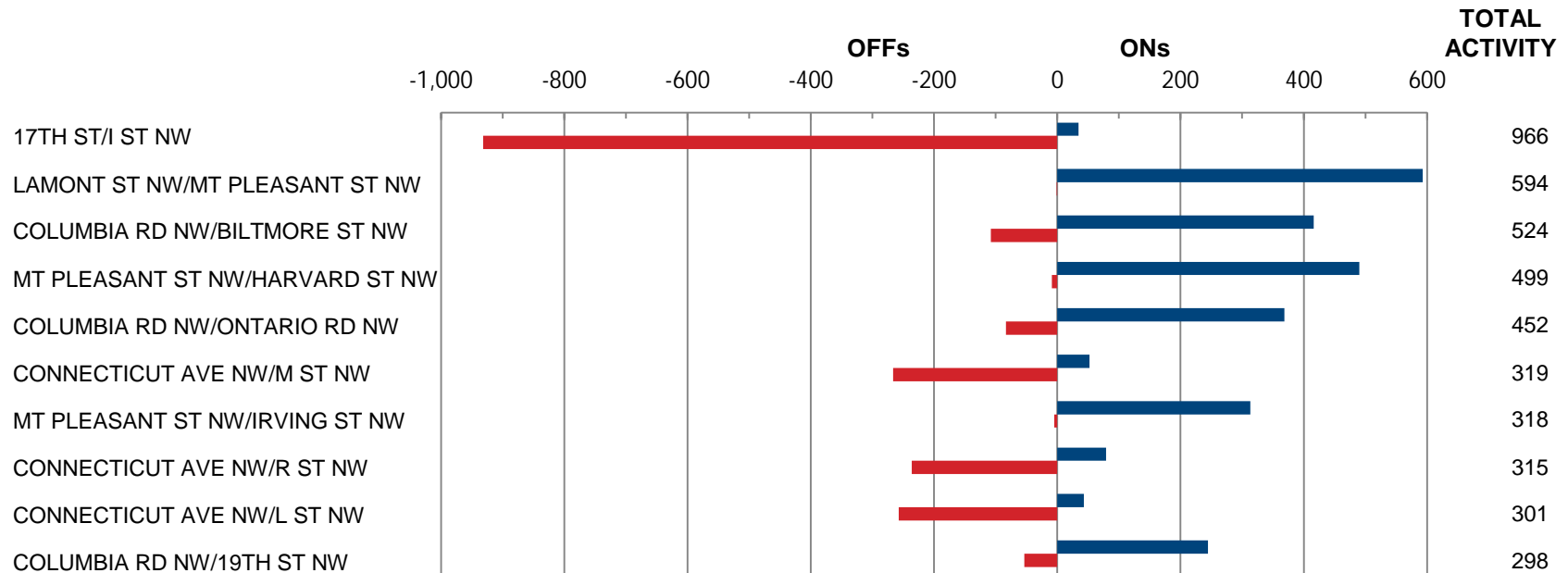


**Figure 5-9 | Mount Pleasant Line, Ten Busiest Stops, Northbound**



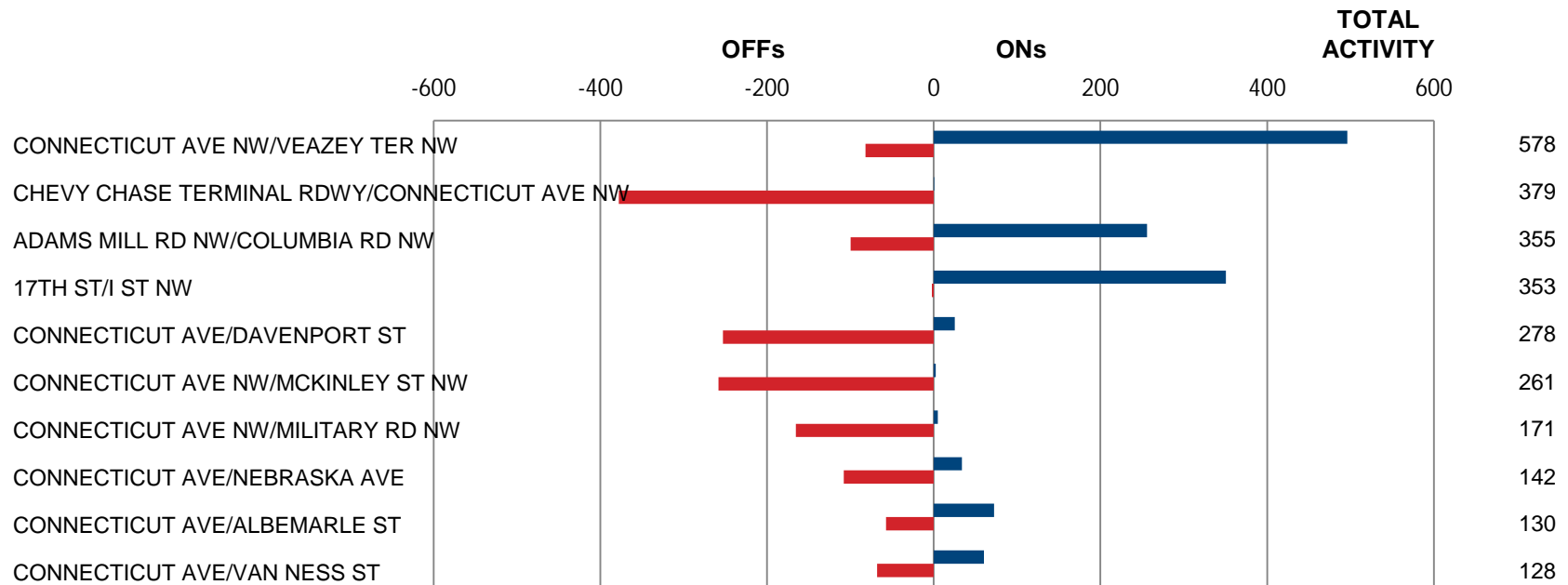
Source: WMATA Ridership by Time and Stop report

**Figure 5-10 | Mount Pleasant Line, Ten Busiest Stops, Southbound**



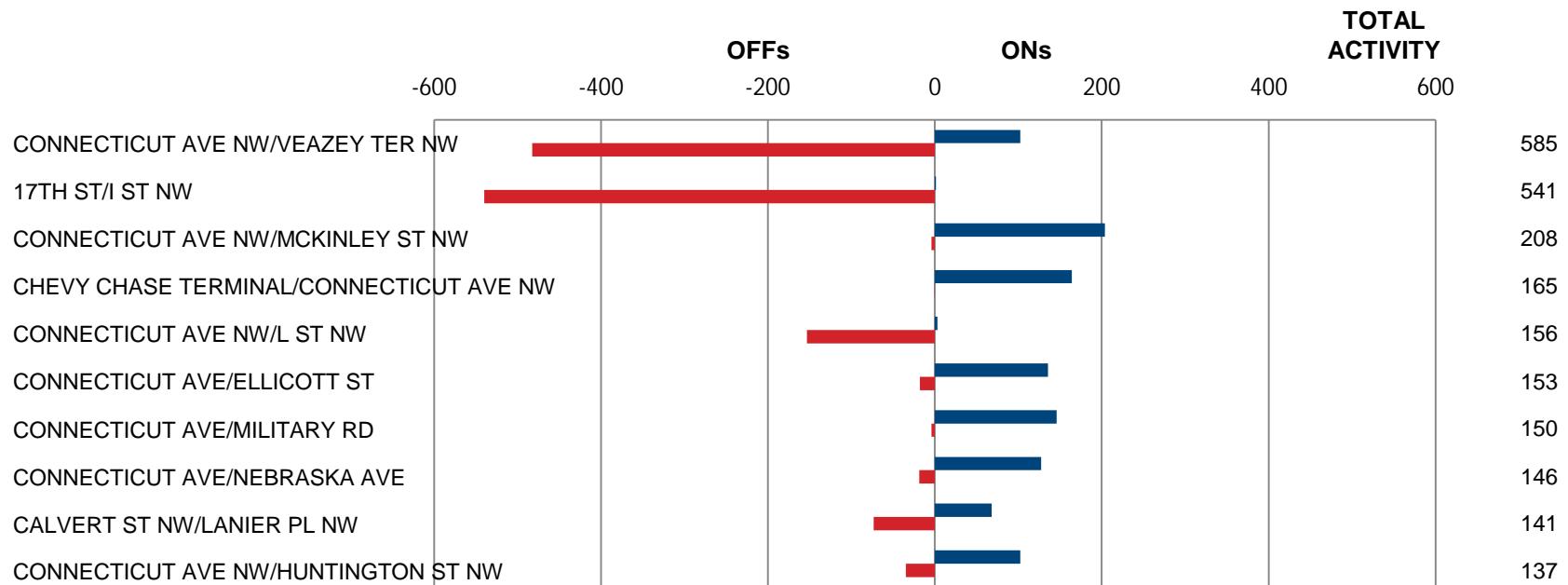
Source: WMATA Ridership by Time and Stop report

**Figure 5-11 | Connecticut Avenue Line, Ten Busiest Stops, Northbound**



Source: WMATA Ridership by Time and Stop report August 2017

**Figure 5-12 | Connecticut Avenue Line, Ten Busiest Stops, Southbound**



Source: WMATA Ridership by Time and Stop report August 2017

## 6.0 Passenger Loading

### 6.1 LOAD PER TRIP

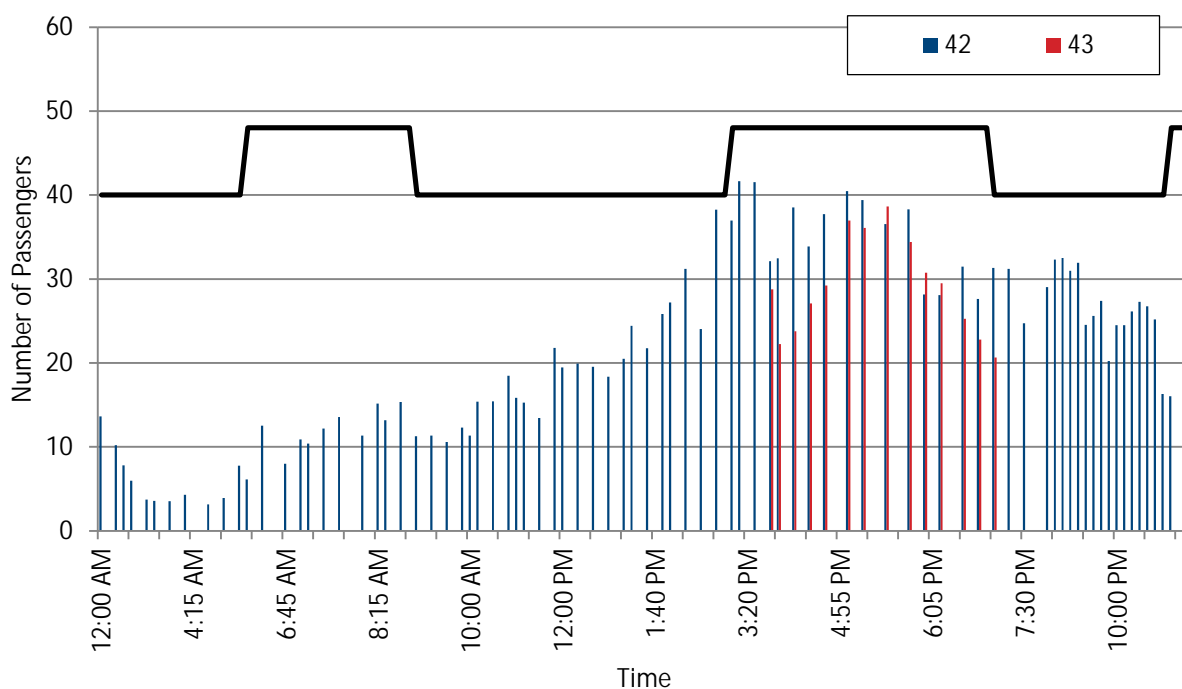
Passenger load is a major factor affecting passenger comfort on bus trips. Crowding makes the trip less pleasant, because passengers have to stand and have less personal space during the ride. Crowding also makes it more difficult for passengers to enter and exit the bus, thereby increasing travel time, as well as making it difficult for passengers to anticipate approaching stops due to reduced ability for many passengers to see out the windows. In addition, crowding can affect bus safety, due to the higher number of passengers standing and potential difficulties grasping handrails.

WMATA's seated load on a 40-foot bus is 38-45 passengers, with guidelines allowing for standees of up to 20 percent of the number of seats, particularly during the peak periods (i.e., 120 percent of the seated load). Both Connecticut Avenue and Mount Pleasant Lines utilize the most common vehicle dispatched from the Western Division – a standard 40-foot transit bus, with approximately 40 seats available to passengers. Thus, the guideline allows for up to 48 passengers on an individual vehicle during the peak periods, and 40 passengers (i.e., 100 percent of the seated load) during the off-peak periods.

**Figure 6-1** through **Figure 6-4** shows the maximum load by trip on both the Mount Pleasant and Connecticut Avenue Lines. The charts show the loads observed for each trip based on APC data provided by WMATA for the March 2017 schedule period. WMATA's loading guidelines, as stated above, allow for up to 48 passengers on a vehicle with 40 seats during the peak periods. The Connecticut Avenue Line experiences a few weekday peak period trips that exceed the loading guideline and the Mount Pleasant Line has no trips that exceed the loading guideline.

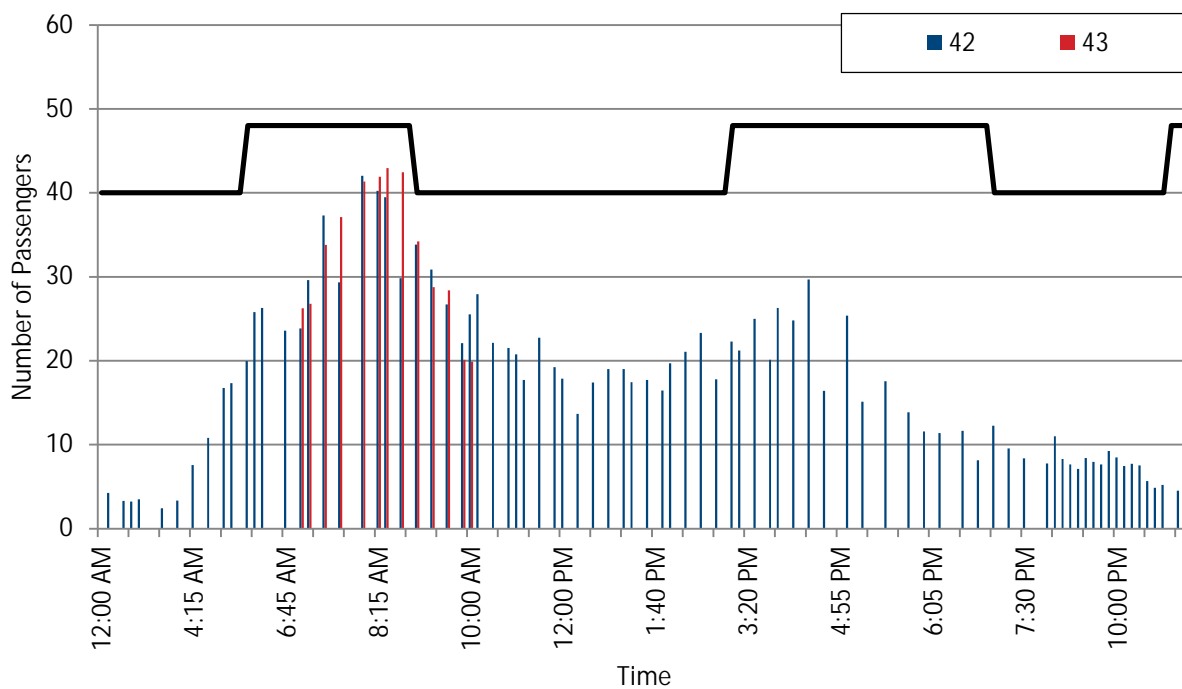
As stated above, the guideline for load factor for these routes is 120 percent during peak periods, or 48 passengers, and 100 percent during off-peak periods. As a whole, all of the routes meet this guideline at all times, as shown on **Table 6-1**. The lower load factors combined with high overall ridership analysis shows that these routes have a lot of turnover with a lot of passengers traveling short distances and ridership activity occurring throughout the route.

**Figure 6-1 | Weekday Northbound Load Factors, Mount Pleasant Line**



Source: Metrobus Farebox Data

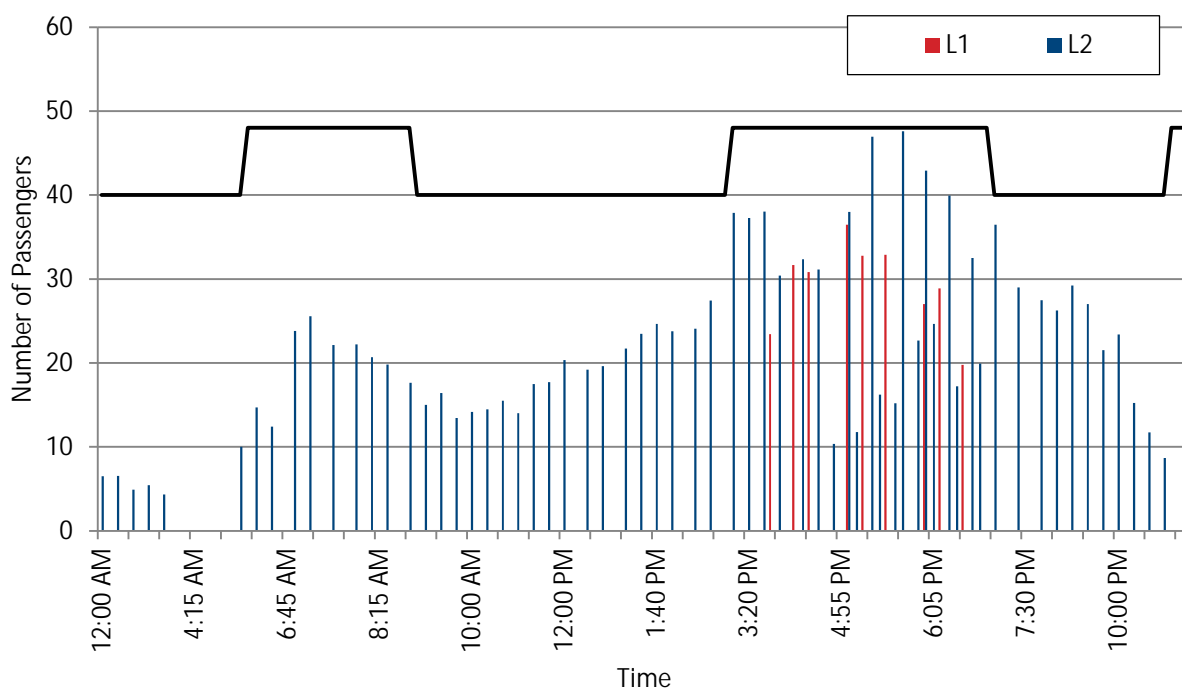
**Figure 6-2 | Weekday Southbound Load Factors, Mount Pleasant Line**



Source: Metrobus Farebox Data

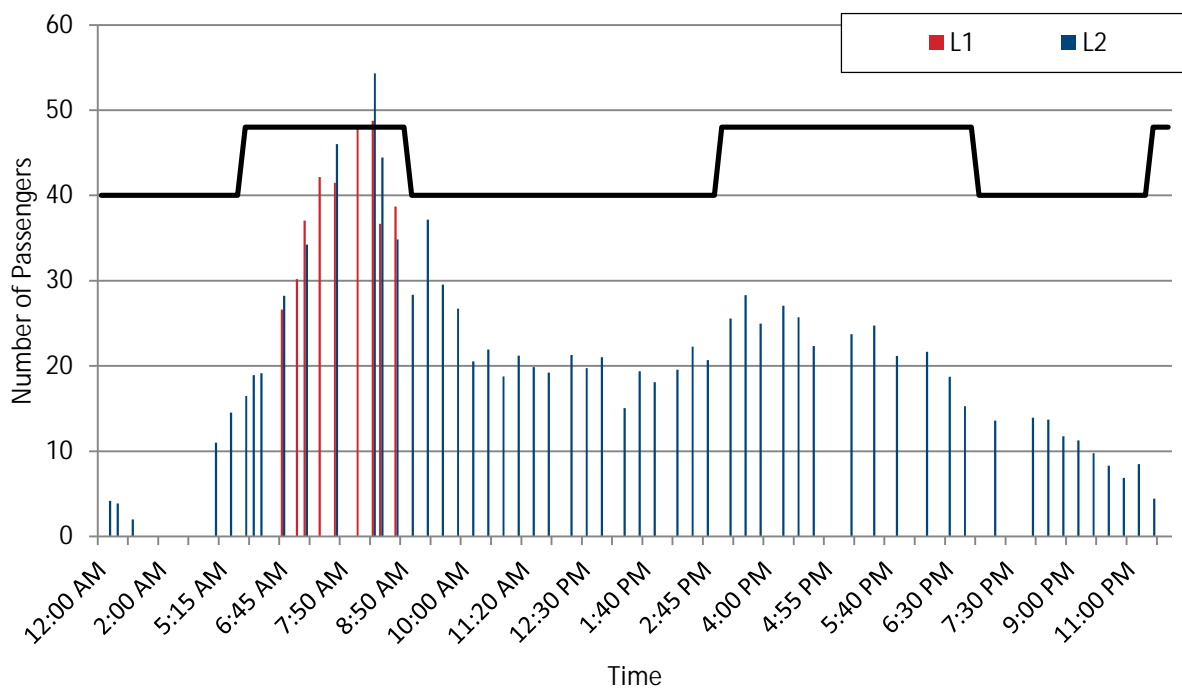


**Figure 6-3 | Weekday Northbound Load Factors, Connecticut Avenue Line**



Source: Metrobus Farebox Data

**Figure 6-4 | Weekday Southbound Load Factors, Connecticut Avenue Line**



Source: Metrobus Farebox Data

### 6.1.1 Segment Level Load Factor

Load factor by segment is presented in **Table 6-2** and **Table 6-3**. No segment has greater than a 90 percent load factor meaning it is within guidelines. The highest load factors are in the peak period in the peak direction with lower load factors during the weekends. The Connecticut Avenue Line's highest load factors are on the northern end of the corridor while the Mount Pleasant Line's highest load factors are between Dupont Circle and Columbia Road NW.

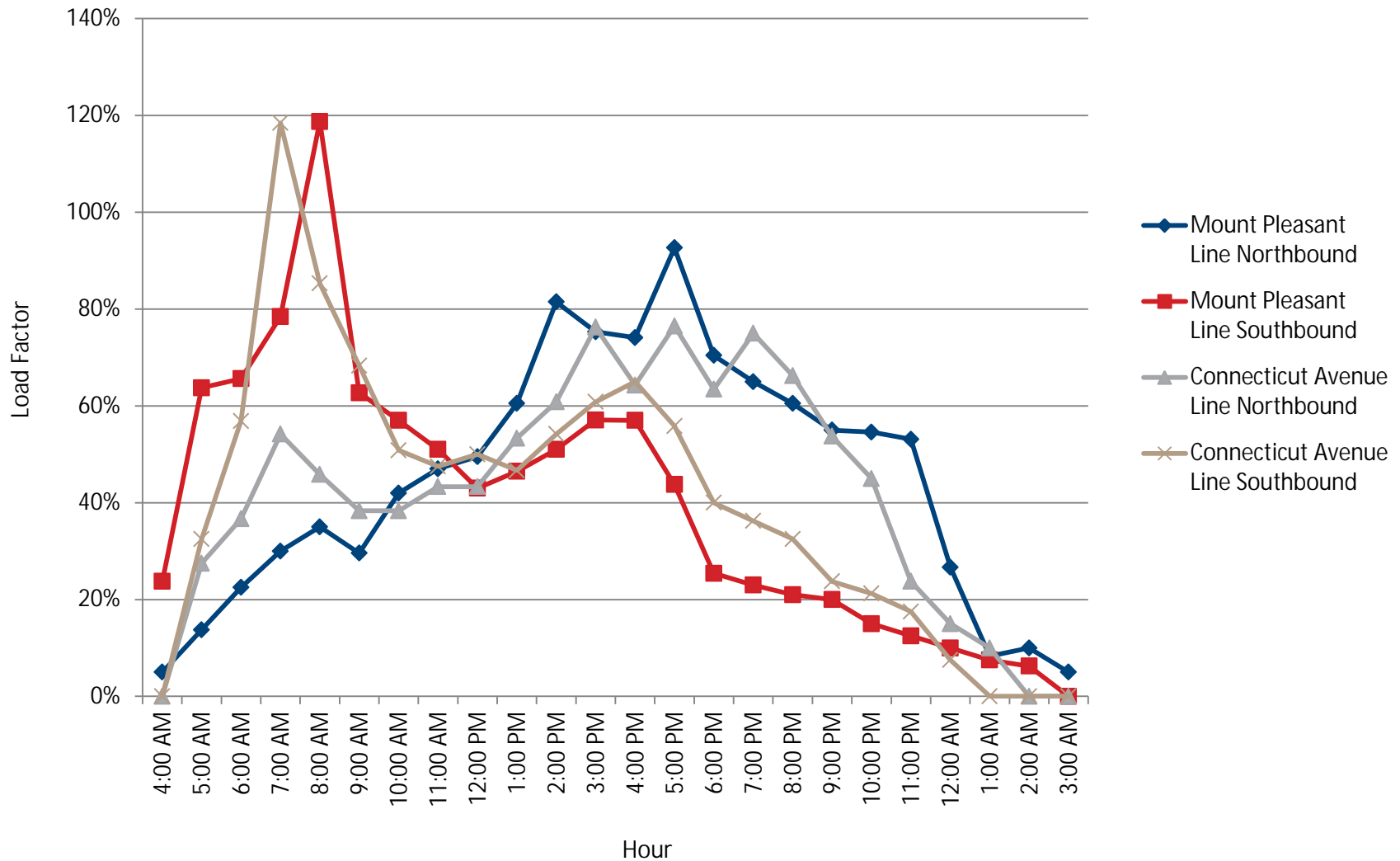
**Table 6-1 | Load Factor by Service Day**

Day	Route	Direction	Number of Seats Offered <sup>1</sup>	Load at the Maximum Load Point	Load Factor	Meets Guideline?
Weekday	42	Southbound	4,080	1,789	43.85%	Yes
		Northbound	4,360	2,441	55.99%	Yes
	43	Southbound	1,000	963	96.30%	Yes
		Northbound	840	534	63.57%	Yes
	L1	Southbound	360	351	97.50%	Yes
		Northbound	360	244	67.78%	Yes
	L2	Southbound	2,200	1,186	53.91%	Yes
		Northbound	2,480	1,332	53.71%	Yes
Saturday	42	Southbound	3,560	1,279	35.93%	Yes
		Northbound	3,560	1,433	40.25%	Yes
	L2	Southbound	2,080	810	38.94%	Yes
		Northbound	2,080	857	41.20%	Yes
Sunday	42	Southbound	2,800	1,036	37.00%	Yes
		Northbound	2,800	1,145	40.89%	Yes
	L2	Southbound	1,600	686	42.88%	Yes
		Northbound	1,640	702	42.80%	Yes

Source: Ridership by Route and Trip Report August 2017

1. Based on an average of 40 seats per bus, as available on the most common buses dispatched for these lines from Western Division

Figure 6-5 | Weekday Load Factor by Hour



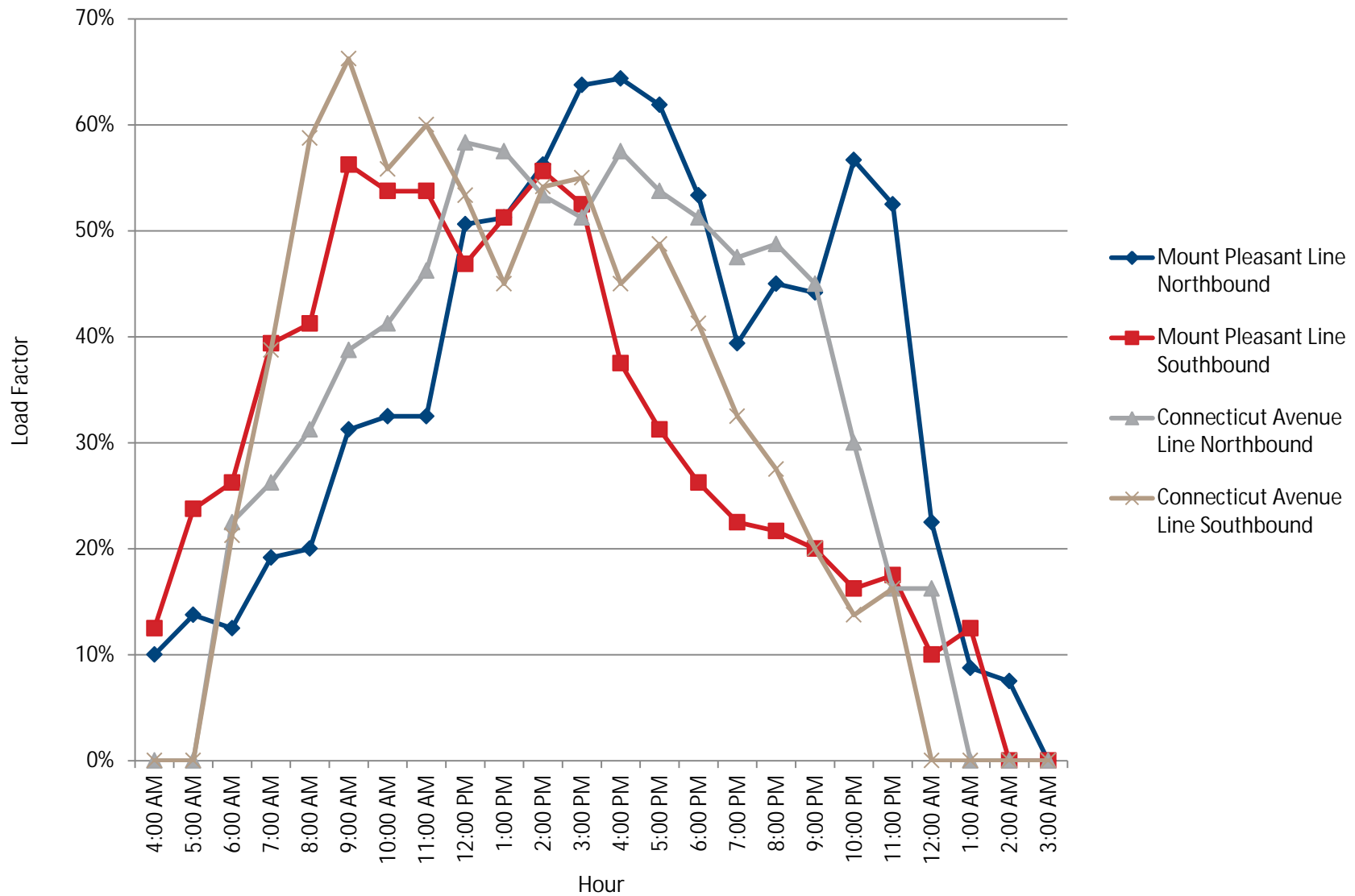
Source: Ridership by Route and Trip Report August 2017

Figure 6-6 | Saturday Load Factor by Hour



Source: Ridership by Route and Trip Report August 2017

Figure 6-7 | Sunday Load Factor by Hour



Source: Ridership by Route and Trip Report August 2017

**Table 6-2 | Southbound Average Load Factor by Route and Segment**

Segment	Time Period	Route 42	Route 43	Route L1	Route L2
Connecticut Avenue NW from Chevy Chase Circle to Van Ness-UDC	AM Peak	--	--	77.5%	72.5%
	Midday	--	--	--	40.0%
	PM Peak	--	--	--	42.5%
	Saturday	--	--	--	30.0%
	Sunday	--	--	--	30.0%
Connecticut Avenue NW from Van Ness-UDC to Woodley Park	AM Peak	--	--	60.0%	72.5%
	Midday	--	--	--	40.0%
	PM Peak	--	--	--	47.5%
	Saturday	--	--	--	32.5%
	Sunday	--	--	--	37.5%
Calvert Street/Adams Mill Road NW	AM Peak	--	--	--	57.5%
	Midday	--	--	--	37.5%
	PM Peak	--	--	--	47.5%
	Saturday	--	--	--	32.5%
	Sunday	--	--	--	35.0%
Mount Pleasant Terminal to Adams Mill Road NW	AM Peak	47.5%	60.0%	--	--
	Midday	37.5%	47.5%	--	--
	PM Peak	35.0%	--	--	--
	Saturday	27.5%	--	--	--
	Sunday	27.5%	--	--	--
Columbia Road NW from Adams Mill Road NW to Connecticut Avenue NW	AM Peak	72.5%	87.5%	--	72.5%
	Midday	47.5%	65.0%	--	52.5%
	PM Peak	40.0%	--	--	37.5%
	Saturday	32.5%	--	--	27.5%
	Sunday	32.5%	--	--	30.0%
Connecticut Avenue NW from Woodley Park to Columbia Road NW	AM Peak	--	--	62.5%	--
	Midday	--	--	--	--
	PM Peak	--	--	--	--
	Saturday	--	--	--	--
	Sunday	--	--	--	--
Connecticut Avenue NW from Columbia Road NW	AM Peak	75.0%	90.0%	60.0%	72.5%

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Segment	Time Period	Route 42	Route 43	Route L1	Route L2
to Dupont Circle	Midday	77.5%	65.0%	--	37.5%
	PM Peak	40.0%	--	--	37.5%
	Saturday	32.5%	--	--	27.5%
	Sunday	32.5%	--	--	30.0%
Connecticut Avenue NW from Dupont Circle to Farragut Square	AM Peak	60.0%	72.5%	--	62.5%
	Midday	40.0%	45.0%	--	30.0%
	PM Peak	35.0%	--	--	32.5%
	Saturday	25.0%	--	--	22.5%
	Sunday	22.5%	--	--	22.5%
Farragut Square to Gallery Place Metro	AM Peak	27.5%	--	--	--
	Midday	40.0%	--	--	--
	PM Peak	22.5%	--	--	--
	Saturday	15.0%	--	--	--
	Sunday	15.0%	--	--	--
Dupont Circle to Potomac Park	AM Peak	--	--	55.0%	--
	Midday	--	--	--	--
	PM Peak	--	--	--	--
	Saturday	--	--	--	--
	Sunday	--	--	--	--

Source: Ridership by Route and Stop Report August 2017



**Table 6-3 | Northbound Average Load Factor by Route and Segment**

Segment	Time Period	Route 42	Route 43	Route L1	Route L2
Potomac Park to Dupont Circle	AM Peak	--	--	--	--
	Midday	--	--	--	--
	PM Peak	--	--	37.5%	--
	Saturday	--	--	--	--
	Sunday	--	--	--	--
Gallery Place Metro to Farragut Square	AM Peak	12.5%	--	--	--
	Midday	15.0%	--	--	--
	PM Peak	27.5%	--	--	--
	Saturday	15.0%	--	--	--
	Sunday	15.0%	--	--	--
Connecticut Avenue NW from Farragut Square to Dupont Circle	AM Peak	20.0%	--	--	17.5%
	Midday	35.0%	--	--	17.5%
	PM Peak	72.5%	45.0%	--	52.5%
	Saturday	27.5%	--	--	15.0%
	Sunday	27.5%	--	--	15.0%
Connecticut Avenue NW from Dupont Circle to Columbia Road NW	AM Peak	25.0%	--	--	30.0%
	Midday	45.0%	--	--	22.5%
	PM Peak	90.0%	60.0%	40.0%	62.5%
	Saturday	37.5%	--	--	17.5%
	Sunday	37.5%	--	--	22.5%
Connecticut Avenue NW from Columbia Road NW to Woodley Park	AM Peak	--	--	--	--
	Midday	--	--	--	--
	PM Peak	--	--	40.0%	--
	Saturday	--	--	--	--
	Sunday	--	--	--	--
Columbia Road NW from Connecticut Avenue NW to Adams Mill Road NW	AM Peak	35.0%	--	--	55.0%
	Midday	45.0%	--	--	30.0%
	PM Peak	87.5%	57.5%	--	60.0%
	Saturday	37.5%	--	--	20.0%
	Sunday	37.5%	--	--	22.5%
Adams Mill Road NW to Mount Pleasant Terminal	AM Peak	35.0%	--	--	--
	Midday	75.0%	--	--	--

Segment	Time Period	Route 42	Route 43	Route L1	Route L2
	PM Peak	70.0%	45.0%	--	--
	Saturday	32.5%	--	--	--
	Sunday	35.0%	--	--	--
Calvert Street/Adams Mill Road NW	AM Peak	--	--	--	37.5%
	Midday	--	--	--	30.0%
	PM Peak	--	--	--	60.0%
	Saturday	--	--	--	27.5%
	Sunday	--	--	--	30.0%
Connecticut Avenue NW from Woodley Park to Van Ness UDC	AM Peak	--	--	--	52.5%
	Midday	--	--	--	57.5%
	PM Peak	--	--	40.0%	65.0%
	Saturday	--	--	--	35.0%
	Sunday	--	--	--	32.5%
Connecticut Avenue NW from Van Ness UDC to Chevy Chase Circle	AM Peak	--	--	--	57.5%
	Midday	--	--	--	57.5%
	PM Peak	--	--	60.0%	65.0%
	Saturday	--	--	--	35.0%
	Sunday	--	--	--	37.5%

Source: Ridership by Route and Stop Report August 2017

### 6.1.2 Hourly Ridership versus Capacity

Load factor was further analyzed by hour. **Table 6-4** and **Table 6-5** present the load and capacity each hour for the Mount Pleasant Line and Connecticut Avenue Line respectively. **Figure 6-5** through **Figure 6-7** present load factor by hour on weekdays, Saturday, and Sunday. The tables and charts show that during the AM peak on weekdays load factors approach 120 percent while during other periods loads do not typically exceed 100 percent in an hour. The implication is that buses are rarely overcrowded.

**Table 6-4 | Mount Pleasant Line Hourly Ridership versus Capacity**

Hour	Weekday				Saturday				Sunday			
	Northbound		Southbound		Northbound		Southbound		Northbound		Southbound	
	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load
4:00	40	2	80	19	40	3	80	17	40	4	80	10
5:00	80	11	80	51	80	11	80	21	80	11	80	19
6:00	160	36	160	105	120	20	120	30	80	10	80	21
7:00	160	46	520	408	160	29	160	73	120	23	160	63
8:00	160	56	640	760	160	33	200	79	160	32	160	66
9:00	240	71	480	301	200	57	200	83	160	50	160	90
10:00	200	84	200	114	200	57	200	100	160	52	160	86
11:00	200	94	200	102	160	62	200	90	160	52	160	86
12:00	200	99	200	86	200	90	200	99	160	81	160	75
13:00	200	121	200	93	200	108	200	87	160	82	160	82
14:00	200	163	200	102	200	107	200	92	160	90	160	89
15:00	320	241	240	137	200	123	200	105	160	102	160	84
16:00	440	326	200	114	200	153	240	97	160	103	160	60
17:00	600	556	240	105	240	118	240	76	160	99	160	50
18:00	480	338	240	61	240	116	160	59	120	64	160	42
19:00	320	208	200	46	120	47	120	41	160	63	80	18
20:00	200	121	200	42	120	48	120	33	80	36	120	26
21:00	240	132	200	40	120	57	120	19	120	53	120	24
22:00	240	131	160	24	160	77	120	25	120	68	80	13
23:00	160	85	160	20	80	44	120	23	80	42	80	14
24:00	120	32	80	8	120	45	80	7	80	18	80	8
25:00	120	10	120	9	80	11	80	8	80	7	80	10
26:00	80	8	80	5	120	13	120	15	40	3	0	0
27:00	40	2	0	0	40	4	0	0	0	0	0	0

Source: Ridership by Route and Trip Report August 2017

**Table 6-5 | Connecticut Avenue Line Hourly Ridership versus Capacity**

Hour	Weekday				Saturday				Sunday			
	Northbound		Southbound		Northbound		Southbound		Northbound		Southbound	
	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load	Cap.	Max Load
4:00	0	0	0	0	0	0	0	0	0	0	0	0
5:00	40	11	120	39	0	0	40	7	0	0	0	0
6:00	120	44	160	91	80	19	120	32	80	18	80	17
7:00	120	65	320	379	120	29	80	21	80	21	80	31
8:00	120	55	320	273	80	23	120	50	80	25	80	47
9:00	120	46	120	82	120	44	120	48	80	31	80	53
10:00	120	46	120	61	120	50	120	57	80	33	120	67
11:00	120	52	120	57	120	57	120	63	80	37	80	48
12:00	120	52	120	60	120	64	120	66	120	70	120	64
13:00	120	64	120	56	120	57	120	64	80	46	80	36
14:00	120	73	120	65	120	67	120	69	120	64	120	65
15:00	160	122	120	73	120	79	120	52	80	41	80	44
16:00	280	180	120	78	120	59	120	60	120	69	120	54
17:00	400	306	120	67	120	56	120	57	80	43	80	39
18:00	320	203	120	48	120	57	120	49	80	41	80	33
19:00	120	90	80	29	80	45	80	36	80	38	80	26
20:00	80	53	80	26	80	24	80	17	80	39	80	22
21:00	80	43	80	19	80	34	80	18	80	36	80	16
22:00	80	36	80	17	80	42	80	15	80	24	80	11
23:00	80	19	80	14	80	26	80	15	80	13	80	13
24:00	80	12	40	3	80	11	80	10	80	13	0	0
25:00	40	4	0	0	80	9	40	4	0	0	0	0
26:00	0	0	0	0	40	5	0	0	0	0	0	0
27:00	0	0	0	0	0	0	0	0	0	0	0	0

Source: Ridership by Route and Trip Report August 2017

## 7.0 Origin and Destination Analysis

This chapter presents a brief overview and analysis of the origins and destinations of passengers using the routes which comprise the Connecticut Avenue and Mount Pleasant Lines. A summary of the origin/destination estimates are provided in the accompanying tables; these origin/destination estimates are derived by using the Iterative Proportional Fitting (IPF) technique on the Ridecheck Ridership by Stop data. It should be kept in mind that these data do not provide an exact count but provide a good estimate that can be used to test the impact of changing route patterns.

### 7.1 MOUNT PLEASANT LINE

#### 7.1.1 Route 42 Origins - Destinations

**Table 7-1** and **Table 7-2** present the summary of the origin/destination estimates for Route 42. While the estimates of movements can be seen between each zone, it indicates that the most southbound passengers are destined for Downtown Washington (including the Farragut North Metro station) from Columbia Road and California Street up to the northern terminal.

**Table 7-2** also indicates that the most northbound passengers are destined for locations along Columbia Road and California Street up to the northern terminal from either central Washington (i.e., specifically, from near the Farragut North Metro station) or from the Dupont Circle area (including the Dupont Circle Metro station).

**Table 7-1 | Summary of Origin/Destination Estimates – Route 42 Southbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	8	9	Total
1	Lamont St - Mt Pleasant/Harvard	6									6
2	Harvard - Columbia/Ontario Rd	66	28								94
3	Columbia/Biltmore - California St	82	69	22							174
4	Connecticut/Leroy - Connecticut/R St	55	46	47	6						154
5	Dupont Circle	101	85	87	25	4					302
6	Connecticut/N St - Connecticut/M St	60	51	52	15	16	2				197
7	Farragut North Station	151	127	129	38	40	33	16			535
8	H ST - H St/13th	90	75	77	22	24	20	26	11		344
9	H ST/11th - 9th St/F St	123	104	105	31	33	27	36	63	16	538
<b>Total</b>		<b>735</b>	<b>586</b>	<b>519</b>	<b>138</b>	<b>117</b>	<b>82</b>	<b>78</b>	<b>74</b>	<b>16</b>	<b>2,345</b>

Source: WMATA Ridecheck Ridership by Stop Reports

**Table 7-2 | Summary of Origin/Destination Estimates – Route 42 Northbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	8	9	Total
1	9th Street - 11th & H St NW	6									6
2	I ST/12th NW - I St 15th St NW	23	7								30
3	Farragut North Station	29	31	7							67
4	Connect. Ave NW - M ST to 18th St	9	10	21	2						42
5	Dupont Circle	12	12	25	12	3					65
6	Connecticut - 20th to Florida	14	15	31	15	23	9				108
7	Columbia Rd - California to 18th St	66	69	144	71	106	85	22			563
8	Columbia Rd - Ontario to Harvard	55	58	120	59	88	71	54	15		520
9	Mount Pleasant	153	160	334	164	245	197	151	139	18	1,562
<b>Total</b>		<b>368</b>	<b>362</b>	<b>683</b>	<b>324</b>	<b>465</b>	<b>362</b>	<b>228</b>	<b>154</b>	<b>18</b>	<b>2,963</b>

Source: WMATA Ridecheck Ridership by Stop Reports

## 7.1.2 Route 43 Origin - Destinations

**Table 7-3** and **Table 7-4** present the summary of the origin/destination estimates for Route 43. While the estimates of movements can be seen between each zone, it indicates that the most southbound passengers are destined for central Washington (including the Farragut North Metro station) from Columbia Road and California Street up to the northern terminal. This is identical to the southbound pattern on Route 42. **Table 7-4** also indicates that the most northbound passengers are destined for locations along Columbia Road and California Street up to the northern terminal from central Washington (i.e., specifically, from near the Farragut North Metro station). This is essentially the same pattern as the northbound pattern on Route 42.

**Table 7-3 | Summary of Origin/Destination Estimates – Route 43 Southbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	Total
1	Lamont St - Mt Pleasant/Harvard	2						2
2	Harvard - Columbia/Ontario Rd	13	8					21
3	Columbia/Biltmore - California St	24	27	12				63
4	Connecticut/Leroy - Connecticut/R St	39	45	44	5			133
5	Connecticut/N St - Connecticut/M St	84	97	95	18	1		294
6	Farragut North Station	189	217	212	40	7	1	667
<b>Total</b>		<b>352</b>	<b>394</b>	<b>363</b>	<b>62</b>	<b>8</b>	<b>1</b>	<b>1,180</b>

Source: WMATA Ridecheck Ridership by Stop Reports

**Table 7-4 | Summary of Origin/Destination Estimates – Route 43 Northbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	Total
1	17th St/H St	0							0
2	Farragut North Station	0	0						0
3	Connecticut/M St - Connecticut/18th	0	2	0					3
4	Connecticut/S St - Connecticut/Florida	0	10	7	1				18
5	California - Columbia/18th St	3	76	47	23	7			156
6	Columbia/Ontario - Harvard St	2	50	31	15	12	4		113
7	Mount Pleasant St - Lamont St	6	137	85	42	32	31	4	338
<b>Total</b>		<b>12</b>	<b>275</b>	<b>170</b>	<b>82</b>	<b>51</b>	<b>35</b>	<b>4</b>	<b>629</b>

Source: WMATA Ridecheck Ridership by Stop Reports

## 7.2 CONNECTICUT AVENUE LINE

### 7.2.1 Route L1 Origin - Destinations

**Table 7-5** and **Table 7-6** present the summary of the origin/destination estimates for Route L1. While the estimates of movements can be seen between each zone, it indicates that the most southbound passengers are destined for either central Washington or the Van Ness-UDC Metro station from along Connecticut Avenue NW either between Livingston and Huntington Streets or between Ellicott and Yuma Streets.

**Table 7-6** also indicates that the most northbound passengers are destined for locations along Connecticut Avenue NW either between Albemarle and Everett Streets or between Livingston and Huntington Streets from either central Washington or the Van Ness-UDC Metro station.



**Table 7-5 | Summary of Origin/Destination Estimates – Route L1 AM Peak Southbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
1	Chevy Chase Circle	0																			0
2	Connecticut / McKinley	0	0																		0
3	Connecticut - Livingston to Huntington	2	2	4																	7
4	Connecticut / Nebraska Ave	2	3	8	0																13
5	Connecticut - Ellicott to Yuma	2	2	7	2	4															17
6	Van Ness- UDC Station	18	19	56	15	63	0														171
7	Connecticut - Van Ness St to Rodman	1	1	3	1	4	1	0													12
8	Cleveland Park Station	1	1	2	1	3	1	1	0												9
9	Connecticut / Macomb St	0	0	1	0	1	0	0	0	0											3
10	Connecticut - Devonshire to Cathedral	0	0	1	0	1	0	1	0	0	0										5
11	Woodley Park Station	1	1	2	1	2	1	1	1	0	2	1									12
12	Connecticut - Calvert to Wyoming	1	1	2	1	3	1	1	1	0	2	1	1								15
13	Connecticut - Leroy to R St NW	1	1	4	1	5	1	3	2	1	4	3	3	0							30
14	Dupont Circle	2	2	5	1	6	2	3	2	1	5	3	3	2	1						37
15	New Hampshire Avenue - 23rd/L St	2	2	6	2	6	2	3	2	1	6	4	4	3	1	1					44
16	Foggy Bottom Station	1	1	4	1	5	2	3	2	1	4	3	3	2	1	1	0				34
17	23rd St - G St to C St NW	5	6	17	5	19	6	10	7	3	17	11	11	7	4	4	46	1			177
18	Constitution Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		2
19	18th St NW	0	0	1	0	1	0	0	0	0	1	1	1	0	0	0	2	0	0	0	9
<b>Total</b>		<b>39</b>	<b>42</b>	<b>123</b>	<b>30</b>	<b>123</b>	<b>17</b>	<b>27</b>	<b>18</b>	<b>7.9</b>	<b>42</b>	<b>26</b>	<b>26</b>	<b>15</b>	<b>6.9</b>	<b>5.9</b>	<b>49</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>598</b>

Source: WMATA Ridecheck Ridership by Stop Reports

**Table 7-6 | Summary of Origin/Destination Estimates – Route L1 PM Peak Northbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
1	C St NW - 17th to 19th St NW	0																				0
2	Constitution Ave NW/21st St NW	0	0																			0
3	23rd St NW - C St NW to G St NW	0	0	0																		0
4	Foggy Bottom Station	5	3	35	0																	43
5	New Hampshire Avenue	1	0	4	2	1																8
6	Dupont Circle	1	0	5	2	2	0															11
7	Mass Ave and Florida Ave	0	0	1	0	0	0	0														2
8	Connecticut Ave - Florida to California	1	1	10	4	5	2	1	1													24
9	Connecticut Ave - Kalorama to Belmont	0	0	3	1	1	1	0	1	0												8
10	Woodley Park Station	1	0	5	2	2	1	0	2	0	0											14
11	National Zoo	1	0	4	2	2	1	0	2	0	2	0										14
12	Connecticut Ave/Macomb St	0	0	1	1	1	0	0	1	0	1	0	0									5
13	Cleveland Park Station	0	0	2	1	1	1	0	1	0	1	0	0	0								9
14	Connecticut Ave. - Sedgwick to Van Ness St	0	0	4	1	2	1	0	2	0	1	1	0	2	0							15
15	Van Ness - UDC Station	0	0	2	1	1	0	0	1	0	1	0	0	1	1	0						9
16	Connecticut Ave. - Albemarle to Everett St	1	1	11	4	6	2	1	5	0	5	2	1	6	5	35	4					91
17	Connecticut Ave./Nebraska Ave	0	0	2	1	1	1	0	1	0	1	0	0	1	1	7	1	0				20
18	Connecticut Ave. - Huntington to Livingston	1	1	8	3	4	2	1	4	0	3	2	1	4	3	25	5	2	2			70
19	Connecticut Ave./McKinley St	1	0	5	2	3	1	1	2	0	2	1	1	3	2	16	3	1	1	0		46
20	Chevy Chase Circle	0	0	4	1	2	1	0	2	0	2	1	0	2	2	12	2	1	1	1	0	34
<b>Total</b>		<b>14</b>	<b>10</b>	<b>107</b>	<b>27</b>	<b>34</b>	<b>14</b>	<b>6</b>	<b>24</b>	<b>2</b>	<b>19</b>	<b>8</b>	<b>4</b>	<b>20</b>	<b>14</b>	<b>95</b>	<b>16</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>422</b>

Source: WMATA Ridecheck Ridership by Stop Reports

### 7.2.2 Route L2 Origin – Destinations

**Table 7-7** and **Table 7-8** present the summary of the origin/destination estimates for Route L2. While the estimates of movements can be seen between each zone, it indicates that the most southbound passengers are destined for either central Washington or the Van Ness-UDC Metro station from along Connecticut Avenue either between Livingston and Huntington Streets or between Ellicott and Yuma Streets. This is identical to the southbound pattern on Route L1.

**Table 7-8** also indicates that the most northbound passengers are destined for locations along Connecticut Avenue between Albemarle and Everett Streets or between Livingston and Huntington Streets, as well as to the terminal at Chevy Chase Circle, from either central Washington or the Van Ness-UDC Metro station. With the exception of Chevy Chase Circle, this is also essentially identical to the northbound pattern on Route L1.

**Table 7-7 | Summary of Origin/Destination Estimates – Route L2 All Day Southbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
1	Chevy Chase Circle	0																0
2	Connecticut Ave./McKinley St	3	0															3
3	Connecticut Ave - Livingston to Huntington	9	15	18														42
4	Connecticut Ave./Nebraska Ave	3	5	9	0													17
5	Connecticut Ave - Ellicott to Yuma St	8	13	26	8	14												70
6	Van Ness-UDC Station	33	52	104	32	110	0											332
7	Connecticut Ave - Van Ness to Rodman St	4	6	12	4	12	5	2										44
8	Cleveland Park Station	5	8	17	5	18	8	9	1									71
9	Connecticut Ave/Macomb St	1	2	3	1	4	2	2	1	0								16
10	National Zoo	3	4	8	3	9	4	5	3	2	2							41
11	Woodley Park Station	3	5	11	3	11	5	6	4	2	7	1						60
12	Calvert Street	9	15	29	9	31	13	16	11	6	18	12	8					179
13	Columbia Rd - Biltmore St to California	5	7	15	5	15	7	8	6	3	9	6	16	9				110
14	Connecticut Ave NW - Leroy Pl to R St	3	5	11	3	11	5	6	4	2	7	4	12	18	3			94
15	Connecticut Ave NW - N St to M St	6	9	18	5	19	8	10	7	4	11	7	19	30	8	1		162
16	Farragut North Station	22	34	68	21	72	31	38	26	15	42	27	74	113	32	10	3	627
<b>Total</b>		<b>119</b>	<b>182</b>	<b>350</b>	<b>99</b>	<b>325</b>	<b>87</b>	<b>102</b>	<b>62</b>	<b>35</b>	<b>94</b>	<b>56</b>	<b>129</b>	<b>170</b>	<b>43</b>	<b>11</b>	<b>3</b>	<b>1,867</b>

Source: WMATA Ridecheck Ridership by Stop Reports

**Table 7-8 | Summary of Origin/Destination Estimates – Route L2 All Day Northbound, October 2017**

Zone	Stop Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total
1	Farragut North Station	2																2
2	Connect. Ave NW - M St to 18th St	8	0															8
3	Connect. Ave - S St to Florida Ave	19	6	2														27
4	Columbia Rd - California to Mintwood	58	19	17	4													98
5	Calvert Street	53	17	16	10	2												97
6	Woodley Park Station	22	7	7	4	18	1											59
7	National Zoo	26	8	8	5	21	7	1										77
8	Connecticut Ave/ Macomb St	8	3	2	2	7	2	2	0									26
9	Cleveland Park Station	16	5	5	3	13	4	3	1	1								50
10	Connecticut Ave. - Sedgwick to Van Ness St	24	8	7	4	19	7	4	2	10	1							85
11	Van Ness - UDC Station	21	7	6	4	17	6	4	1	9	5	0						81
12	Connecticut Ave. - Albemarle to Everett St	59	19	17	11	48	17	11	4	26	13	118	19					362
13	Connecticut Ave./Nebraska Ave	13	4	4	2	11	4	2	1	6	3	26	8	0				83
14	Connecticut Ave. - Huntington to Livingston	53	17	15	10	43	15	10	4	23	11	106	31	14	12			363
15	Connecticut Ave./McKinley St	38	12	11	7	30	11	7	3	16	8	75	22	10	14	0		264
16	Chevy Chase Circle	49	16	14	9	40	14	9	3	21	11	99	29	13	18	2	0	349
<b>Total</b>		<b>470</b>	<b>150</b>	<b>131</b>	<b>76</b>	<b>269</b>	<b>88</b>	<b>52</b>	<b>19</b>	<b>112</b>	<b>51</b>	<b>424</b>	<b>108</b>	<b>38</b>	<b>44</b>	<b>2</b>	<b>0</b>	<b>2,033</b>

Source: WMATA Ridecheck Ridership by Stop Reports

## **8.0 Bus Operator Interview Summary**

Bus drivers along the Mount Pleasant and Connecticut Avenue Lines were interviewed at Western Division Bus Garage on October 24, 2017. Bus drivers were asked to provide input on several key issues affecting their routes, including but not limited to: traffic and environment; bus stop access; operations and ridership; passenger behavior; safety; terminal issues; and potential route change ideas. Below are some of the responses that drivers gave to conditions that are exclusive to the Mount Pleasant Line, exclusive to the Connecticut Avenue Line, or apply to both lines. Responses are organized by location along the route, followed by general operational issues that apply to the entirety of the route.

### **8.1 MOUNT PLEASANT LINE ISSUES**

#### **8.1.1 Downtown Washington, D.C.**

At 9th and F St NW, delivery trucks block the stop, which makes it harder to maneuver buses and pickup disabled passengers. At 17th and H Street NW (near the White House), operators on the 42 complain about the turn from H onto 17th Street. This turn is often blocked by parked cars on curbs and vehicles belonging to both the Secret Service and nearby Executive Office Building.

#### **8.1.2 Farragut Square Issues**

Operators complain that the turnaround at Farragut Square (particularly on the 43), takes longer to complete, sometimes taking as much time as half of their scheduled run. Operators also note that the turn at 17th and I Streets is particularly challenging. Operators note that “this is an accident waiting to happen”. The lack of needed crossing guards, combined with the many cars, bicycles, and pedestrians, adds to the danger and impedes the run time.

#### **8.1.3 Dupont Circle Issues**

South of Dupont Circle, along Connecticut Avenue, double-parked vehicles outside of the Mayflower Hotel block traffic and delay buses. Additionally, the intersection of 18th Street, M Street, and Connecticut Avenue is problematic, especially on the weekends with the many bars and clubs that cause congestion and block operations.

At the circle, the 43 goes under Dupont Circle, while the 42 goes around it. Operators suggested that since the 43 already bypasses Dupont Circle itself, it could be upgraded to an “express” style route and bypass adjacent stops to get passengers back and forth from downtown more quickly. Additionally, Route 42 drivers suggested that the 42 could also bypass Dupont Circle to avoid the traffic caused by delivery trucks and traffic-blocking vehicles on the Connecticut Avenue service lanes north of the circle. Policies that would prohibit trucks from using these lanes or parking there are ineffective, as operators complain that trucks park there anyway and have their employers pay any fines levied. Amending WMATA’s policy and allowing bus drivers to bypass trucks by using the left lane, especially during midday hours, would help to solve this issue.

Operators also note the conflict between WMATA buses and commuter buses north of Dupont Circle, in particular at Connecticut Avenue, S Street, and Florida Avenue NW.

### **8.1.4 Columbia Road Issues**

The construction along Columbia Road (between Dupont Circle and 18th Street) delays bus operations. Delivery trucks will often block the middle of the road. This problem is particularly noticeable near the Burger King and the Safeway.

The space at Columbia Road and Ontario Street NW is also tricky for both buses and riders. The shelter is very close to the curb, and there is not enough space for riders to board or alight from buses.

Further up Columbia Road, operators note that there should be a dedicated left turn signal onto Harvard Street NW from Columbia Road and Mount Pleasant Avenue, citing that this is a particularly tricky intersection to navigate.

### **8.1.5 Mount Pleasant Issues**

There is currently not enough space at the Mount Pleasant terminal to accommodate existing layover. Buses are currently jockeying for space alongside cars and other vehicles, which is magnified during the weekend Farmer's Market. Drivers also note increased congestion at the terminal due to sharing space with the H Lines, and that the scheduled times between the 42/43, and H Lines are too close together. Buses also face conflict from bicycles that further block the road and present safety issues.

To deal with the crowding, buses will often park in the median to allow for added space for all operators/vehicles. Operators suggest that adding additional time between bus routes for departing buses would help alleviate terminal congestion.

### **8.1.6 General Operational Issues**

The following is a list of general operational issues that affect the entire line:

- Delivery trucks are the biggest impediment to making bus stops efficient and ensuring normal operations. Ride extensions or eliminations won't help with the delivery truck issues. Changing run times to accommodate truck-caused congestion would help, as would changing Metrobus policy to allow buses to move into the left lane to avoid trucks.
- Bus times are too close to one another. Operators must often choose between making their schedules or picking up passengers.
- Bus run times during the AM and PM do not allow buses to be on time if drivers leave on time. Operators usually leave 3 minutes early to be on time. This is particularly a problem from Mount Pleasant to 18th Street and Columbia Road. For example, a scheduled 7 minute trip will often take 10 minutes in reality.
- During the PM peak, there is not enough time to clear buses and pedestrians, which makes drivers late along the route.
- Bus stops, in general, should be spaced out more.
- Riders that load up their fare cards during runs are slowing down run times. Operators do not like it when passengers add value to the cards during busy periods. They suggest that riders have pre-loaded cards ahead of time.
- Aside from Mount Pleasant, layover facilities at terminals are generally good.



## **8.2 CONNECTICUT AVENUE LINE ISSUES**

### **8.2.1 Foggy Bottom/West End Issues**

At the Foggy Bottom terminal (17th Street and C Street NW), there is sometimes a problem when there are illegally parked cars and that makes it hard to find a layover space.

Closer to the Metro station, L1 buses are often impeded by ambulances and shuttles at George Washington University Hospital. These vehicles usually block the right lane (bus lane), and both passengers and vehicles that inch out into the street cause congestion and safety concerns.

Within the West End, buses turning from M Street NW onto 23rd St NW cannot get into the optimal turning lane. Operators note that it is a dangerous turn and “an accident waiting to happen”, especially with the addition of illegally parked cars along 23rd Street. Even the addition of more turning lanes into Washington Circle doesn’t make it safe. Passengers also lean out into the street at this section since they cannot see buses, and their presence in the street presents an unsafe situation for buses to navigate.

### **8.2.2 Farragut Square/Connecticut Avenue Issues**

Operators suggest that the L2 stop at Farragut North should be moved to the north side of the Connecticut Avenue and L Street NW intersection. This would alleviate both vehicular and passenger queues for the bus. Operators also lament that the bus stop at 18th Street and Connecticut Avenue is bad for buses and passengers alike.

### **8.2.3 Adams Morgan Issues**

The traffic at 18th Street and Columbia Road NW (for downtown-bound buses) is too much and it slows the bus run time. This traffic occurs during both the AM and PM Peak, and is usually caused by delivery trucks and construction in the area.

### **8.2.4 Uptown Issues**

Traffic remains slow in some parts along Connecticut Avenue NW, particularly near the Woodley Park Metro station and Calvert Street NW, and near the Van Ness-UDC Metro Station (due to construction and frequent deliveries). Operators also note that pedestrians blocking right turns, and physical road issues (including narrow portions of Connecticut Avenue NW and a large pothole near the Cleveland Park Metro station) are causing buses to slow down and have longer run times. Operators suggest that crossing guards at busy pedestrian crossings would reduce backup caused by pedestrians.

Operators have also noted that there should be additional trips for passengers traveling north on the L2 from Van Ness to Chevy Chase, in particular, to accommodate the high senior citizen ridership that frequents this part of the route.

Operators also note that many of the bus stops along the upper portion of Connecticut Avenue NW are hard to see (i.e., blocked by overgrown trees, poor lighting, and have poor visibility in general). Operators suggest that trimming back trees and adding more lighting would make the stops more visible, allowing them to better serve passengers in this area, and not miss passengers at these stops (which sometimes occurs).

Operators have also suggested that schedules should be timed to sync up with transfers for passengers connecting to the E Lines on Missouri Avenue NW.

## 8.2.5 General Operations Issues

The following is a list of general operational issues that affect the entire line:

- Bus runs are not long enough. Operators note that they need to leave 3 minutes early to get to the start of the run just to be on time (otherwise, operators are late).
- The current running times are “a joke”, as one operator describes it, and “there’s no way in heck [sic] that I will get to the end of my route on time” by following the posted schedule times.
- Operators complain that there are too many people adding value to cards and buses are constantly stopping.
- Operators would like to see an additional 15 minutes added to run times. This would help to alleviate schedule problems.
- Cyclists are a constant hazard for operators and they continue to make it difficult for buses to maneuver safely.
- There are too many concurrent bus stops with L1/L2 service where they share the same route. A skip stop service pattern would alleviate crowds and help buses run faster.
- The buses cannot get to the end of the line on time due to wheelchair passengers, passengers adding money during trips, general route traffic, and constant bus stopping.
- There are currently no spaces for articulated buses to park at the Western Division bus garage.

## 8.3 ISSUES WITH BOTH LINES

### 8.3.1 Farragut Square Issues

Operators on both routes complain that crossing guards interfere with bus operations. One crossing guard at Farragut Square is not sufficient to direct bus traffic. The current guard situation actually holds up buses (not just Metrobus, but other buses as well).

### 8.3.2 Connecticut Avenue Issues

Connecticut Avenue needs dedicated arrows and/or signaling for right turns, especially downtown. There are lots of pedestrians crossing at K, L, and M Streets NW, and the constant traffic slows down bus operations. Smart signal timing along both routes would help buses run faster and remain on schedule.

### 8.3.3 Scheduling Issues

Overall there’s not enough time between trips to get on the schedule. As it gets later, the worse it gets with traffic, and trips cannot run on the printed schedule with all that traffic. Schedulers should consider that certain blocks of buses shouldn’t go with other blocks, and that even when trips are added, those trips aren’t being completed. Deadheads to get buses out to starting locations should be considerate of real time traffic conditions, as these delays will eventually lead in to one another as buses continue to block up.

## 9.0 Bus Stop Inventory

### 9.1 BUS STOP SPACING

WMATA's *Guidelines for the Design and Placement of Transit Stops*<sup>1</sup> provides a desired range of bus stops per mile based on the type of bus service that is provided. These guidelines include:

- **Local Bus Service:** Four to five bus stops per mile
- **Enhanced/Limited Stop Service:** Two to three bus stops per mile
- **Commuter/Express Service:** Vary based on employment and high boarding locations

With these guidelines in mind, **Table 9-1** and **Table 9-2** were created to determine the average spacing between existing bus stops along the Mount Pleasant Line (42/43) and the Connecticut Avenue Line (L1/L2).

**Table 9-1 | Mount Pleasant Line – Bus Stop Spacing Overview**

Route Segment	Number of Stops	Route Length	Average Spacing	Maximum Spacing	Minimum Spacing
		Distance in Miles			
<b>42</b>	<b>47</b>	<b>6.9</b>	<b>0.15</b>	<b>0.32</b>	<b>0.07</b>
42 Southbound	24	3.5	0.15	0.32	0.08
42 Northbound	23	3.4	0.15	0.25	0.07
<b>43</b>	<b>32</b>	<b>5</b>	<b>0.17</b>	<b>0.57</b>	<b>0.07</b>
43 Southbound	16	2.4	0.16	0.42	0.08
43 Northbound	16	2.6	0.17	0.57	0.07
<b>Total 42 &amp; 43 Unique Stops</b>	<b>47</b>	<b>-</b>	<b>0.16</b>	<b>0.57</b>	<b>0.07</b>

**Table 9-2 | Connecticut Avenue Line – Bus Stop Spacing Overview**

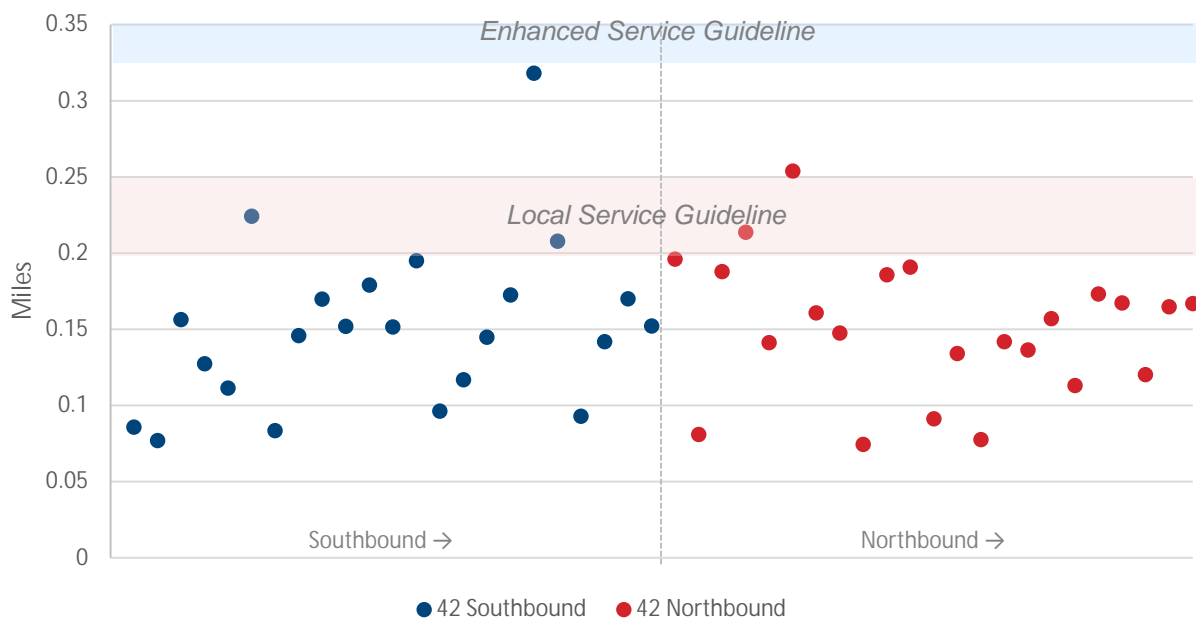
Route Segment	Number of Stops	Route Length	Average Spacing	Maximum Spacing	Minimum Spacing
		Distance in Miles			
<b>L1</b>	<b>90</b>	<b>12.9</b>	<b>0.15</b>	<b>0.36</b>	<b>0.05</b>
L1 Southbound	49	6.4	0.13	0.36	0.05
L1 Northbound	42	6.5	0.16	0.36	0.08
<b>L2</b>	<b>72</b>	<b>10.5</b>	<b>0.15</b>	<b>0.57</b>	<b>0.05</b>
L2 Southbound	39	5.3	0.14	0.42	0.05
L2 Northbound	33	5.2	0.16	0.57	0.07

<sup>1</sup> [https://www.wmata.com/about/board/meetings/upload/031120\\_3ABusStops.pdf](https://www.wmata.com/about/board/meetings/upload/031120_3ABusStops.pdf)

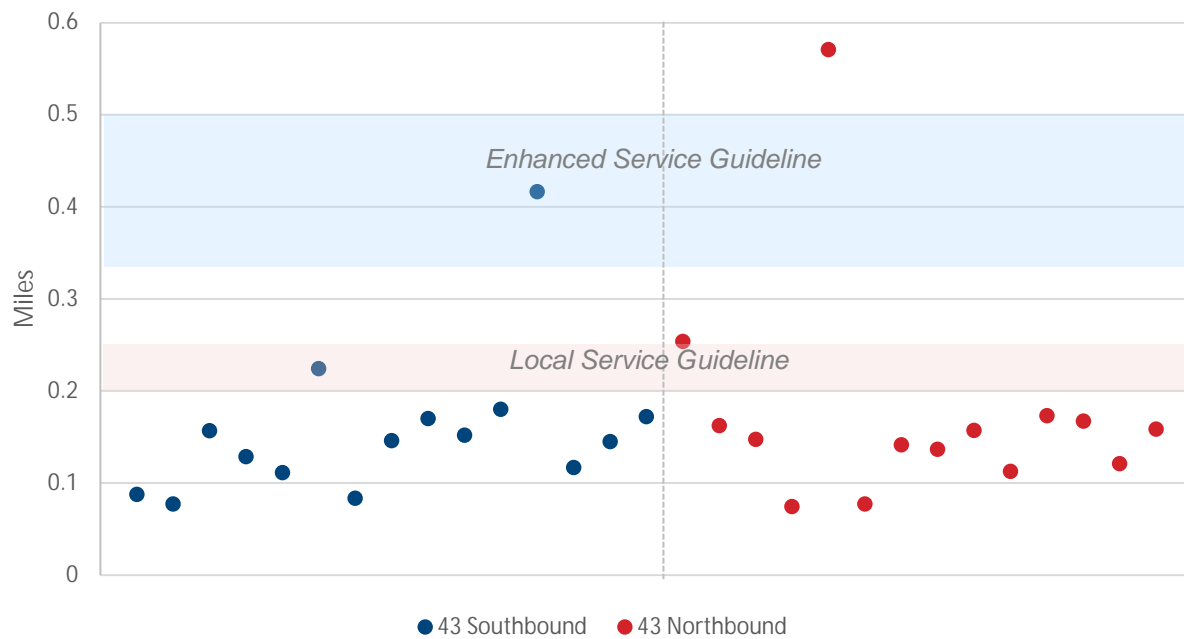
Route Segment	Number of Stops	Route Length	Average Spacing	Maximum Spacing	Minimum Spacing
		Distance in Miles			
<b>L2 Late Night</b>	<b>29</b>	<b>5.3</b>	<b>0.18</b>	<b>0.51</b>	<b>0.06</b>
L2 Late Night Southbound	15	2.6	0.17	0.34	0.06
L2 Late Night Northbound	15	2.7	0.19	0.51	0.06
<b>Total L1 &amp; L2 Unique Stops</b>	<b>138</b>	<b>-</b>	<b>0.16</b>	<b>0.57</b>	<b>0.05</b>

To better visually demonstrate the spacing between existing bus stops the following **Figure 9-1** through **Figure 9-4** were created. The figures show the distance between each bus stop, in order, beginning from each route's northern terminus continuing to the southern terminus and back again. Each point represents the distance between two bus stops. As seen in the Figures, the majority of bus stops are less than 0.2 miles apart (the lower end of WMATA's local bus service spacing guideline).

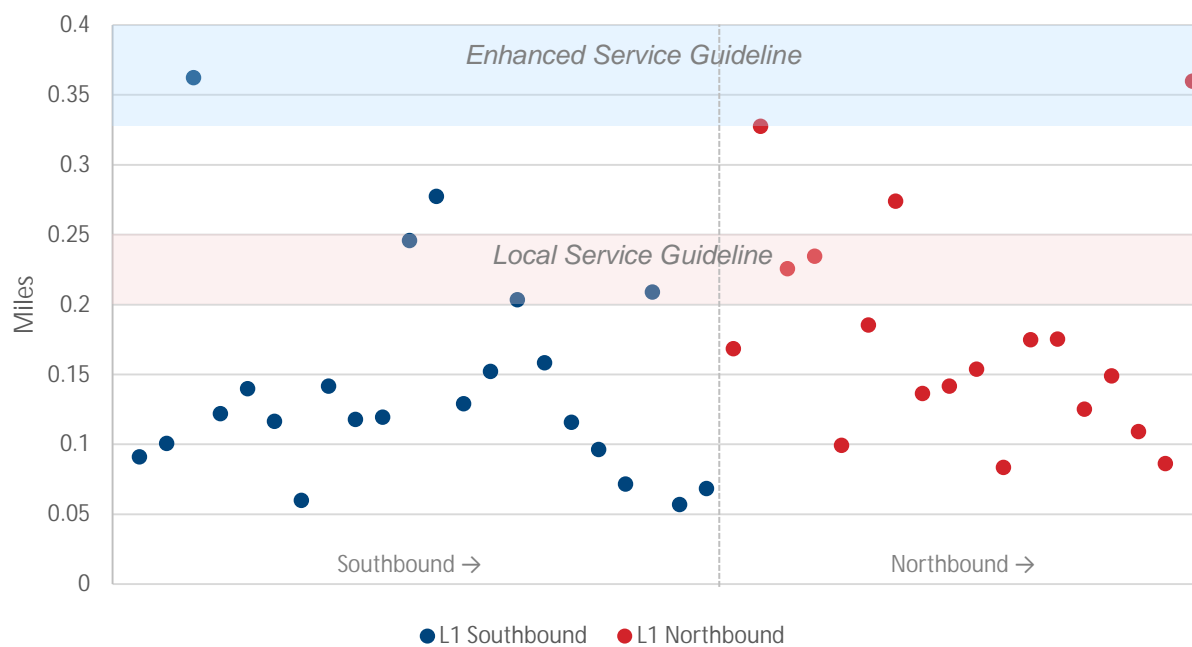
**Figure 9-1 | Route 42 Bus Stop Spacing Visualization**



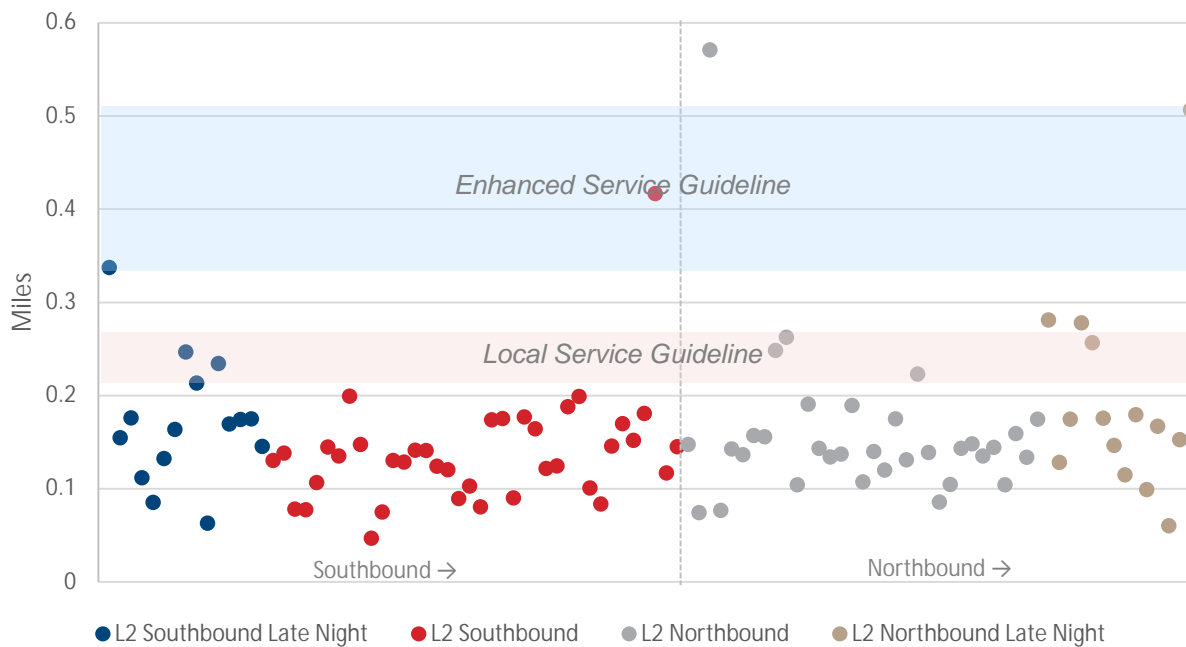
**Figure 9-2 | Route 43 Bus Stop Spacing Visualization**



**Figure 9-3 | Route L1 Bus Stop Spacing Visualization**



**Figure 9-4 | Route L2 Bus Stop Spacing Visualization**



## 9.2 PASSENGER AMENITIES

**Table 9-3** presents a summary of the number and percentage of passenger amenities at each Mount Pleasant Line bus stop followed by **Table 9-4** which provides a list of the bus stops that do not have a passenger shelter or a bench. The majority of stops on the Mount Pleasant Line have a shelter and a bench. Approximately 25 percent of the stops on the Mount Pleasant Line do not have a passenger shelter.

**Table 9-3 | Mount Pleasant Line – Passenger Amenities Overview**

Route	No. of Stops	Shelter		Seating/ Bench		Trash Can		Bicycle Racks*	
		No.	%	No.	%	No.	%	No.	%
42	47	35	74.5%	38	80.9%	39	83.0%	14	29.8%
43	32	25	78.1%	28	87.5%	28	87.5%	9	28.1%
<b>Total 42 &amp; 43 Unique Stops</b>	<b>47</b>	<b>35</b>	<b>74.5%</b>	<b>38</b>	<b>80.9%</b>	<b>39</b>	<b>83.0%</b>	<b>14</b>	<b>29.8%</b>

\* Bike racks are not considered as WMATA bus stop amenities

**Table 9-4 | Mount Pleasant Line – Bus Stops with No Passenger Shelter or Seating**

Regional ID	Bus Stop	Heading	Placement	Shelter	Bench
1001945	HARVARD ST NW @ ARGONNE PL NW	330	Nearside	NO	NO
1003225	COLUMBIA RD NW @ QUARRY RD NW	225	Nearside	NO	NO
1001744	COLUMBIA RD NW @ 19TH ST NW	200	Nearside	NO	YES
1001724	COLUMBIA RD NW @ 19TH ST NW	30	Nearside	NO	YES
1001686	COLUMBIA RD NW @ CALIFORNIA ST NW	200	Far Side	NO	NO
1001694	COLUMBIA RD NW @ CALIFORNIA ST NW	30	Nearside	NO	NO
1001535	CONNECTICUT AVE NW @ 20TH ST NW	341	Far Side	NO	NO
1001343	CONNECTICUT AVE NW @ M ST NW	150	Nearside	NO	YES
1001141	H ST NW @ MADISON PL NW	90	Nearside	NO	NO
1003467	H ST NW @ 14TH ST NW	90	Far Side	NO	NO
1001184	I ST NW @ 12TH ST NW	272	Nearside	NO	NO
1003728	11TH ST NW @ H ST NW	359	Nearside	NO	NO

**Table 9-5** presents the number and percentage of passenger amenities at each Connecticut Avenue Line bus stop.

**Table 9-6** provides a list of the bus stops that do not have a passenger shelter or a bench. Approximately half of the Connecticut Avenue Line stops do not have a passenger shelter (does not include Bethesda or Friendship Heights Metro station since they are under a structure which provides a covering) or a bench and the majority do not have a bicycle rack.

**Table 9-5 | Connecticut Avenue Line – Passenger Amenities Overview**

Route	No. of Stops	Shelter		Seating/ Bench		Trash Can		Bicycle Racks	
		No.	%	No.	%	No.	%	No.	%
L1	90	52	57.8%	53	58.9%	70	77.8%	5	5.6%
L2	72	53	73.6%	55	76.4%	68	94.4%	7	9.7%
L2 Late Night	29	6	20.6%	7	24.1%	17	58.6%	4	13.8%
<b>Total L1 &amp; L2 Unique Stops</b>	<b>138</b>	<b>72</b>	<b>52.1%</b>	<b>76</b>	<b>55.1%</b>	<b>104</b>	<b>75.4%</b>	<b>12</b>	<b>8.7%</b>

\* Bike racks are not considered as WMATA bus stop amenities



**Table 9-6 | Connecticut Avenue Line – Stops with No Passenger Shelter or Seating**

Regional ID	Bus Stop	Heading	Placement	Shelter	Bench
2004059	WISCONSIN AVE @ ELM ST	170	Nearside	NO	NO
2004043	WISCONSIN AVE @ MILLER AVE	170	Nearside	NO	NO
2004049	WISCONSIN AVE @ LELAND ST	335	Far Side	NO	NO
2004082	WISCONSIN AVE @ STANFORD ST	335	Nearside	NO	NO
2003922	WISCONSIN AVE @ BRADLEY BLVD	335	Far Side	NO	NO
2005316	WISCONSIN AVE @ NORWOOD DR	170	Nearside	NO	NO
2003930	WISCONSIN AVE @ NORWOOD DR	335	Nearside	NO	NO
2005325	WISCONSIN AVE @ CHEVY CHASE BLVD	170	Nearside	NO	NO
2004083	WISCONSIN AVE @ CHEVY CHASE BLVD	335	Far Side	NO	NO
2005290	WISCONSIN AVE @ LANGDRUM LN	170	Nearside	NO	NO
2004071	WISCONSIN AVE @ LANGDRUM LN	335	Nearside	NO	NO
2004070	WISCONSIN AVE @ DRUMMOND AVE	335	Across From	NO	NO
2004072	WISCONSIN AVE @ GRAFTON ST	170	Nearside	NO	NO
2005296	WISCONSIN AVE @ GRAFTON ST	335	Nearside	NO	NO
2003700	WISCONSIN AVE @ SOMERSET TER	335	Nearside	NO	NO
2001267	WISCONSIN AVE @ WISCONSIN CIR	10	Nearside	NO	NO
1002705	WESTERN AVE NW @ LIVINGSTON ST NW	90	Nearside	NO	NO
1002709	WESTERN AVE NW @ LIVINGSTON ST NW	220	Nearside	NO	NO
1002722	WESTERN AVE NW @ 41ST ST NW	90	Nearside	NO	NO
2000043	WESTERN AVE NW @ CEDAR PKWY	220	Nearside	NO	NO
2000046	WESTERN AVE NW @ OLIVER ST	220	Far Side	NO	NO
1003675	CHEVY CHASE TERMINAL RDWY @ CONNECTICUT AVE NW	335	At Point of Interest	NO	NO
1002702	CONNECTICUT AVE NW @ LIVINGSTON ST NW	340	Nearside	NO	NO
1002672	CONNECTICUT AVE NW @ MILITARY RD NW	340	Nearside	NO	NO
1002659	CONNECTICUT AVE NW @ JOCELYN ST NW	159	Nearside	NO	NO
1002657	CONNECTICUT AVE NW @ JOCELYN ST NW	340	Nearside	NO	NO
1002569	CONNECTICUT AVE NW @ EVERETT ST NW	340	Nearside	NO	NO
1002517	CONNECTICUT AVE NW @ CHESAPEAKE ST NW	340	Nearside	NO	NO
1002312	CONNECTICUT AVE NW @ TILDEN ST NW	338	Nearside	NO	NO
1002235	CONNECTICUT AVE NW @ PORTER ST NW	155	Nearside	NO	NO
1002080	CONNECTICUT AVE NW @ DEVONSHIRE PL	156	Far Side	NO	NO

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Regional ID	Bus Stop	Heading	Placement	Shelter	Bench
	NW				
1002079	CONNECTICUT AVE NW @ DEVONSHIRE PL NW	336	Nearside	NO	NO
1001979	CONNECTICUT AVE NW @ CATHEDRAL AVE NW	155	Far Side	NO	NO
1001976	CONNECTICUT AVE NW @ CATHEDRAL AVE NW	335	Nearside	NO	NO
1001875	24TH ST NW @ CALVERT ST NW	190	Nearside	NO	NO
1001734	CONNECTICUT AVE NW @ BELMONT RD NW	340	Nearside	NO	NO
1001832	CALVERT ST NW @ BILTMORE ST NW	270	Nearside	NO	NO
1001717	CONNECTICUT AVE NW @ KALORAMA RD NW	340	Nearside	NO	NO
1001697	CONNECTICUT AVE NW @ WYOMING AVE NW	160	Far Side	NO	NO
1001681	CONNECTICUT AVE NW @ CALIFORNIA ST NW	340	Far Side	NO	NO
1001744	COLUMBIA RD NW @ 19TH ST NW	200	Nearside	NO	YES
1001724	COLUMBIA RD NW @ 19TH ST NW	30	Nearside	NO	YES
1001694	COLUMBIA RD NW @ CALIFORNIA ST NW	30	Nearside	NO	NO
1001686	COLUMBIA RD NW @ CALIFORNIA ST NW	200	Far Side	NO	NO
1001517	20TH ST NW @ Q ST NW	181	Nearside	NO	NO
1001483	20TH ST NW @ MASSACHUSETTS AVE NW	180	Nearside	NO	NO
1001343	CONNECTICUT AVE NW @ M ST NW	150	Nearside	NO	YES
1001586	FLORIDA AVE NW @ PHELPS PL NW	22	Nearside	NO	NO
1001392	20TH ST NW @ NEW HAMPSHIRE AVE NW	180	Nearside	NO	NO
1001357	NEW HAMPSHIRE AVE NW @ N ST NW	216	Far Side	NO	NO
1002971	NEW HAMPSHIRE AVE NW @ N ST NW	40	Far Side	NO	NO
1003794	NEW HAMPSHIRE AVE NW @ M ST NW	40	Far Side	NO	YES
1001298	NEW HAMPSHIRE AVE NW @ 22ND ST NW	40	Far Side	NO	NO
1001292	23RD ST NW @ L ST NW	180	Nearside	NO	NO
1001082	23RD ST NW @ G ST NW	360	Nearside	NO	NO
1001015	23RD ST NW @ E ST NW	180	Nearside	NO	NO
1003732	23RD ST NW @ C ST NW	180	Far Side	NO	NO
1000852	CONSTITUTION AVE NW @ 22ND ST NW	89	Nearside	NO	NO
1000855	CONSTITUTION AVE NW @ 22ND ST NW	90	Nearside	NO	NO
1000868	CONSTITUTION AVE NW @ 21ST ST NW	270	Mid-Block	NO	NO
1000858	CONSTITUTION AVE NW @ 20TH ST NW	89	At Point of	NO	NO

Regional ID	Bus Stop	Heading	Placement	Shelter	Bench
			Interest		
1000860	CONSTITUTION AVE NW @ 19TH ST NW	90	Nearside	NO	NO
1000918	C ST NW @ 19TH ST NW	273	Nearside	NO	NO
1000917	C ST NW @ 17TH ST NW	271	Far Side	NO	NO
1000911	18TH ST NW @ C ST NW	360	Nearside	NO	NO
1000942	18TH ST NW @ D ST NW	360	Nearside	NO	NO

### 9.3 BUS STOP INFORMATION

**Table 9-7** and

**Table 9-8** provide a summary of passenger information at stops on the Mount Pleasant Line and a list of the stops that do not have information.

**Table 9-7 | Mount Pleasant Line – Passenger Information Overview**

Route Segment	No. of Stops	Information Case		Schedule Information		Route / System Map		Real Time Arrival Information	
		No.	%	No.	%	No.	%	No.	%
42	47	36	76.6%	20	42.6%	20	42.6%	5	10.6%
43	32	27	84.4%	14	43.8%	16	50.0%	3	9.4%
<b>Total 42 &amp; 43 Unique Stops</b>	<b>47</b>	<b>36</b>	<b>76.6%</b>	<b>20</b>	<b>42.6%</b>	<b>20</b>	<b>42.6%</b>	<b>5</b>	<b>10.6%</b>

**Table 9-8 | Mount Pleasant Line – No Schedule or Route Information**

Regional ID	Bus Stop	Heading	Placement	Schedule Info	Route Info
1002070	LAMONT ST NW @ MT PLEASANT ST NW	110	Nearside	NO	YES
1002005	MT PLEASANT ST NW @ IRVING ST NW	160	Nearside	NO	YES
1001993	MT PLEASANT ST NW @ IRVING ST NW	350	Nearside	NO	NO
1001947	MT PLEASANT ST NW @ HARVARD ST NW	360	Nearside	NO	NO
1001945	HARVARD ST NW @ ARGONNE PL NW	330	Nearside	NO	NO
1003225	COLUMBIA RD NW @ QUARRY RD NW	225	Nearside	YES	NO
1001901	COLUMBIA RD NW @ MOZART PL NW	45	Nearside	YES	NO
1001862	COLUMBIA RD NW @ ONTARIO RD NW	45	Nearside	NO	NO
1001878	COLUMBIA RD NW @ ONTARIO RD NW	225	Nearside	NO	NO
1001809	COLUMBIA RD NW @ 18TH ST NW	45	Nearside	NO	NO

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Regional ID	Bus Stop	Heading	Placement	Schedule Info	Route Info
1001779	COLUMBIA RD NW @ MINTWOOD PL NW	30	Nearside	NO	NO
1001744	COLUMBIA RD NW @ 19TH ST NW	200	Nearside	NO	NO
1001724	COLUMBIA RD NW @ 19TH ST NW	30	Nearside	NO	NO
1001694	COLUMBIA RD NW @ CALIFORNIA ST NW	30	Nearside	NO	NO
1001626	CONNECTICUT AVE NW @ LEROY PL NW	176	Far Side	YES	NO
1001618	CONNECTICUT AVE NW @ FLORIDA AVE NW	355	Far Side	NO	YES
1001592	CONNECTICUT AVE NW @ S ST NW	334	Nearside	NO	NO
1001574	CONNECTICUT AVE NW @ R ST NW	153	Nearside	NO	YES
1001507	CONNECTICUT AVE NW @ Q ST NW	339	Nearside	NO	NO
1001399	CONNECTICUT AVE NW @ DUPONT CIRCLE NW	156	Far Side	NO	NO
1001404	CONNECTICUT AVE NW @ DUPONT CIRCLE NW	343	Nearside	NO	YES
1001343	CONNECTICUT AVE NW @ M ST NW	150	Nearside	YES	NO
1001192	17TH ST NW @ I ST NW	180	Nearside	NO	YES
1001141	H ST NW @ MADISON PL NW	90	Nearside	NO	NO
1003467	H ST NW @ 14TH ST NW	90	Far Side	NO	NO
1001124	H ST NW @ 13TH ST NW	90	Nearside	YES	NO
1001108	H ST NW @ 11TH ST NW	90	Nearside	YES	NO
1001183	I ST NW @ 17TH ST NW	269	Nearside	NO	YES
1001185	I ST NW @ 15TH ST NW	273	Nearside	NO	NO
1001191	I ST NW @ 14TH ST NW	273	Nearside	YES	NO
1001184	I ST NW @ 12TH ST NW	272	Nearside	YES	NO
1003728	11TH ST NW @ H ST NW	359	Nearside	NO	NO
1001068	11TH ST NW @ G ST NW	359	Nearside	NO	NO
1001055	9TH ST NW @ F ST NW	181	Nearside	NO	NO
1001103	H ST NW @ 9TH ST NW	91	Nearside	NO	YES

**Table 9-9** and **Table 9-10** present a summary of the availability of passenger information for Connecticut Avenue Line and a list of stops that do not have any schedule or route information. Approximately 66 percent of the Connecticut Avenue Line stops have schedule information, 47 percent have route information, and 5 percent have real time arrival information.

It should be noted, that the presence of an information case does not necessarily mean that schedule and route information are present at the bus stop. A number of the surveyed information cases were empty.

**Table 9-9 | Connecticut Avenue Line – Passenger Information Overview**

Route Segment	No. of Stops	Information Case		Schedule Information		Route / System Map		Real Time Arrival Information	
		No.	%	No.	%	No.	%	No.	%
L1	90	83	92.2%	72	80.0%	47	52.2%	3	3.3%
L2	72	65	90.3%	58	80.6%	43	59.7%	2	2.8%
L2 Late Night	29	12	41.4%	8	27.6%	9	31.0%	2	6.9%
<b>Total L1 &amp; L2 Stops</b>	<b>138</b>	<b>107</b>	<b>77.5%</b>	<b>92</b>	<b>66.7%</b>	<b>65</b>	<b>47.1%</b>	<b>7</b>	<b>5.1%</b>

**Table 9-10 | Connecticut Avenue Line Bus Stops with No Schedule or Route Information**

Regional ID	Bus Stop	Heading	Placement	Schedule Info	Route Info
2004059	WISCONSIN AVE @ ELM ST	170	Nearside	NO	NO
2004043	WISCONSIN AVE @ MILLER AVE	170	Nearside	NO	NO
2004049	WISCONSIN AVE @ LELAND ST	335	Far Side	NO	NO
2004048	WISCONSIN AVE @ STANFORD ST	170	Far Side	NO	NO
2004082	WISCONSIN AVE @ STANFORD ST	335	Nearside	NO	NO
2004094	WISCONSIN AVE @ BRADLEY BLVD	170	Far Side	NO	NO
2003922	WISCONSIN AVE @ BRADLEY BLVD	335	Far Side	NO	NO
2005316	WISCONSIN AVE @ NORWOOD DR	170	Nearside	NO	NO
2003930	WISCONSIN AVE @ NORWOOD DR	335	Nearside	NO	NO
2005325	WISCONSIN AVE @ CHEVY CHASE BLVD	170	Nearside	NO	NO
2004083	WISCONSIN AVE @ CHEVY CHASE BLVD	335	Far Side	NO	NO
2005290	WISCONSIN AVE @ LANGDRUM LN	170	Nearside	NO	NO
2004071	WISCONSIN AVE @ LANGDRUM LN	335	Nearside	NO	NO
2004070	WISCONSIN AVE @ DRUMMOND AVE	335	Across From	NO	NO
2004072	WISCONSIN AVE @ GRAFTON ST	170	Nearside	NO	NO
2005296	WISCONSIN AVE @ GRAFTON ST	335	Nearside	NO	NO
2003701	WISCONSIN AVE @ SOMERSET TER	170	Far Side	NO	NO
2003700	WISCONSIN AVE @ SOMERSET TER	335	Nearside	NO	NO
2003937	WISCONSIN AVE @ SOUTH PARK AVE	170	Nearside	NO	NO
2005426	FRIENDSHIP HEIGHTS STATION @	90	At Point of Interest	NO	YES
1002705	WESTERN AVE NW @ LIVINGSTON ST NW	90	Nearside	YES	NO

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Regional ID	Bus Stop	Heading	Placement	Schedule Info	Route Info
1002709	WESTERN AVE NW @ LIVINGSTON ST NW	220	Nearside	YES	NO
1002722	WESTERN AVE NW @ 41ST ST NW	90	Nearside	YES	NO
1003675	CHEVY CHASE TERMINAL RDWY @ CONNECTICUT AVE NW	335	At Point of Interest	NO	NO
1002743	CONNECTICUT AVE NW @ MCKINLEY ST NW	154	Nearside	YES	NO
1002721	CONNECTICUT AVE NW @ MCKINLEY ST NW	340	Nearside	NO	YES
1002672	CONNECTICUT AVE NW @ MILITARY RD NW	340	Nearside	YES	NO
1002659	CONNECTICUT AVE NW @ JOCELYN ST NW	159	Nearside	YES	NO
1002657	CONNECTICUT AVE NW @ JOCELYN ST NW	340	Nearside	YES	NO
1002639	CONNECTICUT AVE NW @ HUNTINGTON ST NW	154	Nearside	YES	NO
1002635	CONNECTICUT AVE NW @ HUNTINGTON ST NW	340	Nearside	YES	NO
1002528	CONNECTICUT AVE NW @ CHESAPEAKE ST NW	156	Nearside	YES	NO
1002312	CONNECTICUT AVE NW @ TILDEN ST NW	338	Nearside	YES	NO
1002285	CONNECTICUT AVE NW @ SEDGWICK ST NW	335	Nearside	YES	NO
1002271	CONNECTICUT AVE NW @ RODMAN ST NW	155	Nearside	YES	NO
1002235	CONNECTICUT AVE NW @ PORTER ST NW	155	Nearside	NO	NO
1002240	CONNECTICUT AVE NW @ PORTER ST NW	336	Far Side	YES	NO
1002080	CONNECTICUT AVE NW @ DEVONSHIRE PL NW	156	Far Side	NO	NO
1002079	CONNECTICUT AVE NW @ DEVONSHIRE PL NW	336	Nearside	YES	NO
1002038	CONNECTICUT AVE NW @ ZOO PARK ENTRANCE	335	Nearside	YES	NO
1001979	CONNECTICUT AVE NW @ CATHEDRAL AVE NW	155	Far Side	YES	NO
1001976	CONNECTICUT AVE NW @ CATHEDRAL AVE NW	335	Nearside	YES	NO
1001890	CONNECTICUT AVE NW @ WOODLEY RD NW	336	Nearside	NO	YES
1001877	CONNECTICUT AVE NW @ 24TH ST NW	155	Far Side	YES	NO
1001875	24TH ST NW @ CALVERT ST NW	190	Nearside	NO	NO

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Regional ID	Bus Stop	Heading	Placement	Schedule Info	Route Info
1001826	CONNECTICUT AVE NW @ CALVERT ST NW	155	Far Side	YES	NO
1001734	CONNECTICUT AVE NW @ BELMONT RD NW	340	Nearside	YES	NO
1001829	CALVERT ST NW @ BILTMORE ST NW	90	Nearside	NO	NO
1001832	CALVERT ST NW @ BILTMORE ST NW	270	Nearside	NO	NO
1001827	CALVERT ST NW @ LANIER PL NW	90	Nearside	YES	NO
1001681	CONNECTICUT AVE NW @ CALIFORNIA ST NW	340	Far Side	NO	NO
1001779	COLUMBIA RD NW @ MINTWOOD PL NW	30	Nearside	NO	NO
1001744	COLUMBIA RD NW @ 19TH ST NW	200	Nearside	NO	NO
1001724	COLUMBIA RD NW @ 19TH ST NW	30	Nearside	NO	NO
1001694	COLUMBIA RD NW @ CALIFORNIA ST NW	30	Nearside	NO	NO
1001626	CONNECTICUT AVE NW @ LEROY PL NW	176	Far Side	YES	NO
1001618	CONNECTICUT AVE NW @ FLORIDA AVE NW	355	Far Side	NO	YES
1001592	CONNECTICUT AVE NW @ S ST NW	334	Nearside	NO	NO
1001574	CONNECTICUT AVE NW @ R ST NW	153	Nearside	NO	YES
1001517	20TH ST NW @ Q ST NW	181	Nearside	YES	NO
1001483	20TH ST NW @ MASSACHUSETTS AVE NW	180	Nearside	YES	NO
1001343	CONNECTICUT AVE NW @ M ST NW	150	Nearside	YES	NO
1001586	FLORIDA AVE NW @ PHELPS PL NW	22	Nearside	YES	NO
1001392	20TH ST NW @ NEW HAMPSHIRE AVE NW	180	Nearside	YES	NO
1001357	NEW HAMPSHIRE AVE NW @ N ST NW	216	Far Side	YES	NO
1002971	NEW HAMPSHIRE AVE NW @ N ST NW	40	Far Side	YES	NO
1001333	NEW HAMPSHIRE AVE NW @ M ST NW	217	Nearside	NO	NO
1003794	NEW HAMPSHIRE AVE NW @ M ST NW	40	Far Side	NO	NO
1001298	NEW HAMPSHIRE AVE NW @ 22ND ST NW	40	Far Side	NO	NO
1001292	23RD ST NW @ L ST NW	180	Nearside	YES	NO
1001168	23RD ST NW @ I ST NW	359	Far Side	NO	YES
1001082	23RD ST NW @ G ST NW	360	Nearside	YES	NO
1003732	23RD ST NW @ C ST NW	180	Far Side	NO	NO
1000868	CONSTITUTION AVE NW @ 21ST ST NW	270	Mid-Block	NO	NO
1000858	CONSTITUTION AVE NW @ 20TH ST NW	89	At Point of Interest	NO	NO



Regional ID	Bus Stop	Heading	Placement	Schedule Info	Route Info
1000860	CONSTITUTION AVE NW @ 19TH ST NW	90	Nearside	NO	NO
1000917	C ST NW @ 17TH ST NW	271	Far Side	NO	NO
1000911	18TH ST NW @ C ST NW	360	Nearside	NO	NO
1000942	18TH ST NW @ D ST NW	360	Nearside	YES	NO

## 9.4 BUS STOP ACCESSIBILITY

The following series of tables provide information on the accessibility of the stop, passenger amenities and customer information. The accessibility of the stop focuses on the presence of an ADA landing pad connected by an unobstructed sidewalk with adequate curb ramp connections. The passenger shelter and customer information were also assessed to determine if there are adequate clearances for a person in a wheelchair to utilize the shelter and access available schedule and route information.

**Table 9-11, Table 9-12, and**

**Table 9-13** provide information on the Mount Pleasant Line. **Table 9-14**, **Table 9-15**, and **Table 9-16** provide information on the Connecticut Line.

**Table 9-11 | Mount Pleasant Line – ADA Accessibility Overview**

Route Segment	No. of Stops	100% ADA Accessible		Accessible Pad, Sidewalk, and Curb Ramp		Accessible Passenger Amenities	
		No.	%	No.	%	No.	%
42	47	35	74.5%	43	91.5%	31 of 40	77.5%
43	32	24	70.6%	30	93.8%	19 of 28	67.9%
<b>Total 42 &amp; 43 Unique Stops</b>	<b>47</b>	<b>35</b>	<b>74.5%</b>	<b>43</b>	<b>91.5%</b>	<b>31 of 40</b>	<b>77.5%</b>

**Table 9-12 | Mount Pleasant Line – ADA Accessibility Detail**

Route Segment	No. of Stops	5' x 8' Unobstructed Pad		Compliant Path to Curb Ramp		Shelter Accessible		Information Case Accessible	
		No.	%	No.	%	No.	%	No.	%
42	47	43	91.5%	47	100%	35 of 35	100%	27 of 36	75%
43	32	30	93.8%	32	100%	25 of 25	100%	7 of 27	25.9%
<b>Total 42 &amp; 43 Unique Stops</b>	<b>47</b>	<b>43</b>	<b>91.5%</b>	<b>47</b>	<b>100%</b>	<b>35 of 35</b>	<b>100%</b>	<b>27 of 36</b>	<b>75%</b>

**Table 9-13 | Mount Pleasant Line Stops with Accessibility Issues**

Regional ID	Bus Stop	Heading	Placement	Accessible		
				Stop	Shelter	Customer Info
1002066	MT PLEASANT ST NW @ LAMONT ST NW	350	Nearside	YES	YES	NO
1002042	MT PLEASANT ST NW @ KENYON ST NW	160	Nearside	YES	YES	NO
1001810	COLUMBIA RD NW @ BILTMORE ST NW	200	Nearside	NO	YES	NO
1001809	COLUMBIA RD NW @ 18TH ST NW	45	Nearside	NO	YES	N/A
1001789	COLUMBIA RD NW @ MINTWOOD PL NW	200	Nearside	YES	YES	NO
1001535	CONNECTICUT AVE NW @ 20TH ST NW	341	Far Side	YES	N/A	NO
1001507	CONNECTICUT AVE NW @ Q ST NW	339	Nearside	NO	YES	N/A
1001343	CONNECTICUT AVE NW @ M ST NW	150	Nearside	YES	N/A	NO
1001295	CONNECTICUT AVE NW @ L ST NW	150	Nearside	YES	YES	NO
1001124	H ST NW @ 13TH ST NW	90	Nearside	NO	YES	NO
1001326	CONNECTICUT AVE NW @ M ST NW	336	Nearside	YES	YES	NO

**Table 9-14 | Connecticut Avenue Line – ADA Accessibility Overview**

Route Segment	No. of Stops	100% ADA Accessible		Accessible Pad, Sidewalk, and Curb Ramp		Accessible Passenger Amenities	
		No.	%	No.	%	No.	%
L1	90	49	54.4%	77	85.6%	56 of 83	67.5%
L2	72	39	54.2%	64	88.9%	43 of 66	65.2%
L2 Late Night	29	20	69%	25	86.2%	11 of 13	84.6%
<b>Total L1 &amp; L2 Unique Stops</b>	<b>138</b>	<b>83</b>	<b>60.1%</b>	<b>118</b>	<b>85.5%</b>	<b>93 of 111</b>	<b>83.8%</b>

**Table 9-15 | Connecticut Avenue Line – ADA Accessibility Detail**

Route Segment	No. of Stops	5' x 8' Unobstructed Pad		Compliant Path to Curb Ramp		Shelter Accessible		Information Case Accessible	
		No.	%	No.	%	No.	%	No.	%
L1	90	77	85.6%	84	93.3%	45 of 52	86.5%	51 of 83	61.4%
L2	72	64	88.9%	71	98.6%	46 of 52	88.5%	36 of 65	57.1%
L2 Late Night	29	25	86.2%	25	86.2%	5 of 5	100%	10 of 12	83.3%
<b>Total L1 &amp; L2 Unique Stops</b>	<b>138</b>	<b>121</b>	<b>87.7%</b>	<b>129</b>	<b>93.5%</b>	<b>62 of 70</b>	<b>88.6%</b>	<b>65 of 109</b>	<b>59.6%</b>

**Table 9-16 | Connecticut Avenue Line Stops with Accessibility Issues**

Regional ID	Bus Stop	Heading	Placement	Accessible		
				Stop	Shelter	Customer Info
2004094	WISCONSIN AVE @ BRADLEY BLVD	170	Far Side	YES	YES	NO
2003930	WISCONSIN AVE @ NORWOOD DR	335	Nearside	NO	N/A	N/A
2004071	WISCONSIN AVE @ LANGDRUM LN	335	Nearside	NO	N/A	N/A
2004070	WISCONSIN AVE @ DRUMMOND AVE	335	Across From	NO	N/A	N/A
2003701	WISCONSIN AVE @ SOMERSET TER	170	Far Side	YES	YES	NO
2003937	WISCONSIN AVE @ SOUTH PARK AVE	170	Nearside	NO	YES	NO
2000043	WESTERN AVE NW @ CEDAR PKWY	220	Nearside	NO	N/A	NO
2000046	WESTERN AVE NW @ OLIVER ST	220	Far Side	NO	N/A	NO
1003675	CHEVY CHASE TERMINAL RDWY @ CONNECTICUT AVE NW	335	At Point of Interest	NO	N/A	N/A
1002702	CONNECTICUT AVE NW @ LIVINGSTON ST NW	340	Nearside	YES	N/A	NO
1002685	CONNECTICUT AVE NW @ MILITARY RD NW	155	Nearside	NO	YES	YES
1002672	CONNECTICUT AVE NW @ MILITARY RD NW	340	Nearside	YES	NA	NO
1002657	CONNECTICUT AVE NW @ JOCELYN ST NW	340	Nearside	YES	NA	NO
1002635	CONNECTICUT AVE NW @ HUNTINGTON ST NW	340	Nearside	NO	NO	YES
1002597	CONNECTICUT AVE NW @ NEBRASKA	340	Nearside	YES	NO	YES

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Regional ID	Bus Stop	Heading	Placement	Accessible		
				Stop	Shelter	Customer Info
	AVE NW					
1002565	CONNECTICUT AVE NW @ ELLICOTT ST NW	154	Nearside	NO	YES	YES
1002539	CONNECTICUT AVE NW @ DAVENPORT ST NW	340	Nearside	YES	YES	NO
1002528	CONNECTICUT AVE NW @ CHESAPEAKE ST NW	156	Nearside	NO	NO	NO
1002517	CONNECTICUT AVE NW @ CHESAPEAKE ST NW	340	Nearside	YES	NA	NO
1002509	CONNECTICUT AVE NW @ BRANDYWINE ST NW	154	Nearside	YES	NO	NO
1002502	CONNECTICUT AVE NW @ BRANDYWINE ST NW	340	Nearside	YES	NO	NO
1002477	CONNECTICUT AVE NW @ ALBEMARLE ST NW	340	Nearside	YES	YES	NO
1002415	CONNECTICUT AVE NW @ VEAZEY TER NW	154	Nearside	YES	NO	NO
1002372	CONNECTICUT AVE NW @ VAN NESS ST NW	340	Nearside	YES	NO	NO
1002331	CONNECTICUT AVE NW @ TILDEN ST NW	153	Nearside	YES	YES	NO
1002312	CONNECTICUT AVE NW @ TILDEN ST NW	338	Nearside	NO	N/A	NO
1002285	CONNECTICUT AVE NW @ SEDGWICK ST NW	335	Nearside	YES	YES	NO
1002235	CONNECTICUT AVE NW @ PORTER ST NW	155	Nearside	YES	N/A	NO
1002240	CONNECTICUT AVE NW @ PORTER ST NW	336	Far Side	YES	YES	NO
1002221	CONNECTICUT AVE NW @ ORDWAY ST NW	154	Nearside	YES	YES	NO
1002168	CONNECTICUT AVE NW @ MACOMB ST NW	155	Nearside	YES	YES	NO
1002152	CONNECTICUT AVE NW @ MACOMB ST NW	337	Nearside	YES	YES	NO
1002038	CONNECTICUT AVE NW @ ZOO PARK ENTRANCE	335	Nearside	NO	YES	YES
1001976	CONNECTICUT AVE NW @ CATHEDRAL AVE NW	335	Nearside	YES	N/A	NO

Metrobus Service Evaluation Study:  
Mount Pleasant Line (42/43) and Connecticut Avenue Line (L1/L2)

Regional ID	Bus Stop	Heading	Placement	Accessible		
				Stop	Shelter	Customer Info
1001877	CONNECTICUT AVE NW @ 24TH ST NW	155	Far Side	NO	YES	YES
1001858	CONNECTICUT AVE NW @ CALVERT ST NW	335	Far Side	YES	YES	NO
1001717	CONNECTICUT AVE NW @ KALORAMA RD NW	340	Nearside	YES	N/A	NO
1001827	CALVERT ST NW @ LANIER PL NW	90	Nearside	YES	NO	NO
1001697	CONNECTICUT AVE NW @ WYOMING AVE NW	160	Far Side	YES	N/A	NO
1001681	CONNECTICUT AVE NW @ CALIFORNIA ST NW	340	Far Side	NO	N/A	N/A
1001810	COLUMBIA RD NW @ BILTMORE ST NW	200	Nearside	NO	YES	NO
1001789	COLUMBIA RD NW @ MINTWOOD PL NW	200	Nearside	YES	YES	NO
1001520	MASSACHUSETTS AVE NW @ FLORIDA AVE NW	294	Nearside	YES	YES	NO
1001343	CONNECTICUT AVE NW @ M ST NW	150	Nearside	YES	N/A	NO
1001326	CONNECTICUT AVE NW @ M ST NW	336	Nearside	YES	YES	NO
1001295	CONNECTICUT AVE NW @ L ST NW	150	Nearside	YES	YES	NO
1001357	NEW HAMPSHIRE AVE NW @ N ST NW	216	Far Side	YES	N/A	NO
1002971	NEW HAMPSHIRE AVE NW @ N ST NW	40	Far Side	NO	N/A	NO
1003794	NEW HAMPSHIRE AVE NW @ M ST NW	40	Far Side	NO	N/A	N/A
1001083	23RD ST NW @ G ST NW	180	Nearside	NO	YES	NO
1001082	23RD ST NW @ G ST NW	360	Nearside	YES	NA	NO
1003181	23RD ST NW @ C ST NW	360	Nearside	YES	YES	NO
1000858	CONSTITUTION AVE NW @ 20TH ST NW	89	At Point of Interest	NO	N/A	NO
1000860	CONSTITUTION AVE NW @ 19TH ST NW	90	Nearside	NO	N/A	YES
1000911	18TH ST NW @ C ST NW	360	Nearside	NO	N/A	NO
1000942	18TH ST NW @ D ST NW	360	Nearside	YES	NA	NO