

Metrobus Service Evaluation Study

H1 - Brookland - Potomac Park Line,

H2, H3, H4 - Crosstown Line,

H8, H9 - Park Road - Brookland Line

Final Report

October 2013



Study Purpose

- *The primary study purpose is to review capacity, productivity, and quality of service indicators, identify the need for customer facilities, and prepare recommendations to improve service delivery for the Brookland - Potomac Park, Crosstown and Park Road - Brookland Lines.*



Project Scope of Work

- *Transit Service Assessment*
 - Developed a detailed assessment and “snapshot” of the Brookland-Potomac Park, Crosstown, and Park Road-Brookland Lines
 - Overall service characteristics, ridership and productivity, boardings and alightings, passenger loads, bus stop spacing, on-time performance, driver and planner interviews
- *Traffic Operations Assessment*
 - Identify the full range of traffic issues on the Brookland-Potomac Park, Crosstown, and Park Road-Brookland Lines
 - Traffic signals and other traffic control devices
 - Lane widths and right-of-way
 - Turns and adequate turning radius
 - On-Street Parking



Project Scope of Work

- *Public Outreach*
 - Rider survey to gauge issues and needs
 - Two public meetings and Focus Group
 - Issues identification
 - Feedback on preliminary recommendations
 - Outreach results were key input into the study process and recommendations



Project Scope of Work

- *Recommendations*
 - Completed in two steps
 - Preliminary recommendations – relied on inputs from all previous steps
 - Final – incorporate project team comments
 - Areas covered by recommendations
 - New limited stop service and service extensions
 - Expansion of peak period service to all-day service
 - Dedicated supervision
 - Passenger facilities
 - Traffic and running way improvements
 - Stop consolidation
 - Schedule adjustments to reflect actual run times



Line Summary

- Line Description
 - The Crosstown Line is comprised of three route patterns (H2,3,4)
 - The H2 route begins at the Brookland-CUA Metrorail station and runs to the Tenleytown-AU Metrorail station in a westbound direction. Running crosstown, the H2 serves the Brookland-CUA, Columbia Heights, Cleveland Park, Van Ness-UDC, and Tenleytown–AU Metrorail stations as well as the Washington Hospital Center
 - The H3 route pattern is a peak period service that runs approximately parallel to the H2 and serves the same stations as the H2, except for the Van–Ness UDC station.
 - The H4 route pattern is the same as the H3 in terms of streets utilized, except that the H4 enters and serves the Washington Hospital Center. It serves the same Metrorail stations as the H3.



Line Summary

- Line Description
 - The Park Road-Brookland Line is comprised of two route patterns (H8, 9)
 - The H8 route begins at the Rhode Island Avenue Station and runs to Mt. Pleasant Street and 17th Street in northwest DC in a northbound and westbound direction. The H8 serves a number of Metrorail stations including the Rhode Island Avenue, Brookland–CUA, Georgia Avenue–Petworth and Columbia Heights Stations.
 - The H9 route is a minor route pattern that runs from the Rhode Island Avenue and Brookland Metrorail stations to Archbishop John Carroll High School. The service runs only when the school is in session and consists of three trips in the morning. The route shares the H8 alignment on Rhode Island Avenue, 12th Street, Monroe Street, 10th Street and Taylor Street.



Line Summary

- Line Description

- The Brookland-Potomac Park (H1) is a peak direction, peak period service urban arterial line running between the Brookland–CUA Metrorail station and the State Department in Foggy Bottom. It also serves the Columbia Heights Metrorail Station, the Dupont Circle Metrorail Station, and the Foggy Bottom- GWU Metrorail Station.



Line Summary

- *Service Characteristics*

- Days and hours of service by direction (start of first trip to start of last trip)

	Brookland-Potomac Park Line (H1) Hours of Service	Crosstown Line (H2, 3, 4) Hours of Service	Park Rd-Brookland Line (H8, 9) Hours of Service
Westbound/Southbound			
Weekday	6:20 AM to 8:55 AM	4:30 AM to 12:50 AM	5:00 AM to 1:56 AM
Saturday	No Weekend Service	4:50 AM to 12:53 AM	5:58 AM to 2:02 AM
Sunday	No Weekend Service	4:56 AM to 11:58 PM	5:59 AM to 12:36 AM
Eastbound/Northbound			
Weekday	4:15 PM to 6:10 PM	5:11 AM to 1:30 AM	5:16 AM to 1:53 AM
Saturday	No Weekend Service	5:26 AM to 1:30 AM	5:45 AM to 2:03 AM
Sunday	No Weekend Service	5:35 AM to 12:40 AM	6:00 AM to 12:36 AM

Line Summary

- Weekday Ridership and Productivity*

Line	Productivity Measure	Value	Minimum WMATA Standard
Brookland-Potomac Line (H1)	Daily ridership	658	> 385
	Cost recovery from fares	37.19%	>14.96%
	Boardings/trip	43.9	>9.49
	Subsidy/passenger	\$2.03	<\$5.90
	Boardings/revenue mile	6.9	>1.02
Crosstown Line (H2,3,4)	Daily ridership	5,727	➤ 385
	Cost recovery from fares	27.0%	>14.96%
	Boardings/trip	29.1	>9.49
	Subsidy/passenger	\$2.47	<\$5.90
	Boardings/revenue mile	4.3	>1.02

Source: WMATA Productivity Report – March 2013

Line Summary

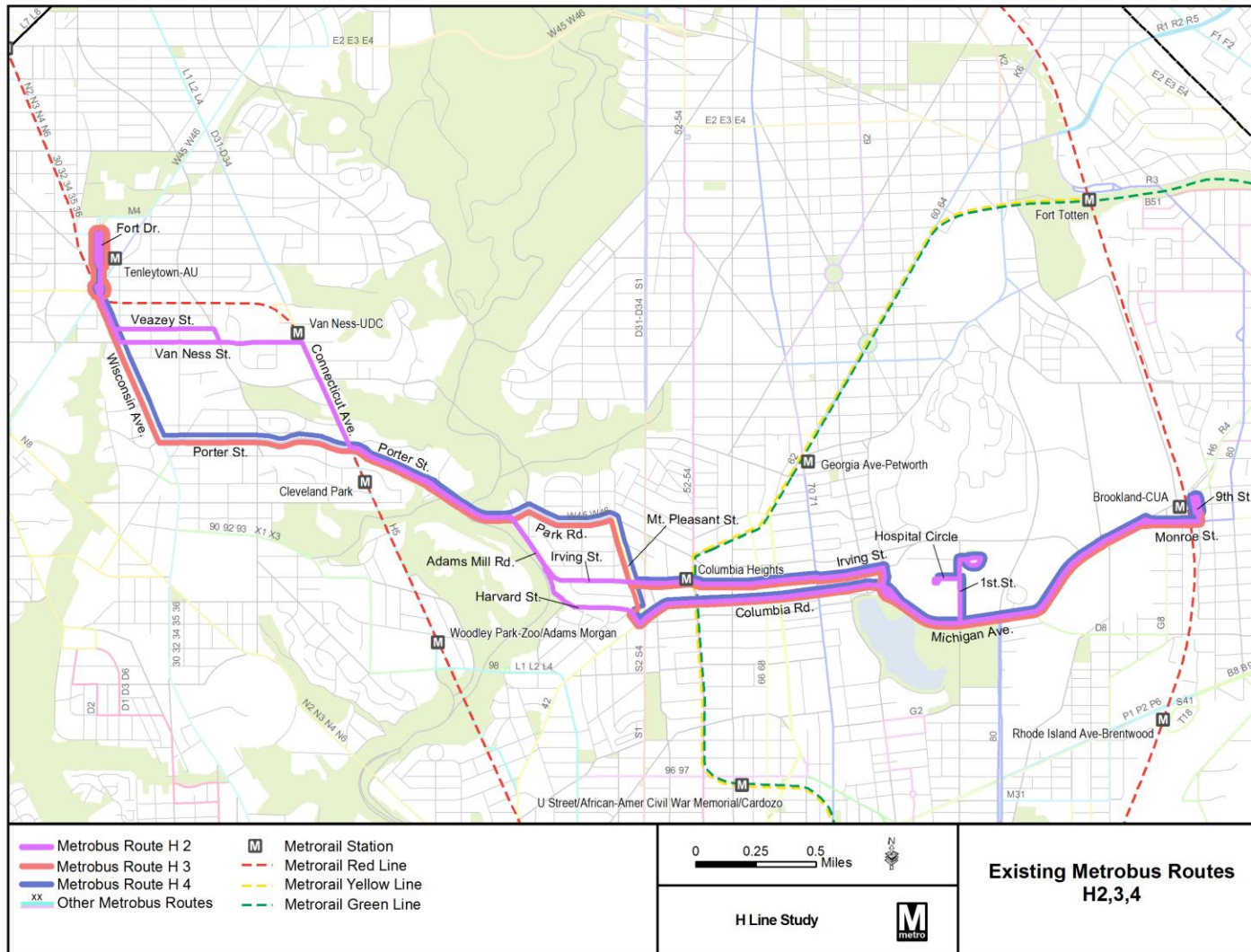
- Weekday Ridership and Productivity*

Line	Productivity Measure	Value	Minimum WMATA Standard
Park Rd-Brookland Line (H8,9)	Daily ridership	3,313	>385
	Cost recovery from fares	26.34%	>14.96%
	Boardings/trip	25.9	>9.49
	Subsidy/passenger	\$2.39	<\$5.90
	Boardings/revenue mile	4.5	>1.02

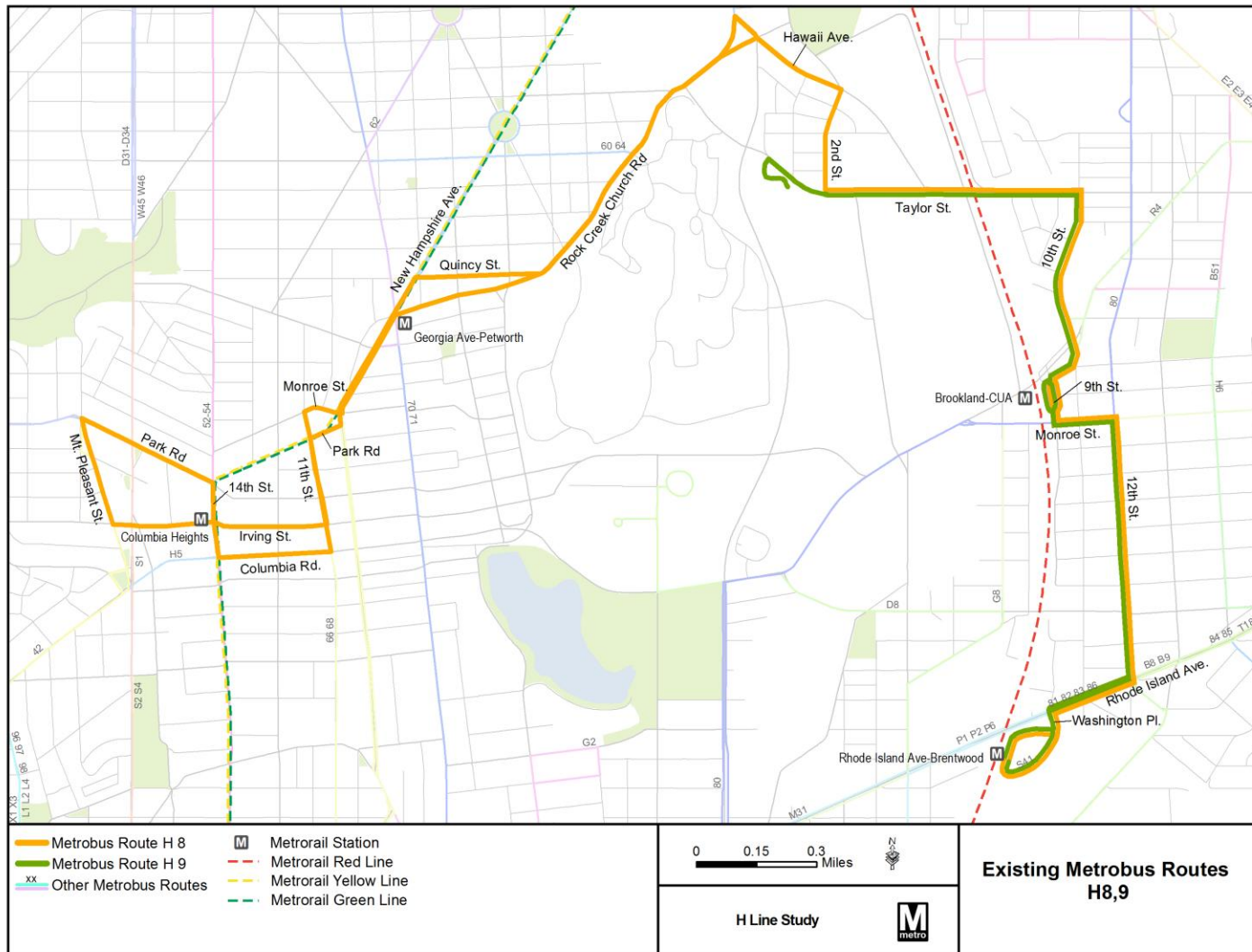
Source: WMATA Productivity Report – March 2013



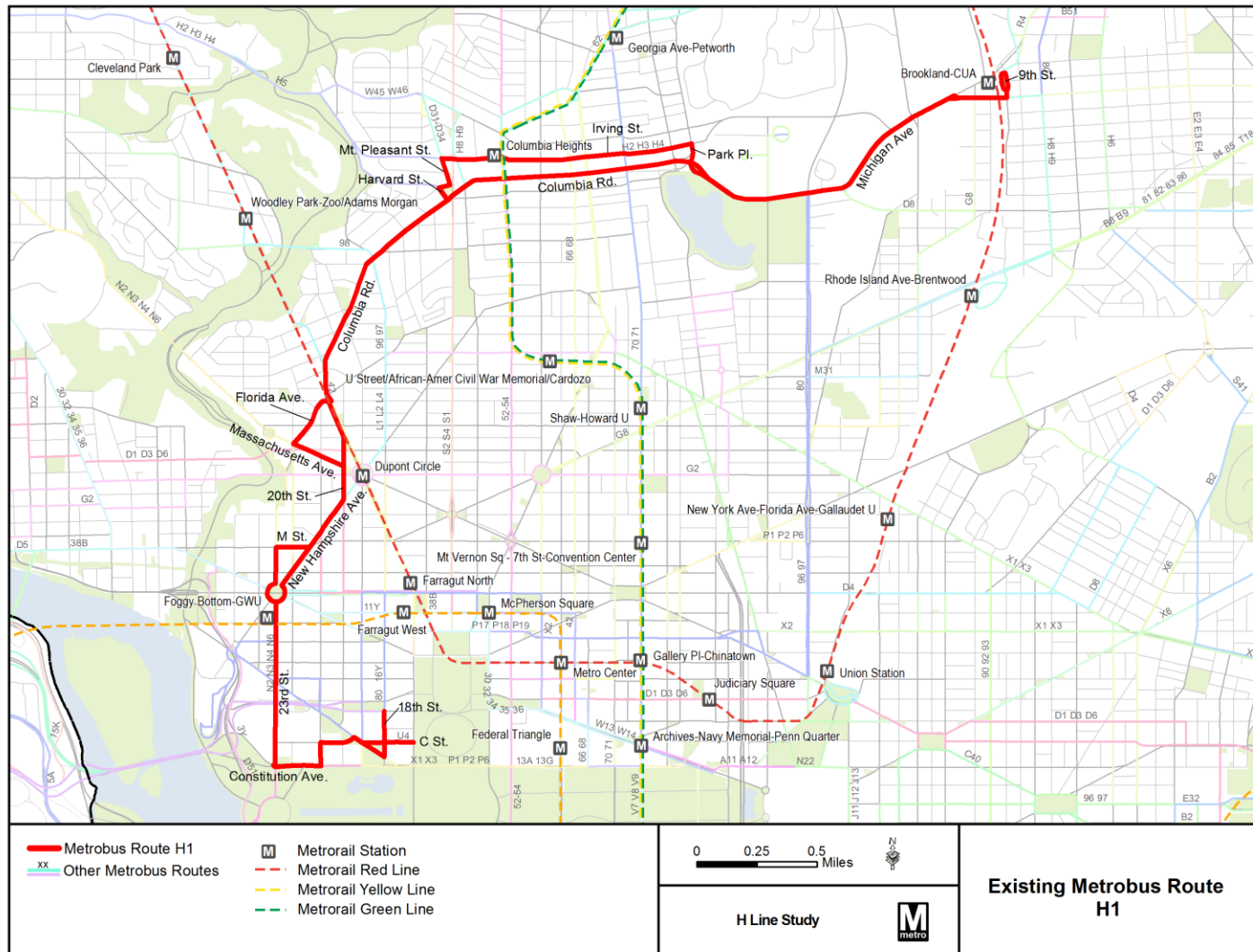
Line Map – Crosstown Line



Line Map – Park Road – Brookland Line



Line Map – Brookland - Potomac Park Line



Study Findings

- Inconvenient Washington Hospital Center Diversion
 - The H2 and H4 both make a diversion from Michigan Avenue to run through the Washington Hospital Center (the H3 does not make this diversion). The majority of H Line riders are through riders that are forced to sit through the diversion, which takes approximately five to eight minutes depending on the time of day.
- Insufficient Hours of Service
 - Two instances were identified where the H line's hours of service do not meet WMATA guidelines for hours of service.
- Poor On-Time Performance
 - A review of the on-time performance data on H Line trips shows that on-time performance on each of the H Lines falls below WMATA goals for on-time performance during many times of the day, and during all days of the week.

Study Findings

- Insufficient Run Time
 - Review of NextBus data identified multiple instances of insufficient run time when compared to actual run times.
- Passenger Facilities
 - Bus stop spacing - multiple stops are too close together based on WMATA bus stop spacing guidelines.
 - Multiple stops lack basic bus stop amenities as outlined in WMATA Bus Stop Guidelines.



Service Recommendations

- Overall Strategic Goals
 - Five overall strategic goals were identified for the H Lines service in order to guide development of service recommendations
 - Provide a direct all day, two-way connection to downtown Washington from the H Lines' service area
 - Provide more trips that bypass the MedStar Washington Hospital Center throughout the day, not just during peak periods
 - Provide quicker connections between the Rhode Island Avenue Metrorail Station and the Columbia Road/Irving Street one-way pair and Columbia Heights and Mount Pleasant
 - Provide a limited stop service between the Rhode Island Avenue Metrorail Station and the western end of the H Lines
 - Improve on-time performance and service reliability



Service Recommendations

Recommendation #1

- *Recommendation*
 - Convert H1 Service into all-day bi-directional service
 - Service would run every 15 minutes in both directions during the AM and PM peaks and 30 minutes in both directions during the remainder of the day. Service would run between 6:00 AM and 10:00 PM.
 - Mid-day and evening trips would terminate at Washington Circle. Peak period trips would continue to run to Potomac Park.



Service Recommendations

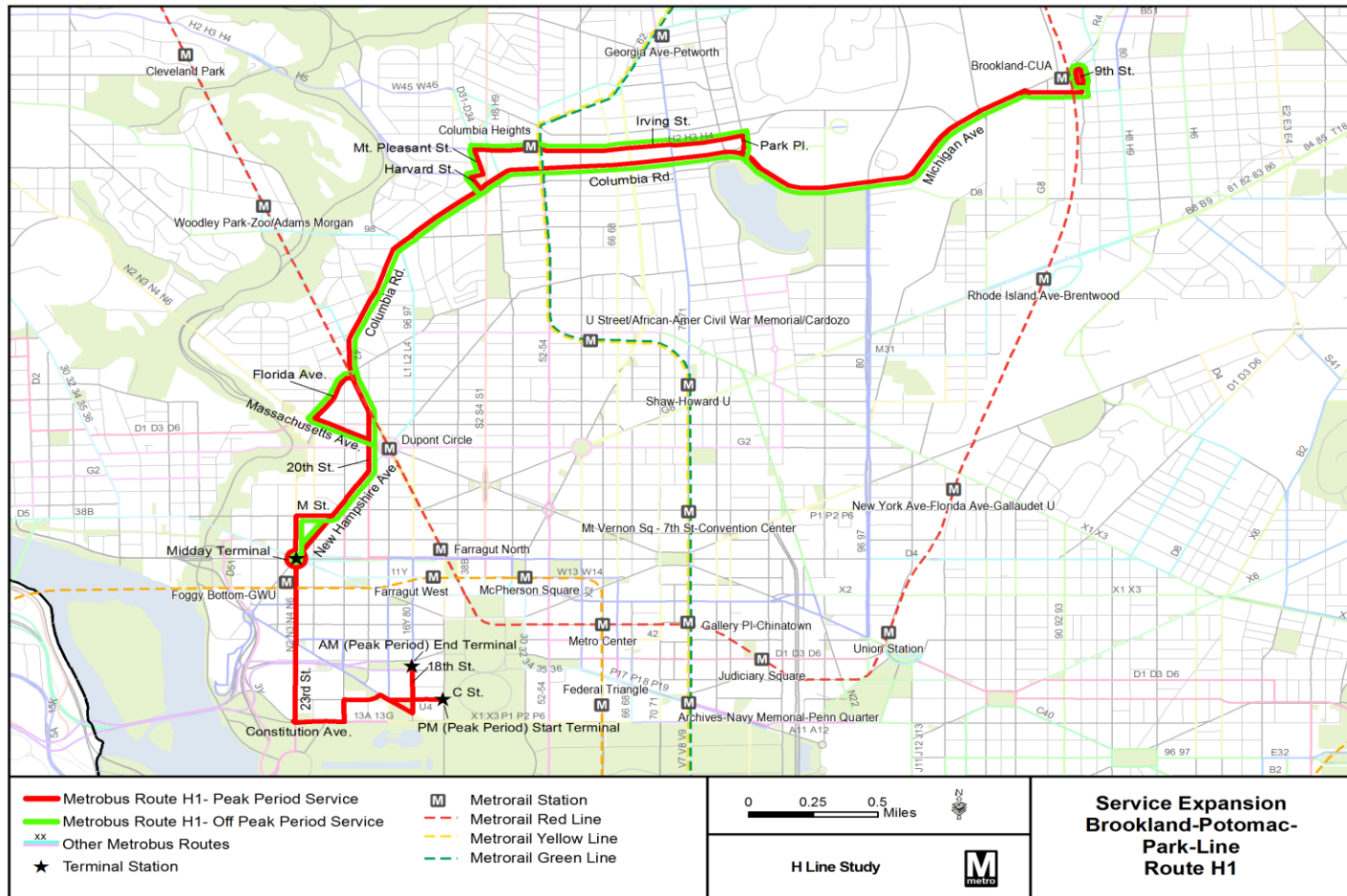
Recommendation #1(cont.)

- *Recommendation Purpose*
 - The proposed service modification helps to meet two of the four strategic goals for the H Lines
 - Provide a direct two-way connection to downtown Washington from H Lines' service area
 - Provide more trips that bypass the MedStar Washington Hospital Center throughout the day, not just during peak periods
- *Estimated Annual Operating Cost Associated with Change*
 - \$2,073,360



Service Recommendations

Recommendation #1 – Proposed Service Map



Service Recommendations

Recommendation #2

- *Recommendation*
 - Convert current H3 trips to limited stop service and extend the service from the current eastern terminal at Brookland Metrorail Station to the Rhode Island Avenue Metrorail Station.
 - In the short-term, the same number of trips as today would run. Longer-term, based on demand, service will be evaluated for potential improvement in service frequency



Service Recommendations

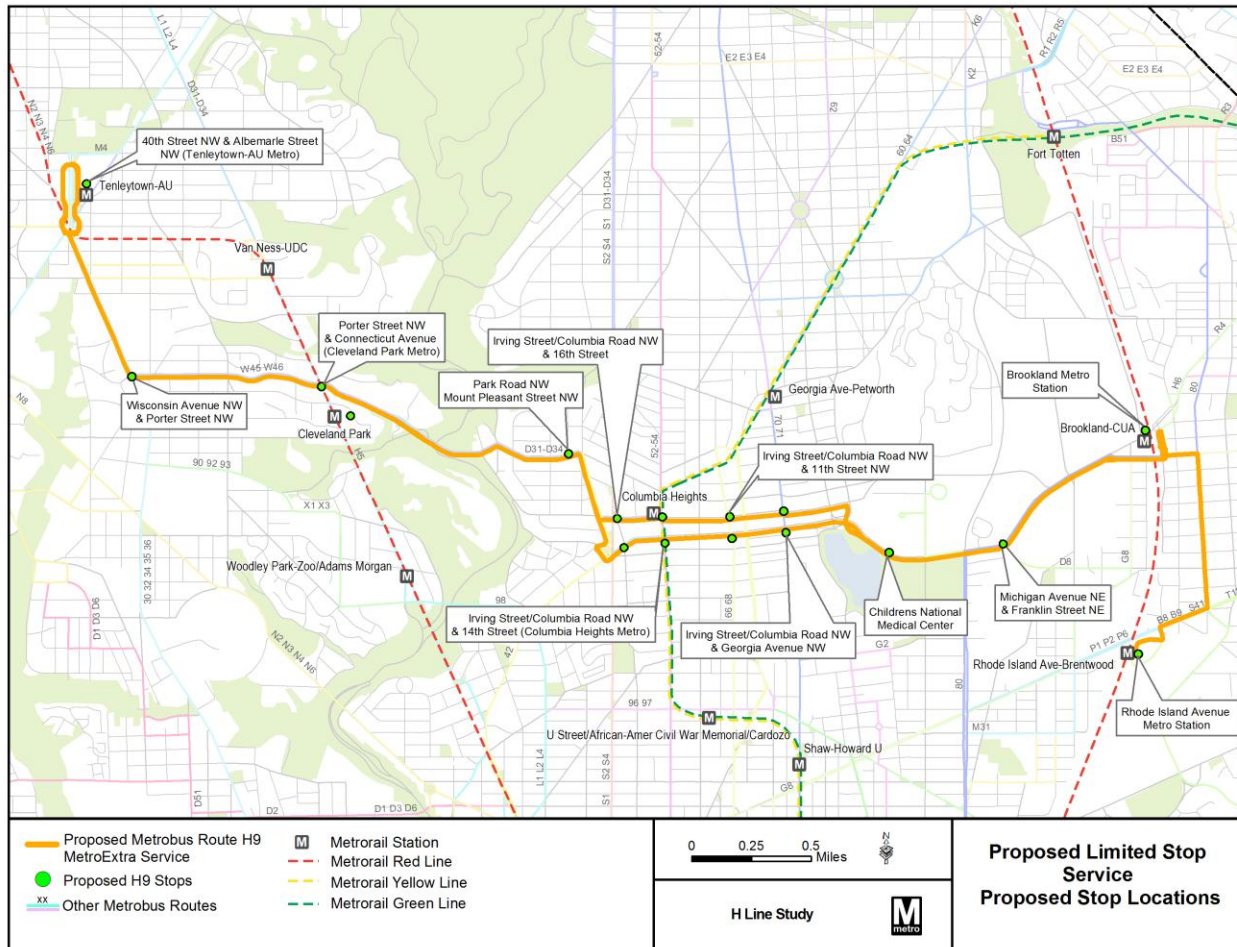
Recommendation #2 (cont.)

- Proposed Limited Stop Service Bus Stops
 - Rhode Island Avenue Metro Station
 - Brookland Metro Station
 - Michigan Avenue NE & Franklin Street NE
 - Children's National Medical Center
 - Irving Street/Columbia Road NW & Georgia Avenue NW
 - Irving Street/Columbia Road NW & 11th Street NW
 - Irving Street/Columbia Road NW & 14th Street (Columbia Heights Metro)
 - Irving Street/Columbia Road NW & 16th Street
 - Park Road NW and Mount Pleasant Street NW
 - Porter Street NW & Connecticut Avenue (Cleveland Park Metro)
 - Wisconsin Avenue NW & Porter Street NW
 - 40th Street NW & Albemarle Street NW (Tenleytown-AU Metro)



Service Recommendations

Recommendation #2 – Proposed Stop Locations



Service Recommendations

- *Recommendation Purpose*
 - The proposed service modification helps to meet two of the four strategic goals for the H Lines
 - Provide a limited stop service between the Rhode Island Avenue Metrorail Station and the western end of the H Lines
 - Provide quicker connections between the Rhode Island Avenue Metrorail Station and the Columbia Road/Irving Street one-way pair and Columbia Heights and Mount Pleasant
- *Estimated Annual Operating Cost Associated with Change*
 - \$0.00 (*Limited Stop service would utilize current H3 expenditures*)

Service Recommendations

Recommendation #3

- *Recommendation*

- Add Trips to the H1 and H2 Services at the Beginning and End of the Day to Meet Service Guidelines for Hours of Service
 - Add two additional H1 trips at the end of the day, departing 17th Street and C Street at 6:30 PM and 7:00 PM
 - Add an additional H2 trip to the schedule, leaving Tenleytown at approximately 6:10 AM.



Service Recommendations

Recommendation #3 (cont.)

- *Recommendation Purpose*
 - To Meet Service Guidelines for Hours of Service
- *Estimated Annual Operating Cost Associated with Change*
 - *Additional H1 Trips - \$59,772*
 - *Additional H2 Trip - \$18,886*



Service Recommendations

Recommendation #4

- *Recommendation*
 - Adjust Scheduled Run Time To Reflect Actual Run Times
 - 106 trips throughout the week on the three lines were identified as having actual run times at least five minutes greater than scheduled run times
 - Recommendation is twofold:
 - WMATA Schedules Department to verify the potential run time issues identified in this study
 - Address verified run time issues through schedule adjustments



Service Recommendations

Recommendation #4 (cont.)

- *Recommendation Purpose*
 - Increase rider certainty and convenience through increased reliability
 - Reduce overcrowding due to uneven passenger loading
 - Address on-time performance issues on lines (see next slide)
- *Estimated Annual Operating Cost Associated with Change*
 - \$465,578



Service Recommendations

Recommendation #4 (cont.) – H Lines On-Time Performance

Route Pattern	Early AM	AM Peak	Mid-Day	PM Peak	Early Evening	Late Evening
Weekday On-Time Performance - % of Trips On-Time						
H1	n/a	69.5%	n/a	53.1%	n/a	n/a
H2	100.0%	82.1%	65.1%	57.1%	77.6%	84.3%
H3	98.2%	76.9%	n/a	62.8%	n/a	n/a
H4	86.7%	78.3%	64.1%	63.4%	77.6%	81.7%
H8	94.8%	79.1%	76.7%	57.5%	67.2%	84.1%
Saturday On-Time Performance - % of Trips On-Time						
H2	85.7%	88.5%	71.4%	61.7%	82.8%	90.8%
H4	87.5%	86.5%	69.5%	64.2%	79.6%	90.7%
H8	91.6%	91.2%	68.9%	51.1%	73.1%	94.6%
Sunday On-Time Performance - % of Trips On-Time						
H2	90.0%	89.9%	81.8%	82.21%	85.7%	90.0%
H4	85.8%	89.9%	78.6%	76.7%	84.8%	83.0%
H8	50.0%	93.1%	76.5%	69.1%	77.9%	72.5%

Service Recommendations

Recommendation #5

- *Recommendation*

- Implement Dedicated Supervision to Ensure Correct Headway Separation
 - Brookland Metro Station – AM Peak (6:00 AM – 10:00 AM) – This supervisor would ensure H1, H2, 3, 4 and H8 westbound trips leave Brookland correctly separated in the AM peak
 - Tenleytown Metro Station – PM Peak (3:00 PM to 7:00 PM) - This supervisor would ensure H2, 3, 4 trips leave Tenleytown correctly separated in the PM peak
 - Mt. Pleasant – (AM and PM Peak) – This supervisor would ensure all trip patterns are correctly separated at Mt. Pleasant (in both directions), which is the mid-point for the H2, 3, 4 and the terminal point for the H8.



Service Recommendations

Recommendation #5 (cont.)

- *Recommendation Purpose*
 - To separate buses to ensure a more even distribution of passengers across buses and thus a more productive use of capacity deployed on the line
 - To reduce excessive crowding on a leading bus while increasing load on trailing bus
 - To ensure a more reliable service that minimizes excessive wait times for passengers.
- *Estimated Annual Operating Cost Associated With Change*
 - \$160,000



Traffic Improvement Recommendations

Recommendation #6

- *Recommendation*

- Implement multiple traffic related recommendations to improve operations and reliability on the Brookland-Potomac Park, Crosstown and Park Road-Brookland Lines
- Specific Recommendations
 - 6.1 - Columbia Road/Irving Street One-Way Pair
 - Evaluate potential for providing more green time to crosstown movements at intersections with major north/south streets
 - Evaluate potential for removing on-street parking during peak periods to provide additional capacity on Columbia Road and Irving Street



Traffic Improvement Recommendations

Recommendation #6 (cont.)

- 6.2 - Sub-Standard Intersection Geometry & Lane Configuration
 - Move the stop bar on westbound Argonne Place, at the intersection of Argonne Place and Harvard Street, in order to provide more room for H3 and H4 buses making the tight right turn from Harvard Street onto Argonne Place.
 - Remove three or four additional parking spaces on the south side of Columbia Road, at the intersection of Columbia Road and 11th Street, in order to provide more turning radius for H8 buses turning onto Columbia Road from southbound 11th Street. In addition, provide greater enforcement to ensure vehicles are not illegally parked too close to the intersection.
 - Remove three or four parking spaces from southbound 11th Street and move stop bar on southbound 11th Street back from intersection of 11th Street and Irving Street to provide more turning radius for eastbound H8 buses turning onto northbound 11th Street.



Traffic Improvement Recommendations

Recommendation #6 (cont.)

- 6.2 - Sub-Standard Intersection Geometry & Lane Configuration
 - Remove three or four parking spaces from southbound 11th Street at the intersection with Park Road and also move the stop bar back on northbound 11th Street at the intersection in order to provide a wider turning radius for H8 buses turning from westbound Park Road onto southbound 11th Street.
 - Move stop bar back on southbound 2nd Street at Taylor Street and remove parking at the intersection in order to provide more room for westbound H8 buses making the right turn from westbound Taylor Street to northbound 2nd Street.
 - Move stop bar back on northbound 10th Street at Taylor Street and remove parking at the intersection in order to provide more room for eastbound H8 buses making the right turn from eastbound Taylor Street to southbound 10th Street.



Traffic Improvement Recommendations

Recommendation #6 (cont.)

- 6.3 - Enforcement
 - There are a significant number of double-parked cars, Metro Access vehicles, and ambulances blocking stops and travel lanes throughout the Washington Hospital Center. This proposal is to significantly increase enforcement within the Hospital Center with regard to vehicles blocking bus stops and travel lanes. A second proposal is to start an analysis to determine if there are alternative locations for vehicles at each facility within the overall Hospital Center to park and deliver patients.
 - There is significant illegal activity on Mt. Pleasant Street that impacts bus travel times and reliability on the H3, H4, and H8 routes. Specific activity includes double parked cars, significant jaywalking, and delivery trucks blocking the travel lanes. . The proposal is to increase enforcement on Mt. Pleasant Street, especially with regard to double-parked cars and trucks blocking travel lanes, in order to ensure optimal operations along this portion of the two lines.



Recommendation #6 (cont.)

- 6.3 – Enforcement
 - Operators indicated that parking in bus zones and double parking is a major issue throughout Columbia Heights. This proposal is for a concerted enforcement effort throughout Columbia Heights, especially given the narrow streets and on-street parking that leads to deteriorated operating conditions. Drivers also indicated that delivery trucks block travel lanes along Columbia Road in the vicinity of its intersection with 14th Street. Concerted enforcement of existing loading zone regulations along Columbia Road is proposed.



Traffic Improvement Recommendations

Recommendation #6 (cont.)

- 6.4 - Signal Timing, Phasing and Stop Signs
 - Field visits and driver interviews identified a number of locations where protected left turns or extended protected lefts would improve bus run times and reliability. The following locations were identified for improved left turn protection.
 - » Left turns from Wisconsin Avenue to Van Ness Street and Porter Streets for eastbound H2, H3 and H4 trips. Greatest delays occur when there is heavy northbound traffic on Wisconsin Avenue.
 - » Left turns from southbound Connecticut Avenue to eastbound Porter Street for eastbound H2 trips. Greatest delays occur when there is heavy northbound traffic on Connecticut Avenue.
 - » Left turns from northbound Rhode Island Avenue to northbound 12th Street is difficult, especially when traffic on southbound Rhode Island Avenue is heavy.



Traffic Improvement Recommendations

Recommendation #6 (cont.)

- 6.4 - Signal Timing, Phasing, and Stop Signs
 - » Left turns from southbound Rhode Island Avenue to access the Rhode Island Avenue Metrorail Station is difficult, especially when traffic on northbound Rhode Island Avenue is heavy
 - » Left turns for eastbound H1 buses making the left turn from Columbia Road to Little Harvard Street.
- The proposal at each of these locations is to conduct turning movement/pedestrian counts and optimize cycle length/splits based on traffic demand such that additional green, or protected green, for left turns can be implemented if feasible.



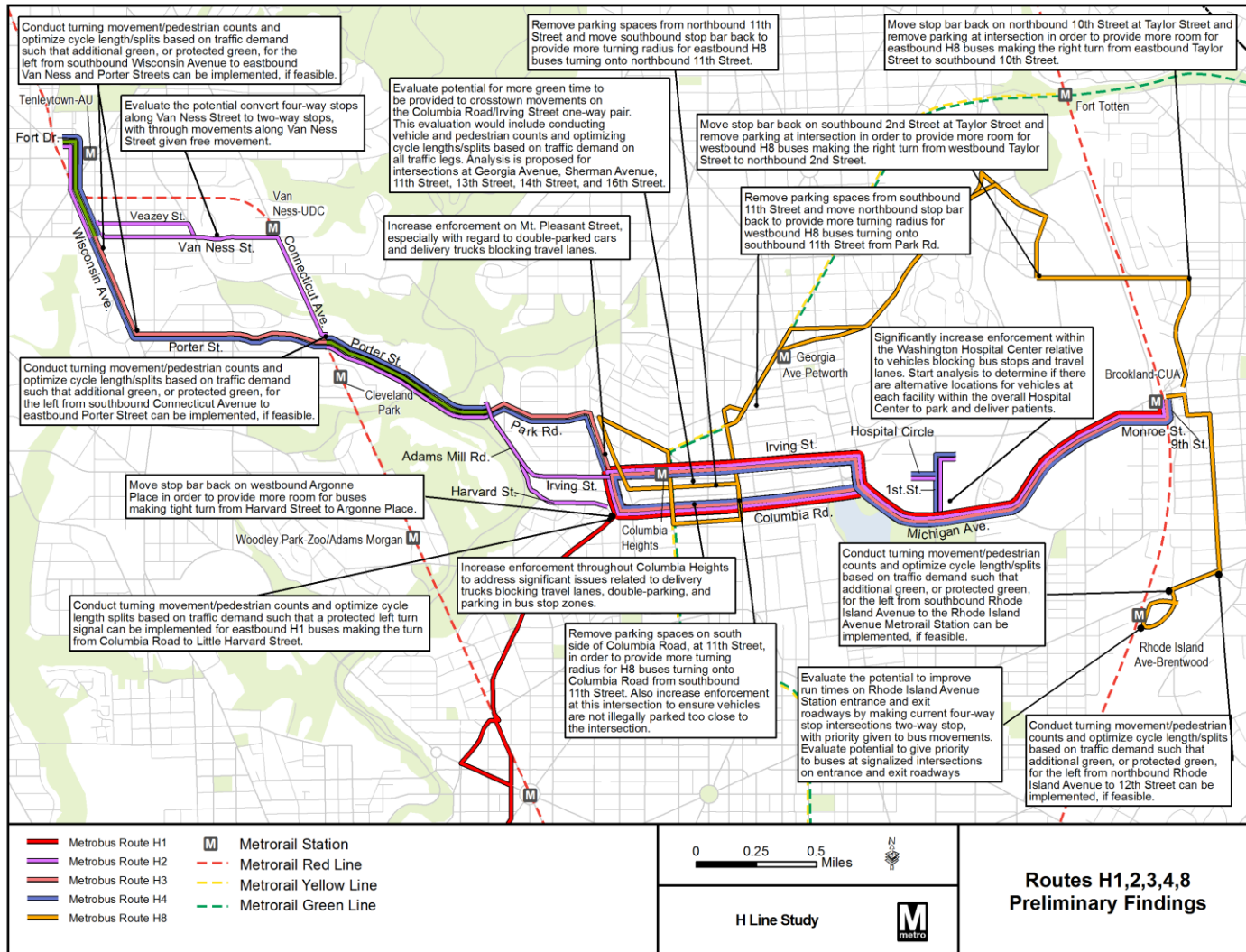
Traffic Improvement Recommendations

Recommendation #6 (cont.)

- 6.4 - Signal Timing, Phasing, and Stop Signs
 - Stop Signs
 - » Evaluate the potential to improve run times on Rhode Island Avenue Station entrance and exit roadways by making current four-way stop intersections two-way stop, with priority given to bus movements. Evaluate potential to give priority to buses at signalized intersections on entrance and exit roadways.
 - » Evaluate the potential to convert four-way stops along Van Ness Street to two-way stops, with through movements along Van Ness Street given free movement.



Traffic Improvement Recommendations



Summary of Traffic Improvement Recommendations

Operations Recommendations

Recommendation #7

- Operational Issues - Evaluate Potential for Re-blocking Sunday Service and Terminate Assignment of 30' Buses to the H1 Line, Improve Driver Training and Evaluate Accuracy of NextBus
 - **Blocking and Scheduling** - The evaluation of blocking and scheduling efficiency in the project “Transit Service Assessment” generally shows that the H Lines are scheduled and blocked in a very productive manner. The two exceptions are the short blocks on Sundays on the H2, 3, 4 and to a lesser extent on the H8 Line. This recommendation is for the scheduling department to review blocking on these two lines on Sunday to determine if the lines can be blocked more efficiently.
 - **30' Buses** - H1 trips are sometimes dispatched with 30' coaches that are inadequate to handle the passenger loads on the H1 service. This second operational recommendation is to terminate the assignment of 30' coaches to the H1.



Operations Recommendations

Recommendation #7 (cont.)

- **Driver Training** - Customer feedback during the study process identified drivers bypassing stops that have waiting passengers as a major issue (this has been identified as an issue in other Service Evaluation Studies as well). This third recommendation is to commence a more intensive training process for drivers to ensure bypassing passengers does not remain an issue.
- **NextBus Data Reliability** - Passengers consistently provide feedback that the data from NextBus regarding arrivals that they are receiving on their handheld devices is inaccurate (this is also something that has been heard on other Service Evaluation Studies). The final operational recommendation is for Metrobus to complete NextBus accuracy checks to ensure the information being received by riders is accurate.



Facility Recommendations

Recommendation #8

- *Recommendation*

- Improve Bus Stop Amenities

- All basic stops should have a basic set of passenger amenities including a bus stop flag, an accessible sidewalk and a landing pad.
- Amenities that should be installed based on the level of passenger boarding activity at a stop include an information case, a trash receptacle, and a shelter and bench.
 - In addition to the stop amenities identified here, a new stop was requested by a member of the public during the public outreach process. This stop would be on Porter Street, closer to Connecticut Avenue on the east side of Connecticut in the eastbound direction (serving the H2, 3, 4) than the current stop at 2724 Porter Street. A closer stop has been requested in the past, but previous analysis by WMATA and DDOT has determined it not to be feasible because of traffic safety issues related to poor sight distance for cars making turns onto eastbound Porter Street.



Facility Recommendations

Recommendation #8

- *Recommendation Purpose*
 - To increase rider comfort, safety and convenience
- *Estimated Capital Cost Associated With Amenities*
 - \$476,900



Facility Recommendations

Recommendation #8 (cont.)

- 8.1 - H Lines' Stops missing a Bus Stop Landing Pad

Stop	Direction	Total Boardings/Alightings	Routes Serving Stop	City Quadrant Stop is Located In
10 th St & Randolph St	Westbound	9	H8	NE
Columbia Rd & California St	Westbound	7	H1	NW
Allison St & Rock Creek Church Rd	Westbound	5	H8	NW
Wisconsin Ave & Upton St	Westbound	4	H3, 4	NW
Porter St & Williamsburg La	Westbound	1	H2, 3, 4	NW
Fort Dr & 2 nd St	Westbound	1	H8	NW
Veazey St & Reno Rd	Westbound	1	H2	NW
Veazey St & 39 th St	Westbound	1	H2	NW
Veazey St & 37 th St	Westbound	1	H2	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.1 - H Lines' Stops missing a Bus Stop Landing Pad

Stop	Direction	Total Boardings/Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Veazey St & 38 th St	Westbound	0	H2	NW
Porter St & #3055	Westbound	0	H3, 4	NW
C St & 21 st St	Westbound	0	H1	NW
Mt Pleasant St & Kenyon St	Westbound	0	H3, 4	NW
Carroll H S Rdwy & Front Of School	Westbound	0	H9	NE
Rock Creek Church Rd & Upshur St	Eastbound	51	H8	NE
New Hampshire Ave & M St	Eastbound	32	H1	NW
Irving St & Adams Mill Rd	Eastbound	30	H2	NW
Rock Creek Church Rd & 4 th St	Eastbound	15	H8	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.1 - H Lines' Stops missing a Bus Stop Landing Pad

Stop	Direction	Total Boardings/Alightings	Routes Serving Stop	City Quadrant Stop is Located In
10 th St & Perry Pl	Eastbound	12	H8	NE
10 th St & Michigan Ave	Eastbound	9	H8	NE
Michigan Ave & Irving St	Eastbound	8	H1, 2, 3, 4	NE
Rock Creek Church Rd & 3 rd St	Eastbound	7	H8	NW
C St & 21 st St	Eastbound	5	H1	NW
Monroe St & 7 th St	Eastbound	1	H1, 2, 3, 4	NE
First St & Entr To Natl Rehab Hosp	EB/WB	1	H2, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.2 - H Lines Stops Missing Sidewalk Accessibility

Stop	Direction	Total Boardings/Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Allison St & Rock Creek Church Rd	Westbound	5	H8	NW
Porter St & Williamsburg La	Westbound	1	H2, 3, 4	NW
First St & Entr To Natl Rehab Hosp	EB/WB	1	H2, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.3 - H Line Stops Recommended for Immediate Installation of an Information Case (stops with more 50 or more boardings per day that do not currently have an information case)

Stop	Direction	Total Boardings/Alightings	Routes Serving Stop	City Quadrant Stop is Located In
New Hampshire Ave & Georgia Ave	Westbound	196	H8	NW
Michigan Ave & Franklin St	Westbound	92	H1, 2, 3, 4	NE
Taylor St & Harewood Rd	Westbound	57	H8	NE
Irving St NW/16th St NW	Eastbound	474	H1, 2, 3, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.4 - H Lines Stops Recommended for Installation of an Information Case when Resources become Available (stops with 20 or more boardings per day that do not currently have an information case)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
10 th St & Michigan Ave	Westbound	44	H8	NE
Taylor St & Hawaii Ave	Westbound	26	H8	NE
Rock Creek Church Rd & Webster St	Westbound	26	H8	NW
2 nd St & Varnum St	Eastbound	43	H8	NE
Van Ness St & International Dr	Eastbound	43	H2	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.4 - H Lines Stops Recommended for Installation of an Information Case when Resources become Available (stops with 20 or more boardings per day that do not currently have an information case)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
23 rd St & I St	Eastbound	33	H1	NW
New Hampshire Ave & M St	Eastbound	32	H1	NW
Irving St & Adams Mill Rd	Eastbound	30	H2	NW
Michigan Ave & North Capitol St	Eastbound	28	H1, 2, 3, 4	NW
Irving St & Hobart St	Eastbound	26	H2	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.5 - Stops that are Candidates for a Trash Receptacle based on Daily Boardings (25 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Columbia Rd & Sherman Ave	Westbound	78	H1, 2, 3, 4	NW
Taylor St & Harewood Rd	Westbound	57	H8	NE
Taylor St & 9 th St	Westbound	32	H8	NE
2 nd St & Hawaii Ave	Westbound	29	H8	NE
2 nd St & Varnum St	Westbound	28	H8	NE
Mt Pleasant St & Lamont St	Westbound	25	H3, 4	NW
40 th St & Albemarle St	Eastbound	347	H2, 3, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.5 - Stops that are Candidates for a Trash Receptacle based on Daily Boardings (25 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Porter St & Connecticut Ave	Eastbound	76	H3, 4	NW
Taylor St & Brookland Apts	Eastbound	69	H8	NE
23 rd St & C St	Eastbound	45	H1	NW
2 nd St & Varnum St	Eastbound	43	H8	NE
Van Ness St & International Dr	Eastbound	43	H2	NW
Hawaii Ave & First St	Eastbound	38	H8	NE
Van Ness St & Wisconsin Ave	Eastbound	33	H2	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.5 - Stops that are Candidates for a Trash Receptacle based on Daily Boardings (25 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
23 rd St & I St	Eastbound	33	H1	NW
New Hampshire Ave & M St	Eastbound	32	H1	NW
Irving St & Adams Mill Rd	Eastbound	30	H2	NW
Taylor St & Hawaii Ave	Eastbound	30	H8	NE
Constitution Ave & 21 st St	Eastbound	26	H1	NW
Irving St & Hobart St	Eastbound	26	H2	NW
Wash Hospital Center & Outpatient Clinic	EB, WB	198	H2, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.6 - Stops that are Candidates for a Shelter and Bench based on Daily Boardings (50 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Columbia Rd & 14 th St	Westbound	322	H1, 2, 3, 4	NW
Columbia Rd & Georgia Ave	Westbound	218	H1, 2, 3, 4	NW
Columbia Rd & 11 th St	Westbound	116	H1, 2, 3, 4	NW
12 th St & Evarts St	Westbound	193	H8	NW
Harvard St & Argonne Pl	Westbound	110	H2, 3, 4	NW
Rhode Island Ave & 10 th St	Westbound	106	H8	NE
Columbia Rd & Warder St	Westbound	102	H1, 2, 3, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.6 - Stops that are Candidates for a Shelter and Bench based on Daily Boardings (50 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Michigan Ave & Franklin St	Westbound	92	H1, 2, 3, 4	NE
Monroe St & 7 th St	Westbound	79	H1, 2, 3, 4	NE
Columbia Rd & Sherman Ave	Westbound	78	H1, 2, 3, 4	NW
Park Rd & Mt Pleasant St	Westbound	75	H3, 4	NW
Hawaii Ave & Allison St	Westbound	72	H8	NE
Columbia Rd & 13 th St	Westbound	71	H1, 2, 3, 4, 8	NW
Michigan Ave & First St	Westbound	68	H1, 2, 3, 4	NW

Facility Recommendations

Recommendation #8 (cont.)

- 8.6 - Stops that are Candidates for a Shelter and Bench based on Daily Boardings (50 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Taylor St & Harewood Rd	Westbound	57	H8	NE
New Hampshire Ave & Spring Rd	Westbound	51	H8	NW
Irving St & 16 th St	Eastbound	474	H1, H2, 3, 4	NW
Porter St & #2724	Eastbound	93	H2, 3, 4	NW
Porter St & Connecticut Ave	Eastbound	76	H3, 4	NW
Porter St & Wisconsin Ave	Eastbound	74	H3, 4	NW
Hawaii Ave & Clermont St	Eastbound	73	H8	NE

Facility Recommendations

Recommendation #8 (cont.)

- 8.6 - Stops that are Candidates for a Shelter and Bench based on Daily Boardings (50 or more boardings per day)

Stop	Direction	Total Boardings/ Alightings	Routes Serving Stop	City Quadrant Stop is Located In
Taylor St & Brookland Apts	Eastbound	69	H8	NE
Irving St & 13 th St	Eastbound	66	H1, 2, 3, 4, 8	NW
11 th St & Irving St	Eastbound	65	H8	NW
Fort Dr & 2 nd St	Eastbound	62	H8	NW
Irving St & 11 th St	Eastbound	51	H2, 3, 4	NW
Rock Creek Church Rd & Warder St	Eastbound	50	H8	NW

Facility Recommendations

Recommendation #9

- *Recommendation*
 - Begin bus stop consolidation process following WMATA procedures – potential consolidation candidates have been identified based on distance between stops guidelines
- *Recommendation Purpose*
 - Improve passenger convenience
 - Improve trip times and service reliability
- *Estimated Capital Costs Associated with Change*
 - Costs cannot be calculated until specific stops to be consolidated are identified



Facility Recommendations

Recommendation #9 (cont.)

- 9.1 - Consolidation Candidates – Rhode Island Avenue Metrorail Station to Brookland Metrorail Station Line Segment (H8, 9)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
12TH ST + KEARNEY ST	WB	6	4	NE
12TH ST + JACKSON ST	WB	13	6	NE
12TH ST + FRANKLIN ST	WB	4	2	NE
12TH ST + HAMLIN ST	WB	18	16	NE



Facility Recommendations

Recommendation #9 (cont.)

- 9.2 - Consolidation Candidates – Brookland Metrorail Station to 11th Street & Columbia Road Line Segment (H8, 9)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
10TH ST + SHEPHERD ST	WB	5	9	NE
10TH ST + PERRY PL	WB	14	8	NE
10TH ST + RANDOLPH ST	WB	9	7	NE
TAYLOR ST + ENTR TO THE HEIGHTS	WB	27	36	NE
TAYLOR ST + 9TH ST	WB	32	23	NE
2ND ST + HAWAII AVE	WB	29	19	NE
HAWAII AVE + 1ST ST	WB	50	34	NE
HAWAII AVE + ALLISON ST	WB	105	72	NE

Facility Recommendations

Recommendation #9 (cont.)

- 9.2 - Consolidation Candidates – Brookland Metrorail Station to 11th Street & Columbia Road Line Segment (H8, 9)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
NEW HAMPSHIRE AVE + ROCK CREEK CHURCH RD	WB	0	0	NW
NEW HAMPSHIRE AVE + MONROE ST	WB	26	24	NW
NEW HAMPSHIRE AVE + SPRING RD	WB	51	27	NW
PARK RD + 11TH ST	WB	12	42	NW
11TH ST NW + LAMONT ST	WB	7	17	NW
11TH ST + LAMONT ST	EB	17	21	NW
11TH ST NW + PARK RD	EB	35	19	NW
MONROE ST NW + NEW HAMPSHIRE AVE	EB	16	21	NW

Facility Recommendations

Recommendation #9 (cont.)

- 9.2 - Consolidation Candidates – Brookland Metrorail Station to 11th Street & Columbia Road Line Segment (H8, 9)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
HAWAII AVE + FIRST ST	EB	42	80	NE
HAWAII AVE + 2ND ST	EB	30	27	NE
TAYLOR ST + HAREWOOD RD	EB	69	32	NE
10TH ST + PERRY PL	EB	12	10	NE

Facility Recommendations

Recommendation #9 (cont.)

- 9.3 - Consolidation Candidates – Brookland Metrorail Station to Columbia Road/Irving Street & 11th Street Line Segment (H2, 3, 4 & H1)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
VETERANS HOSPITAL RDWY + MAIN ENTR	WB	0	0	NW
COLUMBIA RD NW + SHERMAN AVE NW	WB	80	25	NW
COLUMBIA RD NW + 11TH ST NW	WB	145	57	NW
MICHIGAN AVE NW + NORTH CAPITOL ST NW N/S	EB	4	52	NW
MICHIGAN AVE NE + NORTH CAPITOL ST NE F/S	EB	43	52	NE
VETERANS HOSPITAL RDWY + MAIN ENTR	EB	0	0	NW
IRVING ST NW + SHERMAN AVE NW	EB	20	58	NW
IRVING ST NW + 11TH ST NW	EB	84	151	NW

Facility Recommendations

Recommendation #9 (cont.)

- 9.4 - Consolidation Candidates – Columbia Road/Irving Street & 11th Street to Tenleytown – AU Station Line Segment (H2, 3, 4)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
PARK RD + MT PLEASANT ST (H3, 4)	WB	234	24	NW
PARK RD + 18TH ST (H3, 4)	WB	54	11	NW
ADAMS MILL RD + WALBRIDGE PL (H2)	WB	9	4	NW
PORTER ST + #2716 (H2, 3, 4)	WB	4	14	NW
PORTER ST + #2501 (H2, 3, 4)	WB	21	5	NW
PORTER ST + QUEBEC ST (H2, 3, 4)	WB	45	499	NW
CONNECTICUT AVE + PORTER ST (H2)	WB	39	21	NW
PORTER ST + WISCONSIN AVE (H3, H4)	WB	11	188	NW
WISCONSIN AVE NW + QUEBEC ST NW (H3, 4)	WB	3	4	NW

Facility Recommendations

Recommendation #9 (cont.)

- 9.4 - Consolidation Candidates – Columbia Road/Irving Street & 11th Street to Tenleytown – AU Station Line Segment (H2, 3, 4)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
VAN NESS ST/RENO RD (H2)	WB	1	6	NW
VEAZEY ST + RENO RD (H2)	WB	1	3	NW
VEAZEY ST + 37TH ST (H2)	WB	1	4	NW
VEAZEY ST + 38TH ST (H2)	WB	0	5	NW
FORT DR + TENLEY CIRCLE (H2, 3, 4)	EB	20	1	NW
WISCONSIN AVE NW + TENLEY CIRCLE NW (H2, 3, 4)	EB	242	11	NW
WISCONSIN AVE NW + WARREN ST NW (H2, 3, 4)	EB	74	2	NW
WISCONSIN AVE NW + VAN NESS ST NW (H2, 3, 4)	EB	47	4	NW

Facility Recommendations

Recommendation #9 (cont.)

- 9.4 - Consolidation Candidates – Columbia Road/Irving Street & 11th Street to Tenleytown – AU Station Line Segment (H2, 3, 4)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
VAN NESS ST + 37TH ST (H2)	EB	3	1	NW
VAN NESS ST + 38TH ST (H2)	EB	7	1	NW
CONNECTICUT AVE + TILDEN ST (H2)	EB	7	2	NW
CONNECTICUT AVE + SEDGWICK ST (H2)	EB	8	4	NW
PORTER ST + 37TH ST (H3, 4)	EB	17	2	NW
PORTER ST + #2501 (H2, 3, 4)	EB	15	4	NW
PARK RD + 19TH ST (H3, 4)	EB	13	22	NW
IRVING ST NW + 16TH ST NW (H2, 3, 4)	EB	327	357	NW

Facility Recommendations

Recommendation #9 (cont.)

- 9.5 - Consolidation Candidates – Columbia Road/Irving Street & 11th Street to C & 17th Street NW (H1)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
COLUMBIA RD NW + MINTWOOD PL NW	SB	10	3	NW
20TH ST NW + Q ST NW	SB	5	30	NW
20TH ST NW + MASSACHUSETTS AVE NW	SB	5	27	NW
20TH ST NW + NEW HAMPSHIRE AVE NW	SB	9	17	NW
NEW HAMPSHIRE AVE NW + N ST NW	SB	1	16	NW
C ST NW + 20TH ST NW	SB	0	0	NW
VIRGINIA AVE NW + 19TH ST NW	SB	0	0	NW
18TH ST NW + C ST NW	SB	0	0	NW
18TH ST NW + D ST NW	SB	0	0	NW

Facility Recommendations

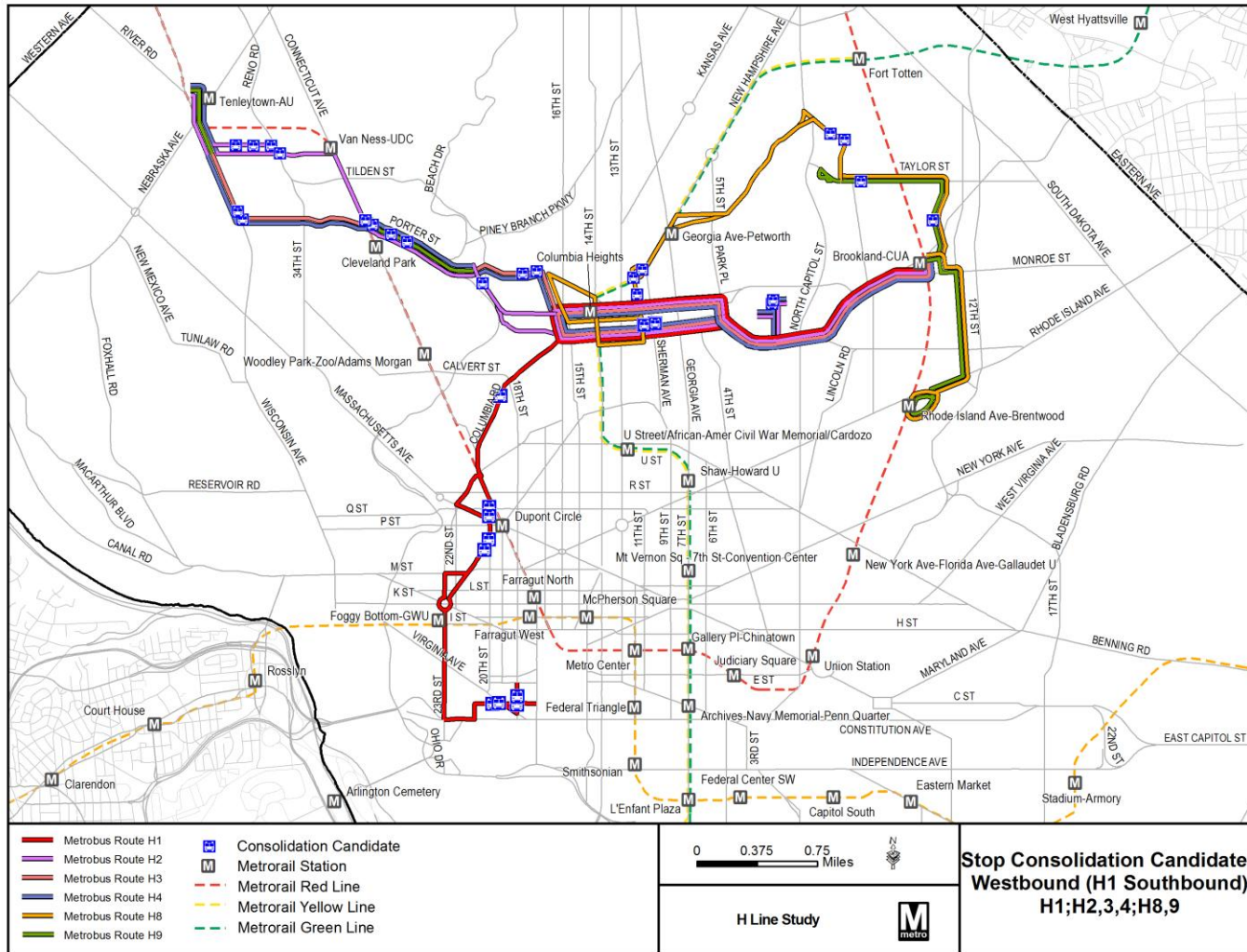
Recommendation #9 (cont.)

- 9.5 - Consolidation Candidates – Columbia Road/Irving Street & 11th Street to C & 17th Street NW (H1)

Candidate Stop	Direction	Stop Boardings	Stop Alightings	City Quadrant Stop is Located In
20TH ST NW + P ST NW	NB	11	7	NW
MASSACHUSETTS AVE + 20TH ST	NB	16	7	NW



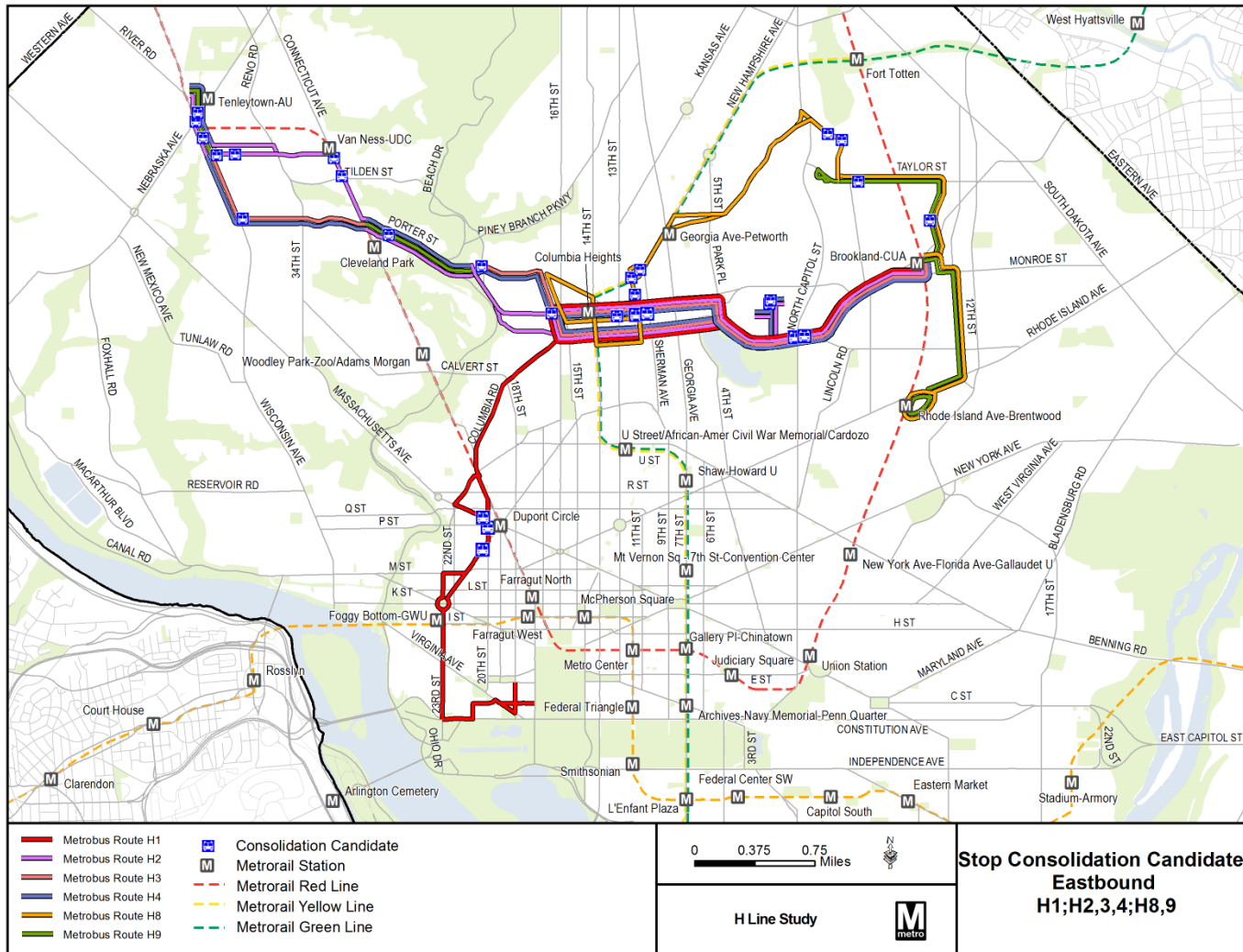
Facility Recommendations



Westbound Stop
Consolidation Candidates
All Lines



Facility Recommendations



Eastbound Stop
Consolidation Candidates
All Lines

Long Term Strategic Considerations

- Staff from the MedStar Washington Hospital Center and the Veteran's Administration recently evaluated the potential for the development of a Transit Center along First Street Northwest within the medical complex. Development of this center would mean WMATA buses would only have to make one stop in the complex, thus improving travel times and reliability. After the preliminary investigation the Hospital Center and Veteran's Administration determined that they would not move further with the Transit Center development.
- Moving forward with a Transit Center would have to be led by the Washington Hospital Center and the Veteran's Administration because First Street NW within the complex is owned by them. However, WMATA and DDOT may wish to meet with representatives from the complex to determine the potential for re-starting the initiative.

