

Service Evaluation Study 2011-Part II

W4 Deanwood-Alabama Avenue Line

Final Report
February 2012



Study Purpose

- The primary study purpose is to identify the strategic needs for programs and facilities for the W4 – Deanwood-Alabama Avenue Line. The study includes a review of capacity, productivity, reliability, and quality of service indicators as well as recommended changes to improve service delivery.*



Project Scope of Work

- *Transit Service Assessment*
 - Develop a Detailed Assessment and “Snapshot” of the W4 Line. The Assessment Covers the Following areas:
 - Overall Service Characteristics, Ridership and Productivity, Boardings and Alightings, Passenger Loads, Bus Stop Spacing and Amenities, On-Time Performance, Driver and Planner Interviews
- *Traffic Operations Assessment*
 - Identify the Full Range of Traffic Issues on the W4 Line and Develop Recommendations for Improvements
 - Traffic Signals and other Traffic Control Devices
 - Lane Widths and Right of Way
 - Turns and Adequate Turning Radius

Project Scope of Work

- *Public Outreach*
 - Rider Survey to Gauge Issues and Needs
 - Three Public Meetings
 - 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
 - Collaborative Effort with Project Management Team
 - Final – Incorporate All Team Comments
 - Areas Covered by Recommendations
 - Service Frequency
 - Passenger Facilities
 - Traffic and Right-of-Way

Route Summary

- Line Description

The W4 Line is an east-west cross-town line running in the southeast portion of the District of Columbia between the Anacostia Metrorail Station at the southern end of the line and two weekday northern terminals – the Deanwood Metrorail Station in the District of Columbia and the Capital Plaza shopping center in Maryland

Route Summary

- *Service Characteristics*

- Days of Service:
 - Weekday, Saturday, Sunday
- Weekday Hours of Service: 5:00 AM - 2:02 AM

- *Weekday Ridership and Productivity**

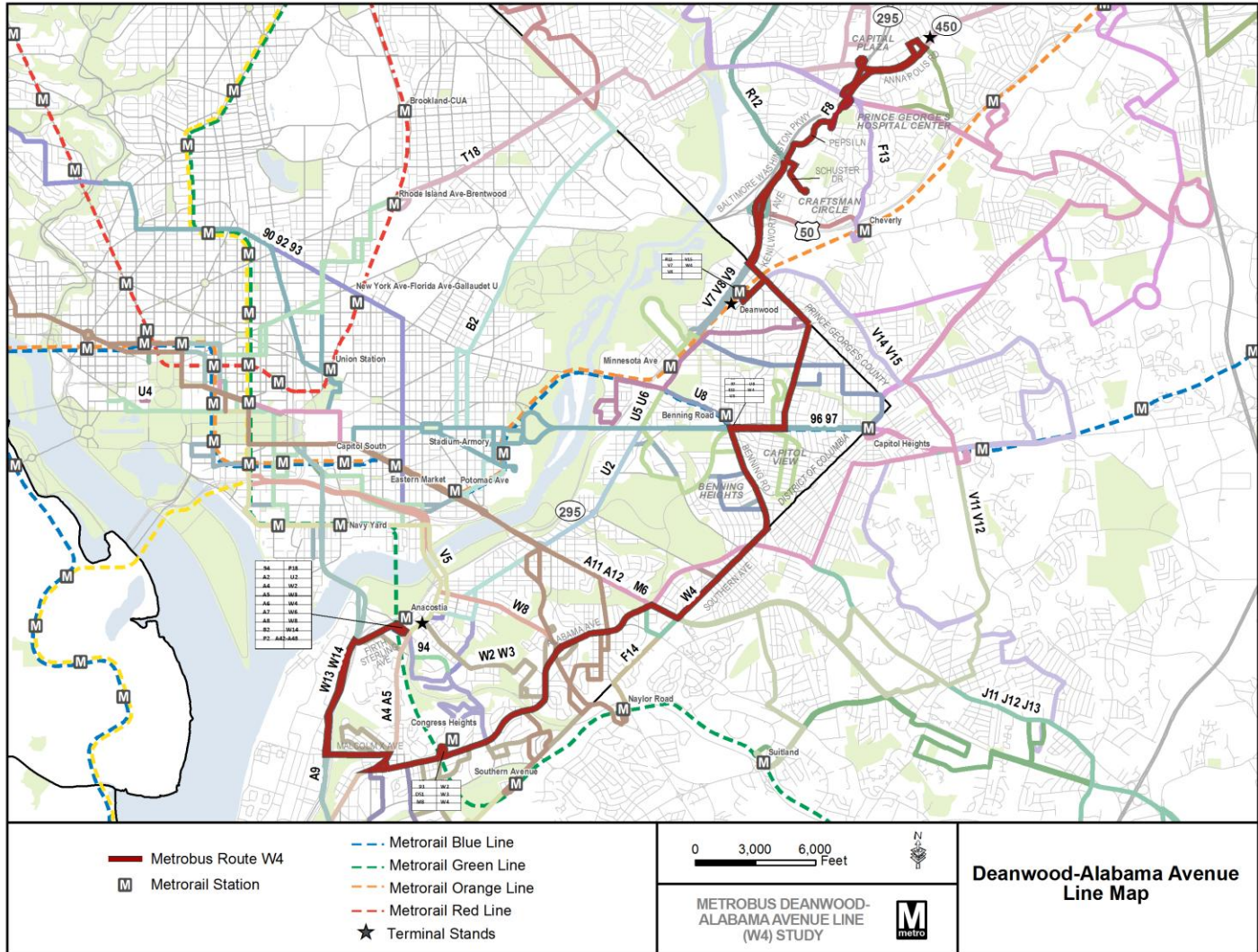
- Daily Weekday Ridership: 5,026 (Rank: 22)
- Boardings Per Revenue Mile: 3.8 (Rank: 52)
- Cost Recovery: 28.1% (Rank: 82)
- Subsidy per Passenger: \$2.17 (Rank: 50)
- Boardings per Trip: 44.7 (Rank: 15)

Source: WMATA Productivity and Ridership Report (FY 2011)

* Ridership and Productivity Rank: Out of 156 Total Lines in Metrobus System

Line Map

W4 Line Map



Study Findings

- Passenger Crowding
 - Mid-day Crowding is an Issue Due to Infrequent Service (33 minute service frequency)
 - Peak Period Crowding Occurs at Specific Times due to Concentrated Boardings of School Children at School Dismissal
- On-Time Performance
 - The W4 Line Falls Below Metrobus Goals for Percent of Total Trips that are On-Time
- 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

Study Findings

- Issues Related to W4 Service in Maryland
 - Maryland Portion of Line is Low Ridership/Low Productivity
 - Large Portion of the Line in Maryland runs on Congested Roadways, Impacting On-Time Performance
 - Extended Run Times in Maryland Create Scheduling Inflexibility in District of Columbia, where Overwhelming Majority of Boardings Occur

Service Recommendations

Recommendation #1

- *Recommendation*
 - Terminate the W4 Line at the Deanwood Metrorail Station and Replace Maryland Portion of Line with An Existing Maryland Service
 - Proposed replacement service is the F13 in Maryland (see maps)
 - No final decision has been made on replacement – Coordination will continue with Prince George’s County and the Maryland Department of Transportation to reach final decision

Service Recommendations

Recommendation #1 (cont.)

- *Recommendation Purpose*

- Maryland portion of the W4 line:

- Low ridership and low productivity
- Runs on congested roadways including Kenilworth Avenue and Annapolis Road
- Creates scheduling inflexibility on the portion of the line in the District of Columbia, the highest ridership portion of the line
 - Uneven headways in the peak
 - Excessively wide headway in mid-day

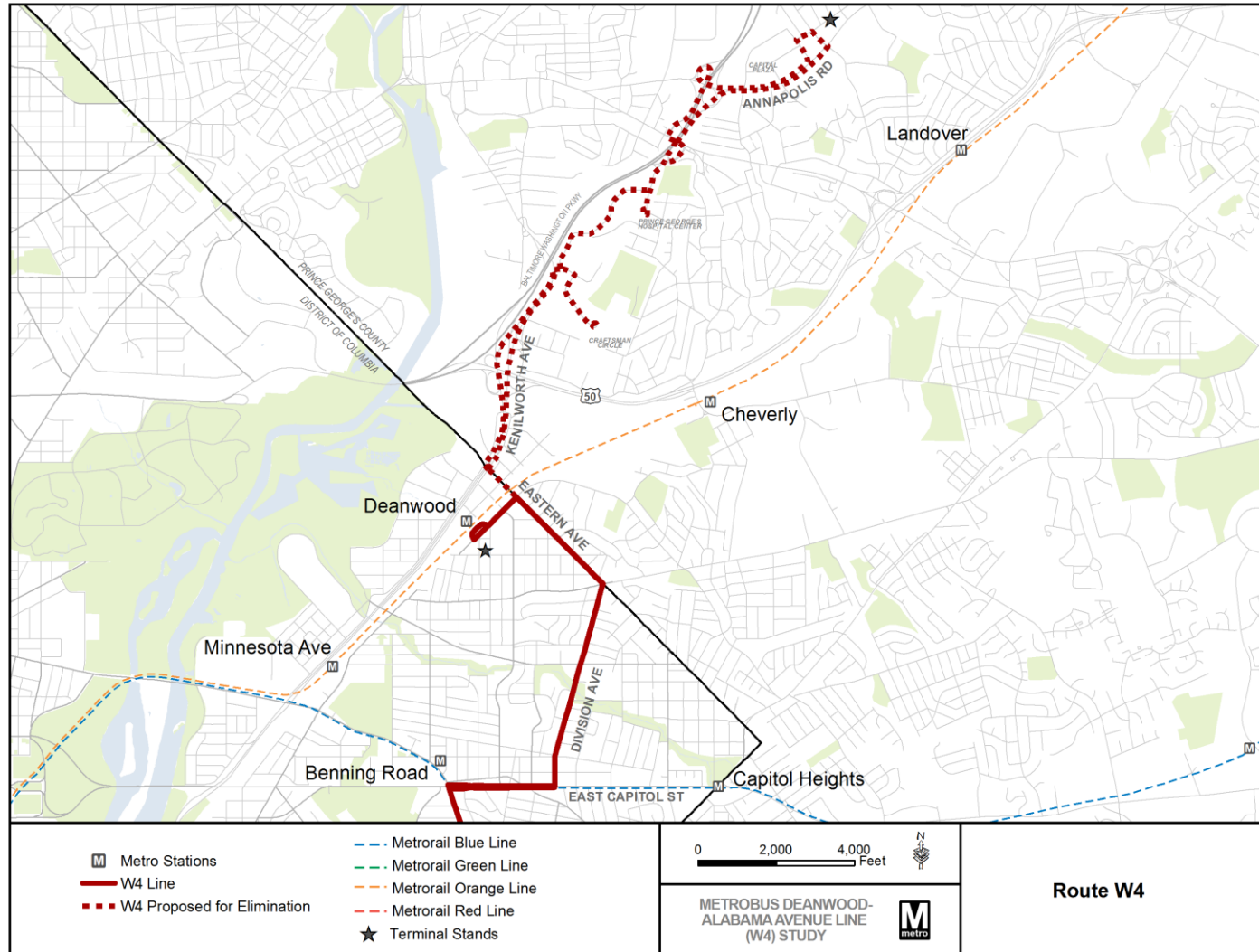
- *Estimated Annual Operating Cost Associated with Change*

- (\$293,360)

* Savings will be re-allocated to other Maryland services – will not be used to support service changes in the District of Columbia

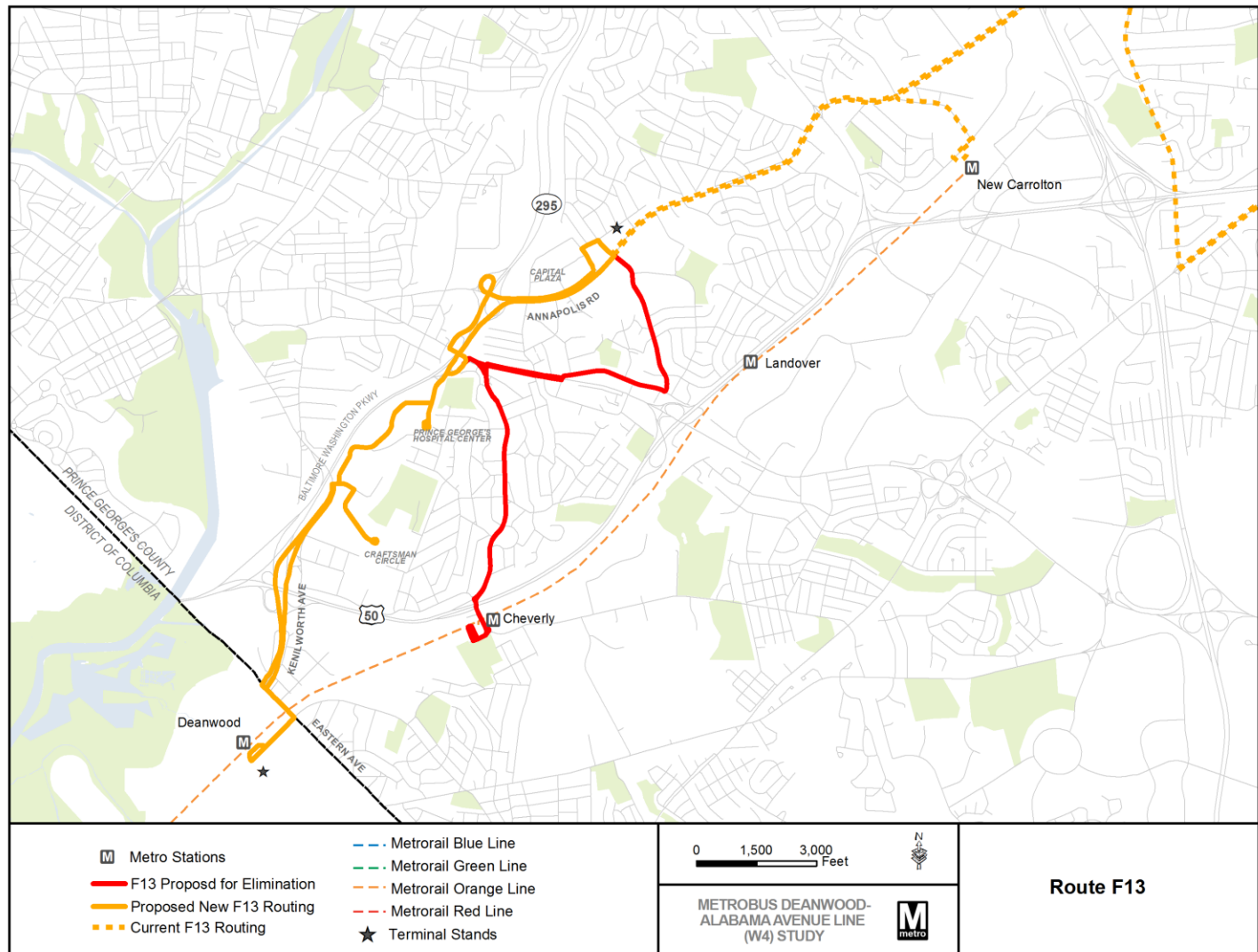
Service Recommendations

Proposed
Removal of W4
Service from
Maryland



Service Recommendations

Proposed F13
Re-Route to
Replace W4
Service in
Maryland



Service Recommendations

Recommendation #2

- *Recommendation*

- Improve Mid-Day Headways

- Short – Term Implementation Time Frame

- Improve to 20 Minutes from current 33 minutes

- » Single Trip Pattern Between Deanwood and Anacostia

- Potential Longer Term Implementation

- Two trip patterns on the W4 Line

- » One pattern between Deanwood and Anacostia

- » One pattern between Capitol Heights and Congress Heights

- » Would provide connection to proposed Walmart on East Capitol Street from the W4 service area – would be implemented only after Walmart is open

Service Recommendations

Recommendation #2 (cont.)

- *Recommendation Purpose*
 - Address mid-day crowding associated with low service frequency
- *Estimated Annual Operating Cost Associated with Change*
 - \$335,574

Service Recommendations

Recommendation #3

- *Recommendation*

- Add supplemental peak period trips to address crowding associated with students
 - Trips would run between Deanwood and Congress Heights
 - 3 supplemental northbound trips in the morning, 3 supplemental southbound trips in the afternoon
 - Monitor crowding to determine if supplemental trips are also required in the reverse direction (southbound in morning, northbound in afternoon)

Service Recommendations

Recommendation #3 (cont.)

- *Recommendation Purpose*
 - Address peak period crowding associated with concentrated boardings of school children
- *Estimated Annual Operating Cost Associated with Change*
 - \$104,509

Service Recommendations

Recommendation #4

- *Recommendation*

- Improve peak period headways

- Short-term implementation time frame

- Consistent 12 minute headways throughout both peak periods
- Single trip pattern between Deanwood and Anacostia

- Potential longer term implementation

- Two trip patterns – one pattern between Deanwood and Anacostia and one pattern between Capitol Heights and Congress Heights
 - » Would provide connection to proposed Walmart on East Capitol Street from the W4 service area – would be implemented only after Walmart is open
 - » Would be implemented only in conjunction with two trip patterns in the mid-day (recommendation #2 – longer term) – leading to consistent two trip pattern throughout the day

Service Recommendations

Recommendation #4 (cont.)

- *Recommendation Purpose*
 - Provide consistent headways throughout peak period
- *Estimated Annual Operating Cost Associated with Change*
 - \$370,841

Facility Recommendations

Recommendation #5

- *Recommendation*
 - Begin Bus Stop Consolidation Process following WMATA Procedures – Potential Candidates Identified based on Distance Between Stops Guidelines
 - Stops listed below by direction
- *Recommendation Purpose*
 - Improve passenger convenience
 - Improve trip times
- *Estimated Capital Cost Associated with Change*
 - Costs cannot be calculated until specific stops to be consolidated are identified

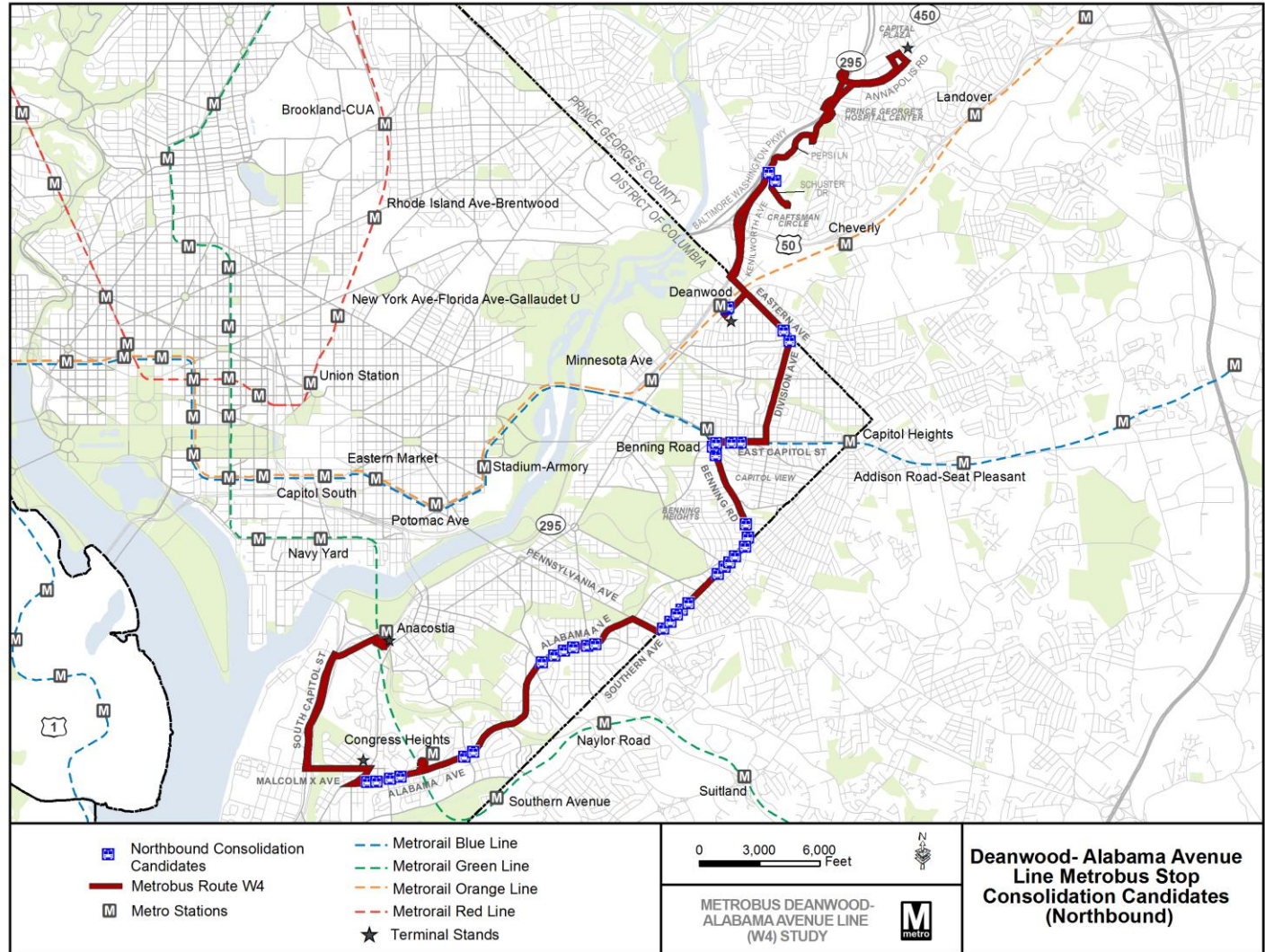
Facility Recommendations

Recommendation #5 (cont.) – Northbound Stop Consolidation Candidates

RANDLE PL + ALABAMA AVE (DC)	PENNSYLVANIA AVE SE + 40TH ST SE (DC)	BENNING RD SE + B ST SE (DC)
ALABAMA AVE + 7TH ST (DC)	SOUTHERN AVE SE + 41ST PL SE (DC)	BENNING RD SE + EAST CAPITOL ST (DC)
ALABAMA AVE + 9TH ST (DC)	SOUTHERN AVE SE + 42ND ST SE (DC)	EAST CAPITOL ST SE + BENNING RD (DC)
ALABAMA AVE + 11TH PL (DC)	SOUTHERN AVE SE + ELLIS ST SE (DC)	EAST CAPITOL ST SE + 47TH ST SE (DC)
ALABAMA AVE + STANTON RD (DC)	SOUTHERN AVE + TORQUE ST (DC)	EAST CAPITOL ST SE + 49TH ST SE (DC)
ALABAMA AVE + 18TH ST (DC)	SOUTHERN AVE + RAIL ST (DC)	DIVISION AVE + EASTERN AVE (DC)
ALABAMA AVE + GOOD HOPE RD (DC)	SOUTHERN AVE SE + PEAR ST SE (DC)	EASTERN AVE + BOOTH LA (DC)
ALABAMA AVE + 30TH ST (DC)	SOUTHERN AVE + MARLBORO PK (DC)	DEANWOOD STATION + MINN AVE (DC) (ALIGHT ONLY)
ALABAMA AVE + 31ST ST (DC)	SOUTHERN AVE + BOONES HILL (DC)	DEANWOOD STATION + BUS BAY A (DC)
ALABAMA AVE + 32ND ST (DC)	BENNING RD + HILLSIDE RD (DC)	SCHUSTER DR + LYDELL RD (MD)
ALABAMA AVE + BRANCH AVE (DC)	BENNING RD + H ST (DC)	PEPSI PL + LYDELL RD (MD)
ALABAMA AVE + 34TH ST (DC)		

Facility Recommendations

Northbound Stop Consolidation Candidates



Facility Recommendations

Recommendation #5 (cont.) – Southbound Stop Consolidation Candidates

SCHUSTER DR + LYDELL RD (MD)	SOUTHERN AVE + BOWEN RD (DC)	ALABAMA AVE + BRANCH AVE (DC)
DEANWOOD STATION + BUS BAY A (DC)	SOUTHERN AVE SE + RIDGE RD SE (DC)	ALABAMA AVE + 32ND ST (DC)
DIVISION AVE + JUST ST (DC)	SOUTHERN AVE SE + TORQUE ST (DC)	ALABAMA AVE + 31ST ST (DC)
DIVISION AVE + JAY ST (DC)	SOUTHERN AVE SE + BARKER ST (DC)	ALABAMA AVE + 30TH ST (DC)
DIVISION AVE + HAYES ST (DC)	SOUTHERN AVE SE + ELLIS ST SE (DC)	ALABAMA AVE + GOOD HOPE RD (DC)
DIVISION AVE NE + N H BURROUGHS AVE NE (DC)	SOUTHERN AVE SE + 42ND ST SE (DC)	ALABAMA AVE SE + 25TH ST SE (DC)
EAST CAPITOL ST NE + 50TH ST NE (DC)	SOUTHERN AVE SE + FT DUPONT ST (DC)	ALABAMA AVE SE + AINGER PL SE (DC)
EAST CAPITOL ST NE + BENNING RD (DC)	SOUTHERN AVE + PENNSYLVANIA AVE (DC)	ALABAMA AVE SE + IRVING PL SE (DC)
BENNING RD SE + EAST CAPITOL ST (DC)	PENNSYLVANIA AVE SE + 40TH ST (DC)	ALABAMA AVE SE + 24TH ST SE (DC)
BENNING RD SE + B ST SE (DC)	ALABAMA AVE + 36TH ST (DC)	ALABAMA AVE + 22ND ST (DC)
SOUTHERN AVE + REED TERR (DC)	ALABAMA AVE + 34TH ST (DC)	ALABAMA AVE + 18TH ST (DC)

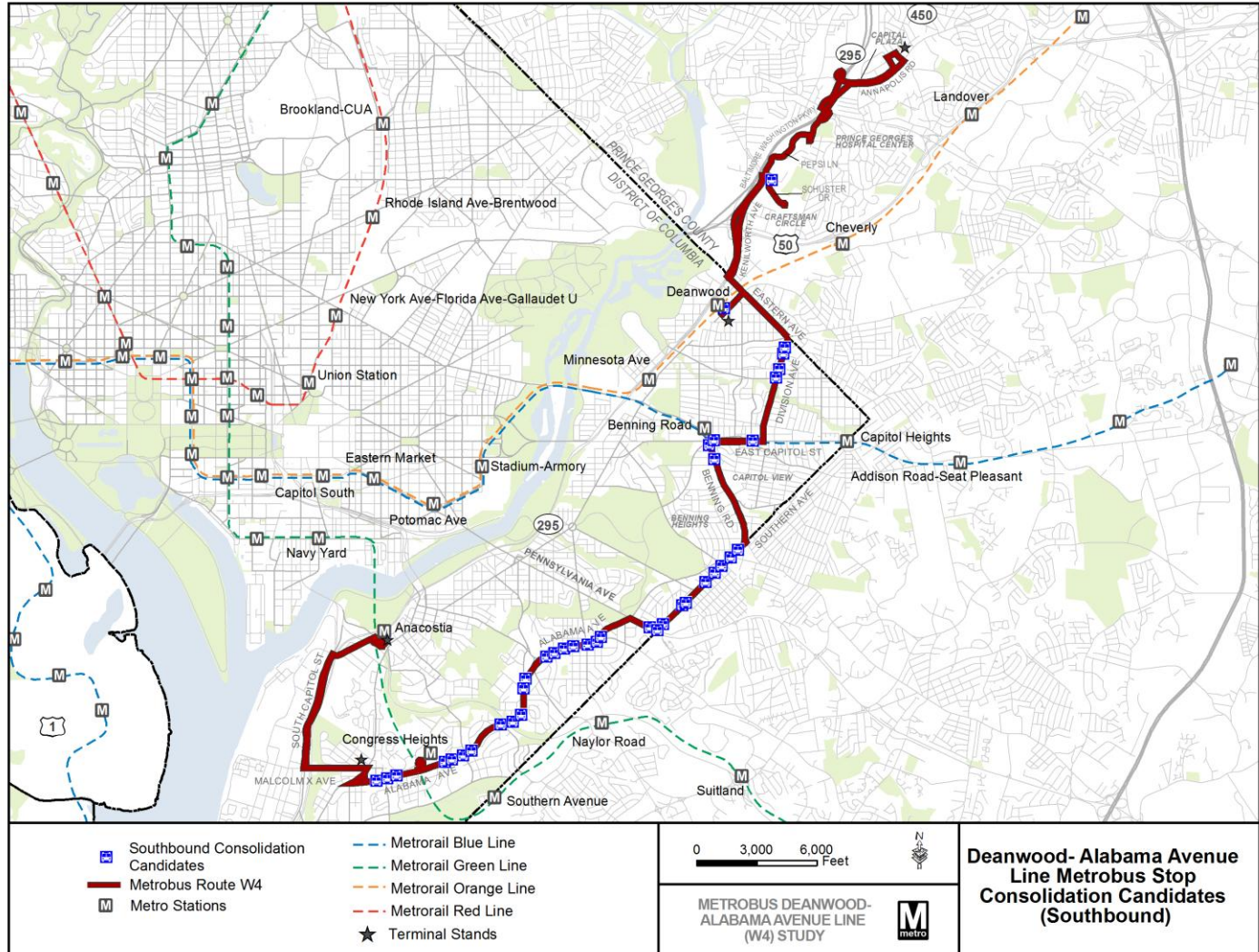
Facility Recommendations

Recommendation #5 (cont.) – Southbound Stop Consolidation Candidates

ALABAMA AVE + STANTON RD (DC)	ALABAMA AVE SE + 10TH ST SE (DC)
ALABAMA AVE + 15TH PL (DC)	ALABAMA AVE + 9TH ST (DC)
ALABAMA AVE + 15TH ST (DC)	ALABAMA AVE + 7TH ST (DC)

Facility Recommendations

Southbound Stop Consolidation Candidates



Facility Recommendations

Recommendation #6

- *Recommendation*
 - Improve Amenities at Bus Stops
 - Candidates for additional amenities identified based on WMATA Bus Stop Amenity Hierarchy from the WMATA Bus Stop Guidelines
- *Recommendation Purpose*
 - Stops are the gateway to the transit system for bus passengers. Improving stop amenities will create a better passenger experience and an overall positive image for the system
- *Estimated Capital Cost Associated with Change*
 - \$207,300 for full program of improvements

Facility Recommendations

Recommendation # 6 (cont.) – Northbound Stop Candidates – Install Information Case

2750 South Capitol (DC)	Alabama Ave. & 24 th St. (DC)	Southern Ave. & Belt Rd. (DC)
Malcolm X & 2 nd Street (DC)	Alabama Ave. & Jasper St. (DC)	Southern Ave. & 41 st Pl. (DC)
Malcolm X & Oakwood (DC)	Alabama Ave. & Hartford St. (DC)	Southern Ave. & Ellis St. (DC)
Randle Place & Alabama Ave. (DC)	Alabama Ave. & Ainger Place (DC)	Southern Ave. & Byers St. (DC)
Alabama Ave. & 9 th Street (DC)	Alabama Ave. & 30 th St. (DC)	Southern Ave. & Vine St. (DC)
Alabama Ave. & 13 th Street (DC)	Alabama Ave. & 31 st St. (DC)	Southern Ave. & Torque St. (DC)
Alabama Ave. & Congress St. (DC)	Alabama Ave. & 32 nd St. (DC)	Southern Ave. & Rail St. (DC)
Alabama Ave. & 15 th Place (DC)	Alabama Ave. & 34 th St. (DC)	Southern Ave. & Marlboro Pk. (DC)
Alabama Ave. & Stanton Rd. (DC)	Alabama Ave. & 36 th St. (DC)	Southern Ave. & Boones Hill (DC)
Alabama Ave. & 18 th Place (DC)	Alabama Ave. & 38 th St. (DC)	Benning Rd. & Hanna Place (DC)
Alabama Ave. & 22 nd St. (DC)	Pennsylvania & 40 th St. (DC)	

Facility Recommendations

Recommendation #6 (cont.) – Northbound Stop Candidates – Install Information Case

Benning Rd. & B St. (DC)	Kenilworth Ave. & Lydell Rd. (MD)
East Capitol Street & 47 th St. (DC)	Schuster Drive & Lydell Rd. (MD)
Division Ave. & East Capitol (DC)	Schuster Dr. & Burnham Van (MD)
Division Ave. & Banks Pl. (DC)	Schuster Dr. & Halperin Co. (MD)
Division Ave. & Fitch Pl. (DC)	Pepsi Place & Fontana Litho (MD)
Division & NH Burroughs (DC)	Hospital Dr. & Child Care Ctr. (MD)
Eastern Ave & Doewood Lane (DC)	Hospital Dr. & Employee Parking (MD)
Eastern & Beaver Heights (DC)	Hospital Dr. & County Health (MD)
Minnesota Ave. & Quarles St. (DC)	Annapolis Rd. & 62 nd Ave. (MD)
Minnesota Ave. & 48 th . (DC)	Annapolis Rd. & 65 th Ave. (MD)
Kenilworth Ave. & Frolich La. (MD)	Cooper Lane & Annapolis Rd. (MD)

Facility Recommendations

Recommendation #6 (cont.) – Southbound Stop Candidates - Install Information Case

Hospital Drive & County Health (MD)	Division Ave. & Hayes St. (DC)	Southern Ave. & Fort Dupont (DC)
Pepsi Place & Fontana Litho (MD)	Division & NH Burroughs (DC)	Southern Ave. & Pennsylvania (DC)
Schuster Drive & Lydell Rd. (MD)	Division Ave. & Fitch Pl. (DC)	Pennsylvania & Fort Davis (DC)
Schuster Dr. & Burnham Van (MD)	Division Ave. & Cloud Pl. (DC)	Alabama Ave. & 38 th St. (DC)
Schuster & Halperin Co (MD)	Division Ave. & Brooks St. (DC)	Alabama Ave. & 36 th Pl. (DC)
Kenilworth Ave. & Lydell Rd. (MD)	East Capitol St. & Division Ave. (DC)	Alabama Ave. & 36 th St. (DC)
Kenilworth Ave. & Frolich La. (MD)	East Capitol St. & 49 th St. (DC)	Alabama Ave. & 34 th St. (DC)
Eastern Ave. & Olive St. (DC)	Benning Rd. & B Street (DC)	Alabama Ave. & Branch Ave. (DC)
Minnesota Ave. & Quarles St. (DC)	Benning Rd. & Hanna Pl. (DC)	Alabama Ave. & 32nd St. (DC)
Eastern Ave. & Meade St. (DC)	Southern Ave. & Burns St. (DC)	Alabama Ave. & 31st St. (DC)
Eastern Ave. & Lee St. (DC)	Southern Ave. & Ellis St. (DC)	Alabama Ave. & 30th St. (DC)
Division Ave. & Just St. (DC)	Southern Ave. & 41 st Pl. (DC)	Alabama Ave. & Good Hope (DC)

Facility Recommendations

Recommendation #6 (cont.) – Southbound Stop Candidates – Install Information Case

Alabama Ave. & 25th St. (DC)	Alabama Ave. & 9 th St. (DC)
Alabama Ave. & Ainger Pl. (DC)	Alabama Ave. & 7 th St. (DC)
Alabama Ave. & Hartford St. (DC)	Alabama Ave. & 5 th St. (DC)
Alabama Ave. & Irving Pl. (DC)	Malcolm X Ave. & 2 nd St. (DC)
Alabama Ave. & 22 nd St. (DC)	Malcolm X Ave. & South Capitol (DC)
Alabama Ave. & 18 th St (DC)	South Capitol & Malcolm X (DC)
Alabama Ave. & 15 th Pl. (DC)	2750 South Capitol Street (DC)
Alabama Ave. & 15 th St. (DC)	Firth Stirling Ave. & Sumner Rd.(DC)
Alabama Ave. & Congress St. (DC)	Alabama Ave. & Irving Pl. (DC)
Alabama Ave. & 12 th St. (DC)	
Alabama Ave. & 10 th Pl. (DC)	

Facility Recommendations

Recommendation #6 (cont.) – Stop Candidates - Install Trash Receptacles – Both Directions

Stop	Direction	Number of Boardings
Alabama & 38 th St. (DC)	Northbound	49
Southern Ave. & Marlboro Pike (DC)	Northbound	43
Division Ave. & Brooks St. (DC)	Southbound	44
East Capitol Street & Benning Road (DC)	Southbound	136
Benning Road & East Capitol St. (DC)	Southbound	399
Benning Road & E Street (DC)	Southbound	33
Benning Road & F Street (DC)	Southbound	84
Benning Road & H Street (DC)	Southbound	52
Southern Ave. & Bowen Road (DC)	Southbound	83
Alabama Ave. & 22 nd St. (DC)	Southbound	78
Alabama Ave. & Stanton Rd. (DC)	Southbound	74
MLK Ave. & 5 th Street (DC)	Southbound	40

Facility Recommendations

Recommendation #6 (cont.) – Stop Candidates – Install Shelter and Bench – Both Directions

Stop	Direction	Number of Boardings
Alabama Ave. & Congress Street (DC)	Northbound	50
Alabama Ave, & Naylor Road (DC)	Northbound	100
Benning Road & H Street (DC)	Northbound	62
Division Avenue & NH Burroughs (DC)	Southbound	151
Division Avenue & Fitch Place (DC)	Southbound	87
East Capitol St. & 50 th Street (DC)	Southbound	53
Benning Road & C Street (DC)	Southbound	57
Benning Road & F Street (DC)	Southbound	84
Benning Road & H Street (DC)	Southbound	52
Southern Avenue & Bowen Road (DC)	Southbound	83
Alabama Avenue & Irving Pl. (DC)	Southbound	53
Alabama Avenue & 22 nd Street (DC)	Southbound	78
Alabama Avenue & Stanton Terr. (DC)	Southbound	65
Alabama Avenue & Stanton Rd. (DC)	Southbound	74

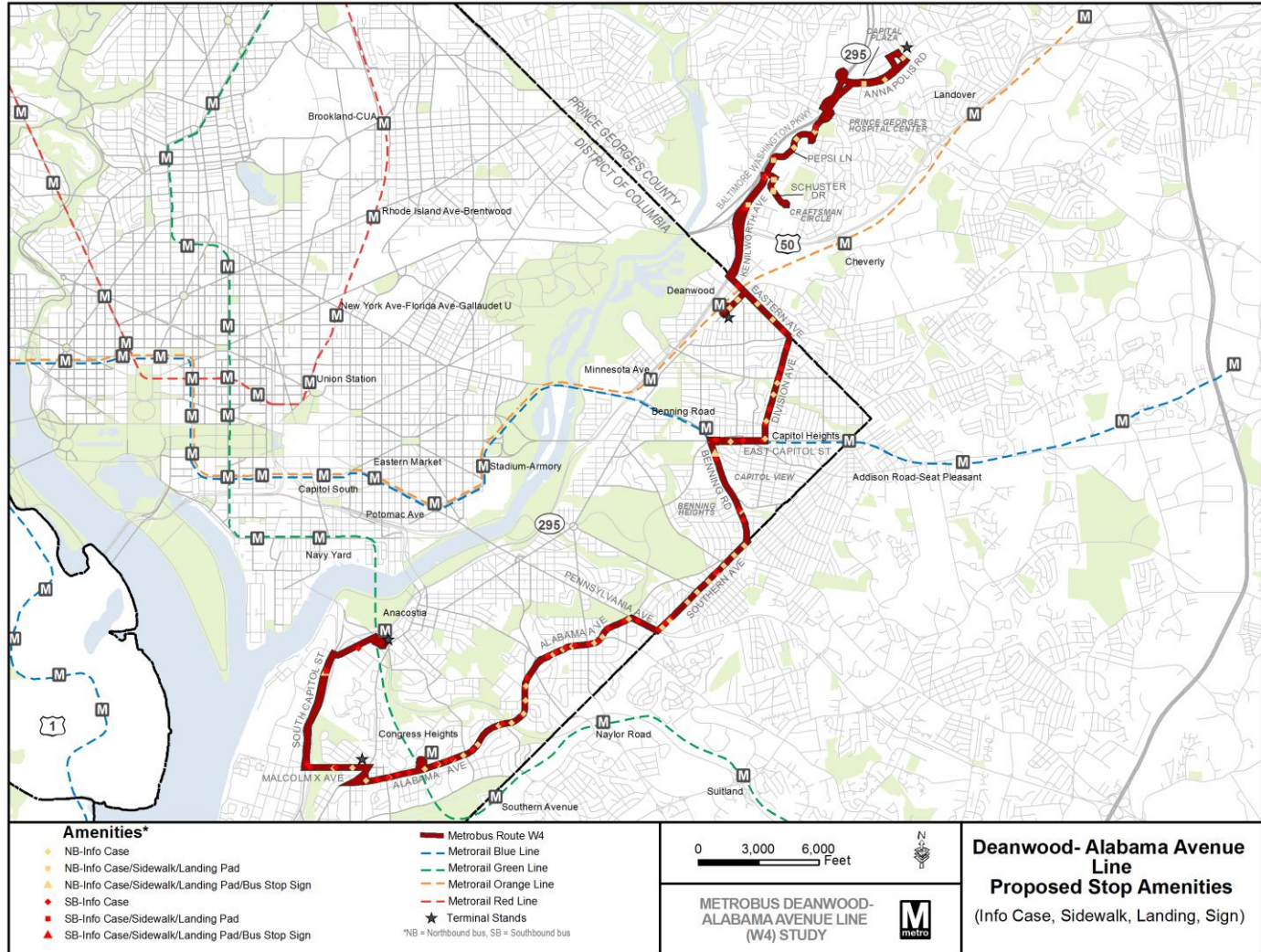
Facility Recommendations

Recommendation #6 (cont.) – Stop Candidates – Install Bus Stop Flags

- 2750 South Capitol (DC) Northbound
- Benning Road & B Street (DC) Northbound
- Kenilworth Ave. & Frolich Lane (MD) Southbound

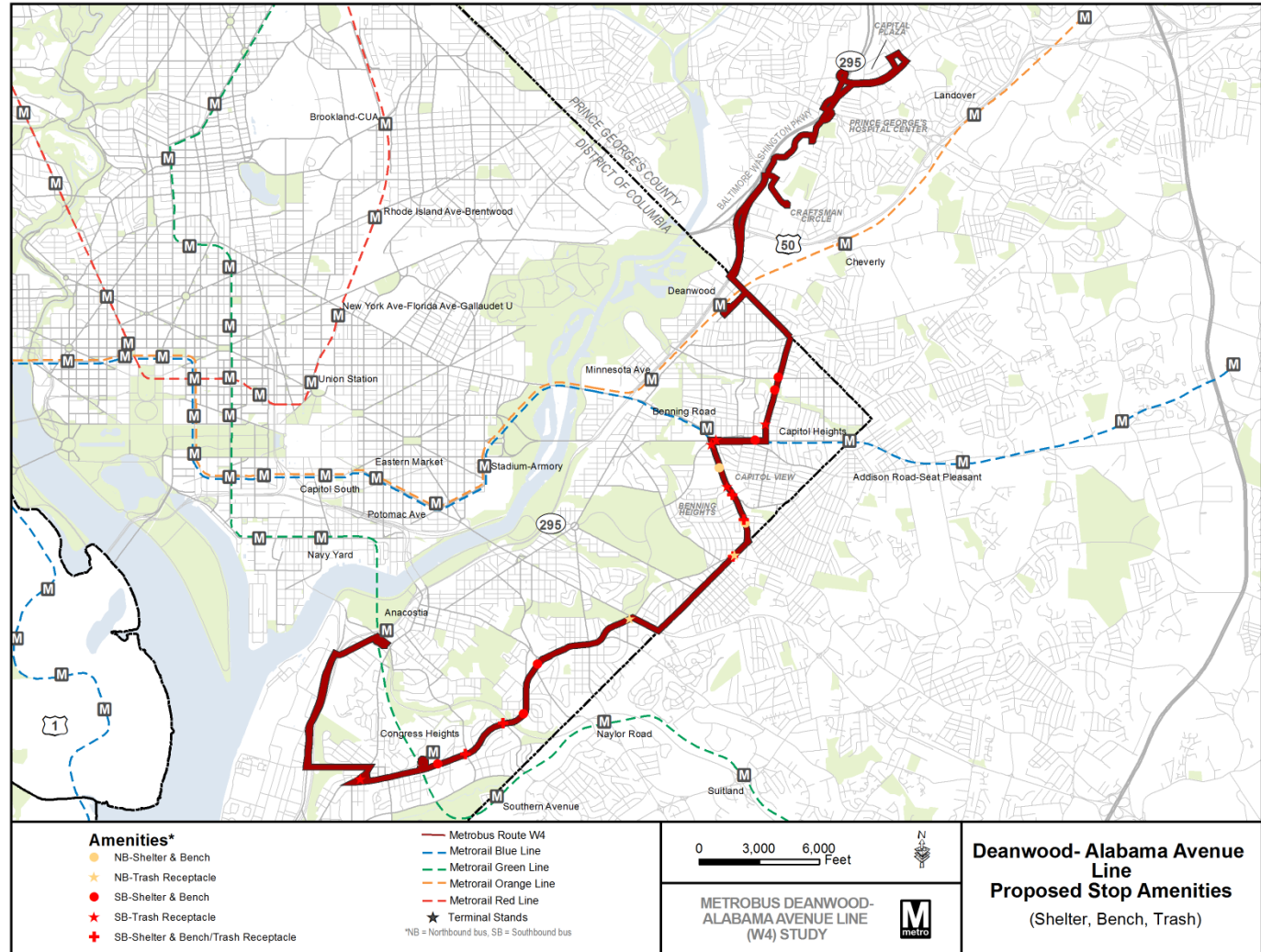
Facility Recommendations

Proposed Bus Stop Amenities – Information Cases, Sidewalk or Landing Pad, and Bus Stop Sign



Facility Recommendations

Proposed Bus Stop Amenities – Shelter and Benches, and Trash Receptacles



Traffic Improvement Issues and Recommendations

Recommendation #7

- *Recommendation*

- Implement multiple traffic related recommendations to improve W4 operations and reliability
- Recommendations
 - Conduct turning movement counts at intersection of Randle Place and Alabama Avenue and optimize signal timing based on traffic demand
 - Conduct turning movement counts at the intersection of Alabama Avenue and Branch Avenue and optimize splits and cycle length based on traffic demand
 - Conduct turning movement counts at intersection of Minnesota Avenue and Eastern Avenue and optimize signal timing based on traffic demand

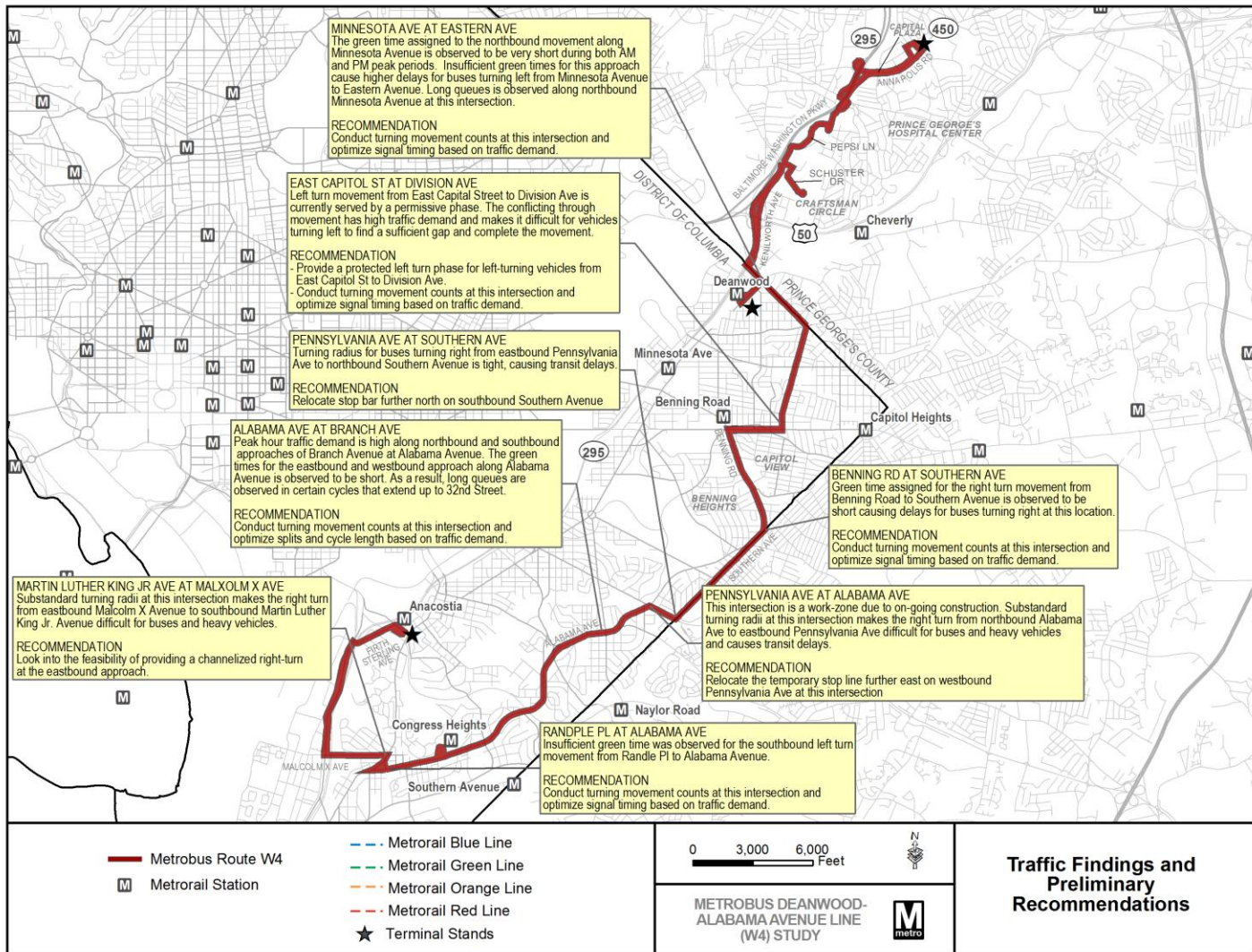
Traffic Improvement Issues and Recommendations

Recommendation #7 (cont.)

- Conduct turning movement counts at the intersection of Benning Road and Southern Avenue and optimize signal timing based on traffic demand
- Provide a protected left turn phase for left-turning vehicles from East Capitol Street to Division Avenue and conduct turning movement counts at this intersection and optimize signal timing based on traffic demand
- Relocate the temporary stop line further east on westbound Pennsylvania Avenue at the intersection of Pennsylvania Avenue and Alabama Avenue in order to address substandard turning radius for buses turning onto eastbound Pennsylvania from Alabama Avenue
- Relocate stop bar farther north on southbound Southern Avenue to accommodate buses turning left from eastbound Pennsylvania Avenue onto northbound Southern Avenue in order to address inadequate turning radius
- Evaluate the feasibility of providing a channelized right-turn at the eastbound approach of Malcolm X Boulevard at southbound Martin Luther King Jr. Boulevard in order to address substandard turning radius

Traffic Improvement Issues and Recommendations

W4 Line Traffic Issues and Recommendations



Traffic Improvement Issues and Recommendations

Recommendation #7 – (cont.)

- *Recommendation Purpose*
 - Poor traffic operations lead to slower trip times and service reliability issues, both major impediments to passenger convenience
- *Estimated Capital Cost Associated with Change*
 - Costs can be identified once proposed traffic analysis is completed

Traffic Enforcement Recommendations

Recommendation #8

- *Recommendation*

- Coordinate with the District of Columbia to assign traffic enforcement personnel in a concentrated effort to locations with significant occurrences of parking violations that hurt line performance. Continued coordination with drivers is also proposed to remain current on “parking violation” hot spots
 - Initial locations include KIPP Academy on Benning Road and the concentration of schools in the vicinity of Randle Place and Martin Luther King Jr. Boulevard

- *Recommendation Purpose*

- Parking violations along the W4, including double parking at the numerous schools on the line, negatively impact trip time and reliability. Targeted enforcement will help to address these negative impacts

- *Recommendation Cost*

- Cost will be estimated in conjunction with the District of Columbia

Safety and Security Recommendations

Recommendation #9

- *Recommendation*
 - Continue to monitor the Metro Police High Intensity Targeted Enforcement (HITE) Strategy, which is focused on providing a visible police presence on lines with a high number of driver and passenger complaints regarding crime and poor passenger behavior. This would include ongoing discussions with drivers to assess their sense of the program's effectiveness.
- *Recommendation Purpose*
 - Passengers and drivers were vocal in making complaints regarding poor passenger behavior, including physical threats, drinking, and loud and rude behavior. The HITE Program has been successful in addressing these issues. Monitoring of bus driver feedback will help to highlight areas where potential program improvements may be warranted.
- *Estimated Cost*
 - No additional cost – monitoring will be completed as part MTPD's ongoing efforts