Metrobus
North Capitol Street Line Study
Route 80

Final Summary Report

October 2013

Table of Contents

List of Figures

List of Tables

1.0 Executive Summary

The Washington Metropolitan Area Transit Authority (WMATA), in partnership with the District Department of Transportation (DDOT), has studied ways of improving transit service along the Metrobus North Capitol Street Line, which includes Route 80.

The study was the latest in a series of Metrobus priority corridor evaluations in which WMATA and regional transportation agencies restructured some of the highest-ridership lines in the area. Transit service and operations improvements have previously been made to the Georgia Avenue-7th Street (70s) Line, Pennsylvania Avenue/Wisconsin Avenue (30s) Line, 16th Street (S) Line, Veirs Mill Road (Q2) Line, Leesburg Pike (28) Line, the Benning Road-H Street (X) Line, the U Street-Garfield (90s) Line, the Anacostia-Congress Heights (A) Line, and the 14th Street Line (52, 53, 54).

With approximately 7,800 passengers and 76 trips in each direction on the average weekday, the North Capitol Street Line provides an important link between the Brookland and Michigan Park neighborhoods in Northeast D.C., neighborhoods along the North Capitol Street corridor, downtown D.C. and Foggy Bottom. In Northeast D.C. and along North Capitol Street, the line also provides vital connections between the neighborhoods and Metrorail. Unlike other corridors included in the Priority Corridor Network, the North Capitol Street Line has limited late night service, with an approximately four-hour break in service in each direction.

The initial portion of the study began in October 2012 and included a public outreach process, featuring a rider survey, a rider focus group and a series of public meetings. The data gathering for this study also included both initial interviews with Metrobus operators at the Northern Division garage to gather input as well as subsequent interviews to discuss potential service proposals and preliminary recommendations. Input received from riders helped to form the conceptual options for study, which were evaluated over the course of several months. The options were refined and commented on by the public and DDOT, the result of which was the set of recommendations that are discussed in this Summary Report.

The following is a summary of the recommendations and suggested timeline for implementation as they will be presented to the WMATA Board for approval:

Initial Phase (2013-2014)

The improvements recommended in the North Capitol Street Line Study are proposed for implementation in several phases, spreading out operating cost increases over a number of years. In the Initial Phase, Route 80 will be restructured into the Route 80 (between Fort Totten and the Kennedy Center) and the Route 80A (between Fort Totten and McPherson Square), with the combination of Route 80/80A providing more frequent service along the corridor trunk versus today's Route 80. The initial phase also includes recalibration of running times on the North Capital Street Line.

Other operational changes are proposed to improve reliability of Route 80 services. These include formalizing the use of the New York Avenue and Virginia Avenue underpasses as proposed, not going fully around Juarez Circle, and the discontinuation of use of the Providence Hospital driveway.

Phase Two (2015-2016)

MetroExtra 80X limited stop service, operating every 15 minutes during the weekday peak periods in both directions of service will be implemented in the second phase. Dedicated/enhanced supervision will also be implemented in the second phase.

Phase Three (2017-2018)

Midday service on MetroExtra Route 80X will be added in the third phase.

Phase Four

Implement the proposed Metrobus Route 85 Neighborhood Connector service (to operate every 15 minutes throughout the service day on weekdays and weekends) in conjunction with development at the MacMillan Reservoir site in phase four.

Future Phases

Implement any physical improvements on the North Capitol Street Line, including the possible traffic improvements.

2.0 Introduction to the North Capitol Street Line Study

The Washington Metropolitan Area Transit Authority (WMATA), in partnership with the District Department of Transportation (DDOT), has studied ways of improving transit service along the North Capitol Street Line (Route 80). These existing routes are shown in **Figure 2-1**. This Summary Report describes the development and evaluation of service improvement options for the North Capitol Street Line as well as an overview of the public outreach efforts and the recommended improvements that emerged from the study process.

2.1 Project Purpose

As with other Priority Corridor Studies, the main purpose of this study was to conduct a comprehensive review of methods for improving the performance of transit service along the North Capitol Street Line, and to develop an improvement strategy that would include service, operations, and customer information enhancements. Challenges facing the North Capitol Street Line included:

- The North Capitol Street Line serves as an important line-haul service in Northeast Washington and along North Capitol Street, linking residential neighborhoods, commercial areas, mixed-use development, Metrorail stations and downtown. It also shuttles some passengers between Metrorail stations and nearby residential and commercial areas and hospitals.
- The line also carries a heavy amount of local ridership along the rapidly developing, mixed-use corridor along North Capitol Street between Union Station and Florida Avenue and dense residential neighborhoods between Rhode Island Avenue and the Washington Hospital Center.
- On-time performance is a problem on the North Capitol Street Line, with only 67 percent of southbound and 74 percent of northbound service operating on time.
- Bunching occurs in the southbound direction during the morning peak period, particularly through downtown Washington and towards the southern end of the route.

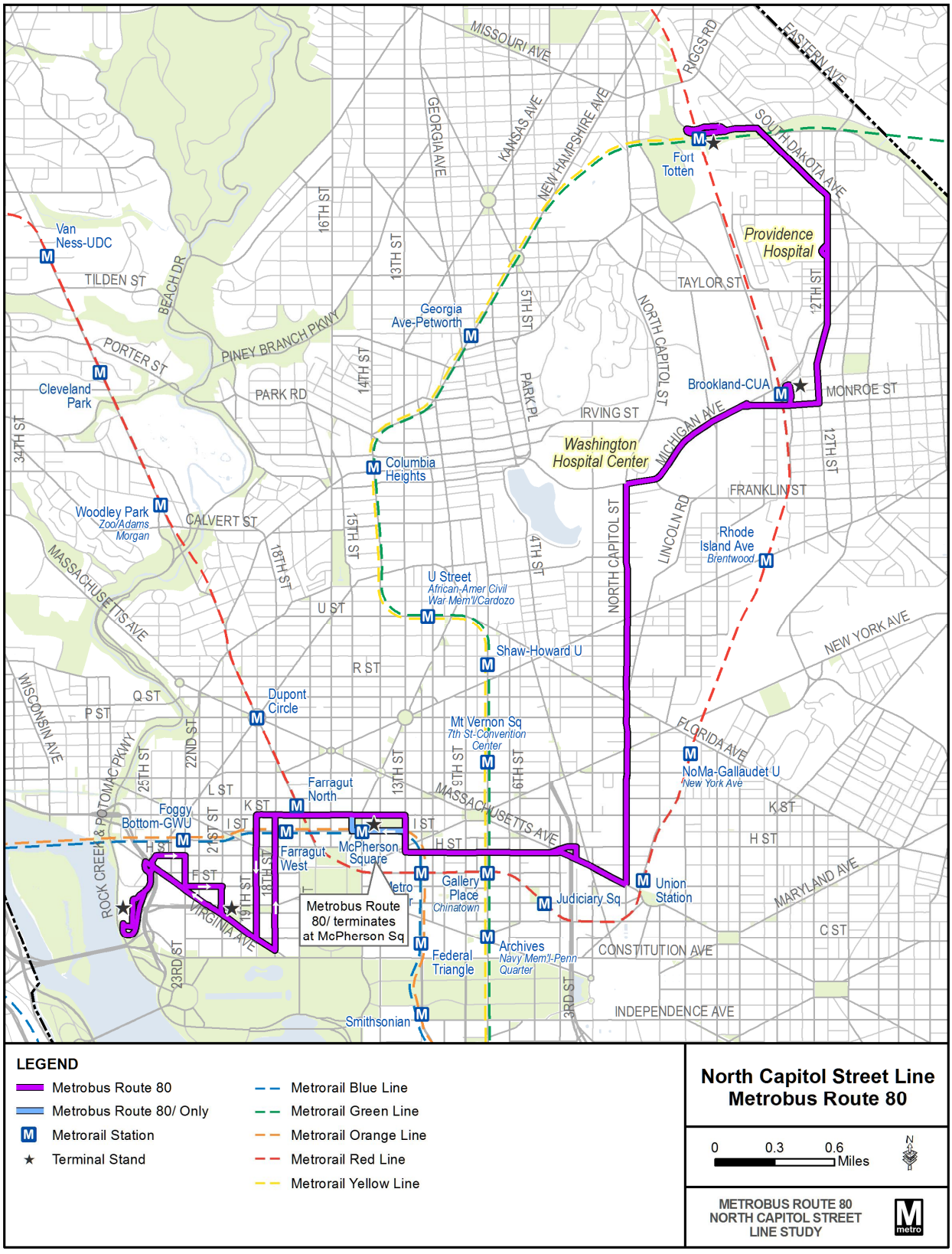
2.2 Planning Process

Similar to prior Priority Corridor studies, the North Capitol Street Line Study included a coordinated planning effort to link implementation of the proposed service options with the development of community support. This work consisted of:

- Conducting a rider survey to identify deficiencies to be addressed by the study.
- Holding three sets of public meetings (a total of five meetings), a focus group and outreach with Metrobus operators to develop both public and agency support for enhancing the North Capitol Street Line.
- Reviewing existing North Capitol Street Line services, operations, and customer information.
- Recommending an integrated set of service, operations, and customer information strategies to respond to consumer needs, minimize costs, and enhance effectiveness and performance of the North Capitol Street Line.
- Identifying related enhancements, budgets, and funding needs for:
    - Service and supervision
    - Bus stop locations
    - Customer information
    - Vehicle types and uses

    - Physical improvements to roadways and intersections
    - Traffic management strategies
    - Safety and security
    - Fare and collection strategies
- Developing a coordinated implementation timetable and strategy with DDOT.
- Requesting funding and WMATA Compact-required approvals.
- Implementing the service and enhancements in coordinated phases to meet project and District transportation deadlines and requirements.

Figure 2-1 – Existing Metrobus North Capitol Street Line Service



3.0 Public Involvement and Operator Outreach Process

An important part of the North Capitol Street Line Study was public involvement – identifying what problems Metrobus riders have experienced on the 80 route and cataloging changes they would like to see implemented to address those problems.

3.1 Rider Survey Methodology

One of the first tasks in the North Capitol Street Line Study was the rider survey. The main purpose of the survey was to hear from riders themselves about the problems they perceive with the routes, and to compile suggestions on how to improve service. A secondary purpose was to collect names and e-mail addresses of respondents that could be used for communicating updates and announcements for public meetings. The rider survey effort was made up of four parts: design, promotion, administration, and tabulation.

3.1.1 Design

The initial step in the survey design was to determine what specific information needed to be obtained from riders of the North Capitol Line, and then develop questions that would best obtain that information. A total of 21 questions were included, and a space was added at the end where respondents could write in additional comments or indicate that they would like to be part of a focus group. There were two ways in which the survey was made available to riders: on paper and on-line via the project website.

For the paper survey, the questions were arranged on a piece of folded cardstock with one panel left open for U.S. Postal Service business reply mail information. An English version of the survey appeared on one side and a Spanish translation was printed on the other. The surveys featured die-cut hooks at the top so they could be hung from handrails attached to the ceilings of buses. The surveys were also designed to fit into the “take one” racks of the buses.

The second option for riders wanting to take the survey was on-line at the project website, www.metrobus-studies.com. While the questions on the paper survey were geared toward riders’ opinions as they were riding the bus that day, the questions in the on-line version were modified to reflect general impressions about service on the North Capitol Street Line.

3.1.2 Promotion

The survey was promoted in two ways. One was with 11” x 17” posters that were placed on Route 80 buses in advance of the survey day. The survey was also promoted through announcements on the project website. On the day of the survey, project team members visited high-ridership stops on the line to hand out surveys to riders waiting for North Capitol Street Line buses. The staff wore large “Metrobus” buttons to identify themselves as part of the project and answered rider questions as necessary.

3.1.3 Administration

The paper survey was administered on Wednesday, October 24, 2012, from 5:30 am to 7:30 pm. Project team members were stationed at the layover location at Fort Totten Metro Station – where almost all Route 80 trips begin – and at the Kennedy Center, to put posters on buses, hang surveys from overhead rails, place surveys in schedule racks, and affix collection pouches in the front and

back of each bus. Surveys were collected from the pouches by project staff whenever a bus arrived at the Kennedy Center or the northern terminal at Fort Totten.

Metrobus North Capitol Street Line operators and supervisors at Bladensburg Division were informed of the survey more than a week in advance, and the Division Superintendent was mailed copies of written instructions about the survey to distribute to the staff.

Approximately 2,000 paper surveys were distributed on the day of the survey. While the paper survey was administered on only one day, the on-line version was available until February 25, 2013.

3.1.4 Tabulation

Project staff retrieved completed surveys from the collection pouches on buses throughout the course of the survey day and from the business reply mail address in the four months following the survey day. Paper surveys were tabulated by the project team using Survey Monkey, an on-line tool that also produces graphics and helps analyze the information for the purpose of reporting. Surveys received via the project web page were automatically tabulated via Survey Monkey.

As mentioned, the paper version of the North Capitol Street Line rider survey was bilingual, with English on one side and a Spanish translation of the same questions on the other. Of the 346 surveys returned, 16 of them (4.6 percent) were completed in Spanish.

For purposes of comparison, a priority corridor study of the Metrobus 90s Line took place in 2010, of the Metrobus A Lines in 2011, and of the Metrobus 14th Street Line Routes 52, 53, and 54 in 2012. Because those lines average several thousand more weekday riders than Route 80, Route 80 received fewer survey responses, as **Table 3-1** below indicates.

Table 3-1 – Comparative Rider Survey Responses

Rider Survey Responses	90s Line, 2010	A Lines, 2011	14th St. Line, 2012	Route 80, 2012-13
Paper	658	532	412	299
On-Line	17	44	187	47
Total	**675**	**576**	**599**	**346**

3.2 Riders Survey Results

A total of 346 rider surveys for the North Capitol Street Line were returned between October 2012 and February 2013:

- The majority of responses (299, or 86 percent) were through paper surveys.
- 47 responses (14 percent) were received on-line through the project website.

The following is a list of major themes that recurred in the North Capitol Street Line rider survey responses:

1) A lack of frequency was the number one problem identified by respondents on the North Capitol Street Line; 14 percent of all respondents thought that this was the primary problem with the route.

33 percent of all respondents had to wait between 5 and 10 minutes for the Route 80 bus; 25 percent had a 10 to 20 minute wait; and 14 percent waited over 20 minutes. Only 26 percent of respondents had a wait that was less than 5 minutes.

2) Crowding on buses (13 percent of respondents) and bus bunching that resulted in long waits at bus stops (also 13 percent) were the two issues that ranked the next highest among problems experienced along Route 80. However, 81 percent of all respondents also said that a seat was available to them when they boarded the bus.

3) Buses that were often late due to traffic congestion, construction delays, etc. (12 percent of respondents) and slow travel times due to construction and too many bus stops (9 percent) were two other issues raised by respondents on the North Capitol Street Line.

4) On the day of the survey, a long wait for the bus was the most flagged issue (34 percent). Other issues raised included congestion and long traffic lights (29 percent); crowding (25 percent); too many stops (16 percent); and taking too long to load and unload at stops (13 percent).

5) Most respondents (74 percent) said they did not notice any difference in safety and security on the line over the previous year; 10 percent said it was less safe; and 12 percent said it was safer and more secure.

6) 44 percent of respondents said that they had transferred from another bus or Metrorail line. 67 percent of respondents said they would not transfer to another line on this trip.

7) 54 percent ride the 80 Route bus 3 to 5 days a week; 27 percent ride it 6 to 7 days a week.

8) Respondents were generally satisfied with the quality of the bus stops. The average rating for the buses was 3.4 (1=poor quality, 5=high quality).

9) More than 1/3 of all respondents rated the cleanliness and condition of the buses highly, giving it a rating of 4 out of 5 (1=poor quality, 5=high quality).

10) Almost 90 percent of all respondents rated the driver highly, giving a rating of 4 or 5 out of a possible 5 (1=poor quality, 5=high quality).

11) In general, more than 50 percent of respondents rated the service on the 80 Route to be higher than 7 on a scale of 1 to 10 (1= poor, 10= excellent).

12) Demographics: 15 percent of all respondents answered questions related to demographics. Of these, 85 percent have a 4-year college degree or higher; 30 percent live in a household with a combined income of over $100,000 per year; 68 percent are white and 31 percent are black; and 55 percent are male.

3.3 Public Meetings

At the outset of the study, the project team conducted a focus group as a means of targeting the opinions of regular Route 80 riders on issues that may not have been sufficiently covered by the rider survey. The focus group allowed the project team to obtain in-depth perspectives on problems being experienced on the route.

Three sets of public meetings were also held for the North Capitol Street Line Study. The goal of the first set was to introduce the study to the public and provide a forum for Route 80 riders who may have missed the opportunity to take the rider survey. At the second set of public meetings, participants

offered feedback on potential improvement options. And at the final public meeting, draft recommendations for the line were presented.

The focus group and public meetings (along with the rider survey) comprised the public involvement effort for study of Route 80. The input gathered at these events confirmed the deficiencies now seen on the line and guided the improvement concepts that were analyzed as part of the study.

3.3.1 Format

Public meetings for the North Capitol Street Line Study were done in an "open house" format, meaning no presentation was given and no discussion groups were formed. Instead, participants were able to come at any time during the window in which the meeting was taking place, rather than at any set time.

This informal process enabled participants to ask as many questions and make as many observations as they liked. Participants were invited to stay for the full length of the meeting, or only as long as their time would allow. Public meetings were held in locations right on the Route 80 corridor in the evening immediately after typical office hours, making it easier for participants to stop in on their way home from work and get home with plenty of time to spare in the evening.

3.3.2 Promotion

Public meetings were promoted in several ways:

- 11" x 17" posters that advertised the public meetings were placed on Route 80 buses by Bladensburg Division staff about a week before each meeting.
- The same posters were sent to or dropped off at the public meeting locations, and placed in shelters at Metro stations along the line.
- An e-mail broadcast was sent to approximately 200 people who included their e-mail address on their completed rider survey. Other recipients included elected officials, neighborhood associations, and media outlets.
- The project website was updated to show public meeting dates, times, and locations.
- Metro's website announced the public meetings.
- Press releases announcing the public meetings were sent by Metro to its list of media contacts.
- Approximately 800 fliers announcing the meetings were passed out to riders waiting for Route 80 buses at key locations along the routes, in the days leading up to each of the meetings.

Unlike the public meetings, which were open to the public, the focus group was invitation-only and, therefore, promoted differently. On the Route 80 rider survey, a box was included that respondents could check if they wanted to be included in the focus group. 65 respondents checked the box and provided an e-mail address to contact them. Of the 65 respondents who were sent an invitation, 11 replied to confirm that they would like to be in the focus group. Ultimately, seven people attended the focus group.

3.3.3 First Public Meeting: Problem Identification

The first of three series of public meetings for the study of Route 80 consisted of two meetings. The first meeting was held on Wednesday, November 14, 2012 between 5:00 pm and 7:00 pm at Providence Hospital's Ross Auditorium. The second meeting was held on Thursday, November 15, 2012 between 5:00 pm and 7:00 pm at the Phoenix Park Hotel. The locations were chosen for their proximity to Route 80, and to accommodate both residents of Northeast DC and workers in Downtown DC. Seventeen participants signed-in at the November 14 meeting; nine signed-in at the November 15 meeting.

The following is a transcription of comments and questions received at the first public meeting series for the study of Route 80:

Level of Service – Passengers noted that off-peak frequency for Route 80 is not great and passengers have to wait a long time.

Crowding – Crowding was identified as an issue along the 80 Line. One issue with crowding is the number of wheelchair passengers, especially with the recent increase in Metro Access fares.

Congestion/Bus Bunching Issues – Congestion affects bus travel speeds and leads to bunching. Areas where congestion is particularly bad include the intersection of New York Avenue and North Capitol Street, and the Union Station area. Construction along this line is an issue.

Desire for a Limited Stop Service on North Capitol Street – Members of the public mentioned that a limited stop service would improve travel times and increase the utility of North Capitol Street bus services.

Bus Stop Amenities – Passengers identified bus stops where shelters and schedules are needed or are out of date.

3.3.4 Focus Group

The focus group was held on the evening of Tuesday, December 18, 2012, at Martin Luther King, Jr. Library at 9th & G Streets NW. The facility is located on Route 80 and across the street from Gallery Place-Chinatown Metro Station. Although 11 riders confirmed that they would attend, seven participated.

Format

The purpose of the focus group was to explore issues about the service and operation of the North Capitol Street Line with regular riders in a more thorough fashion than is normally possible with other outreach tools. A member of the project team prompted the group with questions that were approved in advance by WMATA and DDOT. Another member of the team recorded the group's responses to the questions, as well as questions the focus group members had. Other project staff stood by and participated when asked to clarify something about the operation of the North Capitol Street Line. Sandwiches and refreshments were provided to the focus group by the project team.

Promotion

No promotion was needed for the focus group. Rather, a question toward the end of the North Capitol Street Line rider survey was "Would you like to be a part of a special focus group that will meet one time in December to discuss potential solutions to problems on the Metrobus North Capitol Street Line?"

Results

The questions asked and prompts used by the facilitator of the focus group were described in detail in Technical Memorandum 4 – Public Meeting Summary. The questions related to both the current North Capitol Street Line service as well as the possible service modifications.

The following is a summary of recurring views expressed by participants at the Metrobus North Capitol Street Line Study focus group:

1) Focus group participants cited crowding as a major problem along the North Capitol Street Line. It was also noted that buses are crowded at the beginning of the route and crowding does not ease up until Downtown Washington. Facilitators defined crowding for focus group participants as the inability to find a seat on the bus.

2) Reliability of Route 80 was also cited as a major concern. Focus group participants mentioned that buses would bunch together frequently, leading to passengers waiting up to 45 minutes for a bus.

3) Route 80 bus trips take a long time due to congestion and the lack of transit priority treatment such as bus lanes or traffic signal priority.

4) There was much support for a limited-stop route, and resources should not taken away from the existing local service. The feeling was that having limited stop buses would help alleviate crowding on the route.

5) The use of underpasses at New York Avenue and Virginia Avenue was seen as a positive improvement by participants. Utilizing these underpasses will improve travel time and route reliability.

6) Split 80 at Union Station: A lot of people get on/off at Union Station; would effect on weekdays, but weekends might be tough. Through riders: not necessarily important to have a one-seat ride if reliability were improved. Group predicted that some riders would react negatively to a split 80, but if it were on time more, might be okay. Past Chinatown, ridership drops off. Maybe do the split at Gallery Place due to Verizon Center events.

7) There is a general perception of a lack of enforcement of rules along the line. This applies to supervisors who participants see as not actively managing the line, as well as to operators, who passengers feel do not enforce rules such as no eating/drinking on the bus, and allow profanity and "rowdiness" among teenagers, particularly after school lets out.

8) Participants use Nextbus since it is more reliable than the schedules posted at bus stops.

9) Wheelchairs: seems to be 3 to 4 times the number of wheelchair riders on Route 80; adds to travel time and makes buses even more crowded. This route sees more handicapped riders than on other routes and wheelchairs makeup approximately 1.68% of Route 80 ridership, which is higher than the WMATA average. (Metro staff explained that Metro Access recently raised fares, and many of those riders use buses now.)

10) The group uses SmarTrip cards; many add fare at CVS or rail stations. Participants asked whether it's possible to have off-board fare machines to speed up boarding.

11) Methadone clinic riders are "obnoxious". They are not threatening, but there are loud and edgy situations.

3.3.5 Second Public Meeting: Improvement Concepts

The purpose of the second round of public meetings was to show a set of potential options for improvements to participants and record their feedback on them. The meetings were held at the same two locations as the first series of public meetings in November. Eight participants signed in at the February 6 meeting; 10 signed in at the February 7 meeting.

The following is a transcription of comments and questions received at the second public meeting series:

Service Beyond McPherson Square – Many of the meeting attendees mentioned that service needs to be maintained west of McPherson Square to the Kennedy Center.

MetroExtra 80X Service – Most passengers liked the idea of faster buses along North Capitol Street. Passengers mentioned that this service should run along the entire current Route 80 route.

Service Restructuring – Public meeting participants did not like the proposed restructuring of the 80 into an A/B variation. There were concerns about forced transfers. People also did not like the idea of operating Route 80 services along K Street.

Service to Federal Center SW – Many people who attended the public meetings liked the idea of operating service to Southwest Washington. A few people mentioned that service should continue to L'Enfant Plaza versus Federal Center SW.

Neighborhood Service Route – The Neighborhood Connector will be great since it will provide wheelchair access to hospitals since shuttle buses to hospital are not wheelchair accessible, and the route will serve an emerging neighborhood.

Use of Underpasses – Meeting participants liked the idea of using underpasses to provide more reliable and faster service. Some people mentioned that they would save up to 15 minutes per trip by having buses use the New York Avenue underpass.

3.3.6 Third Public Meeting: Draft Recommendations

At the final public meeting for the North Capitol Street Line Study, participants viewed the draft recommendations for improvements and offered input on them. The meeting was held on Wednesday, May 22, 2013 between 5:30 pm and 7:00 pm at St. Anthony's School. Eight participants signed-in at the meeting. The following is a transcription of comments and questions received at the final public meeting:

Limited Stop Service – Participants like the idea of limited stop service.

Use of New York Avenue Underpass – Participants mentioned that use of the New York Avenue underpass will benefit this line.

Neighborhood Connector – This route should operate on Michigan and North Capitol, and not serve the hospital center if it operates during off-peak hours.

Bus Stop Consolidation – Participants support potential stop locations for permanent stops.

3.4 Metrobus Operator Outreach

As part of the data gathering and outreach for this study, input from Metrobus operators who drive buses on the North Capitol Street Line was also gathered.

Drivers at the Bladensburg Division garage were interviewed two times; the first meeting took place on December 18, 2012. The purpose of this interview session was to solicit from drivers their views on traffic and bus stop issues, as well as any ideas they may have for improvements to the North Capitol Street Line.

The second meeting took place on February 26, 2013. The purpose of this second interview session was to solicit from drivers their reactions and opinions on the proposed service recommendations being considered for the North Capitol Street Line.

The full list of initial operator comments was presented in *Technical Memorandum 1 – Transit Service Assessment*.

4.0 Recommended Improvements

4.1 Running Time Recalibration

It is recommended that running times be recalibrated along the North Capitol Street Line so that they accurately reflect the current traffic conditions. This will improve schedule reliability along the line, as a more realistic schedule will be operated. However, this will also increase the route's operating costs.

4.2 Bus Stop Consolidation

Numerous stops along the line are closer together than WMATA's guideline of 0.20 to 0.25 miles between stops; therefore, there are several stops that could be consolidated. **Tables 4-1 and 4-2** following list stops that may be candidates for consolidation, given these guidelines. Many of these stops are adjacent to one another, thus one stop or the other would be eliminated – but not both.

Candidate stops for consolidation were determined based on a four-step process:

1. All stops that were located closer to 0.20 mile from an adjacent stop were selected as candidates for elimination.
2. Stops that, if eliminated, would result in a distance greater than 0.25 miles between stops were removed from consideration.
3. Stops located at the terminal of a route or pattern, stops that serve a Metrorail station, and stops proposed for limited-stop service were removed from consideration.
4. Stops with more than 25 boardings or alightings per day were removed from consideration.

The remaining stops, considered candidates for consolidation with adjacent stops, are shown below.

Table 4-1 – Northbound Candidates for Consolidation

Candidate Stop	Previous Stop	Distance to Previous Stop (Miles)	Next Stop	Distance to Next Stop (Miles)	Total Distance (Miles) if Candidate Stop is Eliminated	Daily Boardings at Stop	Daily Alightings at Stop
23rd St & G St NW	H St & 23rd St NW	0.07	F St & 22nd St NW	0.15	0.22	14	2
18th St & D St NW	18th St & C St NW	0.06	18th St & E St NW	0.07	0.13	6	0
North Capitol St & V St	North Capitol St & Rhode Island Ave	0.12	North Capitol St & Adams St	0.13	0.25	3	12
North Capitol St & Channing St	North Capitol St & Bryant St	0.07	North Capitol St & Evarts St	0.14	0.21	10	16
Monroe St & 8th St NE	Monroe St & 7th St NE	0.07	Brookland Metrorail Station	0.15	0.22	0	0
12th St & Otis St NE	12th St & Newton St NE	0.07	12th St & Perry St NE	0.12	0.19	7	10
12th St & Michigan Ave NE	12th St & Quincy St NE	0.12	12th St & Taylor St NE	0.12	0.24	11	7
12th St & Crittenden St NE	12th St & Allison St NE	0.11	South Dakota Ave & Decatur St NE	0.08	0.19	21	23
South Dakota Ave & 8th St NE	South Dakota Ave & 10th St NE	0.12	South Dakota Ave & Farragut Pl NE	0.08	0.20	10	16
South Dakota Ave & Farragut Pl NE	South Dakota Ave & 8th St NE	0.08	Galloway St & South Dakota Ave NE	0.15	0.23	4	12
Galloway St & South Dakota Ave NE	South Dakota Ave & Farragut Pl NE	0.15	Fort Totten Metrorail Station – Drop-off Only	0.08	0.26	2	19

Table 4-2 – Southbound Candidates for Consolidation

Candidate Stop	Previous Stop	Distance to Previous Stop (Miles)	Next Stop	Distance to Next Stop (Miles)	Total Distance (Miles) if Candidate Stop is Eliminated	Daily Boardings at Stop	Daily Alightings at Stop
Galloway St & South Dakota Ave NE	Galloway St & 4th St NE	0.10	South Dakota Ave & Farragut Pl NE	0.11	0.21	11	1
South Dakota Ave & 8th St NE	South Dakota Ave & Farragut Pl NE	0.11	South Dakota Ave & Delafield St NE	0.09	0.20	19	9
12th St & Upshur St NE	12th St & Varnum St NE	0.08	12th St & Taylor St NE	0.07	0.15	9	12
12th St & Taylor St NE	12th St & Upshur St NE	0.07	12th St & Michigan Ave NE	0.13	0.20	15	5
12th St & Michigan Ave NE	12th St & Taylor St NE	0.13	12th St & Quincy St NE	0.11	0.24	14	15
12th St & Perry St NE	12th St & Quincy St NE	0.08	12th St & Otis St NE	0.11	0.19	10	12
12th St & Otis St NE	12th St & Perry St NE	0.11	12th St & Monroe St NE	0.14	0.25	11	12
Monroe St & 10th St NE	12th St & Monroe St NE	0.11	Brookland Metrorail Station	0.09	0.20	3	0
North Capitol St & Douglas St	North Capitol St & Girard St	0.15	North Capitol St & Channing St	0.07	0.22	9	3
North Capitol St & Channing St	North Capitol St & Douglas St	0.07	North Capitol St & Bryant St	0.07	0.14	10	7
North Capitol St & Adams St	North Capitol St & Bryant St	0.08	North Capitol St & W St	0.07	0.15	22	8
North Capitol St & W St	North Capitol St & Adams St	0.07	North Capitol St & V St	0.07	0.14	9	11
North Capitol St & V St	North Capitol St & W St	0.07	North Capitol St & Rhode Island Ave	0.14	0.21	10	4
North Capitol St & G Pl	North Capitol St & H St	0.04	North Capitol St & Massachusetts Ave	0.14	0.18	6	2
Massachusetts Ave & G St NW	North Capitol St & Massachusetts Ave	0.13	Massachusetts Ave & New Jersey Ave NW	0.11	0.24	8	21

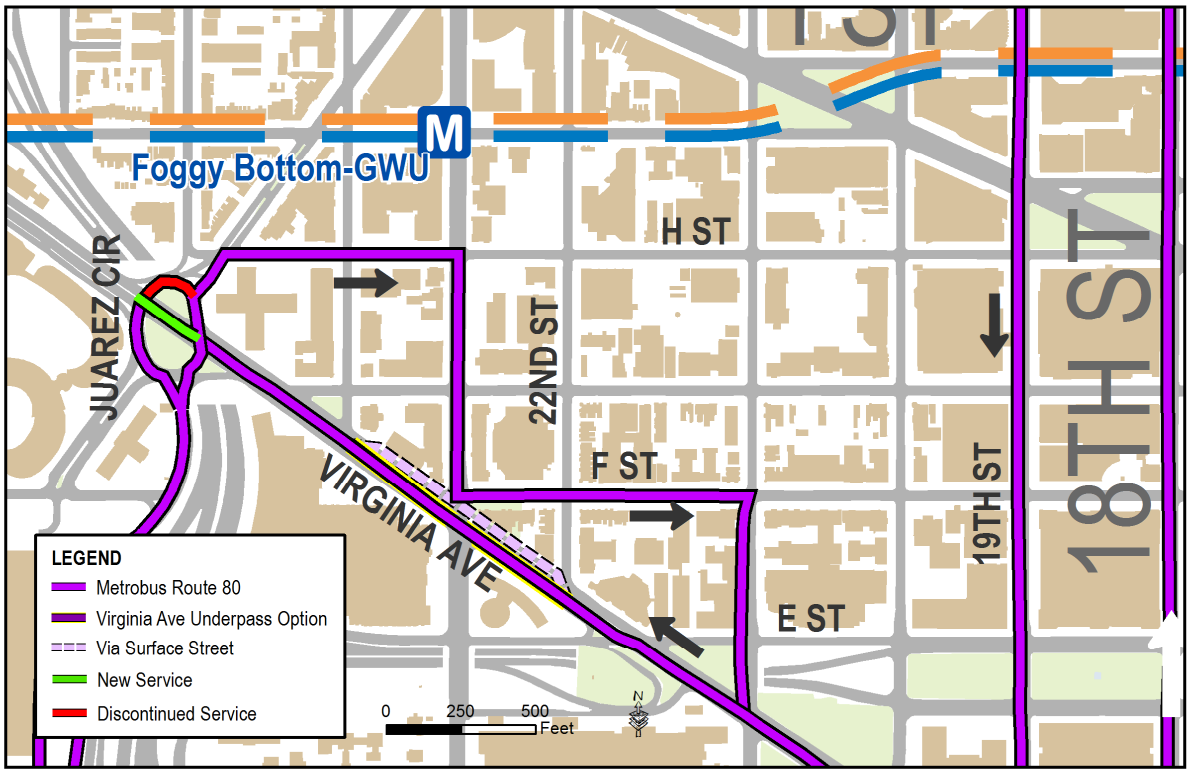
It is recommended that these stop consolidations be pursued; however, they can be pursued independently of the Priority Corridor Study, as subsequent recommendations do not depend on bus stop consolidation. For planning purposes, it is assumed that any operating cost and ridership impacts are negligible.

4.3 Operations Improvements

4.3.1 Formalize the Use of the Virginia Avenue NW Underpass and Juarez Circle Alignment Adjustment

This recommendation is shown in **Figure 4-1**. It allows the North Capitol Street Line to avoid traffic congestion and the traffic signal at 23rd Street NW, thus improving schedule reliability. This recommendation requires that the bus stop at the near side of 22nd Street NW no longer be served, due to the weaving distance between it and the underpass. However, the bus stop at the near side of E Street NW is within very easy walking distance of this discontinued bus stop. It is recommended that these realignments be implemented.

Figure 4-1 – Virginia Avenue NW Underpass and Juarez Circle Alignment Adjustment



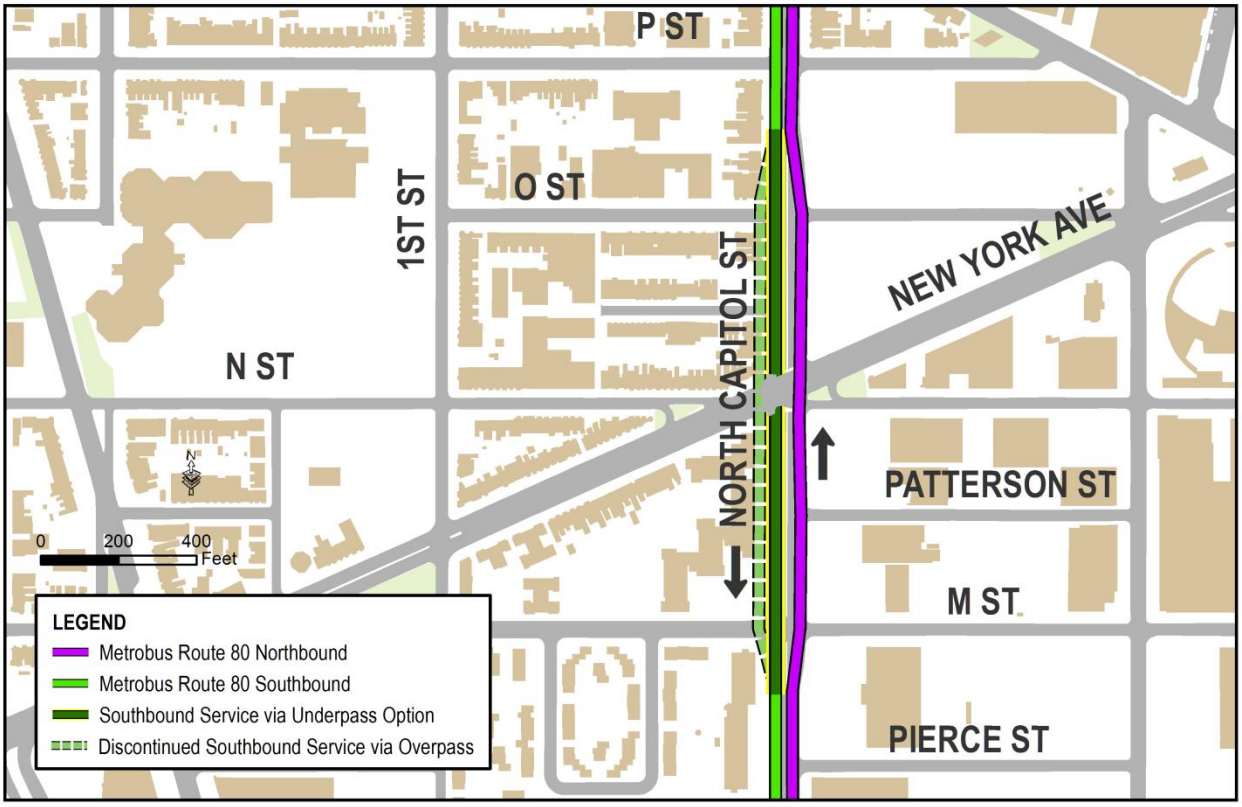
For planning purposes, it is assumed that any operating cost and ridership impacts are negligible.

4.3.2 Formalize the Use of the North Capitol Street Underpass

The North Capitol Street underpass is shown in **Figure 4-2** below. This recommendation avoids traffic congestion and the traffic signal at New York Avenue, thus improving schedule reliability. It also avoids any conflicts with right turning traffic from southbound North Capitol Street onto westbound New York Avenue. However, it requires that the southbound bus stops at New York Avenue and M Street no longer be served. It is recommended that this realignment – currently in place as a pilot project – be made permanent.

By placing the southbound Route 80 service in the underpass, two existing bus stops would no longer be served: the near side of New York Avenue, and the near side of M Street. Combined, these two bus stops serve 160 boardings and 106 alightings over the course of a weekday. While this is not an overwhelming number of passengers, it is not insignificant either. The distance between the two remaining "bracketing" bus stops – from the far side of P Street to the far side of Pierce Street – is about 1,800 feet. These walking and stop spacing distances are within WMATA bus stop spacing guidelines. It should be noted that the southbound stop at Pierce Street would still allow Route 80 riders access to the NoMa area and the Red Line Metrorail station.

Figure 4-2 – North Capitol Street Underpass

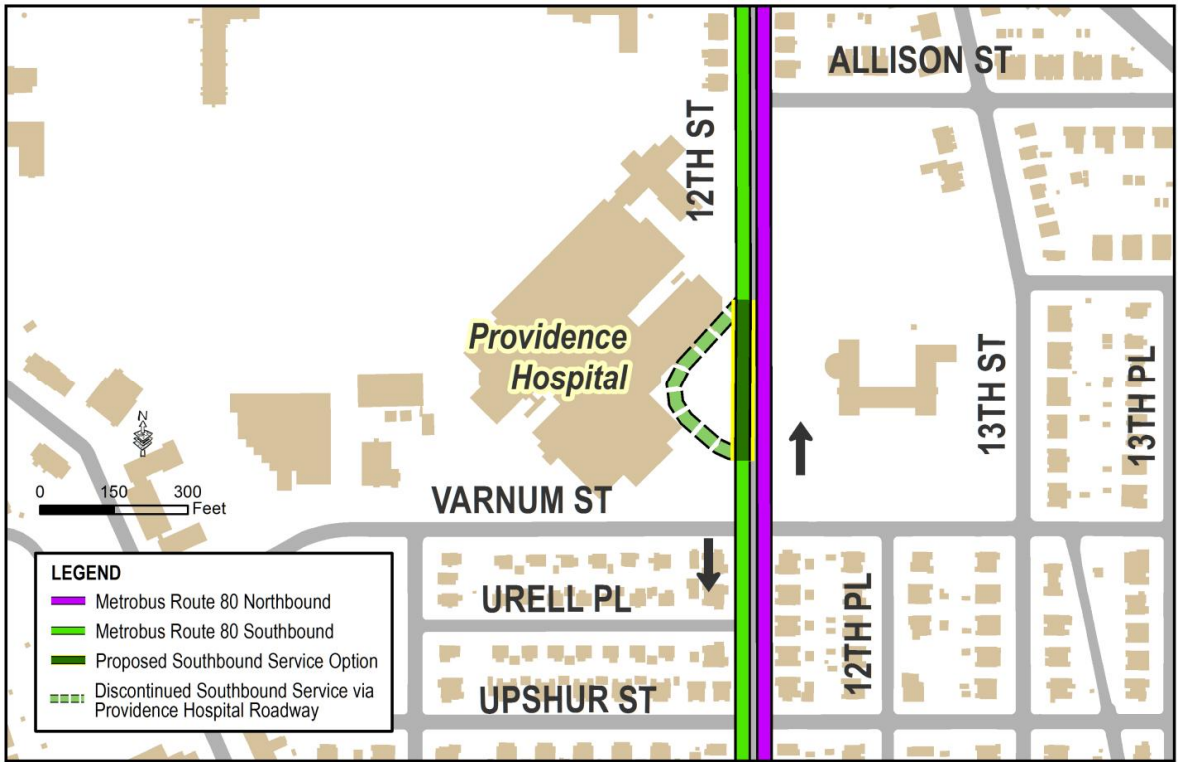


For planning purposes, it is assumed that any operating cost and ridership impacts are negligible.

4.3.3 Eliminate the Southbound Stop on Providence Hospital Roadway

This recommendation slightly reduces travel times as this stop is often blocked by other vehicles. In addition, another bus stop is located very close by on 12th Street NE at Varnum Street, across the street from the northbound stop. This segment is shown in **Figure 4-3** below. It is recommended that this realignment be implemented. Providence Hospital is already proceeding with this modification due to the reconstruction of its Emergency Entrance.

Figure 4-3 – Elimination of Service on Providence Hospital Roadway



For planning purposes, it is assumed that any operating cost and ridership impacts are negligible.

4.3.4 Dedicated/Enhanced Supervision

It is recommended that two additional Full Time Equivalent (FTE) supervisor positions be dedicated to the North Capitol Street Line services. The division of the two FTE supervisors' time would be as follows:

- One FTE supervisor located at the Brookland-CUA Metrorail Station, and;
- One located at the existing Route 80/ terminal at McPherson Square.

These supervisors should have a direct line of communication with the Priority Corridor Network Command Center at the Jackson Graham Building and have the ability to possibly "roam" along the line, as needed.

The dedicated supervision would improve route reliability and reduce crowding by allowing supervisors to more effectively manage the line.

4.4 Proposed Service Modification Options

4.4.1 Restructuring of Local Service

Based on an analysis of the ride check data – which indicated that a significant proportion of riders need to ride through Union Station – as well as the overall ridership numbers and the public input (which made clear that there are riders traveling between the North Capitol Street corridor and the

Foggy Bottom area west of McPherson Square), it is recommended that the Route 80 local service be restructured, as follows:

- **Metrobus Route 80A –** Local North Capitol Street Line service would operate between the Fort Totten Metrorail station and McPherson Square in central Washington. Although it Farragut Square was initially considered for the western terminal, the study team concluded that McPherson Square was a more appropriate terminal due to congestion between McPherson Square and Farragut Square and that only one additional bus stop would be served between Farragut Square and McPherson Square.

  This service would utilize the existing Route 80/ terminal loop and layover location at McPherson Square.

- **Metrobus Route 80** – Local North Capitol Street Line service would operate between the Fort Totten Metrorail station and the Kennedy Center via the current Route 80 alignment. It should be noted that this includes eastbound service via Foggy Bottom to retain service to generators located within the neighborhood.

The proposed frequencies of service are as follows:

- **Metrobus Route 80A** – Every 15 minutes (4 trips per hour) during the peak periods and every 15 minutes (4 trips per hour) during the off-peak periods, on weekdays.

- **Metrobus Route 80** – On weekdays, this service would operate every 15 minutes (4 trips per hour) during the peak periods and every 30 minutes (2 trips per hour) during the off-peak periods. On weekends, Route 80 would be the only North Capitol Street Line service, operating every 20 minutes (3 trips per hour) throughout the service day.

This local service plan also avoids any significant route alignment modifications to other Metrobus services operating through central Washington and allows for the most straightforward – and thus the most easily understood – service pattern.

The proposed frequencies of service represent an increase of service on the "trunk" portion of the route. Taken together, Metrobus Route 80 and Route 80A would operate every 7.5 minutes during the peak periods (8 trips per hour) between the Fort Totten Metrorail station and McPherson Square, and every 10 minutes (6 trips per hour) during the off-peak period between those two locations. **Table 4-3** provides a comparison of the current frequency with the proposed frequency.

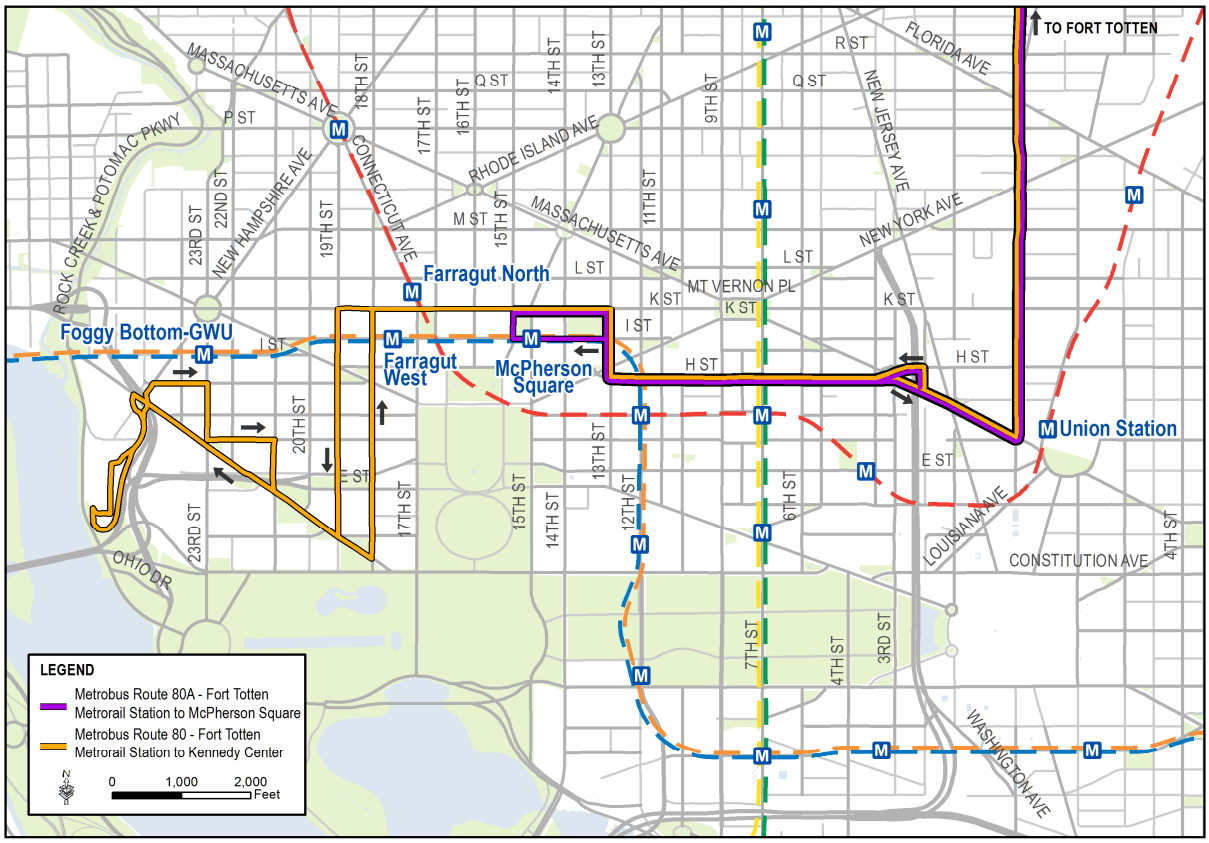
Table 4-3 – Frequency Comparison (Headway in Minutes)

	Current Frequency	Proposed Route 80 Frequency	Proposed Route 80A	Proposed Combined Frequency
AM Peak	8.5	15	15	7.5
Midday	15	30	15	10
PM Peak	10	15	15	7.5
Saturday	30	20	-	20
Sunday	30	20	-	20

With this service plan, the Foggy Bottom area is still connected to the North Capitol Street Line, but with a slight reduction in the levels of service west of McPherson Square on weekdays. Nonetheless, the level of service east of McPherson Square is improved on weekdays.

This recommendation reduces overcrowding and makes the route more convenient to use; it also allows the North Capitol Street Line to operate more frequently and approach the frequencies of other priority corridors. The recommendation will also improve route reliability east of McPherson Square while improving service to this core ridership area. The restructured Route 80 service is presented in **Figure 4-4**.

Figure 4-4 – Restructured Route 80 Service



4.4.2 Limited Stop Service

A MetroExtra Route 80X limited stop service is recommended for the North Capitol Street Line. This route would operate every 15 minutes in both directions during peak periods on weekdays, with the potential to add midday service in future phases. The route would provide a faster and more reliable service for the majority of corridor riders and relieves some overcrowding.

Bus Stops – The potential stops for MetroExtra Route 80X would include major bus stops and transfer points; these may include:

1. Fort Totten Metrorail Station – Transfer to Metrorail Red, Green and Yellow Lines, and Metrobus E, R, K and F series routes

2. South Dakota Avenue NE & Delafield Street NE (southbound)/10th Street NE (northbound)

3. 12th & Varnum Streets NE (for Providence Hospital)

4. 12th & Monroe Streets NE

5. Brookland-CUA Metrorail Station – Transfer to Metrorail Red Line and Metrobus G, H and R series routes

6. Michigan Avenue NE & Franklin Street NE – Transfer to Metrobus D and H series routes

7. North Capitol Street & Girard Street (southbound) and Michigan Avenue (northbound)

8. North Capitol Street & Rhode Island Avenue – Transfer to Metrobus Route G8

9. North Capitol Street & Florida Avenue – Transfer to Metrobus Routes 90, 92 and P6

10. North Capitol Street & Pierce Street (southbound) and M Street (northbound) – serves the NoMa area

11. North Capitol & H Streets – Transfer to the Metrobus X series routes

12. North Capitol Street & Massachusetts Avenue – Transfer to Union Station (for Metrorail Red Line, MARC, VRE and intercity buses) and Metrobus Routes 96, 97 and D series routes

13. H & 7th Streets NW – Transfer to Metrorail Gallery Place-Chinatown Station (serving the Red, Yellow and Green Lines) and Metrobus Routes 70, 74 and MetroExtra Route 79

14. H & 9th Streets NW – Transfer to Metrobus Route G8 and MetroExtra Route 79

15. H & 11th Streets NW – Transfer to Metro Center Metrorail Station (serving the Red, Orange and Blue Lines) and Metrobus Routes S2, S4, 63, 64 and G8

16. H & 13th Streets NW – Transfer to Metrobus D series routes

17. I/K & 14th Streets NW – Transfer to McPherson Square Metrorail Station (serving the Orange and Blue Lines) and Metrobus Routes 52, 53 and 54

18. 15th & K Street NW – Terminal stop and stand

This service would operate as an overlay (i.e., in addition to) any modifications made to the underlying local bus service along the corridor. It would utilize standard 42 foot transit buses that would be "branded" as a MetroExtra service.

In addition, there is one potential variation in the proposed MetroExtra Route 80X to be advanced for further consideration:

- **Service via Washington Hospital Center** – This variation would operate via the medical complex. It would require that DDOT create an exception for buses making a left turn onto westbound Michigan Avenue NW from northbound North Capitol Street.

Overall, this recommendation enhances route capacity, improves the service frequencies at bus stops served by both the limited stop service as well as the local services (i.e., at the busiest stops), reduces travel times for passengers able to utilize the bus stops that would be served by the limited stop service, and relieves some crowding on local services.

The option being recommended is a limited-stop service – Route 80X – operating between the Fort Totten Metrorail Station and McPherson Square, with an option to serve the Washington Hospital Center.

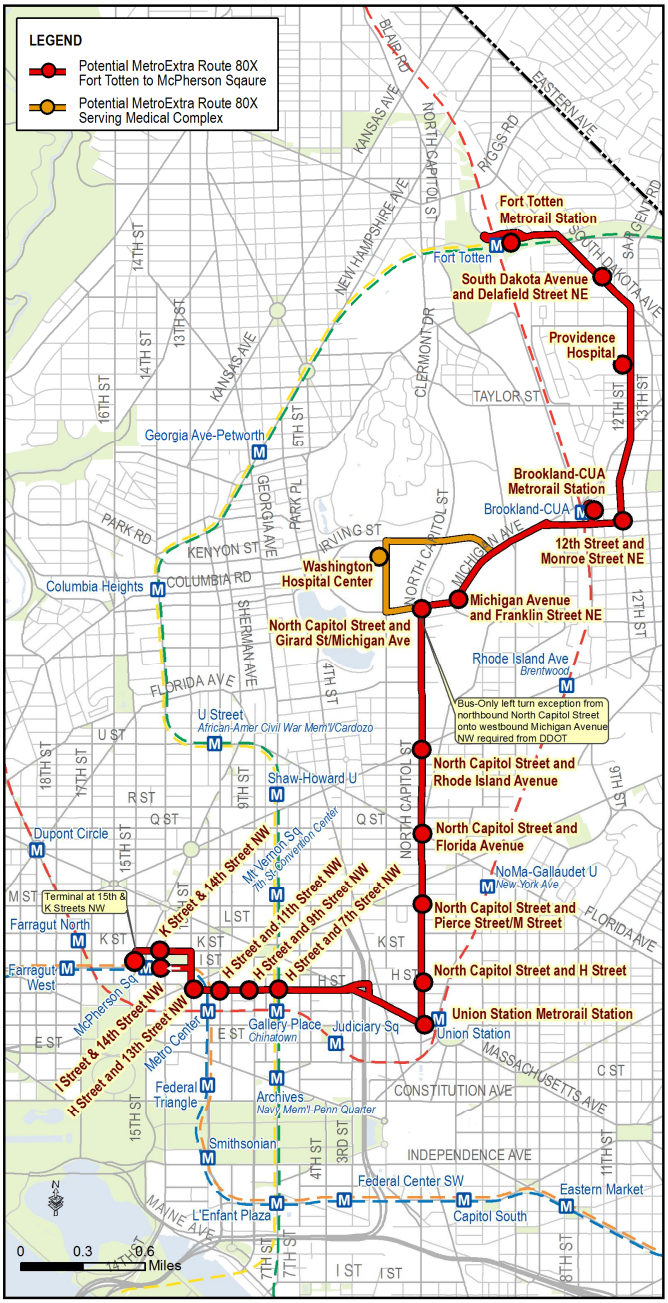
In the future, two modifications can be considered for MetroExtra Route 80X:

- Once the Walmart development is complete, an additional bus stop near H Street NW and New Jersey Avenue NW can be implemented;

- If the station area plan for Brookland is implemented – thus providing direct pedestrian connections between the Metrorail station and the 12th Street NE commercial corridor – then a realignment of the route so that MetroExtra Route 80X uses Michigan Avenue NE directly to and from the Brookland-CUA Metrorail station can be implemented, thus bypassing the proposed 12th Street NE/Monroe Street NE stop. The 12th Street NE/Monroe Street NE stop is currently the busiest between the Brookland-CUA Metrorail station and Providence Hospital.

A map of MetroExtra Route 80X is presented in **Figure 4-5**.

Figure 4-5 – MetroExtra Route 80X



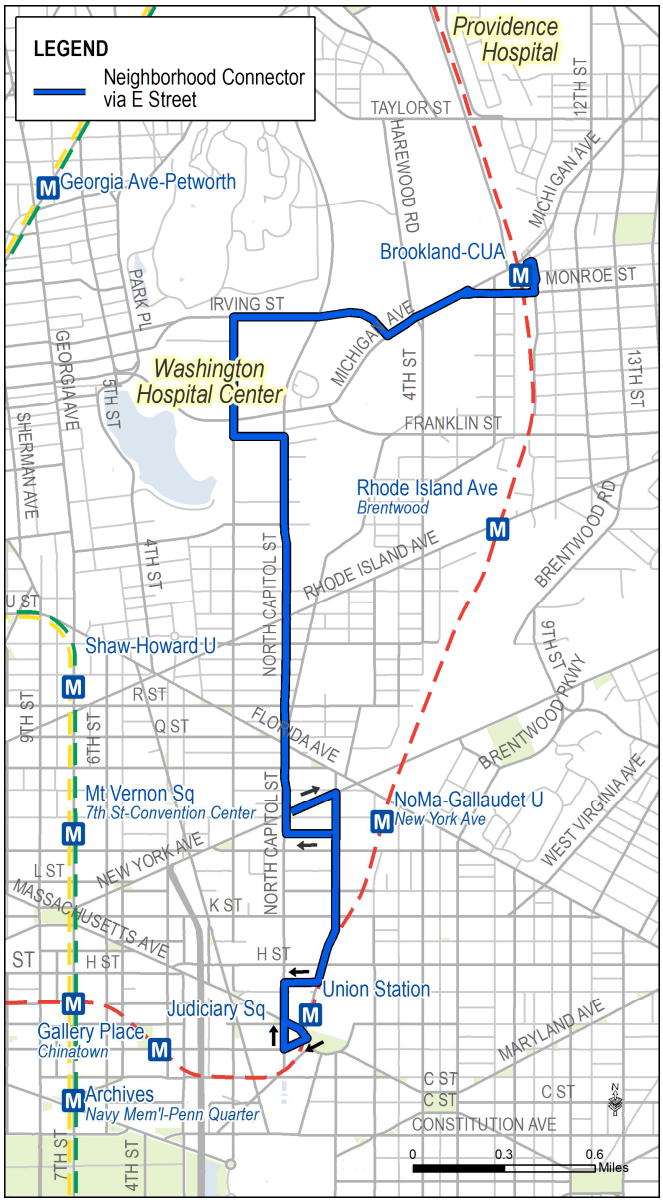
4.4.3 Neighborhood Connector

It is recommended that – in the future, once development is underway – a new local shuttle route in the vicinity of North Capitol Street be operated, as shown in **Figure 4-6**. The purpose of this "Neighborhood Connector" route – potentially known as Metrobus Route 85 – would be to allow easier access to the planned future redevelopment project near the McMillan Reservoir.

Metrobus Route 85 would operate every 15 minutes along an easily understood, linear route, connecting potential development near the McMillan Reservoir and development in the NoMa neighborhood with both the Brookland-CUA and Union Station Metrorail stations. It would likely utilize

a smaller bus (e.g., a 30 foot bus or a 35 foot bus), and it would use a planned roadway to travel between North Capitol Street and 1st Street NW. Metrobus Route 85 will not utilize 1st Street NE adjacent to Union Station.

Figure 4-6 – Recommended Metrobus Route 85 "Neighborhood Connector"



4.5 Recommended Facilities Improvements

Providing accurate, up-to-date, accessible information regarding transit service is critical to maintaining ridership and customer satisfaction. Ensuring that current and potential riders have access to route and schedule information means that transit riders are better able to make informed choices about how to best reach their destinations, likely travel times, and when to expect vehicles to arrive at their stops.

Route and schedule information should be provided at bus stops, bus and rail stations, on-board vehicles, by telephone, on the Internet, on real time bus arrival displays, and in messages, posters, and announcements.

Special attention should go toward replacing or fixing missing or damaged shelters, benches, trash bins and customer information (e.g., signs, maps, schedules, etc.). All bus stops should have a flag, information cases, and a bus stop pad. Stops with more than 25 boardings per day should have a trash receptacle. According to WMATA guidelines, stops with 50 or more boardings per day are candidates for installation of a passenger waiting shelter and a bench.

4.5.1 Updated Schedules and Maps

Bus Stops – Up-to-date, accurate schedules should be posted for each line serving the stop, ensuring that any new services are included. Schedules should be easy to read and visible, with key information high-lighted or bolded. Any damaged or missing information cases should be promptly replaced. Proper signage ensures that passengers and potential passengers know where stops are, what routes serve each stop, and when the bus is scheduled to depart. Providing schedule information at each stop makes riding the bus easier for passengers and encourages more people to do so; however, illegible or out-of-date schedules can cause confusion among passengers and promote dissatisfaction with the bus service.

Bus Terminals at Metrorail Stations – Similar to bus stops, bus terminals at Metrorail stations should include clear signage denoting the system name and logo, routes serving the facility, and a number to call for information. Stations should also include schedule and fare information for all routes serving them as well as visible, easy to read maps of the system and the immediate neighborhood. In addition, take-home copies of schedules and maps should be provided whenever possible and should be maintained with up-to-date schedules for all routes serving the area, system maps, SmarTrip Card information, and schedules for popular connecting routes.

On-board Buses – Route and schedule information should also be provided on-board buses, and should be available at all times.

4.5.2 NextBus Displays

NextBus displays at stops provide real time information regarding actual departure times for the next bus along a route. Such displays are popular with passengers, as they specify how long one will have to wait at a stop, reducing uncertainty and confusion when a vehicle does not arrive on schedule. These displays should be provided at stops with high activity, such as those serving limited-stop services, and should indicate what time the next bus will arrive and what route(s) the vehicle(s) will be serving. Additionally, this information should be available via telephone and the internet for passengers who are not at a stop with a NextBus display.

4.5.3 Branding

New MetroExtra limited-stop service should be consistently branded with other MetroExtra services, including specially-marked buses and flags at bus stops.

4.6 Traffic Infrastructure Improvements

Infrastructure improvements along the North Capitol Street Line could reduce travel times for both local and limited-stop bus service along the corridor. There are several improvements that should be further studied. These are as follows:

- **Improvements in Signal Timing and Phasing** – In response to the perception of delays by Route 80 passengers and operators, further investigation by DDOT is recommended of signals in the following locations:
  - Massachusetts Avenue and H Street NW
  - Monroe Street and Michigan Avenue NE
  - North Capitol Street between M Street and H Street
  - Massachusetts Avenue and North Capitol Street
  - 18th Street NW between E Street and Pennsylvania Avenue.
  - 19th Street NW between K Street and E Street

- **Improvements to Sub-Standard Intersection Geometry & Lane Configuration** – In response to substandard intersection geometry and lane configuration, WMATA and DDOT should consider the following**.**
  - 19th Street and Virginia Avenue NW – Buses traveling southbound on 19th Street NW have to make an acute turn onto Virginia Avenue. Buses were driving up on the curb to make the sharp turn.

- **Parking Enforcement** – In response to vehicles illegally parking, DDOT should increase parking enforcement along the following segments:
  - 19th Street NW between K Street and Virginia Avenue
  - North Capitol Street between Massachusetts Avenue and Michigan Avenue

- **Improvements to Transit Stop Locations** – In response to issues with transit stop locations, WMATA and DDOT should consider the following improvements in regards to transit stops. These improvements include ensuring that the length of the bus stop is adequate to allow buses to enter and exit the stop and adding “No Parking” signs installed in the bus stop areas. The following stops were identified as candidates for improvements:
  - Michigan Avenue and Franklin Street NE
  - Monroe Street and Michigan Avenue NE
  - F Street and 21st Street NW
  - H Street and 7th Street NW
  - K Street and 14th Street NW

- **Improvements to Intersection Conflicts –** In response to issues with intersection conflicts, WMATA and DDOT should consider the following improvements in regards to transit stops.
    - ***North Capitol Street and New York Avenue –*** Long queues and congestion were observed along southbound North Capitol Street approaching New York Avenue during the AM peak period. Congestion along southbound North Capitol Street exists due to congestion on westbound New York Avenue blocking right-turning vehicles onto New York Avenue. Buses observed accessing the stop at New York Avenue were significantly delayed by right-turning vehicles, with buses having to sit through five signal cycles to clear the intersection. Buses traveling along the curb lane create a conflict between through vehicles, as there is only one receiving lane on southbound North Capitol Street after the intersection with New York Avenue. Accidents occur frequently due to this merge according to the drivers' notes.

      The recommendation made in the transit operations recommendations avoids this intersection conflict. By utilizing the underpass along North Capitol Street at New York Avenue, buses completely avoid this intersection.

    - ***North Capitol Street and H Street –*** Similar to the situation noted above on North Capitol Street at New York Avenue, the southbound stop on North Capitol Street at H Street is located on the near-side of the intersection. Buses pulling out of the stop are faced with conflicts from other vehicles passing the bus on the left and then turning right onto H Street.

      Moving the stop to the far side of the intersection will reduce conflicts between buses and right-turning vehicles. It also will simplify transfers between southbound Route 80 and eastbound service on Routes X2 and X9, as well as eastbound Route D4, by eliminating the need to cross H Street.

5.0 Future Issues and Coordination Opportunities/Requirements

The following projects are currently on-going or planned for areas in the proximity of the North Capitol Street Line.

- **Abdo South Campus Mixed-Use Development:** Catholic University has partnered with Abdo Development Corporation to plan redevelopment of a nine-acre site immediately to the west of the Brookland-CUA Metrorail station, named the South Campus Development. The project will consist of ground-level retail, residential units, townhomes, artist studios, parking, and a public square. The first phase is scheduled to begin in Fall 2011, with the final phase concluding in 2018. The current concept plan varies from the 2009 Brookland/CUA Metro Station Small Area Plan, by not extending 8th Street NE all the way to intersect with Michigan Avenue NE at John McCormack Road.

- **Air Rights Tunnel Project:** The Air Rights Tunnel Project will rehabilitate the bridges that are located over I-395 on H Street NW and Massachusetts Avenue NW (commonly referred to as the 3rd Street Tunnel). Additionally, a deck will be constructed spanning I-395 and a mixed-use project including offices, apartments and retail will be developed on the air rights.

  As part of the rehabilitation efforts, the bridge surfaces will be upgraded and improvements will be made to the drainage system, traffic signals, street lighting and sidewalks. Construction activities are expected to take up to 18-months and are currently underway. The project will continue through spring 2013.

- **Brookland-CUA Station Area Access Plan:** WMATA is currently finalizing the Brookland-CUA Station Area Access Plan to assess existing and future access needs of the Metrorail station. The Station Area Access Plan further evaluates the feasibility of proposed changes to station access facilities recommended by the District of Columbia's Brookland/CUA Metro Station Small Area Plan and addresses other ongoing and planned development in the station area.

- **City Center DC:** City Center DC is a real-estate development on the site of the former Washington Convention Center. The site is bounded by New York Avenue NW, 9th Street NW, H Street NW, and 11th Street NW. The project will consist of condominiums, apartments, office space, a hotel and a public park. The project will improve the surrounding road network by connecting the incomplete portion of 10th Street between H Street and New York Avenue. Construction started in spring 2011 and is expected to be completed in late 2013. Route observations in November 2012 noted that the westbound curb lane of H Street NW between 9th and 11th Streets is currently blocked due to construction (with Jersey barriers). Traffic traveling westbound is limited to one-lane for the near future.

- **DC Signal Timing Optimization:** DDOT has currently selected a consultant to conduct signal timing optimization throughout the city. This project is anticipated to improve traffic operations and signal synchronization along major corridors in the city.

- **Columbus Plaza Rehabilitation Project:** Columbus Plaza is located south of Union Station on Massachusetts Avenue NW. DDOT, in conjunction with the National Park Service (NPS) and the Union Station Redevelopment Corporation (USRC), began designing improvements

for pedestrian safety and vehicular access at Columbus Plaza in 2004, based on access and circulation studies completed in 2000 and 2002. The project was designed to provide needed improvements at the city's primary multi-modal transportation center, while preserving and enhancing the historic character of Columbus Plaza and Union Station. The work area will include the roadway adjacent to Union Station on the east and west sides; Columbus Circle; First Street NE between Massachusetts Avenue and G Street; Columbus Drive NE between Massachusetts Avenue and F Street; and the streets that intersect Massachusetts Avenue at Columbus Circle. The work activities that will be taking place over time include:

- Installation of a bollard security system on the perimeter of Union Station;
- Reconfiguration and rehabilitation of roadway access around the plaza;
- Streetlight upgrades;
- Traffic signal modifications; and
- Streetscape improvements and landscaping.

- **New Jersey Avenue NW:** DDOT Infrastructure Project Management Administration (IPMA) is conducting a safety evaluation along New Jersey Avenue NW between H and N Streets to determine improvements necessary to address existing safety and traffic operational deficiencies within the corridor. Upon completion of this evaluation, engineering plans for safety and traffic operations improvements within the corridor will be developed to implement the recommended alternative.

  Recently, the project was re-instituted to address safety concerns in the corridor and has been re-scoped to conduct an alternatives analysis to identify opportunities to re-allocate right-of-way space for other modes including transit vehicles, cyclists and pedestrians. Once a new alternative is determined, the design project would include the following elements:

  - Widen New Jersey Avenue NW at the intersection with New York Avenue and M Street to support two-way operations.
  - Widen New Jersey Avenue NW at the intersection with 2nd and I Streets to support two-way operations.
  - Upgrade all lighting within the corridor to the new LED standard.
  - Reconstruct all of the traffic signals in the corridor, including providing new ADA pedestrian ramps, countdown pedestrian signals and Accessible Pedestrian Signals.
  - Update all sidewalks in the corridor to meet ADA requirements.
  - Evaluate drainage needs and update as necessary.
  - Reconstruct all curbing to the Washington, DC granite curb standard.
  - Update all landscaping along the corridor to increase beautification.
  - Conduct geotechnical analysis to determine pavement repair needs to address crash patterns that may be caused by rutting pavement.
  - Re-time all traffic signals to improve corridor operation and potentially reduce rear-end and other crashes attributable to poor signal timing.
  - Improve signing and pavement markings in the corridor.

- **DC Streetcar Projects**

  - **Georgetown to Benning Road Metrorail Station Line:** This line will connect the downtown Washington employment core to residential neighborhoods in Northeast DC, a revitalizing commercial district along H Street NE, established commercial retail

businesses in Georgetown, and the Union Station Intermodal Transportation Center. The line also will connect to seven Metrorail stations and serve planned mixed-use development located in downtown Ward 7 near the intersection of Benning Road and Minnesota Avenue NE. This line would run parallel or concurrent to the North Capitol Street Line through downtown Washington between 19th Street NW and North Capitol and H Streets.

- **Congress Heights to Washington Circle Line:** This line will extend streetcar service from the Historic Anacostia business district south to Savannah Street in the Congress Heights neighborhood in Southeast DC and north across the Anacostia River to the Capitol Hill neighborhood, the H Street NE commercial district, and then to the downtown Washington employment core along K Street NW.

  Along the way the line will serve the future headquarters of the Department of Homeland Security at the former St. Elizabeths Hospital site, which will bring 14,000 new employees to the area. The line also will serve the Anacostia Waterfront, growing office and mixed-use development in the Near Southeast area, commercial businesses in the M Street SE/Barracks Row area, and connect to Union Station. This line will connect to all five Metrorail lines along the corridor. It would run parallel or concurrent to the North Capitol Street Line through downtown Washington between 19th Street NW and North Capitol and H Streets.

- **Takoma Metrorail Station to Buzzard Point Line:** This line will connect the Georgia Avenue NW commercial corridor and adjacent neighborhoods with Howard University, the revitalized U Street NW commercial corridor, downtown Washington, the National Mall, and the Southwest Waterfront. This corridor will extend from the Takoma Park Metrorail station west to the Georgia Avenue Corridor and then south to the U Street area. The line will also serve the 14th Street NW Corridor south of U Street and the 7th Street SW Corridor to the Buzzard Point area. This line would intersect with the North Capitol Street Line at 14th and K Streets NW.

- **Rhode Island Avenue/Eastern Avenue to Washington Circle Line:** This line will extend from Eastern Avenue in Northeast DC to the Washington Circle/Foggy Bottom area near downtown Washington and generally follow Rhode Island Avenue NE/NW, U Street NW, 14th Street NW and K Street NW. This line will connect the Brentwood area and neighborhoods along Rhode Island Avenue in Northeast DC, that are currently not well served by the existing Metrorail system, to employment centers and commercial districts in downtown Washington and adjacent areas. This line would intersect with the North Capitol Street Line at Rhode Island Avenue and North Capitol Street, and run concurrent with it along a portion of K Street NW.

- **Woodley Park/Adams Morgan to Congress Heights Line:** This line will provide a connection between several commercial districts including Woodley Park, Adams Morgan, U Street NW, NoMa, H Street NE, Barracks Row, Anacostia Waterfront, and Historic Anacostia. The line also will have direct connections to all five Metrorail lines and serve Gallaudet University and the National Zoo. This line would intersect with the North Capitol Street Line downtown.

- **Woodley Park/Adams Morgan to Brookland Line:** This line will extend from Woodley Park to the Brookland neighborhood in Northeast DC. The line will provide a needed east-west transit connection and serves the Adams Morgan and Columbia Heights commercial districts, Washington Hospital Center, Howard University, Catholic University, and planned large scale mixed-use developments located near the Soldiers' and Airmen's Home and McMillan Reservoir. This line would roughly follow the H-Line corridor, which runs concurrent with the North Capitol Street Line along Michigan Avenue between North Capitol Street and the Brookland Metrorail station.

6.0 Implementation Strategy

The recommended phasing scenario for the proposed improvements to the North Capitol Street Line could be as follows:

Initial Phase

Recalibrate running times on the local service and restructure Route 80 into “Route 80” (serving Foggy Bottom and the Kennedy Center) and “Route 80A” terminating at McPherson Square, with additional “trunk” frequency and reduced Foggy Bottom frequency.

Formalize using the underpasses as proposed, not going fully around Juarez Circle, and the discontinuation of use of the Providence Hospital driveway.

Implement all facility and customer service improvements.

Phase Two

Implement the MetroExtra 80X service, operating every 15 minutes during the weekday peak periods in both directions of service.

Implement dedicated/enhanced supervision.

Phase Three

Implement midday service on MetroExtra Route 80X.

Phase Four

Implement the proposed Metrobus Route 85 Neighborhood Connector service (to operate every 15 minutes throughout the service day on weekdays and weekends) in conjunction with development at the MacMillan Reservoir site.

Future Phases

Implement any physical improvements on the North Capitol Street Line, including the possible traffic improvements.

7.0 Operating Costs, Ridership, Revenue, Capital, and Funding Needs

7.1 Operational Funding Requirements

Table 7-1 provides a summary of operating costs for current North Capitol Street Line service; the table also indicates the estimated impacts for the first four phases of operating improvements (described previously). What is important to note is the cost of line restructuring includes the net cost of restructuring the service into two route variations and increased frequency on the trunk section of Route 80.

Table 7-1 – Estimated Impacts for Recommended Improvements

Phase/Recommendation	Estimated Impacts				
	Annual Platform Hours	Annual Operating Cost	Annual Ridership	Annual Revenue	Annual Subsidy Required
Existing Cost, Ridership, Revenue and Subsidy					
Current System*	**57,295**	**$6,380,944**	**2,194,000**	**$2,218,643**	**$4,162,301**
Projected Cost, Ridership, Revenue and Subsidy Impacts					
Initial Phase					
Recalibrate Running Times	3,151	$350,927	0	$0	$350,927
Line restructuring	15,701	$1,748,620	102,235	$103,257	$1,645,363
Formalize use of underpasses	0	$0	0	$0	$0
Do not go around Juarez Circle	0	$0	0	$0	$0
Discontinue use of Providence Hospital Driveway	0	$0	0	$0	$0
Total Initial Phase Recommendations	**18,852**	**$2,099,547**	**102,235**	**$103,257**	**$1,996,290**
Total Current with Initial Phase	**76,147**	**$8,480,491**	**2,296,235**	**$2,321,900**	**$6,158,591**
Percent Change from Current	**32.90%**	**32.90%**	**4.66%**	**4.65%**	**47.96%**
Second Phase					
Implement peak period MetroExtra 80X	11,157	$1,242,555	43,999	$44,439	$1,198,116
Dedicated Supervision	0	$0	0	$0	$0
Total Second Phase Recommendations	**11,157**	**$1,242,555**	**43,999**	**$44,439**	**$1,198,116**
Total Current with Second Phase	**87,304**	**$9,723,046**	**2,340,234**	**$2,366,340**	**$7,356,707**
Percent Change from Current	**19.47%**	**19.47%**	**2.01%**	**2.00%**	**28.78%**
Percent Change from Second Phase	**14.65%**	**14.65%**	**1.92%**	**1.91%**	**19.45%**
Third Phase					
Add midday service to MetroExtra 80X	9,317	$1,037,634	34,507	$34,852	$1,002,782
Total Third Phase Recommendations	**9,317**	**$1,037,634**	**34,507**	**$34,852**	**$1,002,782**
Total Current with Third Phase	**96,621**	**$10,760,681**	**2,374,742**	**$2,401,192**	**$8,359,490**
Percent Change from Current	**16.26%**	**16.26%**	**1.57%**	**1.57%**	**24.09%**
Percent Change from Second Phase	**10.67%**	**10.67%**	**1.47%**	**1.47%**	**13.63%**
Fourth Phase					
Implement Neighborhood Connector Route 85	20,077	$2,235,975	108,740	$109,827	$2,126,148
Total Fourth Phase Recommendations	**20,077**	**$2,235,975**	**108,740**	**$109,827**	**$2,126,148**
Total Current with Fourth Phase	**116,698**	**$12,996,656**	**2,483,481**	**$2,511,019**	**$10,485,638**
Percent Change from Current	**35.04%**	**35.04%**	**4.96%**	**4.95%**	**51.08%**
Percent Change from Third Phase	**20.78%**	**20.78%**	**4.58%**	**4.57%**	**25.43%**

* Operating cost ($111.37/hour) and average fare ($1.01/passenger) based on April 2011 APC data and Farebox Report

7.2 Capital Cost Estimates

One-time capital cost requirements to accompany the proposed improvements have also been estimated (in Year 2012 dollars) for the recommended system (not including the costs of the physical

street improvements), as shown in **Table 7-2**. As shown in the table, capital costs are estimated to be about $15 million. These capital costs do not include future roadway improvements.

Table 7-2 – Estimated Capital Costs for Improvements

Capital Expense Item	Units	Unit Cost	Capital Cost
Vehicles for MetroExtra Service – *Second Phase**	9	$604,994	$5,444,946
Additional Vehicles for Local Service – *first phase**	9	$604,994	$5,444,946
Additional Vehicles for Neighborhood Service – *fourth phase**	5	$604,994	$3,024,970
Information cases**	22	$207	$4,554
Schedules***	139	$3.25	$452
System maps for shelters****	130	$22	$2,860
Next bus display screens for limited stop shelters	17	$5,500	$93,500
Supervisor laptops	2	$3,500	$7,000
Feasibility studies for street improvements	1	$200,000	$200,000
Marketing campaign and materials	1	$275,000	$275,000
Total for Recommended Plan			**14,998,228**

* Assuming a 10 percent spare ratio, MetroExtra Route 80X service would require 8 peak vehicles and one spare vehicle to operate at 15-minute headways, additional local service will require 8 vehicles and spare, neighborhood service route 85 will require 4 vehicles and one spare.
**Count of information cases that are missing or damaged at existing stops on the North Capitol Street Line.
***Total number of stops – includes all existing stops
****Total number of shelters – includes all stops with greater than 50 boardings per day.

8.0 Contacts and Information Sources

Table 8-1 is a list of staff that has participated in the North Capitol Street Line Study. The staff members below will serve as contacts and sources of information for the implementation of recommended improvements.

Table 8-1 – Contacts and Information Sources

Name	Representing	Department/Title	E-mail	Phone
Baker, Cassandra	WMATA	HR Equal Opportunity & Employee Relations	cbaker@wmata.com	202-962-1359
Ballard, Shannon	WMATA	CSCM, Customer Research	sballard@wmata.com	202-962-1029
Berthier, Melissa	WMATA	EREL, External Relations	mberthier@wmata.com	202-962-2314
Borders, Scottie	WMATA	BPLN, Supervisor	sxborders@wmata.com	202-962-2405
Briscoe, Charles	WMATA	QUAL, Quality Assurance, Deputy Chief	cibriscoe@wmata.com	202-962-5608
Calves, Will	AECOM	Project Manager	guillermo.calves@aecom.com	212-973-3090
Chisholm, Ann	WMATA	GOVR, Government Relations, DC	achisholm@wmata.com	202-281-6691
Coram, Deborah	WMATA	HR Equal Opportunity & Employee Relations	dcoram@wmata.com	202-962-2328
Dowtin, Chaya	WMATA	BTRA, Assistant Superintendent	cdowtin@wmata.com	202-281-6691
Durham, Lt. Doug	WMATA	MTPD, Transit Police	ddurham@wmata.com	202-962-9862
Erion, David	WMATA	BPLN, Bus Planning	derion@wmata.com	202-962-1266
Garnier, Chris	WMATA	BPLN, Scheduling	cgarnier@wmata.com	202-962-2849
Geltman, Stuart	AECOM	Transit Planner	stuart.geltman@aecom.com	212-973-2957
Gough, Patrick	AECOM	Deputy Project Manager/Public Involvement	patrick.gough@aecom.com	703-340-3043
Hamre, Jim	WMATA	BPLN, Director	jhamre@wmata.com	202-962-2870
Harris, Ted	WMATA	BTRA, Service Director	tharris@wmata.com	202-962-5662
Hershorn, Julie	WMATA	BPLN, Service Planning Manager	jhershorn@wmata.com	202-962-1113
Himes, Al	WMATA	BPLN, Assistant Planning Manager	ahimes@wmata.com	202-962-6245
Montero, Diana	WMATA	HR Equal Opportunity & Employee Relations	dmontero@wmata.com	202-962-1309
Ochia, Krys	WMATA	BPLN, Customer Facilities Manager	kochia@wmata.com	202-962-2378
Parker, Jonathan	WMATA	PLAN, Senior Planner	jhparker@wmata.com	202-962-1040
Seidman, Todd	WMATA	BPLN, Performance Analysis	tseidman@wmata.com	202-962-2448
Shorts, Sabrina	WMATA	BTRA Administration	sshorts@wmata.com	202-962-1127
Simon, Alison	WMATA	CSCM, Customer Research	asimon@wmata.com	202-962-2442
Stallworth, Douglas	WMATA	BPLN, Project Manager	dstallworth@wmata.com	202-962-2761
Stepney, Sam	WMATA	BPLN, Performance Analysis Manager	sstepney@wmata.com	202-962-2706
Strauss, Steve	DDOT	Progressive Transportation Services Admin	steve.strauss@dc.gov	202-671-1357
Taylor, Lorraine	WMATA	MKTG, Marketing	ltaylor@wmata.com	202-962-2768