

Traffic Impact Study

Relocation of
Navy Systems Management Activity (NSMA)
To Naval Support Facility Anacostia
District of Columbia

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1.0 PROJECT OVERVIEW

This traffic impact study was prepared to support the Environmental Assessment (EA) for the Relocation of the Navy Systems Management Activity (NSMA) to Naval Support Facility (NSF) Anacostia, Washington, DC. Figure 1 shows the location of NSF Anacostia.

The study's purpose is to evaluate the impacts on local traffic that would result from the proposed relocation of 800 NSMA employees from their current, multiple workplaces in Arlington County, Virginia, to one consolidated facility on NSF Anacostia, at a site northwest of the intersection of Brookley Avenue and Thomas Road (Preferred Site, see Figure 2). The proposed relocation is in compliance with the 2005 Base Realignment and Closure (BRAC) Act of 2005, which mandates the closure of several leased Navy installations in the National Capital Region and the relocation of the organizations occupying these installations to Department of Defense (DoD)-owned space in the National Capital Region.

The study also considers the impacts of relocating the 800 NSMA employees to a similar facility built at an alternative location (shown on Figure 2). This alternative site is part of the Bellevue Housing development south of NSF Anacostia and Bolling Air Force Base (AFB).

The relocation of NSMA to its new facility is scheduled to be completed by September 2011. Therefore, 2011 is the target year for this study.

2.0 PROPOSED DEVELOPMENT

2.1. Project Location

NSF Anacostia is located in the southwestern quadrant of the District of Columbia, along the eastern shore of the Anacostia River, near the river's confluence with the Potomac. The installation is across the Potomac from Arlington County, where existing NSMA facilities are located (See Figure 2).

In compliance with the 2005 BRAC Act, NSF Anacostia is in the process of becoming a joint base with Bolling AFB, home to the US Air Force's 11th Wing, located immediately to the south of NSF Anacostia. The Anacostia-Bolling joint base will be managed by the Navy. NSF Anacostia and Bolling AFB, although historically administratively distinct, are physically continuous and share a perimeter fence and entry gates (North, Main [or Arnold], and South gates, shown on Figure 2). Together, they occupy 958 acres (351 acres for NSF Anacostia and 607 acres for Bolling AFB) bounded by the Anacostia River and the Potomac River to the west, South Capitol Street and Interstate Highway 295 (I-295) to the east, Poplar Point and the Frederick Douglass

Memorial Bridge to the north, and the Naval Research Laboratory (NRL) and Bellevue Housing to the south. Part of Bellevue (including the alternative site) is included within the Bolling-Anacostia boundary.

2.2 Site Plan

A layout of the proposed combined facility at the preferred site is shown in Figures 3 and 4. The facility will include 46 parking spaces. Nearby existing parking lots and garages (all located on the installation) will provide additional parking for employees.

2.3 Existing Land Use

Area Land Use

The Bolling-Anacostia installation occupies part of a long and relatively narrow strip of land extending between the Potomac and Anacostia rivers to the north and west, and South Capitol Street, Overlook Avenue, and I-295 to the east and south. In addition to the installation, this stretch of waterside land contains other large institutional compounds such as NRL and, farther south, the District of Columbia's Blue Plains wastewater treatment plant. Large tracts of military family housing (Air Force Housing on Bolling AFB and the Navy's Bellevue Housing) are also present.

The area east of I-295 is predominantly in residential use (Barry Farm and Congress Heights neighborhoods), though a large institutional compound - the 173-acre St. Elizabeth's West Campus, currently being prepared for use by the US Department of Homeland Security - is also present, overlooking NSF Anacostia from across the interstate. To the north of NSF Anacostia, the shore of the Anacostia River is occupied by parkland (Poplar Point, Anacostia Park).

Across the Anacostia River and west of South Capitol Street, land use consists primarily of low-density commercial and industrial areas with some residential developments. The area east of South Capitol Street is in a transitional stage. Formerly characterized by warehouses, nightclubs, and industrial uses, it has undergone extensive redevelopment centered on such large-scale projects as the Washington Nationals Major League Ballpark, between N Street and Potomac Avenue SE; the US Department of Transportation on M Street; and numerous new office and residential buildings and developments along M Street and New Jersey Avenue. Redevelopment of the Southeast Federal Center, on M Street, into a new mixed-used neighborhood, has also begun.

Project Site Land Use

The preferred site is currently mostly vacant. Its northern half was previously occupied by Building 150, an administrative facility now demolished (see Figure 4). The southern half of the site is occupied

Area Map

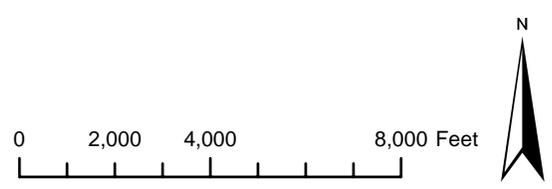


Figure 1

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Project Location Map



-  Navy Perimeter
-  Bellevue Housing
-  Preferred Site (Anacostia Alternative)
-  Alternate Site (Bellevue Alternative)

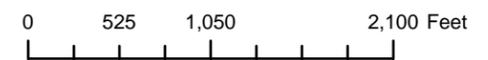
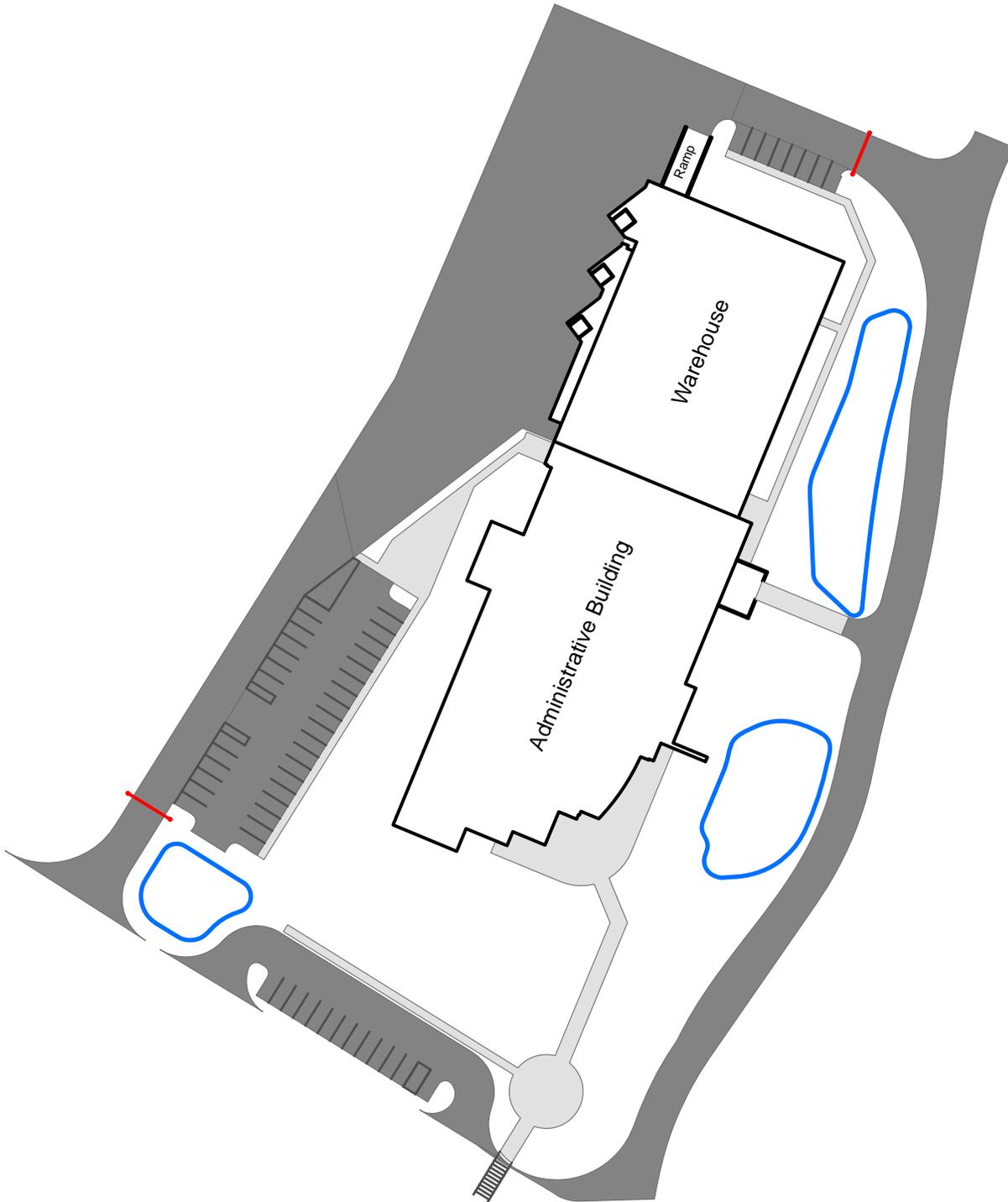


Figure 2

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Proposed Combined Facility



- Gate
- Sidewalk
- Pavement
- Stormwater Management Pond

0 50 100 200 Feet



Figure 3

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Proposed Combined Facility at Preferred Site

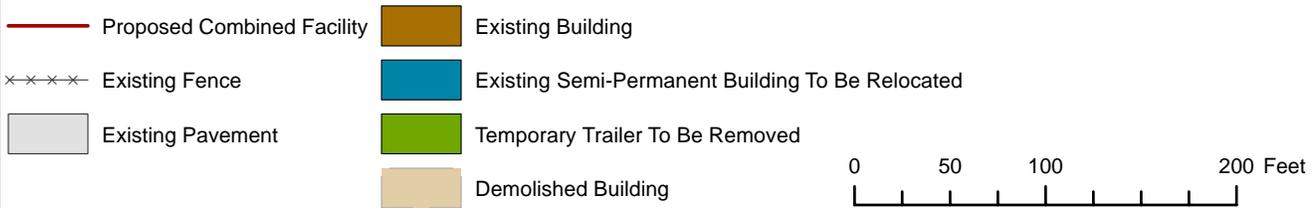
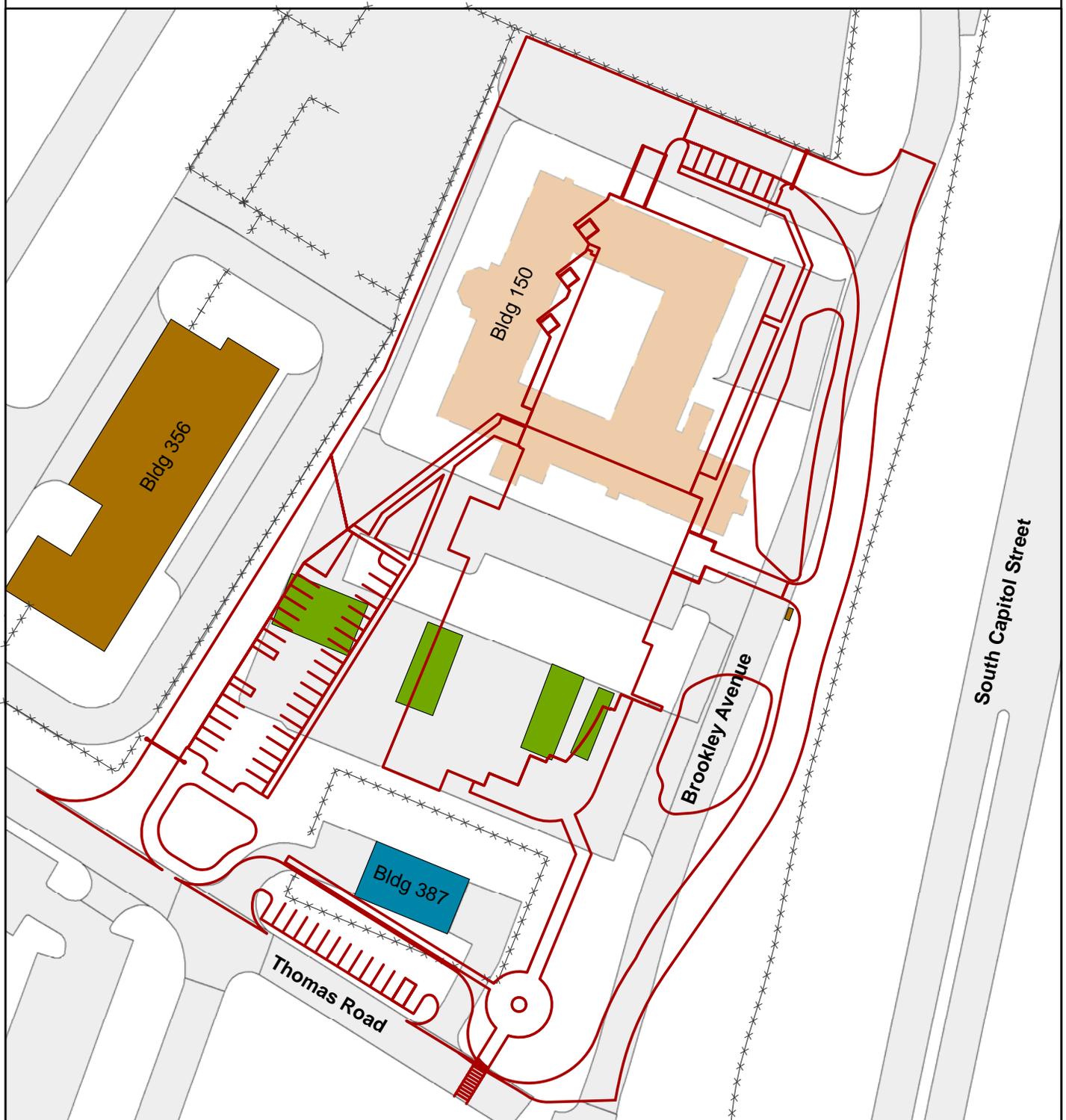


Figure 4

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by a parking lot and several trailers that will be relocated to make room for the new facility. Nearest Thomas Road, Building 387, a semi-permanent facility, will be relocated as well. The alternative site is vacant and undeveloped.

2.4 Proposed Land Use

The proposed action will change the land use of the project site by building a new facility that will comprise (1) an administrative building with approximately 160,000 gross square feet of space and a footprint of approximately 32,000 square feet and (2) a warehouse approximately 23,000 square feet in size (see Figure 3). The warehouse will have three loading docks; on average, no more than three tractor trailers a day will access or leave the facility, although they will not do so every day. Smaller delivery trucks will also access the facility on a daily basis.

2.5 Phasing and Timing

The facility is planned to be operational with all personnel, equipment, and program moved in by September 2011.

2.6 Study Area

The study area for this project is bounded by the Anacostia River on the north, I-295 on the east, the NRL campus on the south, and the Potomac River on the west. Figure 5 shows the six intersections that are being evaluated in this study.

2.7 Planned Roadway Improvements

Several transportation improvement projects are planned in the vicinity of the study area, including:

- Realignment of the Frederick Douglass Memorial Bridge and new signalized traffic circle at South Capitol Street and Suitland Parkway (2012).
- Reconstruction of the 11th Street bridges with a new full interchange with the Anacostia Freeway to separate local and interstate traffic via two bridges (2013).
- Construction of a new urban diamond I-295/Suitland Parkway Interchange (2015).
- Reconstruction of the Malcolm X Avenue/I-295 interchange to connect to a new road that will extend between Firth Sterling Avenue and Malcolm X Avenue and provide access to the West Campus of St. Elizabeth's Hospital (2016).

The 11th Street bridges project, the South Capitol Street project, and the I-295/Suitland Interchange modification are included in the Anacostia Waterfront Initiative Transportation Master Plan and are programmed in the Constrained Long Range Plan (CLRP) and the Transportation Improvement Program (TIP).

The listed roadway improvements have not been included in the evaluation of no-action conditions presented here because none are expected to be completed by 2011, the horizon year for this study.

2.8 Planned Development Projects

Similarly, no planned and approved development projects within or near the study area are expected to have an impact on traffic conditions by 2011. No significant net change to the installation's personnel loadings (both Bolling and Anacostia) is expected by 2011. In the installation's vicinity, the relocation of the Department of Homeland Security to the West Campus of St. Elizabeth's Hospital is scheduled for 2016; the completion of the Barry Farm renovation project is expected by 2018; no definitive plans or schedule are currently available for the redevelopment of Poplar Point, which, for this reason, is not included in the latest MWCOG population projections.

3.0 EXISTING CONDITIONS

3.1 Roadway Inventory

The roadways within the study area that are expected to be directly impacted by the proposed action are discussed in this section. Figure 6 shows the roadway classification for the area's network.

- The **I-295** section of the Anacostia Freeway is classified as an interstate highway. It branches off the Southeast-Southwest Freeway in Northeast DC, crosses the Anacostia River on the 11th Street Bridge, then runs southward to the Capital Beltway (I-495) near the Woodrow Wilson Bridge in Prince Georges County, Maryland. To the northeast, the I-295 section of the Anacostia Freeway connects with the DC 295 section of the Anacostia Freeway/Kenilworth Avenue corridor, providing access to the Baltimore Washington Parkway and US 50. Within the study area, I-295 runs in a north-south direction. Northbound I-295 provides access to Bolling AFB's main gate via Malcolm X Avenue. The speed limit is 50 miles per hour (MPH). Annual Daily Traffic (ADT) is 85,000 vehicles.
- **South Capitol Street** is classified as an expressway south of M Street and along the Frederick Douglass Memorial Bridge over the Anacostia River, past which it continues south, parallel to I-295. The classification of the roadway changes from expressway to minor arterial south of its intersection with Firth Sterling

Study Intersections



- Navy Perimeter
- Bellevue Housing
- ▭ Preferred Site (Anacostia Alternative)
- ▭ Alternate Site (Bellevue Alternative)

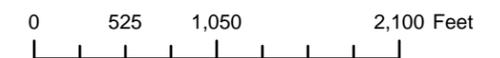


Figure 5

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Avenue, SE. There is direct access to the installation's North and Main gates from South Capitol Street. The posted speed limit is 35 MPH north of Firth Sterling Avenue and 40 MPH south of Firth Sterling Avenue. ADT is 52,750 vehicles.

- **Firth Sterling Avenue** is a four-lane collector road that runs southwest to northeast between South Capitol Street and Howard Road, SE. This road is a main route for any motorists and pedestrians traveling between NSF Anacostia, the Anacostia Metrorail Station, and Historic Anacostia. Firth Sterling Avenue also provides access to the Barry Farm neighborhood. The speed limit on Firth Sterling Avenue is 25 MPH. ADT is 10,600 vehicles.
- **Malcolm X Avenue** is a two- to four-lane urban minor arterial that runs east-west and extends from 8th Street on the east, across MLK Avenue, to South Capitol Street. At its west end with South Capitol Street, Malcolm X Avenue connects directly with the Main Gate of Bolling AFB. The speed limit along Malcolm X Avenue is 30 MPH. Parking is allowed on both sides of Malcolm X Avenue east of the I-295 on/off ramps. ADT is 12,800 vehicles.
- **Overlook Avenue SW** is a two- to four-lane collector road that runs north-south and parallel to I-295 between South Capitol Street (where South Capitol Street turns southeastward) and the Blue Plains wastewater treatment plant. Overlook Avenue SW provide direct access to the South Gate of Bolling AFB. The speed limit along Overlook Avenue SW is 30 MPH. ADT is 13,000 vehicles.
- **Chesapeake Street SW** is a four-lane collector road that runs east-west between 1st Street, SE and Overlook Avenue, SW. Chesapeake Street, SW provides access to the South Gate of Bolling AFB via Overlook Avenue. The speed limit along Chesapeake Street, SW is 30 MPH. Annual Daily Traffic (ADT) is 10,600 vehicles.

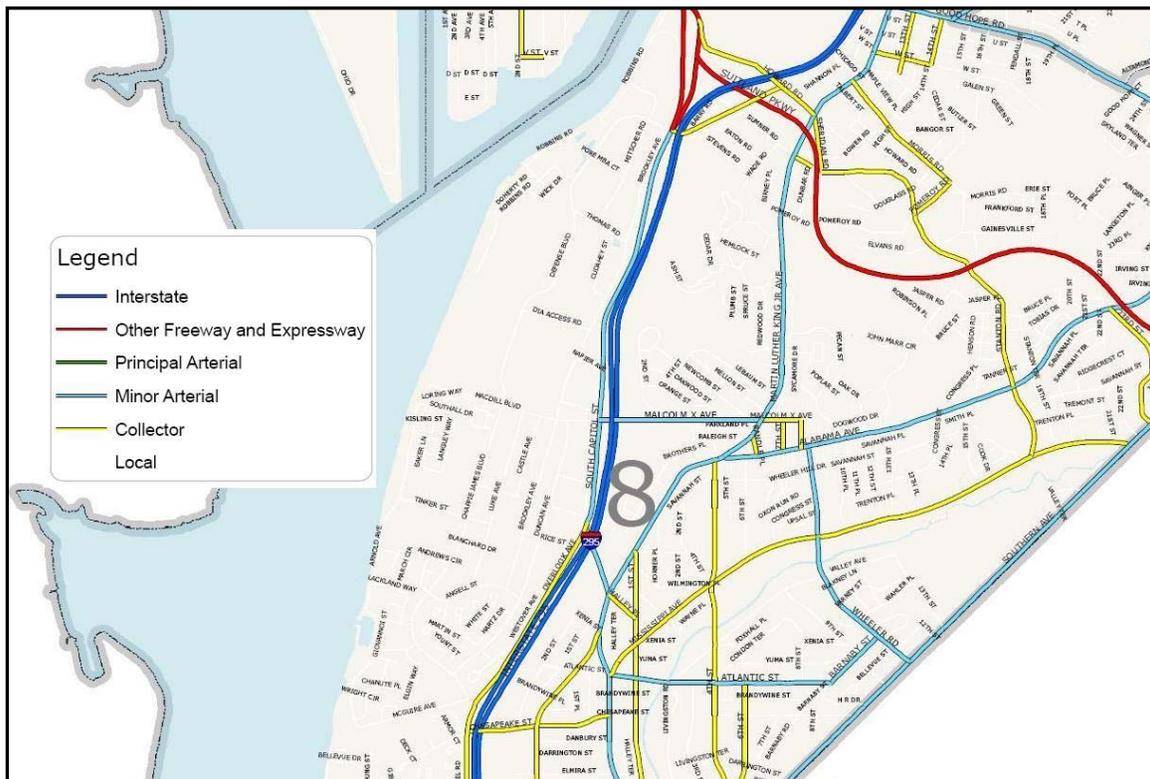


Figure 6. Roadway Classification

3.2 Existing Traffic Volumes

To determine existing traffic operations in the study area, manual traffic turning movement counts were taken on Tuesday March 17 and Wednesday March 18, 2009, during the AM (6:30-8:30) and PM (3:30-5:30) peak periods at the following six intersections (see Figure 5):

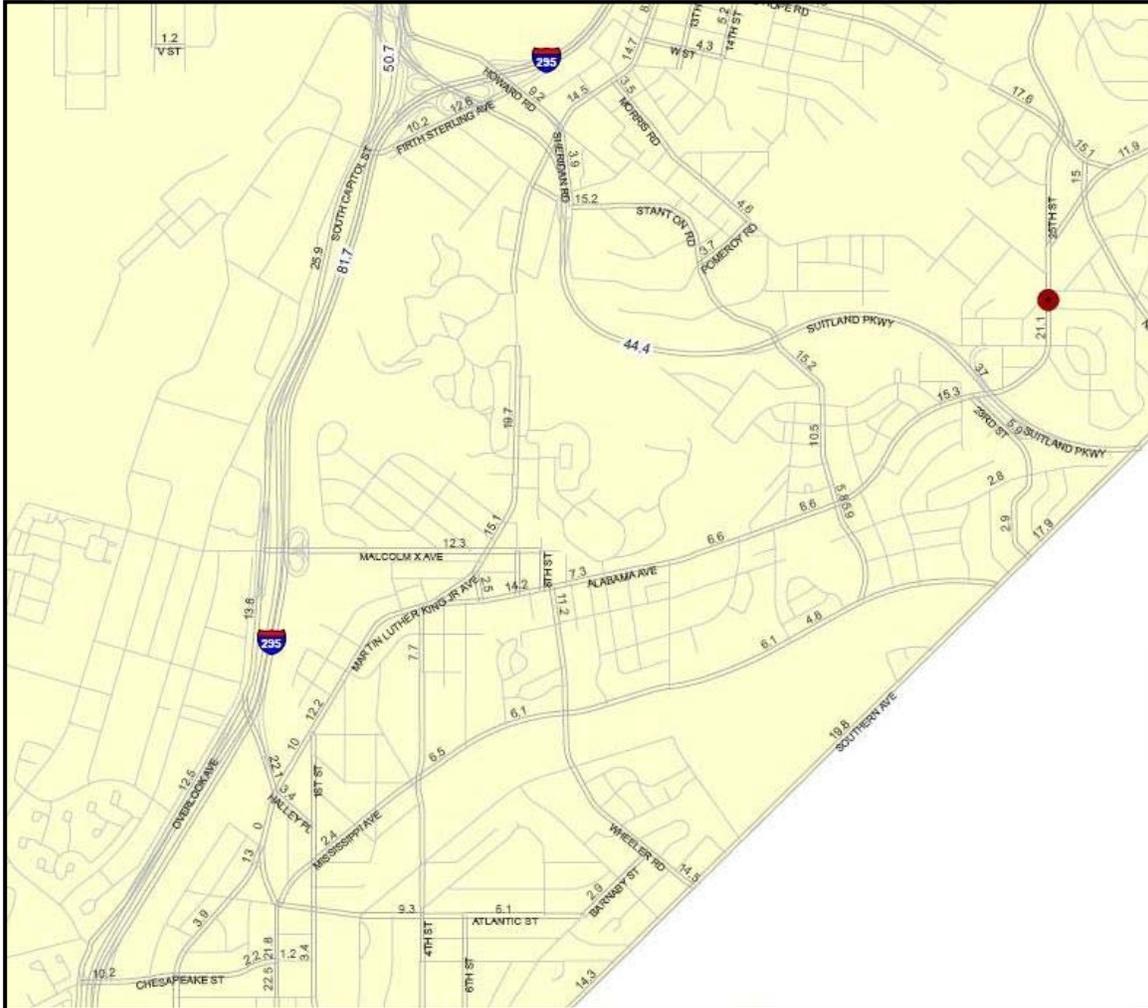
1. South Capitol St. (Southbound) and Malcolm X Ave. (signalized)
2. South Capitol St. (Northbound) and Malcolm X Ave. (signalized)
3. I-295 off ramp at Malcolm X Ave. SE (un-signalized)
4. South Capitol St. at Firth Sterling Ave. (signalized)
5. Overlook Ave. SW at South Gate (signalized)
6. Overlook Ave SW at Chesapeake St SW (signalized)

The field data sheets for each intersection and peak period are provided in Attachment A. A determination of the AM and PM peak hours was made based on these peak-period counts. Turning movement counts were analyzed to determine the four highest consecutive 15-minute volumes (the peak hour) during each peak period. The peak hours were determined to be:

- AM Peak Hour: 7:00-8:00 AM
- PM Peak Hour: 4:15-5:15 PM

ADT volumes for roadway links were derived from DC Department of Transportation (DDOT) 2007 traffic volumes adjusted for 2009 using an annual growth rate of +2%. The ADT of a roadway is the typical daily traffic volume in both directions. The 2007 DDOT ADT volumes are shown in Figure 7.

Figure 7. DDOT Traffic Volume Map (2007)



Threshold capacity for link ADT volumes is based upon the following DDOT guidelines:

<u>Facility Type</u>	<u>Lanes</u>	<u>Threshold Capacity in ADT</u>
Minor Collector	2	10,000
Major Collector/Minor Arterial	4	20,000
Major Arterial	4	30,000
Major Arterial	6	45,000

3.3 Traffic Capacity Analysis

Using the existing traffic volumes as determined by the counts, the six study intersections were analyzed using the procedures set forth in the Highway Capacity Manual (HCM), Transportation Research Board, Updated 2000. The Highway Capacity Software (HCS) program was used to determine traffic operational levels of service (LOS). Existing traffic signal timings were used for all analyses.

LOS is a measurement of traffic flow in terms of speed and travel time, freedom to maneuver, comfort, and convenience. There are six LOS, designated by the letters A through F, with LOS A representing the best operating conditions and LOS F the worst. LOS for intersections are measured in terms of vehicle delay, with somewhat different values for signalized intersections and un-signalized intersections, as shown in Table 1.

Table 1
 LOS Values for Signalized and Un-signalized Intersections

Signalized Intersections		Un-signalized Intersections	
Level of Service (LOS)	Vehicle Delay (Seconds)	Level of Service (LOS)	Vehicle Delay (Seconds)
A	Less than 10	A	Less than 10
B	>10-20	B	>10-15
C	>20-35	C	>15-25
D	>35-55	D	>25-35
E	>55-80	E	>35-50
F	More than 80	F	More than 50

The LOS for signalized intersections can reflect the average delay for the entire intersection and the delay for individual movements. For un-signalized intersections, the LOS reflects the delay for side street traffic attempting to enter the mainline. All intersections in this analysis are signalized, except Intersection #3 (I-295 off ramp at Malcolm X Ave SE). Additional results provided by the analysis are delay per vehicle in seconds, and volume/capacity (v/c) ratios. The v/c ratio is a comparison between the volume of traffic entering the intersection from one or all approaches and the possible capacity of one or all approaches.

An LOS C or better is the desirable goal for a roadway facility. However, in major urban areas such as Washington, DC, LOS D is considered acceptable. LOS E and F are considered to be at or below capacity and are generally unacceptable. A summary of existing LOS for the 6 study intersections, including delays and v/c ratios, is shown in Table 2. The analysis of existing conditions shows that all intersections in the study area operate at overall LOS C or better.

Table 2
Existing Peak Hour LOS (2009)

Intersection		AM Peak Hour			PM Peak Hour			Remarks
#	Location	v/c ratio	Delay (secs)	LOS	v/c ratio	Delay (secs)	LOS	
1	South Capitol St (Northbound) and Malcolm X Ave	0.30	24.3	C	0.36	11.0	B	Signalized
2	South Capitol St (Southbound) and Malcolm X Ave	0.77	22.1	C	0.77	17.3	B	Signalized
3	I-295 off ramp at Malcolm X Ave SE	-	16.8	C	-	16.8	C	Un-signalized
4	South Capitol St at Firth Sterling Ave	0.54	22.2	C	0.91	33.5	C	Signalized
5	Overlook Ave SW at South Gate	0.35	15.6	B	0.29	13.3	B	Signalized
6	Overlook Ave SW at Chesapeake St SW	0.41	12.4	B	0.39	9.9	A	Signalized

3.4 Public Transportation

The Washington Metropolitan Area Transit Authority (WMATA or Metro) provides access to NSF Anacostia and Bolling AFB via several Metrobus routes and one Metrorail station. The Air Force runs a shuttle service between the Metro station and the Bolling-Anacostia installation.

Metrorail

The nearest Metrorail station is the Anacostia Station, near the intersection of Firth Sterling Avenue and Howard Road, SE, a little more than half a mile from NSF Anacostia's North Gate. Anacostia-Bolling employees commuting by Metro have to walk to the installation via Firth Sterling Avenue. However, there is no continuous pedestrian route with sidewalks along this stretch of Firth Sterling Avenue. Past the intersection with the Suitland Parkway, pedestrians must walk on the side of the road or on grass. On their way to the installation, pedestrians must cross the Suitland Parkway and South Capitol Street. There is no crosswalk across South Capitol Street. There is a crosswalk across the Suitland Parkway, but according to DDOT Traffic Services Administration, this is a high pedestrian accident intersection. Finally, the reputation of the surrounding neighborhood

as a high-crime area further discourages potential pedestrians. Existing shuttle services partly mitigate this situation (see below).

Metrobus

Seven Metrobus lines run along South Capitol Street, with stops near Bolling and Anacostia. Information on these lines is summarized in Table 3.

Table 3
 Metrobus Lines

Line	Between...	And...	Weekday Schedule	Restrictions
P-17	Fort Washington Park, MD	Eye and 17 th Streets, NW, DC	NB: 4:50-8:45 AM SB: 2:57-6:54 PM	NB: Inside the Beltway, alight only SB: Inside beltway, board only.
P-18	Fort Washington Park, MD	Anacostia Metro Station	NB: 9:25 AM-2:30 PM SB 9:39 AM-2:30 PM	
P-19	Fort Washington Park, MD	Eye and 17 th Streets, NW, DC	NB: 5:37-8:30 AM SB: 3:42-6:04 PM	NB: Inside the Beltway, alight only SB: Inside beltway, board only.
W-4	Anacostia Metro Station	Cooper Lane and Annapolis Road, MD	NB: 5:03 AM-1:09 AM SB: 5:09 AM (Deanwood Metro Station)- 2:02 AM (Deanwood Metro Station)	
W-13	Old Fort Road and Indian Head Highway, MD	Eye and 17 th Streets, NW, DC	NB: 4:55-7:49 AM SB: 3:35-6:40 PM	NB: North of the Beltway, alight only SB: North of the Beltway, board only.
W-14	Allentown and Old Fort Roads, MD	Anacostia Metro Station	NB: 8:54 AM-2:59 PM SB: 10:14 AM-3:19 PM	
A-9	Southern Avenue and South Capitol Street, SE, DC	D and 7 th Street, NW, DC	NB: 5:55-8:55 AM SB: 3:13-6:48 PM	

Only Line W-4 provides service throughout the day. Line W-4 serves the Main Gate at South Capitol Street and Malcolm X Avenue, and the North Gate at South Capitol Street and Firth Sterling Avenue. So does Line A-9, but on a much more limited schedule since, like the other lines, it only provides rush-hour service. With the exception of Line W-4, the bus lines that run along South Capitol Street near the project site are primarily designed to move people between downtown Washington and the Maryland suburbs during peak periods. The project site is approximately 1,700 feet from the North Gate; as previously noted,

there is no crosswalk across South Capitol at the North Gate. Along with the limited schedules, these factors are likely to discourage potential bus riders.

Shuttle Services

Existing shuttle service between the Anacostia Station and NSF Anacostia via the North Gate includes a shuttle run by the Air Force between 5:25 and 9:15 in the morning and 3:10 and 6:48 in the evening, with 20-minute headways. The shuttle stops at several places on NSF Anacostia and Bolling AFB. The closest stop to the preferred site is Stop #4, near the intersection of Thomas Road and Brookley Boulevard. The ride between the Metrorail station and Stop #4 takes between 20 and 30 minutes, depending on the direction. The shuttle does not stop within walking distance of the alternative site. The appeal of this shuttle service is diminished by the lack of mid-day service, which may leave employees stranded. The Defense Intelligence Agency (DIA) runs another shuttle, but it is limited to DIA employees. Both shuttles operate under waivers from DoD transportation regulations that prohibit use of government-run transportation between residences and workplaces. A shuttle map and schedule are included in attachment D.

4.0 NO ACTION CONDITIONS (2011)

4.1 Affected Roadway Network

Under No Action conditions, the proposed relocation of NSMA would not occur, with no impacts on the road network near NSF Anacostia and Bolling AFB. Analysis of the No Action Alternative provides the baseline for evaluating the impacts of the action alternatives. The year of analysis is 2011, which is when the new NSMA facility is scheduled to be fully occupied.

4.2 Planned Roadway Improvements and Approved Development Projects

No planned roadway improvements in the vicinity of the project area have been included in the analysis because all known planned and approved projects have completion dates later than 2011.

4.3 Traffic Capacity Analysis

To estimate 2011 no action peak hour LOS, a two-percent-per-year growth rate was assumed and added to the 2009 traffic volumes. A summary of the LOS analysis results, including delays and v/c ratios, is shown in Table 4. The analysis shows that all intersections in the study area are projected to operate at LOS C or better, with the exception of Intersection #4 (South Capitol St. at Firth Sterling Ave.), which would operate at LOS D (from C under existing conditions) during the PM peak hour.

Table 4
 No Action Peak Hour LOS (2011)

Intersection		AM Peak Hour			PM Peak Hour			Remarks
#	Location	v/c ratio	Delay (secs)	LOS	v/c ratio	Delay (secs)	LOS	
1	South Capitol St (Northbound) and Malcolm X Ave	0.32	25.4	C	0.38	11.2	B	Signalized
2	South Capitol St (Southbound) and Malcolm X Ave	0.81	24.0	C	0.81	18.6	B	Signalized
3	I-295 off ramp at Malcolm X Ave SE	-	17.9	C	-	17.9	C	Un-signalized
4	South Capitol St at Firth Sterling Ave	0.58	22.8	C	0.96	37.6	D	Signalized
5	Overlook Ave SW at South Gate	0.37	15.8	B	0.31	13.5	B	Signalized
6	Overlook Ave SW at Chesapeake St SW	0.42	12.6	B	0.41	10.0	A	Signalized

5.0 ANACOSTIA ALTERNATIVE CONDITIONS (2011)

5.1 Trip Generation

The number of vehicle trips generated by NSMA was determined based on the number of employees expected to drive to and from work during the AM and PM peak hours. Under the proposed action, a total of 800 employees would relocate to NSF Anacostia. The expected modal split (percentage of employees using different modes of transportation) was determined based on modal split information provided in the December 2004 *Anacostia Annex Site Development Plan* (Section 3.6). The number of vehicle trips to the site on a typical workday was calculated based on the modal split. Results are shown in Table 5.

Table 5
Modal Split

Mode of travel	Modal Split ¹	Employees ²	Vehicle Trips (one-way)
Driving Alone	73%	584	584
Car pooling	16%	128	51
Van pooling	6%	48	10
Transit, pedestrian, bicycle	5%	40	0
Total	100%	800	645

1. Source: Anacostia Annex Site Development Plan, December 2004

2. Based on an average of 2.5 passengers in each car pool and 5 passengers in each van pool.

A total of 645 vehicle trips is expected to be generated by the site every AM and PM. Hourly arrival rates and departure rates of employees were determined by analyzing gate traffic counts conducted on November 18, 2008. Based on these counts, 44% of the trips (284 vehicles) are expected to arrive during the AM peak hour and 42% (271 vehicles) would depart during the PM peak hour. The percentage of vehicle entering or exiting each gate during the peak hours was also calculated based on the November 18 counts. The number of visitors/deliveries during the AM and PM peak hours was assumed to be 14 vehicles.

5.2 Traffic Distribution

The distribution of the project-generated vehicular traffic on the roadways providing access to and from the proposed project site is a key element in determining traffic impacts on the surrounding intersections.

For this analysis, the following residential location data were provided by the Navy: 70% of the existing NSMA employees reside in Virginia, 29% in Maryland and 1% in another jurisdiction, assumed to be Washington DC for the purposes of this analysis. However, distributing vehicle trips over the road network requires finer-grained data (generally, employees' residential zip codes), which were not made available for this study. Therefore, reasonable assumptions had to be made with regard to the residential location of NSMA employees. To this end, the residential distribution of DoD employees relocating from Arlington County to Fort Belvoir, Virginia, as presented in the *Final Environmental Impact Statement for BRAC Implementation and Related Army Actions* (June 2007), was used as a stand-in (with minor adjustments) for the residential distribution of NSMA employees, also DoD employees located in Arlington County.

On this basis, it was estimated that 40% of the NSMA employees would enter the study area from southbound South Capitol Street, 32% would enter from southbound I-295, 26% from northbound I-295, and 2% from

westbound Suitland Parkway. Distributing these traffic volumes on the local network, 62% of the traffic is expected to use the North Gate; 26% is expected use the Main Gate; and 12% is expected to use the South Gate. The assignment of project-generated peak hour traffic was based upon these assumed traffic distribution percentages.

5.3 Peak Hour Trip Generation

Trips occurring during peak hours as a result of the project are shown in Table 6. Approximately 241 vehicles would enter and 57 vehicles would exit the site during the AM peak hour. During the PM peak hour, approximately 49 vehicles would enter and 236 vehicles would exit the site.

Table 6
 Peak Hour Trip Generation - Anacostia Alternative

	AM Peak Hour				PM Peak Hour			
	No. of Trips	% Enter/Exit	No. of Trips		No. of Trips	% Enter/Exit	No. of Trips	
			Enter	Exit			Enter	Exit
North Gate	185	78/22	144	41	177	18/82	32	145
Main Gate	77	86/14	66	11	74	16/84	12	62
South Gate	36	85/15	31	5	34	15/85	5	29
Total NSMA	298	81/19	241	57	285	17/83	49	236

5.4 Traffic Capacity Analysis

Using estimated 2011 traffic volumes, the six study intersections were analyzed using the HCS program to determine LOS for future conditions under the Anacostia Alternative. Existing traffic signal timings were used to allow for a direct comparison with the no action and the existing condition scenarios. However, future signal timing modifications might improve delays. Table 7 shows the projected 2011 LOS under the Anacostia Alternative. The analysis shows that, under this alternative, LOS would be very similar to existing and no action LOS, with slightly increased delays. All study intersections would operate at an overall LOS C or better, with the exception of Intersection #4 (South Capitol St. at Firth Sterling Ave.), which would operate at LOS D during the PM peak period, as it would under no action conditions.

Table 7
Anacostia Alternative Peak Hour LOS (2011)

Intersection		AM Peak Hour			PM Peak Hour			Remarks
#	Location	v/c ratio	Delay (secs)	LOS	v/c ratio	Delay (secs)	LOS	
1	South Capitol St (Northbound) and Malcolm X Ave	0.34	27.4	C	0.38	11.2	B	Signalized
2	South Capitol St (Southbound) and Malcolm X Ave	0.84	27.9	C	0.86	19.9	B	Signalized
3	I-295 off ramp at Malcolm X Ave SE	-	20.1	C	-	17.2	C	Un-signalized
4	South Capitol St at Firth Sterling Ave	0.70	26.7	C	1.06	44.6	D	Signalized
5	Overlook Ave SW at South Gate	0.37	15.8	B	0.32	13.4	B	Signalized
6	Overlook Ave SW at Chesapeake St SW	0.42	12.5	B	0.41	9.8	A	Signalized

6.0 BELLEVUE ALTERNATIVE CONDITIONS (2011)

6.1 Trip Generation

The number of vehicle trips generated by NSMA is the same under this alternative as it would be under the Anacostia Alternative.

6.2 Traffic Distribution

The distribution of the generated vehicular traffic on the roadways providing access to the Bolling-Anacostia installation would change under this alternative.

Using the same methodology as was used for the Anacostia Alternative conditions analysis, it was estimated that 86% of the NSMA employees would enter the study area via northbound I-295, 9% would enter it via southbound I-295, and 5% would enter it via South Capitol Street. Distributing these traffic volumes on the local network, 75% of the traffic is projected to use the South Gate; 20% is expected to use the Main Gate; and 5% is expected to use the North Gate. The assignment of project-generated peak hour traffic was based on these projected traffic distribution percentages.

6.3 Peak Hour Trip Generation

Trips projected to occur during the AM and PM peak hours under the Bellevue Alternative are shown in Table 8. The total traffic would remain the same as under the Anacostia Alternative, but the gate volumes and the local network traffic volumes would change.

Table 8
 Peak Hour Trip Generation - Bellevue Alternative

	AM Peak Hour				PM Peak Hour			
	No. of Trips	% Enter/Exit	No. of Trips		No. of Trips	% Enter/Exit	No. of Trips	
			Enter	Exit			Enter	Exit
North Gate	14	78/22	11	3	14	18/82	3	11
Main Gate	60	86/14	52	8	57	16/84	9	48
South Gate	224	85/15	178	46	214	15/85	37	177
Total NSMA	298	81/19	241	57	285	17/83	49	236

6.4 Traffic Capacity Analysis

Using the estimated 2011 traffic volumes, the six study intersections were analyzed to determine LOS under the Bellevue alternative. Table 9 shows the results of the analysis. LOS under the Bellevue Alternative would be very similar to those under the Anacostia Alternative. All study intersections would operate at overall LOS C or better, with the exception of Intersection #4 (South Capitol St. at Firth Sterling Ave.), which would operate at LOS D during the PM peak period, as it would under no action conditions.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Traffic Impacts

Based on the analyses summarized above, the relocation of NSMA under either of the alternatives considered is not expected to significantly degrade intersection LOS in the study area. Intersection delays and v/c ratios would increase marginally. The intersection of South Capitol Street and Firth Sterling Avenue would continue to operate at LOS D during the PM peak hour, as it is expected to do under no action conditions. LOS D is acceptable in major urban areas such as Washington, DC. All the other study intersections would experience small increases in traffic volumes, but they would continue to operate at LOS C or better. Therefore, the proposed action is not expected to have a significant adverse impact on traffic conditions in the study area.

Table 9
Bellevue Alternative Peak Hour LOS (2011)

Intersection		AM Peak Hour			PM Peak Hour			Remarks
#	Location	v/c ratio	Delay (secs)	LOS	v/c ratio	Delay (secs)	LOS	
1	South Capitol St (Northbound) and Malcolm X Ave	0.33	27.1	C	0.38	11.2	B	Signalized
2	South Capitol St (Southbound) and Malcolm X Ave	0.84	26.3	C	0.84	19.3	B	Signalized
3	I-295 off ramp at Malcolm X Ave SE	-	19.1	C	-	17.3	C	Un-signalized
4	South Capitol St at Firth Sterling Ave	0.59	23.0	C	0.97	38.0	D	Signalized
5	Overlook Ave SW at South Gate	0.43	16.8	B	0.39	13.0	B	Signalized
6	Overlook Ave SW at Chesapeake St SW	0.53	12.7	B	0.52	9.9	A	Signalized

7.2 Recommendations

The roadways and intersections of the study area would continue to operate under capacity after the proposed relocation of NSMA has taken place. No roadway improvements or other mitigation measures are recommended.

8.0 REFERENCES

1. Functional Classification Map - District Department of Transportation (DDOT),
2. 2007 Traffic Volumes - District Department of Transportation (DDOT), Traffic Services Administration, Washington, D.C.
3. National Research Council 2000. HCM2000 - Highway Capacity Manual, Transportation Research Board, Washington, D.C.
4. Federal Highway Administration. 2004 MUTCD - Manual on Uniform Traffic Control Devices, 2003 Edition, Rev. July 21, 2004
5. D.C. Department of Transportation (DDOT) 2005 - Design and Engineering Manual, Chapter 45.

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Attachment A
Turning Movement Counts

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File Name : #1 - S. Capitol St. SB and Malcolm X AM
Site Code : 00003011
Start Date : 3/17/2009
Page No : 1

SB Rights were continuously backed up for entire AM study.

Groups Printed- Vehicles

Start Time	S. Capitol St. SB Southbound					Malcolm X Westbound					Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	157	14	44	0	215	0	139	14	0	153	0	0	0	0	0	14	42	0	0	56	
06:45 AM	170	8	53	0	231	0	151	7	0	158	0	0	0	0	0	7	50	0	0	57	
Total	327	22	97	0	446	0	290	21	0	311	0	0	0	0	0	21	92	0	0	113	
07:00 AM	174	14	42	0	230	0	206	17	0	223	0	0	0	0	0	17	48	0	0	65	
07:15 AM	160	8	59	0	227	0	179	29	0	208	0	0	0	0	0	17	52	0	0	69	
07:30 AM	175	8	59	0	242	0	169	14	0	183	0	0	0	0	0	15	42	0	0	57	
07:45 AM	161	12	83	0	256	0	192	22	0	214	0	0	0	0	0	8	36	0	0	44	
Total	670	42	243	0	955	0	746	82	0	828	0	0	0	0	0	57	178	0	0	235	
08:00 AM	122	7	91	0	220	0	117	17	0	134	0	0	0	0	0	12	40	0	0	52	
08:15 AM	92	7	64	0	163	0	101	19	0	120	0	0	0	0	0	12	40	0	0	52	
Grand Total	1211	78	495	0	1784	0	1254	139	0	1393	0	0	0	0	0	102	350	0	0	452	
Apprch %	67.9	4.4	27.7	0.0		0.0	90.0	10.0	0.0		0.0	0.0	0.0	0.0		22.6	77.4	0.0	0.0		
Total %	33.4	2.1	13.6	0.0	49.2	0.0	34.6	3.8	0.0	38.4	0.0	0.0	0.0	0.0	0.0	2.8	9.6	0.0	0.0	12.5	

Start Time	S. Capitol St. SB Southbound					Malcolm X Westbound					Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	670	42	243	0	955	0	746	82	0	828	0	0	0	0	0	57	178	0	0	235	
Percent	70.2	4.4	25.4	0.0		0.0	90.1	9.9	0.0		0.0	0.0	0.0	0.0		24.3	75.7	0.0	0.0		
07:00 Volume	174	14	42	0	230	0	206	17	0	223	0	0	0	0	0	17	48	0	0	65	
Peak Factor																					
High Int.	07:45 AM					07:00 AM					6:15:00 AM					07:15 AM					
Volume	161	12	83	0	256	0	206	17	0	223	0	0	0	0	0	17	52	0	0	69	
Peak Factor	0.933					0.928										0.851					

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File Name : #1 - S. Capitol St. SB and Malcolm X PM
Site Code : 00003011
Start Date : 3/18/2009
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Groups Printed- Vehicles

Start Time	S. Capitol St. SB Southbound					Malcolm X Westbound					Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	43	7	99	0	149	0	14	21	0	35	0	0	0	0	0	144	159	0	0	303	487
03:45 PM	45	8	105	0	158	0	7	24	0	31	0	0	0	0	0	145	189	0	0	334	523
Total	88	15	204	0	307	0	21	45	0	66	0	0	0	0	0	289	348	0	0	637	1010
04:00 PM	53	19	95	0	167	0	19	20	0	39	0	0	0	0	0	183	188	0	0	371	577
04:15 PM	56	9	111	0	176	0	16	25	0	41	0	0	0	0	0	209	173	0	0	382	599
04:30 PM	60	16	96	0	172	0	13	25	0	38	0	0	0	0	0	184	190	0	0	374	584
04:45 PM	59	8	115	0	182	0	16	17	0	33	0	0	0	0	0	150	143	0	0	293	508
Total	228	52	417	0	697	0	64	87	0	151	0	0	0	0	0	726	694	0	0	1420	2268
05:00 PM	51	13	122	0	186	0	18	23	0	41	0	0	0	0	0	148	139	0	0	287	514
05:15 PM	54	13	119	0	186	0	27	22	0	49	0	0	0	0	0	130	141	0	0	271	506
Grand Total	421	93	862	0	1376	0	130	177	0	307	0	0	0	0	0	1293	1322	0	0	2615	4298
Apprch %	30.6	6.8	62.6	0.0		0.0	42.3	57.7	0.0		0.0	0.0	0.0	0.0		49.4	50.6	0.0	0.0		
Total %	9.8	2.2	20.1	0.0	32.0	0.0	3.0	4.1	0.0	7.1	0.0	0.0	0.0	0.0		30.1	30.8	0.0	0.0	60.8	

Start Time	S. Capitol St. SB Southbound					Malcolm X Westbound					Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	03:45 PM																				
Volume	214	52	407	0	673	0	55	94	0	149	0	0	0	0	0	721	740	0	0	1461	2283
Percent	31.8	7.7	60.5	0.0		0.0	36.9	63.1	0.0		0.0	0.0	0.0	0.0		49.3	50.7	0.0	0.0		
04:15 Volume	56	9	111	0	176	0	16	25	0	41	0	0	0	0	0	209	173	0	0	382	599
Peak Factor																					0.953
High Int.	04:15 PM					04:15 PM					3:15:00 PM					04:15 PM					
Volume	56	9	111	0	176	0	16	25	0	41	0	0	0	0	0	209	173	0	0	382	
Peak Factor	0.956					0.909										0.956					

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File Name : #2 - S. Capitol St. NB and Malcolm X AM
Site Code : 00003000
Start Date : 3/17/2009
Page No : 1

Groups Printed- Vehicles

Start Time	Southbound					Malcolm X Westbound					S. Capitol St. NB Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	0	0	0	0	0	35	166	0	0	201	0	1	14	0	15	0	71	14	0	85	301
06:45 AM	0	0	0	0	0	40	180	0	0	220	2	1	14	0	17	0	86	16	0	102	339
Total	0	0	0	0	0	75	346	0	0	421	2	2	28	0	32	0	157	30	0	187	640
07:00 AM	0	0	0	0	0	49	179	0	0	228	0	2	14	0	16	0	75	15	0	90	334
07:15 AM	0	0	0	0	0	38	210	0	0	248	1	1	21	0	23	0	86	24	0	110	381
07:30 AM	0	0	0	0	0	45	170	0	0	215	2	2	20	0	24	0	89	11	0	100	339
07:45 AM	0	0	0	0	0	49	158	0	0	207	0	1	13	0	14	0	106	12	0	118	339
Total	0	0	0	0	0	181	717	0	0	898	3	6	68	0	77	0	356	62	0	418	1393
08:00 AM	0	0	0	0	0	70	117	0	0	187	1	1	19	0	21	0	118	13	0	131	339
08:15 AM	0	0	0	0	0	66	92	0	0	158	0	1	11	0	12	0	92	12	0	104	274
Grand Total	0	0	0	0	0	392	1272	0	0	1664	6	10	126	0	142	0	723	117	0	840	2646
Apprch %	0.0	0.0	0.0	0.0		23.6	76.4	0.0	0.0		4.2	7.0	88.7	0.0		0.0	86.1	13.9	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	14.8	48.1	0.0	0.0	62.9	0.2	0.4	4.8	0.0	5.4	0.0	27.3	4.4	0.0	31.7	

Start Time	Southbound					Malcolm X Westbound					S. Capitol St. NB Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	0	0	0	0	0	202	655	0	0	857	4	5	73	0	82	0	399	60	0	459	1398
Percent	0.0	0.0	0.0	0.0		23.6	76.4	0.0	0.0		4.9	6.1	89.0	0.0		0.0	86.9	13.1	0.0		
07:15 Volume	0	0	0	0	0	38	210	0	0	248	1	1	21	0	23	0	86	24	0	110	381
Peak Factor																					
High Int.	6:15:00 AM																				
Volume	0	0	0	0	0	38	210	0	0	248	2	2	20	0	24	0	118	13	0	131	0.917
Peak Factor																					
						0.864					0.854					0.876					

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File Name : #2 - S. Capitol St. NB and Malcolm X PM

Site Code : 00003000

Start Date : 3/18/2009

Page No : 1

Groups Printed- Vehicles

Start Time	Southbound					Malcolm X Westbound					S. Capitol St. NB Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	0	0	0	0	0	25	33	0	0	58	5	1	3	0	9	0	233	22	0	255	322
03:45 PM	0	0	0	0	0	34	30	0	0	64	2	0	0	0	2	0	271	29	0	300	366
Total	0	0	0	0	0	59	63	0	0	122	7	1	3	0	11	0	504	51	0	555	688
04:00 PM	0	0	0	0	0	23	34	0	0	57	5	0	2	0	7	0	255	28	0	283	347
04:15 PM	0	0	0	0	0	15	39	0	0	54	1	0	2	0	3	0	252	29	0	281	338
04:30 PM	0	0	0	0	0	21	36	0	0	57	1	0	2	0	3	0	255	32	0	287	347
04:45 PM	0	0	0	0	0	23	30	0	0	53	3	0	3	0	6	0	244	14	0	258	317
Total	0	0	0	0	0	82	139	0	0	221	10	0	9	0	19	0	1006	103	0	1109	1349
05:00 PM	0	0	0	0	0	15	39	0	0	54	2	0	0	0	2	0	236	25	0	261	317
05:15 PM	0	0	0	0	0	17	45	0	0	62	1	2	6	0	9	0	237	23	0	260	331
Grand Total	0	0	0	0	0	173	286	0	0	459	20	3	18	0	41	0	1983	202	0	2185	2685
Apprch %	0.0	0.0	0.0	0.0		37.7	62.3	0.0	0.0		48.8	7.3	43.9	0.0		0.0	90.8	9.2	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	6.4	10.7	0.0	0.0	17.1	0.7	0.1	0.7	0.0	1.5	0.0	73.9	7.5	0.0	81.4	

Start Time	Southbound					Malcolm X Westbound					S. Capitol St. NB Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	03:45 PM																				
Volume	0	0	0	0	0	93	139	0	0	232	9	0	6	0	15	0	1033	118	0	1151	1398
Percent	0.0	0.0	0.0	0.0	0.0	40.1	59.9	0.0	0.0		60.0	0.0	40.0	0.0		0.0	89.7	10.3	0.0		
03:45 Volume	0	0	0	0	0	34	30	0	0	64	2	0	0	0	2	0	271	29	0	300	366
Peak Factor																					0.955
High Int.	3:15:00 PM					03:45 PM					04:00 PM					03:45 PM					
Volume	0	0	0	0	0	34	30	0	0	64	5	0	2	0	7	0	271	29	0	300	
Peak Factor						0.906										0.536					0.959

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File Name : #3 - I-295 NB Ramp and Malcom X AM
Site Code : 00005819
Start Date : 3/17/2009
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Groups Printed- Vehicles

Start Time	I-295 NB Off Ramp Southbound					Malcolm X Westbound					I-295 NB On Ramp Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	141	0	6	0	147	0	61	0	0	61	0	0	0	0	0	0	45	0	0	45	253
06:45 AM	150	1	13	0	164	0	72	0	0	72	0	0	0	0	0	0	54	0	0	54	290
Total	291	1	19	0	311	0	133	0	0	133	0	0	0	0	0	0	99	0	0	99	543
07:00 AM	148	1	12	0	161	0	79	0	0	79	0	0	0	0	0	0	48	0	0	48	288
07:15 AM	158	0	8	0	166	0	94	0	0	94	0	0	0	0	0	0	52	0	0	52	312
07:30 AM	132	0	12	0	144	0	83	0	0	83	0	0	0	0	0	0	54	0	0	54	281
07:45 AM	133	0	20	0	153	0	75	0	0	75	0	0	0	0	0	0	75	0	0	75	303
Total	571	1	52	0	624	0	331	0	0	331	0	0	0	0	0	0	229	0	0	229	1184
08:00 AM	104	0	17	0	121	0	83	0	0	83	0	0	0	0	0	0	97	0	0	97	301
08:15 AM	91	0	10	0	101	0	67	0	0	67	0	0	0	0	0	0	70	0	0	70	238
Grand Total	1057	2	98	0	1157	0	614	0	0	614	0	0	0	0	0	0	495	0	0	495	2266
Apprch %	91.4	0.2	8.5	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	46.6	0.1	4.3	0.0	51.1	0.0	27.1	0.0	0.0	27.1	0.0	0.0	0.0	0.0	0.0	0.0	21.8	0.0	0.0	21.8	

Start Time	I-295 NB Off Ramp Southbound					Malcolm X Westbound					I-295 NB On Ramp Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection 07:15 AM																					
Volume	527	0	57	0	584	0	335	0	0	335	0	0	0	0	0	0	278	0	0	278	1197
Percent	90.2	0.0	9.8	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
07:15 Volume	158	0	8	0	166	0	94	0	0	94	0	0	0	0	0	0	52	0	0	52	312
Peak Factor																					
High Int. 07:15 AM						07:15 AM					6:15:00 AM					08:00 AM					
Volume	158	0	8	0	166	0	94	0	0	94	0	0	0	0	0	0	97	0	0	97	0.959
Peak Factor	0.880					0.891										0.716					

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : #3 - I-295 NB Ramp and Malcom X PM
Site Code : 00005819
Start Date : 3/18/2009
Page No : 1

Groups Printed- Vehicles

Start Time	I-295 NB Off Ramp Southbound					Malcolm X Westbound					I-295 NB On Ramp Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	15	0	11	0	26	0	49	0	0	49	0	0	0	0	0	0	116	0	0	116	191
03:45 PM	11	0	17	0	28	0	50	0	0	50	0	0	0	0	0	0	131	0	0	131	209
Total	26	0	28	0	54	0	99	0	0	99	0	0	0	0	0	0	247	0	0	247	400
04:00 PM	10	0	18	0	28	0	44	0	0	44	0	0	0	0	0	0	116	0	0	116	188
04:15 PM	12	0	11	0	23	0	39	0	0	39	0	0	0	0	0	0	126	0	0	126	188
04:30 PM	12	0	19	0	31	0	37	0	0	37	0	0	0	0	0	0	124	0	0	124	192
04:45 PM	14	0	9	0	23	0	41	0	0	41	0	0	0	0	0	0	130	0	0	130	194
Total	48	0	57	0	105	0	161	0	0	161	0	0	0	0	0	0	496	0	0	496	762
05:00 PM	13	0	20	0	33	0	36	0	0	36	0	0	0	0	0	0	152	0	0	152	221
05:15 PM	20	0	20	0	40	0	44	0	0	44	0	0	0	0	0	0	128	0	0	128	212
Grand Total	107	0	125	0	232	0	340	0	0	340	0	0	0	0	0	0	1023	0	0	1023	1595
Apprch %	46.1	0.0	53.9	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	6.7	0.0	7.8	0.0	14.5	0.0	21.3	0.0	0.0	21.3	0.0	0.0	0.0	0.0	0.0	0.0	64.1	0.0	0.0	64.1	

Start Time	I-295 NB Off Ramp Southbound					Malcolm X Westbound					I-295 NB On Ramp Northbound					Malcolm X Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	59	0	68	0	127	0	158	0	0	158	0	0	0	0	0	0	534	0	0	534	819
Percent	46.5	0.0	53.5	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
05:00 Volume	13	0	20	0	33	0	36	0	0	36	0	0	0	0	0	0	152	0	0	152	221
Peak Factor																					0.926
High Int.	05:15 PM					05:15 PM					3:15:00 PM					05:00 PM					
Volume	20	0	20	0	40	0	44	0	0	44	0	0	0	0	0	0	152	0	0	152	
Peak Factor	0.794					0.898										0.878					

Peggy Malone & Associates, Inc.

(888) 247-8602

File Name : #4 - S. Capitol St. and Defense Blvd_Firth Sterling AM

Site Code : 00003005

Start Date : 3/17/2009

Page No : 1

Groups Printed- Vehicles

Start Time	S. Capitol St. Southbound					Firth Sterling Westbound					S. Capitol St. Northbound					Defense Blvd. Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	71	62	0	0	133	1	88	38	0	127	15	192	5	0	212	0	21	19	0	40	512
06:45 AM	53	65	0	0	118	3	103	32	0	138	24	186	15	0	225	4	16	22	0	42	523
Total	124	127	0	0	251	4	191	70	0	265	39	378	20	0	437	4	37	41	0	82	1035
07:00 AM	60	76	0	0	136	2	122	30	0	154	18	219	6	0	243	7	21	18	0	46	579
07:15 AM	79	83	0	0	162	1	79	26	0	106	16	247	9	0	272	3	18	29	0	50	590
07:30 AM	53	89	0	0	142	3	98	34	0	135	10	233	25	0	268	1	15	17	0	33	578
07:45 AM	49	87	0	0	136	1	65	33	0	99	9	254	9	0	272	4	28	28	0	60	567
Total	241	335	0	0	576	7	364	123	0	494	53	953	49	0	1055	15	82	92	0	189	2314
08:00 AM	33	75	0	0	108	4	60	42	0	106	11	230	15	0	256	11	11	16	0	38	508
08:15 AM	26	91	0	0	117	3	35	22	0	60	14	241	8	0	263	6	15	25	0	46	486
Grand Total	424	628	0	0	1052	18	650	257	0	925	117	1802	92	0	2011	36	145	174	0	355	4343
Apprch %	40.3	59.7	0.0	0.0		1.9	70.3	27.8	0.0		5.8	89.6	4.6	0.0		10.1	40.8	49.0	0.0		
Total %	9.8	14.5	0.0	0.0	24.2	0.4	15.0	5.9	0.0	21.3	2.7	41.5	2.1	0.0	46.3	0.8	3.3	4.0	0.0	8.2	

Start Time	S. Capitol St. Southbound					Firth Sterling Westbound					S. Capitol St. Northbound					Defense Blvd. Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	241	335	0	0	576	7	364	123	0	494	53	953	49	0	1055	15	82	92	0	189	2314
Percent	41.8	58.2	0.0	0.0		1.4	73.7	24.9	0.0		5.0	90.3	4.6	0.0		7.9	43.4	48.7	0.0		
07:15 Volume	79	83	0	0	162	1	79	26	0	106	16	247	9	0	272	3	18	29	0	50	590
Peak Factor																					
High Int.	07:15 AM					07:00 AM					07:15 AM					07:45 AM					
Volume	79	83	0	0	162	2	122	30	0	154	16	247	9	0	272	4	28	28	0	60	567
Peak Factor	0.889					0.802					0.970					0.788					0.981

Peggy Malone & Associates, Inc.

(888) 247-8602

File Name : #4 - S. Capitol St. and Defense Blvd_Firth Sterling PM

Site Code : 00003005

Start Date : 3/17/2009

Page No : 1

Groups Printed- Vehicles

Start Time	S. Capitol St. Southbound					Firth Sterling Westbound					S. Capitol St. Northbound					Defense Blvd. Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	9	173	3	0	185	2	11	40	0	53	19	90	1	0	110	56	72	42	0	170	518
03:45 PM	31	166	5	0	202	2	12	47	0	61	16	64	0	0	80	35	64	52	0	151	494
Total	40	339	8	0	387	4	23	87	0	114	35	154	1	0	190	91	136	94	0	321	1012
04:00 PM	18	250	4	0	272	2	11	45	0	58	14	66	0	0	80	44	81	57	0	182	592
04:15 PM	22	171	7	0	200	4	15	56	0	75	11	63	2	0	76	46	111	68	0	225	576
04:30 PM	24	280	4	0	308	2	16	60	0	78	30	73	1	0	104	54	87	58	0	199	689
04:45 PM	12	244	3	0	259	6	24	90	0	120	21	66	1	0	88	40	60	34	0	134	601
Total	76	945	18	0	1039	14	66	251	0	331	76	268	4	0	348	184	339	217	0	740	2458
05:00 PM	22	264	7	0	293	8	13	81	0	102	19	65	1	0	85	28	59	32	0	119	599
05:15 PM	14	253	7	0	274	3	21	85	0	109	19	64	0	0	83	34	48	25	0	107	573
Grand Total	152	1801	40	0	1993	29	123	504	0	656	149	551	6	0	706	337	582	368	0	1287	4642
Apprch %	7.6	90.4	2.0	0.0		4.4	18.8	76.8	0.0		21.1	78.0	0.8	0.0		26.2	45.2	28.6	0.0		
Total %	3.3	38.8	0.9	0.0	42.9	0.6	2.6	10.9	0.0	14.1	3.2	11.9	0.1	0.0	15.2	7.3	12.5	7.9	0.0	27.7	

Start Time	S. Capitol St. Southbound					Firth Sterling Westbound					S. Capitol St. Northbound					Defense Blvd. Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	80	959	21	0	1060	20	68	287	0	375	81	267	5	0	353	168	317	192	0	677	2465
Percent	7.5	90.5	2.0	0.0		5.3	18.1	76.5	0.0		22.9	75.6	1.4	0.0		24.8	46.8	28.4	0.0		
04:30 Volume	24	280	4	0	308	2	16	60	0	78	30	73	1	0	104	54	87	58	0	199	689
Peak Factor																					0.894
High Int.	04:30 PM					04:45 PM					04:30 PM					04:15 PM					
Volume	24	280	4	0	308	6	24	90	0	120	30	73	1	0	104	46	111	68	0	225	
Peak Factor	0.860					0.781					0.849					0.752					

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : #5 - Overlook Ave. and South Gate AM
Site Code : 00002960
Start Date : 3/18/2009
Page No : 1

Groups Printed- Vehicles

Start Time	Overlook Ave. (1 Way) Southbound					Westbound					Overlook Ave. Northbound					South Gate Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	U-turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	20	85	0	0	105	0	0	0	0	0	0	167	0	0	167	11	0	0	0	11	283
06:45 AM	42	90	0	0	132	0	0	0	0	0	0	137	0	0	137	20	0	0	0	20	289
Total	62	175	0	0	237	0	0	0	0	0	0	304	0	0	304	31	0	0	0	31	572
07:00 AM	13	95	0	0	108	0	0	0	0	0	0	173	0	0	173	20	0	0	0	20	301
07:15 AM	38	97	0	0	135	0	0	0	0	0	0	169	0	0	169	23	0	0	0	23	327
07:30 AM	24	92	0	0	116	0	0	0	0	0	0	169	0	0	169	13	0	0	0	13	298
07:45 AM	17	75	0	0	92	0	0	0	0	0	0	168	2	0	170	13	0	0	0	13	275
Total	92	359	0	0	451	0	0	0	0	0	0	679	2	0	681	69	0	0	0	69	1201
08:00 AM	20	53	0	0	73	0	0	0	0	0	0	156	1	0	157	18	0	0	0	18	248
08:15 AM	20	80	0	0	100	0	0	0	0	0	0	114	1	0	115	18	0	0	0	18	233
Grand Total	194	667	0	0	861	0	0	0	0	0	0	1253	4	0	1257	136	0	0	0	136	2254
Apprch %	22.5	77.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	99.7	0.3	0.0		100.0	0.0	0.0	0.0		
Total %	8.6	29.6	0.0	0.0	38.2	0.0	0.0	0.0	0.0	0.0	0.0	55.6	0.2	0.0	55.8	6.0	0.0	0.0	0.0	6.0	

Start Time	Overlook Ave. (1 Way) Southbound					Westbound					Overlook Ave. Northbound					South Gate Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	U-turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection 06:45 AM																					
Volume	117	374	0	0	491	0	0	0	0	0	0	648	0	0	648	76	0	0	0	76	1215
Percent	23.8	76.2	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		
07:15 Volume	38	97	0	0	135	0	0	0	0	0	0	169	0	0	169	23	0	0	0	23	327
Peak Factor																					
High Int. 07:15 AM						6:15:00 AM					07:00 AM					07:15 AM					
Volume	38	97	0	0	135	0	0	0	0	0	0	173	0	0	173	23	0	0	0	23	0.929
Peak Factor	0.909										0.936					0.826					

Peggy Malone & Associates, Inc.
(888) 247-8602

File Name : #5 - Overlook Ave. and South Gate PM
Site Code : 00002960
Start Date : 3/18/2009
Page No : 1

Groups Printed- Vehicles

Start Time	Overlook Ave. (1 Way) Southbound					Westbound					Overlook Ave. Northbound					South Gate Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	U-turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	6	44	0	0	50	0	0	0	0	0	0	32	2	0	34	91	0	0	0	91	175
03:45 PM	9	73	0	0	82	0	0	0	0	0	0	27	2	0	29	64	0	0	0	64	175
Total	15	117	0	0	132	0	0	0	0	0	0	59	4	0	63	155	0	0	0	155	350
04:00 PM	9	53	0	0	62	0	0	0	0	0	0	25	4	0	29	99	0	0	0	99	190
04:15 PM	3	79	0	0	82	0	0	0	0	0	0	37	0	0	37	117	0	0	0	117	236
04:30 PM	2	68	0	0	70	0	0	0	0	0	0	29	2	0	31	95	0	0	0	95	196
04:45 PM	1	48	0	0	49	0	0	0	0	0	0	31	0	0	31	102	0	0	0	102	182
Total	15	248	0	0	263	0	0	0	0	0	0	122	6	0	128	413	0	0	0	413	804
05:00 PM	4	67	0	0	71	0	0	0	0	0	0	28	1	0	29	93	0	0	0	93	193
05:15 PM	6	55	0	0	61	0	0	0	0	0	0	23	2	0	25	88	0	0	0	88	174
Grand Total	40	487	0	0	527	0	0	0	0	0	0	232	13	0	245	749	0	0	0	749	1521
Apprch %	7.6	92.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	94.7	5.3	0.0		100.0	0.0	0.0	0.0		
Total %	2.6	32.0	0.0	0.0	34.6	0.0	0.0	0.0	0.0	0.0	0.0	15.3	0.9	0.0	16.1	49.2	0.0	0.0	0.0	49.2	

Start Time	Overlook Ave. (1 Way) Southbound					Westbound					Overlook Ave. Northbound					South Gate Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	U-turns	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	10	262	0	0	272	0	0	0	0	0	0	125	3	0	128	407	0	0	0	407	807
Percent	3.7	96.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	97.7	2.3	0.0		100.0	0.0	0.0	0.0		
04:15 Volume	3	79	0	0	82	0	0	0	0	0	0	37	0	0	37	117	0	0	0	117	236
Peak Factor																					0.855
High Int.	04:15 PM					3:15:00 PM					04:15 PM					04:15 PM					
Volume	3	79	0	0	82	0	0	0	0	0	0	37	0	0	37	117	0	0	0	117	236
Peak Factor	0.829										0.865					0.870					

Peggy Malone & Associates, Inc.

(888) 247-8602

File Name : #6 - Overlook Ave. and Chesapeake Rd. AM

Site Code : 00003398

Start Date : 3/18/2009

Page No : 1

Southbound backs up to light, cars getting stuck at light before entering intersection.

Groups Printed- Vehicles

Start Time	Overlook Ave. Southbound					Chesapeake Rd. Westbound					Overlook Ave. Northbound					Chesapeake Rd. (Guarded Gate) Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
06:30 AM	23	69	9	0	101	36	5	25	0	66	4	119	1	0	124	3	5	6	0	14	305
06:45 AM	17	75	11	0	103	39	7	26	0	72	7	114	0	0	121	4	3	13	0	20	316
Total	40	144	20	0	204	75	12	51	0	138	11	233	1	0	245	7	8	19	0	34	621
07:00 AM	23	74	24	0	121	44	3	22	0	69	5	109	0	0	114	2	10	8	0	20	324
07:15 AM	20	88	29	0	137	44	3	27	0	74	4	115	1	0	120	3	9	6	0	18	349
07:30 AM	20	60	20	0	100	43	5	30	0	78	10	117	1	0	128	2	5	4	0	11	317
07:45 AM	29	56	13	0	98	35	3	18	0	56	7	128	1	0	136	1	4	3	0	8	298
Total	92	278	86	0	456	166	14	97	0	277	26	469	3	0	498	8	28	21	0	57	1288
08:00 AM	32	58	20	0	110	36	8	20	0	64	12	113	4	0	129	1	3	4	0	8	311
08:15 AM	29	62	18	0	109	27	7	21	0	55	6	88	2	0	96	1	10	3	0	14	274
Grand Total	193	542	144	0	879	304	41	189	0	534	55	903	10	0	968	17	49	47	0	113	2494
Apprch %	22.0	61.7	16.4	0.0		56.9	7.7	35.4	0.0		5.7	93.3	1.0	0.0		15.0	43.4	41.6	0.0		
Total %	7.7	21.7	5.8	0.0	35.2	12.2	1.6	7.6	0.0	21.4	2.2	36.2	0.4	0.0	38.8	0.7	2.0	1.9	0.0	4.5	

Start Time	Overlook Ave. Southbound					Chesapeake Rd. Westbound					Overlook Ave. Northbound					Chesapeake Rd. (Guarded Gate) Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection 06:45 AM																					
Volume	80	297	84	0	461	170	18	105	0	293	26	455	2	0	483	11	27	31	0	69	1306
Percent	17.4	64.4	18.2	0.0		58.0	6.1	35.8	0.0		5.4	94.2	0.4	0.0		15.9	39.1	44.9	0.0		
07:15 Volume	20	88	29	0	137	44	3	27	0	74	4	115	1	0	120	3	9	6	0	18	349
Peak Factor																					
High Int. 07:15 AM						07:30 AM					07:30 AM					06:45 AM					
Volume	20	88	29	0	137	43	5	30	0	78	10	117	1	0	128	4	3	13	0	20	0.936
Peak Factor	0.841					0.939					0.943					0.863					

Peggy Malone & Associates, Inc.

(888) 247-8602

File Name : #6 - Overlook Ave. and Chesapeake Rd. PM

Site Code : 00003398

Start Date : 3/18/2009

Page No : 1

Groups Printed- Vehicles

Start Time	Overlook Ave. Southbound					Chesapeak Rd. Westbound					Overlook Ave. Northbound					Chesapeak Rd. (Guarded Gate) Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:30 PM	14	82	44	0	140	5	2	13	0	20	12	19	2	0	33	4	16	5	0	25	218
03:45 PM	9	84	42	0	135	2	0	12	0	14	17	26	1	0	44	11	17	1	0	29	222
Total	23	166	86	0	275	7	2	25	0	34	29	45	3	0	77	15	33	6	0	54	440
04:00 PM	18	96	41	0	155	7	2	11	0	20	26	23	1	0	50	8	19	1	0	28	253
04:15 PM	15	128	47	0	190	6	0	9	0	15	19	25	3	0	47	3	18	4	0	25	277
04:30 PM	14	107	45	0	166	2	1	8	0	11	16	27	2	0	45	8	21	4	0	33	255
04:45 PM	12	113	37	0	162	6	0	8	0	14	12	17	3	0	32	5	22	3	0	30	238
Total	59	444	170	0	673	21	3	36	0	60	73	92	9	0	174	24	80	12	0	116	1023
05:00 PM	13	104	35	0	152	5	0	6	0	11	15	23	5	0	43	8	27	2	0	37	243
05:15 PM	6	99	37	0	142	3	0	10	0	13	11	16	9	0	36	7	15	5	0	27	218
Grand Total	101	813	328	0	1242	36	5	77	0	118	128	176	26	0	330	54	155	25	0	234	1924
Apprch %	8.1	65.5	26.4	0.0		30.5	4.2	65.3	0.0		38.8	53.3	7.9	0.0		23.1	66.2	10.7	0.0		
Total %	5.2	42.3	17.0	0.0	64.6	1.9	0.3	4.0	0.0	6.1	6.7	9.1	1.4	0.0	17.2	2.8	8.1	1.3	0.0	12.2	

Start Time	Overlook Ave. Southbound					Chesapeak Rd. Westbound					Overlook Ave. Northbound					Chesapeak Rd. (Guarded Gate) Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	59	444	170	0	673	21	3	36	0	60	73	92	9	0	174	24	80	12	0	116	1023
Percent	8.8	66.0	25.3	0.0		35.0	5.0	60.0	0.0		42.0	52.9	5.2	0.0		20.7	69.0	10.3	0.0		
04:15 Volume	15	128	47	0	190	6	0	9	0	15	19	25	3	0	47	3	18	4	0	25	277
Peak Factor																					
High Int.	04:15 PM																				
Volume	15	128	47	0	190	04:00 PM					04:00 PM					04:30 PM					33
Peak Factor	0.886					0.750					0.870					0.879					

Attachment B
Highway Capacity Analysis Printouts

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HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	NVD			Intersection	S Capitol St NB and Malcolm X		
Agency or Co.				Area Type	All other areas		
Date Performed	4/14/2009			Jurisdiction	Washington DC		
Time Period	AM Existing			Analysis Year	2009		
				Project ID	NSMA Relocation		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N ₁	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	60	399			655	202	73	5	4			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, l ₁	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	65	429			826			86				
Lane Group Capacity, c	120	1197			1170			1816				
v/c Ratio, X	0.54	0.36			0.71			0.05				
Total Green Ratio, g/C	0.34	0.34			0.34			0.54				
Uniform Delay, d ₁	21.5	20.0			23.0			8.8				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	16.2	0.8			3.6			0.0				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	37.7	20.8			26.6			8.8				
Lane Group LOS	D	C			C			A				
Approach Delay	23.0			26.6			8.8					
Approach LOS	C			C			A					
Intersection Delay	24.3			X _c = 0.30			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St SB and Malcolm X</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Existing</i>	Analysis Year <i>2009</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N ₁		3	1	0	2					1	1	1	
Lane Group		T	R		LT					L	LT	R	
Volume, V (vph)		178	57	82	746					243	42	670	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, l ₁		2.0	2.0		2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0		2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3		3					3	3	3	
Unit Extension, UE		3.0	3.0		3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000		1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0		0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	28	0	0		0	0		0	0	90	
Lane Width		12.0	12.0		12.0					12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0		0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		191	31		890					261	45	624	
Lane Group Capacity, c		1712	534		1063					951	1001	851	
v/c Ratio, X		0.11	0.06		0.84					0.27	0.04	0.73	
Total Green Ratio, g/C		0.34	0.34		0.34					0.54	0.54	0.54	
Uniform Delay, d ₁		18.2	17.9		24.5					10.0	8.8	14.1	
Progression Factor, PF		1.000	1.000		1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.11		0.37					0.11	0.11	0.29	
Incremental Delay, d ₂		0.0	0.0		6.0					0.2	0.0	3.3	
Initial Queue Delay, d ₃		0.0	0.0		0.0					0.0	0.0	0.0	
Control Delay		18.3	18.0		30.5					10.2	8.8	17.4	
Lane Group LOS		B	B		C					B	A	B	
Approach Delay		18.2			30.5						15.0		
Approach LOS		B			C						B		
Intersection Delay		22.1			X _c = 0.77			Intersection LOS			C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	I-295 NB ramp and Malcolm X Av
Agency/Co.		Jurisdiction	Washington DC
Date Performed	4/17/2009	Analysis Year	2009
Analysis Time Period	AM Existing		

Project Description <i>NSMA Relocation</i>	
East/West Street: <i>Malcolm X Ave</i>	North/South Street: <i>I-295 NB ramp</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		278	95	251	355	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	278	95	251	355	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T	TR	LT	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				57	0	527
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	57	0	527
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				LT		R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		251				57		527
C (m) (veh/h)		1197				194		870
v/c		0.21				0.29		0.61
95% queue length		0.79				1.17		4.20
Control Delay (s/veh)		8.8				31.1		15.3
LOS		A				D		C
Approach Delay (s/veh)	--	--				16.8		
Approach LOS	--	--				C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/24/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Existing</i>	Analysis Year <i>2009</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R		LTR		L	TR			LTR	
Volume, V (vph)	92	82	15	123	364	7	49	953	53	1	335	241
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.97	0.97	0.97	0.88	0.88	0.88
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3		3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0		3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987		1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0		0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 42.2	G = 0.0	G = 0.0	G = 0.0	G = 67.8	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	118	105	10		614		51	1011			588	
Lane Group Capacity, c	197	655	557		1041		414	1995			1812	
v/c Ratio, X	0.60	0.16	0.02		0.59		0.12	0.51			0.32	
Total Green Ratio, g/C	0.35	0.35	0.35		0.35		0.56	0.56			0.56	
Uniform Delay, d ₁	32.0	26.7	25.4		31.8		12.2	15.9			13.9	
Progression Factor, PF	1.000	1.000	1.000		1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50		0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	12.6	0.5	0.1		2.5		0.6	0.9			0.5	
Initial Queue Delay, d ₃	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Control Delay	44.5	27.2	25.4		34.3		12.8	16.8			14.4	
Lane Group LOS	D	C	C		C		B	B			B	
Approach Delay	35.9			34.3			16.6			14.4		
Approach LOS	D			C			B			B		
Intersection Delay	22.2			X _c = 0.54			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/24/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Existing</i>	Analysis Year
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			76		648						374	117
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.83		0.94						0.91	0.91
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	0
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 34.7	G = 0.0	G = 0.0	G = 0.0	G = 35.3	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			92		689						411	129
Lane Group Capacity, c			1216		1539						1565	698
v/c Ratio, X			0.08		0.45						0.26	0.18
Total Green Ratio, g/C			0.43		0.43						0.44	0.44
Uniform Delay, d ₁			13.3		15.9						14.1	13.6
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.1		0.9						0.4	0.6
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			13.4		16.9						14.5	14.2
Lane Group LOS			<i>B</i>		<i>B</i>						<i>B</i>	<i>B</i>
Approach Delay	13.4			16.9						14.4		
Approach LOS	<i>B</i>			<i>B</i>						<i>B</i>		
Intersection Delay	15.6			X _c = 0.35			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection Overlook Ave and Chesapeake Rd
Agency or Co.	Area Type All other areas
Date Performed 4/27/2009	Jurisdiction Washington DC
Time Period AM Existing	Analysis Year
	Project ID NSMA Relocation

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1	
Lane Group		LTR			LT	R	L	T	R	L	T	R	
Volume, V (vph)	31	27	11	105	18	170	2	455	26	84	297	80	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.94	0.94	0.94	0.84	0.84	0.84	
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P	
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type, AT		3			3	3	3	3	3	3	3	3	
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	5	0	0	60	0	0	13	0	0	40	
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 17.0	G = 0.0	G = 0.0	G = 0.0	G = 53.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		74			131	117	2	484	14	100	354	48	
Lane Group Capacity, c		309			283	336	657	1234	1049	545	1234	1049	
v/c Ratio, X		0.24			0.46	0.35	0.00	0.39	0.01	0.18	0.29	0.05	
Total Green Ratio, g/C		0.21			0.21	0.21	0.66	0.66	0.66	0.66	0.66	0.66	
Uniform Delay, d ₁		26.1			27.5	26.8	4.6	6.2	4.6	5.2	5.6	4.7	
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental Delay, d ₂		1.8			5.4	2.8	0.0	0.9	0.0	0.7	0.6	0.1	
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay		28.0			32.9	29.6	4.6	7.1	4.6	5.9	6.2	4.8	
Lane Group LOS		C			C	C	A	A	A	A	A	A	
Approach Delay		28.0			31.3			7.0			6.0		
Approach LOS		C			C			A			A		
Intersection Delay		12.4			X _c = 0.41			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Malcolm X</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Existing</i>	Analysis Year <i>2009</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N ₁	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	118	1033			139	93	6	0	9			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, l ₁	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	128	1111			152			15				
Lane Group Capacity, c	703	2040			2033			957				
v/c Ratio, X	0.18	0.54			0.07			0.02				
Total Green Ratio, g/C	0.57	0.57			0.57			0.30				
Uniform Delay, d ₁	8.1	10.5			7.5			19.7				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	0.6	1.0			0.1			0.0				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	8.6	11.6			7.6			19.7				
Lane Group LOS	A	B			A			B				
Approach Delay	11.3			7.6			19.7					
Approach LOS	B			A			B					
Intersection Delay	11.0			X _c = 0.36			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	NVD			Intersection	S Capitol St SB and Malcolm X		
Agency or Co.				Area Type	All other areas		
Date Performed	4/14/2009			Jurisdiction	Washington DC		
Time Period	PM Existing			Analysis Year	2009		
				Project ID	NSMA Relocation		

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N ₁		3	1	0	2					1	1	1	
Lane Group		T	R	DefL	T					L	LT	R	
Volume, V (vph)		740	721	94	55					407	52	214	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, l ₁		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3	3	3					3	3	3	
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	90	0	0		0	0		0	0	90	
Lane Width		12.0	12.0	12.0	12.0					12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0	0	0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		796	678	101	59					438	56	133	
Lane Group Capacity, c		2918	910	350	1071					531	559	475	
v/c Ratio, X		0.27	0.75	0.29	0.06					0.82	0.10	0.28	
Total Green Ratio, g/C		0.57	0.57	0.57	0.57					0.30	0.30	0.30	
Uniform Delay, d ₁		8.6	12.6	8.7	7.5					26.0	20.2	21.4	
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.30	0.11	0.11					0.36	0.11	0.11	
Incremental Delay, d ₂		0.1	3.4	0.5	0.0					10.3	0.1	0.3	
Initial Queue Delay, d ₃		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Control Delay		8.6	16.0	9.1	7.5					36.3	20.3	21.7	
Lane Group LOS		A	B	A	A					D	C	C	
Approach Delay		12.0			8.5						31.8		
Approach LOS		B			A						C		
Intersection Delay		17.3			X _c = 0.77			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	I-295 NB ramp and Malcolm X Av
Agency/Co.		Jurisdiction	Washington DC
Date Performed	4/17/2009	Analysis Year	2009
Analysis Time Period	PM Existing		

Project Description <i>NSMA Relocation</i>	
East/West Street: <i>Malcolm X Ave</i>	North/South Street: <i>I-295 NB ramp</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		534	488	194	158	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	534	488	194	158	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	0	2	0	0	2	0
Configuration		T	TR	LT	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				68	0	59
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	68	0	59
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				LT		R

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		194				68		59
C (m) (veh/h)		1044				261		987
v/c		0.19				0.26		0.06
95% queue length		0.68				1.01		0.19
Control Delay (s/veh)		9.2				23.6		8.9
LOS		A				C		A
Approach Delay (s/veh)	--	--				16.8		
Approach LOS	--	--				C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/24/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Existing</i>	Analysis Year <i>2009</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N ₁	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R	DefL	TR		L	TR			LTR	
Volume, V (vph)	192	317	168	287	68	20	5	267	81	21	959	80
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.78	0.78	0.78	0.85	0.85	0.85	0.86	0.86	0.86
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I ₁	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3	3	3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987	1.000	1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0	0	0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 62.5	G = 0.0	G = 0.0	G = 0.0	G = 47.5	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	256	423	215	368	109		6	380			1162	
Lane Group Capacity, c	666	970	824	399	941		62	1367			1315	
v/c Ratio, X	0.38	0.44	0.26	0.92	0.12		0.10	0.28			0.88	
Total Green Ratio, g/C	0.52	0.52	0.52	0.52	0.52		0.40	0.40			0.40	
Uniform Delay, d ₁	17.2	17.8	15.9	26.5	14.7		22.8	24.6			33.7	
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50	0.50	0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	1.7	1.4	0.8	29.2	0.3		3.1	0.5			8.9	
Initial Queue Delay, d ₃	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay	18.9	19.2	16.7	55.7	14.9		25.9	25.1			42.6	
Lane Group LOS	B	B	B	E	B		C	C			D	
Approach Delay	18.5			46.4			25.1			42.6		
Approach LOS	B			D			C			D		
Intersection Delay	33.5			X _c = 0.91			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/24/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Existing</i>	Analysis Year
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			407		125						262	10
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.87		0.87						0.82	0.82
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	10
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 48.0	G = 0.0	G = 0.0	G = 0.0	G = 22.0	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			468		144						320	0
Lane Group Capacity, c			1682		2128						975	435
v/c Ratio, X			0.28		0.07						0.33	0.00
Total Green Ratio, g/C			0.60		0.60						0.28	0.28
Uniform Delay, d ₁			7.7		6.7						23.1	21.0
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.4		0.1						0.9	0.0
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			8.1		6.7						24.0	21.0
Lane Group LOS			<i>A</i>		<i>A</i>						<i>C</i>	<i>C</i>
Approach Delay	8.1			6.7						24.0		
Approach LOS	<i>A</i>			<i>A</i>						<i>C</i>		
Intersection Delay	13.3			X _c = 0.29			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and Chesapeake Rd</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/27/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Existing</i>	Analysis Year
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1	
Lane Group		LTR			LT	R	L	T	R	L	T	R	
Volume, V (vph)	12	80	24	36	3	21	9	92	73	170	444	59	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.75	0.75	0.75	0.87	0.87	0.87	0.87	0.87	0.87	
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P	
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type, AT		3			3	3	3	3	3	3	3	3	
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	12	0	0	10	0	0	36	0	0	59	
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 12.4	G = 0.0	G = 0.0	G = 0.0	G = 57.6	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		119			52	15	10	106	43	195	510	0	
Lane Group Capacity, c		274			186	245	595	1341	1140	924	1341	1140	
v/c Ratio, X		0.43			0.28	0.06	0.02	0.08	0.04	0.21	0.38	0.00	
Total Green Ratio, g/C		0.16			0.16	0.16	0.72	0.72	0.72	0.72	0.72	0.72	
Uniform Delay, d ₁		30.6			29.9	28.8	3.2	3.3	3.2	3.7	4.3	3.1	
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental Delay, d ₂		4.9			3.7	0.5	0.1	0.1	0.1	0.5	0.8	0.0	
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay		35.6			33.6	29.3	3.2	3.4	3.3	4.2	5.1	3.1	
Lane Group LOS		D			C	C	A	A	A	A	A	A	
Approach Delay		35.6			32.6			3.4			4.9		
Approach LOS		D			C			A			A		
Intersection Delay		9.9			X _c = 0.39			Intersection LOS			A		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St NB and Malcolm X
Agency or Co.	Area Type All other areas
Date Performed 4/27/2009	Jurisdiction Washington DC
Time Period AM No Action	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	62	415			681	215	76	5	4			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, I _l	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	67	446			868			90				
Lane Group Capacity, c	107	1197			1169			1816				
v/c Ratio, X	0.63	0.37			0.74			0.05				
Total Green Ratio, g/C	0.34	0.34			0.34			0.54				
Uniform Delay, d ₁	22.3	20.1			23.4			8.8				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	24.3	0.9			4.3			0.1				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	46.6	21.0			27.7			8.8				
Lane Group LOS	D	C			C			A				
Approach Delay	24.3			27.7			8.8					
Approach LOS	C			C			A					
Intersection Delay	25.4			X _c = 0.32			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St SB and Malcolm X
Agency or Co.	Area Type All other areas
Date Performed 4/27/2009	Jurisdiction Washington DC
Time Period AM No Action	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l		3	1	0	2					1	1	1	
Lane Group		T	R		LT					L	LT	R	
Volume, V (vph)		185	59	85	787					253	44	697	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, I _l		2.0	2.0		2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0		2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3		3					3	3	3	
Unit Extension, UE		3.0	3.0		3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000		1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0		0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	28	0	0		0	0		0	0	90	
Lane Width		12.0	12.0		12.0					12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0		0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		199	33		937					272	47	653	
Lane Group Capacity, c		1712	534		1062					951	1001	851	
v/c Ratio, X		0.12	0.06		0.88					0.29	0.05	0.77	
Total Green Ratio, g/C		0.34	0.34		0.34					0.54	0.54	0.54	
Uniform Delay, d ₁		18.3	17.9		25.0					10.1	8.8	14.6	
Progression Factor, PF		1.000	1.000		1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.11		0.41					0.11	0.11	0.32	
Incremental Delay, d ₂		0.0	0.0		8.9					0.2	0.0	4.3	
Initial Queue Delay, d ₃		0.0	0.0		0.0					0.0	0.0	0.0	
Control Delay		18.3	18.0		33.9					10.3	8.8	18.8	
Lane Group LOS		B	B		C					B	A	B	
Approach Delay		18.3			33.9						16.0		
Approach LOS		B			C						B		
Intersection Delay		24.0			X _c = 0.81			Intersection LOS			C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	I-295 NB ramp and Malcolm X Av
Agency/Co.		Jurisdiction	Washington DC
Date Performed	4/27/2009	Analysis Year	2011
Analysis Time Period	AM No Action		
Project Description <i>NSMA Relocation</i>			
East/West Street: <i>Malcolm X Ave</i>		North/South Street: <i>I-295 NB ramp</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		289	99	261	369	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	289	99	261	369	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		<i>T</i>	<i>TR</i>	<i>LT</i>	<i>T</i>	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				59	0	548
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	59	0	548
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>				<i>LT</i>		<i>R</i>
v (veh/h)		261				59		548
C (m) (veh/h)		1182				180		864
v/c		0.22				0.33		0.63
95% queue length		0.84				1.34		4.65
Control Delay (s/veh)		8.9				34.5		16.1
LOS		<i>A</i>				<i>D</i>		<i>C</i>
Approach Delay (s/veh)	--	--				17.9		
Approach LOS	--	--				<i>C</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/27/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM No Action</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R		LTR		L	TR			LTR	
Volume, V (vph)	96	85	16	128	379	7	51	992	55	1	349	251
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.97	0.97	0.97	0.88	0.88	0.88
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3		3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0		3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987		1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0		0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 42.2	G = 0.0	G = 0.0	G = 0.0	G = 67.8	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	123	109	12		639		53	1054			615	
Lane Group Capacity, c	187	655	557		1039		399	1995			1811	
v/c Ratio, X	0.66	0.17	0.02		0.62		0.13	0.53			0.34	
Total Green Ratio, g/C	0.35	0.35	0.35		0.35		0.56	0.56			0.56	
Uniform Delay, d ₁	32.8	26.8	25.4		32.2		12.3	16.2			14.0	
Progression Factor, PF	1.000	1.000	1.000		1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50		0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	16.5	0.5	0.1		2.7		0.7	1.0			0.5	
Initial Queue Delay, d ₃	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Control Delay	49.3	27.3	25.5		34.9		13.0	17.2			14.6	
Lane Group LOS	D	C	C		C		B	B			B	
Approach Delay	38.3			34.9			17.0			14.6		
Approach LOS	D			C			B			B		
Intersection Delay	22.8			X _c = 0.58			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/27/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM No Action</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			79		674						389	122
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.83		0.94						0.91	0.91
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	0
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 34.7	G = 0.0	G = 0.0	G = 0.0	G = 35.3	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			95		717						427	134
Lane Group Capacity, c			1216		1539						1565	698
v/c Ratio, X			0.08		0.47						0.27	0.19
Total Green Ratio, g/C			0.43		0.43						0.44	0.44
Uniform Delay, d ₁			13.3		16.1						14.2	13.6
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.1		1.0						0.4	0.6
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			13.4		17.1						14.6	14.3
Lane Group LOS			<i>B</i>		<i>B</i>						<i>B</i>	<i>B</i>
Approach Delay	13.4			17.1						14.5		
Approach LOS	<i>B</i>			<i>B</i>						<i>B</i>		
Intersection Delay	15.8			$X_c = 0.37$			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and Chesapeake Rd</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/28/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM No Action</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1
Lane Group	<i>LTR</i>			<i>LT R</i>			<i>L T R</i>			<i>L T R</i>		
Volume, V (vph)	32	28	11	109	19	177	2	473	27	87	309	83
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.94	0.94	0.94	0.84	0.84	0.84
Pretimed (P) or Actuated (A)	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type, AT		3			3	3	3	3	3	3	3	3
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	5	0	0	60	0	0	13	0	0	40
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 17.0	G = 0.0	G = 0.0	G = 0.0	G = 53.0	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		77			136	124	2	503	15	104	368	51
Lane Group Capacity, c		301			284	336	645	1234	1049	530	1234	1049
v/c Ratio, X		0.26			0.48	0.37	0.00	0.41	0.01	0.20	0.30	0.05
Total Green Ratio, g/C		0.21			0.21	0.21	0.66	0.66	0.66	0.66	0.66	0.66
Uniform Delay, d ₁		26.2			27.6	26.9	4.6	6.2	4.6	5.2	5.7	4.7
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental Delay, d ₂		2.0			5.7	3.1	0.0	1.0	0.0	0.8	0.6	0.1
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay		28.3			33.3	30.0	4.6	7.2	4.6	6.1	6.3	4.8
Lane Group LOS		C			C	C	A	A	A	A	A	A
Approach Delay	28.3			31.7			7.2			6.1		
Approach LOS	C			C			A			A		
Intersection Delay	12.6			X _c = 0.42			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St NB and Malcolm X
Agency or Co.	Area Type All other areas
Date Performed 4/28/2009	Jurisdiction Washington DC
Time Period PM No Action	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	123	1075			145	97	6	0	9			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, I _l	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	134	1156			164			15				
Lane Group Capacity, c	695	2040			2025			957				
v/c Ratio, X	0.19	0.57			0.08			0.02				
Total Green Ratio, g/C	0.57	0.57			0.57			0.30				
Uniform Delay, d ₁	8.1	10.7			7.6			19.7				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	0.6	1.1			0.1			0.0				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	8.7	11.8			7.7			19.7				
Lane Group LOS	A	B			A			B				
Approach Delay	11.5			7.7			19.7					
Approach LOS	B			A			B					
Intersection Delay	11.2			X _c = 0.38			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	NVD			Intersection	S Capitol St SB and Malcolm X		
Agency or Co.				Area Type	All other areas		
Date Performed	4/28/2009			Jurisdiction	Washington DC		
Time Period	PM No Action			Analysis Year	2011		
				Project ID	NSMA Relocation		

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l		3	1	0	2					1	1	1	
Lane Group		T	R	DefL	T					L	LT	R	
Volume, V (vph)		770	750	98	57					427	54	223	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, I _l		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3	3	3					3	3	3	
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	90	0	0		0	0		0	0	90	
Lane Width		12.0	12.0	12.0	12.0					12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0	0	0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		828	710	105	61					459	58	143	
Lane Group Capacity, c		2918	910	336	1071					531	559	475	
v/c Ratio, X		0.28	0.78	0.31	0.06					0.86	0.10	0.30	
Total Green Ratio, g/C		0.57	0.57	0.57	0.57					0.30	0.30	0.30	
Uniform Delay, d ₁		8.6	13.1	8.8	7.5					26.5	20.2	21.5	
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.33	0.11	0.11					0.39	0.11	0.11	
Incremental Delay, d ₂		0.1	4.4	0.5	0.0					13.9	0.1	0.4	
Initial Queue Delay, d ₃		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Control Delay		8.7	17.5	9.3	7.5					40.3	20.3	21.9	
Lane Group LOS		A	B	A	A					D	C	C	
Approach Delay		12.8			8.7						34.6		
Approach LOS		B			A						C		
Intersection Delay		18.6			X _c = 0.81			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	I-295 NB ramp and Malcolm X Av
Agency/Co.		Jurisdiction	Washington DC
Date Performed	4/28/2009	Analysis Year	2011
Analysis Time Period	PM No Action		
Project Description <i>NSMA Relocation</i>			
East/West Street: <i>Malcolm X Ave</i>		North/South Street: <i>I-295 NB ramp</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		556	508	202	164	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	556	508	202	164	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	0	2	0	0	2	0
Configuration		<i>T</i>	<i>TR</i>	<i>LT</i>	<i>T</i>	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				71	0	61
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	71	0	61
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>				<i>LT</i>		<i>R</i>
v (veh/h)		202				71		61
C (m) (veh/h)		1025				245		983
v/c		0.20				0.29		0.06
95% queue length		0.73				1.16		0.20
Control Delay (s/veh)		9.4				25.6		8.9
LOS		<i>A</i>				<i>D</i>		<i>A</i>
Approach Delay (s/veh)	--	--				17.9		
Approach LOS	--	--				<i>C</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/28/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM No Action</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R	DefL	TR		L	TR			LTR	
Volume, V (vph)	200	330	175	299	71	21	5	278	84	22	998	83
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.78	0.78	0.78	0.85	0.85	0.85	0.86	0.86	0.86
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3	3	3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987	1.000	1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0	0	0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 62.5	G = 0.0	G = 0.0	G = 0.0	G = 47.5	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	267	440	224	383	114		6	396			1213	
Lane Group Capacity, c	663	970	824	385	941		62	1367			1312	
v/c Ratio, X	0.40	0.45	0.27	0.99	0.12		0.10	0.29			0.92	
Total Green Ratio, g/C	0.52	0.52	0.52	0.52	0.52		0.40	0.40			0.40	
Uniform Delay, d ₁	17.4	18.0	16.0	28.6	14.7		22.8	24.7			34.5	
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50	0.50	0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	1.8	1.5	0.8	44.6	0.3		3.1	0.5			12.3	
Initial Queue Delay, d ₃	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay	19.2	19.5	16.9	73.2	15.0		25.9	25.3			46.9	
Lane Group LOS	B	B	B	E	B		C	C			D	
Approach Delay	18.8			59.8			25.3			46.9		
Approach LOS	B			E			C			D		
Intersection Delay	37.6			X _c = 0.96			Intersection LOS			D		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/28/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM No Action</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			423		130						273	10
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.87		0.87						0.82	0.82
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	10
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 48.0	G = 0.0	G = 0.0	G = 0.0	G = 22.0	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			486		149						333	0
Lane Group Capacity, c			1682		2128						975	435
v/c Ratio, X			0.29		0.07						0.34	0.00
Total Green Ratio, g/C			0.60		0.60						0.28	0.28
Uniform Delay, d ₁			7.7		6.7						23.2	21.0
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.4		0.1						1.0	0.0
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			8.2		6.7						24.2	21.0
Lane Group LOS			<i>A</i>		<i>A</i>						<i>C</i>	<i>C</i>
Approach Delay	8.2			6.7						24.2		
Approach LOS	<i>A</i>			<i>A</i>						<i>C</i>		
Intersection Delay	13.5			<i>X_c = 0.31</i>			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and Chesapeake Rd</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>4/28/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM No Action</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N ₁	0	1	0	0	1	1	1	1	1	1	1	1	
Lane Group		LTR			LT	R	L	T	R	L	T	R	
Volume, V (vph)	12	83	25	37	3	22	9	96	76	177	462	61	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.75	0.75	0.75	0.87	0.87	0.87	0.87	0.87	0.87	
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P	
Start-up Lost Time, I ₁		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type, AT		3			3	3	3	3	3	3	3	3	
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	12	0	0	10	0	0	36	0	0	59	
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 12.4	G = 0.0	G = 0.0	G = 0.0	G = 57.6	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		123			53	16	10	110	46	203	531	2	
Lane Group Capacity, c		274			181	245	578	1341	1140	920	1341	1140	
v/c Ratio, X		0.45			0.29	0.07	0.02	0.08	0.04	0.22	0.40	0.00	
Total Green Ratio, g/C		0.16			0.16	0.16	0.72	0.72	0.72	0.72	0.72	0.72	
Uniform Delay, d ₁		30.7			29.9	28.9	3.2	3.3	3.2	3.7	4.4	3.1	
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental Delay, d ₂		5.2			4.1	0.5	0.1	0.1	0.1	0.6	0.9	0.0	
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay		35.9			34.0	29.4	3.2	3.5	3.3	4.3	5.3	3.1	
Lane Group LOS		D			C	C	A	A	A	A	A	A	
Approach Delay		35.9			32.9			3.4			5.0		
Approach LOS		D			C			A			A		
Intersection Delay		10.0			X _c = 0.41			Intersection LOS			A		

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	NVD			Intersection	S Capitol St NB and Malcolm X		
Agency or Co.				Area Type	All other areas		
Date Performed	5/5/2009			Jurisdiction	Washington DC		
Time Period	AM Anacostia			Analysis Year	2011		
				Project ID	NSMA Relocation		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	62	415			747	215	76	5	4			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, I _l	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	67	446			939			90				
Lane Group Capacity, c	93	1197			1171			1816				
v/c Ratio, X	0.72	0.37			0.80			0.05				
Total Green Ratio, g/C	0.34	0.34			0.34			0.54				
Uniform Delay, d ₁	23.2	20.1			24.1			8.8				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	37.8	0.9			5.8			0.1				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	61.0	21.0			29.9			8.8				
Lane Group LOS	E	C			C			A				
Approach Delay	26.2			29.9			8.8					
Approach LOS	C			C			A					
Intersection Delay	27.4			X _c = 0.34			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St SB and Malcolm X
Agency or Co.	Area Type All other areas
Date Performed 5/5/2009	Jurisdiction Washington DC
Time Period AM Anacostia	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l		3	1	0	2					1	1	1	
Lane Group		T	R		LT					L	LT	R	
Volume, V (vph)		185	70	85	853					253	44	697	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, I _l		2.0	2.0		2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0		2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3		3					3	3	3	
Unit Extension, UE		3.0	3.0		3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000		1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0		0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	28	0	0		0	0		0	0	90	
Lane Width		12.0	12.0		12.0					12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0		0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		199	45		1008					272	47	653	
Lane Group Capacity, c		1712	534		1067					951	1001	851	
v/c Ratio, X		0.12	0.08		0.94					0.29	0.05	0.77	
Total Green Ratio, g/C		0.34	0.34		0.34					0.54	0.54	0.54	
Uniform Delay, d ₁		18.3	18.1		25.8					10.1	8.8	14.6	
Progression Factor, PF		1.000	1.000		1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.11		0.46					0.11	0.11	0.32	
Incremental Delay, d ₂		0.0	0.1		16.0					0.2	0.0	4.3	
Initial Queue Delay, d ₃		0.0	0.0		0.0					0.0	0.0	0.0	
Control Delay		18.3	18.1		41.8					10.3	8.8	18.8	
Lane Group LOS		B	B		D					B	A	B	
Approach Delay		18.3			41.8						16.0		
Approach LOS		B			D						B		
Intersection Delay		27.9			X _c = 0.84			Intersection LOS			C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	<i>I-295 NB ramp and Malcolm X Av</i>
Agency/Co.		Jurisdiction	<i>Washington DC</i>
Date Performed	5/5/2009	Analysis Year	2011
Analysis Time Period	<i>AM Anacostia</i>		
Project Description <i>NSMA Relocation</i>			
East/West Street: <i>Malcolm X Ave</i>		North/South Street: <i>I-295 NB ramp</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		289	99	261	369	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	289	99	261	369	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		<i>T</i>	<i>TR</i>	<i>LT</i>	<i>T</i>	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				59	0	614
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	59	0	614
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>				<i>LT</i>		<i>R</i>
v (veh/h)		261				59		614
C (m) (veh/h)		1182				180		864
v/c		0.22				0.33		0.71
95% queue length		0.84				1.34		6.16
Control Delay (s/veh)		8.9				34.5		18.7
LOS		<i>A</i>				<i>D</i>		<i>C</i>
Approach Delay (s/veh)	--	--				20.1		
Approach LOS	--	--				<i>C</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St NB and Firth Ster
Agency or Co.	Area Type All other areas
Date Performed 5/5/2009	Jurisdiction Washington DC
Time Period AM Anacostia	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R		LTR		L	TR			LTR	
Volume, V (vph)	123	99	16	128	430	7	51	992	55	1	349	374
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.97	0.97	0.97	0.88	0.88	0.88
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3		3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0		3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987		1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0		0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 42.2	G = 0.0	G = 0.0	G = 0.0	G = 67.8	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	158	127	12		702		53	1054			755	
Lane Group Capacity, c	162	655	557		1031		329	1995			1777	
v/c Ratio, X	0.98	0.19	0.02		0.68		0.16	0.53			0.42	
Total Green Ratio, g/C	0.35	0.35	0.35		0.35		0.56	0.56			0.56	
Uniform Delay, d ₁	38.4	27.1	25.4		33.2		12.5	16.2			14.9	
Progression Factor, PF	1.000	1.000	1.000		1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50		0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	64.0	0.7	0.1		3.6		1.0	1.0			0.7	
Initial Queue Delay, d ₃	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Control Delay	102.4	27.7	25.5		36.8		13.5	17.2			15.7	
Lane Group LOS	F	C	C		D		B	B			B	
Approach Delay	67.4			36.8			17.0			15.7		
Approach LOS	E			D			B			B		
Intersection Delay	26.7			X _c = 0.70			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/5/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Anacostia</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			84		674						389	153
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.83		0.94						0.91	0.91
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	0
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 34.7	G = 0.0	G = 0.0	G = 0.0	G = 35.3	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			101		717						427	168
Lane Group Capacity, c			1216		1539						1565	698
v/c Ratio, X			0.08		0.47						0.27	0.24
Total Green Ratio, g/C			0.43		0.43						0.44	0.44
Uniform Delay, d ₁			13.3		16.1						14.2	14.0
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.1		1.0						0.4	0.8
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			13.4		17.1						14.6	14.8
Lane Group LOS			<i>B</i>		<i>B</i>						<i>B</i>	<i>B</i>
Approach Delay	13.4			17.1						14.7		
Approach LOS	<i>B</i>			<i>B</i>						<i>B</i>		
Intersection Delay	15.8			$X_c = 0.37$			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection Overlook Ave and Chesapeake Rd
Agency or Co.	Area Type All other areas
Date Performed 5/5/2009	Jurisdiction Washington DC
Time Period AM Anacostia	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1
Lane Group	LTR			LT R			L T R			L T R		
Volume, V (vph)	32	28	11	109	19	177	2	473	27	92	309	83
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.94	0.94	0.94	0.84	0.84	0.84
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Arrival Type, AT		3			3	3	3	3	3	3	3	3
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	5	0	0	60	0	0	13	0	0	40
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 17.0	G = 0.0	G = 0.0	G = 0.0	G = 53.0	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		77			136	124	2	503	15	110	368	51
Lane Group Capacity, c		301			284	336	645	1234	1049	530	1234	1049
v/c Ratio, X		0.26			0.48	0.37	0.00	0.41	0.01	0.21	0.30	0.05
Total Green Ratio, g/C		0.21			0.21	0.21	0.66	0.66	0.66	0.66	0.66	0.66
Uniform Delay, d ₁		26.2			27.6	26.9	4.6	6.2	4.6	5.3	5.7	4.7
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Incremental Delay, d ₂		2.0			5.7	3.1	0.0	1.0	0.0	0.9	0.6	0.1
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay		28.3			33.3	30.0	4.6	7.2	4.6	6.2	6.3	4.8
Lane Group LOS		C			C	C	A	A	A	A	A	A
Approach Delay	28.3			31.7			7.2			6.1		
Approach LOS	C			C			A			A		
Intersection Delay	12.5			X _c = 0.42			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St NB and Malcolm X
Agency or Co.	Area Type All other areas
Date Performed 5/5/2009	Jurisdiction Washington DC
Time Period PM Anacostia	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	123	1075			157	97	6	0	9			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, I _l	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	134	1156			177			15				
Lane Group Capacity, c	686	2040			2026			957				
v/c Ratio, X	0.20	0.57			0.09			0.02				
Total Green Ratio, g/C	0.57	0.57			0.57			0.30				
Uniform Delay, d ₁	8.1	10.7			7.6			19.7				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	0.6	1.1			0.1			0.0				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	8.8	11.8			7.7			19.7				
Lane Group LOS	A	B			A			B				
Approach Delay	11.5			7.7			19.7					
Approach LOS	B			A			B					
Intersection Delay	11.2			X _c = 0.38			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St SB and Malcolm X</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/5/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Anacostia</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l		3	1	0	2					1	1	1	
Lane Group		<i>T</i>	<i>R</i>	<i>DefL</i>	<i>T</i>					<i>L</i>	<i>LT</i>	<i>R</i>	
Volume, V (vph)		770	812	98	69					427	54	223	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, I _l		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3	3	3					3	3	3	
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	90	0	0		0	0		0	0	90	
Lane Width		12.0	12.0	12.0	12.0					12.0	12.0	12.0	
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0	0	0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		828	776	105	74					459	58	143	
Lane Group Capacity, c		2918	910	336	1071					531	559	475	
v/c Ratio, X		0.28	0.85	0.31	0.07					0.86	0.10	0.30	
Total Green Ratio, g/C		0.57	0.57	0.57	0.57					0.30	0.30	0.30	
Uniform Delay, d ₁		8.6	14.2	8.8	7.5					26.5	20.2	21.5	
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.39	0.11	0.11					0.39	0.11	0.11	
Incremental Delay, d ₂		0.1	7.9	0.5	0.0					13.9	0.1	0.4	
Initial Queue Delay, d ₃		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Control Delay		8.7	22.1	9.3	7.6					40.3	20.3	21.9	
Lane Group LOS		A	C	A	A					D	C	C	
Approach Delay		15.2			8.6						34.6		
Approach LOS		B			A						C		
Intersection Delay		19.9			X _c = 0.86			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	<i>I-295 NB ramp and Malcolm X Av</i>
Agency/Co.		Jurisdiction	<i>Washington DC</i>
Date Performed	5/5/2009	Analysis Year	2011
Analysis Time Period	<i>PM Anacostia</i>		
Project Description <i>NSMA Relocation</i>			
East/West Street: <i>Malcolm X Ave</i>		North/South Street: <i>I-295 NB ramp</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		556	508	202	164	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	556	508	202	164	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	0	2	0	0	2	0
Configuration		<i>T</i>	<i>TR</i>	<i>LT</i>	<i>T</i>	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				71	0	73
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	71	0	73
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>				<i>LT</i>		<i>R</i>
v (veh/h)		202				71		73
C (m) (veh/h)		1025				245		983
v/c		0.20				0.29		0.07
95% queue length		0.73				1.16		0.24
Control Delay (s/veh)		9.4				25.6		9.0
LOS		<i>A</i>				<i>D</i>		<i>A</i>
Approach Delay (s/veh)	--	--				17.2		
Approach LOS	--	--				<i>C</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/5/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Anacostia</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R	DefL	TR		L	TR			LTR	
Volume, V (vph)	294	381	175	299	82	21	5	278	84	22	998	104
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.78	0.78	0.78	0.85	0.85	0.85	0.86	0.86	0.86
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3	3	3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987	1.000	1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0	0	0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 62.5	G = 0.0	G = 0.0	G = 0.0	G = 47.5	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	392	508	224	383	128		6	396			1237	
Lane Group Capacity, c	655	970	824	332	944		62	1367			1309	
v/c Ratio, X	0.60	0.52	0.27	1.15	0.14		0.10	0.29			0.94	
Total Green Ratio, g/C	0.52	0.52	0.52	0.52	0.52		0.40	0.40			0.40	
Uniform Delay, d ₁	20.0	18.9	16.0	28.8	14.8		22.8	24.7			35.0	
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50	0.50	0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	4.0	2.0	0.8	97.9	0.3		3.1	0.5			14.8	
Initial Queue Delay, d ₃	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay	24.0	20.9	16.9	126.6	15.1		25.9	25.3			49.8	
Lane Group LOS	C	C	B	F	B		C	C			D	
Approach Delay	21.2			98.7			25.3			49.8		
Approach LOS	C			F			C			D		
Intersection Delay	44.6			X _c = 1.06			Intersection LOS			D		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/5/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Anacostia</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			452		130						273	15
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.87		0.87						0.82	0.82
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	10
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 48.0	G = 0.0	G = 0.0	G = 0.0	G = 22.0	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			520		149						333	6
Lane Group Capacity, c			1682		2128						975	435
v/c Ratio, X			0.31		0.07						0.34	0.01
Total Green Ratio, g/C			0.60		0.60						0.28	0.28
Uniform Delay, d ₁			7.9		6.7						23.2	21.1
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.5		0.1						1.0	0.1
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			8.3		6.7						24.2	21.2
Lane Group LOS			<i>A</i>		<i>A</i>						<i>C</i>	<i>C</i>
Approach Delay	8.3			6.7						24.1		
Approach LOS	<i>A</i>			<i>A</i>						<i>C</i>		
Intersection Delay	13.4			<i>X_c = 0.32</i>			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and Chesapeake Rd</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/5/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Anacostia</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1	
Lane Group		LTR			LT	R	L	T	R	L	T	R	
Volume, V (vph)	12	83	25	37	3	22	9	96	76	177	462	90	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.75	0.75	0.75	0.87	0.87	0.87	0.87	0.87	0.87	
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P	
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type, AT		3			3	3	3	3	3	3	3	3	
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	12	0	0	10	0	0	36	0	0	59	
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 12.4	G = 0.0	G = 0.0	G = 0.0	G = 57.6	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		123			53	16	10	110	46	203	531	36	
Lane Group Capacity, c		274			181	245	578	1341	1140	920	1341	1140	
v/c Ratio, X		0.45			0.29	0.07	0.02	0.08	0.04	0.22	0.40	0.03	
Total Green Ratio, g/C		0.16			0.16	0.16	0.72	0.72	0.72	0.72	0.72	0.72	
Uniform Delay, d ₁		30.7			29.9	28.9	3.2	3.3	3.2	3.7	4.4	3.2	
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental Delay, d ₂		5.2			4.1	0.5	0.1	0.1	0.1	0.6	0.9	0.1	
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay		35.9			34.0	29.4	3.2	3.5	3.3	4.3	5.3	3.3	
Lane Group LOS		D			C	C	A	A	A	A	A	A	
Approach Delay		35.9			32.9			3.4			4.9		
Approach LOS		D			C			A			A		
Intersection Delay		9.8			X _c = 0.41			Intersection LOS			A		

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	NVD			Intersection	S Capitol St NB and Malcolm X		
Agency or Co.				Area Type	All other areas		
Date Performed	5/14/2009			Jurisdiction	Washington DC		
Time Period	AM Bellevue			Analysis Year	2011		
				Project ID	NSMA Relocation		

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	64	416			721	215	76	5	4			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, I _l	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	70	447			911			90				
Lane Group Capacity, c	93	1197			1170			1816				
v/c Ratio, X	0.75	0.37			0.78			0.05				
Total Green Ratio, g/C	0.34	0.34			0.34			0.54				
Uniform Delay, d ₁	23.5	20.1			23.8			8.8				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	42.2	0.9			5.1			0.1				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	65.7	21.0			29.0			8.8				
Lane Group LOS	E	C			C			A				
Approach Delay	27.0			29.0			8.8					
Approach LOS	C			C			A					
Intersection Delay	27.1			X _c = 0.33			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection S Capitol St SB and Malcolm X
Agency or Co.	Area Type All other areas
Date Performed 5/14/2009	Jurisdiction Washington DC
Time Period AM Bellevue	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l		3	1	0	2					1	1	1	
Lane Group		T	R		LT					L	LT	R	
Volume, V (vph)		186	64	85	827					253	44	709	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, I _l		2.0	2.0		2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0		2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3		3					3	3	3	
Unit Extension, UE		3.0	3.0		3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000		1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0		0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	28	0	0		0	0		0	0	90	
Lane Width		12.0	12.0		12.0					12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0		0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 27.0	G = 0.0	G = 0.0	G = 0.0	G = 43.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		200	39		980					272	47	666	
Lane Group Capacity, c		1712	534		1065					951	1001	851	
v/c Ratio, X		0.12	0.07		0.92					0.29	0.05	0.78	
Total Green Ratio, g/C		0.34	0.34		0.34					0.54	0.54	0.54	
Uniform Delay, d ₁		18.3	18.0		25.5					10.1	8.8	14.8	
Progression Factor, PF		1.000	1.000		1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.11		0.44					0.11	0.11	0.33	
Incremental Delay, d ₂		0.0	0.1		12.6					0.2	0.0	4.8	
Initial Queue Delay, d ₃		0.0	0.0		0.0					0.0	0.0	0.0	
Control Delay		18.3	18.1		38.1					10.3	8.8	19.6	
Lane Group LOS		B	B		D					B	A	B	
Approach Delay		18.3			38.1						16.5		
Approach LOS		B			D						B		
Intersection Delay		26.3			X _c = 0.84			Intersection LOS			C		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst Agency/Co.	NVD	Intersection	I-295 NB ramp and Malcolm X Av
Date Performed	5/14/2009	Jurisdiction	Washington DC
Analysis Time Period	AM Bellevue	Analysis Year	2011
Project Description <i>NSMA Relocation</i>			
East/West Street: <i>Malcolm X Ave</i>		North/South Street: <i>I-295 NB ramp</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		289	100	261	369	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	289	100	261	369	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T	TR	LT	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				59	0	588
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	59	0	588
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				LT		R

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT				LT		R
v (veh/h)		261				59		588
C (m) (veh/h)		1181				180		864
v/c		0.22				0.33		0.68
95% queue length		0.84				1.34		5.51
Control Delay (s/veh)		8.9				34.5		17.6
LOS		A				D		C
Approach Delay (s/veh)	--	--				19.1		
Approach LOS	--	--				C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Bellevue</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	L	T	R		LTR		L	TR			LTR	
Volume, V (vph)	98	86	16	128	385	7	51	992	55	1	349	256
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.78	0.78	0.78	0.80	0.80	0.80	0.97	0.97	0.97	0.88	0.88	0.88
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, I _l	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0		2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3		3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0		3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987		1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0			12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0		0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 42.2	G = 0.0	G = 0.0	G = 0.0	G = 67.8	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	126	110	12		646		53	1054			621	
Lane Group Capacity, c	184	655	557		1039		397	1995			1809	
v/c Ratio, X	0.68	0.17	0.02		0.62		0.13	0.53			0.34	
Total Green Ratio, g/C	0.35	0.35	0.35		0.35		0.56	0.56			0.56	
Uniform Delay, d ₁	33.2	26.8	25.4		32.3		12.3	16.2			14.1	
Progression Factor, PF	1.000	1.000	1.000		1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50		0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	18.5	0.5	0.1		2.8		0.7	1.0			0.5	
Initial Queue Delay, d ₃	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Control Delay	51.8	27.3	25.5		35.1		13.0	17.2			14.6	
Lane Group LOS	D	C	C		D		B	B			B	
Approach Delay	39.7			35.1			17.0			14.6		
Approach LOS	D			D			B			B		
Intersection Delay	23.0			X _c = 0.59			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Bellevue</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			125		842						389	132
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.83		0.94						0.91	0.91
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	0
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 34.7	G = 0.0	G = 0.0	G = 0.0	G = 35.3	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			151		896						427	145
Lane Group Capacity, c			1216		1539						1565	698
v/c Ratio, X			0.12		0.58						0.27	0.21
Total Green Ratio, g/C			0.43		0.43						0.44	0.44
Uniform Delay, d ₁			13.6		17.2						14.2	13.7
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.2		1.6						0.4	0.7
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			13.8		18.8						14.6	14.4
Lane Group LOS			<i>B</i>		<i>B</i>						<i>B</i>	<i>B</i>
Approach Delay	13.8			18.8						14.6		
Approach LOS	<i>B</i>			<i>B</i>						<i>B</i>		
Intersection Delay	16.8			X _c = 0.43			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and Chesapeake Rd</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>AM Bellevue</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1	
Lane Group		LTR			LT	R	L	T	R	L	T	R	
Volume, V (vph)	32	28	11	109	19	177	2	641	27	89	353	83	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.94	0.94	0.94	0.84	0.84	0.84	
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P	
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type, AT		3			3	3	3	3	3	3	3	3	
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	5	0	0	60	0	0	13	0	0	40	
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 17.0	G = 0.0	G = 0.0	G = 0.0	G = 53.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		77			136	124	2	682	15	106	420	51	
Lane Group Capacity, c		301			284	336	599	1234	1049	392	1234	1049	
v/c Ratio, X		0.26			0.48	0.37	0.00	0.55	0.01	0.27	0.34	0.05	
Total Green Ratio, g/C		0.21			0.21	0.21	0.66	0.66	0.66	0.66	0.66	0.66	
Uniform Delay, d ₁		26.2			27.6	26.9	4.6	7.2	4.6	5.6	5.9	4.7	
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental Delay, d ₂		2.0			5.7	3.1	0.0	1.8	0.0	1.7	0.8	0.1	
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay		28.3			33.3	30.0	4.6	9.0	4.6	7.2	6.6	4.8	
Lane Group LOS		C			C	C	A	A	A	A	A	A	
Approach Delay		28.3			31.7			8.9			6.6		
Approach LOS		C			C			A			A		
Intersection Delay		12.7			X _c = 0.53			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	NVD	Intersection	S Capitol St NB and Malcolm X				
Agency or Co.		Area Type	All other areas				
Date Performed	5/5/2009	Jurisdiction	Washington DC				
Time Period	PM Bellevue	Analysis Year	2011				
		Project ID	NSMA Relocation				

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	2			2	0	0	2	0			
Lane Group	L	T			TR			LTR				
Volume, V (vph)	128	1080			154	97	6	0	9			
% Heavy Vehicles, %HV	2	2			2	2	2	2	2			
Peak-Hour Factor, PHF	0.92	0.93			0.93	0.92	0.92	0.92	0.92			
Pretimed (P) or Actuated (A)	P	P			P	P	P	P	P			
Start-up Lost Time, I _l	2.0	2.0			2.0			2.0				
Extension of Effective Green, e	2.0	2.0			2.0			2.0				
Arrival Type, AT	3	3			3			3				
Unit Extension, UE	3.0	3.0			3.0			3.0				
Filtering/Metering, I	0.987	0.987			1.000			1.000				
Initial Unmet Demand, Q _b	0.0	0.0			0.0			0.0				
Ped / Bike / RTOR Volumes	0	0		0	0	90	0	0	2	0	0	
Lane Width	12.0	12.0			12.0			12.0				
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0			0			0				
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NB Only		06	07	08			
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0		G = 0.0	G = 0.0	G = 0.0			
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5		Y = 0	Y = 0	Y = 0			
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	139	1161			174			15				
Lane Group Capacity, c	688	2040			2025			957				
v/c Ratio, X	0.20	0.57			0.09			0.02				
Total Green Ratio, g/C	0.57	0.57			0.57			0.30				
Uniform Delay, d ₁	8.2	10.7			7.6			19.7				
Progression Factor, PF	1.000	1.000			1.000			1.000				
Delay Calibration, k	0.50	0.50			0.50			0.50				
Incremental Delay, d ₂	0.7	1.1			0.1			0.0				
Initial Queue Delay, d ₃	0.0	0.0			0.0			0.0				
Control Delay	8.8	11.9			7.7			19.7				
Lane Group LOS	A	B			A			B				
Approach Delay	11.6			7.7			19.7					
Approach LOS	B			A			B					
Intersection Delay	11.2			X _c = 0.38			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St SB and Malcolm X</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Bellevue</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l		3	1	0	2					1	1	1	
Lane Group		<i>T</i>	<i>R</i>	<i>DefL</i>	<i>T</i>					<i>L</i>	<i>LT</i>	<i>R</i>	
Volume, V (vph)		780	788	98	66					427	54	223	
% Heavy Vehicles, %HV		2	2	2	2					2	2	2	
Peak-Hour Factor, PHF		0.93	0.93	0.93	0.93					0.93	0.93	0.93	
Pretimed (P) or Actuated (A)		A	A	A	A					A	A	A	
Start-up Lost Time, I _l		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Extension of Effective Green, e		2.0	2.0	2.0	2.0					2.0	2.0	2.0	
Arrival Type, AT		3	3	3	3					3	3	3	
Unit Extension, UE		3.0	3.0	3.0	3.0					3.0	3.0	3.0	
Filtering/Metering, I		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	90	0	0		0	0		0	0	90	
Lane Width		12.0	12.0	12.0	12.0					12.0	12.0	12.0	
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0	0	0	0					0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	SB Only	06	07	08					
Timing	G = 46.0	G = 0.0	G = 0.0	G = 0.0	G = 24.0	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		839	751	105	71					459	58	143	
Lane Group Capacity, c		2918	910	331	1071					531	559	475	
v/c Ratio, X		0.29	0.83	0.32	0.07					0.86	0.10	0.30	
Total Green Ratio, g/C		0.57	0.57	0.57	0.57					0.30	0.30	0.30	
Uniform Delay, d ₁		8.7	13.7	8.8	7.5					26.5	20.2	21.5	
Progression Factor, PF		1.000	1.000	1.000	1.000					1.000	1.000	1.000	
Delay Calibration, k		0.11	0.36	0.11	0.11					0.39	0.11	0.11	
Incremental Delay, d ₂		0.1	6.3	0.6	0.0					13.9	0.1	0.4	
Initial Queue Delay, d ₃		0.0	0.0	0.0	0.0					0.0	0.0	0.0	
Control Delay		8.7	20.0	9.4	7.5					40.3	20.3	21.9	
Lane Group LOS		A	C	A	A					D	C	C	
Approach Delay		14.1			8.6						34.6		
Approach LOS		B			A						C		
Intersection Delay		19.3			X _c = 0.84			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	NVD	Intersection	<i>I-295 NB ramp and Malcolm X Av</i>
Agency/Co.		Jurisdiction	<i>Washington DC</i>
Date Performed	5/14/2009	Analysis Year	2011
Analysis Time Period	<i>PM Bellevue</i>		
Project Description <i>NSMA Relocation</i>			
East/West Street: <i>Malcolm X Ave</i>		North/South Street: <i>I-295 NB ramp</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		556	513	202	164	
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	556	513	202	164	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			1			0
Lanes	0	2	0	0	2	0
Configuration		<i>T</i>	<i>TR</i>	<i>LT</i>	<i>T</i>	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				71	0	70
Peak-Hour Factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	71	0	70
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			1
Lanes	0	0	0	0	1	1
Configuration				<i>LT</i>		<i>R</i>

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		<i>LT</i>				<i>LT</i>		<i>R</i>
v (veh/h)		202				71		70
C (m) (veh/h)		1025				245		983
v/c		0.20				0.29		0.07
95% queue length		0.73				1.16		0.23
Control Delay (s/veh)		9.4				25.6		8.9
LOS		<i>A</i>				<i>D</i>		<i>A</i>
Approach Delay (s/veh)	--	--				17.3		
Approach LOS	--	--				<i>C</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>S Capitol St NB and Firth Ster</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Bellevue</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l	1	1	1	0	2	0	1	2	0	0	2	0
Lane Group	<i>L</i>	<i>T</i>	<i>R</i>	<i>DefL</i>	<i>TR</i>		<i>L</i>	<i>TR</i>			<i>LTR</i>	
Volume, V (vph)	206	335	175	299	72	21	5	278	84	22	998	85
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.78	0.78	0.78	0.85	0.85	0.85	0.86	0.86	0.86
Pretimed (P) or Actuated (A)	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>
Start-up Lost Time, I _l	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Extension of Effective Green, e	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Arrival Type, AT	3	3	3	3	3		3	3			3	
Unit Extension, UE	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Filtering/Metering, I	0.987	0.987	0.987	1.000	1.000		1.000	1.000			1.000	
Initial Unmet Demand, Q _b	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	7	0	0	3	0	0	25	0	0	60
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0			12.0	
Parking / Grade / Parking	<i>N</i>	<i>0</i>	<i>N</i>	<i>N</i>	<i>0</i>	<i>N</i>	<i>N</i>	<i>0</i>	<i>N</i>	<i>N</i>	<i>0</i>	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b	0	0	0	0	0		0	0			0	
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 62.5	G = 0.0	G = 0.0	G = 0.0	G = 47.5	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25							Cycle Length, C = 120.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	275	447	224	383	115		6	396			1215	
Lane Group Capacity, c	662	970	824	380	941		62	1367			1312	
v/c Ratio, X	0.42	0.46	0.27	1.01	0.12		0.10	0.29			0.93	
Total Green Ratio, g/C	0.52	0.52	0.52	0.52	0.52		0.40	0.40			0.40	
Uniform Delay, d ₁	17.6	18.1	16.0	28.8	14.7		22.8	24.7			34.6	
Progression Factor, PF	1.000	1.000	1.000	1.000	1.000		1.000	1.000			1.000	
Delay Calibration, k	0.50	0.50	0.50	0.50	0.50		0.50	0.50			0.50	
Incremental Delay, d ₂	1.9	1.6	0.8	48.2	0.3		3.1	0.5			12.5	
Initial Queue Delay, d ₃	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Control Delay	19.5	19.7	16.9	76.9	15.0		25.9	25.3			47.1	
Lane Group LOS	<i>B</i>	<i>B</i>	<i>B</i>	<i>E</i>	<i>B</i>		<i>C</i>	<i>C</i>			<i>D</i>	
Approach Delay	19.0			62.6			25.3			47.1		
Approach LOS	<i>B</i>			<i>E</i>			<i>C</i>			<i>D</i>		
Intersection Delay	38.0			X _c = 0.97			Intersection LOS			<i>D</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>NVD</i>	Intersection <i>Overlook Ave and South Gate</i>
Agency or Co.	Area Type <i>All other areas</i>
Date Performed <i>5/14/2009</i>	Jurisdiction <i>Washington DC</i>
Time Period <i>PM Bellevue</i>	Analysis Year <i>2011</i>
	Project ID <i>NSMA Relocation</i>

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N _l			2		2						2	1
Lane Group			<i>R</i>		<i>T</i>						<i>T</i>	<i>R</i>
Volume, V (vph)			600		161						273	12
% Heavy Vehicles, %HV			2		2						2	2
Peak-Hour Factor, PHF			0.87		0.87						0.82	0.82
Pretimed (P) or Actuated (A)			<i>P</i>		<i>P</i>						<i>P</i>	<i>P</i>
Start-up Lost Time, I _l			2.0		2.0						2.0	2.0
Extension of Effective Green, e			2.0		2.0						2.0	2.0
Arrival Type, AT			3		3						3	3
Unit Extension, UE			3.0		3.0						3.0	3.0
Filtering/Metering, I			1.000		1.000						1.000	1.000
Initial Unmet Demand, Q _b			0.0		0.0						0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0		0	0		0	0	10
Lane Width			12.0		12.0						12.0	12.0
Parking / Grade / Parking	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>	<i>N</i>	0	<i>N</i>
Parking Maneuvers, N _m												
Buses Stopping, N _b			0		0						0	0
Min. Time for Pedestrians, G _p	3.2			3.2			3.2			3.2		
Phasing	Thru & RT	02	03	04	SB Only	06	07	08				
Timing	G = 48.0	G = 0.0	G = 0.0	G = 0.0	G = 22.0	G = 0.0	G = 0.0	G = 0.0				
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0				
Duration of Analysis, T = 0.25						Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v			690		185						333	2
Lane Group Capacity, c			1682		2128						975	435
v/c Ratio, X			0.41		0.09						0.34	0.00
Total Green Ratio, g/C			0.60		0.60						0.28	0.28
Uniform Delay, d ₁			8.5		6.8						23.2	21.1
Progression Factor, PF			1.000		1.000						1.000	1.000
Delay Calibration, k			0.50		0.50						0.50	0.50
Incremental Delay, d ₂			0.7		0.1						1.0	0.0
Initial Queue Delay, d ₃			0.0		0.0						0.0	0.0
Control Delay			9.2		6.8						24.2	21.1
Lane Group LOS			<i>A</i>		<i>A</i>						<i>C</i>	<i>C</i>
Approach Delay	9.2			6.8						24.1		
Approach LOS	<i>A</i>			<i>A</i>						<i>C</i>		
Intersection Delay	13.0			X _c = 0.39			Intersection LOS			<i>B</i>		

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst NVD	Intersection Overlook Ave and Chesapeake Rd
Agency or Co.	Area Type All other areas
Date Performed 5/14/2009	Jurisdiction Washington DC
Time Period PM Bellevue	Analysis Year 2011
	Project ID NSMA Relocation

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N _l	0	1	0	0	1	1	1	1	1	1	1	1	
Lane Group		LTR			LT	R	L	T	R	L	T	R	
Volume, V (vph)	12	83	25	37	3	22	9	133	76	186	630	61	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.75	0.75	0.75	0.87	0.87	0.87	0.87	0.87	0.87	
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P	
Start-up Lost Time, I _l		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green, e		2.0			2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival Type, AT		3			3	3	3	3	3	3	3	3	
Unit Extension, UE		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Filtering/Metering, I		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Initial Unmet Demand, Q _b		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	12	0	0	10	0	0	36	0	0	59	
Lane Width		12.0			12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0	0	0	0	0	0	0	0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 12.4	G = 0.0	G = 0.0	G = 0.0	G = 57.6	G = 0.0	G = 0.0	G = 0.0					
	Y = 5	Y = 0	Y = 0	Y = 0	Y = 5	Y = 0	Y = 0	Y = 0					
Duration of Analysis, T = 0.25							Cycle Length, C = 80.0						

Lane Group Capacity, Control Delay, and LOS Determination													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Adjusted Flow Rate, v		123			53	16	10	153	46	214	724	2	
Lane Group Capacity, c		274			181	245	432	1341	1140	885	1341	1140	
v/c Ratio, X		0.45			0.29	0.07	0.02	0.11	0.04	0.24	0.54	0.00	
Total Green Ratio, g/C		0.16			0.16	0.16	0.72	0.72	0.72	0.72	0.72	0.72	
Uniform Delay, d ₁		30.7			29.9	28.9	3.2	3.4	3.2	3.8	5.1	3.1	
Progression Factor, PF		1.000			1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Delay Calibration, k		0.50			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
Incremental Delay, d ₂		5.2			4.1	0.5	0.1	0.2	0.1	0.6	1.6	0.0	
Initial Queue Delay, d ₃		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay		35.9			34.0	29.4	3.3	3.6	3.3	4.4	6.7	3.1	
Lane Group LOS		D			C	C	A	A	A	A	A	A	
Approach Delay		35.9			32.9			3.5			6.2		
Approach LOS		D			C			A			A		
Intersection Delay		9.9			X _c = 0.52			Intersection LOS			A		

Attachment C
Peak Hour Traffic Volume Maps

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Peak Hour Traffic Volumes - Existing Conditions (2009)



— Navy Perimeter
 Bellevue Housing
→ Direction of flow
 XX (XX) AM Volume (PM Volume)

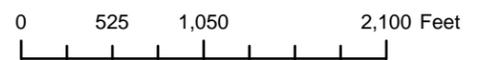
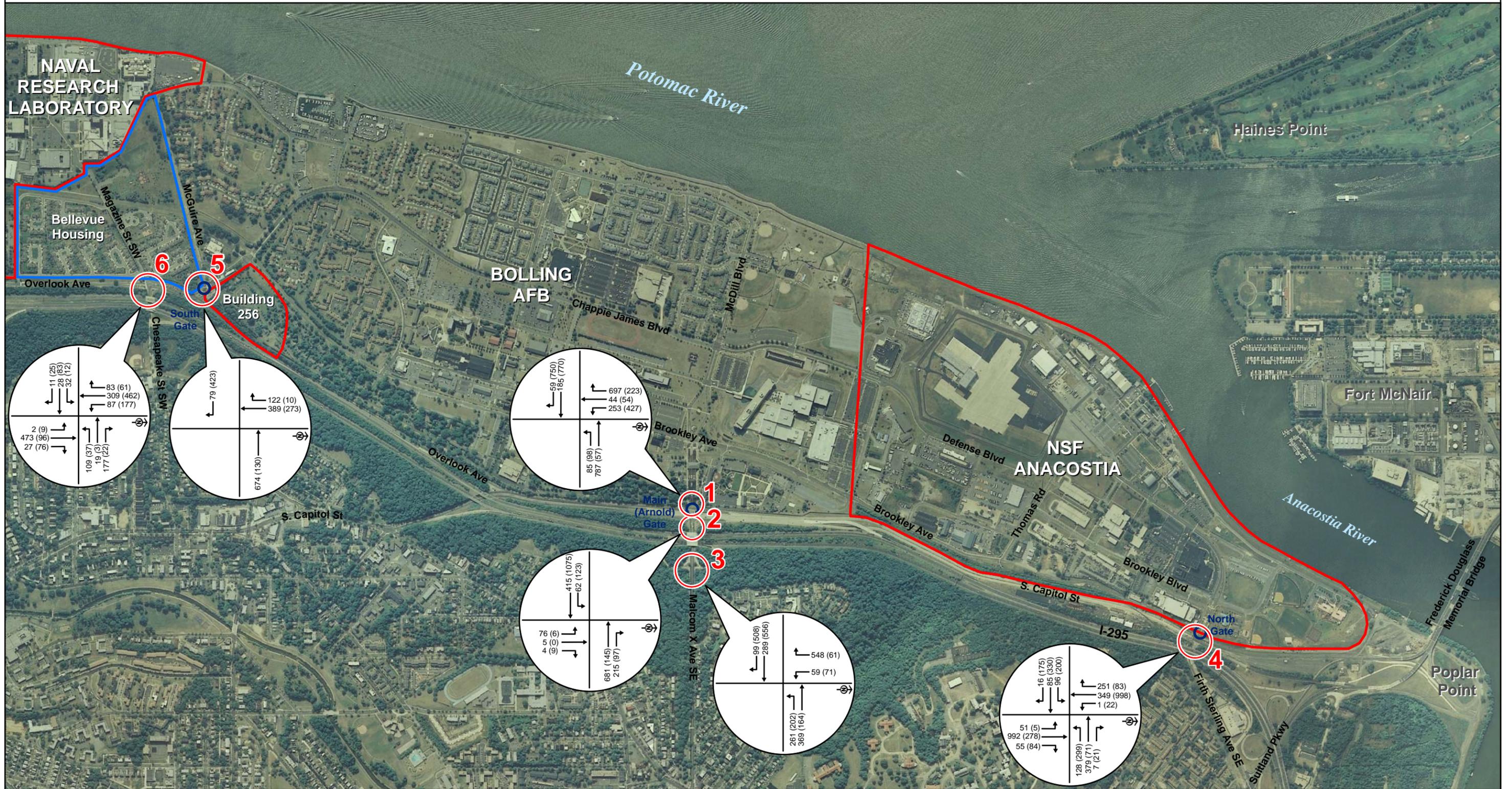


Figure C-1

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Peak Hour Traffic Volumes - No Action Conditions (2011)



— Navy Perimeter
 Bellevue Housing
→ Direction of flow
 XX (XX) AM Volume (PM Volume)



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Peak Hour Traffic Volumes - Anacostia Alternative (2011)

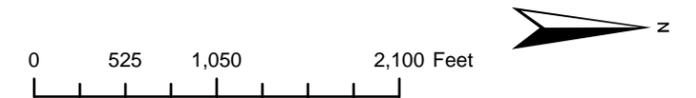
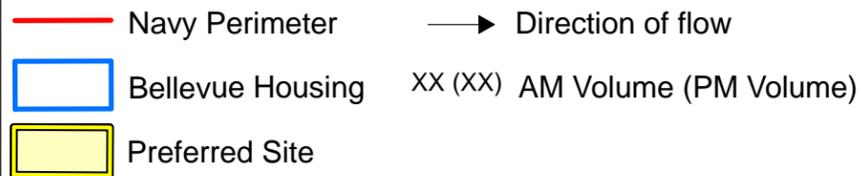


Figure C-3

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Peak Hour Traffic Volumes - Bellevue Alternative (2011)



- Navy Perimeter
- Bellevue Housing
- Alternate Site
- Direction of flow
- XX (XX) AM Volume (PM Volume)

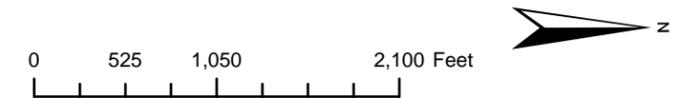


Figure C-4

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Attachment D
Bolling-Anacostia Shuttle Schedule

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Bolling/Anacostia Metro Shuttle Schedule

USAF1	Time NAVY2	NAVY3	Stop	USAF1	Time NAVY2	NAVY3
0525			6 Lodging Office			
0529			7 Bolling Clinic	1510		
0533			8 Bolling CDC			
0537			5 11th Wing HQ/P20	1513		
0541			1 Bldg 168	1517		
0550			Arrive Metro	1521		

0600	0620	0640	Depart Metro	1522		
0610	0630	0650	1 Bldg 168	1528		
0613	0633	0653	2 Anacostia CDC	1530	1550	1610
0616	0636	0656	3 Anacostia Gym	1533	1553	1613
0619	0639	0659	4 Garage on Thomas Rd	1536	1556	1616
0622	0642	0702	5 11th Wing HQ/P20	1539	1559	1619
0625	0645	0705	6 Lodging Office	1542	1602	1622
0627	0647	0707	7 Bolling Clinic	1544	1604	1624
0631	0651	0711	8 Bolling CDC	1548	1608	1628
0635	0655	0715	9 Bldg 5681	1552	1612	1632
0639	0659	0719	1 Bldg 168	1556	1616	1636
0647	0707	0727	Metro	1608	1628	1648

0700	0720	0740	Depart Metro	1620	1640	1700
0710	0730	0750	1 Bldg 168	1627	1647	1707
0713	0733	0753	2 Anacostia CDC	1630	1650	1710
0716	0736	0756	3 Anacostia Gym	1633	1653	1713
0719	0739	0759	4 Garage on Thomas Rd	1636	1656	1716
0722	0742	0802	5 11th Wing HQ/P20	1639	1659	1719
0725	0745	0805	6 Lodging Office	1642	1702	1722
0727	0747	0807	7 Bolling Clinic	1644	1704	1724
0731	0751	0811	8 Bolling CDC	1648	1708	1728
0735	0755	0815	9 Bldg 5681	1652	1712	1732
0739	0759	0819	1 Bldg 168	1656	1716	1736
0747	0807	0827	Metro	1708	1728	1748

0800	0820	0840	Depart Metro	1720	1815	
0810	0830	0850	1 Bldg 168	1727	1822	
0813	0833	0853	2 Anacostia CDC	1730	1825	
0816	0836	0856	3 Anacostia Gym	1733	1828	
0819	0839	0859	4 Garage on Thomas Rd	1736	1831	
0822	0842	0902	5 11th Wing HQ/P20	1739	1834	
0825	0845	0905	6 Lodging Office	1742	1837	
0827	0847	0907	7 Bolling Clinic	1744	1840	
0831	0851	0911	8 Bolling CDC	1748	1844	
0835	0855	0915	9 Bldg 5681	1752	1848	
			1 Bldg 168	1756		
			Metro	1808	Last Metro	

1 - Denotes shuttle/stop number on inside map.

Federal Commuter Benefits

- For 2009 all Federal employees in the National Capital Region are eligible for a transit/vanpool benefit. For details go to: www.whs.mil/DFD/Info/NCRTransitSubsidy.cfm
- IRS Code Section 132 allows reimbursement of \$20 per month for bicycling expenses

Additional Information...

COMMUTER CONNECTIONS

www.commuterconnections.org
1-800-745-RIDE (1-800-745-7433) • TTY: 202-962-3213

- Vanpool/Carpool/Ridematching Assistance
- Transit Information
- Park and Ride locations
- Enroll in Guaranteed Ride Home (Guarantees ride home in case of emergency)
- Request Commuter Information Brochures

LOCAL BUS AND RAIL

www.wmata.com
202-637-7000 • TTY: 202-638-3780

- Metrobus (W4 Route stops in the vicinity of the Firth Sterling Gate and the Bolling AFB Main Gate)
- Metrorail (Green Line - Shuttle Service for DoD Employees from Metro Anacostia Station to Anacostia NSF and Bolling AFB)

REGIONAL COMMUTER OPTIONS

www.mtmaryland.com
1-866-RIDE-MTA (1-866-743-3682) • TTY: 410-539-3497

- Express Bus Service (Route 907) from Charles County (With stop outside Main Gate)
- MARC Train Service to Union Station from North

www.vre.org
1-800-RIDE-VRE (1-800-743-3873) • TTY: 703-684-0551

- Virginia Railway Express Train Service to Union Station from South

PROPOSED SERVICES/FACILITIES

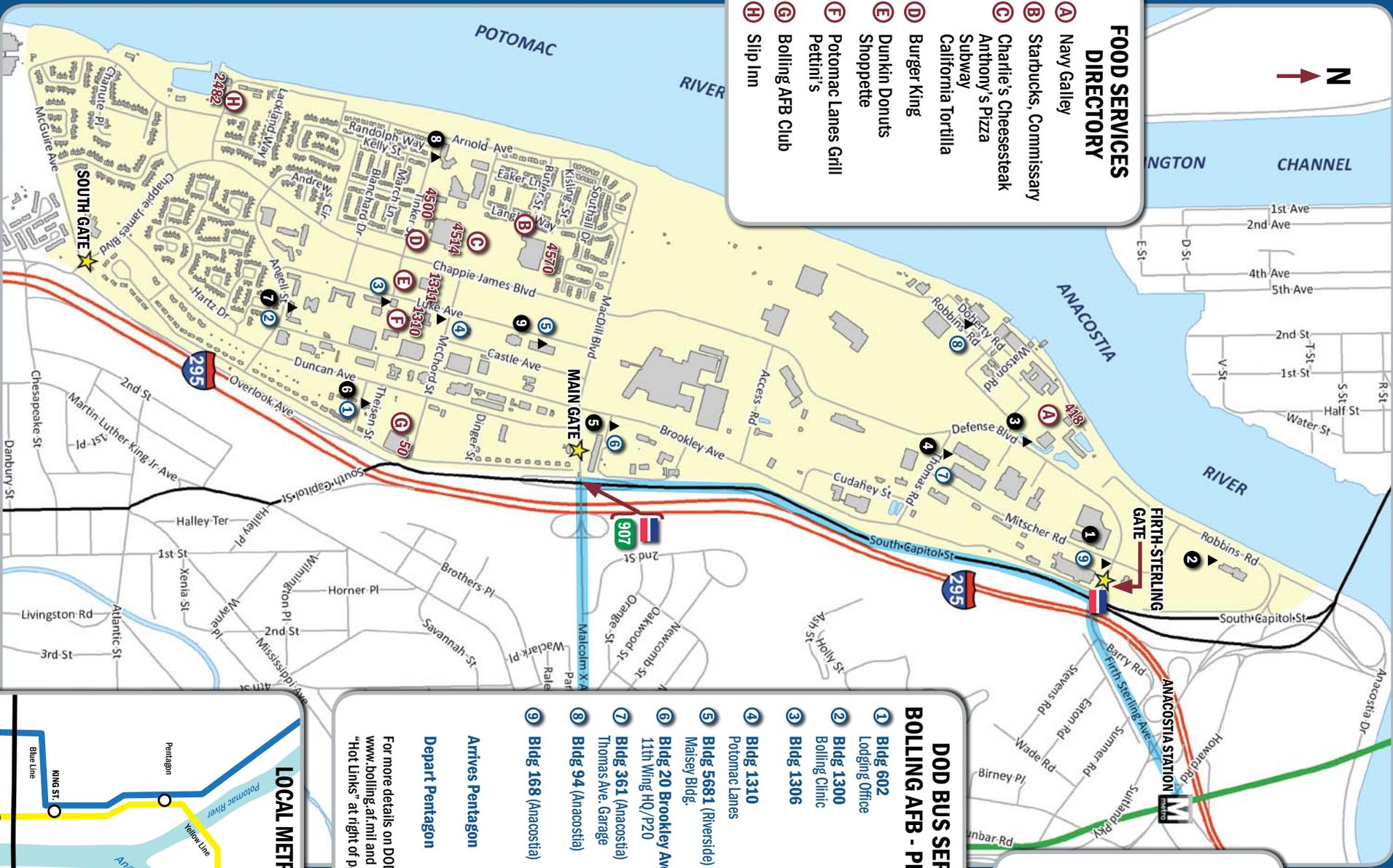
- Anacostia Streetcar service to Firth Sterling Gate arriving in 2010
- South Capitol Street Bridge Replacement Project
- Riverwalk Trail proposed along both banks of Anacostia River

For more commuter information contact your commuting representative at afdww.a7b.afncr.af.mil

Commuter Transportation Alternatives

BOLLING AIR FORCE BASE





FOOD SERVICES DIRECTORY

- A** Navy Galley
- B** Starbucks, Commissary
- C** Charlie's Cheesesteak
- D** Dunkin Donuts
- E** Shoppette
- F** Potomac Lanes Grill
- G** Boiling AFB Club
- H** Slip Inn

BUS/SHUTTLE LEGEND

- W4 Metrobus Route
- Metrobus Stops
- MTA Rt 907 Bus Stop
- DOD Bus Stop No.
- Metro Shuttle Stop No.
- Onbase Bus/Shuttle Stop Location

DOD BUS SERVICE BOLLING AFB - PENTAGON

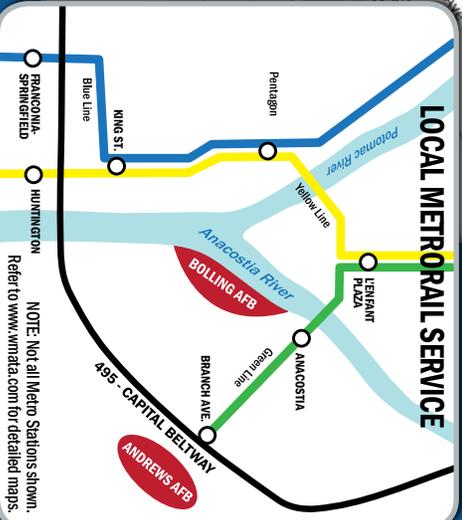
Effective 04 Jan 2008

Route	Arrives Pentagon	Depart Pentagon
1 Bldg 602 Lodging Office	0900 1300	1000 1400
2 Bldg 1300 Boiling Clinic	0903 1303	1003 1403
3 Bldg 1306	0905 1305	1005 1405
4 Bldg 1310 Potomac Lanes	0906 1306	1006 1406
5 Bldg 5681 (Riverside) Malsey Bldg.	0908 1308	1008 1408
6 Bldg 20 Brookley Ave 11th Wing HQ/P20	0911 1311	1011 1411
7 Bldg 361 (Anacostia) Thomas Ave. Garage	0913 1313	1013 1413
8 Bldg 94 (Anacostia)	0915 1315	1015 1415
9 Bldg 168 (Anacostia)	0918 1318	1018 1418

Route	Arrives Pentagon	Depart Pentagon
935	0935	1035
1335	1335	1435
1535	1535	1635
0940	0940	1040
1140	1140	1240
1440	1440	1540

For more details on DOD bus service refer to www.boiling.af.mil and click on "Bus Schedules" under "Hot Links" at right of page.

LOCAL METRO RAIL SERVICE



NOTE: Not all Metro Stations shown. Refer to www.wmata.com for detailed maps.