

Little Falls Road Transportation Study

Final Report



Prepared by:

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for:

District Department of Transportation
District of Columbia

June 2005

EXECUTIVE SUMMARY

The Washington Metropolitan Area Transit Authority (WMATA) and Ride-On buses currently operate on Loughboro Road to serve Sibley Hospital. In response to concerns of residents of the area around Sibley Hospital, the District Department of Transportation conducted a study to assess the feasibility, impacts, cost and benefits associated with rerouting buses currently serving Sibley Hospital from Loughboro Road to Little Falls Road.

EXISTING CONDITIONS

The Washington Metropolitan Area Transit Authority (WMATA) and Ride-On buses currently operate on Loughboro Road to serve Sibley Hospital. The Study Team assessed existing conditions and found that buses stopping at the bus stops on Loughboro generate noise and vibrations that affect the residential units adjacent to Loughboro Road. In the field evaluations, the Study Team found that even though buses are not supposed to layover at the bus stop located on the south side of Loughboro Road in front of the hospital, some buses do layover illegally. A safety issue observed in the field was that a large number of pedestrians that get off the bus at the bus stop on the south side of Loughboro Road cross the street to reach the hospital mid-block instead of at the crosswalk.

ALTERNATIVE IMPROVEMENT OPTIONS

The Study Team evaluated seven alternative improvement options to reduce the impacts on the residential units in front of Sibley Hospital. As shown in Figure ES-1, some of the alternatives encompassed rerouting buses to Little Falls Road. Others included shifting the location of bus stops/shelters but maintaining bus service on Loughboro Road.

The Study Team found that in its current configuration Little Falls Road is not adequate to accommodate buses. The pavement and roadway width in sections of Little Falls Road is not adequate for bus operations. As shown in Table ES-1, it would cost close to \$400,000 to upgrade Little Falls Road to be able to accommodate transit operations on Little Falls Road (Alternatives 2, 3 and 7). The presence of a helipad on Little Falls Road is a major factor that reduces the desirability of rerouting buses to use this road. Helicopter landings close Little Falls Road for 30 minutes or more approximately 12 times per month. The closing of the road would have a significant impact on bus schedules which in turn may have an effect on transit ridership.

RECOMMENDED IMPROVEMENT OPTION

Because of the high cost associated with upgrading Little Falls Road to accommodate buses, the potential significant delays associated with helicopter landings on Little Falls Road and the maintenance cost, the Study Team does not recommend rerouting buses to Little Falls Road.



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5



Alternative 6



Alternative 7

Legend

Bus Routes

- WMATA M4
- RIDE ON Route 23
- WMATA D6/D3

- Bus Stop Locations
- Bus Shelter Location
- New Bus Stop Location

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Not to Scale

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Little Falls Road
Transportation Study

Alternative Improvements

FIGURE ES-1

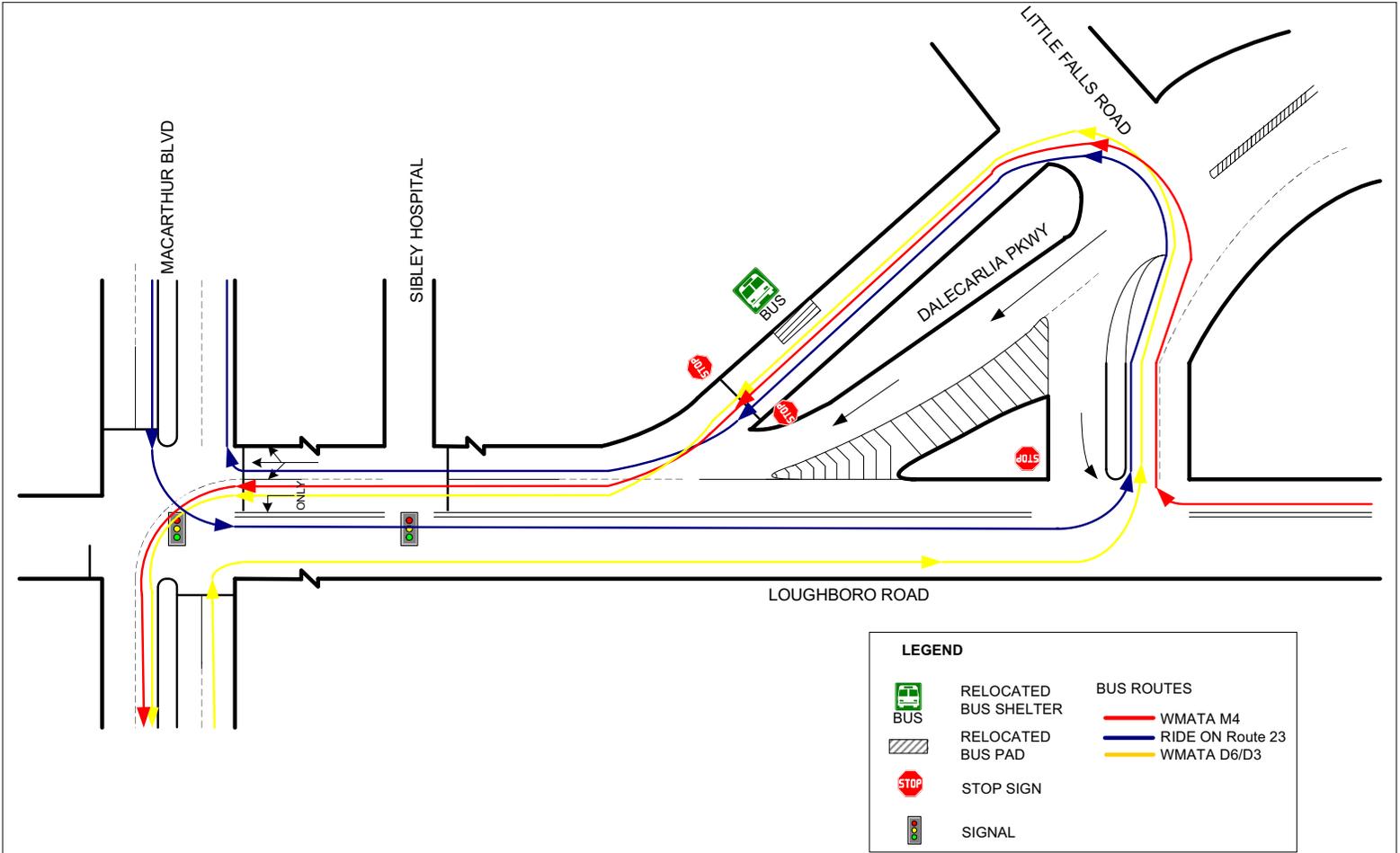
Tb ES
Evolution of Alternatives

	Alternative						
	1	2	3	4	5	6	7
Bus Travel Time (seconds)	100	181	181	100	100	100	181
Cost of Improvements	\$0	\$398,000	\$397,000	\$20,000	\$19,000	\$0	\$379,000
Bus Passenger Delay Due to Helipad	No	Significant	Significant	No	No	No	Significant
Pedestrian Safety	Poor	Improved	Improved	Improved	Improved	Improved	Improved
Little Falls Road Cost of Maintenance	Low	High	High	Low	Low	Low	High
Traffic Conditions on Loughboro Road	Acceptable	Significant Improvement	Significant Improvement	Improved	Improved	Improved	Significant Improvement
Noise Level Reduction on Loughboro Road	No Reduction	High	Good	Medium	Low	Low	Low

Instead, the Study Team recommends the implementation of Alternative 4 displayed in Figure ES-2. The recommended alternative (Alternative 4) includes the following:

- Eliminate the bus stop on the southern side of Loughboro Road in front of Sibley Hospital.
- Relocate the bus shelter on the northern side of Loughboro Road in front of Sibley Hospital to a place slightly to the east in front of the Sibley Hospital Maintenance Building. Drop off and pick up bus passengers at this location.
- Reroute WMATA Route M4 to allow it to stop at the relocated bus shelter.
- Install crosswalk signs on eastbound and westbound Loughboro Road at the intersection with the entrance to Sibley Hospital.

The elimination of the bus stop on the south side of Loughboro Road will help reduce the noise and vibration that affect the houses in front of Sibley hospital. The elimination of the southern bus stop would also prevent the illegal layovers at this stop. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. Traffic flow on Loughboro Road would be improved with the elimination of bus stops on this road in front of the hospital. The cost of relocating the bus shelter to the service road in front of the maintenance building is much lower than the cost of upgrading Little Falls Road. An agreement would be necessary between WMATA and/or DDOT and Sibley Hospital to locate the bus shelter in front of the maintenance building. Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the maintenance cost for using the service road for the bus stop in front of the maintenance building and also the cost of constructing a bus stop in front of the maintenance building.



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RECOMMENDED ALTERNATIVE

FIGURE ES-2

I. INTRODUCTION

The Washington Metropolitan Area Transit Authority (WMATA) and Ride-On buses currently operate on Loughboro Road to serve Sibley Hospital. In response to concerns of residents of the area around Sibley Hospital, the District Department of Transportation conducted a study to assess the feasibility, impacts, cost and benefits associated with rerouting buses currently serving Sibley Hospital from Loughboro Road to Little Falls Road.

The District Department of Transportation in conjunction with the consulting firm DMJM+HARRIS, Inc. (Consultant) conducted the study. The Study Team (DDOT and DMJM+HARRIS) examined the existing transit operation and infrastructural characteristics of Little Falls Road. Additionally the Study Team conducted field evaluations and geotechnical analyses to assess the engineering and roadway construction requirements to modify Little Falls Road to accommodate transit vehicles.

As shown in Figure 1, the study area for this project is bounded by the following roadways:

- Little Falls Road to the north and to the east
- MacArthur Boulevard to the west
- Loughboro Road to the south.

The second chapter of this report describes existing conditions in the study area including transit service, pedestrian infrastructure, roadways, parking and safety issues. This section describes existing geometric and pavement conditions of Little Falls Road, in addition to providing a detailed description of the current bus routes, the hours of operation, bus stop locations, and ridership data.

The third chapter describes the alternative improvement options considered in the study and presents the evaluation of these alternatives. The Study Team developed and evaluated seven alternative improvement options. The fourth chapter presents the evaluation of the alternatives.

The last chapter of the report presents the recommendations of the Study Team. The recommended alternative addresses the concerns of the residents in the most cost effective manner.

¹Appendix A includes the Scope of Work for this Study



Legend

Location of Helipad	
●	Existing Location
●	Previous Location

Note: Helipad has been moved from its previous location to the existing location shown on the map. The previous location is no longer used for helicopter landings.

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Not to Scale		Little Falls Road Transportation Study	Study Area	FIGURE 1
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II. EXISTING CONDITIONS

PUBLIC TRANSPORTATION

The study area is served by WMATA and Ride-On bus routes. The WMATA routes that provide service in the study area are D3, D6, and M4. In addition, the Montgomery County Ride-On Route 23 provides transit service from Sibley Hospital to Friendship Heights Metro Station in Montgomery County.

ROUTE OPERATION

WMATA Route D3, D6 Sibley Hospital – Stadium Armory Line

Figure 2 shows the existing routes of the buses within the study area. As seen in the figure, buses operating on WMATA Route D3, D6 travel northbound on MacArthur Boulevard and turn right onto Loughboro Road to serve the Sibley Hospital bus stop. Passengers are dropped at the bus stop located at the southern side of Loughboro Road. Buses then turn left on Dalecarlia Parkway and left again on the service road adjacent to Loughboro Road and pick up passengers at the bus shelter located in front of Sibley hospital on the northern side of Loughboro Road.

Route D3 operates only on weekdays. Westbound Route D3 (to Sibley Hospital) operates from 6:12 AM to 10:12 AM and Eastbound Route (from Sibley Hospital) operates from 3:01 PM to 6:38 PM¹

Route D6 operates on weekdays and weekends. Westbound Route D6 (to Sibley Hospital) operates from 4:11 AM to 2:40 AM and eastbound Route D6 (from Sibley Hospital) operates from 5:14 AM to 3:35 AM. On Saturdays the westbound route operates from 4:48 AM to 2:12 AM while the eastbound service runs from 5:45 AM to 3:15 AM Sunday service is provided between 5:16 AM to 12:38 AM for the westbound route and between 6:12 AM and 1:15 AM for the eastbound route.

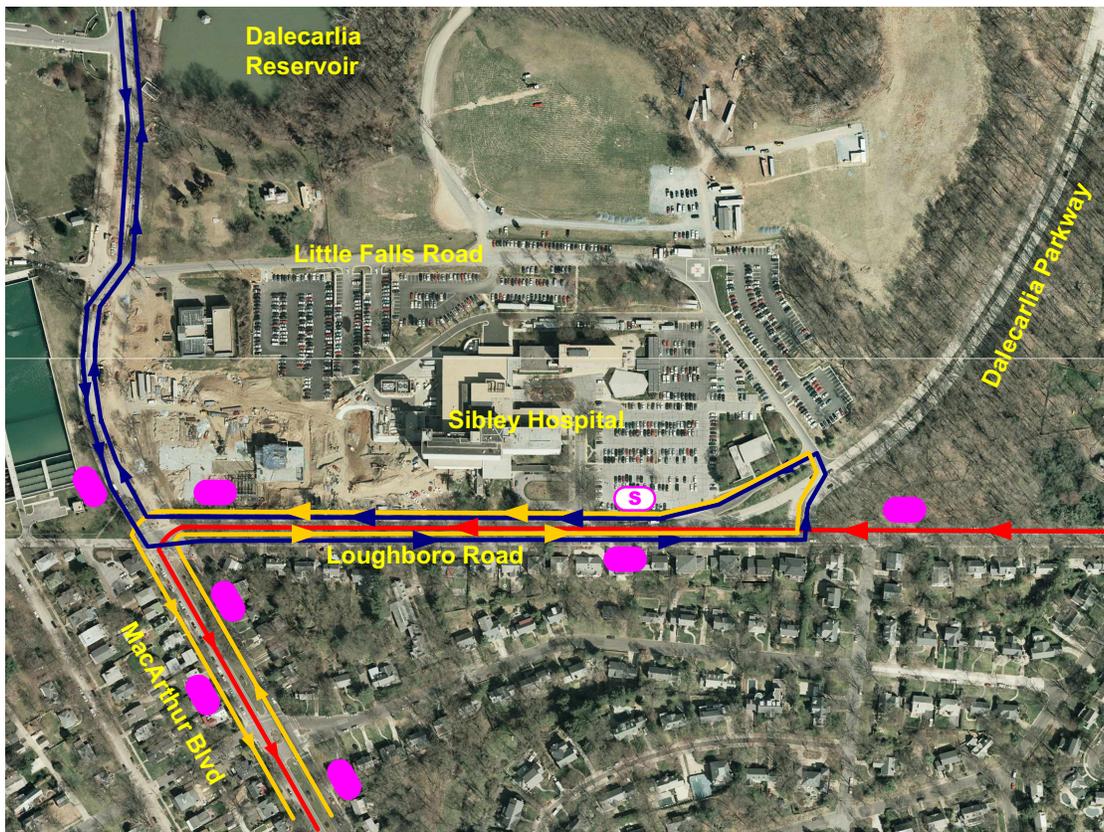
WMATA Route M4 Nebraska Avenue Line

Buses on Route M4 enter the study area along westbound Loughboro Road. They continue to travel along Loughboro road and stop at the Sibley Hospital bus shelter. They turn left on MacArthur Boulevard to travel in the southbound direction. Route M4 operates only on weekdays from 5:56 AM to 9:33 PM

RIDE- ON Route 23

The Ride-On Route 23 operates between the Friendship Heights Metro Station and Sibley Hospital on weekdays and Saturdays. Sunday service is not provided. Buses travel in the

¹ Appendix B provides detailed bus time tables for the buses that serve Sibley Hospital



- Legend**
- Bus Routes
- WMATA M4
 - RIDE ON Route 23
 - WMATA D6/D3
- Bus Stop Locations
- S Bus Shelter Locations

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Not to Scale		Little Falls Road Transportation Study	Existing Transit Service	FIGURE 2
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southbound direction on MacArthur Boulevard. They turn left on Loughboro Road and drop passengers at the bus stop located on the southern side of Loughboro Road. Buses turn left on Dalecarlia Parkway and left again on the service road next to Loughboro Road. They turn right onto Loughboro Road and pick up passengers at the bus shelter.

During weekdays, service is provided between 5:45 AM and 7:51 PM from Friendship Heights to Sibley Hospital. From Sibley hospital buses run between 6:07 AM and 8:17 PM to Friendship Heights Metro Station. On Saturdays, service is provided between 6:30 AM and 7:50 PM from Friendship Heights to Sibley Hospital and between 6:25 AM and 7:20 PM in the reverse direction.

RIDERSHIP

The Study Team collected boarding and alighting counts at the bus stops in front of Sibley Hospital between 8:00 AM and 6:00 PM. As seen in Table 1, there are more than 120 boardings at the Sibley Hospital stops between 8:00 AM and 6:00 PM. This corresponds to approximately one-half of the total daily boardings at this bus stop. Appendix C includes hourly ridership data on each route at Sibley hospital.

*Table 1
Ridership Summary at Sibley Hospital*

Route	8:00 AM to 6:00 PM ⁽¹⁾		Daily Volume	
	Boardings	Alightings	Boardings	Alightings
D3/D6	69	62	166 ⁽²⁾	141 ⁽²⁾
M4	26	26	29 ⁽²⁾	46 ⁽²⁾
Ride On 23	30	35	N/A ⁽³⁾	N/A ⁽³⁾
Total	125	123		

Notes:

(1) Data collected by DMJM + HARRIS

(2) Data provided by WMATA

(3) N/A: Not Available

ROADWAY FEATURES

LITTLE FALLS ROAD

This section describes the characteristics of Little Falls Road. This road is located behind Sibley Hospital. It intersects MacArthur Boulevard on the west and Dalecarlia Parkway on the east.

LANE CONFIGURATION AND LANE WIDTH

Little Falls Road is a two lane road. It is 1,850 feet long with lane width varying along its length.

There are three distinct sections of the roadway. These three sections are shown in Figure 3. These sections are:

- Section 1: From the intersection of MacArthur Boulevard and Little Falls Road to the existing location of the helipad
- Section 2: From the existing location of the helipad to the tangent section at the bend in the road
- Section 3: From the tangent section after the bend in the road to Dalecarlia Parkway

As shown in Table 2 and Figure 4, the roadway widths for the different sections of Little Falls Road vary¹. The minimum width needed to accommodate buses is 11 feet per lane. Only one section of Little Falls Road is wider than 11 feet per lane.

Table 2
Characteristics of Pavement Cross-Sections of Little Falls Road

	Section 1	Section 2	Section 3
Curb at Northern Edge	6 inch	None	6 inch
Gutter Pan at Northern Edge	1 foot	None	1 foot
Width for Parking at Northern Edge	None	18 feet	None
Buffer	None	4 feet	None
Number of Lanes	2	2	2
Lane Widths	10 feet	13 feet	9 feet
Width for Parking at Southern Edge	None	18 feet	18 feet
Gutter Pan at Southern Edge	1 foot	1 foot	1 foot
Curb at Southern Edge	6 inch	6 inch	6 inch

OWNERSHIP AND MAINTENANCE

Little Falls road is owned and maintained by Sibley Hospital. This road provides access to the vehicles destined to Dalecarlia Reservoir. The Washington Aqueduct shares the cost of maintenance of Little Falls road with Sibley hospital for allowing their vehicles to use this road to access the Dalecarlia Reservoir.

PAVEMENT

As shown in Table 3, the geotechnical boring tests conducted for this study indicate that the existing pavement on Little Falls Road does not meet the WMATA standards to accommodate bus operations (Typical Pavement Section C). This indicates that for most of the roadway the entire sub-base, base and surface layer would have to be replaced to be able to operate buses on this road. A detailed geotechnical report is included in Appendix E.

¹Appendix D shows the photographs taken on Little Falls Road in the above sections.



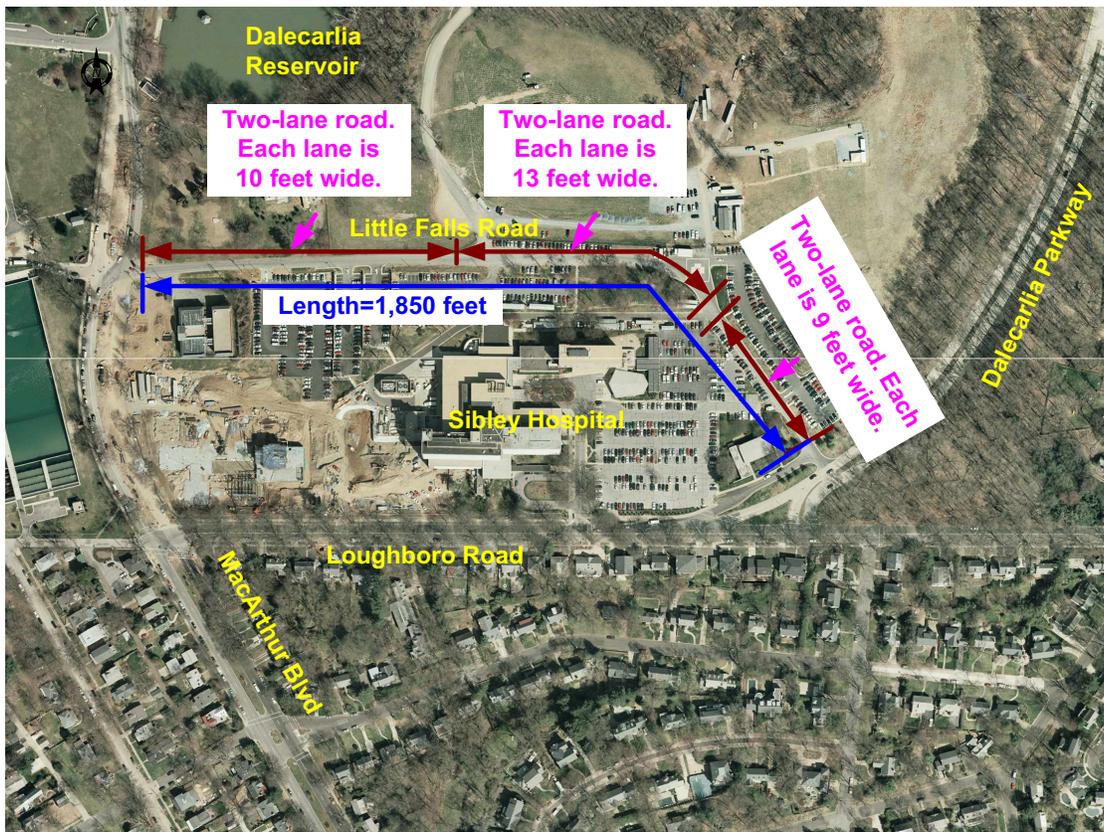
Legend

- Location of Helipad**
- Existing Location
- Previous Location

Note: Helipad has been moved from its previous location to the existing location shown on the map. The previous location is no longer used for helicopter landings.

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Not to Scale		Little Falls Road Transportation Study	Little Falls Road Sections	FIGURE 3
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Not to Scale		Little Falls Road Transportation Study	Existing Widths and Lane Configurations on Little Falls Road	FIGURE 4
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Table 3
Characteristics of Existing Pavement

Boring Location	Asphalt Thickness (inches) WMATA Requirement 7 inches			Granular Base (inches) WMATA Requirement 6 inches			Subgrade Soaked CBR WMATA Requirement 9			Meet the Requirement of Pavement Section "C" by WMATA	
	Meet WMATA Requirement	YES	NO		YES	NO		YES	NO	YES	NO
B-1	4	-	X	20	X	-	11.2	X	-	-	X
B-2	4	-	X	8	X	-	-	-	-	-	X
B-3	4	-	X	8	X	-	3.2	-	X	-	X
B-4	12	X	-	24	X	-	-	-	-	X	-
B-5	4	-	X	6	X	-	-	-	-	-	X
B-6	3	-	X	9	X	-	2.8	-	X	-	X

Figure 5 shows the boring locations

The surface condition of the pavement is good between the intersection of MacArthur Boulevard and the existing location of the helipad. However, from the helipad to the bend in the road, the pavement shows hairline cracks. Pronounced cracks are visible from the bend in the road up to the intersection with Dalecarlia Parkway.

LOCATION AND OPERATION OF HELIPAD

There is a helipad on Little Falls Road between MacArthur Boulevard and Dalecarlia Parkway. Figure 1 shows the existing location of the helipad. The helipad is used by helicopters that bring emergency patients to Sibley hospital. Little Falls Road is closed for all vehicular traffic when the helicopter is landing on the helipad. It operates on an average 12 times per month. The road is closed for approximately 30 minutes during these times.

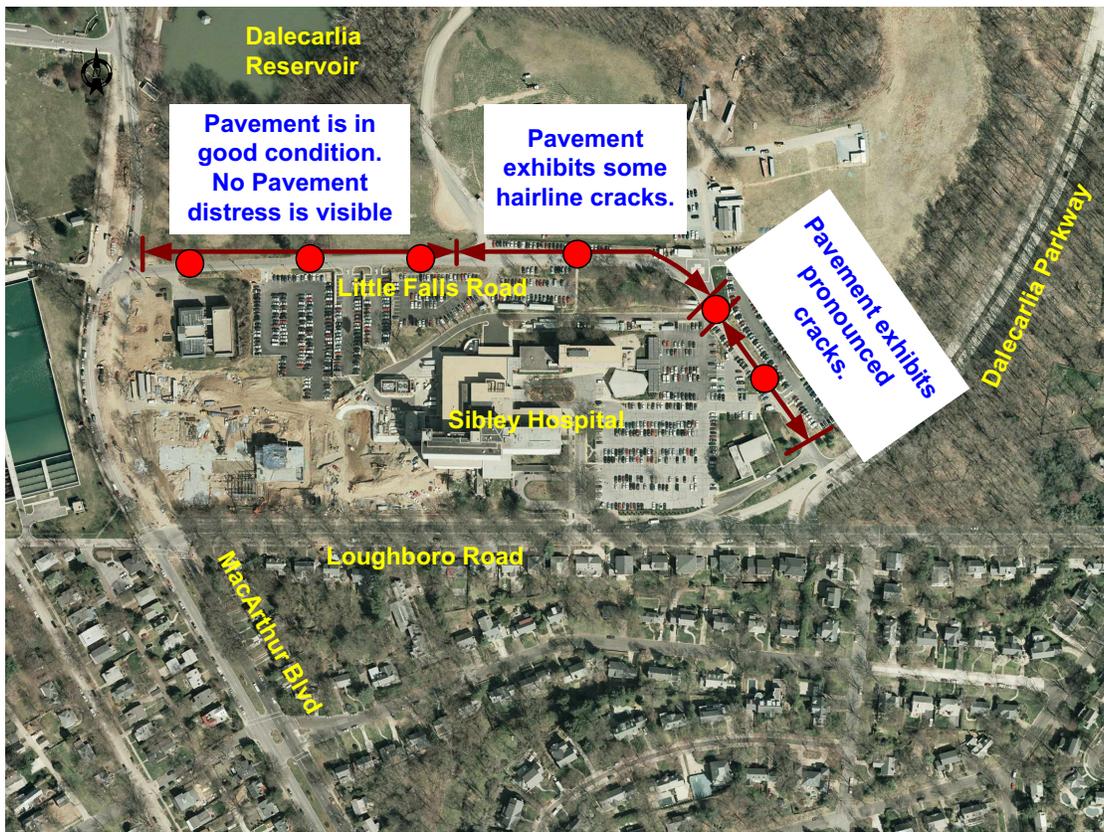
PARKING

There are a total of 77 on-street parking spaces on Little Falls Road. Figure 6 shows the location of the on-street parking spaces available on this road. As seen in the figure, before the bend, 40 parking spaces are available on the north side of the road and ten on the south side. 27 parking spaces are available after the bend in the road.

Additionally, Little Falls Road provides access to Sibley Hospital parking facilities. The new parking garage is built close to the intersection of MacArthur Boulevard and Little Falls road. Access to all the parking facilities for employees is provided via Little Falls Road.

CROSSWALK LOCATIONS

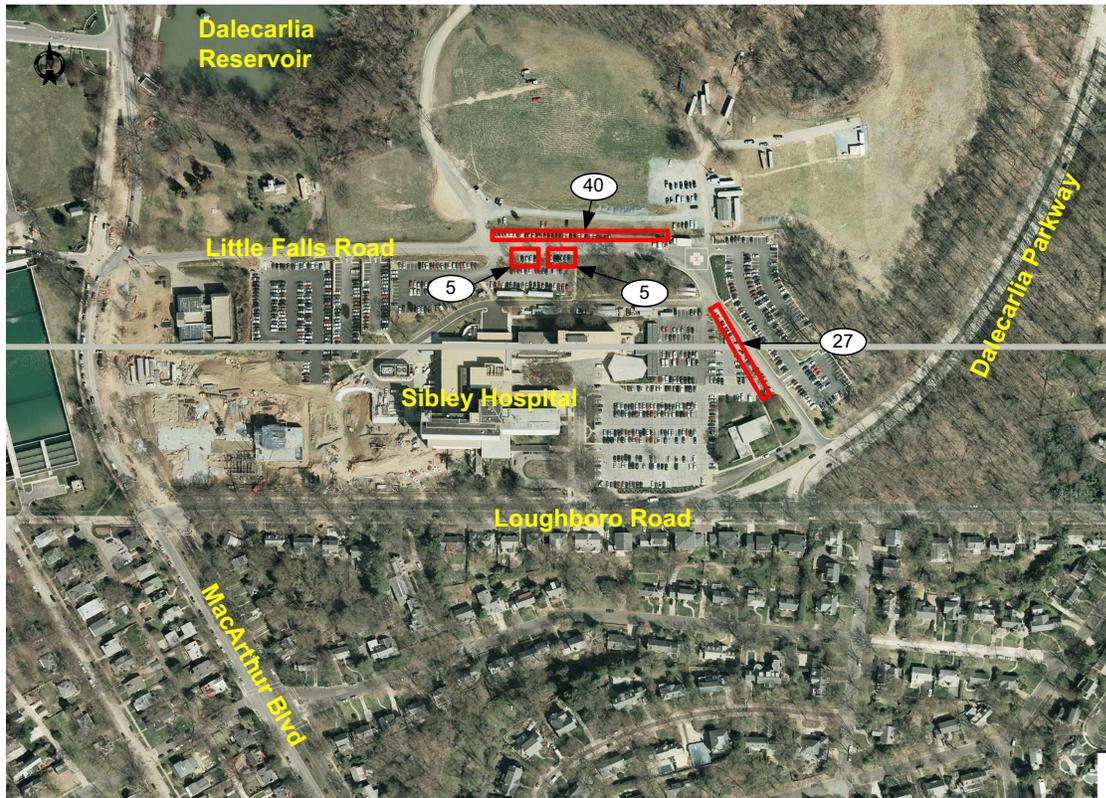
There are four existing crosswalks on Little Falls Road at the back of the hospital. Figure 7 shows the location of the crosswalks. The crosswalk near the existing location of the



Legend
 ● Boring Location

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Not to Scale		Little Falls Road Transportation Study	Existing Surface Pavement Conditions and Boring Locations on Little Falls Road	FIGURE 5
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Not to Scale		Little Falls Road Transportation Study	Existing On-Street Parking On Little Falls Road	FIGURE 6
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Not to Scale		Little Falls Road Transportation Study	Existing Crosswalks On Little Falls Road	FIGURE 7
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helipad is five feet wide and has a mild slope. It connects to a four feet wide sidewalk which provides a pedestrian connection to the hospital entrance. This sidewalk has a single step which precludes its use by handicapped persons. The crosswalk striping has faded.

Another crosswalk exists near the parking lot entrance after the roadway bends. This crosswalk is five feet wide. There is no sidewalk connecting the hospital from this crosswalk. This crosswalk marking has also faded.

Near the intersection of Dalecarlia Parkway there are two five feet wide crosswalks. No pedestrian sidewalks exist from this location to the hospital.

MACARTHUR BOULEVARD

MacArthur Boulevard is a two-way, four lane minor arterial which bounds the western side of the study area. Both sides of the road have sidewalks and bus stops. The posted speed limit is 25 mph.

LOUGHBORO ROAD

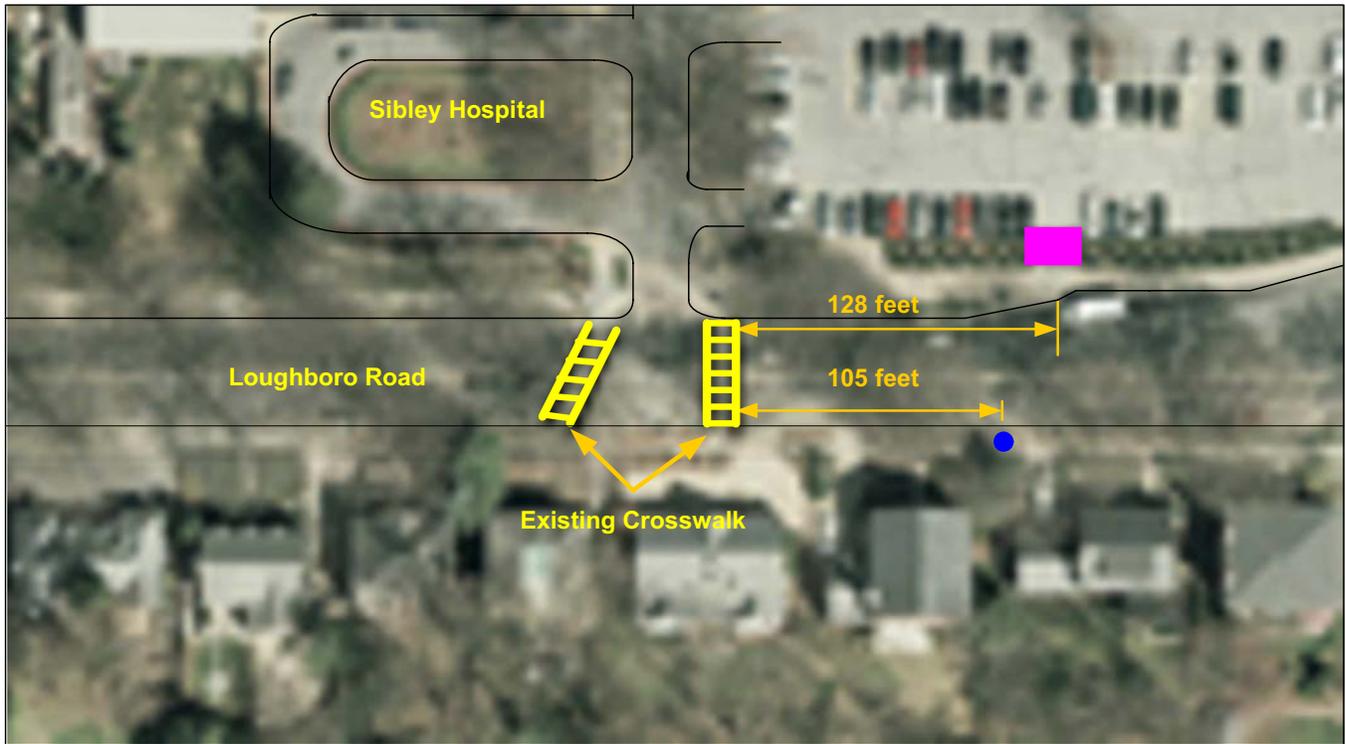
Loughboro Road is a two-way road and is classified as a minor arterial within the study area. Residential development exists on the southern side of Loughboro Road within the study area. Parking is permitted on the southern side of Loughboro Road. The speed limit is 25 mph.

There are two bus stops on the northern side and one on the southern side of Loughboro Road within the study area. The bus stop on the southern side does not permit layover of the buses at the bus stop. However field observations indicate that occasionally buses do layover at the bus stop.

Figure 8 shows the location of the bus stop, bus shelter and cross walks on Loughboro road. Field data collected shows that approximately 50 percent of the people alighting at the bus stop on the southern side of Loughboro Road cross at the existing crosswalk on Loughboro Road and 38 percent people cross the road mid-block. The other 12 percent of bus passengers do not cross the street.

TRAVEL TIME

The Study Team recorded travel time along the existing bus route as well as alternative routes by driving a car along the two routes at bus speeds. As seen in Table 4, the travel time on the existing route is 100 seconds. The travel time on Little Falls Road is 181 seconds. There is an increase of 81 seconds in travel time by using Little Falls Road.



Legend

- Sibley Hospital Bus Shelter
- Sibley Hospital Bus Stop

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Not to Scale		Little Falls Road Transportation Study	Existing Bus Stop, Bus Shelter and Crosswalk Location on Loughboro Road	FIGURE 8
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Table 4
Travel Times Using The Existing Route and Using Little Falls Road

Travel Time Using the Existing Route

Location		Travel Time (sec)	Cumulative Travel Time (sec)
From	To		
MacArthur Blvd and EB Loughboro RD	EB Loughboro RD and Dalecarlia Pkwy	44	44
EB Loughboro RD and Dalecarlia Pkwy	Dalecarlia Pkwy and WB Loughboro RD	23	67
Dalecarlia Pkwy and WB Loughboro RD	MacArthur Blvd and WB Loughboro RD	33	100

Travel Time Using Little Falls Road

Location		Travel Time (sec)	Cumulative Travel Time (sec)
From	To		
MacArthur Blvd and Loughboro RD	MacArthur Blvd and Little Falls Rd	25	25
MacArthur Blvd and Little Falls Rd	Little Falls Rd and Dalecarlia Pkwy	105	130
Little Falls Rd and Dalecarlia Pkwy	Dalecarlia Pkwy and Loughboro RD	14	144
Dalecarlia Pkwy and Loughboro RD	MacArthur Blvd and Loughboro RD	37	181

SAFETY

As Table 5 indicates, between 2000 and 2003, there were a total of three crashes at the intersection of Loughboro Road and Dalecarlia Parkway out of which one resulted in an injury. Two of these crashes were due to fixed objects on the roadway and one accident occurred while one vehicle was turning left. It is important to note that not all crashes are reported. As a result, the number of reported crashes at this location may be less than the number of actual crashes that occurred at this location.

Table 5
Summary of Crash Data Between 2000 and 2003¹

Intersection	<u>Total Number of Crashes (Injuries) 2000-2003</u>	<u>AM Peak Hour Percentage 2000-2003</u>	<u>PM Peak Hour Percentage 2000-2003</u>	<u>Off-Peak Hour Percentage 2000-2003</u>	<u>Crash Types 2000-2003</u>
Loughboro Rd and Dalecarlia Pkwy	3 (1)	0	33	67	Fixed Object-2 Left Turn-1

¹ Appendix F provides detailed information on the crash reports for this location.

III. ALTERNATIVE IMPROVEMENT OPTIONS

In order to address the issue of bus service along Loughboro Road, the Study Team developed and evaluated seven alternative improvement options.

ALTERNATIVE 1 – NO BUILD CONDITION

The transit routes for this alternative are shown in Figure 9. In this alternative there is no change in the existing bus routes. This alternative is used for comparison basis only.

ALTERNATIVE 2 – D3,D6 AND RIDE ON ROUTE 23 ON LITTLE FALLS ROAD AND BUS STOP BEHIND HOSPITAL

In this alternative, WMATA Routes D3, D6 and Ride On Route 23 would travel eastbound on Little Falls Road and would stop at the back of the hospital. WMATA Route M4 would continue to operate on Loughboro Road and would stop at the existing bus shelter.

As shown in Figure 10, in this alternative WMATA Route D3, D6 would travel northbound on MacArthur Boulevard and would make a right onto Little Falls Road. The D3 and D6 buses would stop at the back of the hospital and continue to travel on Little Falls Road to make a right on the service road adjacent to Dalecarlia Parkway. These routes would not make a stop at the bus shelter on Loughboro Road.

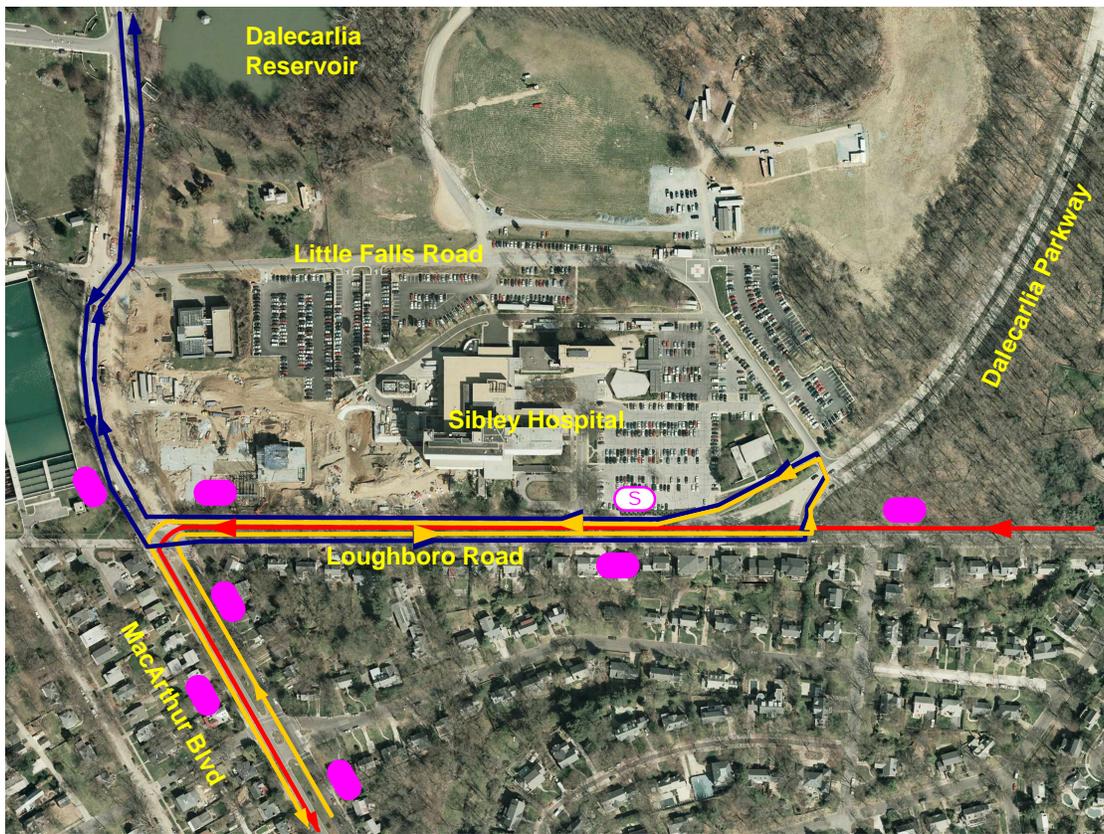
Ride On Route 23 would travel southbound on MacArthur Boulevard, would turn left on Little Falls Road, stop at the back of the hospital and would turn right on the service road adjacent to Dalecarlia Parkway and continue to travel on Loughboro Road. The existing bus stop on the south side of Loughboro road would be eliminated.

WMATA Route M4 is unchanged. The buses for this route travel westbound on Loughboro Road and stop at the bus shelter. They turn left on MacArthur Boulevard and travel in the southbound direction.

ALTERNATIVE 3 – D3,D6 AND RIDE ON ROUTE 23 ON LITTLE FALLS ROAD AND BUS STOP IN FRONT OF MAINTENANCE BUILDING

Under this alternative, WMATA Routes D3, D6 and Ride On Route 23 would travel eastbound on Little Falls Road instead of Loughboro Road. As shown in Figure 11, these routes would stop at a bus shelter to be located in front of the Sibley Hospital maintenance building which is located along the service road east of the hospital parallel to Dalecarlia Parkway. Route M4 would continue to operate on Loughboro Road and stop at the existing bus shelter located on the north side of Loughboro Road. The bus stop on the south side of Loughboro would be eliminated.

WMATA Route D3, D6 would travel northbound on MacArthur Boulevard and make a right onto Little Falls Road. These buses would travel on Little Falls Road, stop at a new



- Legend
- Bus Routes**
- WMATA M4
 - RIDE ON Route 23
 - WMATA D6/D3
- Bus Stop Locations
- S Bus Shelter Locations

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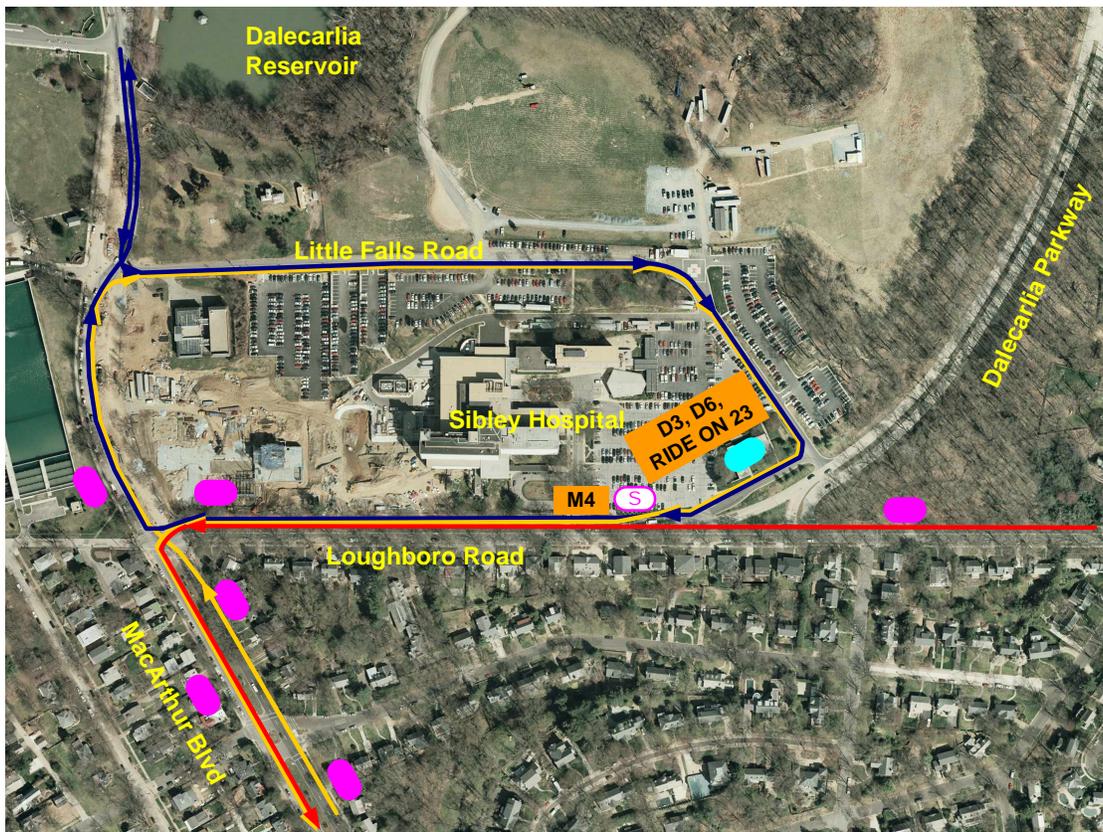
Not to Scale		Little Falls Road Transportation Study	Alternative 1 – No-Build Condition	FIGURE 9
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- Legend**
- Bus Routes**
- WMATA M4
 - RIDE ON Route 23
 - WMATA D6/D3
- Bus Stop Locations
 - S Bus Shelter Location
 - New Bus Stop Location

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Not to Scale		Little Falls Road Transportation Study	Alternative 2 – D3, D6 and Ride On Route 23 on Little Falls Road and Bus Stop Behind Hospital	FIGURE 10
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- Legend**
- Bus Routes**
- WMATA M4
 - RIDE ON Route 23
 - WMATA D6/D3
- Bus Stop Locations
 - S Bus Shelter Location
 - New Bus Stop Location

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Not to Scale		Little Falls Road Transportation Study	Alternative 3 – D3, D6 and Ride On Route 23 on Little Falls Road and Bus Stop in Front of Maintenance Building	FIGURE 11
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bus shelter in front of the maintenance building and continue to travel on Loughboro Road. These routes would not make a stop at the bus shelter on Loughboro Road.

Ride On Route 23 would travel southbound on MacArthur Boulevard, would make a left onto Little Falls Road, stop at the new bus shelter in front of the maintenance building and continue to travel on Loughboro Road.

WMATA Route M4 would remain unchanged. The M4 buses travel westbound on Loughboro Road and stop at the bus shelter on the north side of Loughboro Road. They turn left on MacArthur Boulevard and travel in the southbound direction.

ALTERNATIVE 4 – BUSES ON LOUGHBORO ROAD AND RELOCATED BUS STOP FOR ALL ROUTES

As shown in Figure 12, this alternative proposes to construct a bus shelter in front of the Sibley Hospital maintenance building which is located along the service road east of the hospital parallel to Dalecarlia Parkway. The existing bus shelter and bus stop on Loughboro road would be removed. All the buses would stop at the bus shelter in front of the maintenance building. This alternative would not change the WMATA Routes D3, D6 and Ride On Route 23. WMATA Route M4 would be changed slightly.

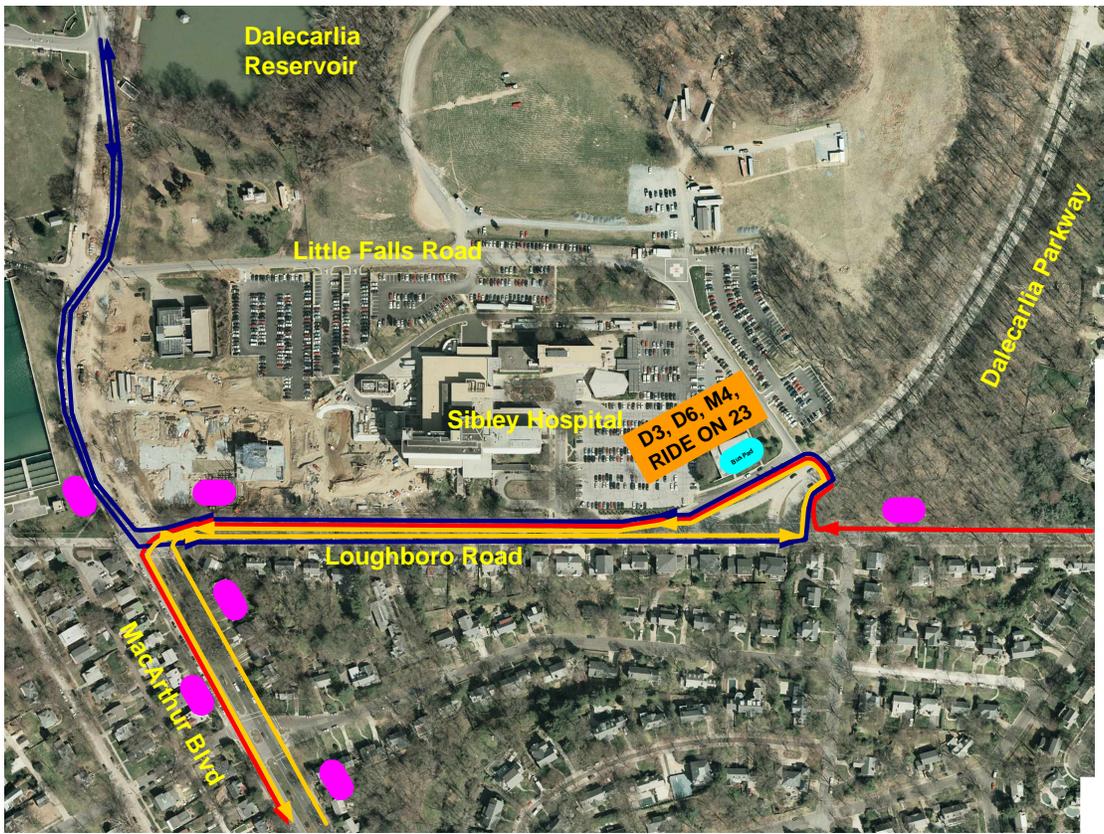
WMATA Route D3, D6 travel northbound on MacArthur Boulevard and make a right onto Loughboro Road. Buses turn left onto Dalecarlia Parkway and turn left at the service road adjacent to Dalecarlia Parkway. Under this alternative, the buses would stop at a new bus shelter in front of the Sibley Hospital maintenance building and continue to travel on Loughboro Road in the westbound direction.

Ride On Route 23 travels southbound on MacArthur Boulevard, makes a left on Loughboro Road, turns left onto Dalecarlia Parkway and turns left at the service road adjacent to Dalecarlia Parkway. Under this alternative, the buses would stop at a new bus shelter in front of the Sibley Hospital maintenance building and continue to travel on Loughboro Road in the westbound direction. They make a right onto MacArthur Boulevard to travel in the northbound direction.

WMATA Route M4 is changed slightly. Instead of continuing straight on Loughboro Road, the buses would turn right onto Dalecarlia Parkway followed by a left turn at the service road in front of the Sibley Hospital maintenance building. The buses would stop at a new bus shelter in front of the maintenance building. After dropping off and picking up passengers, the M4 buses would travel westbound on Loughboro Road and make a left onto MacArthur Boulevard.

ALTERNATIVE 5 – BUSES ON LOUGHBORO ROAD AND RELOCATED BUS STOP FOR ROUTES D3, D6 AND RIDE ON 23 ONLY

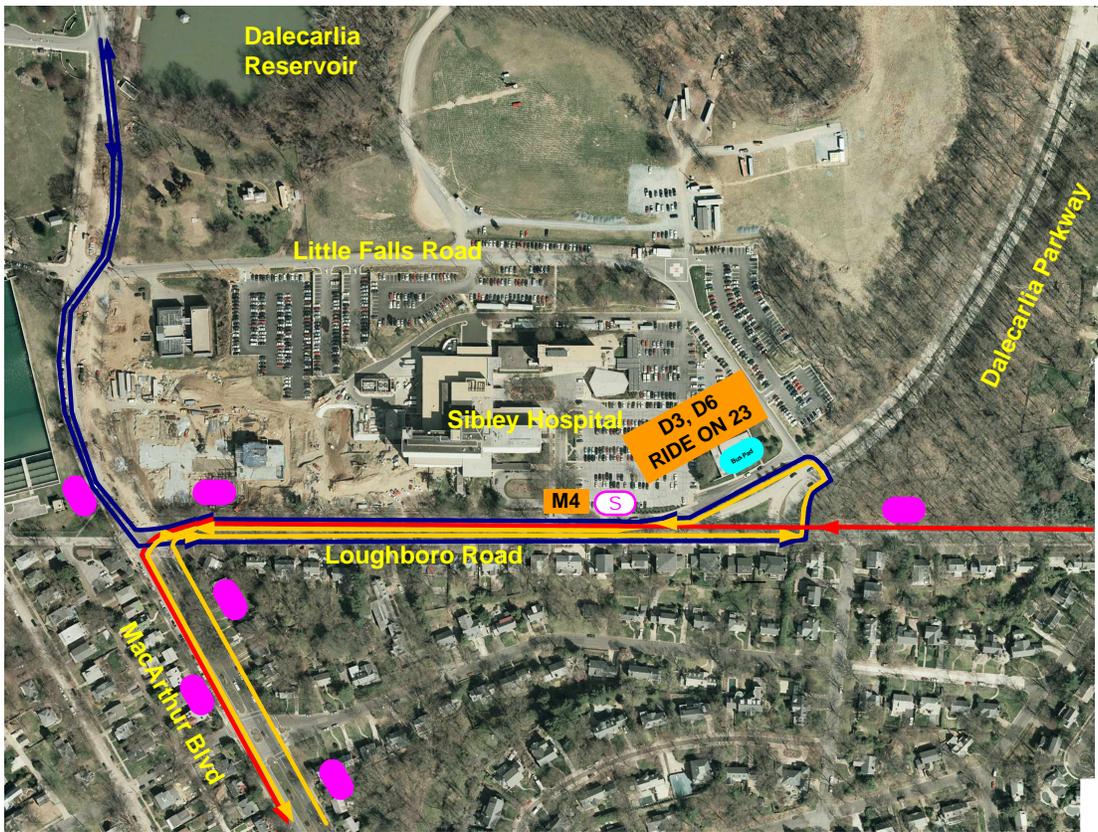
As shown in Figure 13, under this alternative a bus shelter would be constructed in front of the Sibley Hospital maintenance building which is located along the service road east



- Legend**
- Bus Routes**
- WMATA M4
 - RIDE ON Route 23
 - WMATA D6/D3
- Bus Stop Locations
- New Bus Pad Location

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Not to Scale		Little Falls Road Transportation Study	Alternative 4 – Buses on Loughboro Road And Relocated Bus Stop for All Routes	FIGURE 12
June 2005				



Legend

Bus Routes

- WMATA M4
- RIDE ON Route 23
- WMATA D6/D3

- Bus Stop Locations
- New Bus Pad Location
- Bus Shelter Location

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Not to Scale		Little Falls Road Transportation Study	Alternative 5 – Buses on Loughboro Road and Relocated Bus Stop for Routes D3, D6 and Ride On 23 Only	FIGURE 13
June 2005				

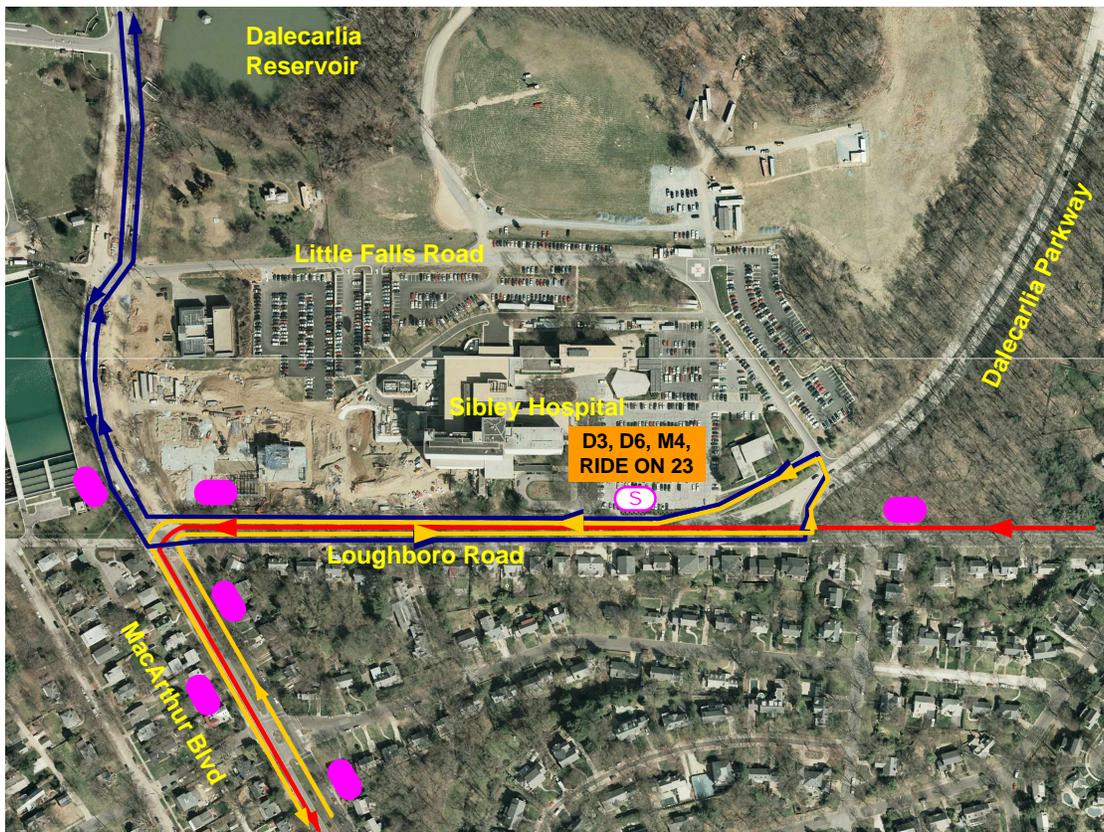
of the hospital parallel to Dalecarlia Parkway. The existing bus shelter on the northside of Loughboro road would not be removed. There would be no change in the routing for WMATA Routes D3, D6 and Ride On Route 23 and WMATA Routes M4. The existing bus stop on the south side of Loughboro Road would be eliminated. Route D3, D6 and Ride On 23 would drop off and pick up passengers at the new bus shelter in front of the maintenance building and Route M4 would stop at the existing bus shelter.

ALTERNATIVE 6 – ELIMINATE BUS STOP ON THE SOUTH SIDE OF LOUGHBORO ROAD

As shown in Figure 14, in alternative 6 there is no change to the routing of WMATA Routes D3, D6, M4 and Ride On Route. The bus stop on the south side of Loughboro road would be removed. All buses would drop off and pick up passengers at the bus shelter located on the north side of Loughboro Road. The transit routes for this alternative are shown in Figure 14.

ALTERNATIVE 7 – REROUTE WMATA D3, D6 AND RIDE ON ROUTE 23 TO LITTLE FALLS ROAD AND DO NOT PROVIDE BUS STOPS BEHIND THE HOSPITAL

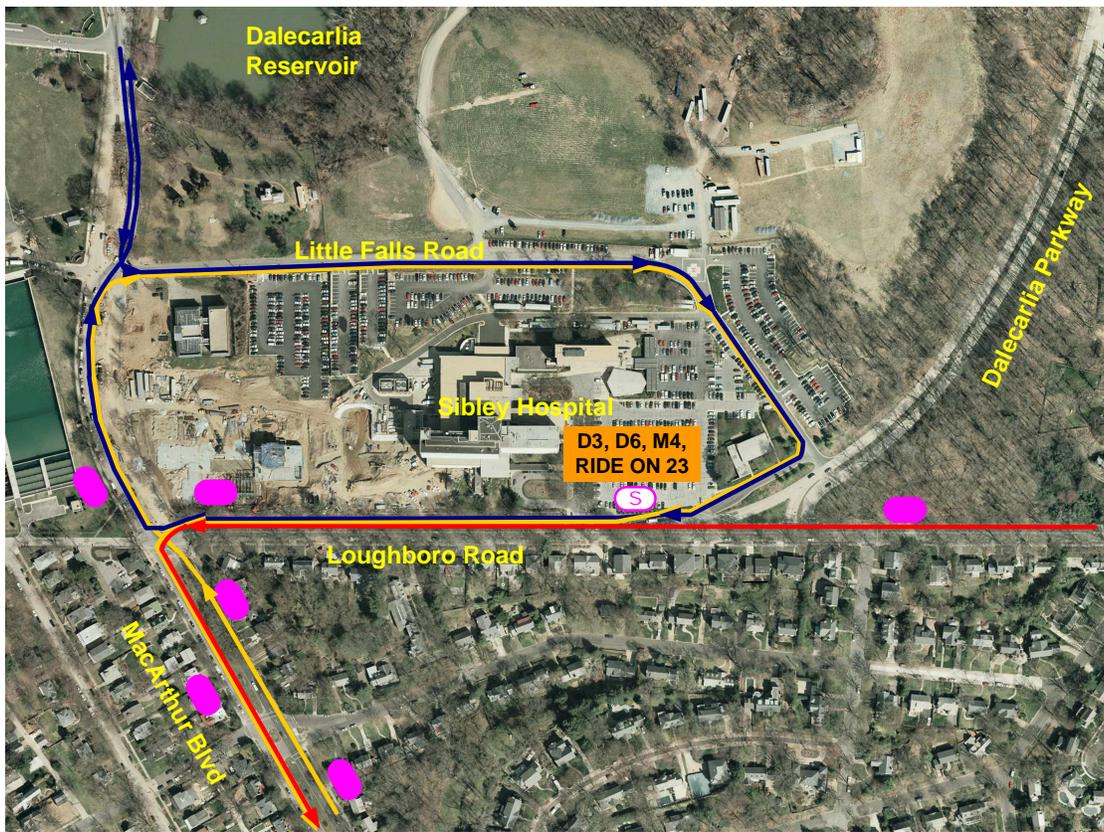
As shown in Figure 15, under this alternative, WMATA Routes D3, D6 and Ride On Route 23 would operate on Little Falls Road and WMATA Route M4 would continue to operate on Loughboro Road. All buses would stop at the existing bus shelter located on the north side of Loughboro Road in front of Sibley Hospital. The existing bus stop on the south side of Loughboro Road would be eliminated.



- Legend**
- Bus Routes**
- WMATA M4
 - RIDE ON Route 23
 - WMATA D6/D3
- Bus Stop Locations
- S Bus Shelter Locations

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Not to Scale		Little Falls Road Transportation Study	Alternative 6 – Eliminate Bus Stop on the South Side of Loughboro Road	FIGURE 14
June 2005				



Legend

Bus Routes

- WMATA M4
- RIDE ON Route 23
- WMATA D6/D3

● Bus Stop Locations

S Bus Shelter Locations

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Not to Scale	
June 2005	

Little Falls Road
Transportation Study

Alternative 7 – Reroute WMATA D3, D6 and
Ride On on Route 23 to Little Falls Road and
Do Not Provide Bus Stops Behind the Hospital

FIGURE 15

IV. EVALUATION OF ALTERNATIVES

In order to evaluate the effectiveness of each of the alternatives, the Study Team assessed the pros and cons of each of the alternatives. Table 6 summarizes the pros and cons of the alternative improvement options considered for implementation. Appendix G provided details on the improvements that would be required to implement the alternatives. Appendix H provides information on the preliminary cost estimates of each of the alternatives. These cost estimates are presented in Table 6.

After the draft final report was prepared, the Study Team held a public meeting to present the information on the study alternatives and on preliminary findings and recommendations. The questions and comments made during the meeting are summarized in Appendix I. This appendix also includes responses to questions, comments and a request for the inclusion of an additional alternative received during the meeting.

Table 6: Evaluation of Alternatives

ALTERNATIVE	PROS	CONS	EVALUATION
Alternative 1: No Build Condition	<p>Existing bus routes remain unaffected</p> <p>Existing bus travel times remain unaffected</p> <p>Existing travel distances for transit riders are unaffected</p> <p>No additional cost for transit operation, upgrading Little Falls Road and its maintenance</p>	<p>Residents on Loughboro Road affected by noise due to transit operation on Loughboro Road</p> <p>Residents on Loughboro Road affected by vibrations due to transit operation on Loughboro Road</p> <p>Buses could continue to layover illegally at the bus stop on the south side of Loughboro Road</p> <p>Unsafe pedestrian crossings would not be reduced</p>	<p>The do-nothing or No-Build condition is not satisfactory. The buses stopping at the bus stop located on the south side of Loughboro Road generate noise and vibrations that affect the residents of the residential units located on the south side of Loughboro Road. Buses sometimes layover illegally at the bus stop on the south side of Loughboro Road.</p>
Alternative 2: WMATA Routes D3, D6 and Ride On Route 23 would operate on Little Falls Road and would stop at the back of the hospital, Route M4 would continue to operate on Loughboro Road and would stop at the shelter on Loughboro Road. Bus stop located on the south side of Loughboro Road would be removed	<p>WMATA Route M4 remains unaffected</p> <p>WMATA Route D3, D6 and Ride On Route 23 would stop at the back of the hospital and would not stop at the bus shelter on Loughboro Road. This would help reduce the noise level concerns of the residents on Loughboro Road</p> <p>Removal of the bus stop on the south side of Loughboro Road would eliminate the illegal layover of the buses at that stop and would reduce noise for the residents on Loughboro Road</p> <p>Unsafe pedestrian crossings would be reduced</p>	<p>Existing travel times for Routes D3, D6 and Ride On Route 23 would increase approximately by 80 seconds</p> <p>Existing travel distances for riders on Route D3, D6 and Ride On Route 23 would increase</p> <p>High costs to upgrade Little Falls Road to accommodate buses (\$ 398,000)</p> <p>Existing parking conditions need to be modified to accommodate a bus stop on Little Falls Road. Ten new parking spaces need to be provided for ones that will be eliminated because of the new bus stop</p> <p>Route D3, D6 and Ride On Route 23 would experience delays of 30 minutes or more during the operation of the hospital</p> <p>Existing bus shelter on Loughboro road would continue to be a source of noise and vibration for residents on Loughboro Road</p> <p>DDOT and/or WMATA would have to pay for a portion of the maintenance cost of Little Falls Road due to the bus usage of this road.</p> <p>Ride on Route 23 would have to turn left at an unsignalized intersection on MacArthur Boulevard</p> <p>DDOT and/or WMATA would have to negotiate an agreement with Sibley Hospital to be allowed to construct the bus shelter on Little Falls Road</p> <p>Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the cost of constructing a bus shelter on Little Falls Road</p>	<p>With the shift of the eastbound buses to Little Falls Road, the residential units south of Loughboro Road would experience less noise and vibration. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. However, the cost of upgrading Little Falls Road to accommodate buses is significant. Moreover, the potential delays to buses associated with helicopter landings on Little Falls Road makes it very difficult to operate buses on this road.</p>
Alternative 3: WMATA Routes D3, D6 and Ride On Route 23 would operate on Little Falls Road and would stop in front of the maintenance building, Route M4 would continue to operate on Loughboro Road and would stop at the shelter on Loughboro Road. Bus stop located on the south side of Loughboro Road would be removed	<p>WMATA Route M4 remains unaffected</p> <p>WMATA Route D3, D6 and Ride On Route 23 would stop at the maintenance building bus stop and would not stop at the bus shelter on Loughboro Road. This would help reduce noise level on Loughboro Road</p> <p>Removal of the bus stop on the south side of Loughboro Road would eliminate the illegal layover of the buses at that stop and would reduce noise for the residents on Loughboro Road</p> <p>Existing parking conditions remain unaffected</p> <p>Unsafe pedestrian crossings would be reduced</p>	<p>Existing travel times for Routes D3, D6 and Ride On Route 23 would increase approximately 80 seconds</p> <p>Existing travel distances for riders on Route D3, D6 and Ride On Route 23 would increase</p> <p>Route D3, D6 and Ride On Route 23 would experience delays of 30 minutes or more during the operation of the hospital</p> <p>High costs to upgrade Little Falls Road to accommodate buses (\$ 397,000)</p> <p>Existing bus shelter on Loughboro road would continue to be a source of noise and vibration for residents on Loughboro Road</p> <p>DDOT and/or WMATA would have to pay for a portion of the maintenance cost of Little Falls Road due to the bus usage of this road.</p> <p>Ride on Route 23 would have to turn left at an unsignalized intersection on MacArthur Boulevard</p> <p>DDOT and/or WMATA would have to negotiate an agreement with Sibley Hospital to be allowed to construct the bus shelter in front of the maintenance building.</p> <p>Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the maintenance cost for using the service road for the bus stop in front of the maintenance building</p> <p>Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the cost of constructing a bus stop in front of the maintenance building</p> <p>Additional bus operating costs due to additional travel for deadheading buses</p>	<p>With the shift of the eastbound buses to Little Falls Road, the residential units south of Loughboro Road would experience less noise and vibration. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. However, the cost of upgrading Little Falls Road to accommodate buses is significant. Moreover, the potential delays to buses associated with helicopter landings on Little Falls Road makes it very difficult to operate buses on this road.</p>
Alternative 4: Remove bus stop and bus shelter on Loughboro Road. Construct a bus shelter in front of the maintenance building. WMATA Routes D3, D6 and Ride On Route 23 continue to travel eastbound on Loughboro Road and would stop in front of the maintenance building. WMATA Route M4 would turn right on Dalecarlia Parkway and stop in front of the maintenance building.	<p>Existing bus routes remain unaffected except for a slight change in Route M4</p> <p>Existing bus travel times remain unaffected</p> <p>Existing travel distances for transit riders are unaffected</p> <p>Existing parking conditions remain unaffected</p> <p>Traffic flow on Loughboro Road would be improved</p> <p>No additional cost for transit operation, upgrading Little Falls Road and its maintenance</p> <p>Removal of the bus stop on the south side of Loughboro Road would eliminate the illegal layover of the buses at that stop and would reduce noise for the residents on Loughboro Road</p> <p>Unsafe pedestrian crossings would be reduced</p>	<p>DDOT and/or WMATA would have to negotiate an agreement with Sibley Hospital to be allowed to construct the bus shelter in front of the maintenance building.</p> <p>Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the maintenance cost for using the service road for the bus stop in front of the maintenance building</p> <p>Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the cost of constructing a bus stop in front of the maintenance building</p> <p>Eastbound vehicles would continue to generate noise and vibrations (at lesser levels)</p> <p>Additional bus operating costs due to additional travel for deadheading buses</p>	<p>The elimination of the bus stop on the south side of Loughboro Road would help reduce the noise and vibration that affect the houses in front of Sibley hospital. The elimination of the southern bus stop would also prevent the illegal layovers at this stop. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. Traffic flow on Loughboro Road would be improved with the elimination of bus stops on this road in front of the hospital. The cost of relocating the bus shelter to the service road in front of the maintenance building is much lower than the cost of upgrading Little Falls Road. An agreement would be necessary between WMATA and/or DDOT and Sibley Hospital to locate the bus shelter in front of the maintenance building.</p>

*WMATA is changing bus fleet for the "D" routes from diesel power to CNG. Currently 90% of the "D" route buses are operated with the new Compressed Natural Gas (CNG) buses.

Table 6: Evaluation of Alternatives (Continued)

ALTERNATIVE	PROS	CONS	EVALUATION
Alternative 5: Construct a bus shelter at the maintenance building. WMATA Routes D3, D6 and Ride On Route 23 will stop at the bus shelter in front of the maintenance building. No change in WMATA Routes D3, D6 and Ride On Route 23. WMATA Route M4 would continue to operate on Loughboro Road and would stop at the shelter on Loughboro road. Bus stop located on south side of Loughboro Road would be removed.	Existing bus routes remain unaffected	Existing bus shelter on Loughboro road may still be a source of noise for residents on Loughboro Road	The elimination of the bus stop on the south side of Loughboro Road would help reduce the noise and vibration that affect the houses in front of Sibley Hospital. The elimination of the southern bus stop would also eliminate the illegal layovers at this stop. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. The cost of relocating the bus shelter to the service road in front of the maintenance building is much lower than the cost of upgrading Little Falls Road. An agreement would be necessary between WMATA and/or DDOT and Sibley Hospital to locate the bus shelter in front of the maintenance building. The M4 buses stopping at the existing bus shelter on the north side of Loughboro Road would continue to affect traffic flow on Loughboro Road.
	Existing bus travel times remain unaffected	DDOT and/or WMATA would have to negotiate an agreement with Sibley Hospital to be allowed to construct the bus shelter in front of the maintenance building.	
	Existing parking conditions remain unaffected	Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the maintenance cost for using the service road for the bus stop in front of the maintenance building	
	No additional cost for transit operation, upgrading Little Falls road and its maintenance	Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the cost of constructing a bus stop in front of the maintenance building	
	Removal of the bus stop on the south side of Loughboro Road would eliminate the illegal layover of the buses at that stop and would reduce noise for the residents on Loughboro Road	Eastbound vehicles would continue to generate noise and vibrations (at lesser levels)	
	Unsafe pedestrian crossings would be reduced	Additional bus operating costs due to additional travel for deadheading buses	
Alternative 6: No change in any existing bus routes. Remove the bus stop on the south side of Loughboro Road. All buses would stop at the bus shelter on the north side of Loughboro Road	Existing bus routes remain unaffected	All the four routes would stop at the existing bus shelter on Loughboro road and would still be a source of noise for residents on Loughboro Road	The elimination of the bus stop on the south side of Loughboro Road would help reduce the noise and vibration that affect the houses in front of Sibley Hospital. The elimination of the southern bus stop would also eliminate the illegal layovers at this stop. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. The drop off and pick up of passengers for all the buses serving Sibley Hospital at the existing bus shelter would affect traffic flow on Loughboro Road.
	Existing bus travel times remain unaffected	Westbound traffic flow affected by longer bus dwell times at the bus shelter	
	Existing travel distances for transit riders are unaffected	Additional bus operating costs due to additional travel for deadheading buses	
	Existing parking conditions remain unaffected		
	No additional cost for transit operation, upgrading Little Falls road and its maintenance		
	Removal of the bus stop on the south side of Loughboro Road would eliminate the illegal layover of the buses at that stop and would reduce noise for the residents on Loughboro Road		
Unsafe pedestrian crossings would be reduced			
Alternative 7: WMATA Routes D3, D6 and Ride On 23 would operate on Little Falls Road and would stop at the bus shelter located on the northside of Loughboro Road, Route M4 would continue to operate on Loughboro Road and would stop at the shelter on Loughboro Road. The bus stop located on the south side of Loughboro Road would be removed	WMATA Route M4 remains unaffected	Existing bus routes for WMATA Route D3, D6 and Ride On Route 23 would be changed	With the shift of the eastbound buses to Little Falls Road, the residential units south of Loughboro Road would experience less noise and vibration. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. However, the cost of upgrading Little Falls Road to accommodate buses is significant. Moreover, the potential delays to buses associated with helicopter landings on Little Falls Road makes it very difficult to operate buses on this road.
	Existing parking conditions remain unaffected	Existing travel times for Routes D3, D6 and Ride On Route 23 would increase	
	Removal of the bus stop on the south side of Loughboro Road would eliminate the illegal layover of the buses at that stop and would reduce noise for the residents on Loughboro Road	High costs to upgrade Little Falls Road to accommodate buses (\$ 379,000)	
	Unsafe pedestrian crossings would be reduced	Route D3, D6 and Ride On Route 23 would experience delays of 30 minutes or more during the operation of the helipad	
		High costs involved for upgrading the pavement on Little Falls road to take bus load	
		Existing bus shelter on Loughboro road would continue to be a source of noise and vibration for residents on Loughboro Road	
	DDOT and/or WMATA would have to pay for a portion of the maintenance cost of Little Falls Road due to the bus usage of this road		
	Ride on Route 23 would have to turn left at an unsignalized intersection on MacArthur Boulevard		
	Additional bus operating costs due to additional travel for deadheading buses		

V. FINDINGS AND RECOMMENDATIONS

This study assessed the feasibility of alternative improvement options including rerouting buses currently serving Sibley Hospital from Loughboro Road to Little Falls Road.

EXISTING CONDITIONS

The Washington Metropolitan Area Transit Authority (WMATA) and Ride-On buses currently operate on Loughboro Road to serve Sibley Hospital. The Study Team assessed existing conditions and found that buses stopping at the bus stops on Loughboro generate noise and vibrations that affect the residential units adjacent to Loughboro Road. In the field evaluations, the Study Team found that even though buses are not supposed to layover at the bus stop located on the south side of Loughboro Road in front of the hospital, some buses do layover illegally. A safety issue observed in the field was that a large number of pedestrians that get off the bus at the bus stop on the south side of Loughboro Road cross the street to reach the hospital mid-block instead of at the crosswalk.

ALTERNATIVE IMPROVEMENT OPTIONS

The Study Team evaluated seven alternative improvement options to reduce the impacts on the residential units in front of Sibley Hospital. As shown in Figure 16, some of the alternatives encompassed rerouting buses to Little Falls Road. Others included shifting the location of bus stops/shelters but maintaining bus service on Loughboro Road.

The Study Team found that in its current configuration Little Falls Road is not adequate to accommodate buses. The pavement and roadway width in sections of Little Falls Road is not adequate for bus operations. As shown in Table 7, it would cost close to \$400,000 to upgrade Little Falls Road to be able to accommodate transit operations on Little Falls Road (Alternatives 2, 3 and 7). The presence of a helipad on Little Falls Road is a major factor that reduces the desirability of rerouting buses to use this road. Helicopter landings close Little Falls Road for 30 minutes or more approximately 12 times per month. The closing of the road would have a significant impact on bus schedules which in turn may have an effect on transit ridership.

RECOMMENDED IMPROVEMENT OPTION

Because of the high cost associated with upgrading Little Falls Road to accommodate buses, the potential significant delays associated with helicopter landings on Little Falls Road and the maintenance cost, the Study Team does not recommend rerouting buses to Little Falls Road. Instead, the Study Team recommends the implementation of Alternative 4 displayed in Figure 17. The recommended alternative (Alternative 4) includes the following:

- Eliminate the bus stop on the southern side of Loughboro Road in front of Sibley Hospital.



Alternative 1



Alternative 2



Alternative 3



Alternative 4



Alternative 5



Alternative 6



Alternative 7

Legend

Bus Routes

- WMATA M4
- RIDE ON Route 23
- WMATA D6/D3

- Bus Stop Locations
- Bus Shelter Location
- New Bus Stop Location

Not to Scale

June 2005



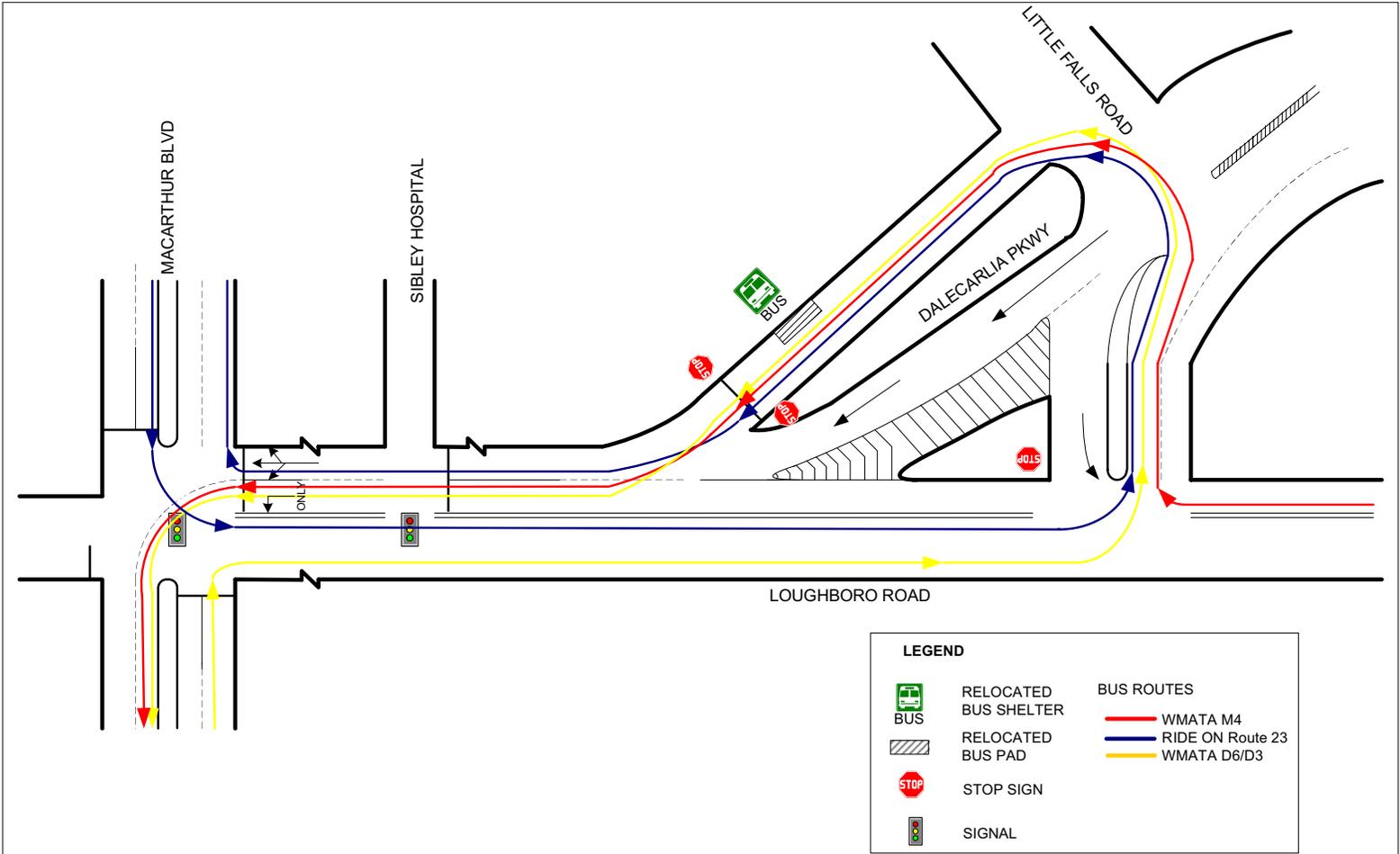
Little Falls Road
Transportation Study

Alternative Improvements

FIGURE 16

**Table 7
Summary of Evaluation of Alternatives**

	Alternative						
	1	2	3	4	5	6	7
Bus Travel Time (seconds)	100	181	181	100	100	100	181
Cost of Improvements	\$0	\$398,000	\$397,000	\$20,000	\$19,000	\$0	\$379,000
Bus Passenger Delay Due to Helipad	No	Significant	Significant	No	No	No	Significant
Pedestrian Safety	Poor	Improved	Improved	Improved	Improved	Improved	Improved
Little Falls Road Cost of Maintenance	Low	High	High	Low	Low	Low	High
Traffic Conditions on Loughboro Road	Acceptable	Significant Improvement	Significant Improvement	Improved	Improved	Improved	Significant Improvement
Noise Level Reduction on Loughboro Road	No Reduction	High	Good	Medium	Low	Low	Low



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RECOMMENDED ALTERNATIVE

FIGURE 17

- Relocate the bus shelter on the northern side of Loughboro Road in front of Sibley Hospital to a place slightly to the east in front of the Sibley Hospital Maintenance Building. Drop off and pick up bus passengers at this location.
- Reroute WMATA Route M4 to allow it to stop at the relocated bus shelter.
- Install crosswalk signs on eastbound and westbound Loughboro Road at the intersection with the entrance to Sibley Hospital.

The elimination of the bus stop on the south side of Loughboro Road will help reduce the noise and vibration that affect the houses in front of Sibley hospital. The elimination of the southern bus stop would also prevent the illegal layovers at this stop. Furthermore, unsafe pedestrian movements for bus passengers getting off on the south side of Loughboro Road and crossing the street to reach the hospital would be eliminated. Traffic flow on Loughboro Road would be improved with the elimination of bus stops on this road in front of the hospital. The cost of relocating the bus shelter to the service road in front of the maintenance building is much lower than the cost of upgrading Little Falls Road. An agreement would be necessary between WMATA and/or DDOT and Sibley Hospital to locate the bus shelter in front of the maintenance building. Depending upon the terms of the agreement negotiated between WMATA, DDOT, and Sibley Hospital, WMATA and/or DDOT may have to share the maintenance cost for using the service road for the bus stop in front of the maintenance building and also the cost of constructing a bus stop in front of the maintenance building.

APPENDIX A

SCOPE OF WORK

Little Falls Road Transportation Study
Scope of Work
April 26, 2004

Purpose

The District Department of Transportation (DDOT) proposes to assess the feasibility, impacts, cost and benefit associated with rerouting buses currently serving Sibley Hospital from Loughboro Road to Little Falls Road. The purpose of the study is to examine existing transit routing and assess the cost and benefit of rerouting the buses serving Sibley Hospital to Little Falls Road. The Consultant shall also assess the engineering and roadway construction requirements to modify Little Falls Road to accommodate bus traffic and additional vehicular traffic, potential environmental impacts and traffic impacts from construction of an improved Little Falls Road.

Study Area

The “study area” for this project is bounded by:

- Little Falls Road to the north and to the east
- MacArthur Boulevard to the west
- Loughboro Road to the south

Definition of Work

The Consultant will examine existing transit service in the vicinity of Sibley Hospital, planned modifications to the transit service (if any), and existing geometric and infrastructural characteristics of Little Falls Road to assess the feasibility, impacts, costs and potential benefits associated with rerouting buses currently using Loughboro Road to Little Falls Road. Over a ten-week period, the Consultant will investigate current and future transit service in the vicinity of Sibley Hospital and will assess the feasibility, impacts, cost and benefits of rerouting the buses serving the hospital from Loughboro Road to Little Falls Road. The Consultant shall devise a preliminary description of a proposed improved right-of-way capable of supporting bus and truck traffic, indicate any environmental issues that need to be address and any traffic safety needs that would need to be addressed if Little Falls Road were reconstructed to provide transit service.

Description of Work to be Performed

Task 1: Kickoff Meeting

The Consultant shall hold an internal meeting with representatives from DDOT to mark the beginning of the project. Data requirements, coordination with other agencies, contacts, the project scope of work, and schedule will be discussed.

Task #1 to be completed Week 1

Task 2: Project Coordination Meetings

The Consultant shall hold up to three meetings with DDOT representatives to discuss project status, public meeting strategies and submittals. The Consultant will produce meeting minutes.

Task #2 to be conducted throughout the ten-week duration of the project

Task 3: Public Meetings

The Consultant shall hold two meetings with community stakeholders in the study area. The purpose of these meetings shall be to obtain input for assessment of the bus rerouting and to present draft findings and recommendations of the study. The first meeting will be held with Advisory Neighborhood Commission representatives and stakeholders to discuss the existing issues and potential improvement options. This meeting will be scheduled for the second week of the study. The aim of this meeting will be to announce the study to the neighborhood, outline the goals and tasks of the study, and introduce the Consultant to community stakeholders. This meeting will also allow for community input on the issues associated with the existing transit service.

The second public meeting will be held after the draft final report is prepared but prior to the completion of the final report. This meeting will allow residents to comment on the study draft findings and recommendations.

With the assistance of the District Department of Transportation and the Office of Planning, the Consultant shall develop a project contact/ mailing list of parties within the study area and other interested parties. The Consultant shall provide notice of public meetings through e-mails and mailings to key community and business groups. The Consultant will prepare meeting minutes for the two public meetings.

Task #3 to be completed

- **Meeting 1 – by the end of Week 2**
- **Meeting 2 – by the end of Week 8**

Task 4: Collect and Consolidate Data

The Consultant will conduct the following sub-tasks in the data collection task:

- A. Review available data on existing traffic volumes within the study area. Collect and review available mapping, aerial photography, historical research and other materials

available from the D.C. Office of Planning, DDOT Transportation Policy and Planning, Traffic Services Administration, and other District and Federal government agencies.

- B. Collect and review information from traffic studies conducted in the study area within the past two years.
- C. Conduct field reconnaissance of the study area noting existing land uses, existing roadway geometric and traffic control conditions, traffic flow patterns, transit facilities and services, and pedestrian facilities.
- D. Hold up to three meetings with Sibley Hospital representatives to discuss ownership of Little Falls Road, geometric and pavement characteristics of Little Falls Road, access issues for transit users from Little Falls Road to Sibley hospital, and Little Falls Road roadway maintenance records.
- E. Contact the Army Corps of Engineers and hold up to two meetings, if necessary, to solicit input from the Army Corps of Engineers with respect to the adequacy of transferring the ownership of Little Falls Road to the District and operating buses on this street which is located close to the Delacarla Reservoir.
- F. Collect available ridership data for the buses serving Sibley Hospital.
- G. Conduct passenger on/off counts and bus counts during two days for buses serving Sibley Hospital. The counts will be conducted on two different weekdays from 8:00 AM to 6:00 PM.
- H. Collect information on planned changes to existing transit service in the study area.
- I. Collect roadway width and roadway length measurements for Little Falls Road.
- J. Identify bus stop locations and pedestrian crossings.
- K. Conduct visual inspection of pavement on Little Falls Road and collect pavement core samples for evaluation of the characteristics of the existing pavement.

Task #4 to be completed Week 4

Task 5: Feasibility, Impacts, Cost and Benefit Assessment and Draft Final Report

Using the data collected in Task #4 and input from the stakeholders (Task #3 Meeting 1), the Consultant shall conduct an assessment of the feasibility, impacts, cost and benefit associated with rerouting existing transit service from Loughboro Road to Little Falls Road. Factors that will be assessed include:

- Cost of transit operations

- Cost of upgrading Little Falls Road to accommodate buses
- Environmental Impacts
- Noise reductions for residences in the study area
- Travel distances for transit users
- Transit travel times
- Effects on traffic delays
- Bus headways
- Other factors identified throughout the study.

The Consultant will prepare a draft final report of findings and recommendations regarding the rerouting of transit service to Little Falls Road taking into consideration the qualitative and quantitative assessments and comments received from public meetings and make 50 copies available to the District Department of Transportation.

Task #5 to be completed Week 7

Task 6: Final Report

The Consultant shall incorporate comments from the public meeting to be held after the conclusion of Task 5 and comments from District and Federal agencies into a final report, including costs and benefits of transit rerouting to Little Falls Road and recommended course of action. The Consultant shall submit 50 copies of the final report to the District Department of Transportation and shall also provide to DDOT one copy of the Final Report, including full appendices, in electronic (PDF) format.

Task #6 to be completed Week 10

Key Dates/Schedule

Week 1: Kickoff meeting with DDOT

Week 2: Conduct a public meeting with ANC and community groups.

Week 7: Submit Draft Final Report

Week 8: Public Meeting

Week 10: Submit Final Report

Deliverables

One electronic copy, in Microsoft Word format, of meeting minutes for each project meeting

50 copies of Draft Final Report

50 copies of Final Report

One electronic copy of Final Report, including appendices, in PDF format

APPENDIX B

BUS ROUTES AND TIMETABLES

How to use this timetable

- ▶ Use the map to find the stops closest to where you will get on and off the bus.
- ▶ Select the schedule (Weekday, Saturday, Sunday) for when you will travel. Along the top of the schedule, find the stop at or nearest the point where you will get on the bus. Follow that column down to the time you want to leave.
- ▶ Use the same method to find the times the bus is scheduled to arrive at the stop where you will get off the bus.
- ▶ If the bus stop is not listed, use the time shown for the bus stop before it as the time to wait at the stop.
- ▶ The end-of-the-line or last stop is listed in ALL CAPS on the schedule.

Cómo Usar este Horario

- ▶ Use este mapa para localizar las paradas más cercanas a donde se subirá y bajará del autobús.
- ▶ Seleccione el horario (Entre semana, sábado, domingo) de cuando viajará. A lo largo de la parte superior del horario, localice la parada o el punto más cercano a la parada en la que se subirá al autobús. Siga esa columna hacia abajo hasta la hora en la que desee salir.
- ▶ Utilice el mismo método para localizar las horas en que el autobús está programado para llegar a la parada en donde desea bajarse del autobús.
- ▶ Si la parada del autobús no está listada use la hora que se muestra en la parada anterior como la hora de espera en la parada.
- ▶ El final de la ruta o la última parada del autobús aparece en letras MAYÚSCULAS en el horario.

En Español

METROBUS - DC

D1,3,6

Sibley Hospital- Stadium-Armory Line



Serves these locations-Brinda servicio a estas ubicaciones

Sibley Hospital (D3,D6)
Glover Park (D1)
Georgetown University Hospital
Georgetown
Dupont Circle station
Farragut North station
Farragut West station
Metro Center station
Union Station
Stadium-Armory station (D6)
Government Printing Office (D1,D3)
Intercity Bus Terminal (D1,D3)
Trinidad (D1,D3)
Ivy City (D1,D3)

Schedule 6-27-04 Reprinted 10-5-04

INFORMATION ANYTIME 202-637-7000

M opens doors

TTY 202-638-3790

MetroOpensDoors.com

**Washington
Metropolitan Area
Transit Authority**

*A District of Columbia,
Maryland and Virginia
Transit Partnership*

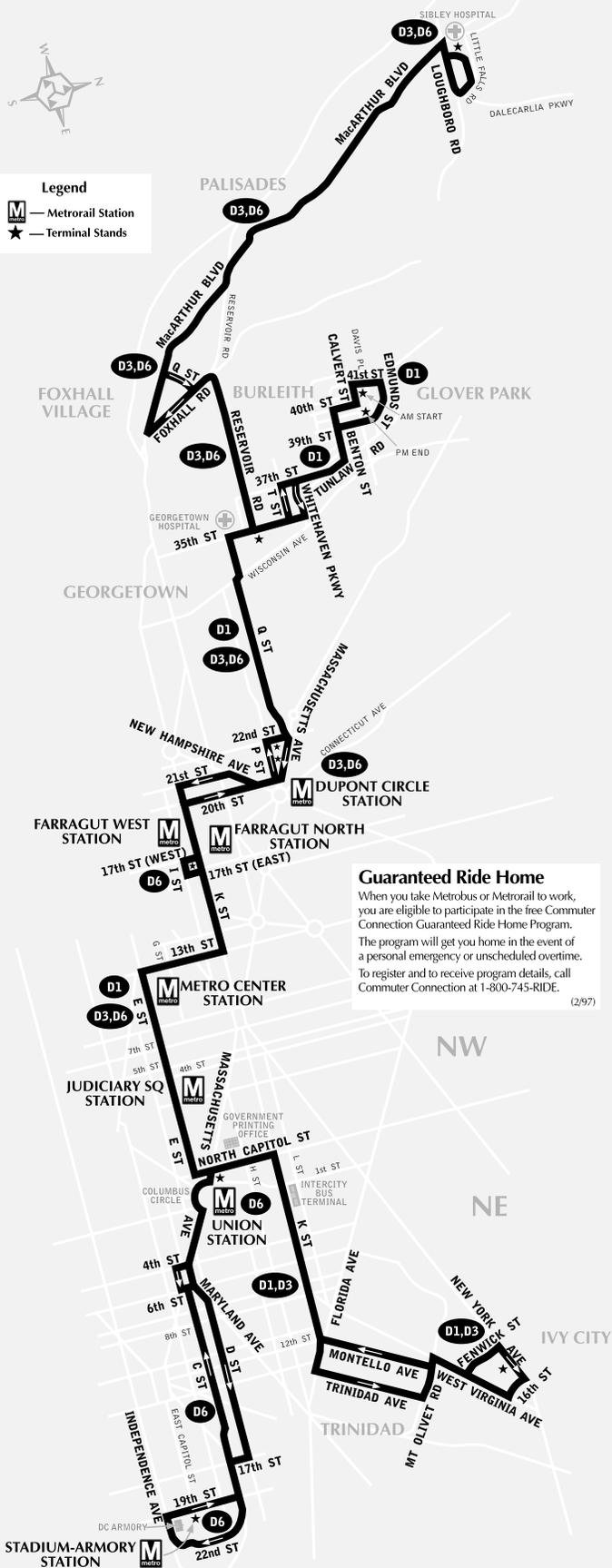
Sibley Hospital-Stadium Armory Line
Routes D1,3,6

For route and schedule information
 Call 202-637-7000
 www.metroopendoors.com



Legend

- Metrorail Station
- Terminal Stands



Guaranteed Ride Home
 When you take Metrobus or Metrorail to work, you are eligible to participate in the free Commuter Connection Guaranteed Ride Home Program. The program will get you home in the event of a personal emergency or unscheduled overtime. To register and to receive program details, call Commuter Connection at 1-800-745-RIDE. (2/97)

D1,3,6

Sibley Hospital- Stadium-Armory Line

Weekday Westbound — Entre semana con dirección al oeste

Route Number	New York Ave. & 16th St. NE (Ivy City)	K & 8th Sts. NE	Stadium-Armory M	C & 8th Sts. NE	Columbus Circle & 1st St.(W) NE (Union Station) M	North Capitol St. & Massachusetts Ave. NW (Union Station) M	E & 7th Sts. NW	13th & G Sts. NW (Metro Center) M	K St. & Connecticut Ave. NW (Farragut N&W) M	P & 22nd Sts. NW (DUPONT CIRCLE) M	Reservoir Rd. & 35th St. NW (GEORGETOWN)	39th & Calvert Sts. NW (GLOVER PARK)	MacArthur Blvd. & Q St. NW (Foxhall Village)	SIBLEY HOSPITAL
AM Service — Servicio matutino														
⊕ D6	-	-	4:11	4:18	4:22	-	4:28	4:32	4:39	4:45	4:53	-	5:00	5:08
⊕ D6	-	-	4:41	4:48	4:52	-	4:58	5:02	5:09	5:15	5:23	-	5:30	5:38
⊕ D6	-	-	5:06	5:13	5:17	-	5:23	5:27	5:34	5:40	5:48	-	5:55	6:03
⊕ D6	-	-	5:26	5:33	5:37	-	5:43	5:47	5:54	6:00	6:08	-	6:15	6:23
⊕ D6	-	-	5:46	5:53	5:57	-	6:03	6:07	6:14	6:20	6:28	-	6:35	6:43
⊕ D6	-	-	6:01	6:08	6:12	-	6:18	6:22	6:29	6:35	6:43	-	6:50	6:58
D3	6:12	6:20	-	-	-	6:24	6:30	6:34	6:41	6:47	6:55	-	7:02	7:10
⊕ D6	-	-	6:16	6:24	6:28	-	6:36	6:41	6:49	6:58	7:06	-	7:14	7:25
D6	-	-	6:29	6:37	6:41	-	6:49	6:54	7:02	7:11	7:19	-	7:27	7:38
⊕ D3	6:34	6:43	-	-	-	6:49	6:57	7:02	7:10	7:19	7:27	-	7:35	7:46
D6	-	-	6:41	6:49	6:53	-	7:01	7:06	7:14	7:23	7:31	-	7:39	7:50
⊕ D6	-	-	6:51	6:59	7:03	-	7:11	7:16	7:24	7:33	7:41	-	7:49	8:00
⊕ D6	-	-	6:59	7:07	7:12	-	7:19	7:24	7:33	7:41	7:52	-	8:01	8:13
D3/	6:57	7:08	-	-	-	7:16	7:23	7:28	7:37	7:45	7:56	-	-	-
D6	-	-	7:09	7:17	7:22	-	7:29	7:34	7:43	7:51	8:02	-	8:11	8:23
⊕ D6	-	-	7:16	7:24	7:29	-	7:36	7:41	7:50	7:58	8:09	-	8:18	8:30
D3/	7:14	7:25	-	-	-	7:33	7:40	7:45	7:54	8:02	8:13	-	-	-
⊕ D6/	-	-	7:23	7:31	7:36	-	7:43	7:48	7:57	8:05	8:16	-	-	-
⊕ D6	-	-	-	-	-	-	-	-	8:02	8:11	8:21	-	8:28	8:39
⊕ D6	-	-	7:30	7:41	7:47	-	7:56	8:01	8:10	8:19	8:29	-	8:36	8:47
D3/	7:33	7:42	-	-	-	7:51	7:58	8:03	8:12	8:21	8:31	-	-	-
⊕ D6/	-	-	7:37	7:48	7:54	-	8:03	8:08	8:17	8:26	8:36	-	-	-
⊕ D6	-	-	7:45	7:55	8:01	-	8:09	8:15	8:24	8:34	8:43	-	8:52	9:03
D3/	7:48	7:59	-	-	-	8:08	8:16	8:22	8:31	8:41	8:50	-	-	-
⊕ D6	-	-	7:55	8:05	8:11	-	8:19	8:25	8:34	8:44	8:53	-	9:02	9:13
⊕ D6/	-	-	8:05	8:15	8:21	-	8:29	8:35	8:44	8:54	9:03	-	-	-
D3/	8:03	8:14	-	-	-	8:23	8:31	8:37	8:46	8:56	-	-	-	-
⊕ D6	-	-	8:15	8:25	8:31	-	8:39	8:45	8:54	9:04	9:13	-	9:22	9:33
D3/	8:18	8:29	-	-	-	8:38	8:46	8:52	9:01	9:11	9:20	-	-	-
⊕ D6/	-	-	8:25	8:35	8:41	-	8:49	8:55	9:04	9:14	-	-	-	-
⊕ D6	-	-	8:37	8:45	8:50	-	9:00	9:05	9:15	9:24	9:32	-	9:40	9:48
⊕ D3/	8:45	8:54	-	-	-	9:02	9:10	9:15	9:25	9:34	9:42	-	-	-
D6/	-	-	8:52	9:00	9:05	-	9:15	9:20	9:30	9:39	-	-	-	-
⊕ D6	-	-	9:08	9:16	9:21	-	9:31	9:36	9:46	9:55	10:03	-	10:11	10:19
D3/	9:15	9:24	-	-	-	9:32	9:40	9:45	9:55	10:04	10:12	-	-	-
⊕ D6	-	-	9:28	9:36	9:41	-	9:51	9:56	10:06	10:15	10:23	-	10:31	10:39
⊕ D6	-	-	9:48	9:56	10:01	-	10:11	10:16	10:26	10:35	10:43	-	10:51	10:59
⊕ D6	-	-	10:08	10:16	10:21	-	10:31	10:36	10:46	10:55	11:03	-	11:11	11:19
⊕ D6	-	-	10:28	10:36	10:41	-	10:51	10:56	11:06	11:15	11:23	-	11:31	11:39
⊕ D6	-	-	10:48	10:56	11:01	-	11:11	11:16	11:26	11:35	11:43	-	11:51	11:59
⊕ D6	-	-	11:08	11:16	11:21	-	11:31	11:36	11:46	11:55	12:03	-	12:11	12:19
⊕ D6	-	-	11:28	11:36	11:41	-	11:51	11:56	12:06	12:15	12:23	-	12:31	12:39
⊕ D6	-	-	11:48	11:56	12:01	-	12:11	12:16	12:26	12:35	12:43	-	12:51	12:59

⊕ — Trip operates with wheelchair-accessible or lift-equipped bus.

Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

○ — Trip operates Friday only, with wheelchair-accessible or lift-equipped bus.

Los autobuses funcionan solamente el viernes y tienen acceso a sillas de ruedas o tienen equipo elevador.

■ — Passengers from Dupont Circle station transfer to westbound D1,D3 and D6 on 20th St. at O St. or on P St. between 20th and 21st Sts. Los pasajeros de la estación Dupont Circle hacen transbordo a D1, D3 y D6 con rumbo al oeste en 20th St., en O St. o en P St. entre 20th y 21st St.

● — Trip begins at 17th (E) and I Sts. NW (Farragut Square) at 7:59 am and operates only when public school is open.

El recorrido comienza en 17th St (E) e I St. NW (Farragut Square) a las 7:59 a.m. y está disponible sólo cuando la escuela pública está abierta.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Weekday Westbound — Entre semana con dirección al oeste

Route Number	New York Ave. & 16th St. NE (Ivy City)	K & 8th Sts. NE	Stadium-Armory 	C & 8th Sts. NE	Columbus Circle & 1st St. (W) NE (Union Station) 	North Capitol St. & Massachusetts Ave. NW (Union Station) 	E & 7th Sts. NW	13th & G Sts. NW (Metro Center) 	K St. & Connecticut Ave. NW (Farragut N&W) 	P & 22nd Sts. NW (DUPONT CIRCLE) 	Reservoir Rd. & 35th St. NW (GEORGETOWN)	39th & Calvert Sts. NW (GLOVER PARK)	MacArthur Blvd. & Q St. NW (Foxhall Village)	SIBLEY HOSPITAL
PM Service — Servicio vespertino														
⊕ D6	-	-	12:08	12:16	12:21	-	12:31	12:36	12:46	12:55	1:03	-	1:11	1:19
⊕ D6	-	-	12:28	12:34	12:38	-	12:49	12:55	1:03	1:14	1:23	-	1:32	1:41
⊕ D6	-	-	12:48	12:54	12:58	-	1:09	1:15	1:23	1:34	1:43	-	1:52	2:01
⊕ D6	-	-	1:08	1:14	1:18	-	1:29	1:35	1:43	1:54	2:03	-	2:12	2:21
⊕ D6	-	-	1:30	1:36	1:40	-	1:51	1:57	2:05	2:16	2:25	-	2:34	2:43
⊕ D6	-	-	1:50	1:56	2:00	-	2:11	2:17	2:25	2:36	2:45	-	2:54	3:03
⊕ D6	-	-	2:10	2:16	2:20	-	2:31	2:37	2:45	2:56	3:05	-	3:14	3:23
⊕ D6	-	-	2:30	2:38	2:42	-	2:54	3:00	3:09	3:18	3:27	-	3:36	3:46
⊕ D6	-	-	2:50	2:58	3:02	-	3:14	3:20	3:29	3:38	3:47	-	3:56	4:06
⊕ D6	-	-	3:12	3:20	3:24	-	3:36	3:42	3:51	4:00	4:09	-	4:18	4:28
⊕ D6	-	-	3:32	3:40	3:44	-	3:56	4:02	4:11	4:20	4:29	-	4:38	4:48
⊕ D6	-	-	3:52	4:00	4:04	-	4:16	4:22	4:31	4:40	4:49	-	4:58	5:08
D1	3:57	4:06	-	-	-	4:18	4:30	4:36	4:45	4:54	5:03	5:13	-	-
⊕ D6	-	-	4:10	4:18	4:22	-	4:34	4:40	4:49	4:58	5:07	-	5:16	5:26
⊕ D6	-	-	4:25	4:33	4:37	-	4:49	4:55	5:04	5:13	5:22	-	5:31	5:41
D1	4:29	4:38	-	-	-	4:48	4:55	5:02	5:13	5:23	5:34	5:44	-	-
⊕ D6	-	-	4:40	4:47	4:51	-	4:58	5:05	5:16	5:26	5:37	-	5:44	5:54
⊕ D6	-	-	4:55	5:02	5:06	-	5:13	5:20	5:31	5:41	5:52	-	5:59	6:09
⊕ D1	4:57	5:06	-	-	-	5:14	5:22	5:28	5:40	5:54	6:05	6:15	-	-
⊕ D6	-	-	5:10	5:18	5:23	-	5:31	5:37	5:49	6:03	6:14	-	6:21	6:31
D1	5:19	5:28	-	-	-	5:36	5:44	5:50	6:02	6:16	6:27	6:37	-	-
D6	-	-	5:25	5:33	5:38	-	5:46	5:52	6:04	6:18	6:29	-	6:36	6:46
⊕ D6	-	-	5:45	5:52	5:56	-	6:04	6:10	6:20	6:33	6:42	-	6:49	6:59
⊕ D1	5:50	5:59	-	-	-	6:06	6:14	6:20	6:30	6:43	6:52	7:04	-	-
⊕ D6	-	-	6:02	6:09	6:13	-	6:21	6:27	6:37	6:50	6:59	-	7:06	7:16
⊕ D6	-	-	6:27	6:34	6:38	-	6:46	6:52	7:02	7:15	7:24	-	7:31	7:41
⊕ D6	-	-	6:59	7:06	7:11	-	7:17	7:22	7:29	7:38	7:46	-	7:54	8:04
⊕ D6	-	-	7:29	7:36	7:41	-	7:47	7:52	7:59	8:08	8:16	-	8:24	8:34
⊕ D6	-	-	7:59	8:06	8:11	-	8:17	8:22	8:29	8:38	8:46	-	8:54	9:04
⊕ D6	-	-	8:29	8:36	8:41	-	8:47	8:52	8:59	9:08	9:16	-	9:24	9:34
⊕ D6	-	-	8:59	9:06	9:11	-	9:17	9:22	9:29	9:38	9:46	-	9:54	10:04
⊕ D6	-	-	9:34	9:40	9:44	-	9:49	9:54	10:00	10:07	10:16	-	10:21	10:29
⊕ D6	-	-	10:04	10:10	10:14	-	10:19	10:24	10:30	10:37	10:46	-	10:51	10:59
⊕ D6	-	-	10:34	10:40	10:44	-	10:49	10:54	11:00	11:07	11:16	-	11:21	11:29
⊕ D6	-	-	11:04	11:10	11:14	-	11:19	11:24	11:30	11:37	11:46	-	11:51	11:59
⊕ D6	-	-	11:34	11:40	11:44	-	11:49	11:54	12:00	12:07	12:16	-	12:21	12:29
After Midnight Service — Servicio después de la medianoche														
⊕ D6	-	-	12:04	12:10	12:14	-	12:19	12:24	12:30	12:37	12:46	-	12:51	12:59
⊕ D6	-	-	12:34	12:40	12:44	-	12:49	12:54	1:00	1:07	1:16	-	1:21	1:29
○ D6	-	-	1:04	1:10	1:14	-	1:19	1:24	1:30	1:37	1:46	-	1:51	1:59
○ D6	-	-	1:45	1:51	1:55	-	2:00	2:05	2:11	2:18	2:27	-	2:32	2:40

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D1,3,6

Sibley Hospital- Stadium-Armory Line

Weekday Eastbound — Entre semana con dirección al este

Route Number	Sibley Hospital	Q St. & Mac-Arthur Blvd. NW (Foxhall Village)	41st St. & Davis Pl. NW (Glover Park)	35th St. & Winfield La. NW (Reservoir Rd.)	Massachusetts Ave. & 20th St. NW (Dupont Circle)	K & 17th Sts. NW (Farragut N&W)	13th & G Sts. NW (Metro Center)	E & 7th Sts. NW	North Capitol St. & Massachusetts Ave. NE (UNION STATION)	Massachusetts Ave. & 1st St. (W) NE (Union Station)	D & 8th Sts. NE	STADIUM-ARMORY	K & 8th Sts. NE	New York Ave. & 16th St. NE (IVY CITY)
AM Service — Servicio matutino														
⊕ D6	5:14	5:22	-	5:27	5:35	5:41	5:47	5:51	-	5:57	6:03	6:10	-	-
⊕ D6	5:44	5:52	-	5:57	6:05	6:11	6:17	6:21	-	6:27	6:33	6:40	-	-
⊕ D6	6:11	6:19	-	6:24	6:32	6:38	6:44	6:48	-	6:54	7:00	7:07	-	-
⊕ D6	6:29	6:38	-	6:45	6:53	7:01	7:07	7:13	-	7:20	7:25	7:34	-	-
⊕ D6	6:49	6:58	-	7:05	7:13	7:21	7:27	7:33	-	7:40	7:45	7:54	-	-
D1	-	-	7:10	7:20	7:30	7:37	7:44	7:50	7:56	-	-	-	-	-
⊕ D6	7:07	7:18	-	7:25	7:35	7:42	7:49	7:55	-	8:03	8:10	8:17	-	-
⊕ D1	-	-	7:26	7:36	7:46	7:53	8:00	8:06	8:12	-	-	-	-	-
D6	7:24	7:35	-	7:42	7:52	7:59	8:06	8:12	-	8:20	8:27	8:34	-	-
⊕ D1	-	-	7:41	7:51	8:01	8:08	8:15	8:21	8:27	-	-	-	-	-
⊕ D6	7:39	7:50	-	7:57	8:07	8:14	8:21	8:27	-	8:35	8:42	8:49	-	-
D1	-	-	7:51	8:02	8:13	8:23	8:30	8:36	8:43	-	-	-	-	-
D1	-	-	8:00	8:11	8:22	8:32	8:39	8:45	8:52	-	-	-	-	-
⊕ D6	7:54	8:06	-	8:14	8:25	8:35	8:42	8:48	-	8:57	9:03	9:11	-	-
D1	-	-	8:08	8:19	8:30	8:40	8:47	8:53	9:00	-	-	-	-	-
D1	-	-	8:15	8:26	8:37	8:47	8:54	9:00	9:07	-	-	-	-	-
⊕ D6	8:09	8:21	-	8:29	8:40	8:50	8:57	9:03	-	9:12	9:18	9:26	-	-
D1	-	-	8:22	8:33	8:44	8:54	9:01	9:07	9:14	-	-	-	-	-
D1	-	-	8:29	8:40	8:51	9:01	9:08	9:14	9:21	-	-	-	-	-
⊕ D6	8:23	8:35	-	8:43	8:54	9:04	9:11	9:17	-	9:26	9:32	9:40	-	-
D1	-	-	8:40	8:51	9:02	9:12	9:19	9:25	9:32	-	-	-	-	-
⊕ D6	8:39	8:51	-	8:59	9:10	9:20	9:27	9:33	-	9:42	9:48	9:56	-	-
⊕ D1	-	-	8:53	9:04	9:15	9:25	9:32	9:38	9:45	-	-	-	-	-
⊕ D6	8:55	9:07	-	9:15	9:26	9:36	9:43	9:49	-	9:58	10:04	10:12	-	-
⊕ D6	9:10	9:22	-	9:30	9:41	9:51	9:58	10:04	-	10:13	10:19	10:27	-	-
⊕ D6	9:25	9:37	-	9:45	9:56	10:06	10:13	10:19	-	10:28	10:34	10:42	-	-
⊕ D6	9:45	9:57	-	10:05	10:16	10:26	10:33	10:39	-	10:48	10:54	11:02	-	-
⊕ D6	10:05	10:17	-	10:25	10:36	10:46	10:53	10:59	-	11:08	11:14	11:22	-	-
⊕ D6	10:26	10:34	-	10:41	10:49	10:57	11:05	11:10	-	11:19	11:23	11:33	-	-
⊕ D6	10:46	10:54	-	11:01	11:09	11:17	11:25	11:30	-	11:39	11:43	11:53	-	-
⊕ D6	11:06	11:16	-	11:23	11:33	11:43	11:52	11:59	-	12:07	12:13	12:22	-	-
⊕ D6	11:26	11:36	-	11:43	11:53	12:03	12:12	12:19	-	12:27	12:33	12:42	-	-
⊕ D6	11:46	11:56	-	12:03	12:13	12:23	12:32	12:39	-	12:47	12:53	1:02	-	-

⊕ — Trip operates with wheelchair-accessible or lift-equipped bus.

Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

○ — Trip operates Friday only, with wheelchair-accessible or lift-equipped bus.

Los autobuses funcionan solamente el viernes y tienen acceso a sillas de ruedas o tienen equipo elevador.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Weekday Eastbound — Entre semana con dirección al este

Route Number	Sibley Hospital	Q St. & Mac-Arthur Blvd. NW (Foxhall Village)	41st St. & Davis Pl. NW (Glover Park)	35th St. & Winfield La. NW (Reservoir Rd.)	Massachusetts Ave. & 20th St. NW (Dupont Circle)	K & 17th Sts. NW (Farragut N&W)	13th & G Sts. NW (Metro Center)	E & 7th Sts. NW	North Capitol St. & Massachusetts Ave. NE (UNION STATION)	Massachusetts Ave. & 1st St. (W) NE (Union Station)	D & 8th Sts. NE	STADIUM-ARMORY	K & 8th Sts. NE	New York Ave. & 16th St. NE (IVY CITY)
PM Service — Servicio vespertino														
Ⓜ D6	12:06	12:16	-	12:23	12:33	12:43	12:52	12:59	-	1:07	1:13	1:22	-	-
Ⓜ D6	12:26	12:36	-	12:43	12:53	1:03	1:12	1:19	-	1:27	1:33	1:42	-	-
Ⓜ D6	12:46	12:56	-	1:03	1:13	1:23	1:32	1:39	-	1:47	1:53	2:02	-	-
Ⓜ D6	1:06	1:16	-	1:23	1:33	1:43	1:52	1:59	-	2:07	2:13	2:22	-	-
Ⓜ D6	1:26	1:36	-	1:43	1:53	2:03	2:12	2:19	-	2:27	2:33	2:42	-	-
Ⓜ D6	1:48	1:58	-	2:05	2:15	2:25	2:34	2:41	-	2:49	2:55	3:04	-	-
Ⓜ D6	2:08	2:18	-	2:25	2:35	2:45	2:54	3:01	-	3:09	3:15	3:24	-	-
Ⓜ D6	2:29	2:39	-	2:47	2:55	3:05	3:13	3:19	-	3:26	3:32	3:42	-	-
D3	-	-	-	-	3:01	3:11	3:19	3:25	3:31	-	-	-	3:38	3:51
Ⓜ D6	2:45	2:55	-	3:03	3:11	3:21	3:29	3:35	-	3:42	3:48	3:58	-	-
Ⓜ D6	2:55	3:05	-	3:13	3:21	3:31	3:39	3:45	-	3:52	3:58	4:08	-	-
D3	3:05	3:15	-	3:23	3:31	3:41	3:49	3:55	4:01	-	-	-	4:08	4:21
Ⓜ D6	-	-	-	-	3:33	3:43	3:51	3:57	-	4:04	4:10	4:20	-	-
Ⓜ D6	3:15	3:25	-	3:33	3:41	3:51	3:59	4:05	-	4:12	4:18	4:28	-	-
Ⓜ D6	3:25	3:35	-	3:43	3:51	4:01	4:09	4:15	-	4:22	4:28	4:38	-	-
Ⓜ D3	-	-	-	-	3:59	4:09	4:17	4:23	4:29	-	-	-	4:36	4:49
Ⓜ D6	3:35	3:45	-	3:53	4:01	4:11	4:19	4:25	-	4:32	4:38	4:48	-	-
Ⓜ D6	3:45	3:55	-	4:03	4:11	4:21	4:29	4:35	-	4:42	4:48	4:58	-	-
D3	3:55	4:05	-	4:13	4:21	4:31	4:39	4:45	4:51	-	-	-	4:58	5:11
Ⓜ D6	-	-	-	-	4:23	4:35	4:44	4:51	-	4:58	5:05	5:14	-	-
D6	4:05	4:15	-	4:26	4:37	4:49	4:58	5:05	-	5:12	5:19	5:28	-	-
D3	4:15	4:25	-	4:36	4:47	4:59	5:08	5:15	5:21	-	-	-	5:28	5:41
Ⓜ D6	-	-	-	-	4:49	5:01	5:10	5:17	-	5:24	5:31	5:40	-	-
Ⓜ D6	4:26	4:36	-	4:47	4:58	5:10	5:19	5:26	-	5:33	5:40	5:49	-	-
Ⓜ D6	4:37	4:50	-	4:57	5:06	5:20	5:29	5:35	-	5:43	5:48	5:59	-	-
D3	4:47	5:00	-	5:07	5:16	5:30	5:39	5:45	5:51	-	-	-	5:58	6:08
Ⓜ D6	-	-	-	-	5:18	5:32	5:41	5:47	-	5:55	6:00	6:11	-	-
Ⓜ D6	5:00	5:13	-	5:20	5:29	5:43	5:52	5:58	-	6:06	6:11	6:22	-	-
Ⓜ D6	5:15	5:28	-	5:35	5:44	5:58	6:07	6:13	-	6:21	6:26	6:37	-	-
D3	-	-	-	-	5:46	6:00	6:09	6:15	6:21	-	-	-	6:28	6:38
Ⓜ D6	5:35	5:45	-	5:51	6:00	6:12	6:21	6:27	-	6:35	6:40	6:50	-	-
Ⓜ D6	5:55	6:05	-	6:11	6:20	6:32	6:41	6:47	-	6:55	7:00	7:10	-	-
Ⓜ D6	6:22	6:32	-	6:37	6:46	6:54	7:01	7:06	-	7:13	7:18	7:27	-	-
Ⓜ D6	6:42	6:52	-	6:57	7:06	7:14	7:21	7:26	-	7:33	7:38	7:47	-	-
Ⓜ D6	7:12	7:22	-	7:27	7:36	7:44	7:51	7:56	-	8:03	8:08	8:17	-	-
Ⓜ D6	7:42	7:52	-	7:57	8:06	8:14	8:21	8:26	-	8:33	8:38	8:47	-	-
Ⓜ D6	8:12	8:22	-	8:27	8:36	8:44	8:51	8:56	-	9:03	9:08	9:17	-	-
Ⓜ D6	8:42	8:52	-	8:57	9:06	9:14	9:21	9:26	-	9:33	9:38	9:47	-	-
Ⓜ D6	9:12	9:22	-	9:27	9:36	9:44	9:51	9:56	-	10:03	10:08	10:17	-	-
Ⓜ D6	9:42	9:52	-	9:57	10:06	10:14	10:21	10:26	-	10:33	10:38	10:47	-	-
Ⓜ D6	10:12	10:22	-	10:27	10:36	10:44	10:51	10:56	-	11:03	11:08	11:17	-	-
Ⓜ D6	10:37	10:47	-	10:52	11:01	11:09	11:16	11:21	-	11:28	11:33	11:42	-	-
Ⓜ D6	11:07	11:17	-	11:22	11:31	11:39	11:46	11:51	-	11:58	12:03	12:12	-	-
Ⓜ D6	11:35	11:44	-	11:48	11:55	12:02	12:08	12:11	-	12:16	12:20	12:28	-	-
After Midnight Service — Servicio después de la medianoche														
Ⓜ D6	12:05	12:14	-	12:18	12:25	12:32	12:38	12:41	-	12:46	12:50	12:58	-	-
Ⓜ D6	12:35	12:43	-	12:47	12:53	12:59	1:06	1:08	-	1:12	1:17	1:25	-	-
○ D6	1:05	1:13	-	1:17	1:23	1:29	1:36	1:38	-	1:42	1:47	1:55	-	-
○ D6	1:35	1:43	-	1:47	1:53	1:59	2:06	2:08	-	2:12	2:17	2:25	-	-
○ D6	2:05	2:13	-	2:17	2:23	2:29	2:36	2:38	-	2:42	2:47	2:55	-	-
○ D6	2:45	2:53	-	2:57	3:03	3:09	3:16	3:18	-	3:22	3:27	3:35	-	-

Ⓜ — Trip operates with wheelchair-accessible or lift-equipped bus.

Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

○ — Trip operates Friday only, with wheelchair-accessible or lift-equipped bus.

Los autobuses funcionan solamente el viernes y tienen acceso a sillas de ruedas o tienen equipo elevador.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Saturday Westbound — En sábados con dirección al oeste

Route Number	Stadium-Armory 	C & 8th Sts. NE	Columbus Circle & 1st St.(W) NE (Union Station) 	E & 7th Sts. NW	13th & G Sts. NW (Metro Center) 	K St. & Connecticut Ave. NW (Farragut N&W) 	P & 22nd Sts. NW (DUPONT CIRCLE) 	Reservoir Rd. & 35th St. NW (Georgetown)	Mac-Arthur Blvd. & Q St. NW (Fox-hall Village)	SIBLEY HOSPITAL
AM Service — Servicio matutino										
♻️ D6	4:48	4:54	4:57	5:01	5:05	5:10	5:16	5:23	5:28	5:35
♻️ D6	5:18	5:24	5:27	5:31	5:35	5:40	5:46	5:53	5:58	6:05
♻️ D6	5:48	5:54	5:57	6:01	6:05	6:10	6:16	6:23	6:28	6:35
♻️ D6	6:15	6:20	6:24	6:29	6:34	6:40	6:48	6:53	6:59	7:07
♻️ D6	6:45	6:50	6:54	6:59	7:04	7:10	7:18	7:23	7:29	7:37
♻️ D6	7:15	7:20	7:24	7:29	7:34	7:40	7:48	7:53	7:59	8:07
♻️ D6	7:42	7:50	7:54	7:59	8:03	8:10	8:17	8:24	8:29	8:38
♻️ D6	8:12	8:20	8:24	8:29	8:33	8:40	8:47	8:54	8:59	9:08
♻️ D6	8:42	8:50	8:54	8:59	9:03	9:10	9:17	9:24	9:29	9:38
♻️ D6	9:08	9:16	9:20	9:25	9:29	9:36	9:43	9:50	9:55	10:04
♻️ D6	9:34	9:41	9:45	9:51	9:56	10:03	10:11	10:19	10:25	10:34
♻️ D6	10:04	10:11	10:15	10:21	10:26	10:33	10:41	10:49	10:55	11:04
♻️ D6	10:34	10:41	10:45	10:51	10:56	11:03	11:11	11:19	11:25	11:34
♻️ D6	11:04	11:11	11:15	11:21	11:26	11:33	11:41	11:49	11:55	12:04
♻️ D6	11:34	11:41	11:45	11:51	11:56	12:03	12:11	12:19	12:25	12:34
PM Service — Servicio vespertino										
♻️ D6	12:04	12:11	12:15	12:21	12:26	12:33	12:41	12:49	12:55	1:04
♻️ D6	12:34	12:41	12:45	12:51	12:56	1:03	1:11	1:19	1:25	1:34
♻️ D6	1:04	1:11	1:15	1:21	1:26	1:33	1:41	1:49	1:55	2:04
♻️ D6	1:34	1:41	1:45	1:51	1:56	2:03	2:11	2:19	2:25	2:34
♻️ D6	2:04	2:11	2:15	2:21	2:26	2:33	2:41	2:49	2:55	3:04
♻️ D6	2:34	2:41	2:45	2:51	2:56	3:03	3:11	3:19	3:25	3:34
♻️ D6	3:04	3:11	3:15	3:21	3:26	3:33	3:41	3:49	3:55	4:04
♻️ D6	3:34	3:41	3:45	3:51	3:56	4:03	4:11	4:19	4:25	4:34
♻️ D6	4:04	4:11	4:15	4:21	4:26	4:33	4:41	4:49	4:55	5:04
♻️ D6	4:35	4:42	4:46	4:52	4:57	5:04	5:12	5:20	5:26	5:35
♻️ D6	5:06	5:13	5:17	5:23	5:28	5:35	5:43	5:51	5:57	6:06
♻️ D6	5:37	5:44	5:48	5:54	5:59	6:06	6:14	6:22	6:28	6:37
♻️ D6	6:08	6:15	6:19	6:25	6:30	6:37	6:45	6:53	6:59	7:08
♻️ D6	6:43	6:50	6:54	6:59	7:03	7:09	7:16	7:24	7:30	7:39
♻️ D6	7:14	7:21	7:25	7:30	7:34	7:40	7:47	7:55	8:01	8:10
♻️ D6	7:45	7:52	7:56	8:01	8:05	8:11	8:18	8:26	8:32	8:41
♻️ D6	8:16	8:23	8:27	8:32	8:36	8:42	8:49	8:57	9:03	9:12
♻️ D6	8:47	8:54	8:58	9:03	9:07	9:13	9:20	9:28	9:34	9:43
♻️ D6	9:18	9:25	9:29	9:34	9:38	9:44	9:51	9:59	10:05	10:14
♻️ D6	9:49	9:56	10:00	10:05	10:09	10:15	10:22	10:30	10:36	10:45
♻️ D6	10:20	10:27	10:31	10:36	10:40	10:46	10:53	11:01	11:07	11:16
♻️ D6	10:51	10:58	11:02	11:07	11:11	11:17	11:24	11:32	11:38	11:47
♻️ D6	11:30	11:36	11:41	11:46	11:49	11:54	12:00	12:07	12:12	12:21
After Midnight Service — Servicio después de la medianoche										
♻️ D6	12:18	12:23	12:27	12:31	12:34	12:39	12:45	12:50	12:54	1:02
♻️ D6	12:58	1:03	1:07	1:11	1:14	1:19	1:25	1:30	1:34	1:42
♻️ D6	1:28	1:33	1:37	1:41	1:44	1:49	1:55	2:00	2:04	2:12

♻️ — Trip operates with wheelchair-accessible or lift-equipped bus.

Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

■ — Passengers from Dupont Circle station transfer to westbound D6 on 20th St. at O St. or on P St. between 20th and 21st Sts. Los pasajeros de la estación Dupont Circle hacen transbordo a D6 con rumbo al oeste en 20th St., en O St. o en P St. entre 20th y 21st St.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Saturday Eastbound — En sábados con dirección al este

Route Number	Sibley Hospital	Q St. & MacArthur Blvd. NW (Foxhall Village)	35th St. & Winfield La. NW (Reservoir Rd.)	Massachusetts Ave. & 20th St. NW (Dupont Circle)	K & 17th Sts. NW (Farra- gut N&W)	13th & G Sts. NW (Metro Center)	E & 7th Sts. NW	Massachusetts Ave. & 1st St. (W) NE (Union Station)	D & 8th Sts. NE	STADIUM-ARMORY
AM Service — Servicio matutino										
♻️ D6	5:45	5:53	5:58	6:04	6:11	6:16	6:20	6:25	6:29	6:36
♻️ D6	6:15	6:23	6:28	6:34	6:41	6:46	6:50	6:55	6:59	7:06
♻️ D6	6:45	6:53	6:58	7:04	7:11	7:16	7:20	7:25	7:29	7:36
♻️ D6	7:15	7:23	7:28	7:34	7:41	7:46	7:50	7:55	7:59	8:06
♻️ D6	7:45	7:54	7:59	8:06	8:13	8:19	8:23	8:29	8:34	8:43
♻️ D6	8:15	8:24	8:29	8:36	8:43	8:49	8:53	8:59	9:04	9:13
♻️ D6	8:45	8:54	8:59	9:06	9:13	9:19	9:23	9:29	9:34	9:43
♻️ D6	9:15	9:24	9:29	9:36	9:43	9:49	9:53	9:59	10:04	10:13
♻️ D6	9:45	9:54	9:59	10:06	10:13	10:19	10:23	10:29	10:34	10:43
♻️ D6	10:12	10:21	10:27	10:34	10:42	10:48	10:53	10:58	11:05	11:15
♻️ D6	10:42	10:51	10:57	11:04	11:12	11:18	11:23	11:28	11:35	11:45
♻️ D6	11:12	11:21	11:27	11:34	11:42	11:48	11:53	11:58	12:05	12:15
♻️ D6	11:42	11:51	11:57	12:04	12:12	12:18	12:23	12:28	12:35	12:45
PM Service — Servicio vespertino										
♻️ D6	12:12	12:21	12:27	12:34	12:42	12:48	12:53	12:58	1:05	1:15
♻️ D6	12:42	12:51	12:57	1:04	1:12	1:18	1:23	1:28	1:35	1:45
♻️ D6	1:12	1:21	1:27	1:34	1:42	1:48	1:53	1:58	2:05	2:15
♻️ D6	1:42	1:51	1:57	2:04	2:12	2:18	2:23	2:28	2:35	2:45
♻️ D6	2:12	2:21	2:27	2:34	2:42	2:48	2:53	2:58	3:05	3:15
♻️ D6	2:42	2:51	2:57	3:04	3:12	3:18	3:23	3:28	3:35	3:45
♻️ D6	3:12	3:21	3:27	3:34	3:42	3:48	3:53	3:58	4:05	4:15
♻️ D6	3:42	3:51	3:57	4:04	4:12	4:18	4:23	4:28	4:35	4:45
♻️ D6	4:12	4:21	4:27	4:34	4:42	4:48	4:53	4:58	5:05	5:15
♻️ D6	4:42	4:51	4:57	5:04	5:12	5:18	5:23	5:28	5:35	5:45
♻️ D6	5:12	5:21	5:27	5:34	5:42	5:48	5:53	5:58	6:05	6:15
♻️ D6	5:42	5:51	5:57	6:04	6:12	6:18	6:23	6:28	6:35	6:45
♻️ D6	6:12	6:20	6:25	6:32	6:40	6:46	6:50	6:55	7:02	7:09
♻️ D6	6:43	6:51	6:56	7:03	7:11	7:17	7:21	7:26	7:33	7:40
♻️ D6	7:14	7:22	7:27	7:34	7:42	7:48	7:52	7:57	8:04	8:11
♻️ D6	7:45	7:53	7:58	8:05	8:13	8:19	8:23	8:28	8:35	8:42
♻️ D6	8:16	8:24	8:29	8:36	8:44	8:50	8:54	8:59	9:06	9:13
♻️ D6	8:47	8:55	9:00	9:07	9:15	9:21	9:25	9:30	9:37	9:44
♻️ D6	9:18	9:26	9:31	9:38	9:46	9:52	9:56	10:01	10:08	10:15
♻️ D6	9:49	9:57	10:02	10:09	10:17	10:23	10:27	10:32	10:39	10:46
♻️ D6	10:20	10:28	10:33	10:40	10:47	10:52	10:56	11:00	11:04	11:11
♻️ D6	10:51	10:59	11:04	11:11	11:18	11:23	11:27	11:31	11:35	11:42
♻️ D6	11:22	11:30	11:35	11:42	11:49	11:54	11:58	12:02	12:06	12:13
♻️ D6	11:53	12:01	12:06	12:13	12:20	12:25	12:29	12:33	12:37	12:44
After Midnight Service — Servicio después de la medianoche										
♻️ D6	12:27	12:35	12:39	12:44	12:49	12:54	12:57	1:01	1:06	1:14
♻️ D6	1:07	1:15	1:19	1:24	1:29	1:34	1:37	1:41	1:46	1:54
♻️ D6	1:48	1:56	2:00	2:05	2:10	2:15	2:18	2:22	2:27	2:35
♻️ D6	2:28	2:36	2:40	2:45	2:50	2:55	2:58	3:02	3:07	3:15

♻️ — Trip operates with wheelchair-accessible or lift-equipped bus.
 Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Sunday Westbound — En domingo con dirección al oeste

Route Number	Stadium-Armory 	C & 8th Sts. NE	Columbus Circle & 1st St.(W) NE (Union Station) 	E & 7th Sts. NW	13th & G Sts. NW (Metro Center) 	K St. & Connecticut Ave. NW (Farragut N&W) 	P & 22nd Sts. NW (DUPONT CIRCLE) 	Reservoir Rd. & 35th St. NW (Georgetown)	MacArthur Blvd. & Q St. NW (Foxhall Village)	SIBLEY HOSPITAL
AM Service — Servicio matutino										
↳ D6	5:16	5:22	5:27	5:30	5:34	5:38	5:43	5:49	5:53	6:00
↳ D6	5:52	6:00	6:05	6:09	6:13	6:18	6:24	6:30	6:34	6:41
↳ D6	6:32	6:40	6:45	6:49	6:53	6:58	7:04	7:10	7:14	7:21
↳ D6	7:12	7:20	7:25	7:29	7:33	7:38	7:44	7:50	7:54	8:01
↳ D6	7:52	8:00	8:05	8:09	8:13	8:18	8:24	8:30	8:34	8:41
↳ D6	8:32	8:39	8:44	8:48	8:52	8:58	9:05	9:12	9:17	9:25
↳ D6	9:12	9:19	9:24	9:28	9:32	9:38	9:45	9:52	9:57	10:05
↳ D6	9:52	9:59	10:04	10:08	10:12	10:18	10:25	10:32	10:37	10:45
↳ D6	10:25	10:32	10:37	10:42	10:46	10:53	11:01	11:09	11:14	11:23
↳ D6	11:00	11:07	11:12	11:17	11:21	11:28	11:36	11:44	11:49	11:58
↳ D6	11:35	11:42	11:47	11:52	11:56	12:03	12:11	12:19	12:24	12:33
PM Service — Servicio vespertino										
↳ D6	12:10	12:17	12:22	12:27	12:31	12:38	12:46	12:54	12:59	1:08
↳ D6	12:45	12:52	12:57	1:02	1:06	1:13	1:21	1:29	1:34	1:43
↳ D6	1:20	1:27	1:32	1:37	1:41	1:48	1:56	2:04	2:09	2:18
↳ D6	1:55	2:02	2:07	2:12	2:16	2:23	2:31	2:39	2:44	2:53
↳ D6	2:30	2:37	2:42	2:47	2:51	2:58	3:06	3:14	3:19	3:28
↳ D6	3:05	3:12	3:17	3:22	3:26	3:33	3:41	3:49	3:54	4:03
↳ D6	3:40	3:47	3:52	3:57	4:01	4:08	4:16	4:24	4:29	4:38
↳ D6	4:15	4:22	4:27	4:32	4:36	4:43	4:51	4:59	5:04	5:13
↳ D6	4:50	4:57	5:02	5:07	5:11	5:18	5:26	5:34	5:39	5:48
↳ D6	5:32	5:38	5:43	5:47	5:51	5:58	6:04	6:11	6:16	6:24
↳ D6	6:12	6:18	6:23	6:27	6:31	6:38	6:44	6:51	6:56	7:04
↳ D6	6:52	6:58	7:03	7:07	7:11	7:18	7:24	7:31	7:36	7:44
↳ D6	7:32	7:38	7:43	7:47	7:51	7:58	8:04	8:11	8:16	8:24
↳ D6	8:12	8:18	8:23	8:27	8:31	8:38	8:44	8:51	8:56	9:04
↳ D6	8:52	8:58	9:03	9:07	9:11	9:18	9:24	9:31	9:36	9:44
↳ D6	9:32	9:38	9:43	9:47	9:51	9:58	10:04	10:11	10:16	10:24
↳ D6	10:12	10:18	10:23	10:27	10:31	10:38	10:44	10:51	10:56	11:04
↳ D6	10:52	10:58	11:03	11:07	11:11	11:18	11:24	11:31	11:36	11:44
↳ D6	11:36	11:41	11:45	11:49	11:53	11:58	12:03	12:09	12:13	12:20
After Midnight Service — Servicio después de la medianoche										
↳ D6/	12:11	12:16	12:20	12:24	12:28	12:33	12:38	-	-	-

↳ — Trip operates with wheelchair-accessible or lift-equipped bus.

Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

■ — Passengers from Dupont Circle station transfer to westbound D6 on 20th St. at O St. or on P St. between 20th and 21st Sts. Los pasajeros de la estación Dupont Circle hacen transbordo a D6 con rumbo al oeste en 20th St., en O St. o en P St. entre 20th y 21st St.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Sunday Eastbound — En domingo con dirección al este

Route Number	Sibley Hospital	Q St. & Mac-Arthur Blvd. NW (Foxhall Village)	35th St. & Winfield La. NW (Reservoir Rd.)	Massachusetts Ave. & 20th St. NW (Dupont Circle)	K & 17th Sts. NW (Farragut N&W)	13th & G Sts. NW (Metro Center)	E & 7th Sts. NW	Massachusetts Ave. & 1st St. (W) NE (Union Station)	D & 8th Sts. NE	STADIUM-ARMORY
AM Service — Servicio matutino										
♻️ D6	6:12	6:19	6:24	6:30	6:36	6:40	6:43	6:47	6:52	6:59
♻️ D6	6:52	6:59	7:04	7:10	7:16	7:20	7:23	7:27	7:32	7:39
♻️ D6	7:28	7:37	7:42	7:49	7:56	8:01	8:05	8:10	8:15	8:23
♻️ D6	8:08	8:17	8:22	8:29	8:36	8:42	8:47	8:52	8:58	9:06
♻️ D6	8:48	8:57	9:02	9:09	9:16	9:22	9:27	9:32	9:38	9:46
♻️ D6	9:32	9:40	9:46	9:53	10:00	10:06	10:10	10:15	10:21	10:29
♻️ D6	10:12	10:20	10:26	10:33	10:40	10:46	10:50	10:55	11:01	11:09
♻️ D6	10:52	11:00	11:06	11:13	11:20	11:26	11:30	11:35	11:41	11:49
♻️ D6	11:32	11:40	11:46	11:53	12:00	12:06	12:10	12:15	12:21	12:29
PM Service — Servicio vespertino										
♻️ D6	12:07	12:15	12:21	12:28	12:35	12:41	12:45	12:50	12:56	1:04
♻️ D6	12:42	12:50	12:56	1:03	1:10	1:16	1:20	1:25	1:31	1:39
♻️ D6	1:17	1:25	1:31	1:38	1:45	1:51	1:55	2:00	2:06	2:14
♻️ D6	1:52	2:00	2:06	2:13	2:20	2:26	2:30	2:35	2:41	2:49
♻️ D6	2:27	2:35	2:41	2:48	2:55	3:01	3:05	3:10	3:16	3:24
♻️ D6	3:02	3:10	3:16	3:23	3:30	3:36	3:40	3:45	3:51	3:59
♻️ D6	3:37	3:45	3:51	3:58	4:05	4:11	4:15	4:20	4:26	4:34
♻️ D6	4:12	4:20	4:26	4:33	4:40	4:46	4:50	4:55	5:01	5:09
♻️ D6	4:47	4:55	5:01	5:08	5:15	5:21	5:25	5:30	5:36	5:44
♻️ D6	5:22	5:30	5:36	5:43	5:50	5:56	6:00	6:05	6:11	6:19
♻️ D6	5:57	6:05	6:11	6:18	6:25	6:31	6:35	6:40	6:46	6:54
♻️ D6	6:30	6:38	6:44	6:51	6:58	7:04	7:08	7:13	7:19	7:27
♻️ D6	7:10	7:18	7:24	7:31	7:38	7:44	7:48	7:53	7:59	8:07
♻️ D6	7:50	7:58	8:04	8:11	8:18	8:24	8:28	8:33	8:39	8:47
♻️ D6	8:30	8:38	8:44	8:51	8:58	9:04	9:08	9:13	9:19	9:27
♻️ D6	9:10	9:18	9:24	9:31	9:38	9:44	9:48	9:53	9:59	10:07
♻️ D6	9:50	9:58	10:04	10:11	10:18	10:24	10:28	10:33	10:39	10:47
♻️ D6	10:30	10:38	10:44	10:51	10:58	11:04	11:08	11:13	11:19	11:27
♻️ D6	11:10	11:18	11:22	11:28	11:35	11:40	11:44	11:48	11:52	12:00
♻️ D6	11:50	11:58	12:02	12:08	12:15	12:20	12:24	12:28	12:32	12:40
After Midnight Service — Servicio después de la medianoche										
♻️ D6	12:25	12:33	12:37	12:43	12:50	12:55	12:59	1:03	1:07	1:15

♻️ — Trip operates with wheelchair-accessible or lift-equipped bus.
Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

D1,3,6

Sibley Hospital- Stadium-Armory Line

Holiday Westbound * — En días festivos con dirección al oeste

Route Number	New York Ave. & 16th St. NE (Ivy City)	K & 8th Sts. NE	North Capitol St. & Massachusetts Ave. NW (Union Station) 	E & 7th Sts. NW	13th & G Sts. NW (Metro Center) 	K St. & Connecticut Ave. NW (Farragut N&W) 	P & 22nd Sts. NW (DUPONT CIRCLE) 
AM Service — Servicio matutino							
♿ D3/	6:31	6:40	6:48	6:53	6:58	7:04	7:12
♿ D3/	6:53	7:02	7:10	7:15	7:20	7:26	7:34
♿ D3/	7:16	7:25	7:34	7:39	7:43	7:50	7:57
♿ D3/	7:39	7:48	7:57	8:02	8:06	8:13	8:20

♿ — Trip operates with wheelchair-accessible or lift-equipped bus.
Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

Service operates on Martin Luther King Jr. Day, Presidents Day, Columbus Day and Veterans Day.
Hay servicio el Día de Martin Luther King Jr., el Día de los Presidentes, el Día de Cristóbal Colón y el Día de los Veteranos.

* — Trips operate in addition to regular Saturday service.
Los autobuses funcionan además del servicio regular de los sábados.

Holiday Eastbound * — En días festivos con dirección al este

Route Number	41st St. & Davis Pl. NW (Glover Park)	35th St. & Winfield La. NW (Reservoir Rd.)	Massachusetts Ave. & 20th St. NW (Dupont Circle) 	K & 17th Sts. NW (Farragut N&W) 	13th & G Sts. NW (Metro Center) 	E & 7th Sts. NW	North Capitol St. & Massachusetts Ave. NE (UNION STATION) 
AM Service — Servicio matutino							
♿ D1	7:36	7:44	7:51	7:58	8:04	8:08	8:14
♿ D1	7:55	8:03	8:10	8:17	8:23	8:27	8:33
♿ D1	8:12	8:20	8:27	8:34	8:40	8:44	8:50
♿ D1	8:30	8:38	8:45	8:52	8:58	9:02	9:08
♿ D1	8:47	8:55	9:02	9:09	9:15	9:19	9:25

♿ — Trip operates with wheelchair-accessible or lift-equipped bus.
Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

Service operates on Martin Luther King Jr. Day, Presidents Day, Columbus Day and Veterans Day.
Hay servicio el Día de Martin Luther King Jr., el Día de los Presidentes, el Día de Cristóbal Colón y el Día de los Veteranos.

* — Trips operate in addition to regular Saturday service.
Los autobuses funcionan además del servicio regular de los sábados.

How to use this timetable

- Use the map to find the stops closest to where you will get on and off the bus.
- Select the schedule (Weekday, Saturday, Sunday) for when you will travel. Along the top of the schedule, find the stop at or nearest the point where you will get on the bus. Follow that column down to the time you want to leave.
- Use the same method to find the times the bus is scheduled to arrive at the stop where you will get off the bus.
- If the bus stop is not listed, use the time shown for the bus stop before it as the time to wait at the stop.
- The end-of-the-line or last stop is listed in ALL CAPS on the schedule.

Cómo Usar este Horario

- Use este mapa para localizar las paradas más cercanas a donde se subirá y bajará del autobús.
- Seleccione el horario (Entre semana, sábado, domingo) de cuando viajará. A lo largo de la parte superior del horario, localice la parada o el punto más cercano a la parada en la que se subirá al autobús. Siga esa columna hacia abajo hasta la hora en la que desee salir.
- Utilice el mismo método para localizar las horas en que el autobús está programado para llegar a la parada en donde desea bajarse del autobús.
- Si la parada del autobús no está listada use la hora que se muestra en la parada anterior como la hora de espera en la parada.
- El final de la ruta o la última parada del autobús aparece en letras MAYÚSCULAS en el horario.

En Español

METROBUS-DC

M4

Nebraska Avenue Line



Serves these locations-Brinda servicio a estas ubicaciones

Pinehurst Circle
Nebraska Ave.
Tenleytown-AU station
Tenley Circle
Ward Circle
American University
Loughboro Rd.
Sibley Hospital
Palisades

Schedule 12-26-04

INFORMATION ANYTIME 202-637-7000

M opens doors

TTY 202-638-3790

MetroOpensDoors.com

**Washington
Metropolitan Area
Transit Authority**

*A District of Columbia,
Maryland and Virginia
Transit Partnership*

Nebraska Avenue Line Route M4

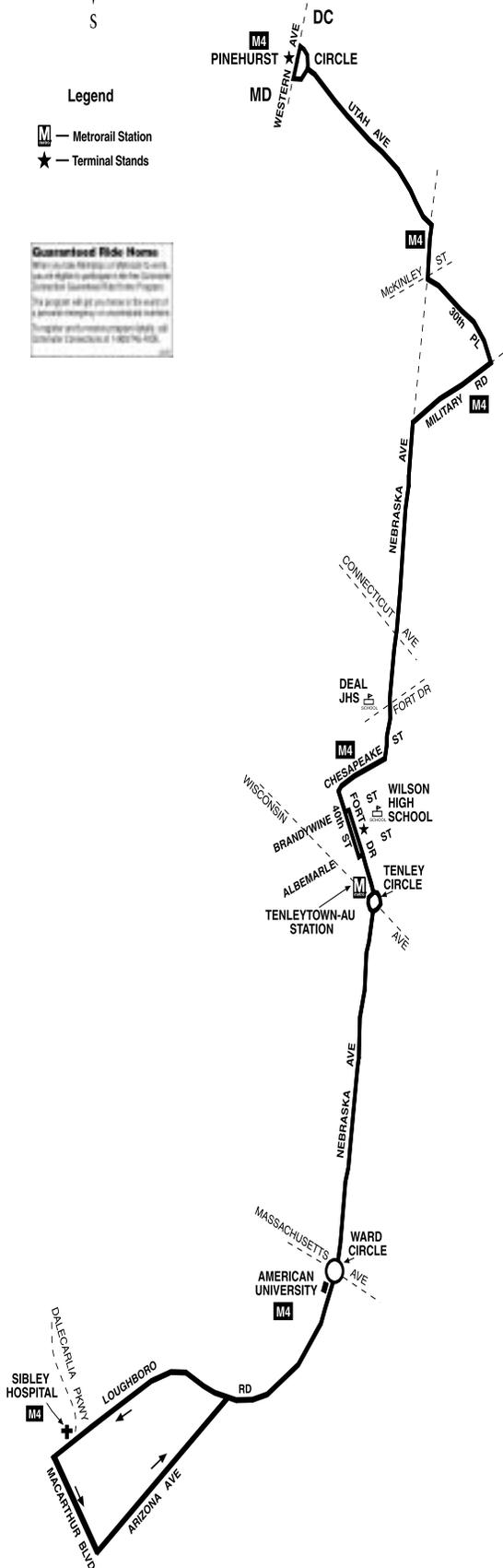
For route and schedule information
Call 202-637-7000
www.metroopendoors.com



Legend

- Metrorail Station
- Terminal Stands

Guaranteed Ride Home
Metrorail's Guaranteed Ride Home Service is available to passengers who pay for a Guaranteed Ride Home when they purchase a MetroCard. The program will get you home in the event of a service interruption or emergency incident. Through the program, you can be assured that you will have a safe ride home at 100% of the cost.



M4

Nebraska Avenue Line

Weekday Loop — Circunvalación entre semana

Route Number	Fort Dr. & Albemarle St. NW (Tenleytown-AU) 	Nebraska & Connecticut Aves. NW	30th Pl. & Nebraska Ave. NW	PINEHURST CIRCLE NW	30th Pl. & Nebraska Ave. NW	Nebraska & Connecticut Aves. NW	40th & Albemarle Sts. NW (TENLEY-TOWN-AU) 	Ward Circle NW (south side) (American University)	Sibley Hospital	Arizona Ave. & MacArthur Blvd. NW	Ward Circle NW (south side) (American University)	Fort Dr. & Albemarle St. NW (TENLEY-TOWN-AU) 
AM Service — Servicio matutino												
♻️ M4	-	-	-	5:56	6:01	6:06	6:10	6:14	6:20	6:25	6:29	6:32
♻️ M4	-	-	-	6:26	6:31	6:36	6:40	6:44	6:50	6:55	6:59	7:02
♻️ M4	6:45	6:49	6:53	6:56	7:01	7:06	7:10	7:14	7:20	7:25	7:29	7:32
♻️ M4	-	-	-	7:13	7:18	7:23	7:27	7:31	7:37	7:42	7:46	7:49
♻️ M4/	-	-	-	7:26	7:32	7:37	7:42	-	-	-	-	-
♻️ M4	7:19	7:24	7:28	7:33	7:39	7:44	7:49	7:55	8:00	8:05	8:10	8:13
♻️ M4/	-	-	-	7:46	7:52	7:57	8:02	-	-	-	-	-
♻️ M4	7:39	7:44	7:48	7:53	7:59	8:04	8:09	8:15	8:20	8:25	8:30	8:33
♻️ M4/	7:54	7:59	8:03	8:08	8:14	8:19	8:24	-	-	-	-	-
♻️ M4	8:01	8:06	8:10	8:16	8:22	8:27	8:33	8:39	8:44	8:49	8:54	8:57
♻️ M4/	8:14	8:19	8:23	8:29	8:35	8:40	8:46	-	-	-	-	-
♻️ M4	8:21	8:26	8:30	8:36	8:42	8:47	8:53	8:59	9:04	9:09	9:14	9:17
♻️ M4/	8:33	8:38	8:42	8:48	8:54	8:59	9:05	-	-	-	-	-
♻️ M4	8:39	8:44	8:48	8:54	9:00	9:05	9:11	9:17	9:22	9:27	9:32	9:35
♻️ M4	9:09	9:14	9:18	9:24	9:30	9:35	9:41	9:47	9:52	9:57	10:02	10:05
♻️ M4	9:42	9:47	9:51	9:56	10:01	10:05	10:09	10:15	10:21	10:25	10:30	10:34
♻️ M4	10:12	10:17	10:21	10:26	10:31	10:35	10:39	10:45	10:51	10:55	11:00	11:04
♻️ M4	10:42	10:47	10:51	10:56	11:01	11:05	11:09	11:15	11:21	11:25	11:30	11:34
♻️ M4	11:12	11:17	11:21	11:26	11:31	11:35	11:39	11:45	11:51	11:55	12:00	12:04
♻️ M4	11:42	11:47	11:51	11:56	12:01	12:05	12:09	12:15	12:21	12:25	12:30	12:34
PM Service — Servicio vespertino												
♻️ M4	12:12	12:17	12:21	12:26	12:31	12:35	12:39	12:45	12:51	12:55	1:00	1:04
♻️ M4	12:42	12:47	12:51	12:56	1:01	1:05	1:09	1:15	1:21	1:25	1:30	1:34
♻️ M4	1:12	1:17	1:21	1:26	1:31	1:35	1:39	1:45	1:51	1:55	2:00	2:04
♻️ M4	1:42	1:47	1:51	1:56	2:01	2:05	2:09	2:15	2:21	2:25	2:30	2:34
♻️ M4	2:12	2:17	2:21	2:26	2:31	2:35	2:39	2:45	2:51	2:55	3:00	3:04
♻️ M4	2:42	2:47	2:51	2:56	3:01	3:05	3:09	3:15	3:21	3:25	3:30	3:34
♻️ M4	3:00	3:05	3:11	3:16	3:21	3:26	3:30	3:35	3:41	3:46	3:50	3:54
♻️ M4	3:20	3:25	3:31	3:36	3:41	3:46	3:50	3:55	4:01	4:06	4:10	4:14
● M4/	3:25	3:30	3:36	3:41	-	-	-	-	-	-	-	-
● M4/	3:30	3:35	3:41	3:46	-	-	-	-	-	-	-	-
♻️ M4	3:40	3:45	3:50	3:56	4:02	4:07	4:11	4:15	4:21	4:27	4:31	4:35
♻️ M4	4:00	4:05	4:10	4:16	4:22	4:27	4:31	4:35	4:41	4:47	4:51	4:55
♻️ M4	4:20	4:25	4:30	4:36	4:42	4:47	4:51	4:55	5:01	5:07	5:11	5:15
♻️ M4	4:40	4:45	4:50	4:56	5:02	5:07	5:11	5:15	5:21	5:27	5:31	5:35
♻️ M4	5:00	5:05	5:10	5:16	5:22	5:27	5:31	5:35	5:41	5:47	5:51	5:55
♻️ M4	5:20	5:25	5:30	5:36	5:42	5:47	5:51	5:55	6:01	6:07	6:11	6:15
♻️ M4	5:40	5:45	5:50	5:56	6:02	6:07	6:11	6:15	6:21	6:27	6:31	6:35
♻️ M4	6:01	6:06	6:11	6:16	6:22	6:27	6:31	6:35	6:39	6:44	6:48	6:52
♻️ M4	6:21	6:26	6:31	6:36	6:42	6:47	6:51	6:55	6:59	7:04	7:08	7:12
♻️ M4	6:51	6:56	7:01	7:06	7:12	7:17	7:21	7:25	7:29	7:34	7:38	7:42
♻️ M4	7:21	7:26	7:31	7:36	7:42	7:47	7:51	7:55	7:59	8:04	8:08	8:12
♻️ M4	7:51	7:56	8:01	8:06	8:12	8:17	8:21	8:25	8:29	8:34	8:38	8:42
♻️ M4	8:21	8:26	8:31	8:36	8:42	8:47	8:51	8:55	8:59	9:04	9:08	9:12
♻️ M4/	8:51	8:56	9:01	9:06	-	-	-	-	-	-	-	-
♻️ M4/	9:18	9:23	9:28	9:33	-	-	-	-	-	-	-	-

● — Trip operates only when public school is open.
El recorrido se realiza solamente cuando están abiertas las escuelas públicas.

♻️ — Trip operates with wheelchair-accessible or lift-equipped bus.
Los autobuses son accesibles a sillas de ruedas o tienen equipo elevador.

From Pinehurst Circle to Loughboro Rd. & Lowell St. NW, through trips sign SIBLEY HOSPITAL.
From Loughboro Rd. & Lowell St. NW to Pinehurst Circle, through trips sign PINEHURST CIRCLE. Trips not continuing beyond Tenleytown-AU station sign TENLEYTOWN STATION.

23 SIBLEY HOSPITAL-SANGAMORE ROAD-FRIENDSHIP HEIGHTS STATION

MONDAY-FRIDAY

TO SIBLEY HOSPITAL

TO FRIENDSHIP HEIGHTS STATION

Friendship Heights Station	Massachusetts & Westbard Aves	Sangamore Road and MacArthur Blvd	Sibley Hospital
5:45	5:52	5:57	6:03
6:20	6:28	6:34	6:40
6:40	6:48	6:54	7:00
7:00	7:09	7:15	7:21
7:19	7:28	7:34	7:41
7:35	7:45	7:52	7:59
7:50	8:00	8:07	8:14
8:07	8:17	8:24	8:31
8:24	8:34	8:41	8:47
8:41	8:51	8:58	9:04
9:00	9:08	9:14	9:20
9:30	9:38	9:44	9:50
10:00	10:08	10:14	10:20
10:30	10:38	10:44	10:50
11:00	11:08	11:14	11:20
11:30	11:38	11:44	11:50
12:00	12:08	12:14	12:20
12:30	12:38	12:44	12:50
1:00	1:08	1:14	1:20
1:30	1:38	1:44	1:50
2:00	2:08	2:14	2:20
2:30	2:38	2:44	2:50
3:00	3:08	3:14	3:20
3:30	3:39	3:45	3:51
4:00	4:09	4:15	4:21
4:25	4:34	4:41	4:47
4:45	4:54	5:02	5:08
5:05	5:14	5:22	5:28
5:32	5:41	5:49	5:55
6:02	6:11	6:18	6:24
6:30	6:39	6:46	6:52
7:00	7:08	7:15	7:21
7:30	7:38	7:45	7:51

Sibley Hospital	Brookmont (Ridge Dr. and Broad Street)	Sangamore Road and MacArthur Blvd	Massachusetts & Westbard Aves	Friendship Heights Station
6:07	6:12	6:15	6:21	6:29
6:43	6:48	6:51	6:58	7:08
7:03	7:08	7:11	7:18	7:29
7:23	7:28	7:31	7:39	7:50
7:43	7:48	7:52	8:00	8:11
8:05	8:10	8:14	8:21	8:32
8:27	8:32	8:36	8:43	8:53
8:54	8:59	9:03	9:09	9:18
9:24	9:29	9:32	9:38	9:47
9:54	9:59	10:02	10:08	10:17
10:24	10:29	10:32	10:38	10:47
10:54	10:59	11:02	11:09	11:18
11:24	11:29	11:32	11:39	11:48
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4:59	5:04	5:07	5:16	5:27
5:31	5:36	5:39	5:48	5:59
5:58	6:03	6:06	6:12	6:23
6:26	6:31	6:34	6:40	6:50
6:56	7:01	7:04	7:09	7:17
7:26	7:31	7:34	7:39	7:47
7:56	8:01	8:04	8:09	8:17

SATURDAY

TO SIBLEY HOSPITAL

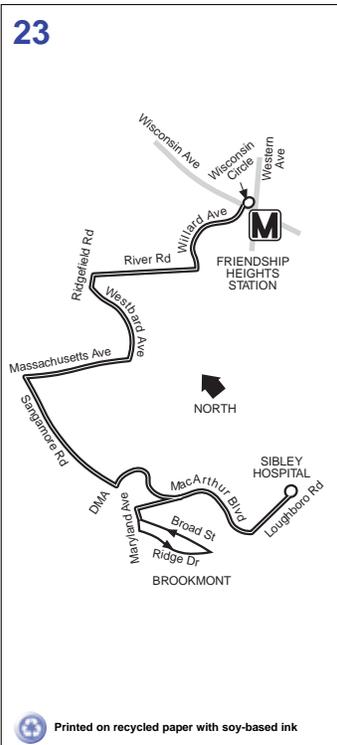
TO FRIENDSHIP HEIGHTS STATION

Friendship Heights Station	Massachusetts & Westbard Aves	Sangamore Road and MacArthur Blvd	Sibley Hospital
6:30	6:38	6:44	6:50
7:00	7:08	7:14	7:20
7:30	7:38	7:44	7:50
8:00	8:08	8:14	8:20
8:30	8:38	8:44	8:50
9:00	9:08	9:14	9:20
9:30	9:38	9:44	9:50
10:00	10:08	10:14	10:20
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11:00	11:08	11:14	11:20
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1:00	1:08	1:14	1:20
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4:30	4:38	4:44	4:50
5:00	5:08	5:14	5:20
5:30	5:38	5:44	5:50
6:00	6:08	6:14	6:20
6:30	6:38	6:44	6:50
7:00	7:08	7:14	7:20
7:30	7:38	7:44	7:50

Sibley Hospital	Brookmont (Ridge Dr. and Broad Street)	Sangamore Road and MacArthur Blvd	Massachusetts & Westbard Aves	Friendship Heights Station
6:25	6:30	6:33	6:40	6:50
6:55	7:00	7:03	7:10	7:20
7:25	7:30	7:33	7:40	7:50
7:55	8:00	8:03	8:10	8:20
8:25	8:30	8:33	8:40	8:50
8:55	9:00	9:03	9:10	9:20
9:25	9:30	9:33	9:40	9:50
9:55	10:00	10:03	10:10	10:20
10:25	10:30	10:33	10:40	10:50
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11:25	11:30	11:33	11:40	11:50
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4:25	4:30	4:33	4:40	4:50
4:55	5:00	5:03	5:10	5:20
5:25	5:30	5:33	5:40	5:50
5:55	6:00	6:03	6:10	6:20
6:25	6:30	6:33	6:40	6:50
6:55	7:00	7:03	7:10	7:20

HOLIDAY SERVICE

On the following holidays, this route will operate Saturday service with additional trips: Martin Luther King, Jr. Day, Presidents' Day, Columbus Day, Veterans Day. See information posted on buses or Web site at www.RideOnbus.com prior to these holidays.



Printed on recycled paper with soy-based ink

WELCOME TO RIDE ON

RIDE ON is a community bus service operated by the Montgomery County Department of Public Works and Transportation. RIDE ON operates over 80 routes that serve all thirteen Montgomery County Metrorail stations. For detailed information, or to have timetables mailed, call the Transit Information Center at:

(240) 777-RIDE(7433)
 For Accessible information call: (240)777-5870
 TTY (for hearing impaired): (240)777-5869
 Visit Ride On Web site at: www.RideOnbus.com

HOW TO RIDE

Check schedule for timepoint nearest your location. Wait at the blue and white RIDE ON bus stop. Arrive at least several minutes before scheduled time. Have exact fare ready (drivers do not make change).

HOW TO TRANSFER

- **BUS TO BUS:** Request a free transfer when paying your fare. Transfers may be used by the person to whom it is issued on any route at any stop in any direction for at least two hours past the time of arrival at the next terminal.
- **RAIL TO BUS TRANSFER:** The Metrorail transfer can be used with an additional 35 cents. Transfer must be from the originating station. Seniors and persons with disabilities ride free with rail transfer.

RULES OF RIDE ON

Please observe the following rules for all patrons: No eating, drinking, or smoking. Electronic devices may be played with earphones.

Please arrive at your stop a couple of minutes ahead of your bus' scheduled arrival. Since safe service is a priority at Ride On, buses may be delayed due to traffic or weather.

Thank You for Riding with Us!

RIDE ON FARES

Regular Fare	\$1.25
Regional One Day Bus Pass	\$3.00
Senior & Disabled 60¢ (with I.D.)	
Regional Bus Transfer Free (with payment of fare)	
Children Free (under 5 years old)	
Rail-to-Bus-Transfer 35¢ (from originating station, no charge for senior or disabled rider)	

Ride On Fare Media

Ride On 20-Trip Ticket	\$18.00
Ride About Two Week Pass	\$10.00
Monthly Youth Cruiser Pass	\$10.00

Students Ride Free

Monday through Friday 2PM-7PM
 Elementary, Middle, and High School kids 18 and under ride free. Middle and High School students need identification card or special student pass.

Guaranteed Ride Home

When you take Metrobus, Metrorail and Ride On to work, you are eligible to participate in the free Commuter Connections Guaranteed Ride Home Program. To register and to receive program details, call Commuter Services at 301-770-POOL (7665)



September 5, 2004

23

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 SANGAMORE ROAD
 WESTBARD AVENUE
 RIVER ROAD
 FRIENDSHIP HEIGHTS STATION**

Montgomery County
 Department of Public Works and Transportation
 Division of Transit Services
 101 Monroe Street-5th Floor
 Rockville, MD 20850

240-777-7433 - 240-777-5869 (TTY)
 240-777-5871(Rotary)
www.montgomerycountymd.gov



APPENDIX C

TRANSIT RIDERSHIP DATA

TRANSIT DATA SUMMARY

RIDERSHIP SUMMARY FOR WMATA ROUTE D3 (Average of 12/21/2004 and 12/22/04)

Location: North side of Loughboro Road west of Dalecarlia Parkway (Sibley Hospital bus shelter)

	Passengers	
Time	Off	On
8 AM to 9 AM	0	0
9 AM to 10 AM	0	0
10 AM to 11 AM	0	0
11 AM to 12 PM	0	0
12 PM to 1 PM	0	0
1 PM to 2 PM	0	0
2 PM to 3 PM	0	0
3 PM to 4 PM	0	9
4 PM to 5 PM	0	8
5 PM to 6 PM	0	0
Total (8 AM to 6 PM)	0	17

TRANSIT DATA SUMMARY

RIDERSHIP SUMMARY FOR WMATA ROUTE D6 (Average of 12/21/2004 and 12/22/04)

Location: South side of Loughboro Road west of Dalecarlia Parkway (Sibley Hospital bus stop)

Time	Passengers		Pedestrians (from bus)	
	Off	On	Crossed Loughboro at Crosswalk	Crossed Loughboro mid-block
8 AM to 9 AM	8	1	5	2
9 AM to 10 AM	7	0	3	4
10 AM to 11 AM	9	0	5	3
11 AM to 12 PM	4	0	2	0
12 PM to 1 PM	3	0	2	1
1 PM to 2 PM	3	0	1	2
2 PM to 3 PM	5	0	3	2
3 PM to 4 PM	6	0	3	2
4 PM to 5 PM	4	0	1	2
5 PM to 6 PM	2	0	1	1
Total (8 AM to 6 PM)	51	1	26	19

RIDERSHIP SUMMARY FOR WMATA ROUTE D6 (Average of 12/21/2004 and 12/22/04)

Location: North side of Loughboro Road west of Dalecarlia Parkway (Sibley Hospital bus shelter)

Time	Passengers	
	Off	On
8 AM to 9 AM	0	6
9 AM to 10 AM	0	2
10 AM to 11 AM	0	5
11 AM to 12 PM	3	1
12 PM to 1 PM	0	4
1 PM to 2 PM	1	6
2 PM to 3 PM	1	6
3 PM to 4 PM	2	10
4 PM to 5 PM	2	9
5 PM to 6 PM	2	2
Total (8 AM to 6 PM)	11	51

TRANSIT DATA SUMMARY

RIDERSHIP SUMMARY FOR WMATA ROUTE M4 (Average of 12/21/2004 and 12/22/04)

Location: North side of Loughboro Road west of Dalecarlia Parkway (Sibley Hospital bus shelter)

	Passengers	
Time	Off	On
8 AM to 9 AM	7	2
9 AM to 10 AM	3	2
10 AM to 11 AM	1	0
11 AM to 12 PM	1	1
12 PM to 1 PM	1	0
1 PM to 2 PM	4	2
2 PM to 3 PM	3	4
3 PM to 4 PM	5	4
4 PM to 5 PM	1	5
5 PM to 6 PM	0	1
Total (8 AM to 6 PM)	26	21

TRANSIT DATA SUMMARY

RIDERSHIP SUMMARY FOR RIDE ON ROUTE 23 (Average of 12/21/2004 and 12/22/04)

Location: South side of Loughboro Road west of Dalecarlia Parkway (Sibley Hospital bus stop)

Time	Passengers		Pedestrians (from bus)	
	Off	On	Crossed Loughboro at Crosswalk	Crossed Loughboro mid-block
8 AM to 9 AM	4	0	2	2
9 AM to 10 AM	5	0	3	2
10 AM to 11 AM	3	0	1	1
11 AM to 12 PM	1	0	0	1
12 PM to 1 PM	3	0	2	0
1 PM to 2 PM	4	0	2	2
2 PM to 3 PM	3	0	1	2
3 PM to 4 PM	2	0	1	1
4 PM to 5 PM	0	0	0	0
5 PM to 6 PM	3	0	2	0
Total (8 AM to 6 PM)	28	0	14	11

RIDERSHIP SUMMARY FOR RIDE ON ROUTE 23 (Average of 12/21/2004 and 12/22/04)

Location: North side of Loughboro Road west of Dalecarlia Parkway (Sibley Hospital bus shelter)

Time	Passengers	
	Off	On
8 AM to 9 AM	0	2
9 AM to 10 AM	1	5
10 AM to 11 AM	2	3
11 AM to 12 PM	2	1
12 PM to 1 PM	1	2
1 PM to 2 PM	0	1
2 PM to 3 PM	1	2
3 PM to 4 PM	0	9
4 PM to 5 PM	0	3
5 PM to 6 PM	0	2
Total (8 AM to 6 PM)	7	30

APPENDIX D

PHOTOGRAPHS
ON
LITTLE FALLS ROAD

Looking from Little Falls Road towards the Intersection of MacArthur Boulevard



Looking from Little Falls Road towards the New Parking Garage



Looking towards East from the Existing Location of the Helipad



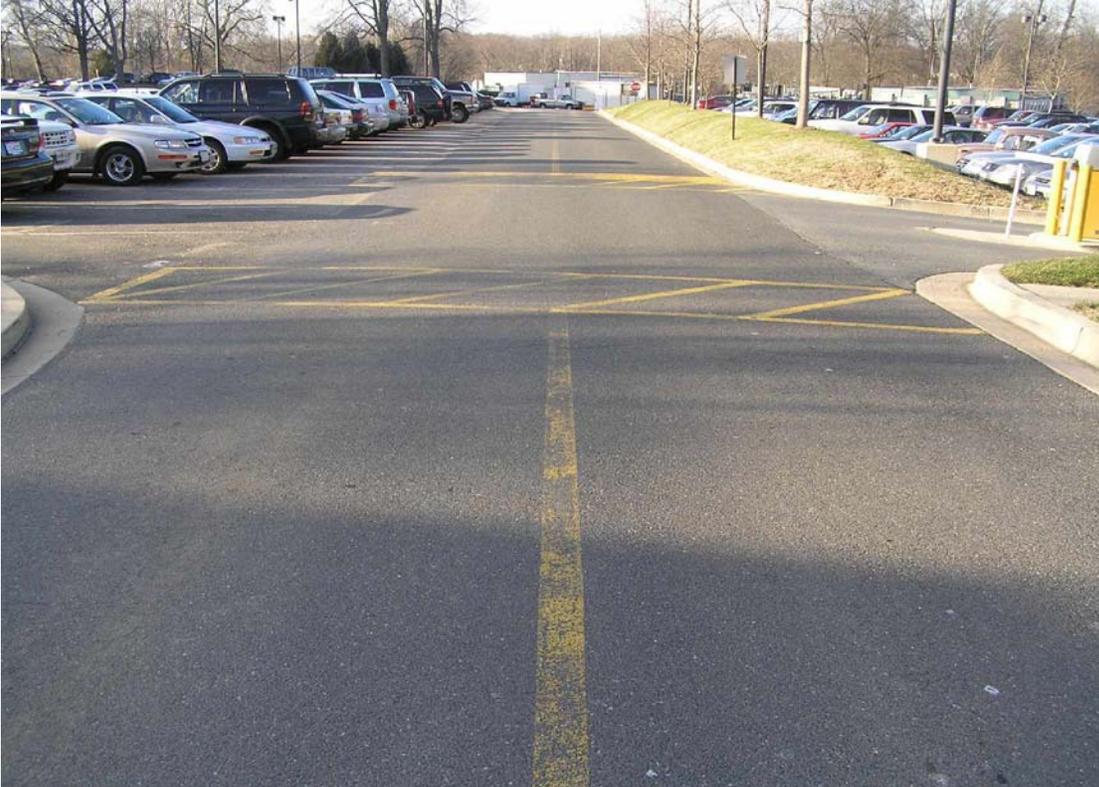
The Step at the Entrance to Sibley Hospital



Looking towards the West from the bend in Little Falls Road



Looking towards the bend in the road from the intersection of Dalecarlia Parkway



APPENDIX E

GEOTECHNICAL REPORT

**REPORT OF GEOTECHNICAL ENGINEERING
ANALYSIS AND RECOMMENDATIONS**

**PAVEMENT CORE EVALUATION ALONG
LITTLE FALLS ROAD AT
SIBLEY MEMORIAL HOSPITAL**

**WASHINGTON,
DISTRICT OF COLUMBIA**

**Prepared for
DMJM+HARRIS, Inc.**

F&R Project No. F72-127D

February 24, 2005



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 Sterling, VA 20166
 Telephone (703) 996-0123 Fax (703) 996-0124
 Web Site: www.FandR.com

F&R Project No. F72-127D

February 24, 2005

DMJM+HARRIS, Inc.
 2751 Prosperity Avenue
 Suite 200
 Fairfax, Virginia 22031

Attention: Mr. Abraham Lerner

Subject: Little Falls Road at Sibley Memorial Hospital, Washington, District of Columbia

Dear Mr. Lerner:

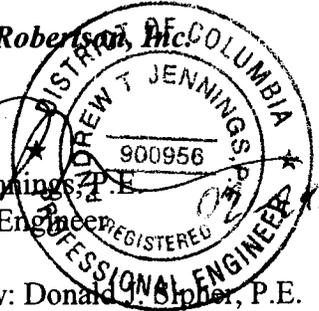
Froehling & Robertson, Inc. has completed the referenced pavement evaluation and engineering study. This study was conducted in accordance with our proposal letter dated December 10, 2004. The attached report represents our understanding of the project, reviews our exploration procedures, describes existing site and general subsurface conditions, and presents our evaluations, conclusions, and recommendations.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding this report, please contact the undersigned.

Respectfully,

Froehling & Robertson, Inc.

Andrew T. Jennings, P.E.
 Geotechnical Engineer
 Senior Review: Donald J. Stuber, P.E.




 Oscar R Merida Jr., E.I.T.
 Engineering Staff

Copies: One, bound enclosed
 One, Unbound enclosed



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2.	SITE LOCATION AND PAVEMENT CONDITION	1
3.	FIELD EXPLORATION AND LABORATORY STUDY.....	2
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4.	GENERAL SUBSURFACE CONDITIONS	3
5.	PAVEMENT EVALUATION	4
6.	LIMITATIONS.....	4
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APPENDIX B	LABORATORY TEST DATA	
APPENDIX C	IMPORTANT INFORMATION ABOUT YOUR REPORT	



1. PURPOSE AND SCOPE

This report presents our engineering evaluation of the exploration program for the upgrading of Little Falls Road between Dalecarlia Parkway NW to MacArthur Boulevard. The location of the site is shown on Drawing No. 1: Site Location Plan located in Appendix A. Services performed under this agreement included the drilling of six (6) soil test borings, soil laboratory testing, and preparation of an engineering report.

The subsurface data obtained for this study and related plans for the proposed construction have been considered to develop the following.

- a. Evaluation of the asphaltic concrete pavement structure at six locations along Little Falls Road.
- b. Evaluation of soil subgrade materials including California Bearing Ratio (CBR) testing of subgrade materials collected during field pavement evaluation.
- c. Comparison and comments pertaining to the Washington Metropolitan Area Transit Authority (WMATA) Pavement Section "C" for Entrance Roadways vs. the in-place asphaltic concrete pavement sections at the six locations tested along Little Falls Road.

2. SITE LOCATION AND PAVEMENT CONDITION

The asphaltic concrete pavement structure of Little Falls Road at Sibley Hospital was evaluated to determine if the existing pavement is acceptable with respect to WMATA minimum pavement sections. To determine the general thickness of the asphalt pavement and the strength characteristics of the supporting subgrade soil, six (6) soil test boring locations were selected along the alignment of Little Falls Road between Dalecarlia Parkway NW and MacArthur Boulevard as being representative of the pavement structure along the total length. Approximate test boring locations are shown in Drawing No. 2; Boring Location Plan located in Appendix A.

Visual observations conducted prior to drilling the test borings indicate that the existing pavement is generally in good condition. Minor cracks were observed along Little Falls Road, but these appear to be relatively normal service cracks.



3. FIELD EXPLORATION AND LABORATORY STUDY

3.1 Field

The field exploration program for the Little Falls Road consisted of six (6) pavement test borings B-1 through B-6 each drilled to a depth of five (5) feet. F&R personnel marked the boring locations in the field by taping and/or otherwise estimating distances from existing features indicated on the provided aerial drawing. The locations as shown on the Boring Location Drawing, Drawing No. 2 should be considered approximate only.

The test borings completed were advanced using a truck mounted rotary Mobile B-57 drill rig. Hollow-stem augers were advanced to pre-selected depths, the center plug was removed, and representative soil samples were recovered with a standard split-spoon sampler (1 3/8 in. ID, 2 in. OD) in general accordance with ASTM D 1586, the Standard Penetration Test. The number of blows required to drive the split-spoon sampler three consecutive 6-inch increments is recorded, and the blows of the last two increments are summed to obtain the Standard Penetration Resistance (N-value). The N-value provides a general indication of in-situ soil conditions and has been correlated with certain engineering properties of soils.

In some soils it is not always practical to drive a split-spoon sampler the full three consecutive 6-inch increments. Whenever more than 50 blows are required to drive the sampler over a 6-inch increment, the condition is called split-spoon refusal. Split-spoon refusal conditions may occur because of obstructions or because the earth materials being tested are very dense or very hard. When split-spoon refusal occurs, often little or no sample is recovered. The SPT N-value for split-spoon refusal conditions is typically estimated as greater than 100 blows per foot (bpf). Where the sampler is observed not to penetrate after 50 blows, the penetration resistance is reported as 50/0". Otherwise, the depth of penetration after 50 blows is reported in inches, i.e. 50/5", 50/2", etc.

Representative portions of each soil sample were placed in glass jars and transported to our laboratory for visual classification and testing. Group symbols in accordance with the Unified Soil Classification System, ASTM D2487, are given on the boring logs and in the generalized subsurface stratification included herein. A key to the system nomenclature is provided in Appendix A. Also included in Appendix A is a reference sheet, which includes the descriptive terms used on the boring logs and description of the Standard Penetration Test.

3.2 Laboratory

Selected representative soil samples were tested to aid in the visual classification and for use in the review of the existing pavement. This included natural moisture content, standard proctor, California Bearing Ratio (CBR), Atterberg limits and sieve tests. The laboratory tests were conducted in general accordance with applicable ASTM Standards.



Results of the laboratory soil testing are given by the Laboratory Summary Sheet and test curves in Appendix B.

4. GENERAL SUBSURFACE CONDITIONS

The test borings generally encountered four (4) inches of asphaltic Concrete Pavement over six (6) to twenty-four (24) inches of granular base course materials over fine SILTY SAND and CLAYEY SAND.

The following table presents the results of our exploration and compares the observed pavement section to the required pavement section as defined by WMATA.

Boring Location	Asphalt Thickness (inches) WMATA Requirement 7 inches		Granular Base (inches) WMATA Requirement 6 inches			Subgrade Soaked CBR WMATA Requirement 9		Meet the Requirement of Pavement Section "C" by WMATA			
	Meet WMATA Requirement	YES	NO		YES	NO		YES	NO	YES	NO
B-1	4	-	X	20	X	-	11.2	X	-	-	X
B-2	4	-	X	8	X	-	-	-	-	-	X
B-3	4	-	X	8	X	-	3.2	-	X	-	X
B-4	12	X	-	24	X	-	-	-	-	X	-
B-5	4	-	X	6	X	-	-	-	-	-	X
B-6	3	-	X	9	X	-	2.8	-	X	-	X

See Drawing No. 2; Boring Location Plan for approximate boring locations.

Groundwater was not encountered in any of the test borings. The holes caved at a depth ranging from 2.5 to 3.5 feet below the existing pavement surface. Long term groundwater levels, however, may fluctuate with variations in precipitation, surface runoff, and evaporation throughout the year. Upon completion, the borings were backfilled for safety with soil cuttings to a depth of two (2) feet below the pavement surface followed by a lean concrete grout to 2 inches from the pavement surface followed by 2 inches of asphaltic concrete cold patch.



5. PAVEMENT EVALUATION

The required pavement section as described by WMATA on WMATA Drawing No ST-C-17, Civil Standard Drawing Metro Pavement Section and Details consists of 1 ½ inch AC Surface Course, 5 ½ inch AC Base Course, 6 inch granular base with subgrade CBR of 9 or better. As indicated by our test borings conducted January 29, 2005 the existing pavement does not meet the WMATA criterion set for Typical Pavement Section C Entrance Roadways.

Four (4) inches of asphalt was generally observed in our test borings. CBR test results indicate CBR values ranging from 2.9 to 11.2. The tests values are generally below the required value of 9, indicating that the soil subbase strength is below that required by WMATA.

6. LIMITATIONS

This report has been prepared for the exclusive use of DMJM+HARRIS, Inc. or their agent, for specific application to the Little Falls Road pavement evaluation at Sibley Memorial Hospital in Washington, DC in accordance with generally accepted soil and foundation engineering practices. No warranty, express or implied, is made.

This report has not been developed to meet the needs of others, such as contractors. Should the data contained in this report not be adequate for the contractor's purposes, the contractor may make his own investigations, tests, and analyses prior to bidding. Applications of this report for other than its intended purpose could result in substantial difficulties. The consulting engineer cannot be held accountable for any problems, which occur due to application of this report for other than its intended purpose.

The conclusions and recommendations do not reflect variations in subsurface conditions, which could exist intermediate of the boring locations, or in unexplored areas of the site. Should such variation become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon on-site observations of the conditions.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions between borings will differ from those at the boring locations, that conditions are not as expected by the designers, or that the construction process has altered the soil conditions. Therefore, experienced geotechnical engineers should evaluate pavement, construction to verify that the conditions expected in design actually exist.

In the event that changes are made in the WMATA required minimum pavement sections, the recommendations presented in the report shall not be considered valid unless



the changes are reviewed by our firm and conclusions of this report modified and/or verified in writing. If this report is copied or transmitted to a third party, it must be copied or transmitted in its entirety, including text, attachments, and enclosures. Interpretations based on only a part of this report may not be valid. This report contains 5 pages of text and the Appendices.



APPENDIX A

Site Location Plan, Drawing No. 1 (One Sheet)

Boring Location Plan, Drawing No. 2 (One Sheet)

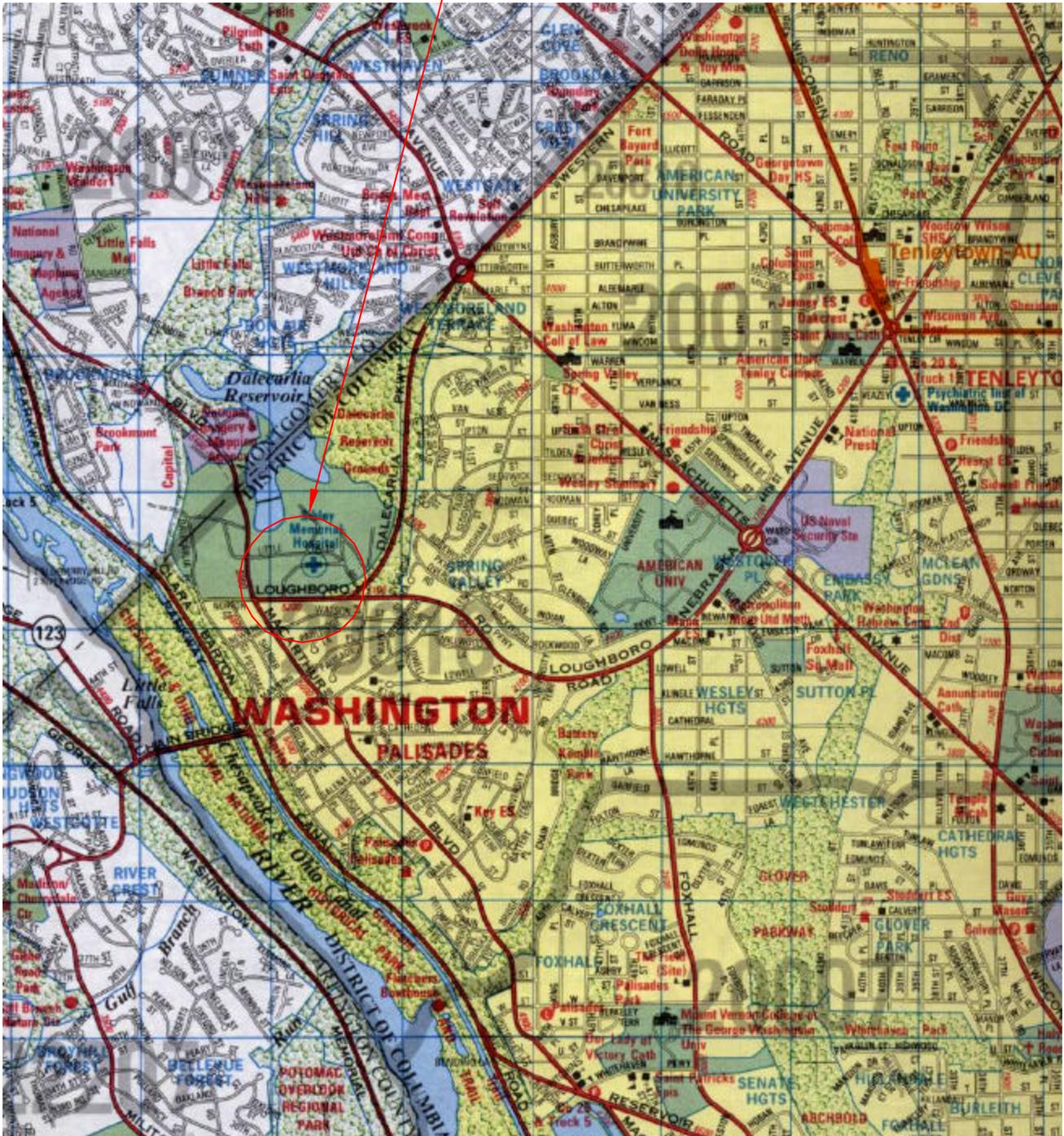
Classification of Soils for Engineering Purposes (One Sheet)

Field Classification System for Soil Exploration (One Sheet)

Key – Graphic Soil Classification Chart (One Sheet)

Boring Logs - Boring Nos. B-1 thru B-6 (Six Sheets)

SITE



SINCE



1861

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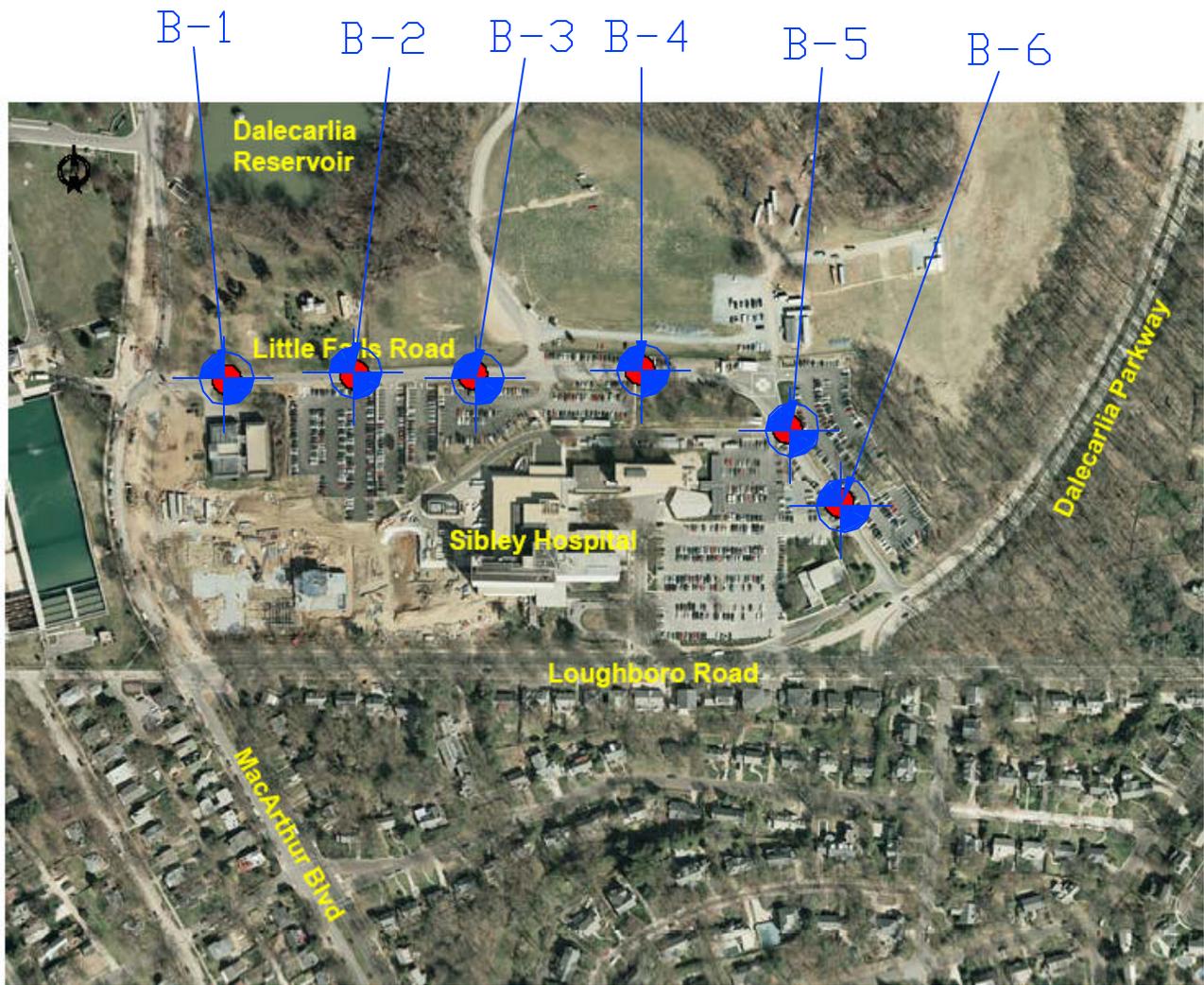
22923 Quicksilver Drive
Sterling, VA 20166

Ph: (703) 996-0123 Fax: (703) 996-0124

SITE LOCATION PLAN

PROJECT: LITTLE FALLS ROAD TEST BORINGS
LOCATION: LITTLE FALLS ROAD
WASHINGTON, DC

SCALE:	DATE:	DRAWN BY:
NTS	1/10/05	ORM
CLIENT:	F&R PROJECT NO.	DRAWING NO.
DMJM+HARRIS FAIRFAX, VA	F72-127G	1



LEGEND



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22923 Quicksilver Drive
Sterling, VA 20188
Ph: (703) 996-0123 Fax: (703) 996-0124

BORING LOCATION PLAN

PROJECT: LITTLE FALLS ROAD TEST BORINGS
LOCATION: LITTLE FALLS ROAD
WASHINGTON, DC

SCALE:	DATE:	DRAWN BY:
NTS	1/10/05	ORM
CLIENT:	F&R PROJECT NO.	DRAWING NO.
DMJM+HARRIS FAIRFAX, VA	F72-127G	2



KEY TO BORING LOG SOIL CLASSIFICATION

Particle Size and Proportion

Visual descriptions are assigned to each soil sample or stratum based on estimates of the particle size of each component of the soil and the percentage of each component of the soil.

Particle Size		Proportion		
Descriptive Terms		Descriptive Terms		
Soil Component	Particle Size	Component	Term	Percentage
Boulder	> 12 inch	Major	Uppercase Letters (e.g., SAND, CLAY)	> 50%
Cobble	3 - 12 inch	Secondary	Adjective (e.g., sandy, clayey)	20% - 50%
Gravel-Coarse	3/4 - 3 inch			
-Fine	#4 - 3/4 inch			
Sand-Coarse	#10 - #4	Minor	Some Little Trace	15% - 25% 5% - 15% 0% - 5%
-Medium	#40 - #10			
-Fine	#200 - #40			
Silt (non-cohesive)	< #200			
Clay (cohesive)	< #200			

Notes:

1. Particle size is designated by U.S. Standard Sieve Sizes
2. Because of the small size of the split-spoon sampler relative to the size of gravel, the true percentage of gravel may not be accurately estimated.

Density or Consistency

The standard penetration resistance values (N-values) are used to describe the density of coarse-grained soils (GRAVEL, SAND) or the consistency of fine-grained soils (SILT, CLAY). Sandy silts of very low plasticity may be assigned a density instead of a consistency.

DENSITY		CONSISTENCY	
Term	N-Value	Term	N-Value
Very Loose	0 - 4	Very Soft	0 - 1
Loose	5 - 10	Soft	2 - 4
Medium-Dense	11 - 30	Medium Stiff	5 - 8
Dense	31 - 50	Stiff	9 - 15
Very Dense	> 50	Very Stiff	16 - 30
		Hard	> 30

Notes:

1. The N-value is the number of blows of a 140 lb. Hammer freely falling 30 inches required to drive a standard split-spoon sampler (2.0 in. O.D., 1-3/8 in. I.D.) 12 inches into the soil after properly seating the sampler 6 inches.
2. When encountered, gravel may increase the N-value of the standard penetration test and may not accurately represent the in-situ density or consistency of the soil sampled.



CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES
 ASTM Designation: D 2487
 (Based on Unified Soil Classification System)

SOIL ENGINEERING

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retaining on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well graded gravel ^F
			$Cu < 4$ and/or $1 > Cc > 3$ ^E	GP	Poorly graded gravel ^F
		Gravels with Fines More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{G,H}
			Fines classify as CL or CH	GC	Clayey gravel ^{G,H}
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^F
			$Cu < 6$ and/or $1 > Cc > 3$ ^E	SP	Poorly graded sand ^F
		Sands with Fines, More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G,H}
			Fines classify as CL or CH	SC	Clayey sand ^{G,H}
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve	Silt and Clays Liquid Limit less than 50	Inorganic	PI > 7 and plots on or above "A" line ^I	CL	Lean clay ^{K,L,M}
			PI < 4 or plots below "A" line ^I	ML	Silt ^{K,L,M}
		Organic	$\frac{\text{Liquid limit-oven dried} < 0.75}{\text{Liquid limit-not dried}}$	OL	Organic clay ^{K,L,M,H}
					Organic silt ^{K,L,M,O}
	Silt and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{K,L,M}
			PI plots below "A" line	MH	Elastic silt ^{K,L,M}
		Organic	$\frac{\text{Liquid limit-oven dried} < 0.75}{\text{Liquid limit-not dried}}$	OH	Organic clay ^{K,L,M,P}
					Organic silt ^{K,L,M,O}

HIGHLY ORGANIC SOILS

Primarily organic matter, dark in color, and organic odor

PT Peat

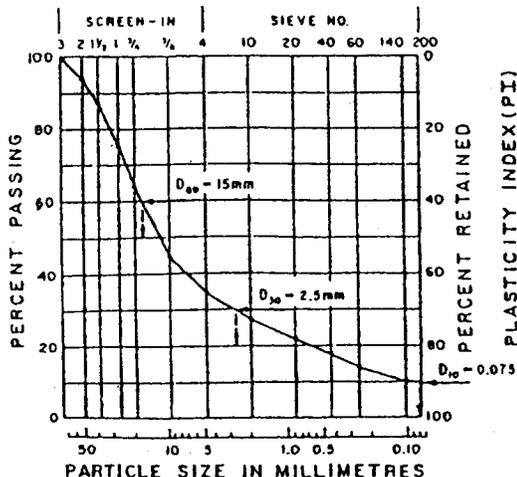
- ^ABased on the material passing the 3-in. (75-mm) sieve
- ^BIf field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
- ^CGravels with 5 to 12% fines require dual symbols:
 GW-GM well-graded gravel with silt
 GW-GC well-graded gravel with clay
 GP-GM poorly graded gravel with silt
 GP-GC poorly graded gravel with clay
- ^DSands with 5 to 12% fines require dual symbols:
 SW-SM well-graded sand with silt
 SW-SC well-graded sand with clay
 SP-SM poorly graded sand with silt
 SP-SC poorly graded sand with clay

$$E \quad Cu = D_{60}/D_{10}, \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

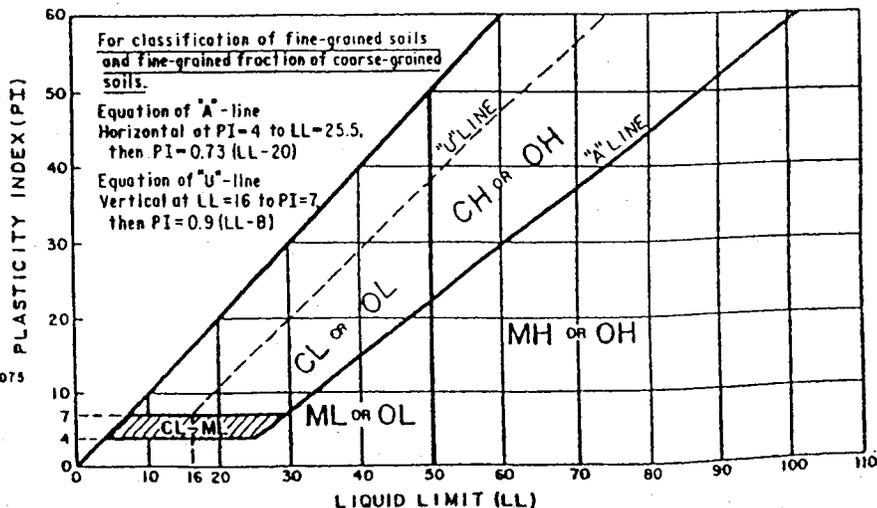
- ^FIf soil contains $\geq 15\%$ sand, add "with sand" to group name.
- ^GIf fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
- ^HIf fines are organic, add "with organic fines" to group name.
- ^IIf soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

- ^JIf Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
- ^KIf soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
- ^LIf soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
- ^MIf soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.
- ^NPI ≥ 4 and plots on or above "A" line.
- ^OPI < 4 or plots below "A" line.
- ^PPI plots on or above "A" line
- ^QPI plots below "A" line.

SIEVE ANALYSIS



$$Cu = \frac{D_{60}}{D_{10}} = \frac{15}{0.075} = 200 \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}} = \frac{(2.5)^2}{0.075 \times 15} = 5.6$$



GRAPHIC SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

BORING LOG



FROEHLING & ROBERTSON, INC.
 GEOTECHNICAL • ENVIRONMENTAL • MATERIALS
 ENGINEERS • LABORATORIES
 "OVER ONE HUNDRED YEARS OF SERVICE"

Report No.: **F72-127D**

Date: **February, 2005**

Client: DMJM & Harris, Inc						
Project: Little Falls Road Test Borings, Sibley Hospital, Washington, DC						
Boring No.: B-1 (1 of 1)		Total Depth: 5.0'	Elev:	Location: See Boring Location Plan		
Type of Boring: HSA			Started: 1/29/05	Completed: 1/29/05	Driller: Wilhelm	
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	0.3	4 inches Asphalt				
		BASE COURSE , 20 inches, Dark brown, dry, medium to coarse SANDY GRAVEL (GP), trace clay and stone fragments	14-11-11	1.0	22	
	2.0	RESIDUUM , Yellowish orange, moist, medium dense, fine to medium CLAYEY SAND (SC), trace mica		2.5		
			11-7-9	3.5	16	
	5.0	Boring Terminated at 5 feet		5.0		
						Dry upon completion
						Boring caved at 3.4 feet upon completion

BORING_LOG F72-127D.GPJ F&R.GDT 2/15/05

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N.

BORING LOG



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Report No.: **F72-127D**

Date: **February, 2005**

Client: DMJM & Harris, Inc						
Project: Little Falls Road Test Borings, Sibley Hospital, Washington, DC						
Boring No.: B-2		(1 of 1)		Total Depth: 5.0'	Elev:	Location: See Boring Location Plan
Type of Boring: HSA			Started: 1/29/05	Completed: 1/29/05	Driller: Wilhelm	
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	0.3	4 inches Asphalt				
	1.0	BASE COURSE , 8 inches, Dark brown, dry, medium to coarse SANDY GRAVEL (GP), trace clay and stone fragments	11-16-12	1.0	28	
		RESIDUUM , Yellowish orange, moist, medium dense to very dense, fine to medium SILTY SAND (SM), trace clay and fine to medium gravel	14-30-41	2.5		
				3.5	71	
	5.0	Boring Terminated at 5 feet		5.0		
						Dry upon completion
						Boring caved at 2.7 feet upon completion

BORING LOG F72-127D.GPJ F&R.GDT 2/15/05

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N.

BORING LOG



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Report No.: **F72-127D**

Date: **February, 2005**

Client: DMJM & Harris, Inc						
Project: Little Falls Road Test Borings, Sibley Hospital, Washington, DC						
Boring No.: B-3 (1 of 1)		Total Depth: 5.0'	Elev:		Location: See Boring Location Plan	
Type of Boring: HSA			Started: 1/29/05	Completed: 1/29/05	Driller: Wilhelm	
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	0.3	4 inches Asphalt				
	1.0	BASE COURSE , 8 inches, Dark brown, dry, medium to coarse SANDY GRAVEL (GP), trace clay and stone fragments	21-39-41	1.0	80	
		RESIDUUM , Yellowish brown, moist, very dense, medium to coarse SILTY SAND (SM), trace clay, mica and fine gravel	26-36-46	2.5		
				3.5	82	
	5.0	Boring Terminated at 5 feet		5.0		
						Dry upon completion Boring caved at 3.7 feet upon completion

BORING LOG F72-127D.GPJ F&R.GDT 2/15/05

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N.

BORING LOG



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Report No.: **F72-127D**

Date: **February, 2005**

Client: DMJM & Harris, Inc						
Project: Little Falls Road Test Borings, Sibley Hospital, Washington, DC						
Boring No.: B-4		(1 of 1)	Total Depth 5.0'	Elev:	Location: See Boring Location Plan	
Type of Boring: HSA			Started: 1/29/05	Completed: 1/29/05	Driller: Wilhelm	
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	1.0	12 inches Asphalt		1.0	43	
	3.0	BASE COURSE , 24 inches, Black-olive, moist, dense, medium to coarse GRAVELLY SAND (SP), trace clay and asphalt	20-22-21	2.5		
	3.0	RESIDUUM , Yellowish orange, moist, dense, medium to coarse SILTY SAND (SM), trace clay and fine gravel	3-3-4	3.5	7	
	5.0	Boring Terminated at 5 feet		5.0		
						Dry upon completion
						Boring caved at 3 feet upon completion

BORING_LOG_F72-127D.GPJ F&R.GDT 2/15/05

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N.

BORING LOG



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Report No.: **F72-127D**

Date: **February, 2005**

Client: DMJM & Harris, Inc						
Project: Little Falls Road Test Borings, Sibley Hospital, Washington, DC						
Boring No.: B-5 (1 of 1)		Total Depth: 5.0'	Elev:		Location: See Boring Location Plan	
Type of Boring: HSA		Started: 1/29/05		Completed: 1/29/05		Driller: Wilhelm
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	0.3	4 inches Asphalt				
	0.8	<u>BASE COURSE</u> , 6 inches gravel and sand	7-12-14	1.0	26	
		<u>RESIDUUM</u> , Yellowish orange, moist, medium dense to dense, fine SILTY SAND (SM), trace clay and mica		2.5		
			12-12-19	3.5	31	
	5.0	Boring Terminated at 5 feet		5.0		
						Dry upon completion
						Boring caved at 2.5 feet upon completion

BORING LOG F72-127D.GPJ F&R.GDT 2/15/05

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N.

BORING LOG



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Report No.: **F72-127D**

Date: **February, 2005**

Client: DMJM & Harris, Inc						
Project: Little Falls Road Test Borings, Sibley Hospital, Washington, DC						
Boring No.: B-6 (1 of 1)		Total Depth: 5.0'	Elev:		Location: See Boring Location Plan	
Type of Boring: HSA			Started: 1/29/05	Completed: 1/29/05	Driller: Wilhelm	
Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	0.3	3 inches Asphalt				
	1.0	BASE COURSE , 9 inches gravel and sand RESIDUUM , Yellowish orange-gray, moist, dense, fine to medium SILTY SAND (SM), trace clay and mica	14-18-30	1.0	48	
				2.5		
			15-22-26	3.5	48	
	5.0	Boring Terminated at 5 feet		5.0		
						Dry upon completion Boring caved at 3.5 feet upon completion

BORING_LOG F72-127D.GPJ F&R.GDT 2/15/05

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N.



APPENDIX B

Grain Size Distribution (Three Sheets)

Atterberg Limits Results (Three Sheets)

Compaction Test Report (Three Sheets)

California Bearing Ratio Test (Six Sheets)



CALIFORNIA BEARING RATIO TEST

CLIENT: DMJM Harris

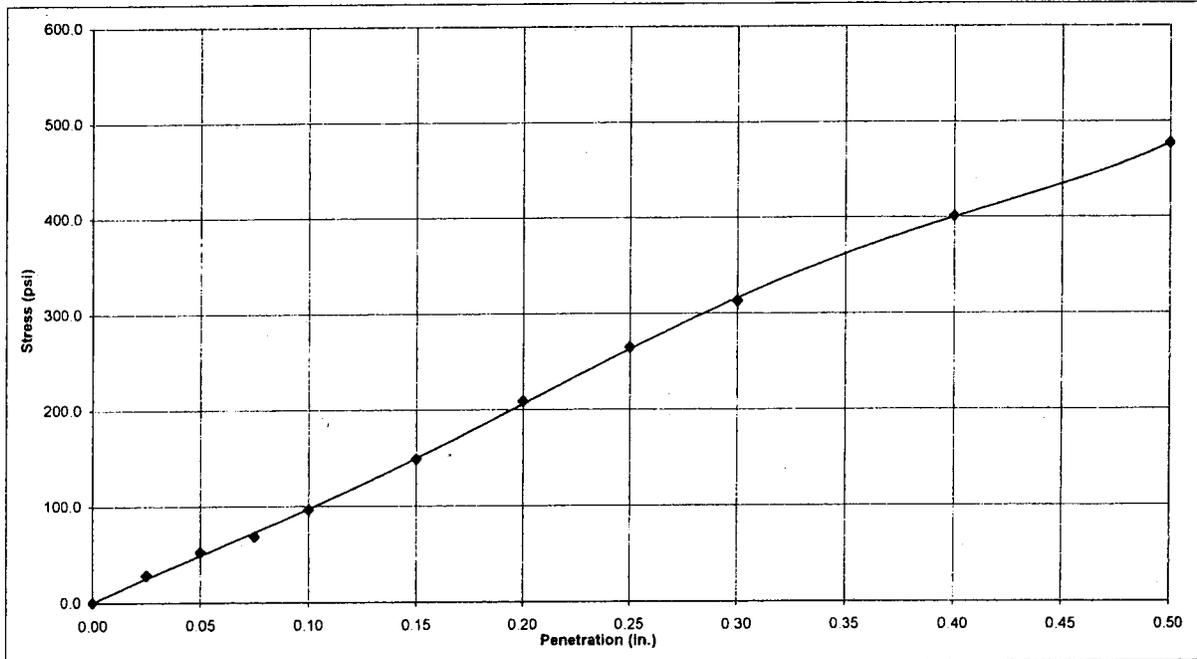
PROJECT NO.: F72-127D

PROJECT: Little Falls Road Test Borings

DATE TESTED: 2-4-05

LOCATION: Sibley Hospital (B-1)

TEST METHOD: D1883



Unsoaked CBR **9.6**

Swell :

Surcharge Load (lbs) **10**

Liquid Limit : **33**

USCS Classification: **SC**

Plasticity Index : **15**

Max Dry Density (pcf): **124.8**

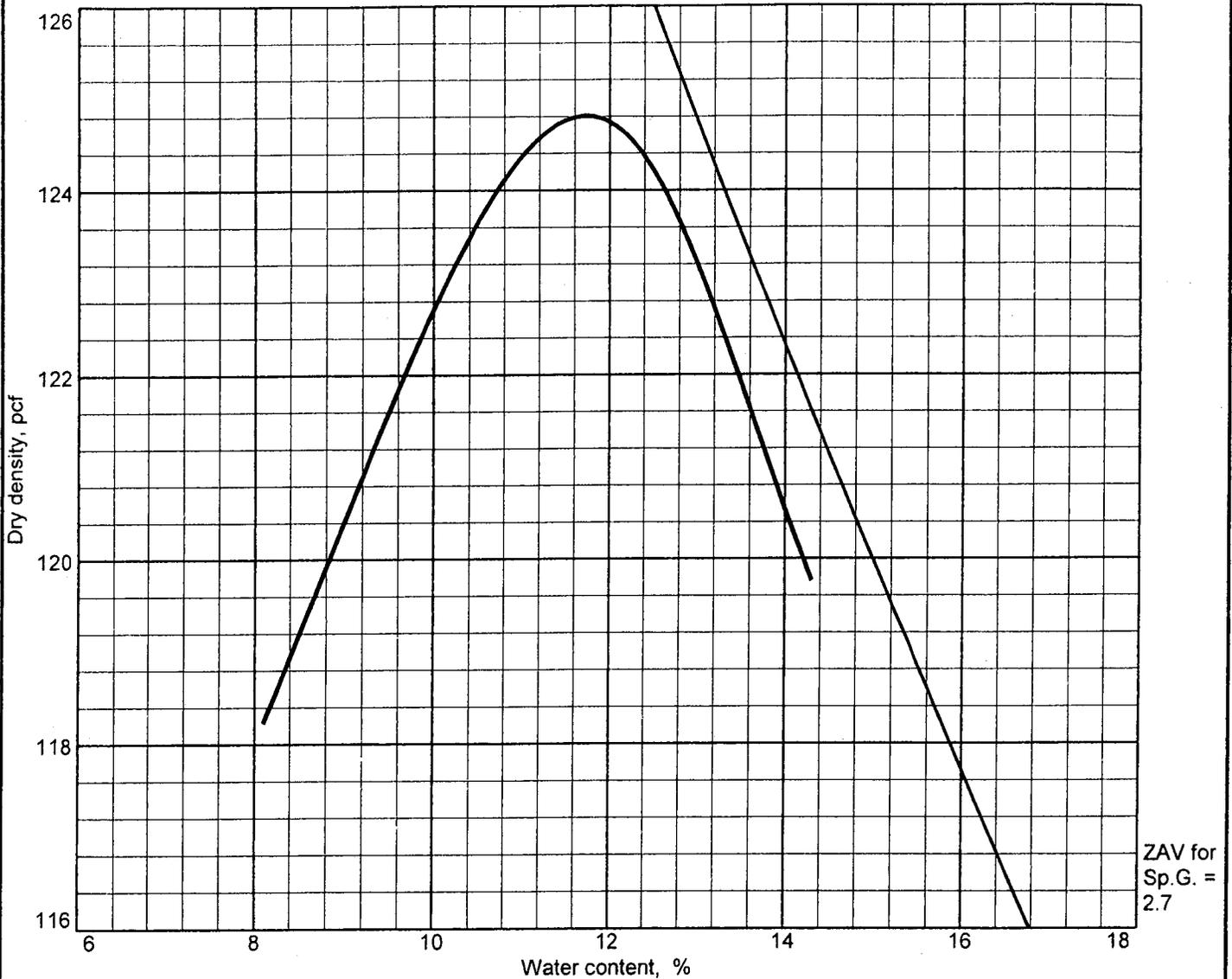
CBR % Compaction: **102.2**

Optimum Moisture (%): **11.7**

CBR Sample Moisture(%): **10.7**
(before soaking)

CBR Sample Moisture(%):
(after soaking)

COMPACTION TEST REPORT

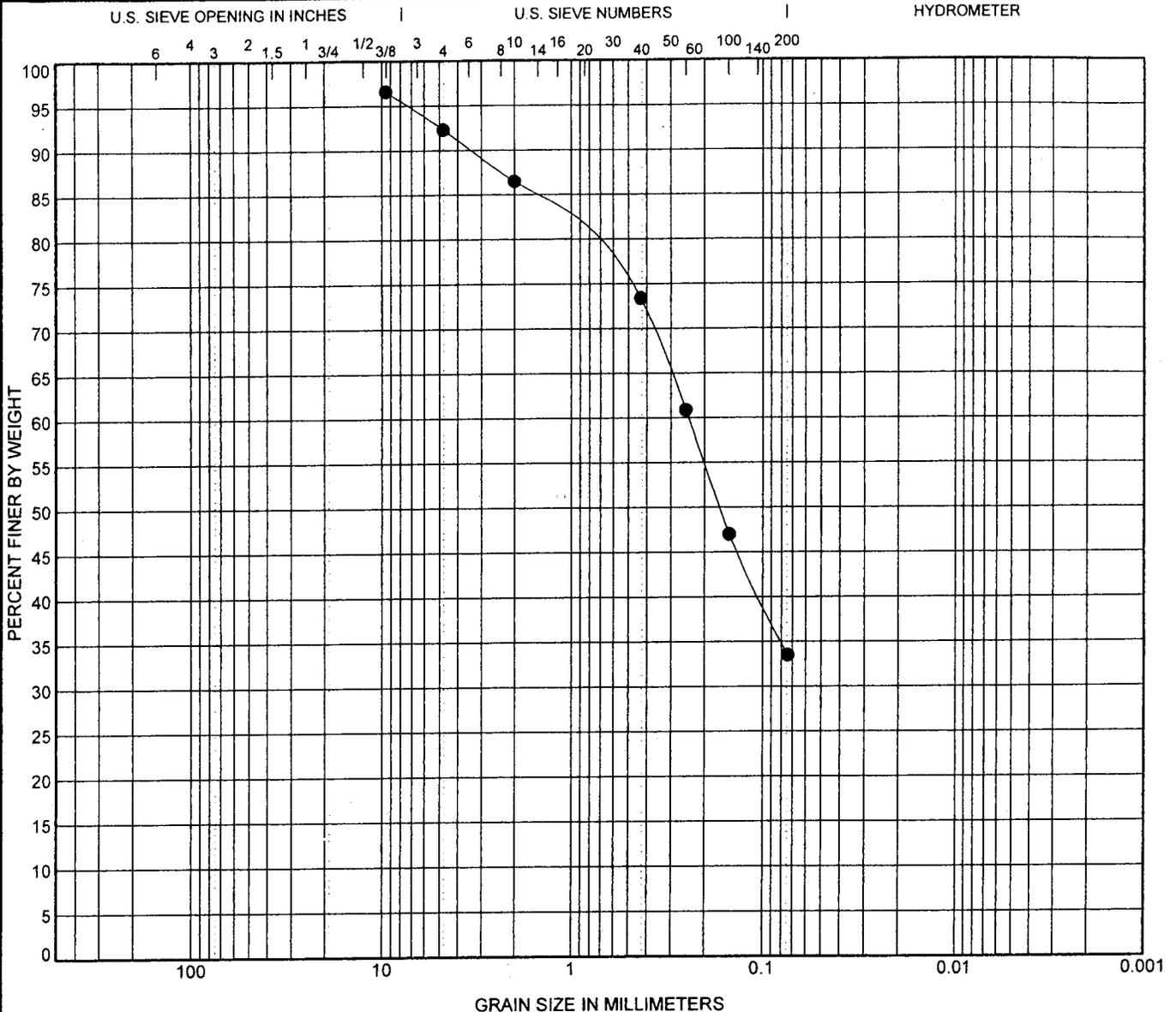


Test specification: ASTM D 698-91 Procedure A Standard
 Oversize correction applied to each point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SC		10.9	2.6	33	15	7.7	33.5

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 124.8 pcf	122.3 pcf	Brown, Clayey SAND
Optimum moisture = 11.7 %	12.5 %	

Project No. F72-127D Client: DMJM & Harris, Inc Project: Little Falls Road Test Borings ● Location: B-1 (On site)	Remarks: Lab. Order: 86778 Date: 2-3-05
---	--



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● B-1	at 2.0	CLAYEY SAND (SC)	33	18	15		
	at						
	at						
	at						
	at						

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-1	at 2.0	9.52	0.242			4.3			
	at								
	at								
	at								
	at								

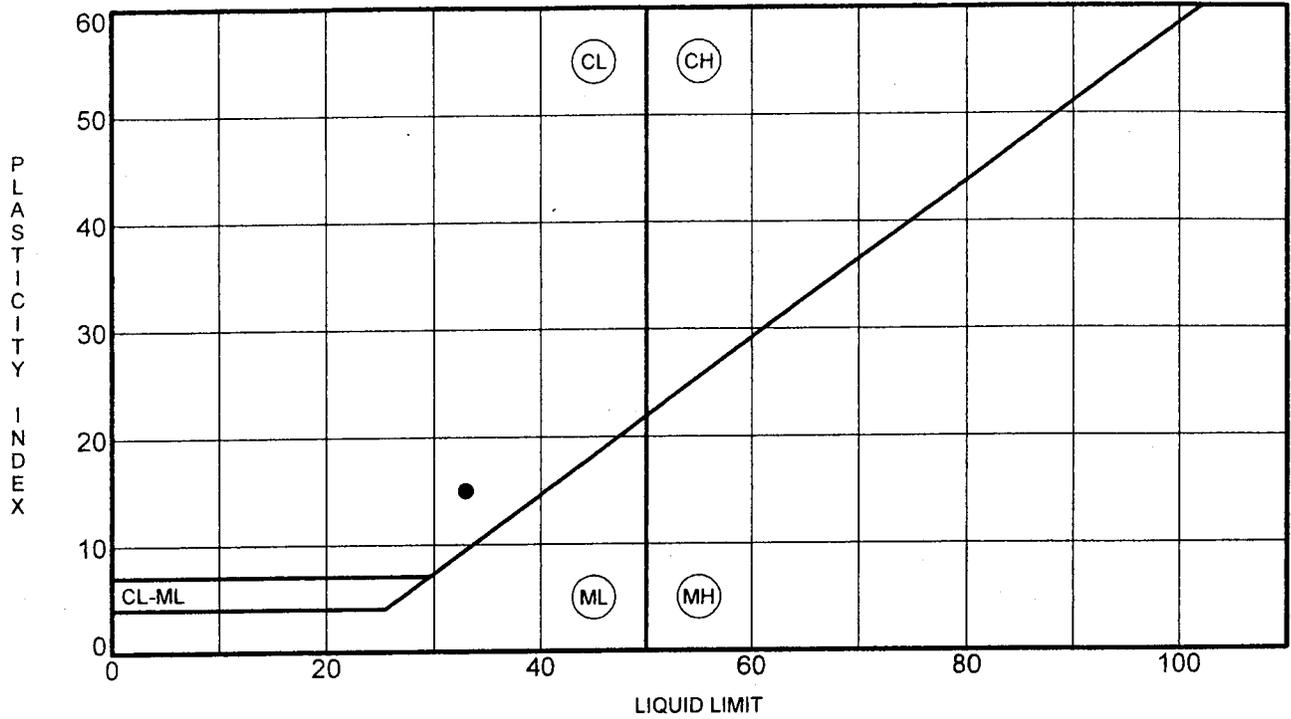
U.S. GRAIN SIZE F72-127D.GPJ F&R.GDT 2/8/05



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GRAIN SIZE DISTRIBUTION

Report No.: F72-127D
Client: DMJM & Harris, Inc
Project: Little Falls Road Test Borings
Location: Sibley Hospital, Washington, DC
Date: February, 2005



Boring No.	Depth	LL	PL	PI	Fines	Classification
● B-1	at 2.0	33	18	15		CLAYEY SAND (SC),{A-2-6}

US ATTERBERG LIMITS F72-127D.GPJ F&R.GDT 2/8/05



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ATTERBERG LIMITS' RESULTS

Report No.: F72-127D
Client: DMJM & Harris, Inc
Project: Little Falls Road Test Borings
Location: Sibley Hospital, Washington, DC
Date: February, 2005



CALIFORNIA BEARING RATIO TEST

CLIENT: DMJM Harris

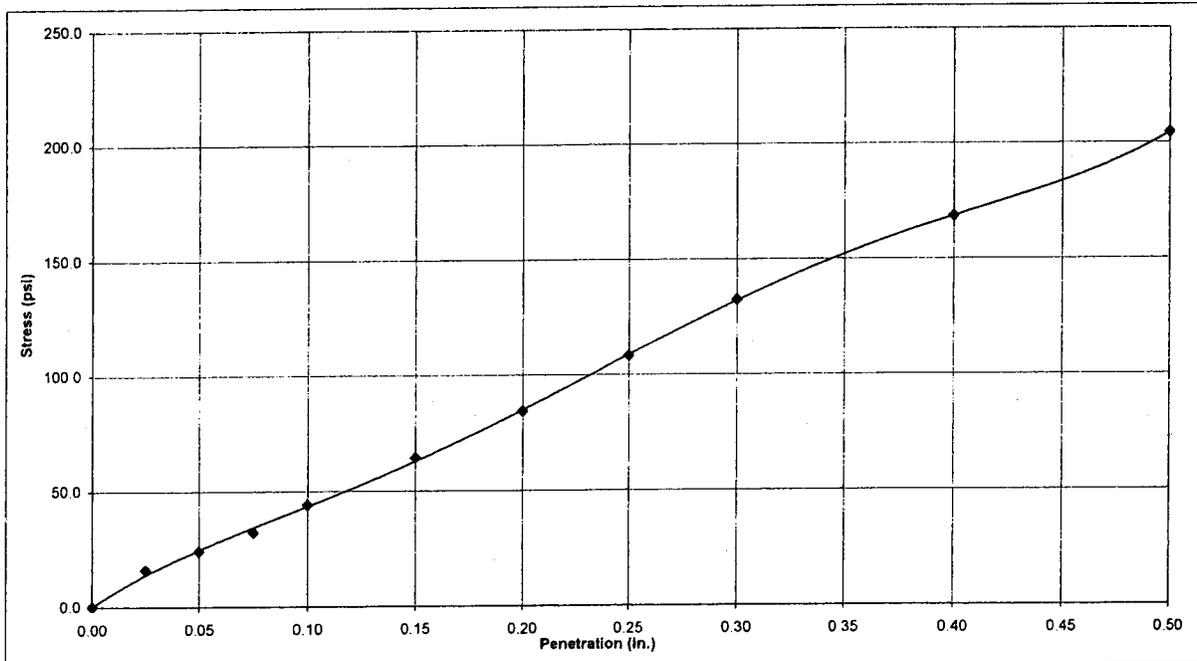
PROJECT NO.: F72-127D

PROJECT: Little Falls Road Test Borings

DATE TESTED: 2-4-05

LOCATION: Sibley Hospital (B-3)

TEST METHOD: D1883



Unsoaked CBR **4.4**

Swell :

Surcharge Load (lbs) **10**

Liquid Limit : **35**

USCS Classification: **SM**

Plasticity Index : **10**

Max Dry Density (pcf): **113**

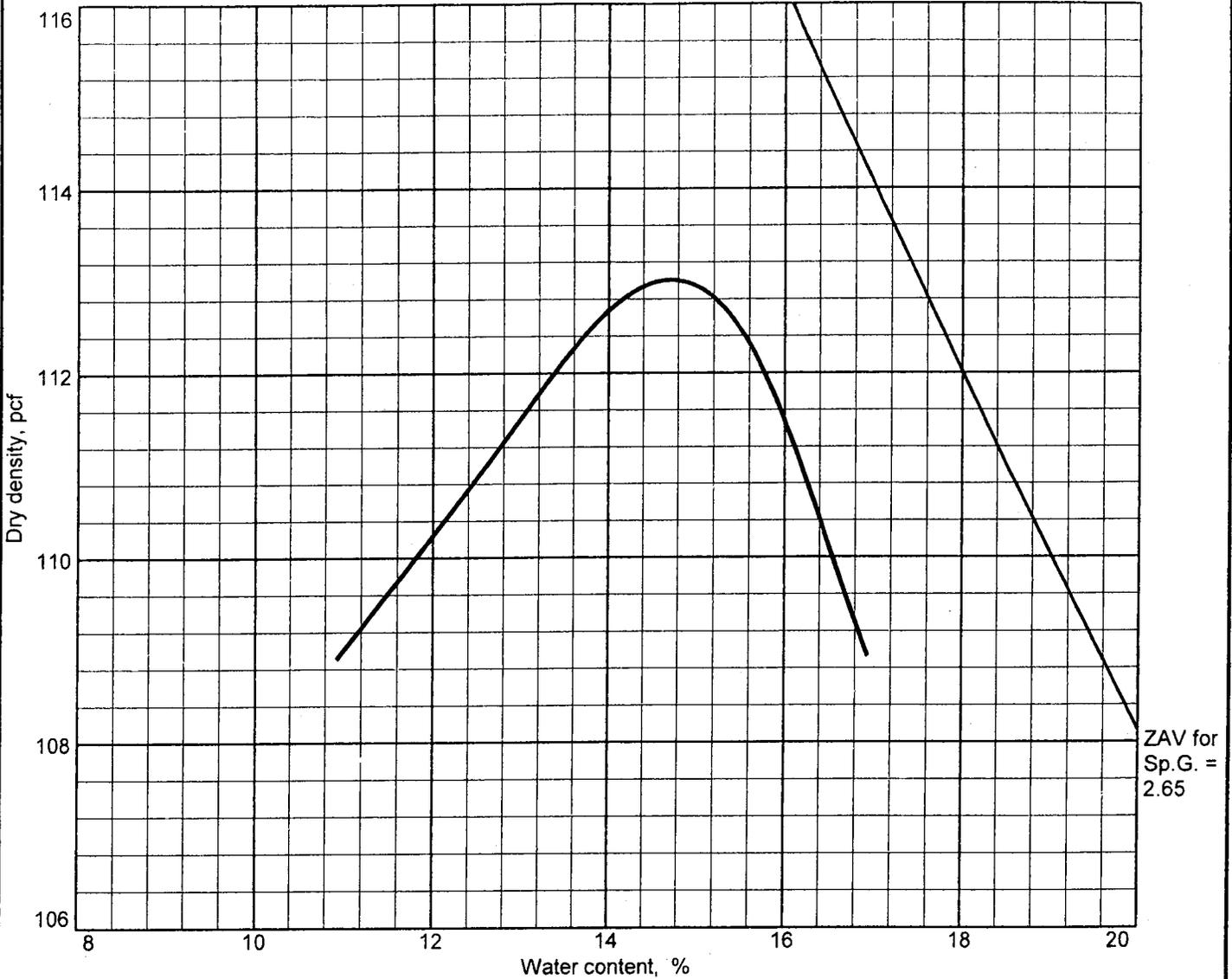
CBR % Compaction: **99.9**

Optimum Moisture (%): **14.7**

CBR Sample Moisture(%): **14.6**
(before soaking)

CBR Sample Moisture(%):
(after soaking)

COMPACTION TEST REPORT

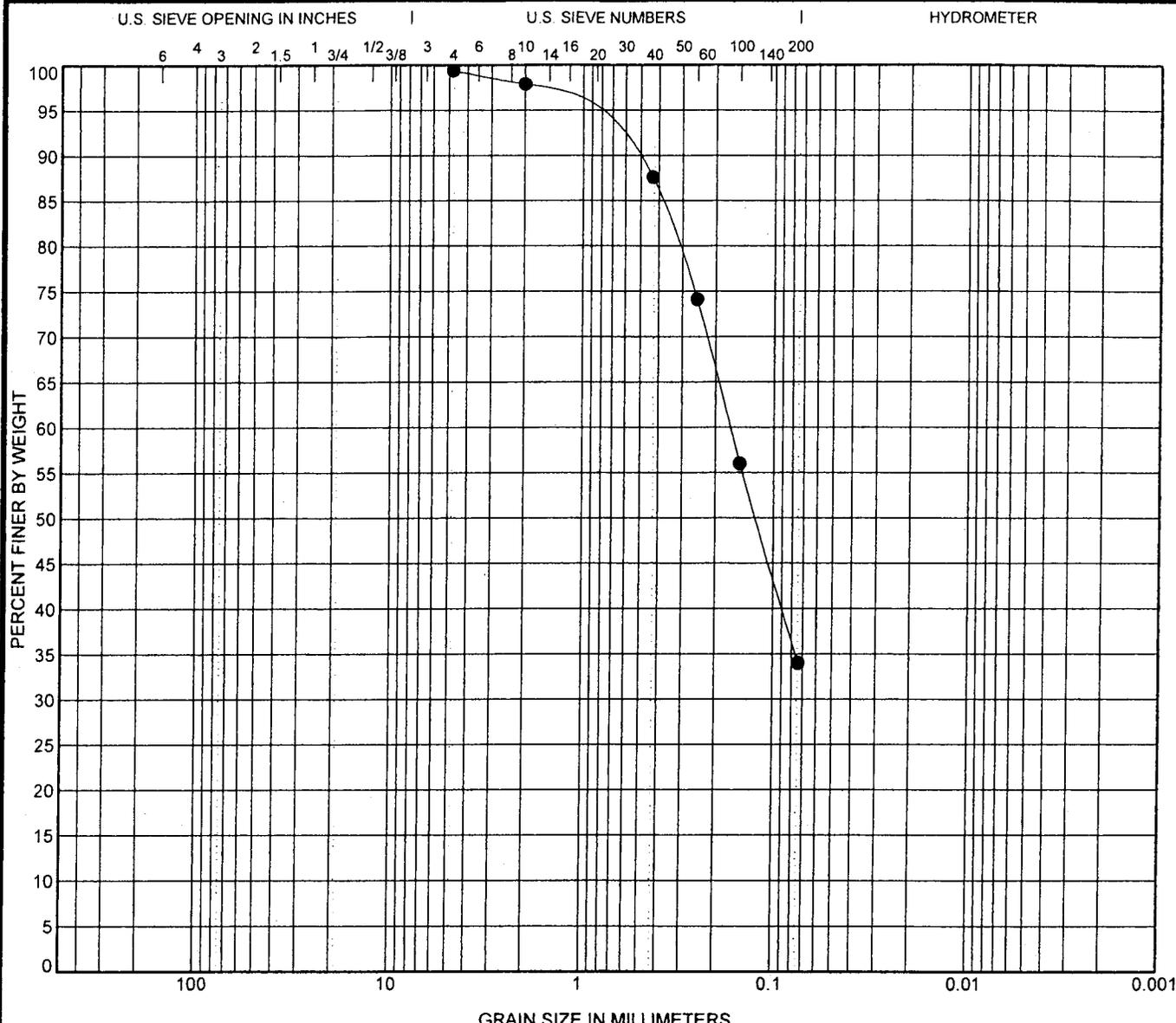


Test specification: ASTM D 698-91 Procedure A Standard
 Oversize correction applied to each point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM		6.8	2.6	35	10	0.6	34

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 113.0 pcf	112.8 pcf	Brown, Silty SAND
Optimum moisture = 14.7 %	14.8 %	

Project No. F72-127D Client: DMJM & Harris, Inc Project: Little Falls Road Test Borings ● Location: B-3 (on site)	Remarks: Lab. Order: 86778 Date: 2-3-05
---	--



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● B-3	at 1.0	SILTY SAND (SM)	35	25	10		
	at						
	at						
	at						
	at						

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-3	at 1.0	4.76	0.167			0.0			
	at								
	at								
	at								
	at								

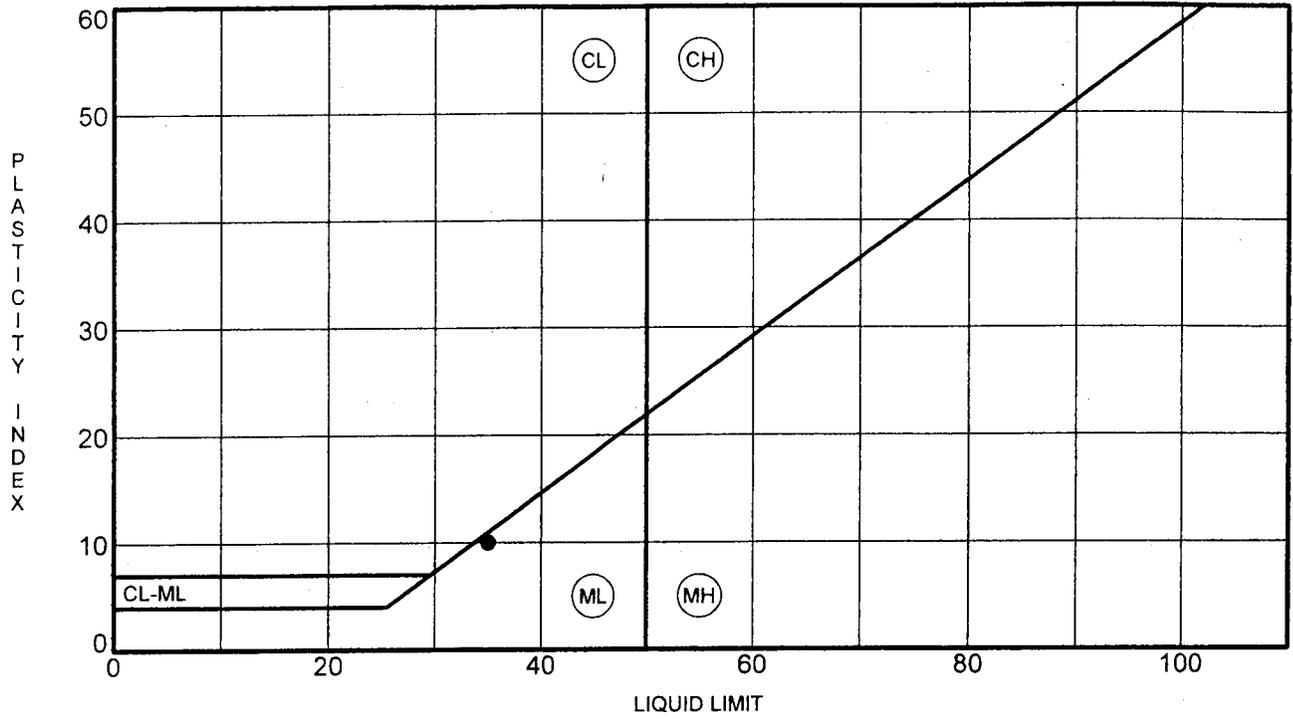
US GRAIN SIZE F72-127D.GPJ F&R.GDT 2/8/05



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GRAIN SIZE DISTRIBUTION

Report No.: F72-127D
Client: DMJM & Harris, Inc
Project: Little Falls Road Test Borings
Location: Sibley Hospital, Washington, DC
Date: February, 2005



Boring No.	Depth	LL	PL	PI	Fines	Classification
● B-3	at 1.0	35	25	10		SILTY SAND (SM),{A-2-4}

US ATTERBERG LIMITS F72-127D.GPJ F&R.GDT 2/8/05



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ATTERBERG LIMITS' RESULTS

Report No.: F72-127D
Client: DMJM & Harris, Inc
Project: Little Falls Road Test Borings
 Sibley Hospital, Washington, DC
Date: February, 2005



CALIFORNIA BEARING RATIO TEST

CLIENT: DMJM Harris

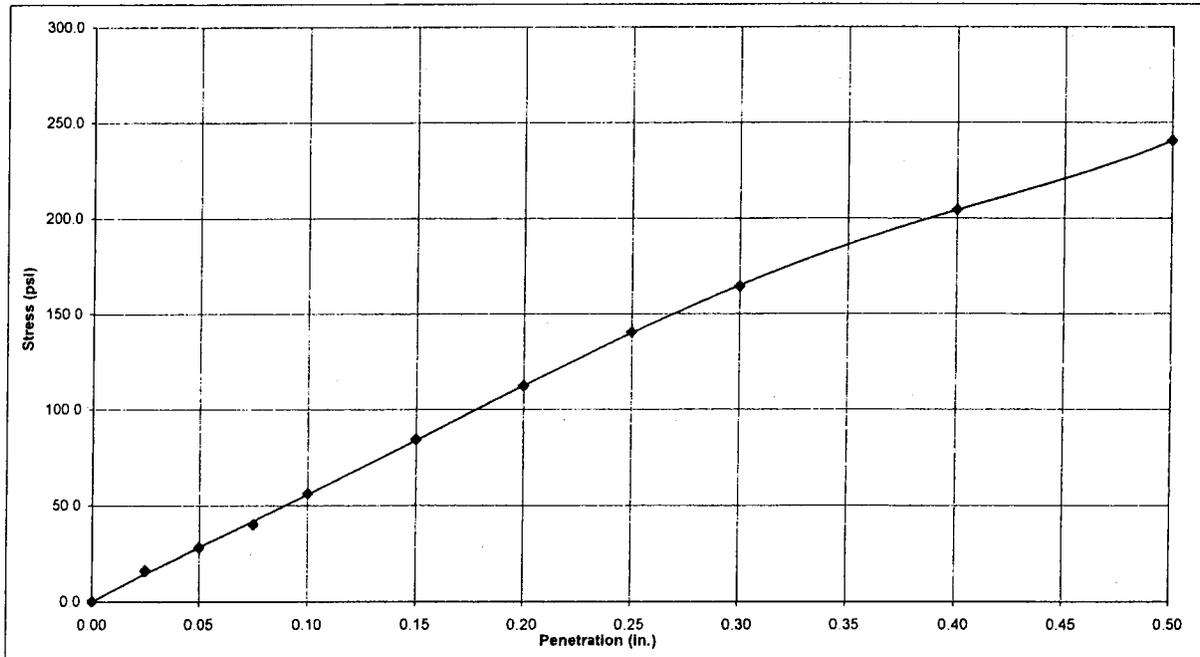
PROJECT NO.: F72-127D

PROJECT: Little Falls Road Test Borings

DATE TESTED: 2-4-05

LOCATION: Sibley Hospital (B-6)

TEST METHOD: D1883



Unsoaked CBR **5.6**

Swell :

Surcharge Load (lbs) **10**

Liquid Limit : **37**

USCS Classification: **SM**

Plasticity Index : **11**

Max Dry Density (pcf): **112.9**

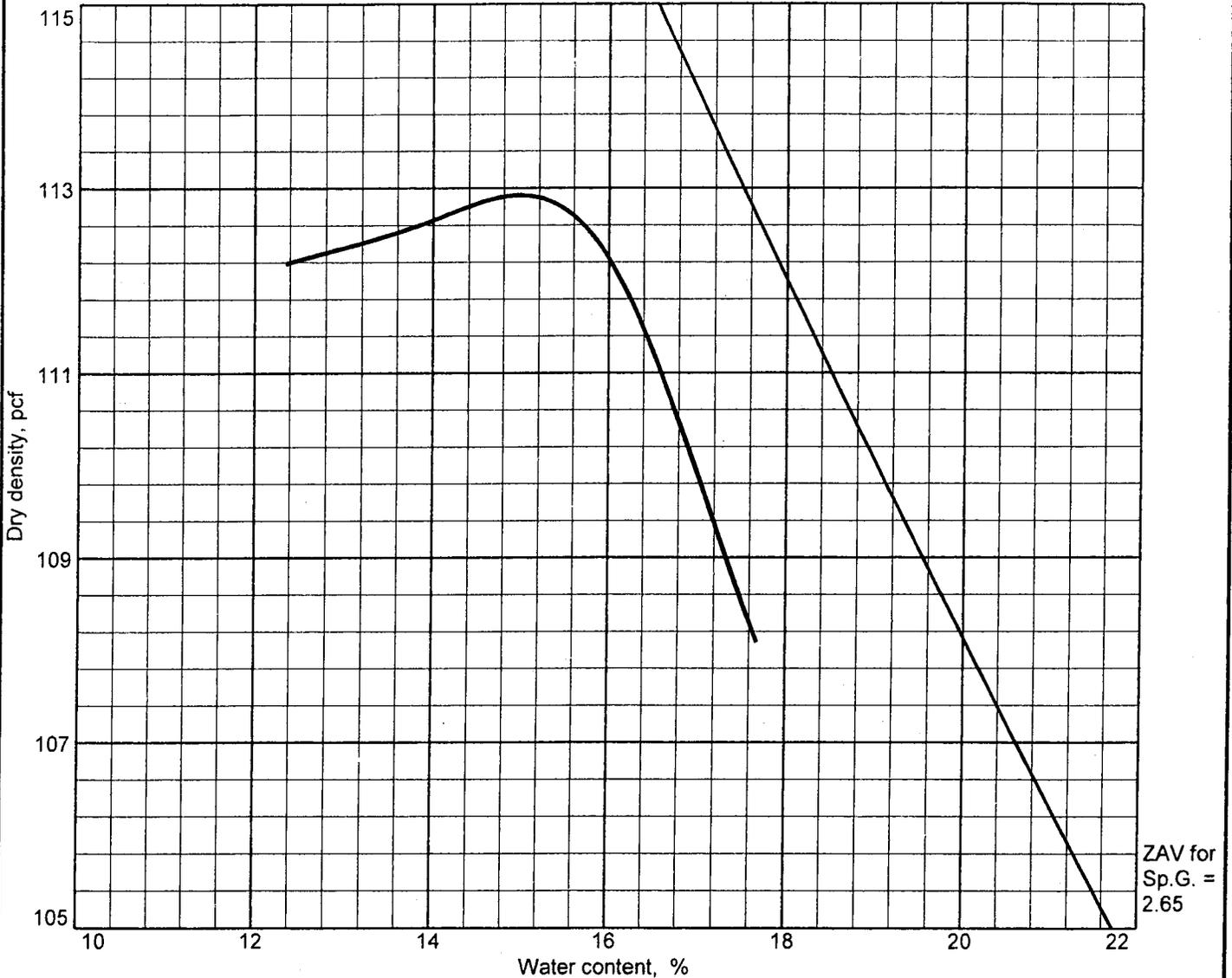
CBR % Compaction: **100.3**

Optimum Moisture (%): **15**

CBR Sample Moisture(%): **14.9**
(before soaking)

CBR Sample Moisture(%):
(after soaking)

COMPACTION TEST REPORT

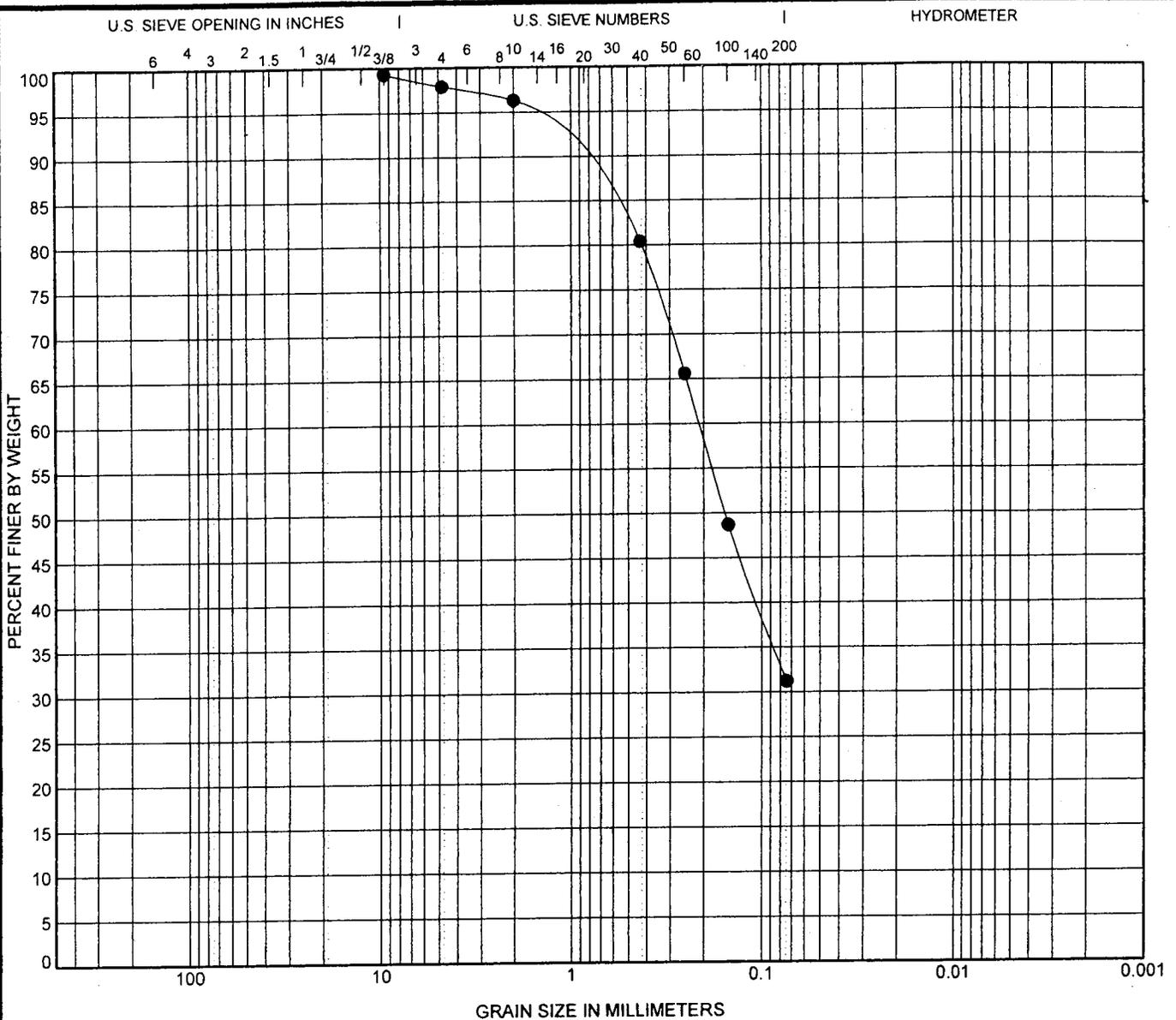


Test specification: ASTM D 698-91 Procedure A Standard
 Oversize correction applied to each point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM		8.6	2.6	37	11	2.1	31.2

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 112.9 pcf	112.2 pcf	Brown, Silty SAND
Optimum moisture = 15.0 %	15.3 %	

Project No. F72-127D Client: DMJM & Harris, Inc Project: Little Falls Road Test Borings ● Location: B-6 (On site)	Remarks: Lab. Order: 86778 Date: 2-3-05
---	--



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● B-6	at 1.0	SILTY SAND (SM)	37	26	11		
	at						
	at						
	at						
	at						

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-6	at 1.0	9.52	0.211			1.4			
	at								
	at								
	at								
	at								

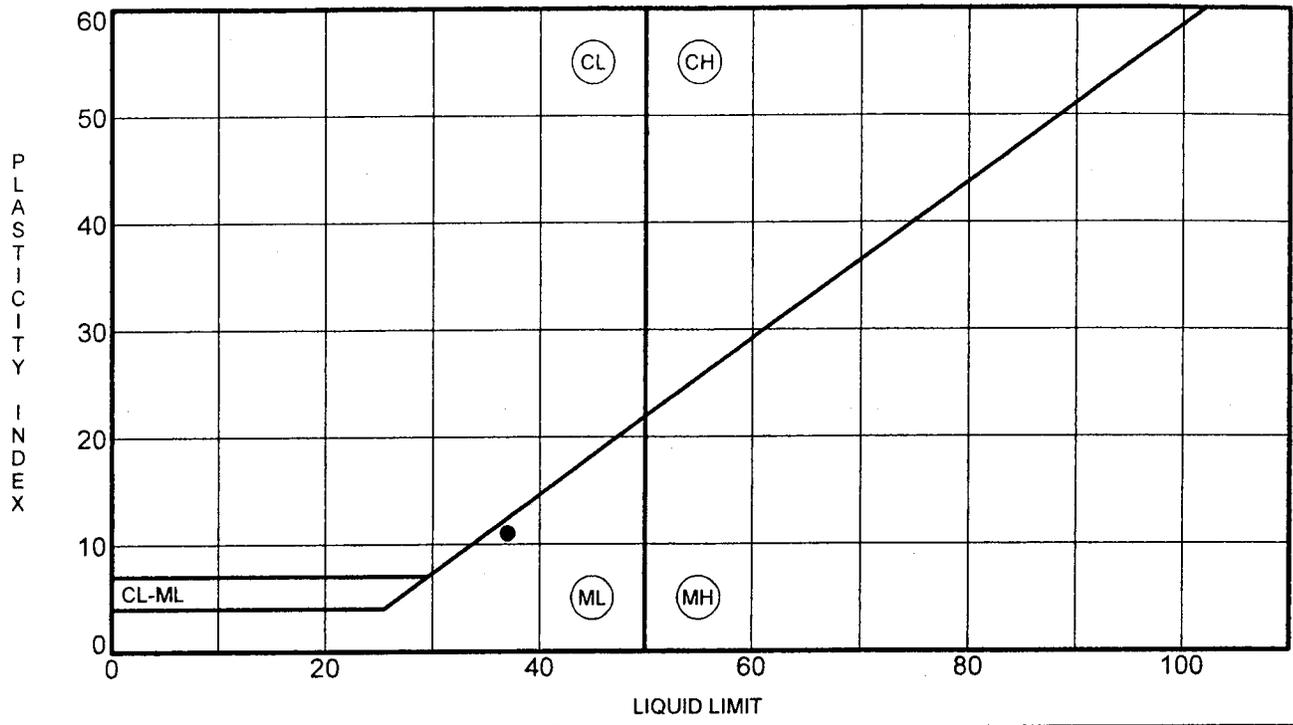
U.S. GRAIN SIZE F72-127D.GPI F&R.GDT 2/8/05



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GRAIN SIZE DISTRIBUTION

Report No.: F72-127D
 Client: DMJM & Harris, Inc
 Project: Little Falls Road Test Borings
 Location: Sibley Hospital, Washington, DC
 Date: February, 2005



Boring No.	Depth	LL	PL	PI	Fines	Classification
● B-6	at 1.0	37	26	11		SILTY SAND (SM), {A-2-6}

US ATTERBERG LIMITS F72-127D.GPJ F&R.GDT. 2/8/05



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ATTERBERG LIMITS' RESULTS

Report No.: F72-127D
Client: DMJM & Harris, Inc
Project: Little Falls Road Test Borings
Location: Sibley Hospital, Washington, DC
Date: February, 2005



APPENDIX C

Important Information About Your Geotechnical Engineering Report (Two Sheets)

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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APPENDIX F

CRASH DATA

DDOT: Accident Summary Report (R-4)

Date: 12/14/2004

Prepared By:

Location:

Quadrant: ya

LOUGHBORO RD And DALECARLIA PKWY NW

Summary for the time period of: 1/1/2000 To 12/31/2003

Total Number of 3

Total Number of Injuries: 1

Contributing

Driver:	Vehicle	Roadway	Unknown
2 66.67%	0 0.00%	0 0.00%	1 33.33

Collision Types:

Right Angle:	Left Turn:	Right Turn:	Rear End:	Side Swiped:	Head On:	Parked
0	1	0	0	0	0	0
Fixed Object:	Ran Off Road:	Pedestrian:	Backing	Non Collision:	Other:	
2	0	0	0	0	0	

Accident Times:

Time	Number	Percent
07:30-09:30	0	0.00%
09:30-11:30	0	0.00%
11:30-13:30	0	0.00%
13:30-16:00	1	33.33%
16:00-18:30	1	33.33%
18:30-07:30	1	33.33%
Weekday:	1	33.33%
Weekend:	1	33.33%

APPENDIX G

DETAILS ON THE IMPROVEMENTS THAT WOULD BE REQUIRED TO IMPLEMENT THE ALTERNATIVES

Details on the Improvements that would be Required to Implement the Alternatives

ALTERNATIVE	ISSUE	IMPROVEMENT
1	No Build Condition	
2	Significant delays to WMATA Route D3, D6 and Ride On Route 23 because of road closure during helicopter landings	No improvements
	Existing width at section 1 and 3 does not meet the WMATA Standards for safe bus operation Note: Refer Figure 3 for Study Area Sections of Little Falls Road	In section 1, pavement will require to be widened to a minimum 11 feet lanes to allow for safe operation of buses. Widening to the north can be accommodated by significant grading but no retaining wall. Widening to the south will require a retaining wall with varying height. Total widening will require the wall to vary from 8 feet tall to 10 feet for a distance of 135 feet from the helipad. In Section 3, pavement will need to be widened into the grass island. All fill material should be hauled off site. For a distance of 170 feet the lanes should be widened to 11 feet. For a distance of 255 feet which has parking, the lane should be widened to 12 feet.
	Existing pavement does not meet the WMATA Standards for taking bus load	In section 1, replace the existing pavement with full depth of pavement section for 16500 square feet In Section 3, replace the existing pavement with full depth of pavement section for 4930 square feet
	Existing sidewalk is not currently ADA compliant	Remove existing sidewalk, regrade and add a curb cut ramp. New sidewalk 5 feet wide for 30 feet
	Proposed location for bus stop does not have a bus shelter	Add bus shelter and a base concrete pad at the proposed bus stop location
3	Significant delays to WMATA Route D3, D6 and Ride On Route 23 because of road closure during helicopter landings	No improvements
	In the event of road closure, bus traffic will back up on MacArthur Boulevard	Provide a bus bay before the location of helipad for a distance of 135 feet

Details on the Improvements that would be Required to Implement the Alternatives

ALTERNATIVE	ISSUE	IMPROVEMENT
3	Existing width at section 1 and 3 does not meet the WMATA Standards for safe bus operation Note: Refer Figure 3 for Study Area Sections of Little Falls Road	<p>In section 1, pavement will require to be widened to a minimum 11 feet lanes to allow for safe operation of buses. Widening to the north can be accommodated by significant grading but no retaining wall. Widening to the south will require a retaining wall with varying height. Total widening will require the wall to vary from 8 feet tall to 10 feet for a distance of 135 feet from the helipad.</p> <p>In Section 3, pavement will need to be widened into the grass island. All fill material should be hauled off site. For a distance of 170 feet which does not have parking the lanes should be widened to 11 feet. For a distance of 255 feet which has parking, the lane should be widened to 12 feet.</p>
	Existing pavement does not meet the WMATA Standards for taking bus load	<p>In section 1, replace the existing pavement with full depth of pavement section for 16500 square feet (length of 750 feet for 11 feet wide lanes)</p> <p>In Section 3, replace the existing pavement with full depth of pavement section for 4930 square feet (length of 255 feet for 12 feet wide lanes and 170 feet for 11 feet wide lanes)</p>
	Proposed location for bus stop does not have a bus shelter	Add bus shelter and a bus concrete pad in front of the maintenance building
4	Proposed location for bus stop does not have a bus shelter	Add bus shelter and a bus concrete pad in front of the maintenance building
5	Proposed location for bus stop does not have a bus shelter	Add bus shelter and a bus concrete pad in front of the maintenance building

Details on the Improvements that would be Required to Implement the Alternatives

ALTERNATIVE	ISSUE	IMPROVEMENT
5	Noise levels due to existing bus shelter	Remove the bus shelter
6	Noise levels due to existing bus shelter	Remove the bus shelter
7	Significant delays to WMATA Route D3, D6 and Ride On Route 23 because of road closure during helicopter landings	No improvements
	In the event of road closure, bus traffic will back up on MacArthur Boulevard	Provide a bus bay before the location of helipad for a distance of 135 feet.
	Existing width at section 1 and 3 does not meet the WMATA Standards for safe bus operation Note: Refer Figure 3 for Study Area Sections of Little Falls Road	In section 1, pavement will require to be widened to a minimum 11 feet lanes to allow for safe operation of buses. Widening to the north can be accommodated by significant grading but no retaining wall. Widening to the south will require a retaining wall with varying height. Total widening will require the wall to vary from 8 feet tall to 10 feet for a distance of 135 feet from the helipad. In Section 3, pavement will need to be widened into the grass island. All fill material should be hauled off site. For a distance of 170 feet which does not have parking the lanes should be widened to 11 feet. For a distance of 255 feet which has parking, the lane should be widened to 12 feet.
	Existing pavement does not meet the WMATA Standards for taking bus load	In section 1, replace the existing pavement with full depth of pavement section for 16500 square feet (length of 750 feet for 11' feet wide lanes) In Section 3, replace the existing pavement with full depth of pavement section for 4930 square feet (length of 255 feet for 12 feet wide lanes and 170 feet for 11
	Noise levels due to existing bus shelter	Remove the bus shelter

APPENDIX H

PRELIMINARY PLANNING COST ESTIMATE

Little Falls Road Improvement Costs by Alternatives

Location	Description	Unit	Qty	Unit Price	Total
Alternative 1	No Build Condition		0	0	0
				Total \$	0
Alternative 2	Retaining Wall	LF	135 \$	285 \$	38475
	Pavement Upgrade (includes removal, disposal and replacement)	SY	2929 \$	81 \$	237249
	Bus Shelter(Includes the cost of constructing the concrete pad)	EA	1 \$	14110 \$	14110
	Crosswalk Marking/ Striping	EA	5 \$	206 \$	1030
	Pavement Marking/ Striping	LS	3 \$	2575 \$	7725
	Side walk(Evenly graded to be used as an ADA Ramp also)	SY	17 \$	50 \$	834
	Signs	SF	80 \$	84 \$	6720
	Note: Signs includes bus stop signs, pedestrian walk signs, parking/ no parking signs, speed limit signs, signs indicating the location of the helipad				
				Sub-Total \$	306143
				15%Engineering and Design: \$	45921
				15% Contingency: \$	45921
				Total \$	397985
Alternative 3	Retaining Wall	LF	135 \$	285 \$	38475
	Pavement Upgrade (includes removal, disposal and replacement)	SY	2929 \$	81 \$	237249
	Bus Shelter(Includes the cost of constructing the concrete pad)	EA	1 \$	14110 \$	14110
	Crosswalk Marking/ Striping	EA	5 \$	206 \$	1030
	Pavement Marking/ Striping	LS	3 \$	2575 \$	7725
	Signs	SF	80 \$	84 \$	6720
	Note: Signs includes bus stop signs, pedestrian walk signs, parking/ no parking signs, speed limit signs, signs indicating the location of the helipad				
				Sub-Total \$	305309
				15%Engineering and Design: \$	45796
				15% Contingency: \$	45796
				Total \$	396901
Alternative 4	Bus Shelter Relocation(Includes the cost of constructing the concrete pad)	EA	1 \$	14625 \$	14625
	Signs	SF	8	84 \$	672
	Note: Signs includes bus stop signs, pedestrian walk signs				
				Sub-Total \$	15297
				15%Engineering and Design: \$	2295
				15% Contingency: \$	2295
				Total \$	19887

Note:

All total costs include the 15% engineering and design costs and 15% contingency cost
All costs exclusive of Right-of -Way acquisition cost

Little Falls Road Improvement Costs by Alternatives

Location	Description	Unit	Qty	Unit Price	Total
Alternative 5	Bus Shelter(Includes the cost of constructing the concrete pad)	EA	1 \$	14110 \$	14110
	Signs	SF	8 \$	84	672
	Note: Signs includes bus stop signs, pedestrian walk signs				
				Sub-Total \$	14782
				15%Engineering and Design: \$	2217
				15% Contingency: \$	2217
				Total \$	19216
Alternative 6	No change in the existing conditions except remove bus stop on Loughboro road on the south side				
				Total \$	0
Alternative 7	Retaining Wall	LF	135 \$	285 \$	38475
	Pavement Upgrade (includes removal, disposal and replacement)	SY	2929 \$	81 \$	237249
	Crosswalk Marking/ Striping	EA	5 \$	206 \$	1030
	Pavement Marking/ Striping	LS	3 \$	2575 \$	7725
	Signs	SF	80 \$	84 \$	6720
	Note: Signs includes bus stop signs, pedestrian walk signs				
				Sub-Total \$	291199
				15%Engineering and Design: \$	43680
				15% Contingency: \$	43680
				Total \$	378559

Note:

All total costs include the 15% engineering and design costs and 15% contingency cost

All costs exclusive of Right-of -Way acquisition cost

APPENDIX I

APRIL 25, 2005 PUBLIC MEETING MINUTES AND RESPONSES TO QUESTIONS AND COMMENTS

Little Falls Road Transportation Study Meeting Minutes

Place: Sibley Hospital Auditorium

Date: April 25, 2005

Time: 7:00 PM to 9:00 PM

Purpose: Public Meeting 2 – Preliminary Findings and Recommendations

Meeting Participants:

1. Mr. John Bullock (DDOT)
2. Mr. Abraham Lerner (DMJM Harris)
3. Ms. Poonam Phatak (DMJM Harris)
4. Ms. Alma Gates (ANC 3D)
5. Mr. Jerry Price (Sibley Hospital)
6. Ms. Rachel Thompson (ANC 3D)
7. Ms. Kristin Spector
8. Ms. Linda Shaughness
9. Mr. Morrison
10. Mr. David Erion (WMATA)
11. Mr. John Murphy

Presentation:

1. Mr. Bullock of DDOT described the purpose of the study and the work conducted in the study.
2. Mr. Lerner of DMJM Harris presented the background on the study, findings and recommendations of the study and described the most preferred alternative.

Items Discussed During the Meeting:

The following items were discussed during the discussion portion of the meeting:

1. **Resident:** The hospital is planning new developments in the area and in that case it might be best to relocate the bus stop to the back of the hospital on Little Falls Road. Planning of the hospital developments and other such activities should be incorporated in this study.
2. **Ms. Thompson:** New Environmental Draft Report states that a new 80-foot building is going to be constructed on the north side of Little Falls Road. Trucks weighing 20 tons will be carrying sludge from the aqueduct to this new facility. To facilitate the movement of these trucks the existing structure of Little Falls Road is going to be changed. These trucks will be traveling via Dalecarlia Parkway to head onto I-495. Therefore, there is a probability that Little Falls Road would be upgraded to take the load of these trucks.
3. **Mr. Lerner's Response:** The plans of the hospital are not at a point where they can be considered to be an existing condition. With the implementation of

- planned new buildings, the Hospital will make changes in the area to facilitate access to transit vehicles. DDOT, Agencies and WMATA should coordinate with the hospital to understand their plans and to incorporate the preferred alternative. Getting an approval for these new plans is a long process and the Little Falls Road Transportation Study preferred alternative is an inexpensive option that can be implemented on a short-term basis to address existing transportation issues.
4. **Mr. Price's Response:** Agreed that the preferred alternative is a good alternative to address the existing transportation issues. Mentioned that the plans of the hospital for new construction activities could take three years or more.
 5. **Resident:** The preferred alternative does not propose a new crosswalk for the safety of the bus riders.
 6. **Mr. Lerner's Response:** The study recommends improving the crosswalks for this alternative.
 7. **Resident:** It is important to reduce the number of buses on Loughboro Road to half the current number. Employees get off from the bus at the main entrance of the hospital. The cost for upgrading Little Falls Road is less than what was projected earlier. It is important to note that it is more essential to upgrade Loughboro Road so that vibrations caused by the activity of transit buses do not affect the residents on Loughboro Road especially those located in the 5200 block. The houses are not constructed to handle vibrations caused by the buses and the residents often have to keep fixing screws that keep coming off as an effect of these vibrations. The hospital does not share its plans to change transportation on the surrounding roads.
 8. **Resident:** The helipad should be relocated.
 9. **Ms. Thompson:** Is the hospital planning to relocate the helipad?
 10. **Mr. Price's Response:** No, the existing location is appropriate for helicopter landings.
 11. **Resident:** At 4:00 AM buses layover in the woods, east of 5200 block on Loughboro Road, and this causes a lot of noise. Neighborhood ambience is lost since Dalecarlia Parkway is also a speedway for vehicles.
 12. **Resident:** We encourage mass transit. But the hospital keeps increasing the number of parking spaces available for employees.
 13. **Resident:** Consider another alternative to accommodate the hospital plans. Let the preferred alternative be a short-term alternative. Preferably, Little Falls Road should be kept like a country road and trucks should not be permitted on this road.
 14. **Mr. Lerner's Response:** In the future, when the hospital requests approval of new development plans, the residents will be able to provide input on the proposed transportation operations to the approving agencies.
 15. **Resident:** Asked why the bus drivers permit bus riders to get off from the buses at locations other than the designated bus stops? Drivers told her they are within their legal rights to allow the riders to alight the buses at places they think are safer. Complained that passengers get off near her gardens destroying her plants.
 16. **Mr. Erion's Response:** Asked the residents to report the last four digits of the buses laying over illegally on Loughboro Road to WMATA.
 17. **Resident:** Asked if there will be any public testimony after this?

18. **Mr. Lerner's Response:** There will be no public testimony. DDOT will decide the action to be taken after the submission of final report.
19. **Resident:** Complained that trucks pass all night long further east of Loughboro Road and generate a lot of noise.
20. **Ms. Gates Response:** We should look into why the trucks are traveling further on the east side of Loughboro Road.
21. **Resident:** Buses have less frequency only for a few hours during the night and on weekends.
22. **Resident:** Why are such big sized buses with no passengers or very few passengers required on this road? Why do buses layover further east in the woods on Loughboro Road? Is there a possibility of pushing the bus stop in the preferred alternative closer to Little Falls Road?
23. **Mr. Lerner's Response:** That can be a possibility to be addressed in the detailed engineering design stage. The bus size not only depends upon bus loadings at the hospital, but also depends upon bus loadings at other sections of the bus routes.
24. **Resident:** Suggested that the bus stop should be located on MacArthur Boulevard. No buses should be allowed on Loughboro Road. If turning bays are sufficient for buses then without having to come on Loughboro Road, buses can drop and pick passengers on Mac Arthur Boulevard and turn back to go in the opposite direction. She said that it is not a problem to walk down to a bus stop on MacArthur Boulevard and said that the residents on Loughboro Road would not mind to walk that distance to avoid the current noise caused by buses on Loughboro Road.
25. **Mr. Lerner's Response:** We will look into this alternative.

Detailed Responses to Comments:

- **Resident:** Suggested that the bus stop should be located on MacArthur Boulevard. No buses should be allowed on Loughboro Road. If turning bays are sufficient for buses then without having to come on Loughboro Road, buses can drop and pick passengers on Mac Arthur Boulevard and turn back to go in the opposite direction. She said that it is not a problem to walk down to a bus stop on MacArthur Boulevard and said that the residents on Loughboro Road would not mind to walk that distance to avoid the current noise caused by buses on Loughboro Road.
Response: The geometry of the intersection of MacArthur Boulevard is not adequate to provide a turnaround for buses. Turning the buses around at the intersection of MacArthur Boulevard and Little Falls Road will not be safe. In addition, the walk up-hill from the intersection of MacArthur Boulevard and Little Falls Road to the entrance to Sibley Hospital would be a significant burden for transit users destined to the hospital. Transit ridership is likely to decline significantly with the relocation of the bus stop to the intersection of MacArthur Boulevard and Little Falls Road. This alternative is not feasible because of the unsafe conditions that it creates and because of the significant detrimental effects on transit usage.
- **Resident:** It is important to reduce the number of buses on Loughboro Road to half the number than what there are currently. Employees get off from the bus at the main entrance of the hospital. The cost for upgrading Little Falls Road is much more less that what was projected earlier. It is important to note that it is more essential to upgrade Loughboro Road so that vibrations caused by the activity of transit buses do not affect the residents on Loughboro Road especially those located in the 5200 block. The houses are not constructed to handle vibrations caused by the buses and the residents often have to keep fixing screws that keep coming off as an effect of these vibrations. The hospital does not share its plans to change transportation on the surrounding roads.
Response: The recommended alternative helps reduce noise and vibrations on Loughboro Road without incurring large expenditures. The Study Team concurs that it is important to maintain the pavement on Loughboro Road in very good condition to reduce the noise and vibrations. Furthermore, Sibley Hospital should keep the residents informed on future development at the hospital site.
- **Resident:** Consider another alternative to accommodate the hospital plans. Let the preferred alternative be a short-term alternative. Preferably, Little Falls Road should be kept like a country road and trucks should not be permitted on this road.
Response: The preferred alternative recommended in the Little Falls Road Transportation Study report should indeed be considered a short-term/low cost solution. If the hospital constructs new buildings, under a new development plan, the hospital should develop a new alternative that optimizes bus circulation and reduces impact of transit operations on the surrounding houses. The new transit circulation alternative should be presented at the public hearings associated with

the requests for approval of new development plans (new buildings) at Sibley Hospital.