Lawrence T. Skrivseth
4913 MacArthur Blvd NW
Washington DC 20007

October 8, 2002

The traffic flow data and cover memorandum attached hereto are provided to the Board of Zoning Adjustment as promised during the course of my cross examination of the applicant's traffic expert, Mr. Wells.

The purpose of the data is to illustrate, using minute-by-minute data rather than averages over a period, the significant likelihood that an offloading schoolbus in front of 4925 MacArthur Boulevard would trigger traffic backups that could reasonably be deemed objectionable not only to immediate neighbors but members of the community at large.

The cover memorandum explains the methodology used.

Certificate of Service

I hereby certify that on October 8, 2002, copies of the attached data and memorandum were delivered by me or my spouse, Cathy M. Wright, to the following parties:

Board of Zoning Adjustment (13 copies)

Allison Prince, for the Applicant (3 copies)

John Finney, for ANC 3D

Nancy Feldman, for the Neighbors United Trust (3 copies)

Michael Lovendusky

Sharon & Charles Houy

Rachel MacCleery, for DDOT (by earlier fax)

Lawrence T. Skrivseth

BZA
Case No. 16852
Exhibit No. 317

Board of Zoning Adjustment
District of Columbia
CASE NO.16852
EXHIBIT NO.317

Real Traffic Flow by Minute
—MacArthur Boulevard Northbound—

Data indicating real time counts of northbound traffic flow on MacArthur Boulevard on the block between the W Street and Ashby Street intersections are attached. The methodology used and a summary of the findings are provided below.

Methodology

Counts were performed manually between 7:30 a.m. and 7:59 a.m. on April 9 and April 16, 2002, with timing monitored by a digital wristwatch. Automobiles and light trucks (2 axles), metrobuses, school buses, and large trucks were counted separately. The average traffic flows are consistent with the figures assembled by Wells & Associates in December 2001. Traffic flows can be relatively intense because MacArthur Boulevard handles its own regular northbound traffic plus vehicles that would otherwise use Canal Road, which is one-way southbound during the a.m. rush hour.

Wells & Associates assumes that bus offloading will take approximately 1 minute, based on the Highway Capacity Manual figure of 1.7-2.0 seconds per alighting passenger. The figure is not specific to school buses or to a ridership of middle school students.

The opposing parties believe the stoppages would be somewhat longer, based on the timing assumptions used in a July 2000 school bus routing model by North Carolina State University (see http://itre.ncsu.edu/stg/gsm.html), figures which are specific for middle school students. These suggest a bus offloading time of 1.25 to 1.75 minutes.

Therefore, the manually recorded data were recorded in a spreadsheet to determine total traffic flow for both 1-minute and 2-minute periods, as well as totals and averages.

The numerical data are then translated into traffic backup lengths, using the following assumptions:

Bus length: 37 feet
Open space behind stopped bus: 20 feet (as per code)
Space consumed for each two stopped cars (one in each lane): 24 feet

Distance from start of bus pad:

- to driveway at 4913 MacArthur Blvd: 180 feet
- to driveway at 4905 MacArthur Blvd: 230 feet
- to north side of W Street intersection: 315 feet
- to south side of W Street intersection: 345 feet
- to beginning of curve in MacArthur Blvd between V Street and W Street: 450 feet

Number of vehicles required to block:

- driveway at 4913 MacArthur Blvd: 12 cars (5.96 per lane, rounded)
- driveway at 4905 MacArthur Blvd: 16 cars (8.04 per lane, rounded)
- north side of W Street intersection: 24 cars (11.58 per lane, rounded)
- south side of W Street intersection: 26 cars (12.83 per lane, rounded)
- beginning of curve in MacArthur Blvd between V Street and W Street: 34 cars (17.21 per lane, rounded)

Traffic blockages are charted in a color-coded chart, where X's in the green zone only indicate no significant traffic backup, X's in the yellow zone only indicate an inconvenience affecting only the two neighbors at 4913 MacArthur Blvd and 4905 MacArthur Blvd, and X's in the red zone indicate backups of sufficient magnitude as to disrupt normal traffic flow at intersections and perhaps constitute safety risks or impediments to the flow of emergency vehicles.

Summary of Findings

For a bus unloading between 7:45 and 7:59, the odds of there being traffic backups to the points indicated are as follows:

April 9

Blockage to:	1-minute stop	2-minute stop
Driveway at 4913 MacArthur	10 of 15 chances	15 of 15
Driveway at 4905 MacArthur	10 of 15 chances	15 of 15
North side of W Street	3 of 15 chances	11 of 15
South side of W Street	1 of 15 chances	11 of 15
Bend in MacArthur Blvd	1 of 15 chances	1 of 15

April 16

Blockage to:	1-minute stop	2-minute stop
Driveway at 4913 MacArthur	10 of 15 chances	14 of 15
Driveway at 4905 MacArthur	8 of 15 chances	14 of 15
North side of W Street	None	12 of 15
South side of W Street	None	12 of 15
Bend in MacArthur Blvd	None	3 of 15

These data clearly demonstrate that the use of average traffic flow figures to assess potential traffic backups can be misleading, and that the related assumption that the traffic backups would be only 6 cars per lane is incorrect.

Real Traffic Flow by Minute--MacArthur Blvd Northbound between W Street and Ashby Street

	Minute past 7:00																														
April 9 02	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	30 min total	Avg per min
Cars/lt trk	2	10	10	9	5	15	4	9	13	7	16	22	15	4	9	6	25	7	9	11	19	18	18	18	15	16	27	18	4	41	402	13.40
Metrobus							1	1															1								3	0.10
Sch bus				1								1				1					1	1									5	0.17
Truck		1	1												1															1	4	0.13
Total	2	11	11	10	5	15	5	10	13	7	16	23	15	4	10	7	25	7	9	11	20	19	19	18	15	16	27	18	4	42	414	13.80
2 min total		13	22	21	15	20	20	15	23	20	23	39	38	19	14	17	32	32	16	20	31	39	38	37	33	31	43	45	22	46		

1 min block



2 min block



	Minute past 7:00																														
April 16 02	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	30 min total	Avg per min
Cars/lt trk	12	8	7	14	4	18	9	11	12	3	15	12	16	7	7	21	5	4	12	16	5	19	14	18	19	8	20	12	17	12	357	11.90
Metrobus							1	1																						1	3	0.10
Sch bus		1		1								1										1	1	1							6	0.20
Truck							2				1	1								1		1	1	1			1				9	0.30
Total	12	9	7	15	4	18	12	12	12	3	16	14	16	7	7	21	5	4	12	17	5	21	16	20	19	8	21	12	17	13	375	12.50
2 min total		21	16	22	19	22	30	24	24	15	19	30	30	23	14	28	26	9	16	29	22	26	37	36	39	27	29	33	29	30		

1 min block



2 min block

