VIENNA STATION PARKING AND IMPROVEMENT STUDIES

By WMATA as of February 2006

[Additions since January 2006: In Section I, Parking Study, the additions are underlined. Section II, Improvement Study, is added.]

I. VIENNA STATION PARKING STUDY

2006 Supplement to 1998 Vienna Station Parking Garage Feasibility Study

A. Estimation of Park-and-Ride Demand

The Vienna Station has the following inventory of park-and-ride spaces, for which the daily fee is $3.75. In addition, there are 101 long-term metered spaces, for which the fee is $0.25 per 45 minutes.

Park-and-Ride Facilities	Capacity
Northeast Surface Lot #1	515
Northwest Structure (Vienna I)	1805
Southwest Structure (Vienna II)	2174
Southeast Surface Lot #3	615
Temporary Surface Lot	680
Sub-Total	5789

Metered Facilities	Capacity
South Long Term	101
Total	5890

In order to estimate immediate park-and-ride demand, WMATA compares parking accumulation at Vienna Station with accumulation at stations with ample supply of parking. WMATA has recognized a relationship between the time in the morning that station park-and-ride facilities reach capacity, i.e, fill-up, and the parking demand at the station. The particular time of capacity is matched to the accumulation at the same time at stations without parking constraints. The following table is the accumulation at Twinbrook Station in Maryland and Franconia-Springfield Station in Virginia, where park-and-ride supply was ample.

Time	Accumulation
5:30 a.m.	2 %
6:00 a.m.	5 %
6:30 a.m.	10 %

7:00 a.m.	18 %
7:30 a.m.	35 %
8:00 a.m.	53 %
8:30 a.m.	73 %
9:00 a.m.	82 %
9:30 a.m.	88 %
10:00 a.m.	91 %
10:30 a.m.	94 %
11:00 a.m.	95 %
11:30 a.m.	96 %
12:00 p.m.	97 %
12:30 p.m.	98 %
1:00 p.m.	98 %
1:30 p.m.	99 %
2:00 p.m.	100 %

On Tuesdays, Wednesdays and Thursdays, the Vienna Station park-and-ride facilities typically reach aggregate capacity between 9:00 a.m and 9:30 a.m. The WMATA Parking Branch records 9:30 a.m. as the fill-up time. The facilities that reach capacity last are the southwest structure in its uppermost deck and temporary surface lot in its farthest rows. Using the methodology explained above, the accumulation at Vienna Station represents approximately 82% to 88% of the total parking demand if unconstrained.

Dividing the existing capacity of 5890 spaces by 88% results in an estimate of the immediate parking demand for 6690 spaces. The difference between 5890 and 6690 is the shortage at Vienna Station, 800 spaces. As shown below, WMATA has used the shortage to determine the capacity of a third park-and-ride structure at the site of the southeast surface lot.

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Southeast Structure (Vienna III)	Capacity	Notes
Southeast Surface Lot #3	615	To be displaced by structure construction.
Temporary Surface Lot	680	To be closed by end of special permit.
Shortage	800	
Total	2095	

In response to requests of interested parties, WMATA observed the morning ingress of the southwest structure and the temporary surface lot on February 7, 2006. The former was full at 9:15 a.m.; however, the latter did not fill and had available spaces at 10:00 a.m. at which time the guaranteed spaces of the southwest structure also became available to the general transit customer. One might consider this observation to negate the need for additional spaces in the proposed third park-and-ride structure, if the above methodology is the sole criterion.

It is important to note that the estimate of parking demand is very much in the near-term and less so for the immediate need. The principles of transportation planning guide WMATA and the County in addressing demand through 2015 and beyond. Any transit authority or department of transportation will plan, design and construct facilities for a future year rather than for just the opening year. As the communities around Vienna and in western Fairfax County continue to develop and redevelop and as gasoline prices stay at a high level, the demand for parking will grow all the more. Another factor is the upcoming increase in train capacity due to 8-car consists; WMATA believes that there is a latent demand for Metrorail, once the evening congestion of Orange Line trains at the core stations receives relief. Other influences is the lengthy walk from the outreaches of the temporary surface lot and the past discouragement of parking fee collection at 9:00 a.m., (which WMATA shifted to 10:30 a.m., effective January 2, 2006; see article below.) Therefore, the County and WMATA are striving to address parking demand but are also working to develop satellite park-and-ride facilities and to improve bus service between points west and Vienna Station.

> For information on the WMATA proposal for 8-car consists through 2008, (at which time half of the fleet may be 8-car trains), visit the WMATA web site (www.wmata.com) and page (http://content.wmata.com/board_gm/past_meetings.cfm), clicking on the July 21, 2005 presentation to the Customer Service, Operations and Safety Committee of the WMATA Board on Rail Car Deployment Strategies. A brief summary appears below in Section II.b.

Terminus stations of the Metrorail system have consistently known high park-and-ride demand. WMATA or local jurisdictions have constructed new structures at Franconia-Springfield, Shady Grove and New Carrollton Stations and are considering ones at Huntington and Glenmont Stations.

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B. Addendum

The following excerpt from newspaper article supports the 9:30 a.m. time of capacity and, more so, reflects the call for additional park-and-ride spaces. [Soon after this article, the WMATA Board of Directors acted to extend the time for collection of park-and-ride fees from 9:00 a.m. to 10:30 a.m.]

> Washington Examiner, November 2, 2005
> By Christy Goodman
> **Motorists express frustration with lack of Metro parking**
> **Problems echo throughout system**
> Irina Zaslavskaya, 44, stormed out of her gray compact car at 9:30 a.m. Tuesday and refused to pay the $3.75 fee for parking in the Vienna/Fairfax-GMU Metro station's auxiliary lot because she could not find a place to park. There also were no spaces left in the garage south of Interstate 66, nor at the meters. "It happens every day," said Zaslavskaya, of Oakton, ...

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II. VIENNA STATION IMPROVEMENT STUDY

A. Forecast of Future Ridership at Vienna Station

For planning purposes, the ridership of the month of May is considered typical. Therefore, based on ridership statistics for May in years 2003, 2004 and 2005, WMATA is using the following data for the starting point for forecasting future ridership. Rather than accommodate the peak 30-minutes of the peak day (the Top 3 row), the principles of transportation plan guide WMATA to analyze the morning and evening peak hours. The data is conservative, since May 2005 preceded the increase in fuel prices.

Existing Boardings		
Total Daily	12,830	
Morning peak period	9,290	
Morning peak hour	3,400	For planning
Morning peak 30-minute	1,680	
Morning peak 30-minute Top 3	1,750	

Existing Alightings		
Total Daily	12,630	
Evening peak period	7,870	
Evening peak hour	3,200	For planning
Evening peak 30-minute	1,600	
Evening peak 30-minute Top 3	1,850	

In its calculations of future ridership, WMATA made the following assumptions, some of which are specific while others are general. For instance, WMATA used the past determination of over 200 morning peak hour boardings due the MetroWest development. A major assumption is the timely, full funding of the two phases of the Metrorail Extension in the Dulles Corridor.

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Assumptions

By Year 2010

- Additional growth and/or feeder bus service.
- Expansion of park-and-ride capacity by 800 spaces.
- MetroWest development.
- [Growth in response to higher train capacity due to 8-car consists.]

By Year 2011

- Metrorail Extension to Wiehle Avenue.

By Year 2015

- Additional growth and/or feeder bus service.
- Metrorail Extension to Route 772.
- [Growth in response to higher train capacity due to 8-car consists.]

Based on the above assumptions, an ebb and flow appears in the forecast of future ridership. The calculations recognize that the Dulles Corridor Metrorail Extension in its two phases would divert Metrorail customers from Vienna Station. The decrease in that diversion would be replenished by growth in population and employment in the sub-area, corridor and region and by corresponding access improvements to the Vienna Station, such as augmented feed bus service.

Forecast

Year	Peak Hour			
	7:30 to 8:30 a.m.		5:30 to 6:30 p.m.	
	Board Entry	Alight Exit	Board Entry	Alight Exit
2005	3,400	260	400	3,200
2010	4,240	340	520	3,580
2011	3,440	340	520	3,240
2015	3,440	340	520	3,240

For comparison purposes, a straightforward estimate of 2015 boardings, based solely on an annual ridership growth rate of 2.5 percent, would be 4,350, versus the above 3,440.

The study of the new stair and other elements of Vienna Station will follow in later versions of this paper.

B. Rail Car Deployment Strategies

Please review the full presentation of the strategies at the WMATA web site, as described on page 3 above. The following minutes of the Committee meeting, which are also available at the web site, provide further insights:

> The Board requested additional information to include platform passenger capacity for consideration during car deployment decisions. This information should include: headway changes, platform queuing (ability to load and unload platforms under 8-car train operation), and passengers left on the platform. Alternate car deployment approaches, by line, will need to be considered based on input from the Board members.

The following is a tabular summary of the presentation as it relates to the Orange Line. The six-month demonstration of 'fewer, longer trains' might continue for the sake of service reliability; if so, total trains would decrease and the number of 8-car trains would increase.

Orange Line Peak Hour Through-Put

Month /Year	Headway	4-Car	6-Car	8-Car	Total Trains	Total Cars	Average Passengers per Car
12/05	3 min +	0	19	0	19	114	96
01/06	3 min +	0	11	6	17 Demo	114	96
12/06	3 min +	0	13	6	19	126	90
12/07	3 min +	0	10	9	19	132	90
12/08	3 min +	0	6	13	19	140	86

Since the Metrorail cars have 64, 66, 68 or 80 seats, WMATA uses a weighted average of 73 seats for planning purposes. A train with an average load of 96 passengers would have 23 standees, on average. Note that the average load decreases to 86 in December 2008 with the increase in number of 8-car trains. While the peak-hour fleet would be 50 percent 8-car trains, the Orange Line would have a higher number, approaching 70 percent. It should be known that the proposal includes ongoing growth in ridership.