

May 26, 2006

TO: Bob Weesner, Village Manager, North Chevy Chase

FROM: Joseph Cutro, P.E., Traffic Engineering Consultant

SUBJECT: Analysis of Kensington Parkway "Before" and "After" Traffic Counts

In November of 2005, the Village completed major improvements to Kensington Parkway, including pavement repair and resurfacing, partial realignment of outer curbs, and a thorough upgrade of traffic control features, including the installation of innovative surface-imprinted median islands and crosswalks. The street's most significant operational change was the replacement of a second (left) southbound through lane with a two-way left turn lane intended to exclude through movements entirely.

To assess the effects of the improvements, we have collected new traffic volume and speed data for Kensington Parkway. For a 48-hour period beginning Wednesday, March 22, at 3:00 PM, traffic information was automatically recorded by Vehicle Volume Recording Co. (VVRC) of Gaithersburg, using Nu-metrics *Hi-Star* portable classifier units. Three units were placed, one for each of the street's three travel lanes, at a "central" location roughly 200' north of Kenilworth Driveway. These were compared with earlier (October 15-17, 2003) counts recorded at the same location, for a similar 48-hour period beginning on a Wednesday at 3:00 PM.

Attached to this memo are VVRC graphics and tables illustrating the new Kensington Parkway data, including hourly traffic volumes by direction and summaries of northbound and southbound speed classification studies. A second attachment (3 pages) is an hourly volume tabulation.

Volumes

A total of 5,176 vehicles were counted for the full two-day period, representing an increase in traffic flow of just under 5% in the nearly 2 ½ years since the earlier counts. Average Daily Weekday Traffic (ADWT) on Kensington Parkway has crept upward to about 2600 vehicles per day, remaining in the lower range of volumes typically found on Montgomery County "primary residential" streets. This would be Kensington Parkway's likely classification if it were within unincorporated Montgomery County.

The weekday peak period continues to be the 2-hour period between 7 and 9 AM, with volume divided almost equally between the two hours. Volume for the morning peak has risen by 18%, with the individual hours increasing from 9.5% to 11.2% of daily traffic load. This indicates that the diurnal traffic pattern is becoming "spikier" as the years go by. In fact, these two hours account for nearly the entire 5% increase in daily traffic volume since the earlier counts. The evening peak hour occurs between 6 and 7 PM, and continues to account for about 8 % of daily traffic. There remain no secondary midday peaks, as might typically be seen on streets in commercial areas.

Directionality (balance between volumes moving in opposite directions) continues to be in favor of southbound traffic flow. For Kensington Parkway's daily volume of 2600, the southbound split remains at about 60%. The AM peak hours (7 to 9 AM) display an extreme imbalance, with 87% of traffic flowing southbound. The split in the PM peak hours (5 to 7 PM) appears to have shifted slightly, increasing from 55 % to about 60% northbound.

As a result of the 2005 street modifications, southbound traffic in the Parkway's center lane has shifted almost entirely to the right (west) lane. Center lane volume has dropped from 500 vehicles per day to fewer than 20. This small remainder appears to consist nearly exclusively of legitimate left turns, in both directions of travel, headed for side streets and driveways. At the sample location just north of Kenilworth, these movements are mostly southbound. In any event, it is clear that the modifications have been successful in ridding the center lane of through traffic.

Traffic Speeds

The table below summarizes vehicle speed characteristics found on Kensington Parkway before and after the street's reconstruction. Speed measures are given for each direction of travel, and the southbound "before" data is further subdivided into right and left lanes. The speed measures noted are the 50th percentile, or *median* speed—the middle value of the collected sample. It is close to, but not the same as the *average* (or mean) speed, which for spot speed distributions is usually a slightly higher value [see the attached speed study graphics]. A more important indicator for traffic engineers and enforcement officers is the 85th percentile speed. This is the speed exceeded by 15 percent of the vehicle sample, and is considered to be the best single-number representation of the prevailing speed of traffic. Ideally, speed limits are set at the 5 mph increment just below the computed 85th percentile speed. The table also includes comparisons of the vehicle sample with the existing speed limit (25 mph) and a speed threshold (50 mph) subjectively selected to define truly serious speeding incidents.

KENSINGTON PARKWAY TRAFFIC SPEED SUMMARY

	50 th %-ile speed (mph)		85 th %-ile speed (mph)		
	10/2003	3/2006	10/2003	3/2006	
Northbound (single lane)	32.4	33.4	39.2	39.5	
Southbound (total)	33.3	34.1	39.9	39.9	
Southbound (right lane)	32.3	34.1	38.4	39.9	
Southbound (left lane)		35.9	21.5*	43.3	33.0*

	% exceeding speed limit (25 mph)		observations/day exceeding 50 mph		
	10/2003	3/2006	10/2003	3/2006	
Northbound (single lane)	88	92	21	15	
Southbound (total)	91	94	25	20	
Southbound (right lane)	90	94	10	20	
Southbound (left lane)		94	38*	15	0*

*average southbound volume of only 12 vehicles per day

The median speed data suggest that the typical vehicle on Kensington Parkway is now travelling slightly faster than before the street improvements were made. At the lower end of the speed distribution curve, the percentage of vehicles exceeding the speed limit has increased slightly from values that were already quite high. These upticks are probably explained by the Parkway's smoother pavement and less cluttered roadside. It had been hoped that the elimination of the left southbound lane would result in a reduction in overall southbound speeds. Such an effect would have depended on increased density in the right lane to create additional speed impedance, most likely to occur in the AM peak hour. Apparently, the increase in density that did occur was not great enough to affect vehicle speeds.

Higher up the speed distribution curve, the data is more promising. The 85th percentile speeds appear to have held steady. At the extreme high end, the number of vehicles exceeding 50 mph has actually declined, despite the slight increase in overall volume. This also tends to validate the removal of the southbound left through lane, because that was where the highest concentration of such incidents had previously occurred.

The most dramatic improvement has come in Kensington Parkway's center lane. Even for the small residual volume still using that lane, speeds have slowed markedly. Most of those remaining vehicles are slowing to make left turns, leaving about 5 vehicles per day travelling fast enough (at the count location north of Kenilworth) to be regarded as undesirable through movements. Even so, incidents of speed above 50 mph in this lane appear to have been effectively eliminated.