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June 3, 2008

David D. Nesbit
Nesbit Development
555 Gettysburg Pike, Suite C-100
Mechanicsburg, PA 17055

Re: Trip Generation Assessment
Hillcrest at Shepardstown
Upper Allen Township, Cumberland County

Dear David:

We have completed a trip generation assessment for the proposed rezoning of the Hillcrest at Shepardstown site. The proposed site is located along the east side of Gettysburg Road, south of Shepardstown. This trip generation assessment is provided to compare the trip generation estimates for the site with the current zoning and the proposed zoning.

The ITE Trip Generation Manual, published by the Institute of Transportation Engineers (2003), was used to estimate of trips that may be generated with the current and the proposed site zoning. The trip generation calculations summarized in the following tables are based upon the ITE Trip Generation Manual. Trip generation calculation worksheets are attached for reference.

Development with Current Zoning
Under existing zoning conditions, it is estimated that the site can be developed with approximately 15 single family dwelling units. Table 1 shows the trip generation calculations for the site if it were developed with single family housing.

Table 1. ITE Trip Generation Summary
Current Zoning

Land Use (Code) [Size]	Average Weekday Vehicle Trips (vpd)	AM Peak (vph)		PM Peak (vph)	
		Enter	Exit	Enter	Exit
Single Family Detached Housing (210) [15 units]	182	5	15	12	7

Development with Proposed Zoning
The development proposal for Hillcrest at Shepardstown under the proposed zoning consists of 37 residential townhouses. Table 2 shows the trip generation calculations for the site if it were developed with the townhouses.

Table 2. ITE Trip Generation Summary
Proposed Zoning

Land Use (Code) [Size]	Average Weekday Vehicle Trips (vpd)	AM Peak (vph)		PM Peak (vph)	
		Enter	Exit	Enter	Exit
Residential Townhouses (230) [37 units]	276	4	19	18	9

Summary of Trip Generation Estimates
Table 3 provides a comparison of the new trips that will be generated by the site under the current and proposed zoning.

Table 3. ITE Trip Generation Summary
Trip Generation Comparison

Land Use (Code) [Size]	Average Weekday Vehicle Trips (vpd)	AM Peak (vph)		PM Peak (vph)	
		Enter	Exit	Enter	Exit
Residential Townhouses (230) [37 units]	276	4	19	18	9
Single Family Detached Housing (210) [15 units]	182	5	15	12	7
Additional Trips with Proposed Zoning	**94**	**-1**	**4**	**6**	**2**

Based upon the information summarized in Table 3, we conclude that the rezoning of the site to allow the proposed townhouse development will not have a significant impact on the trip generation potential of the site. The 37 townhouses projected to generate only three (3) more trips during the AM peak hour, and eight (8) more trips during the PM peak hour. The 94 additional daily trips breaks down to less than four (4) trips per hour over the 24-hour period.

Sight Distance Evaluation

Sight distances at the proposed site access location onto Gettysburg Road were evaluated to determine if available sight distances meet PENNDOT sight distance criteria outlined in Pennsylvania Code 67, Chapter 441.8 and PENNDOT Publication 212. Sight distances were measured and compared with the published safe sight distance criteria.

The posted speed limit (25 miles per hour) and approach grades on Gettysburg Road were used to determine whether adequate sight distance is available. A summary of sight distance criteria from Chapter 441 and Publication 212, as well as the sight distance measurements for the intersection can be found in Table 4.

Table 4. Sight Distance Evaluation Summary: Gettysburg Road and Site Access

Criteria Source	Direction	Available Sight Distance (ft)	Required Sight Distance (ft)		Acceptable
Chapter 441 Section 441.8			Desirable[1]	Minimum[2]	
	Left	1,469	250	161	YES
	Right	548	195	159	YES
Publication 212 Form M-950S	Left	1,469	147		YES
	Right	548	145		YES

1 - Chapter 441, Section 441.8(h)(1) Table 1.
2 - Chapter 441, Section 441.8(h)(2)(iv).

As shown in Table 4, the sight distances observed at the proposed site access are expected to exceed PENNDOT stopping sight distance criteria.

Please give me a call if you have questions relative to the materials provided herein, or if you need anything additional.

Sincerely,

Gregory E. Creasy, P.E.
Traffic Engineer

Attachments

FILE: Z:\Proposals\Nesbit Development\tgen_comparison.wpd

GROVE MILLER ENGINEERING, INC.
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Summary of Trip Generation Calculation
For 15 Dwelling Units of Single Family Detached Housing
March 27, 2008

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	12.10	0.00	1.00	182
7-9 AM Peak Hour Enter	0.33	0.00	1.00	5
7-9 AM Peak Hour Exit	1.00	0.00	1.00	15
7-9 AM Peak Hour Total	1.33	0.00	1.00	20
4-6 PM Peak Hour Enter	0.82	0.00	1.00	12
4-6 PM Peak Hour Exit	0.48	0.00	1.00	7
4-6 PM Peak Hour Total	1.30	0.00	1.00	19
Saturday 2-Way Volume	11.79	0.00	1.00	177
Saturday Peak Hour Enter	0.87	0.00	1.00	13
Saturday Peak Hour Exit	0.74	0.00	1.00	11
Saturday Peak Hour Total	1.62	0.00	1.00	24

Note: A zero indicates no data available.
The above rates were calculated from these equations:

24-Hr. 2-Way Volume:	LN(T) = .92LN(X) + 2.71, R^2 = 0.96
7-9 AM Peak Hr. Total:	T = .7(X) + 9.43
	R^2 = 0.89 , 0.25 Enter, 0.75 Exit
4-6 PM Peak Hr. Total:	LN(T) = .9LN(X) + .53
	R^2 = 0.91 , 0.63 Enter, 0.37 Exit
AM Gen Pk Hr. Total:	T = .7(X) + 12.05
	R^2 = 0.89 , 0.26 Enter, 0.74 Exit
PM Gen Pk Hr. Total:	LN(T) = .89LN(X) + .61
	R^2 = 0.91 , 0.64 Enter, 0.36 Exit
Sat. 2-Way Volume:	LN(T) = .94LN(X) + 2.63, R^2 = 0.93
Sat. Pk Hr. Total:	T = .89(X) + 10.93
	R^2 = 0.9 , 0.54 Enter, 0.46 Exit
Sun. 2-Way Volume:	T = 8.83(X) + -9.76, R^2 = 0.94
Sun. Pk Hr. Total:	LN(T) = .89LN(X) + .44
	R^2 = 0.88 , 0.53 Enter, 0.47 Exit

Source: Institute of Transportation Engineers
Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

Summary of Trip Generation Calculation
For 37 Dwelling Units of Residential Condominium / Townhouse
June 02, 2008

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	7.45	0.00	1.00	276
7-9 AM Peak Hour Enter	0.11	0.00	1.00	4
7-9 AM Peak Hour Exit	0.52	0.00	1.00	19
7-9 AM Peak Hour Total	0.63	0.00	1.00	23
4-6 PM Peak Hour Enter	0.48	0.00	1.00	18
4-6 PM Peak Hour Exit	0.24	0.00	1.00	9
4-6 PM Peak Hour Total	0.72	0.00	1.00	27
Saturday 2-Way Volume	15.19	0.00	1.00	562
Saturday Peak Hour Enter	0.78	0.00	1.00	29
Saturday Peak Hour Exit	0.66	0.00	1.00	25
Saturday Peak Hour Total	1.44	0.00	1.00	53

Note: A zero indicates no data available.
The above rates were calculated from these equations:

24-Hr. 2-Way Volume:	LN(T) = .85LN(X) + 2.55, R^2 = 0.83
7-9 AM Peak Hr. Total:	LN(T) = .8LN(X) + .26
	R^2 = 0.76 , 0.17 Enter, 0.83 Exit
4-6 PM Peak Hr. Total:	LN(T) = .82LN(X) + .32
	R^2 = 0.8 , 0.67 Enter, 0.33 Exit
AM Gen Pk Hr. Total:	LN(T) = .82LN(X) + .17
	R^2 = 0.8 , 0.18 Enter, 0.82 Exit
PM Gen Pk Hr. Total:	T = .34(X) + 38.31
	R^2 = 0.83 , 0.64 Enter, 0.36 Exit
Sat. 2-Way Volume:	T = 3.62(X) + 427.93, R^2 = 0.84
Sat. Pk Hr. Total:	T = .29(X) + 42.63
	R^2 = 0.84 , 0.54 Enter, 0.46 Exit
Sun. 2-Way Volume:	T = 3.13(X) + 357.26, R^2 = 0.88
Sun. Pk Hr. Total:	T = .23(X) + 50.01
	R^2 = 0.78 , 0.49 Enter, 0.51 Exit

Source: Institute of Transportation Engineers
Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS