INSTRUCTIONS FOR CONDUCTING A TRAFFIC COUNT

These instructions explain how a volunteer can conduct a traffic count with sufficient accuracy to allow the data to serve as evidence in legal proceedings. As the name implies, the purpose of the count is to determine the volume of traffic (cars, trucks, and other vehicles) traveling a specific section of road. Your counts can be used to verify data supplied by the applicant for a proposed development project and to assess potential impacts described in the CEDS fact sheet *Traffic & Neighborhood Quality of Life*. Following are the steps involved in conducting a traffic count.

1. Begin the count at least a half-hour before you anticipate the maximum volume of traffic. In most areas maximum traffic volume occurs during the morning and evening weekday (workday) rush-hours. Generally rush-hours occur between 6:30-9:30 AM and 5:00-7:00 PM.

2. Make counts in 15-minute increments. If you begin at 7:00 AM then count the number of vehicles traveling the road from 7:00 to 7:15 AM. Begin the count again for the period of 7:16 to 7:30 AM, and so forth.

3. Use the military approach to recording time. With this approach a 24-hour clock is used. So 7:00 AM is 0700, 1:00 PM is 1300, and 7:00 PM is 1900. This way no one will confuse your morning count with the evening rush-hour.

4. As shown below, use hatch marks to record each vehicle. At the end of each 15-minute period total the hatch marks and note the total (as shown below).

5. For most traffic counts there will be two directions of flow - east/west or north/south. Record traffic flow separately for each direction (as shown below). Generally you should distinguish between cars and trucks. A "truck" is any vehicle with 6 or more tires or 3 or more axles. Everything else is a "car." In some instances you may wish to count school buses as well.

Be sure to wear bright orange garments and stay well back from the flow of traffic. If you have any questions call Community & Environmental Defense Services at 410-654-3021.

TRAFFIC COUNT DATA RECORD

Date 6/16/99 Road: Freeland Road

Location: At Heathcote Road

Volunteer(s) Who Made Count	Volunteer's Address	Phone Number
Richard Klein	21300 Heathcote Rd Freeland MD 21053	410-329-8194
Joe Smith	21301 Heathcote Rd Freeland MD 21053	410-343-3478

Direction: East Bound				Direction: West Bound			
15-Minute Increments		COUNT (Use hatch marks to record vehicles)		15-Minute Increments		COUNT (Use hatch marks to record vehicles)	
Start	End			Start	End		
0630	0645	Cars: HHT HHT II	12	0630	0645	Cars: IIII	4
		Trucks: I	1			Trucks:	0
0646	0700	Cars: HH HH HHT I	16	0646	0700	Cars: HH HH I	11
		Trucks: II	2			Trucks: II	2
0701	0715	Cars: HH HH HH HH HHT		0701	0715	Cars: HH HH HH IIII	19
		Trucks: HHT	5			Trucks: III	3
		Cars: HH II	32				

TRAFFIC COUNT DATA RECORD

Date:_____ Road: _____

Location: _____

Volunteer(s) Who Made Count	Volunteer's Address	Phone Number

Direction:			Direction:		
15-Minute Increments		COUNT (Use hatch marks to record vehicles)	15-Minute Increments		COUNT (Use hatch marks to record vehicles)
Start	End		Start	End	

INSTRUCTIONS FOR MEASURING SIGHT-DISTANCE

To safely pull on to a road from a driveway or an intersecting street, a driver must be able to see approaching vehicles from a minimum distance. This distance is known as "sight-distance." Generally, for each mile per hour of posted speed limit there needs to be at least 11 feet of sight-distance. So if the posted speed limit is 30 miles per hour (mph) then the minimum sight-distance must be 330-feet. In other words, a driver waiting to pull onto the road must be able to see vehicles approaching in all directions when they are at least 330 feet away. If sight-distance is less than 330-feet then the likelihood of accidents will increase.

The 11 feet for each mph is only a very gross rule-of-thumb. A number of factors can alter the minimum required sight-distance. These factors include road grade (more distance is needed when approaching vehicles are traveling down a steep hill), whether the road is straight or bending, road condition, weather, and so forth.

Also, sight-distance should ***NOT*** be based solely on the posted speed limit but the upper speed at which vehicles travel the road. Specifically, traffic engineers use the 85^{th} percentile speed. The CEDS fact sheet *Instructions for Conducting A Speed Study* explains how to determine the 85^{th} percentile speed. Regardless of whether you use the posted speed or the 85^{th} percentile speed, the services of a qualified traffic engineer are needed to determine actual sight-distance requirements.

For existing intersections, sight-distance is measured from the point where the driver of a passenger car (not a sport utility vehicle, van or truck) would be sitting while waiting to pull out on to the road. For proposed intersections, the sight-distance is measured from:

- the centerline of the proposed road or driveway;
- six feet back from the curb or the edge of the existing road where vehicles travel; and
- at a point 3.5-feet above the proposed road surface (where a passenger-car driver's eye level would be).

To measure sight-distance first look in one direction and note where a car (not a truck or other large vehicle) can first be seen. Measure the distance to that point. Then repeat this measurement in the other direction. Sight-distance measurements are far easier with a minimum of two people. Be sure to wear bright orange garments and stay well back from the flow of traffic. If you have any questions call Community & Environmental Defense Services at 410-654-3021.

INSTRUCTIONS FOR CONDUCTING A SPEED STUDY

The purpose of the speed study is to determine the distribution of vehicle speeds on a section of roadway. This information is important in determining the adequacy of sight-distance from an existing or proposed intersection. Sight-distance is the distance at which cars can be first seen by those waiting to enter a roadway from a side road, driveway, etc. The higher the speed of traffic, the greater the sight-distance required if motorist are to enter the road safely.

1. Select a section of roadway that includes the point where vehicles would enter the road from an existing or proposed intersection. The section should be no less than 200 feet in length nor more than 500 feet. Sections shorter than 200 feet make timing difficult and it can be hard to see another person at a distance greater than 500 feet.

2. Post a volunteer at each end of the section. Be certain that a person standing at one end of the section is visible to the volunteer standing at the other end. Please wear bright orange garments and stay well back from the flow of traffic. Standing close to traffic flow is dangerous and if drivers see you near the road they will tend to slow down.

3. Each volunteer should have: a) an orange flag, a white handkerchief, or some other object which can be clearly seen at the other end of the section, and b) a watch with a timer function.

4. When a vehicle passes a volunteer at one end of the section the volunteer signals the person at the other end of the section. This second person then starts counting the time required for the vehicle to reach their position. This time is recorded on the *Traffic Speed Data Record* form accompanying these instructions.

5. Continue recording the time required for vehicles to travel from one end of the section to the other until 100 speed measurements are obtained for ***BOTH*** directions.

6. Vehicles frequently travel in groups called *platoons* by traffic experts. Measure the travel time for only the first vehicle in each platoon.

7. Generally speed measurements should be made during that portion of the workday rush-hour when speeds are highest. In many localities rush hours extends from 6:30-9:30 AM and 5:00-7:00 PM.

8. When you've timed a hundred vehicles compute the speed of each vehicle as follows.

A. Divide 3600 (the number of seconds in an hour) by the number of seconds the first vehicle took to travel the length of the section.

B. Next, multiple the length of the section (in feet) by the result of A.

C. Now, divide the result of B by 5280 (the number of feet in a mile) to get speed in Miles Per Hour (mph).

Examples of Speed Calculation:

The first vehicle takes 5.75 seconds to travel a 400-foot section.

A. $3600 \div 5.75 = 626$ B. $626 \times 400 = 250{,}400$ C. $250{,}400 \div 5280 = 47.4$ mph

The second vehicle takes 6.37 seconds to travel the 400-foot section.

A. $3600 \div 6.37 = 565$ B. $565 \times 400 = 226{,}000$ C. $226{,}000 \div 5280 = 42.8$ mph

10. Next, rank the speeds from fastest to slowest. The speed 85th from the bottom (slowest) is the 85th percentile speed and it is this speed that you use for determining safe sight distance as explained in the CEDS fact sheet *Instructions for Measuring Sight-Distance*. In the sample ranking below, 52 mph is the 85th percentile speed. If you have any questions call Community & Environmental Defense Services at 410-654-3021.

Fastest to Slowest		Fastest to Slowest		Fastest to Slowest		Fastest to Slowest		Fastest to Slowest	
Rank	Speed	Rank	Speed	Rank	Speed	Rank	Speed	Rank	Speed
100	70	80	49	60	45	40	43	20	40
99	67	79	48	59	45	39	43	19	40
98	66	78	48	58	45	38	43	18	40
97	64	77	48	57	45	37	43	17	40
96	63	76	48	56	45	36	43	16	40
95	62	75	48	55	45	35	43	15	39
94	30	74	47	54	45	34	43	14	39
93	59	73	47	53	45	33	42	13	39
92	58	72	47	52	45	32	42	12	39
91	58	71	47	51	45	31	42	11	38
90	57	70	47	50	45	30	42	10	38
89	56	69	47	49	44	29	42	9	38
88	56	68	47	48	44	28	42	8	37
87	55	67	46	47	44	27	42	7	37
86	53	66	46	46	44	26	41	6	36
85	***52***	65	46	45	44	25	41	5	36
84	51	64	46	44	44	24	41	4	35
83	51	63	46	43	44	23	41	3	34
82	51	62	46	42	44	22	41	2	33
81	50	61	46	41	44	21	41	1	33

TRAFFIC SPEED DATA RECORD

Road: _____

Section Start Location: _____ End: _____

Section Length: _____ (Feet) Date: _____ Start Time: _____ End Time: _____

Volunteer(s) Who Measured Speed	Volunteer's Address	Phone Number

	Seconds
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
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	Seconds
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100	