



To: Chairperson and Transportation and Safety Committee
From: Frank Kalisik, Civil Engineer II *FK*
Through: Carl S. Goldsmith, Director of Public Works *CS*
Date: August 29, 2013
Subject: Eugenia and Elizabeth Streets – Request for a Yield Sign

130434; Request to Install a Yield Sign at the Intersection of Eugenia and Elizabeth Streets

The committee chairman requested staff to investigate the placement of a Yield sign at the intersection of Eugenia and Elizabeth Streets. Application of this traffic control device should be in accordance with the guidance of the Manual of Uniform Traffic Control Devices (MUTCD). The following is the information obtained and its applicability to the MUTCD.

Per the MUTCD, YIELD signs may be installed:

- A. On the approaches to a through street or highway where conditions are such that a full stop is not always required. *(Possible)*
- B. At the second crossroad of a divided highway, where the median width at the intersection is 30 feet or greater. In this case, a STOP or YIELD sign may be installed at the entrance to the first roadway of a divided highway, and a YIELD sign may be installed at the entrance to the second roadway. *(Not Applicable)*
- C. For a channelized turn lane that is separated from the adjacent travel lanes by an island, even if the adjacent lanes at the intersection are controlled by a highway traffic control signal or by a STOP sign. *(Not Applicable)*
- D. At an intersection where a special problem exists and where engineering judgment indicates the problem to be susceptible to correction by the use of the YIELD sign. *(Possible)*
- E. Facing the entering roadway for a merge-type movement if engineering judgment indicates that control is needed because acceleration geometry and/or sight distance is not adequate for merging traffic operation. *(Not Applicable)*

When two vehicles approach an intersection from different streets or highways at approximately the same time, the right-of-way rule requires the driver of the vehicle on the left to yield the right-of-way to the vehicle on the right. The right-of-way can be modified at through streets or highways by placing YIELD (R1-2) signs (see Sections 2B.08 and 2B.09) or STOP (R1-1) signs (see Sections 2B.05 through 2B.07) on one or more approaches.

Guidance:

Engineering judgment should be used to establish intersection control. The following factors should be considered:

- A. *Vehicular, bicycle, and pedestrian traffic volumes on all approaches; 970 ADT Vehicles*
- B. *Number and angle of approaches; 3 approaches, 90 Degrees*
- C. *Approach speeds; 33 and 34 mph on Elizabeth, 26 mph on Eugenia (30 mph posted speed limits)*
- D. *Sight distance available on each approach; and (sight triangles are good in all directions)*
- E. *Reported crash experience. (0 accidents in the last 5 years per PD Reports)*

YIELD or STOP signs should be used at an intersection if one or more of the following conditions exist:

- A. *An intersection of a less important road with a main road where application of the normal right-of-way rule would not be expected to provide reasonable compliance with the law; (not applicable)*
- B. *A street entering a designated through highway or street; and/or (not applicable)*
- C. *An unsignalized intersection in a signalized area. (not applicable)*

In addition, the use of YIELD or STOP signs should be considered at the intersection of two minor streets or local road where the intersection has more than three approaches and where one or more of the following conditions exist:

- A. The combined vehicular, bicycle, and pedestrian volume entering the intersection from all approaches averages more than 2,000 units per day; (not applicable)*
- B. The ability to see conflicting traffic on an approach is not sufficient to allow a road user to stop or yield in compliance with the normal right-of-way rule if such stopping or yielding is necessary; and/or (not applicable)*
- C. Crash records indicate that five or more crashes that involve the failure to yield the right-of-way at the intersection under the normal right-of-way rule have been reported within a 3-year period, or that three or more such crashes have been reported within a 2-year period. (not applicable)*

YIELD or STOP signs should not be used for speed control.

As demonstrated, a Yield sign is unwarranted. Staff does not recommend modification of the Traffic Code to include placement of a Yield sign at the intersection of Eugenia and Elizabeth Streets. Attached is an aerial photograph of the intersection and most recent traffic analyzer study.

**Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: Lombard
Street: N.B. Eliz at Eugenia**

A study of vehicle traffic was conducted with HI-STAR unit number 2962. The study was done in the lane on N.B. Eliz at Eugenia in Lombard, Il in DuPage county. The study began on 04/01/2008 at 11:00 AM and concluded on 04/03/2008 at 11:00 AM, lasting a total of 48 hours. Data was recorded in 60 minute time periods. The total recorded volume of traffic showed 880 vehicles passed through the location with a peak volume of 50 on 04/02/2008 at 05:00 PM and a minimum volume of 0 on 04/02/2008 at 02:00 AM. The AADT Count for this study was 440.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0	10	15	20	25	30	35	40	45	50	55	60	65	70	75
to	to	to	to	to	to	to	to	to	to	to	to	to	to	>
9	14	19	24	29	34	39	44	49	54	59	64	69	74	
0	23	70	246	286	161	49	19	10	4	6	3	1	1	1

At least half of the vehicles were traveling in the 25 - 29 mph range or a lower speed. The average speed for all classified vehicles was 28 mph with 28.9 percent exceeding the posted speed of 30 mph. The HI-STAR found 1.36 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 25 mph and the 85th percentile was 33.82 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0	21	28	40	50	60	70	80
to	to	to	to	to	to	to	>
20	27	39	49	59	69	79	
843	29	7	1	0	0	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 872 which represents 99.10 percent of the total classified vehicles. The number of Small Trucks in the study was 7 which represents 0.80 percent of the total classified vehicles. The number of Trucks/Buses in the study was 1 which represents 0.10 percent of the total classified vehicles. The number of Tractor Trailers in the study was 0 which represents 0.00 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 04/02/2008 at 05:00 PM the average headway between the vehicles was 70.59 seconds. The slowest traffic period was on 04/02/2008 at 02:00 AM. During this slowest period, the average headway was 3600.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 29 and 89 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

**Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: Lombard
Street: S.B. Eliz at Eugenia**

A study of vehicle traffic was conducted with HI-STAR unit number 6759. The study was done in the lane on S.B. Eliz at Eugenia in Lombard, IL in DuPage county. The study began on 04/01/2008 at 11:00 AM and concluded on 04/03/2008 at 11:00 AM, lasting a total of 48 hours. Data was recorded in 60 minute time periods. The total recorded volume of traffic showed 600 vehicles passed through the location with a peak volume of 50 on 04/01/2008 at 05:00 PM and a minimum volume of 0 on 04/02/2008 at 01:00 AM. The AADT Count for this study was 300.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0	10	15	20	25	30	35	40	45	50	55	60	65	70	75
to	to	to	to	to	to	to	to	to	to	to	to	to	to	>
9	14	19	24	29	34	39	44	49	54	59	64	69	74	
0	13	53	88	203	171	51	10	3	1	1	1	2	1	1

At least half of the vehicles were traveling in the 25 - 29 mph range or a lower speed. The average speed for all classified vehicles was 29 mph with 40.4 percent exceeding the posted speed of 30 mph. The HI-STAR found 1.00 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 25 mph and the 85th percentile was 34.45 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0	21	28	40	50	60	70	80
to	to	to	to	to	to	to	>
20	27	39	49	59	69	79	
559	26	8	5	0	1	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 585 which represents 97.70 percent of the total classified vehicles. The number of Small Trucks in the study was 8 which represents 1.30 percent of the total classified vehicles. The number of Trucks/Buses in the study was 5 which represents 0.80 percent of the total classified vehicles. The number of Tractor Trailers in the study was 1 which represents 0.20 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 04/01/2008 at 05:00 PM the average headway between the vehicles was 70.59 seconds. The slowest traffic period was on 04/02/2008 at 01:00 AM. During this slowest period, the average headway was 3600.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 29 and 83 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: Lombard
Street: W.B.Eugenia at Eliz

A study of vehicle traffic was conducted with HI-STAR unit number 6779. The study was done in the lane on W.B.Eugenia at Eliz in Lombard, IL in DuPage county. The study began on 04/01/2008 at 11:00 AM and concluded on 04/03/2008 at 11:00 AM, lasting a total of 48 hours. Data was recorded in 60 minute time periods. The total recorded volume of traffic showed 276 vehicles passed through the location with a peak volume of 18 on 04/01/2008 at 04:00 PM and a minimum volume of 0 on 04/02/2008 at 02:00 AM. The AADT Count for this study was 138.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0	10	15	20	25	30	35	40	45	50	55	60	65	70	75
to	to	to	to	to	to	to	to	to	to	to	to	to	to	>
9	14	19	24	29	34	39	44	49	54	59	64	69	74	
0	17	109	99	29	4	3	3	1	0	1	3	3	0	0

At least half of the vehicles were traveling in the 20 - 24 mph range or a lower speed. The average speed for all classified vehicles was 22 mph with 6.62 percent exceeding the posted speed of 30 mph. The HI-STAR found 2.57 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 15 mph and the 85th percentile was 26.07 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0	21	28	40	50	60	70	80
to	to	to	to	to	to	to	>
20	27	39	49	59	69	79	
252	11	4	2	2	1	0	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 263 which represents 96.70 percent of the total classified vehicles. The number of Small Trucks in the study was 4 which represents 1.50 percent of the total classified vehicles. The number of Trucks/Buses in the study was 2 which represents 0.70 percent of the total classified vehicles. The number of Tractor Trailers in the study was 3 which represents 1.10 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 04/01/2008 at 04:00 PM the average headway between the vehicles was 189.47 seconds. The slowest traffic period was on 04/02/2008 at 02:00 AM. During this slowest period, the average headway was 3600.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 29 and 91 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

**Nu-Metrics Traffic Analyzer Study
Computer Generated Summary Report
City: Lombard
Street: E.B.Eugenia at Eliz**

A study of vehicle traffic was conducted with HI-STAR unit number 7961. The study was done in the lane on E.B.Eugenia at Eliz in Lombard, IL in DuPage county. The study began on 04/01/2008 at 11:00 AM and concluded on 04/03/2008 at 11:00 AM, lasting a total of 48 hours. Data was recorded in 60 minute time periods. The total recorded volume of traffic showed 460 vehicles passed through the location with a peak volume of 29 on 04/02/2008 at 05:00 PM and a minimum volume of 0 on 04/02/2008 at 12:00 AM. The AADT Count for this study was 230.

SPEED

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0	10	15	20	25	30	35	40	45	50	55	60	65	70	75
to	to	to	to	to	to	to	to	to	to	to	to	to	to	>
9	14	19	24	29	34	39	44	49	54	59	64	69	74	
0	73	297	68	10	5	1	3	1	0	0	0	0	1	0

At least half of the vehicles were traveling in the 15 - 19 mph range or a lower speed. The average speed for all classified vehicles was 18 mph with 2.40 percent exceeding the posted speed of 30 mph. The HI-STAR found 0.22 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 15 mph and the 85th percentile was 21.48 mph.

CLASSIFICATION

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0	21	28	40	50	60	70	80
to	to	to	to	to	to	to	>
20	27	39	49	59	69	79	
434	18	3	3	0	0	0	1

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 452 which represents 98.50 percent of the total classified vehicles. The number of Small Trucks in the study was 3 which represents 0.70 percent of the total classified vehicles. The number of Trucks/Buses in the study was 3 which represents 0.70 percent of the total classified vehicles. The number of Tractor Trailers in the study was 1 which represents 0.20 percent of the total classified vehicles.

HEADWAY

During the peak time period, on 04/02/2008 at 05:00 PM the average headway between the vehicles was 120.0 seconds. The slowest traffic period was on 04/02/2008 at 12:00 AM. During this slowest period, the average headway was 3600.0 seconds.

WEATHER

The roadway surface temperature over the period of the study varied between 29 and 83 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.



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