MULTI-WAY STOP WARRANT ANALYSIS:
LINDEN AVENUE AND WILDWOOD TERRACE INTERSECTION

Township of Verona
Essex County
New Jersey

Prepared for: ***Township of Verona***

May 20, 2009

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Our Reference Number J4258.00

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TABLE OF CONTENTS

INTRODUCTION 1

EXISTING CONDITIONS 2

TRAFFIC VOLUMES 3

TRAFFIC OPERATIONS 3

WARRANT EVALUATION 5

Criteria A: Interim Measure Prior to Signalization 5

Criteria B: Crash Experience 5

Criteria C: Traffic Volume 6

Criteria D: Combination of Criteria 7

Other Optional Criteria 7

SUMMARY OF WARRANTS ANALYSIS 9

CONCLUSIONS 9

LIST OF FIGURES

Figure 1 – Intersection Location 1

Figure 2 – Sight Distance from Wildwood Terrace 8

LIST OF TABLES

Table 1 – Warrant Analysis Traffic Volumes 3

Table 2 – Level of Service 4

Table 3 – Crash Experience 6

EXISTING CONDITIONS

Linden Avenue is a two-lane, two-way, east-west collector roadway under the jurisdiction of the Township of Verona. In the vicinity of Wildwood Terrace, Linden Avenue is approximately 26-28 feet wide and is posted for 25 mile per hour operation. Wildwood Terrace is a north-south collector roadway under the jurisdiction of the Township of Verona. In the vicinity of Linden Avenue, Wildwood Terrace is approximately 28-30 feet wide and is posted for 25 mile per hour operation.

Land uses adjacent to the intersection of Linden Avenue and Wildwood Terrace are residential in nature. Accordingly, the area can be expected to generate some level of pedestrian activity.

TRAFFIC VOLUMES

Manual turning movement counts were conducted on Thursday, April 16th, 2009 from 7-9 am and between 12-7 pm. Table 1 contains a summary of the highest eight (8) hours of these counts.

Table 1 – Warrant Analysis Traffic Volumes

Hour	Major Street (Linden Av)	Minor Street (Wildwood Ter) with Peds
8-9 am	217	38
12-1 pm	167	18
1-2 pm	171	18
2-3 pm	217	23
3-4 pm	227	29
4-5 pm	240	25
5-6 pm	307	36
6-7 pm	241	30
Total	**1787**	**217**
Average	223	27

TRAFFIC OPERATIONS

Traffic operations for the weekday morning and evening peak hour for the intersection of Linden Avenue and Wildwood Terrace were evaluated using Synchro, version 7. Within said program, traffic operations are assessed based on average delay per vehicle, on a scale of "A" through "F", with "A" being the best and "F" being the worst. Table 2 contains a summary of the level of service results. As shown, all approaches operate at an excellent Level of Service A during peak hours under multi-way stop control.

WARRANT EVALUATION

According to the Manual on Uniform Traffic Control Devices (MUTCD), 2003 Edition, Part 2B.07,

> **Support:**
>
> **Multiway stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multiway stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multiway stop control is used where the volume of traffic on the intersecting roads is approximately equal.**

Based on Table 1, the traffic volumes on Linden Avenue and Wildwood Terrace are disproportionate, and the above situation does not apply.

The Manual on Uniform Traffic Control Devices (MUTCD), 2003 Edition, Part 2B.07 also contains a series of warrants under "Guidance" (which generally has lower standing than "Support"). Below is a summary of these warrants in this instance.

Criteria A: Interim Measure Prior to Signalization

In circumstances where traffic signals are justified, multi-way stop signs may be used as an interim measure until arrangements for installing traffic signals can be made.

Since traffic signal warrants have not been investigated at the intersection under study, Criteria A is not applicable.

Criteria B: Crash Experience

Multi-way stop control is considered warranted when within one 12-month period, five (5) or more reportable accidents that are susceptible to correction by a multi-way stop installation occurred.

Table 3 contains a summary of crashes from 2006 to 2008 in the vicinity of the intersection under study. Based on crash records gathered by the Township of Verona Police

Department, two crashes occurred at this intersection for the three year period. However, only one crash could be attributed to stop sign control. Since the intersection already operates under stop sign control, it is not possible to determine how many crashes would have occurred under two way stop control. Accordingly, we cannot assume that Criteria B is not satisfied. However, we could conclude that the multi-way stop control for the intersection does not negatively impact traffic safety, based on the crash history.

Table 3 – Crash Experience

Date	Day	Time	Crash Type
05/27/07	Sat	21:51	Same Direction (Sideswipe)
04/05/08	Sat	11:49	Same Direction (Sideswipe)

Criteria C: Traffic Volume

A multi-way stop installation is considered warranted when the following minimum traffic volumes exist:

1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any eight (8) hours of an average day, and
2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same eight (8) hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the highest hour, but
3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 miles per hour, the minimum volume warrants are 70 percent of the above values.

Based on the volumes contained in Table 1, the intersection does not satisfy the warrants cited above. It is noted that the volume warrants in MUTCD are guidance only, and not located in a "Shall" condition, and consequently recommend guidance only.

Criteria D: Combination of Criteria

A multi-way stop installation is considered warranted when Criteria B, Criteria C.1, and Criteria C.2 are all satisfied to 80 percent of the minimum values.

Based on the values shown earlier, Criteria D is not satisfied, since Criteria B is not 80% satisfied.

Other Optional Criteria

Within the Manual on Uniform Traffic Control Devices, several additional optional criteria are listed that may be included in an engineering study, as outlined below:

A. The need to control left-turn conflicts.
B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.
C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to safely negotiate the intersection unless conflicting cross traffic is also required to stop.
D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

Due to existing vegetation and landscaping, sight distances on Wildwood Terrace are limited. Figure 2 shows the sight distance from Wildwood Terrace. Consequently, Option C applies at this location.

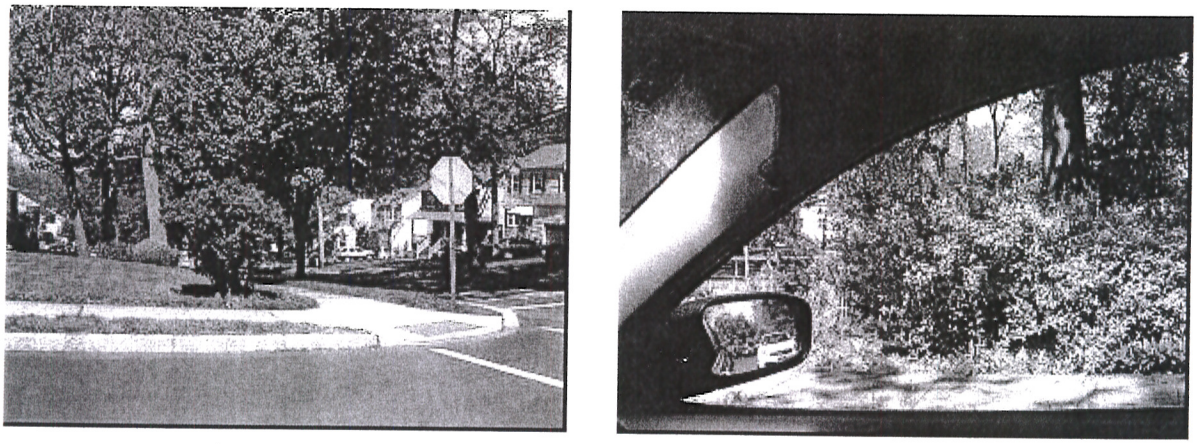

Figure 2 – Sight Distance from Wildwood Terrace

Option D is not satisfied, as the volumes on Linden Avenue are significantly disproportionate.

SUMMARY OF WARRANTS ANALYSIS

In accordance with the support established in the MUTCD, implementation of a multi-way stop is warranted for the intersection of Linden Avenue and Wildwood Terrace. Specifically, multi-way stop is supportable based on MUTCD due to sight distance obstructions. Since all approaches operate at Level of Service A during peak hours under multi-way stop control, and due to the lack of crash experience under multi-way stop control indicates that multi-way stop control does not have a detrimental impact on traffic operations or safety.

CONCLUSIONS

A multi-way stop condition should continue to be implemented at the intersection of Linden Avenue and Wildwood Terrace in the interest of efficiency and safety of traffic, pedestrians, and bicyclists.

APPENDIX

THE RBA GROUP, INC.

7 Campus Drive, Suite 300
Parsippany, NJ 07054

Linden Ave and Wildwood Terr - Verona

File Name : linden_wildwood
Site Code : 00000000
Start Date : 4/16/2009
Page No : 1

Groups Printed- Vehicles - Bicycles

	WILDWOOD TER Southbound					LINDEN AVE Westbound					WILDWOOD TER Northbound					LINDEN AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:15 AM	0	1	1	0	2	0	7	0	0	7	2	1	1	0	4	1	8	0	0	9	22
07:30 AM	0	1	4	0	5	0	29	0	0	29	0	0	1	0	1	0	21	0	0	21	56
07:45 AM	0	0	2	0	2	0	27	0	0	27	2	1	3	0	6	4	38	2	0	44	79
Total	0	2	7	0	9	0	63	0	0	63	4	2	5	0	11	5	67	2	0	74	157
08:00 AM	0	0	4	0	4	0	10	0	0	10	2	0	2	0	4	0	26	1	0	27	45
08:15 AM	1	4	3	0	8	0	30	1	0	31	1	0	4	0	5	0	35	1	1	37	81
08:30 AM	1	3	4	0	8	3	27	0	0	30	2	0	1	1	4	2	39	2	0	43	85
08:45 AM	0	1	3	0	4	0	17	1	0	18	0	0	1	0	1	0	22	0	0	22	45
Total	2	8	14	0	24	3	84	2	0	89	5	0	8	1	14	2	122	4	1	129	256
09:00 AM	1	2	1	0	4	0	18	0	1	19	1	3	0	0	4	1	34	1	0	36	63
*** BREAK ***																					
Total	1	2	1	0	4	0	18	0	1	19	1	3	0	0	4	1	34	1	0	36	63
*** BREAK ***																					
12:00 PM	0	0	2	0	2	1	14	0	0	15	2	0	1	0	3	1	15	2	0	18	38
12:15 PM	0	3	0	0	3	2	11	0	0	13	0	0	2	0	2	0	31	2	1	34	52
12:30 PM	1	0	0	0	1	2	25	0	1	28	1	1	0	0	2	0	25	1	0	26	57
12:45 PM	0	1	2	0	3	0	16	1	1	18	0	1	1	0	2	0	18	0	0	18	41
Total	1	4	4	0	9	5	66	1	2	74	3	2	4	0	9	1	89	5	1	96	188
01:00 PM	0	2	4	0	6	0	11	0	0	11	0	1	0	0	1	1	22	1	0	24	42
01:15 PM	0	0	3	0	3	1	18	0	0	19	0	0	0	0	0	2	26	1	0	29	51
01:30 PM	0	2	2	0	4	0	19	0	0	19	1	1	1	0	3	0	19	2	0	21	47
01:45 PM	0	0	1	0	1	3	23	0	0	26	0	0	0	0	0	0	19	3	0	22	49
Total	0	4	10	0	14	4	71	0	0	75	1	2	1	0	4	3	86	7	0	96	189
02:00 PM	0	0	1	1	2	0	19	0	0	19	0	0	2	0	2	3	21	1	0	25	48
02:15 PM	0	2	2	0	4	1	11	0	1	13	1	1	0	2	4	2	19	1	0	22	43
02:30 PM	0	1	2	0	3	0	36	1	0	37	0	1	0	0	1	3	22	2	0	27	68
02:45 PM	0	1	4	0	5	0	28	0	0	28	0	0	2	0	2	1	45	1	4	51	86
Total	0	4	9	1	14	1	94	1	1	97	1	2	4	2	9	9	107	5	4	125	245
03:00 PM	1	1	2	0	4	1	21	2	0	24	2	0	0	0	2	3	36	1	2	42	72
03:15 PM	1	0	4	0	5	0	16	2	0	18	1	0	0	4	5	4	31	1	2	38	66
03:30 PM	1	0	4	3	8	1	21	0	0	22	0	1	0	0	1	3	37	1	1	42	73
03:45 PM	0	1	2	0	3	2	19	2	1	24	0	1	0	0	1	2	18	3	0	23	51
Total	3	2	12	3	20	4	77	6	1	88	3	2	0	4	9	12	122	6	5	145	262

THE RBA GROUP, INC.

7 Campus Drive, Suite 300
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Linden Ave and Wildwood Terr - Verona

File Name : linden_wildwood
Site Code : 00000000
Start Date : 4/16/2009
Page No : 2

Groups Printed- Vehicles - Bicycles

	WILDWOOD TER Southbound					LINDEN AVE Westbound					WILDWOOD TER Northbound					LINDEN AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	1	0	0	1	1	14	1	0	16	0	1	1	1	3	1	23	2	1	27	47
04:15 PM	0	1	2	0	3	1	25	0	2	28	1	2	0	0	3	0	43	3	0	46	80
04:30 PM	0	0	1	0	1	0	19	0	0	19	0	2	1	1	4	1	34	3	0	38	62
04:45 PM	0	1	4	4	9	0	25	0	5	30	1	0	0	0	1	3	37	4	0	44	84
Total	0	3	7	4	14	2	83	1	7	93	2	5	2	2	11	5	137	12	1	155	273
05:00 PM	0	0	5	0	5	2	29	0	0	31	1	1	0	0	2	0	41	2	1	44	82
05:15 PM	0	3	1	0	4	2	27	0	0	29	0	3	2	0	5	5	46	2	0	53	91
05:30 PM	0	3	4	0	7	0	22	0	0	22	1	1	0	1	3	2	47	3	2	54	86
05:45 PM	2	3	3	0	8	1	33	2	2	38	2	0	0	0	2	4	34	3	3	44	92
Total	2	9	13	0	24	5	111	2	2	120	4	5	2	1	12	11	168	10	6	195	351
06:00 PM	1	1	1	0	3	1	26	0	0	27	3	1	1	0	5	5	25	2	0	32	67
06:15 PM	1	3	1	1	6	2	20	1	0	23	2	0	0	0	2	1	34	1	0	36	67
06:30 PM	1	4	1	0	6	0	27	0	0	27	0	1	0	0	1	4	35	1	1	41	75
06:45 PM	0	3	1	2	6	0	20	0	0	20	0	0	1	0	1	1	35	0	0	36	63
Total	3	11	4	3	21	3	93	1	0	97	5	2	2	0	9	11	129	4	1	145	272
Grand Total	12	49	81	11	153	27	760	14	14	815	29	25	28	10	92	60	1061	56	19	1196	2256
Apprch %	7.8	32	52.9	7.2		3.3	93.3	1.7	1.7		31.5	27.2	30.4	10.9		5	88.7	4.7	1.6		
Total %	0.5	2.2	3.6	0.5	6.8	1.2	33.7	0.6	0.6	36.1	1.3	1.1	1.2	0.4	4.1	2.7	47	2.5	0.8	53	
Vehicles	12	49	81	11	153	27	760	14	10	811	29	25	28	10	92	60	1061	56	16	1193	2249
% Vehicles	100	100	100	100	100	100	100	100	71.4	99.5	100	100	100	100	100	100	100	100	84.2	99.7	99.7
Bicycles	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	3	3	7
% Bicycles	0	0	0	0	0	0	0	0	28.6	0.5	0	0	0	0	0	0	0	0	15.8	0.3	0.3

	WILDWOOD TER Southbound					LINDEN AVE Westbound					WILDWOOD TER Northbound					LINDEN AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	2	0	2	0	27	0	0	27	**2**	**1**	3	0	**6**	**4**	38	**2**	0	**44**	79
08:00 AM	0	0	**4**	0	4	0	10	0	0	10	2	0	2	0	4	0	26	1	0	27	45
08:15 AM	**1**	**4**	3	0	**8**	0	**30**	**1**	0	**31**	1	0	**4**	0	5	0	35	1	**1**	37	81
08:30 AM	1	3	4	0	8	**3**	27	0	0	30	2	0	1	**1**	4	2	**39**	2	0	43	**85**
Total Volume	2	7	13	0	22	3	94	1	0	98	7	1	10	1	19	6	138	6	1	151	290
% App. Total	9.1	31.8	59.1	0		3.1	95.9	1	0		36.8	5.3	52.6	5.3		4	91.4	4	0.7		
PHF	.500	.438	.813	.000	.688	.250	.783	.250	.000	.790	.875	.250	.625	.250	.792	.375	.885	.750	.250	.858	.853

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Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	0	**3**	0	0	3	**2**	11	0	0	13	0	0	**2**	0	**2**	0	**31**	**2**	**1**	**34**	52
12:30 PM	**1**	0	0	0	1	2	**25**	0	**1**	**28**	**1**	**1**	0	0	2	0	25	1	0	26	**57**
12:45 PM	0	1	2	0	3	0	16	**1**	1	18	0	1	1	0	2	0	18	0	0	18	41
01:00 PM	0	2	**4**	0	**6**	0	11	0	0	11	0	1	0	0	1	**1**	22	1	0	24	42
Total Volume	1	6	6	0	13	4	63	1	2	70	1	3	3	0	7	1	96	4	1	102	192
% App. Total	7.7	46.2	46.2	0		5.7	90	1.4	2.9		14.3	42.9	42.9	0		1	94.1	3.9	1		
PHF	.250	.500	.375	.000	.542	.500	.630	.250	.500	.625	.250	.750	.375	.000	.875	.250	.774	.500	.250	.750	.842
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	**5**	0	5	**2**	29	0	0	31	1	1	0	0	2	0	41	2	1	44	82
05:15 PM	0	**3**	1	0	4	2	27	0	0	29	0	**3**	**2**	0	**5**	**5**	46	2	0	53	91
05:30 PM	0	3	4	0	7	0	22	0	0	22	1	1	0	**1**	3	2	**47**	**3**	2	**54**	86
05:45 PM	**2**	3	3	0	**8**	1	**33**	**2**	**2**	**38**	**2**	0	0	0	2	4	34	3	**3**	44	**92**
Total Volume	2	9	13	0	24	5	111	2	2	120	4	5	2	1	12	11	168	10	6	195	351
% App. Total	8.3	37.5	54.2	0		4.2	92.5	1.7	1.7		33.3	41.7	16.7	8.3		5.6	86.2	5.1	3.1		
PHF	.250	.750	.650	.000	.750	.625	.841	.250	.250	.789	.500	.417	.250	.250	.600	.550	.894	.833	.500	.903	.954

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Groups Printed- Bicycles

	WILDWOOD TER Southbound					LINDEN AVE Westbound					WILDWOOD TER Northbound					LINDEN AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
*** BREAK ***																					
09:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
02:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
*** BREAK ***																					
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
*** BREAK ***																					
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	3	3	7
Apprch %	0	0	0	0		0	0	0	100		0	0	0	0		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	57.1	57.1	0	0	0	0	0	0	0	0	42.9	42.9	

Page 1 of 1 ☐ Fatal

New Jersey Police Crash Investigation Report

☒ Reportable ☐ Non-Reportable ☐ Change Report

1 Case Number: 8003253

2 Police Dept of: VERONA Code: 01

3 Station/Precinct: VERONA

4 Date of Crash (mm dd yy): 04 05 08

5 Day of Week: Su M Tu W Th F Sa

6 Time (use 2400 hrs): 1149

7 Municipality Code: 0720

8 Total Killed:

9 Total Injured:

10 Crash Occurred On: 149 Linden Avenue
☐ At Intersection with Road Name Dir
☒ Feet ☐ Miles
200 (14) (15)
☐ N ☐ E ☐ S ☒ W of: Wildwood Terr.

11 Speed Limit: 25

12 Route No. Suffix 13 Milepost

17 Cross Road Name

18 Speed Limit

19 ☐ Ramp To: ☐ From:

20 Route/Name

☐ NB ☐ EB ☐ SB ☐ WB

21 Latitude

22 Longitude

Vehicle 1

23 Veh No: 1

24 Policy No: [redacted]

25 Ins Code: [redacted]

☐ Parked ☐ Ped ☐ Pedalcyclist ☐ Resp to Emergency ☐ Hit & Run

26 Driver's First Name / Initial / Last Name: [redacted]

29 Sex: M

27 Number and Street: [redacted]

30 Eyes: 2

28 City: [redacted] State: [redacted] Zip: [redacted]

31 State: NJ

32 Drivers License No: [redacted]

33 DOB (mm dd yy): [redacted]

34 Expires (mm yy): [redacted]

35 Owner's First Name / Initial / Last Name: [redacted]

☐ Same As Driver

36 Number and Street: [redacted]

37 City: [redacted] State: [redacted] Zip: [redacted]

38 Make: FRE 39 Model: TRK 40 Color: BRN 41 Year: 06 42 Plate No.: [redacted] 43 State: NJ

44 VIN: [redacted]

45 Expires: [redacted]

46 Vehicle Removed To: ☒ Driven ☐ Left at Scene ☐ Towed ☐ Impound ☐ Disabled

ON WAY

47 Authority: ☐ Owner ☒ Driver ☐ Police

48 Alcohol/Drug Test
Given: ☒ No ☐ Yes ☐ Refused
Type: ☐ Breath ☐ Blood ☐ Urine
Results: 0.__ % ☐ Pending

49 Hazardous Material: On Board ☐ Spill ☐ Name or Placard No.

50 Carrier No. ☐ USDOT ☐ Other *

51 Commercial Vehicle Weight
☐ ≤ 10,000 lbs
☐ 10,001 - 26,000 lbs
☐ ≥ 26,001 lbs

52 Carrier name

Vehicle 2

53 Veh No: 2

54 Policy No: [redacted]

55 Ins Code: [redacted]

☒ Parked ☐ Ped ☐ Pedalcyclist ☐ Resp to Emergency ☐ Hit & Run

56 Driver's First Name / Initial / Last Name:

59 Sex:

57 Number and Street:

60 Eyes:

58 City: State: Zip:

61 State: 62 Drivers License No: 63 DOB (mm dd yy): 64 Expires (mm yy):

65 Owner's First Name / Initial / Last Name: [redacted]

☐ Same As Driver

66 Number and Street: [redacted]

67 City: [redacted] State: [redacted] Zip: [redacted]

68 Make: Jeep 69 Model: 4DR 70 Color: BK 71 Year: 03 72 Plate No.: [redacted] 73 State: [redacted]

74 VIN: [redacted]

75 Expires:

76 Vehicle Removed To: ☐ Driven ☒ Left at Scene ☐ Towed ☐ Impound ☐ Disabled

77 Authority: ☐ Owner ☐ Driver ☐ Police

78 Alcohol/Drug Test
Given: ☒ No ☐ Yes ☐ Refused
Type: ☐ Breath ☐ Blood ☐ Urine
Results: 0.__ % ☐ Pending

79 Hazardous Material: On Board ☐ Spill ☐ Name or Placard No.

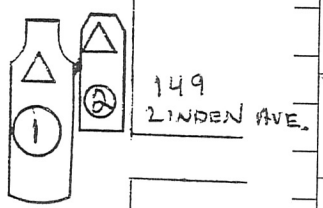
80 Carrier No. ☐ USDOT ☐ Other *

81 Commercial Vehicle Weight
☐ ≤ 10,000 lbs
☐ 10,001 - 26,000 lbs
☐ ≥ 26,001 lbs

82 Carrier name

134 Crash Diagram (NOT TO SCALE)

Indicate North



135 Crash Description: Driver of vehicle #1 stated while traveling East on Linden Avenue he struck the Driver's side mirror of Vehicle #2 which was parked in front of 149 Linden Avenue. He also stated an oncoming vehicle was traveling to close to his vehicle which caused him to swerve into vehicle #2.

136 Damage To Other Property

Oper.	137 Charge ☐ Multiple Charges	138 Summons No.	Oper.	139 Charge ☐ Multiple Charges	140 Summons No.

141 Officer's Signature: PTL. [redacted]

142 Badge No.: 5901

143 Reviewed By: [redacted] Badge No.: 0821

144 Case Status: ☐ Pending ☒ Complete

	83	84	85	86	87	88	89	90	91	92	93	94	95	Names & Addresses of Occupants - If Deceased, Date & Time of Death
A	1	01	01	—	49	M	—	—	1	09	04	—	—	Driver #1
B														
C														
D														
E														

NJTR-1 (R3/06)

Police Copy

Page 1 of 1 ☐ Fatal

New Jersey Police Crash Investigation Report

☒ Reportable ☐ Non-Reportable ☐ Change Report

96 05

1 Case Number 2005105

97 01

2 Police Dept of Verona | Code 01

98 06

3 Station/Precinct Verona

99 07

4 Date of Crash mm dd yy: 05 27 07

100 02

5 Day of Week: Su M Tu W Th F Sa

6 Time (use 2400 hrs): 2151

7 Municipality Code: 0720

8 Total Killed: 00

9 Total Injured: 00

10 Crash Occurred On: Linden Ave

☐ At Intersection with ☒ Feet ☐ Miles (14 / 15)

Road Name | Dir: E

☐ N ☐ E ☐ S ☒ W of: Wildwood Terr. (16)

11 Speed Limit: 25

12 Route No. | Suffix | 13 Milepost

17 Cross Road Name

18 Speed Limit: 25

19 ☐ To: Ramp ☐ From:

20 Route/Name

☐ NB ☐ EB ☐ SB ☐ WB

21 Latitude

22 Longitude

118a 25

118b —

119a 02

119b 00

101 02

Vehicle 1

23 Veh No: 1

24 Policy [redacted]

25 Ins Code [redacted]

☒ Parked ☐ Ped ☐ Pedalcyclist ☐ Resp to Emergency ☐ Hit & Run

102 02

26 Driver's First Name | Initial | Last Name | 29 Sex

103 02

27 Number and Street | 30 Eyes

104 2

28 City | State | Zip

105 02

31 State | 32 Drivers License No | 33 DOB mm dd yy | 34 Expires mm yy

35 Owner's First Name | Initial | Last Name: [redacted] Koes

☐ Same As Driver

36 Number and Street: [redacted] Elmwood Rd

106 —

37 City: Verona | State: NJ | Zip: [redacted]

107 —

38 Make: Nissan | 39 Model: Altima | 40 Color: SL | 41 Year: 02 | 42 Plate No.: [redacted] | 43 State: NJ

108 01

44 VIN: [redacted] | 45 Expires: [redacted]08

109 01

46 Vehicle Removed To ☒ Driven ☐ Left at Scene ☐ Towed ☐ Impound ☐ Disabled

47 Authority ☐ Owner ☒ Driver ☐ Police

110 01

48 Alcohol/Drug Test

Given : ☐ No ☐ Yes ☐ Refused

Type : ☐ Breath ☐ Blood ☐ Urine

Results: 0.__ % ☐ Pending

111 00

49 Hazardous Material

On Board ☐ Spill ☐ | Name or Placard No.

112 —

50 Carrier No. ☐ USDOT ☐ Other

113 00

51 Commercial Vehicle Weight

☐ ≤ 10,000 lbs

☐ 10,001 - 26,000 lbs

☐ ≥ 26,001 lbs

114 —

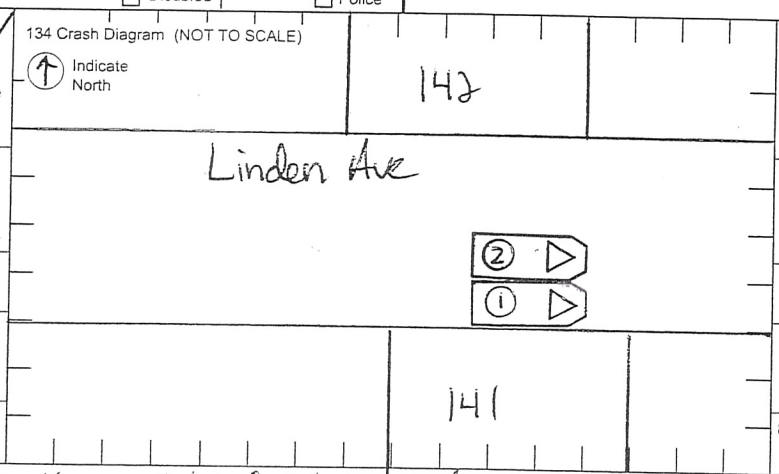
52 Carrier name

115 00

116 02

117 02

134 Crash Diagram (NOT TO SCALE)



Vehicle 2

53 Veh No: 2

54 Policy No.

55 Ins Code

☐ Parked ☐ Ped ☐ Pedalcyclist ☐ Resp to Emergency ☒ Hit & Run

120 —

56 Driver's First Name | Initial | Last Name | 59 Sex

121 00

57 Number and Street | 60 Eyes

58 City | State | Zip

122 —

61 State | 62 Drivers License No | 63 DOB mm dd yy | 64 Expires mm yy

123 00

65 Owner's First Name | Initial | Last Name

☐ Same As Driver

124 10

66 Number and Street

67 City | State | Zip

125 01

68 Make | 69 Model | 70 Color | 71 Year | 72 Plate No. | 73 State

74 VIN | 75 Expires

76 Vehicle Removed To ☐ Driven ☐ Left at Scene ☐ Towed ☐ Impound ☐ Disabled

77 Authority ☐ Owner ☐ Driver ☐ Police

126 11

78 Alcohol/Drug Test

Given : ☐ No ☐ Yes ☐ Refused

Type : ☐ Breath ☐ Blood ☐ Urine

Results: 0.__ % ☐ Pending

127 11

128a 26

79 Hazardous Material

On Board ☐ Spill ☐ | Name or Placard No.

128b —

128c —

80 Carrier No. ☐ USDOT ☐ Other

128d —

81 Commercial Vehicle Weight

☐ ≤ 10,000 lbs

☐ 10,001 - 26,000 lbs

☐ ≥ 26,001 lbs

129a 27

82 Carrier name

129b 00

129c 00

129d 00

130 10

131 10

132 02

133 02

135 Crash Description

Mr. Andrew T. Koes stated that he parked his vehicle facing eastbound in front of 141 Linden Ave. While inside 142 Linden Ave he heard a loud bang and saw a vehicle eastbound from where his vehicle was parked. Mr. Koes stated that his driver side mirror was struck by the unknown vehicle. On scene a silver mirror from a Honda vehicle was found on the ground.

136 Damage To Other Property

Oper.	137 Charge ☐ Multiple Charges	138 Summons No.	Oper.	139 Charge ☐ Multiple Charges	140 Summons No.

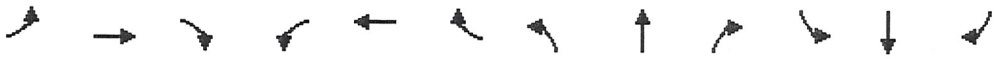
141 Officer's Signature: Attn: Robert Shafer

142 Badge No. 0487

143 Reviewed By: MM Badge No. 0827

144 Case Status ☐ Pending ☒ Complete

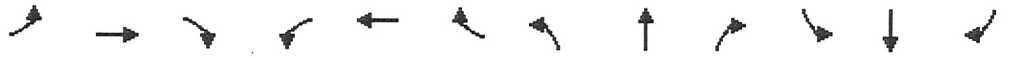
	83	84	85	86	87	88	89	90	91	92	93	94	95	Names & Addresses of Occupants - If Deceased, Date & Time of Death
A	2	1	01	00	00	00	00	00	0	00	00	00	—	Driver of vehicle #2
B														
C														
D														
E														



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	138	6	3	94	1	7	1	10	2	7	13
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.75	0.75	0.75	0.69	0.69	0.69
Hourly flow rate (vph)	7	162	7	4	119	1	9	1	13	3	10	19

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	176	124	24	32
Volume Left (vph)	7	4	9	3
Volume Right (vph)	7	1	13	19
Hadj (s)	0.00	0.02	-0.24	-0.32
Departure Headway (s)	4.2	4.2	4.4	4.3
Degree Utilization, x	0.20	0.15	0.03	0.04
Capacity (veh/h)	848	834	765	776
Control Delay (s)	8.2	7.9	7.5	7.4
Approach Delay (s)	8.2	7.9	7.5	7.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	11	168	10	5	111	2	4	5	2	2	9	13
Peak Hour Factor	0.89	0.89	0.89	0.82	0.82	0.82	0.55	0.55	0.55	0.75	0.75	0.75
Hourly flow rate (vph)	12	189	11	6	135	2	7	9	4	3	12	17

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	212	144	20	32
Volume Left (vph)	12	6	7	3
Volume Right (vph)	11	2	4	17
Hadj (s)	0.00	0.02	-0.02	-0.29
Departure Headway (s)	4.2	4.3	4.7	4.4
Degree Utilization, x	0.25	0.17	0.03	0.04
Capacity (veh/h)	846	828	705	744
Control Delay (s)	8.5	8.1	7.8	7.6
Approach Delay (s)	8.5	8.1	7.8	7.6
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		