

WELLS + ASSOCIATES

MEMORANDUM



TO: John Jay Sergent
Town of Vienna, Virginia

FROM: Michael Pinkoske, PTP
John Schick
Wells + Associates

COPY: Tom Moroz

RE: Myers Kingsley Property – Traffic Safety Assessment

DATE: May 21, 2018

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Suite 610,
Tysons, VA 22102
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Introduction

This memorandum was prepared in response to traffic safety concerns raised by the Town of Vienna Town Council regarding the proposed Myers-Kingsley subdivision on Nutley Street in the Town of Vienna. The proposal includes subdividing a single lot to create an additional single-family home. The proposed home would be served by a driveway on Nutley Street, approximately 70 feet north of Kingsley Road SW. This driveway would operate under right-in/right-out operations due to the median on Nutley Street.

The following sections assess the impacts, if any, of the proposed driveway. The assessment includes an evaluation of the proposed driveways spacing, crash data, and gaps in northbound traffic.

Data Collection and Field Observations

Traffic volumes were collected in the northbound direction on Nutley Street where the proposed site driveway will be located on May 10, 2018. The volume data indicates that the AM peak hour occurred from 8:00 AM to 9:00 AM when 1,140 northbound through vehicles were observed and the PM peak hour occurred from 5:00 PM to 6:00 PM when 1,391 northbound through vehicles were observed. The traffic volume data is summarized in Table 1 and detailed in Appendix A.

In addition to volume data, gaps in traffic were recorded and observed during the AM and PM peak periods on May 10, 2018. Traffic gaps are measured in seconds and occur when there is a break in northbound through traffic. Detailed measured traffic gaps are contained in Appendix A and a summary of the findings is included in the next section.

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Traffic Gap Analysis

As mentioned in the previous section, gaps in traffic were recorded on Nutley Street in the northbound direction in the vicinity of the proposed site driveway location. Field observations indicate that traffic passes in platoons (a group of vehicles). This occurs due to the traffic signal to the south at Virginia Center Boulevard which in effect meters the traffic flow. A gap in traffic is the space and time between vehicles along a segment of roadway. The gap in traffic occurs in the time between one (1) vehicle passing a specific point and the next vehicle arriving at the point.

Acceptable gaps in traffic for a vehicle exiting the proposed site driveway were calculated using Synchro version 9.2. The intersection was modeled in the software using the field measured data and the current roadway configuration. It was determined that an acceptable gap in traffic for a vehicle exiting the proposed driveway is 6.9 seconds. That indicates that an approximate seven (7) second gap in traffic is required for a vehicle to safely exit the driveway. The capacity analysis worksheets are contained in Appendix B.

As shown in Table 2, 67 traffic gaps of seven (7) or more seconds occurred during the AM peak hour and PM peak hour. This indicates that on average an acceptable gap in traffic for a vehicle exiting the proposed driveway would occur approximately every 54 seconds.

These findings are consistent with field observations and would indicate that a vehicle exiting the driveway would have adequate gaps to do so. It is noted that the driveway has been designed to include a "T" turn so that a vehicle could turn around within the property, thus never having to back out onto Nutley Street.

Intersection Spacing and Sight Distance

As shown on Figure 1, the driveway is located approximately 70 feet north of Kingsley Road SW measured between the curb radii.

It is noted that on Nutley Street in the northbound direction numerous driveways exist within close proximity to each other. Spacing between existing single-family driveways ranges from 10 to 100 feet with some of the driveways directly adjacent to one another. The proposed site driveway would be consistent with the spacing exhibited between most other driveways along the corridor.

Horizontal and vertical sight distance were evaluated for the proposed sight driveway for a vehicle exiting the driveway and looking to the left. As shown in Figure 1, both horizontal and vertical sight distance meet the minimum sight distance requirements as set forth by VDOT.

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Crash Data

The crash data for the most recent three (3) year period (2015-2017) on Nutley Street in the segment from Courthouse Road SW to Kingsley Road SW was obtained from VDOT. The data indicates that a total of 19 crashes occurred in the northbound direction of this roadway segment in the three (3) year period. Of the 19 total crashes, nine (9) were rear ends, eight (8) were angles, one (1) was a non-collision, and one (1) sideswipe same direction.

Further investigation of the reported crashes indicates that two (2) of the crashes occurred in the vicinity of single-family driveways. This crash rate would be considered low for the high amount of traffic that travels along Nutley Street everyday.

The results of the crash data is summarized in Table 3 and detailed in Appendix C.

Conclusions

The following conclusions can be made based on the information presented within this memorandum:

- The proposed driveway is intended to serve one (1) single-family home and result in minimal traffic. The driveway would operate as a right-in/right-out due to the existing median in place on Nutley Street and would have a “T” turn to permit a vehicle to turn around within the site and not have to back onto Nutley Street.
- It was determined that an acceptable gap in traffic for a vehicle to safely exit the proposed driveway is seven (7) seconds or more. Based on field measurements, this condition exists approximately 67 times during both the AM and PM peak hours or every 54 seconds.
- The proposed driveway is located approximately 70 feet north of the Nutley Street/Kingsley Road SW intersection measured curb radii to curb radii. This spacing exceeds the VDOT requirement of 50 feet minimum between driveways.
- The VDOT crash data indicates that a total of 19 crashes occurred in the northbound direction of Nutley Street between Courthouse Road and Kingsley Road SW in the three (3) year period from 2015 to 2017.

Based on the results of the assessment, it was determined that the introduction of the proposed driveway on Nutley Street would not have operational issues or raise additional safety concerns. The combination of adequate driveway spacing and numerous acceptable gaps in traffic during

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the peak hours indicates that the driveway would operate well and not have a detrimental impact to Nutley Street.

Questions regarding information contained within this memorandum should be directed to Wells + Associates.

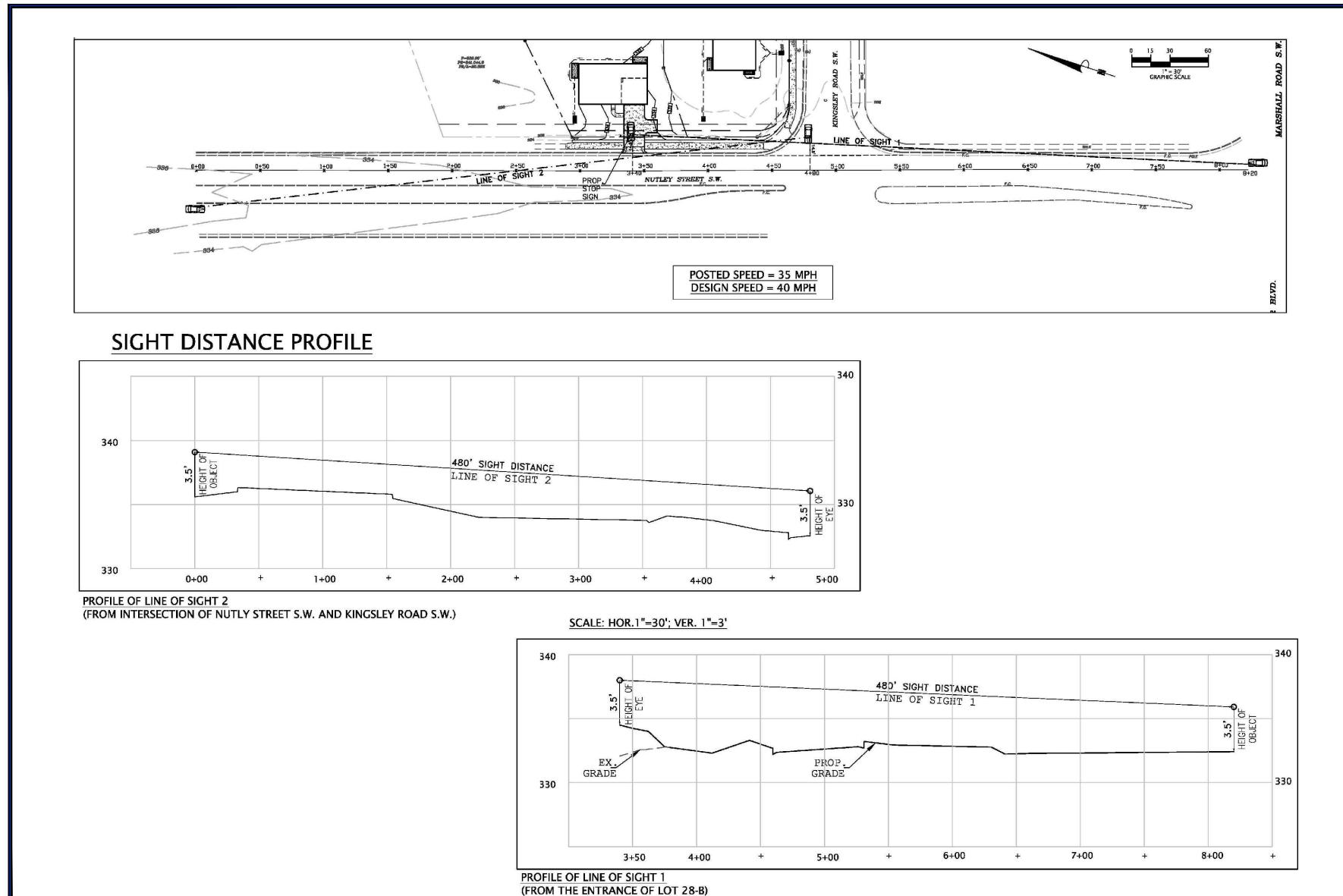


Figure 1
Proposed Driveway Sight Distance Exhibit

SOURCE: CIVILAND, LLC

NORTH

Myers Kingsley Subdivision
Town of Vienna, Virginia

Table 1
Myers Kingsey Subdivision
Vehicles per Hour

Time Period		Northbound Vehicles	
12:00 AM	-	1:00 AM	79
1:00 AM	-	2:00 AM	47
2:00 AM	-	3:00 AM	27
3:00 AM	-	4:00 AM	27
4:00 AM	-	5:00 AM	68
5:00 AM	-	6:00 AM	175
6:00 AM	-	7:00 AM	438
7:00 AM	-	8:00 AM	949
8:00 AM	-	9:00 AM	1,140
9:00 AM	-	10:00 AM	991
10:00 AM	-	11:00 AM	819
11:00 AM	-	12:00 PM	893
12:00 PM	-	1:00 PM	804
1:00 PM	-	2:00 PM	845
2:00 PM	-	3:00 PM	900
3:00 PM	-	4:00 PM	1,027
4:00 PM	-	5:00 PM	1,165
5:00 PM	-	6:00 PM	1,391
6:00 PM	-	7:00 PM	1,320
7:00 PM	-	8:00 PM	892
8:00 PM	-	9:00 PM	639
9:00 PM	-	10:00 PM	457
10:00 PM	-	11:00 PM	275
11:00 PM	-	12:00 AM	147

Notes:

1. Data collected by Wells + Associates on May 10, 2018.
2. Highlighted rows indicate the peak hour.

Table 3
Myers Kingsley Subdivision
Crash Data Summary (2015-2017)

Type of Crash	Number of Occurrences per Year			
	2015	2016	2017	Total
Rear End	4	3	2	9
Angle	0	3	5	8
Non-Collision	0	1	0	1
Sideswipe	0	0	1	1

Notes:

1. Crash data provided by VDOT.
2. Data represents crashes between Kingsley Road SW and Courthouse Road.

Table 2
Myers Kingsey Subdivision
Acceptable Gaps (Over 7 Seconds)

Time Period	Acceptable Gaps	Average Occurrence of Acceptable Gaps per Minute		
AM Peak				
6:00 AM	-	7:00 AM	110	2
7:00 AM	-	8:00 AM	92	2
8:00 AM	-	9:00 AM	67	1
PM Peak				
4:00 PM	-	5:00 PM	73	1
5:00 PM	-	6:00 PM	67	1
6:00 PM	-	7:00 PM	73	1

Notes:

1. Acceptable gap for a vehicle exiting the proposed site driveway was calculated using Synchro and found to be seven (7) seconds or more.
2. Highlighted rows indicate the peak hour.

APPENDIX A
PEAK HOUR VEHICULAR COUNTS & MEASURED TRAFFIC GAPS

UVII Summary Counting

This is your address
 Your City, State, Zip Code
 Your Tagline Here

File Name : 7553
 Site Code : 000000
 Start Date : 5/10/20
 Page No : 1

Directions Printed: Direction 1 - Direction 2 - Combined

Start Time	Volume	2 - 3	4 - 5	6 - 7	8 - 9	10 - 11	12 - 13	14 - 15	16 - 17	18 - 19	20 - 21	22 - 23	24 - 25	26 - 27	28 - 29	>29	Int. Total	Avera	
06:00 AM	176	7	10	6	4	4	2	3	2	0	0	0	1	1	1	1	9	52	8
06:15 AM	162	3	4	4	5	0	2	1	1	0	1	2	3	0	4	9	39	16-	
06:30 AM	250	3	11	8	3	4	1	0	5	1	0	2	2	1	2	6	49	8	
06:45 AM	272	2	10	9	5	3	4	2	1	1	1	0	2	0	0	7	48	8	
Total	860	15	35	27	17	11	9	6	9	2	2	7	6	4	7	31	188	10-	
07:00 AM	324	7	12	6	1	3	2	2	0	1	0	2	2	0	0	7	47	6	
07:15 AM	412	8	6	7	2	5	2	0	2	1	3	0	0	0	0	8	44	8	
07:30 AM	544	10	10	8	10	2	2	1	2	1	1	1	1	0	1	4	54	6	
07:45 AM	528	11	8	3	1	5	3	3	1	0	0	0	0	0	0	6	43	6	
Total	1808	36	36	24	14	15	9	6	7	2	5	3	3	2	1	25	188	6	
08:00 AM	530	11	7	8	4	4	1	1	0	2	0	1	2	1	1	0	4	47	6
08:15 AM	580	12	8	2	2	1	1	0	2	0	1	0	1	0	0	6	36	4	
08:30 AM	600	9	10	11	2	3	2	0	2	1	2	0	1	0	1	4	48	6	
A-1	08:45 AM	492	9	6	6	2	1	1	3	0	0	0	1	0	1	5	35	6	
Total	2202	41	31	27	10	9	5	4	6	1	4	3	3	1	2	19	166	6	
3BREAK ***																			
04:00 PM	494	11	10	6	0	2	3	2	1	1	0	0	2	1	0	0	5	44	6
04:15 PM	556	7	12	8	6	0	0	1	0	0	1	0	1	2	0	0	7	46	6
04:30 PM	576	9	9	3	4	2	4	1	2	1	0	0	1	1	1	5	43	8	
04:45 PM	586	14	15	6	0	2	2	1	3	1	0	0	1	2	0	0	3	50	4
Total	2212	41	46	23	10	6	9	5	6	3	2	3	3	5	1	20	183	6	
05:00 PM	608	8	8	9	2	3	4	3	0	0	0	0	1	1	0	3	44	6	
05:15 PM	638	13	7	5	6	2	3	0	0	0	2	0	0	2	0	3	43	6	
05:30 PM	658	12	8	4	1	4	2	2	3	0	0	0	0	0	0	5	41	6	
05:45 PM	714	11	6	3	2	1	2	0	1	1	0	0	0	0	0	6	33	4	
Total	2618	44	29	21	11	10	11	5	4	3	0	2	1	3	0	17	161	6	
06:00 PM	660	17	11	7	0	4	1	2	0	1	1	2	1	0	1	2	50	4	
06:15 PM	600	11	9	1	1	2	4	0	1	1	2	0	0	0	0	5	38	4	
06:30 PM	604	8	7	6	4	4	1	0	0	2	0	2	0	0	0	4	40	6	
06:45 PM	570	13	5	6	6	2	3	1	1	0	1	1	0	0	0	6	46	6	
Total	2434	49	32	20	11	11	7	7	1	5	2	7	2	1	17	174	6		
Grand Total	12134	226	209	142	73	62	50	33	33	16	15	25	18	17	12	129	1060	6	
Total %																1.1	12.2		

Date/Time/Volume/Average Speed/Temperature Report

Device ID: 400590 Street: Nutley Street State: VA City: Vienna County: Fairfax County		Begin: 10/05/2018 12:00 AM Lane: NB 590 Operator: AH Speed Limit: 25 AADT Factor: 1	End: 11/05/2018 12:00 AM Hours: 24.00 Period: 15 Raw Count: 7664 AADT Count: 7,664	
Date And Time Range	Period Volume	Average Speed	Roadway Temperature	Roadway Surface Wet/Dry
Thu, 10/05/2018				
[00:00-00:15]	14	32 F	---	---
[00:15-00:30]	8	32 F	---	---
[00:30-00:45]	8	32 F	---	---
[00:45-01:00]	6	32 F	---	---
[01:00-01:15]	7	32 F	---	---
[01:15-01:30]	5	32 F	---	---
[01:30-01:45]	8	32 F	---	---
[01:45-02:00]	5	32 F	---	---
[02:00-02:15]	4	32 F	---	---
[02:15-02:30]	5	32 F	---	---
[02:30-02:45]	1	32 F	---	---
[02:45-03:00]	4	32 F	---	---
[03:00-03:15]	4	32 F	---	---
[03:15-03:30]	2	32 F	---	---
[03:30-03:45]	5	32 F	---	---
[03:45-04:00]	1	32 F	---	---
[04:00-04:15]	3	32 F	---	---
[04:15-04:30]	5	32 F	---	---
[04:30-04:45]	10	32 F	---	---
[04:45-05:00]	4	32 F	---	---
[05:00-05:15]	6	32 F	---	---
[05:15-05:30]	11	32 F	---	---
[05:30-05:45]	18	32 F	---	---
[05:45-06:00]	24	32 F	---	---
[06:00-06:15]	40	32 F	---	---
[06:15-06:30]	32	32 F	---	---
[06:30-06:45]	62	32 F	---	---
[06:45-07:00]	61	32 F	---	---
[07:00-07:15]	79	32 F	---	---
[07:15-07:30]	105	32 F	---	---
[07:30-07:45]	148	32 F	---	---
[07:45-08:00]	141	32 F	---	---
[08:00-08:15]	137	32 F	---	---
[08:15-08:30]	152	32 F	---	---
[08:30-08:45]	153	32 F	---	---
[08:45-09:00]	121	32 F	---	---

Date/Time/Volume/Average Speed/Temperature Report

Device ID: 400590 Street: Nutley Street State: VA City: Vienna County: Fairfax County		Begin: 10/05/2018 12:00 AM Lane: NB 590 Operator: AH Speed Limit: 25 AADT Factor: 1	End: 11/05/2018 12:00 AM Hours: 24.00 Period: 15 Raw Count: 7664 AADT Count: 7,664	
Date And Time Range	Period Volume	Average Speed	Roadway Temperature	Roadway Surface Wet/Dry
Thu, 10/05/2018				
[09:00-09:15]	136	32 F	---	---
[09:15-09:30]	109	32 F	---	---
[09:30-09:45]	106	32 F	---	---
[09:45-10:00]	112	32 F	---	---
[10:00-10:15]	85	32 F	---	---
[10:15-10:30]	86	32 F	---	---
[10:30-10:45]	86	32 F	---	---
[10:45-11:00]	104	32 F	---	---
[11:00-11:15]	86	32 F	---	---
[11:15-11:30]	107	32 F	---	---
[11:30-11:45]	107	32 F	---	---
[11:45-12:00]	112	32 F	---	---
[12:00-12:15]	81	32 F	---	---
[12:15-12:30]	103	32 F	---	---
[12:30-12:45]	95	32 F	---	---
[12:45-13:00]	105	32 F	---	---
[13:00-13:15]	97	32 F	---	---
[13:15-13:30]	85	32 F	---	---
[13:30-13:45]	87	32 F	---	---
[13:45-14:00]	123	32 F	---	---
[14:00-14:15]	101	32 F	---	---
[14:15-14:30]	110	32 F	---	---
[14:30-14:45]	126	32 F	---	---
[14:45-15:00]	114	32 F	---	---
[15:00-15:15]	111	32 F	---	---
[15:15-15:30]	136	32 F	---	---
[15:30-15:45]	154	32 F	---	---
[15:45-16:00]	141	32 F	---	---
[16:00-16:15]	133	32 F	---	---
[16:15-16:30]	147	32 F	---	---
[16:30-16:45]	156	32 F	---	---
[16:45-17:00]	167	32 F	---	---
[17:00-17:15]	173	32 F	---	---
[17:15-17:30]	177	32 F	---	---
[17:30-17:45]	185	32 F	---	---
[17:45-18:00]	199	32 F	---	---

Date/Time/Volume/Average Speed/Temperature Report

Device ID: 400590 Street: Nutley Street State: VA City: Vienna County: Fairfax County		Begin: 10/05/2018 12:00 AM Lane: NB 590 Operator: AH Speed Limit: 25 AADT Factor: 1	End: 11/05/2018 12:00 AM Hours: 24.00 Period: 15 Raw Count: 7664 AADT Count: 7,664	
Date And Time Range	Period Volume	Average Speed	Roadway Temperature	Roadway Surface Wet/Dry
Thu, 10/05/2018				
[18:00-18:15]	195	32 F	---	---
[18:15-18:30]	175	32 F	---	---
[18:30-18:45]	161	32 F	---	---
[18:45-19:00]	167	32 F	---	---
[19:00-19:15]	125	32 F	---	---
[19:15-19:30]	132	32 F	---	---
[19:30-19:45]	109	32 F	---	---
[19:45-20:00]	102	32 F	---	---
[20:00-20:15]	96	32 F	---	---
[20:15-20:30]	82	32 F	---	---
[20:30-20:45]	66	32 F	---	---
[20:45-21:00]	69	32 F	---	---
[21:00-21:15]	57	32 F	---	---
[21:15-21:30]	69	32 F	---	---
[21:30-21:45]	54	32 F	---	---
[21:45-22:00]	44	32 F	---	---
[22:00-22:15]	51	32 F	---	---
[22:15-22:30]	33	32 F	---	---
[22:30-22:45]	34	32 F	---	---
[22:45-23:00]	29	32 F	---	---
[23:00-23:15]	24	32 F	---	---
[23:15-23:30]	24	32 F	---	---
[23:30-23:45]	17	32 F	---	---
[23:45-00:00]	8	32 F	---	---
10/05/2018 12:00 AM	7664	32 F		
11/05/2018 12:00 AM				

Date/Time/Volume/Average Speed/Temperature Report

Device ID: 400875 Street: Nutley Street State: VA City: Vienna County: Fairfax County		Begin: 10/05/2018 12:00 AM Lane: NB 875 Operator: AH Speed Limit: 25 AADT Factor: 1	End: 11/05/2018 12:00 AM Hours: 24.00 Period: 15 Raw Count: 7851 AADT Count: 7,851	
Date And Time Range	Period Volume	Average Speed	Roadway Temperature	Roadway Surface Wet/Dry
Thu, 10/05/2018				
[00:00-00:15]	11	32 F	---	---
[00:15-00:30]	12	32 F	---	---
[00:30-00:45]	9	32 F	---	---
[00:45-01:00]	11	32 F	---	---
[01:00-01:15]	5	32 F	---	---
[01:15-01:30]	7	32 F	---	---
[01:30-01:45]	7	32 F	---	---
[01:45-02:00]	3	32 F	---	---
[02:00-02:15]	2	32 F	---	---
[02:15-02:30]	4	32 F	---	---
[02:30-02:45]	3	32 F	---	---
[02:45-03:00]	4	32 F	---	---
[03:00-03:15]	3	32 F	---	---
[03:15-03:30]	2	32 F	---	---
[03:30-03:45]	5	32 F	---	---
[03:45-04:00]	5	32 F	---	---
[04:00-04:15]	7	32 F	---	---
[04:15-04:30]	9	32 F	---	---
[04:30-04:45]	11	32 F	---	---
[04:45-05:00]	19	32 F	---	---
[05:00-05:15]	19	32 F	---	---
[05:15-05:30]	20	32 F	---	---
[05:30-05:45]	37	32 F	---	---
[05:45-06:00]	40	32 F	---	---
[06:00-06:15]	49	32 F	---	---
[06:15-06:30]	51	32 F	---	---
[06:30-06:45]	65	32 F	---	---
[06:45-07:00]	78	32 F	---	---
[07:00-07:15]	92	32 F	---	---
[07:15-07:30]	108	32 F	---	---
[07:30-07:45]	139	32 F	---	---
[07:45-08:00]	137	32 F	---	---
[08:00-08:15]	139	32 F	---	---
[08:15-08:30]	151	32 F	---	---
[08:30-08:45]	154	32 F	---	---
[08:45-09:00]	133	32 F	---	---

Date/Time/Volume/Average Speed/Temperature Report

Device ID: 400875 Street: Nutley Street State: VA City: Vienna County: Fairfax County		Begin: 10/05/2018 12:00 AM Lane: NB 875 Operator: AH Speed Limit: 25 AADT Factor: 1	End: 11/05/2018 12:00 AM Hours: 24.00 Period: 15 Raw Count: 7851 AADT Count: 7,851	
Date And Time Range	Period Volume	Average Speed	Roadway Temperature	Roadway Surface Wet/Dry
Thu, 10/05/2018				
[09:00-09:15]	129	32 F	---	---
[09:15-09:30]	123	32 F	---	---
[09:30-09:45]	137	32 F	---	---
[09:45-10:00]	139	32 F	---	---
[10:00-10:15]	117	32 F	---	---
[10:15-10:30]	114	32 F	---	---
[10:30-10:45]	105	32 F	---	---
[10:45-11:00]	122	32 F	---	---
[11:00-11:15]	110	32 F	---	---
[11:15-11:30]	114	32 F	---	---
[11:30-11:45]	121	32 F	---	---
[11:45-12:00]	136	32 F	---	---
[12:00-12:15]	97	32 F	---	---
[12:15-12:30]	111	32 F	---	---
[12:30-12:45]	107	32 F	---	---
[12:45-13:00]	105	32 F	---	---
[13:00-13:15]	107	32 F	---	---
[13:15-13:30]	119	32 F	---	---
[13:30-13:45]	101	32 F	---	---
[13:45-14:00]	126	32 F	---	---
[14:00-14:15]	117	32 F	---	---
[14:15-14:30]	101	32 F	---	---
[14:30-14:45]	102	32 F	---	---
[14:45-15:00]	129	32 F	---	---
[15:00-15:15]	117	32 F	---	---
[15:15-15:30]	120	32 F	---	---
[15:30-15:45]	118	32 F	---	---
[15:45-16:00]	130	32 F	---	---
[16:00-16:15]	125	32 F	---	---
[16:15-16:30]	142	32 F	---	---
[16:30-16:45]	137	32 F	---	---
[16:45-17:00]	158	32 F	---	---
[17:00-17:15]	145	32 F	---	---
[17:15-17:30]	159	32 F	---	---
[17:30-17:45]	168	32 F	---	---
[17:45-18:00]	185	32 F	---	---

Date/Time/Volume/Average Speed/Temperature Report

Device ID: 400875 Street: Nutley Street State: VA City: Vienna County: Fairfax County		Begin: 10/05/2018 12:00 AM Lane: NB 875 Operator: AH Speed Limit: 25 AADT Factor: 1	End: 11/05/2018 12:00 AM Hours: 24.00 Period: 15 Raw Count: 7851 AADT Count: 7,851	
Date And Time Range	Period Volume	Average Speed	Roadway Temperature	Roadway Surface Wet/Dry
Thu, 10/05/2018				
[18:00-18:15]	170	32 F	---	---
[18:15-18:30]	149	32 F	---	---
[18:30-18:45]	164	32 F	---	---
[18:45-19:00]	139	32 F	---	---
[19:00-19:15]	123	32 F	---	---
[19:15-19:30]	120	32 F	---	---
[19:30-19:45]	87	32 F	---	---
[19:45-20:00]	94	32 F	---	---
[20:00-20:15]	91	32 F	---	---
[20:15-20:30]	94	32 F	---	---
[20:30-20:45]	69	32 F	---	---
[20:45-21:00]	72	32 F	---	---
[21:00-21:15]	60	32 F	---	---
[21:15-21:30]	67	32 F	---	---
[21:30-21:45]	54	32 F	---	---
[21:45-22:00]	52	32 F	---	---
[22:00-22:15]	38	32 F	---	---
[22:15-22:30]	33	32 F	---	---
[22:30-22:45]	28	32 F	---	---
[22:45-23:00]	29	32 F	---	---
[23:00-23:15]	23	32 F	---	---
[23:15-23:30]	17	32 F	---	---
[23:30-23:45]	14	32 F	---	---
[23:45-00:00]	20	32 F	---	---
10/05/2018 12:00 AM	7851	32 F		
11/05/2018 12:00 AM				

**APPENDIX B
SYNCHRO WORKSHEETS**

HCM Unsignalized Intersection Capacity Analysis

1: Nutley Street SW & Proposed Driveway

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑			
Traffic Volume (veh/h)	0	4	1164	4	0	0
Future Volume (Veh/h)	0	4	1164	4	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	1265	4	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1267	634		1269		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1267	634		1269		
tC, single (s)	6.8	6.9		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	100	99		100		
cM capacity (veh/h)	161	422		543		
Direction, Lane #	WB 1	NB 1	NB 2			
Volume Total	4	843	426			
Volume Left	0	0	0			
Volume Right	4	0	4			
cSH	422	1700	1700			
Volume to Capacity	0.01	0.50	0.25			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	13.6	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	13.6	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		42.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

1: Nutley Street SW & Proposed Driveway

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑			
Traffic Volume (veh/h)	0	4	1438	4	0	0
Future Volume (Veh/h)	0	4	1438	4	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	4	1563	4	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1565	784		1567		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1565	784		1567		
tC, single (s)	6.8	6.9		4.1		
tC, 2 stage (s)						
tF (s)	3.5	3.3		2.2		
p0 queue free %	100	99		100		
cM capacity (veh/h)	102	336		417		
Direction, Lane #	WB 1	NB 1	NB 2			
Volume Total	4	1042	525			
Volume Left	0	0	0			
Volume Right	4	0	4			
cSH	336	1700	1700			
Volume to Capacity	0.01	0.61	0.31			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	15.8	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	15.8	0.0				
Approach LOS	C					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		49.9%		ICU Level of Service		A
Analysis Period (min)		15				

APPENDIX C CRASH DATA

OBJECTID	COLLISION_TYPE	CRASH_DSC	CRASH_DT	CRASH_MIL_CRASH_SEV_DRIVERGEN ITARY_TM ERITY_E	DRIVERINJURYTYPE	DRIVER_ACTION_TYPE_CD	LIGHT_COND ROADWA RTE_NM ION Y SURFAC E_COND	VEHICLE_BODY_TYPE_CD	WEATHER_CONDITION	
18808	1. Rear End	V1 AND 2 WERE IN A LEFT STRAIGHT THROUGH LANE OF NB NUTLEY ST AT THE INTERSECTION WITH COURTHOUSE RD. V1 BEGAN TO MOVE FORWARD ON A GREEN LIGHT. VEHICLE 1 OBSERVED TRAFFIC, SWUNG IN THE LEFT TURN LANE, AND BEGAN TO MOVE FORWARD AND STRUCK A WHITE CAR. THE TRAFFIC SIGNAL FOR THE LEFT TURN THROUGH LANE WAS STILL CONTROLLED WITH A SOLID RED LIGHT.	12/3/2015 0:00	1732	34	Male/Male	PDO/PDO	40) Fail to Maintain Proper Control 1. No Improper Action	1. Dry SR00243NB	
2074	2. Angle	VEHICLE 1 WAS TRAVELING WEST BOUND ON KINGSLY RD SW. VEHICLE 1 WAS STOPPED AT THE STOP SIGN AT THE INTERSECTION WITH NUTLEY ST. A SCHOOL BUS WAS TRAVELING NORTHBOUND ON NUTLEY ST. VEHICLE 1 PROCEEDED TO TURN LEFT INTO THE SOUTHWARD LANE OF NUTLEY ST SW WHILE CROSSING THE NORTHBOUND LANES. VEHICLE 2 WAS TRAVELING IN THE LEFT NORTHBOUND LANE AND COLLDED WITH THE DRIVER'S SIDE REAR ANGLE OF VEHICLE 1. THE OWNER OF VEHICLE 1 ADMITTED THAT THE ACCIDENT WAS HIS FAULT AS HE DID NOT HAVE A CLEAR VIEW OF BOTH VEHICLES. HE PROVIDED THE PHONE NUMBER OF VEHICLE 2. HE PROVIDED THE PHONE NUMBER OF THE BUS DRIVER WHO ADVISED THAT HIS BUS COMPANY MAY HAVE RECORDED THE ACCIDENT. THE BUS DRIVER'S NAME IS JOSE M. FERNANDEZ AND HIS PHONE NUMBER IS (703) 728-7042. MAKE: MODEL: LAS. WORKSHOP ACCIDENT CODE: 53.0001	5/9/2017 0:00	1349	34/48	Male/Male	PDO/PDO	11) Did Not Have Right-of-Way 1. No Improper Action 12) Darkness - Road lit/dark		
45830	1. Rear End	V1 AND V2 WERE TRAVELING N/NUTLEY ST SW IN THE LEFT LANE APPROACHING THE INTERSECTION A NUTLEY ST SW / COURTHOUSE RD SW. V2 WAS SWINGING IN FRONT OF V1 IN THE TRAFFIC LANE. THE TRAFFIC SIGNAL A NUTLEY ST SW / COURTHOUSE RD SW CYCLED TO GREEN. V1 WAS NORTHBOUND ON NUTLEY ST BEFORE KINGSLY RD. V1 WAS SWINGING ON KINGSLY RD 6/9/2016 0:00 AND ATTEMPTED TO TAKE A LEFT TURN ONTO NUTLEY SOUTHBOUND. V1 DID NOT HAVE A LIGHT ON WAY AND COLLDED WITH VEH 2. VEH 1 AT FAULT	1/29/2015 0:00	1428	69/65	Female/Female	PDO/PDO	37) Other 1. No Improper Action 38) Other 1. No Improper Action	1. Dry SR00243NB	
92241	2. Angle	V2 WAS NORTHBOUND ON NUTLEY ST SW / COURTHOUSE RD SW CYCLED TO GREEN. V1 DID NOT HAVE A LIGHT ON WAY AND START DRIVING, RUNNING INTO THE BACK OF V2. NO INJURIES AND NO WOUNDS AT THE SCENE.	6/9/2016 0:00	1531	B	50/24	Female/Female	PDO_B	11) Did Not Have Right-of-Way 1. No Improper Action 12) Darkness - Road lit/dark	
111373	2. Angle	VEH 1 WAS GETTING READY TO TURN LEFT ONTO NUTLEY ST FROM KINGSLY RD. VEH 2 WAS TRAVELING NB ON NUTLEY ST WITH ITS LIGHT TURN SIGNAL ON FOR AN UCOMING ADDRESS. VEH 2 WAS SWINGING IN FRONT OF VEH 1 AND PULLED INTO THE INTERSECTION, CAUSING A COLLISION WITH VEH 2. VEH 1 AT FAULT	2/22/2016 0:00	1123	C	65/27	Male/Female	PDO/PDO	11) Did Not Have Right-of-Way 1. No Improper Action 12) Darkness - Road lit/dark	
138443	2. Angle	DRIVER #2 WAS NORTH BOUND ON NUTLEY ST APPROACHING KINGSLY RD. DRIVER #1 WAS COMING FROM KINGSLY ROAD WEST, TURNING ONTO NUTLEY STREET. DRIVER #1 DID NOT SEE VEHICLE #2 APPROACHING AND PULLED INTO THE PATH OF #2, CAUSING A CRASH. MINOR INJURIES TO BOTH DRIVERS WHICH WERE TREATED AT THE SCENE. DRIVER #1, CHARGED WITH FAIL TO PAY FULL TIME AND ATTENTION.	6/5/2017 0:00	1109	A	72/31	Male/Female	A,A	11) Did Not Have Right-of-Way 1. No Improper Action 12) Darkness - Road lit/dark	
215403	1. Rear End	VEHICLES #2 AND #3 WERE STOPPED IN THE LEFT LANE ON NUTLEY ST FOR TRAFFIC IN FRONT OF THEM. DRIVER #1 STATES HE OBSERVED THE LIGHT AT TAPAWING RD WAS GREEN AND PROCEEDED THRU THE INTERSECTION BUT FAILED TO OBSERVE THE VEHICLE #2 WAS STOPPED IN FRONT OF HIM. HE ATTEMPTED TO STOP BUT WAS UNABLE CAUSING VEHICLE #4 TO STRIKE THE REAR OF VEHICLE #2. VEHICLE #2 WAS THEN PUSHED INTO THE REAR OF VEHICLE #3. DRIVER #4 WAS TRANSPORTED TO THE HOSPITAL. VEHICLES #1 AND #2 WERE TOWED BY ACCURATE TOWING	10/16/2016 0:00	1308	C	32/51,47	Male/Female,Male	PDO,C/PDO	12) Following Too Close,1. No Improper Action 1. 2. Daylight No Improper Action	
234306	2. Angle	V1 WAS TRAVELING NORTH ON NUTLEY ST SW TOWARD COURTHOUSE RD SW. V1 ATTEMPTED TO CHANGE LANES FROM THE LEFT LANE TO THE RIGHT LANE AND TRUCK V2 IN THE LEFT REAR PANEL V1 TURNED BACK INTO THE LEFT LANE AND STRUCK V3 IN THE RIGHT REAR PANEL/JUMPER. V1 WAS TOWED NO INJURIES REPORTED ON SCENE. WITNESS 1: MICHELLE MICHAUD (703) 424-1298.	9/28/2017 0:00	1829	36,44,37	Male/Male, Male	PDO/PDO,PDO	42) Improper or Unsafe Lane Change 1. No Improper Action 1. 2. Daylight No Improper Action	1. Dry SR00243NB	
255277	1. Rear End	V3 WAS STOPPED IN TRAFFIC AT 500 NUTLEY ST SW APPROACHING A RED TRAFFIC SIGNAL WITH COURTHOUSE RD SW. V2 WAS STOPPED DIRECTLY BEHIND V3. V1 WAS TRAVELING NORTHBOUND, DIRECTLY BEHIND V2. IN THE LEFT LANE AS VEHICLE #2 SWUNG FOR A TURN, V1 STRUCK V2. V1 STATED THAT HE WAS DISTRACTED BY HIS PAPER AND ACCIDENTALLY HIT THE ACCELERATOR. V1 STRUCK V2 IN THE REAR, CAUSING V2 TO STRIKE V3 IN THE REAR AS A RESULT.	1/22/2015 0:00	1227	C	66,34,41	Male/Female,Male	PDO/PDO,PDO	12) Following Too Close,1. No Improper Action 1. 2. Daylight No Improper Action	1. Dry SR00243NB
339267	1. Rear End	VEHICLE #1 AND VEHICLE #2 WERE BOTH NORTH BOUND ON NUTLEY ST SW. BOTH VEHICLES WERE TRAVELING IN THE RIGHT LANE AS VEHICLE #2 SWUNG FOR A TURN. TRUCK VEHICLE #1 DID NOT AND STRUCK THE REAR PORTION OF VEHICLE #2. DRIVER #1 STATED HER MIND WAS WANDERING AND SHE MAY HAVE BEEN TOO CLOSE TO VEHICLE #2. DRIVER #1 AT FAULT - CHARGED WITH FAILING TO PAY FULL TIME ATTENTION.	7/6/2016 0:00	1646	24/46	Female/Female	PDO/PDO	37) Other 1. No Improper Action 38) Other 1. No Improper Action	1. Dry SR00243NB	

413179	1. Rear End	V1 WAS TRAVELING NORTH ON NUTLEY ST SW. TRAFFIC WAS COMING TO A STOP AT THE TRAFFIC LIGHT AT NUTLEY ST SW/COURTHOUSE RD SW. V2 STOPPED WITH THE REST OF THE TRAFFIC. V1'S DRIVER ADVISED SHE WAS FATIGUED AND FELL ASLEEP CAUSING V1 TO HIT THE BACK OF V2. NO INJURIES REPORTED ON SCENE. NO TOW WAS NEEDED/REQUESTED	2/1/2017 0:00	1711	66.55	Female/Female	PDO/PDO	37. Other,1. No improper Action	2. Day/light	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)	
459515	2. Angle	V2 WAS TRAVELING WEST ON COURTHOUSE RD THROUGH THE INTERSECTION ON NUTLEY ST. V1 10/16/2017 0:00	1595	80.27	Male/Male	PDO/PDO	11. Did Not Have Right-of-Way,1. No improper Action	4. Darkness- Road lit/dark	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)		
580129	8. Non-Collision	V1 (BENTON BOY TRUCK) WAS IN THE INNER NORTHBOUND LANE ON NUTLEY ST BEFORE 4/4/2016 0:00 TARAWINGO RD. V2 (ANG MERCEDS) WAS IN THE OUTER NORTHBOUND LANE. V1 MOVED INTO OUTTER LANE, FORCING V2 INTO Curb TO AVOID COLLISION. DAMAGING BRAKES & TIRES. V1 DD NOT MAKE CONTACT. D1 ADMITTED FAULT AND STATED SHE DID NOT SEE OTHER DRIVER UNTIL SHE NEARLY STRUCK HIM.	1340	56.30	Female/Male	PDO/PDO	42. Improper or Illegible lane Change,33. Crowded Off Highway	2. Day/light	1. Dry	R-VA SR0243NB	1.2	4. Touch - Single Lane Turn (2-Axes),1. Passenger car	1. No Adverse Condition (Clear/Cloudy)		
611441	1. Rear End	BOTH VEHICLE #1 AND VEHICLE #2 WERE WEST BOUND ON KINGSLY ROAD AT THE INTERSECTION OF NUTLEY STREET. BOTH VEHICLES WERE MAKING A LEFT TURN ON TO SOUTH BOUND NUTLEY STREET. VEHICLE #2 ENTERED THE INTERSECTION FIRST, COMING TO A STOP. VEHICLE #1 WAS DIRECTLY BEHIND VEHICLE #2. DRIVER #1 WAS LOOKING TO THE RIGHT THINKING TRAFFIC WAS CLEAR AND REAR ENDED VEHICLE #2 AT FAULT. - FAILURE TO PAY FULL TIME ATTENTION, AND ADULT PASSENGER IN VEHICLE #2 COMPARED OF A SOAR NECK. THERE WAS NO SIGN OF AN INJURY AND RESUE WAS REQUESTED.	11/5/2016 0:00	1555	C	30.52	Male/Male	PDO/PDO	37. Other,1. No improper Action	2. Day/light	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)
725587	4. SideSwipe - Same Direction	VEHICLE 1 WAS STELLING FROM FAIRFIELD COUNTY POLICE TRAVELING NORTHBOUND ON NUTLEY ST. 2/2/2017 0:00 VEHICLE 2 AND VEHICLE 3 WERE TRAVELING NORTHBOUND ON NUTLEY ST. COMING TO THE INTERSECTION OF TARAWINGO RD. VEHICLE 1 STRUCK VEHICLE 2 AND VEHICLE 3 GOING IN THE SAME DIRECTION TRYING TO SPLIT THE VEHICLES. DRIVER OF VEHICLE 1 PROCEEDED TO EXIT THE VEHICLE AND FLEE FROM THE SCENE ON FOOT. HOWEVER WAS CAUGHT BY POLICE	942	B	30/7/23	Female/Male/Female	B PDO/PDO	39. Evident Police,1. No Improper/Action,1. No Improper Action	2. Day/light	1. Dry	R-VA SR0243NB	1.2,3	1. Passenger car,22. Truck - 1. No Adverse Sport Utility Vehicle (SUV),1. Condition Passenger car	1. No Adverse Condition (Clear/Cloudy)	
745029	2. Angle	V2 WAS NORTHBOUND IN THE INNER LANE OF NUTLEY ST, APPROACHING INTERSECTION W/ KINGSLEY RD. V1 WAS WESTBOUND ON KINGSLEY RD AND ATTEMPTED TO TAKE A LEFT ONTO NUTLEY ST. SOUTHBOUND. V1 T-BORED V2 ON ITS RIGHT SIDE. V2 SWIVED SIDEWAYS AND BEGAN TO SPIN 2 STRICK MEDIAN AND 2 SIGNPOSTS ON LEFT SIDE, DAMAGING THE POLES, AND CAME TO REST FACING SOUTH IN THE SOUTHBOUND LANES. D1 ISSUED SUMMONS FOR FAILURE TO YIELD RIGHT OF WAY.	6/5/2016 0:00	1237	C	43.35	Female/Female	C,C	11. Did Not Have Right-of-Way,1. No Improper Action	2. Day/light	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)
792201	2. Angle	VEH 1 WAS TRAVELING NORTHBOUND ON NUTLEY ST WITH HIS RIGHT TURN SIGNAL ON. DRIVER 1 STATED THAT HE MISSED HIS TURN AND FAILED TO TURN HIS SIGNAL OFF. VEH 2 WAS STOPPED AT THE INTERSECTION OF KINGSLEY RD AND NUTLEY ST ATTEMPTING TO MAKE A LEFT HAND TURN ONTO NUTLEY ST. SOUTHBOUND DRIVER SAW VEH 1 AND THOUGHT HE WAS MAKING A RIGHT TURN ONTO KINGSLEY RD. THAT IS WHEN VEH 2 ENTERED THE INTERSECTION AND STRUCK VEH 1. BECAUSE OF THE IMPACT, BOTH VEHICLES WERE PUSHED TO THE CENTER, AND THE LEFT LANE OF NUTLEY ST. NORTHBOUND. VEH 1 WAS ISSUED A CITATION FOR FAILURE TO PAY FULL TIME AND ATTENTION.	4/30/2017 0:00	1016	22.24	Male/Male	PDO/PDO	40. Fail to Maintain Proper Control,1. No Improper Action	2. Day/light	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)	
798353	1. Rear End	DRIVER OF VEHICLE 1 WAS STOPPED AT LIGHT ON TARAWINGO RD SW AND STRUCK VEHICLE #2 IN THE REAR. DRIVER OF VEHICLE #2 WAS TRAVELING NORTH ON NUTLEY RD SW. AND STRUCK VEHICLE #1 IN THE REAR. #2 FILED THE SCENE WITHOUT EXCHANGING INFORMATION. THE DRIVER OF VEHICLE #1 WAS ABLE TO PROVIDE A LICENSE PLATE NUMBER. THE VEHICLE IS REGISTERED TO MARIAH AT 1210 WARESB SW, VIENNA, VA. MOPP SMITH RESPONDED TO THE ADDRESS AND IDENTIFIED THE DRIVER OF VEHICLE #1 AS THE REGISTERED OWNER. HE ADMITTED TO BEING INVOLVED IN THE ACCIDENT AND ADMITTED TO NOT STOPPING TO EXCHANGE INFORMATION (SEE CASE REPORT FOR MORE DETAILS). HE WAS ARRESTED FOR HIGH AND RUN FELONY.	5/23/2015 0:00	1547	C	5.5	Male Not Provided	C,PDO	1. No Improper Action,24. Hit and Run	2. Day/light	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)
821964	1. Rear End	V2 WAS STOPPED IN TRAFFIC IN THE RIGHT LANE ON NUTLEY ST SW, APPROXIMATELY 100 FT SOUTH 11/22/2017 0:00 NORTHBOUND. V2 WAS DIRECTLY BEHIND V2, AND FAILED TO STOP IN TIME, CAUSING A REAR END COLLISION. BOTH VEHICLES WERE TRAVELING NORTHBOUND. V2 GL450	1420	20.56	Male/Female	PDO/PDO	12. Following Too Close,1. No Improper Action	2. Day/light	1. Dry	R-VA SR0243NB	1.2	1 Passenger car,1. Passenger car	1. No Adverse Condition (Clear/Cloudy)		