

Town of Windermere
**Downtown Speed Limit
Recommendations**



Kimley » Horn

June 2019

DOWNTOWN SPEED LIMIT RECOMMENDATIONS

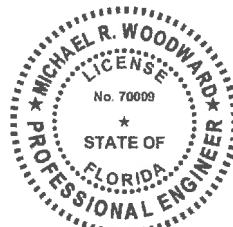
Town of Windermere, FL

Prepared for:

Town of Windermere, FL

Prepared by:

Kimley-Horn and Associates, Inc.



This item has been electronically signed and sealed by Michael R. Woodward, P.E. using a Digital Signature.

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Digitally signed by Michael R Woodward
DN: cn=Michael R Woodward, c=US,
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email=mike.woodward@kimley-horn.com
Date: 2019.06.14 09:11:05 -04'00'

June 2019

Mike Woodward, P.E.

PE #70009

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1.0 INTRODUCTION

This report documents the results of an engineering study to establish speed limits for roadways in downtown Windermere. **Figure 1** highlights the project study area. The two primary roadway facilities in the area, Main Street and 6th Avenue, are not included in this study as they have significantly different characteristics. This analysis is for the dirt road residential grid network.

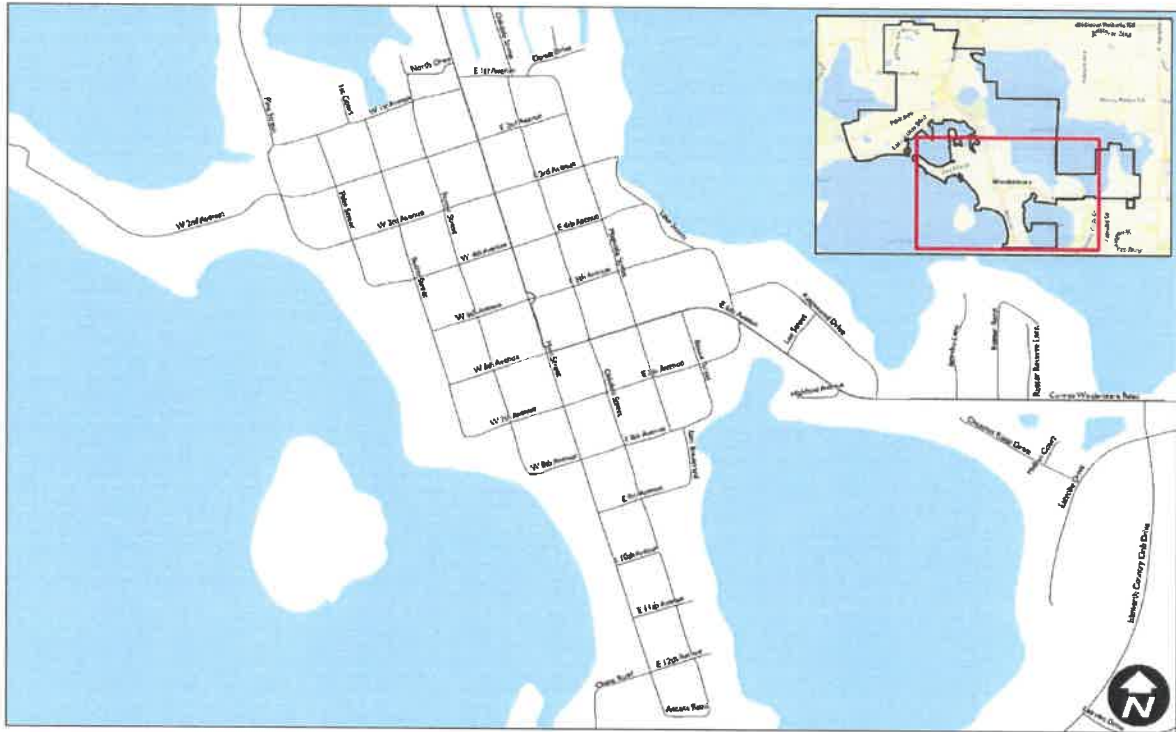


Figure 1 Study Area

2.0 DATA COLLECTION

Speed data were collected by Town police over several years. While speed data were not collected for every road, the data collection points are a representative sample for the entire downtown grid network. Speed data collection locations are shown in **Figure 2**.

A site visit was performed on June 12, 2019, to observe conditions, including visibility, use of roadways, availability of other facilities, travel lane widths, and condition of the dirt roads.

The roads have a residential character with varying pavement conditions – some roads are as narrow as 10.5' wide. Many of the roads are too narrow to feel comfortable when an oncoming vehicle is passing by. Some work trucks, delivery trucks, and mail trucks were observed. Pavement conditions in many locations are bad enough that 10 mph is a more comfortable traveling speed. The varying widths along roads like Oakdale Street are sudden and don't seem to be based on changes in travel patterns. Sight distance varies at intersections due to horizontal curves, vertical curves, and vegetation/landscaping.

Pedestrians were observed walking in the road. No bicyclists were observed during the site visit. Several residents have golf carts that appear to be used for travel through Town.

While it is a paved facility, 2nd Avenue is still relatively narrow, has limited sight distances, and has speed humps.

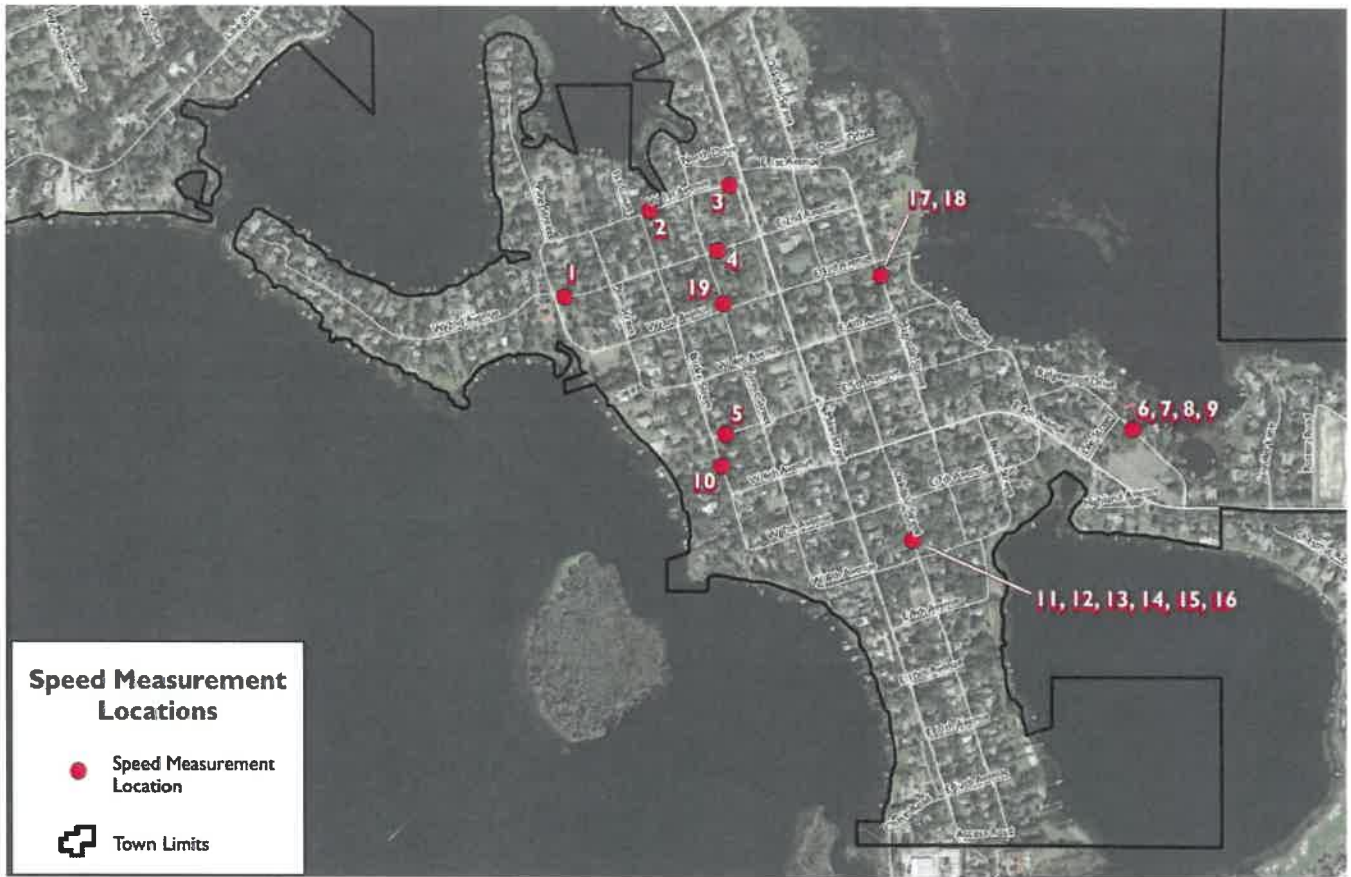


Figure 2 Locations with Speed Data Collection

3.0 EXISTING TRAVEL SPEEDS

The 50th and 85th percentile speeds are shown in **Table 1**. More detailed data for each location is provided in **Appendix A**. As shown in the table, most of the 85th percentile speeds are under 20 miles per hour (mph), and most of the 50th percentile speeds are less than 15 mph. A weighted average of the speeds was calculated based on the number of vehicles measured at each location; for the 2,832 measured vehicles, the weighed 50th percentile speed is 15 mph, and the weighted 85th percentile speed is 19 mph.

Table 1: Operating Speeds

Location	Speeds			Data Collection Dates
	Posted	50th	85th	
1st Ave				
Butler St	15	15	19	11/30/2016 - 12/15/2016
Main St	15	16	20	12/25/2016 - 1/2/2017
2nd Ave				
Pine St	15	19	22	02/16/16 - 2/19/16
Forest St	15	15	19	2/8/17 - 2/12/17
5th Ave				
Butler St	15	16	19	12/16/15 - 12/19/15
Ridgewood Dr				
Lee St	15	15	20	3/1/17 - 3/5/17
Lee St	15	13	20	10/30/17 - 11/3/17
Lee St	15	13	18	2/25/19 - 3/6/19
Lee St	15	11	16	4/26/19 - 5/6/19
Butler St				
5th Ave	15	13	19	1/5/16 - 1/9/16
Oakdale St				
8th Ave	15	14	19	5/23/16 - 5/28/16
10th Ave	15	13	18	5/3/16 - 5/9/16
8th Ave	15	14	19	10/10/17 - 10/14/17
8th Ave	15	16	20	4/4/18 - 4/10/18
8th Ave	15	20	20	2/15/19 - 2/25/19
8th Ave	15	13	18	3/26/19 - 4/3/19
Magnolia St				
3rd Ave	15	13	19	3/16/15 - 3/24/15
3rd Ave	15	14	19	3/7/19 - 3/15/19
Forest St				
3rd Ave	15	10	16	11/16/16 - 11/20/16

4.0 SPEED LIMIT CRITERIA

As stated in the Florida Department of Transportation's Speed Zoning Manual, a posted speed limit of 4 to 8 mph less than the 85th percentile speed shall be authorized if supported by a supplemental investigation, which identifies the following:

1. There are road or roadside features not readily obvious to the normally prudent driver, such as length of section, alignment, roadway width, surface conditions, sight distance, traffic volume, crash experience, maximum comfortable speed in curves, side friction (roadside development), signal progression, etc.;
2. Other standard signs and marking shave been tried but found ineffective; or
3. To support a context classification target speed as defined in Section 9.4 of the Speed Zoning Manual, which states that: Target speed is the highest speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multi-modal activity generated by adjacent land uses, to provide both mobility for motor vehicles and a safe environment for pedestrians, bicyclists, and public transit users.

The relevant pages of the Speed Zoning Manual are provided in **Appendix B**. The subsequent sections of this report address the first and third criteria. The second criteria are not applicable since other signs and markings have not been tried.

5.0 ROADSIDE FEATURES

Block size in downtown Windermere is small, resulting in short roadway segments that are generally 300-500 feet long. The roadways are narrow, with pavement widths ranging from 12' on 4th Avenue to 20' wide on Oakdale Street near 9th Avenue. Most sections of most roads are generally 14' to 18' wide, and many of the roads widen and narrow within mid-block sections. For example, the section of Oakdale Street that is 20' wide is located between portions that are 16' wide and 15' wide, all within a 2-block distance.

Surface condition of the roads vary considerably since they are dirt roads. Heavy rain events typically cause significant deterioration of conditions, with roads washing out and erosion. Though the Town is constantly re-grading roads, this is a continuous issue that will persist as long as the roads are dirt (rather than paved).

The narrow width and varying condition of the road result in a lower safe operating speed than what would work on a wider, well-paved facility.

6.0 TARGET SPEED

Target speed is the highest speed that vehicles should operate on a thoroughfare in a specific context. The context of the roads in downtown Windermere is a residential grid network of dirt roads that do not have sidewalks or bike lanes. The dirt roads have also been designated by the Town as "Golf Cart Friendly". The roads are used in ways that are consistent for residential neighborhoods, with vehicular, delivery, and service access to homes, people walking for recreation, kids and adults riding bicycles. Due to the lack of sidewalk facilities, the speed limit should be lower than what would otherwise be provided given otherwise similar conditions.

7.0 RECOMMENDED SPEED LIMIT

Given the narrow widths, the varying surface conditions, the lack of bicycle facilities, and the lack of sidewalk, the **recommended posted speed limit for study area roadways is 15 mph.**

A map showing the roadways with a recommended 15 mph limit is provided in **Figure 3.**

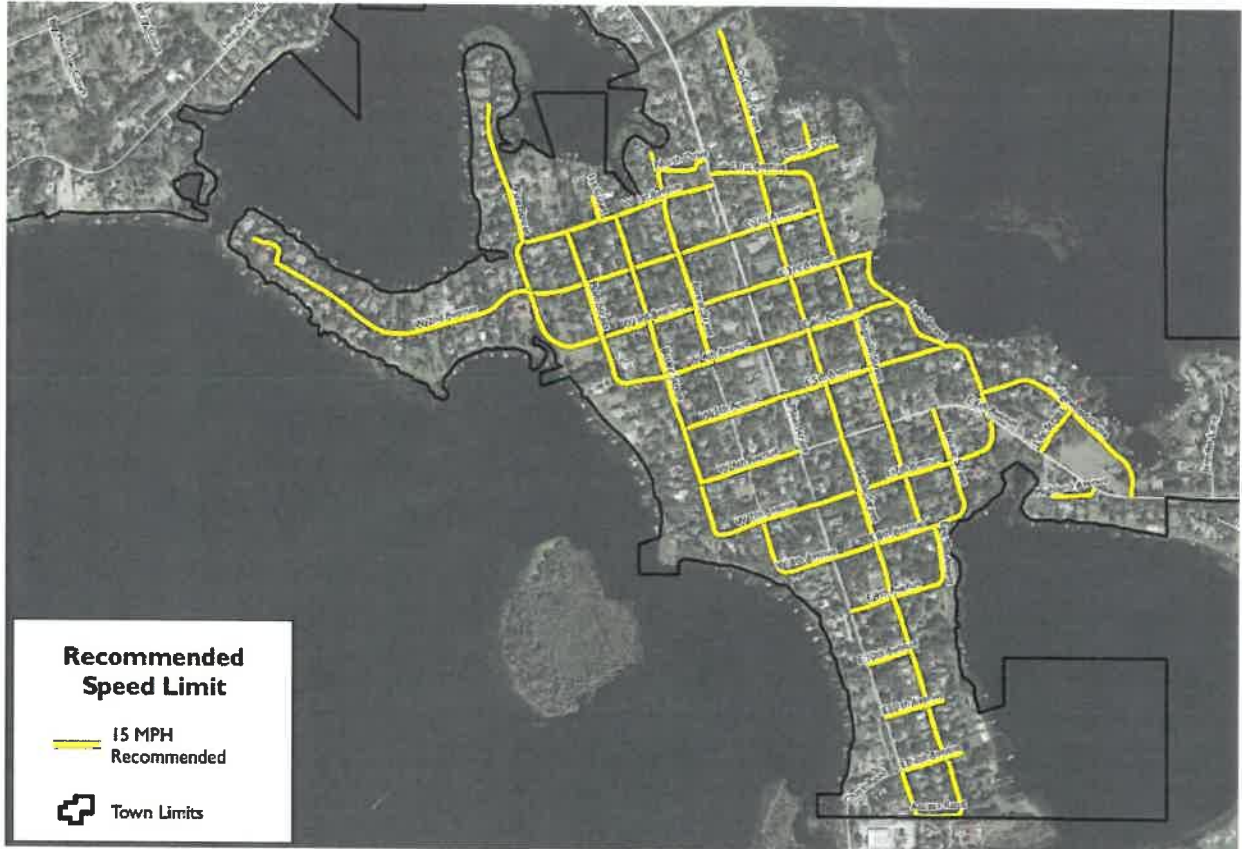


Figure 3 Recommended Speed Limits

APPENDIX A

Speed Data

Date: 4/6/2017 12:25:24 pm

Start Date: 11/30/2016 06:00 pm

End Date: 12/15/2016 05:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 15 mph

Highest Speed: 45 mph

50th Percentile: 15 mph

85th Percentile: 19 mph

Number Above Speed Limit: 1279

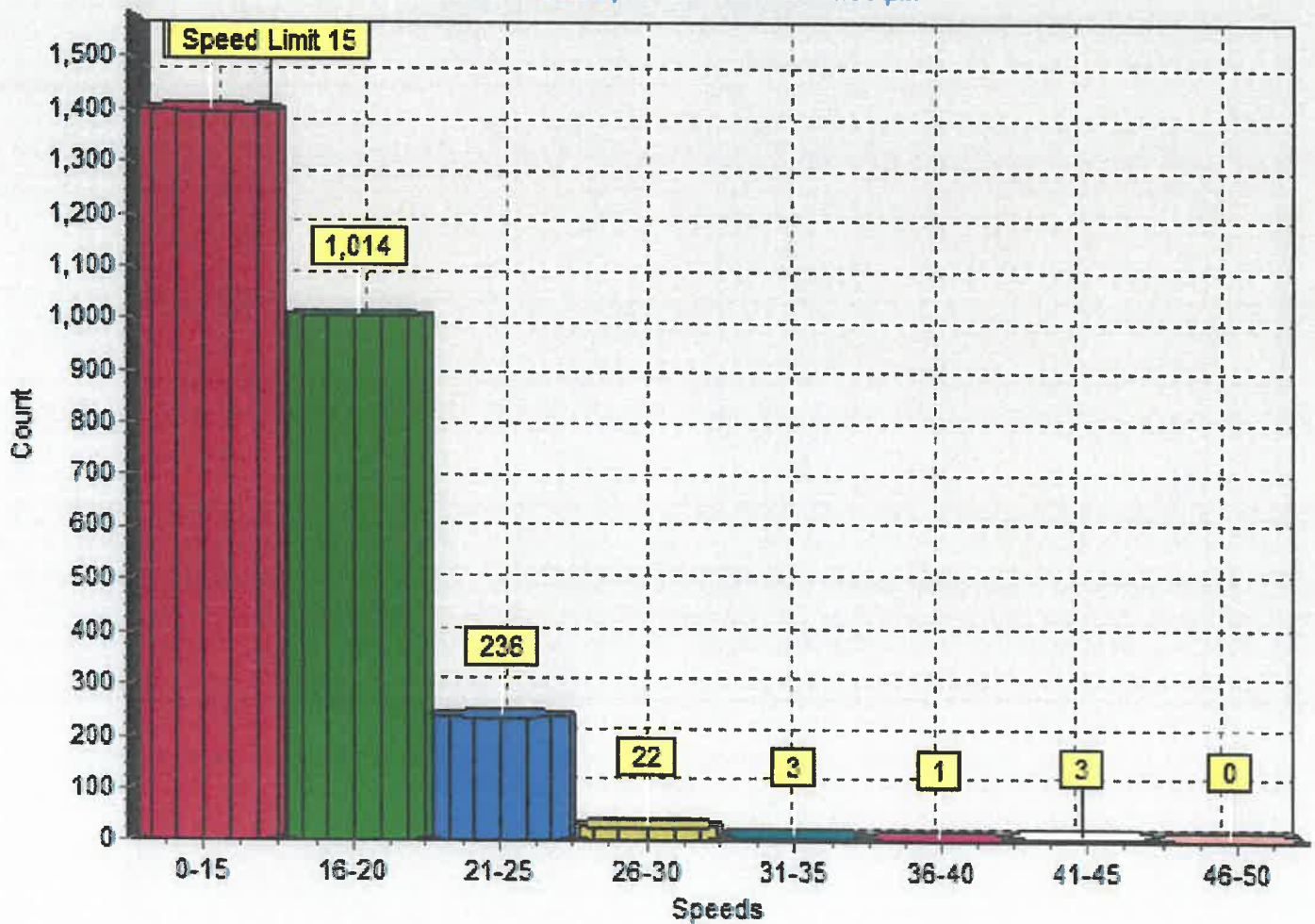
Total Number of Vehicles: 2691

Comments:

1st Ave / Butler St (W/B)

Count vs. Speed

11/30/2016 06:00 pm - 12/15/2016 05:00 pm



Date: 4/6/2017 12:24:10 pm

Start Date: 12/25/2016 02:00 pm

End Date: 1/2/2017 10:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 16 mph

Highest Speed: 47 mph

50th Percentile: 16 mph

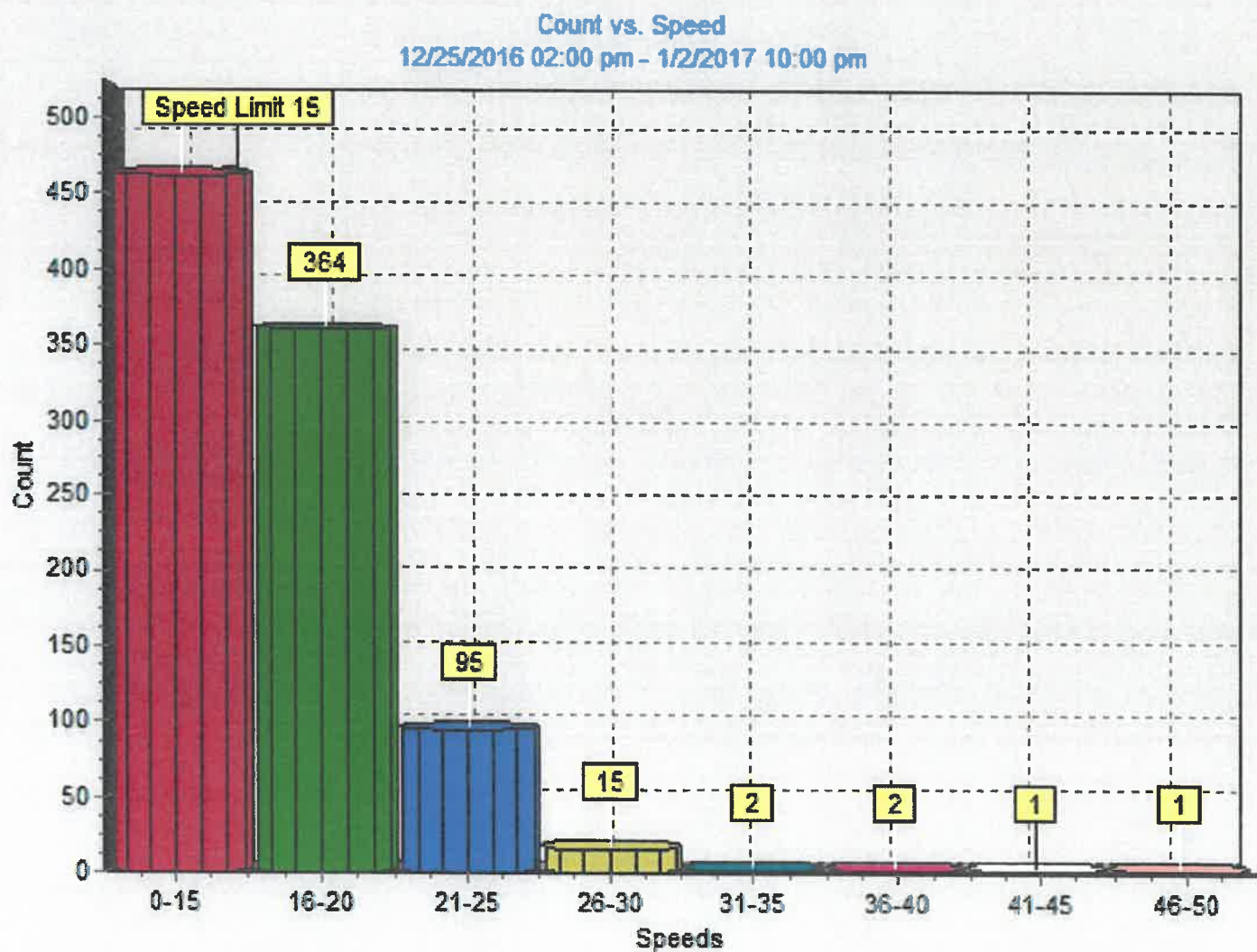
85th Percentile: 20 mph

Number Above Speed Limit: 480

Total Number of Vehicles: 947

Comments:

1st Ave / Main St (E/B)



Date: 4/6/2017 12:34:40 pm

Start Date: 2/16/2016 06:00 pm

End Date: 2/19/2016 07:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 19 mph

Highest Speed: 44 mph

50th Percentile: 19 mph

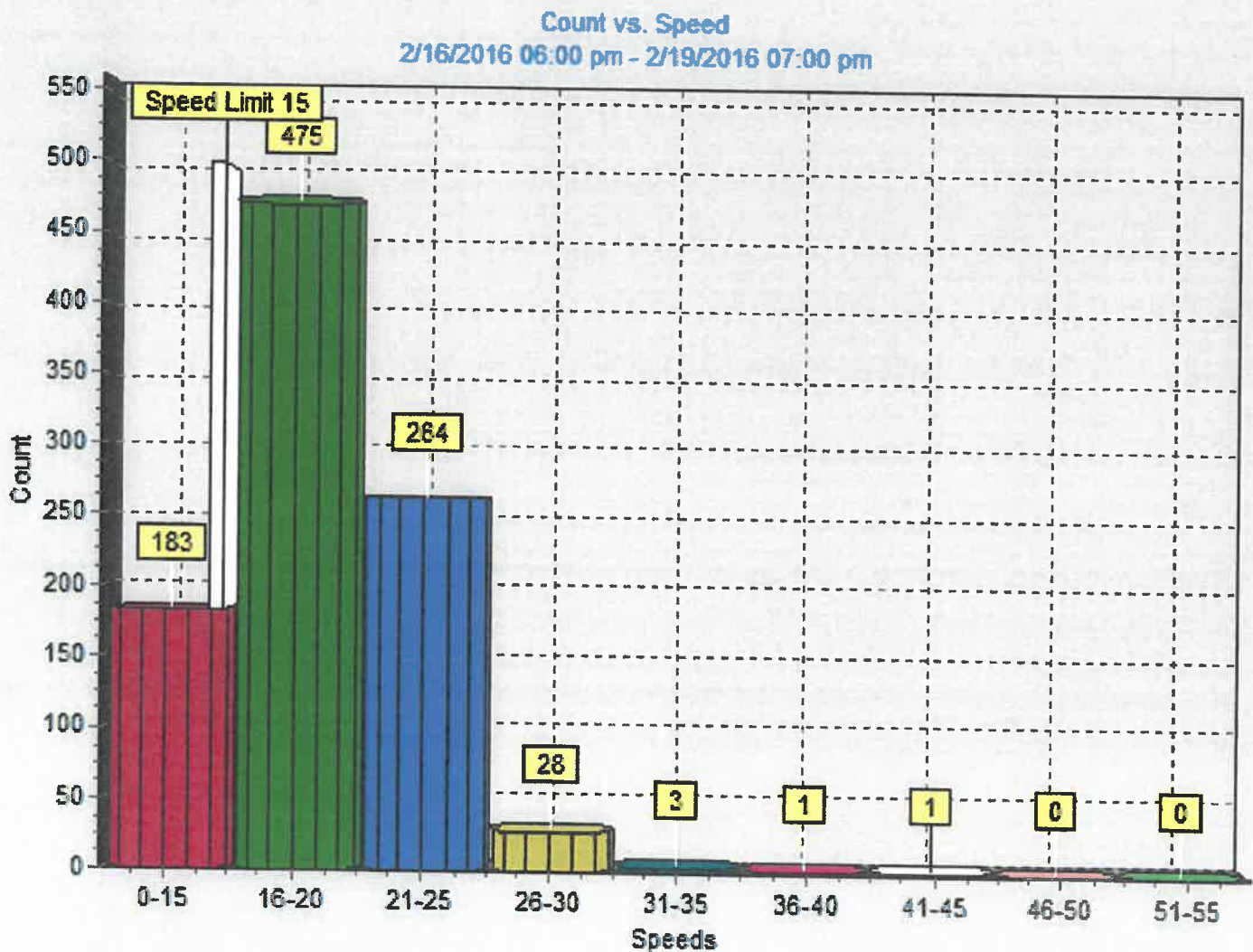
85th Percentile: 22 mph

Number Above Speed Limit: 772

Total Number of Vehicles: 955

Comments:

2nd Ave / Pine Street (W/B)



Date: 4/6/2017 12:22:32 pm

Start Date: 2/8/2017 03:00 pm

End Date: 2/12/2017 01:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 15 mph

Highest Speed: 42 mph

50th Percentile: 15 mph

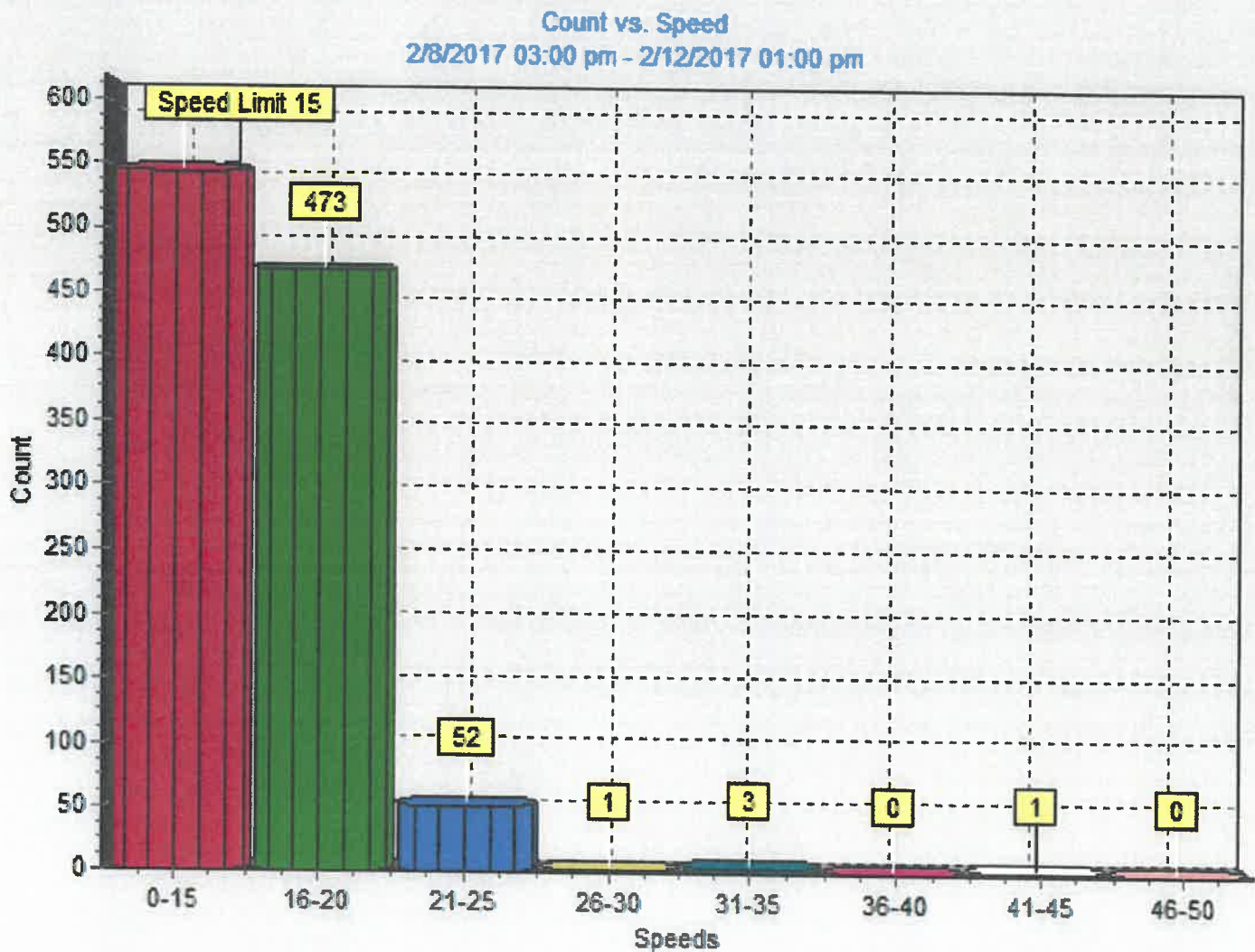
85th Percentile: 19 mph

Number Above Speed Limit: 530

Total Number of Vehicles: 1080

Comments:

2nd Ave / Forest St (E/B)



Date: 4/6/2017 12:37:52 pm

Start Date: 12/16/2015 05:00 pm

End Date: 12/19/2015 01:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 15 mph

Highest Speed: 37 mph

50th Percentile: 16 mph

85th Percentile: 19 mph

Number Above Speed Limit: 124

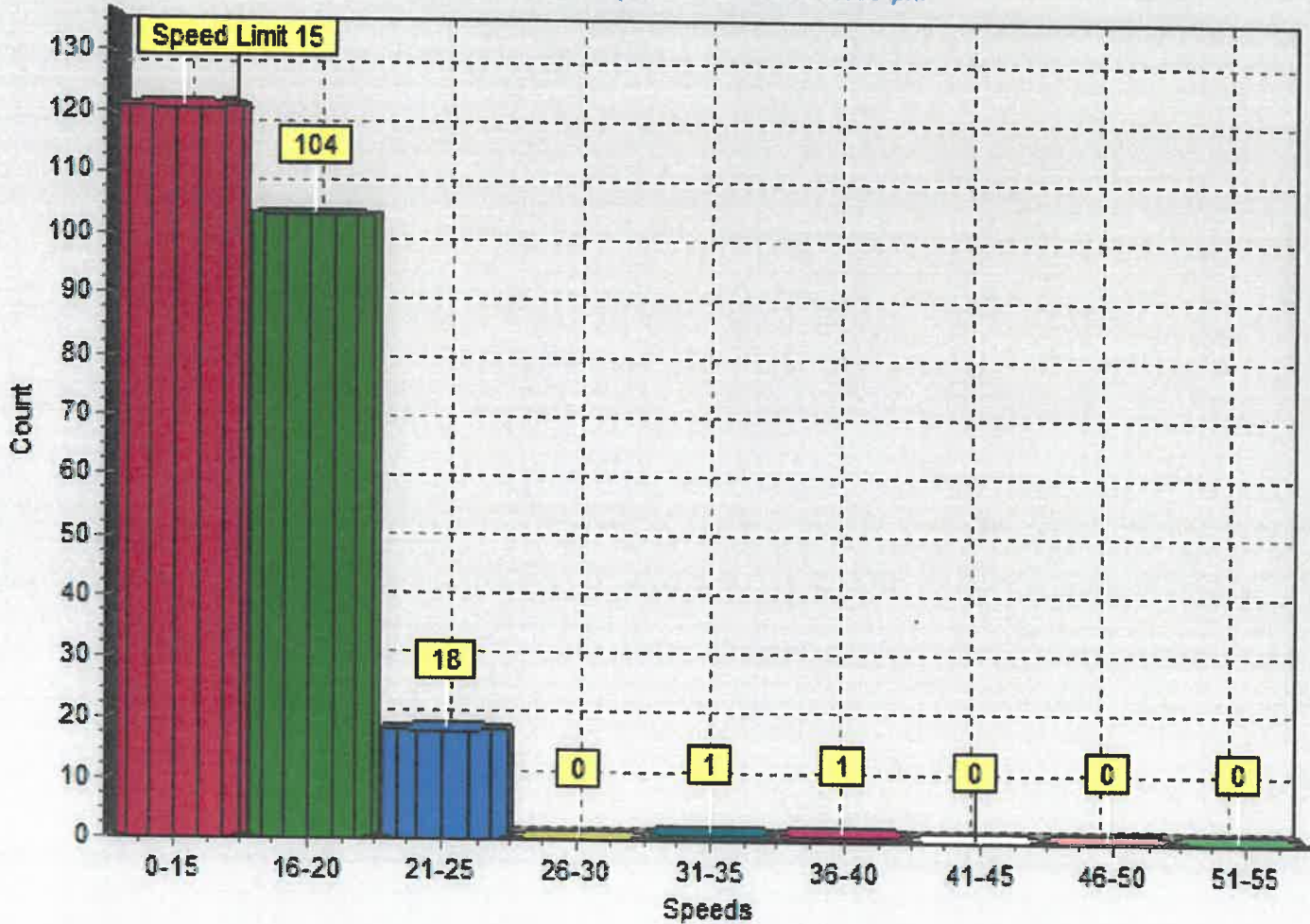
Total Number of Vehicles: 246

Comments:

5th Ave / Butler Street (w/b)

Count vs. Speed

12/16/2015 05:00 pm - 12/19/2015 01:00 pm



Date: 5/24/2019 11:56:59 am

Start Date: 5/6/2019 04:00 pm

End Date: 5/12/2019 10:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 30 mph

Average Speed: 37 mph

Highest Speed: 81 mph

50th Percentile: 37 mph

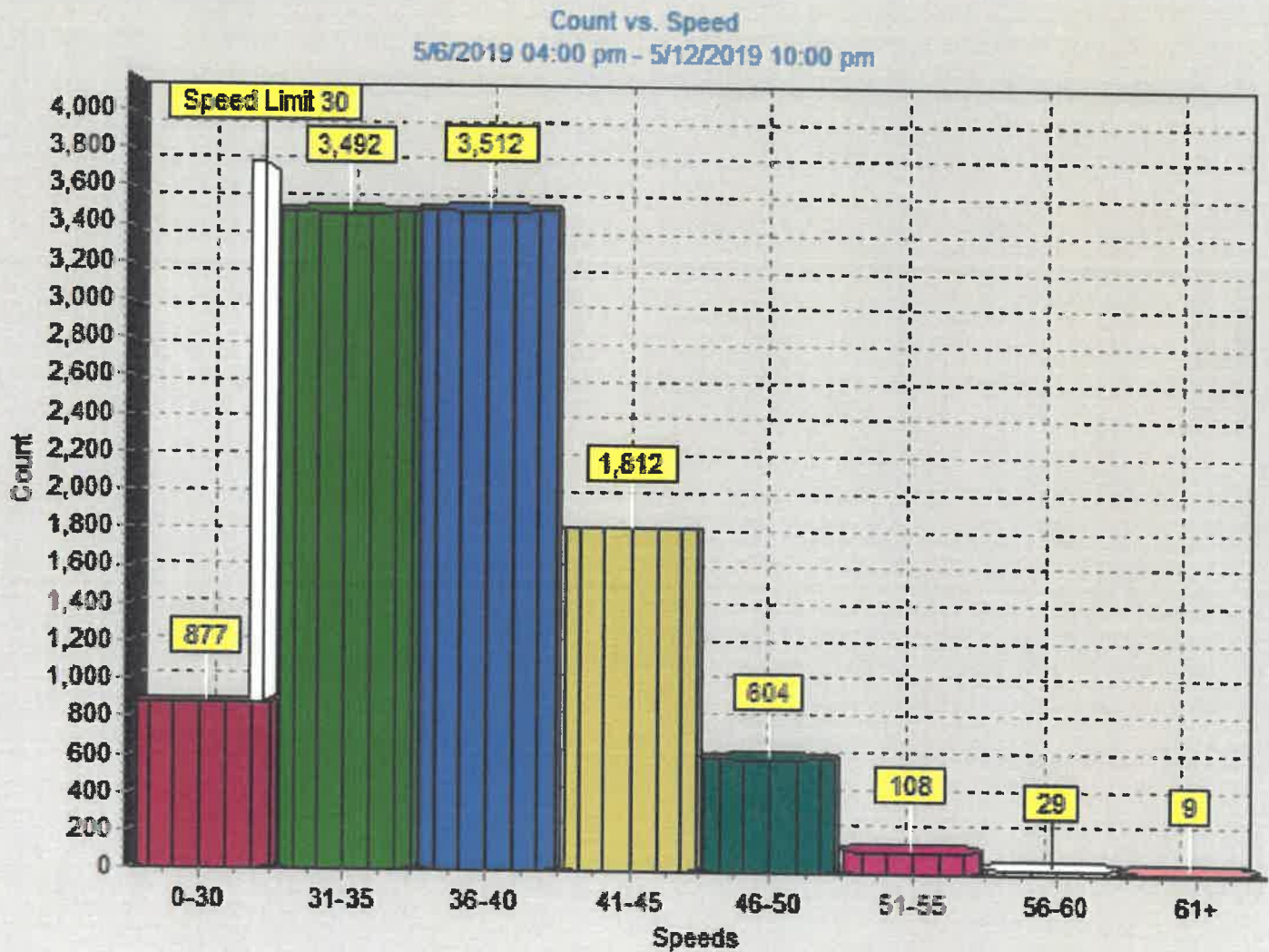
85th Percentile: 43 mph

Number Above Speed Limit: 9566

Total Number of Vehicles: 10443

Comments:

Park Ave / Wild Myrtle Ct



Date: 5/24/2019 11:26:58 am

Start Date: 4/4/2018 04:00 pm

End Date: 4/10/2018 06:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 16 mph

Highest Speed: 40 mph

50th Percentile: 16 mph

85th Percentile: 20 mph

Number Above Speed Limit: 434

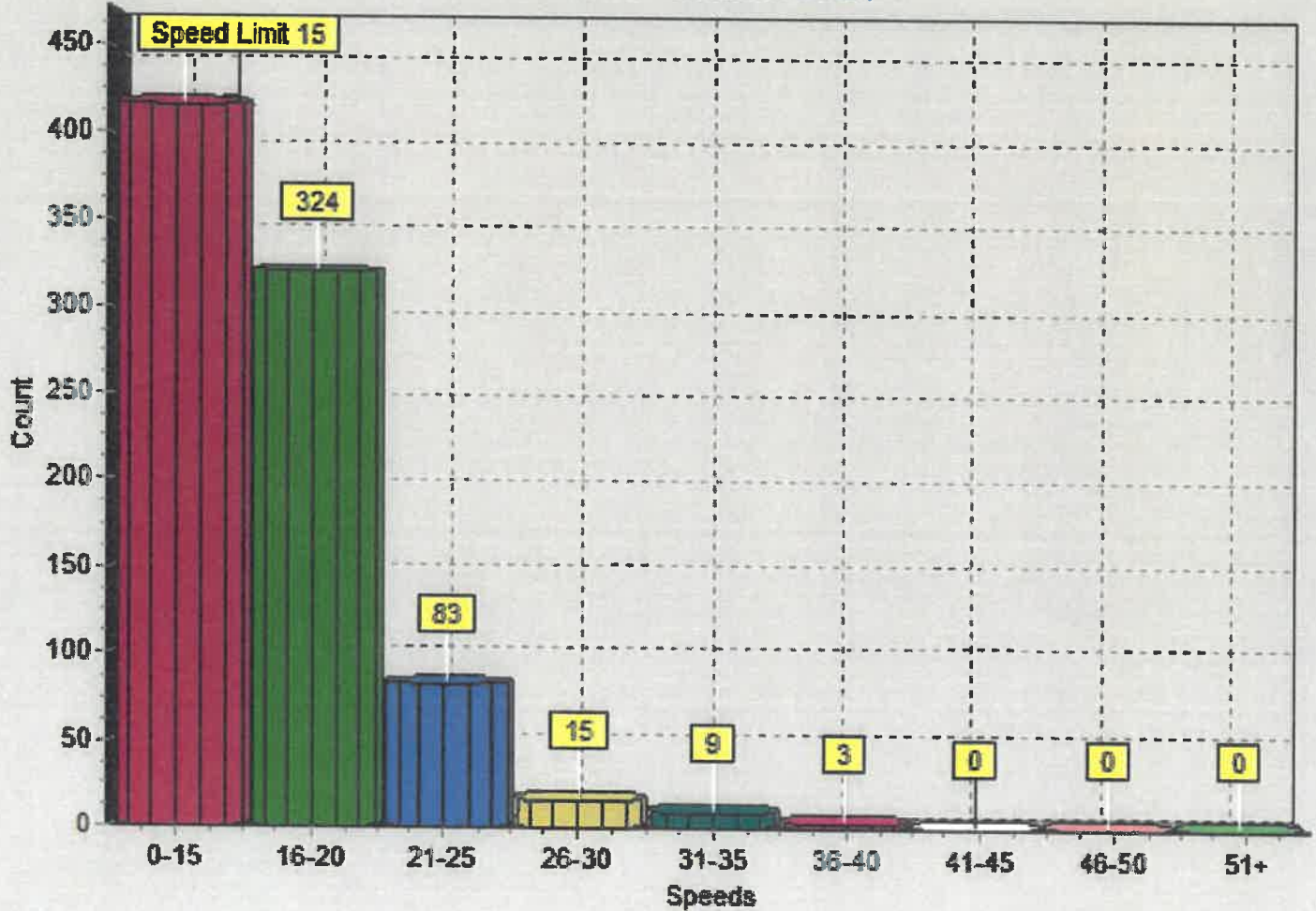
Total Number of Vehicles: 855

Comments:

Oakdale St / 8th Ave

Count vs. Speed

4/4/2018 04:00 pm - 4/10/2018 06:00 pm



Date: 5/24/2019 11:25:25 am

Start Date: 6/8/2018 03:00 pm

End Date: 6/14/2018 05:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 20 mph

Average Speed: 23 mph

Highest Speed: 48 mph

50th Percentile: 23 mph

85th Percentile: 27 mph

Number Above Speed Limit: 1309

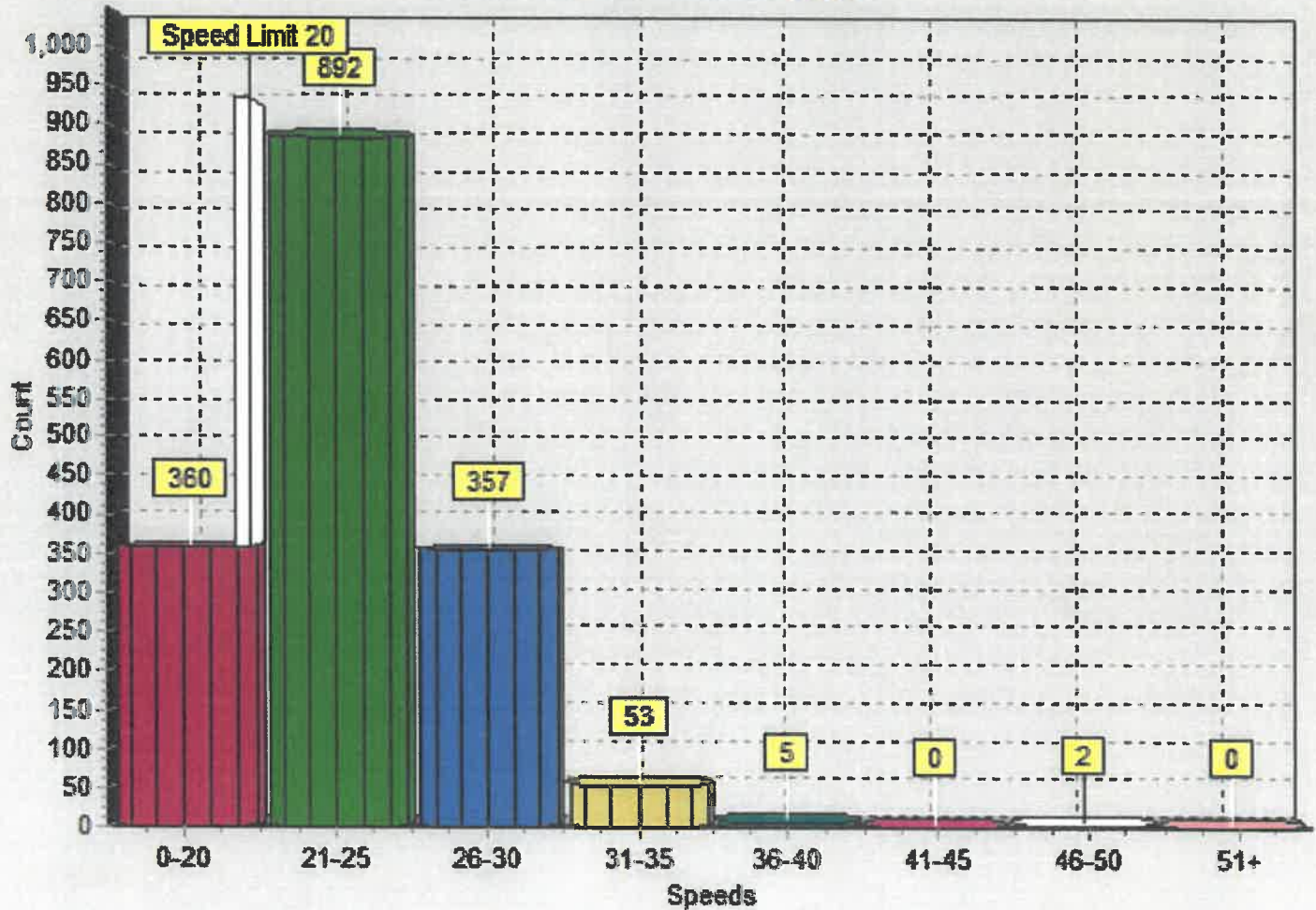
Total Number of Vehicles: 1669

Comments:

Willow Brick Road

Count vs. Speed

6/8/2018 03:00 pm - 6/14/2018 05:00 pm



Date: 5/24/2019 11:23:33 am

Start Date: 2/15/2019 02:00 pm

End Date: 2/25/2019 11:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 19 mph

Highest Speed: 34 mph

50th Percentile: 20 mph

85th Percentile: 20 mph

Number Above Speed Limit: 2281

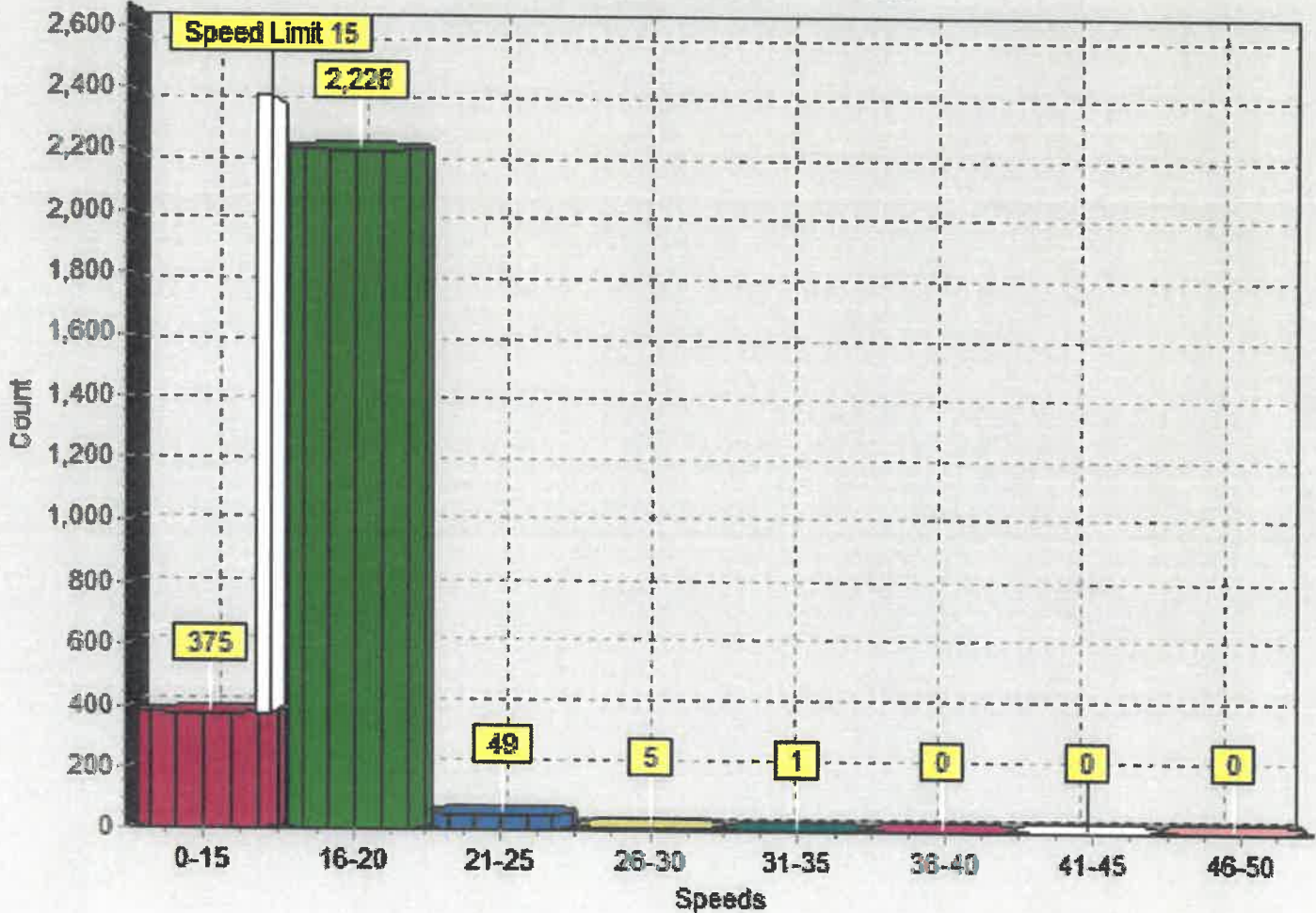
Total Number of Vehicles: 2656

Comments:

Oakdale St / 8th Ave

Count vs. Speed

2/15/2019 02:00 pm - 2/25/2019 11:00 am



Date: 5/24/2019 11:20:36 am

Start Date: 3/7/2019 02:00 pm

End Date: 3/15/2019 06:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 39 mph

50th Percentile: 14 mph

85th Percentile: 19 mph

Number Above Speed Limit: 703

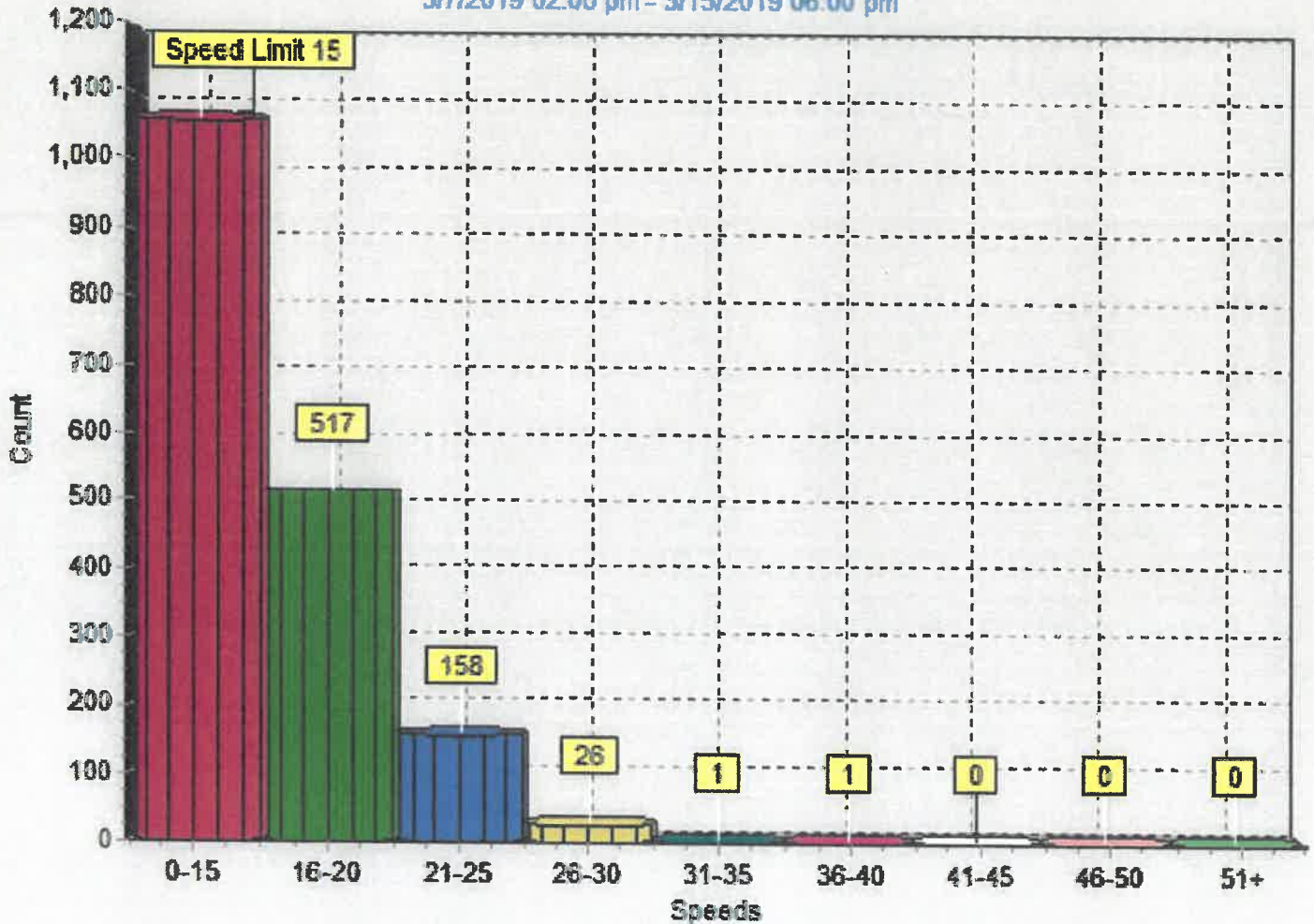
Total Number of Vehicles: 1771

Comments:

Magnolia St / 3rd Ave

Count vs. Speed

3/7/2019 02:00 pm - 3/15/2019 06:00 pm



Date: 5/24/2019 11:21:43 am

Start Date: 2/25/2019 11:00 am

End Date: 3/6/2019 10:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 13 mph

Highest Speed: 38 mph

50th Percentile: 13 mph

85th Percentile: 18 mph

Number Above Speed Limit: 489

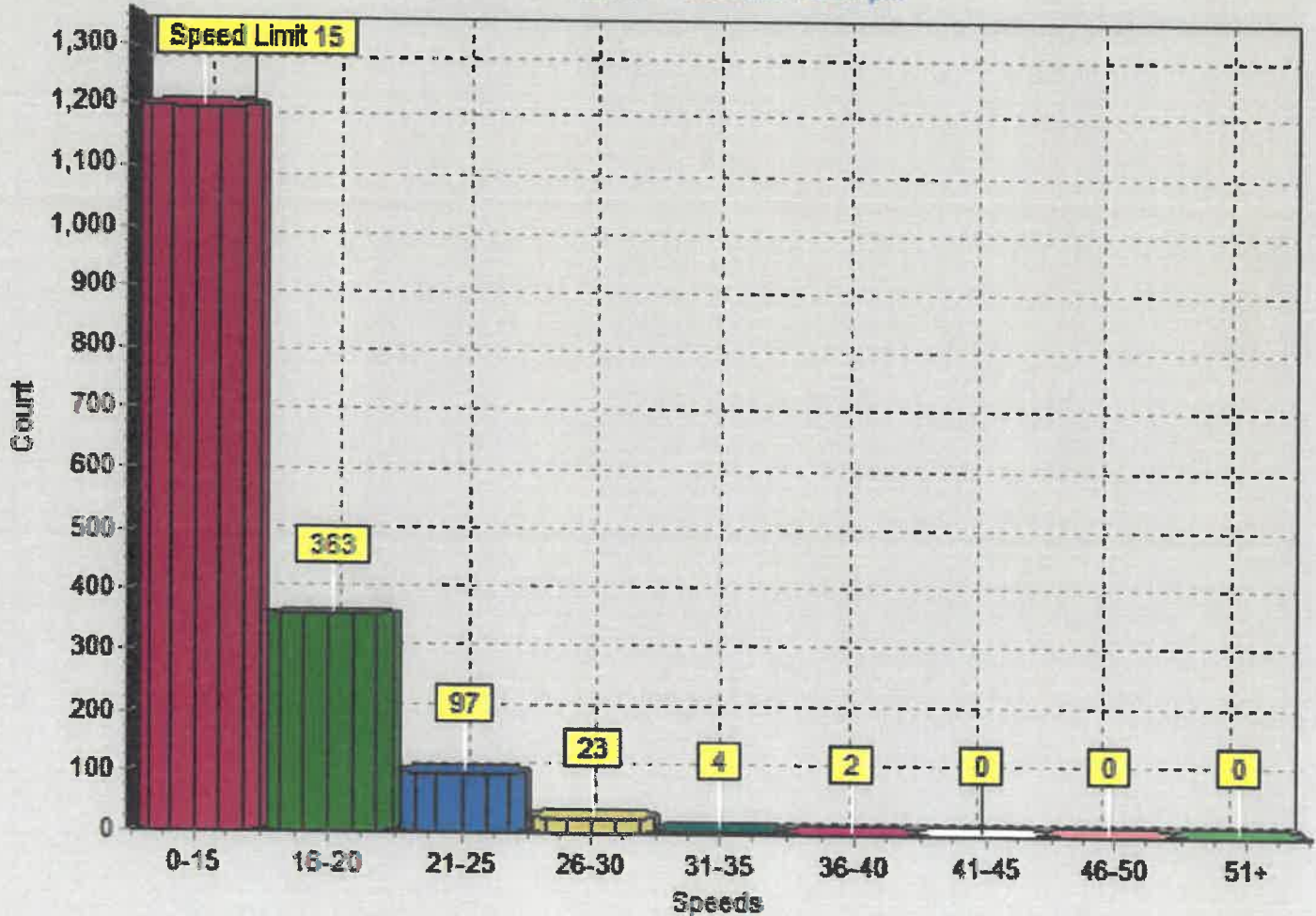
Total Number of Vehicles: 1698

Comments:

Ridgewood Ave / Lee St

Count vs. Speed

2/25/2019 11:00 am - 3/6/2019 10:00 pm



Date: 5/24/2019 11:19:59 am

Start Date: 3/26/2019 10:00 am

End Date: 4/3/2019 12:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 49 mph

50th Percentile: 13 mph

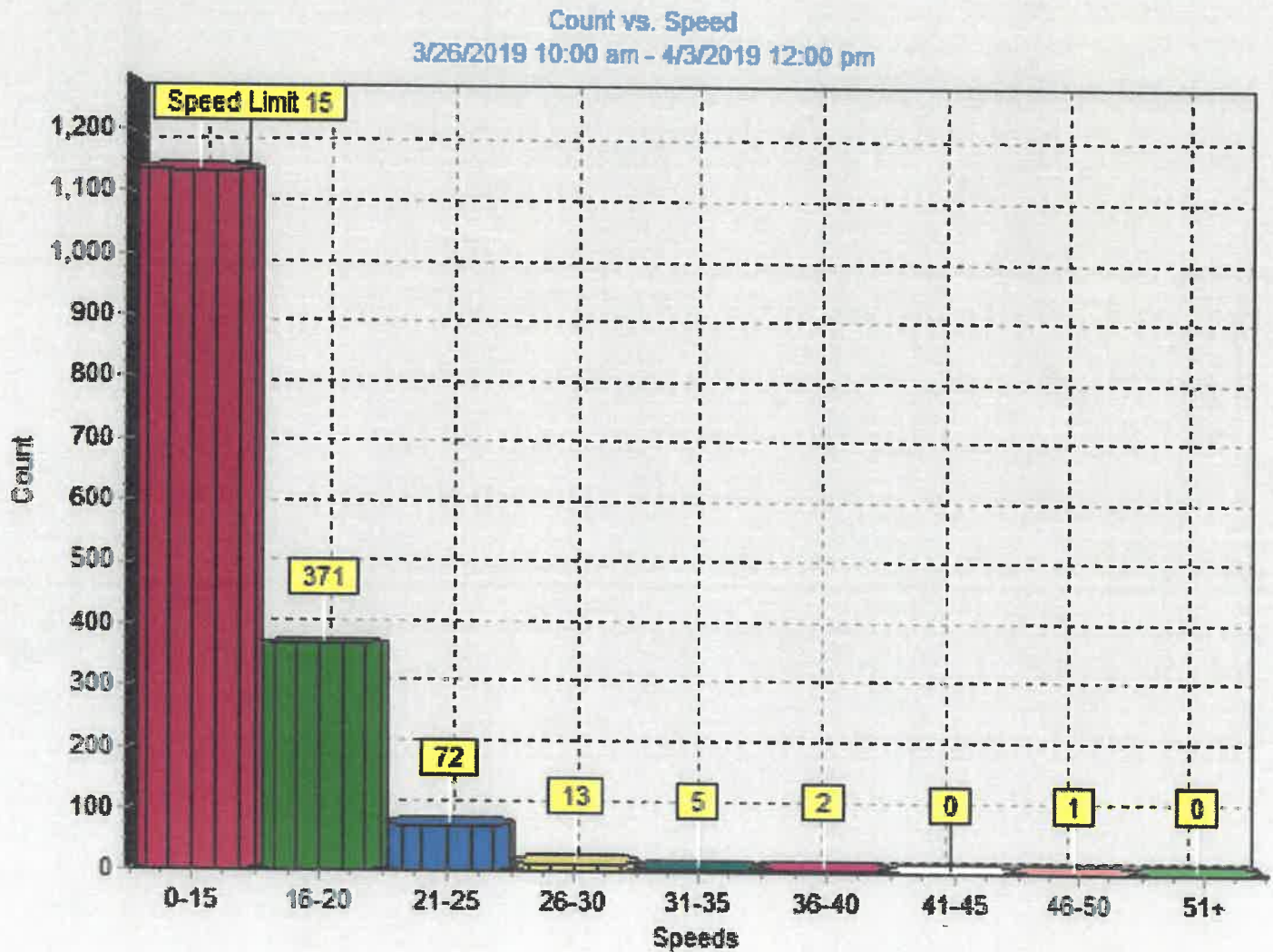
85th Percentile: 18 mph

Number Above Speed Limit: 464

Total Number of Vehicles: 1611

Comments:

Oakdale St / 8th Ave



Date: 5/6/2019 03:52:52 pm

Start Date: 4/26/2019 04:00 pm

End Date: 5/6/2019 04:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 11 mph

Highest Speed: 39 mph

50th Percentile: 11 mph

85th Percentile: 16 mph

Number Above Speed Limit: 61

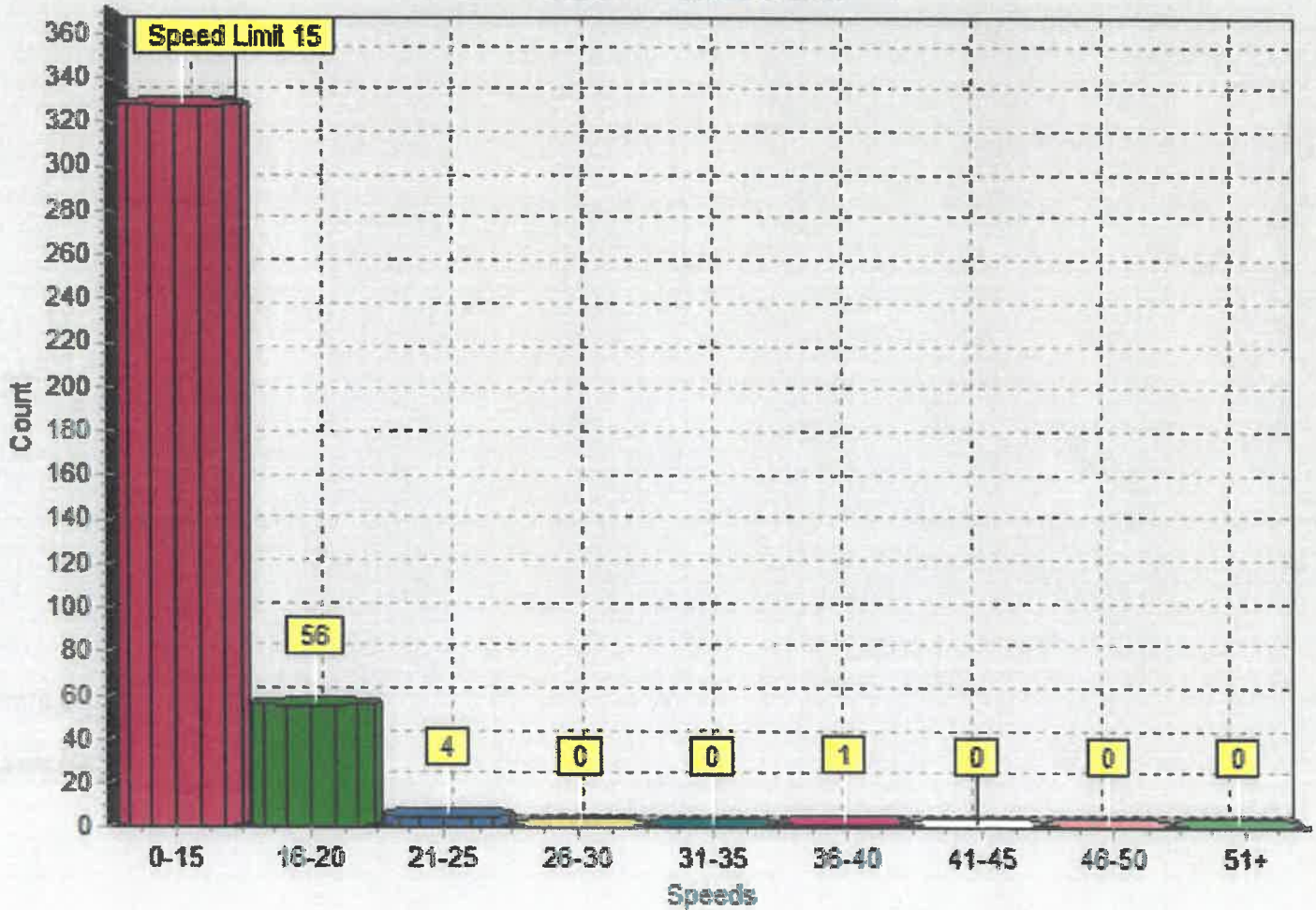
Total Number of Vehicles: 392

Comments:

RIDGEWOOD DR / LEE STREET

Count vs. Speed

4/26/2019 04:00 pm - 5/6/2019 04:00 pm



Classification Summary Report: Oakdale St / 8th Ave

Station ID : Oakdale St / 8th Ave

Info Line 1 :
Info Line 2 :

GPS Lat/Lon : 28 29.5670,N / 081 31.9473,W

DB File : Oakdale St 8th Ave.DB

Last Connected Device Type : Omega-G

Version Number : 1.11

Serial Number : OG38599

Number of Lanes : 2

Posted Speed Limit : 15.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.	South		Axle-Axle	4.0 ft	
3.	North		Axle-Axle	4.0 ft	

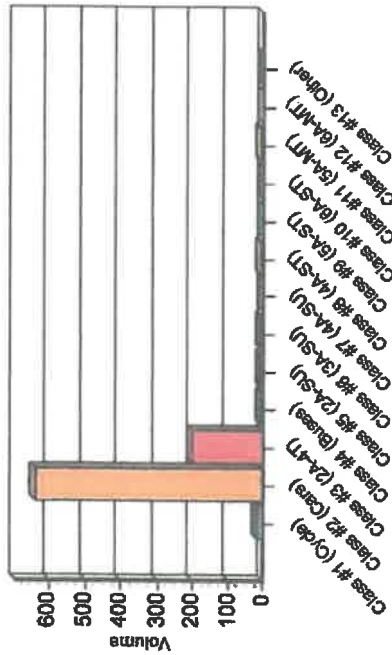
Axle Class Summary:

(DEFAULT)	Lane	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total
Description	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-SU	4A-SU	5A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other	Other	Other	Other	Total
Total Count :	#1.	6	244	78	4	3	3	1	1	0	0	2	0	0	0	0	0	342
	#3.	11	365	125	1	3	0	1	5	0	0	1	0	0	0	0	0	542
		17	609	203	5	6	3	2	6	0	0	3	0	0	0	0	0	884
Percents :	#1.	2%	71%	23%	1%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	39%
	#3.	2%	79%	23%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	61%
		2%	72%	23%	1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	61%

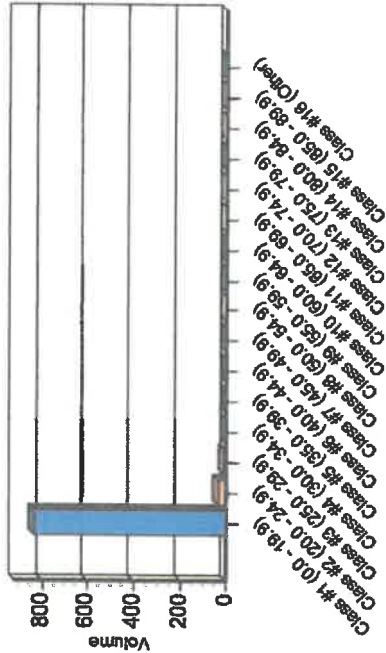
Speed Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total	
Description	0.0 - 20.0	20.0 - 25.0	25.0 - 30.0	30.0 - 35.0	35.0 - 40.0	40.0 - 45.0	45.0 - 50.0	50.0 - 55.0	55.0 - 60.0	60.0 - 65.0	65.0 - 70.0	70.0 - 75.0	75.0 - 80.0	80.0 - 85.0	85.0 - 90.0	90.0 - 95.0	Total	
Total Count :	#1.	322	15	2	0	2	0	1	0	0	0	0	0	0	0	0	342	
	#3.	508	19	9	2	2	0	0	0	0	0	0	1	0	0	1	542	
		830	34	11	2	4	0	1	0	0	0	0	1	0	0	1	884	
Percents :	#1.	84%	4%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	39%	
	#3.	84%	4%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	61%	
		84%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	61%	
Avg. 50, 67, 85 :	#1.	10.9	10.6	14.2	18.0	Pace (pace %) : 10.0 - 19.9 47.4%										Days & ADT : #1.	4.0	86
	#3.	11.0	10.6	13.4	17.0	5.8 - 15.7 59.4%										#3.	4.0	136
		10.9	10.6	13.7	17.6	5.9 - 15.8 54.6%										4.0	222	

Axle Class vs. Volume (all lanes)



Speed Class vs. Volume (all lanes)



Classification Summary Report: Lake Street / 5th Ave

Station ID : Lake Street / 5th Ave

Info Line 1 :
Info Line 2 :

Last Connected Device Type : Omega-G
Version Number : 1.11
Serial Number : OG38599

GPS Lat/Lon : 28 29.8059,N / 081 31.8237,W

Number of Lanes : 2
Posted Speed Limit : 0.0 mph

DB File : Lake Street 5th Ave.DB

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.	South		Axle-Axle	4.0 ft	
2.	North		Axle-Axle	4.0 ft	

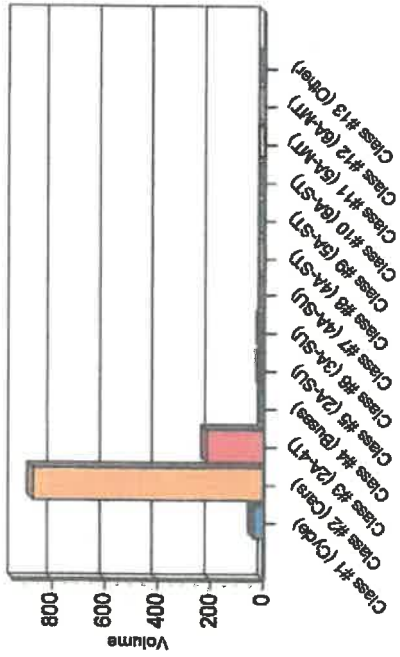
Axle Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total	
Description	Lane	Cycle	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other	Other	Other	Other	Total	
Total Count :	#1.	20	263	63	0	2	4	0	0	0	0	0	0	0	0	0	1	353
	#2.	19	615	154	1	4	4	2	1	0	0	0	0	0	0	0	0	800
		39	878	217	1	6	8	2	1	0	0	0	0	0	0	0	1	1153
	#1.	6%	75%	18%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%
	#2.	2%	77%	19%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	69%
		3%	76%	19%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	

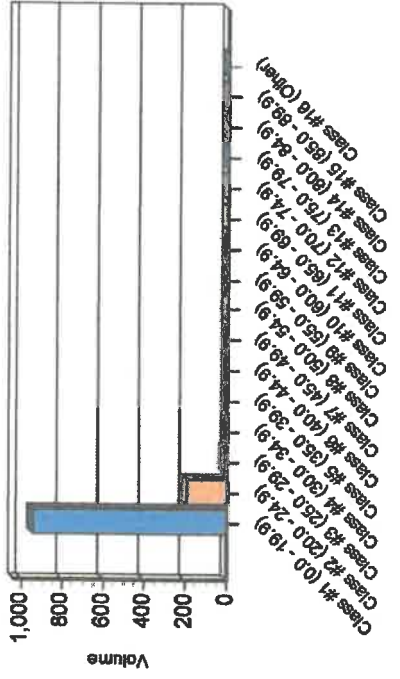
Speed Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total
Description	Lane	Cycle	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other	Other	Other	Other	Total
Total Count :	#1.	314	36	3	0	0	0	0	0	0	0	0	0	0	0	0	353
	#2.	533	155	10	0	0	1	0	0	0	1	0	0	0	0	0	800
		947	191	13	0	0	1	0	0	0	1	0	0	0	0	0	1153
	#1.	89%	10%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%
	#2.	79%	19%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	69%
		82%	17%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Avg. 50, 67, 85 :	#1.	11.4	11.2	15.0	19.0	Pace (pace %)	9.8 - 19.7	45.6%	Days & ADT :	#1.	4.2	84				
		#2.	12.7	12.7	16.9	21.6		9.8 - 19.7	40.3%		#2.	4.2	191				
			12.3	12.2	16.2	21.1		9.6 - 19.4	41.9%			4.2	275				

Axle Class vs. Volume (all lanes)



Speed Class vs. Volume (all lanes)



Classification Summary Report: Conroy Wind. Rd / Horizon Rd

Station ID : Conroy Wind. Rd / Horizon Rd

Info Line 1 :

Info Line 2 :

GPS Lat/Lon : 28 29.6163,N / 081 30.9185,W

DB File : Conroy Wind Rd Horizon Rd.DB

Last Connected Device Type : Omega-G

Version Number : 1.11

Serial Number : OG38599

Number of Lanes : 2

Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.	West		Axle-Axle	4.0 ft	
2.	East		Axle-Axle	4.0 ft	

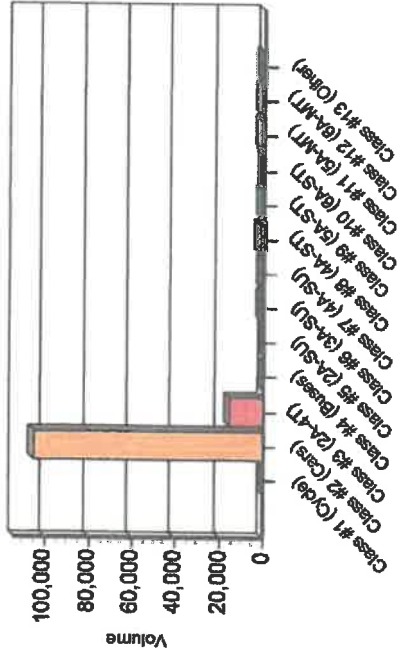
Axle Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total
Description	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other	Other	Other	Other	Total
Total Count :	#1.	188	61784	8293	11	222	267	713	901	448	154	280	266	474	63971		
	#2.	42	53820	6555	6	146	200	561	748	584	132	291	227	509	63849		
		210	105584	14848	17	368	467	1304	1647	1032	286	581	493	983	127820		
Percents :	#1.	0%	81%	13%	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	50%		
	#2.	0%	84%	10%	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	50%		
		0%	83%	12%	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%			

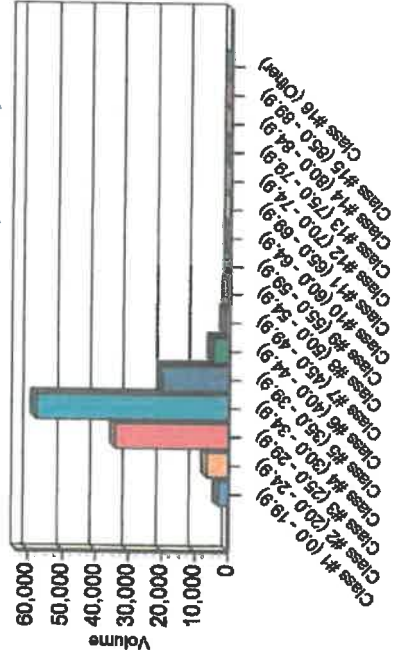
Speed Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total
Description	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other	Other	Other	Other	Total
Total Count :	#1.	2213	4404	14743	25924	11286	3543	1180	377	93	58	35	46	25	26	45	63971
	#2.	447	2158	18283	31888	8493	989	193	77	57	54	39	35	31	27	18	63849
		2660	6560	34006	57910	19668	4532	1373	454	150	110	74	81	56	53	43	127820
Percents :	#1.	3%	7%	23%	41%	18%	6%	2%	1%	0%	0%	0%	0%	0%	0%	0%	50%
	#2.	1%	3%	30%	50%	13%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%
		2%	5%	27%	45%	15%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	
Avg. 50, 67, 85 :	#1.	31.8	32.1	34.2	36.2	35.2	35.2	35.2	35.2	34.9	34.9	34.9	34.9	34.9	34.9	34.9	63.6%
	#2.	31.4	31.6	33.2	35.3	35.3	35.3	35.3	35.3	34.9	34.9	34.9	34.9	34.9	34.9	34.9	80.3%
		31.6	31.8	33.7	37.0	37.0	37.0	37.0	37.0	34.9	34.9	34.9	34.9	34.9	34.9	34.9	71.9%
																	Days & ADT : #1. 6.0 10680 #2. 6.0 10660 6.0 21340

Axle Class vs. Volume (all lanes)



Speed Class vs. Volume (all lanes)



Classification Summary Report: Conroy Wind. Rd / Horizon Cir

Station ID : Conroy Wind. Rd / Horizon Cir

Info Line 1 :
Info Line 2 :

Last Connected Device Type : Omega-G
Version Number : 1.11
Serial Number : OG38599

GPS Lat/Lon : 28 29.6169,N / 081 30.9193,W

DB File : Conroy Wind Rd Horizon Cir.DB

Number of Lanes : 2

Posted Speed Limit : 30.0 mph

Lane Configuration

#	Dir.	Information	Vehicle Sensors	Sensor Spacing	Loop Length
1.	West		Axle-Axle	4.0 ft	
2.	East		Axle-Axle	4.0 ft	

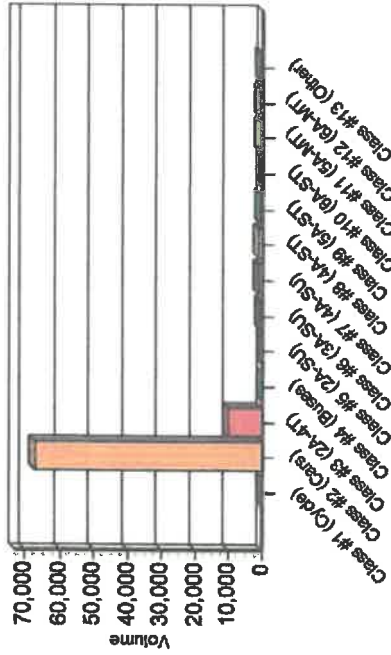
Axle Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total
Description	Lane	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other		
Total Count :	#1.	83	33540	5542	4	189	219	558	569	329	153	233	173	418	41980		
	#2.	27	33739	4436	3	115	117	387	549	430	102	213	145	388	40831		
		110	67279	9978	7	284	336	925	1118	759	255	446	318	806	82821		
Percents :	#1.	0%	80%	13%	0%	0%	1%	1%	1%	1%	0%	0%	1%	0%	1%	51%	
	#2.	0%	83%	11%	0%	0%	1%	1%	1%	1%	0%	1%	0%	1%	1%	49%	
		0%	81%	12%	0%	0%	1%	1%	1%	1%	0%	1%	0%	1%	1%		

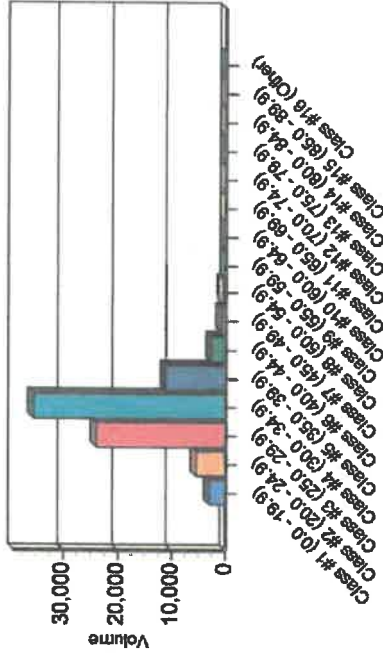
Speed Class Summary:

(DEFAULT)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16	Total	
Description	Lane	Cycle	Cars	2A-4T	Buses	2A-SU	3A-SU	4A-SU	4A-ST	5A-ST	5A-ST	6A-ST	6A-MT	6A-MT	Other			
Total Count :	#1.	2398	3851	10882	15374	8305	2001	673	197	64	48	19	23	24	14	15	22	41890
	#2.	307	1522	13204	20072	4617	580	118	49	28	32	20	20	24	19	9	29	40631
		2705	5373	24166	35446	10922	2581	791	246	93	80	39	43	48	33	24	51	82521
Percents :	#1.	6%	9%	26%	37%	15%	5%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	51%
	#2.	1%	4%	32%	48%	11%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	49%
		3%	7%	28%	43%	13%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Avg, 50, 67, 85 :	#1.	30.6	31.2	33.6	37.5	37.5	37.5	37.5	37.5	34.9	62.7%	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	3.8 11105
	#2.	31.1	31.3	33.1	34.9	34.9	34.9	34.9	34.9	81.9%	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	3.8 10745
		30.9	31.3	33.2	36.2	36.2	36.2	36.2	36.2	72.2%	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	25.0 - 34.9	3.8 21850

Axle Class vs. Volume (all lanes)



Speed Class vs. Volume (all lanes)



Volume Summary Report: 8 Chase Road

Station ID : 8 Chase Road

Info Line 1 :
Info Line 2 :

GPS Lat/Lon : 28 29.2333,N / 081 31.9262,W
DB File : 8 Chase Road.DB

Last Connected Device Type : Omega-G
Version Number : 1.11
Serial Number : OG38599
Number of Lanes : 1
Posted Speed Limit : 0.0 mph

Lane Configuration

#	Dir.	Information	Volume Mode	Volume Sensors	Divide / 2	Comment
1.	West	Directional	Axle		Yes	

Total Count:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	664	428	220	194	280	719	2002	3827	3816	3644	3561	3644	3958	3982	4675	5418	4577	4178	3917	3002	2556	2012	1613	1208	64085

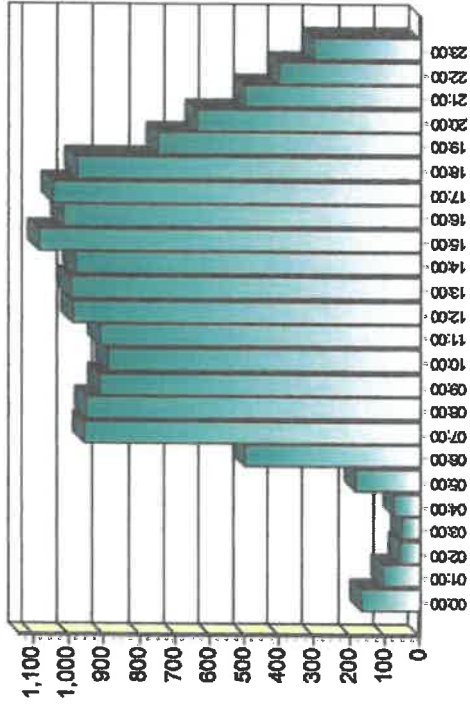
Percents:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	1%	1%	0%	0%	0%	1%	3%	9%	9%	6%	6%	6%	6%	6%	7%	8%	7%	7%	6%	5%	4%	3%	3%	2%	

ADT:	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	Total
Lane #1	166	107	55	49	70	180	501	957	854	911	890	911	990	986	984	1084	1017	1045	979	751	639	503	403	302	15444

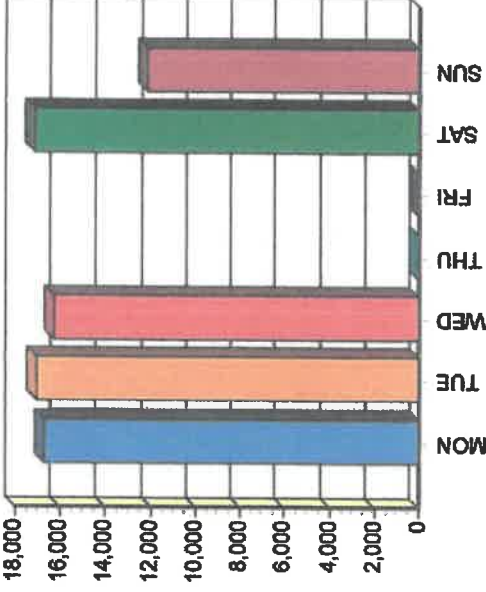
Lane #1

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total	Percent
DW Totals:	12175	16671	17078	11207	0	0	6964	44956	70%
# Days:	1.0	1.0	1.0	0.7	0.0	0.0	0.4	ADT:	16728
Percent:	19%	26%	27%	17%	0%	0%	11%	Weekend (Sat-Sun):	19139
								ADT:	13610

ADT Volume vs. Time (all lanes combined)



ADT By Day of Week (all lanes)



Date: 4/6/2017 12:36:04 pm

Start Date: 1/5/2016 02:00 pm

End Date: 1/9/2016 02:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 44 mph

50th Percentile: 13 mph

85th Percentile: 19 mph

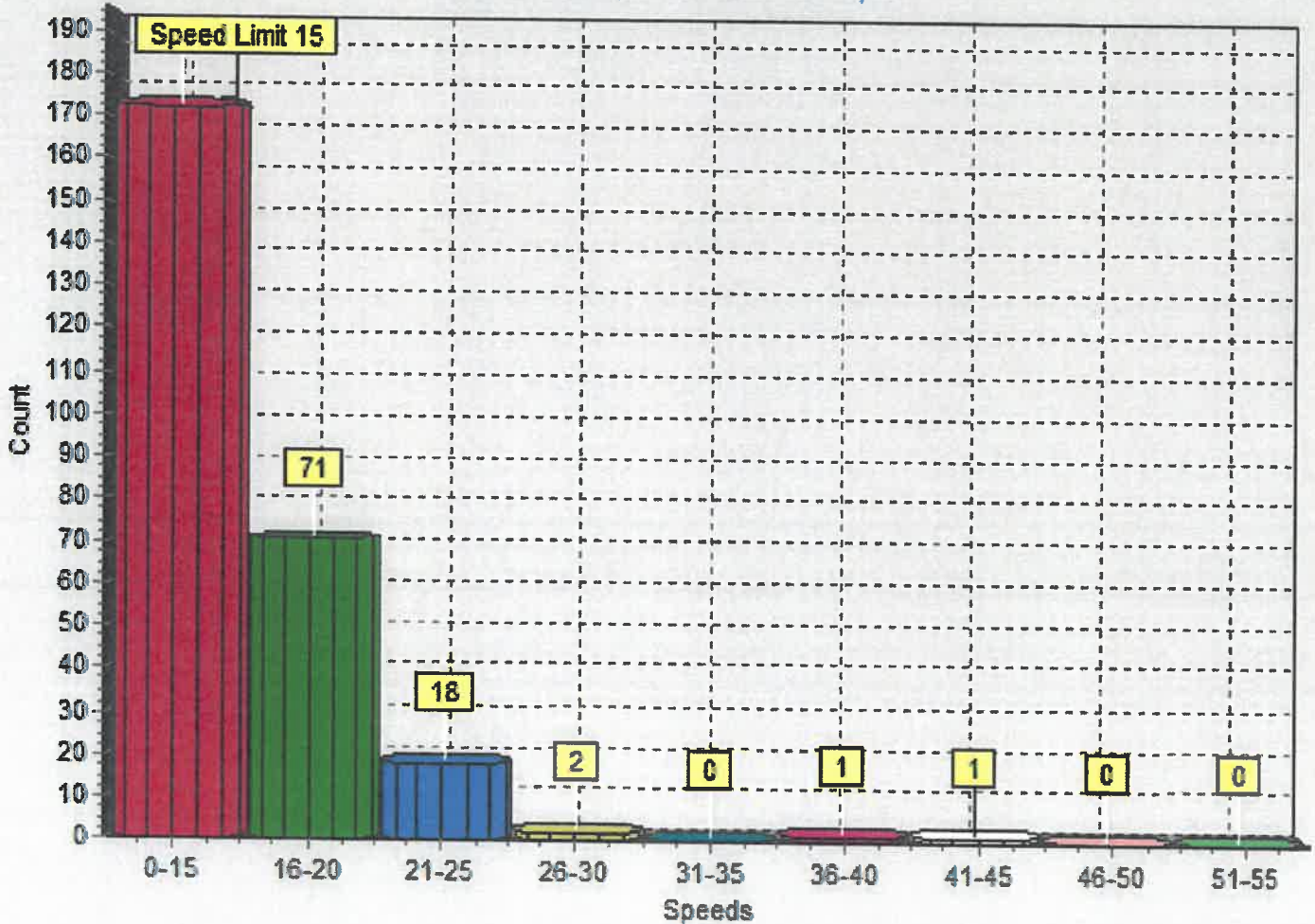
Number Above Speed Limit: 93

Total Number of Vehicles: 267

Comments:

Butler St / 5th Ave (n/b)

Count vs. Speed
1/5/2016 02:00 pm - 1/9/2016 02:00 pm



Date: 4/6/2017 12:28:47 pm

Start Date: 5/23/2016 03:00 pm

End Date: 5/28/2016 07:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 45 mph

50th Percentile: 14 mph

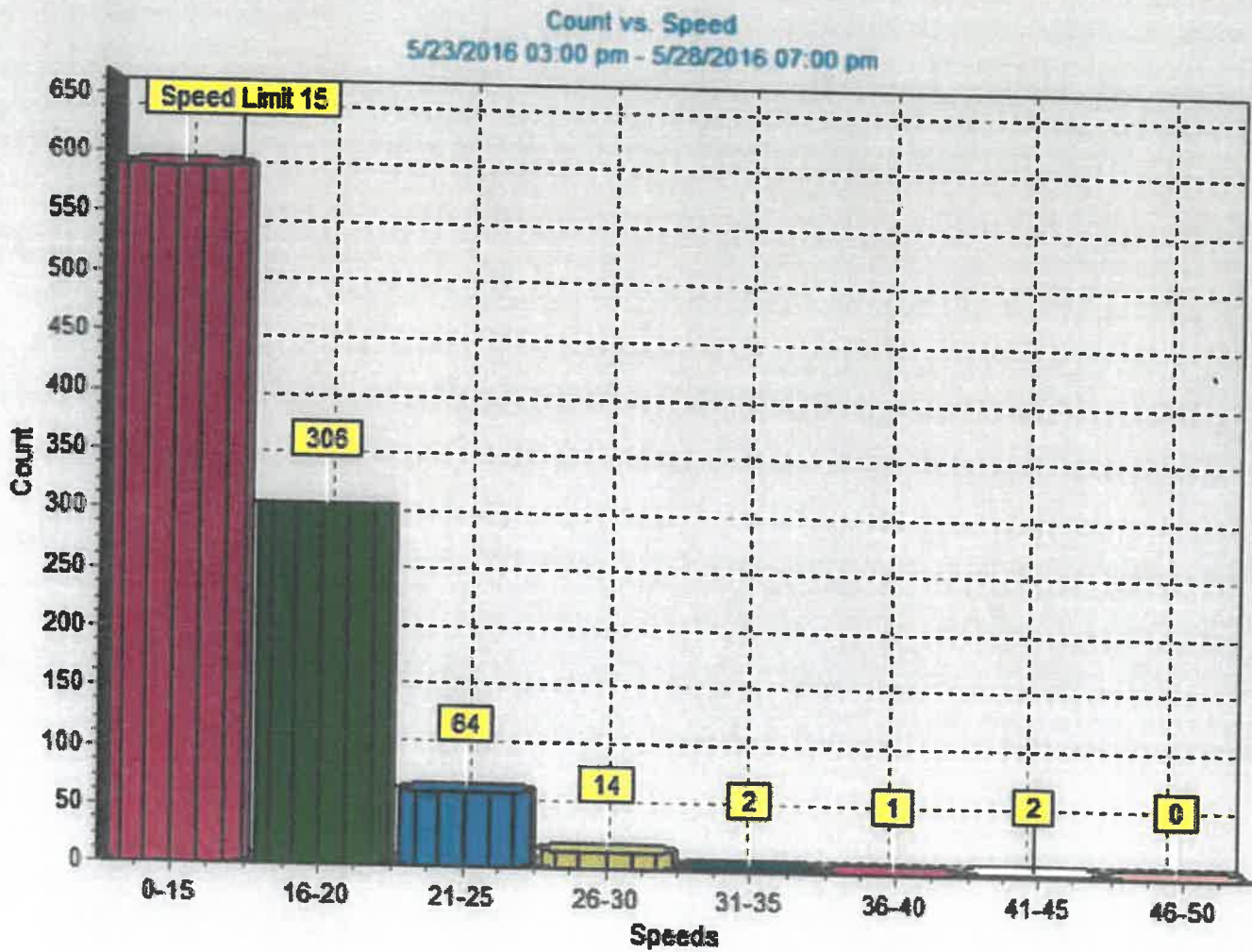
85th Percentile: 19 mph

Number Above Speed Limit: 389

Total Number of Vehicles: 985

Comments:

Oakdale St / 8th Ave (N/B)



Date: 4/6/2017 12:30:23 pm

Start Date: 5/3/2016 01:00 pm

End Date: 5/9/2016 12:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 13 mph

Highest Speed: 37 mph

50th Percentile: 13 mph

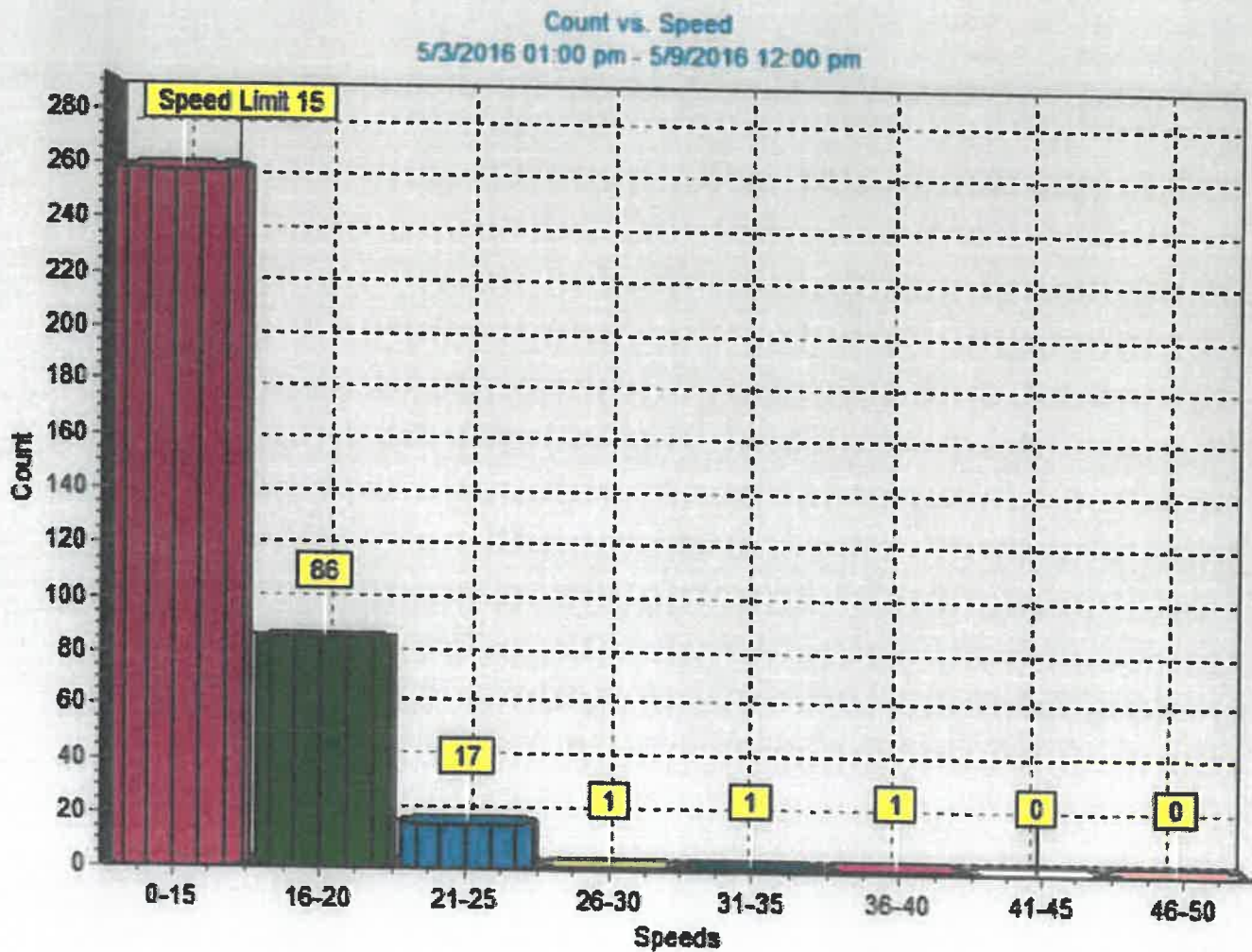
85th Percentile: 18 mph

Number Above Speed Limit: 106

Total Number of Vehicles: 367

Comments:

Dakdale Street / 10th Ave (S/B)



Date: 10/14/2017 11:51:00 am

Start Date: 10/10/2017 08:00 pm

End Date: 10/14/2017 03:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 38 mph

50th Percentile: 14 mph

85th Percentile: 19 mph

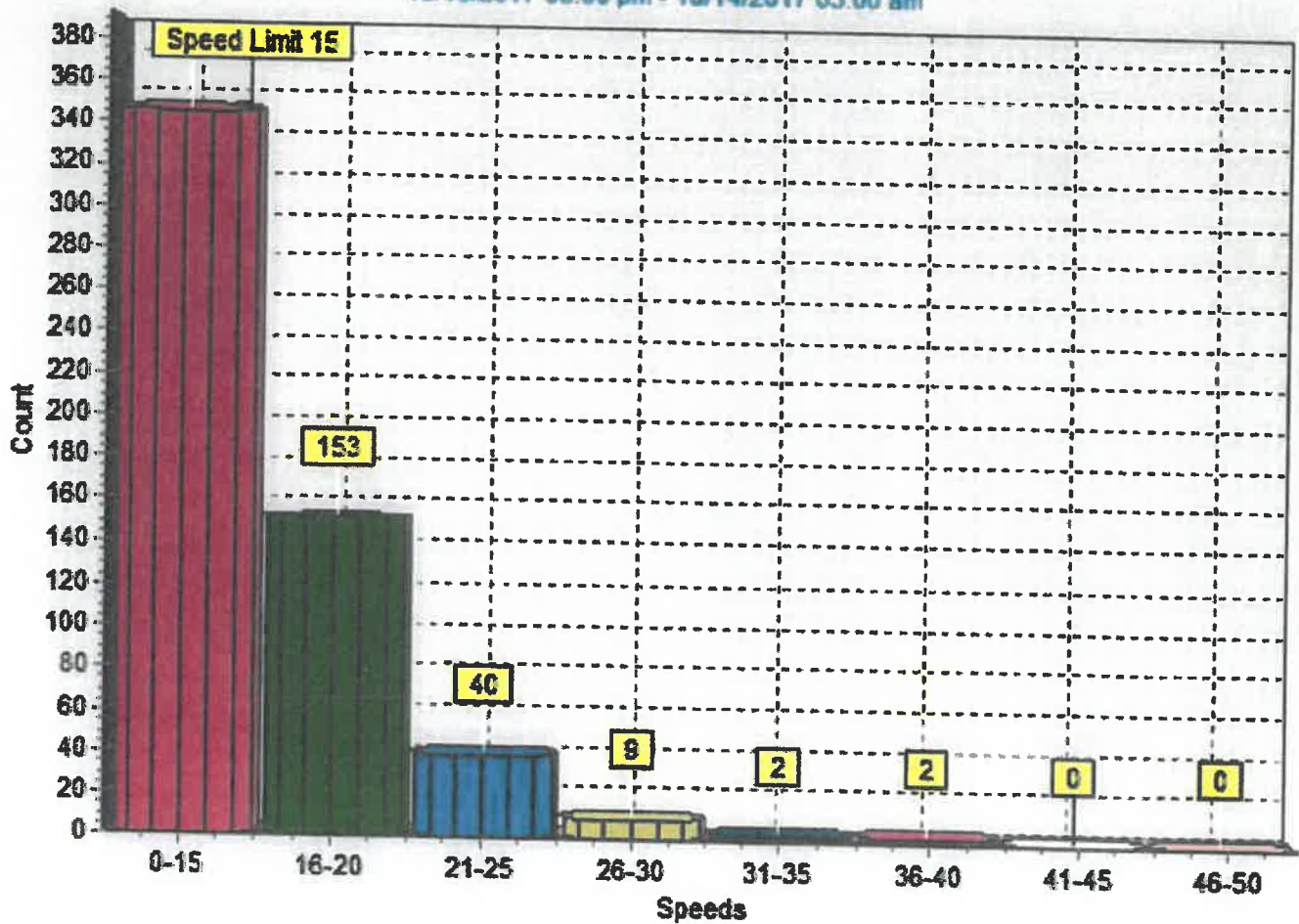
Number Above Speed Limit: 206

Total Number of Vehicles: 555

Comments:

Oakdale St / 8th Ave

Count vs. Speed
10/10/2017 08:00 pm - 10/14/2017 03:00 am



Date: 10/14/2017 11:51:00 am

Start Date: 10/10/2017 08:00 pm

End Date: 10/14/2017 03:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 38 mph

50th Percentile: 14 mph

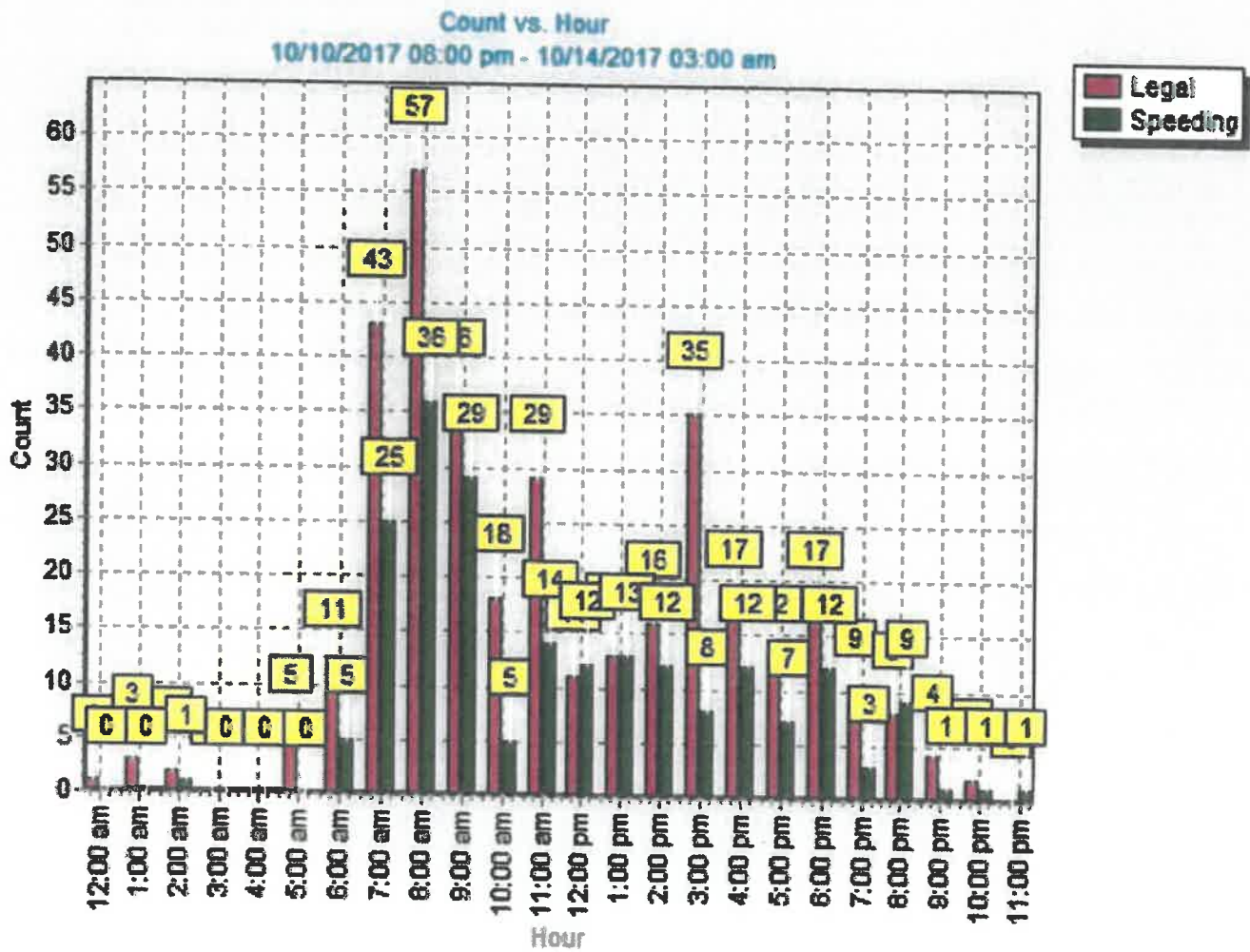
85th Percentile: 19 mph

Number Above Speed Limit: 206

Total Number of Vehicles: 555

Comments:

Oakdale St / 8th Ave



Date: 7/3/2018 11:30:45 am

Start Date: 4/4/2018 04:00 pm

End Date: 4/10/2018 06:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 16 mph

Highest Speed: 40 mph

50th Percentile: 16 mph

85th Percentile: 20 mph

Number Above Speed Limit: 434

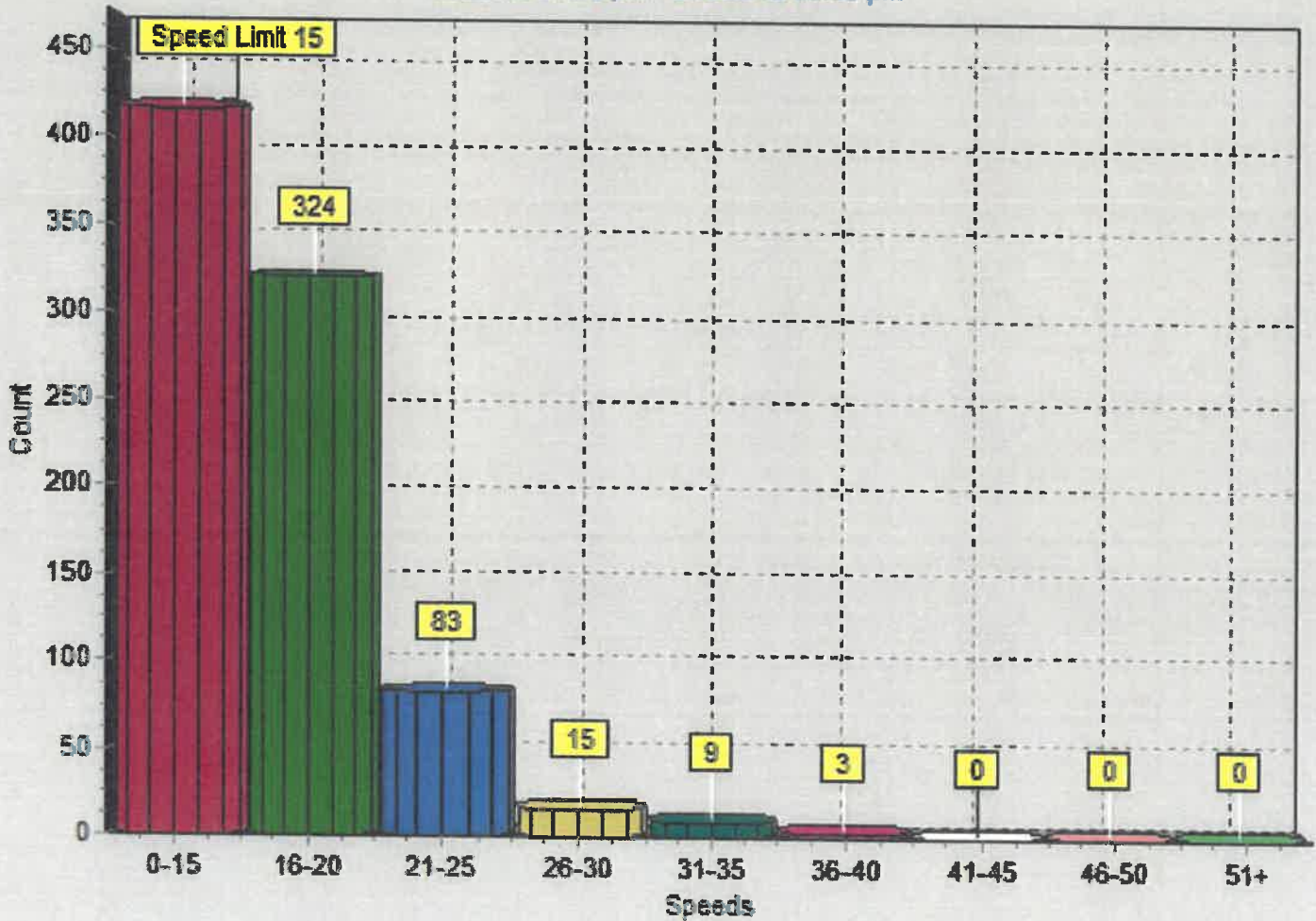
Total Number of Vehicles: 855

Comments:

Oakdale Street / 8th Ave (n/b)

Count vs. Speed

4/4/2018 04:00 pm - 4/10/2018 06:00 pm



Date: 4/6/2017 11:47:54 am

Start Date: 3/1/2017 05:00 pm

End Date: 3/5/2017 06:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 15 mph

Highest Speed: 34 mph

50th Percentile: 15 mph

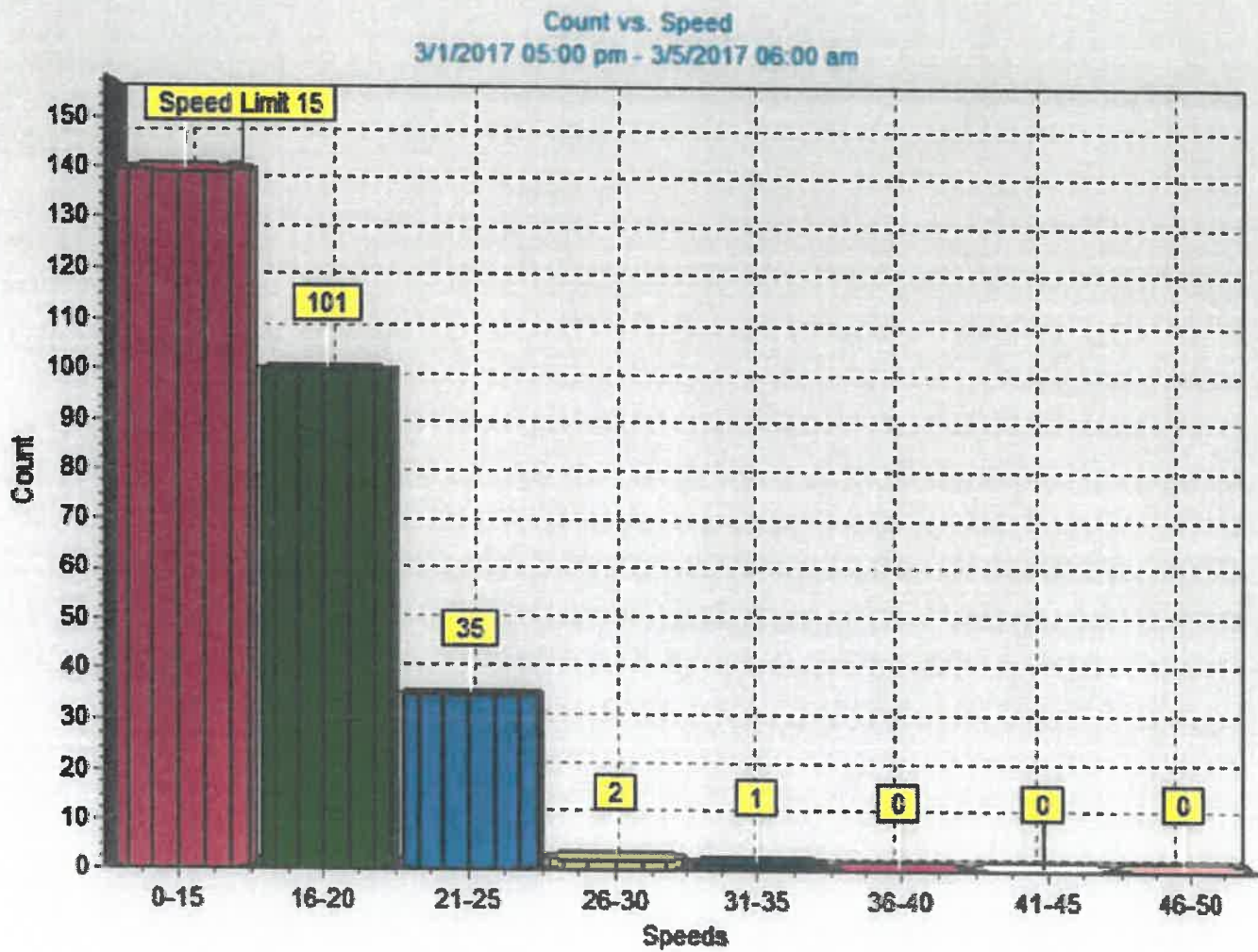
85th Percentile: 20 mph

Number Above Speed Limit: 139

Total Number of Vehicles: 280

Comments:

Ridgewood Ave / Lee St (W/B)



Date: 7/3/2018 11:32:10 am

Start Date: 10/30/2017 01:00 pm

End Date: 11/3/2017 11:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 13 mph

Highest Speed: 36 mph

50th Percentile: 13 mph

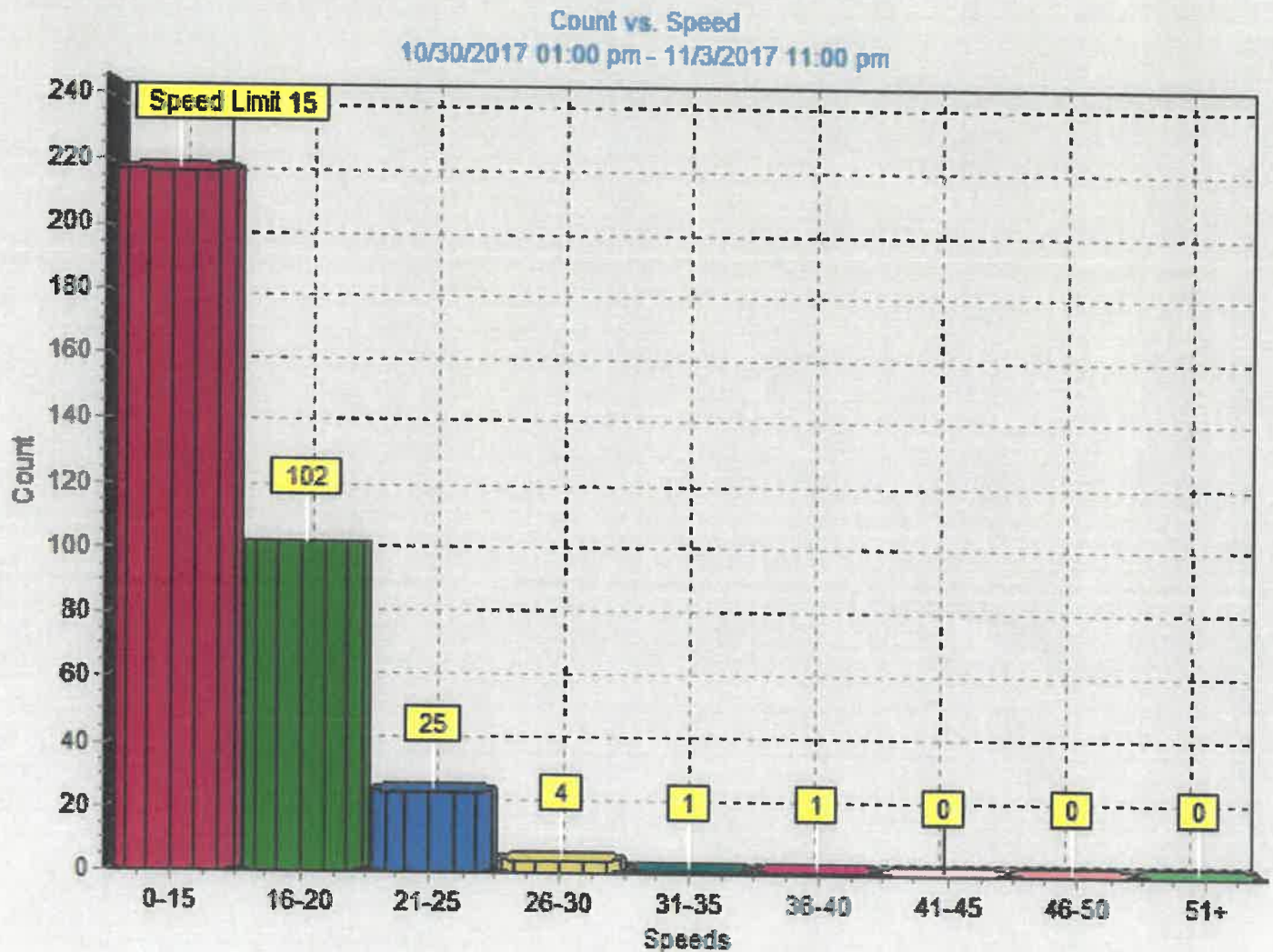
85th Percentile: 20 mph

Number Above Speed Limit: 133

Total Number of Vehicles: 352

Comments:

Ridgewood Ave / Lee St (W/B)



Date: 4/6/2017 12:41:19 pm

Start Date: 3/16/2015 01:00 pm

End Date: 3/24/2015 11:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 44 mph

50th Percentile: 13 mph

85th Percentile: 19 mph

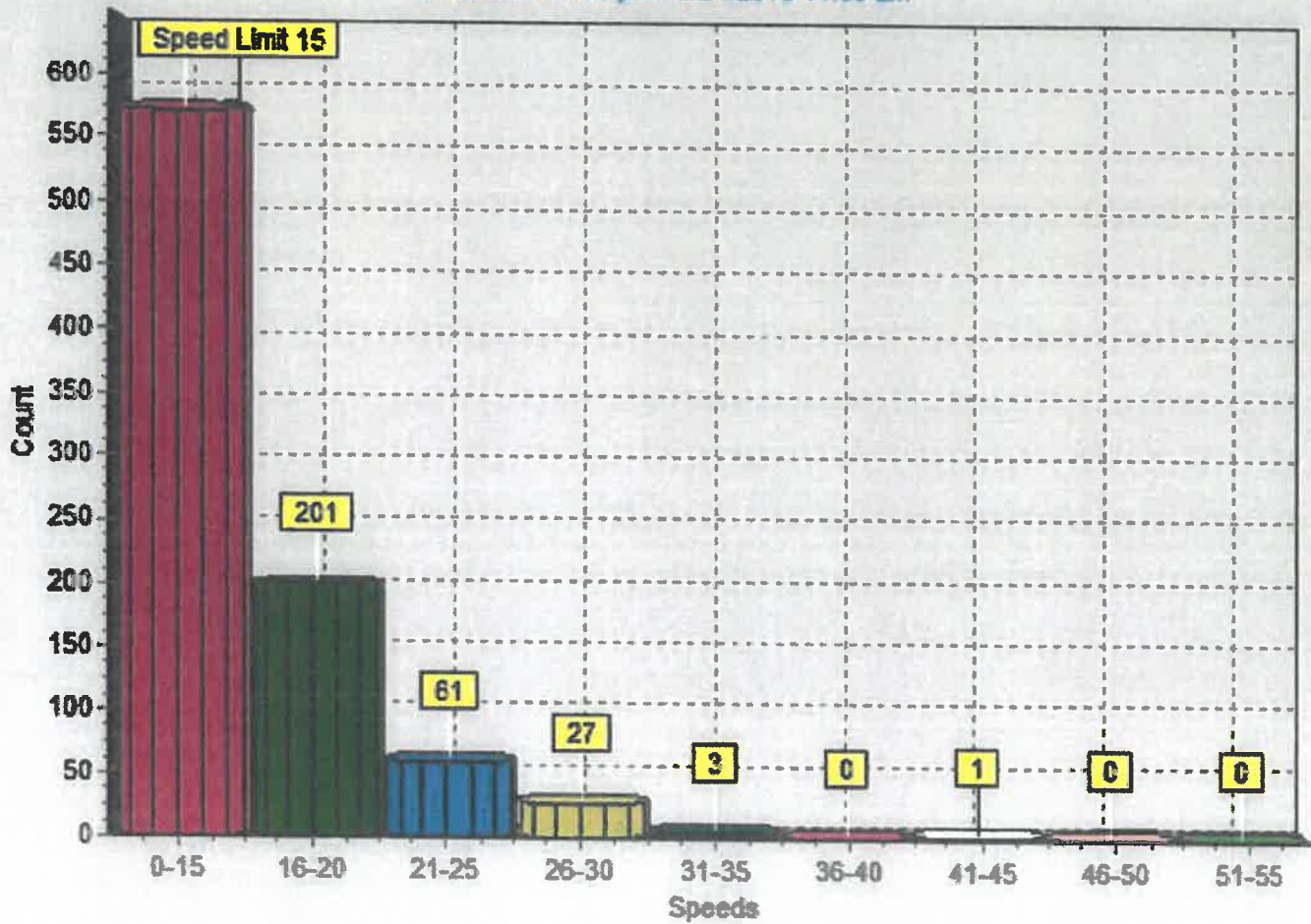
Number Above Speed Limit: 293

Total Number of Vehicles: 871

Comments:

Magnolia St / 3rd Ave

Count vs. Speed
3/16/2015 01:00 pm - 3/24/2015 11:00 am



Date: 4/6/2017 12:26:57 pm

Start Date: 11/16/2016 04:00 pm

End Date: 11/20/2016 07:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 11 mph

Highest Speed: 37 mph

50th Percentile: 10 mph

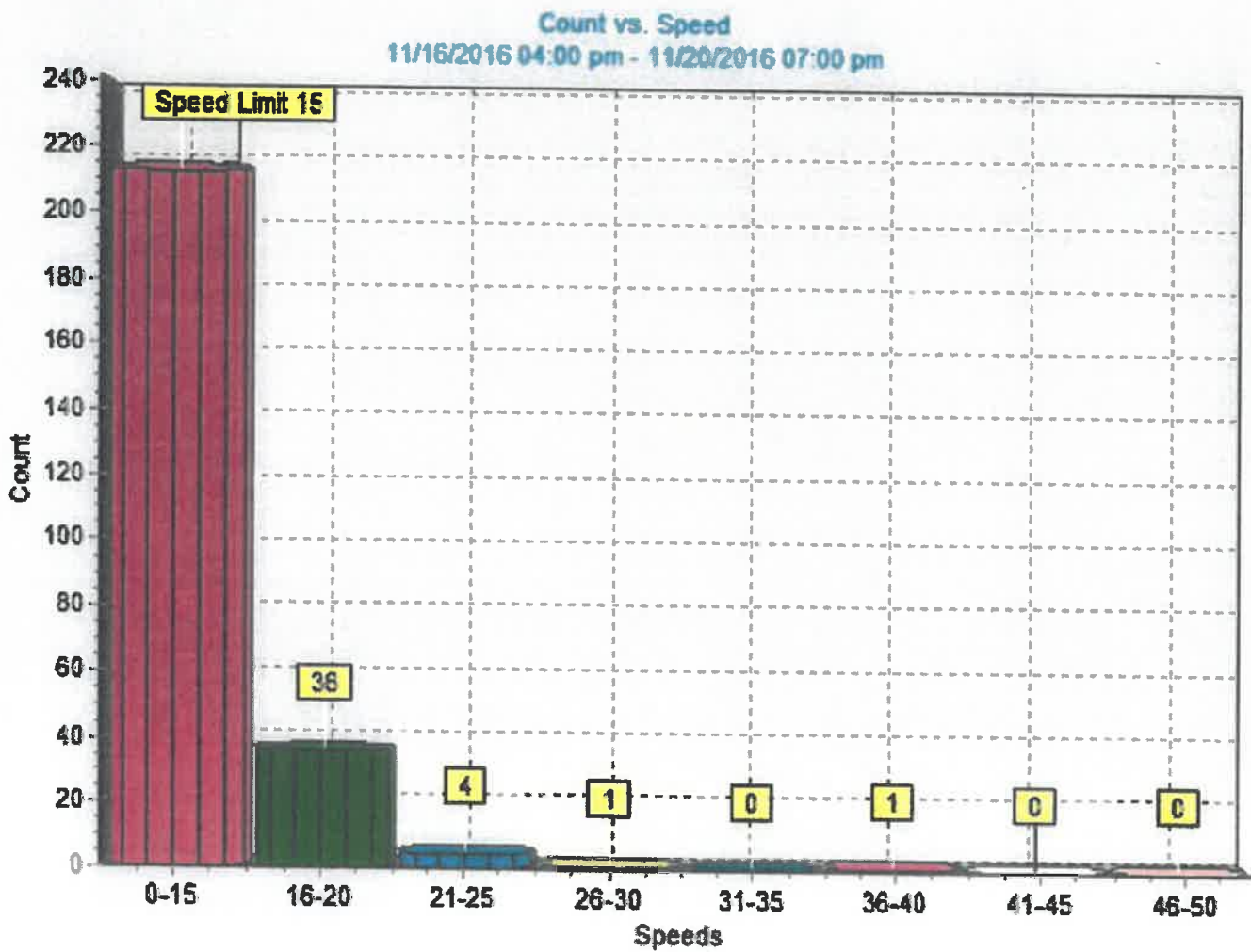
85th Percentile: 16 mph

Number Above Speed Limit: 42

Total Number of Vehicles: 257

Comments:

Forest St / 3rd Ave (N/B)



Date: 4/6/2017 12:26:57 pm

Start Date: 11/16/2016 04:00 pm

End Date: 11/20/2016 07:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 11 mph

Highest Speed: 37 mph

50th Percentile: 10 mph

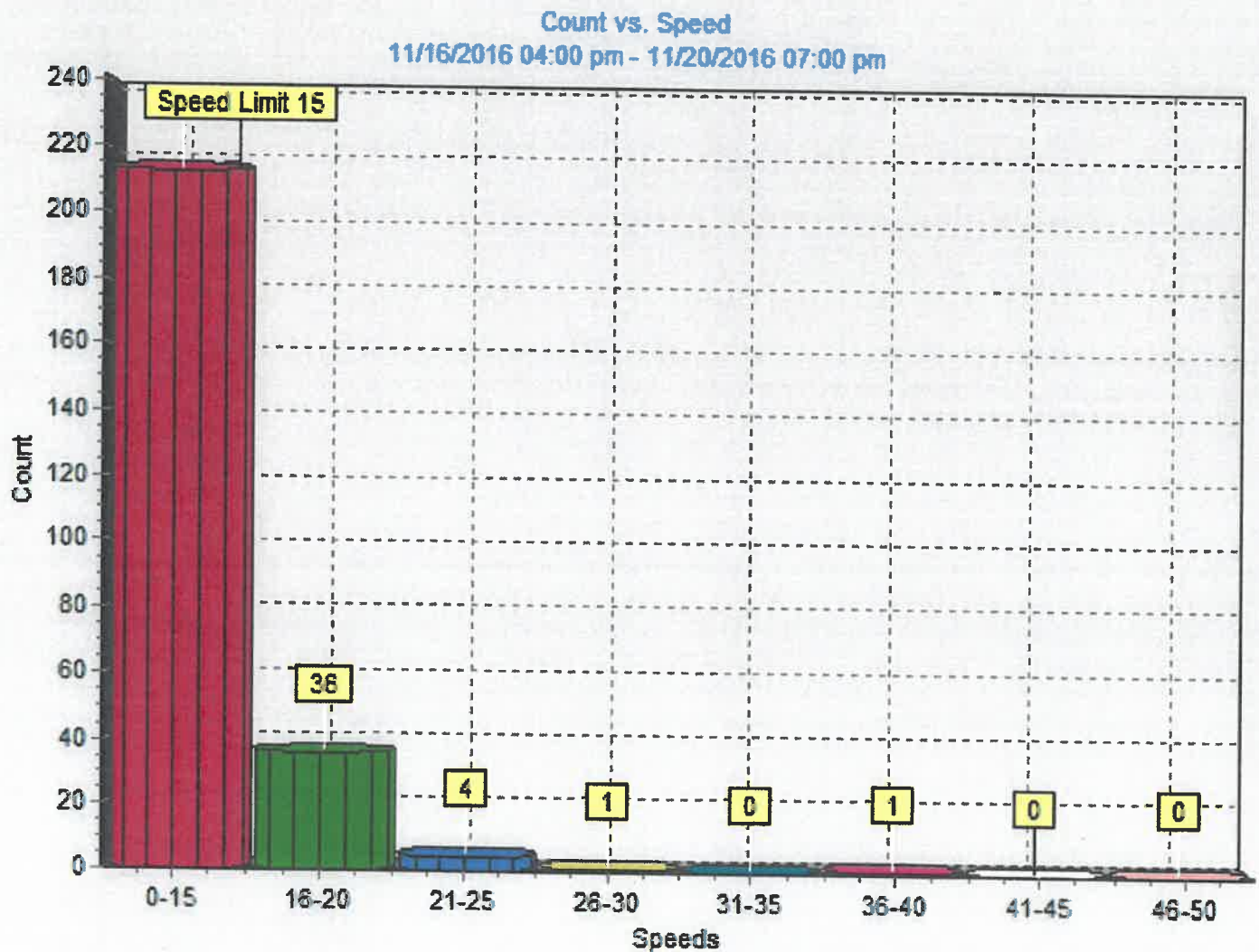
85th Percentile: 16 mph

Number Above Speed Limit: 42

Total Number of Vehicles: 257

Comments:

Forest St / 3rd Ave (N/B)



Date: 4/6/2017 12:41:19 pm

Start Date: 3/16/2015 01:00 pm

End Date: 3/24/2015 11:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 44 mph

50th Percentile: 13 mph

85th Percentile: 19 mph

Number Above Speed Limit: 293

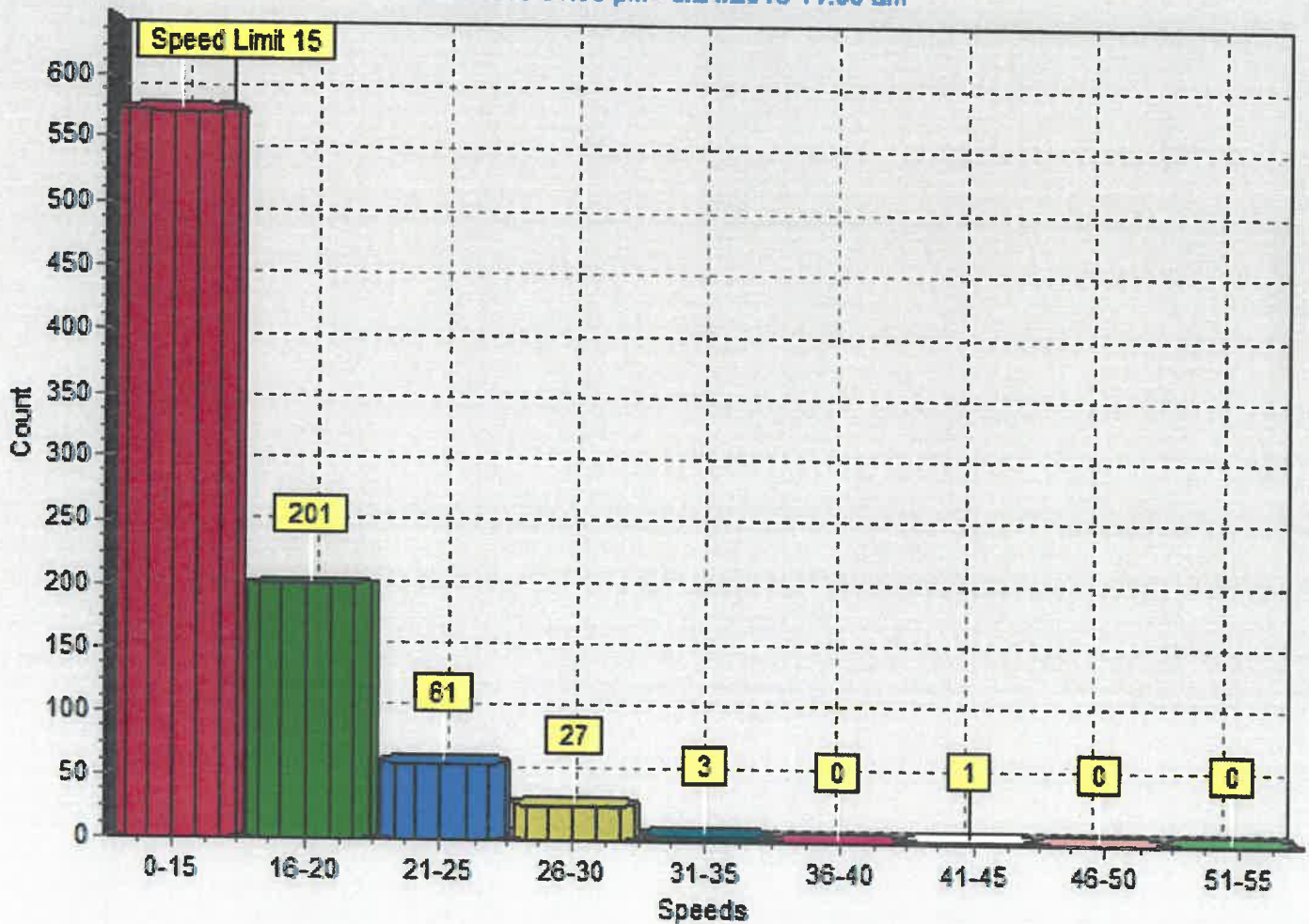
Total Number of Vehicles: 871

Comments:

Magnolia St / 3rd Ave

Count vs. Speed

3/16/2015 01:00 pm - 3/24/2015 11:00 am



Date: 10/14/2017 11:51:00 am

Start Date: 10/10/2017 08:00 pm

End Date: 10/14/2017 03:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 38 mph

50th Percentile: 14 mph

85th Percentile: 19 mph

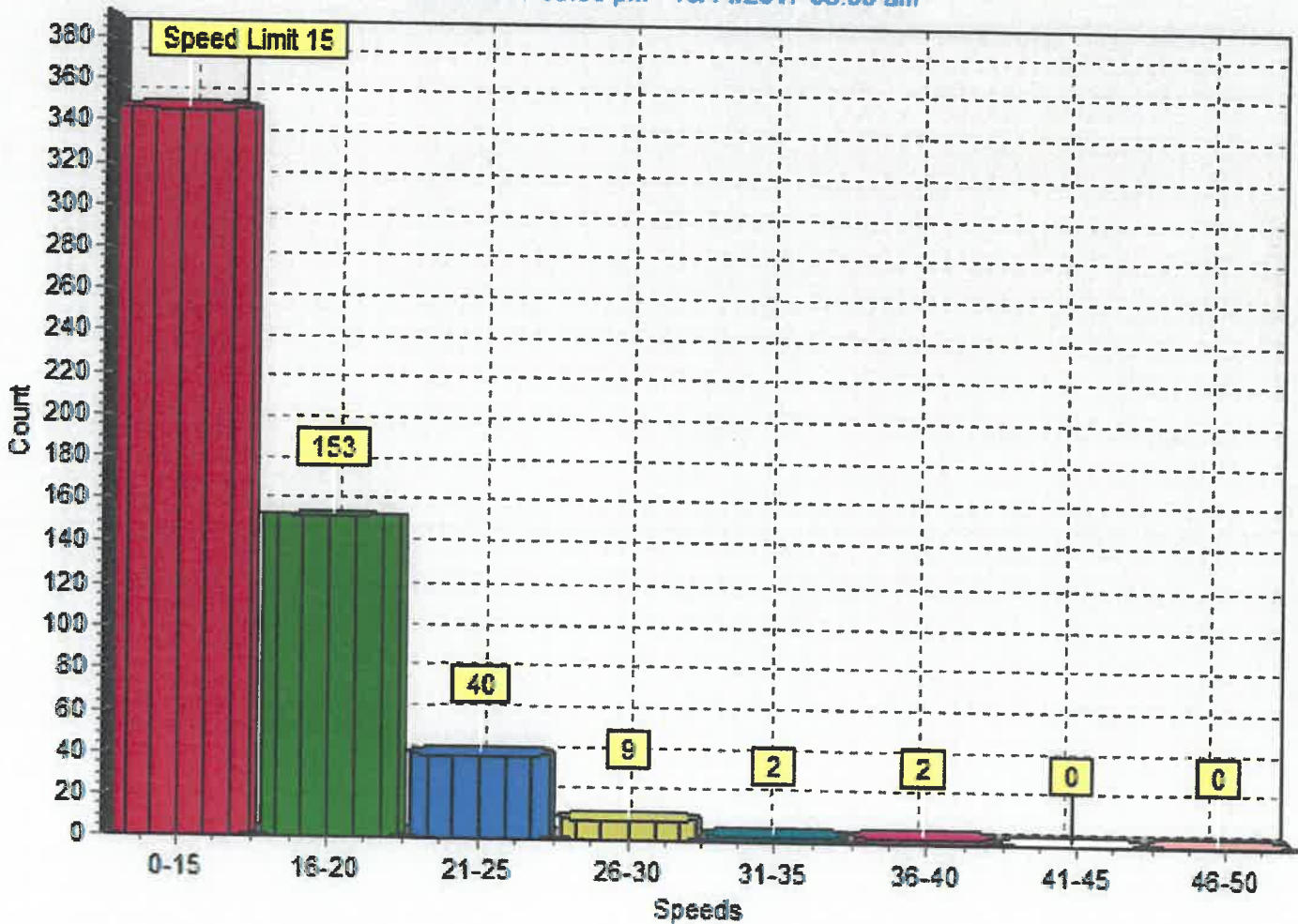
Number Above Speed Limit: 206

Total Number of Vehicles: 555

Comments:

Oakdale St / 8th Ave

Count vs. Speed
10/10/2017 08:00 pm - 10/14/2017 03:00 am



Date: 10/14/2017 11:51:00 am

Start Date: 10/10/2017 08:00 pm

End Date: 10/14/2017 03:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 38 mph

50th Percentile: 14 mph

85th Percentile: 19 mph

Number Above Speed Limit: 206

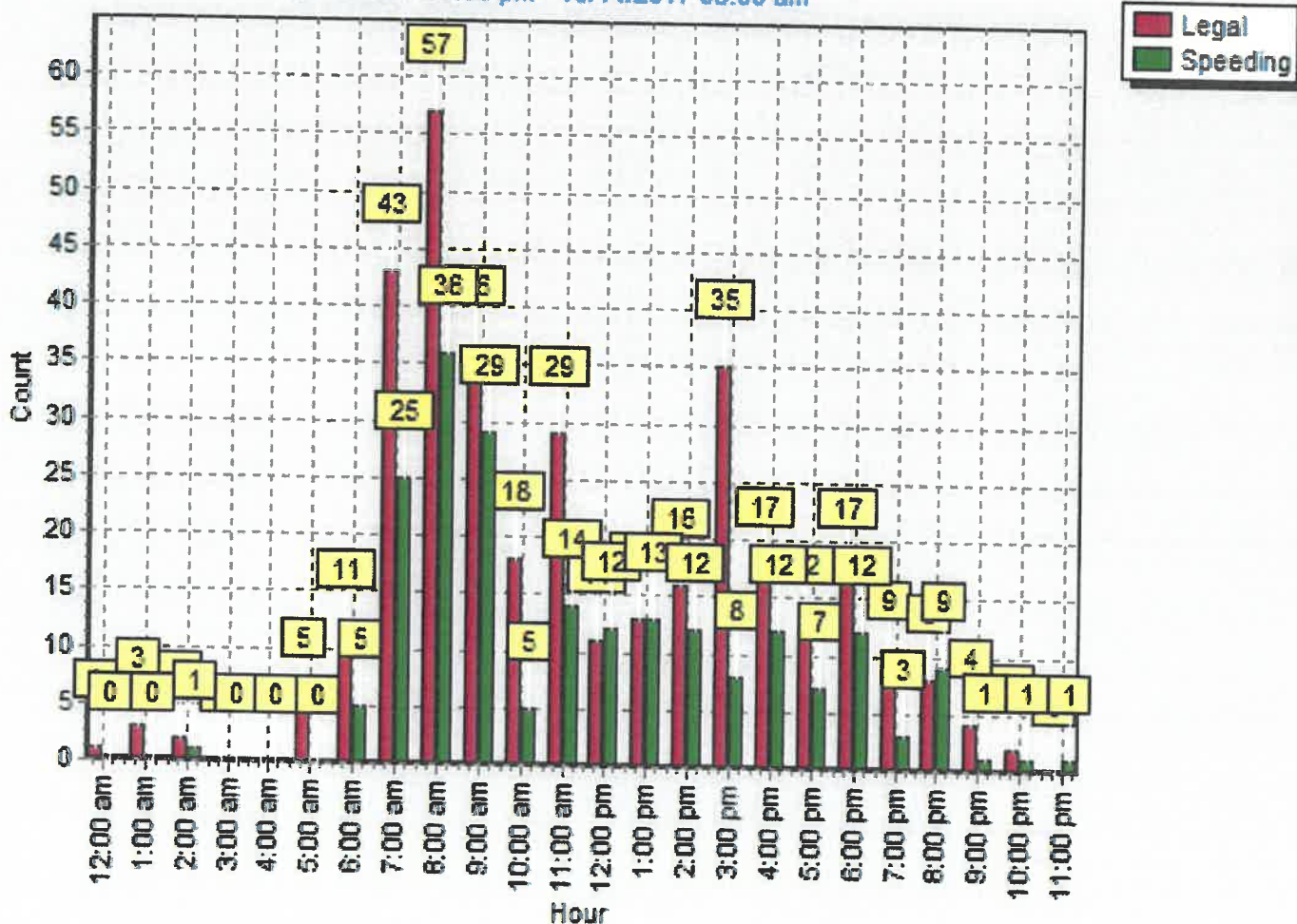
Total Number of Vehicles: 555

Comments:

Oakdale St / 8th Ave

Count vs. Hour

10/10/2017 08:00 pm - 10/14/2017 03:00 am



Date: 4/6/2017 12:30:23 pm

Start Date: 5/3/2016 01:00 pm

End Date: 5/9/2016 12:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 13 mph

Highest Speed: 37 mph

50th Percentile: 13 mph

85th Percentile: 18 mph

Number Above Speed Limit: 106

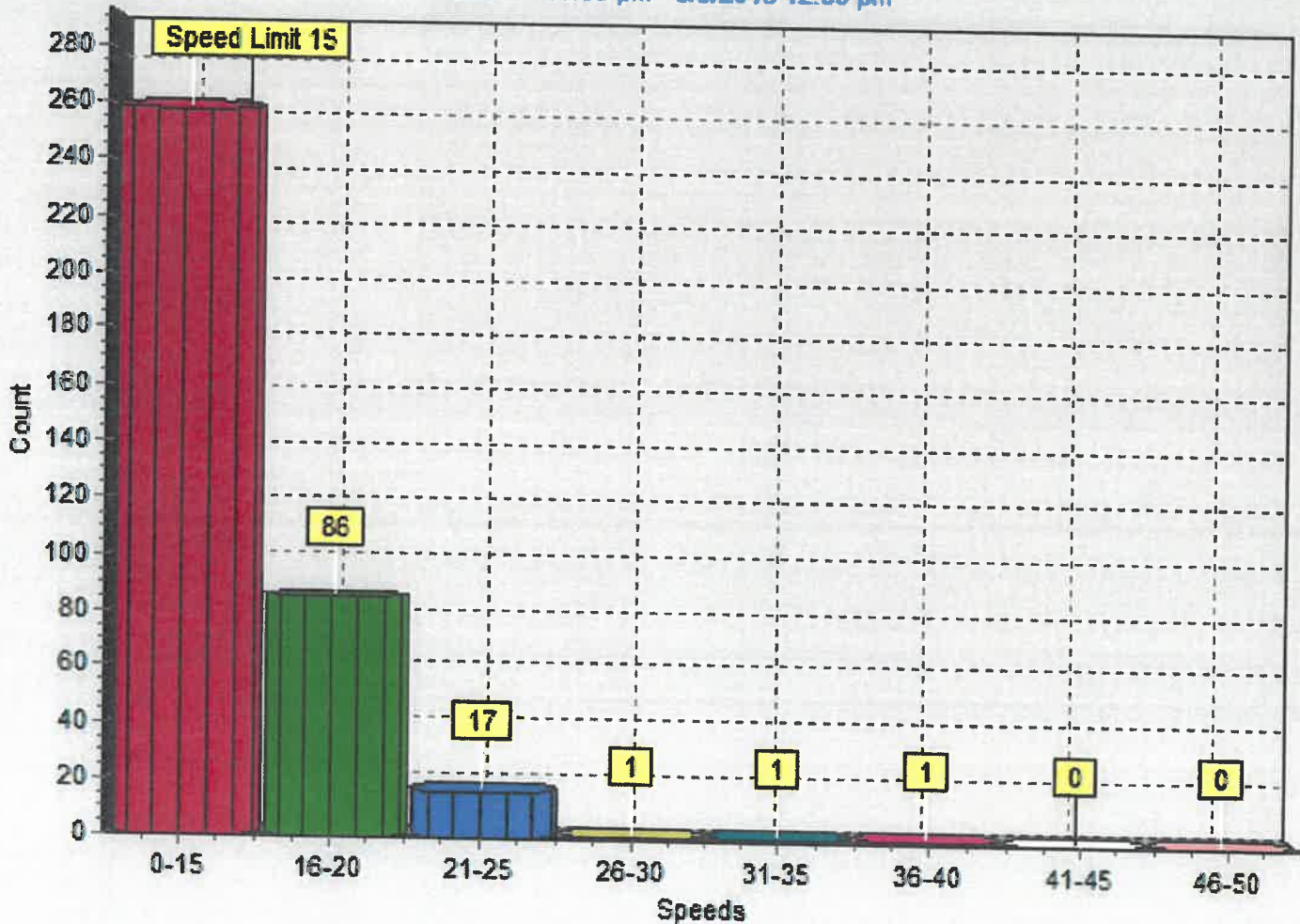
Total Number of Vehicles: 367

Comments:

Oakdale Street / 10th Ave (S/B)

Count vs. Speed

5/3/2016 01:00 pm - 5/9/2016 12:00 pm



Date: 4/6/2017 12:28:47 pm

Start Date: 5/23/2016 03:00 pm

End Date: 5/28/2016 07:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 14 mph

Highest Speed: 45 mph

50th Percentile: 14 mph

85th Percentile: 19 mph

Number Above Speed Limit: 389

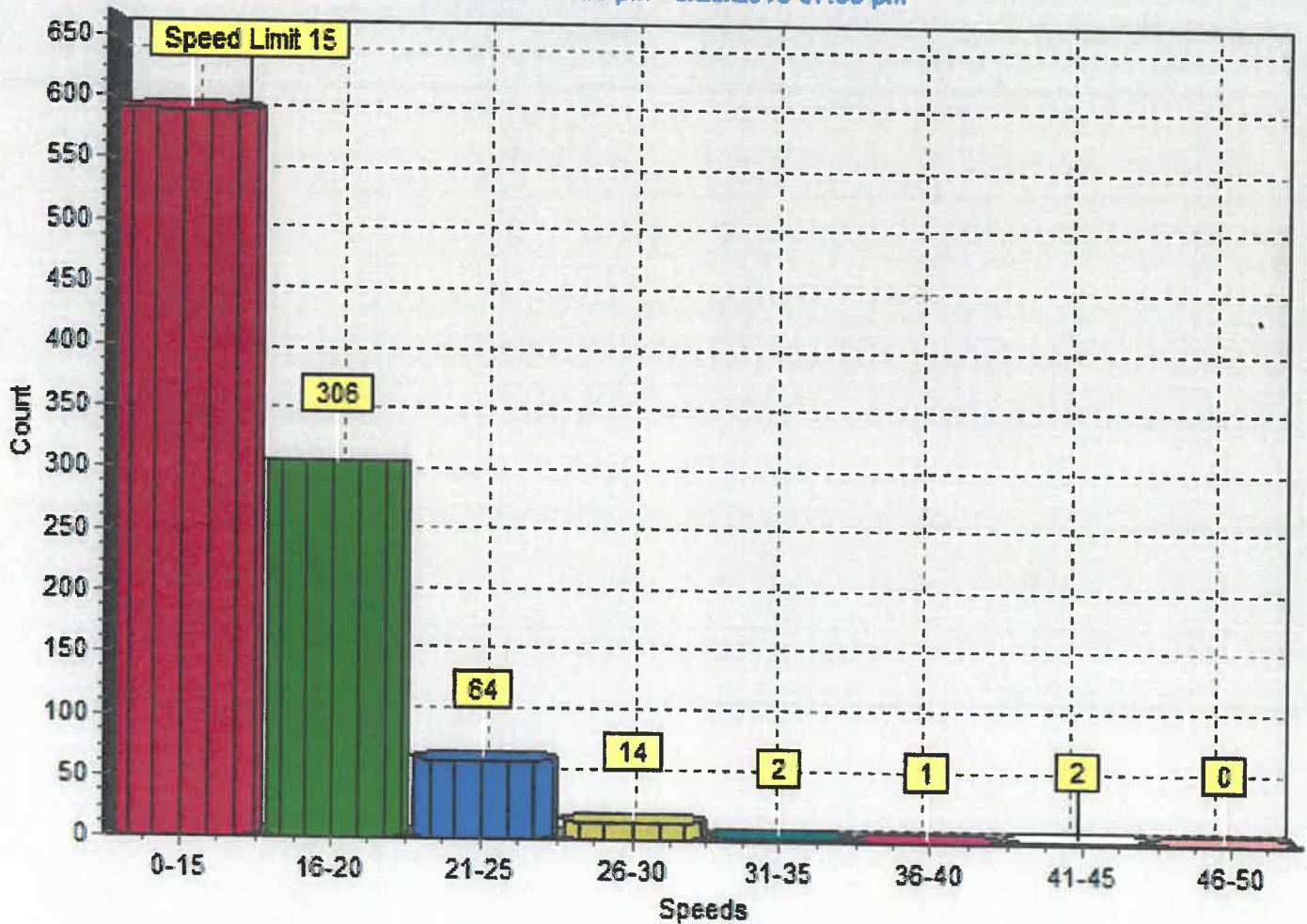
Total Number of Vehicles: 985

Comments:

Oakdale St / 8th Ave (N/B)

Count vs. Speed

5/23/2016 03:00 pm - 5/28/2016 07:00 pm



Date: 4/6/2017 11:47:54 am

Start Date: 3/1/2017 05:00 pm

End Date: 3/5/2017 06:00 am

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 15 mph

Highest Speed: 34 mph

50th Percentile: 15 mph

85th Percentile: 20 mph

Number Above Speed Limit: 139

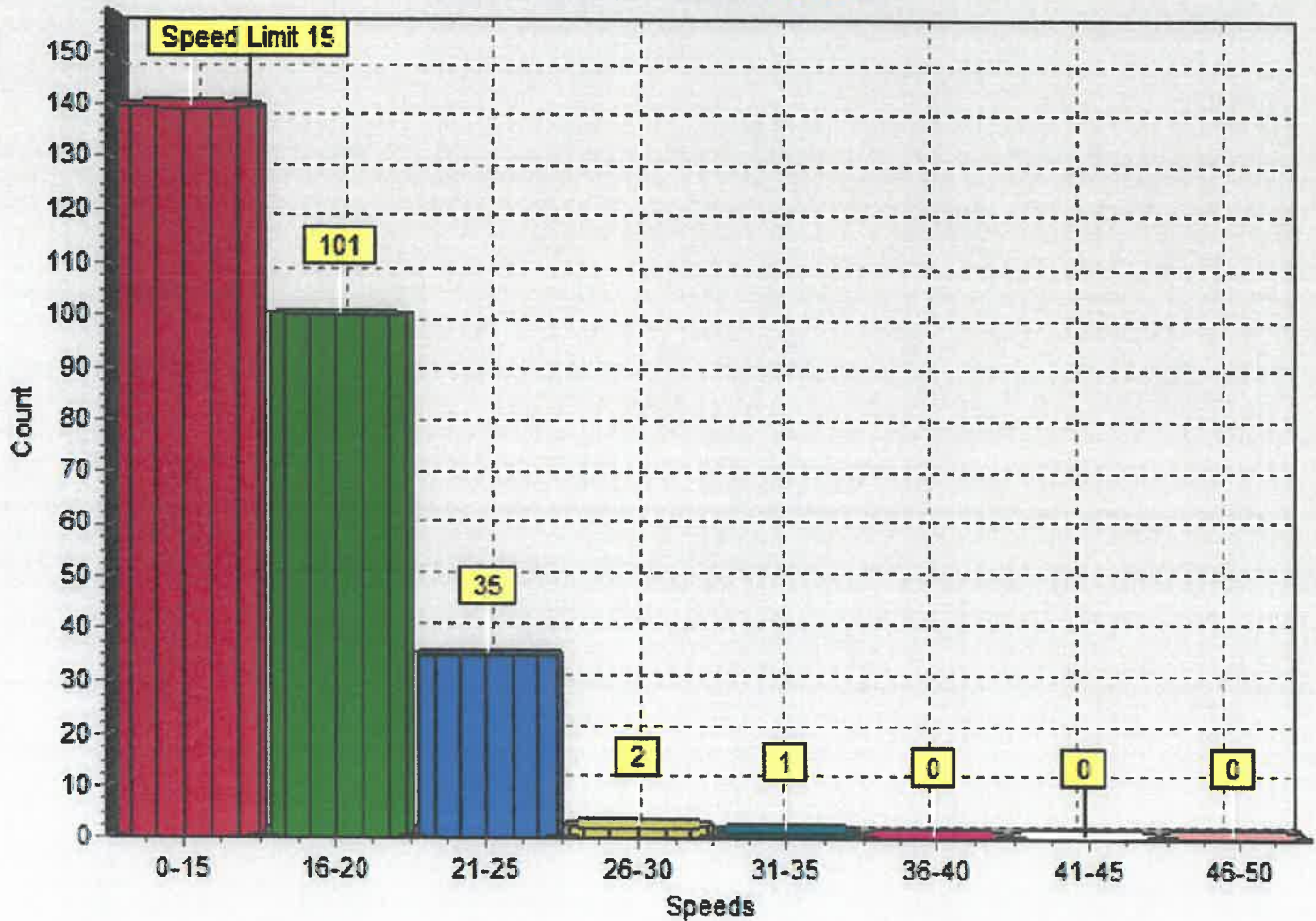
Total Number of Vehicles: 280

Comments:

Ridgewood Ave / Lee St (W/B)

Count vs. Speed

3/1/2017 05:00 pm - 3/5/2017 06:00 am



Date: 1/24/2018 03:05:23 pm

Start Date: 10/30/2017 01:00 pm

End Date: 11/3/2017 11:00 pm

Time Interval: 60 minutes

Speed Interval: 5 mph

Posted Speed Limit: 15 mph

Average Speed: 13 mph

Highest Speed: 36 mph

50th Percentile: 13 mph

85th Percentile: 20 mph

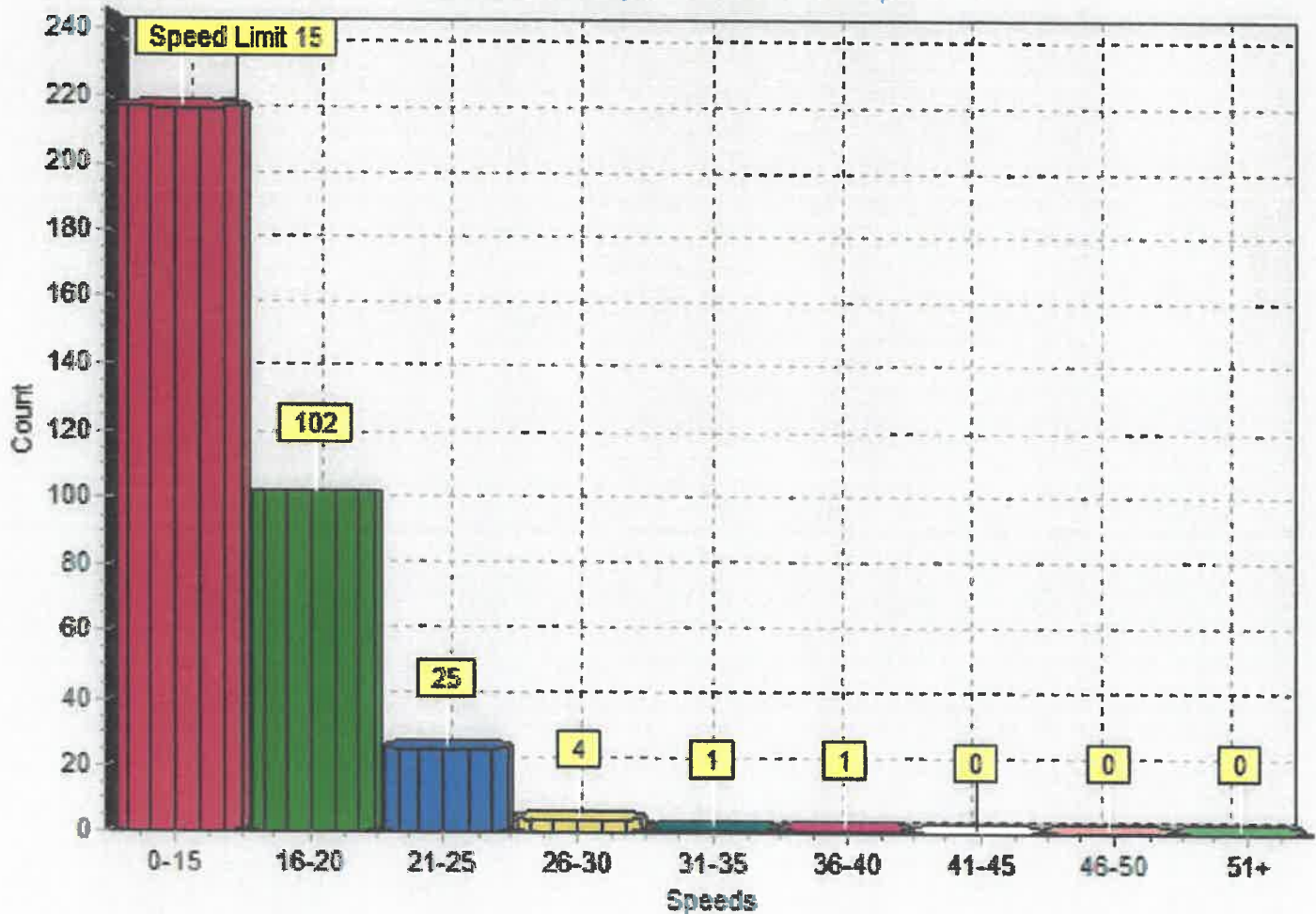
Number Above Speed Limit: 133

Total Number of Vehicles: 352

Comments:

Ridgewood Dr East/West Bound

Count vs. Speed
10/30/2017 01:00 pm - 11/3/2017 11:00 pm



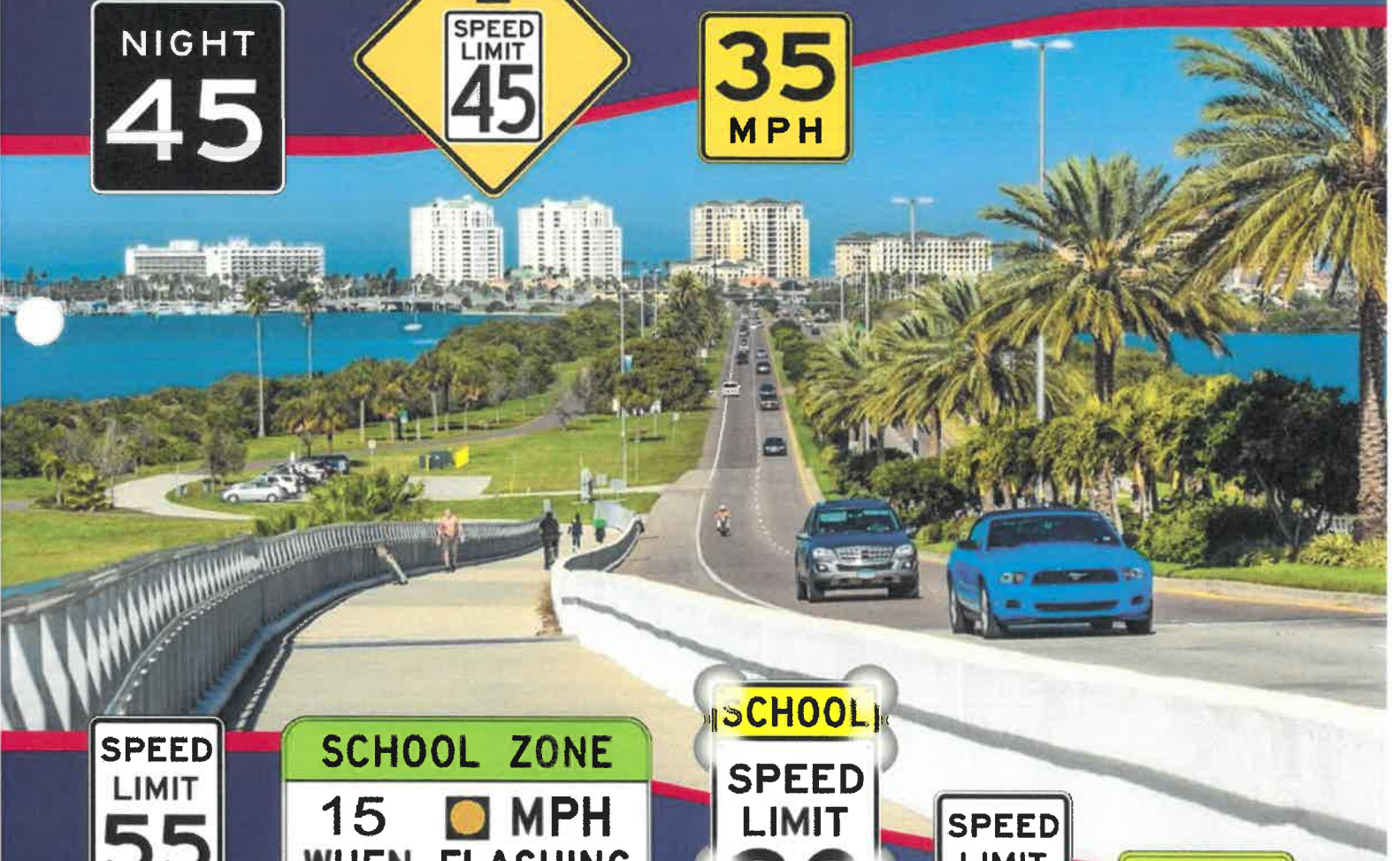
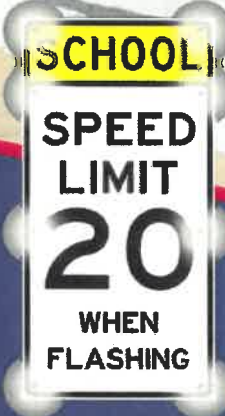
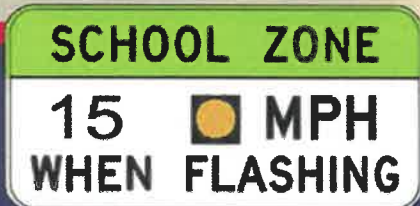
APPENDIX B

Speed Zoning Manual Excerpt



SPEED ZONING

For Highways, Roads and Streets In Florida



State Traffic Operations web page:

<http://www.fdot.gov/traffic/FAQs/SpeedLimitFAQ.shtm>

9.3 POSTED SPEED

- (1) According to [Section 2B.13 of the MUTCD](#), “Speed zones (other than statutory speed limits) shall only be established on the basis of an engineering study that has been performed in accordance with traffic engineering practices. The Speed Limit (R2-1) sign shall display the limit established by law, ordinance, regulation, or as adopted by the authorized agency. The speed limits shown shall be in multiples of 5 mph.”
- (2) Any alteration and posting of speed limits on municipal or county streets and roads, as set forth in [Section 316.189 F.S.](#), must be based upon an engineering and traffic investigation as promulgated herein by the FDOT. Altered speed limits established solely on the basis of individual or group opinions are contrary to the intent of the statute.
- (3) The posted speed limit shall be rounded to the nearest multiple of 5 mph of the observed 85th percentile speed or upper limit of the 10 mph pace, whichever is less. The 10 mph pace is the 10 mph band of travel speeds containing the largest number of observed vehicles. An observed 85th percentile speed that exceeds the 10 mph pace could result from a small percentage of vehicles exceeding the posted speed limit to a greater degree than the average driver traveling within the 10 mph pace.
- (4) With rounding, the posted speed limit should not differ from the 85th percentile speed or upper limit of the 10 mph pace (whichever is less) by more than 3 mph. Speed limits of more than 8 mph below the 85th percentile speed are not authorized. A speed limit of 4 to 8 mph less than the 85th percentile speed shall be authorized if supported by a supplemental investigation, which identifies the following:
 - (a) There are road or roadside features not readily obvious to the normally prudent driver, such as length of section, alignment, roadway width, surface condition, sight distance, traffic volume, crash experience, maximum comfortable speed in curves, side friction (roadside development), signal progression, etc.;
 - (b) Other standard signs and markings have been tried but found ineffective;
or

- (c) To support a context classification target speed as defined in **Section 9.4** of this *Manual*.
- (5) The existing speed limit within a speed zone will not be changed if the 85th percentile speed or upper limit of the 10 mph pace is within +/- 3 mph of the posted speed limit, unless a supplemental investigation identifies the need for a change.
- (6) The posted speed should not exceed the design speed for the selected facility (if known) and shall not exceed the maximum speed as allowed by Florida Statutes, except as allowed by **Section 9.2(3)** of this *Manual*.

Example:

- (7) An observed 85th percentile speed equal to 42 mph would result in a 40 or 45 mph posted speed limit unless supplemental investigation conditions are met. The 40 or 45 mph limit then could be lowered 5 mph, thus producing a 35 or 40 mph posted speed limit (minimum potential speed limit). The maximum potential posted speed limit would be 45 mph unless the upper limit of the **10 mph pace** is less than 42 mph or the design speed is known to be less than 45 mph.
- (8) Extreme care must be taken to assure that the condition upon which the 5 mph reduction is based on is not one that a driver may have taken into account either consciously or subconsciously. Otherwise, it will be given double weight and result in an unrealistically low speed limit.

9.4 TARGET SPEED

- (1) Target speed is the highest speed at which vehicles should operate on a thoroughfare in a specific context, consistent with the level of multi-modal activity generated by adjacent land uses, to provide both mobility for motor vehicles and a safe environment for pedestrians, bicyclists, and public transit users.¹
- (2) The target speed is influenced by elements of roadway design that are governed by design speed, as well as the form and function of the adjacent uses beyond the right-of-way. When determining the speed limit based on this Chapter, consideration should be given to the land use context classification and allowable speed range as provided in [*Table 201.4.1 of the FDOT Design Manual*](#).

¹https://www.fhwa.dot.gov/planning/css/design/controls/factsheet3_lite.cfm